

MACHINERY MANUFACTURING (USA)

AGRICULTURAL & CONSTRUCTION – ID Gear Broaching

CASTROL VARIOCUT® B 27

ANNUAL SAVINGS: \$26,139



THE SITUATION

- A machinery manufacturer was attempting to maximize tool life in a vertical ID helical gear broaching application. The application used broach tools that are approximately 4.5 inches in diameter and 2 feet long. The inner diameter of hardened gears was treated to (50-60 Rockwell C).

BEFORE CASTROL

- The customer was using a straight oil product that provided approximately 280 parts per tool. The customer requested a straight oil product that provided 400-500 parts per tool.

AFTER CASTROL

- On average, Variocut B 27 provided an additional 169 parts per tool compared to the previous product
- Reduction in tooling changes allowed an estimated 2,500 additional parts to be produced over the life of the broach compared to the previous product.

THE SOLUTION

- Three competitors were asked to recommend straight oil products. Castrol's product outperformed the other competitors.
- Variocut B 27 was able to meet the tool life requirements the customer desired and provide \$26K in overall process savings.

High performance fluid provides overall process savings



RECOMMENDATIONS

Variocut B 27 was able to meet the tool life requirements the customer desired. In some cases the tool life was 60% higher than the competitive product.

	Previous Product	(Proposed) Variocut B27
CUTTING SPEED (FT / MIN)	13	13
BROACHING CUT TIME (MIN)	0.30	0.30
PARTS / SHARPENING	280	449
LIFE / SHARPENING (MIN)	84.00	134.70
NUMBER OF RESHARPS	15	15
TOTAL PARTS / LIFE OF BROACH	4200	6735
OIL / COOLANT COST / GAL.	\$5.97	\$9.56
EST. OIL / COOLANT USAGE / YR (GAL)	220	220
BROACH CHANGEOUT TIME (MIN)	30	30
BROACH CHANGEOUT COST / PIECE	\$0.080	\$0.050
BROACH COST (NEW)	\$1,768.00	\$1,768.00
RESHARP / RECOAT COST	\$120.00	\$120.00
BROACH COST / HOLE	\$0.80	\$0.50
LABOR COST / HOUR	\$45.00	\$45.00
LABOR COST / HOLE (CYCLE TIME)	\$0.23	\$0.23
TOTAL COST / PART	\$1.12	\$0.80
EST. ANNUAL PRODUCTION	81600	81600
EST. ANNUAL COST	\$91,219.11	\$65,079.68
EST. ANNUAL SAVINGS		\$26,139.43

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CONCLUSION

In some instances, Variocut B 27 was able to reach over 600 parts per tool for the ID gear broaching application. This had not been experienced by the customer with any products in this application.

Recognized over \$26,000 in total annual cost savings.



OTHER POTENTIAL APPLICATIONS

Castrol Variocut B 27 can be used for broaching steel, stainless steel and many difficult alloys. Variocut B 27 is suitable for gear hobbing and gear shaping applications.

Variocut B 27 is not recommended for yellow metal machining due to potential staining.