

## Case Study: Union Borer Spindle Drive

ASAP Power was engaged by a customer to solve a number of issues with their Union Table Borer's Spindle. The spindle was run with a star-delta starter with DC injection brake. The problems included:

- Time consuming speed changes
- Spindle has to be stopped for gear change
- Lengthy ramp up for spindle due to Star-Delta starter (4-6 sec)
- Lengthy ramp down due to DC brake injection and required dead time between starts
- Gear levers being 'sticky' causing additional time delay
- High inrush current causing electrical fuses tripping with frequent use of spindle Jog function

These issues caused unnecessary delays and downtime reducing the machine efficiency.

To address these issues we proposed to replace the star/delta with a variable speed drive. This provided the following benefits:



Before

After

**More machining time:** The main benefit for the customer is significantly improved machine efficiency due to less gear changes, hence less machining interruptions. Depending on the kind of machining, there are up to 30 manual gear changes less per shift. With each gear change taking 1 minute, there are 30 minutes more machining time per shift!

**Better job finish:** The operator can easily adjust the spindle speed to achieve by changing the potentiometer setting in order to achieve a more suitable cutting speed and hence a better workpiece finish.

**Reduced downtime:** The DC injection brake can cause unnecessary downtime. The brake is an inductive DC load which causes quick contact wear, requiring regular maintenance. If neglected, this leads to downtime. This problem won't happen with a properly installed and parametrized Spindle VSD.

**Swift installation:** Due to careful planning the machine downtime was only one shift. The installation includes extensive testing of all machine functions and operator training for the new feature.

Replacing the original spindle control with a VSD is a small investment with quick return. The customer benefits from the added machine value immediately. Overall the customer was very happy with the end result.

### Contact Us

Contact us today to discuss your specific requirements:

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