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VerticalLine
V 160C
V 160G

CNC vertical turning machines


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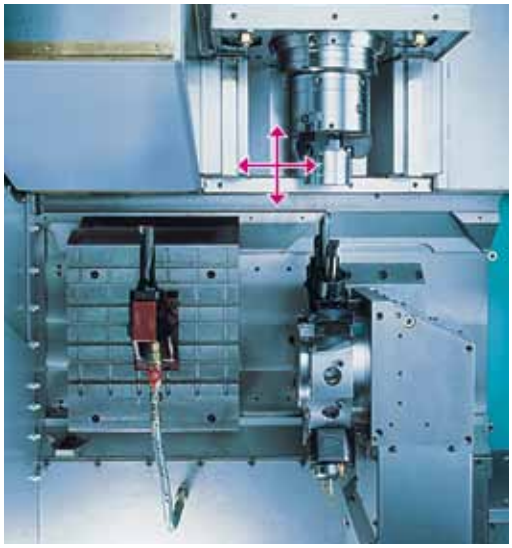
V-160
SINUMERIK
INDEX C 200-4D

Compact, fast, universal

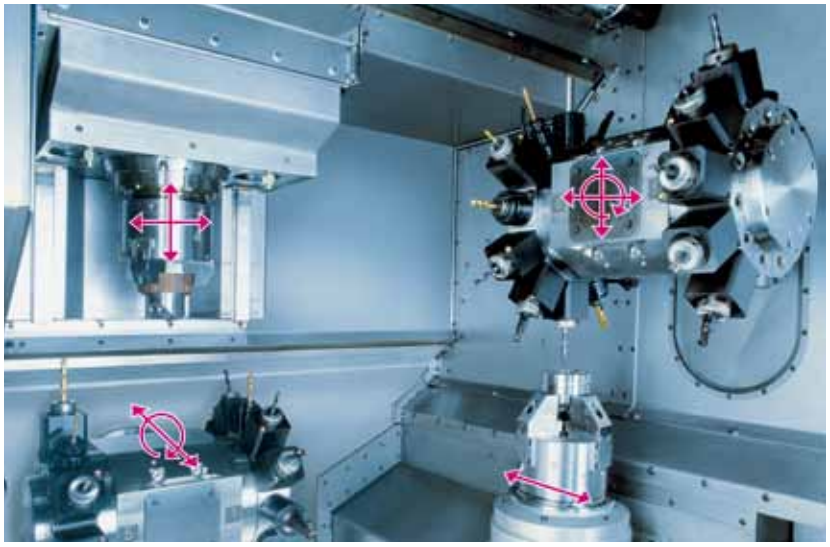
Increase productivity with the compact vertical drilling machines: INDEX VerticalLine V160C, and V160G. With its vertical work spindle, this machine series combines handling and machining functions with compact dimensions and an easily accessible machining area.

Strength with system
The highly-efficient and practice-oriented modular system makes it possible to assemble, without compromise, almost any machine configuration, ensuring an economic and future-oriented production - for current and future applications. Whether you require a highly productive or highly flexible turn-mill center for small or large lot sizes: you configure the machine exactly tailored to your requirements. In each case, we support you in finding the correct configuration for your machine. This provides you with a customized economic solution.



Open machine front for optimal setup

For more efficiency, precision and flexibility



Main spindle 1 *		
Chuck diameter	mm	160 (200)
Speed	rpm	5.000
Power max.	kW	20

*and counter spindle with V160G

Tool stations			12-48
Drive			
Speed	max.	rpm	6.000
Power	max.	kW	8,5
Torque	max.	Nm	14

Complete machining - in a single clamping setup
Time is money. For this reason, the counter spindle of the V160G has been mounted below the tool carrier. The workpieces can now be picked up directly from the main spindle without any loss in precision and their machining completed on the rear side.

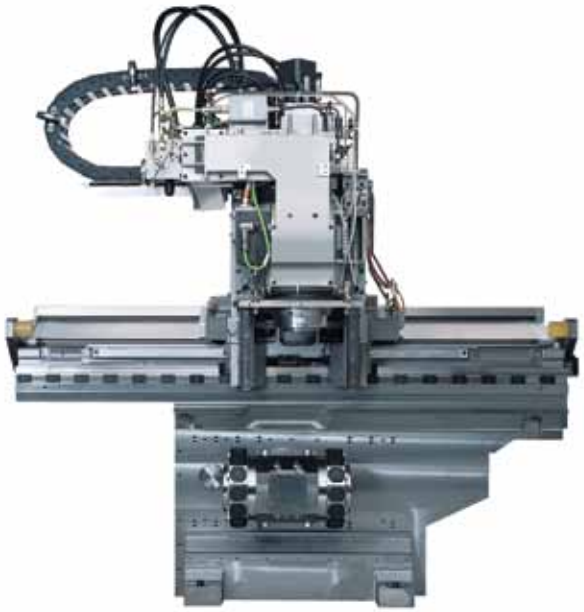
Your advantage:
You can maintain very narrow tolerances on both machining sides. No expensive and setup-intensive turnover and transport units for establishing a production line arrangement will be necessary. You can move quicker into high gear.

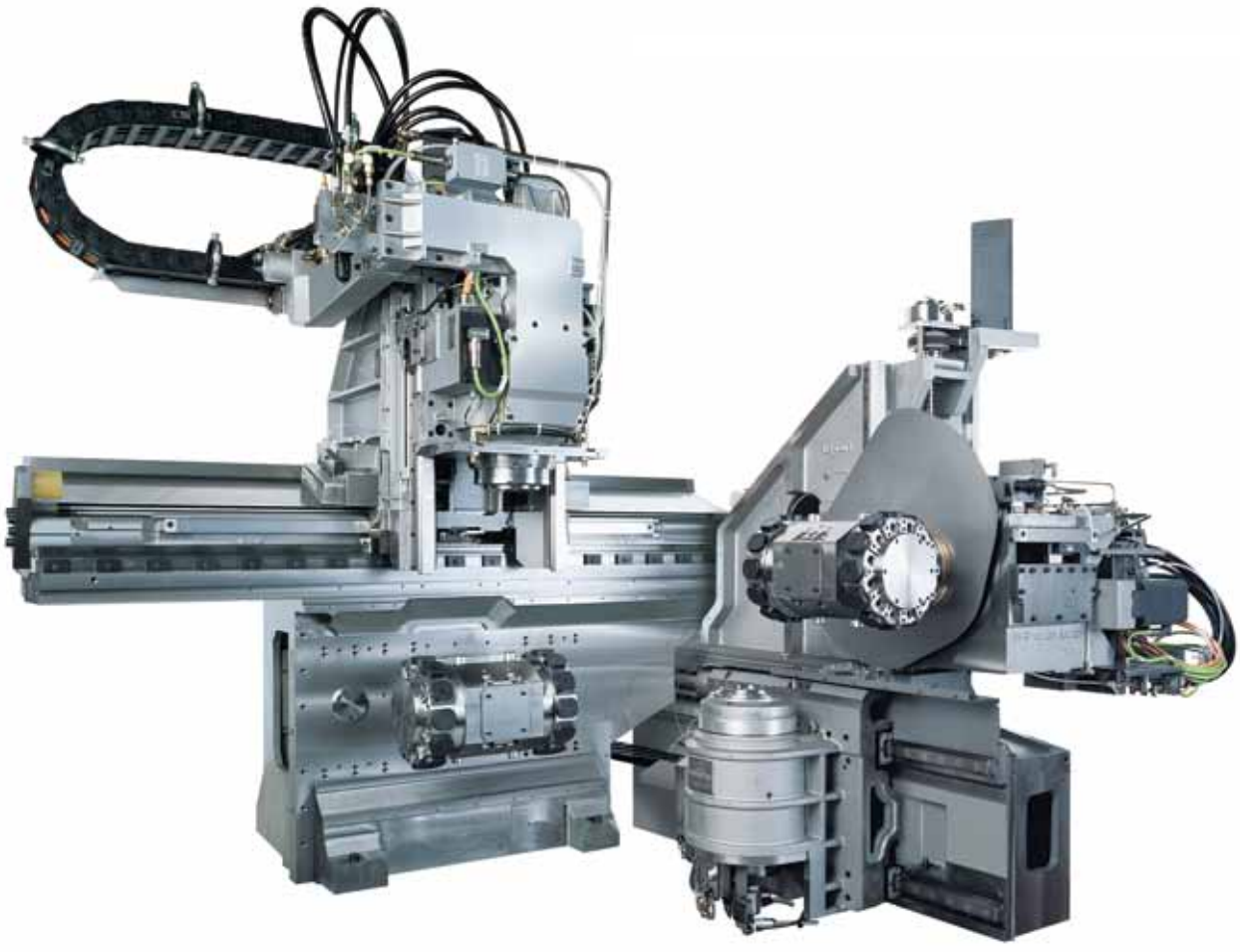
Compact construction and excellent access

The best base for your success

Strong construction:
Added value included in the machine construction

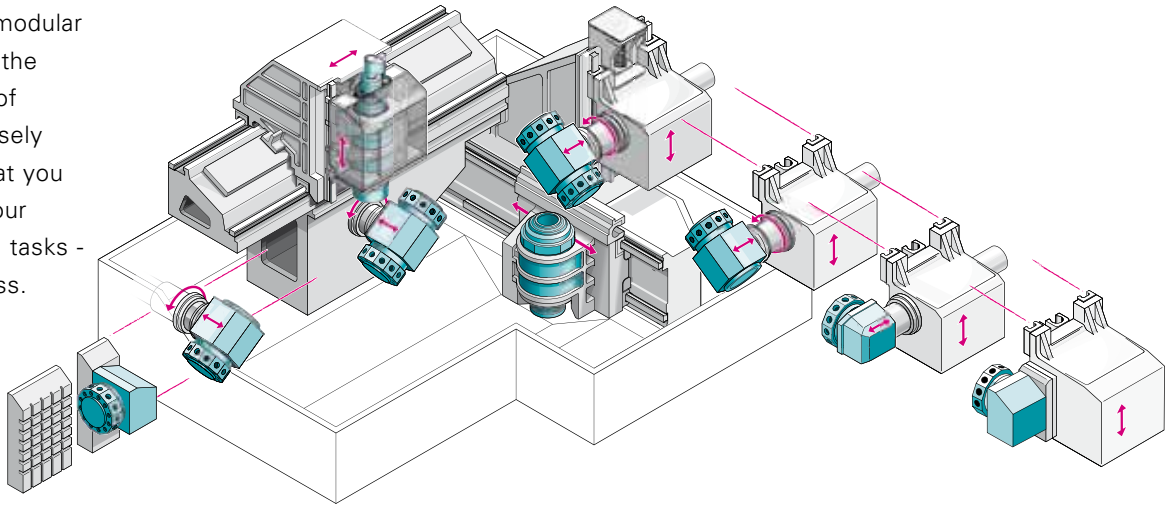
- robust machine bed made of heavily ribbed cast iron
- excellent damping properties
- high-quality linear antifriction guideways guarantee highest precision in combination with a long service life
- wear-resistant linear motor in the X axis: provides for the shortest non-productive times during loading and unloading
- thermo-symmetric head stock with its controlled heat transfer for superior turning precision
- highly rigid, sturdy main spindle with an extremely large diameter in the front bearing
- high maximum speeds and torques ensuring optimum and economical machining

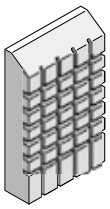




Your customized solution

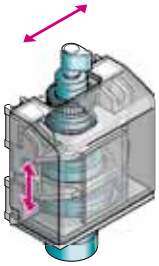
Perfectly tailored: You determine yourself which options you want. The clearly structured modular system offers you the unique advantage of incorporating precisely those functions that you need for solving your specific production tasks - no more and no less.



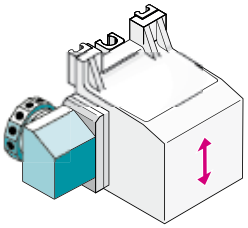


The clamping plate
- for large units, e.g. multi-spindle drill head, milling head and cutter head

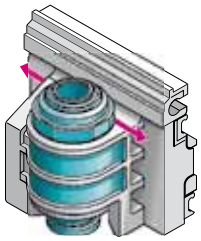
Two identically designed work spindles



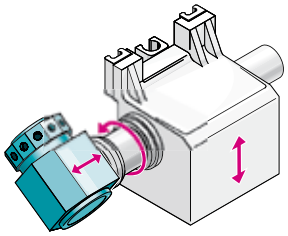
The main spindle



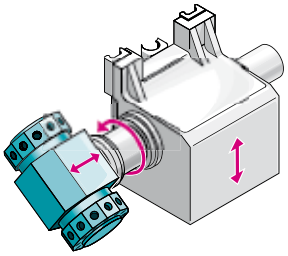
Firmly attached turret
- with 12 tool stations
- driven tools can be used in all stations



The counter spindle

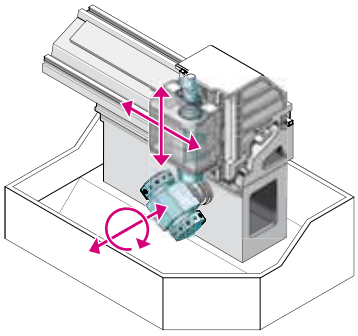


Y/B turret
- stable round quill guide
- wear-resistant and no backlash
- 120 mm Y stroke
- infinitely variable 360° B-axis



Y/B double disc-type turret
- for up to 24 tools

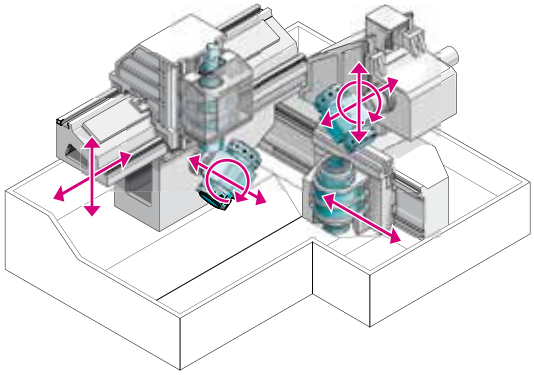
The modular system



V160C – example configuration

The basic version - compact and extremely productive with minimal space requirement. The front-open machine with its large-sized machining area is easily accessible.

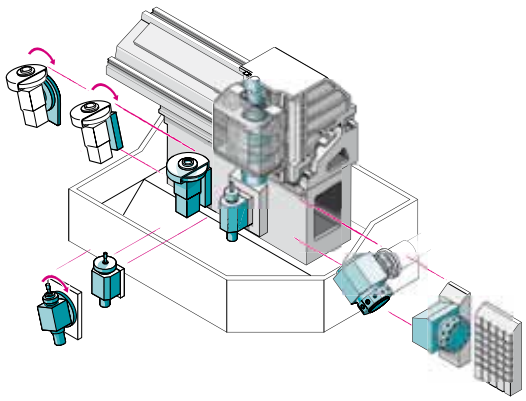
- 24 tool stations VDI25 or VDI30
- tool drive for all stations



V160G – example configuration

The corner solution: for maximum machining capabilities and simultaneous frontworking and backworking on a single machine.

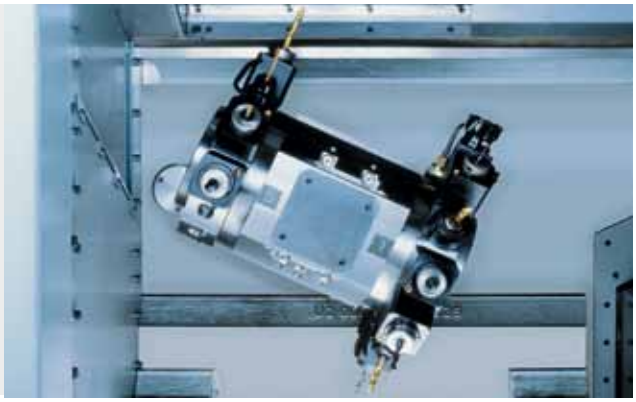
- identically designed main and counter spindles
- 48 tool stations VDI25 or VDI30
- tool drive for all stations



V160C turn-grind center

• workpiece diameter	max.	mm	220
• workpiece length	max.	mm	200
• grinding spindles for I.D. and O.D. number 2 / power	max.	kW	12
• speed ranges			
outside		rpm	6.000
inside		rpm	105.000
• grinding wheel diameter	max.	mm	400

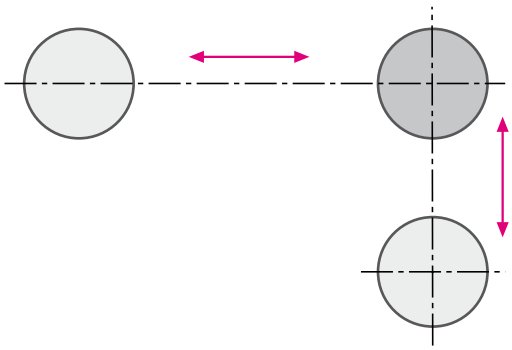
For all applications



The transfer: simply precise

The V160G's X-axes of the two spindles are perpendicular to one another and intersect at the point of transfer. This is not predefined by mechanics but is programmed with µ precision by the CNC.

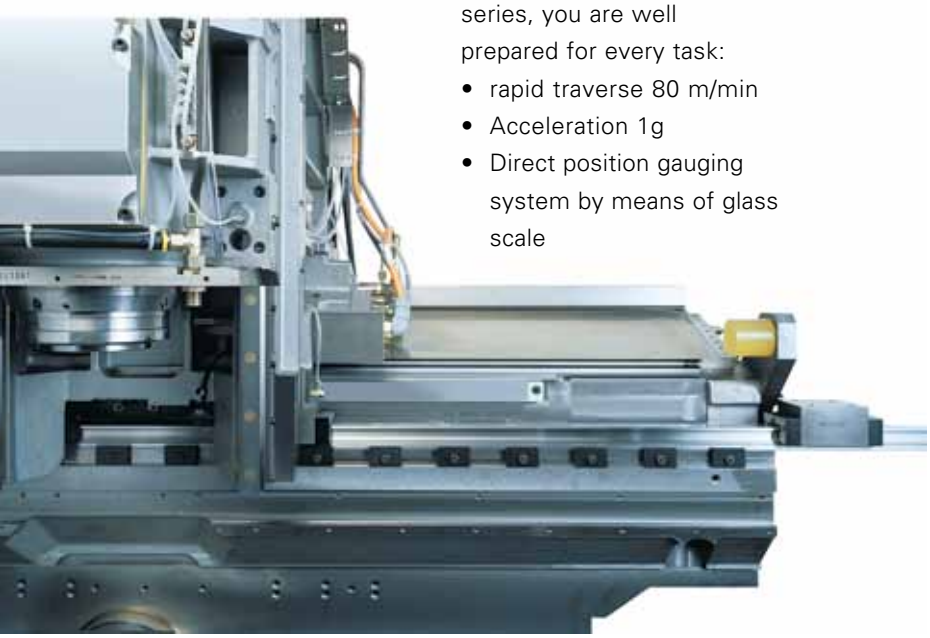
Your advantage: The workpieces can be picked up in the very center. The point of transfer can also be programmed for eccentric rotating parts.



Dynamics on the whole line

Linear drive in the X-axis
Speed and precision - accurate to the point.
With the INDEX VerticalLine series, you are well prepared for every task:

- rapid traverse 80 m/min
- Acceleration 1g
- Direct position gauging system by means of glass scale



Workpiece flow: flexible as never before

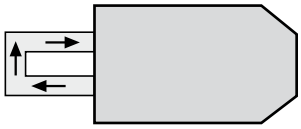
Compared to conventional gantry-type loading systems, the loading and unloading of vertical turning machines is easier, faster and less costly, because the motor spindle serves as an active handling device with short travel distances.

The large number of workpiece transport systems used allows the machine to be flexibly adapted to the existing environment.

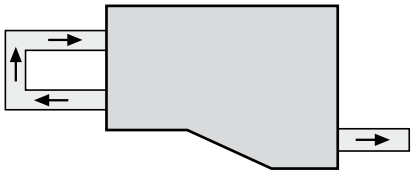
Pallet systems
These feeding systems position different geometric blanks exactly in the access area of the spindle which automatically picks up the workpieces and deposits them again on the pallet after machining. The pallets can be used universally and adjusted to your specific requirements.

Palletizing system
- Ø 22-220 mm
- workpiece weight: up to 15 kg
- number of pallets: 12/30/40

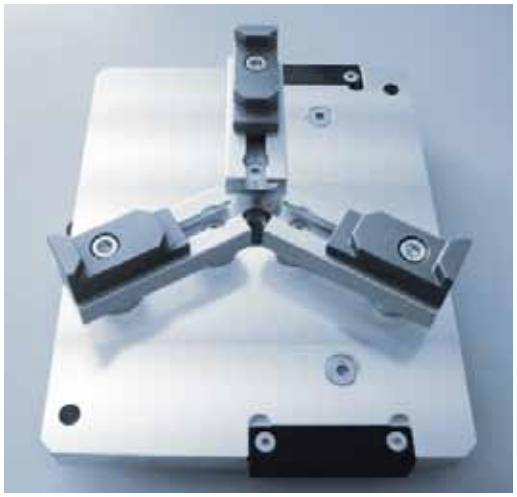
Recirculating pallet system
- Ø 24-180 mm
- workpiece weight: up to 15 kg
- number of pallets: 21



V160C with loading belt



V160G with loading and unloading belt



Diameters
from 30 mm to 215 mm

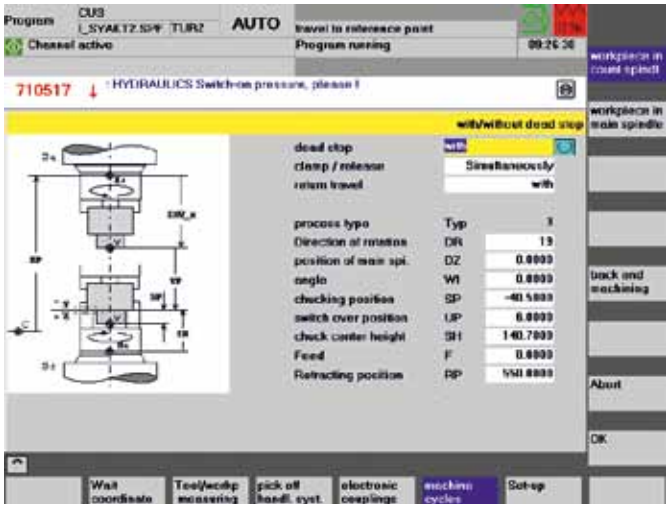
The universal centering devices with quick positioning
- for handling different workpiece diameters
- the 3 base jaws are simultaneously adjusted with one rotation of the adjusting unit
- quick and easy upgrade

Economical through an intelligent control concept

You're in control ...
- Cleartext in display and operation
- All spindles and axes at a glance
- Identical interface for all machines
- In case of error: Display of "Place" and "Cause"
- "Online"-error and service documentation

Expert programming ...

Far more than 70 user cycles
- offer application-specific support down to the smallest detail
- guarantee safe program run with maximum flexibility
- secure optimum machine utilization and machine running



INDEX C200-4D

powerline

based on Siemens 840D

Quick setup ...

Including axis lock
- Approach of tool carriers „step by step"
- Check of superimposed machining processes at standstill

Including T word acknowledgement mode
- User control prior to each turret indexing

All of that is done without any modification in the programs

Starts immediately ...

Via block search
- key press resumes process at the point of interruption
- channel-synchronous advance to any desired program point
- REPOS-guided safely to the (new) starting point

Via start requirements
- establishes correct machine state simply and without collision

Operational safety ...

Absolute encoder systems know position in any situation

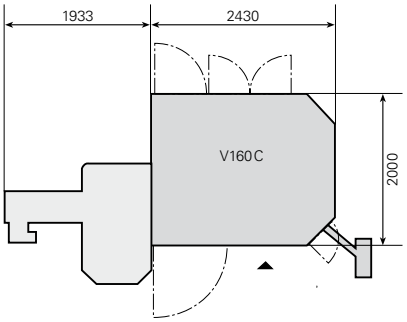
Safety Integrated ...
- maintains axis positions and clamping positions even with the protective hood open
- checks whether safety device function is working correctly with respect to the cycle
- personal protection quick to react

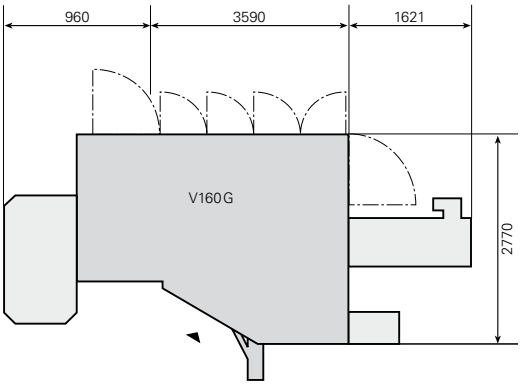
and flexibility!
- Tool breakage monitoring system upon request
- Tool control system and replacement tools possible
- ETHERNET network connection to DNC possible
- Machine data acquisition (MDA / ODA possible)
- Teleservice possible

Technical data

Working range		**V160C**				**V160G**			
Swing diameter max.	mm (inch)	310 (12)				350 (14)			
Main spindle, counter spindle [1]									
Bar diameter	mm (inch)	65 (2.6)				65 (2.6)			
Spindle diameter front bearing	mm (inch)	110 (4.3)				110 (4.3)			
Spindle head ISO 702/1	Size	140 mm (5.5 inch)				140 mm (5.5 inch)			
Chuck diameter	mm (inch)	160 / 200 (6.3 / 7.9)				160 / 200 (6.3 / 7.9)			
Speed	rpm	5000				5000			
Power at 100%	kW (hp)	20 (27)				20 (27)			
Power at 40%	kW (hp)	27 (36)				27 (36)			
Torque at 100%	Nm (ft lbs)	105 (79)				105 (79)			
Torque at 40%	Nm (ft lbs)	145 (109)				145 (109)			
Alignment and indexing unit	degrees	2.5				2.5			
C axis resolution	degrees	0.001				0.001			
Feed axes		**X**	**Z**	**Y**	**B**	**X_1/X_3**	**Z_1/Z_3**	**Y_1/Y_3**	**B_1/B_3**
Slide travel	mm (inch)	955 (37.6)	260 (10.2)	120 (4.7)	360°	1190 /607 (47/24)	260 (10.2)	120 (4.7)	360°
Rapid traverse	m (inch) /min	80 (3152)	40 (1576)	7.5 (296)	180°	80/40 (3152/1576)	40 (1576)	7.5 (296)	180°
Feed force	kN (lbs)	8 (1798)	10 (2248)	10 (2248)		8 (1798)	10 (2248)	10 (2248)	
Acceleration	m (inch) /s²	10 (33)	7 (23)			10/7 (33/23)	7 (23)		
Turret		max. 3				max. 4			
Tool system DIN 69880	mm	25 x 48 / 30 x 55				25 x 48 / 30 x 55			
Number of stations		12				12			
Indexing time for 1 station	s	0.2				0.2			
Indexing time for 6 stations	s	0.4				0.4			
Tool drive speed	rpm	6000				6000			
Power at 25%	kW (hp)	8.5 (11)				8.5 (11)			
Torque at 25%	Nm (ft lbs)	14 (10.5)				14 (10.5)			
Tool table									
Tool system DIN 69880 via adapter	mm	30 x 55				30 x 55			
Weights and connecting power with max. configuration									
Weight approx.	kg (lb)	5500 (12100)				10500 (23100)			
Connecting power		25 kW, 30 kVA, 34 A, 400 V, 50/60 Hz				72 kW, 90 kVA, 160 A, 400 V, 50/60 Hz			
Control		INDEX C200-4D (based on Sinumerik 840D powerline)							

[1] Counter spindle only for V160G





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