



AUTOMATION SOLUTION



**MACHINE
GREATNESS™**

DN SOLUTIONS

AUTOMATION FOR MANUFACTURING

Increase profit

Automation will increase productivity with reduced labor and minimal increase in floor space.



Simple



Productive

Automation

Make it easy

Automation is more easy to install and manage than traditional production line.



Flexible

Responding to customer needs

Automation helps you to efficiently supply customers' parts requirements on time

DN SOLUTIONS AUTOMATION SOLUTION

Workpiece handling

Bar feeder

Basic type of automation
Most cost-effective
for small part production
on turning centers



Gantry

Fast installation and
easy operation Apply to
a variety of similar
workpieces



Robot

Flexible solution for
multi-machine process
and complex parts



Pallet change

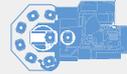
Auto workpiece changer

Optimized for automatic
handling of small parts in
the minimum floorspace



Round pallet system

Efficient use of space by
multi-pallets Highly
flexible production
management



linear pallet system

Optimized for volume
production of a variety of
parts over a long period
of time Easy expansion of
production system



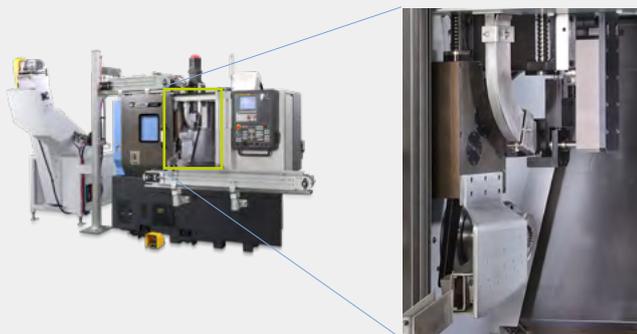
All process



Full-customized automation

Through consulting, We offer optimal solution for customer's needs

Bearing solution

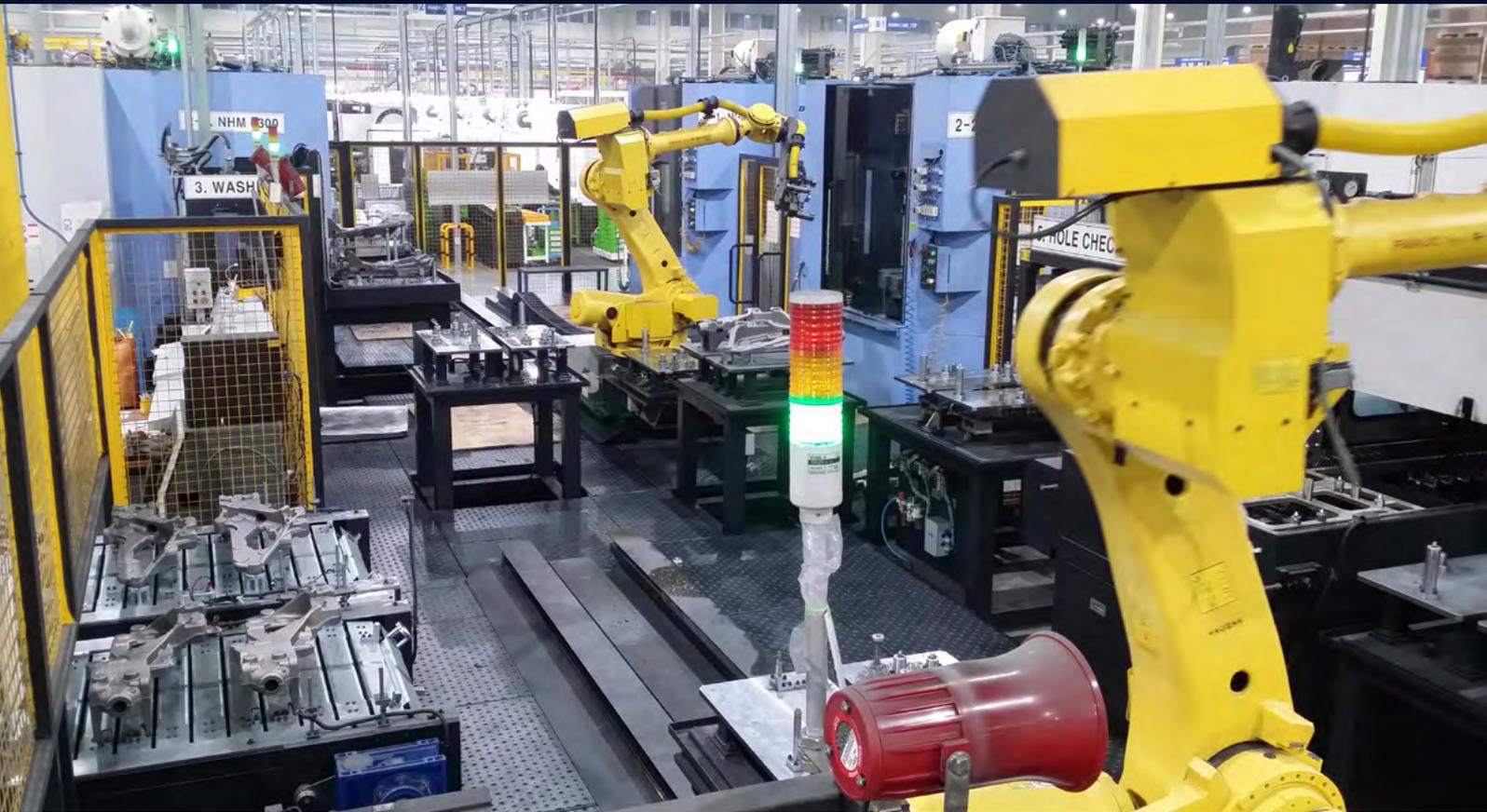


Automation line



ROBOT SYSTEM

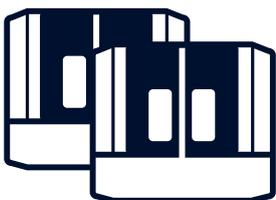
Robotic work-piece loading/unloading system and automated measurement and inspections process



Features

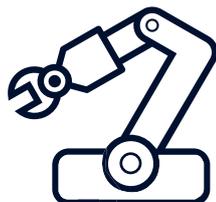
- Higher flexibility in manufacturing from an individual item to mass production
- Higher productivity with 24H operation without waste of time and labor cost
- Higher quality through the systemization of all setting-machining-inspection process
- DN Solutions's turn-key solution is available with a variety of machine tool models and professional system automation experiences

Applications

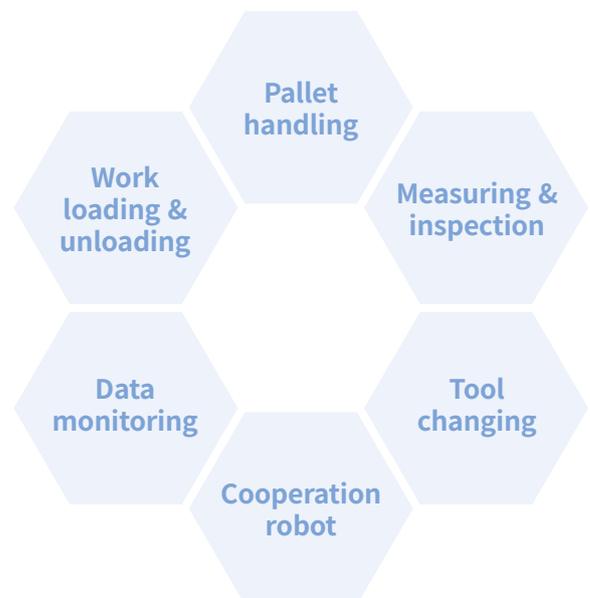


DN Solutions machines

+



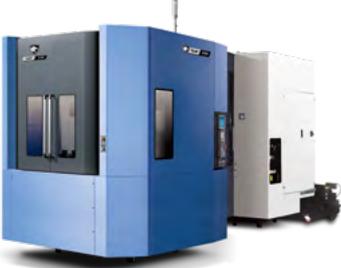
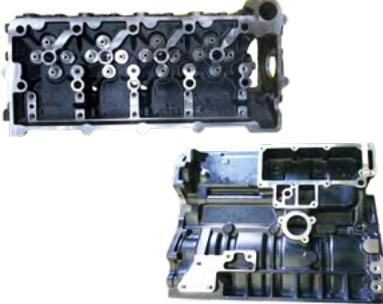
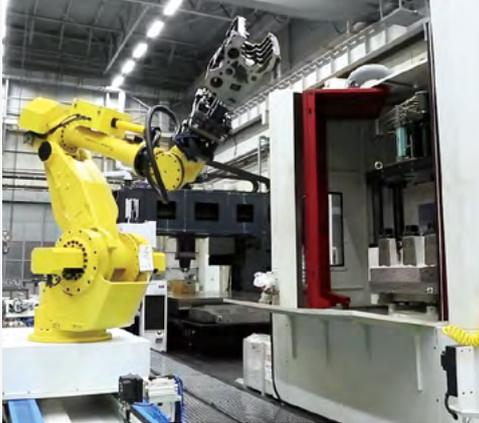
Robot system



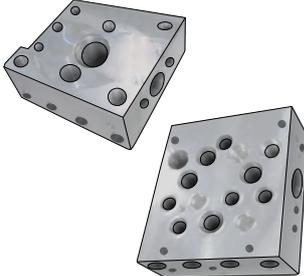
ROBOT SYSTEM

Robot automation cases

The newly-designed operation panel enhances operating convenience by common-design buttons and layout. Just like a PC, the QWERTY type keyboard has been adopted for easier and faster operation.

Machine	Machining component	Robot application
 <p data-bbox="217 925 414 949">NHP 5500, NHP 8000</p>	 <p data-bbox="655 925 938 949">Cylinder head & Cylinder block</p>	
<p>An automation turn-key system mounting on NHP 5500 and NHP 8000 horizontal machining centers to provide total processing capability from roughing and semi-finishing of cylinder blocks to finishing of cylinder heads for diesel engines.</p>		

Machine	Machining component	Robot application
 <p data-bbox="188 1491 437 1516">DNM series, PUMA VAW500</p>	 <p data-bbox="715 1491 874 1516">Aluminum Wheel</p>	
<p>An automation of Aluminum wheel mass production line mounting on PUMA VAW7500 aluminum wheel turn and DNM series vertical machining center.</p>		

Machine	Machining component	Robot application
 <p data-bbox="256 2051 346 2076">NHP 4000</p>	 <p data-bbox="715 2051 826 2076">매니폴더 블럭</p>	
<p>The RGV robot & automation robot line mounting on NHP 4000 horizontal machining center</p>		

ROBOSOL

Standardized automation cell for robot automation system of DN Solutions

Flexible robot cell interface

User friendly operating

Improved cycle time for loading/
Unloading

38 %



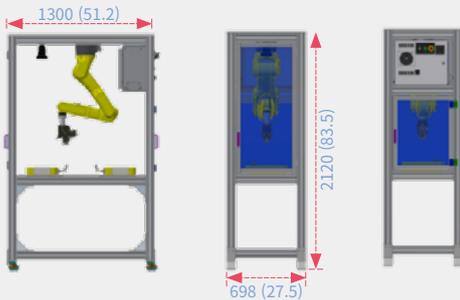
ROBOSOL_
T4000HP



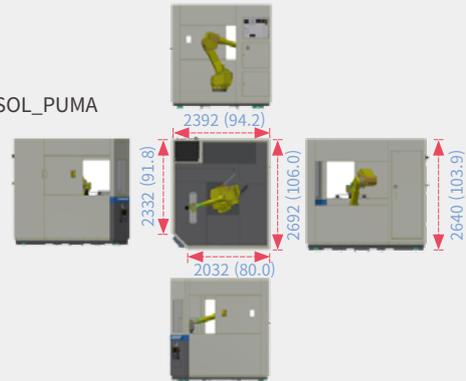
ROBOSOL_PUMA V400

External dimensions

ROBOSOL_
T4000HP

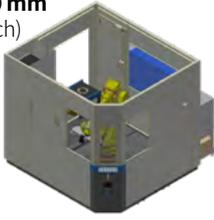


ROBOSOL_PUMA
V400



Unit : mm (inch)

Machine specifications

Description	ROBOSOL_T4000HP	ROBOSOL_PUMA V400
General	Robot base frame In/out pallet <input type="checkbox"/> <small>option</small> Vision system <input type="checkbox"/> <small>option</small>	Robot base frame In/out pallet <input type="checkbox"/> <small>option</small> Vision system <input type="checkbox"/> <small>option</small>
Robot system	Fanuc LR-Mate 200iD (7 kg payload) EOAT(End of arm tooling) <input type="checkbox"/> <small>option</small> · 2 Hand Gripper, 3 Jaw · Non swivel unit (Swivel unit available)	Fanuc M710iC/50 (50 kg payload) <input type="checkbox"/> <small>option</small> EOAT(End of arm tooling) · 2 Hand gripper, 3 Jaw · Non swivel unit (Swivel unit available)
Controller	Fanuc robot teaching pendant R-30iB A-cabinet Network switch for ethernet I/P interface Robot cell monitoring system w/Tablet <input type="checkbox"/> <small>option</small>	Fanuc robot teaching pendant R-30iB A-cabinet Network switch for ethernet I/P interface Robot cell monitoring system w/Tablet <input type="checkbox"/> <small>option</small>
Machine preparation	Ethernet I/P Robot Interface <input type="checkbox"/> <small>option</small> Side Auto Door <input type="checkbox"/> <small>option</small>	Ethernet I/P Robot Interface <input type="checkbox"/> <small>option</small> Side Auto Door <input type="checkbox"/> <small>option</small> (Double rail, High speed air Cylinder)
Safety	Locking type Safety Switch	Locking type Safety Switch
Length x Width x Height	1300 x 698 x 2120 mm (51.2 x 27.5 x 83.5 inch) 	2392 x 2692 x 2640 mm (51.2 x 27.5 x 83.5 inch) 

FULL-CUSTOMIZED AUTOMATION

In order to optimize the production of components with various shapes and materials, system engineering activities such as configuration of additional devices, process design and software are important based on high-performance machine tools. By using a wide range of DN Solutions's machine tools, we promise to provide optimized solutions that exceed the functions of machine tools itself through Full-customized automation.

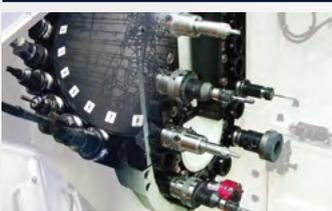
Fixture



Chuck



Tool



Gantry loader



Robot



LPS (Linear pallet system)

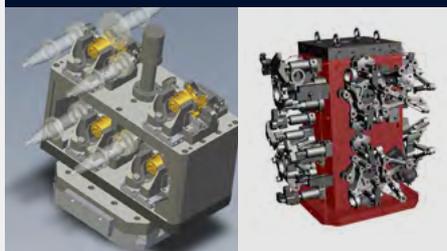


Technical consultation



Advance Analysis of Investment Feasibility

Application



Basic engineering such as process design, manufacturing, and test

Technical validation



Differentiated engineering such as productivity and process reliability

Customer Support Process



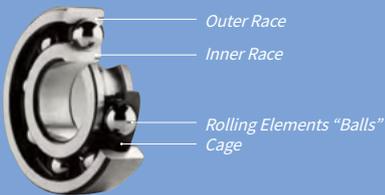
FULL-CUSTOMIZED AUTOMATION

Bearing automation solution

Optimized solution for bearing parts machining. loading and unloading system are fully optimized for bearing parts makes powerful productivity than any other solution.



Ball Bearing Taper Bearing Thrust Bearing Ball Bushing Bearing



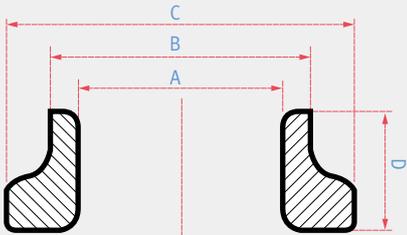
Improvement| Bearing loading unloading time

Previous model	4 ~ 5 sec
Lynx 2100G	2.99 sec

50%
Improved

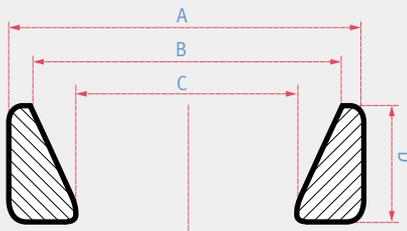
Workpiece range

INNER



Group	A (Ø)	B (Ø)	C (Ø)	D (mm)
A	25 ~ 49	15 ~ 41	10 ~ 34	10~25
B	49 ~ 70	41 ~ 53	34 ~ 44	10~35
C	70 ~ 90	63 ~ 72	53 ~ 62	25~50

OUTER

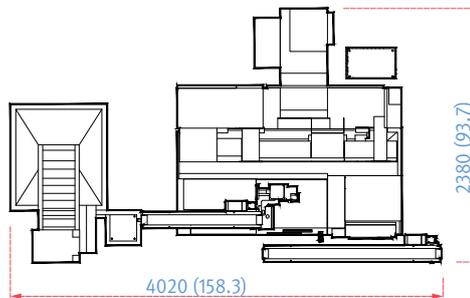


Group	A (Ø)	B (Ø)	C (Ø)	D (mm)
A	25 ~ 49	20 ~ 41	15 ~ 35	10~25
B	49 ~ 70	41 ~ 60	34 ~ 50	10~35
C	70 ~ 90	63 ~ 70	60 ~ 69	25~50

External dimensions

TOP VIEW

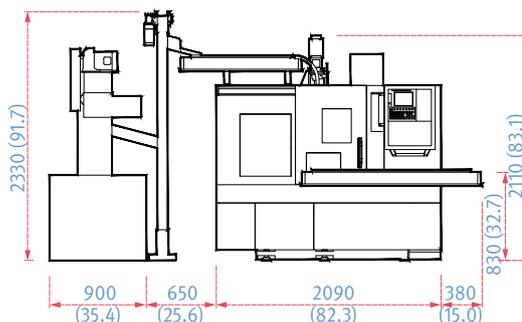
Unit : mm (inch)



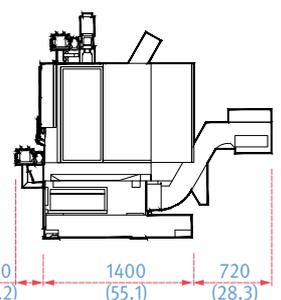
System configuration

- ① New Solution with Lynx 2100G
- ② Chip conveyor
- ③ Transformer
- ④ Hopper
- ⑤ Elevator
- ⑥ Upper conveyor
- ⑦ Lower conveyor

FRONT VIEW



SIDE VIEW



BAR FEEDER SYSTEM

Barfeeder system is one of basic automation system for turning center. Small size workpiece are suitable for bar feeder application and fulfill the best productivity.

PUMA GT2100

+ barfeeder and parts catcher

Lynx 2100

+ barfeeder and parts catcher

PUMA ST series

+ barfeeder and Parts conveyor

PUMA TT1800SY

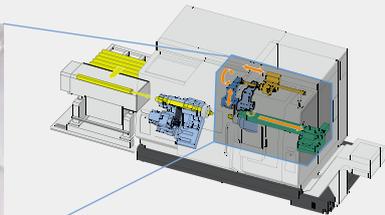
+ barfeeder and parts catcher /
Parts unloader / Parts conveyor



Peripheral equipments related with bar feeder system

Left spindle parts catcher option

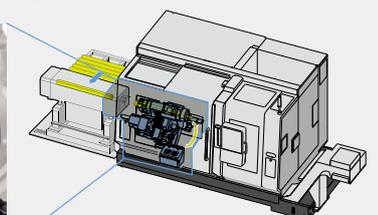
Single operation part produced on the left spindle, or bar remnant can be ejected into the bucket.



* PUMA TT1800SY, PUMA TT1300SY/2100SY, PUMA SMX2600/3100ST

Right spindle parts unloader and work ejector option

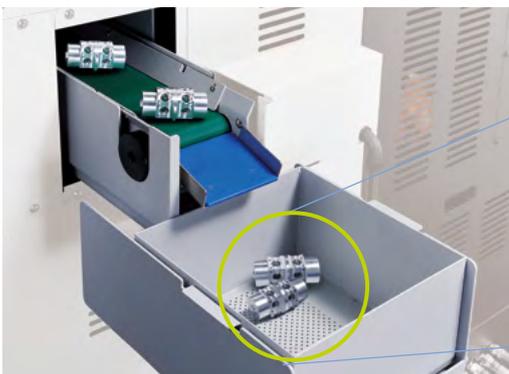
Work processed by the right spindle is delivered to the parts unloader by the work ejector and then discharged to the parts conveyor.



* Lynx2100, PUMA GT2100, PUMA TT1300SY/2100SY, PUMA TT1800SY etc

Parts conveyor option

Finished workpieces are transferred to the indexable output belt conveyor which discharges them to a receiving container.



Maximum material size for unloader / Conveyor system for PUMA TT1800SY

Max. work diameter

ø65 mm 2.6 inch

Max. work length

150 mm 5.9 inch

Max. work weight

3 kg 6.6 lb

* PUMA TT1300SY/2100SY, PUMA TT1800SY, PUMA ST series

GANTRY LOADER SYSTEM

Lynx 2100 + DN Solutions gantry Loader based on motion controller

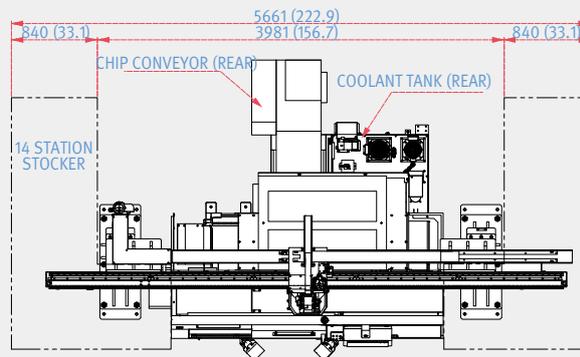
- Easy connection to main unit (EtherNET/IP interface)
 - Flexible usability regardless of controller type
- Economical total installation cost
- Operational flexibility with motion controller
 - Interfaces with two or more machines
 - Separate system from main machine (Machine can operate independently in)

Description	Unit	Lynx 2100-GL
Stroke Z / Y	mm (inch)	2080/900 (81.9/35.4)
G/L rapid traverse Z / Y	m/min (ipm)	210/180 (8267.7/7086.6)
G/L handling capacity	mm (inch) / kg (lb)	Ø150x90 (5.9x3.5)/3 (6.6)
Work stocker no. of pallet	ea	14

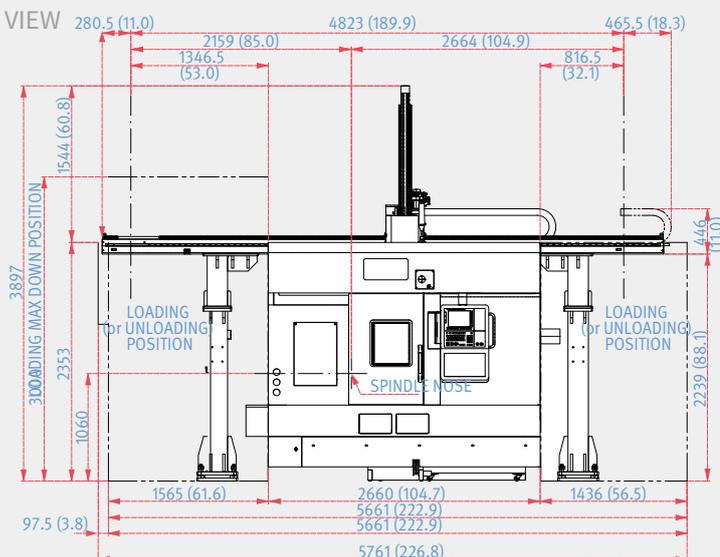


Lynx 2100-GL External dimensions

TOP VIEW



FRONT VIEW



Unit : mm (inch)

GANTRY LOADER SYSTEM

The DN Solutions gantry loader system is easy to install, operate, and supports quick turnkey systems. DN Solutions gantry system features faster loading / unloading times than competitor and offer easy function to control the motion of gantry loader. In addition, drum, rotary, pitch conveyor, push and conveyor type stockers are available for various types of automation.

Optimized gantry loader system with various turning and machining center model



FM 200-5AX + Gantry loader

PUMA GT2100M + Gantry loader

T 4000 + PUMA V8300 + Gantry loader

PUMA TT1800SY + Gantry loader

PUMA TW/TS series with high speed servo type gantry loader

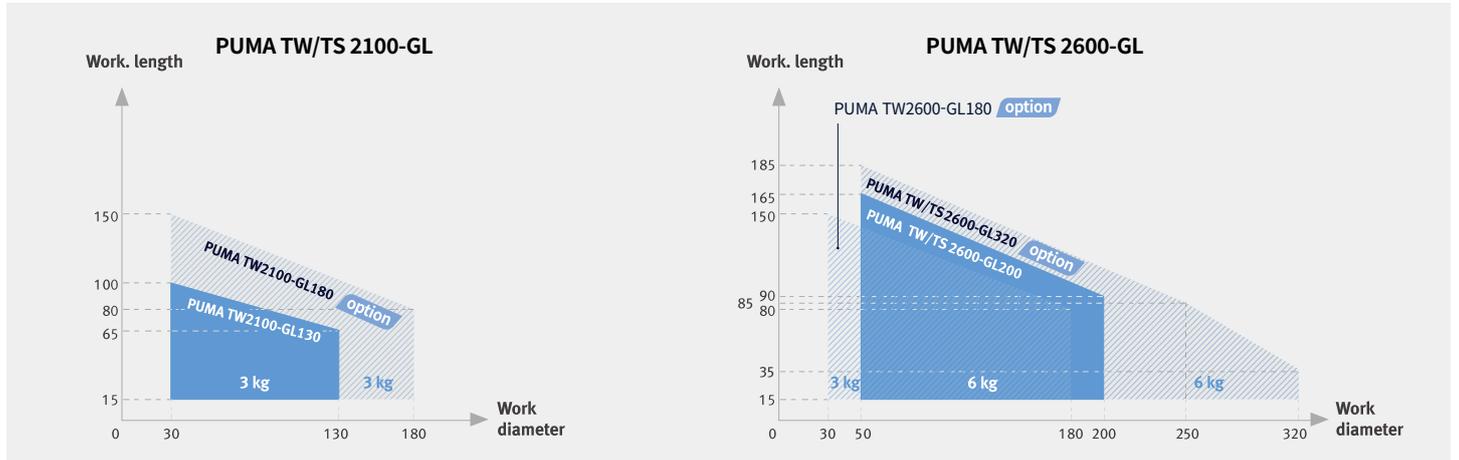


PUMA TW2600-GL

PUMA TS2600-GL

GANTRY LOADER SYSTEM

The 3-axis, servo-driven, high-speed gantry loader of the PUMA TW series model offers minimized work loading/unloading time and maximized productivity.



● Standard ○ Optional

Max. handling diameter	PUMA TW/TS 2100-GL130	PUMA TW/TS 2100-GL180	PUMA TW/TS2600-GL180	PUMA TW/TS2600-GL200	PUMA TW/TS2600-GL320
Ø130 x 65mm 3.0kg/ea	●				
Ø180 x 80mm 3.0kg/ea		○	○		
Ø200 x 90mm 6.0kg/ea				●	
Ø320 x 35mm 6.0kg/ea					○

Gantry loader handling time (Enter Change Work Exit)

Gantry loader handling time
(Enter → Change Work → Exit)

PUMA TW/TS 2100-GL
5.7 s

PUMA TW/TS2600-GL
7.9 s

Description	Unit	PUMA TW2100/M-GL	PUMA TW2600/M-GL	PUMA TS2600-GL
Rapid traverse	X axis	m/min (ipm)	210 (8267.7)	150 (5905.5)
	Y axis	m/min (ipm)	180 (7086.6)	130 (5118.1)
	Z axis	m/min (ipm)	55 (2165.4)	50 (1968.5)
Travel distance (GL TYPE A1 / A2 / A3)	X axis	mm (inch)	1910 / 1910 / 3220 (75.2 / 75.2 / 126.8)	2260 / 2260 / 4120 (89.0 / 89.0 / 162.2)
	Y axis	mm (inch)	560 (22.0)(GL130), 610 (24.0)(GL180)	710 (28.0)
	Z axis	mm (inch)	200 (7.9)	270 (10.6)

OPTIMIZED PERIPHERAL EQUIPMENT SOLUTION WITH GANTRY LOADER

Improve customer's convenience by providing a variety of standard/modular peripheral equipment.

Peripheral equipment

Standardization of variety option

Modular system with 26 types of stocker / measurement

Price competitiveness

Reduce costs by up to 15% than previously

Short delivery lead time

Estimated 80% faster delivery time and quicker maintenance

Quality and stability

Quality assurance through standardization

Improving operator convenience

Provide PLC control and motion control

Stocker



Measurement



A	1	S	TR	14	-	200	M	O	B	200		
A	3	S	PU	30	-	100	-	2R	M	D	T	200

① Gantry type

② Stocker system define

③ Measuring system define

① Gantry type

- A1
- A2
- A3

②-1 Stocker type

- Rotary **Track**
- Rotary **Round**
- Conveyor **Pitch**
- **Push** type
- Conveyor **Plate**

②-2 Station

- 6/7/8/10/12/14/30/50 station or pitch

②-3 Size

- Max **100**
- Max **125**
- Max **200**

②-4 Row

- **2Row**
- **3Row**

③-1 Measuring type

- Inner diameter
- Outer diameter
- Difference gap

③-2 Type

- **Button**
- **Touch**

③-3 Size

- Max **200**

OPTIMIZED PERIPHERAL EQUIPMENT SOLUTION WITH GANTRY LOADER

Modular Peripheral equipment

	Stoker (5 Type)					Measurement (3 Type)																	
	Drum	Rotary	Pitch Conveyor	Push	Conveyor	Inner dia.	Outer dia.	Difference gap															
Image																							
Description	<ul style="list-style-type: none"> Convenient space to stack workpieces Can handle different load capacities 	<ul style="list-style-type: none"> Minimal installation space required Superior accuracy of loading / unloading operations 	<ul style="list-style-type: none"> Shaft types and asymmetric square shapes can be loaded 	<ul style="list-style-type: none"> No separate feeder required 	<ul style="list-style-type: none"> Can be used to transfer between each process 	<ul style="list-style-type: none"> Data back-up function enables part dimension status and history to be checked Automatic offset function ensures machining accuracy Stability and cost-effectiveness provided through modularization 																	
Station	Station	8	10	12	14	6	8	10	14 Pitch		30 Stock		50 Stock		7 Stock		Button	Touch	Button	Touch	Button	Touch	
	Work size (Outer dia.) mm (inch)	50~200 (2.0~7.9)					50~100 (2.0~3.9)					50~125 (2.0~4.9)		125~200 (4.9~7.9)		50~200 (2.0~7.9)							
TW Type	A1	○	○	○	○	○	○	○															
	A2	○	○	○	○	○	○	○															
	A3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			○			
Out stocker		All					Only out stocker					All											

Matrix

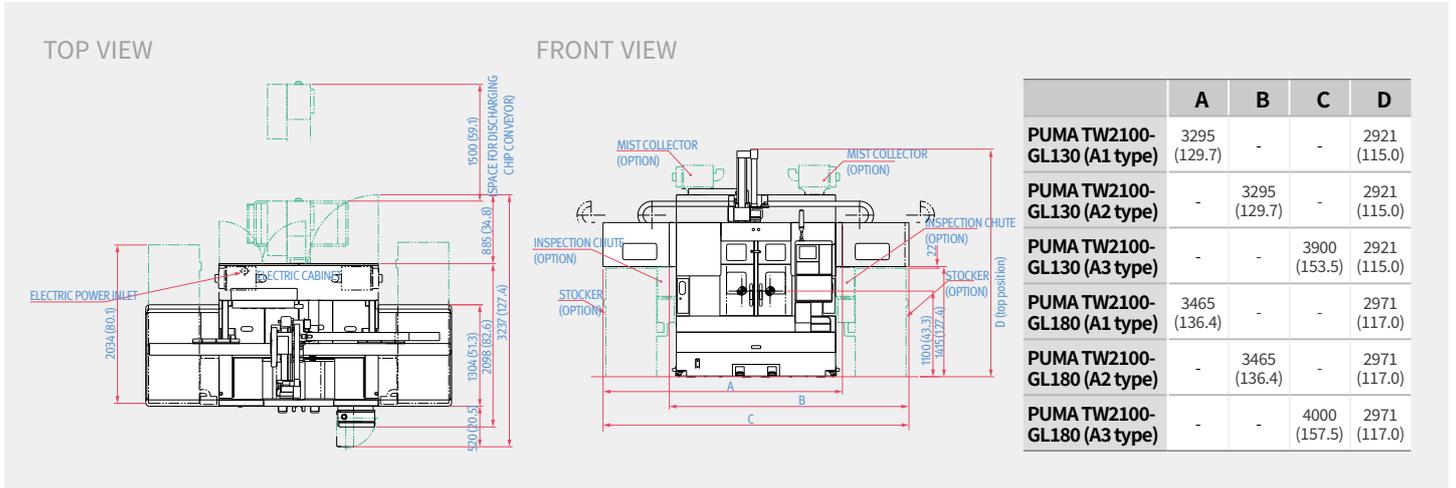
Item		Type	Stoker							
		Station	Drum				Rotary			
			8	10	12	14	6	8	10	
Work size (outer dia.)		mm (inch)	50~200 (2.0~7.9)							
- (No measurement)			A1-STR08-50(~200)-MIB50(~200)	A1-STR10-50(~200)-MIB50(~200)	A1-STR12-50(~200)-MIB50(~200)	A1-STR14-50(~200)-MIB50(~200)	A1-SRO06-50(~200)-MIB50(~200)	A1-SRO08-50(~200)-MIB50(~200)	A1-SRO10-50(~200)-MIB50(~200)	
Measurement	Inner diameter	Button	A3-STR08-50(~200)-MIB50(~200)	A3-STR10-50(~200)-MIB50(~200)	A3-STR12-50(~200)-MIB50(~200)	A3-STR14-50(~200)-MIB50(~200)	A3-SRO06-50(~200)-MIB50(~200)	A3-SRO08-50(~200)-MIB50(~200)	A3-SRO10-50(~200)-MIB50(~200)	
		Touch	A3-STR08-50(~200)-MIT50(~200)	A3-STR10-50(~200)-MIT50(~200)	A3-STR12-50(~200)-MIT50(~200)	A3-STR14-50(~200)-MIT50(~200)	A3-SRO06-50(~200)-MIT50(~200)	A3-SRO08-50(~200)-MIT50(~200)	A3-SRO10-50(~200)-MIT50(~200)	
	Outer diameter	Button	A3-STR08-50(~200)-MOB50(~200)	A3-STR10-50(~200)-MOB50(~200)	A3-STR12-50(~200)-MOB50(~200)	A3-STR14-50(~200)-MOB50(~200)	A3-SRO06-50(~200)-MOB50(~200)	A3-SRO08-50(~200)-MOB50(~200)	A3-SRO10-50(~200)-MOB50(~200)	
		Touch	A3-STR08-50(~200)-MOT50(~200)	A3-STR10-50(~200)-MOT50(~200)	A3-STR12-50(~200)-MOT50(~200)	A3-STR14-50(~200)-MOT50(~200)	A3-SRO06-50(~200)-MOT50(~200)	A3-SRO08-50(~200)-MOT50(~200)	A3-SRO10-50(~200)-MOT50(~200)	
	Difference gap	Button	A3-STR08-50(~200)-MDB50(~200)	A3-STR10-50(~200)-MDB50(~200)	A3-STR12-50(~200)-MDB50(~200)	A3-STR14-50(~200)-MDB50(~200)	A3-SRO06-50(~200)-MDB50(~200)	A3-SRO08-50(~200)-MDB50(~200)	A3-SRO10-50(~200)-MDB50(~200)	
		Touch	A3-STR08-50(~200)-MDT50(~200)	A3-STR10-50(~200)-MDT50(~200)	A3-STR12-50(~200)-MDT50(~200)	A3-STR14-50(~200)-MDT50(~200)	A3-SRO06-50(~200)-MDT50(~200)	A3-SRO08-50(~200)-MDT50(~200)	A3-SRO10-50(~200)-MDT50(~200)	

Item		Type	Stoker					
		Station	Pitch Conveyor		Push		Conveyor	
			14		30 stock	50 stock	7 stock	
Work size (outer dia.)		mm (inch)	2 row	3 row	2 row	3 row	50~125 (2.0~4.9)	125~200 (4.9~7.9)
Measurement	Inner diameter	Button	A3-SPI14-2R-50(~100)-MIB50(~200)	A3-SPI14-3R-50(~100)-MIB50(~200)	A3-SPU30-2R-50(~100)-MIB50(~200)	A3-SPU50-2R-50(~100)-MIB50(~200)	A3-SPL07-50(~125)-MIB50(~200)	A3-SPL07-125(~200)-MIB50(~200)
		Touch	A3-SPI14-2R-50(~100)-MIT50(~200)	A3-SPI14-3R-50(~100)-MIT50(~200)	A3-SPU30-2R-50(~100)-MIT50(~200)	A3-SPU50-2R-50(~100)-MIT50(~200)	A3-SPL07-50(~125)-MIT50(~200)	A3-SPL07-125(~200)-MIT50(~200)
	Outer diameter	Button	A3-SPI14-2R-50(~100)-MOB50(~200)	A3-SPI14-3R-50(~100)-MOB50(~200)	A3-SPU30-2R-50(~100)-MOB50(~200)	A3-SPU50-2R-50(~100)-MOB50(~200)	A3-SPL07-50(~125)-MOB50(~200)	A3-SPL07-125(~200)-MOB50(~200)
		Touch	A3-SPI14-2R-50(~100)-MOT50(~200)	A3-SPI14-3R-50(~100)-MOT50(~200)	A3-SPU30-2R-50(~100)-MOT50(~200)	A3-SPU50-2R-50(~100)-MOT50(~200)	A3-SPL07-50(~125)-MOT50(~200)	A3-SPL07-125(~200)-MOT50(~200)
	Difference gap	Button	A3-SPI14-2R-50(~100)-MDB50(~200)	A3-SPI14-3R-50(~100)-MDB50(~200)	A3-SPU30-2R-50(~100)-MDB50(~200)	A3-SPU50-2R-50(~100)-MDB50(~200)	A3-SPL07-50(~125)-MDB50(~200)	A3-SPL07-125(~200)-MDB50(~200)
		Touch	A3-SPI14-2R-50(~100)-MDT50(~200)	A3-SPI14-3R-50(~100)-MDT50(~200)	A3-SPU30-2R-50(~100)-MDT50(~200)	A3-SPU50-2R-50(~100)-MDT50(~200)	A3-SPL07-50(~125)-MDT50(~200)	A3-SPL07-125(~200)-MDT50(~200)

GANTRY LOADER SYSTEM

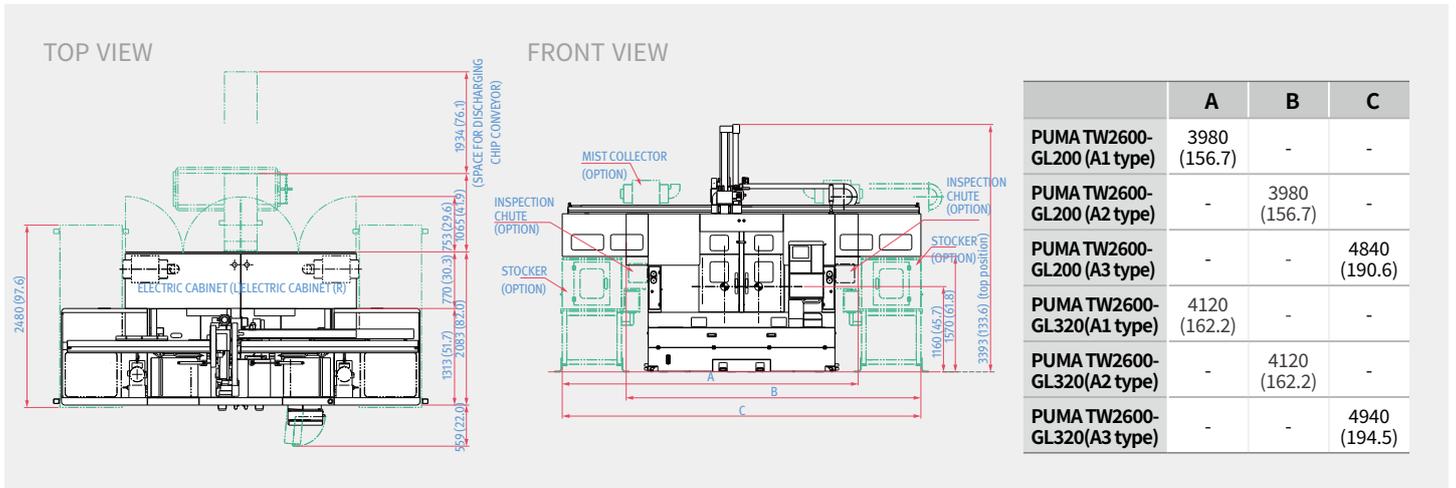
PUMA TW2100-GL

Unit : mm (inch)



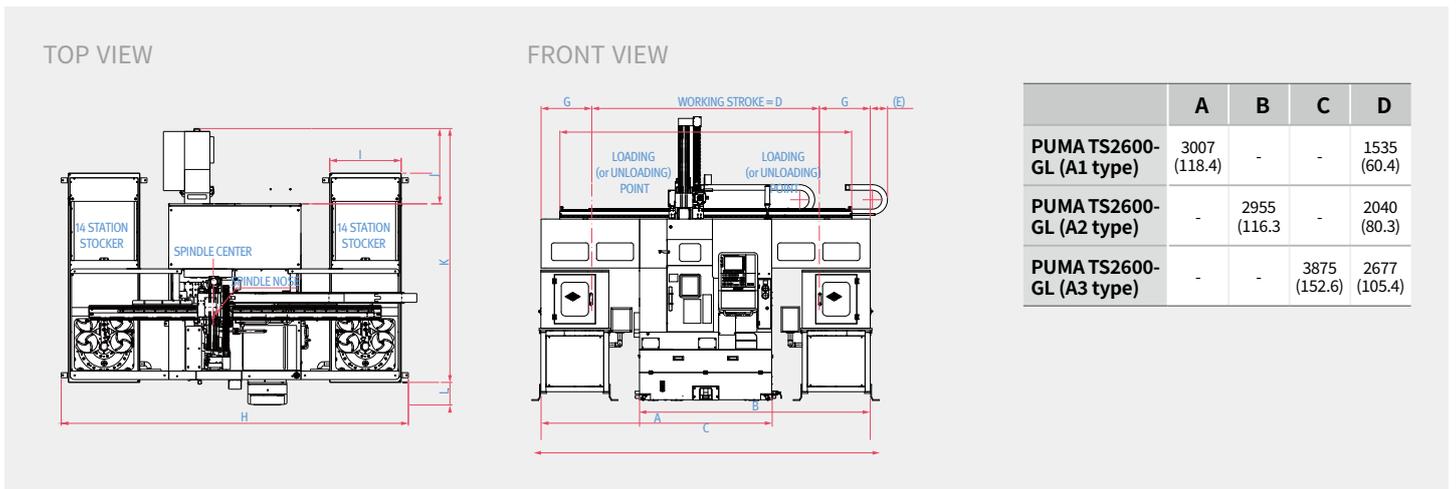
PUMA TW2600-GL

Unit : mm (inch)



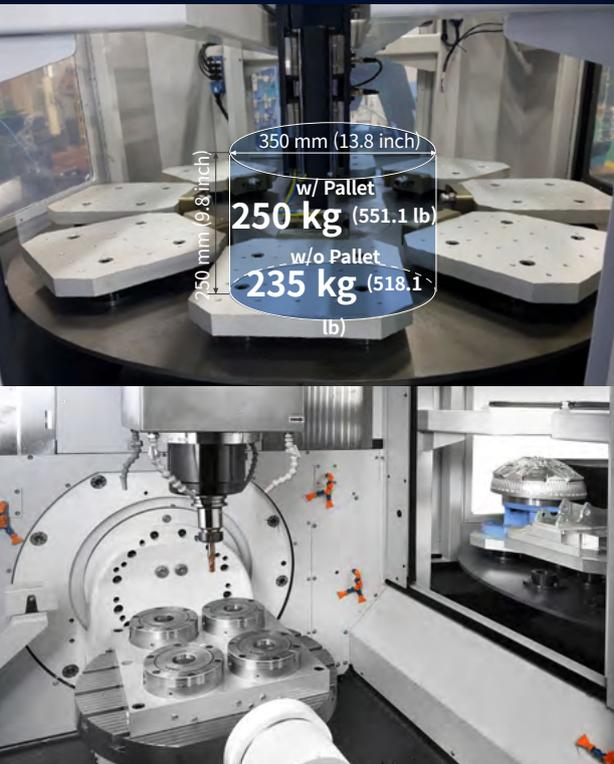
PUMA TS2600-GL

Unit : mm (inch)



AUTO WORK-PIECE CHANGE SYSTEM

The optimized solution to realize compact automation system through automatic work-piece change system.

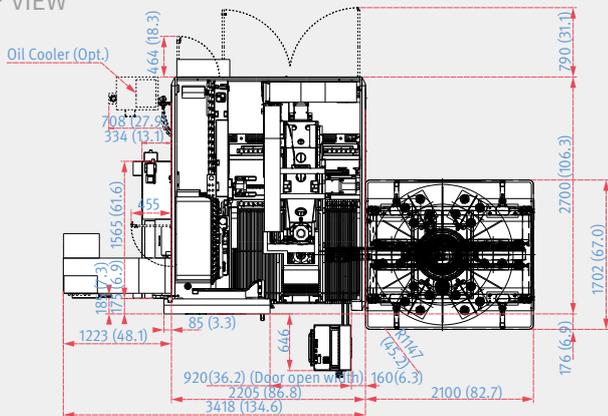


* DVF 5000 with APC.

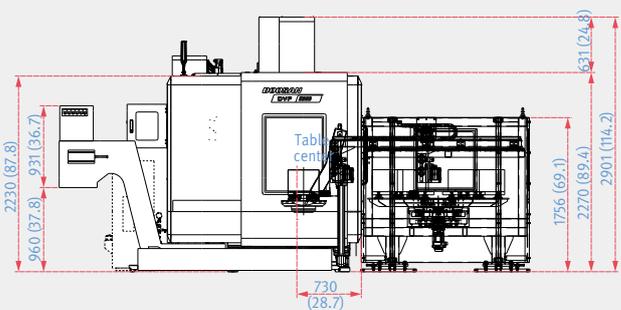
External dimensions

Unit : mm (inch)

TOP VIEW



FRONT VIEW



Machine specifications

Description		AWC system				
		DVF 5000 / DNM 4500 / DNM 5700 / DNM 6700 / MYNX 6500*				
Available model						
Pallet dimension	mm (inch)	500x500 (19.7x19.7)	400x400 (15.7x15.7)	350 x 350 (13.8 x 13.8)	320x320 (12.6x12.6)	250x250 (9.8x9.8)
Workpiece diameter	mm (inch)	550 (21.7)	450 (17.7)	400 (15.7)	360 (14.2)	300 (11.8)
Workpiece height	mm (inch)	350 (13.8)				
Workpiece weight (w/ Pallet)	kg (lb)	250 (551.1)				130 (286.6)
Pallet change time	sec	40				
Number of setup stations	ea	1				
Number of pallets	ea	4	6	8	10	12
Dimension(L x W)	mm (inch)	1700 x 1900 (66.9 x 74.8)				

* Please contact DN Solutions to select detail specifications.

LINEAR PALLET SYSTEM

LPS 4000 / 5000

LPS 4000 / 5000 is designed to provide optimized system for the user wants space saving & high productivity linear pallet system in pallet size both 400 mm x 400 mm (15.7 inch x 15.7 inch) and 500 mm x 500 mm (19.7 inch x 19.7 inch) with minimum invest cost.



EXPANDABLE



Simplify AGV

15 %
Reduced length

Improved cycle time

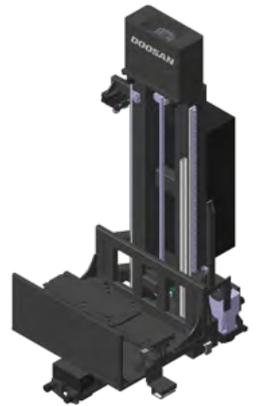
32 %

Reduced footprint

10.8 %

Optimized AGV

- Lifting axis with ball screw & LMG
- Optimized AGV of single mast & single fork structure



Machine specifications

Available model	LPS 4000		LPS 5000	
		NHP 4000 / HC 400 II	NHP 5000 / HC 500 II	DVF 6500 W / APC
Pallet dimension	mm (inch)	400 x 400 (15.7 x 15.7)	500 x 500 (19.7 x 19.7)	
Workpiece diameter	mm (inch)	630 (24.8) / 600 (23.6)	800 (31.5)	630 (24.8)
Workpiece height	mm (inch)	900 (35.4) / 800 (31.5)	1000 (39.4) / 900 (35.4)	430 (16.9)
Workpiece weight	kg (lb)	400 (881.8)	400 (881.8) {700(1543.2) : NHP 5000}*	500 (1102.3)
Travelling (X) speed	m/min (ipm)	60 (2362.2) [Load], 90 (3543.3) [Unload]		
Lifting (Y) speed	m/min (ipm)	10 (393.7) Load], 20 (787.4) [Unload]		
Forking (Z) speed	m/min (ipm)	20 (787.4) [Load], 50 (1968.5) [Unload]		
Axis control		Servo		
Forking type		Single Fork (Telescopic Mechanism)		
Turntable Indexing		45°		
Power supply (AGV)		Trolley Bar		
Communication (AGV<-> Main controller)		Optical		
Number of machines		1 ~ 7 (Aux. +1)		
Number of setup stations		1 ~ 4		
Number of pallet	ea	12 ~ 72		
Dimension(Basic)	mm (inch)	6980 [L] x 2400 [W] (274.8 x 94.5)		

(Note) Please contact DN Solutions to select detail specifications.

*{ } : option

Features

- Optimized Slim design for space saving & minimal invest cost
- Optimized AGV of single mast & single fork structure
- Simple installation in one piece
- Easy field retrofit to DN Solutions horizontal machining center
- User friendly intuitive way to register basic information for flexible manufacturing

LINEAR PALLET SYSTEM

LPS 5500 / 6300 / 8000

LPS 5500 / 6300 / 8000 is designed to provide a high level of automation system for the customer wants high storage capacity.

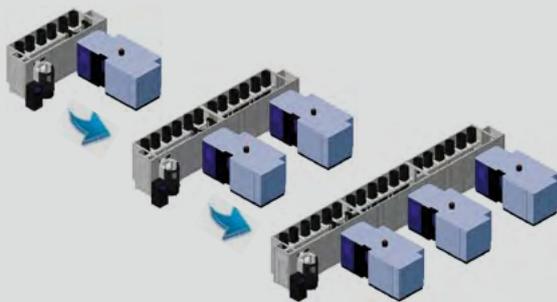
Features

- Easy extension of system by modularized storage rack up to 7 machines & 72 pallets
- High efficiency of workpiece load space
- Auto-operation control by PC based OS
- Easy retrofit to old DN Solutions horizontal machining centers

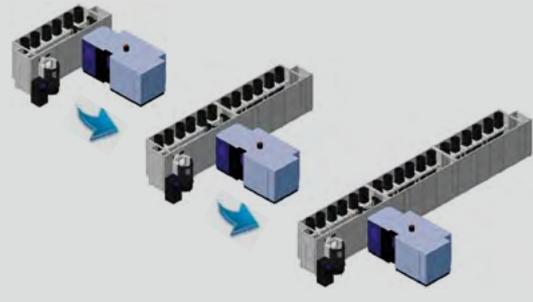
EXPANDABLE



Increased production



Increased automated operation time



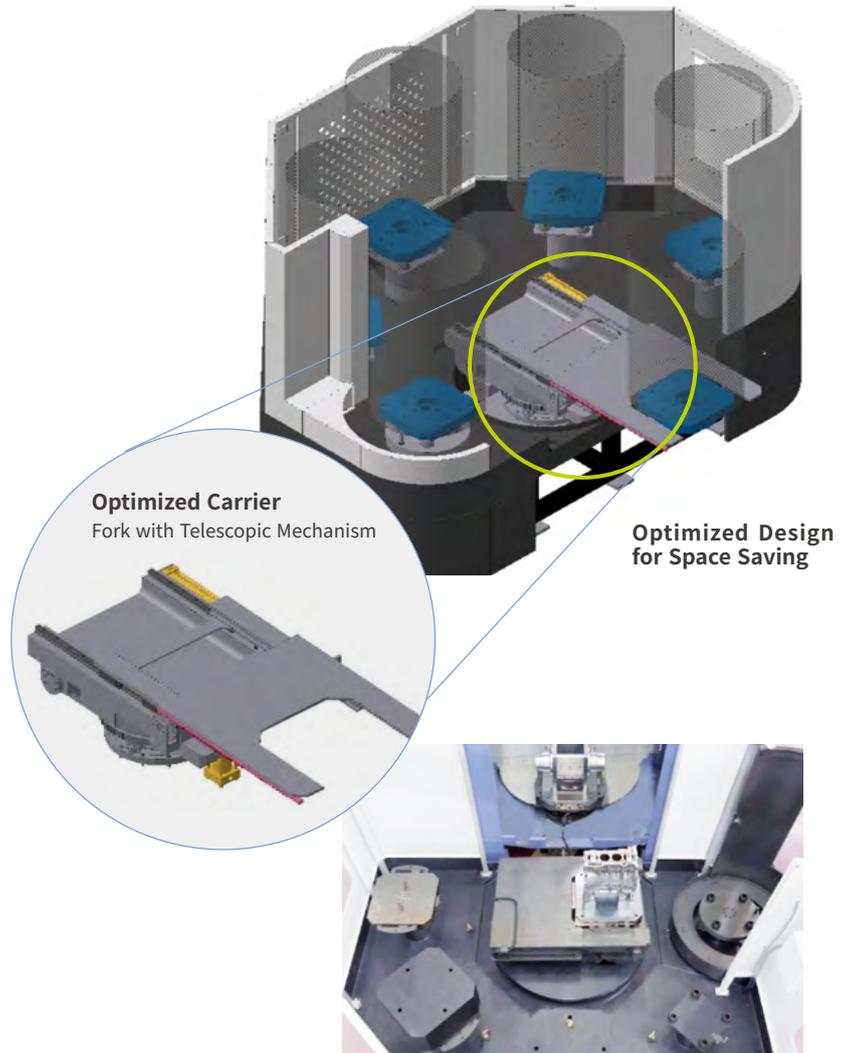
Machine specifications

Available model		LPS 5500	LPS 6300	LPS 8000
		NHM 5000 / NHP 5500	NHM 6300 / NHP 6300	NHM 8000 / NHP 8000 / DHF 8000
Pallet dimension	mm (inch)	500 x 500 (19.7 x 19.7)	630 x 630 (24.8 x 24.8)	800 x 800 (31.5 x 31.5)
Workpiece diameter	mm (inch)	850 (33.5)	1050 (41.3)	1450 (57.1)
Workpiece height	mm (inch)	1100 (43.3)	1350 (53.1)	1400 (55.1)
Workpiece weight	kg (lb)	800 (1763.7)	1200 (2645.5)	2000 (4409.2)
Number of machines			1 - 7	
Number of setup stations			1 - 4	
Number of pallet	ea	12 ~ 72	10 ~ 72	8 ~ 72
Dimension(Basic)	mm (inch)	7824 [L] x 2400 [W] (308.0 [L] x 94.5 [W])	7904 [L] x 2785 [W] (311.2 [L] x 30.9 [W])	8952 [L] x 3500 [W] (352.4 [L] x 137.8 [W])

ROUND PALLET SYSTEM

RPS 4000 / 5000

Compact size slim multi pallet system for new HMC taper #40 series.



Features

- Optimized slim design for space saving & minimal invest cost
- Telescopic mechanism fork like LPSII
- Simple installation and easy maintenance
- Easy field retrofit to DN Solutions HMC

Machine specifications

Available model		RPS 4000 / 5000-6P	
		NHP 4000/HC 400 II	NHP 5000 / HC 500 II
Pallet dimension	mm (inch)	400 x 400 (15.7 x 15.7)	500 x 500 (19.7 x 19.7)
Workpiece diameter	mm (inch)	630 (24.8) / 600 (23.6)	800 (31.5)
Workpiece height	mm (inch)	900 (35.4) / 8800 (31.5)	1000 (39.4) / 900 (35.4)
Workpiece weight	kg (lb)	400 (881.8)	500 (1102.3) {700 (1543.2)}*
Number of pallet	ea	6	
Magazine type	-	Buffer Station type with Carrier	
Operation	-	Easy scheduling operation (Built-in Control)	
Driving mechanism	Rotating axis(X)	-	Servo motor & Reduction gear
	Forking axis(Z)	-	Hydraulic cylinder & rack/Pinion
Dimension(Basic)	mm (inch)	3230 x 2215 (127.2 x 87.2)	3630 x 2415 (142.9 x 95.1)

*{ } :option

ROUND PALLET SYSTEM

RPS 5000/21

Slim round pallet system with multi level storage

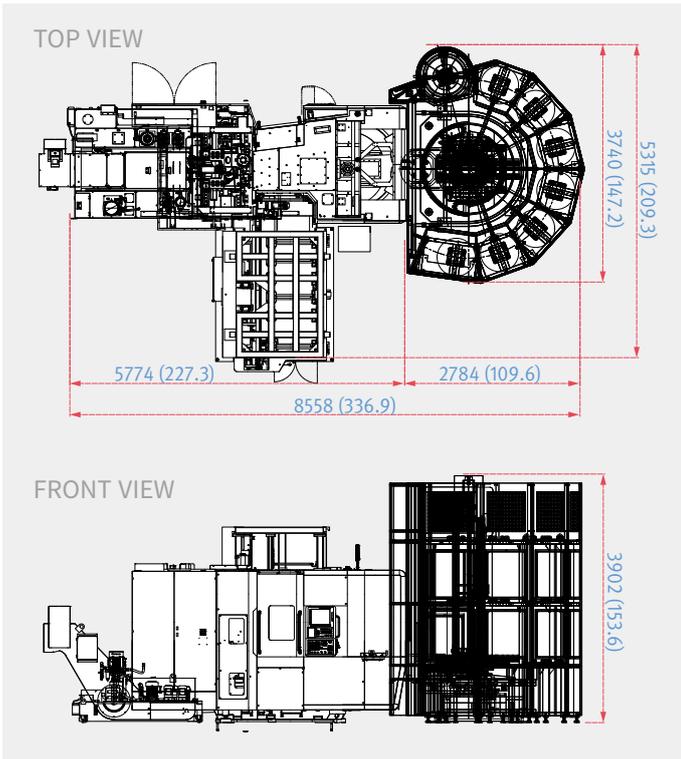
Features

- Optimized multi Layer storage system with outstanding space saving
- Minimal Invest cost for automation solution
- Further enhanced unmanned time, compared to six round pallet system



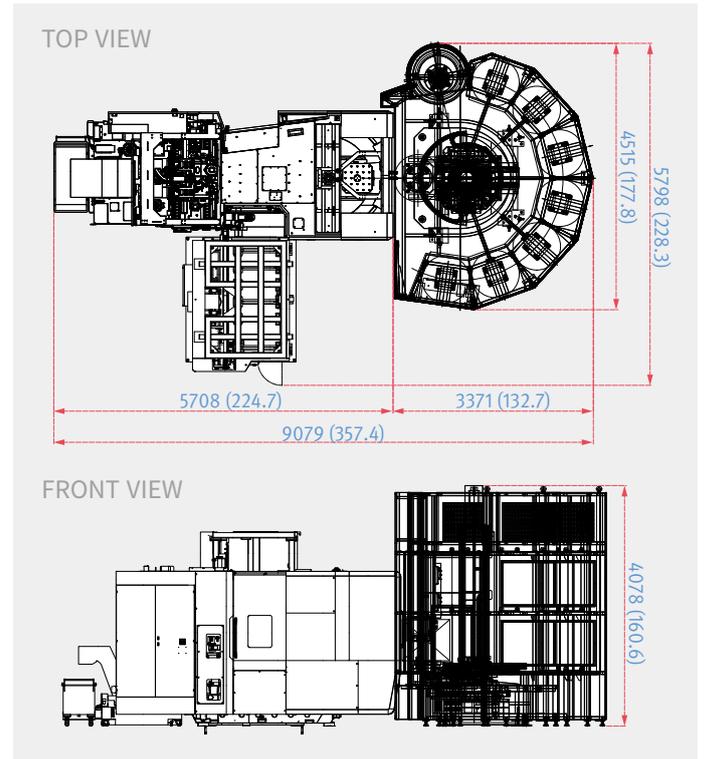
NHP 4000 275T & RPS 4000_21 Pallet external dimensions

Unit : mm (inch)

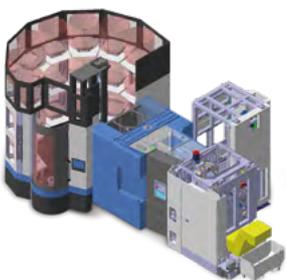


NHP 5000 275T & RPS 5000_21 Pallet external dimensions

Unit : mm (inch)



Machine specifications

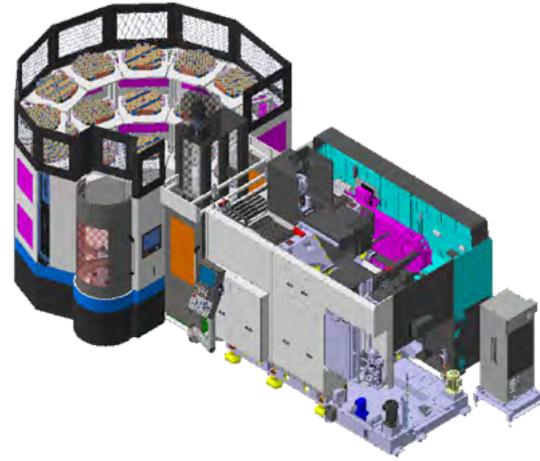


Description	unit	RPS 4000	RPS 5000
Available model	-	NHP 4000 / HC 400 II	NHP 5000 / HC500 II
Pallet dimension	mm (inch)	400 x 400 (15.7 x 15.7)	500 x 500 (19.7 x 19.7)
Max. workpiece diameter	mm (inch)	630 (24.8) / 600 (23.6)	800 (31.5)
Max. workpiece height	mm (inch)	NHP4000: 900(35.4) (14P) / 700(27.6)(21P) HC400II : 800(31.5) (14P) / 700(27.6) (21P)	NHP5000: 1000(39.4) (14P) / 700(27.6) (21P) HC500II : 900(35.4) (14P) / 700(27.6)(21P)
Max. workpiece weight	kg(lb)	400 (15.7)	500 (19.7) (700 (27.6) :NHP5000)*
Number of pallet	ea	14/21	
Operation	-	Easy scheduling operation (Built-in Control)	

ROUND PALLET SYSTEM

RPS 6500

Multi-level pallet system with optimal machine tool accessibility.



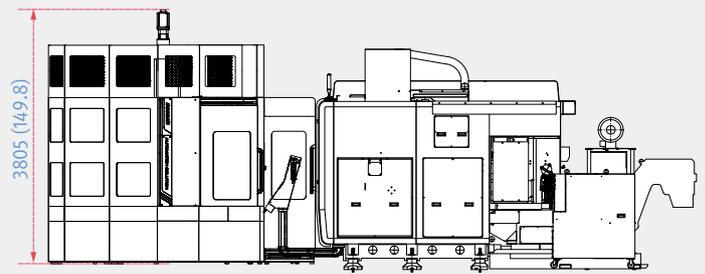
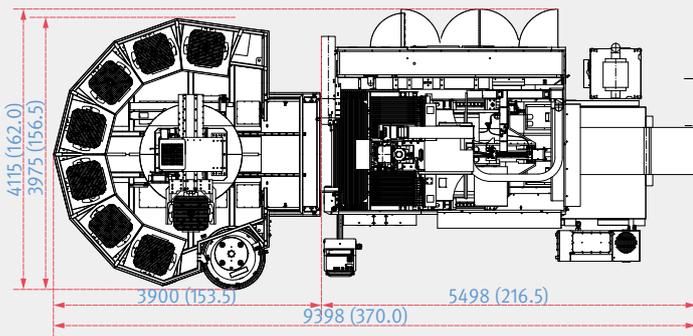
Features

- Slim design optimized for a 5-axis machine.
- Large maintenance space for optimal machine tool accessibility.
- Independent control system for 4axis
- Easy to install and maintenance



DVF 6500 & RPS 6500_21 Pallet external dimensions

Unit : mm (inch)



Machine specifications

Description	unit	RPS 6500
Available model	-	DVF 6500 / VC 630
Pallet dimension	mm (inch)	500 x 500 (19.7 x 19.7)
Max. workpiece diameter	mm (inch)	630 (24.8)
Max. workpiece height	mm (inch)	430 (16.9)
Max. workpiece weight	kg(lb)	500 (19.7)
Number of pallet	ea	7/14/21
Operation	-	Easy scheduling operation (Built-in Control)

Note) Please contact DN Solutions to select detail specifications.

ROUND PALLET SYSTEM

RPS 5500 / 6300 / 8000

Compared to a standard twin pallet machine, the MPS offers a long period of unmanned operation and the flexibility to produce many different workpieces using the work scheduling function.

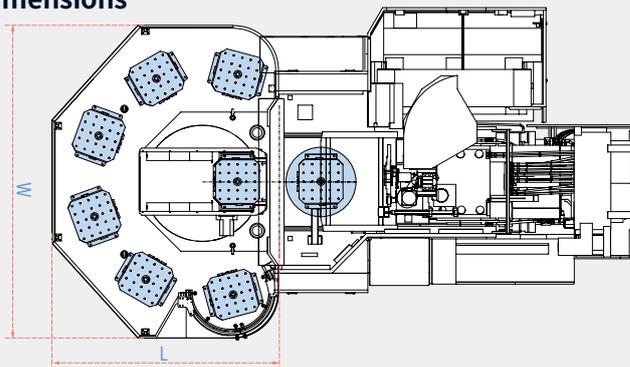
This system can be easily retrofitted to existing machines in the field.



Features

- Reliability from servo driven system
- Easy setting
- Easy retrofit in field

External dimensions



Machine specifications

Model		7 Pallet		9 Pallet	
		Width	Length	Width	Length
NHM 5000	mm (inch)	3848 (151.5)	2674 (105.3)	4222 (166.2)	3520 (138.6)
NHP 5500	mm (inch)				
NHM 6300	mm (inch)	4706 (185.3)	3276 (129.0)	5513 (217.0)	4200 (165.4)
NHP 6300	mm (inch)				
NHM 8000	mm (inch)	6462 (254.4)	4400 (173.2)	6706 (264.0)	5400 (212.6)
NHP 8000	mm (inch)				

Machine specifications

Available model		NHM 5000 / NHP 5500	NHM 6300 / NHP 6300	NHM 8000 / NHP 8000
Pallet dimension	mm (inch)	500 x 500 (19.7 x 19.7)	630 x 630 (24.8 x 24.8)	800 x 800 (31.5 x 31.5)
Workpiece diameter	mm (inch)	850 (33.5)	1050 (41.3)	1450 (57.1)
Workpiece height	mm (inch)	1100 (43.3)	1350 (53.1)	1550 (61.0)
Workpiece weight	kg (lb)	800 (1763.7)	1200 (2645.5)	1600 (3527.3)
Number of pallet	ea	7 & 9		
Magazine type		Buffer station type with carrier		
Operation		Easy scheduling operation (2-Path control)		
Pallet drive device		Servo motor & reduction gear		
Hydraulic power unit	kW (Hp)	2.2 (3.0)		

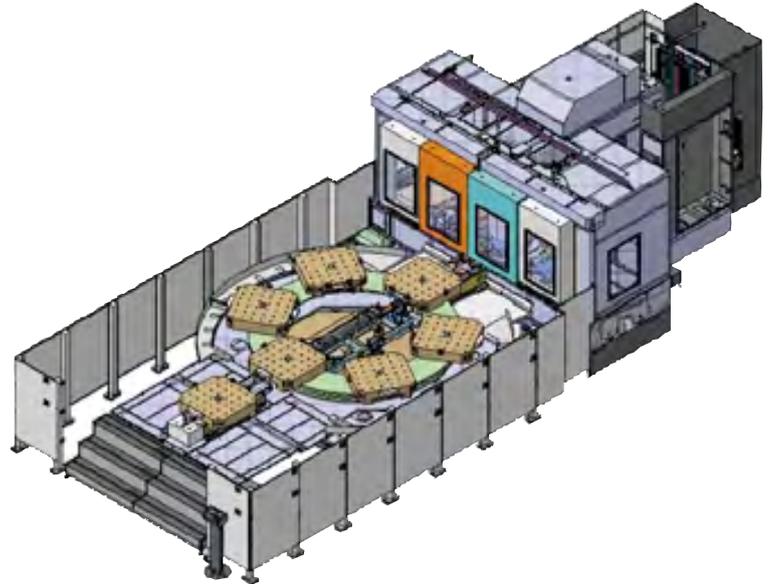
ROUND PALLET SYSTEM

RPS 1000 / 1250

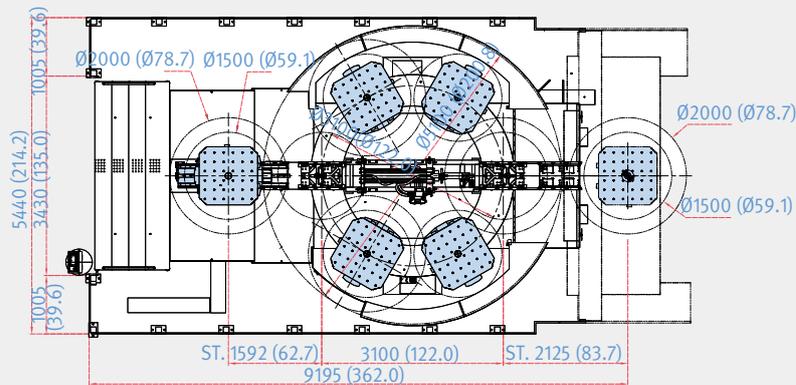
RPS 1000 / 1250 is composed of a rotating pallet pool storage unit and a feed mechanism to transfer the pallet to and from the machine working area. In addition, a pallet can be transferred to a separate setup station where the operator has all-round access for loading the workpiece.

Features

- Conventional multi pallet changer (Loop type)
- Available large volume workpiece
- Driven by hydraulic unit
- Stable pallet changing unit
- Pallet scheduling operation (1-Path, PMC control)



External dimensions



Machine specifications

Available model		HM 1000	HM 1250	HM 1250W
Pallet dimension	mm (inch)	1000 x 1000 (39.4 x 39.4), 1250 x 1000 (49.2 x 39.4)		
Workpiece diameter	mm (inch)	1500 (59.1) {2000 (78.7), closed pallet need to be empty}		
Workpiece height	mm (inch)	1475 (58.1)	1725 (67.9)	
Workpiece weight	kg (lb)	3000 (6613.8)		
Magazine type		Round type		
Operation		Pallet scheduling operation (1-Path, PMC control)		
Pallet drive device		HYDRAULIC motor & chain		
Hydraulic power unit	kW (Hp)	7.5 (10.1)		

MANAGEMENT SYSTEM

LPS/RPS check sheet

IPC: Industrial personal computer

- Machine specification ()
- The numbers of machine () ea
- The numbers of pallet () ea
- The numbers of setup station () ea
- Washing machine is needed or is not needed ()
- Maximum size of all cutting programs () Kbyte
- Maximum time to setup a workpiece () minute
- Maximum cycle time () minute
- Maximum height under the roof and utility lines () mm
- Maximum height of the workpiece with fixtures () mm
- The crane specification on the factor () ton
- There is the Ethernet network on the factory or not ()

The size of pallets (unit: mm)

- 400
 500
 630
 800
 over 1000

The specification of CNC

- Fanuc 31iB
 Fanuc 32iB

The process of pallets

- Install (Setup) → Cutting (Machine) → Out (Setup)
 Install (Setup) → Cutting (Machine) → Washing (Aux) → Out (Setup)

Spare industrial personal computer

- Order additional IPC with DPMSII.

Naming



Brand*

- LPS : Linear pallet system
- RPS : Round pallet system

VALUABLE SUPPORTS

We actively respond to our diverse global customers' demands. We research changes in the global market to develop new models and expand our product line up.



Automotive

ANHUI JIANGHUAI AUTOMOBILE · China
FAW-VOLKSWAGEN · China
HONDA AUTOMOBILE · Thailand
LINAMAR AUTOMOTIVE SYSTEMS · USA
SCANIA · Sweden
THYSSENKRUPP · Brazil
TRW · Brazil, Canada, China, Malaysia,
Mexico, Thailand, USA
VOLVO · Sweden

Aerospace

AEROSPACE HIWING (HARBIN) TITANIUM
INDUSTRY · China
Bombardier · UK
CHINA AVIATION INDUSTRY CHENGDU ENGINE
China
GENERAL ELECTRIC · USA, China
HONEYWELL AEROS · USA, Mexico
M.S. AEROSPACE, INC. · USA
Rolls Royce · UK, Germany

Medical

BIOMET · USA
MEDTRONIC SOFAMOR DANEK · USA
SANDVIK MEDICAL · USA
SMITH & NEPHEW · USA, China

Energy

BOSCH REXROTH OIL CONTROL SPA · Italy
DRILLQUIP · UK
FMC · UK
GE OIL AND GAS · USA, Saudi Arabia
NOV · USA, Singapore
OMS OILFIELD SERVICES · Malaysia
WEATHERFORD · China, India, USA,
Argentina, France, UAE
WOOD GROUP · USA, Saudi Arabia

IT

APPLE · USA
BALDOR ELECTRIC CO. · USA
HITACHI ELEVATOR MOTOR (GUANGZHOU) Co.,
Ltd. China
LG · China
SAMSUNG · China, Malaysia
WESTINGHOUSE ELECTRIC · USA

General Machinery

CATERPILLAR · Italy
FOTON LOVOL INTERNATIONAL HEAVY
INDUSTRY · China
BOBCAT · USA
BOSCH REXROTH BEIJING HYDRAULIC Co.,
Ltd.
China
PARKER HANNIFIN LTD. · USA
SIEMENS MECHANICAL DRIVE SYSTEM
(Tianjin) Co., Ltd. · China
SANY HEAVY INDUSTRIAL · China
TEREX · UK

SUCCESS STORY



China

Reliable customer services

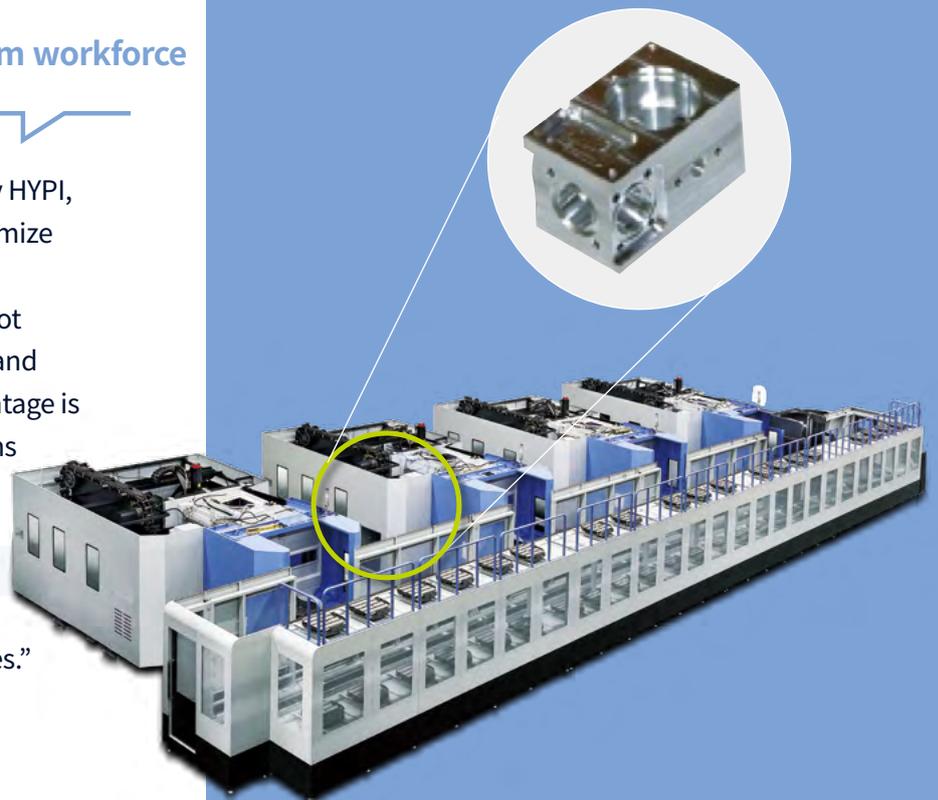
“ We had confidence in DN Solutions’s machines due to their stable operation rate and durability. This is already our fourth project with DN Solutions. While we were conducting the system line project, DN Solutions shared its technology with us unreservedly, and accepted all our requirements including any additional functions we needed in connection with various regulations.”

B Company (China)

Maximum efficiency with minimum workforce

“ DN Solutions’s LPS system, introduced by HYPI, is a linear pallet system designed to maximize productivity and quality with a minimum workforce. The 12-pallet LPS is suitable not only for large factories but also for small and medium-sized firms. Another great advantage is the perfect service offered by DN Solutions after the design, establishment and installation of the automated system. We are currently using the HP 5100 primarily because it can respond very quickly to frequent changes of workpieces.”

A Company (U.S.A)



RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		51	Technical centers Technical center, Sales support, Service support, Parts support
4	Corporations	200	Service posts
156	Dealer networks	3	Factories



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



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* Specifications and information contained within this catalogue may be changed without prior notice.