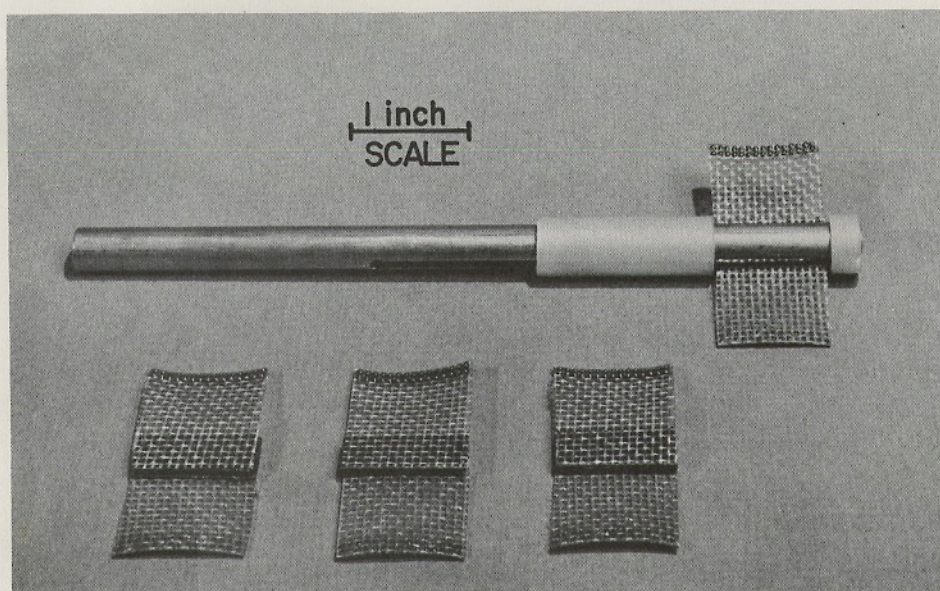


3M
COMPANY
INTRODUCTORY DATA



3M BRAND ROTOPEEN FLAP
ASSEMBLY
NS-9037 AND MANDREL NS-9028

3M COMPANY INTRODUCES A NEW BONDED SHOT PEENING WHEEL. THIS WHEEL CONSISTS ESSENTIALLY OF A STEEL MANDREL (3/8" DIA, 8" LENGTH, 5 1/2" SLOT) WITH TWO RADIALLY EXTENDING POLYMERIC FLAPS (2" X 1" ASSEMBLY) ON WHICH TUNGSTEN CARBIDE SHOT PARTICLES ARE BONDED. THIS UNIQUE TOOL ALLOWS PRECISION PEENING WITH MAXIMUM PORTABILITY AND MAXIMUM CLEANLINESS. IT IS ESPECIALLY SUITED FOR IN-SERVICE REWORK AND MANUFACTURING REPAIR OF AIRCRAFT COMPONENTS.



All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties expressed or implied: Sellers and manufacturers only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or inability to use the product. Before using, user shall determine the suitability of the product for his own intended use and user assumes all risks and liability whatsoever in connection therewith.

No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

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Building Service and
Cleaning Products Division **3M**
COMPANY
2501 HUDSON ROAD, SAINT PAUL, MINNESOTA 55119



THE NS-9028 - NS-9037 COMBINATION HAS THE FOLLOWING FEATURES:

1. BONDED TUNGSTEN CARBIDE SHOT
2. UNIFORM SHOT PLACEMENT
3. SMALL SIZE AND WEIGHT
4. FLAP WHEEL CONSTRUCTION
5. REPLACEABLE FLAPS
6. VARIABLE WIDTH

THE PRECEDING FEATURES LEAD TO THE FOLLOWING ADVANTAGES:

1. POWERED BY COMMON PORTABLE ROTARY TOOLS
2. NO NEED FOR ENCLOSURES OR SHOT CLEAN UP
3. NO IRON CONTAMINATION
4. EASILY INSPECTED PEENED FINISH
5. WIDE RANGE OF CONTROLLED PEENING INTENSITIES
6. PRECISION PEENING WITHOUT MASKING
7. SIMPLIFIED HOLE PEENING
8. SIMPLIFIED IN-SERVICE STRESS CONTROL
9. SINGLE TOOL FOR MANY APPLICATIONS

TYPICAL APPLICATIONS

LANDING GEAR ASSEMBLIES
WING STRUCTURES
HELICOPTER ROTOR HUB ASSEMBLIES
JET ENGINE SUPPORT MEMBERS
MANUFACTURING REPAIR
PEENING OF SURFACES SUBJECT TO STRESS CORROSION
PEEN STRAIGHTENING
PEEN FORMING
PEENING AFTER GRINDING
PEENING BEFORE PLATING
BOND TESTING

RJA:TMW
11/4/69



PROCEDURE FOR USING 3M BRAND ROTOPEEN

SHOT PEENING PRODUCTS

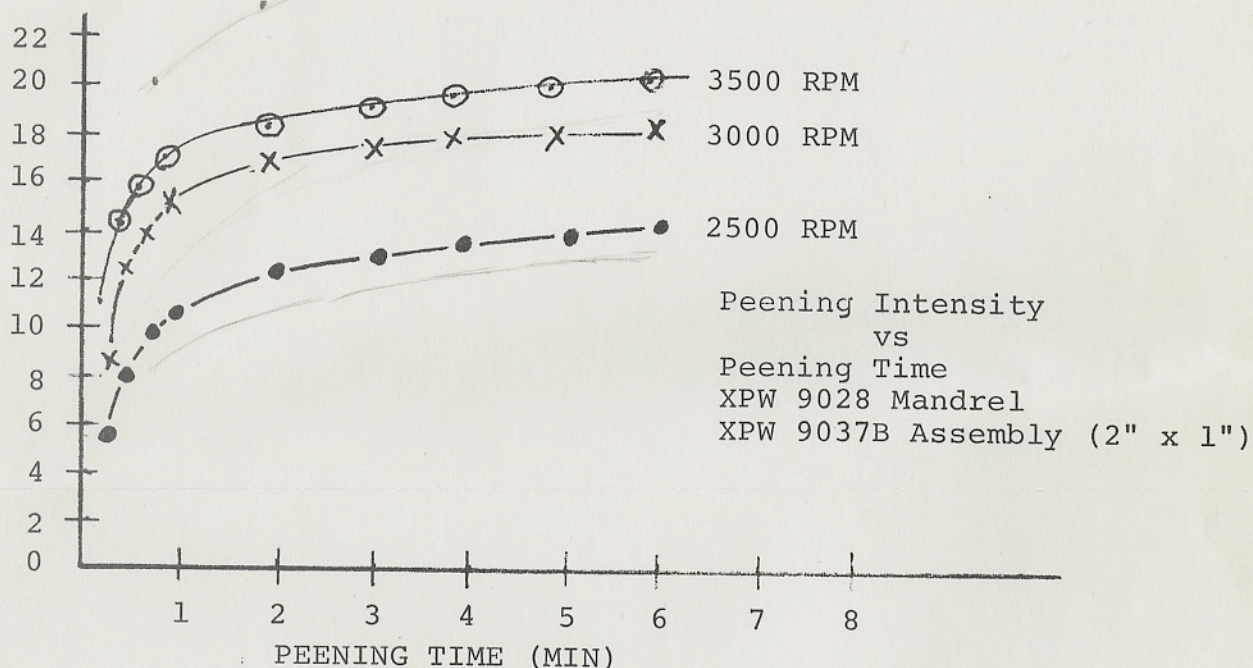
- A. DETERMINE WHEEL SPEED TO ACHIEVE DESIRED PEENING INTENSITY BY REFERRING TO THE SATURATION CURVES BELOW.
- B. MOUNT WHEEL ON A ROTARY TOOL WHICH WILL PRODUCE THE REQUIRED SPEED UNDERLOAD.
- C. SET SPEED UNDER LOAD TO 90 ± 10 % FLAP DEFLECTION BY USING A STROBE LIGHT TACHOMETER.
- D. CONDUCT PEENING INTENSITY TEST TO DETERMINE WHETHER SPEED ADJUSTMENT IS NEEDED TO OBTAIN DESIRED INTENSITY. (A 3M MAGNETIC ALMEN STRIP HOLDER MUST BE USED TO PREVENT WHEEL DAMAGE.) REFER TO CURVE BELOW FOR CORRELATION BETWEEN 3M MAGNETIC AND STANDARD ALMEN STRIP HOLDERS.
- E. CONDUCT SHOT PEENING TREATMENT
 1. THE PEENING TIME SHOULD BE DETERMINED BY MULTIPLYING THE SATURATION PEENING TIME FROM CURVES BY THE AREA TO BE PEENED AND DIVIDING THE RESULT BY THE ALMEN STRIP AREA (2.25 SQ. IN.).
 2. THE SHOT PEENING WHEEL SHOULD BE MOVED OVER THE SURFACE BEING PEENED IN A MANNER WHICH PROVIDES UNIFORM COVERAGE. COMPLETE SURFACE COVERAGE SHOULD BE DETERMINED BY VISUAL OBSERVATION.

CAUTION: DO NOT USE THIS PRODUCT AT SPEEDS IN EXCESS OF 6000 RPM.

PEENING INTENSITY (ALMEN A - 0.001 INCH)
(3M MAGNETIC ALMEN STRIP HOLDER)

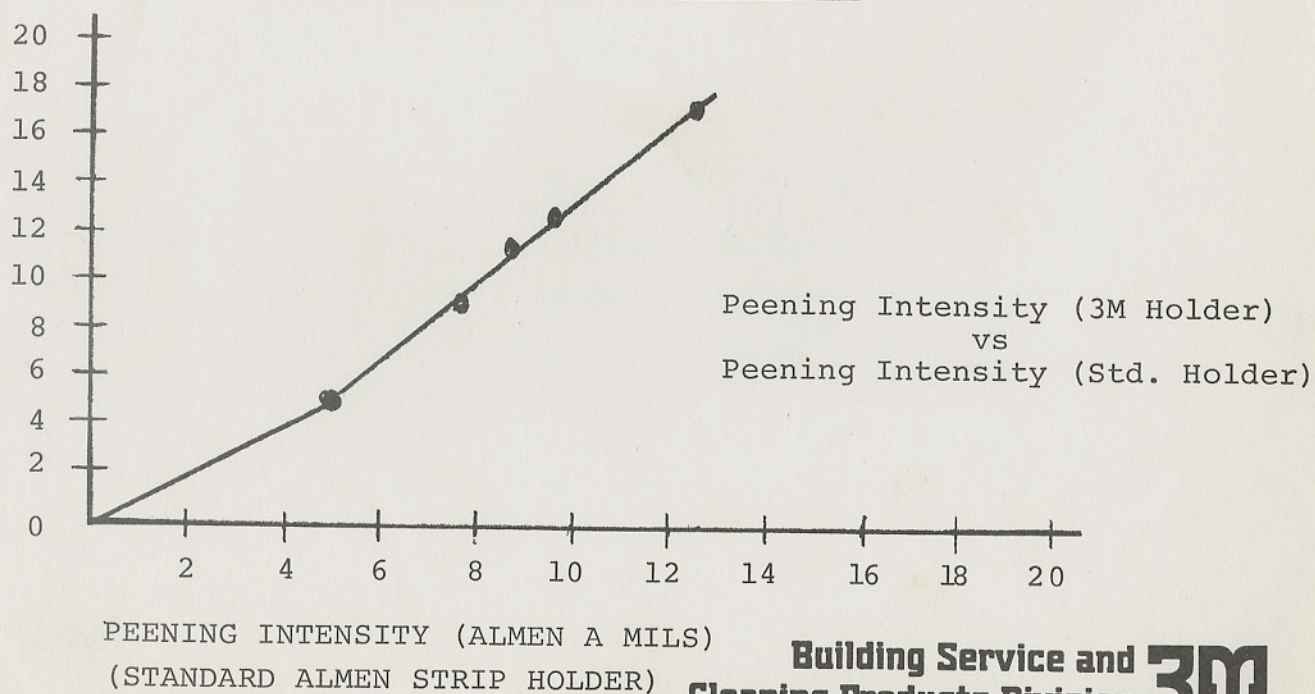
SATURATION CURVES FOR NS-9037

SHOT PEEN WHEEL



PEENING INTENSITY (ALMEN A MILS)
(3M MAGNETIC ALMEN STRIP HOLDER)

CORRELATION BETWEEN 3M MAGNETIC
AND STANDARD ALMEN STRIP HOLDERS



PEENING INTENSITY (ALMEN A MILS)
(STANDARD ALMEN STRIP HOLDER)

3M COMPANY INTRODUCTORY DATA

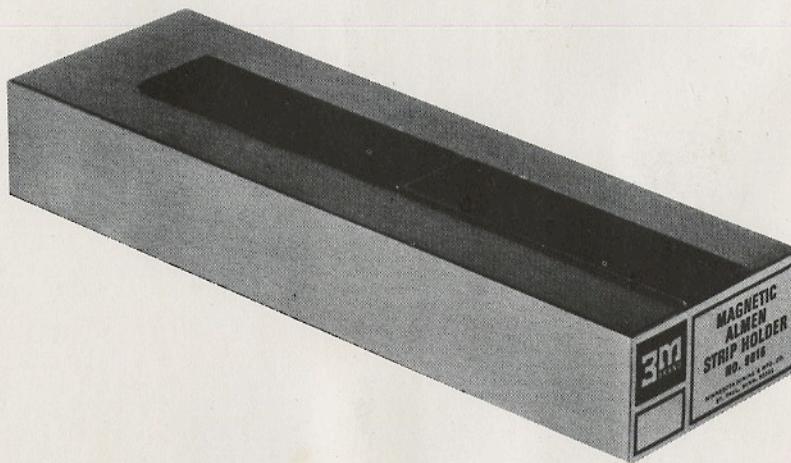


3M BRAND MAGNETIC ALMEN STRIP
HOLDER

NO. 9016

3M COMPANY INTRODUCES A NEW ALMEN STRIP HOLDER FOR SHOT PEENING INTENSITY MEASUREMENT. THIS HOLDER IS AN ESSENTIAL COMPONENT OF THE 3M BRAND ROTOPEEN SYSTEM BUT MAY ALSO BE USED ADVANTAGEOUSLY IN AIR BLAST OR CENTRIFUGAL SHOT PEENING SYSTEMS.

THIS UNIQUE DEVICE CONSISTS ESSENTIALLY OF AN ALUMINUM BODY (1" X 2" X 7") WITH 3 PERMANENT MAGNETS RECESSED INTO THE TOP SIDE FOR HOLDING THE ALMEN TEST STRIPS. THE BOTTOM SURFACE IS FACED WITH SCOTCH-TRED BRAND* NON-SKID MATERIAL, AND THE EXPOSED TOP SURFACE IS PROTECTED WITH 3M BRAND POLYURETHANE TAPE. AN ALMEN STRIP IS PERMANENTLY BONDED TO THE TOP SURFACE TO PREVENT THE TEST STRIP FROM SLIPPING OFF DURING PEENING.



* TRADEMARK OF THE 3M COMPANY, ST. PAUL, MINNESOTA.

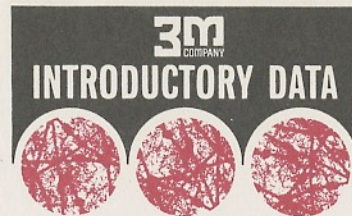
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THE 3M MAGNETIC ALMEN STRIP HOLDER OFFERS THESE ADVANTAGES:

1. ELIMINATES EXCESSIVE FLAP WEAR ON 3M BRAND ROTOPEEN WHEELS CAUSED BY THE SCREW HEADS ON CONVENTIONAL HOLDERS.
2. ELIMINATES INCOMPLETE SURFACE COVERAGE ON THE ALMEN TEST STRIP CAUSED BY THE PRESENCE OF FOUR SCREW HEADS ON CONVENTIONAL HOLDERS.
3. ALLOWS CONSIDERABLE TIME SAVING AND CONVENIENCE IN INSTALLATION AND REMOVAL OF TEST STRIPS.
4. ALLOWS REUSE OF ALMEN STRIPS SO THAT ONLY ONE STRIP IS NEEDED TO DETERMINE A SATURATION CURVE.

INSTRUCTIONS FOR INTENSITY MEASUREMENT

1. SET ZERO CURVATURE POSITION FOR NEW ALMEN STRIP WITH ALMEN NO. 2 GAUGE.
2. PLACE ALMEN STRIP OVER MAGNETS WITH THE SURFACE WHICH CONTACTED THE GAUGE DOWN. (ONE END OF TEST STRIP SHOULD BE CONTACTING BONDED STRIP.)
3. ORIENT HOLDER SO THAT ROTOPEEN WHEEL ROTATION WILL TEND TO PUSH TEST STRIP AGAINST BONDED STRIP.
4. PEEN FOR ONE MINUTE AT CHOSEN WHEEL SPEED WITH A TECHNIQUE WHICH GIVES UNIFORM COVERAGE (REFER TO 3M ROTOPEEN PRODUCT DATA SHEETS FOR DETAILED INSTRUCTIONS).
5. DETERMINE STRIP CURVATURE BY PLACING UNPEENED SIDE AGAINST GAUGE.
6. CONVERT CURVATURE TO STANDARD INTENSITY BY REFERRING TO THE PROVIDED GRAPH.
7. REPEAT STEPS 2 THROUGH 6 UNTIL SATURATION CURVE IS DEVELOPED.
8. DETERMINE THE PEENING INTENSITY AT SATURATION TIME FROM A GRAPH OF STANDARD PEENING INTENSITY VS. PEENING TIME. (A DEFINITION OF SATURATION TIME IS THAT TIME WHICH WHEN DOUBLED WILL RESULT IN AN INCREASE IN PEENING INTENSITY OF 15% OR LESS.

PMW:TMW
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CORRELATION BETWEEN 3M MAGNETIC
AND STANDARD ALMEN STRIP HOLDERS

