

TC-20α

DRILLING&TAPPING CENTER

FEATURES :

This model is designed for light and tiny workpiece as well as for machining of diverse patterns with less quantity. High acceleration and deceleration capability effectively shortens machining time. Delicately, economically designed structure offers adequate rigidity that provide excellent accuracy at high speed running. The drilling and tapping center TC-20α provides machining efficiency, quality and stability all together for optimal production value.



Optimized design on foot span and structure. Adequate stability and rigidity are realized with economically designed structure.

Applications:

- Automotive Motorcycle Parts
- Mold Making
- 3C Products
- Semiconductor

TC-20α Drilling & Tapping Center Specifications

MODEL	Unit	TC-20α (OPT)
TRAVEL		
X AXIS TRAVEL	(mm)	510
Y AXIS TRAVEL	(mm)	400
Z AXIS TRAVEL	(mm)	300
SPINDLE NOSE TO TABLE SURFACE	(mm)	174~474
TABLE SURFACE TO FLOOR	(mm)	845
TABLE		
TABLE DIMENSION	(mm)	600X400
MAX.LOADING WEGHT	(kg)	250
T-SLOTS (W×NQ×P)	(W×NQ×P)	14X3X125
SPINDLE		
SPINDLE SPEED	(rpm)	12,000(20,000)
SPINDLE NOSE		7/24Taper No.30
SPINDLE MOTOR	(kw)	8.7 / 5.5(4.8 / 7.2)
FEEDRATE		
RAPID TRAVERSE X AXIS	(m/min)	48(50)
RAPID TRAVERSE Y AXIS	(m/min)	48(50)
RAPID TRAVERSE Z AXIS	(m/min)	48(50)
AUTOMATIC TOOL CHANGER		
NO. OF TOOLS		14
PULL STUD		P-30T(45°)
MAX. TOOL WEIGHT/total tool	(kg)	3/25
MAX. TOOL LENGTH	(mm)	200
MAX. TOOL DIAMETER	(mm)	Ø 80
TOOL CHANGING TIME (TOOL TO TOOL)	(sec)	1.5
FLOOR SPACE	(mm)	1600 X2265
MACHINE WEIGHT	(kg)	2400
MAX. MACHINE HEIGHT	(mm)	2555
POWER CAPACITY	(KVA)	15
AIR SOURCE	(Bar)	6~8

STD		OPT	
DDS 12000	Coolant ring	DDS15K/20K	Top roof
BT30 turret type ATC/14T	Spindle clamp/ unclamp air blow	G00 : 48/48/48 m/min	Chip conveyor
G00: 36 / 36 / 48 m/min	Fully enclosed splash guard	G00 : 50/50/50 m/min(Siemens)	Oil-coolant skimmer
Spindle air blast - M-code control	Dust-proof electrical cabinet	Coolant through spindle	Spindle oil cooler
Spindle coolant nozzle	Leveling blocks and plates	Automatic tool length measurement	Transformer
Heat exchanger	RS-232 Interface	Workpiece measurement system	Cooler gun
Fluorescent lamp	3-color signal lamp	4th axis rotary table	Air gun
Automatic lubricating system	rigid tapping	Column raiser 200mm	
Labyrinth spindle nose design with air seal system		Chip Flushing system	

*Specification is subject to change without prior notice.



Our Innovation, Your future

HEADQUARTERS

No. 186, Yong Chi Road, Taipei, Taiwan.
Tel: +886-2-2763-9696
Fax: +886-2-2768-0636/37/39
http://www.fairfriend.com.tw
E-mail: chair@fairfriend.com.tw

MACHINE TOOLS DIVISION

No. 133, Gong 1st. Road,
Taichung Industrial Park, Taichung City, Taiwan.
Tel: +886-4-2359-4075(MAIN)
Fax: +886-4-2359-0318
http://www.feeler.com
E-mail: sales@feeler.com

13.02.500-S601000001



TC-20α

DRILLING&TAPPING CENTER



IT'S VERY WELL
MADE IN TAIWAN



Parts of 3C products



Parts of 3C products



Automotive motorcycle parts



Turret-type ATC

- Magazine for 14 tools.
- Tools of 7/24 taper are applicable; both clockwise and counter-clockwise rotation available for high efficiency tool selection.

Highlighted Features

Enlarged Cooler Tank

- The cooler tank enlarged by 32.5%.
- The chip tank enlarged by 200%.

Effective Protection

Single-piece axial cover on Z/Y axes feedrate and lifetime.

Enhanced Coolant and Chip Discharge

2 tilting discharge channels along with large cooler tank speeds up exhaust of coolant and chips.

Enlarged Window

Easier maintenance on X axial servomotor, guideways and ball screw.

Self-lube System

Automatic lubrication for extended machine lifetime.

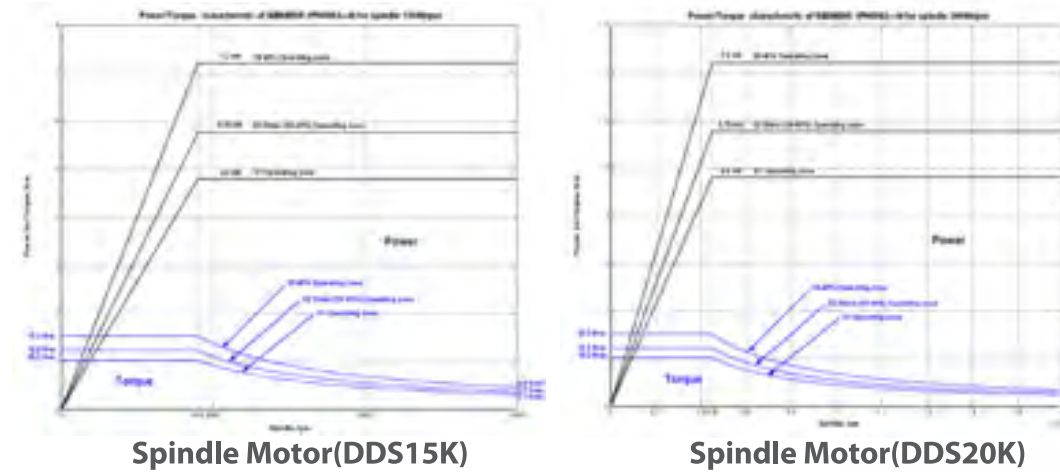
Dual Flushing

- High volume flushing for longer tool lifetime.
- Flushing nozzles set at side for least interference with the 4th axis.

Pneumatic System

The pneumatic system is set externally for easy check and maintenance.

DDS12/15/20K Spindle

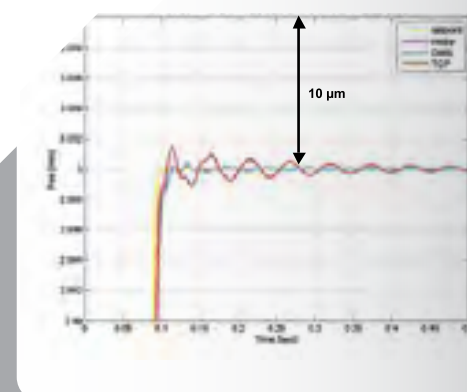


Efficiency Enhancement

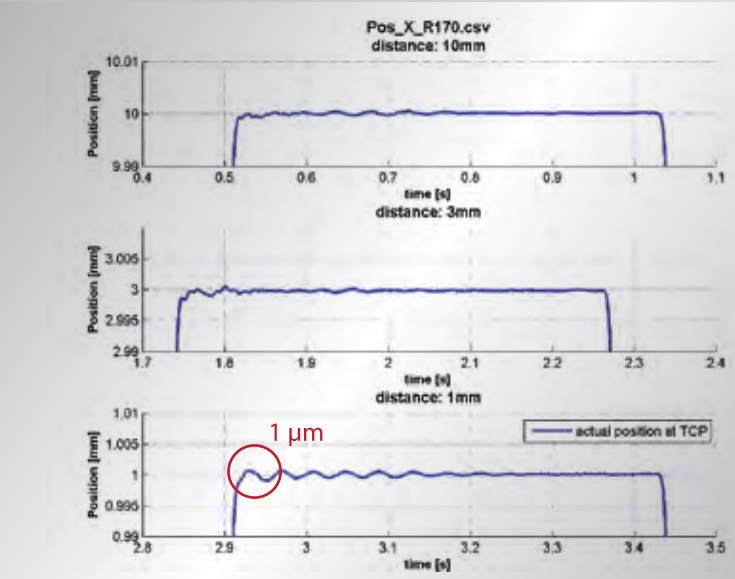
Integrated technologies, increased rigidity and enhanced

The TC-20α features excellent mechanic rigidity, leading to exceptional high positioning accuracy during high acceleration. Such character shows remarkable design on rigidity and also indicates that TC-20α is able to provide increased machining efficiency under the same precision and machining quality requirements.

With condition of jerk 170m/s³ high acceleration movement, the positioning accuracy of the tool tip achieves excellent 1μm. For high-speed precision mold & die machining application, such performance is of ultimate level, outstanding among the products of the same class. The real machine measuring and cutting test of a 3C mold proved Siemens' verification precision capability and controller's excellent performance, and both once performance proved remarkable.



Excellent positioning level of 1 μm of Axis X with the acceleration set as 1.2G and Jerk 170m/s³.



In real machine measuring, when Axis X is triggered in different kinetic modes from low to high, the positioning accuracy of the central position of the tool nose remains within 1μm, proving reliable accuracy.

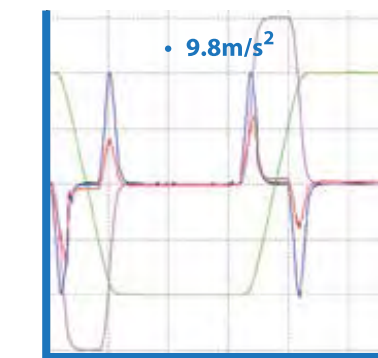


Excellent Performance from Enhanced Speed and Accuracy.

Increased Acceleration

Increased acceleration results in faster movement and shorter machining time.

TC-20α
X **1.2G**
Y **1G**



Acceleration superior to other model of the same class

Enhanced Performance

Mobile Back Cover Machining Result

Previous Model	
Test Condition	
S14000 / F3200	
Good	

TC-20α
Test Condition
S19000 / F4450
Excellent

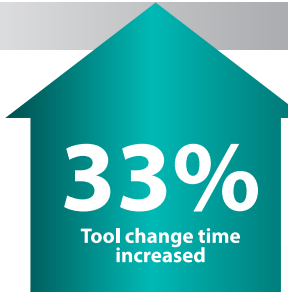
TC-20α, better dynamic rigidity resulting in increased feedrate by **39%**

TC-20α, excellent overall performance resulting in increased machining efficiency by **20%**

T-T Time Shortened from 2 to 1.5 Sec

T-T Time Test Result

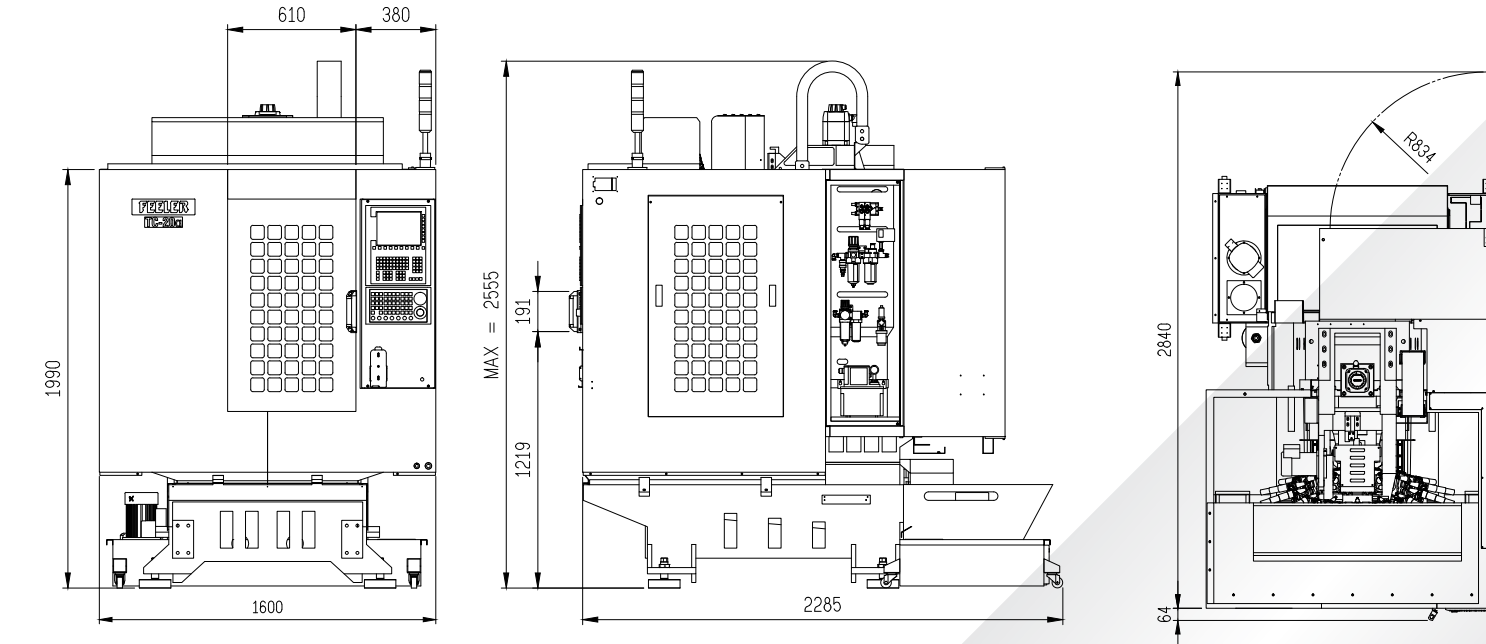
Previous Model	TC-20α
2 sec	1.5 sec



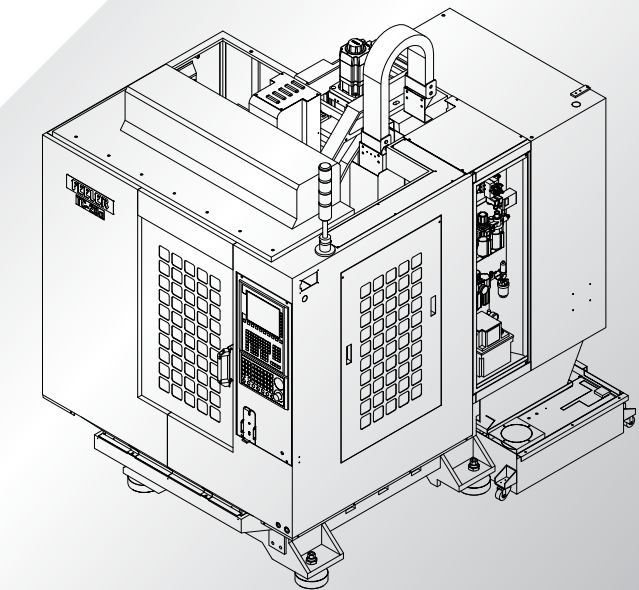
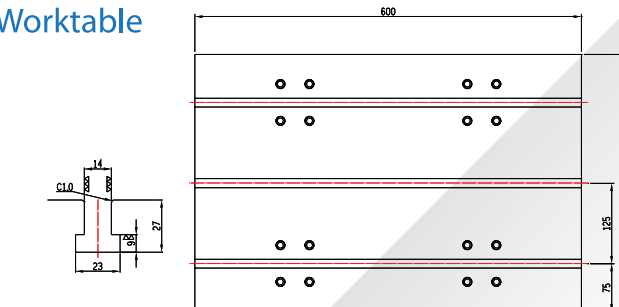
The tool clamping mechanism is of fixed jaws with Belleville spring, featuring high efficiency tool clamping superior to general ball type.

Drawings

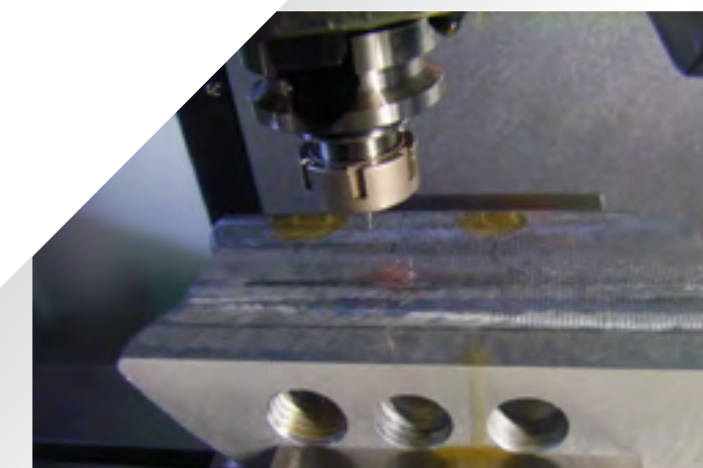
Floor Space



Worktable



Test – Tiny Hole Drilling



The TC-20α features excellent rigidity and minimum vibration.



Test drilling of tiny hole of 0.75 x 5mm, up to 4,700 holes.