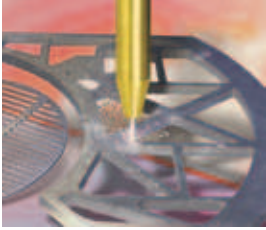


# INTRODUCTION

## CARBIDE – PROPERTIES

### Carbide properties depending on the Co contents and C grain size

#### Hardness (wear resistance)

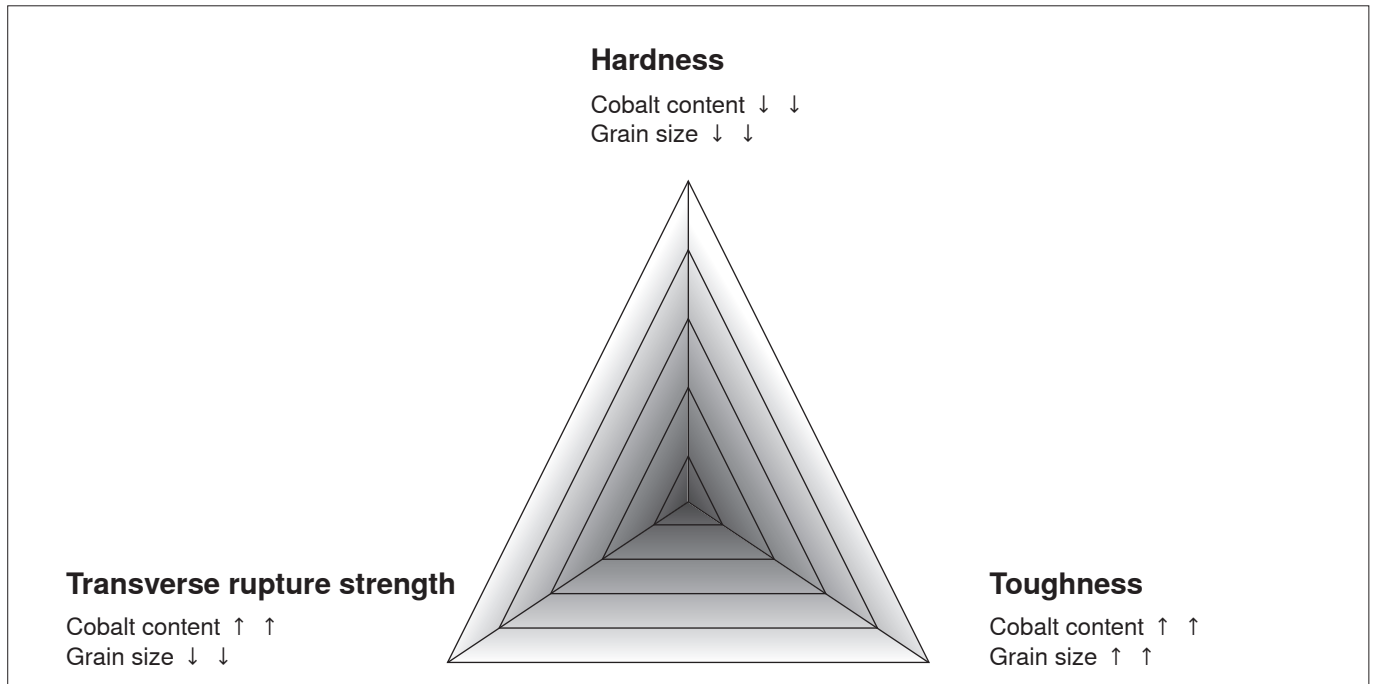


##### Nozzles for water jet cutting

- Type of stress
- ▲ Wear
  - ▲ Corrosion

##### Carbide grade

- ▲ Very high hardness: 2650 HV30
- ▲ Small grain size: < 0.5 μm
- ▲ Low Co content: 0.4%
- ▲ Corrosion resistance when adding Cr<sub>3</sub>C<sub>2</sub>



#### Transverse rupture strength

##### Micro-drilling

- Type of stress
- ▲ Wear
  - ▲ Deflection

##### Carbide grade

- ▲ T.R.S.: > 4000 MPa
- ▲ Small grain size: < 0.5 μm + VC
- ▲ Low Co content ~ 8.5%
- ▲ High wear resistance: 1930 HV30



#### Toughness

##### Hot rolling

- Type of stress
- ▲ Wear due to abrasion
  - ▲ Built-up edge
  - ▲ Impact stress

##### Carbide grade

- ▲ Sufficient fracture toughness: Co content 20%
- ▲ Good wear resistance: 1030 HV30
- ▲ Medium grain size coarse or extra-coarse