GRINDING AND SERVICES PROVIDER TRUSTED ADVISOR



Over 50 years of value-added service

WEBINAR SERIES

precisionrollgrinders.com

WHAT DOES BEING A TRUSTED ADVISOR MEAN?

CUSTOMER SERVICE IS NOT A DEPARTMENT.

IT'S AN ATTITUDE.

TRUSTED ADVISOR MEANS YOU ENSURE OUTCOMES FOR YOUR CUSTOMERS AND YOU MANAGE ACTIONS FOR THEIR SUCCESS.

It means that you have:

the training

the knowledge

to be a subject matter expert

to be trusted to advise your clients well.

... and provide real economic value \$\$



TRUSTED ADVISOR = SUBJECT MATTER EXPERTISE

SUBJECT MATTER EXPERTISE COMES FROM:

SPECIALIZATION

not 'general' equipment knowledge, specific roll knowledge. APPLICATION
someone that has been there, done that.

PRACTICAL

"How many years have you been doing this?"

VALUE-DRIVEN

at the end of the day, the customer has to make \$\$

This is an investment.

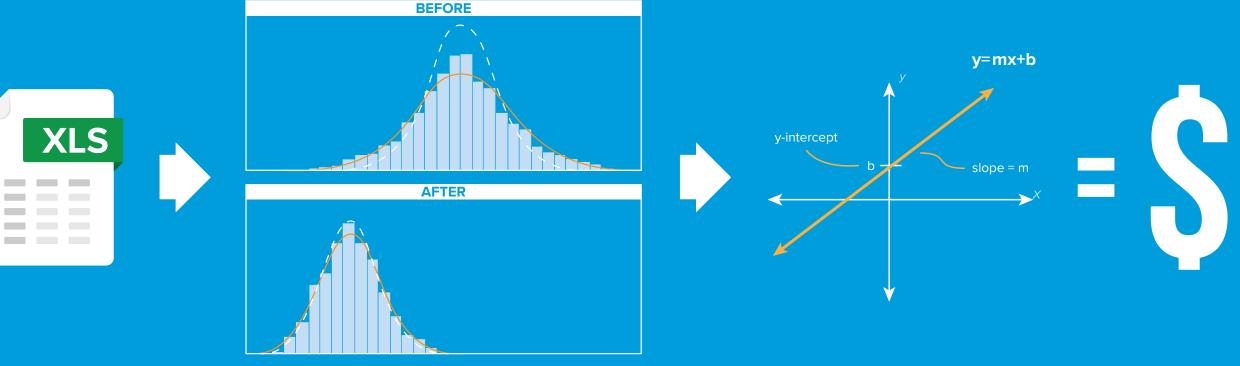
It shouldn't just be a maintenance cost.



VALUE DRIVEN IS A PROMISE TO PROVIDE REAL VALUE

PROCESS VARIATION IMPROVEMENT, ROLL LIFE = \$

- Joint Design of Experiment to reduce variation, improve roll life, improve quality, increase production ...
- Data analysis on current process
- Implement plan for variation improvement
- Data analysis on improved process predictive equation



PRECISION ROLLS: WHAT MATTERS = \$\$

PRE-GRINDS AND GRINDS FOR PROPER TOLERANCES AND SHAPE

Reducing Variation

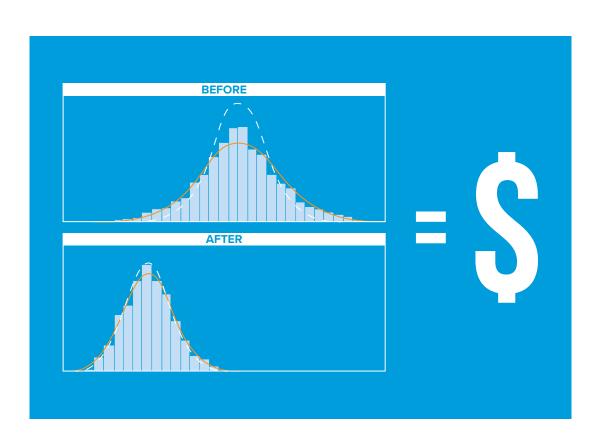


MAINTAINING THE SURFACE AND OPTICAL PROPERTIES YOU NEED TO PRODUCE HIGH-QUALITY PRODUCT

World-Class Product Quality



VALUE-DRIVEN RESULTS THROUGH MATERIAL SAVINGS, PRODUCT QUALITY AND ROLL LIFE



REDUCING VARIATION— ROLL ROUNDNESS MATTERS

IMPROPERLY GROUND

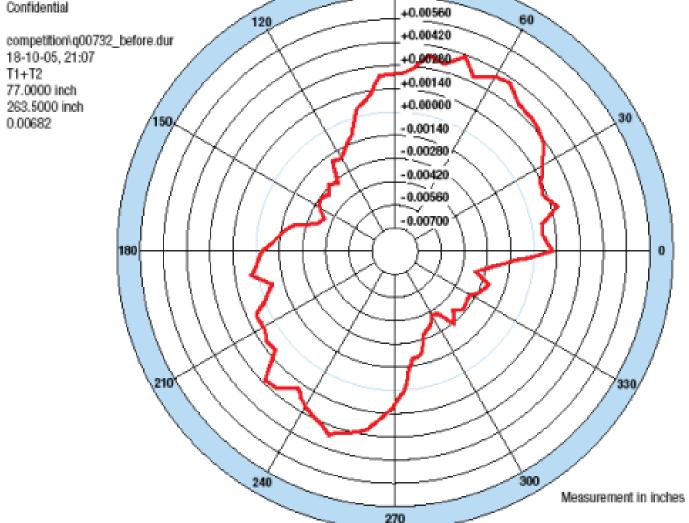
Measurement Record Confidential Customer:

Customer Roll Number:

Roundness:

Roundness:

18-10-05, 21:07 Measure Time: Probe Mode: T1+T2 Curve Zero Point: 77.0000 inch Measurement Position: 263.5000 inch 0.00682



90+0.00700

PRECISION GROUND

Measurement Record

Customer: Confidential Customer Roll Number: Roundness: Probe Mode:

Roundness:

competition\q00732_after.dur 19-10-05, 09:13 Curve Zero Point: 77.0000 inch Measurement Position: 263,5000 inch

0.00021

+0.00420 +0.00280+0.00140 +0.00000 -0.00140 0.00280 -0.00420 -0.00560 -0.00700

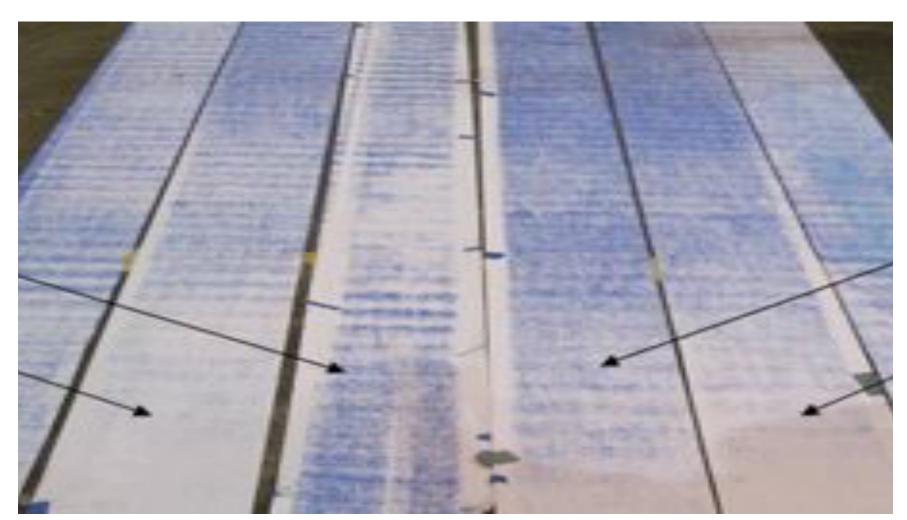
90+0.00700

+0.00560

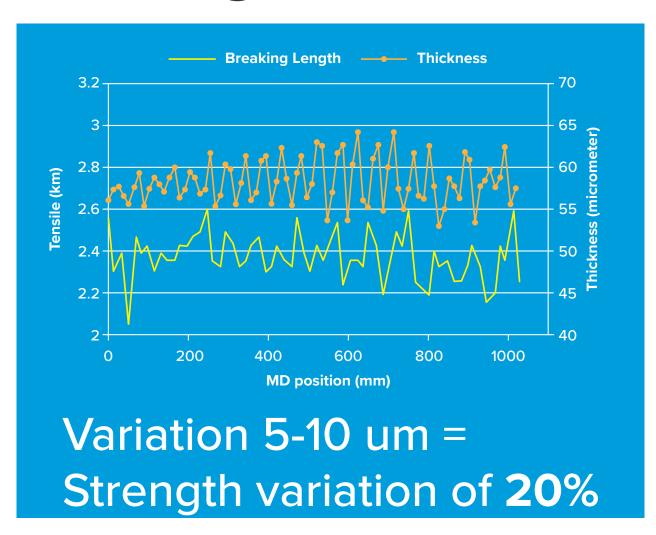
REDUCING VARIATION— ROLL ROUNDNESS MATTERS

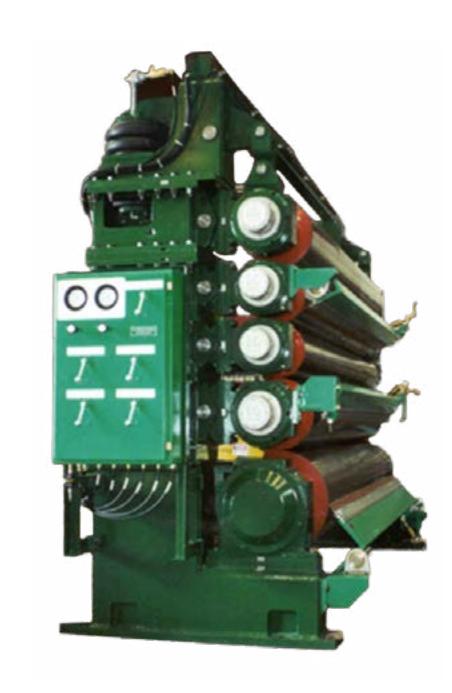
ROLL ROUNDNESS PERFORMANCE = LOWER PROCESS VARIABLITY

 Machine direction variation or barring



This causes
 strength variation

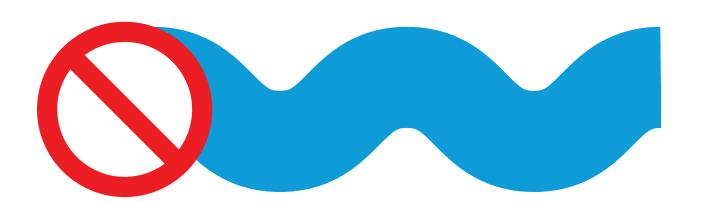




REDUCING VARIATION—ROLL SHAPE MATTERS

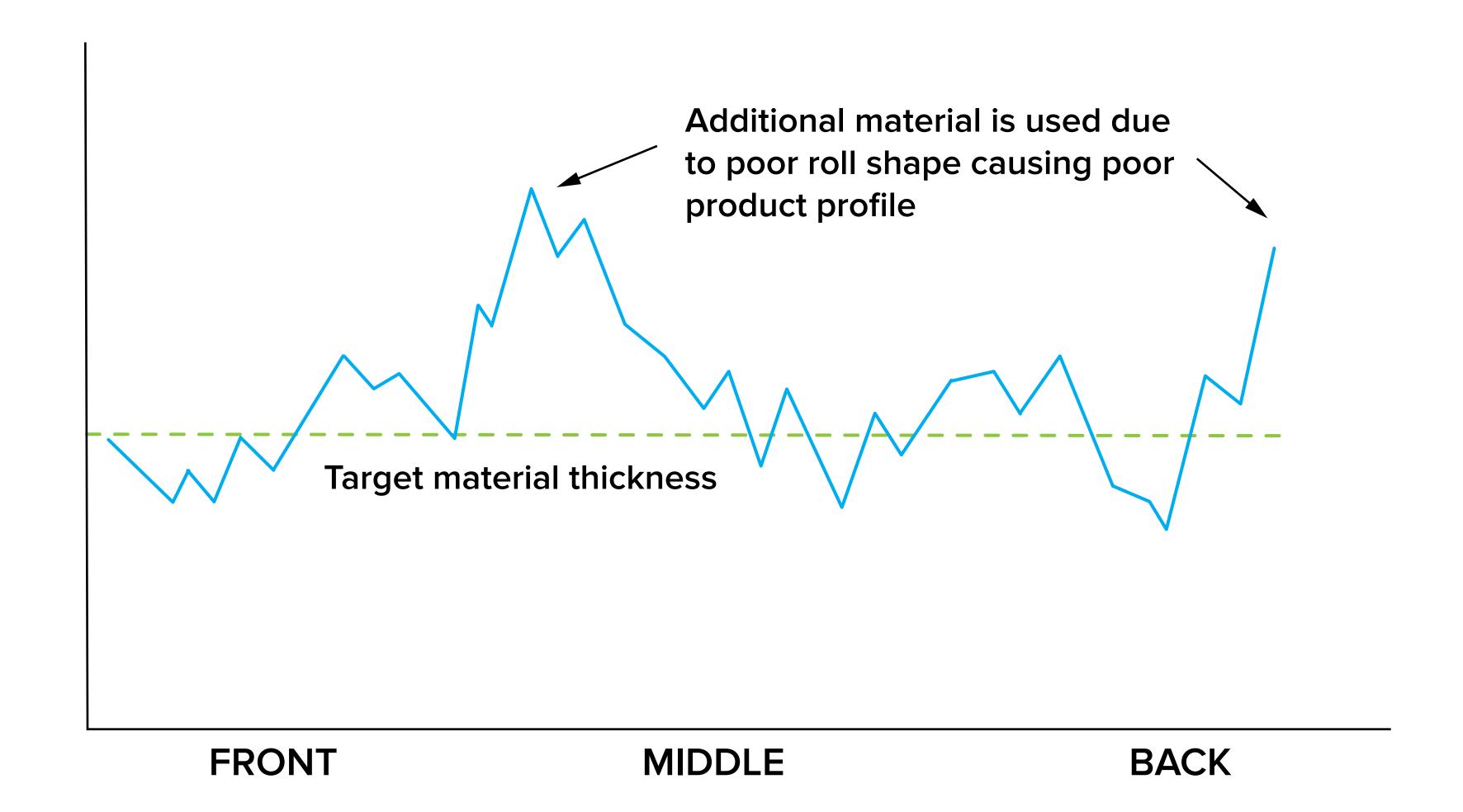
UNIFORM MATERIAL THICKNESS

- Reduced material usage due to a thick or "wavy" sheet
- Reduced defects due to localized thinning in the material profile
- Improved end-product construction
 - Reduce defects caused by a deviation in the material thickness
 - Improved construction productivity with a more uniform material thickness

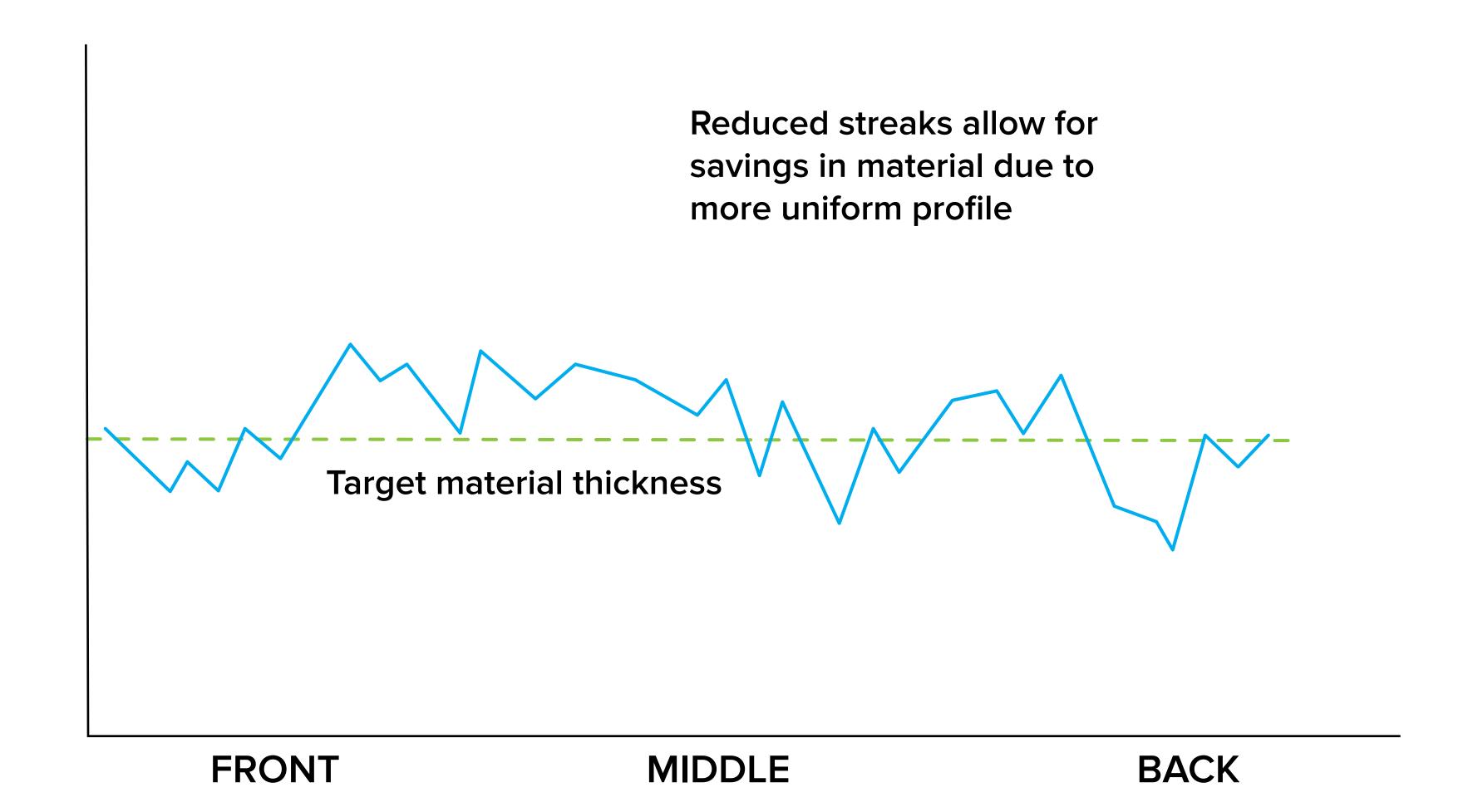




POOR ROLL SHAPE = LOST MATERIAL



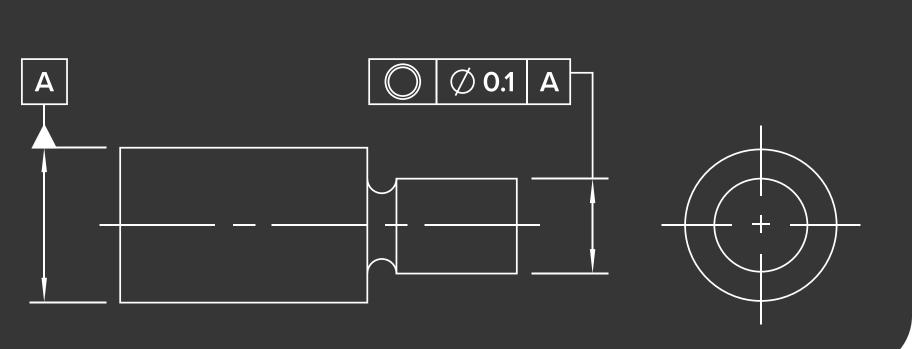
GOOD ROLL SHAPE = MATERIAL SAVINGS



REDUCING VARIATION — ROLL CONCENTRICITY MATTERS

CONCENTRICITY

Concentricity is a tolerance that controls the central axis of the referenced feature, to datum axis.



Concentricity must be attained to ensure roundness and shape.

Poor concentricity leads to material losses and shorter roll life.

Often overlooked.

SURFACE FINISH MATTERS

OUR TYPICAL TOLERANCE IS 5 UM. 10% OF OUR WORK HAS TOLERANCES LESS THAN 2.5 UM.

	Diameter	Face Length	Tolerances	Finish
Battery	400	420	2 um	0.05
Battery	320	280	2 um	0.05
Battery	445	305	1 um	0.025
DOD	880	990	1 um	0.1
Coating	365	610	1.3 um	0.15
Coating	305	460	1 um	0.15
DOD	320	280	2 um	0.05
Plastics	610	1730	1.5 um	0.15
Plastics	610	1820	1 um	0.05
Plastics	610	1830	2 um	0.1
Plastics	720	2690	2 um	0.02

ROLL LIFE AND START-UP—MECHANICAL EXCELLENCE

PRECISION MAINTENANCE IS MORE THAN JUST PRECISION GRINDING

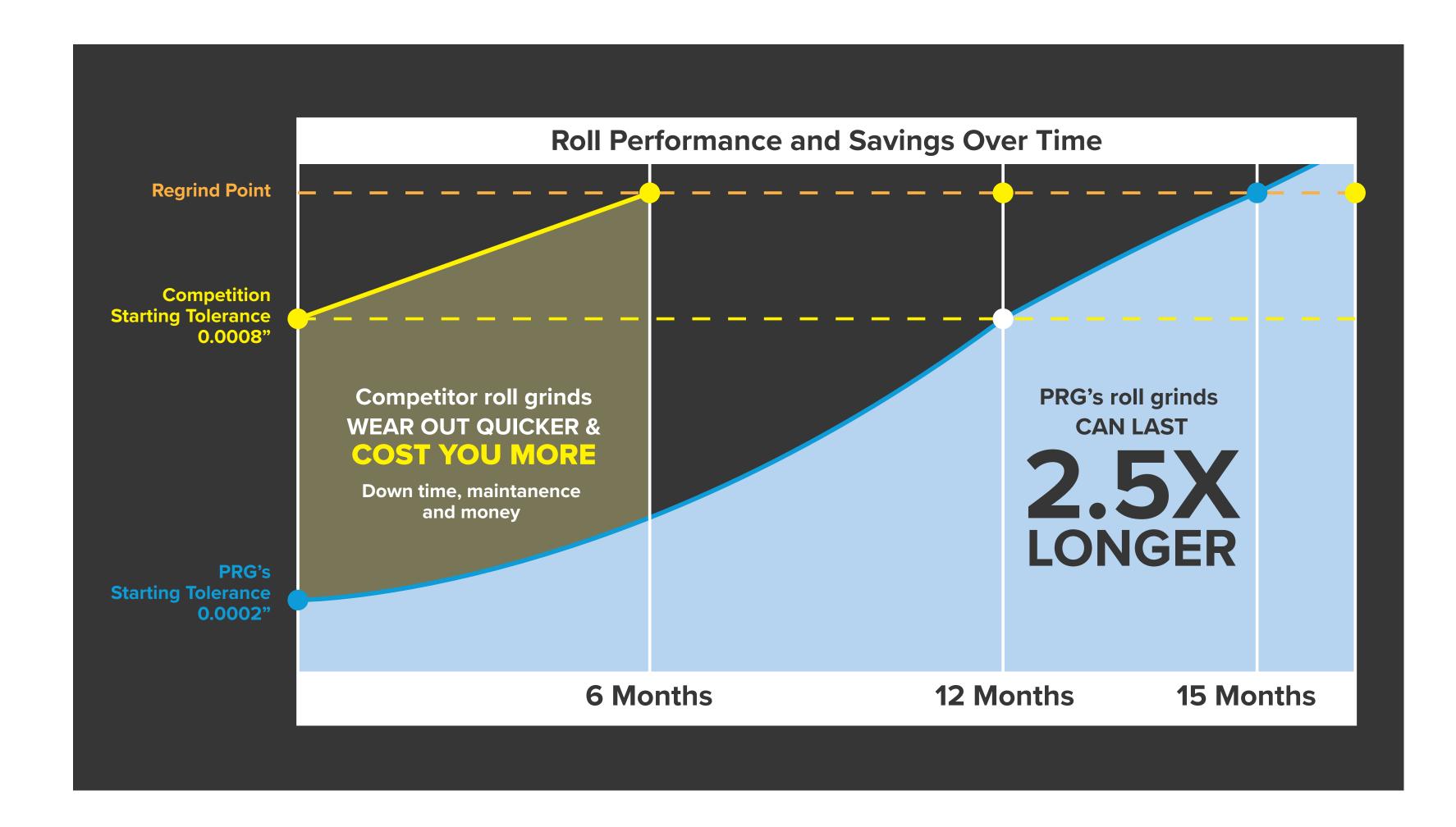
- Thorough inspection of bearings and housings
- Proper assembly of bearings and housings
- Replacing worn or damage bearings and bushings
- Journal repair and replacement
- On-time start-up and profitable production







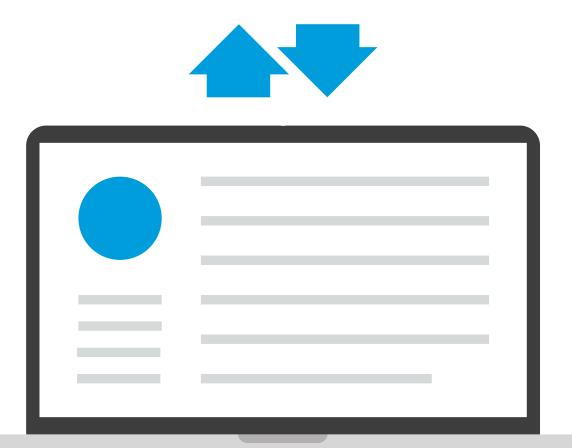
ROLL LIFE AND START-UP

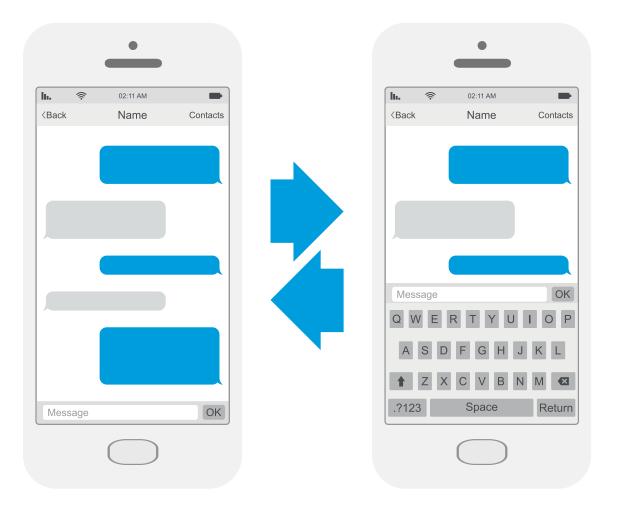


ROLLS THAT
START CLOSER
TO PERFECTLY
ROUND START
UP FASTER &
RUN LONGER!

TRUSTED ADVISOR IN A "VIRTUAL" WORLD







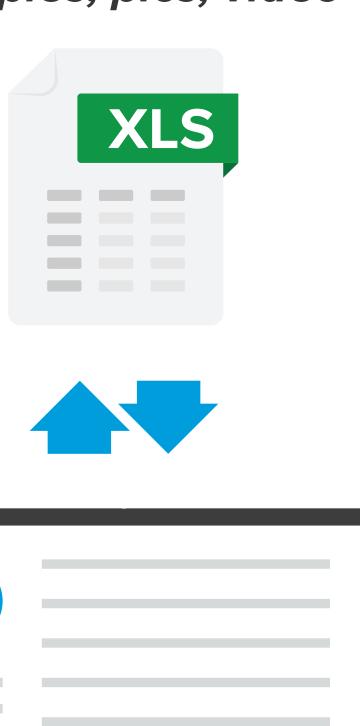


WHAT ARE "VIRTUAL VALUE-ADDED" SERVICES?

PARTNERING WITH YOUR ROLL SERVICE PROVIDER TO IMPROVE YOUR PROCESS REDUCING VARIATION

- Data analysis, sampling and testing
- Statistical validation of real benefits (\$\$)
- Virtual troubleshooting (pics/video)

Send us your data, samples, pics, video



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COST OF IMPROPERLY GROUND ROLLS



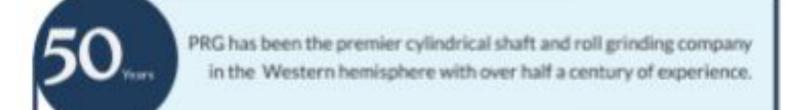
DESCRIPTION	VARIABLE	AMOUNT
PRG Grind Cost	\$20,000.00	
PRG Roll Life (months)	14.00	
Competitor's Grind Cost	\$10,000.00	
Competitor's Roll Life (months)	6.00	
Annual Savings due to Extended Roll Life		\$2,857.14
Production Hours Lost due to Improperly Ground Roll	2.00	
Lost Revenue Per Hour	\$3,500.00	
Total Lost Revenue due to Improperly Ground Roll		\$7,000.00
Scrap While Running Improperly Ground Roll (pounds)	50.00	
Cost per pound	\$50.00	
Total Scrap Cost due to Improperly Ground Roll		\$2,500.00
Revenue Per Hour at Normal Production Speed	\$3,500.00	
Percent Production Lost due to Degraded Speed	0.10	
Hours Run at Degraded Speed	24.00	
Revenue Lost Due to Degraded Speed		\$8,400.00
TOTAL COST OF IMPROPERLY GROUND ROLL		\$17,900.00

This total cost calculator tool will allow you to project the operational cost of an improperly ground roll and potential savings with an investment in PRG grinding services.

CLICK HERE to access your own fully functional calculator as a Microsoft Excel file. Simply insert your values within the green cells and your projected savings will be automatically calculated.

TRUSTED ADVISORS PROVIDE VALUE — CASE STUDY





Your Production Line Could be Saving Money and Time with Increased Quality.

within your desired tolerances.

Your production line may be experiencing excessive materia use, unplanned shutdowns, and even poor quality. Many of these problems could be improved or even avoided with something as simple as a high quality grind for your rolls. "PRG can grind to tolerances as small as 0.00002 or 20 millionths of an inch"

See the other side to learn more

	Sheet Profile (Standard Grind)	Sheet Profile (PRG Grind)
PRG can significantly	and Rubber	Worled Rubble
increase		- None
your _	VS VS	jane -
material — savings.		

With the higher tolerances and quality at PRG, your rolls will always be ground to the

proper specifications. The results that can be seen in your plant is a far superior rubber

sheet profile. This leads to significant savings in material and more of your product falling

Parameter	Value	1/10,000 inch may sound unimportant in an industry that creates thousands of feet of product a day in large scale operations, but the impact on the material savings is tremendous. The model to the left demonstrates the possible savings that our tolerances can achieve. As small as only a 2/10,000 inch difference can result in over a half million dollars in savings every year!	
W - Sheet Width (In)	48		
5 - Sheet Speed (FPM)	130		
D = Days/Year in Operation	250		
C = Avg. Cost in \$ per lb (Mat1 & Labor)	1.5		
SG = Specific Gravity of Material	1.2		
PPt = Calculated lbs/in	0.04332	We Do More Than Just Roll Grind	
T = Tolerance With Current Grinding Method (=&-Inches)	00004	Brush Electroplating	
PRGT = Tolerance with PRG Grinding Method (+or- Inches)	5525,496	Chrismic Plating	
Average Annual Savings			
Colculation W*IS*12 in/ftl*(D*1440 min/sky)*C*PPF	Journal Repair		
Want to Find Out Me Contact Precision Roll Grinders to Locations	Get a <u>Free</u> Quot	>>>>> Visit our Website Below	
Allentown, PA (610) 395-6966 6356 Chapmans Rd Lewisport, KY	(770 830-6322	Follow Us On Social Media	

CONTACT US

ALLENTOWN, PENNSYLVANIA

(610) 395-6966

CARROLLTON, GEORGIA

(770) 830-6323

LEWISPORT, KENTUCKY

(270) 295-4990

TEXARKANA, ARKANSAS

(870) 216-4000



THANKYOU FOR YOUR TIME.

QUESTIONS?



Over 50 years of value-added service

precisionrollgrinders.com