

VMC Q series Vertical Machining Center

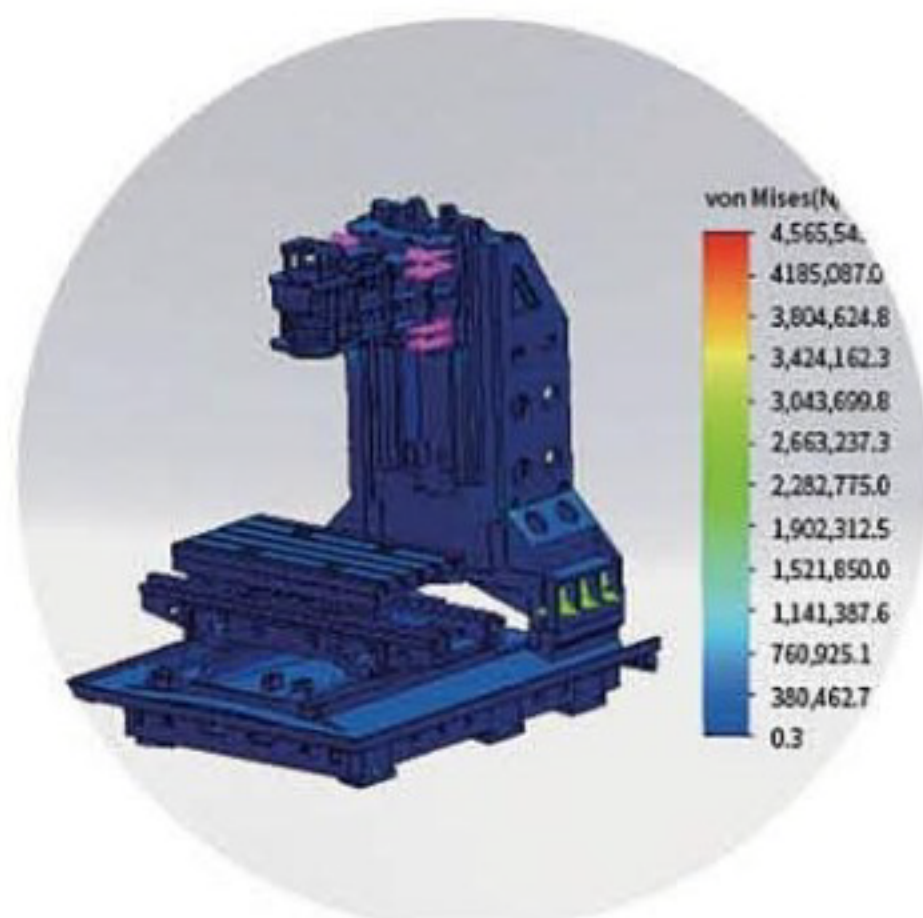
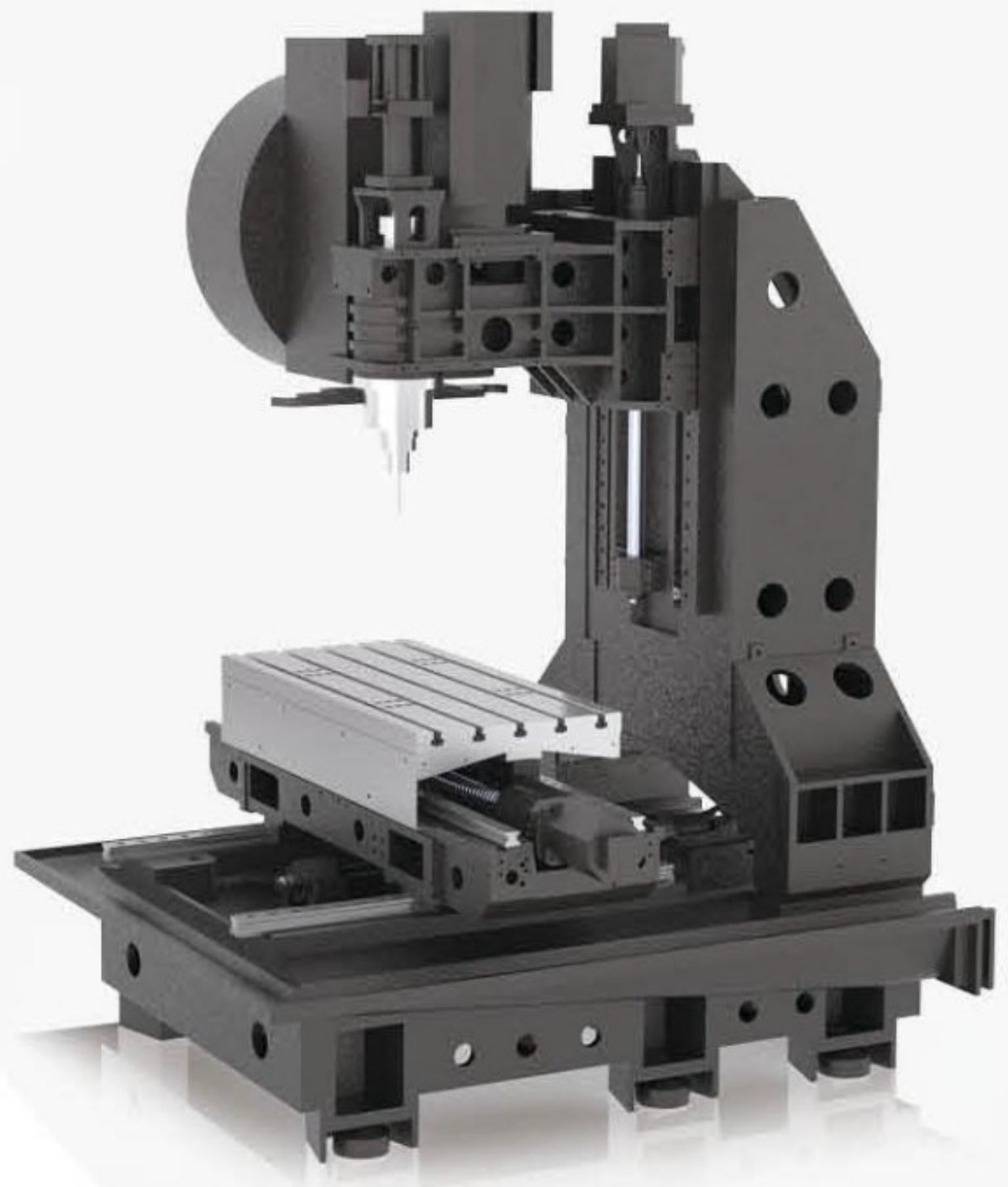


VMC QSeries

New VMC type

Introduction

Q series machine tools is a new generation general vertical machining center launched by Genertec SMTCL through independent R&D and the combination of many years' design and manufacture experience. Through professional design and using analytical software for scientific and rational analysis/optimization, as well as the validation and improvement by using advanced manufacturing/testing techniques, this product indicates superior machinability, which can satisfy the drilling and milling requirements of different components.



Using finite element analysis and rib self-growth topological theory to design the casting products can increase the product weight and fully improve the rigidity of the whole machine.

Features of the machine



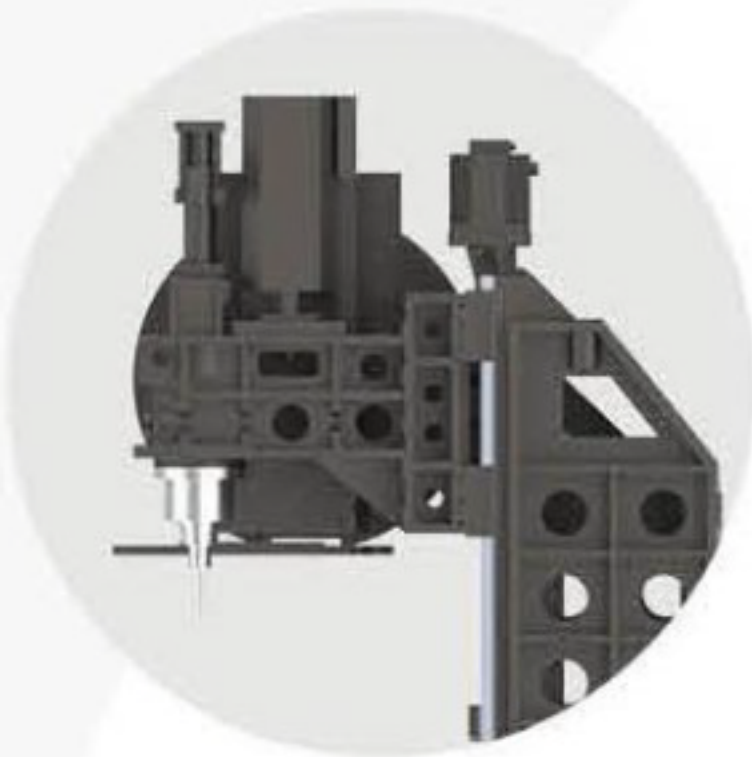
Big slant bed

Bed with large span and low center of gravity, chip groove in both sides improves rigidity and stability. Adopts pre-scratched ball screw structure to improve machining accuracy.



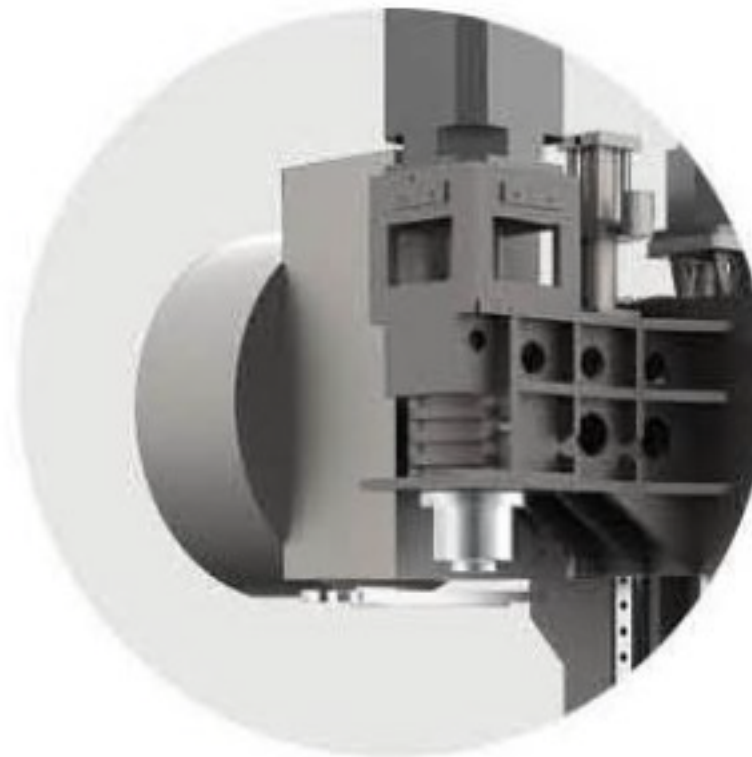
Column

Classic inverted Y type structure features dependability and stability, which effectively guarantees the processing performance and loading capacity at high speed movement.



Function of emergency stop avoid dropping

During emergency stop, Z axis is lifted intelligently to prevent dropping due to gravity and protect tool and workpiece from damage.



Disk type tool magazine

With pre-selection function, to reduce tool change time and improve efficiency.



Thermal symmetry design of headstock

Adopts cross design can offset the thermal deformation and improve the stability.



Full protection room

More optimized protection room design can protect operator and working environment.

Technical parameter

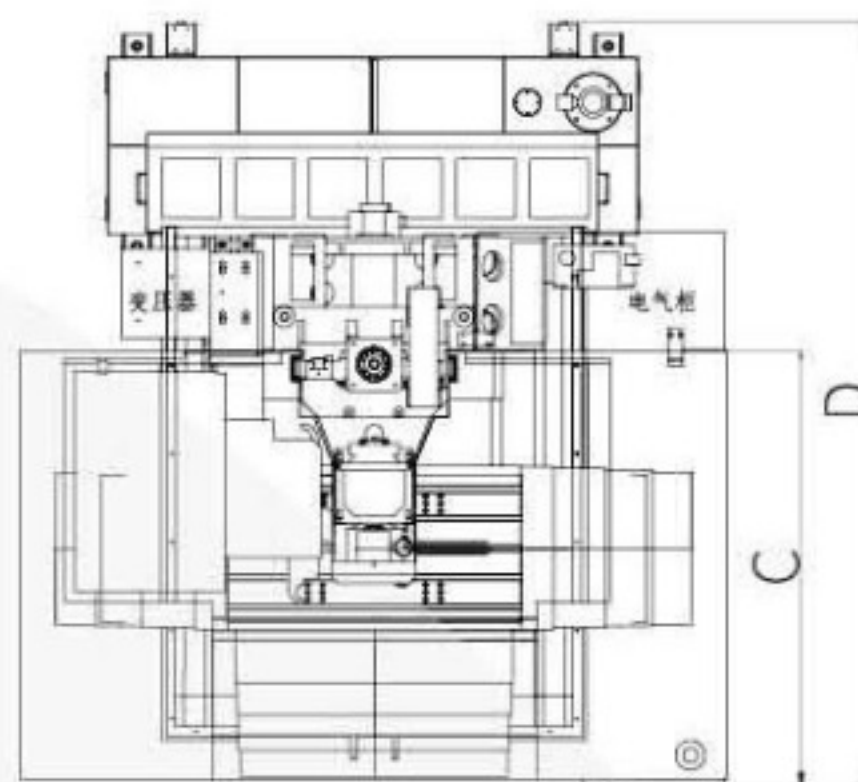
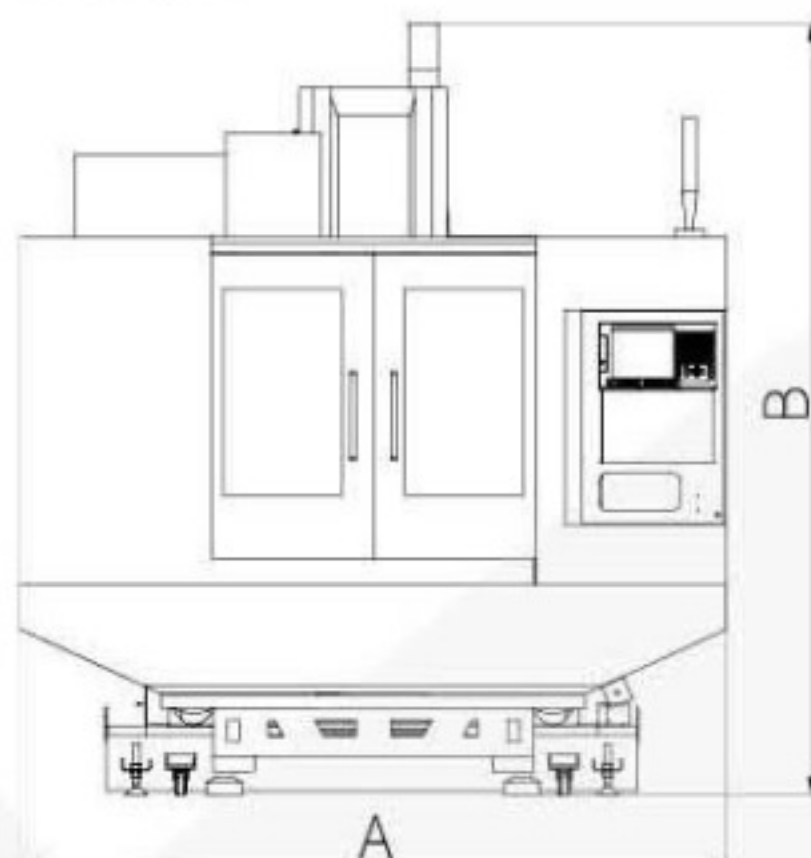
Item		Unit	VMC 850Q	VMC 1000Q	VMC 1100Q
Table					
Table size		mm	1000×500	1150×500	1300×610
Max.allowed loading		kg	600	600	1000
T slot size		mm×N	18×5	18×5	18×5
Machining range					
X axis travel		mm	850	1000	1100
Y axis travel		mm	500	500	620
Z axis travel		mm	540	540	600
Distance between spindle nose to table	Max.	mm	660	660	720
	Min.	mm	120	120	120
Distance between spindle center to guideway surface		mm	640	640	743
Spindle					
Taper (7:24)			BT40	BT40	BT40
Speed		r/min	10000	10000	10000
Torque		N.m	35.8/70 (S2 15Minutes)	35.8/70 (S2 15Minutes)	35.8/70 (S2 15 Minutes)
Main motor power		kW	7.5/11	7.5/11	7.5/11
Drive type			Synchrone us belt	Synchrone us belt	Synchrone us belt
Tooling					
Tool holder			MAS 403 BT40	MAS 403 BT40	MAS 403 BT40
Pull stud			MAS 403 40BT- I	MAS 403 40BT- I	MAS 403 40BT- I
Feed					
Rapid feed	X axis	m/min	48	48	48
	Y axis	m/min	48	48	48
	Z axis	m/min	48	48	48
Motor power(XYZ)		kW	1.8/1.8/3	1.8/1.8/3	3/3/3
Motor torque(XYZ)		Nm	11/11/20	11/11/20	20/20/20
Feeding speed		mm/min	1-20000	1-20000	1-20000
Tool Magazine					
Type			Robot	Robot	Robot
Tool collection			Nearest tool selection	Nearest tool selection	Nearest tool selection
Magazine capacity		把	24	24	24
Max.tool length		mm	300	300	300
Max.tool weight		kg	7	7	7
Max.tool disk dia.	Full	mm	Φ80	Φ80	Φ80
	Nearby	mm	Φ150	Φ150	Φ150
Tool change time		s	2.5	2.5	2.5
Distance between table to ground		mm	880	880	950
Machine weight		kg	5100	5400	6200
Electricity capacity		KVA	18	18	25
Overall Dimensions (L×W×H)		mm	2400×2560×2700 (without conveyor)	2700×2560×2700 (without conveyor)	2940×3450×3050 (without conveyor)

Note: Parameters are for reference only

Machine configuration

Configuration		VMC 850Q	VMC 1000Q	VMC 1100Q
Control system	FANUC 0i MF Plus	◆	◆	◆
	SIEMENS 828D	◇	◇	◇
	i5	◇	◇	◇
Drive system	Three-axis pre-stretched ball screw	◆	◆	◆
	X	◆	◆	◆
	Three-axis roller guideway	◆	◆	◆
	Y	◆	◆	◆
Spindle	Z	◆	◆	◆
	BT40 10000 rpm (1:1)	◆	◆	◆
	BT40 8000 转 (1:1.5 Gear)	◇	◇	◇
	BT40 Direct drive 12000 rpm	◇	◇	◇
Magazine	BT40 24 tools	◆	◆	◆
Chip removal system	Water tank	◆	◆	◆
	Chain type conveyor	◇	◇	◇
	Chip flushing system	◇	◇	◇
Coolant through spindle	20BAR	◇	◇	◇
Tools measurement	Non-contact Renishaw	◇	◇	◇
	Contact Renishaw	◇	◇	◇
	Non-contact Marposs	◇	◇	◇
	Contact Marposs	◇	◇	◇
Workpiece measurement	Renishaw	◇	◇	◇
	Marposs	◇	◇	◇
Stainless guideway protection		◆	◆	◆
Full protection room		◆	◆	◆
Lubrication		◆	◆	◆
Pneumatic system		◆	◆	◆
Air gun		◆	◆	◆
Heat exchanger		◆	◆	◆
Water gun		◇	◇	◇
Rotary table		◇	◇	◇
Air conditioner		◇	◇	◇
Ethernet interface		◆	◆	◆

Note: ◆ Standard ◇ Options

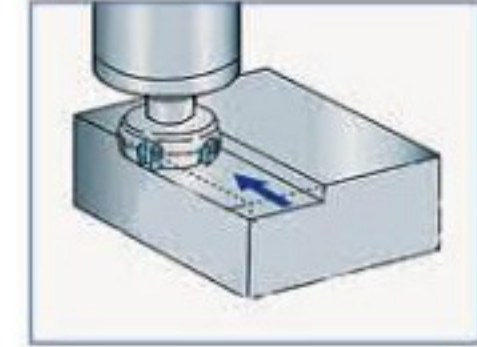


Model	A	B	C	D
VMC850Q	2400	2700	1496	2560
VMC1000Q	2700	2700	1496	2700
VMC1100Q	2940	3050	1950	3450

Note: "D" means machine dimensions with chip conveyor

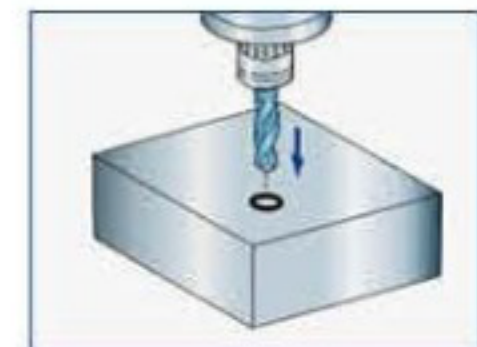
Samples

Material	Tooling	Spindle speed r/min	feeding rate mm/min	Cutting width mm	Cutting depth mm	Power Kw	Torque Nm	Cutting removal rate cm ³ /min
Cast iron	Φ80 facing milling head	1114	949	64	4.5	8.6	70.1	273
		1472	3692	64	2	11	70	472.61
Steel	Φ80 facing milling head	1194	716	64	3	9.29	72.9	137.47
		1350	2430	64	1.3	9.83	69.3	202.18



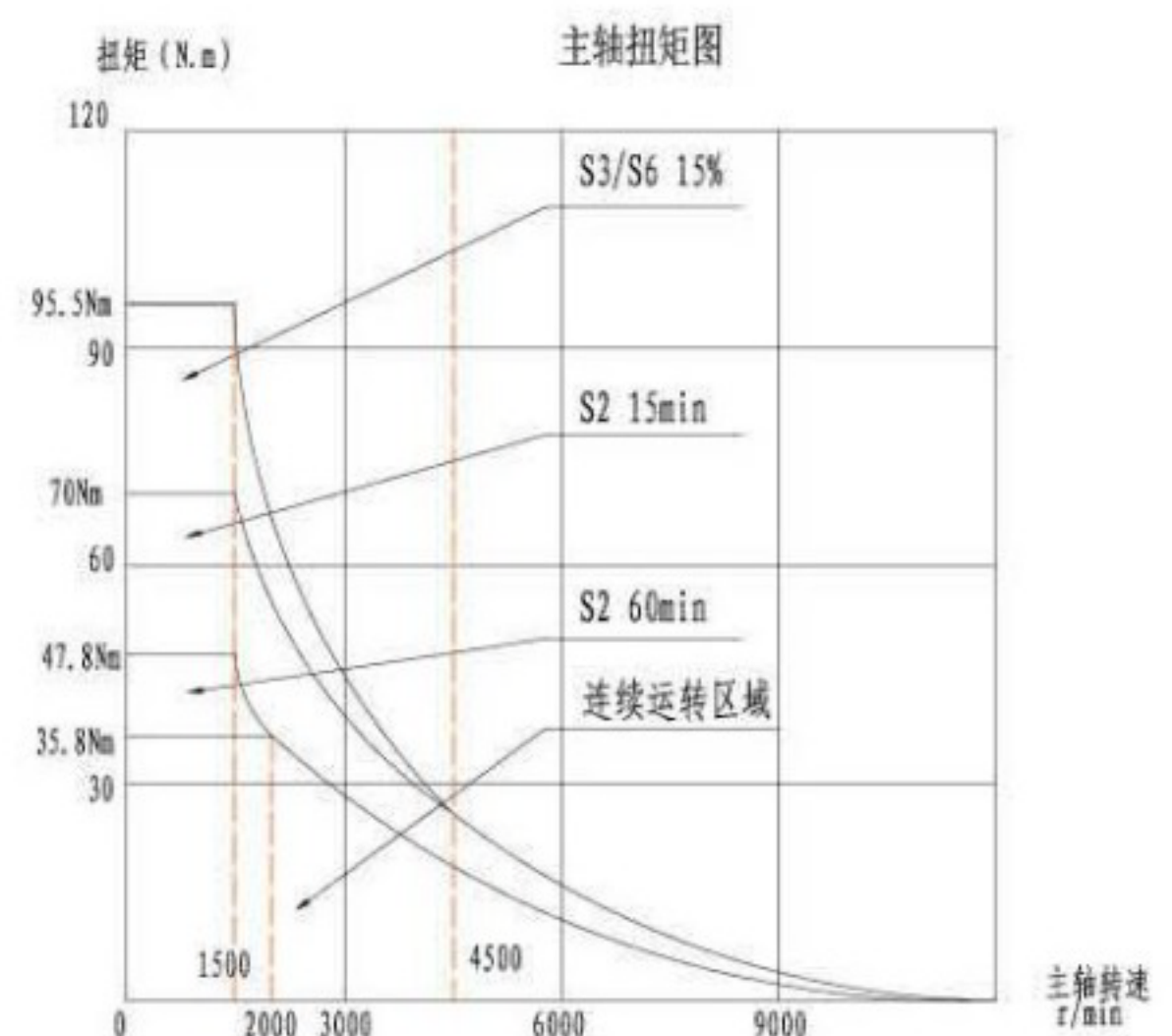
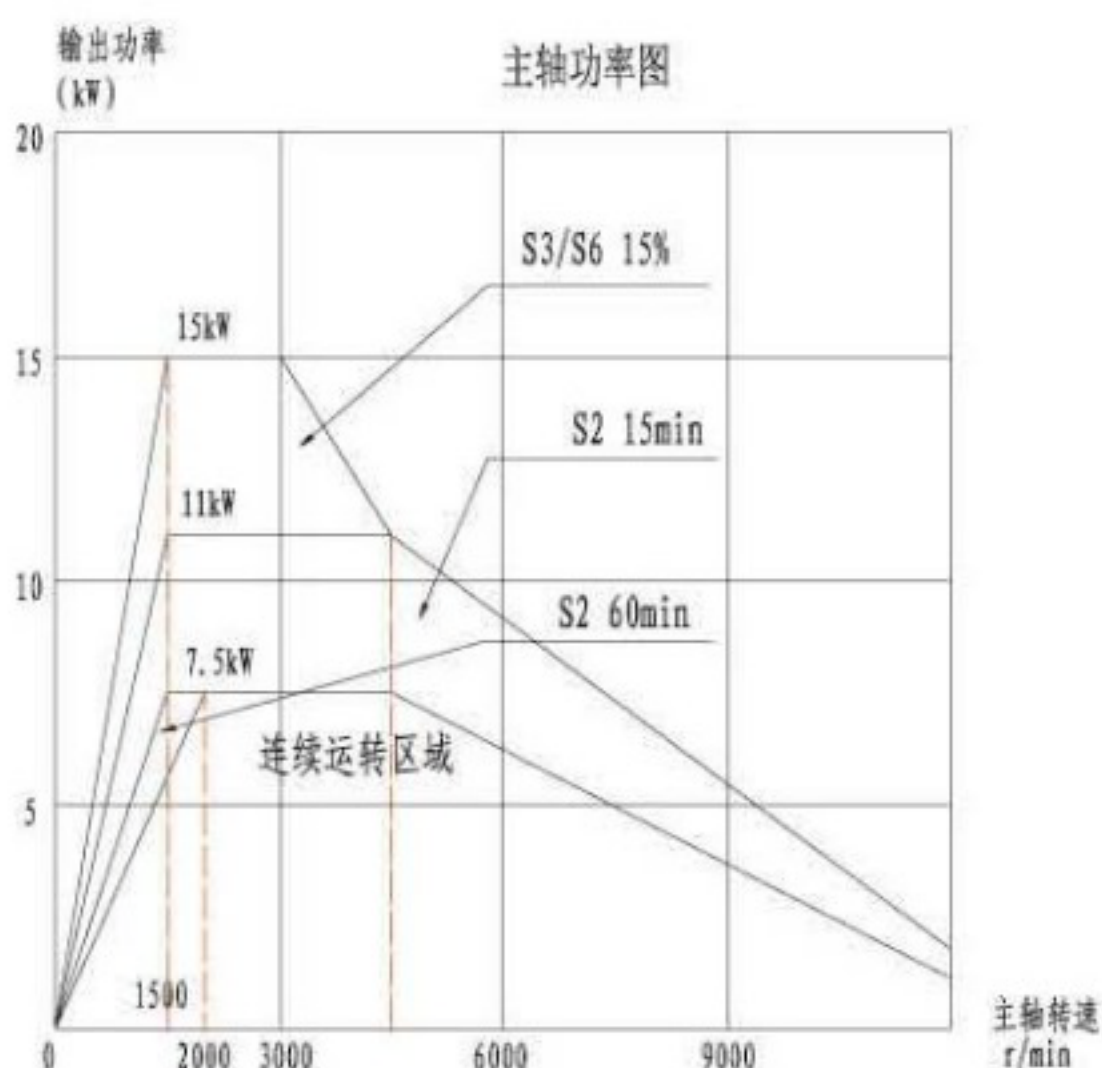
Material	Tooling	Spindle speed r/min	feeding rate mm/min	Power Kw	Torque Nm	Depth mm	Hole dia. mm
Cast iron	U-shape drilling	1989	398	10.57	48.23	20	32
Steel	U-shape drilling	994	99	4.96	47.65	20	32

Material	Tooling	spindle speed r/min	feeding rate mm/min	Coolant	No. of drilling hole	Depth mm	Hole dia. mm
Aluminum	Φ1.6 drilling	3000	150	water coolant	152	5	1.6



Remark: For reference only.

Spindle torque chart



Workpiece reference point compensation

Improve the machining accuracy and consistency of workpiece, no need warm up, remained stable.