

METALWORKING

# NEAT CUTTING & GRINDING OILS

YOUR ADVANTAGE IN AN INDUSTRIAL WORLD





# THE EXPERTS IN NEAT OIL TECHNOLOGY

**CASTROL OFFERS YOU A COMPREHENSIVE RANGE OF WORLD-CLASS NEAT OILS AND PRODUCT SUPPORT SERVICES THAT WILL HELP YOU TO:**

- > **Increase your productivity and performance**
- > **Fulfil your health, safety and environmental requirements**
- > **Meet your machining needs**

We can offer you these vital benefits by harnessing the leading edge global process and application knowledge provided by our network of engineering and research professionals. This expertise will be delivered directly to you by our knowledgeable local sales and support teams.

Our goal is to generate cost savings for you by boosting your productivity, helping you to achieve your manufacturing targets and improving your work environment.

Simply, you can trust Castrol to provide the right product for the job, across all your operations.

## A CHOICE TO SUIT YOUR NEEDS

Castrol has a high performance and versatile range of neat oils designed to meet your metalworking requirements.

As the experts in neat oil technology, our sales team will work with you to select the right products for your operations, taking the following important factors into account:

- Your machining process – speed, feed, depth of cut and tooling properties
- Material specifications
- Surface finish requirements
- System parameters – size, filtration, flow rate
- Local legislative requirements
- Waste treatment
- Compatibility with your entire process

### Our neat oils range at a glance

**Castrol CareCut:** Neat oil range based on readily biodegradable synthetic esters.

**Castrol Variocut HC:** Extreme High Viscosity Index (EHVI) hydrocracked base oil range.

**Castrol Variocut:** Highly refined base oil range in combination with chlorine free technology.

**Castrol Ilocut/Castrol Ilobroach/Castrol Honilo:** Complete range based on proven additive technology and highly refined base oils.

## QUALITY AND RELIABILITY FROM START TO FINISH

# CASTROL NEAT OILS GIVE YOU THE ADVANTAGE

## Choosing our neat oils will boost your productivity

- Increased feeds and speeds reduce cycle times
- Enhanced tool life cuts down-time and tooling costs
- Easy-to-manage products let you focus on your core operations
- Multi-functional neat cutting oils lead to reduced product inventory

## Our products can help you to improve your health, safety and environmental (HSE) performance

- Ester and hydrocracked technologies give you a higher flash point, lighter colour, improved misting and odour, and higher oxidation stability. This results in increased operator acceptance
- Products with lower viscosity reduce drag out resulting in lower consumption and a cleaner working environment
- Our range meets your local legislative requirements, e.g. chlorine free or heavy metal free

## We can meet your machining requirements

- Our dedicated range of neat oils fulfils your operational needs – from honing to broaching and for all ferrous and non-ferrous metals
- Castrol's multi-metal compatible metalworking oils reduce the risk of metal staining and corrosion

## Honing and superfinishing

Honing is a low speed, surface finishing process used to produce uniform components with high accuracy and fine surface finish. Metal particles are removed by the shearing action of a moving honing stone or stick.

Superfinishing is a polishing process that utilises abrasive tapes or specialised superfinishing stones to provide a unique and consistent finish.

Our Castrol CareCut and Honilo ranges offer the following features and benefits.

### Features

Compatible with all metals

Excellent flushing and lubrication properties

Chlorine and heavy metal free

Formulated on highly refined base oils and high flash point biodegradable ester

Low viscosity

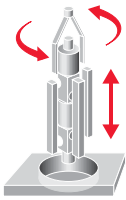
### Benefits

- No staining on ferrous and non-ferrous metals

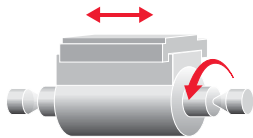
- Extends honing stone life
- Maintains high surface finish and dimensional accuracy

- Good for your environmental requirements
- Reduces disposal costs
- Meets your productivity demands

- Minimises oil drag out, especially with small parts



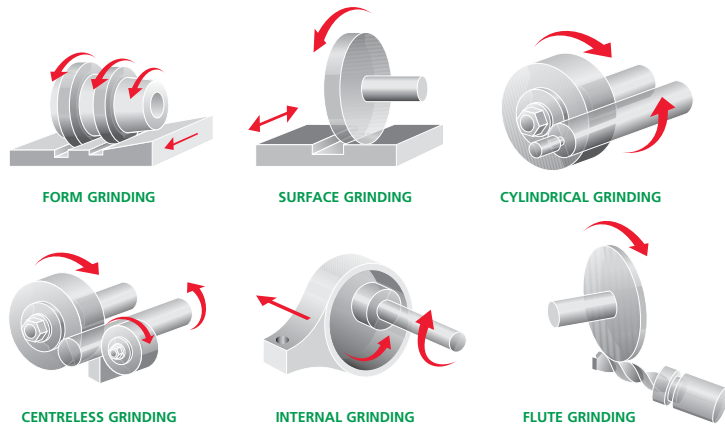
RECIPROCATING HONING



OSCILLATING HONING/SUPERFINISHING

## Grinding

Grinding is a process in which small particles of metal are removed from the work piece surface using an abrasive wheel. It is used to produce components of precise geometry and surface finish. The type of grinding process and the choice of wheel material and grit size depends upon the shape of the component, the metal removal rate and the required surface finish.



Our Castrol CareCut and Variocut ranges offer the following features and benefits.

### Features

Chlorine free

Wide range of base oil technologies, including thermally stable base oils, the latest generation of EHVI hydrocracked (aromatic free) base oils and advanced readily biodegradable synthetic esters

Advanced additive technology leads to exceptional wetting and lubricating properties

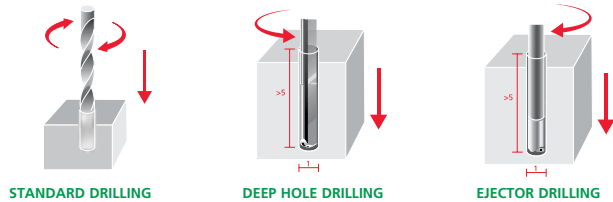
Minimal mist generation and low viscosity

### Benefits

- Good for your environmental requirements
- Reduces disposal costs
- Good for your environmental requirements
- Meets your productivity demands
- Low odour and pale colour
- High cutting efficiency delivers extended tool life and excellent surface finish
- Allows higher productivity
- Maintains accuracy of grinding wheels over a long time period with reduced down-time and tooling costs, e.g. wheel dressing etc.
- Improves working environment
- Reduces drag out and improves filtration properties

## Drilling and deep hole drilling

Drilling is a machining process where a solid fluted tool is used to produce a hole in a solid component. The cutting tips are situated at the end of the drill and the flutes allow coolant to enter the cutting zone and allow metal chips to evacuate the hole. With deep hole and ejector drilling the cutting tip is supplied with coolant, at high pressure, through a hole down the centre of the drill and the chips are ejected via a groove or a second hole down the length of the drill body.



Our Castrol Variocut and Ilocut ranges offer the following features and benefits.

### Features

Advanced additive technology giving high extreme pressure (EP) lubrication properties

Compatible with paints, plastics and standard elastomers

### Benefits

- Lowers production costs through extended tool life, minimised wear, improved surface finish and increased cutting speeds

- Reduces compatibility issues and maintenance costs

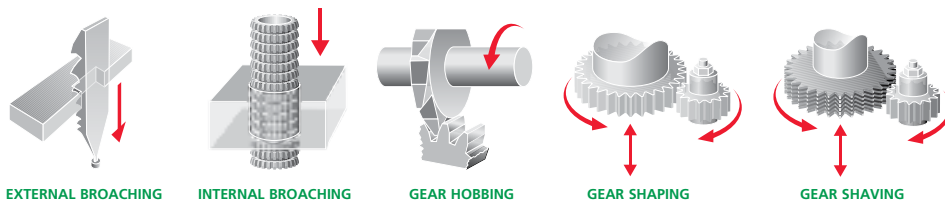
## Broaching and gear manufacturing

Broaching is a machining process in which a cutting tool is pushed or pulled through a hole or across a surface to remove metal. The cutting teeth are set so that each tooth removes a small amount of metal.

**Gear hobbing** is a multi-point machining process in which gear teeth are progressively generated by a series of cuts with a helical cutting tool (hob). Both the hob and the work piece revolve constantly as the hob is fed across the face width of the gear blank.

**Gear shaping** uses a gear shaped cutter that is reciprocated and rotated, in relation to a blank, to produce the gear teeth.

**Gear shaving** is applied to unhardened gears to improve their accuracy and uses a gashed rotary cutter in the shape of a helical gear which removes small slivers of material from the tooth profile.



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Compatible with paints, plastics and standard elastomers

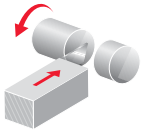
### Benefits

- Lowers production costs through extended tool life, minimised wear, improved surface finish and increased cutting speeds

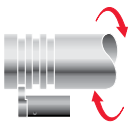
- Reduces compatibility issues and maintenance costs

# General Machining

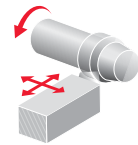
## TURNING



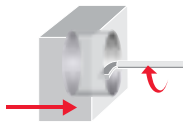
CUTTING OFF



GROOVING

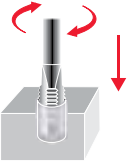


FORM TURNING

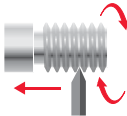


BORING

## THREADING

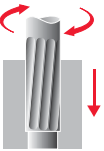


STANDARD TAPPING

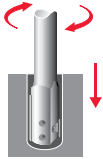


SINGLE POINT  
THREADING

## REAMING

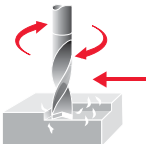


MULTI-TOOTH  
REAMING



ONE BLADE  
REAMER

## MILLING



END MILLING



FACE MILLING  
TOOL



SIDE & FACE  
MILLING TOOL



FORM MILLING  
TOOL



PLAIN/SLAB  
MILLING TOOL

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Compatible with paints, plastics and standard elastomers

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[www.castrol.com/industrial](http://www.castrol.com/industrial)

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