

HIGH PRODUCTIVITY ALUMINUM WHEEL PROCESSING TURNING CENTER

PUMA AW 560·660II

PUMA AW 560/MFII
PUMA AW 660II



PUMA AW 560·660II

The PUMA AW 560 II / 660 II / 560MF II models represent the next generation, high-productivity wheel processing turning centers that provide customers with powerful and stable cutting capabilities and high-efficiency chip disposal.

CONTENTS

Product Overview

Basic Information

- 04** Basic Structure
- 04** Machining Area
- 05** Spindle
- 05** Turret | Chip Disposal

Detailed Information

- 06** Standard / Optional Specifications
- 07** Peripheral Equipment
- 09** Fanuc i Plus
- 09** Power | Torque
- 10** External Dimensions
- 11** Tooling System
- 12** Tool Interface
- 13** Working Range
- 14** Machine Specifications

Customer Support Service

- 15** Customer Support and Services
- 15** Global Network



**POWERFUL CUTTING
CAPABILITIES AND LARGE
MACHINING AREAS**



Rigid structures, large envelopes and powerful spindles enable the machining of a wide variety of different-sized aluminum wheels.

**ENHANCED CHIP DISPOSAL
AND MAINTENANCE
EFFICIENCY**



Enhanced chip disposal and efficient lubrication system, and simple maintenance of air units.

**HIGH-SPEED AND
HEAVY-DUTY CUTTING
CAPABILITIES**



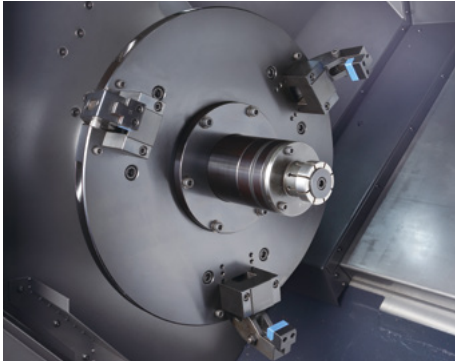
The high-power, high-torque spindle enables accurate high-speed machining and heavy-duty machining at low speed to be undertaken.



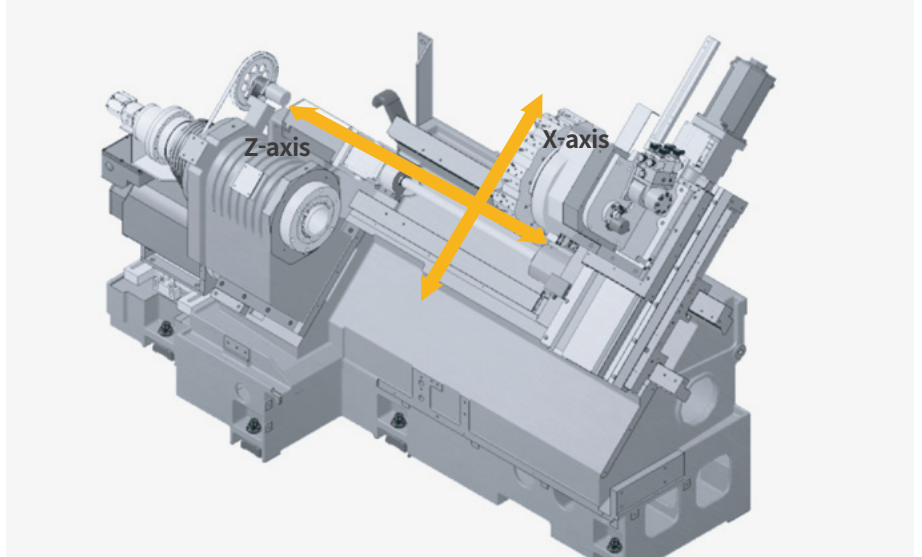
BASIC STRUCTURE

The PUMA AW II machines are user-friendly and, in addition to their enhanced cutting capabilities, provide customers with highly efficient chip disposal.

Optimized for the machining of aluminum alloy wheels, PUMA AW II machines, with their anti-vibration structures, deliver high accuracies. The MF model is capable of producing mirror-like surface finishes with extremely low surface roughness.



finger chuck



Description		Unit	AW 560 II	AW 660 II	AW 560MF II
Travel distance	X-axis	mm (inch)		362 (14.3)	
	Z-axis	mm (inch)		720 (28.3)	
Rapid traverse rate	X-axis	m/min (ipm)		16 (629.9)	
	Z-axis	m/min (ipm)		20 (787.4)	

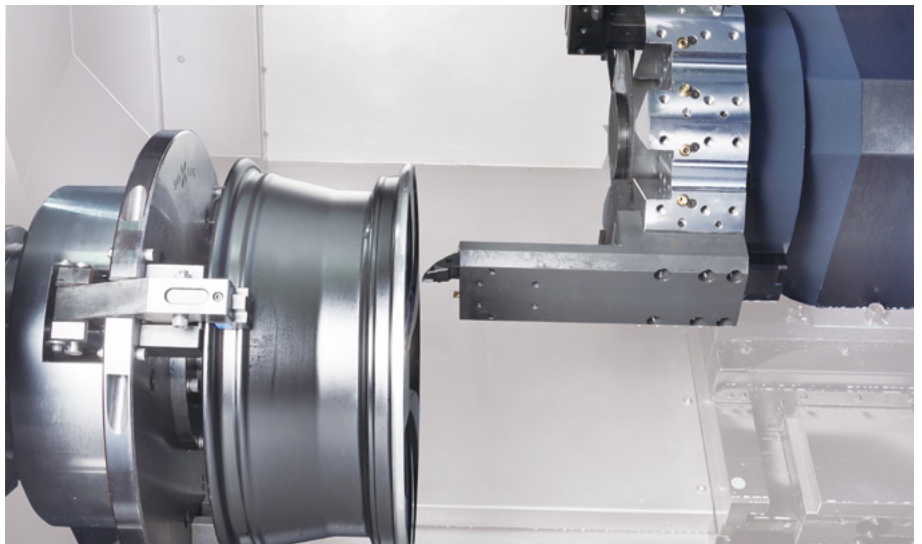
MACHINING AREA

The machines in the series have large machining areas for processing a wide variety of aluminum wheel sizes.

Max. turning diameter

PUMA AW 560 II / 560MF II
Ø550 mm (21.7 inch)

PUMA AW 660 II
Ø650 mm (25.6 inch)



Description	Unit	AW 560 II	AW 660 II	AW 560MF II
Max. turning dia.	mm (inch)	Ø550 (Ø21.7)	Ø650 (Ø25.6)	Ø550 (Ø21.7)
Recommended turning dia.	mm (inch)	508 (20")	610 (24")	508 (20")

SPINDLE

The powerful, high-torque spindle provides high accuracy cutting at high speeds and heavy-duty cutting at low speeds. The MF model has a built-in spindle that delivers superior surface finishes.

Max. turning speed

2500 r/min

Max. power

(S3/S6 25% / S2 30min. / S1 Cont.)

45/37/30 kW
(60.3/49.6/40.2 Hp)

Max. Torque

699 N·m (515.9 ft-lbs)

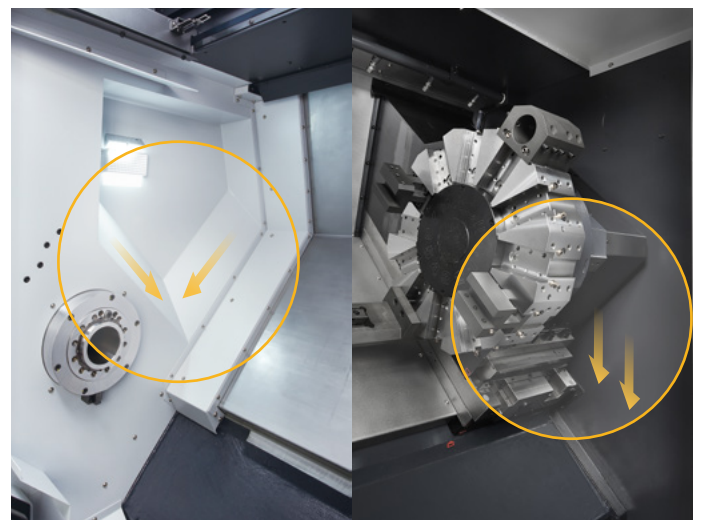
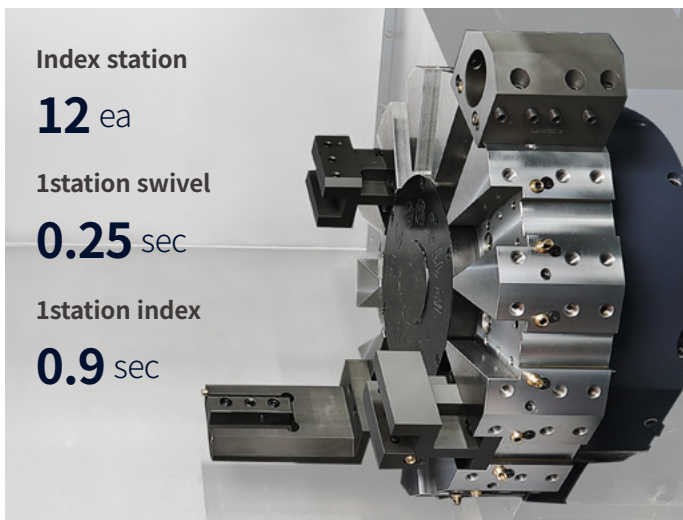


Description	Unit	AW 560 II	AW 660 II	AW 560MF II
Spindle speed	r/min	2500	2000	2500
Spindle power (S3/S6 25% / S2 30min. / S1 Cont)	kW (Hp)	45/37/30 (60.3/49.6/40.2)	45/37/30 (60.3/49.6/40.2)	30/25 (40.2/33.5)
Spindle torque	N·m (ft-lbs)	560 (413.3)	653 (481.9)	699 (515.9)
Spindle type	-	Belt drive		Built-in spindle

TURRET | CHIP DISPOSAL

The large curvic coupling and powerful hydraulic clamp reduce vibrations, extend tool life and guarantee reliable and powerful machining performance.

The streamlined cover with a steep angle removes chips quickly and efficiently. The new machines also deliver improved process reliability and operator convenience.



STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.


Description	Features	PUMA AW II series
Rotary Cylinder	LONG STROKE_Y1240RE	●
	LONG STROKE_Y1550RE	○
Coolant pump	1.1kW_0.7MPa_30L/min	●
	1.1kW_1.0MPa_20L/min	○
	4.0kW_1.45MPa_30L/min	○
Coolant options	High pressure coolant interface	○
	Shower coolant	○
	Oil Skimmer (Belt type)	○
Chip processing	Chip conveyor_Hinged type at right side	○
	Chip conveyor_Magnetic type at right side	○
	Chip bucket_Forklift 220 L (58.1 gallon)	○
	Chip bucket_Forklift 300 L (79.3 gallon)	○
	Chip bucket_Forklift 380 L (100.4 gallon)	○
	Chip bucket_Rotation 220 L (58.1 gallon)	○
	Chip bucket_Rotation 300 L (79.3 gallon)	○
	Chip bucket_Rotation 380 L (100.4 gallon)	○
	Air blower for chuck	○
	Air gun	○
Automatic & Mesurement	Automatic front door and safety devices	○
	Robot interface with PMC I/O module	○
	Robot interface with Profibus DP	○
Optional devices	Tool load mononitoring system	○
	Easy programming guide for PC	○
	Mist collector	○
	Work location confirmation	○
	Chuck clamp confirmation	○
	Auto power off	○
	Work & Tool counter	○
	Signal tower	○
	Electric cabinet light	○
	Air conditioner	○
Quick change tooling(CAPTO)	○	
Customized Special Option	Coolant level switch : Sensing level - Low	○
	Drum Filter Chip Conveyor	○
	Water soluble Coolant Chiller**	○
	Double Cylinder	○
	Holder Interface Work Proof RLP40	○

* Please contact your DN Solutions representative for detailed machine information.

* When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.

** Technical consultation is mandatory for the chilling of non-water soluble coolant

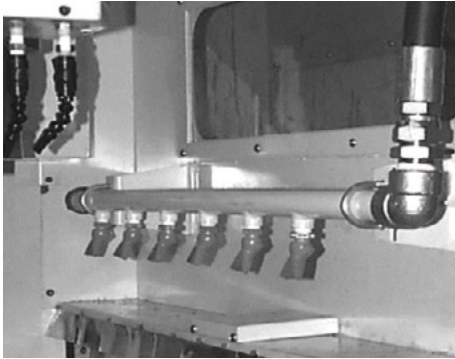
● Standard ○ Optional X N/A

 **Fire Safety Precautions** | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

PERIPHERAL EQUIPMENT

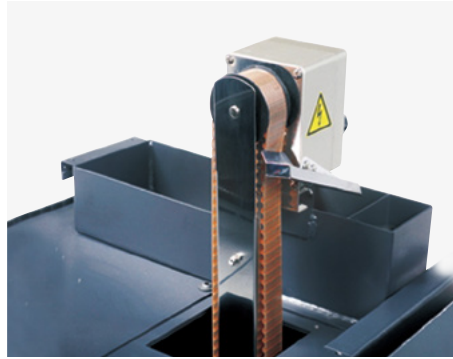
Shower Coolant OPTION

The shower coolant washes workpiece with coolant sprayed from above.



Oil Skimmer OPTION

The oil skimmer keeps coolant and lubricant isolated from each other to extend the lifecycle of coolant.



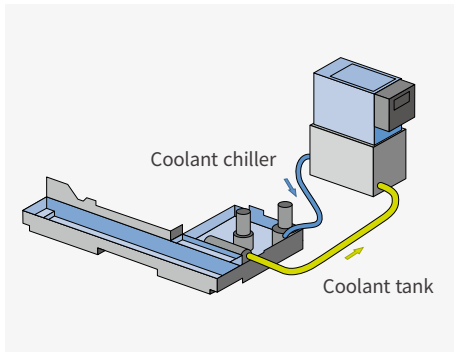
Chuck Coolant OPTION

The chuck coolant removes chips on the chuck and jaws to facilitate contact between the workpiece and the chuck.



Coolant chiller (Recommendation) OPTION

Coolant chiller is highly recommended to prevent temperature rise and minimize thermal deformation, when using a water-insoluble coolant or high-pressure coolant system of which the power is over 1.5 kw.



Quick change CAPTO OPTION

The quick change tool system simplifies tool change operations. Recommended for users who need to change tools frequently or to reduce set-up times.



Dust Collector OPTION

The dust collector absorbs airborne oil vapor and fine dust in the system to improve working environment.



Work & Tool Counter OPTION

The counter counts daily and cumulative works, tool usage, etc.



Power Panel Air Conditioner OPTION

When a machine operates in a hot environment, this device regulates the temperature inside of power panel to prevent the panel from malfunctioning owing to the of temperature fluctuation.



Signal Tower OPTION

Device to show present statuses of the machine.



DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus maximizes customer productivity and convenience.

15" Screen + New OP

DN Solutions Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

DN Solutions Fanuc i Plus

- 15-inch color display
- Intuitive and user-friendly design

USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonomic operator panel
- 2MB Memory
- Hot keys



iHMI touchscreen OPTION

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.



NUMERIC CONTROL SPECIFICATIONS



Division	Item	Specifications	AW560/660 II	AW560MF II	AW560/660 II	AW560MF II
			DN Solutions Fanuc i Plus	DN Solutions Fanuc i Plus	Fanuc 32i (F32i-B)	Fanuc 31i (F31i-B)
Controlled axis	Controlled axes		2(X,Z)	2(X,Z)	2(X,Z)	2(X,Z)
	Simultaneously controlled axes		2 axes	2 axes	2 axes	2 axes
Data input/output	Fast data server		○	○	○	○
	Memory card input/output		●	●	●	●
	USB memory input/output		●	●	●	●
Interface function	Larger capacity memory_2GB	Note *2) Available Option only with 15" Touch LCD (iHMI Only)	○ *2)	○ *2)	○ *2)	○ *2)
	Embedded Ethernet		●	●	●	●
	Fast Ethernet		○	○	○	○
Operation	Enhanced Embedded Ethernet function		●	●	●	●
	DNC operation	Included in RS232C interface.	●	●	●	●
Program input	DNC operation with memory card		●	●	●	●
	Workpiece coordinate system	G52 - G59	●	●	●	●
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	○	○	○	○
	AI contour control II	G5.1 Q_, 200 Blocks	○	○	○	○
Operation Guidance Function	EZ Guidei (Conversational Programming Solution)		●	●	●	●
	iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	○ *1)	○ *1)	X	X
	EZ Operation package		●	●	●	●
Setting and display	CNC screen dual display function		●	●	●	●
Network	FANUC MTConnect		✱	✱	✱	✱
	FANUC OPC UA		✱	✱	✱	✱
Others	Display unit	15" color LCD	●	●	●	●
	Part program storage size & Number of registerable programs	15" color LCD with Touch Panel	○	○	X	X
		640M(256KB)_500 programs	X	X	●	●
	5120M(2MB)_1000 programs	●	●	○	○	

POWER | TORQUE

PUMA AW 560 II

Max. spindle speed

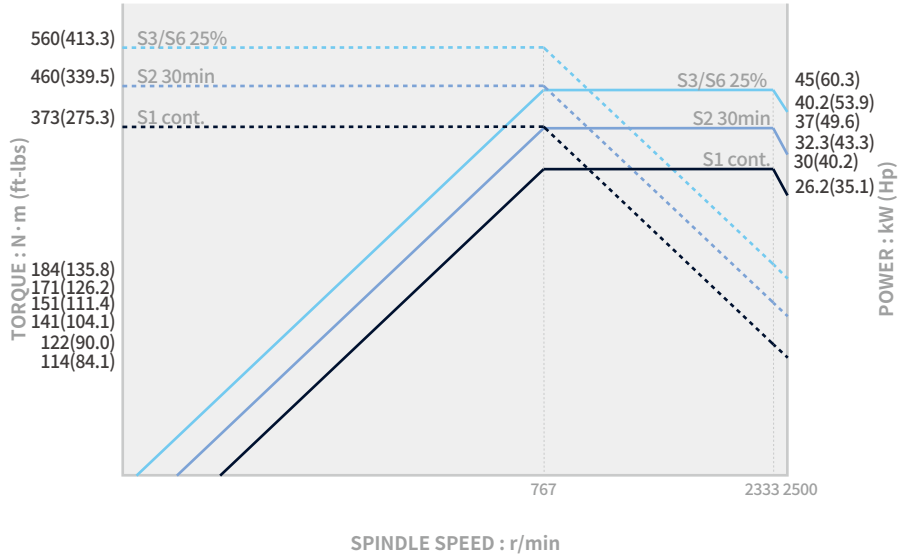
2500 r/min

Max. spindle power

45/37/30 kW
(60.3/49.6/40.2 Hp)

Max. Spindle torque

560 N·m (413.3 ft-lbs)



PUMA AW 660 II

Max. spindle speed

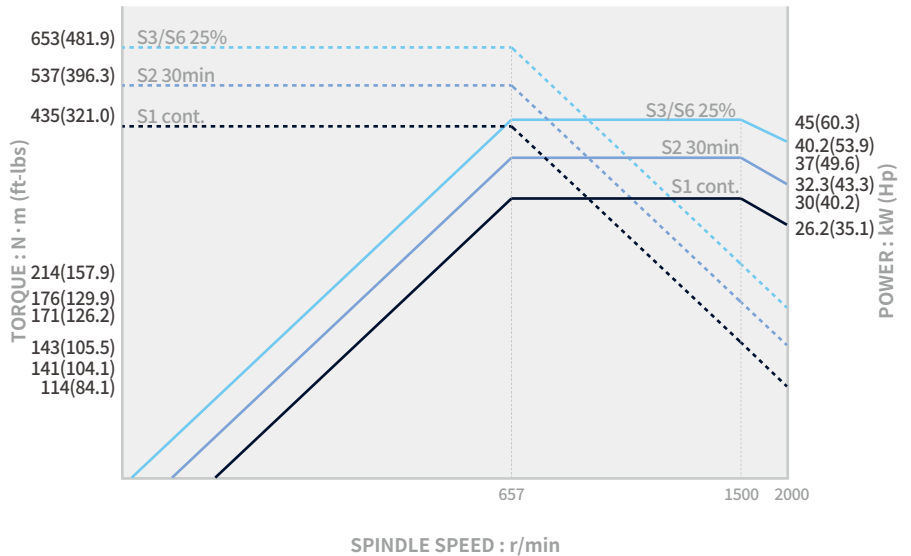
2000 r/min

Max. spindle power

45/37/30 kW
(60.3/49.6/40.2 Hp)

Max. Spindle torque

653 N·m (481.9 ft-lbs)



PUMA AW 560MF II (built-in)

Max. spindle speed

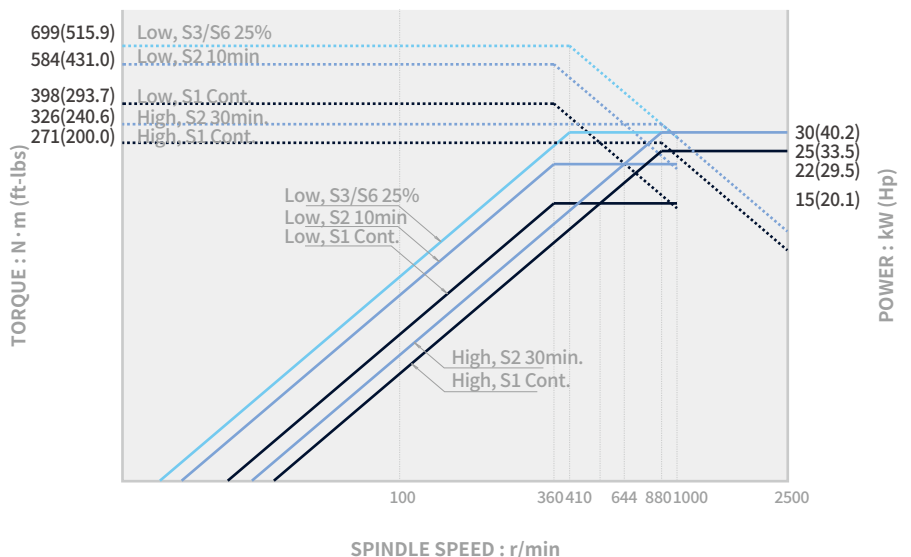
2500 r/min

Max. spindle power

30/25 kW (40.2/33.5 Hp)

Max. Spindle torque

699 N·m (515.9 ft-lbs)

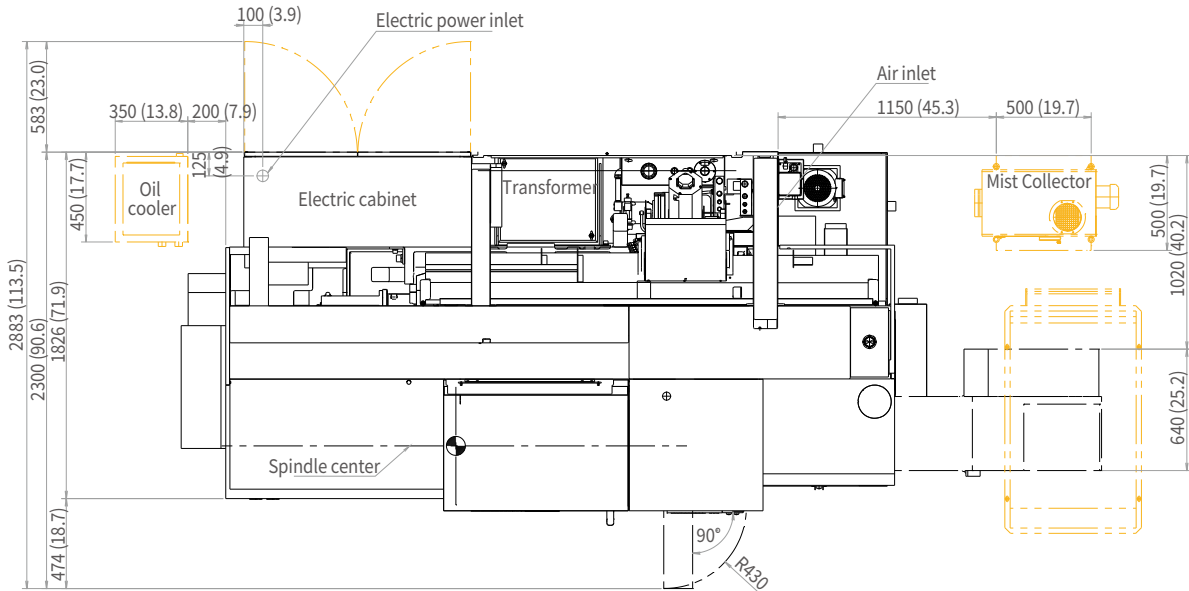


EXTERNAL DIMENSIONS

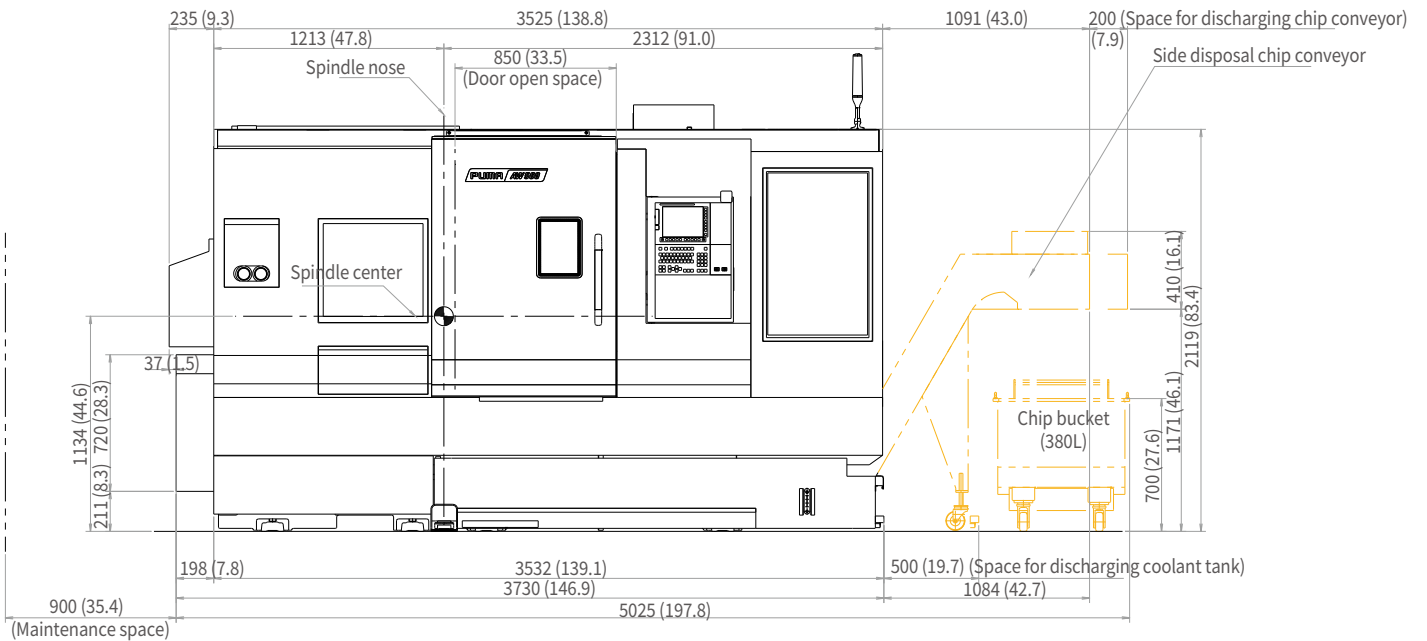
PUMA AW 560 II / 660 II / 560MF II

Unit : mm (inch)

TOP



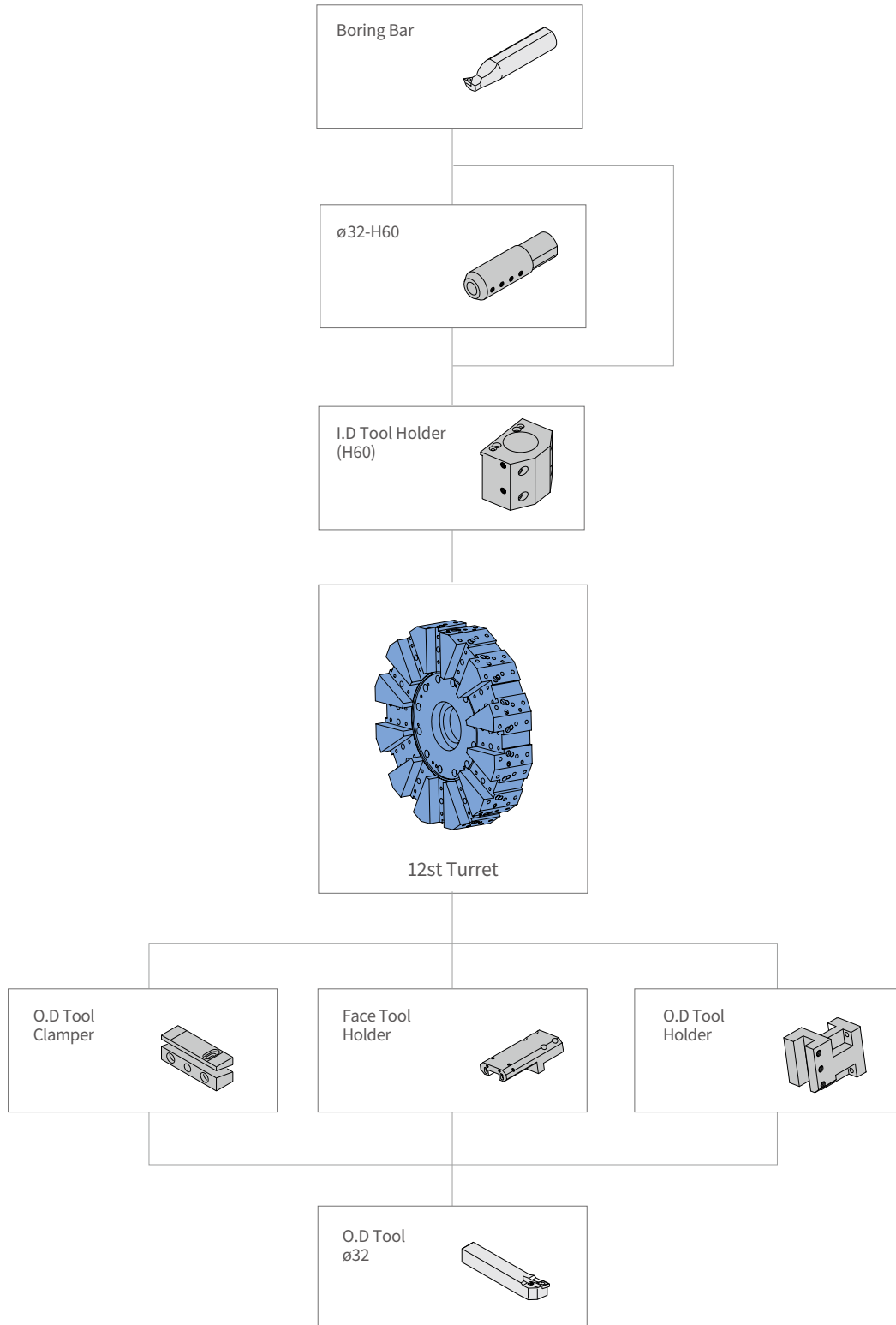
FRONT



TOOLING SYSTEM

PUMA AW 560 II / 660 II / 560MF II

Unit : mm (inch)



WORKING RANGE

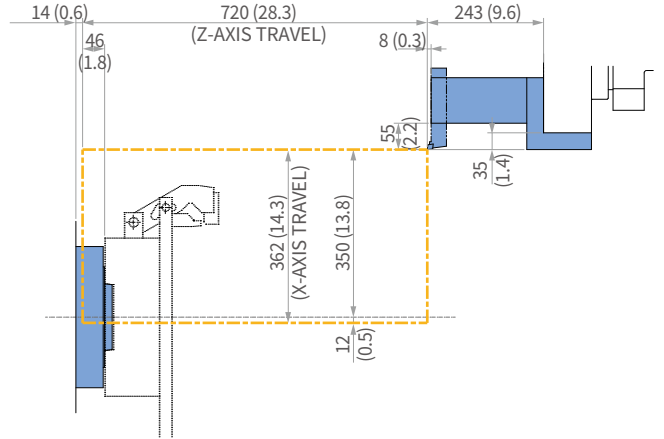
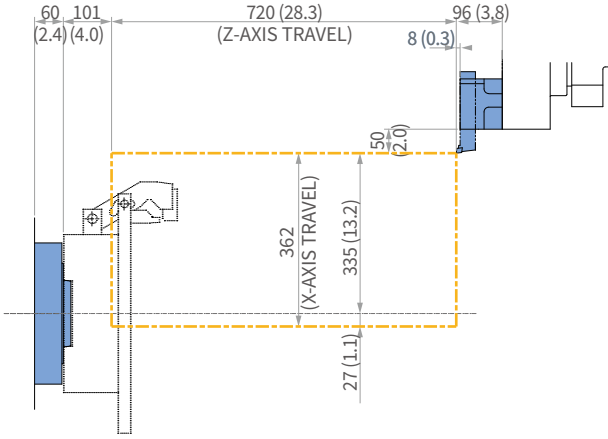
PUMA AW 560/560MF II

PUMA AW 660 II

Unit : mm (inch)

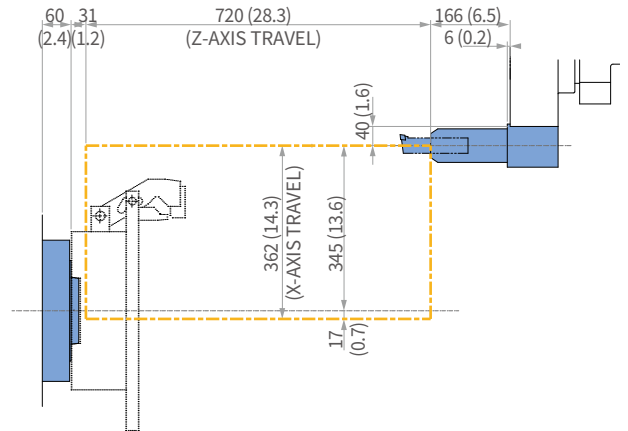
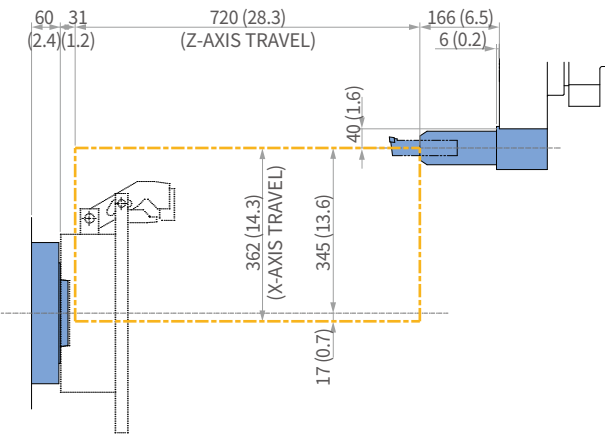
OD TOOL HOLDER

OD TOOL HOLDER



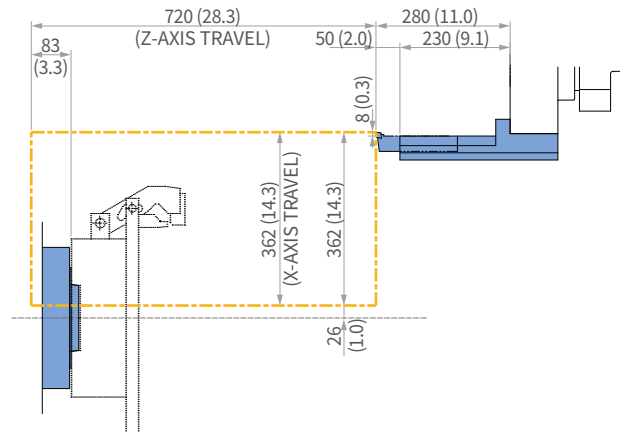
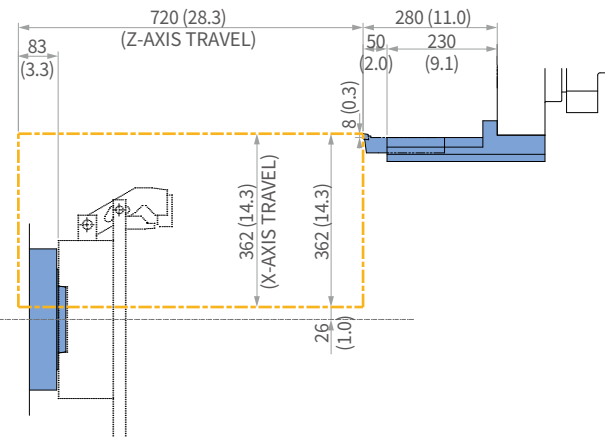
ID TOOL HOLDER

ID TOOL HOLDER



FACE TOOL HOLDER

FACE TOOL HOLDER



MACHINE SPECIFICATIONS

PUMA AW II series

Description		Unit	AW 560 II	AW 660 II	AW 560MF II
Capacity	Swing over bed	mm (inch)	830 (32.7)		
	Recommended turning diameter	mm (inch)	508 (20")	610 (24")	508 (20")
	Max. turning diameter	mm (inch)	550 (21.7)	650 (25.6)	550 (21.7)
Travels	Travel distance	X-axis	362 (14.3)		
		Z-axis	720 (28.3)		
Feedrates	Rapid traverse rate	X-axis	16 (629.9)		
		Z-axis	20 (787.4)		
Spindle	Spindle nose	ASA	A2-8	A2-11	A2-8
	Spindle bearing diameter	mm (inch)	160 (6.3)	180 (7.1)	130 (5.1)
	Spindle through hole diameter	mm (inch)	76 (3.0)	86 (3.4)	
	Bore of Draw Tube	mm (inch)	-		45 (1.8)
	Max. spindle power (S3/S6 25%/S2 30min./S1 Cont.)	kW (Hp)	45/37/30 (60.3/49.6/40.2)		30/25 (40.2/33.5)
	Max. spindle speed	r/min	2500	2000	2500
	Full Power Range	r/min	767~2333	357~2000	880~2500
	Gear Ratio	-	1 : 1.5	1 : 1.75	1 : 1
	Max. spindle torque	N·m (ft-lbs)	560 (413.3)	653 (481.9)	699 (515.9)
Turret	No. of tool stations	ea	12		
	OD tool size	mm (inch)	32 X 32 (1.3 X 1.3)		
	Max. boring bar size	mm (inch)	Ø60 (2.4)		
	Turret Indexing time (1 station swivel)	sec	0.25		
Power source	Power consumption	kVA	53.08		53.1
Machine Dimensions	Length x Width	mm (inch)	3767 X 2200 (148.3 X 86.6)		
	Height	mm (inch)	2250 (88.6)		
	Weight	kg (lb)	7750 (17085.6)	8000 (17636.7)	7750 (17085.6)
Control	CNC system	-	DN Solutions Fanuc i		

RESPONDING TO CUSTOMERS **ANYTIME, ANYWHERE**

DN SOLUTIONS GLOBAL NETWORK

66 COUNTRIES | **140** + SALES NETWORKS | **3** FACTORIES | **6** REGIONAL HQS



CUSTOMER SUPPORT AND SERVICES

WE'RE THERE FOR YOU WHENEVER YOU NEED US.

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



FIELD SERVICES

- On-site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair service



PARTS SUPPLY

- Supplying a wide range of original DN Solutions spare parts
- Parts repair service



TRAINING

- Programming, machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering



TECHNICAL SUPPORT

- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy



Head Office

19F, 10, Tongil-ro, Jung-gu, Seoul,
Republic of Korea, 04527

Tel: +82-2-6972-0370
Fax: +82-2-6972-0400

DN Solutions America

360 E State PKWY,
Schaumburg, IL. 60173,
United states

Tel: +1-315-265-7500

DN Solutions Europe

Emdener Strasse 24, D-41540
Dormagen, Germany

Tel: +49-2133-5067-100
Fax: +49-2133-5067-111

DN Solutions India

No.82, Jakkur Village
Yelahanka Hobli,
Bangalore-560064

Tel: +91-80-2205-6900
E-mail: india@dncompany.com

DN Solutions China

Room 101,201,301,
Building 39 Xinzhuan Highway
No.258 Songjiang District
China Shanghai (201612)

Tel: +86 21-5445-1155
Fax: +86 21-6405-1472

DN Solutions Vietnam

M.O.R.E building 2F, 40A-40B Ut
Tich Street, 04 Ward 04,
District Tan Binh District,
Ho Chi Minh City, Vietnam

Tel: +84 28-7304-0163

DN Solutions Mexico

Avenida Parque Bicentenario
#100 Nave M65L3-6,
Fraccionamiento San Isidro
Business Park,
Santa Rosa Jauregui,
Querétaro, México

E-mail: efrain.figueroa@dncompany.com

Sales inquiry

sales@dncompany.com