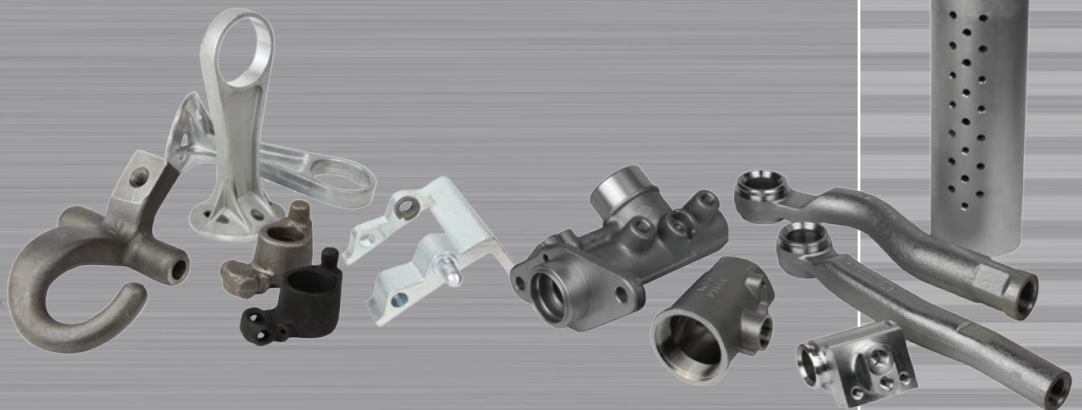
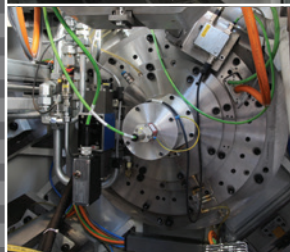
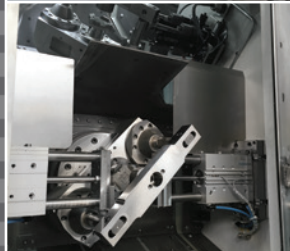


WITZIG & FRANK

by **HYDROMAT**

LSA 8-200 TRUNNION MACHINE



LSA 8-200

Multi-Way Production Cell for 3-Sided Machining In One Clamping

The LSA 8-200 is equipped with a Fanuc 300i-Model A / USA featuring an Integrated Ladder III PLC control. The control allows communication via internal network and the internet, with remote service by our technicians to assist and evaluate to resolve any issues.



The LSA design is a multi-way production cell with horizontal turret axis can be used to complement other rotary transfer automatic systems.

The machine application is based on the clamping position of the workpiece, flexibility required for the machine, access for setting up and the number of radial units.

The LSA 8-200 model has seven machining stations that feature 2-jaw chucks or custom fixtures for cast blanks. It also has one dedicated loading station and one station for gauging, inverting, or other special processes. It features four to six stations with six, eight or a maximum of ten horizontal units and two or three radial units. These can swivel and be adjusted, and thus are able to adapt to changing workpiece shapes.

The machine base exhibits high static and dynamic rigidity and allows excellent access to the workspace, as well as for the removal of chips.

The indexing unit is cycled between the machining stations with extreme accuracy and repeatability during the rotary transfer process. It can be customized to accept an infinite number of workpiece clamping fixtures. It is also possible for two fixtures to be located next to each other. In this set-up, machining of

two workpieces can be completed in one cycle, or one workpiece can be in the first or second clamping (multi-sided machining; A/B load).

Clamping of the workpiece is usually hydraulic, e.g. self-centering clamping in two or three jaw chucks, clamping fixtures, collet chucks, swivel-mounted clamping jaws or clamping arbors.

For the LSA three spindle sleeve sizes are available. There are hydraulic or mechanical machining units in various sizes that enable light or heavy material removal, and also the use of multi-spindle heads.

For precise and reliable long-term usage, our hydraulic linear drives (HLD) are also provided as an option. With their user-friendly high performance technology, they are an optimum drive solution.

For increased production safety additional equipment can be introduced such as tool breakage or wear controls, tool life monitors, workpiece measurements, defect diagnostics systems, and more.

Special equipment, such as the automatic feed of assembly parts, loading and unloading by means of robots, or complete interlinked systems, make the LSA a high productivity machine.

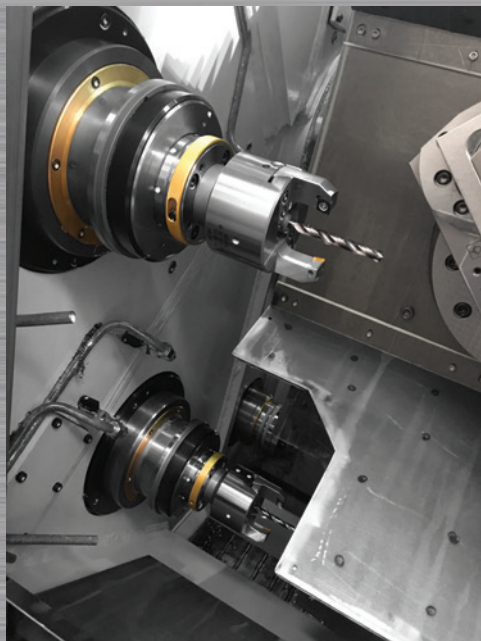


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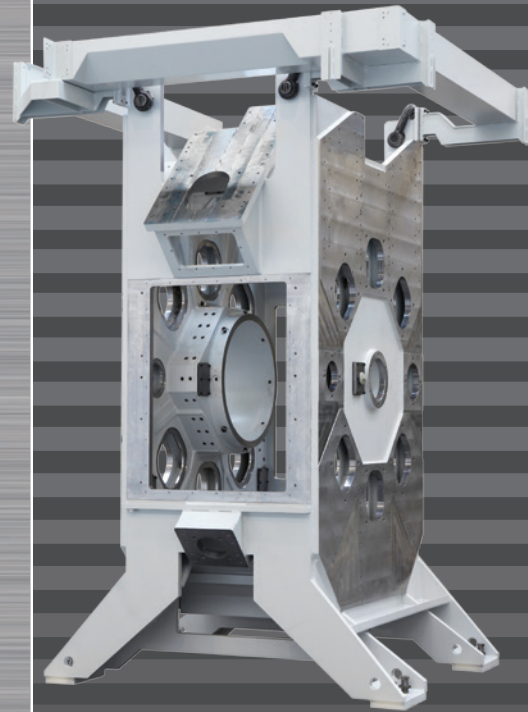
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The 3-axis modules feature 20m/mm single lead ball screw assemblies, with the Z-Axis having a 180mm stroke while the X-Axis and Z-Axis both featuring a 60mm stroke each.

The feed rate is 0 to 20,000 mm/min with a rapid feed rate of 20,000 mm/min. The LSA modules feature size 35 preloaded linear monorail guides.

This powerful system yields a maximum feed force of 7000N, yet holds an impressive position accuracy of TP 0.007mm.



LSA 8-200 Unit Layout

Station 1.2
Load and Unload Station

Station 2.1
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 13.5 kW 1,150 RPM

Station 2.2
PEMT 60/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM

Station 2.3
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 13.5 kW 1,150 RPM

Station 3.1
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 13.5 kW 1,150 RPM

Station 3.3
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM

Station 4.1
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 13.5 kW 1,150 RPM

Station 4.2
PEMT 60/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM

Station 4.3
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM

Station 5.1
OPEN

Station 5.3
OPEN

Station 6.1
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM
Cross Slide - 60mm x 60mm

Station 6.2
PEMT 60/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM
Cross Slide - 120mm x 60mm

Station 6.3
PEMT 80/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM
Cross Slide - 60mm x 60mm

Station 7.1
OPEN

Station 7.2
OPEN

Station 7.3
OPEN

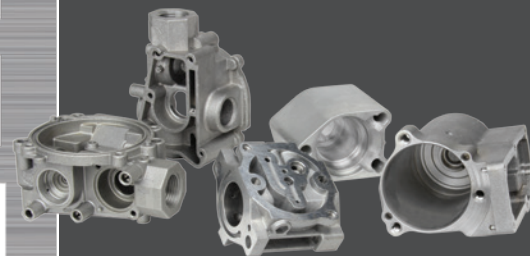
Station 8.1
PEMT 60/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM
Cross Slide - 60mm x 60mm

Station 8.2
PEMT 60/180
Thru Spindle Coolant
Spindle Motor - 8 kW 1,750 RPM
Cross Slide - 120mm x 60mm

Station 8.3
OPEN

The unique design of the LSA 8-200 is anchored by a robust frame weldment that is precision machined by the finest German craftsmen. It incorporates engineering and design excellence with the finest materials and components used in its creation. The results: a machining center of robust construction and exceptional accuracy.

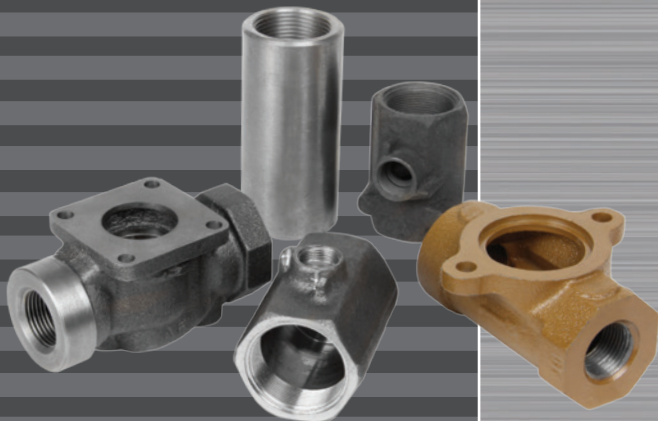
The work envelope is a large 1500mm x 1000mm x 125mm. Part loading can be Flexible Manual or Robotic at the one dedicated loading station. One station is dedicated for gauging and special devices, and there are seven cutting stations featuring self centering two-jaw chucks, or the use of custom designed fixtures for complex castings.



LSA Machine General Specifications			
Complete Approximate Machine Weight	25 Metric Tons	Loading Station	1 Dedicated Loading Station 1 Station for gauging and special devices.
Approximate Machine Space Requirement	33m ²	Parts Loading	Flexible Manual or Automatic
Electrical Connection Requirement	4 wire Y balanced 3 phase 480 volt 60HZ	Machining Stations	7 Stations with 2-jaw chucks or custom fixture
Machining Work Envelope	150mm x100mm x 125mm	Minimum Air Pressure and Flow	6 bar (90psi) @ peek 3400 l/min (120 CFM)
Maximum Installed Machining Modules	14 Horizontal Machining Units	Tool Spindle Drive Options	6,300 RPM / 12.0 Kw (spindle size 80)
Chuck Indexer	8 Station Index	Tool Adapter	

3-Axis Module, Specifications			Indexing Device		
Housing:	Steel Weldment		Transfer Device:	Design Type:	Ridged indexer, driven by AC torque motor and ROD measuring system for position control.
Z - Axis:	Ball Screw Manufacturer:	standard		Indexing Time	1.5 seconds with 50 kg Fixture weight
	Axis feed Z:	20 m/min single lead ball screw assembly			
	Stroke	180 mm			
X- Axis:	Ball Screw Manufacturer:	standard	Coolant System		
	Axis feed X:	20 m/min single lead ball screw assembly	Coolant System:	Manufacturer	Knoll Maschinenbau GmbH
	Stroke	60 mm	Conveyors	One (1) Hingeband Conveyor	
Y- Axis:	Ball Screw Manufacturer:	standard	Conveyor Ejection Height	1120 mm	
	Axis feed Y:	20 m/min single lead ball screw assembly	Coolant Volume	Approximately 4300 Liters	
	Stroke	60 mm	Volume Filtration System	One (1) Paperband Filter, 80 μm, 600 l/min	
Common Axis Specifications:	Feed Rate:	0 to 20,000 mm/min	High-Pressure Filtration System	One (1) Turbofilter, 35 μm, 200 l/min	
	Rapid Feed Rate:	20,000 mm/min	Immersion Chiller	48kW Cooling Capacity	
	Max. Feed Force:	7000N			
	NC-Drive:	AC Axis Motor	Coolant Pumps:	Filter Transfer Pump	One (1) 200liters/min at 2.4 bar
	Position Accuracy:	TP 0.007mm	Filter Backflush pump	see above	
	Motor Manufacturer:	Fanuc or Siemens	Low Pressure Flush Pump	One (1) 300 liter/min at 2.7 bar	
	Linear Glass Scales:	Manufacturer: Heidenhain	Weekend Circulation Pump	One (1) 200 liter/min at 1.3 bar	
	Linear Guide Rail Manufacturer:	INA / Bosch Rexroth	High Pressure Pump	One (1) 180 liter/min at 60 bar	
	Linear Guide Type:	size 35 Preloaded Linear Monorail Guides	Dirty Water Transfer Pump	One (1) 600 liter/min at 1.0 bar	

Motor Spindle Options Specifications			Electrical Equipment		
Spindle Option #1 size 80	Manufacturer:	Witzig & Frank	Voltages:	Mains Voltage:	460-480 V Three Phase 60 Hz
	Tool receiver type and size:	HSK-C63		Controls Voltage:	24V (DC)
	Tool clamp / release:	Manual		Input/Output Voltage:	24V (DC)
	Through Spindle Coolant:	70 bar		Lighting Voltage:	24V (DC)
	Spindle Lubrication	life time grease	Control:	Manufacturer:	Fanuc
	Spindle Cooling	n.a.		Type:	300i-Model A / USA
	Spindle bearing size:	Diameter 80 mm		Operating System:	CNC Control with Windows XP-PRO
	Max RPM:	n = 6,300 min-1		Control Panel Quantity	Integrated Ladder III PLC Control
	Max Power:	P = 13.5 Kw		Panel Type	Two (2) panels (one (1) / machine side)
	Max Torque:	Mt = 175 Nm		Panel Type	Panel-I color touch screen, alpha-numerical and MDI keyboard.
		Data Exchange		Via PCMCIA or USB	
		Remote Diagnostics		The control allows communication via an internal network and the internet.	
		Language		English other languages available on request	
Spindle Option #2 size 60	Manufacturer:	Witzig & Frank	Optional Equipment		
	Tool receiver type and size:	HSK-C50	Tool Breakage:	Artis or similar torque detection system	
	Tool clamp / release:	Manual	Automation:	Interfaced with the machine control for part loading, gauging, bushing press and other equipment.	
	Through Spindle Coolant:	70 bar	Remote Service:	Direct remote service via modem from our service technicians to assist and evaluate and resolve a problem.	
	Spindle Lubrication	life time grease			
	Spindle Cooling	n.a.			
	Spindle bearing size:	Diameter 60 mm			
	Max RPM:	n = 6,300 min-1			
	Max Power:	P = 8 Kw			
	Max Torque:	Mt = 175 Nm			



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