



## Solid carbide grades used for Schwegler tools

The use of carbides as a cutting material is now firmly established in today's modern metalworking industry. In order to maintain the performance our customers expect with **Schwegler high performance tools**, we only use **finest grain** carbide raw materials from well-known European manufacturers,

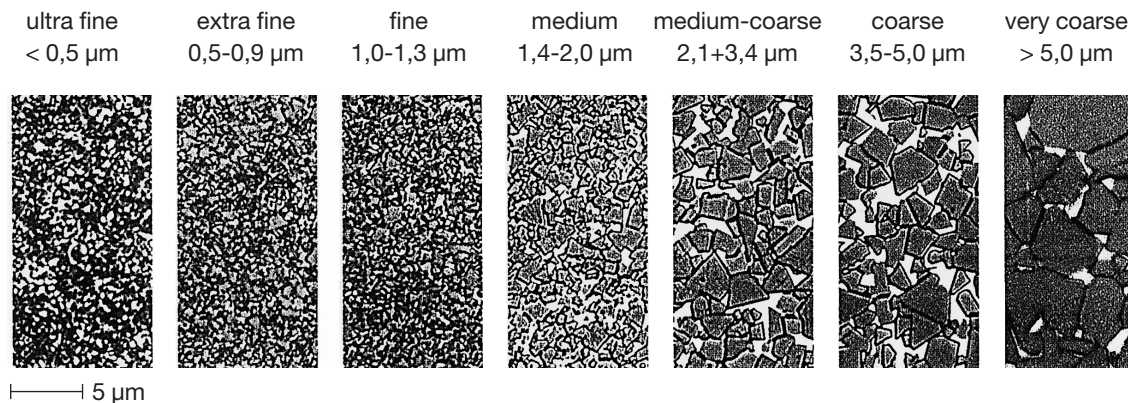
The following table gives the range of qualities of carbide, from which we are able to choose. From these, we select the grade of material that is most suitable for the particular type of tool together with its associated requirements and the use to which it is put.

Comparison table of grades of carbide					
composition		vickers hardness HV 30	tensile strength N/mm <sup>2</sup>	grain size µm	
WC %	Co %				
90	10	1680	4000	0,7	
94	6	1700	3000	0,9	
86,5	12	1717	4200	0,5	
88	10,5	1530	3200	0,7	
92,5	7,5	1720	3500	0,7	
89	10	1600	4100	0,8	

The way a carbide material behaves when used, in terms of its cutting performance, durability and resistance to breaking, is largely determined by the proportion of **WC** to **CO**, the **hardness**, the **tensile strength** and the grain size.

The development of very fine grain and ultra fine grain carbides has enabled qualities of material to be achieved that are both very hard and have a high tensile strength. When applied to carbide tools, this means tools with a very sharp and consistent cutting edge can be made, yet, at the same time, having a high breaking strength.

### Grain size classification



The use of new, better performance fine grain types in conjunction with hard material coatings (see Table on page 100 - 101) means that there is no longer any need to use so-called „P“ tool types. The fine grain types used by Schwegler, in combination with the correctly selected coating, are far superior to „P“ types both in terms of durability and elasticity. For our customers who use **Schwegler high performance tools**, this means increased productivity and, as a result, a competitive edge.