

# CIMCOOL<sup>®</sup>

## Product Focus

Milacron Marketing Company | Cincinnati, Ohio 45209 | Consumable Products Division

## Broaching with QUANTALUBE<sup>◊</sup> Products

Broaching is classified as a machining process with a very high-degree of severity. This cutting process combines roughing and finishing while removing stock to precision limits faster and with better finish quality than other types of metal cutting processes. The broaching tool is the principle difference between this and other metal cutting processes. The operation requires high lubricity (achieved by using Extreme Pressure (EP) lubricants) and good heat removal. The nature of the operation makes it difficult for fluid to reach the point of cut for heat removal, especially in horizontal broaching.

**Objective:** Utilize “quantum leap technology” of CIMCOOL<sup>®</sup> QUANTALUBE<sup>®</sup> Products, water based metalworking fluids, to improve productivity, and part quality in all types of broaching applications while reducing overall manufacturing cost.

### Typical CIMCOOL<sup>◊</sup> Products Used for Broaching

QUANTALUBE<sup>®</sup> 270  
QUANTALUBE<sup>®</sup> 270 XL  
QUANTALUBE<sup>®</sup> 275

### Advantages For Using QUANTALUBE<sup>◊</sup> Products for Broaching

- In terms of EP lubricity, performs similar to a straight oil without the problems often associated with oils (messy, hard to remove, fire hazard, etc.)
- Increases tool life up to four fold when compared to soluble oils.
- Permits higher stock removal than with conventional water based fluids.
- Clean and easy to use
- Improves part finish

### Characteristics of a good Broaching Fluid

- Excellent antiweld and antiwear properties
- Excellent ability to remove heat from the chip
- Easily coats the metal surface

### Success Stories

#### A. Automotive Axle Manufacturer

- ID broaching operation on steel parts
- Replaced a semi-synthetic fluid and improved throughput by a factor of 2.5
- Increased tool life by 25%
- Cooler parts
- Fluid concentration 5%

#### B. Automotive Parts Manufacturer

- ID broaching in an individual machine with 100 gallon fluid tank
- 5160 chromium steel transmission part
- QUANTALUBE<sup>®</sup> 270 at 10% concentration replaced a straight oil
- Improved plant environment with elimination of straight oil (cleaner floors, machines, etc.)
- Tool life was comparable to that with straight oil

#### C. Manufacturer of Precision Components

- Flat and ID broaching with QUANTALUBE<sup>®</sup> 270 at 6-10% concentration
- MILES broach machines with sump sizes of 50 and 100 gallons
- The use of QUANTALUBE<sup>®</sup> 270 eliminated burns seen with a straight oil