## IN TUBE OR SOLID PINNED ROLLS, WE GET QUALITY ROLLING.

## YOUR SPECS IN ANYTHING PINNED ARE ABOUT TO BE MET WITH PIN-POINT ACCURACY.

## COMPANY POLICY:

We are committed to quality and customer satisfaction.

Robert A. Main \& Sons, Inc.
is proud to have earned the ISO 9001 registration mark.

Due to the specialized nature of our products, we work on a very confidential basis with our customers.

We never reveal the names and addresses of concerns who have our equipment.

Most companies appreciate our sales policy, and after purchasing our products, are glad to have our confidence.

We manufacture to your specifications - in large or small quantities; all types of pinned applications for hot, cold, wet or dry conditions.
Our engineering department will gladly work with you to solve your problems. All of our products can be made in many combinations of sizes. Pins, points and teeth can be of any configuration to suit your needs. They can be set at any angle or spacing desired.

When possible, our products are engineered to facilitate repinning.

## PERFORATING ROLL - TYPE H-16

Spike roll shown is 4" O.D., $48^{\prime \prime}$ wide with $1 / 8^{\prime \prime}$ diameter pins on 1/4" centers.
Rolls are made in sizes to meet your needs.
Let Main make your rolls!


## TYPE U-031

Tube Roll made with very sharp removable points, Type SS. Very easy to repin. This type also good for easy pattern change.
Roll is approximately $6^{\prime \prime}$ in diameter x $65^{\prime \prime}$ wide.

Steel roll $60^{\prime \prime}$ long, 4" O.D., with Type WV screw base, renewable tip pin.

This type pin makes it easy to change pattern or


## TYPE R-140

Pin Wheel 8" diameter with long pins and blunt tip for putting "dimples" in your material.


## TYPE S-118

Pin Shell - will slip over steel shaft. Let us design and build pin shells for your operation.


## TYPE R-146

Pin Shell made to slip over your shaft.


## TYPE S-123

Pin Shell made in short section to fit on shaft for easy repinning.
Shown below
mounted on shaft in PB-67


## TYPE S-113

Pin Shell when mounted edge to edge on steel shaft will give continual even pin pattern.


DESCRIPTION OF TYPE R-146 / S-113 / S-118 "REGULAR SIZE" PIN SHELLS (REPINNABLE)

| O.D. | I.D. | WIDTHS | PIN PATTERN (SQUARE) |  |  |  |  | PIN PROJECTION STRAIGHT UP | PIN SIZE | TAPERED POINT LENGTH | S.P. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1/2" | 3/8" | 1/4" | 3/16" | 1/8" |  |  |  |  |
| 1-1/2" | 1/2" | $2^{\prime \prime}$ to 6" |  |  |  |  |  | 1/32" to 3/8" | .024" to .125" | To be determined |  |
| 2" | 1-1/2 | $2^{\prime \prime}$ to 6" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 2-1/2" | 2 " | $2^{\prime \prime}$ to 6" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 3" | 2-1/2" | $2^{\prime \prime}$ to 6" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| $3-1 / 2^{\prime \prime}$ | 3 " | $2^{\prime \prime}$ to 7" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 4" | 3-1/2" | $2^{\prime \prime}$ to $8^{\prime \prime}$ |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 5" | 4-1/2" | 2" to 10" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 6 " | 5 " | 2" to 13" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 7" | To be determined | 2" to 13" |  |  |  |  |  | $1 / 32^{\prime \prime}$ to $3 / 8^{\prime \prime}$ | .024" to .125" | To be determined |  |
| 8" | To be determined | $2^{\prime \prime}$ to $13^{\prime \prime}$ |  |  |  |  |  | 1/32" to 3/8" | .024" to .125" | To be determined |  |

Descriptions show some of the "common size shell rolls" we manufacture. For example: A 2 1/2" O.D. shell roll can be made with I.D. up to 2 ", normal widths from 2 " to $6^{\prime \prime}$, with square or diamond pin patterns as shown. If these sizes do not meet your requirements, we will gladly make these
type pin shells to your exact sizes - we have over 1600 sizes of heat treated, tool steel sharp points in stock, to use in making your pinned products. Many combinations of pin patterns can be used.
Phone, fax or e-mail with your needs so we can assist you.

## COMPLETE ROLLS MADE WITH SHELLS MOUNTED ON SHAFTING.

## TYPE -119

These are Type S-118's mounted on shaft


## TYPE PB- 67

Roll approximately 55" wide x $6^{\prime \prime}$ diameter made up of individual sections, Type S-123. Pins heat treated stainless steel for long, hard, wet duty.


## TYPE SS-20

Shown is a roll with metallic sleeves mounted on steel base. Sleeves can be removed with ease for repinning. All types of pin arrangements can be made to suit your exact requirements on any type of pinned


## TYPE PR-81

Steel perforator roll with needle sharp, tool steel points projecting straight out - large, heavy duty points for making large size holes in sheet type products. Special rolls made to your exact requirements.


THESE ROLLS MAKE HOLES.

TYPE D-75
Aluminum roll $10^{\prime \prime}$ in diameter x 80" wide stainless points projecting out on special pattern.
Roll manufactured to make a pattern in soft sheet type product.

## TYPE S-17

Solid type steel roll with hardened steel points, projecting at


Roll body is 4" O.D. x $36^{\prime \prime}$ wide.
Pins are \#.125-.625-. 312

## TYPE PAT-663

Evener Roll, using steel tubing and heat-treated steel pins - projecting straight out. Roll made to "level-out" granular material on a conveyor belt.
Can be chrome plated for corrosive operations.

## TYPE CN-318

Steel roll approximately $14^{\prime \prime}$ in diameter by 70 " wide, with aluminum bars mounted across face of rolls.
Bars contain heat treated steel pins. Roll made to clean a Brush Roll.


## TYPE D-138

Special 119 roll, This steel roll has S-118 shells with specially engineered locking collars. We can help design and build a special roll for you.


## TYPE C-SCAT \#8

Approximately $16^{\prime \prime}$ in diameter, 60 " wide roll made with scatter pattern.
Manufactured to put holes in ceiling tiles.


## DELUMPING ROLLS - TYPE SC-304

All stainless construction. Roll designed with take-off sections for easy repinning.
Pins project out about 21/2".
Base roll is 5" O.D. x $30^{\prime \prime}$ wide. Meshing rolls will break up lumps, mix, etc.


## SHREDDER ROLL - TYPE FB-101

Large Pin Breaker Roll.
Tube Type, 8" O.D. x $25^{\prime \prime}$ wide, made to mesh with Roll FB-100.
Pin is straight-out type \#SP-.750-2.250-. 875


## PERFORATING ROLLS - PER-10

Single row perforating roll 40 " wide $\times 5^{\prime \prime}$ O.D.
Used to perforate sheet material on fixed measurement. Diameter of roll determines distance between lines of perforations as on each revolution a perforation is made.


## PERFORATING ROLLS - BLU-44

Blunt type pins, made flat on top to perforate soft "plastic type" material or to "dimple" material.
Roll is $6^{\prime \prime}$ O.D. x $26^{\prime \prime}$ wide and repinnable.


## BREAKER ROLL OR MIXER ROLL - TYPE BR-108

Corrosion resistant roll $10^{\prime \prime}$ in diameter by $16^{\prime}$ long.
Used to mix or keep soft solution in suspension due
to rotary action.


## REMOVABLE, REPLACEABLE, REPINNABLE ROLLS AND CYLINDERS.

TYPE S-203
Heavy duty roll, wide face with heavy type points, steel faced hardwood sections.

Roll is approximately 18" O.D. x 48" wide.


## TYPE BR-42

Metal sections are held in grooves for
positive holding power.
Let Main design and make your cylinders.


## TYPE BB-16

This special 3 bar Beater Cylinder is $16^{\prime \prime}$ in diameter and 41" wide.
It is used to process fibrous materials or for special applications.


## TYPE C-42

42" diameter roll, 48" wide, with blunt points. Repinnable


## TYPE BM-64

With removable metal sections for easy pin replacement.

Cylinder is approximately 50" wide


## TYPE R-514

With sharp points projecting at angle. Full length sections have steel facing and are removable.


## TYPE R-842

Many steel pints set at angle - steel faced sections repinnable. Roll has 5 1/2" diameter under sections - sections are approximately $1^{\prime \prime}$ thick and roll is 42" wide.


## TYPE IP-LP-44

$72^{\prime \prime}$ wide, $36^{\prime \prime}$ in diameter cylinder with points ground to blunt, set straight out.

Roll has removable sections.


## TYPE OG-99

Special purpose roll made with full length sections and repinnable, blunt points set at angle.

Roll is approximately $6^{\prime \prime}$ diameter under pins and 50" wide.


Whovymy


Whyman
vany


## TYPE OC-40

This small diameter roll has pinned sections that can be removed. Roll is made to fit your shaft.


## TOP QUALITY AT A BETTER BOTTOM LINE.

## STEEL TUBE PIN ROLLS - TYPE H-16



The above Type H-16 steel tube type rolls are made of steel tubing, approximately $1 / 4^{\prime \prime}$ to $3 / 8^{\prime \prime}$ wall thickness; with steel shafting extending each end. Shaft extensions made to suit your application.
Pictured below are Type 618 Hardwood Rolls which are more economical to make than steel body rolls and will operate satisfactorily under conditions where slower speeds and less strain exist.
These hardwood rolls are normally of solid construction (most wood rolls over 8" O.D. are wood sections mounted on metal spiders) with full length steel shafting. Shafts normally extend 6 " on each end. Rolls are made with heat treated, tool steel points from $.062^{\prime \prime}$ diameter to $130^{\prime \prime}$ diameter, projecting straight-up. Prices vary with diameter and length of roll and closeness of pins.

Write today for a quotation on size and type roll you are interested in purchasing.
"Standard Sizes" shown to right give length and diameter only for a guide; we will make rolls to your exact length.


## MADE TO MESH BEAUTIFULLY.

## TYPE M-11

Two rolls of stainless steel repinnable construction, made to mesh.

Excellent to break up lumps, mix, sift, clean, etc.


STANDARD SIZES
H-16 STEEL TUBE \& 618 HARD WOOD PINNED ROLLS

| ROLL DIA. | MAX SHAFT DIA. | PIN CENTERS AVAILABLE |
| :---: | :---: | :---: |
| 2-7/8" dia. | 1-3/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| 3 " dia. | 1-3/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $3-1 / 2^{\prime \prime}$ dia. | 1-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| 4 " dia. | 1-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $5^{\prime \prime}$ dia. | 1-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| 5-1/2" dia. | 1-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $6{ }^{\prime \prime}$ dia. | 1-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| 7" dia. | 2-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $8{ }^{\prime \prime}$ dia. | 2-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $10^{\prime \prime}$ dia. | 2-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $12^{\prime \prime}$ dia. | 2-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $14^{\prime \prime}$ dia. | 2-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $16^{\prime \prime}$ dia. | 2-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $18^{\prime \prime}$ dia. | 2-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $20^{\prime \prime}$ dia. | 2-15/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $24^{\prime \prime}$ dia. | 2-5/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $30^{\prime \prime}$ dia. | 3-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |
| $36^{\prime \prime}$ dia. | 3-7/16" shaft | $1 / 4^{\prime \prime}$ or $1 / 2^{\prime \prime}$ or $3 / 4^{\prime \prime}$ or $1^{\prime \prime}$ |

Lengths: 12", $18^{\prime \prime}, \mathbf{2 4 " ,} \mathbf{3 0 " ,} \mathbf{3 6 " ,} 40^{\prime \prime}, 48^{\prime \prime}, 60^{\prime \prime}, 72^{\prime \prime}, 80^{\prime \prime}, 90^{\prime \prime}, 100^{\prime \prime}$ to 24 ft.


#### Abstract

Note: Above dimensions, when quoted, are figured for round points, secured in roll and projecting straight up. Length of projection, up to and including $3 / 8^{\prime \prime}$. We will gladly make special rolls and cylinders to your exact requirements. Pin centers are for directions both ways - across and around the roll and can be modified to suit your needs.


## TYPE AL-617

Solid type aluminum pin roll 9 1/2" wide with heat treated tool steel points set very close together.

Base diameter of roll is $1^{\prime \prime}$ with pins projecting straight out $7 / 16^{\prime \prime}$.
Pins are \#.093-1.125-. 375


## TYPE 616

Small diameter wood roll with steel shaft and heat treated steel pints projecting out. Points are needle sharp.
Pins are \#.125-.625-. 312.


## TYPE S-46

Steel cylinder designed for heavy duty operation with removable points, screw base type, for mixing, scratching, breaking, separating, etc.

Roll is $16^{\prime \prime}$ O.D. approximately $\times 50^{\prime \prime}$ wide.
Pins are \#K-33.


## FEED ROLL - TYPE SR-40

Heavy duty steel faced rolls. 1/4" dia. pins project at an angle and are replaceable.
Base cylinder is $81 / 2^{\prime \prime}$ O.D. x 40 " wide.
Pins are \#.251-1.375-. 500


## TYPE N-16

All stainless roll approximately $6^{\prime \prime}$ O.D. x $20^{\prime \prime}$ wide with round $3 / 16^{\prime \prime}$ diameter blunt teeth projecting up $5 / 16^{\prime \prime}$ on $1 / 2^{\prime \prime}$ staggered centers, used for breaking purposes.


## TYPE S-47

Steel roll approximately $16^{\prime \prime}$ O.D. x $53^{\prime \prime}$ wide with steel removable sections for easy pin change.
Our products are individually made to customer's requirements.
Pins are Special Tapered type.


## TYPE BM-66

Spike cylinder made in lengths up to 24 feet long by 18 inch diameter. Shown here is a spike cylinder over 17 feet long x 18 inches in diameter with small sharp points projecting out. Points are on 2" staggered pattern.

Pins are Stainless Steel.

## SHARP INNOVATIONS IN PERFORATING WHEELS.

TYPE PW-18
With internal bearings and flush sides.

TYPE PW-11
With hub and set-screw.

## TYPE PW-9

With hub and bearing.

PINNED WHEELS
Manufactured from aluminum, plastic or steel with steel or stainless steel pins to perforate your material.
Pin centers are set to suit your requirements.
"STANDARD" TYPE METAL WHEELS (MADE TO YOUR ORDER)

| TYPE* | $\begin{aligned} & \text { O.D. } \\ & \text { WHEL } \end{aligned}$ | BORE | $\begin{aligned} & \text { HUB } \\ & \text { THICKNESS } \\ & \text { OVERALL } \end{aligned}$ | $\begin{aligned} & \text { WHEEL } \\ & \text { WIDTH } \end{aligned}$ | HUB O.D. | $\begin{aligned} & \text { PIN } \\ & \text { PROJ. } \\ & \text { ST. UP } \end{aligned}$ | PIN DIA. | $\begin{gathered} \text { PIN } \\ \text { TAPER } \end{gathered}$ | ROWS OF PINS AVAILABLE | $\begin{aligned} & \text { STD. PIN } \\ & \text { CENTERS } \end{aligned}$ | OTHER DIM. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2 | Up to 1" | $3 / 4$ " | 1/4" | 1-1/2" | Up to $1 / 4^{\prime \prime}$ | . 032 to . 062 | Up to full proj. | 1 | $\begin{gathered} \hline 3 / 16^{\prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \end{gathered}$ |  |
|  | 3 | $\begin{gathered} \text { Up to } \\ 1-1 / 4^{\prime \prime} \\ \hline \end{gathered}$ | 3/4" | 1/4" | 1-7/8" | Up to $1 / 4^{\prime \prime}$ | . 032 to 062 | Up to full proj. | 1 | $\begin{gathered} \hline 3 / 16^{\prime \prime \prime} \cdot 1 / 4^{\prime \prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \\ \hline \end{gathered}$ |  |
|  | 4 | $\begin{gathered} \hline \text { Up to } \\ 1-15 / 16^{\prime \prime} \\ \hline \end{gathered}$ | 1 " | 1/2" | 2-7/8" | Up to 1/4" | . 032 to . 062 | Up to full proj. | 1 or 2 | $\begin{gathered} 3 / 16^{\prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \\ \hline \end{gathered}$ |  |
|  | 5 | $\begin{gathered} \hline \text { Up to } \\ 1-15 / 16^{\prime \prime} \end{gathered}$ | 1 " | $1 / 2^{\prime \prime}$ | 2-7/8" | Up to 1/4" | . 032 to . 062 | $\begin{aligned} & \text { Up to } \\ & \text { full proj. } \end{aligned}$ | 1 or 2 | $\begin{gathered} \hline 3 / 16^{\prime \prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \\ \hline \end{gathered}$ |  |
|  | 6 | $\begin{gathered} \hline \text { Up to } \\ 1-15 / 16^{\prime \prime} \\ \hline \end{gathered}$ | 1-1/4" | 1/2" | 2-7/8" | Up to 1/4" | . 032 to . 062 | Up to full proj. | 1,2 or 3 | $\begin{gathered} \hline 3 / 16^{\prime \prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \\ \hline \end{gathered}$ |  |
|  | 7 | 2-7/16" | 1-1/2" | 3/4" | 4" | Up to $3 / 8{ }^{\prime \prime}$ | . 032 to 062 | Up to full proj. | 1, 2, 3 or 4 | $\begin{gathered} \hline 3 / 16^{\prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \\ \hline \end{gathered}$ |  |
|  | 8 | 2-7/16" | 1-1/2" | 3/4" | 4" | Up to $3 / 8^{\prime \prime}$ | . 032 to 062 | Up to full proj. | 1, 2, 3 or 4 | $\begin{gathered} 3 / 16^{\prime \prime} \cdot 1 / 4^{\prime \prime} \\ 3 / 8^{\prime \prime} \cdot 1 / 2^{\prime \prime} \end{gathered}$ |  |

*When ordering specify type -9/11/18

## HAND ROLLERS - Great For Experimental Perforating

Made with needle sharp tips for hand perforating operations.
Note: We will gladly make special sizes and point combinations to your exact specifications. Let us know your requirements

## SINGLE END HAND ROLLERS

Made in 4 - sizes for hand pricking or perforating. All with tool steel heat-treated sharp points. Normally kept in stock.

> Special Hand Rollers gladly made.

SPECIFICATIONS

| $\begin{gathered} \text { MODEL } \\ \text { NO. } \end{gathered}$ | $\begin{aligned} & \text { ROLLER } \\ & \text { WIDTH } \\ & \hline \end{aligned}$ | O.D. OVER POINTS | PIN PATTER ON <br> ROLL SURFACE | $\begin{gathered} \text { TYPE } \\ \text { HANDLE } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| HR-1 | 1/4" | 1-3/4" | 1/4" | Solid |
| HR-2 | 2" | 2" | 1/4" | Solid |
| HR-3 | 4" | 2-3/4" | 1/4" | Split |
| HR-4 | 6 " | 2-3/4" | 1/4" | Split |

Order by model number


## PIN BAR - TYPE G-368

Has long points for combing fibrous type material.


## STANDARD "V" BELTS - TYPE VB-101-A / TYPE VB-100-B

With sharp needle points.
Type VB-101-A has pins $5 / 16^{\prime \prime}$ on center, project $1 / 4^{\prime \prime}$.
Type VB-100-B has pins $11 / 32^{\prime \prime}$ on center, project $1 / 4^{\prime \prime}$.


## TYPE SB-12

Close-up view shows closely pinned area, designed for perforating heavy material. Bar is $48^{\prime \prime}$ long x $5^{\prime \prime}$ wide.

## HARDWOOD BAR - TYPE HDW-30

24" long - with two rows of very fine steel needles projecting straight up.


PIN PLATES - TYPE PB-16
Used to mount on long bar for cloth holding, or perforating made in



## PINNED PLATE - TYPE N-100

Metal plate is $3 / 16^{\prime \prime}$ thick $\times 1^{\prime \prime}$ long $\times 3 / 4^{\prime \prime}$ wide, with one row of 7 heat treated steel pins in line. Pins protrude approximately $3 / 4^{\prime \prime}$ above the surface and have needle sharp points.

Can be used for combing action. Can be made rust resistant.


## TYPE R-152

Special pin bar with many points mounted close together. Used to emit electrical charge.

## METAL BAR - TYPE BB-40

30" long - with small heat treated, tool steel, sharp points on $1 / 2^{\prime \prime}$ centers.


## WHEELS MADE TO FIT ANY PACKAGING MACHINE.

# SOME OF THE WHEELS WE MAKE <br> Wheels can be made from <br> Aluminum, Anodized Aluminum, Steel, Stainless Steel, Plastic, Phenolic, etc. 



To Order Specify:

- Wheel material
\# of pins across face
- $O D$
- ID
- Width
- \# of pins around circumference in each row
- Pin description - diameter, taper and projection out of face


TWO PIECE PINS AND POINTS TO USE IN YOUR ROLL.



## MATL: steel PIN: heat treated



| Part No. | A | B | C | D | E | T |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| UB-58 | .058 | $3 / 4$ | $1 / 2$ | $1 / 4$ | $1 / 16$ | $1 / 4-20$ |
| WV-56-1 | .093 | $3 / 4$ | $1 / 2$ | $1 / 4$ | $3 / 16$ | $1 / 4-20$ |
| IP-48 | .093 | $13 / 16$ | $1 / 2$ | $5 / 16$ | $1 / 8$ | $10-32$ |
| UB-12-24-375 | .125 | $11 / 16$ | $3 / 8$ | $5 / 16$ | $1 / 4$ | $12-24$ |
| WV-24-1 | .125 | $15 / 16$ | $5 / 8$ | $5 / 16$ | $3 / 16$ | $1 / 4-20$ |
| WV-24-6 | .125 | 1 | $1 / 2$ | $1 / 2$ | $1 / 8$ | $5 / 16-18$ |


| MATL: steel, heat treated |
| :--- |
| $\qquad$Part No. A B C D E T <br> $\mathbf{1 / 8 ~ H E X}$ $1 / 8$ $3 / 4$ $3 / 8$ $3 / 8$ $3 / 16$ $5 / 40$ <br> $\mathbf{5 - P}$ $1 / 8$ $15 / 32$ $5 / 16$ $5 / 32$ $3 / 16$ $5 / 40$ <br> $\mathbf{4}$ $3 / 16$ $1 / 2$ $1 / 4$ $1 / 4$ $3 / 16$ $10 / 24$ <br> $\mathbf{1 / 4 ~ H E X}$ $1 / 4$ $1-3 / 8$ $13 / 16$ $9 / 16$ $9 / 32$ $1 / 4-28$ <br> $\mathbf{5 / 1 6 ~ H E X}$ $5 / 16$ $1-5 / 8$ $15 / 16$ $11 / 16$ $5 / 16$ $5 / 16-24$ <br> $\mathbf{7 5}$ $5 / 16$ 2 1 1 $1 / 2$ $5 / 16-24$ <br> $\mathbf{3 / 8 ~ H E X}$ $3 / 8$ $1-5 / 8$ $7 / 8$ $3 / 4$ $1 / 2$ $3 / 8-24$ <br> $\mathbf{3}$ $3 / 16$ $3 / 4$ $3 / 16$ $3 / 8$ $3 / 16$ $10-24$ |

MATL: steel, heat treated

| Part No. | A | B | C | D | E | F | G | T |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| BM-1 | $1 / 4$ | $29 / 64$ | $9 / 32$ | .052 | $1 / 8$ | $5 / 32$ | .093 | $8 / 32$ |
| $\mathbf{2}$ | $5 / 16$ | $39 / 64$ | $5 / 16$ | $1 / 16$ | $7 / 32$ | $5 / 16$ | .150 | $1 / 4-28$ |
| $\mathbf{1 0 2}$ | $5 / 16$ | .767 | $7 / 16$ | .080 | $1 / 4$ | $7 / 16$ | .187 | $1 / 4-28$ |
| FR-314 | $5 / 16$ | $3 / 4$ | $7 / 16$ | $1 / 16$ | $1 / 4$ | $7 / 16$ | .125 | $1 / 4-28$ |
| $\mathbf{3 1 3 A}$ | $5 / 16$ | $25 / 32$ | $25 / 64$ | $5 / 64$ | $13 / 64$ | $25 / 64$ | .187 | $1 / 4-28$ |

## PART\# J-211 MATL: steel, heat treated



## We manufacture and sell quality products.

Terms: $1 \%, 10$ days, net 30, f.o.b., Wyckoff, NJ to established accounts shipment: Stock items - immediate. Made to order, as indicated, Visa/MasterCard accepted.
Quotations: We will gladly quote you on your exact part. Send us a blueprint or sketch of your part. Send along a sample if possible.

Materials: Most of our parts are heat treated or can be if required. Many of our pins and points are polished or bright finished. We can supply pins and points in lengths from approximately $1 / 4^{\prime \prime}$ to $24^{\prime \prime}$ and diameters from $.020^{\prime \prime}$ to 7/16". Parts made in all metals. Very economical prices.

Quantities: Large quantities economically produced. Small quantities of over 2,200 different sizes in stock. (We stock many sizes in quantities up to 10,000 pieces or more.) Special sizes made to your exact specifications.

## SHARP POINTS

Pointed Pins in this group represent some of the more than 2250 sizes of heat-treated, polished, tool steel points that we carry in stock. Ready to supply you or to use in Rolls and Cylinders we can make for you.

## DRAWING TO SHOW DIMENSIONS



## DESCRIPTIONS OF PARTS SHOWN ABOVE

| PART NO. | DIMENSIONS / INCHES |  |  |
| :--- | :---: | :---: | :---: |
|  | DIA | LEN. | TAPER |
| $.040--375-.125$ | .040 | $3 / 8$ | $1 / 8$ |
| $.058-.375-.125$ | .058 | $3 / 8$ | $1 / 8$ |
| $.062-.687-.062$ | .062 | $11 / 16$ | $1 / 16$ |
| $.078-1.112-.312$ | .078 | $1-1 / 8$ | $5 / 16$ |
| $.093-.437-.125$ | .093 | $7 / 16$ | $1 / 8$ |
| $.093-.625-.250$ | .093 | $5 / 8$ | $1 / 4$ |
| $.093-.750-.156$ | .093 | $3 / 4$ | $5 / 32$ |
| $.093-.875-.250$ | .093 | $7 / 8$ | $1 / 4$ |
| $.093-1.125-.375$ | .093 | $1-1 / 8$ | $3 / 8$ |
| $.102-1.750-.468$ | .102 | $1-3 / 4$ | $15 / 32$ |


| PART NO. | DIMENSIONS / INCHES |  |  |
| :--- | :---: | :---: | :---: |
|  | DIA | LEN. | TAPER |
| $.125-.625-.312$ | .125 | $5 / 8$ | $5 / 16$ |
| $.125-.750-.437$ | .125 | $3 / 4$ | $7 / 16$ |
| . $\mathbf{1 2 5 - . 8 7 5 - . 1 2 5}$ | .125 | $7 / 8$ | $1 / 8$ |
| . $\mathbf{1 3 0 - . 3 7 5 - . 1 2 5}$ | .130 | $3 / 8$ | $1 / 8$ |
| . $\mathbf{1 7 6 - 1 . 6 2 5 - . 5 0 0}$ | .176 | $1-5 / 8$ | $1 / 2$ |
| $.193-1.000-.375$ | .193 | 1 | $3 / 8$ |
| $.210-2.000-.500$ | .210 | 2 | $1 / 2$ |
| $.250-1.000-375$ | .250 | 1 | $3 / 8$ |
| $.250-2.000-.500$ | .250 | 2 | $1 / 2$ |
| $.251-1.375-.500$ | .251 | $1-3 / 8$ | $1 / 2$ |

## ORDERING INFORMATION

## PINNED ROLLS

Please fill-in as much of the following information as possible.

G. Pin projection required if known. H. Is full point above surface to be tapered to sharp point?
J. Describe function or operation of cylinder.
K. Size of Keyways (if required) ? L. Is full shaft required?
M. Are set-screws needed?

## PIN PATTERNS

Please indicate if you require "offset" or "square" pattern and fill-in measurement details.


Special patterns can be made.

## PIN

We have in stock over 2250 sizes of heat-treated, tool steel points similar to sketch; available for use in your Rolls and Cylinders. If you cannot use a stock size, we will gladly make a special for you. Usually only a small extra charge for "specials" is necessary. Other Hooks, Points and Teeth shown on pages 13 thru 15 are available by themselves or for use in our making your "pinned" rolls and cylinders.


- Sharp Point, Round Body Pins Fill-in sizes you require


## TWO PIECE PINS AND POINTS TO USE IN YOUR ROLL.

Listed below are the various sizes of 2 piece, slotted-top, sharp point pin combinations. Special sizes can be made to your specifications. Base available in steel, stainless steel, nonferrous metals and plastic.

Pins available in heat treated steel or stainless steel.

| PART NO. | A | B | C | D | T |
| :---: | :---: | :---: | :---: | :---: | :---: |
| SS-10 | 1/4 | 1/4 | 1/2 | . 041 | 10-32 |
| SS-18 | 1/4 | 5/16 | 9/16 | . 041 | 10-32 |
| SS-28 | 1/4 | 3/8 | 5/8 | . 041 | 10-32 |
| SS-37 | 1/4 | 7/16 | 11/16 | . 041 | 10-32 |
| SS-47 | 1/4 | 1/2 | 3/4 | . 041 | 10-32 |
| SS-54 | 3/8 | 1/4 | 5/8 | . 041 | 10-32 |
| SS-62 | 3/8 | 5/16 | 11/16 | . 041 | 10-32 |
| SS-71 | 3/8 | 3/8 | 3/4 | . 041 | 10-32 |
| SS-81 | 3/8 | 7/16 | 13/16 | . 041 | 10-32 |
| SS-90 | 3/8 | 1/2 | 7/8 | . 041 | 10-32 |
| SS-98 | 1/2 | 1/4 | 3/4 | . 041 | 10-32 |
| SS-108 | 1/2 | 5/16 | 13/16 | . 041 | 10-32 |
| SS-116 | 1/2 | 3/8 | 7/8 | . 041 | 10-32 |
| SS-125 | 1/2 | 7/16 | 15/16 | . 041 | 10-32 |
| SS-135 | 1/2 | 1/2 | 1 | . 041 | 10-32 |
| SS-143 | 1/4 | 1/4 | 1/2 | . 063 | 10-32 |
| SS-151 | 1/4 | 5/16 | 9/16 | . 063 | 10-32 |
| SS-158 | 1/4 | 3/8 | 5/8 | . 063 | 10-32 |
| SS-168 | 1/4 | 7/16 | 11/16 | . 063 | 10-32 |
| SS-177 | 1/4 | 1/2 | 3/4 | . 063 | 10-32 |
| SS-185 | 3/8 | 1/4 | 5/8 | . 063 | 10-32 |
| SS-192 | 3/8 | 5/16 | 11/16 | . 063 | 10-32 |
| SS-202 | 3/8 | 3/8 | 3/4 | . 063 | 10-32 |
| SS-211 | 3/8 | 7/16 | 13/16 | . 063 | 10-32 |
| SS-221 | 3/8 | 1/2 | 7/8 | . 063 | 10-32 |
| SS-230 | 1/2 | 1/4 | 3/4 | . 063 | 10-32 |
| SS-238 | 1/2 | 5/16 | 13/16 | . 063 | 10-32 |
| SS-247 | 1/2 | 3/8 | 7/8 | . 063 | 10-32 |
| SS-257 | 1/2 | 7/16 | 15/16 | . 063 | 10-32 |
| SS-266 | 1/2 | 1/2 | 1 | . 063 | 10-32 |
| SS-276 | 1/4 | 1/4 | 1/2 | . 063 | 1/4-20 |
| SS-285 | 1/4 | 5/16 | 9/16 | . 063 | 1/4-20 |
| SS-293 | 1/4 | 3/8 | 5/8 | . 063 | 1/4-20 |
| SS-303 | 1/4 | 7/16 | 11/16 | . 063 | 1/4-20 |
| SS-312 | 1/4 | 1/2 | 3/4 | . 063 | 1/4-20 |
| SS-320 | 3/8 | 1/4 | 5/8 | . 063 | 1/4-20 |
| SS-330 | 3/8 | 5/16 | 11/16 | . 063 | 1/4-20 |
| SS-339 | 3/8 | 3/8 | 3/4 | . 063 | 1/4-20 |
| SS-347 | 3/8 | 7/16 | 13/16 | . 063 | 1/4-20 |
| SS-357 | 3/8 | 1/2 | 7/8 | . 063 | 1/4-20 |
| SS-366 | 1/2 | 1/4 | 3/4 | . 063 | 1/4-20 |
| SS-374 | 1/2 | 5/16 | 13/16 | . 063 | 1/4-20 |
| SS-384 | 1/2 | 3/8 | 7/8 | . 063 | 1/4-20 |
| SS-393 | 1/2 | 7/16 | 15/16 | . 063 | 1/4-20 |
| SS-401 | 1/2 | 1/2 | 1 | . 063 | 1/4-20 |
| SS-411 | 1/4 | 1/4 | 1/2 | . 093 | 1/4-20 |
| SS-420 | 1/4 | 5/16 | 9/16 | . 093 | 1/4-20 |
| SS-429 | 1/4 | 3/8 | 5/8 | . 093 | 1/4-20 |
| SS-437 | 1/4 | 7/16 | 11/16 | . 093 | 1/4-20 |
| SS-447 | 1/4 | 1/2 | 3/4 | . 093 | 1/4-20 |
| SS-456 | 3/8 | 1/4 | 5/8 | . 093 | 1/4-20 |
| SS-464 | 3/8 | 5/16 | 11/16 | . 093 | 1/4-20 |
| SS-474 | 3/8 | 3/8 | 3/4 | . 093 | 1/4-20 |
| SS-483 | 3/8 | 7/16 | 13/16 | . 093 | 1/4-20 |
| SS-491 | 3/8 | 1/2 | 7/8 | . 093 | 1/4-20 |
| SS-501 | 1/2 | 1/4 | 3/4 | . 093 | 1/4-20 |
| SS-510 | 1/2 | 5/16 | 13/16 | . 093 | 1/4-20 |
| SS-518 | 1/2 | 3/8 | 7/8 | . 093 | 1/4-20 |
| SS-528 | 1/2 | 7/16 | 15/16 | . 093 | 1/4-20 |
| SS-537 | 1/2 | 1/2 | 1 | . 093 | 1/4-20 |
| SS-547 | 1/4 | 1/4 | 1/2 | . 125 | 1/4-20 |
| SS-556 | 1/4 | 5/16 | 9/16 | . 125 | 1/4-20 |
| SS-564 | 1/4 | 3/8 | 5/8 | . 125 | 1/4-20 |
| SS-574 | 1/4 | 7/16 | 11/16 | . 125 | 1/4-20 |
| SS-563 | 1/4 | 1/2 | 3/4 | . 125 | 1/4-20 |
| SS-571 | 3/8 | 1/4 | 5/8 | . 125 | 1/4-20 |
| SS-581 | 3/8 | 5/16 | 11/16 | . 125 | 1/4-20 |
| SS-590 | 3/8 | 3/8 | 3/4 | . 125 | 1/4-20 |
| SS-598 | 3/8 | 7/16 | 13/16 | . 125 | 1/4-20 |
| SS-608 | 3/8 | 1/2 | 7/8 | . 125 | 1/4-20 |
| SS-617 | 1/2 | 1/4 | 3/4 | . 125 | 1/4-20 |
| SS-625 | 1/2 | 5/16 | 13/16 | . 125 | 1/4-20 |
| SS-635 | 1/2 | 3/8 | 7/8 | . 125 | 1/4-20 |
| SS-644 | 1/2 | 7/16 | 15/16 | . 125 | 1/4-20 |
| SS-652 | 1/2 | 1/2 |  | . 125 | 1/4-20 |
| SS-662 | 1/4 | 1/4 | 1/2 | . 063 | 1/4-28 |
| SS-671 | 1/4 | 5/16 | 9/16 | . 063 | 1/4-28 |
| SS-679 | 1/4 | 3/8 | 5/8 | . 063 | 1/4-28 |
| SS-689 | 1/4 | 7/16 | 11/16 | . 063 | 1/4-28 |
| SS-698 | 1/4 | 1/2 | 3/4 | . 063 | 1/4-28 |
| SS-706 | 3/8 | 1/4 | 5/8 | . 063 | 1/4-28 |
| SS-716 | 3/8 | 5/16 | 11/16 | . 063 | 1/4-28 |
| SS-725 | 3/8 | 3/8 | 3/4 | . 063 | 1/4-28 |
| SS-733 | 3/8 | 7/16 | 13/16 | . 063 | 1/4-28 |
| SS-743 | 3/8 | 1/2 | 7/8 | . 063 | 1/4-28 |


| PART NO. | A | B | C | D | T |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \hline \text { SS-752 } \\ & \text { SS-760 } \\ & \text { SS-770 } \\ & \text { S-779 } \\ & \text { SS-787 } \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \\ & 1 \end{aligned}$ | $\begin{aligned} & .063 \\ & .063 \\ & .063 \\ & .063 \\ & .063 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| SS-797 SS 806 SS-814 SS 824 SS-833 | $\begin{aligned} & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \end{aligned}$ | $\begin{aligned} & .093 \\ & .093 \\ & .093 \\ & .093 \\ & .093 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| $\begin{aligned} & \text { SS-841 } \\ & \text { SSS } 81 \\ & \text { SS-860 } \\ & \text { SS } 886 \\ & \text { SS-877 } \\ & \hline \end{aligned}$ | $\begin{aligned} & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & \hline \end{aligned}$ | $\begin{aligned} & .093 \\ & .093 \\ & .093 \\ & .093 \\ & .093 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & \hline \end{aligned}$ |
| SS-887 SS-896 SS-904 SS-914 SS-923 | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \\ & 1 \end{aligned}$ | $\begin{aligned} & .093 \\ & .093 \\ & .093 \\ & .093 \\ & .093 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| $\begin{aligned} & \text { SS-931 } \\ & \text { SSS } 941 \\ & \text { SS-950 } \\ & \text { SSS-98 } \\ & \text { SS-968 } \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \end{aligned}$ | $\begin{aligned} & .125 \\ & .125 \\ & .125 \\ & .125 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| $\begin{aligned} & \begin{array}{l} \text { SS-977 } \\ \text { SS-985 } \\ \text { SS-995 } \\ \text { SS-1004 } \\ \text { SS-1014 } \end{array} \end{aligned}$ | $\begin{aligned} & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \end{aligned}$ | $\begin{aligned} & .125 \\ & .125 \\ & .125 \\ & .125 \\ & .125 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| $\begin{aligned} & \text { SS-1023 } \\ & \text { SS-1031 } \\ & \text { SS-1041 } \\ & \text { SS-1050 } \\ & \text { SS-1058 } \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \\ & 1 \end{aligned}$ | $\begin{aligned} & .125 \\ & .125 \\ & .125 \\ & .125 \\ & .125 \end{aligned}$ | $\begin{aligned} & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \\ & 1 / 4-28 \end{aligned}$ |
| SS-1068 SS-1077 SS-1085 SS-1095 SS-1104 | $\begin{aligned} & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \end{aligned}$ | $\begin{aligned} & .063 \\ & .063 \\ & .063 \\ & .063 \\ & .063 \end{aligned}$ | $\begin{aligned} & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \end{aligned}$ |
| $\begin{aligned} & \begin{array}{l} \text { SS-1112 } \\ \text { SS-1121 } \\ \text { SS-1129 } \\ \text { SS-1139 } \\ \text { SS-1148 } \end{array} \end{aligned}$ | $\begin{aligned} & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \end{aligned}$ | $\begin{aligned} & .063 \\ & .063 \\ & .063 \\ & .063 \\ & .063 \end{aligned}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> $5 / 16-24$ $5 / 16-24$ <br> 5/16-24 |
| $\begin{aligned} & \begin{array}{l} \text { SS-1156 } \\ \text { SS-1166 } \\ \text { SS-1175 } \\ \text { SS-1183 } \\ \text { SS-1193 } \end{array} \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \\ & 1 \end{aligned}$ | $\begin{array}{r} .063 \\ .063 \\ .063 \\ .063 \\ .063 \end{array}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> $5 / 16-24$ $5 / 16-24$ <br> 5/16-24 |
| $\begin{aligned} & \begin{array}{l} \text { SS-1202 } \\ \text { SS-1210 } \\ \text { SS-1220 } \\ \text { SS-1229 } \\ \text { SS-1237 } \end{array} \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \end{aligned}$ | $\begin{array}{r} .093 \\ .093 \\ .093 \\ .093 \\ .093 \end{array}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> $5 / 16-24$ $5 / 16-24$ |
| $\begin{aligned} & \begin{array}{l} \text { SS-1245 } \\ \text { SS-1255 } \\ \text { SS-1264 } \\ \text { SS-1272 } \\ \text { SS-1282 } \end{array} \end{aligned}$ | $\begin{aligned} & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \\ & 3 / 8 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \end{aligned}$ | $\begin{aligned} & .093 \\ & .093 \\ & .093 \\ & .093 \\ & .093 \end{aligned}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> $5 / 16-24$ $5 / 16-24$ |
| $\begin{aligned} & \text { SS-1291 } \\ & \text { SS-1299 } \\ & \text { SS-1399 } \\ & \text { SS-1318 } \\ & \text { SS-1326 } \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \\ & 1 \end{aligned}$ | $\begin{aligned} & .093 \\ & .093 \\ & .093 \\ & .093 \\ & .093 \end{aligned}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> 5/16-24 |
| $\begin{aligned} & \begin{array}{l} \text { SS-1336 } \\ \text { SS-1345 } \\ \text { SS-1353 } \\ \text { SS-1363 } \\ \text { SS-1372 } \end{array} \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \\ & 1 / 4 \end{aligned}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \end{aligned}$ | $\begin{aligned} & .125 \\ & .125 \\ & .125 \\ & .125 \\ & .125 \end{aligned}$ | 5/16-24 <br> 5/16-24 <br> 5/16-24 <br> 5/16-24 |
| $\begin{aligned} & \begin{array}{l} \text { SS-1380 } \\ \text { SS-1390 } \\ \text { SS-1399 } \\ \text { SS-1419 } \\ \text { SS-1428 } \end{array} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 3 / 8 \\ 3 / 8 \\ 3 / 8 \\ 3 / 8 \\ 3 / 8 \\ \hline \end{array}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & \hline \end{aligned}$ | $\begin{aligned} & .125 \\ & .125 \\ & .125 \\ & .125 \\ & .125 \\ & \hline \end{aligned}$ | $\begin{aligned} & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \end{aligned}$ |
| SS-1436 SS-1446 SS-1455 SS-1464 SS-1473 | $\begin{aligned} & \hline 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 / 1 / \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 3 / 4 \\ & 13 / 16 \\ & 7 / 8 \\ & 15 / 16 \end{aligned}$ $1$ | $\begin{aligned} & \hline .125 \\ & .125 \\ & .125 \\ & .125 \\ & .125 \\ & \hline \end{aligned}$ | $\begin{aligned} & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \\ & 5 / 16-24 \end{aligned}$ |
| $\begin{aligned} & \begin{array}{l} \text { SS-1483 } \\ \text { SS-1492 } \\ \text { SS-1500 } \\ \text { SS-1500 } \\ \text { SS-1519 } \end{array} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 1 / 4 \\ 1 / 4 \\ 1 / 4 \\ 1 / 4 \\ 1 / 4 \\ \hline \end{array}$ | $\begin{aligned} & 1 / 4 \\ & 5 / 16 \\ & 3 / 8 \\ & 7 / 16 \\ & 1 / 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 / 2 \\ & 9 / 16 \\ & 5 / 8 \\ & 11 / 16 \\ & 3 / 4 \\ & \hline \end{aligned}$ | $\begin{array}{r} .063 \\ .063 \\ .063 \\ .063 \\ .063 \end{array}$ | $\begin{aligned} & 3 / 8-24 \\ & 3 / 8-24 \\ & 3 / 8-24 \\ & 3 / 8-24 \\ & 3 / 8-24 \\ & \hline \end{aligned}$ |



| PART NO. | A | B | C | D | T |
| :---: | :---: | :---: | :---: | :---: | :---: |
| SS-1528 | 3/8 | 1/4 | 5/8 | . 063 | 3/8-24 |
| SS-1536 | 3/8 | 5/16 | 11/16 | . 063 | 3/8-24 |
| SS-1546 | 3/8 | 3/8 | 3/4 | . 063 | 3/8-24 |
| SS-1555 | 3/8 | 7/16 | 13/16 | . 063 | 3/8-24 |
| SS-1564 | 3/8 | 1/2 | 7/8 | . 063 | 3/8-24 |
| SS-1574 | 1/2 | 1/4 | 3/4 | . 063 | 3/8-24 |
| SS-1583 | 1/2 | 5/16 | 13/16 | . 063 | 3/8-24 |
| SS-1592 | 1/2 | 3/8 | 7/8 | . 063 | 3/8-24 |
| SS-1600 | 1/2 | 7/16 | 15/16 | . 063 | 3/8-24 |
| SS-1609 | 1/2 | 1/2 | 1 | . 063 | 3/8-24 |
| SS-1619 | 1/4 | 1/4 | 1/2 | . 093 | 3/8-24 |
| SS-1628 | 1/4 | 5/16 | 9/16 | . 093 | 3/8-24 |
| SS-1635 | 1/4 | 3/8 | 5/8 | . 093 | 3/8-24 |
| SS-1641 | 1/4 | 7/16 | 11/16 | . 093 | 3/8-24 |
| SS-1651 | 1/4 | 1/2 | 3/4 | . 093 | 3/8-24 |
| SS-1660 | 3/8 | 1/4 | 5/8 | . 093 | 3/8-24 |
| SS-1669 | 3/8 | 5/16 | 11/16 | . 093 | 3/8-24 |
| SS-1677 | 3/8 | 3/8 | 3/4 | . 093 | 3/8-24 |
| SS-1684 | 3/8 | 7/16 | 13/16 | . 093 | 3/8-24 |
| SS-1690 | 3/8 | 1/2 | 7/8 | . 093 | 3/8-24 |
| SS-1700 | 1/2 | 1/4 | 3/4 | . 093 | 3/8-24 |
| SS-1709 | 1/2 | 5/16 | 13/16 | . 093 | 3/8-24 |
| SS-1717 | 1/2 | 3/8 | 7/8 | . 093 | 3/8-24 |
| SS-1724 | 1/2 | 7/16 | 15/16 | . 093 | 3/8-24 |
| SS-1730 | 1/2 | 1/2 | 1 | . 093 | 3/8-24 |
| SS-1740 | 1/4 | 1/4 | 1/2 | . 125 | 3/8-24 |
| SS-1749 | 1/4 | 5/16 | 9/16 | . 125 | 3/8-24 |
| SS-1757 | 1/4 | 3/8 | 5/8 | . 125 | 3/8-24 |
| SS-1764 | 1/4 | 7/16 | 11/16 | . 125 | 3/8-24 |
| SS-1770 | 1/4 | 1/2 | 3/4 | . 125 | 3/8-24 |
| SS-1780 | 3/8 | 1/4 | 5/8 | . 125 | 3/8-24 |
| SS-1789 | 3/8 | 5/16 | 11/16 | . 125 | 3/8-24 |
| SS-1797 | 3/8 | 3/8 | 3/4 | . 125 | 3/8-24 |
| SS-1805 | 3/8 | 7/16 | 13/16 | . 125 | 3/8-24 |
| SS-1814 | 3/8 | 1/2 | 7/8 | . 125 | 3/8-24 |
| SS-1822 | 1/2 | 1/4 | 3/4 | . 125 | 3/8-24 |
| SS-1829 | 1/2 | 5/16 | 13/16 | . 125 | 3/8-24 |
| SS-1835 | 1/2 | 3/8 | 7/8 | . 125 | 3/8-24 |
| SS-1845 | 1/2 | 7/16 | 15/16 | . 125 | 3/8-24 |
| SS-1854 | 1/2 | 1/2 | 1 | . 125 | 3/8-24 |
| SS-1864 | 1/4 | 1/4 | 1/2 | . 063 | 7/16-20 |
| SS-1873 | 1/4 | 5/16 | 9/16 | . 063 | 7/16-20 |
| SS-1881 | 1/4 | 3/8 | 5/8 | . 063 | 7/16-20 |
| SS-1888 | 1/4 | 7/16 | 11/16 | . 063 | 7/16-20 |
| SS-1894 | 1/4 | 1/2 | 3/4 | . 063 | 7/16-20 |
| SS-1904 | 3/8 | 1/4 | 5/8 | . 063 | 7/16-20 |
| SS-1913 | 3/8 | 5/16 | 11/16 | . 063 | 7/16-20 |
| SS-1921 | 3/8 | 3/8 | 3/4 | . 063 | 7/16-20 |
| SS-1928 | 3/8 | 7/16 | 13/16 | . 063 | 7/16-20 |
| SS-1934 | 3/8 | 1/2 | 7/8 | . 063 | 7/16-20 |
| SS-1944 | 1/2 | 1/4 | 3/4 | . 063 | 7/16-20 |
| SS-1953 | 1/2 | 5/16 | 13/16 | . 063 | 7/16-20 |
| SS-1961 | 1/2 | 3/8 | 7/8 | . 063 | 7/16-20 |
| SS-1967 | 1/2 | 7/16 | 15/16 | . 063 | 7/16-20 |
| SS-1973 | 1/2 | 1/2 | 1 | . 063 | 7/16-20 |
| SS-1983 | 1/4 | 1/4 | 1/2 | . 093 | 7/16-20 |
| SS-1992 | 1/4 | 5/16 | 9/16 | . 093 | 7/16-20 |
| SS-2001 | 1/4 | 3/8 | 5/8 | . 093 | 7/16-20 |
| SS-2010 | 1/4 | 7/16 | 11/16 | . 093 | 7/16-20 |
| SS-2019 | 1/4 | 1/2 | 3/4 | . 093 | 7/16-20 |
| SS-2027 | 3/8 | 1/4 | 5/8 | . 093 | 7/16-20 |
| SS-2034 | 3/8 | 5/16 | 11/16 | . 093 | 7/16-20 |
| SS-2040 | 3/8 | 3/8 | 3/4 | . 093 | 7/16-20 |
| SS-2050 | 3/8 | 7/16 | 13/16 | . 093 | 7/16-20 |
| SS-2059 | 3/8 | 1/2 | 7/8 | . 093 | 7/16-20 |
| SS-2067 | 1/2 | 1/4 | $3 / 4$ | . 093 | 7/16-20 |
| SS-2074 | 1/2 | 5/16 | 13/16 | . 093 | 7/16-20 |
| SS-2080 | 1/2 | 3/8 | 7/8 | . 093 | 7/16-20 |
| SS-2090 | 1/2 | 7/16 | 15/16 | . 093 | 7/16-20 |
| SS-2099 | 1/2 | 1/2 | 1 | . 093 | 7/16-20 |
| SS-2109 | 1/4 | 1/4 | 1/2 | . 125 | 7/16-20 |
| SS-2118 | 1/4 | 5/16 | 9/16 | . 125 | 7/16-20 |
| SS-2125 | 1/4 | 3/8 | 5/8 | . 125 | 7/16-20 |
| SS-2131 | 1/4 | 7/16 | 11/16 | . 125 | 7/16-20 |
| SS-2141 | 1/4 | 1/2 | 3/4 | . 125 | 7/16-20 |
| SS-2150 | 3/8 | 1/4 | 5/8 | . 125 | 7/16-20 |
| SS-2158 | 3/8 | 5/16 | 11/16 | . 125 | 7/16-20 |
| SS-2165 | 3/8 | 3/8 | 3/4 | . 125 | 7/16-20 |
| SS-2171 | 3/8 | 7/16 | 13/16 | . 125 | 7/16-20 |
| SS-2181 | 3/8 | 1/2 | 7/8 | . 125 | 7/16-20 |
| SS-2190 | 1/2 | 1/4 | 3/4 | . 125 | 7/16-20 |
| SS-2198 | 1/2 | 5/16 | 13/16 | . 125 | 7/16-20 |
| SS-2205 | 1/2 | 3/8 | 7/8 | . 125 | 7/16-20 |
| SS-2211 | 1/2 | 7/16 | 15/16 | . 125 | 7/16-20 |
| SS-2221 | 1/2 | 1/2 | 1 | . 125 | 7/16-20 |



