

5VH-D Series

Vertical Diamond Ream Machines

Standard Features

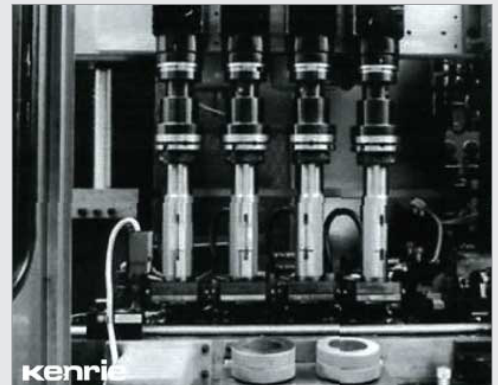
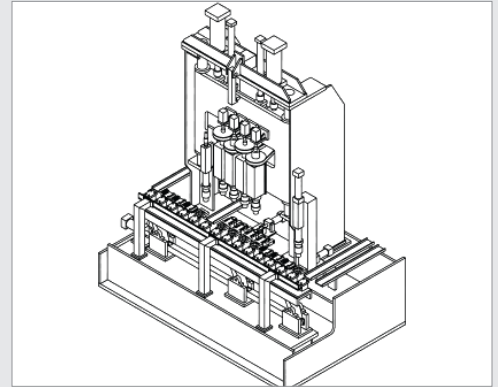
- Modular design with industry proven components
- Vertical spindle arrangement
- Hydraulic stroke control
- PLC controlled machine functions
- User-friendly operator interface
- Adjustable stroke and feed parameters
- Machine fault diagnostic software
- Bore parallelism generating capabilities (Bend & Twist correction)

Description

The 5VH-D Series diamond ream machines quickly and accurately finish the pin and crankshaft bores of connecting rods and similar parts. The capability and global reputation of these machines have made them preferred equipment for high-volume production of connecting rods in facilities around the world.

Ream tools are well suited for generating accurate size and surface finish, in addition to correcting cylindrical form like roundness, straightness and taper. The tools are designed to allow a set of diamond abrasive inserts to quickly pass through a cylindrical form in a single pass process. The abrasive inserts remain at a fixed diameter throughout the process while only removing material that is diametrically smaller than the setting of the tool inserts. This technique provides advantages over conventional honing, since less machining stock is required to achieve an equivalent result. In addition, ream tools can be used with water based coolants which provide ergonomic and environmental advantages.

The 5VH-D Series diamond ream machines are arranged with an in-line transfer configuration in either a single or double pitch transfer. Stock is normally removed in three or more stages, with the ream tool at each stage removing a portion of the overall machining stock.



All 5VH-D Series ream machines include as standard equipment, a PLC based programmable controller for monitoring and controlling various machine motions and process parameters throughout the machining operation.

Options include coolant filtration and refrigeration system, crank & pin bore go-no/go type pre-gauge system with reject unit, and a crank & pin bore air/electronic post process gauge system with reject unit, SPC process control software and modifications to encompass customer specified components. KENRIE can also further enhance your 5VH-D Series diamond ream machine by integrating a variety of production automation like marking systems or load/unload automation as part of the basic machine design.

All 5VH-D Series ream machines can be adapted to process different connecting rod configurations by changing the part contact details, ream tools and gauge probes.

Guide Specifications

Efficiency Standards for a Typical 5VH-D Series Connecting Rod Ream Process

Characteristic	CPK	Rbar	St Dev	Tolerance
Crankbore size Ø	5.48	1.2µm	0.05µm	± 10.0µm
Crankbore roundness O	7.11	1.0µm	0.04µm	10.0µm max
Crankbore taper //	4.37	1.5µm	0.06µm	10.0µm max
Bend	7.60	0.4µm	2.00µm	76.0µm max
Twist	3.63	1.8µm	0.80µm	10.0µm max
Pinbore size Ø	6.87	2.0µm	0.08µm	± 20.0µm
Pinbore roundness O	8.09	1.6µm	0.06µm	20.0µm max
Pinbore taper //	6.45	2.1µm	0.09µm	20.0µm max

Machine type	Production rate	Total cycle time	Transfer type	# of spindles
5VH-D8	450 PPH	8.0 seconds	Single pitch	(8) total
5VH-D16	720 PPH	10.0 seconds	Double pitch	(16) total