



Trust & Technology



The art of extreme turning

TNL-130AL/160A Series



It is especially designed for heavy duty turning. The full box-way design has a high rigidity spindle and high performance turret, the TNL-130AL/160A series is given a strong and stable machine structure to bring to you an exciting turning experience.

Excellent machine structure design with high-grade casted machine bed and fine ground box ways, provides stability and high dynamic rigidity. It's the basic and most crucial feature of high machine performance.

High horsepower servo motor is driven directly through coupling for avoiding transmission deviation. Moreover, the rapid traverse in X and Z axis achieve 20m/min to enhance the machining efficiency.

Powerful spindle is available for gear deceleration. The maximum torque reaches 705N.m (for 130AL series) and 991N.m (for 160A series). The maximum machining diameter is 410mm. The TNL-130AL/160A series provides outstanding precision performance for worldwide customers.

The standard hydraulic turret's positioning is activated by a gear clutch with 210mm diameter for ensuring rigidity during heavy duty machining. Furthermore, the C axis and power turret (BMT-65) are available for achieving the multi-function in both turning and machining as well as maintaining the maximum machining diameter at 410mm.

The C axis adopts a circle encoder to provide excellent positioning and repetition accuracy. Moreover, the live tools are driven by a high horsepower motor. That makes the machining missions easy for TNL-130AL/160A.

Depending on customers' needs, the TNL-130AL/160A series provides three different stroke selections for Z axis, including 1000mm, 1600mm, and 2000mm. Long workpieces can be fixed by steady rests (optional). Moreover, the programmable heavy loading tailstock uses a high pressure holding unit to ensure the holding power that keeps workpiece turning stability.

Machine structure

The whole series, with the box-way design, incorporates a high rigidity structure.

X/Z axis stroke

TNL-130AL/AL1.6M/AL2M

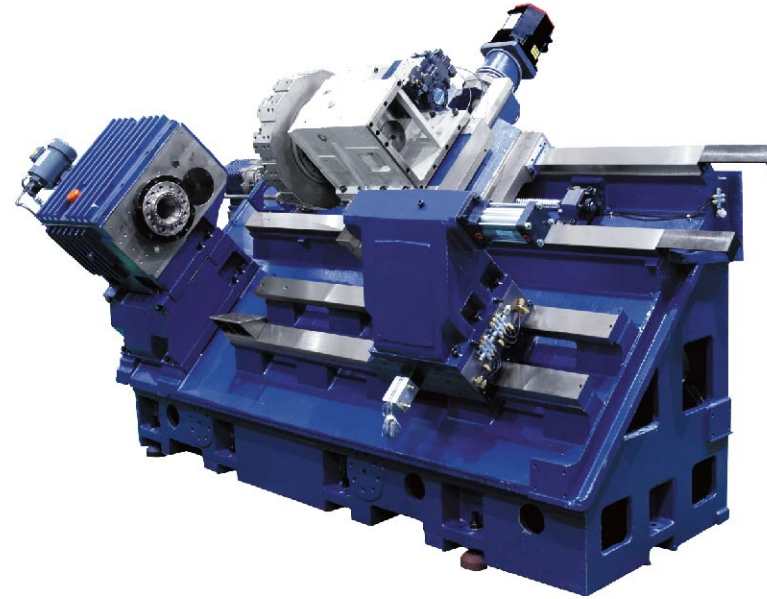
X axis 245 mm

Z axis 1000/1600/2000 mm

TNL-160A/AL1.6M/AL2M

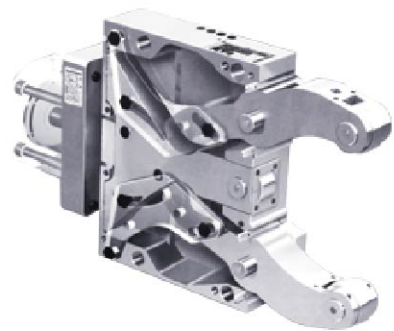
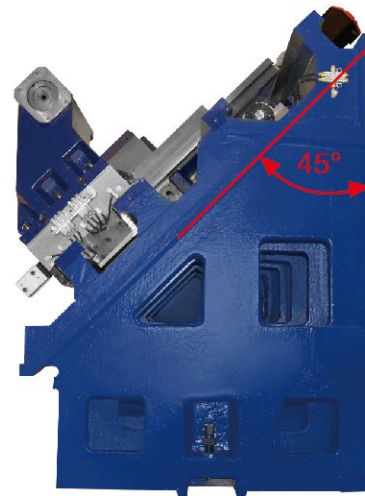
X axis 275 mm

Z axis 1000/1600/2000 mm

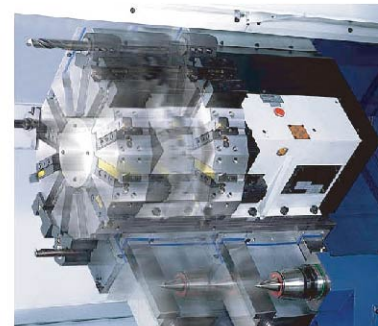


Slant machine bed design:

This special design for heavy duty turning. Integrates a machine bed with 45 degree slant that allows both high stable processing ability and easier chip removal.



Depending on the customers' needs, the TNL-130AL/160A series provides three different strokes selections. With the steady rests (optional), the long workpiece will obtain a strong support in heavy duty turning and ensure stable turning precision.



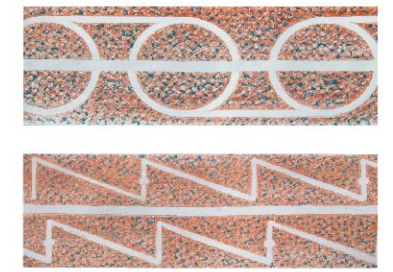
Heavy loading tailstock design:

Programmable tailstock is moved by the turret saddle. After positioning, the tailstock uses the high pressure holding unit to ensure the holding power that keeps workpiece turning stability.

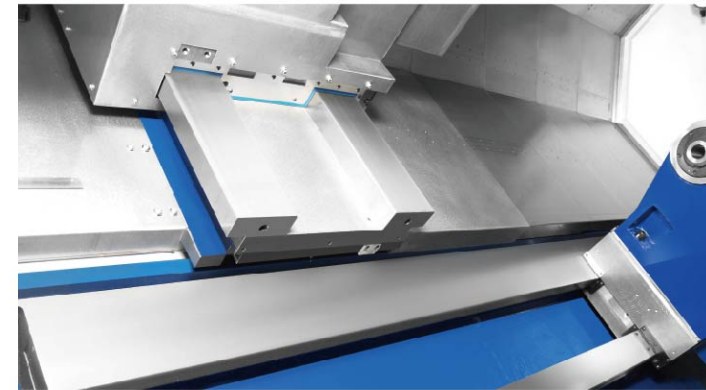
Scraping



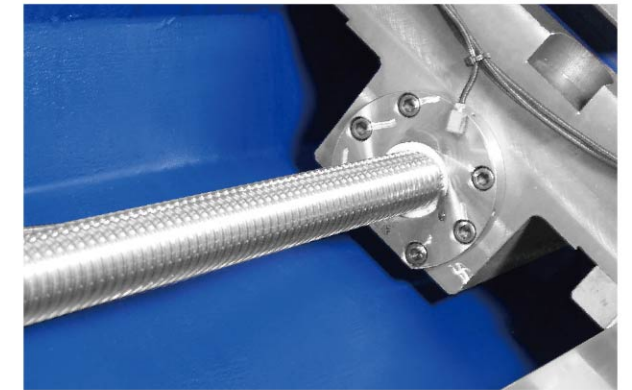
The finest scraping skill is engaged by experienced experts. They refine every artistic detail for ensuring the best lubrication effects in the box-way. By scraping, thermal distortion is avoided and turning accuracy for heavy



High precision slider design



X axis and Z axis adopt the box-way design and provide high rigidity in heavy duty turning and non-continuous turning.

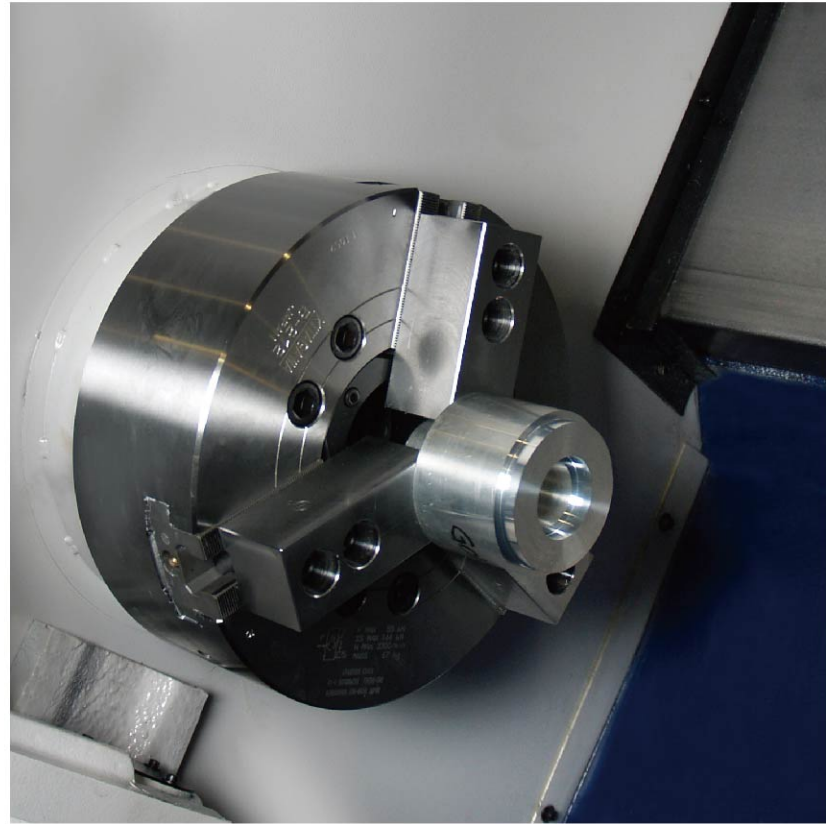


The preloaded ball screw reduces thermal distortion and ensures the machine's performance and precision.

Ergonomic design



The ergonomic design facilitates the operator in monitoring the production process during program editing. It reduces mistakes and improves the working efficiency.

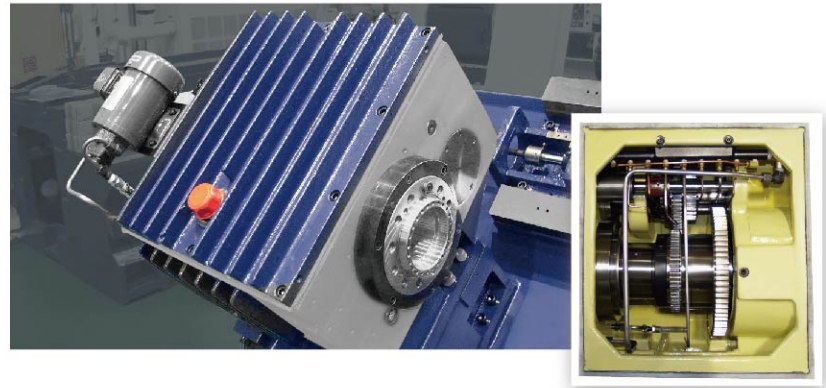


TNL-130AL
 Max. spindle speed **3500** rpm
 Spindle H.P. (30 min.)
 Standard : **18.5/15** kw
 Option : **26/22** kw

TNL-160A
 Max. spindle speed **2500** rpm
 Spindle H.P. (30 min.)
 Standard: **26/22** kw

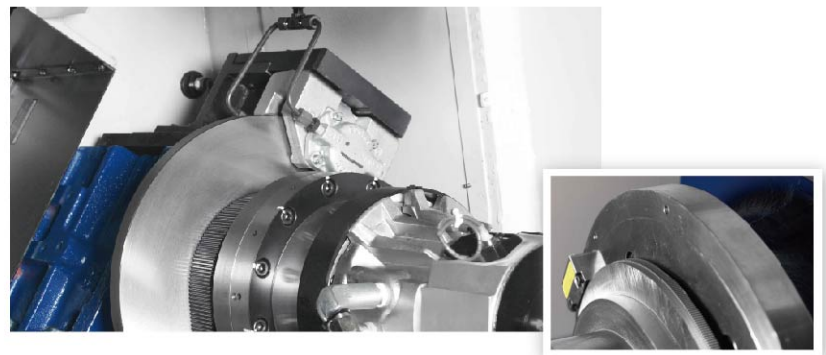
The spindle is equipped with preloaded angular bearings and dual-roller bearings in constant temperature environment. These bearings maintain a large contact with surface to ensure spindle keeps high processing stability in heavy duty turning.

Gear box type spindle



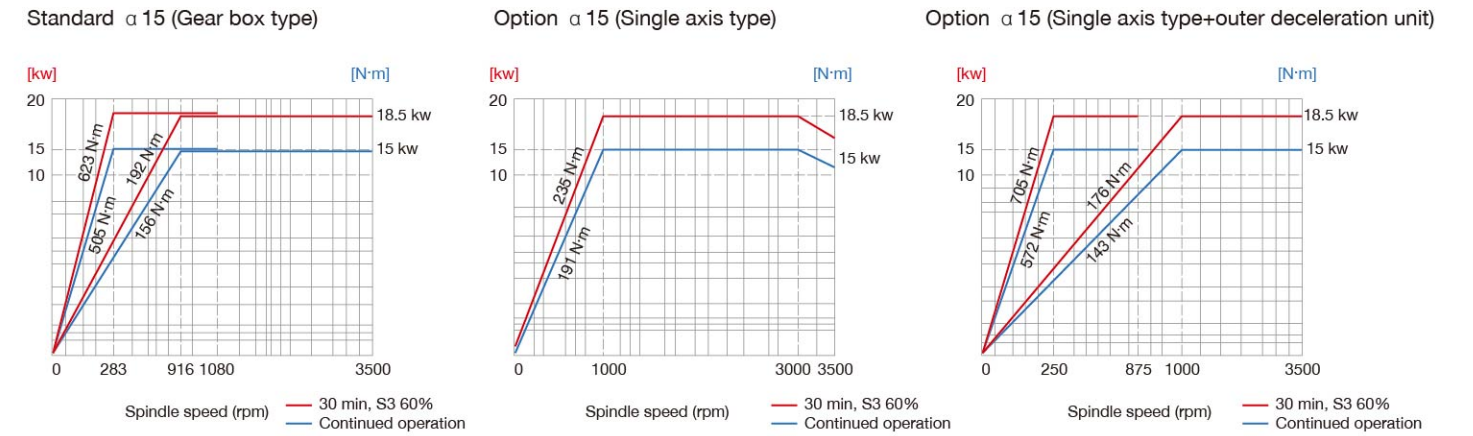
A two step deceleration unit with advanced machine design provides high torque performance in low speed. Moreover, it also provides excellent chip removal capacity for large diameter workpieces in heavy duty turning.

CS axis (Opt.)

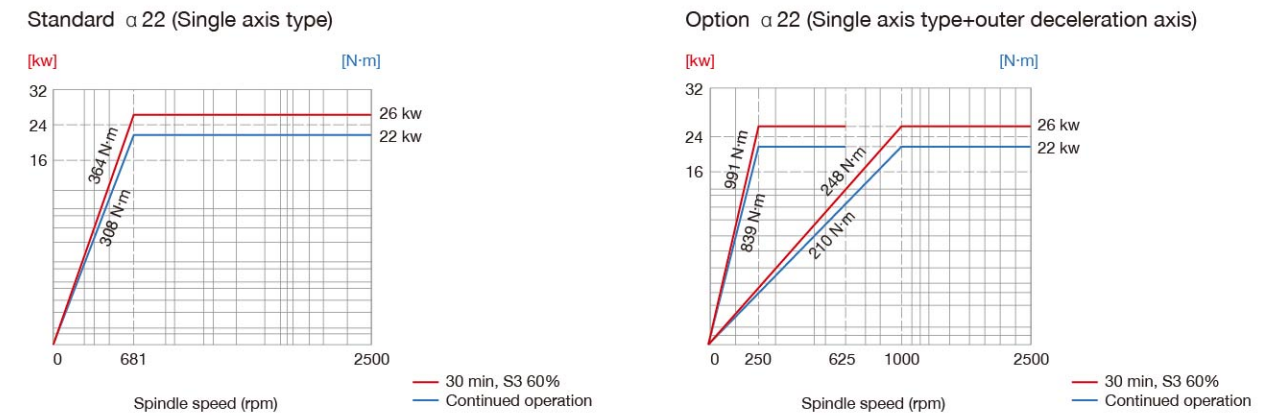


The CS axis is positioned by using a circular linear scale with multi-points positioning function. The minimum index position can be set to 0.001 degrees to satisfy various processing needs.

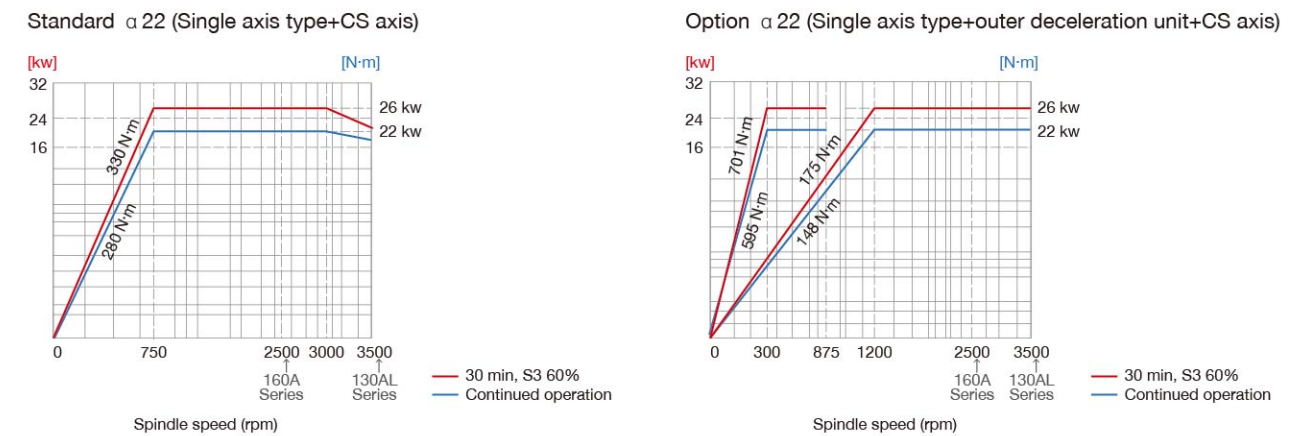
TNL-130AL series



TNL-160A series



All series (Optional power live tools)



Spacious and comfortable working area

TNL-130AL [TNL-160A] series



Max. safety door open
TNL-130AL/160A : 1205 mm

Max. swing diameter $\varnothing 620$ mm

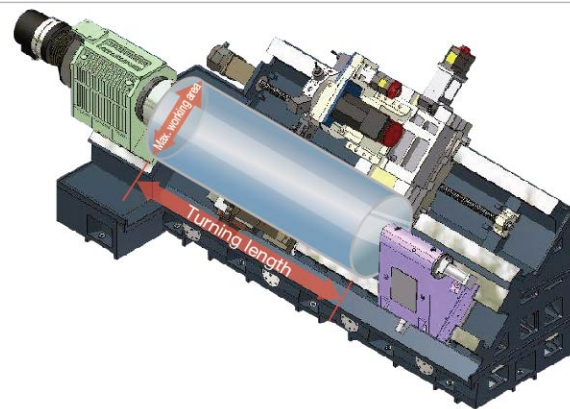
Max. turning diameter $\varnothing 410/\varnothing 530$ mm Max. swing diameter over saddle $\varnothing 410$ mm

Turning ability

Max. turning length

TNL-130AL [1.6M/2M]
975 [1575/1975] mm

TNL-160A [1.6M/2M]
975 [1575/1975] mm



Turning ability (Material : S45C)

| Item | TNL-130AL | TNL-160A | Unit |
|--------------------|-----------------------------|-----------------------------|-------------|
| * O.D. turning | 5x0.4 | 7x0.4 | mm×mm / rev |
| * I.D. turning | 5x0.3 | 7x0.3 | mm×mm / rev |
| * Face milling | 5x0.45 | 7x0.45 | mm×mm / rev |
| O.D. grooving | 8x0.1 | 8x0.1 | mm×mm / rev |
| I.D. grooving | 8x0.1 | 8x0.1 | mm×mm / rev |
| Drilling | $\varnothing 40 \times 0.3$ | $\varnothing 40 \times 0.3$ | mm×mm / rev |
| Spindle H.P. | 18.5/15 (Single axis type) | 26/22 (Single axis type) | kw |
| Max. spindle speed | 2500 | 2500 | rpm |

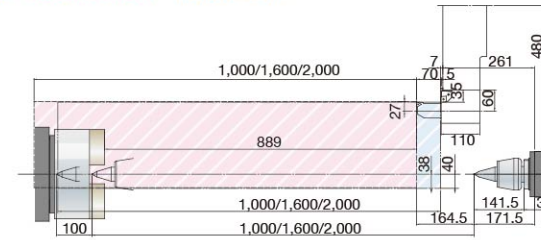
* Spindle's load arounds 110~120 %

Working area

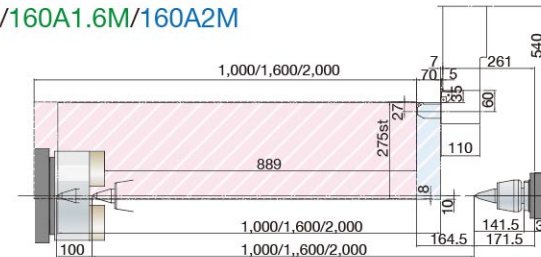
Unit : mm

Hydraulic turret

■ 130AL/130AL1.6M/130AL2M

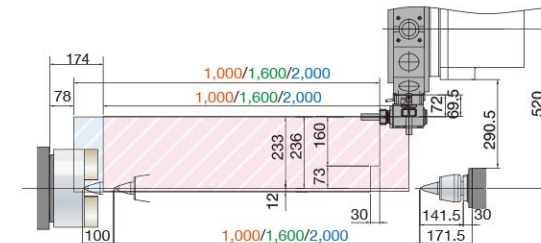
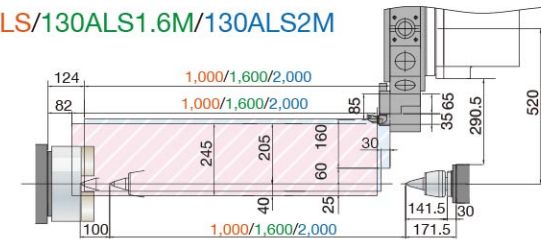


■ 160A/160A1.6M/160A2M

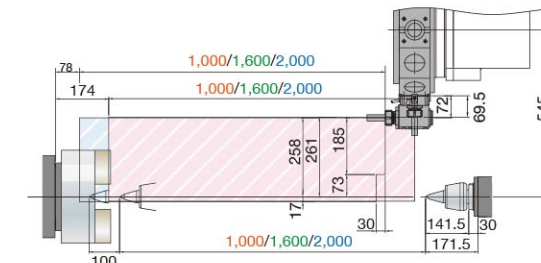
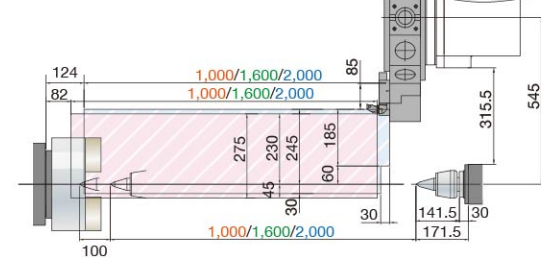


Power turret

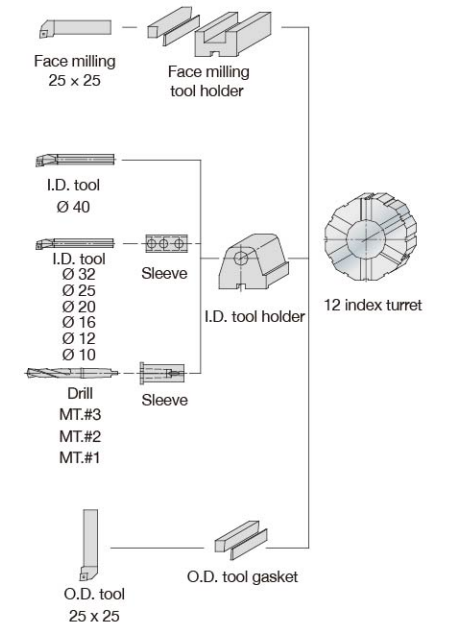
■ 130ALS/130ALS1.6M/130ALS2M



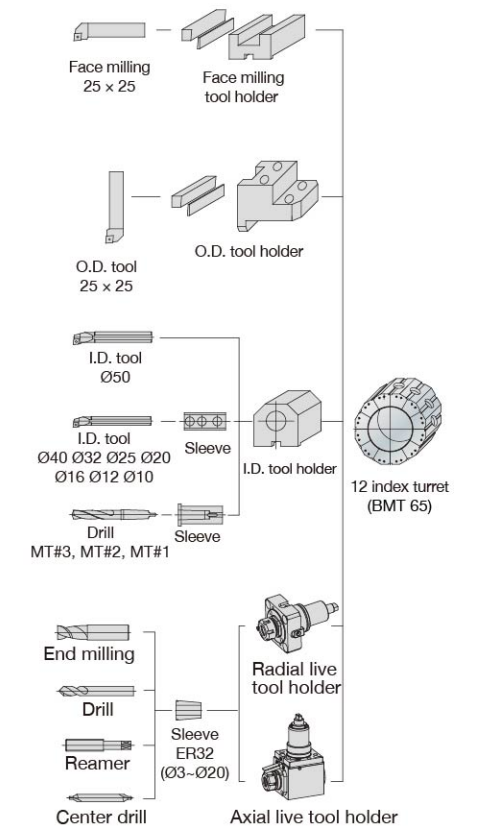
■ 160AS/160AS1.6M/160AS2M



Tooling system



Tooling system



Specification



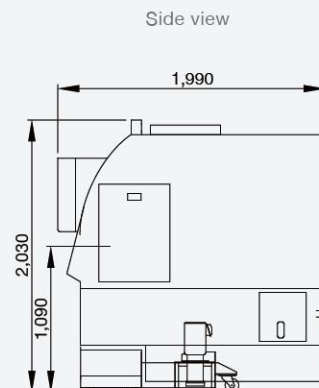
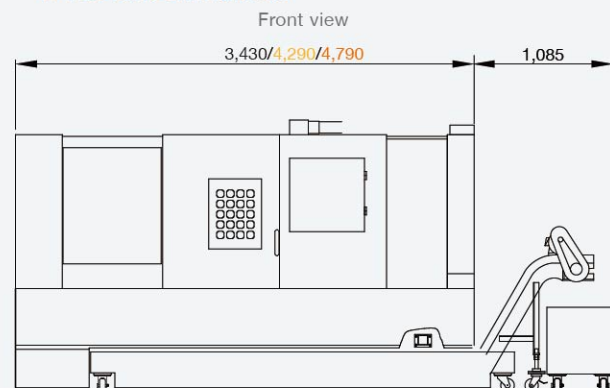
Optional Accessories

| Item | Specification | Unit | TNL-130AL[1.6M/2M] | TNL-160A[1.6M/2M] |
|-------------------|--------------------------------------|----------------------------|---------------------------------|---------------------------------------|
| Turning capacity | Max. swing diameter | mm | Ø620 | Ø620 |
| | Max. swing diameter over saddle | mm | Ø410 | Ø410 |
| | Max. turning diameter | mm | Ø410(Opt. power turret Ø410) | Ø530(Opt. power turret Ø460) |
| | Max. turning length | mm | 975[1575/1975] | 975[1575/1975] |
| Spindle | Spindle nose | | A2-8 | A2-8 |
| | Spindle speed | rpm | 3,500(Opt. 2,500 gear box type) | 2,500 |
| | Chuck O.D. | inch | 10"(Opt. 12") | 12"(Opt. 15") |
| | Through-spindle hole diameter | mm | Ø87 | Ø105 |
| | Bar capacity | mm | Ø75 | Ø90 |
| | Spindle bearing diameter | mm | Ø130 belt driven/gear box | Ø160 belt driven |
| Turret | Tool capacity | pc | 12 | 12 |
| | O.D. tool | mm | 25x25 | 25x25 |
| | I.D. tool | mm | Ø40 | Ø40 |
| | Power turret (Opt.) | Tool capacity | pc | 12(BMT 65) |
| Motor | Motor | kw | 5.5/3.7 | 5.5/3.7 |
| | O.D. tool | mm | 25x25 | 25x25 |
| | I.D. tool | mm | Ø40 | Ø40 |
| | Max. speed | rpm | 4,500 | 4,500 |
| Stroke | X/Z axis stroke | mm | 245/1000[1600/2000] | 275/1,000[1,600/2,000] |
| | X/Z axis rapid traverse | m/min | 18/20 | 18/20 |
| Feed | Cutting feedrate | mm/rev | 0.01-500 | 0.01-500 |
| | Tailstock | Tailstock/Hydraulic stroke | mm | 1,000 [1,600/2,000](Programmable)/100 |
| Tailstock | Tailstock taper | | MT#5 | MT#5 |
| | Center diameter | mm | Ø90 | Ø90 |
| | Driving system | | Carries by Z axis | Carries by Z axis |
| Hydraulic unit | Hydraulic tank capacity | L | 40 | 40 |
| | Hydraulic motor | kw | 2.2 | 2.2 |
| Coolant unit | Coolant tank capacity | L | 200 [240/280] | 200 [240/280] |
| | Coolant motor | kw | 1.1 | 1.1 |
| Motor | Spindle motor with gear box (50% ED) | kw | 18.5/15 | - |
| | Spindle motor (50% ED) | kw | - | 26/22 |
| | X/Z axis servo motor | kw | 3.0/4.0 | 3.0/4.0 |
| Controller | | | FANUC 0i-T | FANUC 0i-T |
| Sound power level | LWA | | 76 | 76 |
| Machine size | LxWxH | mm | 3,430[4,290/4,790]x1,990x2,030 | 3,430[4,290/4,790]x1,990x2,030 |
| | Weight | kg | 6,500[7,000/7,500] | 7,200[7,700/8,200] |

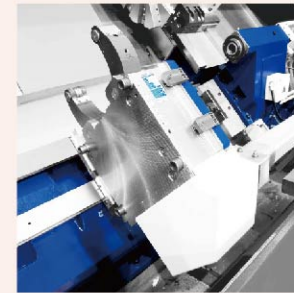
©Specifications may be changed without prior notice

Machine Dimensions

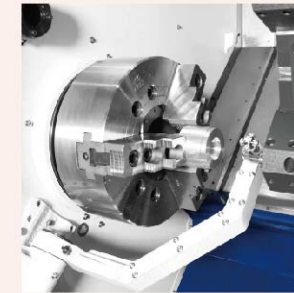
- TNL-130AL / 160A
- TNL-130AL 1.6M / 160A 1.6
- TNL-130AL 2M / 160A 2M



Unit : mm



Steady rests



Tool presetter



Tri-color warning light



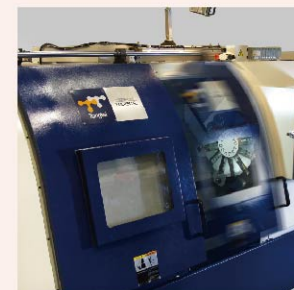
Oil mist collector



Transformer



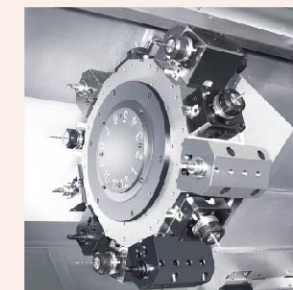
Sub-operation box



Automatic door



A/C for electrical cabinet



Power turret



FANUC 31i controller



Oil skimmer



Torque clutch

Your best partner for metal-cutting total solutions



Tongtai emphasizes providing an excellent investment strategy to our clients with high cost-performance ratio. We give our customers supreme machine performance with reasonable prices.

Our management team and the members of all five of its departments will ceaselessly search for innovative solutions for your processing needs. All your sales and after sales concerns will be satisfied! That means, when you purchase our machines, the service never stops!

Our company slogan "Trust & Technology" is always backed with passion for our product improvements and responsibility for our service to you.



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