SYIL X

VERTICAL MILLING MACHINES

CNC Milling Machines of Unsurpassed Quality at the Best Price

BEST VALUE FOR MONEY

CNC machines since 2001

At SYIL, we develop and manufacture CNC machining centers for every need. As a manufacturer with over 20 years of experience in the CNC industry, we understand your unique production and manufacturing requirements. Get the most out of your production with our machining centers, ranging from 3-axis entry-level models to 4-axis powerhouses and 5-axis machining centers for precision milling.

We have earned our trust by sourcing components from first-class brands and suppliers. Our own processes meet the strictest quality criteria.

Affordable quality

The SYIL brand is an up-and-coming manufacturer of high-performance CNC machining centers. Our first-class machines have been used in machine shops, the automotive industry and computer technology for more than two decades.

The combination of machine quality and price is unbeatable with SYIL.

SYIL

TECHNICAL SPECIFICATIONS

	X5	X7	X9	X11
Travel distances				
X-axis (mm)	300	400	760	1000
Y-axis (mm)	260	300	500	500
Z-axis (mm)	300	380	500	500
Distance from spindle nose to table top	150-450	150-530	100-600	110-610
Distance between spindle and column surface	330	358	530	650
Table				
Table size (mm)	560×260	700×300	860×500	1050×550
Table load (kg)	150	150	500	600
Table surface (number×size×distance in mm)	T-slots 3×14×80	T-slots 3×14×100	T-slots 18×5×100	T-slots 18×5×90
Spindle				
Spindle taper	BT30	BT30	BT40	BT40
Power-drive	Direct	Belt	Belt/direct	Belt/direct
Max. spindle speed (rpm)	20,000	12,000	12,000	10,000/ 12,000
Feed				
Rapid traverse (mm / min)	30,000	30,000	30,000	30,000
Cutting feed (mm / min)	10,000	10,000	10,000	10,000
Automatic tool changer				
Type	Wheel	Umbrella	Arm	Arm
Tool holder	BT30	BT30	BT40	BT40
Tool storage capacity	16	12	24	24
Max. tool diameter (mm)	63	63	125	120
Max. tool length (mm)	200	200	240	300
Max. tool weight (kg)	3	3	7	7
Tool to tool (s)	1	1.5	2	2.5
Other data				
Machine weight (kg)	2180	2200	6000	7000
Machine dimensions L x W x H (mm) Footprint including coolant tank and controller	2020×1000×2360	1800×1600×2250	1850×2245×2800	2700×2280×2800
Min/max air pressure (MPa (psi))	0.4/0.8 (60/120)	0.4/0.8 (60/120)	0.4/0.8 (60/120)	0.4/0.8 (60/120)
Coolant tank capacity (Liters)	80	80	130	240

SYIL

Controller

Available controller	X5	X7	X9	X11
Siemens SINUMERIK 828D	✓	✓	✓	✓
FANUC 0iMF Plus	✓	✓	✓	✓
SYNTEC 22MA	✓	✓	✓	✓
SYNTEC 220MA		✓	✓	✓
LNC M6800	✓	✓		

Power

Controller	X5	X7	X9	X11
Siemens SINUMERIK 828D				
Spindle motor output (Rate/Max) kW:	4.8	7.5/11	7.5	10
Drive motors (X, Y, Z) kW:	1/2.2/3.5	1.1/2.2/2.2	3/3/3.5	3/3/3.5
Power source:	AC380V/3-phase	AC380V/ 3-Phase	AC380V/ 3-Phase	AC380V/ 3-Phase
Power (kVA):	12	14	17	20
FANUC 0iMF Plus				
Spindle motor output (Rate/Max) kW:	3.7/5.5	3.7/5.5	7.5	7.5
Drive motors (X, Y, Z) kW:	1/2.5/2.7	2.2/2.2/2.7	3/3/3	3/3/3
Power source:	AC220V/3-phase	AC220V/3-phase	AC220V/3-phase	AC220V/3-phase
Power (kVA):	12	12	18	18
SYNTEC 22MA/220MA				
Spindle motor output (Rate/Max) kW:	5.5/7.5	8.2/12	11/17	11/17
Drive motors (X, Y, Z) kW:	1/1.7/2.4	1.1/1.7/2.4	3.9/3.9/5.9	3.9/3.9/5.9
Power Source:	AC380V/ 3-Phase	AC380V/ 3-Phase	AC380V/ 3-Phase	AC380V/ 3-Phase
Power (kVA):	12	14	25	25
LNC M6800				
Spindle motor output (Rate/Max) kW:	3.7/5.5	2.2/3.0		
Drive motors (X, Y, Z) kW:	0.85/1.3/1.3	0.85/1.3/1.3		
Power Source:	AC380V/ 3-Phase	AC220V/ 1-Phase		
Power (kVA):	10	7		

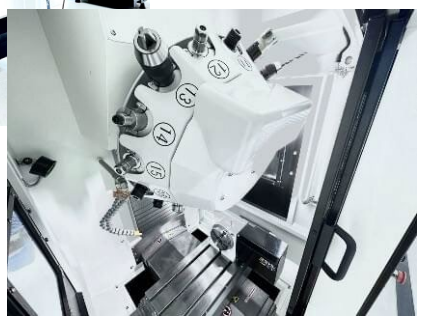
Accessories

Standard included accessories

	X5	X7	X9	X11
Absolute servos	✓	✓	✓	✓
Rigid tapping	✓	✓	✓	✓
High flow coolant pump and tank	✓	✓	✓	✓
Coolant washdown hose	✓	✓	✓	✓
Air gun outlet	✓	✓	✓	✓
LED Traffic light beacon/signal tower	✓	✓	✓	✓
Networking capabilities/USB data transfer	✓	✓	✓	✓
Remote MPG for all axes	✓	✓	✓	✓
Steel axis covers	✓	✓	✓	✓

SYIL X5

Space- And Money-Saving CNC Machine



The SYIL X5 is a 3-axis machining center for maximum precision and powerful performance at an affordable price. You can easily add a 4th axis to your X5.

Standard:
SCHNEEBERGER mineral casting
THK ball screws and linear motion guides
20,000 rpm BT30 spindle
16-pocket ATC servo type

X5 Siemens
Siemens SINUMERIK 828D CNC controller with 3/4 axis servo motor

X5 FANUC
FANUC 0iMF Plus CNC controller with 3/4 axis servo motor

X5 SYNTEC
SYNTEC 22MA CNC controller with 3/4 axis servo motor

X5 LNC
LNC M6800 CNC controller with 3 axis servo motor

OPTIONS

NC rotary table servo type | 4th axis 125 mm

Tail Stock for 125 mm NC rotary table

Probe System | Wireless type

Tool Setter Kits | Cable type TTC200

SYIL Tooling Package

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SYIL X7

Small Size – Big Benefits

The SYIL X7
offers a small footprint with
unprecedented speed.

Standard:
SCHNEEBERGER mineral casting
THK ball screws and linear motion guides
12,000 rpm BT30 spindle
12-pocket ATC umbrella type

X7 Siemens
Siemens SINUMERIK 828D 15" touch screen CNC controller with 3/4 axis servo motor

X7 FANUC
FANUC 0iMF Plus CNC controller with 3/4 axis servo motor

X7 SYNTEC
SYNTEC 22MA CNC controller with 3/4 axis servo motor

X7 SYNTEC 5-axis
SYNTEC 220MA 15" screen CNC controller with 5-axis servo motor. NC rotary table DDR type | 5-axis

X7 LNC
LNC M6800 CNC controller with 3 axis servo motor

OPTIONS

Automatic Tool Changer

16 positions BT30 | power drawbar arm type

Others

NC rotary table servo type | 4th axis 125 mm

Tail Stock for 125 mm NC rotary table

Probe System | Wireless type

Tool Setter Kits | Cable type TTC200

Filtermist

Chip Conveyor

SYIL Tooling Package

SYIL X9

First-Class Components and Solid Construction

Standard:
SCHNEEBERGER mineral casting
10,000 rpm BT40 spindle
24-pocket ATC arm type

X9 Siemens
Siemens SINUMERIK 828D 15" screen CNC controller with 3/4 axis servo motor

X9 FANUC
FANUC 0iMF Plus CNC Controller with 3/4 axis servo motor

X9 SYNTEC
SYNTEC 22MA 15" screen CNC Controller with 3/4 axis servo motor

X9 SYNTEC 5-axis
SYNTEC 220MA 15" screen CNC controller with 5 axis servo motor. 200 mm 5-axis rotary table

The X9 is our 3-axis machining centers for high-speed machining. Made with first-class components. Superb solid construction.

OPTIONS

NC rotary table servo type | 4th axis 255 mm

Probe System | Wireless type

Filtermist

Chip Conveyor

Tail Stock for 255 mm NC rotary table

Tool Setter Kits | Cable type TTC200

Central Coolant System (CTS 20 Bar)

SYIL Tooling Package

SYIL

SYIL X11

Designed for Large Workpieces

The X11 boasts excellent production performance and provides final production efficiency to its customers.

Standard:
SCHNEEBERGER mineral casting
10,000 rpm BT40 spindle
24-pocket ATC arm type

X11 Siemens
Siemens SINUMERIK 828D 15” CNC Controller with 3/4 axis servo motor

X11 FANUC
FANUC 0iMF Plus CNC Controller with 3/4 axis servo motor

X11 SYNTEC
SYNTEC 22MA 15" screen CNC Controller with 3/4 axis servo motor

X11 SYNTEC 5-axis
SYNTEC 220MA 15" screen CNC controller with 5-axis servo motor. 200 mm 5-axis rotary table

OPTIONS

NC rotary table servo type | 4th axis 255 mm
Tail Stock for 255 mm NC rotary table
Probe System | Wireless type
Filtermist
Chip Conveyor
Tool Setter Kits | Cable type TTC200
Central Coolant System (CTS 20 Bar)
SYIL Tooling Package

FEATURES

SCHNEEBERGER Mineral Casting

All SYIL X series machines are built on a high-quality SCHNEEBERGER mineral casting.

Mineral casting

Mineral casting is ideal for frame structures. Polymer concrete offers clear technological, economical and environmental advantages compared to steel and cast.

Mineral casting provides excellent vibration damping, high chemical resistance and significant thermal advantages (thermal expansion similar to that of steel). Connection elements, cables, sensor and measurement systems can all be poured into the assembly.

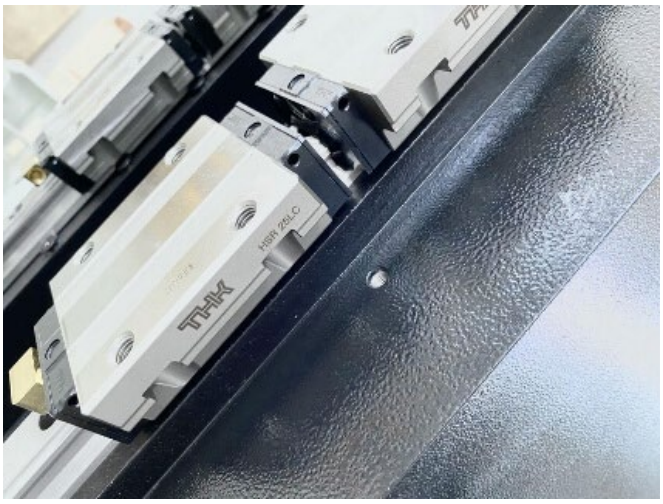
SCHNEEBERGER

SCHNEEBERGER offers a wide range of high-quality products for linear motion such as linear guideways, measuring systems, racks, slides and miniature tables as well as mineral casting, precision positioning systems and ball screws.

FEATURES

THK – Linear Guides and Ball Screws

All X series machines are powered by THK linear motion guides and ball screws.



Linear Motion

The LM Guide is THK's flagship product, the world's first practical application of rolling linear motion parts. It achieves higher precision, higher rigidity, reduced labor, higher speed, and longer service life of machines.

THK's ball screws are feed screws that provide high efficiency due to the rolling motion of the balls between the screw shaft and nut.
The drive torque is less than one-third that of a conventional sliding screw, making it ideal for power saving of the drive motor.

THK

THK, headquartered in Japan, is considered a pioneer in linear technology and is the world's leading manufacturer of linear guide systems. THK's linear guides (LM Guide) are based on a rolling motion by means of rolling elements and thus enable high-precision and energy-saving machines with high rigidity, high speed and long service life.

CONTROLLERS

SYIL recommends Siemens SINUMERIK 828D

We offer multiple controller options for each X series machine.

Undoubtedly, the CNC controller is one of the most important parts of the machine. A suitable controller will provide you with a lot of convenience in using the CNC machine. At SYIL we recommend Siemens SINUMERIK 828D, the powerhouse in the compact CNC class. Should you prefer another controller, we have got you covered. We offer:

Siemens SINUMERIK 828D

FANUC 0IMF-Plus

SYNTEC 22MA

SYNTEC 220MA

LNC M6800

SYIL

LNC M6800

- 10.4″ LCD
- High-quality surface design
- Chiclet/ Membrane MDI/Operating Panel

SYNTEC 22MA

- Mechatrolink 3 and EtherCAT serial communication support
- Supports HSHP, HPCC, SPA, ZPEC functions
- 2000 lines look-ahead
- Bell-shaped acceleration/deceleration provides both speed and stability
- Multi-spindle solution: productive, support multi-spindle tapping
- 10.4″/15″ screen options
- Maximum 6 axis

SYIL

Siemens SINUMERIK 828D

- Panel-based compact CNC
- Up to 10 axes/spindles and 2 auxiliary axes
- Up to 2 machining channels T, M, G
- 15.6" touch display
- SIMATIC S7-200-based PLC

FANUC 0IMF-Plus

- up to 12 axes, 6 spindle axes and 2 paths
- up to 2 additional loader paths
- 4-axis simultaneous and 3+2 axis machining
- ready to use with integrated software package
- integrated FANUC Dual Check Safety function
- shop-floor programming via MANUAL GUIDE i or TURN MATE i
- additional functions for simple customization
- integrated high-speed PMC
- high speed and high quality machining package
- maximum look-ahead blocks 400
- common operability, maintainability, network and PMC function with CNC Series 30i-MODEL B

OPTIONS

Functions with Added Value

You can equip our machining centers individually and flexibly with a wide range of machine options – for tailored support in your production scenarios.

Spindles

Rotary tables & tailstocks

Probing & tool measurement

Automatic Tool Changer

Filtermist

Central Coolant System

Chip Conveyor

Tooling Package

SPINDLES

At SYIL we partner with leading spindle manufacturers. The BT/HSK spindle options in our inventory are engineered to meet the diverse needs of machining operations. These spindles boast cutting-edge technology, ensuring you get the utmost accuracy and efficiency in your work. The spindles are built with meticulous precision, enabling you to tackle a wide range of applications with ease.

ROTARY TABLES

OEM

At SYIL, we partner with one of the leading NC rotary table manufacturers from Taiwan. For decades our OEM partner has been developing and producing compact, high-precision CNC rotary tables. Based on our X series designs, our OEM partner manufactures high quality NC rotary tables for us.

Adding an NC rotary table to your SYIL machine will ensure high speeds, large clamping forces and extreme accuracy.

Add an Axis

SYIL X series machines are 3-axis machining centers that all have the option to add an additional axis. There are good reasons to consider doing that. Adding a rotary table to your CNC machine gives your shop the ability to produce multiple face workpieces more easily and quickly. It also provides more flexibility on the type of work that can be produced.

4th Axis - for the X5, X7

4th axis rotary table specifications

Description	Unit	Value
Weight	Kg	28
Disk diameter	mm	Ø 130
Diameter of center hole of disk surface	mm	Ø 40
Diameter of center penetrating hole	mm	Ø 30
Centre height (vertical position)	mm	110
Table height (horizontal position)	mm	145
T slot width (See *Figure 15*)	mm	12 H7 (0/+0.018)
Guide key width	mm	14 h7 (-0.018/0)
Minimum resolution	Degrees	0.001
Segmentation precision	Seconds	40
Repeat precision	Seconds	4
Locking mode (barometric pressure usage)	Kg/cm	5
Locking torque	Kg*m	9
Gear ratio	-	1/60
Maximum disk speed	RPM	66.6 (Motor at 4,000 RPM)
Allowable load inertia capacity	$Kg*cm*sec^2$	2
Allowable workload	Vertical (kg)	50
	With tailstock (Kg)	100
	Horizontal(Kg)	50
Allowable cutting torque	Kg*m	9

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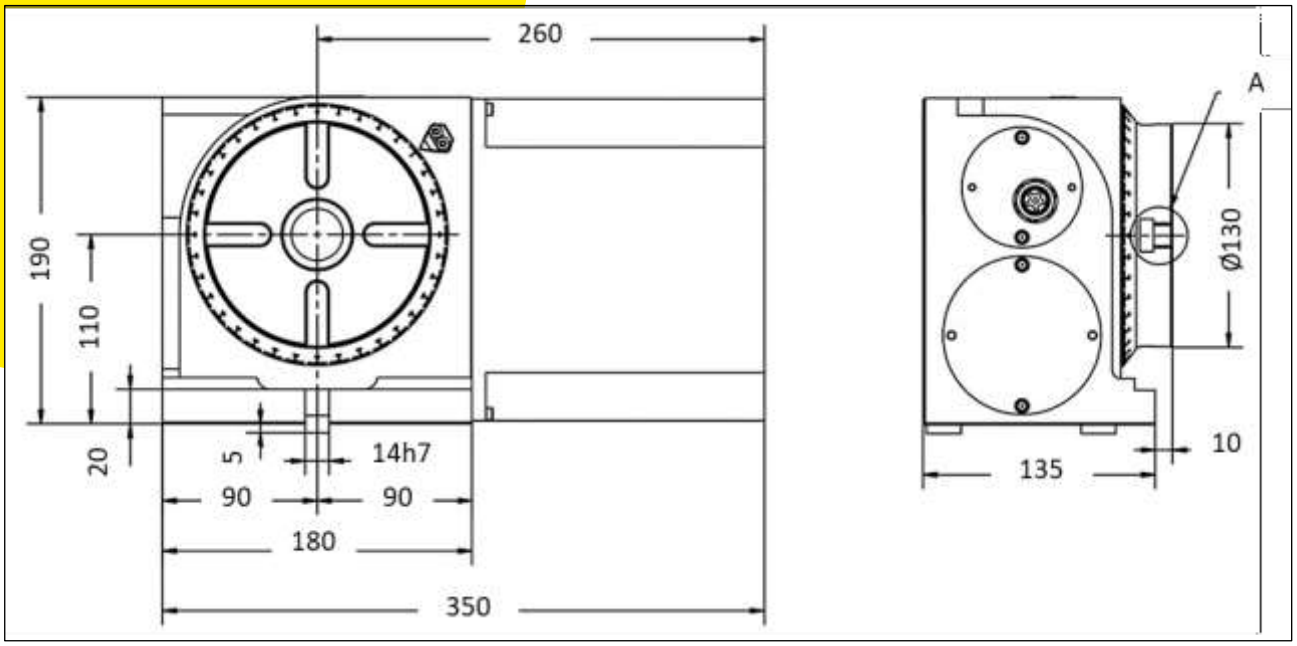
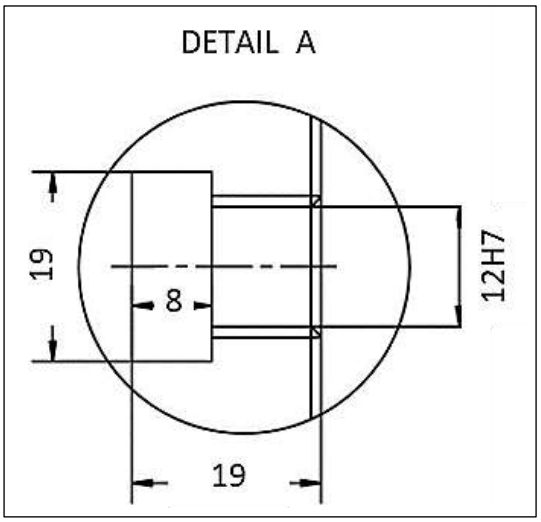
4th Axis - for the X5, X7

4th axis rotary table drawings





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5th Axis – for the X7

Option A: 5th axis rotary table specifications

Description	Unit	Value
Weight	Kg	90
End plate diameter / height	mm	Ø 125 / 215.9
Centre hole diameter	mm	Ø 26H7 x L19.9
Through hole diameter	mm	Ø 22
Timing axis centre height	mm	200
End plate T slot width	mm	12 H7
Guide key width	mm	14 H7
Clamping pressure	$Kg*cm^2$	5
Clamping torque Rotary / Tilting	Nm	150 / 400
Capacity of workpiece mass Level / slope	Kg	30 / 15
Torque constant Rotary / Tilting	Nm/Arms	5.3 / 10

4th Axis - for the X9, X11

Tailstock

We offer tailstocks that can be used in conjunction with your rotary table on a SYIL milling machine.

Available for: X5, X7, X9, X11

PROBING & TOOL SETTING

PIONEER

At SYIL, we partner with PIONEER for probing and tool measurement systems. PIONEER offers solutions and equipment that make your machine tool an instrument of unprecedented precision, productivity and reliability. Touch probes and laser-based tool setters hold the cutting process accuracy in check. Their balancing actuators and many dedicated sensors guarantee that your machine tool's functional processes never deviate from their specified set points.

Productivity Tools

Probing is the best solution for maximizing the capability, quality, efficiency and accuracy of CNC machine measuring tools. PIONEER probing can help reduce setup times and improve your process control.

PIONEER provides tool setter solutions for tool length and diameter setting and broken tool detection. These reduce reject rate and save cost.

SYIL

Wireless Probing System

OPS-30 Optical CNC Probe System

(Available for: X5, X7, X9, X11)

The OPS-30 optical touch probe system with special CNC probe programming contains the CNC-OP510 optical infrared probe, the OSI-20 receiver and the standard measuring software. The OP510 CNC XYZ touch probe is a compact touch trigger 3D probe with optical signal transmission that can be used to measure workpieces. The touch probe with optical transmission is widely used. The OPS-30 touch probe system with optical transmission is suitable for use in all SYIL X series machine centers.

OPS-30 optical probe system include two pieces of hardware and one software package; The software package model is SP-W10, the two pieces of the hardware are: 1）OP510 optical probe (including optional shank and stylus); 2）OSI-20 optical receiver(the standard cable length 8m/the optional lengthened cable).

Key use:

- Setting work-piece coordinate system and machining zero points automatically before processing;
- Detect and control the key dimensions, position coordinates and their precision automatically between two processes;
- Detect precision of the key dimensions, shapes, position after processing.

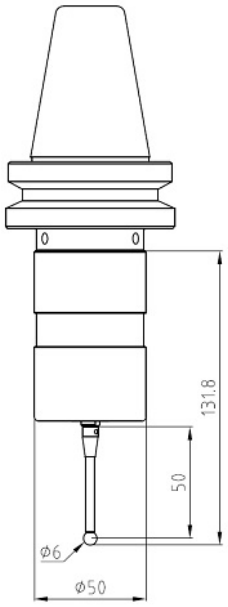
Wireless Probing System

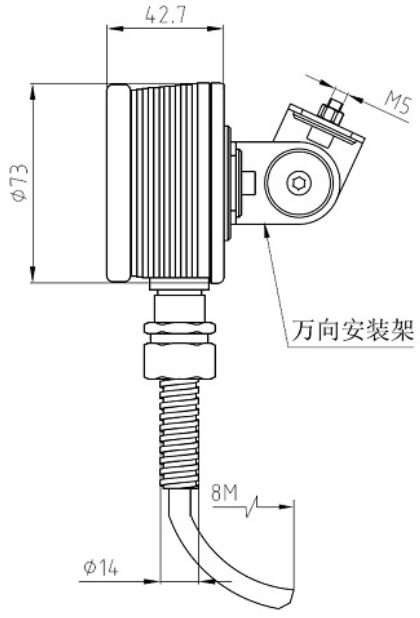
OPS-30 Optical CNC Probe System

(Available for: X5, X7, X9, X11)

OP510：	
Measuring direction	±X, ±Y, +Z
Arbitrary direction swinging angle	X-Y±12°, Z +5 mm
Repeatability （2σ）	≤ 2 μm；
Trigger force in Z direction	600±30（g）
Trigger force in X-Y direction	40-80g）
Optical signal receiving/sending distance	>5m
Model of the standard stylus	M4-P50-RB6-S36
Model of the battery	14250，3.6 (V), 2 Pcs
Seal grade	IP68

OSI-20：	
Optical signal receiving/sending distance	>5m
Input voltage	24±10% VDC
Output load current	50mA
Length of the cable	8m
Length of the cable retaining tube	2m
Seal grade	IP68



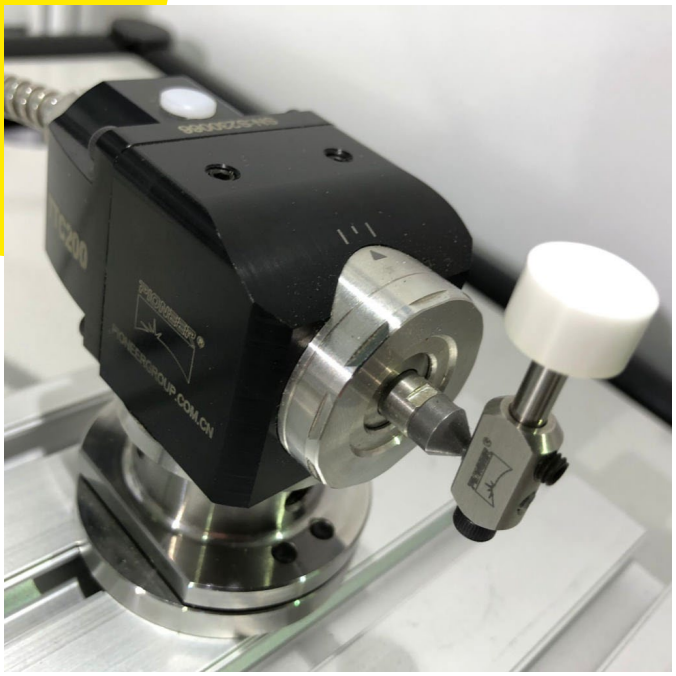


Tool Setter

TTC200 cable tool setter

(Available for: X5, X7, X9, X11)

The TTC200 Cable Tool Setter System includes a tool setting device, a blow cleaning device (optional) and standard measuring software. The TTC200 tool setter with cabled signal transmission is used to detect tool breakage and to quickly measure tool length and diameter on a wide range of tools.



TTC200 cable tool setter consists of a hardware and the software. The model of the software is SP-T10; the hardware also has a mounting base.

Key use:

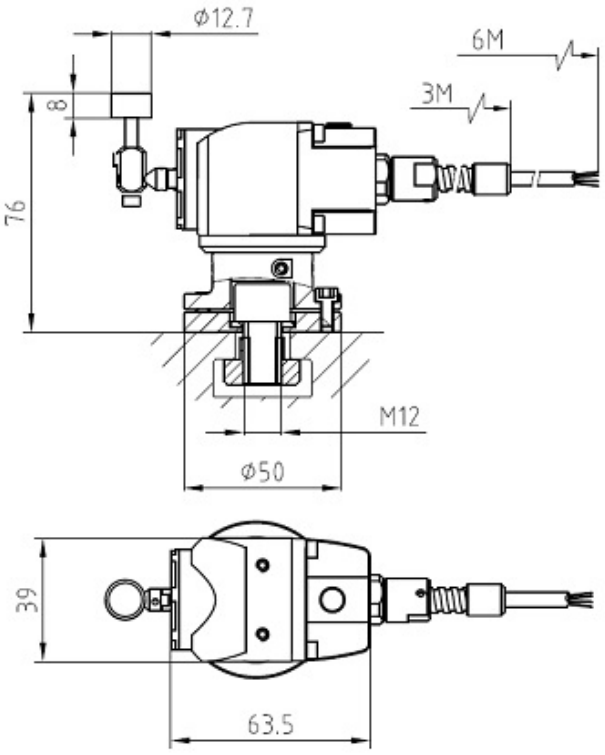
- Set lengths parameter of cutting tools automatically before CNC processing;
- Detect wear and breakage of cutting tools automatically between two processes or after the CNC processing;
- Through checking cutting tool parameters to control the change of machining precision from the temperature change of the machine;

Tool Setter

TTC200 cable tool setter

(Available for: X5, X7, X9, X11)

TTC200：	
Measuring direction	±X, ±Y, -Z
Repeatability （2σ）	≤ 2 μm ；
Diameter of the touching face	12.7±0.005mm
Hardness of the touch face	HM8.5
Input voltage	24±10% VDC
Output load current	50 mA
Seal grade	IP68



ATC

Automatic Tool Changer

16 positions BT30 | Power Drawbar Arm type

Available for: **X7**

FILTERMIST

Filtermist

The Filtermist oil mist filter system can be used to extract coolant mists produced by machining metals on your CNC machine.

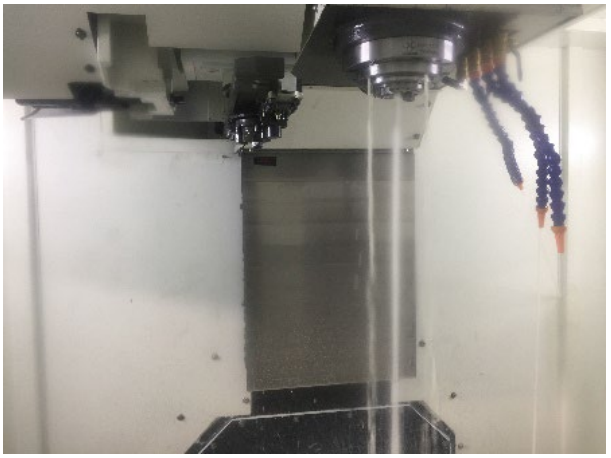
Available for: **X7, X9, X11**

CTS

Central Coolant System

Our Through-Spindle Coolant system provides up to 20 bar of coolant to the cutting tool, allowing for heavier cuts, higher feed rates, deep-hole drilling, and better surface finishes.

Available for: **X7, X9, X11**

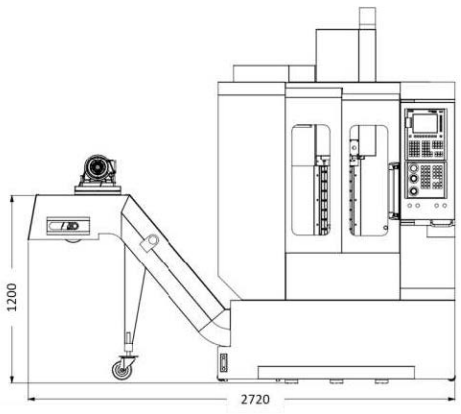


CHIP CONVEYOR

Chip Conveyor

The conveyor is usually installed on the left side of the machine.

Available for: **X7, X9, X11**



SYIL

TOOLING PACKAGE

Tooling Package

Our package contains the basics you need to start using your new SYIL mill.

Available for: **X5, X7, X9, X11**