



Metric Silo Bolts

***Fasteners for the Grain Bin and
Storage Building Industries***



100%
**NORTH AMERICAN
MADE**

LELAND INDUSTRIES INC.

Leland Industries Inc., (Est. 1984). We are proud of our accomplishments and look ahead with eager anticipation to the future. At inception, Leland began offering a quality line of bolts and nuts to the agricultural storage industry, operating from rented quarters and with only six employees. Leland has grown into the largest manufacturer of its kind in North America, offering only domestic nuts, bolts and screws, made in our modern 19,045 sq. m. (205,000 sq. ft.) manufacturing facility.

Today, Leland features a more extensive product offering to agricultural, construction and industry than any domestic competitor. A recent expansion of bolt making capabilities and the acquisition of "Canadian Threadall Limited" have increased our capabilities beyond our full line of agricultural bolts and nuts, to include bolts to M20 diameter, with custom threading, forming and bending also available. All this in the face of continuing offshore competition.

Additionally, Leland continues to produce a full offering of thread cutting, forming, thread rolling and self-drilling screws for construction and industry. Supporting our main manufacturing and warehouse location, Leland maintains eight remote warehouse and screw painting facilities across North America. Our employees now number in excess of 200. We create jobs.

Leland Industries Inc. is a privately held Canadian corporation based in Toronto, Ontario Canada. Canadian Threadall, now a member of the Leland family, operates from a wholly owned 4,645 sq. m. (50,000 sq. ft.) manufacturing facility in Cambridge.

SERVICE

We have come to look at our company through the eyes of our customers - opening new ways of bringing the best service to industry. We accomplish this by strategically locating plants and warehouses, well-maintained equipment, inventories to ensure just-in-time deliveries, planning and partnering with our customers and vendors to ensure continuity of supply. Our "Enterprise Resource Planning" software provides the flexibility and resources to ensure instant information to meet industry demands.

QUALITY

We have established rigorous benchmarks for quality that surpass the test of today's exacting needs of engineering. We are committed to sustaining the quality of manufacturing that has made us successful. All Leland products are traceable to each stage of the manufacturing process. Our testing lab is accredited to ISO-IEC 17025 by A2LA. An official certificate of compliance is available upon request.

EQUIPMENT

- ACCREDITED TESTING LAB
- ASSEMBLY
- BOLT MAKERS
- HEADING
- NUT FORMING
- NUT TAPPING
- POINTING
- POWDER COATING
- SHANK SLOTTING
- THREAD ROLLING
- TOOL ROOM
- TRIMMING
- IN-HOUSE NZF3000 SERIES COATING LINE

MISSION STATEMENT

To accomplish 100% customer satisfaction through innovation market growth quality and service.



100% North America

Leland produces a wide variety of fasteners unique to the grain bin industry.



All Leland Grain Bin and Storage Building fasteners receive JS1000® extreme life plating as Leland's standard finish.

Included in this product range are fasteners made to Property Class 8.8 and 10.9.

Various types of nuts are produced from finished hexagon, heavy semi-finished, flange, (both plain and serrated), and square nuts.

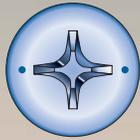
Leland's exclusive JS1000® has been proven to remain completely rust-free in over 1000 hours of salt spray testing. That's up to 10 times more corrosion resistance than other electro-zinc platings - and considerably better than certain post-plating coatings on the market.

High lubricity for reduced tapping torque and less stress on small diameter fasteners!

- Completely non-toxic and meets FDA standards for use around food products!
- Totally compatible with aluminum and other metals used in construction!
- Leland and Canadian Threadall use coatings that meet rigorous industry standards – environmentally friendly!
- Can be powder coated to match any siding panel color!
- Powder coating over JS1000® increases rust resistance (salt spray testing) by over three times!

Rely on North American quality!

JS1000® is exclusive to Leland. As with all Leland products, JS1000® is 100% North American.



JS1000® PLATING SYSTEM

ENHANCED
ANTI-CORROSION
PROTECTION
SYSTEM THAT IS
APPLIED TO ALL
LELAND FASTENERS

1000 HOURS SALT
SPRAY LIFE

JS600 PLATING SYSTEM

HIGH LUBRICITY
ANTI-CORROSION
PROTECTION
SYSTEM FOR
STAINLESS STEEL

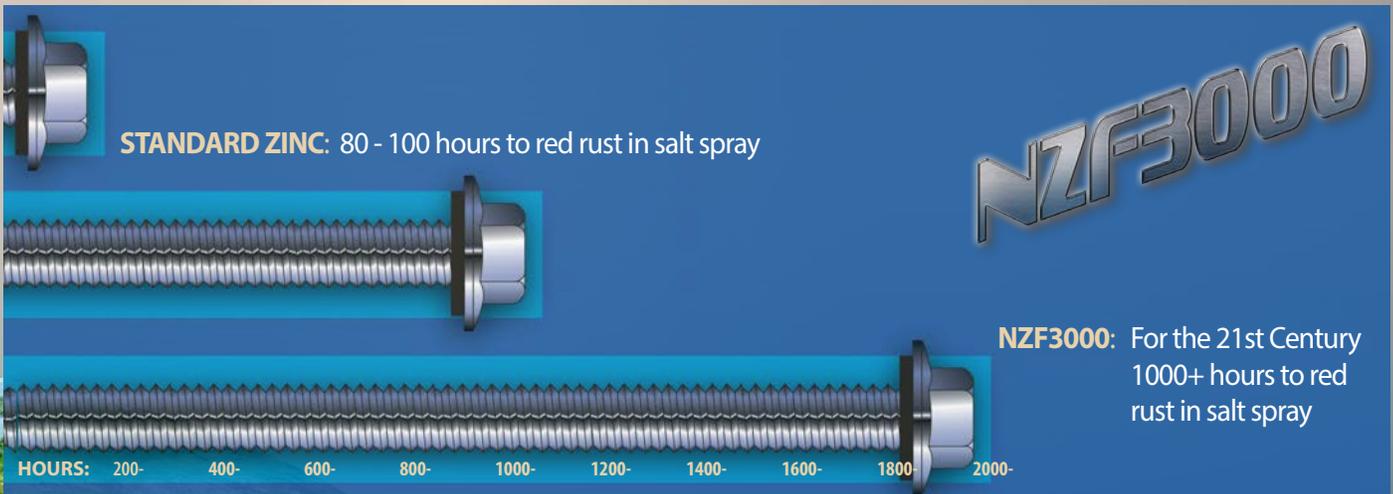
NZF3000® SERIES LONGLIFE SYSTEM

THE ULTIMATE
CORROSION
PROTECTION SYSTEM.
NO RISK OF HYDROGEN
EMBRITTLMENT

PROVIDES UP TO 3000
HOURS OF RUST-FREE
PERFORMANCE IN SALT-
SPRAY TESTS



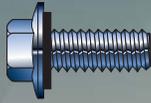
**POWDER
COATING THAT
LASTS THE
LIFE OF THE
DOOR!**



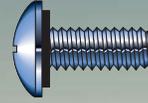
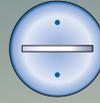
American Made



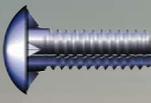
Product Range



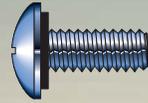
■ Indented Hex Flange Bolts



● Truss Slot Undercut Bolts



★ TANK INDUSTRY Bolts



▲ Truss Philips Undercut Bolts

STANDARD STOCK SIZES (other sizes available on request including 18-8 300 stainless) - JS600 Plating

| LENGTH | M8 | | M10 | | M12 | | M14 | | M16 | |
|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| | 8.8 | 10.9 | 8.8 | 10.9 | 8.8 | 10.9 | 8.8 | 10.9 | 8.8 | 10.9 |
| 20 | ■ ● | ■ ● | ■ ▲ | ■ * | | | | | | |
| 25 | ■ ● | ■ ● | ■ | ■ * | | ■ | | ■ * | | |
| 30 | | | | ■ | | | | | | |
| 35 | ■ | ■ ● | ■ ▲ | ■ * | | ■ | | ■ * | | |
| 40 | | | ■ | | | | | | | |
| 45 | ■ | ■ ● | ■ ▲ | ■ | | ■ | | ■ * | | ■ |
| 50 | | | | ■ | | | | * | | |
| 55 | ■ | ■ | ■ | ■ | | ■ | | ■ * | | ■ |
| 60 | ■ | ■ | | | | | | * | | |
| 65 | ■ | ■ | ■ | ■ | | | | * | | ■ |
| 70 | | | | | | | | * | | |
| 75 | | | ■ | ■ | | | | | | |

- Nylon head covers available to encapsulate round head bolts
- All bolts available with or without sealing washers



| SIZE | FINISHED HEX NUTS | PLAIN FLANGE | SERRATED FLANGE | SQUARE NUT | HEAVY HEX NUTS |
|------|-------------------|--------------|-----------------|------------|----------------|
| M8 | ● | ● | ● | ● | |
| M10 | ● | ● | ● | ● | ● |
| M12 | ● | | ● | | |
| M14 | ● | | ● | | |
| M16 | ● | | ● | | |

Bolt Technical Data

Nominal Dimensions

| SIZE AND THREAD SERIES | HEX SIZE | THREAD CLASS (AFTER PLATING) |
|------------------------|----------|------------------------------|
| M8 x 1.25 | 13mm | 6h |
| M10 x 1.50 | 15mm | 6h |
| M12 x 1.75 | 18mm | 6h |

Mechanical Requirements and Identification Marking

| PRODUCT CLASS | FULL SIZE TEST REQ. (mPa) | | BASE METAL HARDNESS ROCKWELL | | SURFACE HARDNESS | PROPERTY CLASS MARKING | MANUFACTURER'S IDENTIFICATION MARKING |
|---------------|---------------------------|-------------------|------------------------------|---------|------------------|------------------------|---------------------------------------|
| | PROOF LOAD | TENSILE (MINIMUM) | MINIMUM | MAXIMUM | | | |
| 4.6 | 225 | 400 | B 67 | B 95 | N/A | 4.6 | NF |
| 8.8 | 580 | 800 | C 22 | C 32 | ① | 8.8 | NF |
| 10.9 | 830 | 1040 | C 32 | C 39 | ② | 10.9 | NF |

- ① Surface hardness shall not be more than HV 30 above the measured base metal hardness.
- ② In addition to note ①, the surface hardness will not exceed HV390 (HRC 40 equivalent).



Proof Load and Tensile Strength Requirements

| NOMINAL DIAMETER OF PRODUCT & THREAD SERIES | PROPERTY CLASS 8.8 | | PROPERTY CLASS 10.9 | |
|---|--------------------|--------------------------|---------------------|--------------------------|
| | PROOF LOAD N | TENSILE STRENGTH N (MIN) | PROOF LOAD N | TENSILE STRENGTH N (MIN) |
| M8 x 1.25 | 21200 | 29200 | 30400 | 38100 |
| M10 x 1.50 | 33700 | 46400 | 48100 | 60300 |
| M12 x 1.75 | 48900 | 67400 | 70000 | 87700 |

Torque Values

Torque-Tension Relationships based on an empirical formula SAE J1701-M

| NOMINAL DIAMETER OF PRODUCT & THREAD SERIES | PROPERTY CLASS 8.8 | | | PROPERTY CLASS 10.9 | | |
|---|--------------------|-------------------------|--------------------------|---------------------|-------------------------|--------------------------|
| | CLAMP LOAD KN | TORQUE DRY (N.M.) K=0.2 | TORQUE LAB (N.M.) K=0.15 | CLAMP LOAD KN | TORQUE DRY (N.M.) K=0.2 | TORQUE LAB (N.M.) K=0.15 |
| M8 x 1.25 | 16.50 | 26.40 | 19.80 | 22.80 | 36.50 | 27.30 |
| M10 x 1.50 | 26.10 | 52.20 | 39.20 | 36.10 | 72.20 | 54.20 |
| M12 x 1.75 | 37.90 | 91.00 | 68.00 | 52.50 | 126.00 | 94.00 |

NOTES:

- The values are for information only and based on the empirical formula $T=KDW$ where T =torque (N.M.), D =screw or bolt nominal size (mm), W = screw or bolt tension (KN) and K = torque factor.
- Individual applications should be investigated for the proper torque strategy. The content has been presented as a guideline but responsibility for its application lies with the user.

Nuts for use with Silo Bolts

| NOMINAL DIAMETER OF PRODUCT & THREAD SERIES | PROPERTY CLASS 8 | | PROPERTY CLASS 10 | |
|---|------------------|--------------|-------------------|--------------|
| | PROOF LOAD N | HARDNESS HRC | PROOF LOAD N | HARDNESS HRC |
| M8 x 1.25 | 31800 | 30 MAX | 38100 | 26-36 |
| M10 x 1.50 | 50500 | - | 60300 | - |
| M12 x 1.75 | 74200 | - | 88500 | - |

NOTES:

- For the application of thin nuts it should be considered that the stripping load is lower than the proof load of a nut with full loadability.

Sealing Washer Data

Typical Low Density Polyethylene Washer Property Data

| PROPERTY | TEST METHOD | UNITS | LOW-DENSITY POLYETHYLENE |
|---|------------------------|-------------------|--------------------------|
| MECHANICAL | | | |
| Tensile Strength | ASTM D638 DIN 53455 | PSI MPA | 1,350 - 2,000 10 - 14 |
| Modulus of Elasticity | ASTM D638 | PSI MPA | 22,000 155 |
| Elongation (Ultimate) | ASTM D638 | % | 500 |
| Hardness - Shore | ASTM D2240 | D SCALE | 44 - 55 |
| Flexural Strength | ASTM D790 DIN 53452 | PSI MPA | 780 5.4 |
| Flexural Modulus | ASTM D790 | PSI MPA | 16,500 115 |
| THERMAL | | | |
| VICAT Softening Temperature | ASTM D1525 | °C | 85 - 100 |
| Brittleness Temperature | ASTM D746 | °C | -75 |
| Heat Distortion Temperature -264 psi | ASTM D648 ASTM D64 | °C °C | 80 - |
| PHYSICAL | | | |
| Density | ASTM D1505 | G/CM ³ | 0.91 - 0.92 |

Packaging Programs Include Recyclable Plastic Packaging



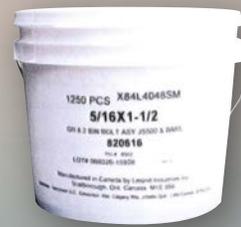
SQUARE PLASTIC PAILS

- Product is bulk packed
- Waterproof - tamper proof & resealable
- Features security strip to indicate pail has been opened



1/4 KEG CARTONS

- Bulk packed



ROUND PLASTIC PAILS

- Bulk packed
- Waterproof & resealable



PLASTIC BAG PACKAGING

Various sizes available on custom orders or private label programs.

American Made





LELAND INDUSTRIES LAND



TESTING LABORATORY

ACCREDITATION TO ISO / IEC – 17025

SCOPE: MECHANICAL CERTIFICATION NUMBER: 1053.01

THERE ARE INTERNATIONAL AGREEMENTS OF MUTUAL RECOGNITION WITH EUROPE,
THE AMERICAS AND PACIFIC RIM COUNTRIES

The ISO/IEC 17025 accreditation applies to mechanical testing and does not imply certification/approval of the products described.
See the lab scope on our website for the specific tests covered by the accreditation.

This accreditation is restricted to the quality assurance laboratory located at the manufacturing plant and head office in Toronto, Ontario, Canada.



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