

**NORTON**

SAINT-GOBAIN

**VORTEX**<sup>®</sup>

## CASE STUDY #1 AEROSPACE MACHINE SHOP – NON-WOVEN CONVERSION

Machine shop specializing in production of parts for the Aerospace market, and custom parts for other miscellaneous markets. The operation for this case study involved four different operations with five different Norton products tested.

APPLICATION: **SURFACE PREP, FINISHING**  
MARKET: **AEROSPACE, WELDING**

### OPERATION #1

Finishing large stainless steel surface area on part. A fine, consistent finish is most critical.

<b>MACHINE:</b>	5" Pneumatic DA Sander
<b>NORTON SPEC:</b>	5" Vortex Rapid Prep Extra Coarse Hook & Loop Disc – 666233 <b>34974</b> , 5" Vortex Rapid Prep Medium Hook & Loop Disc – 666233 <b>34962</b>
<b>COMPETITION:</b>	5" Unknown Branded Hook & Loop Paper Discs in 80 – 400 Grits
<b>PERFORMANCE:</b>	Customer was able to reduce their <b>labor cost on this part by 250%</b> . Before conversion the customer was spending an excess of two and half days finishing these parts. With the conversion using Norton they are <b>able to finish these parts in a single shift</b> .

#### INCUMBENT INFORMATION/PERFORMANCE

Incumbent: Unknown competitor 5" Hook & Loop Paper Discs 80 - 400 grits

vs.

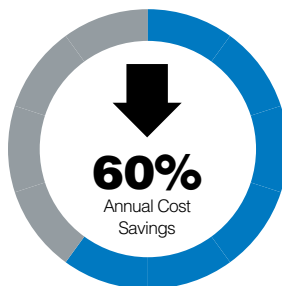
#### NORTON PRODUCT INFORMATION/PERFORMANCE

Norton: Vortex Rapid Prep 5"x0" XC Hook & Loop - 666233**34974**  
Vortex Rapid Prep 5"x0" Med Hook & Loop - 666233**34962**

PRICE/EA.	USAGE	ABRASIVE COST/PART	WORKING TIME (HR.)	LABOR COST	TOTAL COST/PART
<b>Competitive 5" Coated Multiple Grits</b>					
\$0.10	40	\$4.00	25	\$1,625.00	\$1,629.00
<b>Norton 5" Vortex Rapid Prep XC &amp; Medium Hook &amp; Loop Discs</b>					
\$4.63	4	\$18.52	10	\$650.00	\$668.52

### Cost Savings

Abrasive cost per part increased by roughly 4-1/2 times their current cost, but their disc usage decreased significantly by 10 times. Overall application cost **decreased by almost 60% from \$1,629 to \$668 per part**. With a total of seven parts per year the customer will see a total operation **cost saving by \$6,723** in this step.



#### FORM #8848-1

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## CASE STUDY #2 AEROSPACE MACHINE SHOP – NYLON BRUSH CONVERSION

Machine shop specializing in production of parts for the Aerospace market, and custom parts for other miscellaneous markets. The operation for this case study involved four different operations with five different Norton products tested.

APPLICATION: **SURFACE PREP, FINISHING**  
MARKET: **AEROSPACE, WELDING**

### OPERATION #2

Deburring/finishing machined precision parts. Requirements are all visual, critical to remove all burrs.

**MACHINE:** Bench Stand Grinder

**NORTON SPEC:** Blaze Nylon Wheel Brush 6" x 1-14"

**COMPETITION:** Competitor 1 wire wheel brush and competitor 2 Non-Woven Finishing Wheel

**PERFORMANCE:** Three positive actions were seen in the study results. A reduction of two competitors into Norton for a single source. Customer was able to **reduce their inventory to a single part** versus the wire wheel brush and finishing wheels. And finally their cycle time per part saw a **reduction of 100%**, from 40 minutes to 20 minutes by **removing the separate finishing step.**

#### INCUMBENT INFORMATION/PERFORMANCE

Incumbent: Competitor 1 Wire Wheel Brush, Competitor 2 Non-Woven Finishing Wheel

vs.

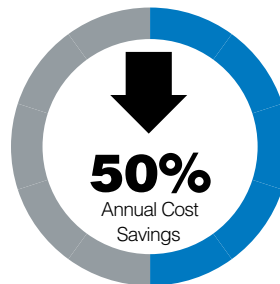
#### NORTON PRODUCT INFORMATION/PERFORMANCE

Norton: Blaze Nylon Wheel Brush - 6"x1-1/4"x1"x2" - 776960**85010**

PRICE/EA.	USAGE	ABRASIVE COST/PART	WORKING TIME (HR.)	LABOR COST	TOTAL COST/PART
<b>Competitor 1 Wire Wheel Brush &amp; Competitor 2 Non-Woven Wheel</b>					
\$35.00	30%	\$10.50	0.66	\$42.90	\$53.40
<b>Norton Blaze Nylon Wheel Brush</b>					
\$103.56	10%	\$10.36	0.33	\$21.45	\$31.81

### Cost Savings

Abrasive cost per part increased with the Blaze Nylon Wheel Brush, but was overshadowed by total application cost. **Labor cost was cut in half (50%)** with process step removal, and total cost per part decreased from \$45.35 to \$24.56. Creating 1,200 parts per year the customer's total operation cost **decreases from \$54,420 to \$29,469 for an overall savings of \$24,952.**



#### FORM #8848-2

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## CASE STUDY #3 & #4 AEROSPACE MACHINE SHOP – NON-WOVEN CONVERSION

Machine shop specializing in production of parts for the Aerospace market, and custom parts for other miscellaneous markets. The operation for this case study involved four different operations with five different Norton products tested.

APPLICATION: **SURFACE PREP, FINISHING**  
MARKET: **AEROSPACE, WELDING**

### OPERATION #3 & #4

Customer is cleaning and deburring aluminum and steel surfaces, and finishing steel welds on aluminum.

<b>MACHINE:</b>	Hand Operations and Mini Angle Sander
<b>NORTON SPEC:</b>	Norton #747 6"x9" Very Fine Hand Pads - 662610 <b>74700</b> , Norton Vortex Rapid Blend Quick-Change 2" Medium Discs - 662544 <b>13660</b>
<b>COMPETITION:</b>	Competitor 3 6"x9" Hand Pads, Competitor 2 2" Quick-Change Medium Discs
<b>PERFORMANCE:</b>	The test results yielded improvements in both products versus the competitive product. The hand pad operation achieved a <b>life increase by a factor of 5</b> , and the Quick-Change Disc <b>life improved by a factor of 4</b> in the process

#### INCUMBENT INFORMATION/PERFORMANCE

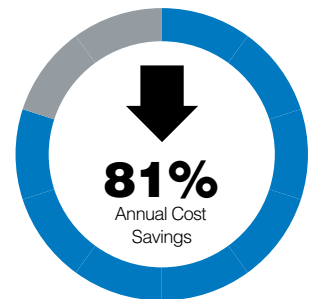
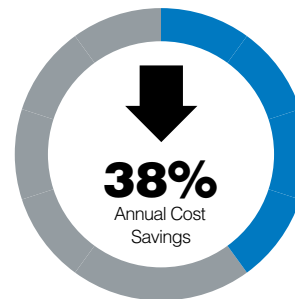
Incumbent: Competitor 3 6"x9" Hand Pads Competitor 2 2" Quick-  
Change Medium Discs

vs.

#### NORTON PRODUCT INFORMATION/PERFORMANCE

Norton: Norton Hand Pad 6"x9" Very Fine - 662610**74700**  
Norton Vortex Rapid Blend Quick Change Discs - 2"  
Medium - 662544**13660**

PRICE/EA.	ANNUAL USAGE	AVG. LIFE INCREASE FACTOR	TOTAL COST	ANNUAL SAVINGS	% VARIANCE
<b>Competitor 3 Hand Pad - 6"x9" Very Fine</b>					
\$0.87	2,540	5	\$2,209.80	\$1,788.16	-81%
<b>Norton Hand Pad - 6"x9" Very Fine</b>					
\$0.83	508	5	\$421.64	\$1,788.16	-81%
<b>Competitor 2 Quick-Change Discs - 2" Med</b>					
\$1.01	2,000	4	\$2,20.00	\$770.00	-38%
<b>Norton Vortex Rapid Blend Quick-Change Discs - 2" Med</b>					
\$2.50	500	4	\$1,250.00	\$770.00	-38%



### Cost Savings

The customer had an annual usage of 2,530 hand pads for this application. With the test results the customer will see an **annual cost savings of 81% and \$1,788**. For the quick-change application an estimated 2,000 discs for a **savings of \$770 annually which is a 38% reduction saving**.

Many improvements were made in several areas during this study from cost savings, process time and labor reductions or elimination of multiple suppliers to a single source across four applications in a single shop.

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