

# Industrial Plastics

## Technical Data Sheet

Acrylic, acetal, polycarbonate, nylon, PVC, Teflon®, UHMW, phenolic plastic, polyethylene, nylatron, rubber, etc.



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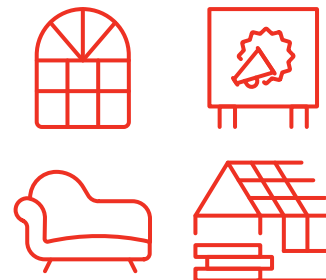
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# Acrylic

Acrylic is a rigid, transparent, and lightweight plastic, known for its optical clarity, good weather resistance, and ease of fabrication. It is often used as a glass alternative in construction, signage, and interior design.

## Recommended for

- **Glazing:** windows, screens, partitions
- **Signage:** signs, displays, light boxes
- **Furniture:** displays, guards, designer furnishings
- **Construction:** domes, roofs, indoor railings



## Mechanical Properties

### *Typical Value*

|                            |                      |
|----------------------------|----------------------|
| <b>Tensile Strength</b>    | ~8,000 to 11,000 psi |
| <b>Hardness (Shore D)</b>  | ~90                  |
| <b>Impact Resistance</b>   | Medium               |
| <b>Chemical Resistance</b> | Medium to good       |
| <b>Maximum Temperature</b> | ~+80 °C (176 °F)     |

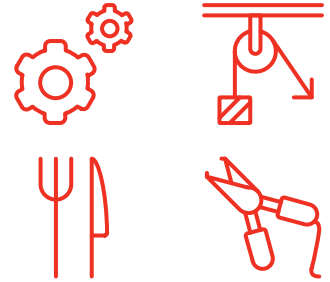
Available in extruded or cast versions, with options for transparent, colored, diffused, antistatic, or impact-resistant sheets.

# Acetal (Delrin®)

Acetal is a semi-crystalline engineering plastic that is very rigid, with excellent dimensional stability and good wear resistance. It is especially used for precision mechanical parts. The trade name Delrin® is one of the most well-known.

## Recommended for

- **Precision machined parts:** gears, pinions, wheels
- **Mechanical / industrial:** bushings, slides, rollers
- **Food industry:** non-absorbing parts, clean surfaces
- **Electromechanical:** moving components, spacers



## Mechanical Properties

### Typical Value

|                            |                      |
|----------------------------|----------------------|
| <b>Tensile Strength</b>    | ~9,000 to 11,000 psi |
| <b>Hardness (Shore D)</b>  | ~90–100              |
| <b>Impact Resistance</b>   | Good                 |
| <b>Chemical Resistance</b> | Good                 |
| <b>Maximum Temperature</b> | ~+105 °C (221 °F)    |

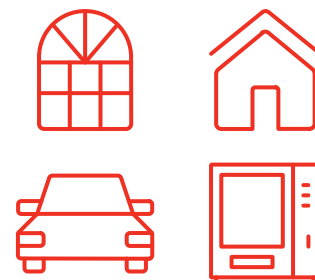
Available in homopolymer (Delrin®) or copolymer versions, with reinforced, UV-stabilized, or food-grade options.

# Polycarbonate

Polycarbonate is a transparent plastic, resistant to impact and heat. It combines rigidity, lightness, and safety, making it an alternative to glass in high-impact environments.

## Recommended for

- **Safety glazing:** bullet-resistant, anti-vandal windows
- **Construction:** translucent roofs, skylights
- **Automotive:** headlights, recreational vehicle windshields
- **Industry:** machine guards, covers, screens



## Mechanical Properties

### *Typical Value*

|                            |                   |
|----------------------------|-------------------|
| <b>Tensile Strength</b>    | ~9,000 psi        |
| <b>Hardness (Shore D)</b>  | ~75               |
| <b>Impact Resistance</b>   | Exceptional       |
| <b>Chemical Resistance</b> | Medium            |
| <b>Maximum Temperature</b> | ~+115 °C (239 °F) |

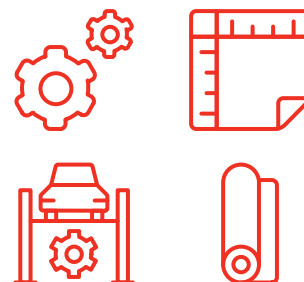
Also available in UV-resistant, anti-static, bullet-resistant (Lexan®), or food-grade versions.

# Nylon

Nylon is a versatile engineering plastic valued for its mechanical strength, rigidity, and ability to withstand moving loads. It is often used as a replacement for metal parts thanks to its light weight, wear resistance, and good dimensional stability.

## Recommended for

- **Mechanical parts:** gears, pulleys, wheels, bushings
- **Handling:** slides, guides, spacers
- **Automotive / machinery:** supports, rotating parts
- **Industrial:** rollers, shims, machined components



## Mechanical Properties

### *Typical Value*

#### **Tensile Strength**

~10,000 psi

#### **Hardness (Shore D)**

~110

#### **Impact Resistance**

High

#### **Chemical Resistance**

Good

#### **Maximum Temperature**

~+100 °C (212 °F)

Available in variants such as Nylon 6, 6/6, molded, extruded, MoS<sub>2</sub>-filled (self-lubricating), or food-grade stabilized.

# Rigid PVC

Rigid PVC is a durable, cost-effective, and easy-to-machine plastic. It provides good chemical and weather resistance while maintaining structural stability. It is widely used in construction, electrical, plumbing, and signage applications.

## Recommended for

- **Construction:** panels, partitions, housings, conduits
- **Electrical:** ducts, cabinets, protective enclosures
- **Signage:** indoor/outdoor panels, displays
- **Industrial:** tanks, linings, chemical applications



## Mechanical Properties

*Typical Value*

|                            |                  |
|----------------------------|------------------|
| <b>Tensile Strength</b>    | ~7,000 psi       |
| <b>Hardness (Shore D)</b>  | ~112             |
| <b>Impact Resistance</b>   | Medium           |
| <b>Chemical Resistance</b> | Excellent        |
| <b>Maximum Temperature</b> | ~+60 °C (140 °F) |

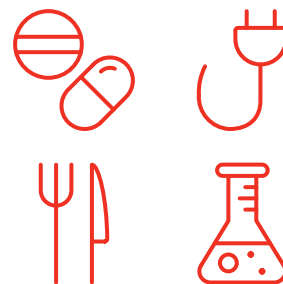
Available in standard gray, transparent, flame-retardant (94V-0 rated), chemical-grade (Corzan®), or food-grade versions.

# Teflon® (PTFE)

Teflon® is a high-performance plastic known for its chemical resistance, extremely low friction, and excellent thermal stability. Inert, non-stick, and insulating, it is widely used in demanding environments.

## Recommended for

- **Chemical / pharmaceutical:** seals, rings, gaskets
- **Electrical / electronics:** insulators, connectors, tubing
- **Food industry:** non-stick surfaces, bearings
- **Industrial:** components exposed to acids or solvents



## Mechanical Properties

### Typical Value

#### Tensile Strength

~1,500 to 4,000 psi

#### Hardness (Shore D)

~55–60

#### Impact Resistance

Medium

#### Chemical Resistance

Exceptional

#### Maximum Temperature

~+260 °C (500 °F)

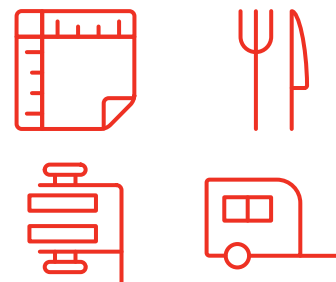
Also available with glass, carbon, bronze, or graphite fillers to improve wear resistance and dimensional stability.

# UHMW

UHMW (Ultra-High Molecular Weight Polyethylene) is an engineering plastic known for its outstanding wear resistance, low friction, light weight, and high impact strength. It is widely used in material handling, food processing, and industrial applications.

## Recommended for

- **Moving parts:** guides, slides, conveyors
- **Food industry:** indirect-contact parts, chutes
- **Mechanical:** wear-resistant parts, bushings
- **Transport:** trailer components, rails, blocks



## Mechanical Properties

### Typical Value

|                            |                     |
|----------------------------|---------------------|
| <b>Tensile Strength</b>    | ~3,000 to 3,500 psi |
| <b>Hardness (Shore D)</b>  | ~65–70              |
| <b>Impact Resistance</b>   | Very high           |
| <b>Chemical Resistance</b> | Excellent           |
| <b>Maximum Temperature</b> | ~+82 °C (180 °F)    |

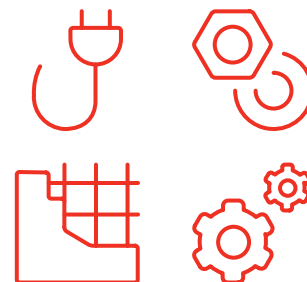
Also available in food-grade, high-temperature, black antistatic, or high-slip grades.

# Phenolic Plastic

Phenolic plastic is a thermoset material that is very rigid, heat-resistant, solvent-resistant, and wear-resistant. It is often chosen for its dimensional stability and excellent insulating properties.

## Recommended for

- **Electrical:** insulating plates, supports, terminals
- **Mechanical:** jigs, spacers, wear rings
- **Industrial:** machined components, structural supports
- **Tooling:** trays, panels, heat-exposed parts



## Mechanical Properties

### *Typical Value*

|                            |                      |
|----------------------------|----------------------|
| <b>Tensile Strength</b>    | ~7,000 to 12,000 psi |
| <b>Hardness (Shore D)</b>  | ~105–115             |
| <b>Impact Resistance</b>   | Medium to good       |
| <b>Chemical Resistance</b> | Good                 |
| <b>Maximum Temperature</b> | ~+150 °C (302 °F)    |

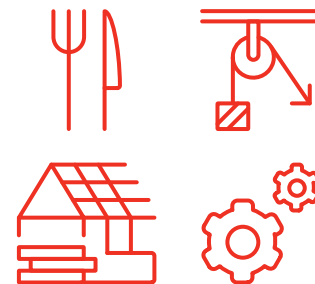
Available in grades C, CE, L, LE, G10, G11, depending on the reinforcement (cotton, paper, or fiberglass).

# Polyethylene (HDPE)

High-Density Polyethylene (HDPE) is a lightweight, durable, and cost-effective plastic with excellent resistance to moisture and chemicals. Easy to machine, it is used in food processing, packaging, and construction.

## Recommended for

- **Food industry:** countertops, chutes, non-contaminating parts
- **Material handling:** guides, wear pads, separators
- **Construction:** tanks, reservoirs, protective panels
- **Industrial:** spacers, shims, light machinery components



## Mechanical Properties

### *Typical Value*

|                            |                  |
|----------------------------|------------------|
| <b>Tensile Strength</b>    | ~4,000 psi       |
| <b>Hardness (Shore D)</b>  | ~60–65           |
| <b>Impact Resistance</b>   | High             |
| <b>Chemical Resistance</b> | Excellent        |
| <b>Maximum Temperature</b> | ~+80 °C (176 °F) |

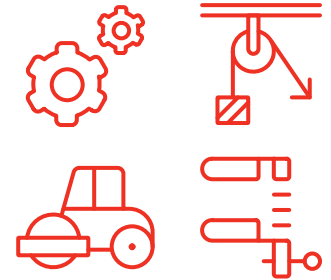
Available in extruded or molded grades, standard or food-safe, UV-stabilized black, or chemical-resistant options.

# Nylatron

Nylatron is a modified nylon, typically filled with molybdenum disulfide ( $\text{MoS}_2$ ), to enhance wear resistance, stiffness, and dimensional stability. It is designed for demanding mechanical applications and heavy-duty environments.

## Recommended for

- **Power transmission:** gears, sprockets
- **Industrial machining:** pulleys, bushings, slides
- **Heavy machinery:** spacers, rails, moving parts
- **Repetitive applications:** continuous or high-load motion



## Mechanical Properties

### Typical Value

|                            |                   |
|----------------------------|-------------------|
| <b>Tensile Strength</b>    | ~11,000 psi       |
| <b>Hardness (Shore D)</b>  | ~115              |
| <b>Impact Resistance</b>   | Good              |
| <b>Chemical Resistance</b> | Good              |
| <b>Maximum Temperature</b> | ~+105 °C (221 °F) |

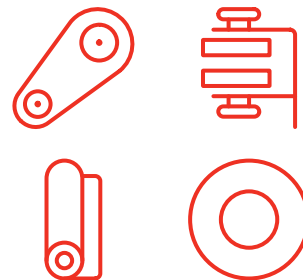
Modified nylon, often  $\text{MoS}_2$ -filled for improved wear and friction performance. Available in several grades (NSF, GSM, etc.).

# Rubber

Industrial rubber (often SBR or EPDM) is an elastic material valued for its sealing ability, shock absorption, grip, and vibration resistance.

## Recommended for

- **Sealing:** gaskets, washers, strips, seals
- **Anti-vibration:** mounts, mats, industrial pads
- **Protection:** chutes, liners, coatings
- **Construction / mechanical:** stops, bushings, compensators



## Mechanical Properties

*Typical Value*

|                            |                   |
|----------------------------|-------------------|
| <b>Tensile Strength</b>    | ~11,000 psi       |
| <b>Hardness (Shore D)</b>  | ~115              |
| <b>Impact Resistance</b>   | Good              |
| <b>Chemical Resistance</b> | Good              |
| <b>Maximum Temperature</b> | ~+105 °C (221 °F) |

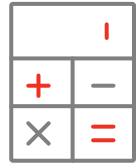
Available in various grades: neoprene, nitrile (NBR), EPDM, silicone, Viton®, natural rubber (NR), depending on the required resistance.

# Conversion Table



| Fractions | Decimals | Millimetres |
|-----------|----------|-------------|
| 1/64      | 0.156    | 0.3969      |
| 1/32      | 0.313    | 0.7938      |
|           | 0.394    | 1           |
| 3/63      | 0.469    | 1.1906      |
| 1/16      | 0.625    | 1.5875      |
| 5/64      | 0.781    | 1.9844      |
|           | 0.787    | 2           |
| 3/32      | 0.938    | 2.3812      |
| 7/64      | 0.1094   | 2.7781      |
|           | 0.1181   | 3           |
| 1/8       | 0.125    | 3.175       |
| 9/64      | 0.1406   | 3.5719      |
| 5/32      | 0.1563   | 3.9688      |
|           | 0.1575   | 4           |
| 11/64     | 0.1719   | 4.3656      |
| 3/16      | 0.1875   | 4.7625      |
|           | 0.1969   | 5           |
| 13/64     | 0.2031   | 5.1594      |
| 7/32      | 0.2188   | 0.5563      |
| 15/64     | 0.2344   | 5.9531      |
|           | 0.2362   | 6           |
| 1/4       | 0.25     | 6.35        |
| 17/64     | 0.2656   | 6.7469      |
|           | 0.2756   | 7           |
| 9/32      | 0.2813   | 7.1438      |
| 19/64     | 0.2969   | 7.5406      |
| 5/16      | 0.3125   | 7.9375      |
|           | 0.315    | 8           |
| 21/64     | 0.3281   | 8.3344      |
| 11/32     | 0.3438   | 8.7313      |
|           | 0.3543   | 9           |
| 23/64     | 0.3594   | 9.1281      |
| 3/8       | 0.3750   | 9.525       |
| 25/64     | 0.3906   | 9.9219      |
|           | 0.3937   | 10          |
| 13/32     | 0.4063   | 10.3188     |

# Conversion Table (continued)



| Fractions | Decimals | Millimetres |
|-----------|----------|-------------|
| 27/64     | 0.4219   | 10.7156     |
|           | 0.4331   | 11          |
| 7/16      | 0.4375   | 11.1125     |
| 29/64     | 0.4531   | 11.5094     |
| 15/32     | 0.4688   | 11.9063     |
|           | 0.4724   | 12          |
| 31/64     | 0.4844   | 12.3031     |
| 1/2       | 0.5      | 12.7        |
|           | 0.5118   | 13          |
| 33/64     | 0.5156   | 13.0969     |
| 17/32     | 0.5313   | 13.4938     |
| 35/64     | 0.5469   | 13.8906     |
|           | 0.5512   | 14          |
| 9/16      | 0.5625   | 14.2875     |
| 37/64     | 0.5781   | 14.6844     |
|           | 0.5906   | 15          |
| 19/32     | 0.5938   | 15.0813     |
| 39/64     | 0.6094   | 15.4781     |
| 5/8       | 0.6250   | 15.875      |
|           | 0.6299   | 16          |
| 41/64     | 0.6406   | 16.2719     |
| 21/32     | 0.6563   | 16.6688     |
|           | 0.6693   | 17          |
| 43/64     | 0.6719   | 17.0656     |
| 11/16     | 0.6875   | 17.4625     |
| 45/64     | 0.7031   | 17.8594     |
|           | 0.7087   | 18          |
| 23/32     | 0.7188   | 18.2563     |
| 47/64     | 0.7344   | 18.6531     |
|           | 0.7480   | 19          |
| 3/4       | 0.75     | 19.05       |
| 49/64     | 0.7656   | 19.4469     |
| 25/32     | 0.7813   | 19.8438     |
|           | 0.7874   | 20          |
| 51/64     | 0.7969   | 20.2406     |
| 13/16     | 0.8125   | 20.6375     |
|           | 0.8268   | 21          |

# Conversion Table (continued)



| Fractions | Decimals | Millimetres |
|-----------|----------|-------------|
| 53/64     | 0.8281   | 21.0344     |
| 27/32     | 0.8438   | 21.4313     |
| 55/64     | 0.8594   | 21.8281     |
|           | 0.8661   | 22          |
| 7/8       | 0.875    | 22.225      |
| 57/64     | 0.8906   | 22.6219     |
|           | 0.9055   | 23          |
| 29/32     | 0.9032   | 23.0188     |
| 59/64     | 0.9219   | 23.4156     |
| 15/16     | 0.9375   | 23.8125     |
|           | 0.9449   | 24          |
| 61/64     | 0.9531   | 24.2094     |
| 31/32     | 0.9688   | 24.6063     |
|           | 0.9843   | 25          |
| 63/64     | 0.9844   | 25.0031     |
| 1         | 1        | 25.4        |

# Round Bars



## UHMW and HDPE

| Dimension (in) | Dimension (mm) | Weight (lb/ft) |
|----------------|----------------|----------------|
| 1/4            | 6.35           | 0.014          |
| 3/8            | 9.53           | 0.031          |
| 1/2            | 12.7           | 0.058          |
| 5/8            | 15.88          | 0.091          |
| 3/4            | 19.05          | 0.131          |
| 7/8            | 22.23          | 0.179          |
| 1              | 25.4           | 0.224          |
| 1 1/4          | 31.75          | 0.35           |
| 1 1/2          | 38.1           | 0.506          |
| 1 3/4          | 44.45          | 0.69           |
| 2              | 50.8           | 0.897          |
| 2 1/2          | 63.5           | 1.402          |
| 3              | 76.2           | 2.023          |
| 4              | 101.6          | 3.604          |
| 6              | 152.4          | 8.13           |

## Acrylic, polycarbonate, nylon and Nylatron

| Dimension (in) | Dimension (mm) | Weight (lb/ft) |
|----------------|----------------|----------------|
| 1/4            | 6.35           | 0.017          |
| 3/8            | 9.53           | 0.039          |
| 1/2            | 12.7           | 0.069          |
| 5/8            | 15.88          | 0.108          |
| 3/4            | 19.05          | 0.155          |
| 7/8            | 22.23          | 0.211          |
| 1              | 25.4           | 0.27           |
| 1 1/4          | 31.75          | 0.422          |
| 1 1/2          | 38.1           | 0.61           |
| 1 3/4          | 44.45          | 0.831          |
| 2              | 50.8           | 1.081          |
| 2 1/2          | 63.5           | 1.688          |
| 3              | 76.2           | 2.436          |
| 4              | 101.6          | 4.323          |
| 6              | 152.4          | 9.727          |

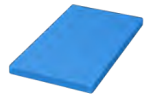
# Round Bars (continued)



Acetal, rigid PVC, phenolic and rubber

| Dimension (in) | Dimension (mm) | Weight (lb/ft) |
|----------------|----------------|----------------|
| 1/4            | 6.35           | 0.02           |
| 3/8            | 9.53           | 0.045          |
| 1/2            | 12.7           | 0.08           |
| 5/8            | 15.88          | 0.125          |
| 3/4            | 19.05          | 0.18           |
| 7/8            | 22.23          | 0.245          |
| 1              | 25.4           | 0.314          |
| 1 1/4          | 31.75          | 0.491          |
| 1 1/2          | 38.1           | 0.707          |
| 1 3/4          | 44.45          | 0.963          |
| 2              | 50.8           | 1.257          |
| 2 1/2          | 63.5           | 1.963          |
| 3              | 76.2           | 2.827          |
| 4              | 101.6          | 5.027          |
| 6              | 152.4          | 11.314         |

# Plates



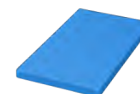
## UHMW and HDPE

| Thickness (in) | Thickness (mm) | Weight (lb/ft²) |
|----------------|----------------|-----------------|
| 1/4            | 3.17           | 0.139           |
| 3/16           | 4.76           | 0.208           |
| 1/4            | 6.35           | 0.272           |
| 3/8            | 9.52           | 0.408           |
| 1/2            | 12.7           | 0.544           |
| 5/8            | 15.88          | 0.68            |
| 3/4            | 19.05          | 0.816           |
| 1              | 25.4           | 1.088           |
| 1 1/4          | 31.75          | 1.36            |
| 1 1/2          | 38.1           | 1.632           |
| 2              | 50.8           | 2.176           |

## Acrylic, polycarbonate, nylon and Nylatron

| Thickness (in) | Thickness (mm) | Weight (lb/ft²) |
|----------------|----------------|-----------------|
| 1/4            | 3.17           | 0.176           |
| 3/16           | 4.76           | 0.265           |
| 1/4            | 6.35           | 0.353           |
| 3/8            | 9.52           | 0.53            |
| 1/2            | 12.7           | 0.706           |
| 5/8            | 15.88          | 0.883           |
| 3/4            | 19.05          | 1.059           |
| 1              | 25.4           | 1.412           |
| 1 1/4          | 31.75          | 1.765           |
| 1 1/2          | 38.1           | 2.118           |
| 2              | 50.8           | 2.824           |

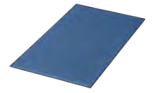
# Plates (continued)



Acetal, rigid PVC, phenolic and rubber

| Thickness (in) | Thickness (mm) | Weight (lb/ft²) |
|----------------|----------------|-----------------|
| 1/4            | 3.17           | 0.204           |
| 3/16           | 4.76           | 0.306           |
| 1/4            | 6.35           | 0.408           |
| 3/8            | 9.52           | 0.612           |
| 1/2            | 12.7           | 0.816           |
| 5/8            | 15.88          | 1.02            |
| 3/4            | 19.05          | 1.224           |
| 1              | 25.4           | 1.632           |
| 1 1/4          | 31.75          | 2.04            |
| 1 1/2          | 38.1           | 2.448           |
| 2              | 50.8           | 3.264           |

# Sheets



## UHMW and HDPE

| Gauges | Thickness (in) | Thickness (mm) | Weight (lb/ft <sup>2</sup> ) |
|--------|----------------|----------------|------------------------------|
| 10     | 0.01           | 0.254          | 0.013                        |
| 15     | 0.015          | 0.381          | 0.02                         |
| 20     | 0.02           | 0.508          | 0.027                        |
| 30     | 0.03           | 0.762          | 0.039                        |
| 62     | 1/16           | 1.587          | 0.07                         |
| 94     | 3/32           | 2.381          | 0.106                        |

## Acrylic, polycarbonate, nylon and Nylatron

| Gauges | Thickness (in) | Thickness (mm) | Weight (lb/ft <sup>2</sup> ) |
|--------|----------------|----------------|------------------------------|
| 10     | 0.01           | 0.254          | 0.014                        |
| 15     | 0.015          | 0.381          | 0.021                        |
| 20     | 0.02           | 0.508          | 0.028                        |
| 30     | 0.03           | 0.762          | 0.041                        |
| 62     | 1/16           | 1.587          | 0.088                        |
| 94     | 3/32           | 2.381          | 0.132                        |

## Acetal, rigid PVC, phenolic and rubber

| Gauges | Thickness (in) | Thickness (mm) | Weight (lb/ft <sup>2</sup> ) |
|--------|----------------|----------------|------------------------------|
| 10     | 0.01           | 0.254          | 0.016                        |
| 15     | 0.015          | 0.381          | 0.024                        |
| 20     | 0.02           | 0.508          | 0.033                        |
| 30     | 0.03           | 0.762          | 0.049                        |
| 62     | 1/16           | 1.587          | 0.102                        |
| 94     | 3/32           | 2.381          | 0.153                        |