



Flat Fast & Fine

**Engineered for reduced costs,
increased throughput**

- Fast material removal rates
- No slurry – less mess to clean up and dispose
- Use on your existing flat grinding and finishing equipment – no new capital expenditures
- Maintains flatness from grinding through finishing
- Minimal sub-surface damage

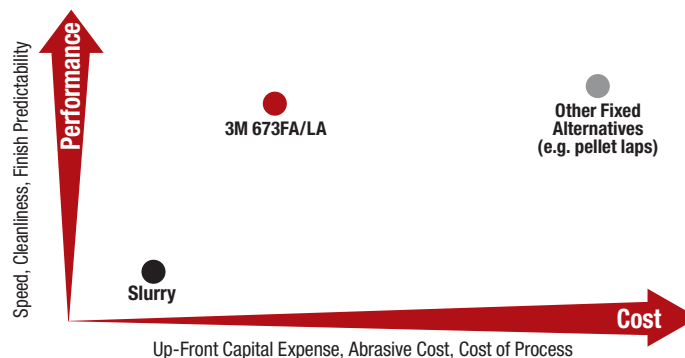
Designed to reduce cycle time – increase productivity

3M™ Trizact™ Diamond Abrasives 673FA and 673LA give you a new dimension of speed, consistency and control for flat finishing, grinding and lapping of technical ceramics, glass and exotic metals.

These precision-engineered structured abrasives are today's time and money saving alternative to messy slurries and expensive fixed abrasive systems such as pellet laps. Designed to work with aqueous coolants, they reduce cleanup and toxic waste disposal issues associated with abrasive slurries.

- Fast material removal rates
- Use on your existing flat grinding and finishing equipment – both single and double-sided lapping machines
- Cleaner operation – reduces machine wear
- Reduces slurry cleanup & disposal issues
- Minimal sub-surface damage

An outstanding balance of performance, cleanliness and lower costs



3M™ Trizact™ Diamond 673FA/LA Performance Data

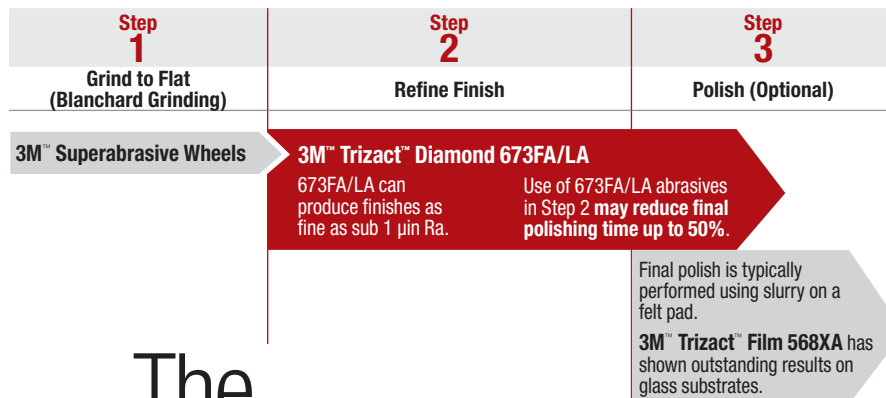
Material	Grade	Applied Pressure		Ra Surface Finish		Material Removal Rate	
		(psi)	(kPa)	(μ in)	(μ m)	(0.001"/min)	(μ m/min)
Alumina 98%	A80	6.3	43.1	53.5	1.36	4.6	117
	A30	7.8	53.8	36.2	0.92	6.9	175
	A20	7.8	53.8	24.8	0.63	5.0	127
Alumina 99.8%	A30	4.6	31.7	26.4	0.67	3.2	81
Alumina 99.5%	A10	1.1	7.6	5.7	0.14	0.2	5
	A30	7.1	49.0	22.6	0.57	4.5	114
Alumina 96%	A10	7.1	49.0	11.6	0.29	1.9	48
	A80	3.9	26.9	32.8	0.83	1.5	38
Alumina 88%	A20	3.9	26.9	13.1	0.33	1.0	25
	A10	3.9	26.9	6.7	0.17	0.5	13
	A30	5.3	36.5	8.3	0.21	1.1	29
Zirconia	A6	5.3	36.5	2.4	0.06	0.2	5
	A3	5.3	36.5	0.8	0.02	0.1	2
	A160	5.0	34.5	71.7	1.82	11.8	300
Transparent Spinel	A80	5.0	34.5	44.1	1.12	9.4	239
	A45	5.0	34.5	30.3	0.77	5.7	145
	A10	5.0	34.5	9.8	0.25	3.0	76
	A6	5.0	34.5	6.3	0.16	0.9	23
	A3	5.0	34.5	4.7	0.12	0.2	5
Ferrite	A20	10.6	73.1	23.6	0.6	5.6	142
	A10	10.6	73.1	10.6	0.27	3.0	76
Molybdenum	A45	6.9	47.6	5.5	0.14	0.04	1
	A30	6.9	47.6	8.3	0.21	0.1	2
6061 Aluminum	A30	1.7	11.7	22.0	0.56	0.7	18

Test parameters:

Machine: Strasbaugh 6DC Single-Side
Abrasive: Trizact 673FA/LA PSA, 12" dia.

Speed: 100 rpm disc platen/100 rpm sample (counter-rotation)
Lubricant: 10% Sabrelube 9016/water, flow rate 30 ml/min
Finish: Mahr Perthometer MP4 profilometer

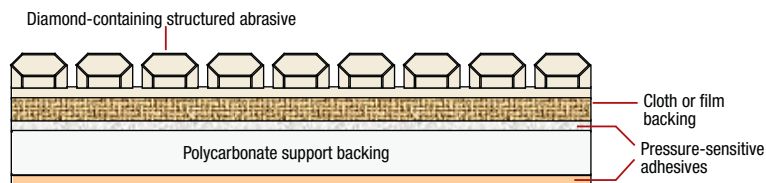
Typical Flat Part Processing



The Science of Smooth

Trizact abrasives deliver a consistently flat, fine finish

3M Trizact Diamond Abrasives consist of precisely-shaped three-dimensional structures distributed uniformly over the substrate. As these structures wear, fresh, sharp diamond abrasive is continually exposed to the workpiece – resulting in faster, more consistent cutting throughout the life of the material.



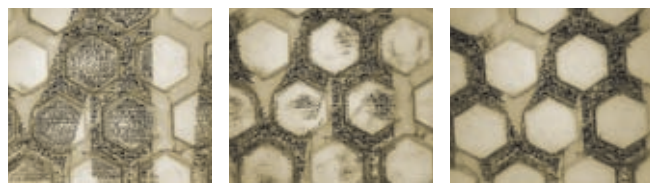
Why are the I.D. numbers printed on the disc face?

The imprint on the face of the Trizact 673FA/LA disc serves three purposes:

1. It identifies the product and grade
2. It is used as a quick visual indicator for proper pad break-in/dressing
3. It indicates when disc life is over

Trizact 673FA/LA discs must be properly broken-in before use. As shown in the photos below, when the printing on the surface of the disc is completely gone from the tops of the hexagon structures, the disc is sufficiently broken-in and ready to use.

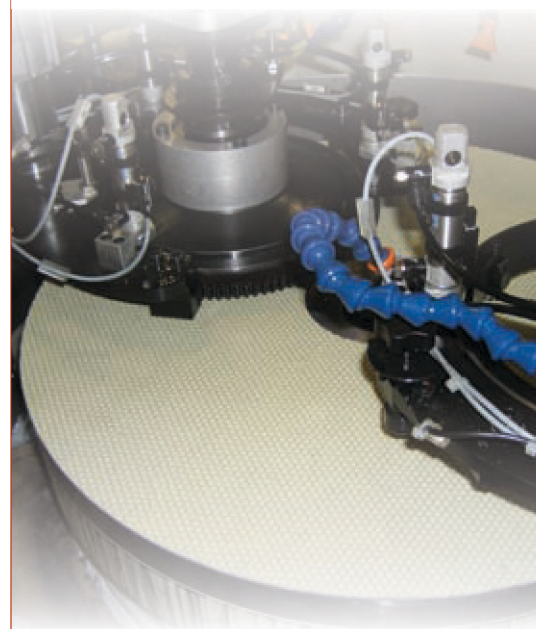
For a more complete discussion of recommended pad mounting and conditioning procedures, see Technical Bulletin 61-5002-8259-7.



No break-in

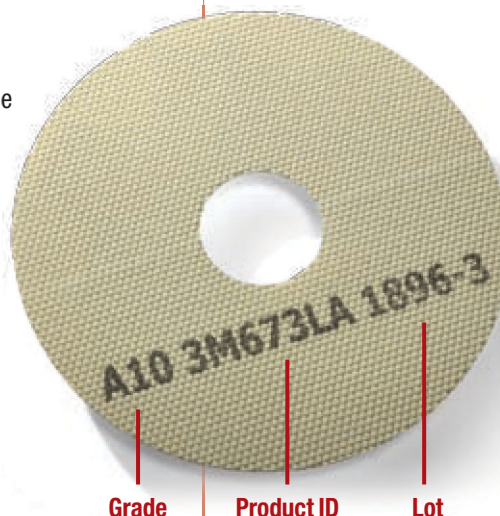
50% break-in

100% break-in



Trizact 673 FA/LA abrasives provide outstanding flat grinding & finishing performance on a wide range of technical ceramics, metals and optical substrates including:

- Spinel
- Sapphire
- Alumina
- Zirconia
- Ferrites
- Tungsten carbide
- Ferroelectric ceramics
- Silicon nitride
- Silicon carbide
- Beryllium
- Molybdenum
- Aluminum
- Glass
- Glass ceramics
- Various optical substrates
- Silicon wafer reclamation
- others



Ask the Expert

3M™ Trizact™ Diamond Abrasives 673FA/LA are available in a wide range of grades for grinding and finishing solutions:

- Coarse grind, to achieve part dimension and planarity
- Intermediate grind and pre-polish, to help reduce total cycle time

Prod ID	Backing	Available Grades (micron)
673FA	Y-wt cloth laminated to polycarbonate backing	A300, A160, A80, A45, A30, A20
673LA	5-mil film laminated to polycarbonate backing	A10, A6, A3

All grades/constructions are available with PSA attachment. Discs available in 5"–110" diameter, other shapes on request.



Expert tips, tricks & techniques for getting the most out of your Trizact 673FA/LA discs

What type of lubricant should I use?

3M recommends a 90/10 mixture of water with any water-based (aqueous) coolant, such as Sabrelube™ 9016 – although any glycol-containing solution or plain water is satisfactory.

What lubricant flow rate should I use?

Use this equation: Lubricant flow rate = $.393 \times (\text{pad OD}^2 - \text{ID}^2)$, with flow rate expressed in ml/min and pad OD/ID in inches.

Note: Increases or decreases in coolant flow rate can significantly impact pad wear and cut rate stability

How can I optimize my stock removal rates?

Stock removal rate is a function of several machine and process variables. If you experience unstable removal rates, consider the following:

- Modify pad dressing/conditioning process
- Improper lubricant type or flow rate
- Too fine or too coarse a grade for the application

How should I store machine-mounted Trizact 673FA/LA pads between shifts?

Discs should be kept wet on the lapping machine when not in use. If the pads are allowed to dry, a short dressing cycle should be utilized to re-condition the pads.

How should discs be prepared for extended storage?

Clean and allow to dry. Remember to re-dress before use.

How do I remove Trizact 673FA/LA from machine plates?

Pads are easy to remove. Begin by pulling the pad away from the plate on an outside edge. If adhesive residue remains on the plate, use a solvent such as 3M™ General Purpose Adhesive Cleaner to dissolve the residue.

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