



New Thomson Ultra Light Aluminum LinearRace

Thomson Ultra Light Aluminum LinearRace shafting is a lightweight alternative to Thomson 60 Case LinearRace shafting in plain bearing applications.

Benefits

- 65% lighter than typical linear shafting, allowing smoother and easier linear motion positioning
- Superior corrosion resistance in washdown and submerged environments where steel shafting can corrode over time
- Non-magnetic material ideal for medical imaging applications

Features

- 6061-T6 aluminum with HRC 70 hard anodize finish
- For use with Thomson FluoroNyliner Bushing bearings
- Special machining options available
- Available in Inch sizes $\frac{1}{4}$ " – 1"
- Metric sizes available on request

For immediate assistance

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Linear Motion. Optimized.

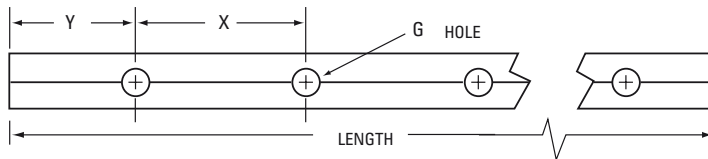
Ultra Light Aluminum

Hardness: 70 HRC Min (coating)
Coating Thickness: .0015 - .002
Roundness: .000080 Max
Surface Finish: 16 Ra Max
Straightness: .001 Max Per Foot Cumulative (.002 TIR)
Taper: .0001 Max
Max Length: 120



Inch Ultra Light Shafting

| Nominal Diameter | Part Number | Diameter Tolerance | | Length Tolerance | Weight Per Inch (lbs) |
|------------------|-------------|--------------------|--------|------------------|-----------------------|
| | | Min | Max | | |
| 1/4 | 1/4 AL | 0.2488 | 0.2496 | +/- 1/32 | 0.005 |
| 3/8 | 3/8 AL | 0.3738 | 0.3746 | +/- 1/32 | 0.010 |
| 1/2 | 1/2 AL | 0.4988 | 0.4996 | +/- 1/32 | 0.019 |
| 5/8 | 5/8 AL | 0.6238 | 0.6246 | +/- 1/32 | 0.030 |
| 3/4 | 3/4 AL | 0.7488 | 0.7496 | +/- 1/32 | 0.043 |
| 1 | 1 AL | 0.9988 | 0.9996 | +/- 1/32 | 0.077 |

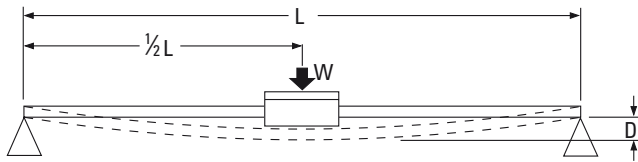


Inch Ultra Light Predrilled Shafting

| Nominal Diameter | Part Number | Diameter Tolerance | | Hole Spacing | | Thread Size G | Length Tolerance | Weight Per Inch (lbs) |
|------------------|-------------|--------------------|--------|--------------|---|---------------|------------------|-----------------------|
| | | Min | Max | X | Y | | | |
| 1/2 | 1/2 AL PD | 0.4988 | 0.4996 | 4 | 2 | #6-32 | +/- 1/32 | 0.019 |
| 5/8 | 5/8 AL PD | 0.6238 | 0.6246 | 4 | 2 | #8-32 | +/- 1/32 | 0.03 |
| 3/4 | 3/4 AL PD | 0.7488 | 0.7496 | 6 | 3 | #10-32 | +/- 1/32 | 0.043 |
| 1 | 1 AL PD | 0.9988 | 0.9996 | 6 | 3 | 1/4-20 | +/- 1/32 | 0.077 |

Ultra Light Aluminum LinearRace Deflection

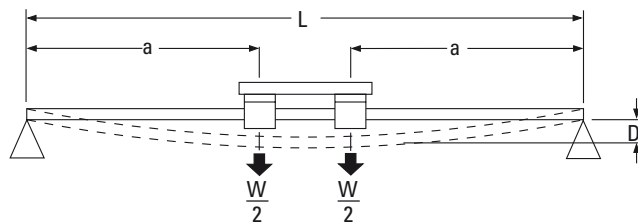
Simply Supported 60 Case LinearRace with One Block



$$D = \frac{WL^3}{48 EI} + \frac{5SL^4}{384 EI}$$

| Nominal Diameter (in) | EI (lbf • in ²) |
|-----------------------|-----------------------------|
| 1/4 | 1.92+03 |
| 3/8 | 9.79+03 |
| 1/2 | 3.13+04 |
| 5/8 | 7.50+04 |
| 3/4 | 1.56+05 |
| 1 | 5.00+05 |

Simply Supported 60 Case LinearRace with Two Blocks



$$D = \frac{Wa(3L^2 - 4a^2)}{48 EI} + \frac{5SL^4}{384 EI}$$

LEGEND:

- D = (in) (m)
- W = (lbf) (N)
- L = (in) (m)
- a = (in) (m)
- S = (lbf/in) (N/m)
- E = (lbf/in²) (N/m²)
- I = (in⁴)(m⁴)

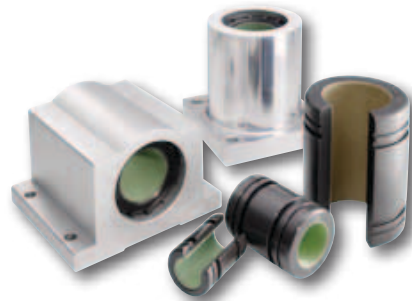
Application Examples

| Industry | Application | Benefits |
|-----------------|-------------------|---|
| Medical | Imaging | Non-ferrous, non-magnetic aluminum material makes Ultra Light shafting ideal for magnetic resonance imaging equipment |
| Food & Beverage | Meat Processing | Corrosion resistant aluminum and hard anodize coating allow Ultra Light shafting to be used in washdown applications where fluids and caustics would typically attack standard steel shafting |
| Fitness | Weight Stacking | Maintenance free motion for life of equipment Light shafting weight simplifies installation, and reduces overall equipment weight, making transportation and positioning easier |
| Packaging | Form, Fill & Seal | Axes with lower precision requirements can realize lower material costs by utilizing Ultra Light Aluminum shafting over standard steel shafting |

Recommended Products

FluoroNyliner Bushing Bearings

Ultra Light Aluminum LinearRace shafting is designed for use with Thomson FluoroNyliner Bushing bearings. FluoroNyliner bearings utilize a self-lubricating liner in a hard anodize aluminum shell. FluoroNyliner bearings offer high performance in applications with heavy loads, high contamination, and corrosive environments



Food Grade FluoroNyliner Bushing Bearings

FluoroNyliner Bushing bearings are now available in a food grade version for use in food processing, pharmaceutical and medical applications. The corrosion resistant sleeve is stainless steel, while the self lubricating liner is FDA and USDA compliant.



Linear Ball Bushing Bearings & Shafting

Thomson offers the world's largest selection of inch and metric Linear Ball Bushing® Bearings. Corrosion resistant shafting options include hard chrome plating, thin dense chrome plating, black oxide, 300 and 400 Series stainless steel.



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