TS-100 SERIES

HIGH SPEED CNC TURNING CENTERS

GOODWAY
THE ULTIMATE MACHINING POWER

HIGH SPEED CNC TURNING CENTERS

Packed with industry leading technology and top quality components, the GOODWAY TS-100 series turning centers combine strength, speed, and flexibility to bring you The Ultimate Machining Power®. These high speed machines will easily accomplish the demanding turning applications of today and tomorrow. Furthermore, with available live tooling and C-axis capabilities; milling, turning applications may be completed in one single machine.

Model	TS-100	TS-150
Max. turning diameter	Ø200 mm	
Max. turning length	290 mm	
Bar capacity	Ø32 mm	Ø45 mm
Chuck size	6"	

▶ 30º slant design provides smooth chip disposal and easier operator access.

▶ Fully enclosed splashguards keep chips and coolant contained for a safe clean working environment.

▶ The auto lubrication system delivers metered amounts of lubrication to the slide ways, ball screws, and vital components. Distribution is automatically shut off during idling to prevent waste.

(TS-150 model shown with FANUC control)

▶ An adjustable timer on the standard chip conveyor allows the operator to set operation time according to the amount of chips being carried out of the machine. Thus, reducing coolant loss to a minimum.

▶ Coolant system with roll-out coolant tank and high-pressure coolant pump.

COMPACT AND HIGHLY RIGID STRUCTURES

All the main casting components are structural analyzed by Visual Nastran finite element methods (FEA). The boundary conditions are assigned reasonably and adequately to optimize the structures and rib distribution of the base, saddle and headstock to reach high rigidity and better stability. The headstock is mounted on the same surface of the 30 degrees slanted guide ways. This design shortens the transmission path of cutting force and stabilizes the cutting capability.

▶ X and Z axes are driven by over-sized FANUC / MITSUBISHI series absolute servo motors, providing tremendous thrust outputs with faster acceleration and deceleration. Absolute encoder technology eliminates the use of limit switches, thus, eliminating referencing axes to home positions and broken limit switches.

▶ Super rigid hardened and ground box ways are directly formed onto the machine bed and saddle during the casting process. They are precision machined and widely spaced for maximum strength.
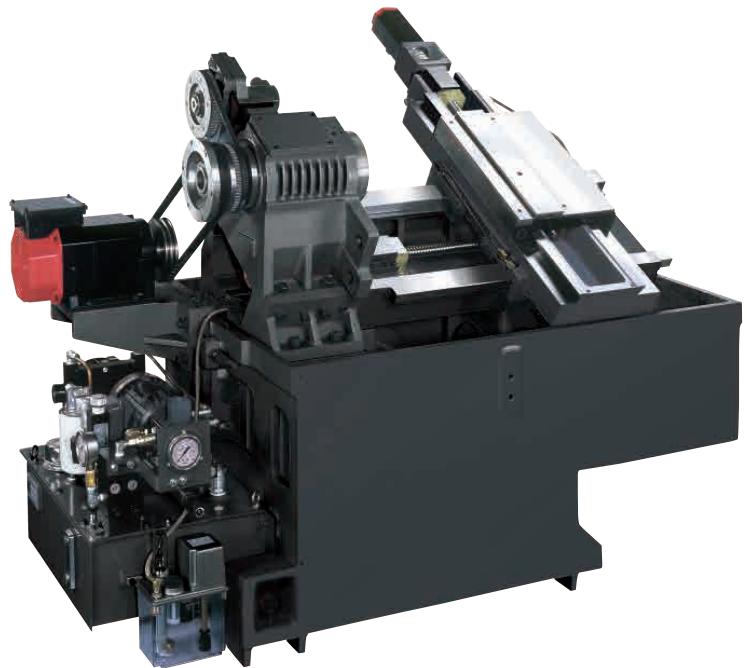
(Casting struture of TS-100 series model shown)

▶ Slide ways are bonded with "Turcite B" to eliminate stick-slip, minimize wear and maintain long term accuracy.

▶ C3 class hardened and precision ground ball screws ensure the highest accuracy and possible. Plus, pretension on all axes minimizes thermal distortion.

▶ Contact surfaces of all slides, headstock and ball screw bearing housings with the machine bed are precision hand scraped to provide maximum assembly precision, structural rigidity, and load distribution.
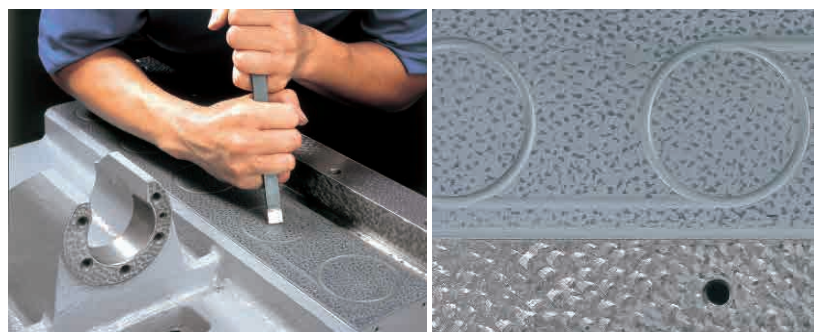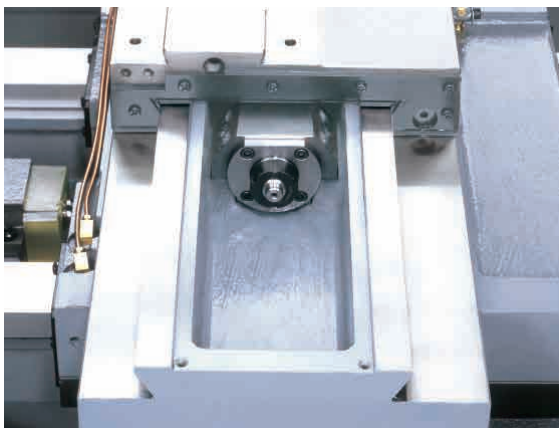
PRECISION CUTTING CAPABILITY

The headstock is analyzed by FEA to reach high rigidity and stability. The spindle inside the headstock is supported by two high precision angular contact ball bearings and a single row roller bearing. The span between bearings is optimized to sustain radial, axial and varyingly compound loads. All these features make it meet the requirements of high speed and precision cutting. The bar capacity is available with 32 and 45 mm two options.
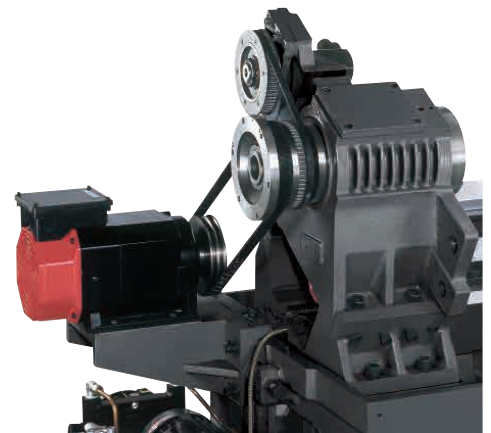
▶ Bearing configuration : Front - angular contact × 2
    Rear - Single roller × 1
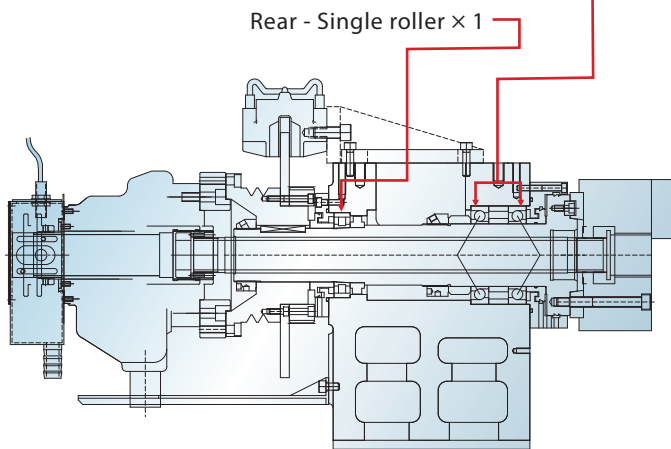
Model	A	B	C
TS-100	41 mm	40 mm	33 mm
TS-150	56 mm	55 mm	46 mm

A: Spindle I.D.   **B**: Draw tube O.D.   **C**: Draw tube I.D.

▶ Standard rigid tapping feature provides high-speed precision tapping without the use of floating tap holders. Set-up is easier and depth of thread more accurate, permitting maximum productivity for tapping operations.

▶ Standard spindle orientation feature allows the spindle to stop at desired programmed position. Useful in broaching and manual part loading applications where a fixed spindle position is required.

Spindle Output

Torque (N-m)
Output (kW)

7.5 kW (15 min.)
5.5 kW (cont.)
Torque (15 min.)
Torque (cont.)

Constant torque   Constant Output

TS-100 spindle Acc. / Dec. times
Chuck : 6" + hard jaws

RPM	ACC.	DEC.
0 ~ 1,000	1.6	1.2
0 ~ 2,000	2.2	1.7
0 ~ 3,000	2.7	2.4
0 ~ 4,000	3.6	2.9
0 ~ 5,000	5.0	4.2
0 ~ 6,000	6.8	5.1

(sec.)

▶ The precision direct belt drive system provides greater spindle control, flexibility and serviceability. Pulley ratios fine tune the motor's maximum RPM to match the spindle's maximum RPM, which result in full output at the lowest RPM possible. Thus, utilizing the full potential of the spindle motor for maximum cutting power.
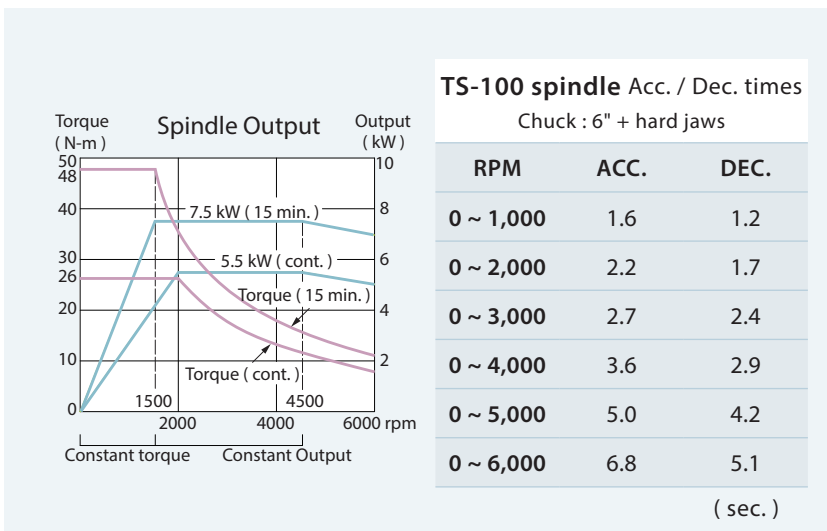
▶ The spindle is driven by the FANUC β 6/10000i spindle motor. This motor features maximum 7.5 kW (10 HP) power output, and can provide higher torque than ordinary motors.

ADVANCED TURRET TECHNOLOGY
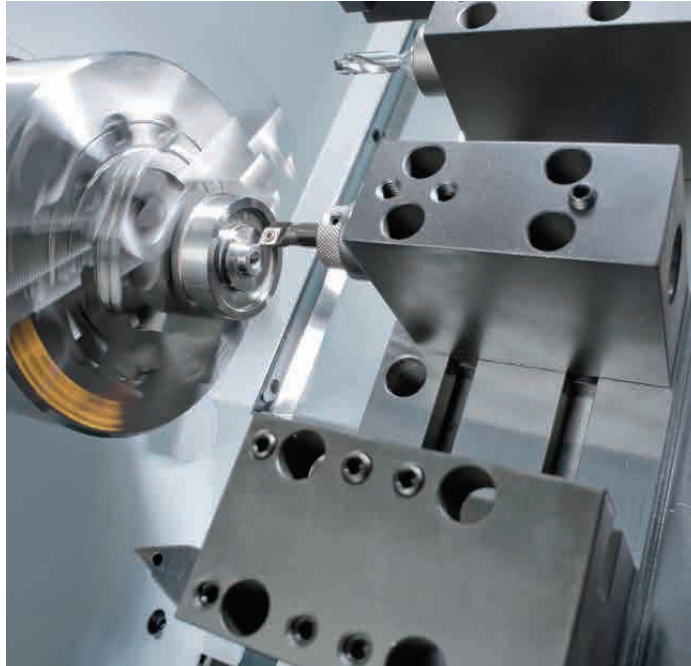
Gang type tool holder

▶ Standard gang type tool holding device flexibly increases machining applications. The maximum capacity is 8 inner-diameter cutting tools at the same time.

8-Station turret (Opt.)

▶ Ø120 mm (4.72") diameter super high precision curvic couplings accurately position the turret disk and clamping force ensures abundant turret rigidity for all cutting conditions.

▶ The 8-station turret clears 6" diameter work holding devices without interference, even when loaded with tooling at maximum shank size.

▶ The heavy-duty servo indexing turret achieves 0.2 second indexing times for adjacent stations and 0.5 second for stations at the opposite end of the disk. Index movements are single step, without pauses , no matter how many stations are skipped.
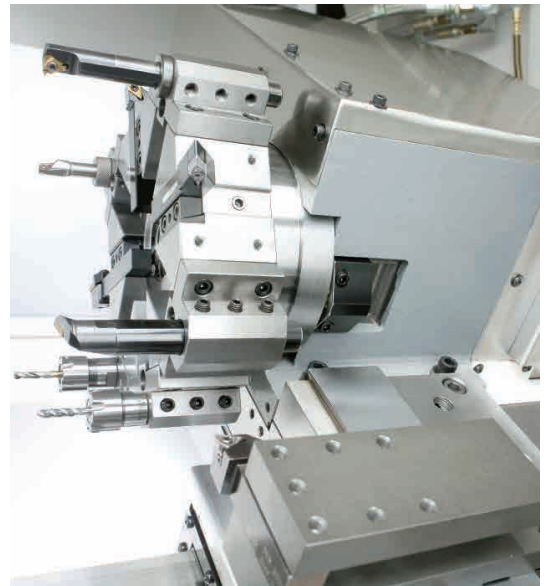
8-Station live tooling turret (Opt.)

▶ Living tooling capabilities on the TS-100 series allows a work-piece to be turned, milled, drilled and tapped without moving it to another machine.

▶ The 8-station GOODWAY live tooling turret offers 8 stations available for live tooling.

▶ With the latest technology, live tooling is driven by an AC servo motor to provide ample power, in the form of torque. Now, even the toughest of jobs may be tackled without a sweat.
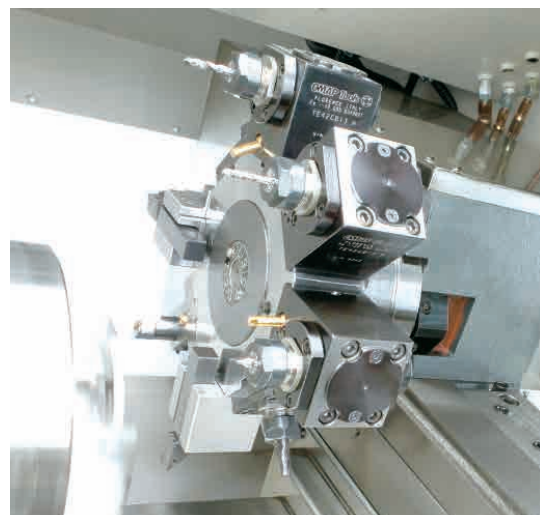
STANDARD / OPTIONAL FEATURES

GOODWAY utilizes the latest in control technology, the FANUC Oi -TF Plus or MITSUBISHI as the standard control for the TS-100 series. This control provides many features as standard that are not available or costly options found on other controls.

FANUC Oi -TF Plus shown

MITSUBISHI shown

MITSUBISHI

▶ Adopt the thin & colorful display unit 8.4" LCD, small type servo motor, high analysis encoder and 64 bites CPU.

▶ Use the servo motor for the automatic adjustable setting to make the machine obtain the best performance. It not only saves the data fast via the hardware of the card type but also shortens the maintenance time.

▶ Adopt the control panel one-piece CNC unit and 2 axes unit for the driven unit (MDS-EJ series) to save the space for the electrical cabinet.

FANUC Oi -TF Plus

▶ User-friendly control panel allows direct operator access to most of the machine's setup functions without the hassle of flipping through pages in the control screen. High-grade push buttons and toggle switches are used to ensure durability. The control panel and housing is coolant, oil, and dirt resistant.

▶ Standard 10.4" LCD screen , small half keypad MDI, graphic display.

▶ Optional bar feeders save manpower and provide greater productivity by automatically deeding bar stock into the machine after each part is completed. BF-65 bar feeding systems fed bars up to Ø65 mm (2.5") diameter.


Parts Conveyor

Parts Catcher

▶ The optional parts catcher can be programmed to catch finished parts after cut-off. A part conveyor system is also available.

S : Standard   O : Option
– : Not available   C : Contact GOODWAY

SPINDLE		TS-100	TS-150
Main spindle motor configuration	Single-speed	S	S
Rigid tapping & spindle orientation		S	S
Disk brake for main spindle		O	O
Cs-axis & disk brake for main spindle		O	O
WORK HOLDING			
Hydraulic hollow 3-jaw chuck & cylinder		S	S
Hard jaws	1 set	S	S
Soft jaws	1 set	S	S
Collet chuck		O	O
Special work holding chuck		C	C
In spindle work stopper		O	O
Spindle liner (guide bushing)		O	O
Foot swith for chuck operation	Single	S	S
	Double	O	O
TURRET			
8-station turret		O	O
8-station live tooling turret		O	O
Tool holder & sleeve package		S	S
Live tooling tool holders*1		O	O
MEASUREMENT			
RENISHAW HPRA tool presetter		O	O
COOLANT			
Coolant pump	3 Bar	S	S
	5 Bar	O	O
High-pressure coolant system	20 Bar	C	C
Roll-out coolant tank		S	S
Oil skimmer		O	O
Coolant flow switch		O	O
Coolant level swtich		O	O
Coolant intercooler system		O	O
CHIP DISPOSAL			
Chip conveyor with auto timer	Rear discharge	S	S
Chip cart with coolant drain		O	O
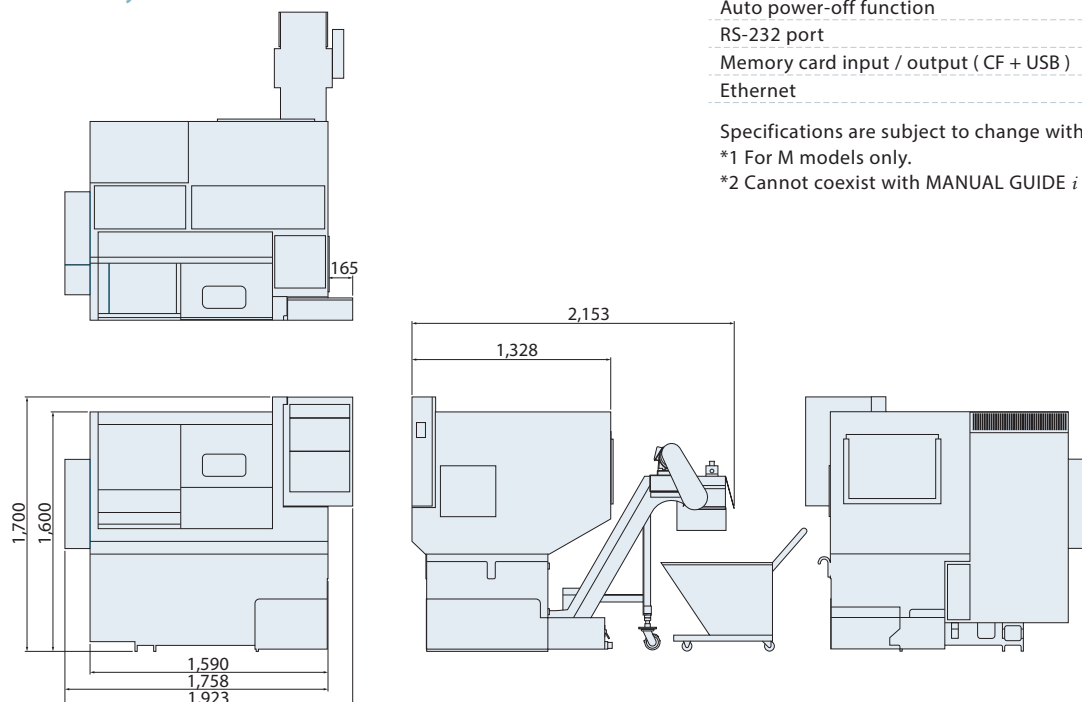
FANUC CONTROL FUNCTIONS		Oi-TF Plus
Display	10.4" color LCD	S
Graphic function	Standard	S
	Dynamic*2	O
Part program storage size Oi-TF Plus : each path	2M bytes	S
Registerable programs Oi-TF Plus : each path	1,000	S
Tool offset pairs	128	S
	200	O
Servo HRV control	HRV 3	S
Automatic data backup		S
Synchronous / Composite control		O
Inch / metric conversion		S
Polar coordinate interpolation		S
Cylindrical interpolation		S
Multiple repetitive cycle		S
Rigid tapping		S
Unexpected disturbance torque detection function		S
Spindle orientation		S
Spindle speed fluctuation detection		S
Embedded macro		O
Spindle synchronous control		S
Tool radius / Tool nose radius compensation		S
Multi-language display		S
Polygon turning		S
Helical interpolation		O
Direct drawing dimension programming		S
Thread cutting retract		S
Variable lead threading		S
Multiple repetitive cycle II		S
Canned cycles for drilling		S
Tool nose radius compensation		S
Chamfering / Corner R		S
AI contour control I		O
Multi part program editing		S
Manual handle retrace		O
Manual intervention and return		S
External data input		S
Addition of custom macro		S
Increment system C		S
Run hour & parts counter		S
Auto power-off function		S
RS-232 port		S
Memory card input / output (CF + USB)		S
Ethernet		S

Specifications are subject to change without notice .
*1 For M models only.
*2 Cannot coexist with MANUAL GUIDE i

Machine Layout

165

2,153
1,328

1,700
1,600

1,590
1,758
1,923

Unit : mm

MACHINE SPECIFICATIONS

■ : Metric　■ : Inch

CAPACITY	TS-100	TS-150
Max. swing diameter / Swing over saddle	Ø 330 / Ø 75 mm 12.99" / 2.95"	
Max. / Std. turning diameter	Ø 200 / Ø 165 mm 7.87" / 6.49"	
Max. turning length	290 mm 11.41" (170 mm 2.95" *1)	
Max. weight load	50 kg 110 lb	
SPINDLE		
Chuck size	6" or 42 collet chuck	
Spindle nose	A2-5	
Hole through spindle	Ø 41 mm 1.61"	Ø 56 mm 2.2"
Bar capacity	Ø 32 mm 1.25"	Ø 45 mm 1.77"
Front / Rear spindle bearing diameter	Ø 70 / Ø 60 mm 2.75" / 2.36"	Ø 80 / Ø 70 mm 3.14" / 2.75"
Spindle speed range	60 ~ 6,000 RPM	
Spindle motor output (Cont. / 15 min.)	5.5 / 7.5 kW 7.3 / 10 HP	
Spindle drive system	Direct Belt Drive	
X & Z AXES		
Max. X / Z axes travel	305 / 320 mm 12" / 12.59"	
X / Z axes rapids	24 m/min 945 IPM	
Slide way type	Box way	
X-axis servo motor	0.75 kW / 1 kW 1 / 1.3 HP *1	
Z-axis servo motor	0.75 kW / 1 kW 1 / 1.3 HP *1	
GANG TYPE TOOLING		
Shank size	☐ 20 mm 3/4" / Ø 25 mm 1"	
Cs-AXIS (OPTIONAL)		
Cs-axis dirve motor	BZ-sensor Ø 125 4.92" (Opt. HEIDENHAIN ERM280-120)	
Min. spindle indexing angle	± 0.001º	
Dynamic accuracy	± 0.02º	
TURRET (OPTIONAL)		
Stations	8	
Shank size	☐ 20 3/4" (Gang type ☐ 20 3/4") mm / Ø 25 1" (Gang type Ø 25 1") mm	
LIVE TOOLING TURRET (OPTIONAL)		
Stations	8	
Shank size	☐ 20 3/4" (Gang type ☐ 20 3/4") mm / Ø 25 1" (Gang type Ø 25 1") mm	
Live tooling shank size	ER 20 (Ø 13 mm 0.51")	
GENERAL		
NC controller	FANUC Oi-TF Plus / MITSUBISHI E70	
Coolant / Hydraulic tank capacity	80 / 30 L 21 / 7.9 gal	
Machine weight	1,750 Kg 3,900 lb	
Dimensions (L x W x H)	1,923 X 1,353 X 1,700 mm 75.8" x 54" x 67"	

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