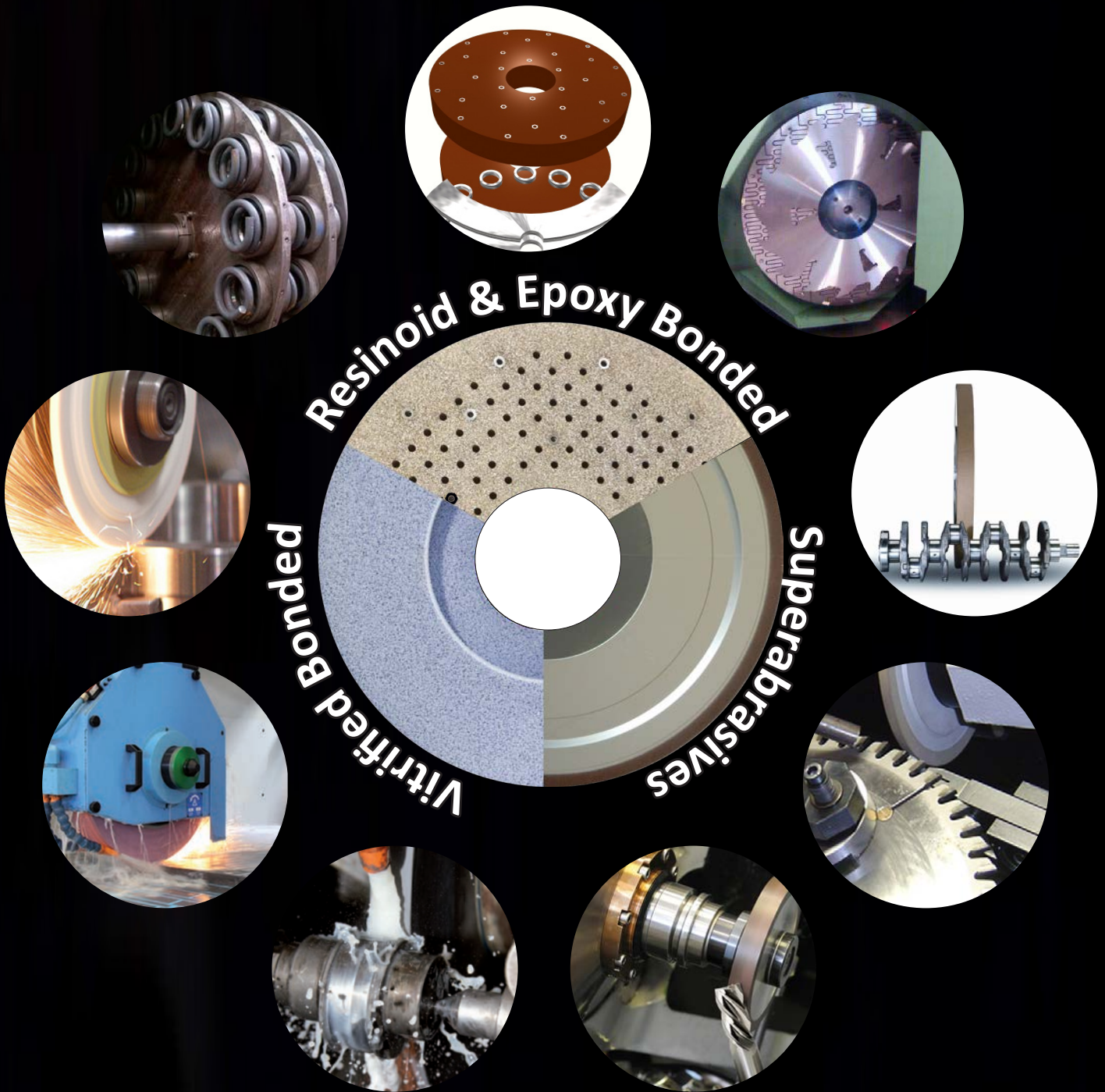




Technical Abrasive Grinding Wheels



Continually Improving the Grinding Process

Something About Us



19th Century George Jowitt, the founder of Jowitt was the third child of eight born to a pocket-blade forger in Sheffield, England. He was to spend most of his life as a grinder of such blades. Grinding at that time was carried out using natural sandstones, and in **1865**, the year before his birth, the average life expectancy of a grinder was 35 years of age. Death was mostly from silicosis, caused by the inhalation of sandstone dust.

The reason for the existence of our company is quite simply the determination of George Jowitt and his sons, George and Harry, to find an alternative abrasive material to help improve the lives of their fellow grinders. Once those years of searching for an artificial wheel finally resulted in their own successful hand-made product, it was George the son, with his drive and intuition, who was to build the company and take it forward.

The development of magnesite bonded wheels was an event of major importance in replacing the sandstone. It was exceptionally cool cutting, but since the curing could not be accurately controlled, the wheels were prone to breakage therefore they did not, to any great extent, supersede the sandstone wheel.

20th Century It was in **1926** that we turned to the manufacture of the bakelite bonded wheels which, in comparison with the vitrified-bonded wheel of the day, were so cool cutting as to make the surface grinding of magnets and such-like types of super hard materials a practical proposition. Important improvements have since been made to resin-bonded abrasives. We believed it was essential to control the quality of the resin thus in **1947** we became the first European grinding wheel manufacturer to set up our own resin producing plant.

Gradually we improved our techniques of resin production and in **1964** we introduced the Z-bond. This phenol-formaldehyde resin which we have specially developed, gives the best possible resistance to heat and moisture, resulting in the exceptionally cold cutting and even wearing properties of our wheels.

Over the next eight decades the company grew in size and reputation. Other manufacturing plants in Holland and the USA were established as Jowitt. sold its products and expertise to customers around the globe.

21st Century More recently we consolidated production into our brand new **4,500** square metre plant in Chesterfield on the outskirts of Sheffield.

Today we are still a private family company, which enables us to give unrivalled service of both speedy delivery and prompt technical advice. We are constantly developing new resin bonding agents and abrasives as part of the overall plan to maintain and improve our position as a leading company in our specialised field of abrasive technology.

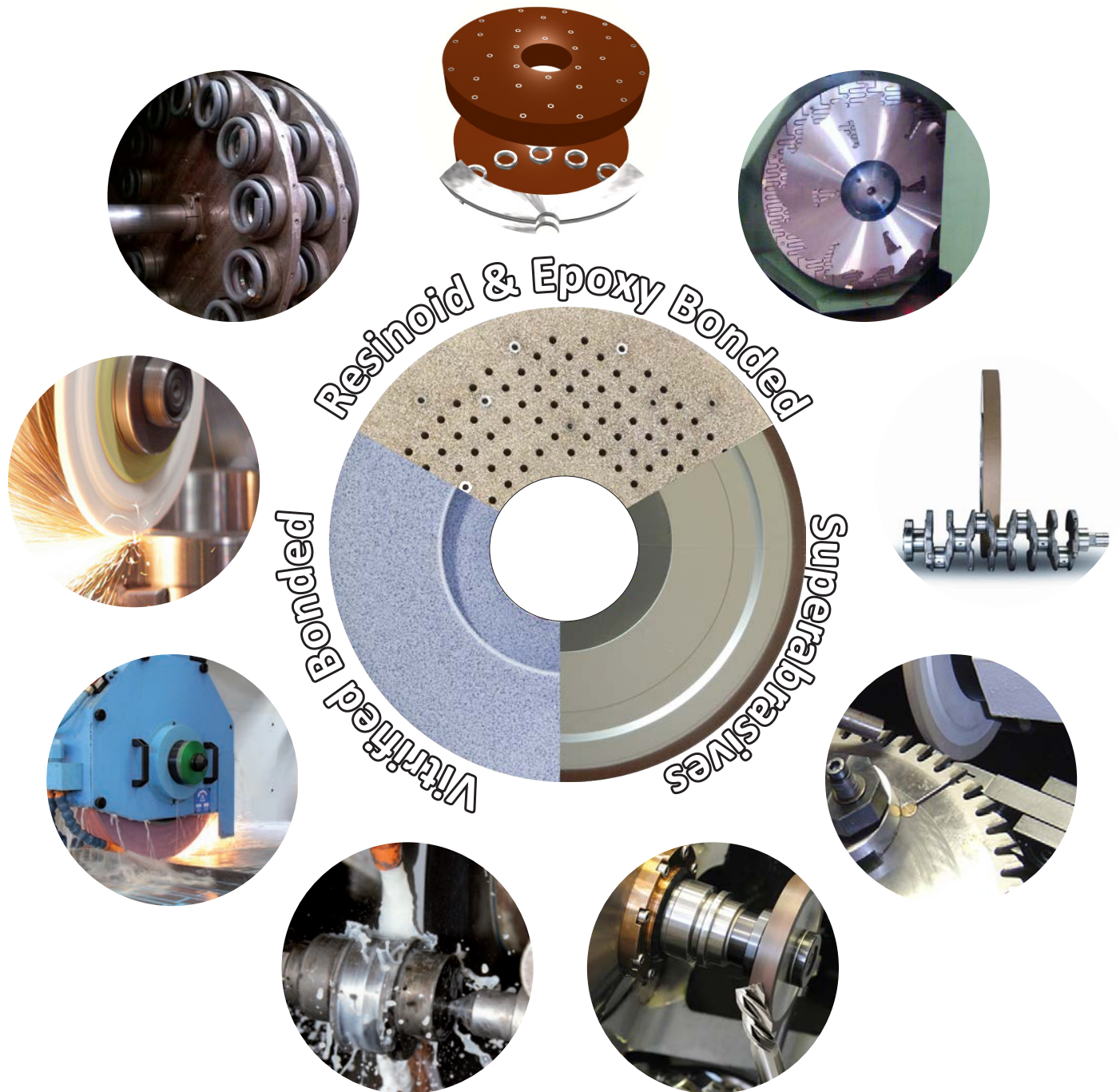


Jowitt Technical Abrasive Grinding Wheels

Jowitt have many years experience and expertise in the specification, recommendation, manufacturing and implementation of world-class abrasive grinding wheels and segments.

We work closely with our customers to help ensure high productivity, value for money, technical know-how and continual improvement.

Jowitt are highly flexible in their approach to manufacture and customer service which set us apart from the competition.



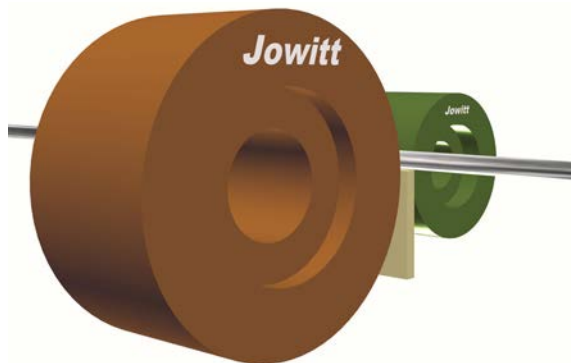
Resin & Epoxy-Bonded Product Range

Unique manufacturing methods are used in the production of Jowitt abrasive products to provide not only the highest quality and performance, but also precise duplication of grade and minimum variation.

In essence, the Jowitt method is to combine the best in innovation with modern production methods and process control, and provide the exact consistency required by industry in order to achieve high productivity with economy.

Centreless Wheels:

Sizes: 300 to 630 mm outside diameter.
Recesses: Plain, single and double recesses.
ISO Type Nos: 1, 5 & 7.



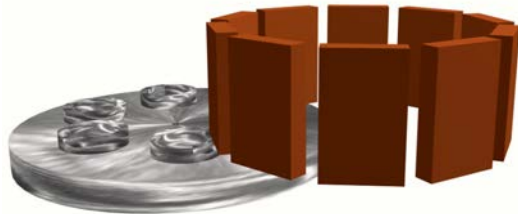
Epoxy Wheels:

Precision Epoxy Bonded
ISO Type No: 1, 2, 5, 6, 7, 35,
36 & 37



Grinding Segments:

Shapes: A huge range to suit most segmental grinding machines from all around the world.
ISO Type No: 31.



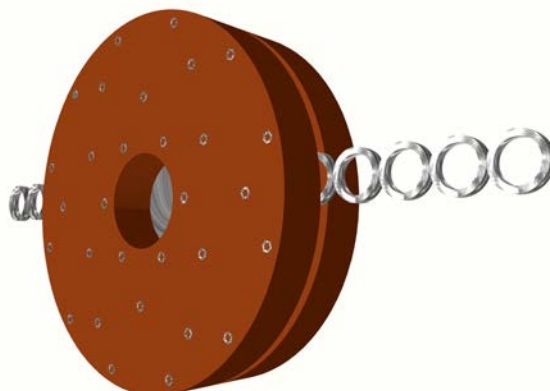
Peripheral Wheels:

Sizes: Up to 915 mm outside diameter.
Recesses: Plain, single and double recesses.
ISO Type Nos: 1, 3, 4, 5, 7, 38 & 39.



Nut-Inserted Heavy Duty Disc, Cylinder and Cup Wheels:

Sizes: Up to 1500 mm outside diameter.
Nut-patterns: Standard, custom & without nuts.
Slots: Made to suit application.
Perforations: Made to suit application.
ISO Type Nos: 2, 6, 35, 36 & 37.



Vitrified & Superabrasive Product Range

Jowitt offer a wide range of high-quality, precision vitrified-bonded conventional and superabrasive products. We work in partnership to provide our customers with the best products available in the market today.

Vitrified-Bonded Conventional



Superabrasive Diamond & CBN



What Jowitt's Customers Grind



Springs,
 Bearings, Con-rods,
 Tappets, Circlips, Magnets,
 Hand-tools, Drill-bits and reamers,
 Piston-rings, Compressor and pump-
 parts, Shafts and spindles, Cylinder-liners,
 Washers, Spacers, Tubes, Stoppers, Hydraulic
 and pneumatic shafts, Glass-rods, Bar grinding,
 Cam-shafts, Crank-shafts, Piston Pins, Valve stems,
 Valve seats, Valve guides, Fine-cut blanks, Flame
 cut blanks, Stampings, Machine knives, Saws,
 Transmission and friction parts, Roll grinding,
 Castings, Forgings, Refractory materials,
 Ferrous and non-ferrous materials,
 Composites



Our Customers' Machine Tools

We know machines inside-out and our customers expect us to know them too. Our experienced abrasives experts have worked on all sorts of machines and can help to optimise grinding efficiency and reduce waste in every process with their customers.

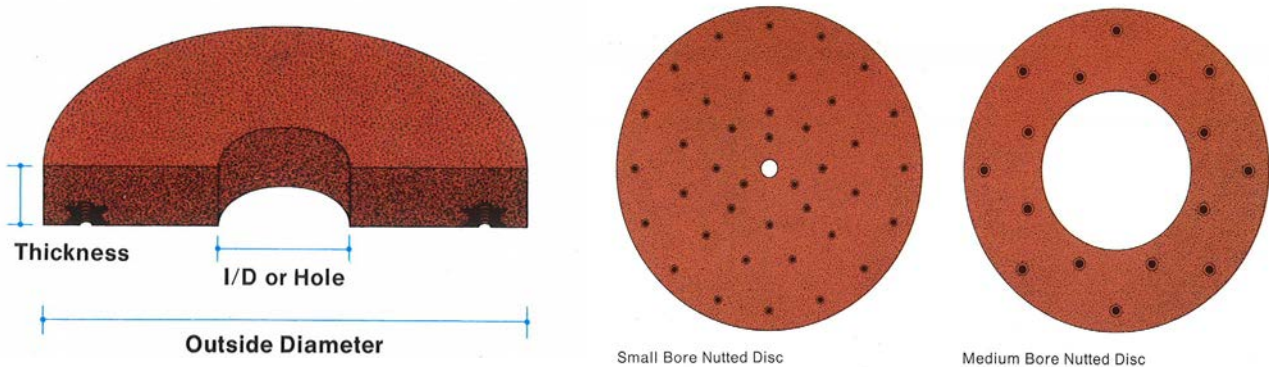
Machine types:

Double-disc, segmental, peripheral surface grinders, centreless, external cylindrical.

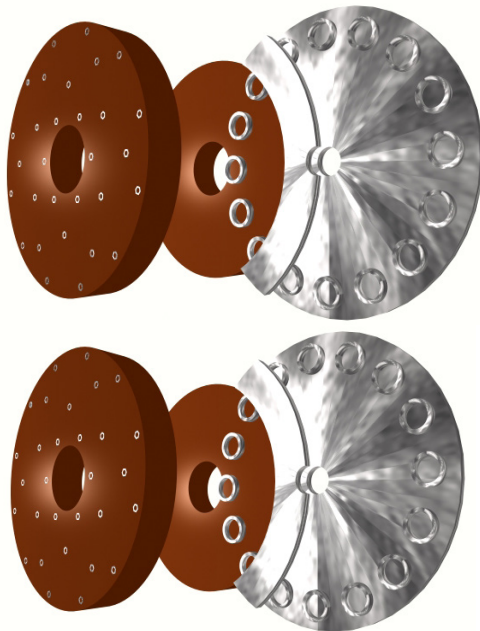
Machine brands include: ANCA, Abplanalp, Bennett Mahler, Berger, Blanchard, Blumberg, Cincinnati, Diskus, Dorn, Fortuna, Gardner, Giustina, Göckel, Hack, Herckelbout, Jones & Shipman, KMT, Koyo, Lidköping, Lumsden, MAPE, Mattison, MVM, Nissei, Nippei, OMD, Lapmaster-Peter Wolters, Rabbit, Reform, Schenker, Schmidt Tempo, Siepmann, Simco, Snow, Speedfam, Thielenhaus, Tos, Viotto, Wafios.



Nut Inserted Heavy Duty Discs - Type 36 - for Double Disc Machines



Correct Mounting Procedure With Nuts



In order to obtain maximum safety and performance from your Jowitt heavy duty disc, we recommend that you follow carefully this mounting procedure:

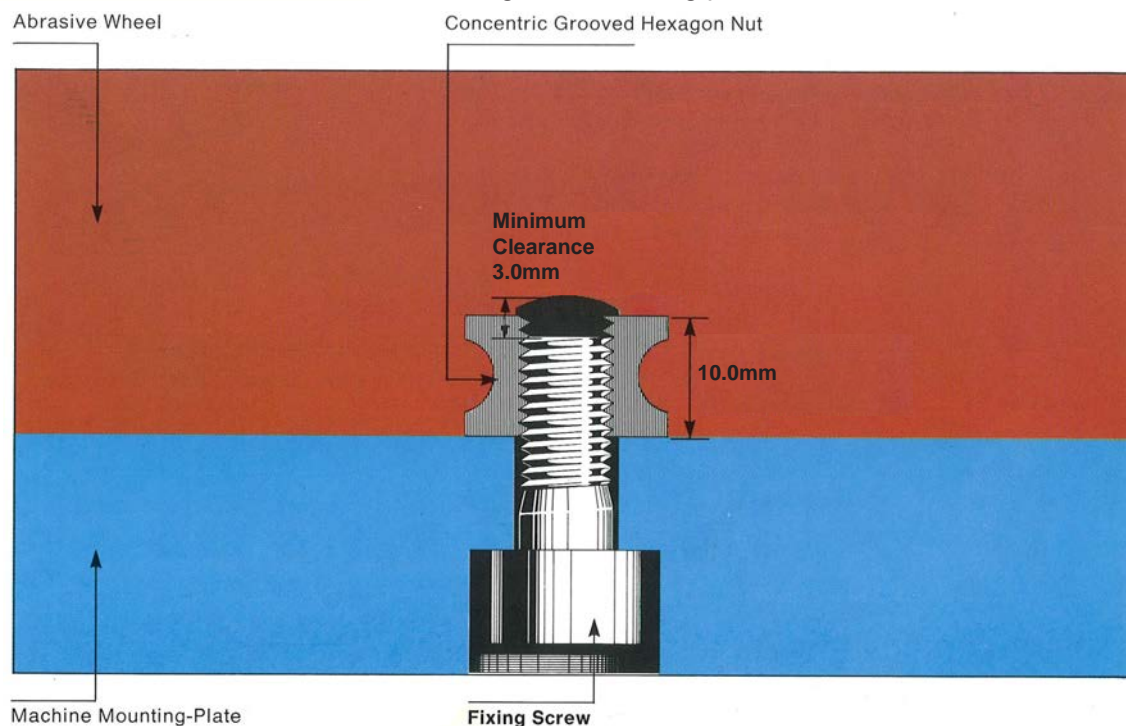
Thoroughly clean and de-burr the mounting plate and ensure that the back of the wheel is also clean.

Check that the fixing screws are the correct length (see diagram below.) They must not protrude through the mounting plate by more than 10mm, unless otherwise indicated on the wheel.

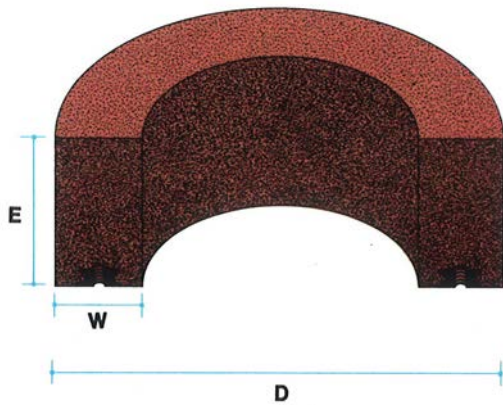
Place the backplate on the wheel ensuring that it is central and insert each screw, tightening to finger tightness only.

Fully tighten all the screws starting with the inner circle, and tightening opposite screws alternately, using a hexagon wrench of the correct length.

Do not use pipes or hammers on the hexagon wrench as this will damage the mounting plate.



Cylinder Wheels - Types 2 & 37

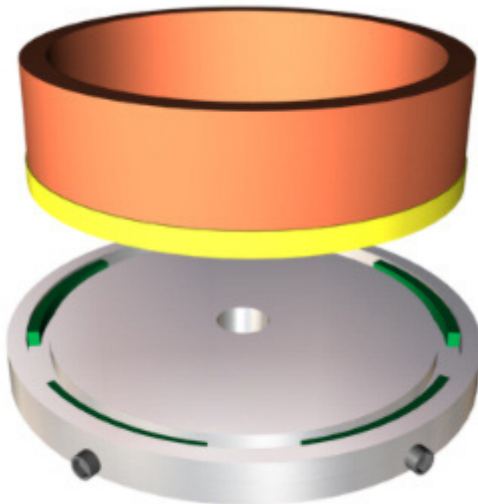


Correct Mounting Procedures Without Nuts

First ring the wheel to ensure that it is sound by tapping it gently with a non-metallic implement.

Plain Cylinder Wheels Type 2

Plain cylinder wheels should be mounted by cementing them to the back plate using a standard synthetic adhesive.



Cylinder Wheels fitted with Flared Back

The clamp type chuck which holds this type of cylinder wheel should be thoroughly cleaned with a small brush before fitting a new wheel.

Place the wheel in the chuck supporting it against the back plate.

Gradually tighten opposite clamps, making sure that each exerts an even pressure on the wheel to prevent cracking.

Nut Inserted Cylinder Wheels Type 37

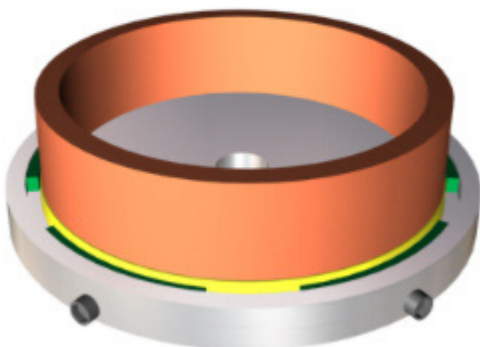
Thoroughly clean the machine mounting plate before fitting a new wheel and ensure the back of the wheel is also clean.

Place the wheel on the mounting plate, and fit two diametrically opposed screws, tightening to finger tightness.

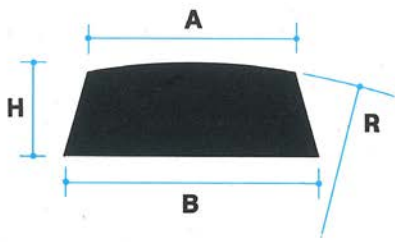
N.B. Never - even momentarily - suspend a nutted wheel on one screw only.

Fit the remaining screws, tightening opposite screws alternately using a hexagon wrench of the correct length.

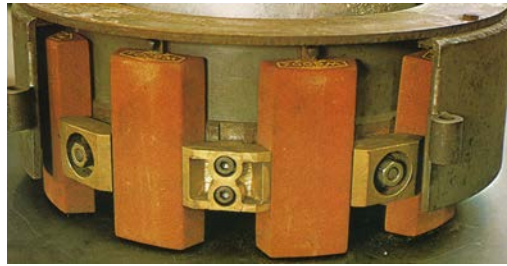
Do not use pipes or hammers on the hexagon wrench as this will damage the mounting-plate.



Abrasive Segments -Type 31



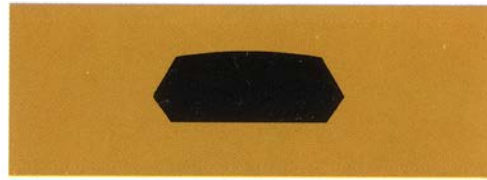
Jowitt Reference



Jowitt Reference



Ch6



H2-6



Ch8

H2-7

Ch9

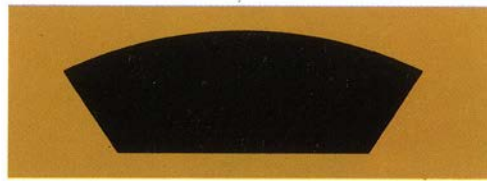
H2-8



L6

S20

L8



L9

No 4

L12



E1

CD18L

C1



C2

CDTL



H1

HM18-6



HM18-8



M50(76)



S32

Correct Mounting Procedure for Segments



Before mounting segments, check that the fixing wedges, nuts or screws are clean and free moving.

Tighten segments making sure they do not protrude from the chuck further than one and a half times their thickness.

Check for tightness of the wedges after the initial grinding period.

Our Technical Service

Our technical staff strive to:

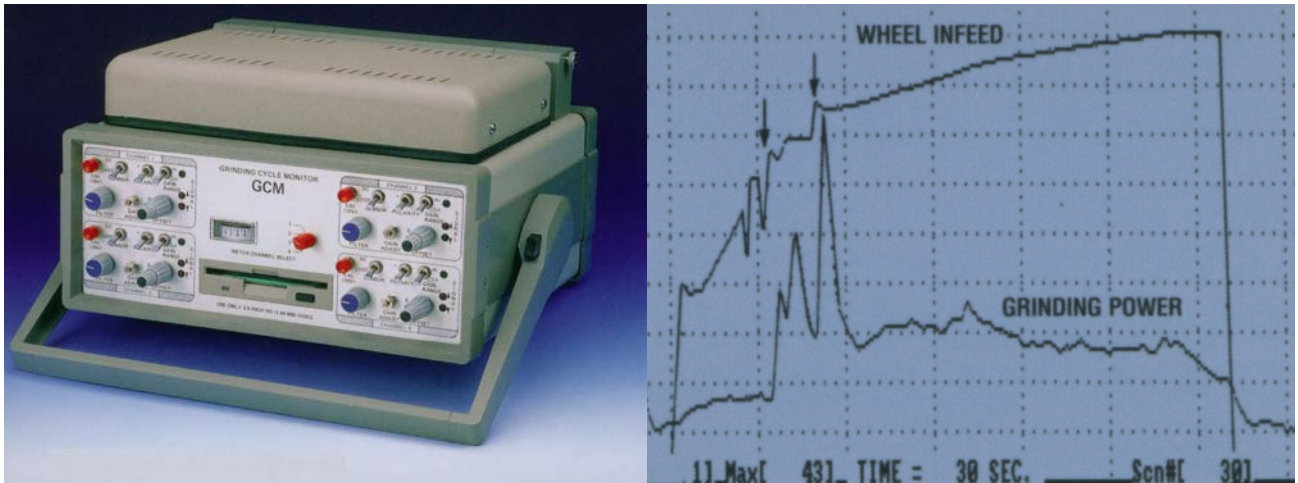
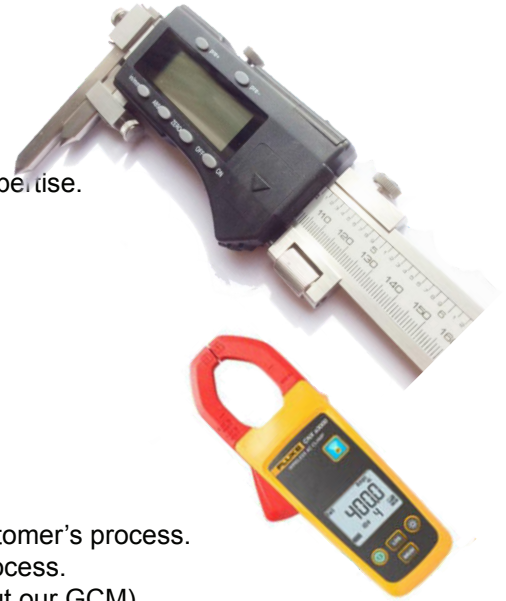
- Optimise the customer's grinding process.
- Provide not just a product, but process knowledge, understanding and expertise.
- Develop excellent relations with customers and suppliers.

Our aim:

- Offer cost reductions in all parts of the process.
- Offer value for money and reduced cost-per-piece.
- To be a pleasure to work with.

Our goal is to work with the customer:

- To continually improve every process.
- To reduce waste at every stage as an ongoing programme.
- To afford as many improvements as we are able to provide within the customer's process.
- To provide considerable experience and understanding of the grinding process.
- To continually learn from data provided by the latest technology (ask about our GCM).
- Ultimately, our product becomes a key component in your process.



Real-time grinding cycle monitoring - GCM

Quality Manufacturing to International Standards:

Jowitt are a world-class manufacturing organisation, and its personnel are actively involved in the drafting and compiling of EU and international ISO standards for the abrasives industry worldwide.



Q 05909

Jowitt manufacture to the highest standards:

ISO Certificate/Licence Number: Q 05909

Standard: EN ISO 9001:2008

Products manufactured to EN12413



Members of FEPA, BAF and IST.

Working with: UKTI, Cerame-Unie, MTA and SMMT.



The Manufacturing Technologies Association

INSTITUTE of SPRING TECHNOLOGY

Suitable Grade Selection

We offer you a choice of abrasive grits and a wide range of grades and grain sizes. The correct choice from these will ensure you optimum grinding efficiency. For a new application we strongly recommend that you consult one of our experienced Technical Abrasive Experts.

In order to make recommendations, we need the following information:

1. Machine type and whether new or old
2. Wheel-head power
3. Material and hardness
4. Component size
5. Stock removal required
6. Work loading
7. Feed orientation and speed
8. Surface finish required
9. Peripheral speed of the wheel
10. Type of coolant and flow rate



Choice of Abrasive Grain:

Aluminium Oxide is recommended for grinding ferrous materials, such as mild steel, most alloy steels and occasionally cast iron. We use many types of Aluminium Oxide including brown which is semi-friable and white which is friable.

Silicon Carbide is quite different, being harder, sharper and of a different crystalline structure. It is best used for grinding materials of low tensile strengths, such as non-ferrous metal alloys, ceramics & stainless steels.

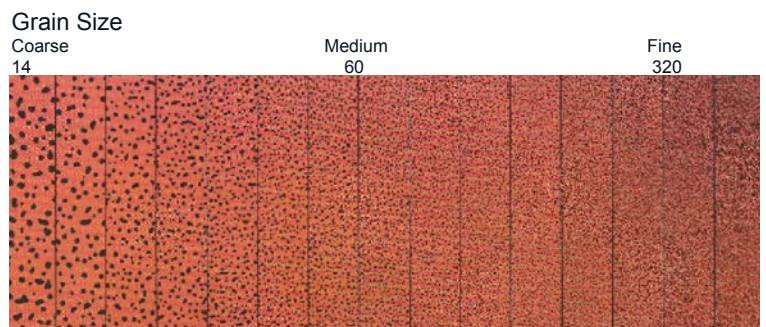
Sintered Ceramic Grit is a hybrid aluminium oxide which multi-fractures and produces astonishingly high grinding efficiencies. It is suitable for almost all materials but is frequently selected when grinding high hardness materials or “sticky” alloys.

Choice of Grain Size:

The size of the grain governs the cutting properties of the bonded abrasive.

The surface finish produced, rate of stock removal and grinding efficiency, are all affected by grain size.

Grain size is indicated by a number. In the specification the higher the number the finer the grain.

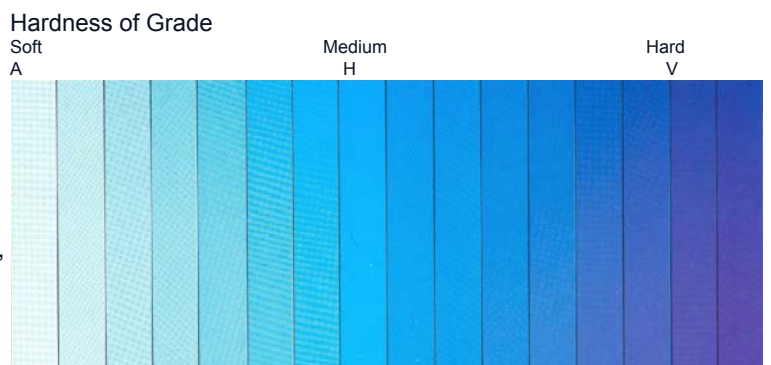


Choice of Grade:

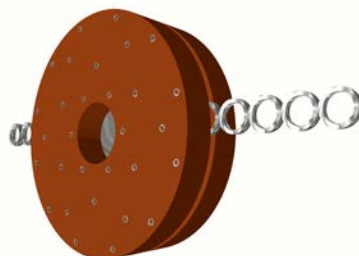
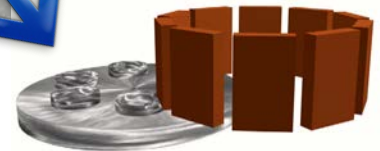
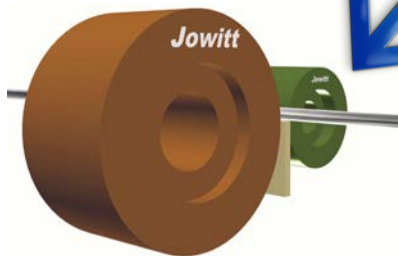
Grade or hardness, refers to the strength of the bond which binds the abrasive grains together.

- Too soft a grade - excessive abrasive wear.
- Too hard - glazes the abrasive and burns the workpiece.
- When choosing an abrasive for a new application, it is preferable to have too soft a grade, rather than one which is too hard.

The hardness is classified in alphabetical order from soft to hard, as shown in the diagram above.



Manufacturing



Safety Awareness Training

Don't leave yourself exposed. Failure to train staff who use or buy abrasives could result in accidents, injury and legal action. We are here to help. Sign up for the Jowitt "Safety Awareness Course" today and don't be left out in the cold.

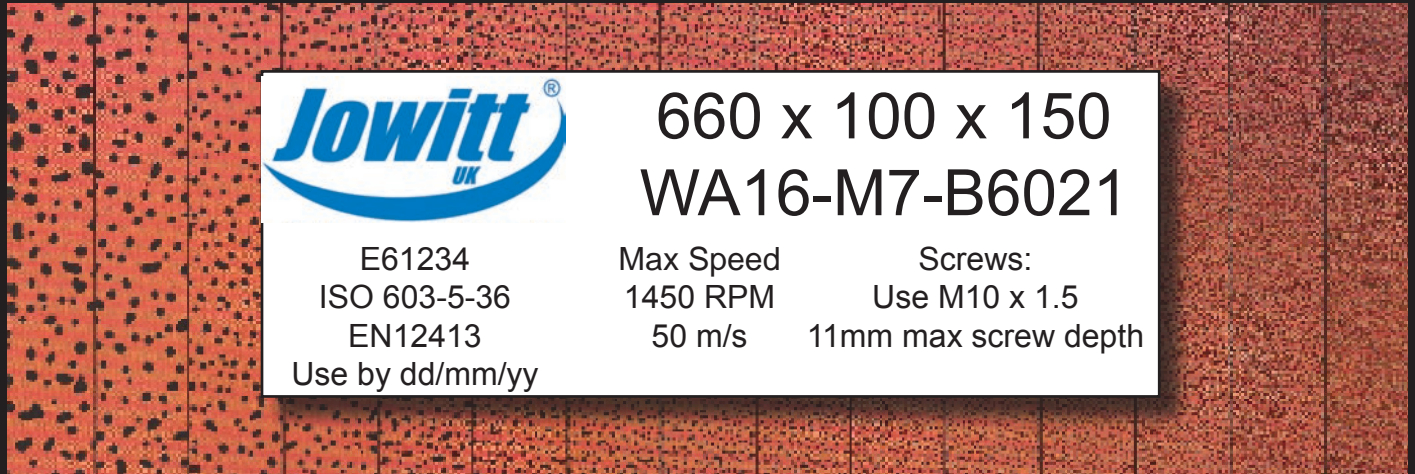
Training with safety in mind and accredited by the BAF (British Abrasives Federation)



Our Marking System

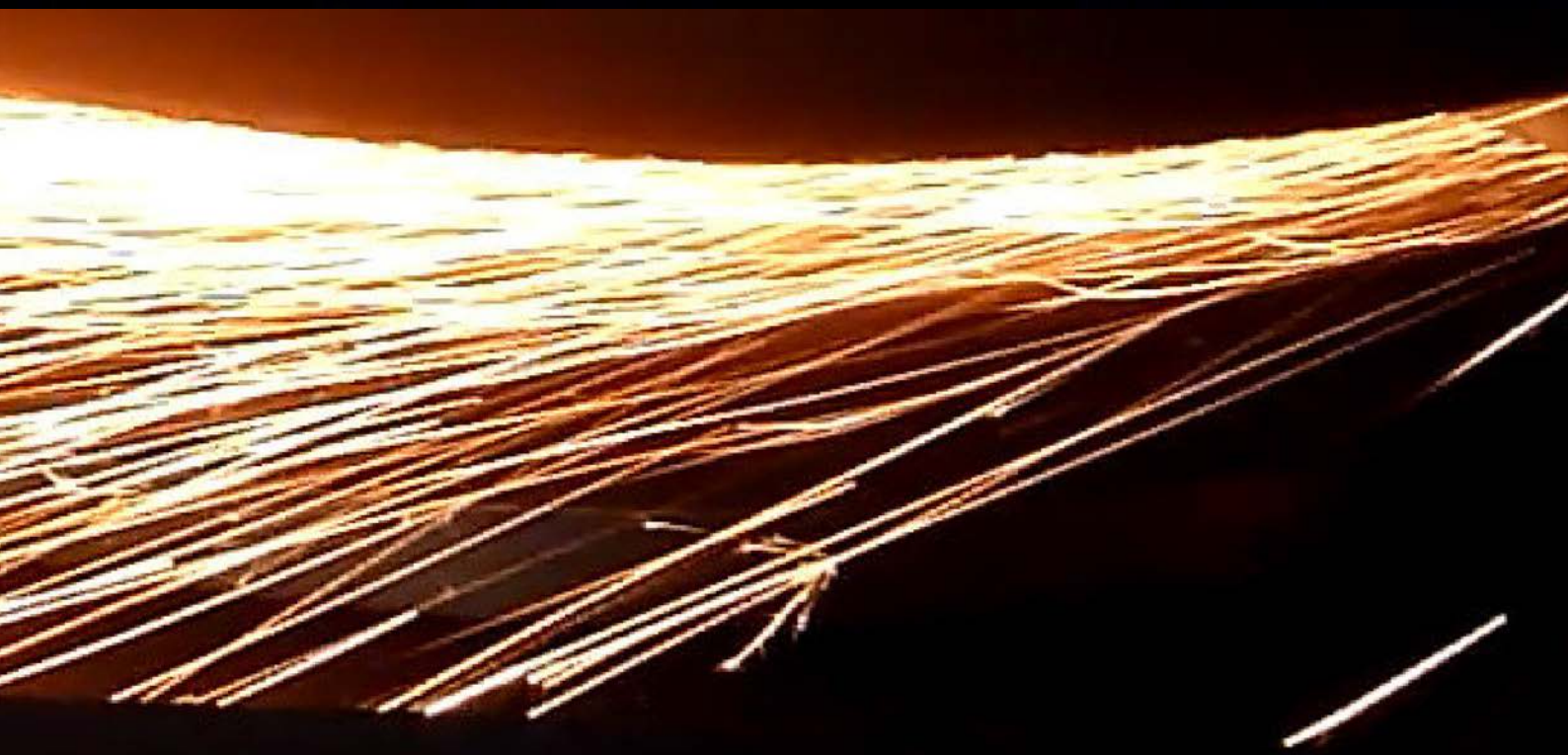
Durable labels are applied to the surface of each Jowitt product to ensure easy identification. Each label contains information you need to know about the abrasive product: **size, grade, unique product ID**, and important safety information such as **maximum speed** and **use by date**.

Each grade is a combination of letters and figures showing the type of abrasive, the grain size, the hardness and the type of bond.



WA16-M 7-B6021

Type of Abrasive	Grain Size	Hardness	Structure	Bond-Type	Special Coding
Aluminium Oxide	Coarse 16	Soft A	Closed 3	B	6000
WA	20	B	4	P	4000
SA	24	C	5	R	61
WSA	30	D	6	V	42
MA	36	E	7	E	21
A	46	F	8		14
Silicon Carbide	60	G	9		Z
XC	Medium 80	Medium H	10		
XGC	100	I	11		
Ceramic Sol-Gel	150	J	Open 12		
SW	180	K			
CU	200	L			
CE	Fine 320	to			
		Hard X			



Manufacturers of abrasive grinding wheels and segments

Jowitt

Bridge Way, Broombank Road, Chesterfield Trading Estate
Chesterfield, S41 9QJ, United Kingdom

Tel: +44 (0)1246 572230 Fax: +44 (0)1246 572249 Email: sales@jowitt.com Web: www.jowitt.com