

Bonding

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The bonding has the job of retaining the grain within the grinding wheel until the grinding process blunts the grain particle; at this point, the bonding should release the grain, thus presenting a new and sharp particle. The bonding type and the percentage of bonding used depends on the grinding application.

ATLANTIC grinding wheels are manufactured in two basic bonding types:

vitrified bond (**identification V**) and resin bond (**identification RE**)

Vitrified bond

Vitrified bonds are a mixture of kaolin, quartz, feldspar and glass. The mixture of these components determines the bond characteristics. Vitrified bonds are resistant to oil and soluble oil; however, they are brittle and fragile. The ensuing grinding pressure breaks down the bond.

Resin bond

Resin bonds are mainly produced on a phenolic basis. They can be differentiated into those with and without fillers. Varying the phenolic resin and the fillers determines the characteristic of the bond. The breakdown of the bond is the result of grinding heat and pressure. The elasticity of the resin bonds makes them particularly suited to polishing and finish grinding applications, as well as fettling and dry grinding applications. When using soluble oil, it is important to note that the pH-value should not exceed 9; above this, the resin bond deteriorates.

Types of bond

Resin bond	Application	Vitrified bond
PBD, REI	Surface grinding	VY, VE, VF, VU, VO
-	Profile/creep-feed grinding	WVY, VF, VO
PBD, DC	Duplex	VK, VE, VO
DC, REI	Cylindrical between centres	RVJ, VX, VO
REI, PBD, ES	Centerless plunge	VK, VT, VF, VO
REI, DM, HS	Centerless thrufeed	VO, VK, VT, VF
ED1, ED9	Control wheel	V 22
PBD, AX, AL7, DP	Roll grinding	VE, VF, VO
REI, AX, AC	Bar grinding	VO, VK, VD, VF
-	Thread grinding	VF, VO
-	Gear tooth grinding	VF, VY
ES	Taper roller face grinding	-
AL7	Hypodermic needle grinding	-
AX, BM	Spring-end grinding	VU
REH, REC	Ball grinding	307
		For sintered alumina – bonding types VB or VY are used

The above examples represent successful applications when using different types of bond. We can offer different bonding systems for special applications.