

C Series

[International NSV Series]



High Performance Vertical Machining Center





World Class CNC Machine Tool Manufacturer

A YCM Alliance Partner

Founded in 1954, the YCM company specializes in the manufacturing of High Speed Vertical Machining Centers and is recognized worldwide for technological advancements, manufacturing capabilities and superior product design. Since its founding, YCM machines are relied upon by quality conscious customers who have become accustomed to their uncompromising performance and renowned reliability. YCM products are unique and represent a differentiated approach to machine design.



Make it Better, Together.

Quality, Precision, Speed, Reliability

The C Series vertical machining centers deliver high-caliber performance providing superb cutting ability with reduced vibration. The C Series is built with an extra large delta shaped casting at the base of the machine's column to ensure the highest level of stability during high speed movement. Every machine tool is built and handcrafted for rigidity, thermal stability, and repeatability. The C Series produces consistent high-quality results from the first part to the last.

Rigid Design

During the design process, Finite Element Analysis (FEM) is used to ensure the best placement of mass and rib structures to provide constant stability under the intensive load of heavy-duty cutting. Direct drive servo motors deliver fast, accurate, and repeatable cutting. Each axial AC servo motor is equipped with absolute positioning encoders combined with a rigid body construction providing a combination of uncompromising precision and stiffness.

Spindle by YCM

The spindle is the critical union between the machine, cutting tool, and workpiece. YCM designs, manufactures and tests every spindle to perfection to ensure optimum performance and longevity. YCM IDD spindles have a proven history and are known as legendary for their reliability.



Designed for Challenging Demands

The C Series is designed to provide superior performance. This platform is ideal for higher accuracy, precision, and speed for General Parts machining and Die-Mold applications.



Make it Better, Together



Motorcycle Frame



State of the Art Foundry

YCM Machine Tools are Built From the Ground Up

Unlike many machine tool manufacturers that purchase components and merely assemble them, YCM is a true machine tool builder. This commitment to quality begins at the YCM foundry where the heart of every machine – the base, is perfectly cast resulting in a rigid Meehanite® casting. All mating surfaces are then hand scraped by expert craftsmen. This establishes a quality base which is precise, rigid, and very stable. This build process is inherent with every YCM machine tool produced.

- Castings are poured at the YCM factory.
- Advanced Karl Fischer moisture and pH metering.
- Spectrum analysis to ensure consistent quality.
- Annealing and aging process to relieve casting stress.
- All mating surfaces are handcrafted.

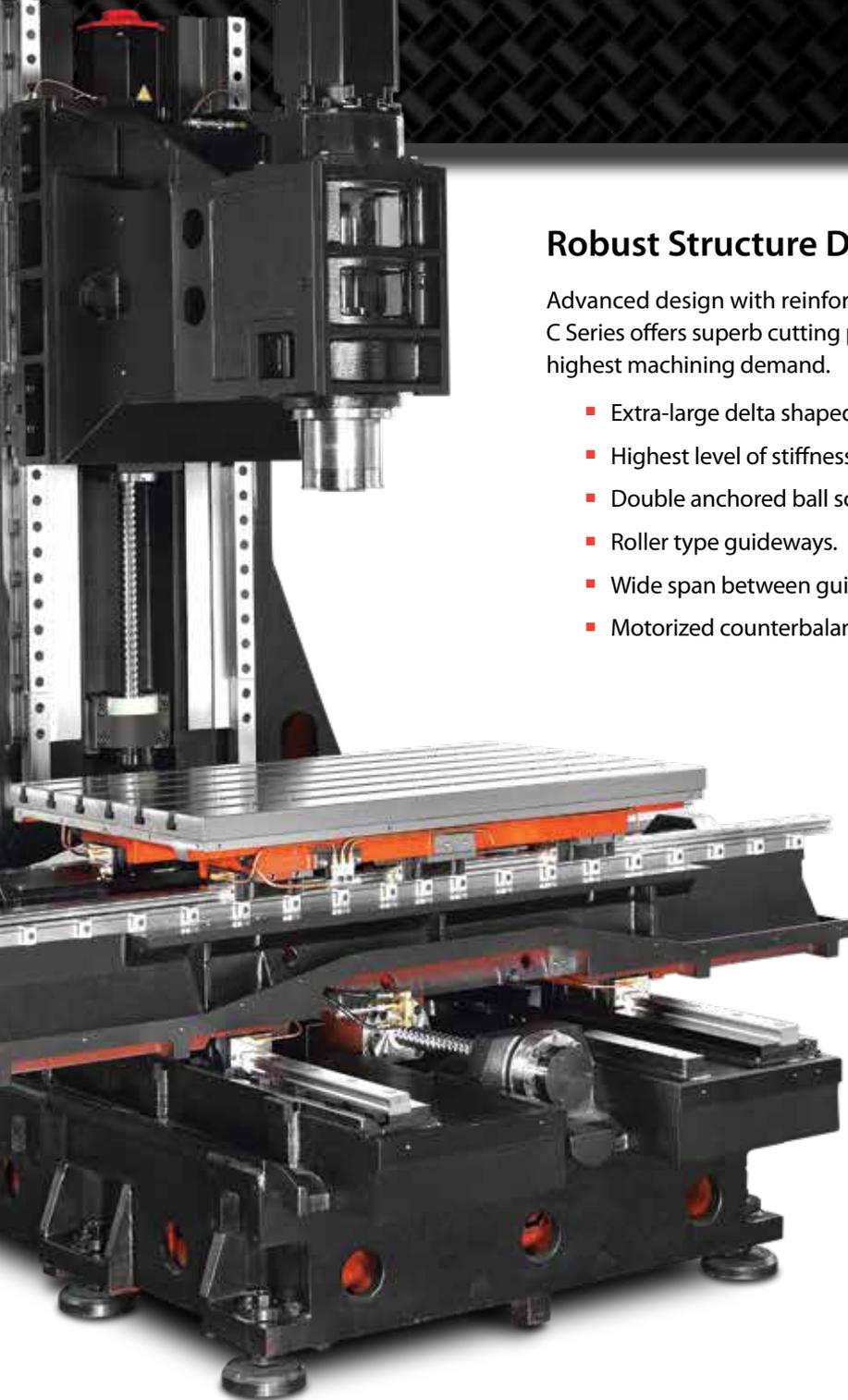


Standard Design



C Series





Robust Structure Design

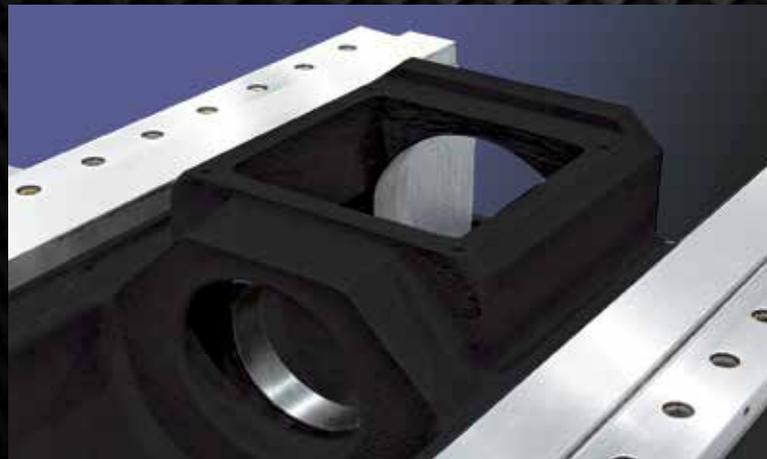
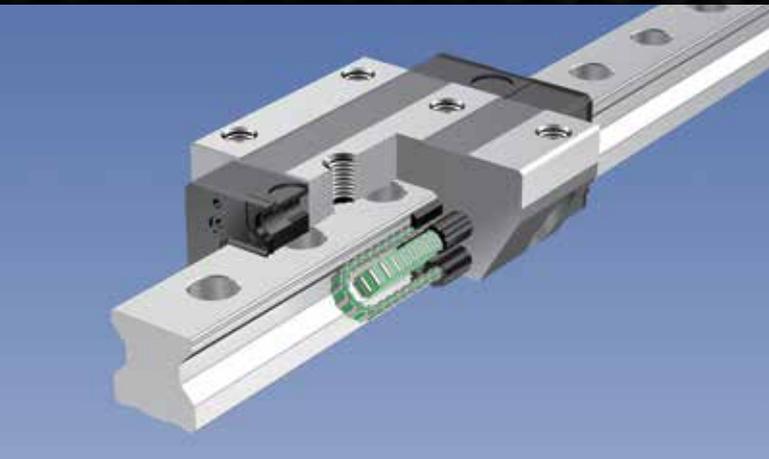
Advanced design with reinforced body structure through FEM analysis, the C Series offers superb cutting performance and reduced vibration to meet the highest machining demand.

- Extra-large delta shaped casting at the base of the machine's column.
- Highest level of stiffness and stability during high-speed movement.
- Double anchored ball screws and high-performance servo motors.
- Roller type guideways.
- Wide span between guideways.
- Motorized counterbalance on Z axis.



Highly-Rigid Linear Motion Guideways

- Roller type blocks and guiderails X/Y/Z-axis.
- Fast, smooth, accurate.
- High load capacity.
- One -piece motor housing.

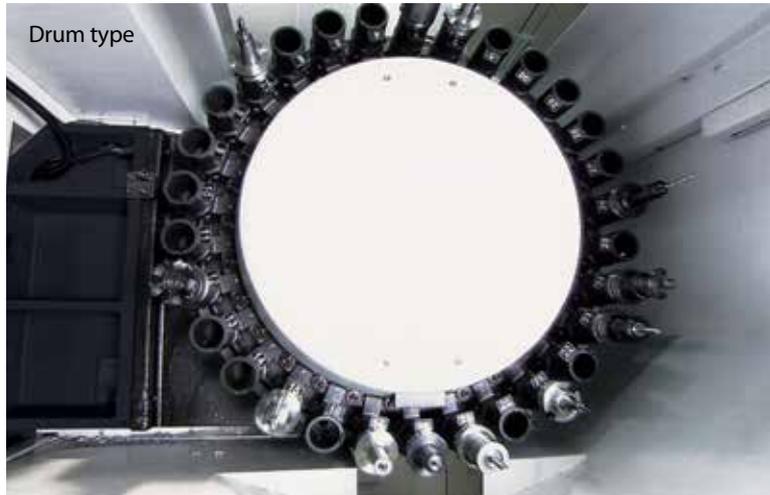




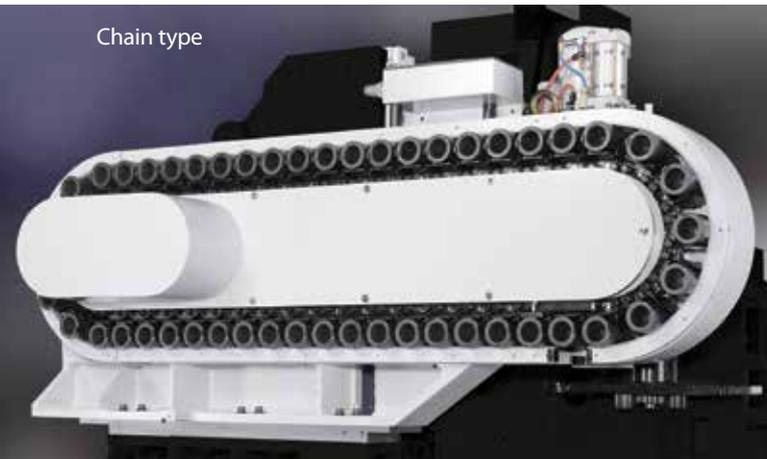
Automatic Tool Change System

- Column mounted design minimizes vibration during tool change.
- 30 station tool magazine (standard).
- 48 / 60 station tool magazine (optional, depending on machine model).

Drum type



Chain type



Auto door



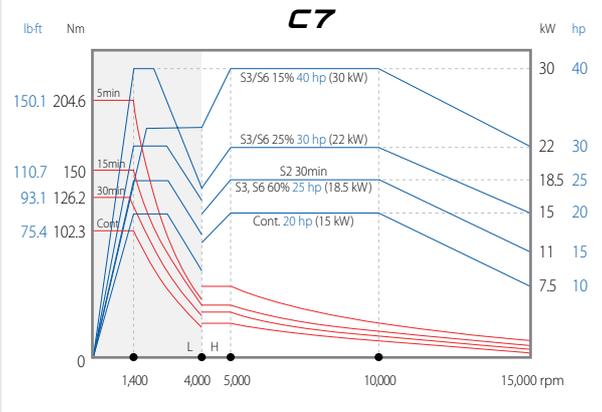
IDD PLUS Spindle Design

Designed and Built by YCM

- The YCM IDD spindle is a proven design offering legendary reliability at all ranges of speed.
- Ceramic bearings and cooling system reduce the effect of spindle thermal growth and provides high axial and radial rigidity.
- Low spindle vibration and less heat result in excellent finishes.
- Optimum machining efficiency, accuracy, and extended tool life can be achieved during heavier cutting and tapping applications.



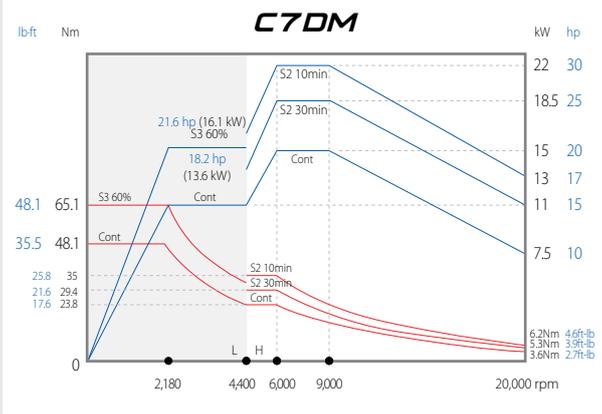
15,000 rpm | 40 hp STANDARD



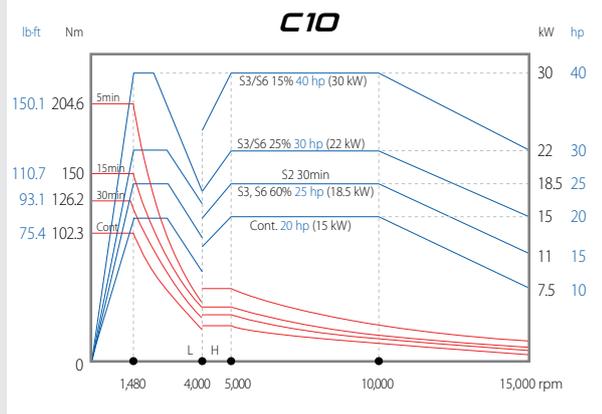
POWER

TORQUE

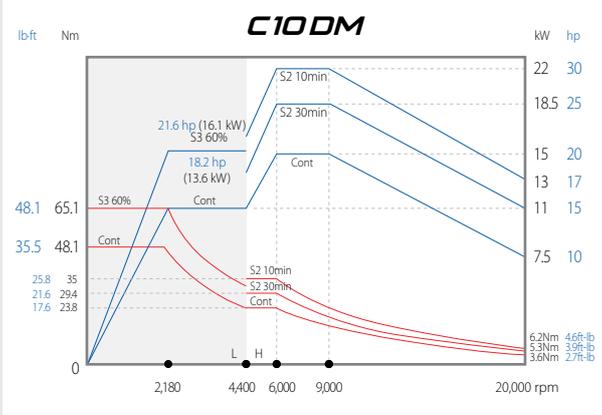
20,000 rpm | 30 hp STANDARD



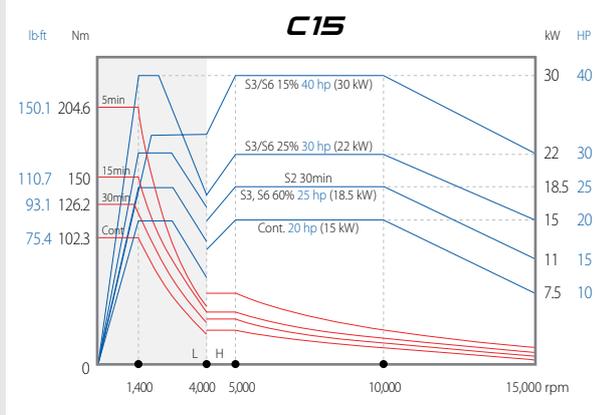
15,000 rpm | 40 hp STANDARD



20,000 rpm | 30 hp STANDARD



15,000 rpm | 40 hp STANDARD



YCM[®] MXP-200FB+

FANUC 0iMF+ Platform



Communication Interface

- RJ45 Ethernet
- USB
- Compact Flash Card

Excellent Vision Quality

10.4" LCD Display

User-Friendly Design

Integrated Keyboard (QWERTY)

Fine Surface Finish Technology

- AICC II+, high precision and high accuracy AI contour control.
- Smooth tolerance control+.
- Machining quality level adjustment function.

Fast Cycle Time Technology

- Maximum 400 blocks of look-ahead for pre-calculating the machining program.
- Block processing time 1ms for achieving high-speed machining requirement.
- Smart rigid tapping function combined with spindle capability for high-speed machining.*

*Note: Applicable to vertical machining centers with IDD spindle and built-in motorized spindle.

Program Dynamic Simulation

- Manual Guide i features dynamic simulation of machining programs with full-screen display.

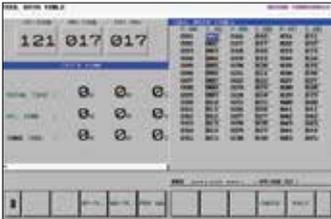
Upgraded Setting and Programming Application

- 2MB program storage size.
- Built-in memory card for easy program editing.
- Directory filing structure with organized file management.
- 400 pairs of tool offset, 1,000 registrable programs, 48 pairs of workpiece coordinate system, 256 pairs of tool life management.

i-OPERATION *Plus II*

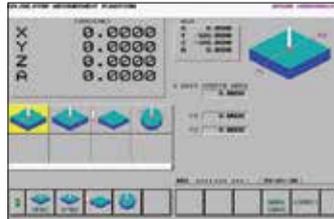
Exclusive Software from **YCM**.

Pre-Machining



Intelligent Tool Data Management

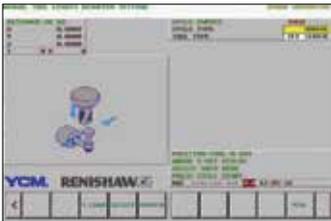
Comprehensive tool data management function allows operators to monitor & manage all positions in tool magazine.



Workpiece Coordinate Calculation

Conversational window provides convenient and fast setup of workpiece coordinates.

RENISHAW GUI System (Conversational Graphic Operating Interface)



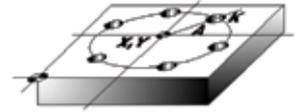
Tool Measurement & Measurement Calibration

This function may vary on TCV and NH/H series machine. For more details, please contact YCM sales representatives.

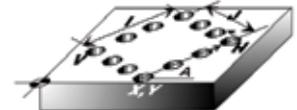


Workpiece Measurement (Applicable to certain models)

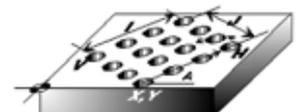
Program Editing



Circular Hole Pattern
(G120 P1) Function



Rectangular Hole Pattern
(G120 P4) Function

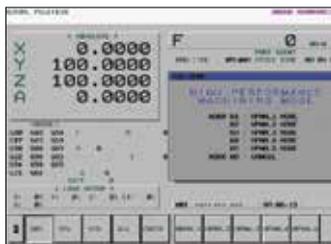


Grid Hole Pattern
(G120 P5) Function

i-PATTERN

- (1) 15 sets of machining cycle program
- (2) Saving programming time and memory time
- (3) Graphic interface & conversational command input

Machining



M300 High Performance Machining Mode

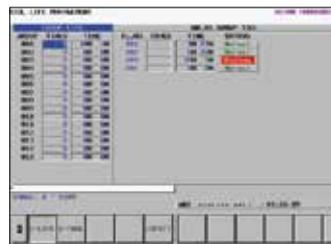
With 5 sets of parameter settings, it's easy to optimize a suitable range of machining.



Tool Load Management

Instant tool load monitoring with alarm function.

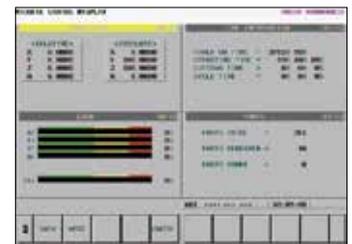
This function may vary on TCV and NH/H series machine. For more details, please contact YCM sales representatives.



Tool Life Management

Indicating tool status of each group with tool life alarm.

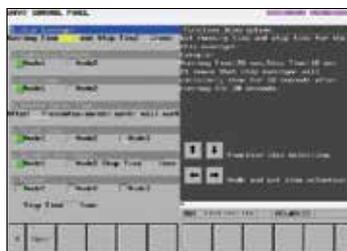
This function may vary on TCV and NH/H series machine. For more details, please contact YCM sales representatives.



Multi-Display Function

Four simultaneous status display that can be configured.

Smart Control Panel

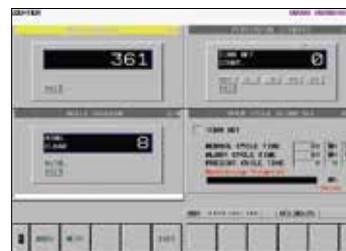


i-PANEL

Easy to set up and operate important functions.

This function may vary on TCV and NH/H series machine. For more details, please contact YCM sales representatives.

Intelligent Counter



Instantly providing users with periodic maintenance notifications and work-piece counter management.



SPINDLE	C7	C7DM
Speed	15,000 rpm	20,000 rpm
Power	40 hp (29.8 kW)	30 hp (22 kW)
Taper	Dual Contact CAT-40 / BBT-40	HSK63A
TRAVEL		
Axis (X / Y / Z)	25.98" (660 mm) / 20.08" (510 mm) / 22.05" (560 mm)	25.98" (660 mm) / 20.08" (510 mm) / 22.05" (560 mm)
Distance between spindle nose & table top	3.9" – 25.98" (100 – 660 mm)	3.9" – 25.98" (100 – 660 mm)
TABLE		
Table Size	33.07" x 22.05" (840 x 560 mm)	33.07" x 22.05" (840 x 560 mm)
No. T-slots x Size x Pitch	5 x 0.70" x 3.94" (5 x 18 x 100 mm)	5 x 0.70" x 3.94" (5 x 18 x 100 mm)
Max. Load on Table	1,102 lb (500 kg)	1,102 lb (500 kg)
FEEDRATE		
Rapid Feedrate X / Y / Z	1,969 / 1,969 / 1,890 ipm (50 / 50 / 48 m/mm)	945 / 945 / 945 ipm (24 / 24 / 24 m/mm)
Cutting Feedrate	0.04 – 787 ipm (1–20 m/min)	0.04 – 787 ipm (1–20 m/min)
ACCURACY		
Positioning (X / Y / Z) A	0.00027" / 0.00027" / 0.00027" (w/ scales) (0.007mm / 0.007mm / 0.007mm)	0.00027" / 0.00027" / 0.00027" (w/ scales) (0.007mm / 0.007mm / 0.007mm)
Repeatability (X / Y / Z) R	0.00019" / 0.00019" / 0.00019" (w/ scales) (0.005 mm / 0.005 mm / 0.005 mm)	0.00019" / 0.00019" / 0.00019" (w/ scales) (0.005 mm / 0.005 mm / 0.005 mm)
ATC		
Tool Magazine Capacity	30T / 40T (optional)	30T / 40T (optional)
Max. Tool Weight	13.2 lb (6 kg)	13.2 lb (6 kg)
Max. Tool Dimensions	ø3" x 11.81" (ø76 x 300 mm)	ø3 x 11.81" (ø76 x 300 mm)
	w/o adjacent tools ø4.92" x 11.8" (ø125 x 300 mm)	w/o adjacent tools ø4.92" x 11.81" (ø125 x 300 mm)
GENERAL		
Pneumatic Supplier	85 psi (5.8 bar)	85 psi (5.8 bar)
Power Consumption	220V, 123 amps	220V, 150 amps
Machine Weight	14,330 lb (6,500 kg)	14,330 lb (6,500 kg)

Note: The manufacturer reserves the right to modify the design, specifications, mechanisms, etc. to improve the performance of the machine without notice. All specifications shown above are for reference.



C10

C10DM



C15

15,000 rpm	20,000 rpm	15,000 rpm
40hp (29.8 kW)	30 hp (22 kW)	40hp (29.8 kW)
Dual Contact CAT-40 / BBT-40	HSK63A	Dual Contact CAT-40 / BBT-40
40.1" (1,020 mm) / 23.6" (600 mm) / 23.6" (620 mm)	40.1" (1,020 mm) / 23.6" (600 mm) / 23.6" (620 mm)	60.2" (1,530 mm) / 25.59" (650 mm) / 24.02" (610 mm)
3.9" – 27.5" (100 – 700 mm)	3.9" – 27.5" (100 – 700 mm)	3.14" – 27.28" (80 – 690 mm)
44.1" x 25.59" (1,120 x 650 mm)	44.1" x 25.59" (1,120 x 650 mm)	64.17" x 25.59" (1,630 x 650 mm)
6 x 0.71" x 3.94" (6 x 18 x 100 mm)	6 x 0.71" x 3.94" (6 x 18 x 100 mm)	6 x 0.71" x 3.94" (6 x 18 x 100 mm)
2,204 lb (1,000 kg)	2,204 lb (1,000 kg)	3,307 lb (1,500 kg)
1,890 / 1,890 / 1,890 ipm (48 / 48 / 48 m/mm)	945 / 945 / 945 ipm (24 / 24 / 24 m/mm)	1,890 / 1,890 / 1,890 ipm (48 / 48 / 48 m/mm)
0.04 – 787 ipm (1–20 m/min)	0.04 – 787 ipm (1–20 m/min)	0.04 – 787 ipm (1–20 m/min)
0.00039" / 0.00039" / 0.00039" (w/o scales) (0.010 mm / 0.010 mm / 0.010 mm)	0.00027" / 0.00027" / 0.00027" (w/ scales) (0.007 mm / 0.007 mm / 0.007 mm)	0.00027" / 0.00027" / 0.00027" (w/ scales) (0.007 mm / 0.007 mm / 0.007 mm)
0.00027" / 0.00027" / 0.00027" (w/o scales) (0.007 mm / 0.007 mm / 0.007 mm)	0.00019" / 0.00019" / 0.00019" (w/ scales) (0.005 mm / 0.005 mm / 0.005 mm)	0.00019" / 0.00019" / 0.00019" (w/ scales) (0.005 mm / 0.005 mm / 0.005 mm)
30T / 48T, 60T (optional)	30T / 48T, 60T (optional)	30T / 48T, 60T (optional)
13.2 lb (6 kg)	13.2 lb (6 kg)	13.2 lb (6 kg)
ø3" x 11.81" (ø76 x 300 mm)	ø3" x 11.81" (ø76 x 300 mm)	ø3" x 11.81" (ø76 x 300 mm)
w/o adjacent tools ø4.92" x 11.81" (ø125 x 300 mm)	w/o adjacent tools ø4.92" x 11.81" (ø125 x 300 mm)	w/o adjacent tools ø4.92" x 11.81" (ø125 x 300 mm)
85 psi (5.8 bar)	85 psi (5.8 bar)	85 psi (5.8 bar)
220V, 160 amps	220V, 150 amps	220V, 167 amps
15,432 lbs (7,000 kg)	15,432 lb (7,000 kg)	22,046 lb (10,000 kg)



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