The purpose of a coolant is to cool the workpiece and grinding wheel during machining and to lubricate the ground surface. Cooling of the workpiece and tool is necessary to eliminate the unwanted effects of heat on both the workpiece and tool. Lubrication is needed to reduce friction between the tool and workpiece and protect the workpiece from corrosion.

Types of coolants

The following agents are used as coolants:

- oil for machining where very smooth surface is required,
- mineral, white emulsion - emulsion of oil in water with added emulsifiers and antibacterial additives; universally applicable,
- synthetic, clear emulsion - emulsion of synthetic oils in water; resistant to bacteria,
- synthetic coolants.

The coolant type and concentration depend on the machining method and type of material worked. It is recommended that the user consult the producer of coolant regarding the type of coolant and its concentration.

Most important properties of coolants:

- Good cooling and lubrication,
- prevention of corrosion,
- physical, chemical and technological stability during use,
- no harmful effects on human health,
- no excessive foaming.

Cooling during machining

A sufficient amount of a coolant needs to be supplied at a certain pressure to the worked area during machining in order to perform this function. If the coolant is not supplied to the right place, its effects are suboptimal. The figures show the points/places to which the coolant needs to be supplied for individual types of grinding.

Reducing the amount of a coolant because it is sprayed around the work area may cause defects on the workpiece (cracks, thermal changes and similar problems).

During work and after it, the grinding wheel should not remain immersed in the coolant, because it might break during next use due to imbalance. When work is completed, the grinding wheel should be centrifuged to prevent damage upon reuse. Newer machines are constructed in such a way that the machining zone and thus also the cooling zone are enclosed and the coolant cannot be sprayed around.