DR. KAISER
präzision durch diamant

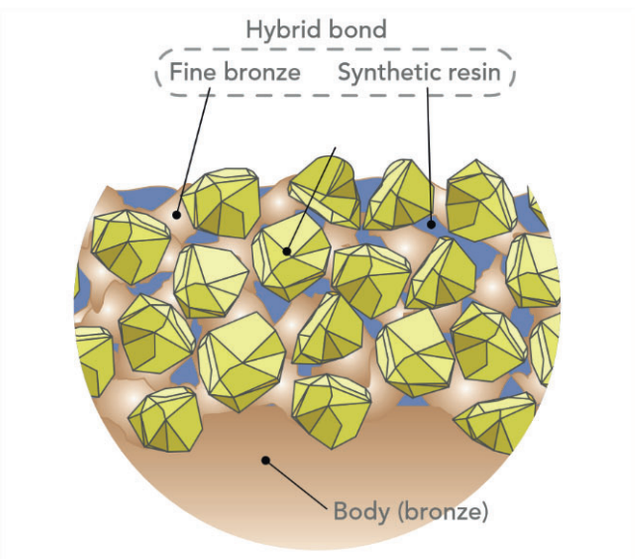
DR. KAISER HYBRID GRINDING WHEELS

HYBRID BOND

NOW EX STOCK

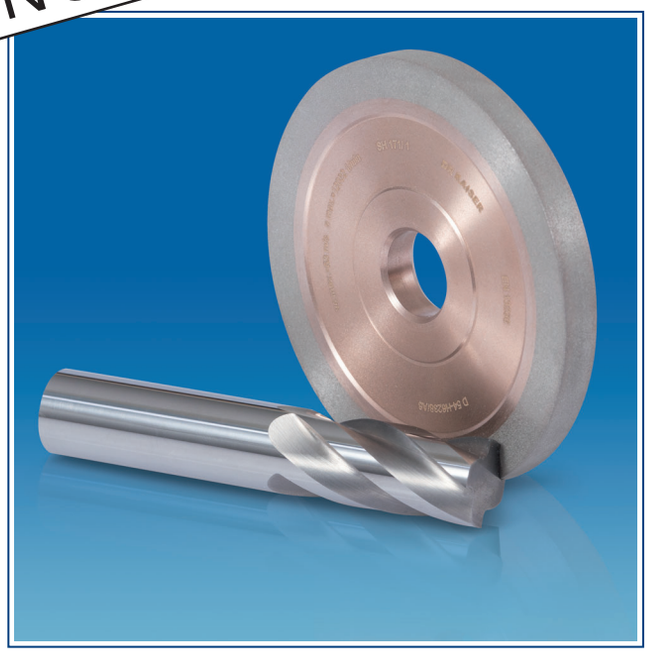
HIGH STRENGTH FOR DIAMOND AND CBN: FINE BRONZE RESIN BOND

The most important criterion for economical grinding is the cutting ability of the abrasive coating. DR. KAISER has recently developed a new dressable bond system for tool grinding of carbide and HSS: the fine bronze synthetic resin hybrid bond.
The diamonds for the carbide or CBN grains for HSS machining are bonded in a fine bronze skeleton with a temperature-stable synthetic resin filling and are thus optimally held.
The new hybrid bond system enables high stock removal rates over a long period of time and high stability of the grinding wheel edge at the same time. Compared to standard metal bonds, the self-sharpening effect of the grinding wheel can be used, which significantly increases the time between truing and dressing.



HIGH EDGE STABILITY

Tool grinding places the highest demands on the stability of the grinding wheel edge. In many applications the permissible radii are R < 0.1 mm.
Only the highest CBN and diamond qualities in grit sizes between 46 and 91 µm with a finely tuned bonding system can meet these requirements. The easily dressable fine bronze synthetic resin hybrid bond is an ideal partner for these tasks, holding the grain long enough but leaving it free again in due time: Give the new hybrid bond a try!



EXCELLENT PROPERTIES FOR TOOL GRINDING

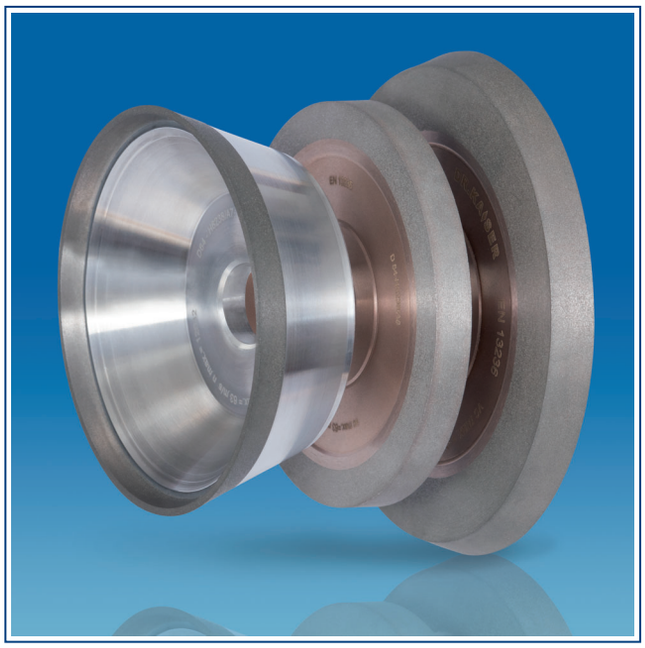
The new generation of grinding wheels uses special diamond and CBN qualities as well as a balanced bronze synthetic resin ratio for the bond. This guarantees a special cut of the self-sharpening bond, the best possible edge stability and at the same time good dressability with SiC wheels (e.g. on external dressing and profiling machines from GEIGER, CLEVELAND, ... or on tool grinding machines such as WALTER, ANCA, SCHÜTTE, ...).
The grinding wheels in all required shapes (e.g. 1A1, 1V1, 6A2, 11V9, 12V9, 14A1, 14E1 etc.) are usually supplied with a temperature-stable bronze base body with adjustable damping properties.

STOCK CAPACITY

In our warehouse you will find the most common diameters as 1A1 semi-finished products. If requested by the customer, an adaptation of the geometry can be realized here in the shortest possible time. This enables us to achieve a delivery time of 1-2 weeks and thus to act more flexibly on the market. A stock list of the available tools with additional information can be found on the next page.

STOCK LIST FOR HYBRID TOOLS

Type	Item-no.	Bond	Dimensions
1A1	7985019	H6238/A8	100-10-10-20
1A1	79850025	H6238/A8	100-10-15-20
1A1	7985024	H6238/A7	125-10-10-20
1A1	7985070	H6238/A8	125-10-10-20
1A1	7985001	H2120	125-10-10-20
1A1	7985062	H6238/A7	150-10-15-20
1A1	7985081	H6238/A8	150-10-15-20
11V9	7985018	H6238/A7	100-2-10-20°-20-10-35



HIGHEST FLEXIBILITY

All listed grinding wheels are considered standard for immediate use or as semi-finished products to adapt the geometry. This approach allows us to be more flexible on the market and thus enables us to offer our customers an additional advantage.

CUSTOMIZATION

Every hybrid grinding wheel can be modified with a wide variety of options. For example it is possible to rework a 1A1 to a 3A1 or to a 1V1 with an angle for a short time.
And if it is not possible for us to adapt your hybrid grinding wheel at short notice, we will produce your individual grinding wheel within 6 weeks.

TYPES OF BONDING

DR. KAISER offers the right bonding variant for every application. The customer can choose between three different specifications.
An important factor during the selection is the self-sharpening to be achieved in the process. This characteristic makes the DR. KAISER hybrid grinding wheel unique.
Our bond systems are divided according to degree of hardness, starting from the softest, H6238/A7, to the hardest, H2120.

SERVICE

We are gladly assist you in choosing the right DR. KAISER hybrid grinding wheel. Please do not hesitate to contact us.
Price information is available on request. Depending on the effort required, a small additional customizing fee will be applied.
On the next page you can see an application example with an optimization chart, which might help you to find the best grinding parameters.

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APPLICATION

HYBRID GRINDING WHEEL APPLICATION

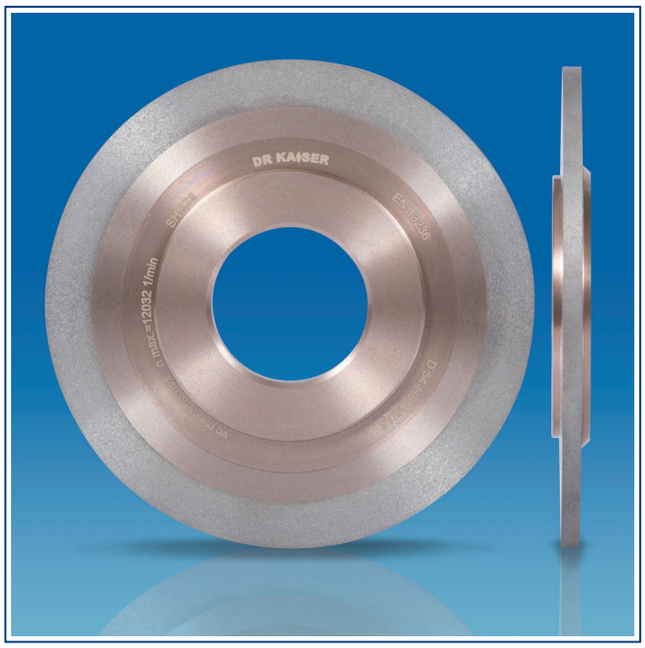
Application example

Grinding tool	DRK-Hybrid
Grinding machine	Walter Helitronic
Cooling	Oil
Workpiece	Carbide milling cutter, Ø 16 mm

Grinding parameters:

Feed rate	v_f= 120 mm/min
Infeed	a_e= 4 mm
Cutting speed	v_c= 18 m/s
Ref. material removal rate	Q'_w= 8 mm³/mms

$$Q'_w = \frac{v_f * a_e}{60}$$



OPTIMIZATION CHART

The specified optimization levels depend on the machine conditions, such as the stiffness, the age and the drive power of the machine.

Infeed a_e [mm]	Feed rate v_f [mm/min] 60	70	80	100	120	140	160	180	200	Ref. material removal rate Q'_w [mm³/mm*s]
2,6	2,6	3,0	3,5	4,3	5,2	6,1	6,9	7,8	8,7	
2,8	2,8	3,3	3,7	4,7	5,6	6,5	7,5	8,4	9,3	
3,0	3,0	3,5	4,0	5,0	6,0	7,0	8,0	9,0	10,0	
3,2	3,2	3,7	4,3	5,3	6,4	7,5	8,5	9,6	10,7	
3,4	3,4	4,0	4,5	5,7	6,8	7,9	9,1	10,2	11,3	
3,6	3,6	4,2	4,8	6,0	7,2	8,4	9,6	10,8	12,0	
3,8	3,8	4,4	5,1	6,3	7,6	8,9	10,1	11,4	12,7	
4,0	4,0	4,7	5,3	6,7	8,0	9,3	10,7	12,0	13,3	
4,2	4,2	4,9	5,6	7,0	8,4	9,8	11,2	12,6	14,0	
4,4	4,4	5,1	5,9	7,3	8,8	10,3	11,7	13,2	14,7	
4,6	4,6	5,4	6,1	7,7	9,2	10,7	12,3	13,8	15,3	
4,8	4,8	5,6	6,4	8,0	9,6	11,2	12,8	14,4	16,0	
5,0	5,0	5,8	6,7	8,3	10,0	11,7	13,3	15,0	16,7	
5,5	5,5	6,4	7,3	9,2	11,0	12,8	14,7	16,5	18,3	
6,0	6,0	7,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	
6,5	6,5	7,6	8,7	10,8	13,0	15,2	17,3	19,5	21,7	
7,0	7,0	8,2	9,3	11,7	14,0	16,3	18,7	21,0	23,3	
7,5	7,5	8,8	10,0	12,5	15,0	17,5	20,0	22,5	25,0	

Start | Optimization Level 1 | Optimization Level 2 | Optimization Level 3 | Limit