How-to

Choosing the Right Abrasive Product for Welding and Metal Fabrication

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Wondering which abrasive is right for your welding and metal fabrication project? Norton provides tips and a reference guide to help you make the right choices, in both the selection and usage of the product, so that you can minimize your costs and maximize your output.

What Is the Right Choice for Your Operation?

Tip: Start by Weighing Priorities

Abrasive products come in various levels of performance, which Norton labels "good," "better" and "best."

- If initial price is your primary consideration, choose good abrasives; be aware that a lower purchase price up front may not end up being economical in the long run.
- If you're running high-productivity applications and have to keep initial abrasive prices in mind, choose better abrasives.
- If maximum productivity and lowest total cost are critical to your operation, consider the best abrasive products.

Tip: Test to Determine the Best Solution

When testing abrasive products, there are three measurements to consider:

1. Time
2. Material removed
3. Product wear

By holding one of these constant and measuring the other two, you can come up with an objective comparison between multiple products, helping you to find the best solution for your operation.

Abrasive Selection Guide

If you’re choosing an abrasive for welding and metal fabrication, refer to the guide below. Each application lists the relevant products in the order of best, better and good.

APPLICATION	ABRASIVE PRODUCTS	FORMULATIONS
Grinding down metals:		
Cut-off applications:	Cut-off wheels	1. Ceramic alumina and zirconiaalumina blend for stainless and carbon steels, otherferrous and exotic metals
Cutting sheetmetal		
Cutting,notching pipe		2. Zirconia alumina for stainlessand carbon steels and othernon- ferrous metals
		3. Aluminum oxide blend forcarbon steels
Grinding:	Depressed centergrinding wheels	1. Ceramic alumina and zirconiaalumina blend for
All weldgrinding	(24 or 36 grit)	stainless steel and other ferrous metals
Pipe notching,beveling		2. Mix of zirconia alumina andpremium aluminum oxidegrains for metals ranging fromalloys and stainless steel togray iron and non-ferrousmetals
Heavy stockremoval		3. Aluminum oxide for ferrousmetals, aluminum and othersoft metals

APPLICATION	ABRASIVE PRODUCTS	FORMULATIONS
Grinding down metals (continued):		
Blending:	Coated abrasiveflap discs	1 a) Ceramic alumina for stainless steeland
Blending welds	(36 or 40 to 80 grit)	other ferrous metals
Medium to lightstock removal		1 b) Ceramic alumina andzirconia blend for low pressuregrinding of ferrous metals.
		2. Zirconia alumina for ferrousand non-ferrous metals
		3. Aluminum oxide for ferrousmetals
Blending welds	Fiber discs	1 a) ceramic alumina for difficult-to-grind materials,
Metal fabrication	(24 or 36 to 80 grit)	including super alloys and hardenedsteel
		1 b) Zirconia alumina for fast stockremoval and rough cutting applications
		2. Aluminum oxide blending discfor a consistent finish
		3. Aluminum oxide for generalpurpose applications
Dimensioning andshaping	Coated abrasivecloth belts	1) Ceramic alumina for hard-to-grindalloys
Heavy stockremoval	(for bench standgrinders)	2 a) Zirconia alumina blend forexotic and heat-sensitive metals 2b) Zirconia alumina for stainlesssteel
		3) Aluminum oxide for generaluse and maintenance/repairoperations.

APPLICATION	ABRASIVE PRODUCTS	FORMULATIONS
Blending the surfaces:		
Deburring welds	Coated abrasiveflap discs (60 or 80 grit)	1. Ceramic alumina 2. Zirconia alumina blend 3. Aluminum oxide
Light deburringand finishing	Resin fiber discs(80 to 120 grit)	1 a) Ceramic alumina 1 b) Zirconia alumina blend 2. Ceramic alumina and zirconia alumina blend 3. Aluminum oxide
Blending andleveling (contours or flat surfaces)	Non-woven deburring discs	1. 1) Engineered alumina oxide 2. Aluminum oxide
Blending Finishing Polishing	Non-woven deburring and finishing discs	3. 1) Engineered alumina oxide 4. 2) Aluminum oxide
Blending welds Deburring	Fiber discs (60 to 120 grit forlight deburring)	1. Ceramic alumina for difficult-to-grind materials 2. Aluminum oxide disc for aconsistent finish 3. Aluminum oxide for generalpurpose applications
Surfacepreparation Blending welds	Coated abrasivecloth belts (120 grit)	1) Ceramic alumina 2 a) Zirconia alumina blend forexotic and heat-sensitive metals 2b) Zirconia alumina blend forstainless steel 3) Aluminum oxide
Surfacepreparation Blending welds	Non-woven surface preparation discs	5. 1) Engineered alumina oxide 2) Aluminum oxide
Blending welds	Coated abrasiveflap wheels (80 to 120 grit)	1) Ceramic alumina 3) Aluminum oxide
Cleaning Polishing Blending scratchpatterns	Non-woven discsspecifically for surfacefinishing(Medium, 120grit)	6. 1) Engineered alumina oxide 2) Aluminum oxide
APPLICATION	**ABRASIVE PRODUCTS**	**FORMULATIONS**
Creating the final finish:		
Polishing Finishing	Non-woven,surface-finishingdiscs (Medium, 120 grit,or fine, 320 grit)	1) Aluminum oxide
Weld polishing Cleaning Finishing Blendingweldareas onstainlesssteel	Surface-finishingconvolute wheels (Medium, 120 grit)	1) Silicon carbide
Final blending Touch-up	Non-woven deburring and finishing discs	7. 1) Engineered alumina oxide 8. 2) Aluminum oxide

Tip: Use Safely and Maintain

Following safety and maintenance guidelines is very important and will also save time and money, contributing to the longevity of the abrasive, the production time, and the quality of the finished product.

For safety and maintenance information, check the manufacturer's catalog and product packaging. The manufacturing catalog will detail what products are designed for which machines, and some use icons to make the machine-to-abrasive match clear and easy. The product packaging also contains helpful information; mount it on your machine so your operators always have access to it.

We all want higher productivity and lower cost, but safety comes first. Start by making sure your operators take the appropriate safety precautions, and then use the correct abrasive products to get the job done right.

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