

PUMA 700LM

High Performance Mill-Drill Turning Center

Puma 700LM turning center is designed for heavy and interrupted cutting, long-term high accuracy, and superior surface finishes. High-speed turret indexing and fast rapid traverse rates minimize non-cutting time. Mill-drill capability reduces the need for secondary machining on other machines, helping to eliminate additional machine set-ups and handling costs. Classic manufacturing methods and rigid construction are combined with advanced technological features to provide exceptional value.



MAIN FEATURES

- Powerful 45 kW (60 hp) high-torque spindle drive
- Large 166.5 mm (6.55") draw tube ID
- High speed 1,500 rpm spindle
- Programmable high / low chucking pressure
- 12 station heavy duty turret 310 mm (12.2") curvic coupling
- Fast 0.25 second turret indexing
- One-piece 45-degree torque-tube slant bed
- Isolated 3-speed gearbox
- Solid box way construction
- Fluoroplastic anti-friction mating way surface
- Double pretensioned X and Z axis ball screws with torque limiter ball screw protection
- 3,200 mm (126") maximum turning length
- Fast 10 m/min (394 ipm) Z axis rapid traverse
- Up to 38,975 N (8,762 lb) of Z axis thrust
- Large 900 mm (35.4") maximum turning diameter
- FANUC 32i-B control with swiveling operator's panel
- Rigid base mounted tooling BMT-85 system
- 4.5 bar (65 psi) coolant system
- Doosan EZ Guide i Conversational Programming
- Doosan Tool Load Monitoring System

STANDARD EQUIPMENT AND WARRANTY

- Hydraulic chuck actuator: SDL-30516 with 166.5 mm (6.555") through hole
- Automatic tool setter
- Bracket for THL-510, FRU5.1 and SLU5.1 hydraulic steady rest
- Fast 3,000 rpm rotary tool speed
- Separate coolant tank with way lube oil skimmer
- Automated metered lubrication system
- Programmable hydraulic tailstock (body clamp, drive pin and quill) – MT #6 built-in dead center
- P4 class spindle bearings and P4 class angular thrust bearings
- 870 psi hydraulic unit
- Milling, drilling and rigid tapping capabilities on both main spindle and rotary tools. 3 rotating tool holders included in standard tooling package
- 0.001 degree spindle indexing
- Powerful 11 kW (15 hp) rotary tool motor
- Work light
- Tool box with operating tools
- Leveling bolts and plates
- Doosan instruction, operation, parts list and electrical drawing manuals in hard copy format. FANUC manuals provided on USB drive (Hardcopy available for purchase, contact parts department)
- Safety features: fully enclosed work area, door interlock, hydraulic pressure safety switch, spindle Interlock, program protect, chucking signal
- Two-year machine parts warranty, one year labor warranty. Two-year control warranty: Parts and Labor. See warranty pages for details.

SPECIFICATIONS

CAPACITY:

Swing over bed	1,030 mm (40.55")
Swing over carriage	800 mm (31.5")
Maximum turning diameter	900 mm (35.4")
Maximum turning length	3,200 mm (126")
Distance between spindle nose and tailstock center	3,600 mm (141.7")

SPINDLE:

Spindle speed	1,500 rpm
Spindle nose	A1-15
Draw tube ID	166.5 mm (6.55")
Spindle bore diameter	181 mm (7.12")
AC spindle motor (30 min. rating)	45 kW (60 hp)
Spindle speed ranges	3
Maximum spindle torque (30 min. rating)	6,605 Nm (4,873 ft-lb)

C-AXIS:

Minimum programmable angle (degrees)	0.001 degree
Rapid traverse rate (RPM)	200 rpm
Indexing repeatability	±0.006 degree
Indexing positioning accuracy	0.0167 degree

BED, SADDLE & CROSS SLIDE:

Angle of slant bed	45-degree
X axis travel	470 mm (18.5")
Z axis travel	3,235 mm (127.3")
X axis guide way span	430 mm (16.9")
Z axis guide way span	600 mm (23.6")
X axis rapid traverse rate	12 m/min (472 ipm)
Z axis rapid traverse rate	10 m/min (394 ipm)
X axis ball screw diameter	50 mm (2.0")
Z axis ball screw diameter	63 mm (2.5")
X axis feed thrust (continuous)	15,517 N (3,488 lb)
X axis feed thrust (intermittent)	21,724 N (4,884 lb)
Z axis feed thrust (continuous)	29,981 N (6,740 lb)
Z axis feed thrust (intermittent)	38,975 N (8,762 lb)
X axis repeatability	±0.002 mm (±0.00008")
Z axis repeatability	±0.003 mm (±0.00012")

TURRET:

Number of tools	12
Tool holder type	BMT-85
Turning tool shank size	(metric turret 32 mm) 1.25"
Boring bar diameter	(metric turret 80 mm) 3.0"
Turret index time (next station swivel time)	0.25 second
Tool selection	Bi-directional
Curvic coupling diameter	310 mm (12.2")
Turret clamping force	127 kN (28,550 lb)
Turret index repeatability	±0.0005 degree

ROTATING TOOLS:

Rotating tool RPM	3,000 rpm
Rotating tool HP (30 min. rating)	11 kW (15 hp)
Maximum rotating tool torque - (30 min. rating)	140 Nm (103 ft-lb)
Rotating tool type	BMT-85
Rotating tool collet type	ER 50
Maximum collet ID	1/4 to 1 1/4"

TAILSTOCK:

Tailstock center	MT #6 built-in dead
Tailstock quill diameter	160 mm (6.3")
Tailstock quill stroke (programmable)	150 mm (5.9")
Tailstock body stroke	3,135 mm (123.4)
Maximum tailstock quill thrust	32 kN (7,150 lb)
Maximum tailstock hydraulic pressure	40 bar (580 psi)
Tailstock guide way span	390 mm (15.3")

COOLANT SYSTEM:

Coolant pump pressure	4.5 bar (65 psi)
Coolant pump motor	1.1 kW (1.4 hp)
Coolant tank capacity	560 l (150 gal)

HYDRAULIC / LUBRICATION:

Hydraulic tank capacity	66 l (17 gal)
Hydraulic oil required*	Mobil DTE #24 or Shell Tellus 32
Way lubrication tank capacity	4.3 l (1.1 gal)
Way lubrication oil required*	Mobil Vactra #2 or Shell Tonna T68

* Cross reference these numbers for other brands

GENERAL:

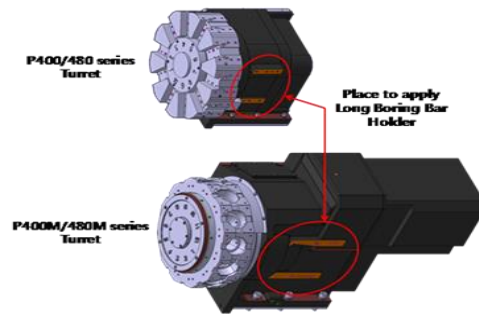
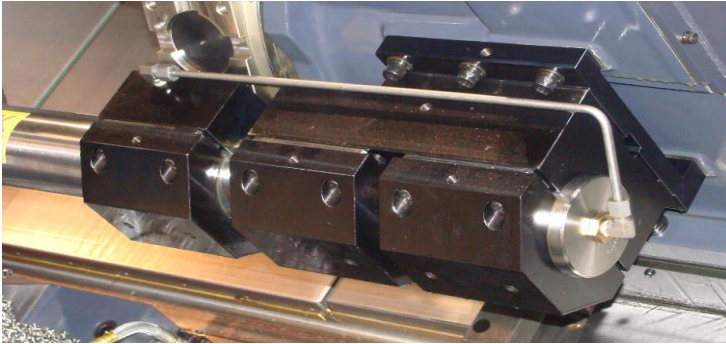
Machine weight	21,800 kg (48,060 lb)
Floor space – length x width	7,360 mm x 2,766 mm (290" x 109")
Floor space – length with hinge belt chip conveyor	8,470 mm (334")
Machine Height	2,590 mm (102")
Height from floor to spindle center	1,220 mm (48")
Voltage required	205-235V/3 ph/60 Hz
Power requirement	69 kVA (180 Amps @ 220 Volts)

Accuracy data in the specifications are measured using KSB4207

** Geometric accuracies are guaranteed only if machine is installed on and anchored to a foundation meeting the specific requirements of Doosan Machine Tools America. Please see your dealer for the current machine requirements.*

- **LONG BORING BAR PREPARATION (Standard)**

The PUMA 700LM turning center series is prepped from the factory to accept the optional long boring bar option. The carriage is drilled and tapped to mount holders for a 100 mm diameter boring bar, available through your local tooling supplier.

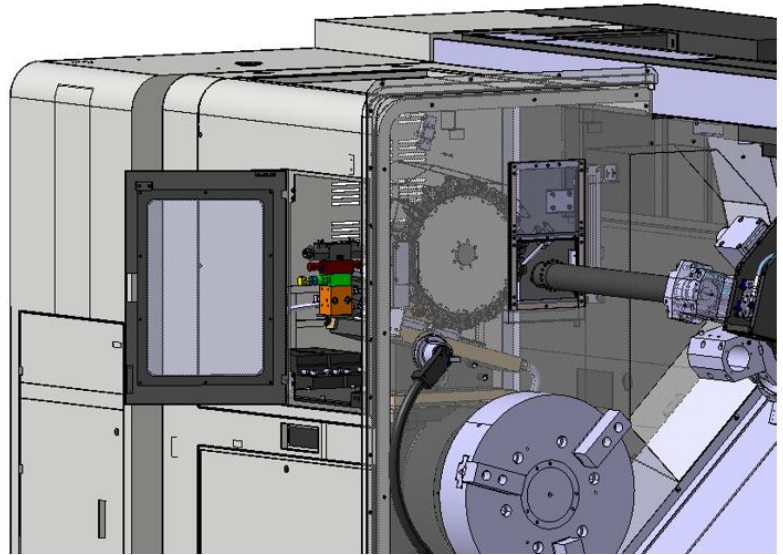


**Tool Holder and long boring bar shown in illustration is sold separately. This illustration is not of exact model, request actual drawings to confirm if turret can be indexed or not.*

- **LONG BORING TOOL MAGAZINE (Optional factory installed only)**

The PUMA 700LM Optional Long Boring Bar (LBB) 16 station tool magazine with hydraulic clamping of CAPTO C4 holders is only available as factory order. The Sandvik Long boring bar manually clamps to the CAPTO C8 tool block mounted on the turret. Long boring bar maximum tool size of 80 mm (3.15") diameter and 760 mm (29.92") of length.

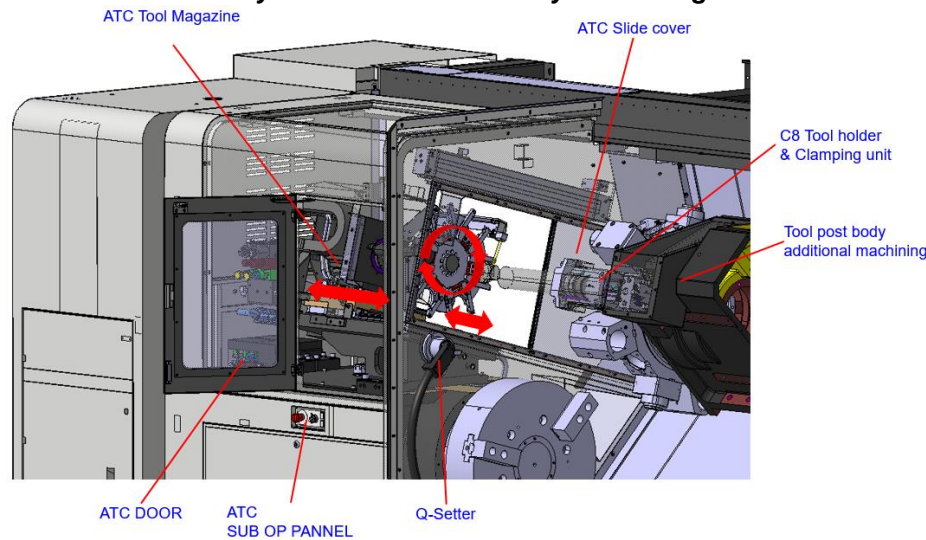
Sandvik CAPTO C8, 80 mm diameter x 760 mm long boring bar sold separately please contact your Sandvik representative for pricing and delivery.



- **AUTOMATIC TOOL CHANGER (Optional factory ordered only)**

The PUMA 700LM 6 tool ATC is available as factory order only. The ATC magazine is positioned above chuck. Chip to Chip time is 35 seconds. The CAPTO C8 clamping unit has a 50 bar (725 psi) of clamping pressure. The ATC has a maximum tool size of 80 mm (3.15") diameter and 280mm (11.02") of length. Maximum tool weight is 10kg (22 lbs).

Note* static tool only not available for rotary tool change in ATC.



The long boring bar tool holders, long boring bar magazine and Automatic tool changer is not available at same time. One must be chosen for the application requirement.