PRECISION GRINDING

PRODUCT CATALOGUE

CGW CAMEL GRINDING WHEELS

Our Values

Professional excellence

We strive for the highest quality in our products and our service.

Integrity and fairness

We are transparent and reliable in our interactions with all our business partners.

Always • Consistent

Strategic partnerships

We work diligently to make our customers, our suppliers, and our employees our "strategic partners".

Creative innovation

We harness technological leadership, individual and company initiatives, and the will to change, to keep the organization moving forward.

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CGW Company Profile

For more than 50 years, CGW - Camel Grinding Wheels - Israel's only abrasives manufacturer, has been the first choice in grinding and cutting products for both local and international markets.
CGW's ceramic (vitrified) bond and organic (resinoid) bond products are available in more than 40 countries throughout North and South America, Europe, Africa, Asia and Australia, in locations from small machine shops to advanced manufacturing centers. In North America, our subsidiary in Chicago, CGW-USA, maintains a large warehouse and manufacturing facility, and our converter of coated abrasives is located in Los Angeles.
We take pride in developing and producing high-quality, high-performance products to meet the technological challenges of grinding conventional metals and today's sophisticated alloys.

CGW's 5-Point Manufacturing & Operating Philosophy

1 Advanced in-house development and production

Our in-house R&D and engineering teams, supported by our laboratories and testing facilities, allow us to continually improve existing products and to develop high-precision solutions to meet exact customer specifications.

2 Efficient planning and scheduling

Our streamlined system for coordinating between the sales and production departments allows a quick turnaround - even for small or rush orders - and a fast response to unexpected schedule changes.

3 Ongoing, stringent quality control

Our manufacturing processes and maintenance of our production facilities comply with strict international quality, safety, and environmental standards.

4 On-time, error-free shipments

We work diligently to prevent delays and mistakes from the moment an order is placed until the day it is shipped.

5 "The best service in the world"

Our decades of industry leadership are based on a company-wide commitment to exceptional customer service. Through this unconditional dedication, we have forged long-standing partnerships with customers throughout the world.

Our attention to detail and commitment to excellence is reflected in our products:
They have earned a worldwide reputation for high quality, consistency, and cost-effectiveness.

An Industry Leader in Abrasive Products

CGW manufactures thousands of products for use in the aerospace, automotive, gas turbine, oil rig, construction, and other industries.

Our broad product range includes wheels for -
surface grinding | centerless grinding | cylindrical grinding | off-hand grinding | creep-feed grinding | cutting off (reinforced and non-reinforced)

We don't say we invented the wheel, we just know how to make it better!

About the Catalogue

CGW is happy to present the complete catalogue of our standard vitrified bonded abrasive products.
The technical guide at the beginning of the catalogue contains detailed explanations on a number of subjects, including types of abrasive grains, bonds, and structures. Each section shows initial recommendations for choosing the most suitable specifications for various applications.
Custom production requires purchase of a minimum quantity (see page 48).
Lead time is six weeks from receipt of order.

The CGW Advantage

Quality and cost-effectiveness have made CGW products the choice of leading corporations in 40 countries the world over.
Our R&D engineers utilizing our laboratories and testing facilities enable CGW product development for special applications, to meet customer requirements.
CGW's application engineers provide fast, effective technical support.
Unique eco-friendly technology sets CGW apart from other abrasives manufacturers.

Specialising in abrasives for the:

- Aerospace industry
- Land-based turbine industry
- Gear industry

and supplying a vast range of other abrasives applications, CGW's main markets are Europe and North America, where it maintains a production and marketing subsidiary.

CGW products are manufactured under strict quality control. CGW is certified to the highest industrial standards: EN 12413, EN 13743, ANSI B7.1, OSA and ISO 9001:2000.

Wheel Specifications

Abrasive

A	Brown Aluminium Oxide
BAS	High performance Aluminium Oxide
WA	White Aluminium Oxide
WAB	White Aluminium Oxide+Blue Bond
WAR	White Aluminium Oxide+Red Bond
WAY	White Aluminium Oxide+Yellow Bond
WAG	White Aluminium Oxide+Special Bond I
WAP	White Aluminium Oxide+Special Bond II
WAL	Special grain and bond for improved surface integrity
PA	Pink Aluminium Oxide
RA	Ruby Aluminium Oxide
AS1	10% Ceramic Aluminium Oxide
AS3	30% Ceramic Aluminium Oxide
AS5	50% Ceramic Aluminium Oxide
DA	White and Brown Aluminium Oxide
SA	Semi-friable Aluminium Oxide
HA	Monocrystal Aluminium Oxide
KA	Bubble alumina
GC	Green Silicon Carbide
C	Black Silicon Carbide

Grain Size

Coarse	24, 30, 36
Medium	46, 54, 60
Fine	80, 100, 120, 150
Very Fine	180, 220, 240

Grade

Soft	B, C, D, E, F, G, H
Medium	I, J, K, L
Hard	M, N, O, P, Q

Structure

Medium/Standard				**Open/Porous**					
6	7	8	9	10	11	12	13	14	15

Bond

V	Vitrified
B	Resinoid
BF	Reinforced Resinoid

Wheel Dimensions

External Diameter	up to 635mm / 25"
Width	up to 500mm / 20"
Internal diameter (bore)	up to 406mm / 16"

The CGW grinding wheel is made up of abrasive grains held together by a bond. By varying the type of bond, and the structure of the wheel, it is possible to produce innumerable grinding characteristics.

Abrasive Grain

There are two main categories of grain:

Aluminium Oxide, for grinding high-tensile steels, i.e. hardened or high-speed steels.

Silicon Carbide, for grinding low-tensile steels, cast iron, carbides, and non-ferrous metals.

CGW Grain Types

A - Brown Aluminium Oxide: the most common of all grains, this grain is used for heavy-duty general-purpose work.

BAS - Blue Fired Aluminium Oxide: improved, specially prepared grain for centerless grinding.

SA (94A) - Semi-friable Aluminium Oxide: its principal use is in cylindrical and centerless grinding wheels. It can be used to grind both soft and hard steels.

WA - White Aluminium Oxide: the high friability of this grain enables fast and cool cutting. Suitable for light grinding of steels of all kinds, particularly tool steel.

WAB (AZ) - White Aluminium Oxide + Blue Bond: particularly suited for grinding HSS over 55 RC. Provides exceptionally cool, fast cutting action. Requires minimum dressing. Also available as **WAR - White Aluminium Oxide + Red Bond**, when there is a need to differentiate from AS.

AS - Ceramic Aluminium Oxide: ceramic grain, blended with white aluminium oxide, creates a wheel with maximum grinding performance and long life. Excellent for form holding and cool cut. Available in AS1, AS3, AS5.

PA - Pink Aluminium Oxide: this tough but friable grain makes a good general-purpose wheel, excellent on large surface areas.

RA - Ruby (Red) Aluminium Oxide: harder than PA and WAB, this grain is good for use on high-chromium steel.

DA - The combination of A and WA is ideal for precision grinding operations such as large surface grinding.

WAY - White Aluminium Oxide + Yellow Bond: used primarily in wheels that require a very open structure. For creep-feed grinding with continuous dressing.

WAG - White Aluminium Oxide + New CGW-developed Bond: used primarily in wheels with a very open structure. Excellent for creep-feed grinding with non-continuous dressing.

WAP - White Aluminium Oxide + New CGW-developed Bond: special wheels for 80 M/S cutting speed. Designed to perform light, fast passes over the blade or other workpiece.

WAL - Special wheel designed for creep-feed grinding. Contains a unique combination of special grain and bond which enables improved form holding and longer life span. The wheel is characterized by interconnected pores, which enable maximum cooling action and stock removal.

HA (32A) - Monocrystalline Aluminium Oxide: a strong, sharp grain, suitable for a wide range of materials and applications. Especially suitable for use on high-alloy steels that are sensitive to heat.

C - Black Silicon Carbide: sharper than aluminium oxide and therefore more effective in grinding low-tensile materials and non-ferrous metals.

GC - Green Silcon Carbide: more friable than C, recommended for grinding cemented carbide cutting tools.

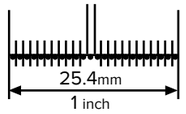
KA - Bubble Alumina: for grinding soft, malleable materials such as rubber and polyester.

Technical Information

Grain Size

Grain size ("MESH" size) is determined by the number of openings per linear inch in the smallest standard mesh through which the given grain will pass and larger grains will not. Thus a fine grain will be designated by a larger number than a coarse grain.

$$1_{mm} \backsimeq = \frac{25.4}{24} = \text{grit } 24$$
MESH



Grade (Hardness)

The grade of a wheel is designated by a letter of the alphabet from A (soft) to Z (hard) and indicates the ability of the bond to hold the abrasive grains together. The type and amount of bond used determine the hardness of the wheel. In a soft grade wheel, grains that have been worn down are released quickly in order to expose new, sharper grains. In a hard wheel, the eroded grains are retained and can only be released by dressing the wheel.

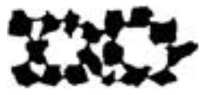
Hardness-Structure Diagram

Grade		Closed ← Structure → Open						
		5	6	7	8	9	10	11
Soft	H	H5	H6	H7	H8	H9	H10	H11
	I	I5	I6	I7	I8	I9	I10	I11
	J	J5	J6	J7	J8	J9	J10	J11
	K	K5	K6	K7	K8	K9	K10	K11
	L	L5	L6	L7	L8	L9	L10	L11
Hard	M	M5	M6	M7	M8	M9	M10	M11

Structure

"Structure" refers to the spacing of the abrasive grain within the bond, and is measured in terms of the volume content of the abrasive in the wheel. In a dense structure, the grains are close together and the pores small. In a more open structure, the grains are relatively far apart and the pores larger.

Structures 6-9:
medium/standard



Structures 10-15:
open/porous

Bond

The function of the bond is to hold the abrasive grains in a defined spacing to form a product of specified size and shape. Most commonly used are vitrified and resinoid bonds.

Vitrified Bond: various clays or ceramics are used to form bonds that allow for a wide range of structures, each with its special properties and grinding characteristics. Their strength is developed by firing in kilns to temperatures of up to 1,000°C. Vitrified-bonded wheels are excellent for precision grinding and fast stock removal because of their rigidity and friability.

Selecting Grinding Wheels

For maximum efficiency in any grinding operation, it is essential to have the right wheel for the job.

Factors to be considered when selecting a grinding wheel:

Workpiece

Type and hardness of the material: the harder the material, the softer the grade of wheel required.

Aluminium Oxide: most efficient for grinding high-tensile materials such as steel and ferrous castings. The more friable types of alumina are preferred for use on harder steels.

Silicon Carbide: for materials with low tensile strength, carbides, and non-ferrous metals.

Stock removal

The amount of stock to be removed affects the choice of grain size and bond type:

- A coarse grit (24-46 MESH) is suitable for high stock removal rates.
- Fine grits are best for fine finishes and tight tolerances.

Surface finish

High surface finish is achieved using a fine grit. The best quality surface finish also requires, in addition to a fine grit, a dense or close structure.

Grinding machine

- The power available defines the rate of stock removal. The greater the power available, the harder the grade of wheel required for efficient operation.
- Deterioration in machine condition leads to vibration and early breakdown of the wheel.

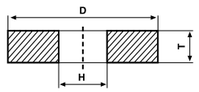
Grinding fluids

- Grinding fluids are used to provide cooling and/or lubrication. Correct use is an important factor in achieving satisfactory results.
- Coolants and lubricants are capable of reducing heat formation. The relative importance of cooling vs. lubrication determines whether a water-based coolant or an oil-based lubricant is used. Coolants are usually able to transfer the heat away from the workpiece, but are unable to prevent heat from developing.
- In dry grinding, the temperature at the grinding point is not much higher than in wet grinding, but the rate of heat formation is much higher.

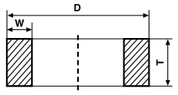
Standard Types and Shapes of Abrasive Wheels

Types and profiles of CGW abrasives are marked in accordance with international standards.

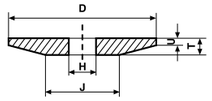
D	Outer diameter
E	Thickness around bore
F	Depth of recess
G	Depth of second recess
H	Diameter of bore
J	Diameter of flat outer surface
K	Diameter of flat inner surface
L	Length of segment or abrasive wheel
N	Depth of release on one side
O	Depth of release on other side
P	Diameter of recess
R	Radius
T	Thickness (general)
U	Thickness of edge
V	Angle of profiles
V1	Second angle of (profiles)
W	Width of wall



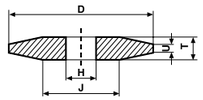
1 DxTxH



2 DxTxW



3 D/JxT/UxH



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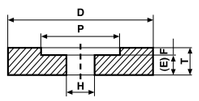
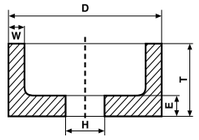
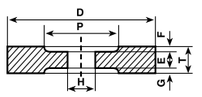


5 DxTxH-PxF



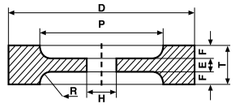
6 DxTxH-W..E..



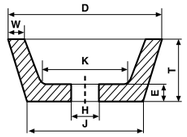
7 DxTxH-PxF

or if recesses are not the same size:

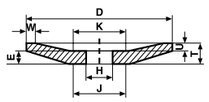
DxTxH-PxF/G



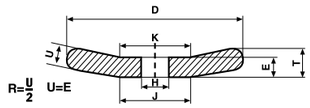
9 DxTxH-PxF R..



11 D/JxTxH-W..E..



12 D/JxT/UxH



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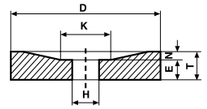
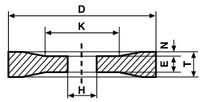


20 D/KxT/NxH



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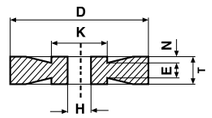
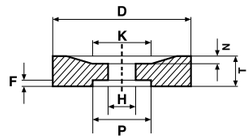
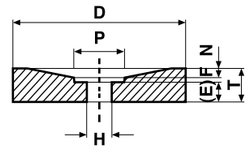


21A D/KxT/NxH

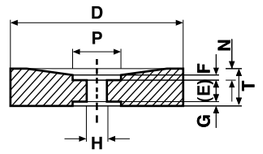


22 D/KxT/NxH-PxF

Standard Types and Shapes of Abrasive Wheels (cont.)



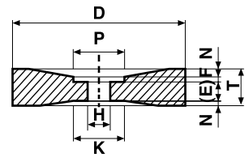
23 DxT/NxH-PxF



24 DxT/NxH-PxF

or if recesses are not the same size:

DxT/NxH-PxF/G



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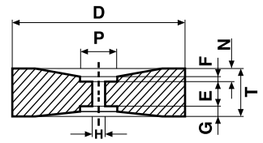
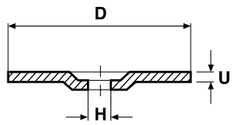


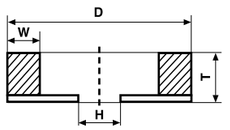
26 DxT/NxH-PxF

or if recesses are not the same size:

DxT/NxH-PxF/G

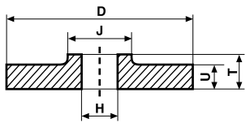


27 DxUxH

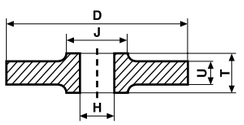


35 DxTxH-W

attached to plate



38 D/JxT/UxH



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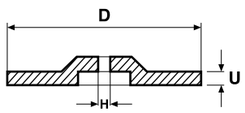
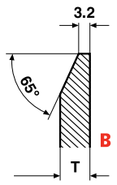


43 DxUxH

Standard Profiles



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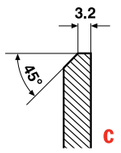

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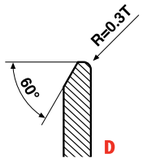

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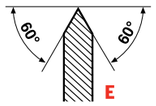

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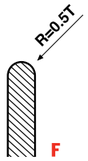

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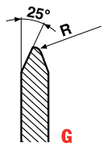
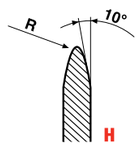
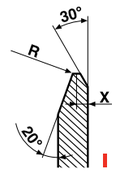


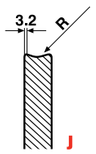
G R=T/8



H R=T/8



I R=T/8 X=T/3



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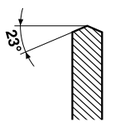

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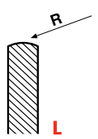
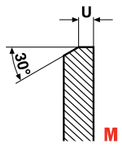
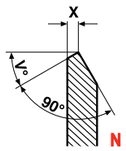


L R=T



M U=T/3



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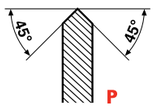


P

Aerospace & Gas Turbine

Wheels for the Aerospace & Gas Turbine Industries

Wheels for grinding blades & vanes for the aerospace industry

Wheels for grinding blades and vanes for the aerospace industry - open structure, cool grind, creep feed grinding wheels. These CGW wheels can be found in use at the world's leading aircraft manufacturers. The wheels are designed with our special new bond for creep feed grinding applications, developed in house, and are able to achieve the delicate balance between self-sharpening and form holding.

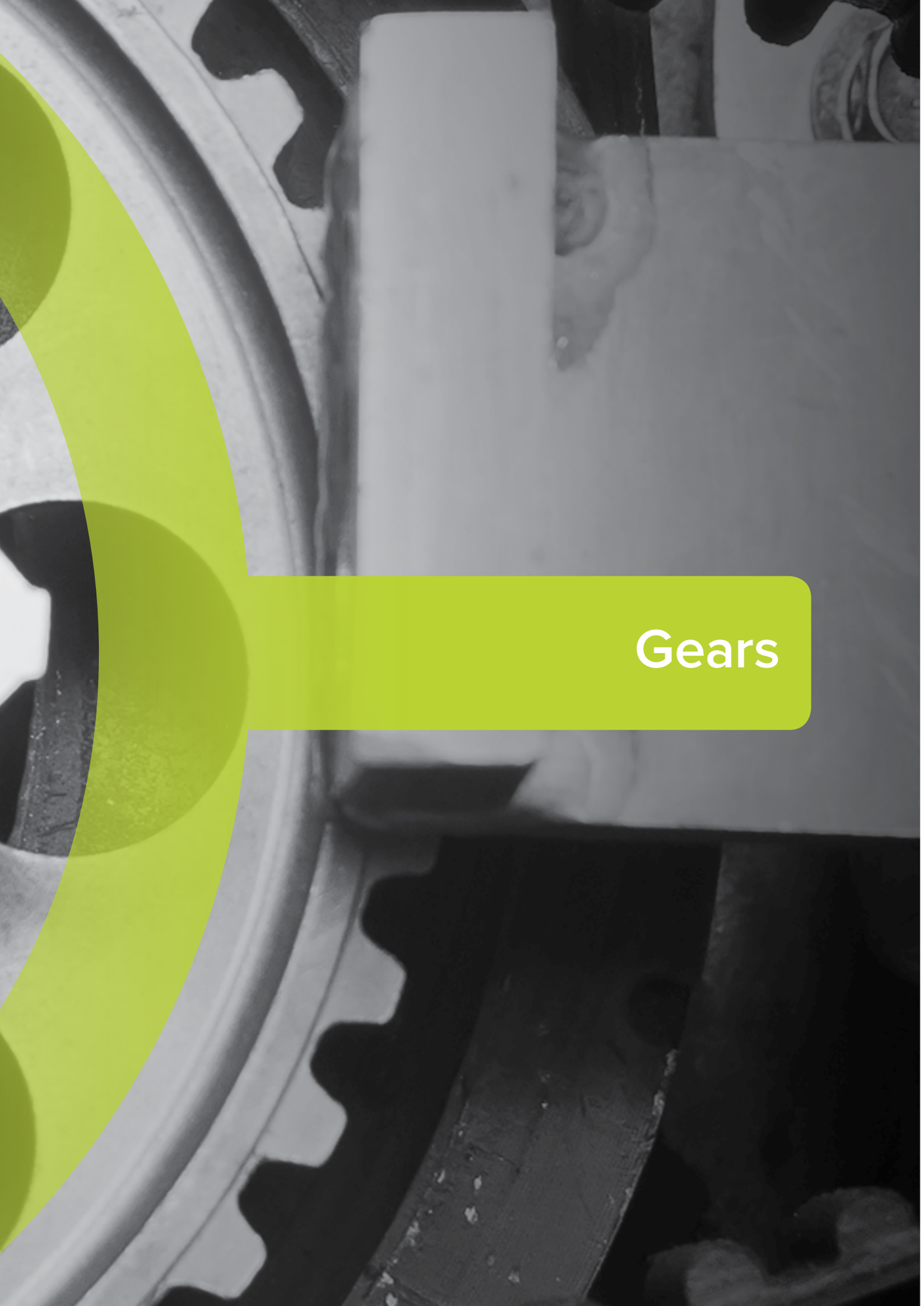
- Excellent form holding
- Cool grinding, avoiding thermal damage
- Innovative vitrified technology

Wheels for grinding gas turbine blades

Wheels for grinding gas turbine blades - open structure creep feed grinding wheels. Ideally suited for high efficiency production of gas turbine blades.

Blades and vanes can be found in their hundreds in just one turbine - in the compressor stage, the combustion stage, and the turbine stage. The blades are long and require special profiles which CGW's advanced technology grinding wheels are suited for. CGW's high efficiency grinding of the blade of the "fir tree" root form on nickel alloy turbine blades maintains:

- Cool grinding
- Excellent form holding
- High output of blades per wheel



Gears

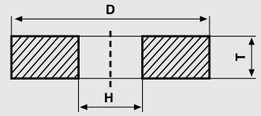
Wheels for Gear Grinding

CGW specializes in customized solutions for the gear-grinding industry. With a broad perspective on the constant technical progress in the gear-grinding industry, CGW has developed a wide range of grinding wheels to cope with complex demands in this field:

- In standard or ceramic grain
- In open or closed structure
- Straight or pre-profiled

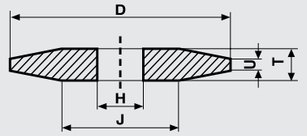
Standard Wheel Types:

Type 1



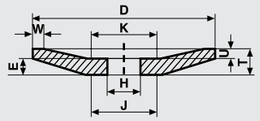
D-Diameter | T-Thickness | H-Bore

Type 4

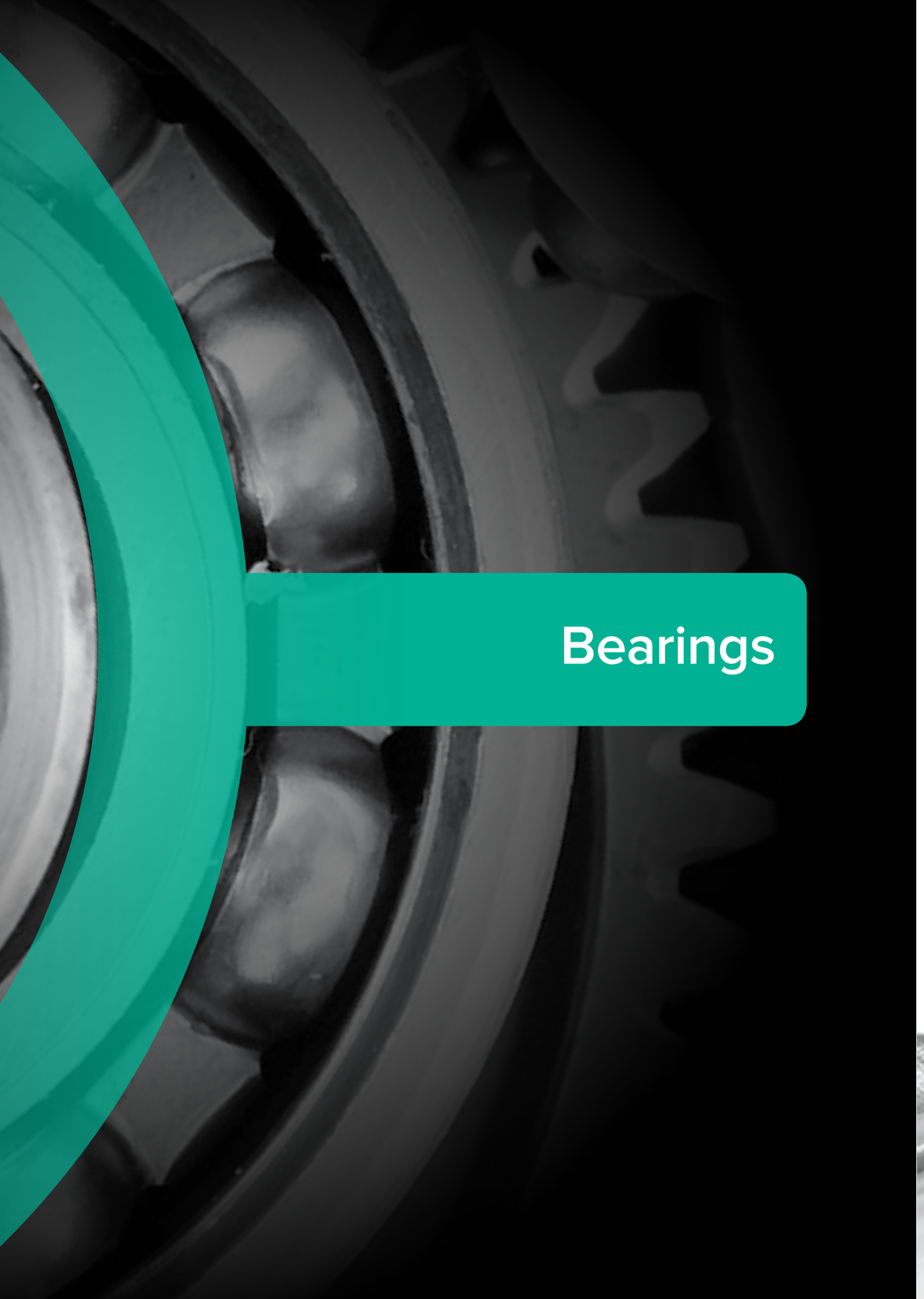


D-Diameter | T-Thickness | H-Bore
U-Rim thickness | J-Flat surface diameter

Type 12



D-Diameter | T-Thickness | H-Bore
U-Rim thickness | J-K-Flat surface diameter
W-Wall thickness | E- Base thickness



Bearings

Wheels for the Bearings Industry

Wheels for the bearings industry - centerless grinding of outer ring housings.
Internal grinding of inner ring housings. The housings may comprise various metals, but mostly high chromium steel. Grinding of the bearing housings requires very fine surface finishes for which CGW wheels have proved their success.

Outside Diameter grinding of steel bearings - starting wheel specifications:
General purpose applications: DA60K7V
Premium production applications: PA60-120K-M7VN

Outside Diameter Inner race grinding - starting wheel specifications:
PA100K7VN

Bearing rib grinding - starting wheel specifications:
PA80-120K9VN

Centerless grinding - starting wheel specifications:
General purpose applications: DA46-DA150L7V
Premium production applications:
Special heat treated wheel technology

Internal Diameter grinding applications - starting wheel specifications:
General purpose applications: DA80K7V
Premium production applications: PA80K7V

Linear Guide Rails

Wheels for Linear Motion Guide Rails

These types of guide rails are to be found in many machine automation applications where smooth, accurate linear motion is essential.

To achieve this accuracy, the rails are ground in the final stage of manufacturing after heat treatment.

CGW's newly developed grinding wheel, WARS 80A 113V, enables manufacturers of linear motion guide rails to achieve the required accuracy and precision, while at the same time reducing grinding time by 30%-50% as compared to the current process.

Tests have shown that the combination of WARS 80A 113V with certain application changes to double-headed grinding machines, results in substantial cost reduction.

Automotive

Wheels for the Automotive Industry

The automotive industry and its derivatives are characterized by a large assembly of parts that require grinding and finishing, from the body of the engine to engine valves, pistons, cylinders, fuel injection units and transmissions.

CGW's proposed solutions for the automotive industry consist of vitrified bonded grinding wheels in a variety of compositions and diameters. These include products for polishing and grinding, composed of fine grains for good finishes and clean and smooth surfaces.

CGW's wide range of solutions for all aspects of the automotive industry is based on the need for precision and consistency.

CGW's flexibility enables us to offer a comprehensive product range to suit the individual needs of each customer. Our application engineers will find the best solution to match each specific application.

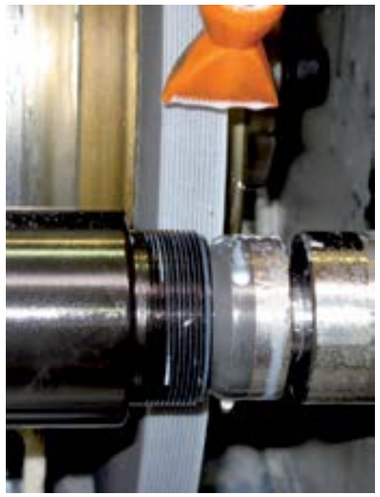
CGW products that have proven most successful:

- Wheels for centerless grinding
- Wheels for cylindrical grinding (external & internal)
- Wheels for camshaft & crankshaft applications. Our newly developed PASP 60 K8-VD is formulated for these types of precision grinding applications

Wheels for Thread Grinding

Mostly done by cylindrical grinding. CGW thread-grinding wheels offer cool cutting with excellent form holding to meet strict tolerance requirements.

These wheels are manufactured with very high performance grains, using our special WAB bond. The accuracy of the thread will depend on the profile of the wheel, which is dressed to the correct form by a diamond roll dresser.



General Applications

General Applications

The following pages present CGW abrasive products "by application," with reference to various types of conventional grinding:

1. Wheels for Bench & Pedestal Grinding: used for hand grinding of cutting tools and other rough manual grinding applications.

2. Wheels for Surface Grinding: with straight, recessed or profiled wheels, as well as segments, cups and cylindrical wheels. Because of the typically large contact areas in this type of grinding, it is usually necessary to use soft grade wheels.

3. Wheels for Cylindrical Grinding: mostly associated with outside diameter grinding where the part being ground is held and turns between centers, while the grinding wheel turns and moves across the part.

4. Wheels for Centerless Grinding: the workpiece is not held between centres as in cylindrical grinding, but between two wheels - the grinding wheel and the feed regulating wheel. There are three types of centerless grinding: a) through feed; b) end feed; c) in feed.
(see page 36 for more detail of these 3 types).

5. Wheels for Tool Room Grinding: the production, maintenance, sharpening, and repair of cutting tools. Tool room grinding includes:
   - Grinding of end mills, reamers, and cutters, mostly with cup wheels or Type 12 wheels.
   - Surface grinding
   - Cylindrical grinding
   - Internal grinding
   - Cutting off of drills and various cutting and boring tools.

6. Wheels and Mounted Points for Internal grinding: for grinding the internal diameter of a workpiece.

7. Sharpening Sticks & Stones: Dressing Stones for dressing and cleaning vitrified bonded wheels, CBN wheels, or diamond wheels, to keep them sharp and true.
Combination Stones: for sharpening knives.

Bench & Pedestal Wheels

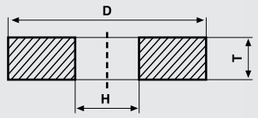
General purpose wheels 5” (127mm) – 18” (455mm)

35 M/S

Pedestal Grinder

Bench Grinder

Type 1



D·Diameter | T·Thickness | H·Bore

Recommended Specifications:

	Coarse	Medium	Fine	Very Fine
Metal / Steel	A24Q5V	A36P5V / A46N6V	A60M6V / A80M6V	A100M6V
Tungsten Carbide		GC60J7V	GC80J7V	GC100J7V
HSS & Tool Steel	WA46K	WA60K	WA80K	WA100K

A	Aluminium Oxide for general purpose off-hand sharpening
GC	Silicon Carbide for non-ferrous metals, carbide tools
WA	White Aluminium Oxide for HSS & Tool Steel

Standard Dimensions:

Diameter		Thickness		Bore	
Inches	mm	Inches	mm	Inches	mm
5	127	½ | ¾ | 1	12.7 | 19 | 25.4	½ | ⅝ | ¾ | 1 | 1¼	12.7 | 15.88 | 19 | 25.4 | 31.75
6	150	½ | ¾ | 1	12.7 | 19 | 25.4	½ | ⅝ | ¾ | 1 | 1¼	12.7 | 15.88 | 19 | 25.4 | 31.75
7	177	½ | ¾ | 1	12.7 | 19 | 25.4	½ | ⅝ | ¾ | 1 | 1¼	12.7 | 15.88 | 19 | 25.4 | 31.75
8	200	¾ | 1 | 1¼	19 | 25.4 | 31.75	½ | ⅝ | ¾ | 1 | 1¼	12.7 | 15.88 | 19 | 25.4 | 31.75
10	254	1 | 1¼ | 1½	25.4 | 31.75 | 38	¾ | 1 | 1¼	19 | 25.4 | 31.75
12	305	1 | 1¼ | 1½ | 2	25.4 | 31.75 | 38 | 51	¾ | 1 | 1¼	19 | 25.4 | 31.75
14	356	1 | 1½ | 2 | 3	25.4 | 38 | 51 | 76	1 | 1¼ | 1½	25.4 | 31.75 | 38.1
16	406	1 | 1½ | 2	25.4 | 38 | 51	1½	38.1
18	455	3	76	1½	38.1

Standard Aluminium Oxide Bench Wheels:

Wheel Size		Wheel Specification & EAN Code						
Inches	mm	A24Q5V	A36P5V	A46N6V	A60M6V	A80M6V	A100M6V	R.P.M.
6x¾x1¼	150x19x31.75	053544	053575	053599	053605	053636	053643	4,500
6x1x1¼	150x25.4x31.75	053803	053834	053841	053858	053872	053889	4,500
7x¾x1¼	177x19x31.75	054077	054107	054114	054121	054145	054152	3,750
7x1x1¼	177x25.4x31.75	054282	054312	054329	054336	054343	054350	3,750
8x¾x1¼	200x19x31.75	054718	054756	054794	054817	054831	054848	3,350
8x1x1¼	200x25.4x31.75	055050	055074	055081	055104	055128	-	3,350
10x1x1¼	254x25.4x31.75	-	055579	055593	055609	055623	-	2,700
10x1½x1¼	254x38.1x31.75	-	055920	055944	055951	055975	-	2,700
12x1¼x1¼	305x31.75x31.75	-	351152	056453	056460	056477	-	2,250
12x1½x1¼	305x38.1x31.75	-	056576	380435	380442	056620	-	2,250
12x2x1¼	305x50.8x31.75	-	056811	056835	056859	-	-	2,250
14x2x1¼	356x50.8x31.75	-	057375	380534	057312	057436	-	1,950

Bench & Pedestal Wheels

Standard Silicon Carbide Bench Wheels:

Wheel Size		Wheel Specification & EAN Code			
Inches	mm	GC60J7V	GC80J7V	GC100J7V	R.P.M.
6x3/4x1 1/4	150x19x31.75	075041	075072	075096	4,500
6x1x1 1/4	150x25.4x31.75	075331	075379	075393	4,500
7x3/4x1 1/4	177x19x31.75	075829	075843	075850	3,750
7x1x1 1/4	177x25.4x31.75	075959	075973	075997	3,750
8x3/4x1 1/4	200x19x31.75	076475	076499	076529	3,350
8x1x1 1/4	200x25.4x31.75	076680	076727	076765	3,350
10x1x1 1/4	254x25.4x31.75	077199	077199	077212	2,700

Standard White Aluminium Oxide Bench Wheels:

Wheel Size		Wheel Specification & EAN Code				
Inches	mm	WA46K7V	WA60K7V	WA80K7V	WA100K7V	R.P.M.
6x3/4x1 1/4	150x19x31.75	062928	062942	062966	062997	4,500
6x1x1 1/4	150x25.4x31.75	063062	063086	063109	-	4,500
7x3/4x1 1/4	177x19x31.75	064168	064205	064243	064250	3,750
7x1x1 1/4	177x25.4x31.75	598076	631353	064359	064366	3,750
8x3/4x1 1/4	200x19x31.75	065202	065257	065288	065295	3,350
8x1x1 1/4	200x25.4x31.75	065448	065486	065516	065523	3,350
10x1x1 1/4	254x25.4x31.75	066223	066230	066254	066261	2,700

Telescopic Plastic Adaptors:

To fit wheel bore to machine arbor.

Bag Qty. 10

EAN No.	Bore Dimensions		Height	
	Inches	mm	Inches	mm
000746	1 ↔ 3/4 ↔ 5/8 ↔ 1/2	25.4 ↔ 19.05 ↔ 15.88 ↔ 12.7	1/2	12.7
000777			3/4	19
000852			1	25.4
	1 1/4 ↔ 1 ↔ 3/4	31.75 ↔ 25.4 ↔ 19.05	1/2	12.7
000814			3/4	19
000890			1	25.4
	1 1/4 ↔ 1 ↔ 3/4 ↔ 5/8 ↔ 1/2	31.75 ↔ 25.4 ↔ 19.05 ↔ 15.88 ↔ 12.7	1/2	12.7
551828			3/4	19
551811			1	25.4
	1 1/2 ↔ 1 1/4 ↔ 1	38 ↔ 31.75 ↔ 25.4	1/2	12.7
			3/4	19
000913			1	25.4

Surface Grinding Wheels

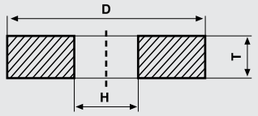
Horizontal Surface Grinding

The edge of the wheel is in contact with the workpiece.

35 M/S

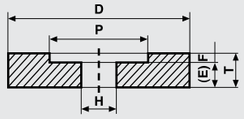
Horizontal
Surface
Grinder

Type 1 (straight wheel)



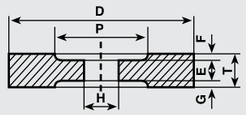
D-Diameter | T-Thickness | H-Bore

Type 5 (recess one side)



D-Diameter | T-Thickness | H-Bore
P-Diameter of recess | F-Depth of recess
E-Thickness around bore

Type 7 (recess two sides)



D-Diameter | T-Thickness | H-Bore
P-Diameter of recess | F-Depth of recess
E-Thickness around bore

Recommended Specifications:

General Purpose	WA46H8V
Steel < 55Hrc	WA46K7V
Steel > 55Hrc	AS46H8V
Stainless Steel (soft) 300 series	PA46J8V
Stainless Steel (hard) 400 series	AZ46H8V
Nickel Alloys	WAG60F15V
HSS & Tool Steel	AS360I13V
Carbides / Tungsten	GC60J7V
Non-ferrous Metals	GC60J7V

WA	The most friable grain - easy cutting action
WAB (AZ)	Fast and cool cutting
PA	Tough but friable
RA	Tougher than PA - good for chromium steel
WAG	Excellent form holding - cool grinding
GC	For carbide and non-ferrous applications
AS	Submicron crystal structure gives long life with maximum performance

Standard Dimensions:

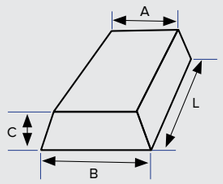
	Diameter (D)		Recess Dimensions (P)		Thickness (T)		Bore (H)	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm
Type 1	6	150	-	-	1/4 | 1/2	6.3 | 12.7	1 1/4	31.75
	7	177	-	-	1/4 | 3/8 | 1/2	6.3 | 10 | 12.7	1 1/4	31.75
	8	203.2	-	-	1/4 | 1/2	6.3 | 12.7	1 1/4	31.75
	10	250	-	-	3/4 | 1	19 | 25.4	2 | 3 | 5	50.8 | 76.2 | 127
	12	305	-	-	1	25.4	3 | 5	76.2 | 127
	14	356	-	-	1 | 1 1/2	25.4 | 38	3 | 5	76.2 | 127
	16	406	-	-	1 1/2 | 2 | 2 1/2	38 | 51 | 63	5	127
	20	508	-	-	1 | 1 1/2 | 2 4 | 6 | 8	25.4 | 38 | 51 102 | 150 | 203	5 | 8 | 10	127 | 203.2 254
Type 5	7	177	3x1/4	78x6.3	3/4	19	1 1/4	31.75
	7	177	3x1/2	78x12.7	1	25.4	1 1/4	31.75
	8	203.2	3x1/2	78x12.7	3/4	19	1 1/4	31.75
	8	203.2	3x1/2	78x12.7	1	25.4	1 1/4	31.75
	12	305	7 1/2x1/2	190x12.7	1 1/2 | 2	38 | 51	3, 5	76.2 | 127
	14	356	8x1/2	200x12.7	1 1/2	38	5	127
	14	356	8x1	200x25.4	2	51	5	127
	20	508	by request	by request	1 | 1 1/2 | 2 4 | 6 | 8	25.4 | 38 | 51 102 | 150 | 203	5 | 8 | 10	127 | 203.2 254
Type 7	12	305	7 1/2x1/2	190x12.7	2	51	3 | 5	76.2 | 127
	14	356	8x3/8	200x10	2	51	5	127
	18	455	11 1/2x1/2	290x12.7	2	51	8	203.2
	20	508	by request	by request	1 | 1 1/2 | 2 4 | 6 | 8	25.4 | 38 | 51 102 | 150 | 203	5 | 8 | 10 | 12	127 | 203.2 254 | 304.8

Surface Grinding Wheels

Vertical Surface Grinding

Segments used on rotary table grinding machines.
The face of the wheel (segment, cylinder, cup) does the grinding. The workpiece is on a reciprocating or rotary table

Vertical Surface Grinder



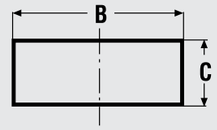
B-Large width | A-Small width | C-Height | L-Length

Recommended Specifications:

General Purpose	PA30D9V
Steel < 55Hrc	WA36G10V
Steel > 55Hrc	AZ36D12V
Stainless Steel (soft) 300 series	WA36I8V
Stainless Steel (hard) 400 series	AZ36D12V
Nickel Alloys	AZ46D12V
HSS & Tool Steel	AS336D13V
Carbides / Tungsten	GC36H8V
Non-ferrous Metals	GC60J7V

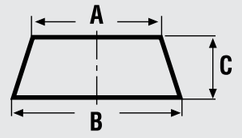
Standard Shapes & Dimensions:

Type ST



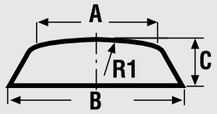
Type	Dimensions (mm) LxBxC
ST-1	210x120x30
ST-2	150x80x30
ST-30	150x90x35
ST-31	150x80x25
ST-32	150x60x25
ST-33	100x50x16
ST-34	100x50x12
ST-35	150x90x30
ST-92	90x70x21

Type TR



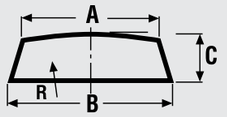
Type	Dimensions (mm) LxBxC
TR-36	100x43/38x20
TR-37	70x65/57x20
TR-38	125x64/45x20
TR-39	150x70/64x25
TR-85	150x60/55x22

Type OR/B



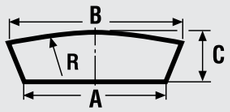
Type	Dimensions (mm) LxBxC
OR/B-12	203x118/78x45

Type OR/C



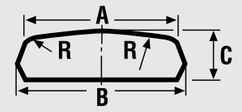
Type	Dimensions (mm) LxBxC
OR/C-14	203x103/83x38
OR/C-71	150x103/83x38
OR/C-72	150x60/50x22
OR/C-73	127x90/70x30
OR/C-74	100x66/57x25
OR/C-88	70x60/55x18

Type OR/E



Type	Dimensions (mm) LxBxC
OR/E-15	150x118/78x44
OR/E-89	150x56/9x28

Type OR/F



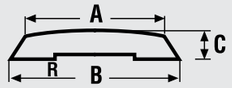
Type	Dimensions (mm) LxBxC
OR/F-16	150x118/94x44

Surface Grinding Wheels

Type OR/G

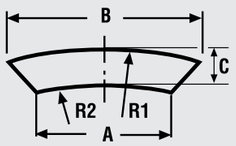
Type	Dimensions (mm) LxBxC
OR/G-11	203x150x48
OR/G-13	286x146x62
OR/G-13 (L)	286x203x62

Type IR/H



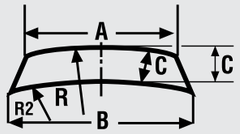
Type	Dimensions (mm) LxBxC
OR/H-86	100x65/61x18

Type IR/A



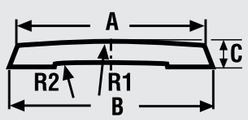
Type	Dimensions (mm) LxBxC
IR/A-22	150x76/61x18
IR/A-23	200x115/90x26
IR/A-46	150x73/38x27
IR/A-52	120x95/72x25
IR/A-54	150x97/72x25
IR/A-55	150x75/50x25
IR/A-82	80x60/45x21
IR/A-87	69/63x37/26x26

Type IR/C



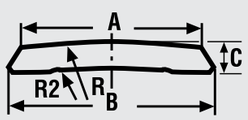
Type	Dimensions (mm) LxBxC
IR/C-24	150x112/90x36
IR/C-53	100x55/46x20
IR/C-80	80x51/45x15
IR/C-81	100x84/74x21
IR/C-82	100x50/45x20
IR/C-83	110x51/45x15
IR/C-84	55x51/45x15

Type IR/D



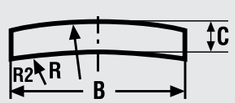
Type	Dimensions (mm) LxBxC
IR/D-51	80x80/70x20

Type IR/E



Type	Dimensions (mm) LxBxC
IR/E-20	155x127/105x37
IR/E-21	182x120/114x30

Type IR/G



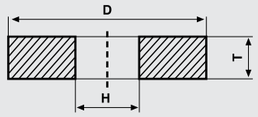
Type	Dimensions (mm) LxBxC
IR/G-25	50x50/50x15

Cylindrical Grinding

A cylindrical part rotates while a wheel grinds along its length.

Cylindrical Grinder

Type 1



D-Diameter | T-Thickness | H-Bore

Standard Dimensions:

Diameter		Thickness		Hole	
Inches	mm	Inches	mm	Inches	mm
12	305	1 | 1½ | 2	25.4 | 38 | 51	3 | 4 | 5	76 | 101.6 | 127
14	356	1 | 1½ | 2 | 3	25.4 | 38 | 51 | 76	3 | 4 | 5	76 | 101.6 | 127
16	406	1 | 1½ | 2 | 3	25.4 | 38 | 51 | 76	5 | 8	127 | 203.2
18	455	1 | 1½ | 2 | 3	25.4 | 38 | 51 | 76	5 | 8	127 | 203.2
20	508	1 | 1½ | 2 | 3 | 4	25.4 | 38 | 51 | 76 | 102	5 | 8 | 12	127 | 203.2 | 304.8
24	610	1 | 1½ | 2 | 3 | 4	25.4 | 38 | 51 | 76 | 102	8 | 12	203.2 | 304.8

Recommended Specifications:

General Purpose	SA60K7V
Steel < 55Hrc	PA60M7V
Steel > 55Hrc	SA60K7V
Stainless Steel (soft) 300 series	SA60M7V
Stainless Steel (hard) 400 series	SA60K7V
Nickel Alloys	WAG80H8V
HSS & tool steel	SA60K7V
Carbides / Tungsten	GC60J7V

SA	Semi-friable aluminium oxide
WAG	Highly friable grain
PA	Tough but friable aluminium oxide
GC	For non-ferrous metals

Centerless Grinding

The workpiece is held between 2 wheels - the grinding wheel and the feed-regulating wheel.

Achieving more precision is now easier when using CGW centerless grinding wheels. We offer a complete line of wheels that are designed to help maintain accuracy and control over the process.

Centerless Grinder

Types of centerless grinding:

Through feed
The workpiece enters one side and exits the other side.

End feed
The workpiece is fed in one side and comes to rest where the grinding takes place and then the piece is fed in the opposite direction to exit.

In feed
Used to grind pieces with complex shapes.
The workpiece is entered manually and does not enter / exit as in through feed and end feed.

Standard Dimensions:

Diameter		Thickness		Bore	
Inches	mm	Inches	mm	Inches	mm
12	305	4	102	5	127
14	356	3 | 4 | 5	76 | 102 | 127	5	127
16	406	3 | 4 | 8	76 | 102 | 203	5 | 8 | 10	127 | 203.2 | 254
20	508	3 | 4 | 6 | 8 | 10	76 | 102 | 150 | 203 | 250	12	304.8
24	610	3 | 4 | 6 | 8 | 10	76 | 102 | 150 | 203 | 250	12	304.8

Recommended Specifications:

General Purpose	BAS60K7V
Steel < 55Hrc	BAS60M7V
Steel > 55Hrc	BAS60L7V
Stainless Steel (soft) 300 series	BAS60M7V
Stainless Steel (hard) 400 series	BAS60K7V
Nickel Alloys	BAS60K7V
HSS & Tool Steel	BAS60K7V
Carbides / Tungsten	GC60J7V

BAS	Improved aluminium oxide grain, specially prepared for centerless grinding

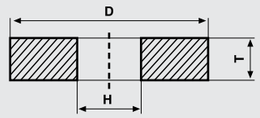
Tool Room Grinding

Production, maintenance, sharpening, and repair of cutting tools.

35 M/S

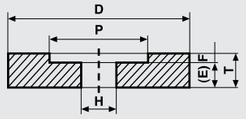
Tool Room Grinder

Type 1 (straight wheel)



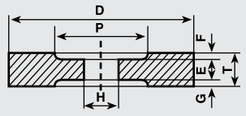
D-Diameter | T-Thickness | H-Bore

Type 5 (recess one side)



D-Diameter | T-Thickness | H-Bore
P-Diameter of recess | F-Depth of recess
E-Thickness around bore

Type 7 (recess two sides)

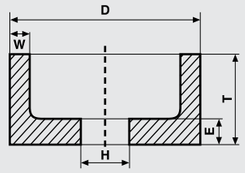


D-Diameter | T-Thickness | H-Bore
P-Diameter of recess | F-Depth of recess
E-Thickness around bore

Standard Dimensions:

	Diameter (D)		Recess Dimensions (P)		Thickness (T)		Bore (H)	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm
Type 1	6	150			1/4 | 1/2	6.3 | 12.7	1 1/4	31.75
	7	177			1/4 | 3/8 | 1/2	6.3 | 10 | 12.7	1 1/4	31.75
	8	203.2			1/4 | 1/2	6.3 | 12.7	1 1/4	31.75
	10	254			3/4 | 1	19.05 | 25.4	2 | 3 | 5	50.8 | 76.2 | 127
	12	305			1	25.4	3 | 5	76.2 | 127
	14	356			1 | 1 1/2	25.4 | 38	3 | 5	76.2 | 127
Type 5	7	177	r/1/s3x1/4	r/1/s76.2x6.3	3/4	19.05	1 1/4	31.75
	7	177	r/1/s3x1/2	r/1/s76.2x12.7	1	25.4	1 1/4	31.75
	8	203.2	r/1/s3x1/4	r/1/s76.2x6.3	3/4	19.05	1 1/4	31.75
	8	203.2	r/1/s3x1/2	r/1/s76.2x12.7	1	25.4	1 1/4	31.75
	12	305	r/1/s7 1/2x1/2	r/1/s190x12.7	1 1/2 | 2	38 | 50.8	3 | 5	76.2 | 127
	14	356	r/1/s8x1/2	r/1/s200x12.7	1 1/2	38	5	127
	14	356	r/1/s8x1	r/1/s200x25	2	50.8	5	127
Type 7	12	305	r/2/s7 1/2x1/2	r/2/s190x12.7	2	50.8	3 | 5	76.2 | 127
	14	356	r/2/s8x3/8	r/2/s200x10	2	50.8	5	127

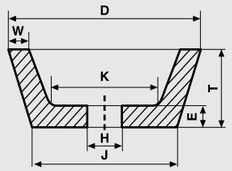
Straight Cup Wheels | Type 6



D-Diameter | T-Thickness | H-Bore | P-Diameter of recess |
E-Thickness of base | W-Thickness of wall

D		T		H		W		E	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4	102	1½ | 2	38 | 51	¾ | 1¼	20 | 31.75	5/16, 3/8	8 | 10	3/8	10
5	127	1½ | 2	38 | 51	1¼	31.75	3/8	10	3/8	10
6	150	2	51	1¼	31.75	½	12.7	½	12.7

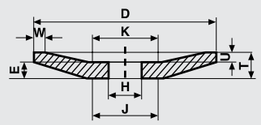
Flared Cup Wheels | Type 11



D-Diameter | T-Thickness | H-Bore | P-Diameter of recess |
E-Thickness of base | W-Thickness of wall

D		T		H		W		E		J		K	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4	102	1½ | 2	38 | 51	¾ | 1¼	20 | 31.75	5/16	8	½	12.7	3¼	82	2⅝	67
5	127	1¾ | 2	45 | 51	1¼	31.75	5/16	8	½	12.7	3¾	95	3	78
6	150	2	51	1¼	31.75	3/8	10	½	12.7	4½	115	3¾	95

Dish Grinding Wheels | Type 12



D-Diameter | T-Thickness | H-Bore | P-Diameter of recess |
E-Thickness of base | W-Thickness of wall

D		T		H		W		E		J/K		U	
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
4	102	½	12.7	½ | ¾ | 1¼	12.7 | 20 | 31.75	3/16	5	¼	6.5	2	51	⅛	3
5	127	½	12.7	1¼	31.75	¼	6.5	¼	6.5	2½	63	⅛	3
6	150	½	12.7	1¼	31.75	3/8	10	5/16	8	3	78	⅛	3.2
7	177	½	12.7	1¼	31.75	½	13	5/16	8	3½	90	⅛	3.2

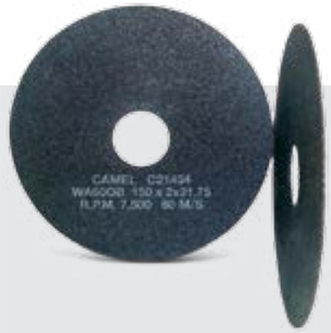
Recommended Specifications:

	Type of Grinding	Wheel Type	Specification
End Mills	Sharpening	Type 12	WA100K7V
	Grinding	Type 6 & 11	WA100K7V
Milling Cutters	Sharpening	Type 12	WA60K7V
	Grinding	Type 6 & 11	PA80K7V
Carbide Tools	Grinding & Sharpening	Type 1, 6, 11, 12	GC60I7V
HSS & Tool Steel	Grinding & Sharpening	Type 1, 6, 11, 12	PA46J7V

Tool Room Grinding

Non-Reinforced Cutting Discs

For cutting HSS tools, cutters, drills etc.
For use on stationary machines that operate at a maximum peripheral speed of 60 M/S.



60 M/S | Specification **WA60QB**

Tool Room Grinder

	Dimensions		
EAN No.	Inches	mm	R.P.M.
088119	6x1/32x1 1/4	150x0.8x31.75	
088126	6x3/64x1 1/4	150x1.0x31.75	
088157	6x1/16x1 1/4	150x1.5x31.75	7,640
088201	6x3/32x1 1/4	150x2.5x31.75	
658992	6x1/8x1 1/4	150x3x31.75	
088256	7x1/32x1 1/4	177x0.8x31.75	
088263	7x3/64x1 1/4	177x1.0x31.75	
088294	7x1/16x1 1/4	177x1.5x31.75	6,470
088331	7x3/32x1 1/4	177x2.5x31.75	
088362	7x1/8x1 1/4	177x3.0x31.75	
088386	8x1/32x1 1/4	200x0.8x31.75	
088393	8x3/64x1 1/4	200x1.0x31.75	
088430	8x1/16x1 1/4	200x1.5x31.75	5,730
088485	8x3/32x1 1/4	200x2.5x31.75	
088492	8x1/8x1 1/4	200x3.0x31.75	
	10x1/16x5/8	250x1.6x15.88	4,585
	10x1/16x1 1/4	250x1.6x31.75	
	12x5/16x1 1/4	300x2.0x31.75	3,820

Reinforced Cutting Discs

For cutting HSS tools, cutters, drills etc.
For use on stationary machines that operate at a maximum peripheral speed of 80 M/S.

80 M/S | Specification **A60O/PBF**

Pedestal Grinder

	Dimensions		
EAN No.	Inches	mm	R.P.M.
355556	6x3/64x1/2	150x1.2x12.7	
089239	6x3/64x1 1/4	150x1.2x31.75	
355587	6x1/16x1/2	150x1.6x12.7	10,200
089253	6x1/16x5/8	150x1.6x15.88	
355600	6x1/16x1 1/4	150x1.6x31.75	
089345	7x1/32x1 1/4	177x0.8x31.75	
089369	7x3/64x1/2	177x1.2x12.7	
355631	7x3/64x1 1/4	177x1.2x31.75	8,500
355648	7x1/16x1/2	177x1.5x12.7	
355655	7x1/16x5/8	177x1.5x15.88	
355662	7x1/16x1 1/4	177x1.5x31.75	
355686	8x3/64x5/8	200x1.2x15.88	
355693	8x3/64x1 1/4	200x1.2x31.75	
355709	8x1/16x1/2	200x1.5x12.7	7,650
355716	8x1/16x5/8	200x1.5x15.88	
358991	8x1/16x3/4	200x1.5x19.05	
355723	8x1/16x1 1/4	200x1.5x31.75	

Tool Room Grinding

Internal Grinding

Internal Grinding Wheels

The recommended wheel for internal grinding has a diameter of up to ⅔ of the final bore required.

For grinding inside surfaces of bearings, rings, cylinders, and bores.

Internal grinding wheels are available in sizes up to 6” (150mm) in diameter. Types: 1 | 5 | 6.7

Abrasive types: WA, RA, AS, PA, GC.

Special abrasive types are available.

35 M/S

Internal Grinder

Mounted Points

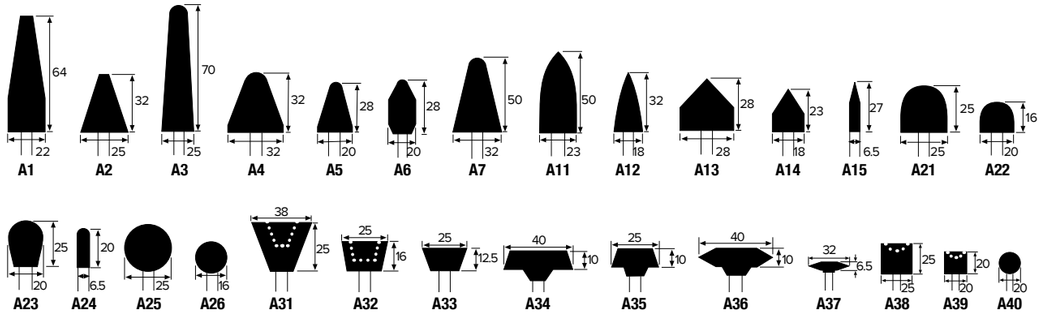
Available with, 3mm (1/8") or 6mm (1/4") shanks.

CGW offers a full range of mounted points:

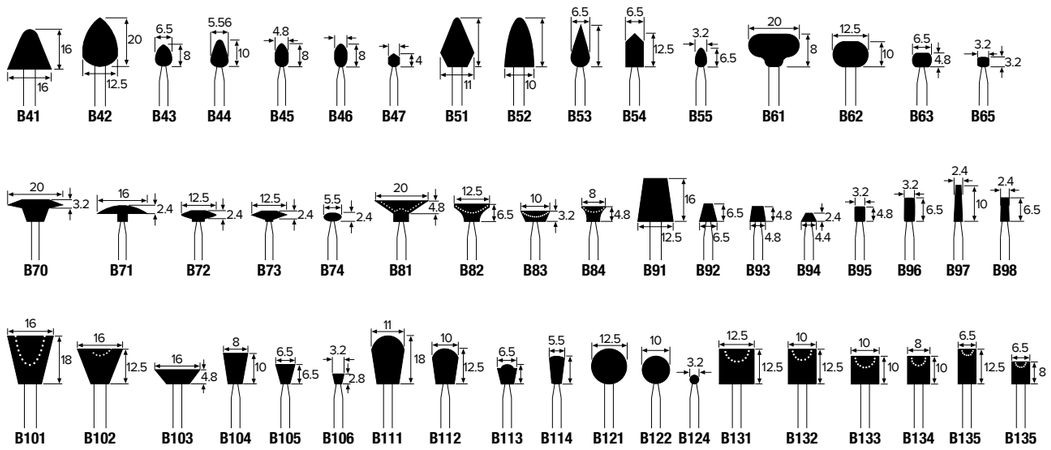
General purpose	PA60P/QV
Heavy duty use	PA36P/QV
Non-ferrous metals and stone	C36QV
Stainless steel	A46QB
Castings	A/PA20S5V

Die Grinder

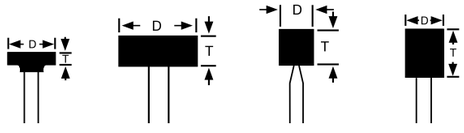
Group A - 6mm (1/4") mandrel



Group B - 3mm (1/8") mandrel



Group W - 3mm (1/8") and 6mm (1/4") mandrel



D = Diameter (from 3.2mm to 50mm)
T = Height (from 3.2mm to 50mm)

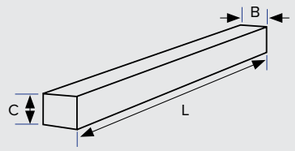
- All mounted points are available in packages of 10 or 50 pcs.
- To order special item, please consult your CGW representative.
- Boxed set of 100 mounted points 10x10 different shapes, available by request.

Internal Grinding

Sharpening Stones

Sharpening Sticks for Super Diamond and CBN Wheels

Manual Work



B·Width | C·Height | L·Length

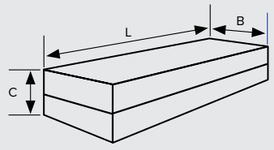
EAN No.	Dimensions (LxCxB) Inches	mm	Specification
042128	4x1x1/4	100x25x6	WA280E8V
042142	4x1x1/2	100x25x13	WA220J8V
367764	4x1x1/2	100x25x13	WA280E8V
042159			WA280E8V
673490			WA320G8V
042166			WA400H8V
042234	6x3/4x3/4	160x20x20	WA150I7V
370160	8x3/4x3/4	200x20x20	WA150I7V

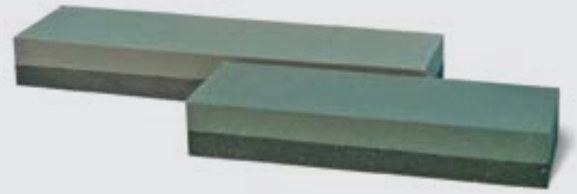
• Other dimensions and specifications are available by request.

Combination Grit Sharpening Stones

For the sharpening of knives and various cutting tools.

Manual Work





B·Width | C·Height | L·Length

EAN No.	Dimensions (LxCxB) Inches	mm	Grit	Specification
041930	6x1x2	152x25.4x50.8	C46/GC150	Coarse/Fine
041947			C80/GC150	Medium/Fine
041954			C180/GC280	Fine/very Fine
041978	8x1x2	200x25.4x50.8	C46/GC150	Coarse/Fine
041985			C80/GC150	Medium/Fine
041992			C180/GC280	Fine/very Fine

Sharpening Stones

Speed Conversion Table

Speed conversion table for speed of rotation and peripheral operating speed depending on the outside diameter of bonded abrasive products.

Equation for converting cutting speed (M/S) to and from R.P.M.

$$\frac{\text{cutting speed (M/S)} \times 60{,}000}{\text{wheel diameter (mm)} \times 3.14} = \text{R.P.M.}$$

$$\frac{\text{R.P.M.} \times \text{wheel diameter (mm)} \times 3.14}{60{,}000} = \text{cutting speed (M/S)}$$

- mm sizes are approximate
- cutting speed = peripheral operating speed.

Wheel Diameter		Cutting Speed (M/S)					
Inch	mm	10	16	20	25	32	35
1/4	6	31,900	51,000	64,000	80,000	102,000	112,000
5/16	8	24,000	38,200	48,000	60,000	76,500	84,000
3/8	10	19,100	30,600	38,200	48,000	61,200	67,000
1/2	13	14,700	23,550	29,500	35,600	47,100	51,500
5/8	16	11,950	19,100	23,900	29,850	38,200	41,800
3/4	20	9,550	15,300	19,100	23,900	30,600	33,500
1	25	7,650	12,300	15,300	19,100	24,500	26,800
1 1/2	40	4,800	7,650	9,550	11,950	15,300	16,750
2	50	3,850	6,150	7,650	9,550	12,250	13,400
2 1/2	63	3,050	4,850	6,100	7,600	9,750	10,650
3	78/80	2,400	3,850	4,800	6,000	7,650	8,400
4	100/102	1,950	3,100	3,850	4,800	6,150	6,700
4 1/2	115	1,700	2,700	3,350	4,200	5,350	5,850
5	125	1,550	2,450	3,100	3,850	4,900	5,350
6	150/155	1,300	2,050	2,550	3,200	4,100	4,500
7	175/180	1,100	1,700	2,150	2,700	3,400	3,750
8	200/205	955	1,550	1,950	2,400	3,100	3,350
9	230	830	1,350	1,700	2,100	2,700	2,950
10	250/254	765	1,250	1,550	1,950	2,450	2,700
12	300/305	640	1,050	1,300	1,600	2,050	2,250
14	350/356	550	875	1,100	1,400	1,750	1,950
16	400/406	480	765	960	1,200	1,550	1,700
18	450/457	425	680	850	1,100	1,400	1,500
20	500/508	385	615	765	960	1,250	1,350
24	600/610	320	510	640	800	1,050	1,150
30	750/762	255	410	510	640	820	895
32	800/813	240	385	480	600	765	840
36	900/914	215	340	425	535	680	750
40	1000/1015	195	310	385	480	615	670

Cutting Speed (M/S)						Wheel Diameter	
40	50	63	80	100	125	Inch	mm
128,000	160,000	201,000				1/4	6
95,500	120,000	150,500	191,000			5/16	8
76,500	95,500	120,500	153,000	191,000		3/8	10
58,800	73,500	92,100	118,000	147,000	184,000	1/2	13
47,800	59,700	75,200	95,500	120,000	150,000	5/8	16
38,200	47,800	60,200	76,500	95,500	120,000	3/4	20
30,000	38,200	48,200	61,200	76,500	95,500	1	25
19,100	23,900	30,100	38,200	47,200	59,700	1 1/2	40
15,300	19,100	24,100	30,600	38,200	47,750	2	50
12,150	15,200	19,100	24,300	30,250	37,900	2 1/2	63
9,500	12,000	15,100	19,100	23,900	29,850	3	78/80
7,650	9,550	12,100	15,000	19,100	23,900	4	100/102
6,650	8,350	10,500	13,300	16,650	20,800	4 1/2	115
6,150	7,650	9,650	12,250	15,300	19,100	5	125
5,100	6,400	8,050	10,200	12,700	16,000	6	150/155
4,250	5,350	6,700	8,500	10,650	13,300	7	175/180
3,850	4,800	6,050	7,650	9,300	11,650	8	200/205
3,350	4,200	5,250	6,650	8,350	10,400	9	230
3,100	3,850	4,850	6,150	7,650	9,400	10	250/254
2,550	3,200	4,050	5,100	6,400	8,000	12	300/305
2,200	2,750	3,450	4,400	5,500	6,850	14	350/356
1,950	2,400	3,050	3,850	4,800	6,000	16	400/406
1,700	2,150	2,700	3,400	4,250	5,350	18	450/457
1,550	1,950	2,450	3,100	3,850	4,800	20	500/508
1,300	1,600	2,050	2,550	3,200	4,000	24	600/610
1,050	1,300	1,650	2,050	2,550	3,200	30	750/762
960	1,200	1,550	1,950	2,400	3,000	32	800/813
850	1,100	1,350	1,700	2,150	2,700	36	900/914
765	960	1,250	1,550	1,950	2,400	40	1000/1015

Technical Information

Grain Size Conversion Table

Mesh	Inches	Microns
4	.2577	6848
6	.2117	5630
8	.1817	4620
10	.1366	3460
12	.1003	2550
14	.0830	2100
16	.0655	1660
20	.0528	1340
24	.0408	1035
30	.0365	930

Mesh	Inches	Microns	Radius (from - to)
36	.0280	710	
46	.0200	508	xx - 0.5
54	.0170	430	0.43 - 0.5
60	.0160	406	0.4 - 0.5
70	.0131	328	
80	.0105	266	0.25 - 0.5
90	.0085	216	
100	.0068	173	0.2 - 0.25
120	.0056	142	0.12 - 0.2
150	.0048	122	0.1 - 0.15

Mesh	Inches	Microns	Radius (from - to)
180	.0034	86	
220	.0026	66	0.07 - 0.12
240	.00248	63	
280	.00175	44	
320	.00128	32	
400	.00090	23	
500	.00065	16	
600	.00033	8	
900	.00024	6	

Minimum Quantities for Production of Vitrified Abrasive Products

Product	Qty
Segments, blocks	50
Sticks	100
Mounted points	200
Wheel diameter less than 3”	100
Wheel diameter 4” - 5”	50
Wheel diameter 6”, 7”, 8”	40

Product	Qty
Wheel diameter 10” - 12”	10
Wheel diameter 14” - 16”	5
Wheel diameter 18”- 48”	2
Non-reinforced cutting discs	200
Reinforced cutting discs	500
Wheel thickness up to 5mm, diameter up to 250mm	50

Inch/Millimeter Conversion Table

Inches	mm
1/64	0.397
1/32	0.794
3/64	1.190
1/16	1.587
5/64	1.984
3/32	2.381
7/64	2.778
1/8	3.175
9/64	3.571
5/32	3.968
3/16	4.762
7/32	5.556
1/4	6.350
9/32	7.144
5/16	7.937
11/32	8.731
3/8	9.525
13/32	10.319
7/16	11.112
15/32	11.906
1/2	12.700
17/32	13.494

Inches	mm
9/16	14.287
5/8	15.875
11/16	17.462
3/4	19.050
13/16	20.637
7/8	22.225
15/16	23.812
1	25.400
1 1/16	26.987
1 1/8	28.575
1 3/16	30.162
1 1/4	31.750
1 5/16	33.337
1 3/8	34.925
1 7/16	36.512
1 1/2	38.100
1 9/16	39.687
1 5/8	41.275
1 11/16	42.862
1 3/4	44.450
1 13/16	46.037
1 7/8	47.625

Inches	mm
1 15/16	49.212
2	50.800
2 1/8	53.975
2 1/4	57.150
2 3/8	60.325
2 1/2	63.500
2 5/8	66.675
2 3/4	69.850
2 7/8	73.025
3	76.200
3 1/8	79.375
3 1/4	82.550
3 3/8	85.725
3 1/2	88.900
3 5/8	92.075
3 3/4	95.250
3 7/8	98.425
4	101.600
4 1/4	107.950
4 1/2	114.300
4 3/4	120.650
5	127.000

Inches	mm
6	152.400
7	177.800
8	203.200
9	228.600
10	254.000
11	279.400
12	304.800
13	330.200
14	355.600
15	381.000
16	406.400
17	431.800
18	457.200
19	482.600
20	508.000
21	533.400
22	558.800
23	584.200
24	609.600
25	635.000
26	660.400
27	685.800

Safety Guide for the Use of Abrasive Wheels

Bonded abrasive products are breakable and should therefore be handled with utmost care. The use of damaged, improperly mounted or improperly used abrasive products is dangerous and can cause serious injuries. For your safety, we suggest you benefit from the experience of others and carefully follow the few basic rules listed below.

Do

- Always handle and store wheels in a careful manner.
- Before mounting, visually inspect and ring test all wheels for possible damage (ILL. 1 and 2).
- Check machine speed against the established maximum safe operating speed marked on the wheel.
- Check mounting flanges for equal and correct diameter (ILL. 3).
- Use mounting blotters when supplied with wheels (ILL. 3).
- Be sure work rest is properly adjusted: level with or above center of wheel; no more than 1/8” away from wheel (ILL. 4).
- Always use a safety guard covering at least one-half of the grinding wheel (ILL. 4).
- Allow newly-mounted wheels to run at operating speed, with guard in place, for at least one minute before grinding.
- Always wear safety glasses or some type of eye protection when grinding.
- Be sure to employ dust controls and/or protective measures appropriate to the material being ground.
- When shutting down a wet grinding operation, the fluid must first be shut off and the wheel allowed to rotate until the coolant has been spun out.

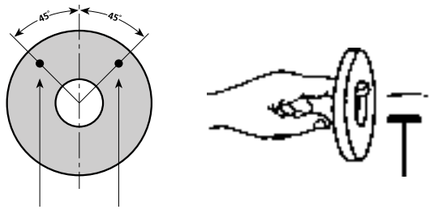
Don't

- Don’t use a cracked wheel or one that has been dropped or has become damaged.
- Don’t force a wheel onto the machine or alter the size of the mounting hole: if the wheel won’t fit the machine, get one that will.
- Don’t alter the shape of the wheel in any way.
- Never exceed the maximum operating speed established for the wheel.
- Don’t use mounting flanges on which the bearing surfaces are not clean, flat and free of burrs.
- Don’t tighten the mounting nut excessively.
- Don’t stand or allow another person to stand directly in front of or in line with a grinding wheel when the grinding machine is started.
- Don’t grind on the side of the wheel (see safety code for exception).
- Don’t start the machine until the wheel guard is in place.
- Don’t force grinding so that the machine slows noticeably or the workpiece becomes overheated.

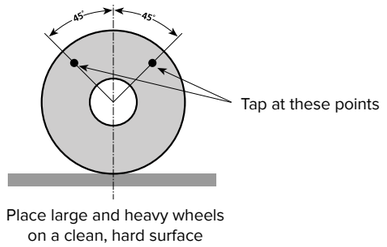
Ring Test

The noticeable difference between the sharp, clean tone produced by an intact abrasive wheel, and the dull tone producd by a cracked wheel, makes it possible to further examine the wheel, in addition to visual inspection, by performing a ring test on it before mounting (ILL. 1 and 2).

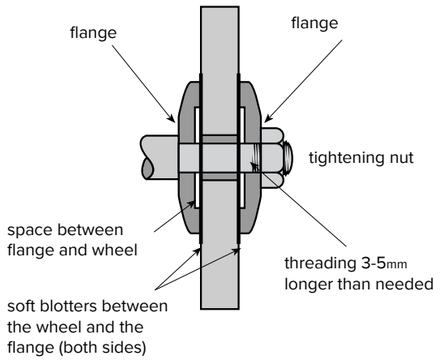
1) Ring testing small wheels



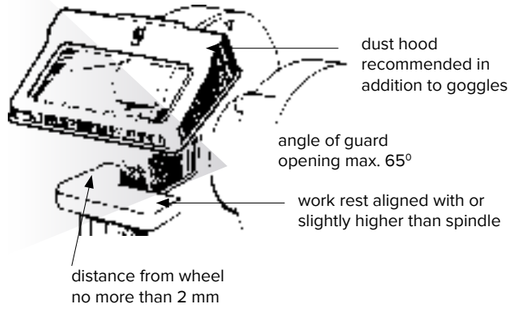
2) Ring testing large wheels



3) Mounting



4) Guard, work rest and dust hood



Safety Guide

Notes

Notes

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For more information visit us at:

www.cgwheels.com

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