



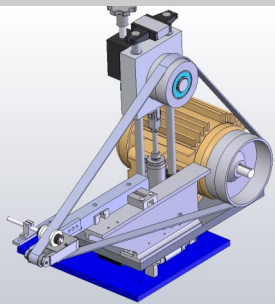
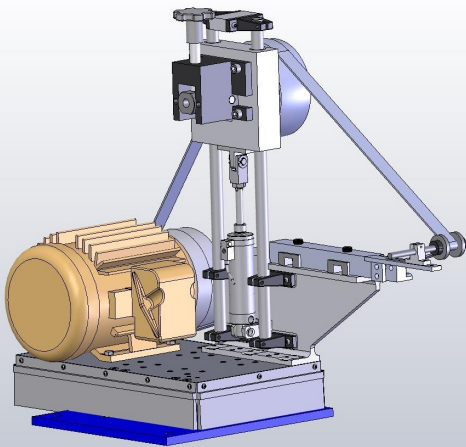
BELT, SPINDLE, & WHEEL STATIONS for AUTOMATION

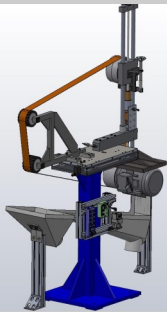
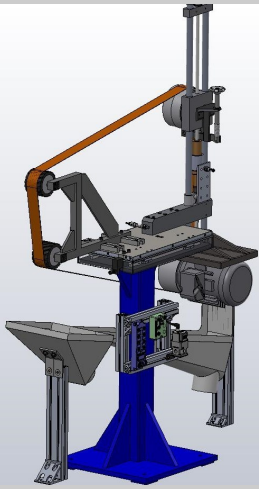
Belt Grinding and Polishing Stations

BGH-2HP-LC - BELT GRINDING HEAD 2 HP

Belt grinding and polishing head with 2HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated or manual use. Optionally the head can be purchased without compliance slide. The belt head is on common mounting plate. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

- 2HP AC motor driven
- Belt speeds with 3450RPM motor up to 5400 SFPM (surface feet per minute)
- Belts up to 3" (76mm) wide and 72" or 90" (1830 or 2280 mm) long depending on front arm
- Manual belt tracking
- Linear compliance slide with up to 0.75" travel (19mm) and pneumatic force up to 30 lbs (13.5 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Front arms with various contact wheels
- Sensors for linear compliance forward/reverse positions and broken/missing belt

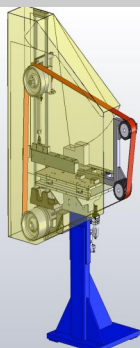
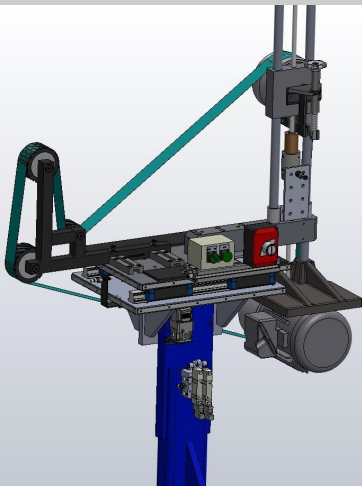




BELT HEAD, 5HP - BGH-5HP-LC-LD

Belt grinding and polishing head with 5HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated or manual use. Optionally the head can be purchased without compliance slide. The belt head is mounted on pedestal. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

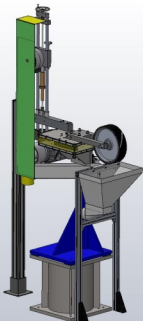
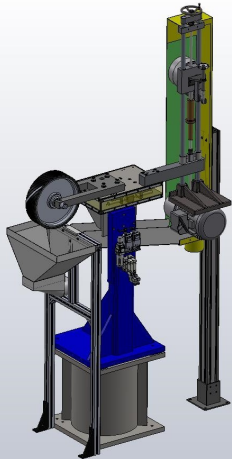
- 5HP AC motor driven
- Belt speeds with 3450RPM motor up to 5400 SFPM (surface feet per minute)
- Standard abrasive belts up to 4" (102mm)wide and 132" (3352 mm) long depending on front arm
- Manual belt tracking
- Linear compliance slide with up to 0.75" travel (19mm) and pneumatic force up to 90 lbs (41 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Front arms with various contact wheel configurations
- Sensors for linear compliance forward and reverse positions and broken/missing belt
- Optional remote motorized belt tracking



BELT HEAD, 5HP - BGH-5HP-LC-HD

Belt head for heavy grinding with 5HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated or manual use. Optionally the head can be purchased without compliance slide. The belt head is on common mounting plate. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

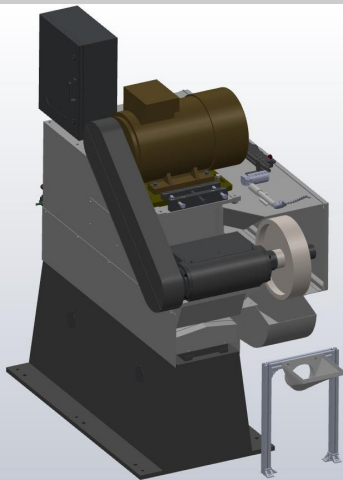
- 5HP AC motor driven
- Belt speeds with 3450RPM motor up to 5400 SFPM (surface feet per minute)
- Standard abrasive belts up to 4" (102mm)wide and 132" (3352 mm) long depending on front arm
- Manual belt tracking
- Linear compliance slide with up to 0.75" travel (19mm) and pneumatic force up to 90 lbs (41 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Front arms with various contact wheel configurations
- Sensors for linear compliance forward and reverse positions and broken/missing belt
- Optional remote motorized belt tracking



BELT HEAD, 10HP - BGH-10HP-LC

Belt head for heavy grinding with 10HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated or manual use. Optionally the head can be purchased without compliance slide. The belt head is mounted on pedestal. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

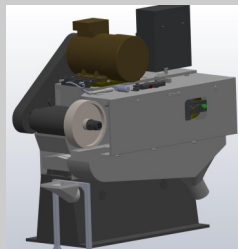
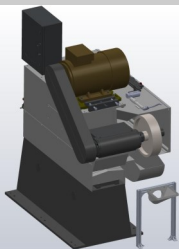
- 10HP AC motor driven
- Belt speeds with 3450RPM motor up to 5400 SFPM (surface feet per minute)
- Standard abrasive belts up to 6" (152mm)wide and 132" (3352 mm) long depending on front arm
- Manual belt tracking
- Linear compliance slide with up to 0.75" travel (19mm) and pneumatic force up to 90 lbs (41 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Front arms with various contact wheel configurations
- Sensors for linear compliance forward and reverse positions and broken/missing belt
- Optional remote motorized belt tracking

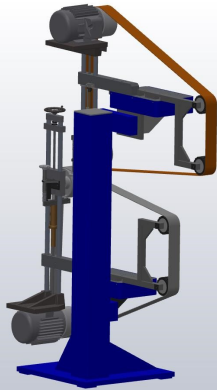
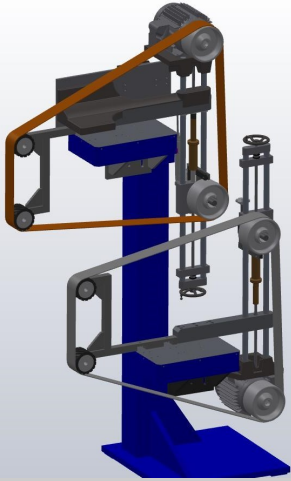


BELT HEAD, 40HP - BGH-40HP-LC

Belt head for heavy and rapid grinding with 40HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated or manual use. Optionally the head can be purchased without compliance slide. The belt head is on heavy duty steel base. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

- 40HP AC motor driving from wheel
- Belt speeds with 3450RPM motor and 18" diameter wheel up to 16000 SFPM (surface feet per minute)
- Standard abrasive belts up to 6" (152mm)wide and 132" (3352 mm) long
- Manual belt tracking
- Linear compliance slide with up to 1" travel (25mm) and pneumatic force up to 350 lbs (160 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Various front contact wheels
- Sensors for linear compliance forward and reverse positions and broken/missing belt
- Optional remote motorized belt tracking

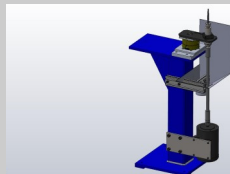
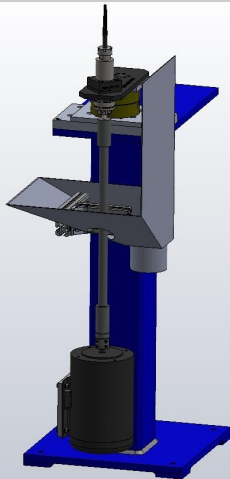


**BELT HEADS, 5HP, OVER/UNDER - BGHX2-5HP-LC**

Two 5HP belt heads (BGH-5HP-LC-HD) mounted one over the other on pedestal. Each belt head is for heavy grinding or polishing with 5HP AC motor, linear compliance slide, and pneumatic force control built with precision for automated use. Optionally the head can be purchased without compliance slide. The belt heads are on common mounting pedestal. Optional controls include discrete I/O, Ethernet I/P, Profibus, or Devicenet.

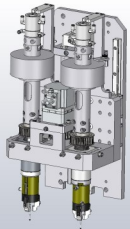
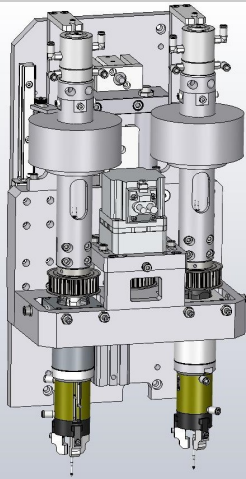
- Two belt heads in over/under mounting
- 5HP AC motor driven
- Belt speeds with 3450RPM motor up to 5400 SFPM (surface feet per minute)
- Standard abrasive belts up to 4" (102mm) wide and 132" (3352 mm) long depending on front arm
- Manual belt tracking
- Linear compliance slide with up to 0.75" travel (19mm) and pneumatic force up to 90 lbs (41 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Front arms with various contact wheel configurations
- Sensors for linear compliance forward and reverse positions and broken/missing belt
- Optional remote motorized belt tracking

Spindle Stations

**DRILL/REAMER SPINDLE - SPND-X1-XY-0.5HP**

Single precision spindle with manual collet for 1/2" (50mm) arbors, drill, or reamer bits driven by 1/2HP electric motor. XY lateral compliance with 1" (25mm) travel in all directions allows spindle to float with part features like holes during drilling or reaming operations. Entire assembly comes mounted on a pedestal with dust guards and scoop.

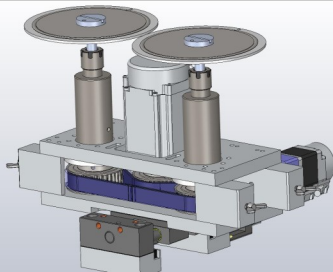
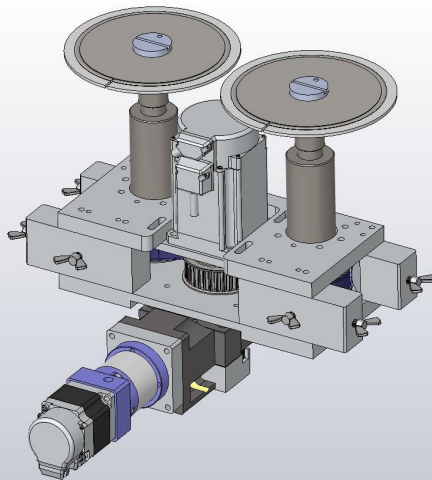
- Power: 1/2HP. Speed range: 0-3450 with VFD
- Compliance travel: +/-1" (+/-25mm) in X and Y plane
- Pneumatically lockable to center position
- Standard manual 1/2" (12.5mm) collet - other sizes available
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet



DUAL PART GRIPPING SPINDLE - SPND-20140226-100

Spindle with dual part grippers and continuous reversible rotation with speed control for dry and wet applications. Mounted on linear slide with pneumatic extend/retract motion. Feed-through devices connect electrical sensor signals and compressed air to part grippers thus allowing continuous rotation. Servo motor with hall sensor feedback is used for closed loop speed control.

- Rated torque: 15.9 lbs-in
- Standard speed range: 4-20 RPM with drive
- Pneumatically controlled linear slide travel: 3" (75mm)
- Two 3-jaw grippers with 0.157" (4mm) travel of each jaw
- Max workpiece weight: 1.3 lbs (0.6kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Sensors for grippers open and close, slide extended and retracted
- Dry or wet applications



DUAL ABRASIVE SPINDLE - SPND-20121030-001

Dual precision spindles for abrasive wheels mounted on 3/8" or 10mm arbors. This spindle assembly is suitable for operating in wet environment/application. The spindles are driven by electric servo motor with feedback for precise reversible speed control. Entire mechanism can be standalone or mounted on linear ballscrew slide where abrasives can be positioned for process and retracted when done. Z3D supplies Allen Bradley servo motors for slide positioning but customer motor choice can also be accommodated.

- Rated torque: 11.5 lbs-in (1.3 Nm)
- Standard speed range: 0-5000 RPM with drive
- Ballscrew linear slide travel: 0.75" (19mm)
- Each spindle with manual collet
- Standard collet sizes are 3/8" or 10mm
- Other collet sizes available
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Sensors for slide home and over travel limits
- Dry or wet applications

FOUR SPINDLE ASSEMBLY - SPND-20140505-200

Four abrasive wheel spindles assembly made of 2 independent dual spindles SPND-20121030-001 mounted opposite to each other. Two parts at the same time can be positioned between the dual spindles and processed by rotating the parts and extending abrasive spindles from both sides. Each dual spindle is precision made for abrasive wheels mounted on 3/8" or 10mm arbors.

This spindle assembly is suitable for operating in wet environment/application. The spindles are driven by electric servo motor with feedback for precise reversible speed control. Entire mechanism can be standalone or mounted on linear ballscrew slide where abrasives can be positioned for process and retracted when done. Z3D supplies Allen Bradley servo motors for slide positioning but customer motor choice can also be accommodated.

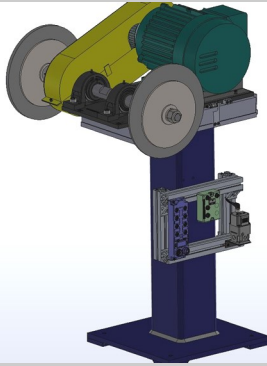
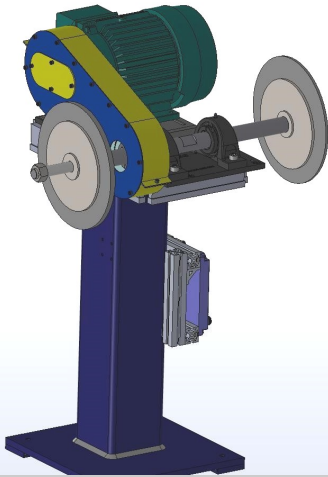
- Each dual spindle specifications are as follows
- Rated torque: 11.5 lbs-in (1.3 Nm)
- Standard speed range: 0-5000 RPM with drive
- Ballscrew linear slide travel: 0.75" (19mm)
- Each spindle with manual collet
- Standard collet sizes are 3/8" or 10mm
- Other collet sizes available
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Sensors for slide home and overtravel limits
- Dry or wet applications

SIX SPINDLE ASSEMBLY - SPND-14273-8200-000

Six spindle station with manual collets driven by single servo motor designed and built originally to power 6 abrasive brushes for deburring of up to 6 parts at once. Servo motor with drive provides precise reversible speed control of the spindles. Included in the assembly are sensors for abrasive media arbors and coolant spray nozzles at each spindle. There are no compliance devices. Spindle comes with mounting pedestal.

- Rated torque: 11.5 lbs-in (1.3 Nm)
- Standard speed range: 0-1250 RPM with drive
- Each spindle with manual collet
- Standard collet sizes are 1/8-3/8" or 4-10mm
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Sensors for abrasive arbor present at each spindle
- Coolant spray nozzle at each spindle
- Dry or wet applications.

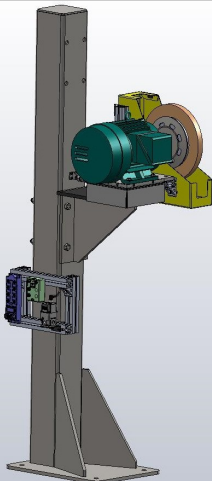
Wheel and Cutoff Heads



DUAL WHEEL HEAD - WHL-5-10HP-X2-LC

Dual shaft heavy duty wheel head driven by 5HP AC motor. Abrasive wheels like grinding, polishing, or buffing can be mounted on both ends of the shaft using flanges and standard hardware. Entire wheel assembly is mounted on linear compliance slide which moves during process while exerting force which can be controlled from a programmable controller. This allows easier part programming where finishing process is done by pushing part into the force controlled linear slide travel. The head comes with mounting pedestal and can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.

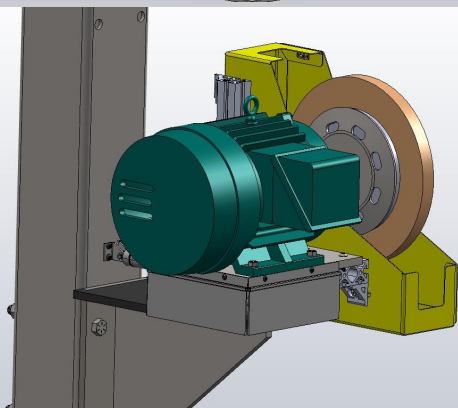
- Power rating: 5, 7.5, or 10 HP
- Speed range: 500-3000 RPM with VFD
- Dual shaft sizes range: 1"-2" diameter (25-50mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 1" (25mm)
- Compliance force range: 0-90 lbs (0-40 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included

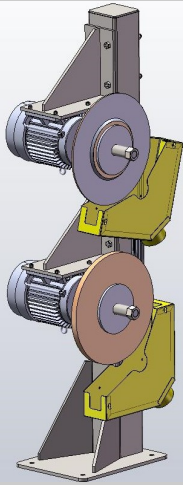


SINGLE WHEEL HEAD - WHL-5HP-X1-MC-LC

Lighter duty wheel head with wheel arbor/shaft attached directly to 5HP AC motor. Abrasive wheels like grinding, polishing, or buffing can be mounted on that arbor using flanges and standard hardware. Entire wheel assembly is mounted on linear compliance slide which moves during process while exerting force which can be controlled from a programmable controller. This allows easier part programming where finishing process is done by pushing part into the force controlled linear slide travel. The head comes with mounting pedestal and can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.

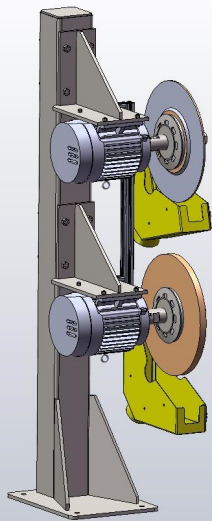
- Power rating: 5HP
- Speed range: 500-3450 RPM with VFD
- Arbor shaft sizes range: 1"-2" diameter (25-50mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 1" (25mm)
- Compliance force range: 0-90 lbs (0-40 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards included
- Dust scoops optional





TWO SINGLE WHEEL HEADS ASSEMBLY - WHL-ASSY2-5HP-MC-LC

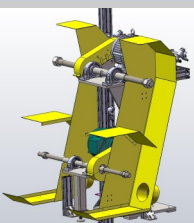
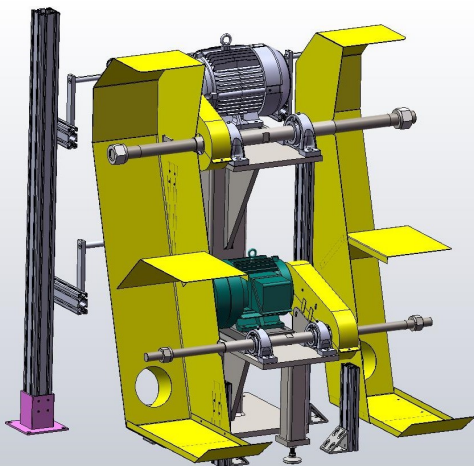
Two single wheel heads (WHL-5HP-X1-MC-LC) assembly mounted in over/under configuration on single stand. Each wheel head is lighter duty with wheel arbor/shaft attached directly to 5HP AC motor. Abrasive wheels like grinding, polishing, or buffing can be mounted on that arbor using flanges and standard hardware. Entire wheel assembly is mounted on linear compliance slide which moves during process while exerting force which can be controlled from a programmable controller. This allows easier part programming where finishing process is done by pushing part into the force controlled linear slide travel. The head comes with mounting pedestal and can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.



- Specifications for each wheel head
- Power rating: 5HP
- Speed range: 500-3450 RPM with VFD
- Arbor shaft sizes range: 1"-2" diameter (25-50mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 1" (25mm)
- Compliance force range: 0-90 lbs (0-40 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards included
- Dust scoops optional

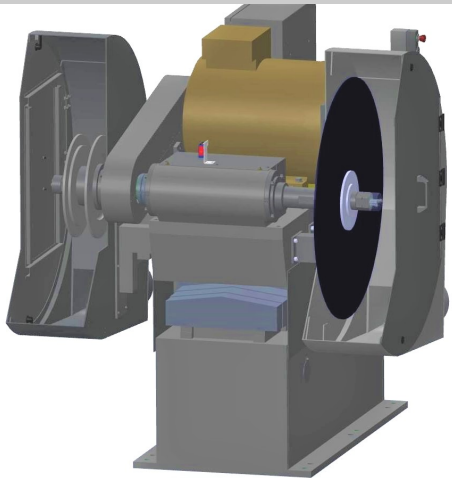
FOUR WHEEL STATION - WHL-7.5HP-X4-LC

Four wheel stations arranged with 2 dual shaft heavy duty wheel heads one over the other. Each dual shaft wheel head is driven by 7.5 HP AC motors. Abrasive wheels like grinding, polishing, or buffing can be mounted on both ends of the shaft using flanges and standard hardware. Entire wheel assembly is mounted pedestal with guards and dust scoops. The wheels are stationary without any compliance devices. The entire station can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.



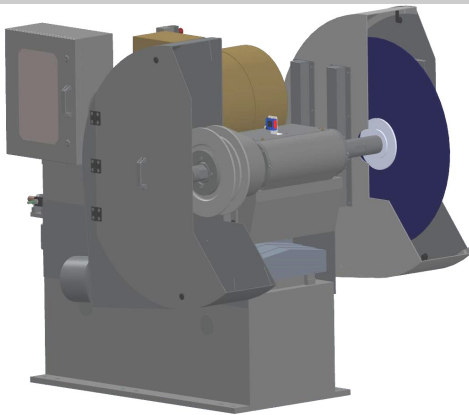
- Power rating: 7.5 HP
- Speed range: 500-3000 RPM with VFDs
- Dual shaft sizes range: 1"-2" diameter (25-50mm)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included
- Compound application system (solid or liquid) optional for buffing applications

DUAL WHEEL HEAD, 60HP - WHL-60HP-X2-LC

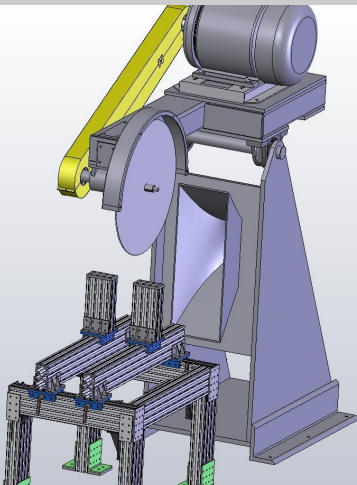


Dual shaft heavy duty grinding and cutoff wheel head driven by 60 HP AC motor. Abrasive wheels like grinding or cutoff can be mounted on both ends of the shaft using flanges and standard hardware. Entire wheel assembly is mounted on linear compliance slide which moves during process while exerting force which can be controlled from a programmable controller. This allows easier part programming where finishing process is done by pushing part into the force controlled linear slide travel. The head comes with mounting pedestal and can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.

- Power rating: 60 HP
- Speed range: 500-3500 RPM with VFD
- Dual shaft sizes: 2.75" diameter (70mm)
- Wheel diameter up to 36" (915 mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 2" (50mm)
- Compliance force range: 0-350 lbs (0-160 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included

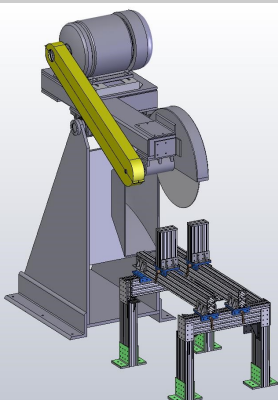


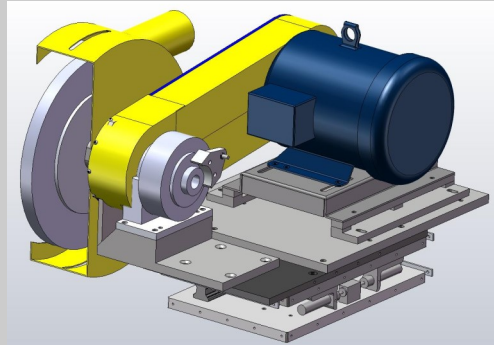
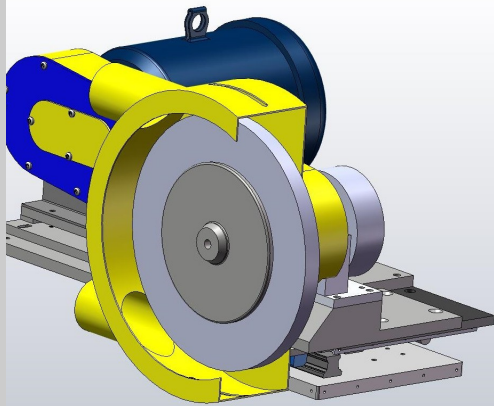
SINGLE CUTOFF WHEEL CHOP-SAW - WHL-CUT-60HP-CHOP



Chop-saw style (pivoting) cutoff head driven by 60 HP AC motor. The cutoff wheel is driven down (pivoted) by a servo linear actuator mounted in the back of the pivot platform. The actuator motor can be linked as auxiliary axis to a robot system or be controlled from another programmable device. Having the saw travel fully controlled from a robot system allows for coordinated motion of the saw with the robotic arm generally holding the part being cut. Guards and dust scoops are included.

- Power rating: 60 HP
- Speed range: 500-3500 RPM with VFD
- Shaft sizes: 2.75" diameter (70mm)
- Wheel diameter up to 36" (915 mm)
- Wheel travel when pivoting: programmable up to 33" (840 mm)
- Wheel speed up to 10 mm/sec
- Maximum force of wheel on part: 350 lbs (160 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: wheel pivot overtravel limits
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included



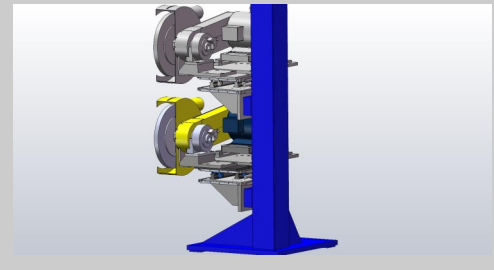
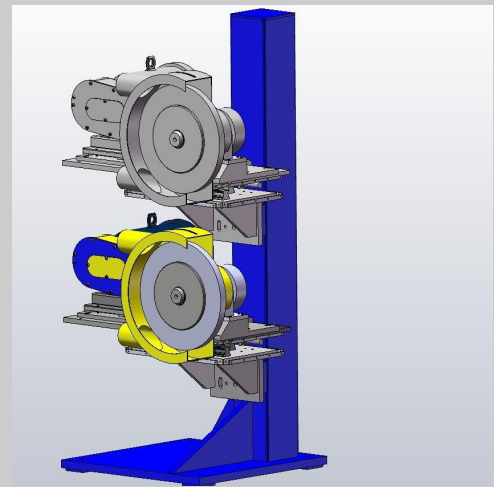


SINGLE WHEEL HEAD WITH AUTO COLLET - WHL-5-10HP-X1-AC-LC

Single wheel head with pneumatically operated collet for automated change of abrasive like finishing, grinding, cutoff, brush, or buff wheels. The head spindle is driven with 5 HP AC motor. Standard collet of 1" (25mm) is opened and closed with compressed air which allows automatic or quick change-over of abrasive wheels and other media mounted on 1" diameter arbors.

Entire wheel assembly is mounted on linear compliance slide which moves during process while exerting force which can be controlled from a programmable controller. This allows easier part programming where finishing process is done by pushing part into the force controlled linear slide travel. The head comes with mounting pedestal and can optionally be with fully connected controls interfacing to customer's system via discrete I/O, Ethernet I/P, Profibus, or Devicenet.

- Application examples: polishing, grinding, cutoff, brushing, buffing
- Power rating: 5, 7.5 or 10 HP
- Speed range: 500-2000 RPM with VFD
- Standard collet size: 1" (25mm)
- Standard abrasive arbors are available
- Abrasive wheel diameter up to 16" (406 mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 1" (25mm)
- Compliance force range: 0-90 lbs (0-40 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included



ASSEMBLY OF 2 SPINDLES WITH AUTO COLLET - WHL-ASSY2-5-10HP-AC-LC

Two single wheel heads with auto collet (WHL-5-10HP-X1-AC-LC) assembly mounted in over/under configuration on single stand.

- Application examples: polishing, grinding, cutoff, brushing, buffing
- Power rating: 5, 7.5 or 10 HP
- Speed range: 500-2000 RPM with VFD
- Standard collet size: 1" (25mm)
- Standard abrasive arbors are available
- Abrasive wheel diameter up to 16" (406 mm)
- Linear compliance slide with heavy duty profile rails
- Linear travel: adjustable up to 1" (25mm)
- Compliance force range: 0-90 lbs (0-40 kg)
- Optional fully plumbed and wired ready for use
- Available controls are: discrete I/O, Ethernet I/P, Profibus, Devicenet
- Standard sensors: compliance slide extended and retracted
- Optional wheel wear (size) measuring sensors
- Wheel guards and dust scoops included

Custom Engineered Solutions

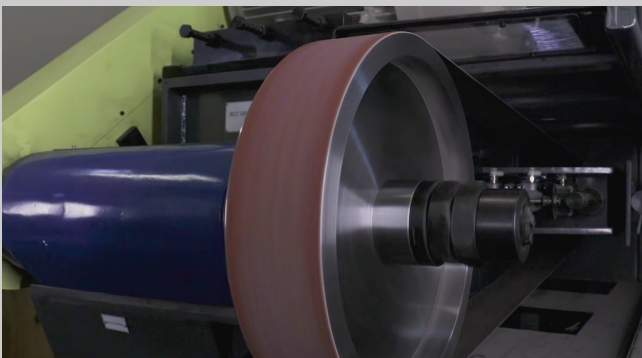
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www.z3dsolutions.com

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