

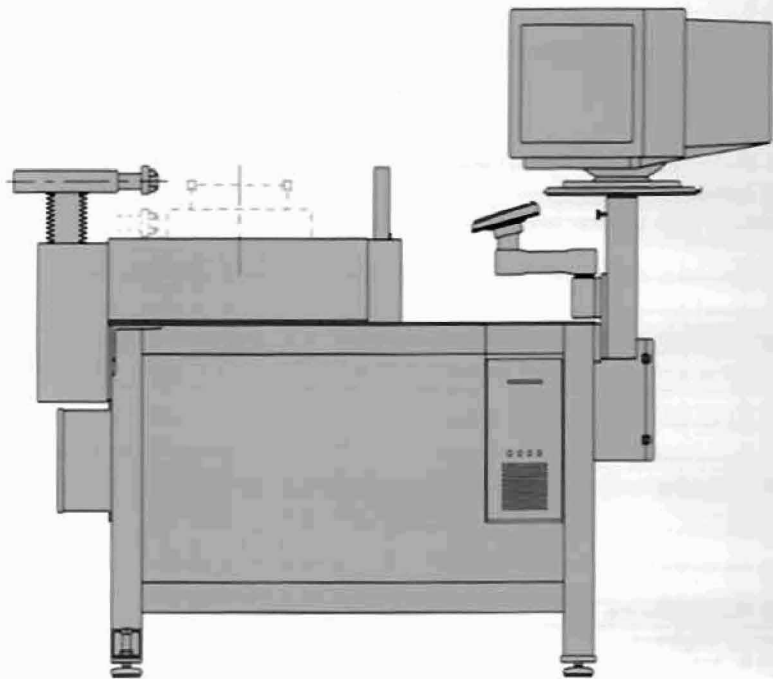
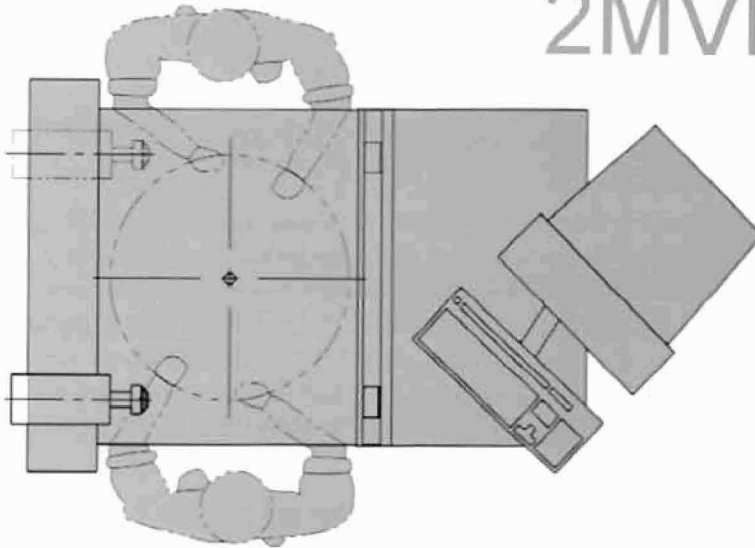
ROYAL

Tool Measurement Systems

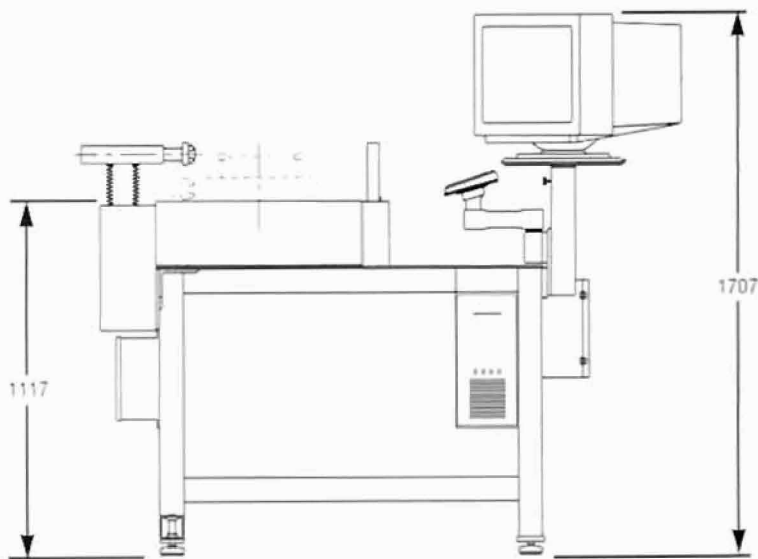
Variset - MILSET

2MVP 110/410

2MVP 110/610



TECHNICAL DATA	MODEL: 2MVP 110/460	MODEL: 2MVP 110/610
TOOL LENGTH MAX.	148mm	148mm
TOOL DIAMETER MAX.	460mm	610mm
OPERATION	MOTORIZED	MOTORIZED
MECHANICAL ACCURACY	6 μ m VERT. 6 μ m HORIZ.	6 μ m VERT. 8 μ m HORIZ.
"W" WIDTH	845mm	995mm
"L" LENGTH	1710mm	1875mm

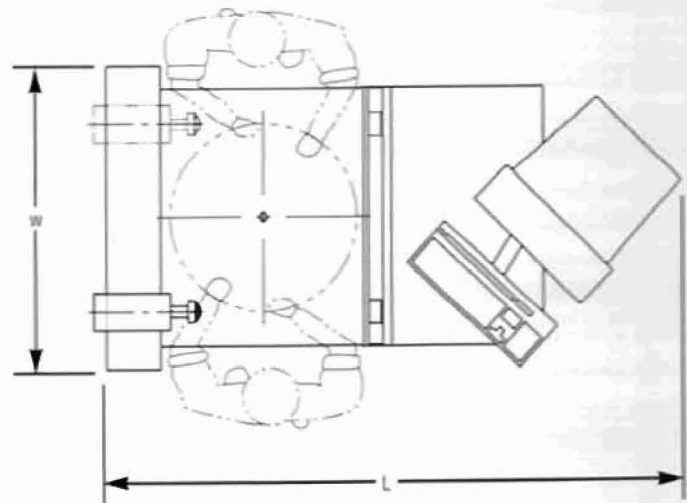


Standard Features:

- Designed specifically for multiple insert face mills
- Gauge is operated from both sides to accommodate RH & LH cutters
- Motorized back light assembly allows load clearance for large cutters
- Heavy duty construction
 - Suitable for factory environment
 - Precision natural granite base (grade AA)
 - Precision pre-loaded roller slides
 - Backlash-free linear drive nuts
- Linear encoders for precision closed loop positioning
- High resolution vision system using high quality lens, camera, lighting, and video capture card
- Royal Variset III vision software to provide measurement, tool management, and communications
- Gauge travels are laser inspected and error compensated
- Final inspection includes a system R&R to AIAG guidelines

Options:

- Tooling adapters - pilots and clamp rings
- Printers for labels or reports
- Communication with various networks, machine controls, etc.



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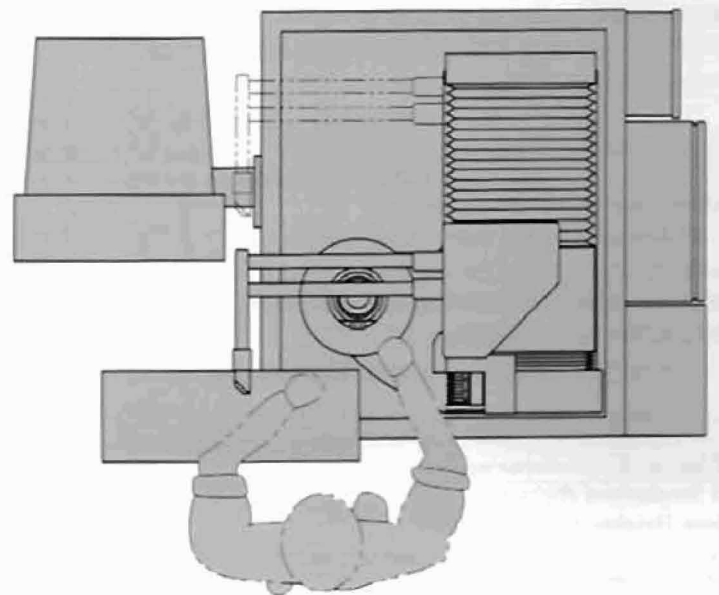
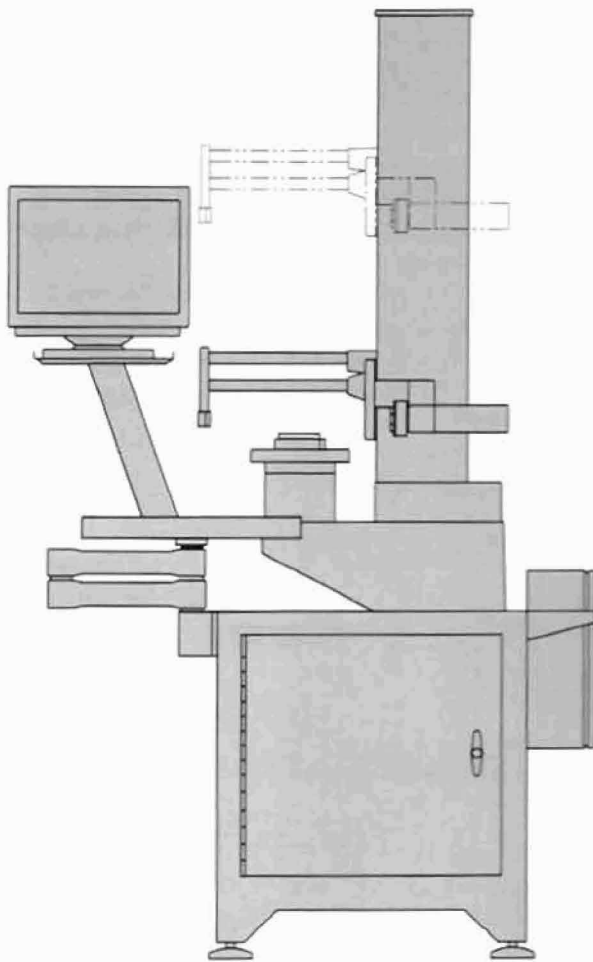
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Tool Measurement Systems

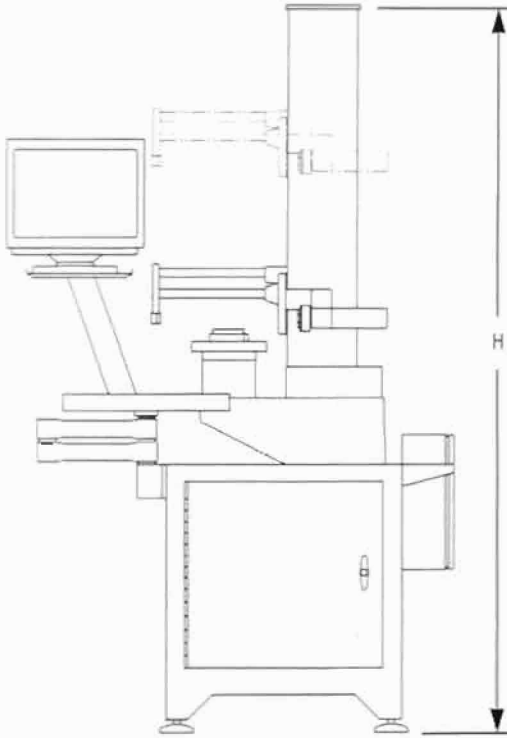
Variset - ERGO

2FVP 460/170

2FVP 600/170



TECHNICAL DATA	MODEL 2FVP 460/170	MODEL 2FVP 600/170
TOOL LENGTH MAX.	460 mm	600 mm
TOOL DIAMETER MAX.	340 mm	340 mm
OPERATION	MOTORIZED	MOTORIZED
MECHANICAL ACCURACY	8 μ m VERT. 8 μ m HORIZ.	12 μ m VERT. 8 μ m HORIZ.
"H" HEIGHT	2145 mm	2285 mm
OVER CENTER MEASUREMENT	\varnothing 100 mm	\varnothing 100 mm

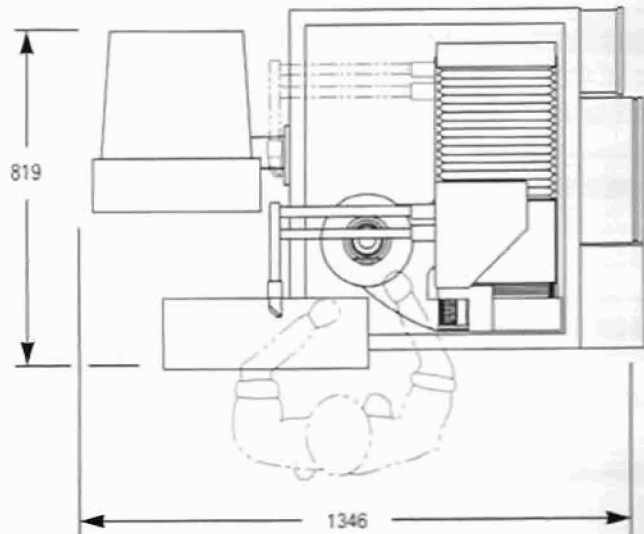


Standard Features:

- Front working design reduces operator fatigue and increases throughput
- Heavy duty construction
 - Suitable for factory environment
 - Cast iron base
 - Precision ball and pre-loaded roller vee slides
 - Precision roller bearing ISO 50 spindle with non-deforming brake
 - Backlash free linear drive nuts
- Linear encoders for precision closed loop positioning
- Access for rear adjust tooling
- High resolution vision system using high quality lens, camera, lighting and video capture card
- Royal Variset III vision software to provide measurement, tool management and communications
- Gage travels are laser inspected and error compensated
- Final inspection includes a system R&R to AIAG guidelines

Options:

- Tooling adapters - standards and specials
- Gage bench with built-in storage
- Fully enclosed Variset cabinet - also available with access for overhead loading of large tools
- Multi-position table with dedicated bushings for length only tool setting
- Ergonomic mechanism to accommodate rear adjust tooling - uses interchangeable bits
- Retention knob clamping using interchangeable cartridges
- Alternative spindle configurations:
 - ISO tapered shank, HSK, ABS, Others
- Indicator attachments for horizontal or vertical contact gaging
- Microscope assembly for block tooling center height adjustments
- Printers for labels or reports
- Communication with various networks, machine controls, etc.



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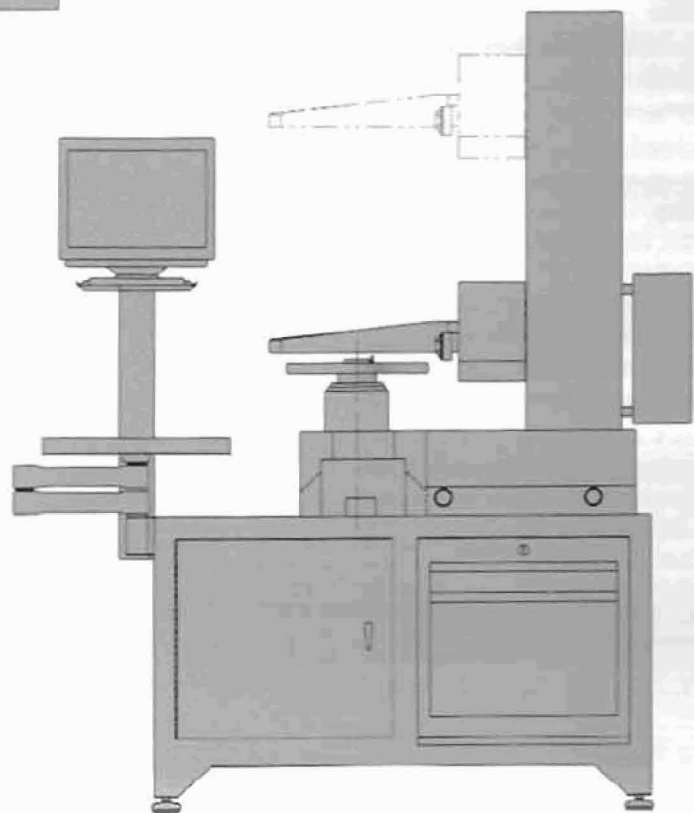
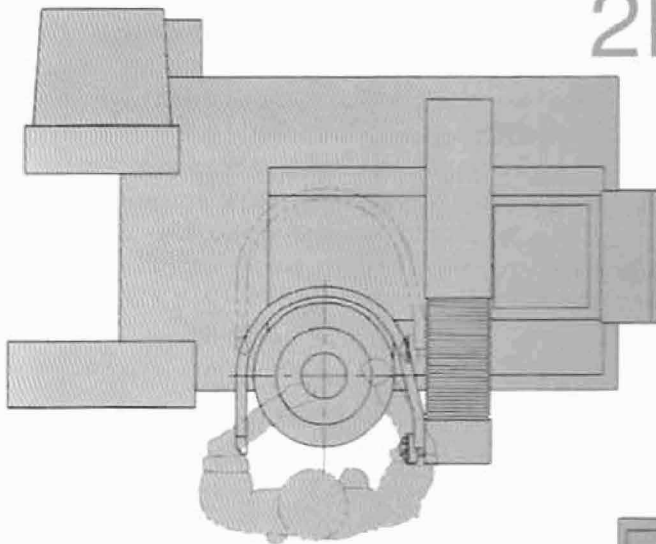
Tool Measurement Systems

Variset - ERGO

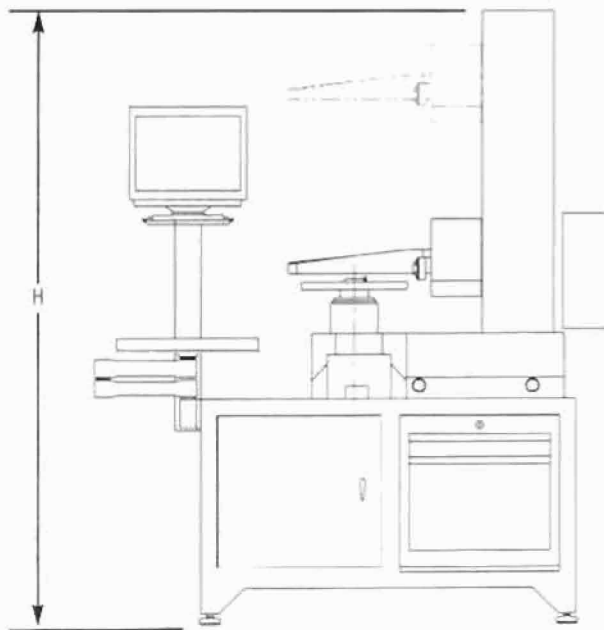
2FVP 420/190

2FVP 620/190

2FVP 1000/190



TECHNICAL DATA	MODEL: 2FVP 420/190	MODEL: 2FVP 620/190	MODEL: 2FVP 1000/190
TOOL LENGTH MAX.	420mm	620mm	1000mm
TOOL DIAMETER MAX.	380mm	380mm	380mm
OPERATION	MOTORIZED	MOTORIZED	MOTORIZED
MECHANICAL ACCURACY	8 μ m VERT. 5 μ m HORIZ.	8 μ m VERT. 5 μ m HORIZ.	12 μ m VERT. 5 μ m HORIZ.
"H" HEIGHT	1902mm	2102mm	2482mm

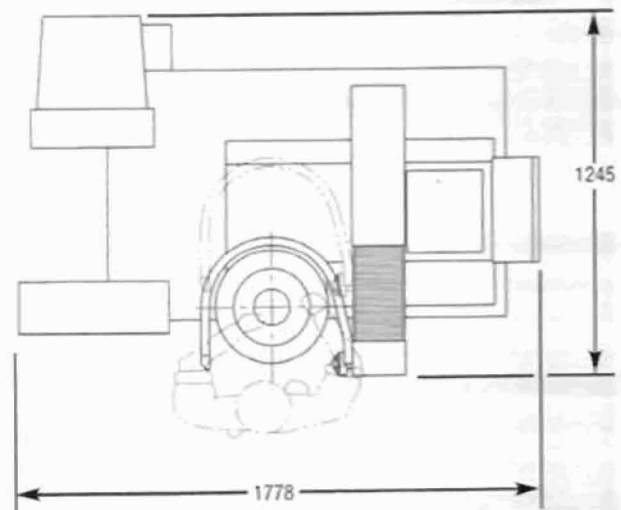


Standard Features:

- Front working design reduces operator fatigue and increases throughput
- Heavy duty construction
 - Suitable for factory environment
 - Heavily ribbed cast iron base for structural integrity
 - Precision pre-loaded roller vee slides
 - Precision roller bearing ISO 50 spindle with non-deforming brake
 - Backlash-free linear drive nuts
- Linear encoders for precision closed-loop positioning
- Access for rear adjust tooling
- High resolution vision system using high quality lens, camera, lighting and video capture card
- Royal Variset III vision software to provide measurement, tool management and communications
- Gauge travels are laser inspected and error compensated
- Final inspection includes a system R&R to AIAG guidelines

Options:

- Tooling adapters - standard and special
- Gauge bench with built-in storage
- Fully enclosed Variset cabinet - also available with access for over head loading of large tools
- Multi-position table with dedicated bushings for length only tool setting
- Ergonomic mechanism to accommodate rear adjust tooling - uses interchangeable bits
- Retention knob clamping using interchangeable cartridges
- Alternative spindle configurations: ISO tapered shank, HSK, ABS and others
- Indicator attachments for horizontal or vertical contact gauging
- Microscope assembly for block tooling center height adjustments
- WR-750 index table for multiple dedicated tooling positions
- Printers for labels or reports
- Communication with various networks, machine controls, etc.



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Tool Measurement Systems

Variset - **VERSA**

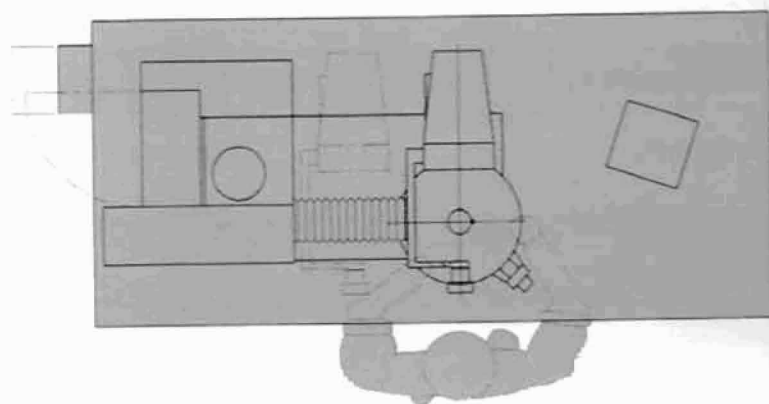
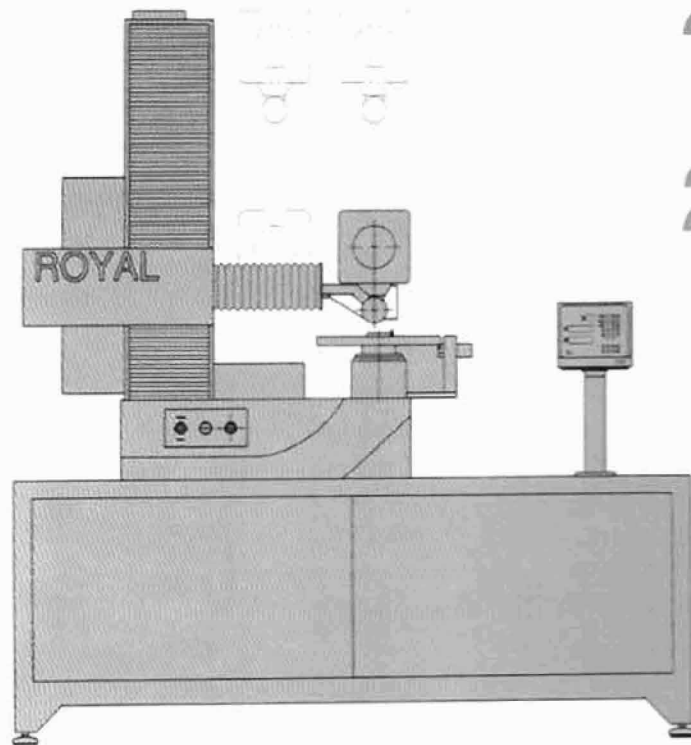
2P 420/270

2PM 420/270

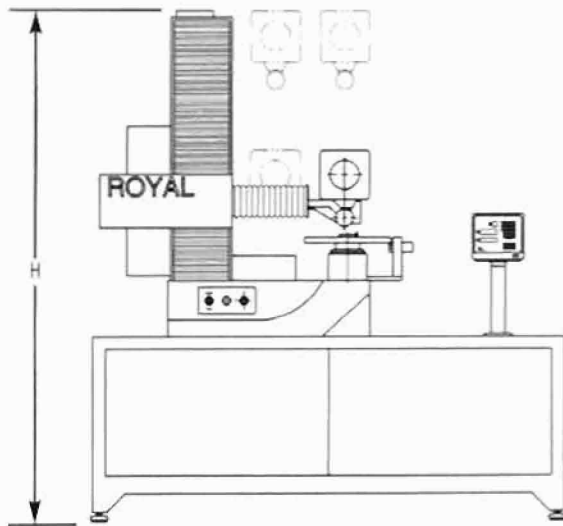
2P 620/270

2PM 620/270

2P 1000/270



TECHNICAL DATA	MODEL: 2PM 420/270	MODEL: 2PM 620/270	MODEL: 2P 420/270	MODEL: 2P 620/270	MODEL: 2P 1000/270
TOOL LENGTH MAX.	420mm	620mm	420mm	620mm	1000mm
TOOL DIAMETER MAX.	520mm	520mm	520mm	520mm	520mm
OPERATION	MANUAL	MANUAL	MOTORIZED	MOTORIZED	MOTORIZED
MECHANICAL ACCURACY	10 μ m VERT. 8 μ m HORIZ.	10 μ m VERT. 8 μ m HORIZ.	10 μ m VERT. 8 μ m HORIZ.	10 μ m VERT. 8 μ m HORIZ.	15 μ m VERT. 8 μ m HORIZ.
"H" HEIGHT	1887mm	2087mm	1887mm	2087mm	2467mm

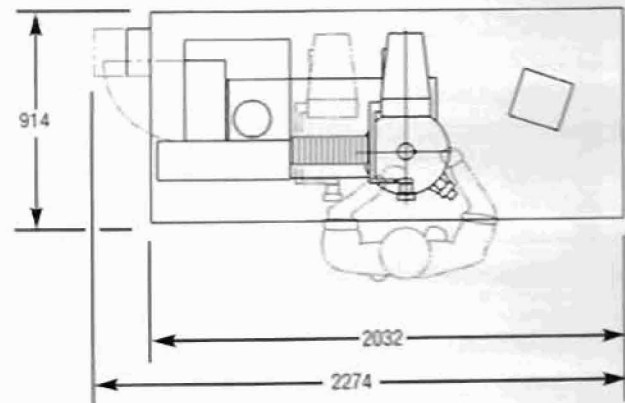


Standard Features:

- Heavy duty construction
 - Suitable for factory environment
 - Polymer composite base
 - Precision pre-loaded roller vee slides
 - Precision roller bearing ISO 50 spindle with non-deforming brake
 - Backlash-free linear drive nuts
- Linear encoders for precision positioning
- Two axis digital display with memory capability
- Access for rear adjust tooling
- Optical scope (20X)
- Quick release and fine adjust knobs for scope arm (2PM models only)
- Gauge travels are certified and error compensated.
- Final inspection includes a system R&R to AIAG guidelines

Options:

- Various scope configurations
- Tooling adapters - standard and special
- Gauge bench with built-in storage
- Fully enclosed Variset cabinet-available with access for overhead loading of large tools
- Multi-position table with dedicated bushings for length only tool settings
- Ergonomic mechanism to accommodate rear adjust tooling - uses interchangeable bits
- Retention knob clamping using interchangeable cartridges
- Alternative spindle configurations: ISO tapered shank, HSK, ABS and others
- Indicator attachments for horizontal or vertical contact gauging
- Microscope assembly for block tooling center height adjustments
- WR-750 index table for multiple dedicated tooling positions
- Printers for labels or reports
- Royal Variset II software for measurement, tool management, and communications
- Communication with various networks, machine controls, etc.



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