RAJAL
Industries

PRODUCT CATALOGUE

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COMPANY OVERVIEW

Founded in 2016, Rajal Industries is a premier manufacturer of Threaded Fasteners, Non-Threaded Fasteners, and Auto Components, serving a diverse range of industries including construction, automotive, heavy engineering, and industrial applications.

Our state-of-the-art manufacturing facility, strategically located in Surendranagar, Gujarat, operates in an open, worker-friendly environment, equipped with advanced machinery to ensure precision, durability, and compliance with global standards such as ISO, ASTM, and DIN.

Recognizing the growing demands of the industry, we expanded our operations in 2023, establishing a corporate office in Ahmedabad to enhance client engagement and global outreach. In the same year, we launched our official website and strengthened our social media presence, ensuring seamless communication, product visibility, and industry insights for our valued customers.

With a strong commitment to quality, innovation, and customer satisfaction, we have successfully exported fasteners to the USA since 2022 and continue to expand our reach into international markets.

PRODUCT CATALOGUE

THE RAJAL INDUSTRIES PRODUCT TREE

THREADED FASTENERS

BOLTS
- Hex Head Bolt
- Carriage Bolt
- Flange Bolts
- Anchor Bolts
- U-Bolts
- High-Tensile Hex Bolts
- Hsfg Bolts
- Pin Type Anchor Bolt
- Expansion Bolts
- Huck Bolts
- Eye Bolts
- T-Bolts

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- Self-Tapping Screws
- Self-Drilling Screws
- Chipboard Screws
- Drywall Screws
- Sems Screws
- Coach Screws
- Countersunk Torx Screws
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- Security Screws
- Captive Panel Screws
- Knurled Thumb Screws

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- Lock Nuts
- Weld Nut
- Flange Nut
- Cage Nut
- Self- Clinching Nut
- Anti-Theft Nut
- Rivet Nut
- Square Nuts
- Nylock Nut
- Heavy Hex Nuts
- Heavy Hex Nuts Astm A194 Gr2h

STUDS
- Threaded Rods – Fully Or Double-Ended

ANCHORS & INSERTS
- Wedge Anchor
- Expansion Anchors
- Sleeve Anchors
- Drop In Anchor
- Threaded Inserts
- Toggle Bolts
- Panel Fasteners

NON-THREADED FASTENERS

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- Dowel Pin
- Taper Pin
- Spring Pin
- Coiled Pin
- Quick-Release Pins

WASHERS
- Flat Washers
- Spring Washers
- Star Washers
- Taper Washer
- Disc Washer
- Serrated Lock Washer
- Structural Washer

STAMPED PARTS

NAILS

CIRCLIPS
- External Circlip
- Internal Circlip

RIVETS

AUTO COMPONENTS

- Precision Engineering Components
- Metal Turned Parts
- Automotive Turned Parts
- Hardware Parts
- Automobile Components
- Precision Cnc Turning Components
- Precision Cnc Milling Components

THREADED FASTENERS

BOLTS

HEX HEAD BOLT

- Diameters M1.6 to M100 (metric),
- 1/4" to 1-1/2" (imperial); lengths variable
- ISO 4014, ASME B18.2.1, ISO 4017 DIN 933, DIN 931, IS 1364

CARRIAGE BOLT

- Diameters M5 to M24 (metric),
- 1/4" to 1" (imperial); lengths variable,
- ISO 7049-1, ASME B18.5, DIN 603, ISO 8677

FLANGE BOLTS

- Diameters M6 to M36 (metric),
- 1/4" to 1-1/2" (imperial); lengths variable
- ISO 7091, ASME B18.2.2, ISO 4162 DIN 6921

ANCHOR BOLTS

- Diameters 1/2" to 2-1/2"; lengths variable
- ASTM F1554, IS 5624, DIN 529

U-BOLTS

- Bolt diameters M4 to M20 (metric),
- 1/4" to 3/4" (imperial); shapes vary General bolt standards for threaded parts,
- DIN 3570, ASME B18.31.5

HIGH-TENSILE HEX BOLTS

- Diameters M1.6 to M100 (metric),
- 1/4" to 1-1/2" (imperial); lengths variable
- ISO 4014, ASME B18.2.1, SAE J429, ISO 898-1, DIN 6914, IS 1364, ASTM A325, ASTM A490

PRODUCT CATALOGUE

THREADED FASTENERS

BOLTS

HSFG BOLTS

- Diameters M16 to M36 (metric),
- 3/4" to 1-1/2" (imperial); lengths variable
- IS 4000, ASTM A325, ASTM A490, EN 14399-4, IS 3757

PIN TYPE ANCHOR BOLT

- Diameters 1/2" to 2-1/2"; lengths variable
- ASTM F1554 or specific pin type standards, IS 5624

EXPANSION BOLTS

- Diameters 1/4" to 1";
- lengths 1" to 6" or more
- ASTM E1512, DIN 529

HUCK BOLTS

- Diameters 1/8" to 3/4"; lengths variable
- Manufacturer-specific,
- ASTM F844 (general), ASME B18.2.6

EYE BOLTS

- Threaded diameters M4 to M20 (metric),
- 1/4" to 3/4" (imperial); eye sizes vary
- ISO 6474, ASME B18.12, DIN 580, ISO 3266

T-BOLTS

- Head widths 6mm to 20mm (metric),
- 1/4" to 3/4" (imperial); diameters vary No specific standard, general bolt standards,
- DIN 186, DIN 7992

THREADED FASTENERS

SCREWS

MACHINE SCREWS

- Diameters M1.6 to M10 (metric),
- 1/4" to 3/4" (imperial); lengths variable
- ISO 4762, ASME B18.6.3, ISO 7045, DIN 7985

SELF-TAPPING SCREWS

- Diameters M2 to M10 (metric),
- gauge 4 to 14 (imperial); lengths 6mm to 100mm
- ISO 1472, ASME B18.6.1, ISO 1479, DIN 7982, DIN 7976

SELF-DRILLING SCREWS

- Diameters M3 to M12 (metric),
- gauge 6 to 14 (imperial); lengths 10mm to 150mm ASTM F1667, manufacturer standards,
- ISO 15480, DIN 7504

CHIPBOARD SCREWS

- Diameters 2.5mm to 6mm (metric),
- gauge 6 to 12 (imperial); lengths 10mm to 100mm No specific, used with particleboard standards,
- ISO 14566

DRYWALL SCREWS

- Gauges #6 to #12 (imperial),
- 3mm to 5mm (metric); lengths 25mm to 90mm
- ASTM C1002, manufacturer standards, ASTM C1002

SEMS SCREWS

- Same as corresponding screw type Same as screw standard, washer
- ISO 7090, ASME B18.21.1, ASME B18.13, ISO 10642

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THREADED FASTENERS

SCREWS

COACH SCREWS

- Diameters M6 to M20 (metric),
- 1/4" to 1" (imperial); lengths 50mm to 300mmNo specific, general screw standards,
- DIN 571, ASME B18.2.1

HEX FLANGE SELF TAPPING

- Diameters M3 to M10 (metric),
- gauge 6 to 14 (imperial); lengths 6mm to 50mm Same as self-tapping, hex flange standards,
- DIN 6928

CAPTIVE PANEL SCREWS

- Varies by panel and application No specific, general screw standards,
- ASME B18.6.3

COUNTERSUNK TORX SCREWS

- Diameters M2 to M10 (metric),
- gauge 2 to 14 (imperial); lengths variable
- ISO 10664 (Torx), general screw standards, ISO 14581

SECURITY SCREWS

- Same as corresponding screw type General screw standards, specific head designs,
- ISO 14583

KNURLED THUMB SCREWS

- Diameters M3 to M10 (metric),
- gauge 4 to 12 (imperial); lengths 6mm to 50mm General screw standards, specific head design,
- DIN 464

NUTS

HEX NUT

- For metric bolts M1.6 to M100,
- imperial 1/4" to 1-1/2"ISO 4032,
- ASME B18.2.2, ISO 4032, DIN 934

LOCK NUTS

- Same as standard nuts, M1.6 to M100 (metric),
- 1/4" to 1-1/2" (imperial)ISO 2341,
- ASME B18.2.4.1, ISO 7040, DIN 985

WELD NUT

- Typically M4 to M20 (metric),
- 1/4" to 3/4" (imperial) No specific, general nut standards,
- DIN 929, ISO 21670

FLANGE NUT

- For metric bolts M5 to M36, imperial
- 1/4" to 1-1/2"ISO 7090, ASME B18.2,
- ISO 4161, DIN 6923

CAGE NUT

- V aries by application, based on nut size No specific, general nut standards,
- DIN 267-28

SELF-CLINCHING NUT

- Typically M2 to M10 (metric),
- gauge 4 to 12 (imperial) Manufacturer-specific, general nut standards,
- ISO 13599

PRODUCT CATALOGUE

THREADED FASTENERS

NUTS

ANTI-THEFT NUT

- Same as standard nuts, M1.6 to M100 (metric),
- 1/4" to 1-1/2" (imperial) No specific, general nut standards with security, Custom security standards

SQUARE NUTS

- For metric bolts M5 to M36,
- imperial 1/4" to 1-1/2"ASME B18.2.2 (Imperial), no metric specific,
- DIN 557

HEAVY HEX HEAVY NUTS

- For metric bolts M8 to M100,
- imperial 1/2" to 1-1/2"ISO 4033,
- ASME B18.2.2, ASTM A563, ISO 4032

RIVET NUT

- Typically M3 to M10 (metric),
- 1/4" to 1/2" (imperial) Manufacturer-specific, general nut/rivet standards,
- ISO 15983

NYLOCK NUT

- Same as standard nuts, M1.6 to M100 (metric),
- 1/4" to 1-1/2" (imperial)
- ISO 2341, ASME B18.2.4.1, DIN 985, ISO 7040

HEAVY HEX NUTS ASTM A194 GR2H

- Same as heavy hex nuts, M8 to M100 (metric),
- 1/2" to 1-1/2" (imperial)
- ASTM A194

STUDS

THREADED RODS – FULLY OR DOUBLE-ENDED

- Diameters M3 to M36 (metric), 1/4" to 1-1/2" (imperial); lengths variable ISO 898-1, ASTM A307
- DIN 975, DIN 976, ISO 898-1
- B7 Stud (ASTM A193 GR. B7 Full Thread Stud-Inch, ASTM A193 GR. B7 Full Thread Stud-Metric)
- Diameters M6 to M100 (metric), 1/4" to 3" (imperial); lengths variable ASTM A193

ANCHORS AND INSERTS

WEDGE ANCHOR
(THROUGH BOLT WITH NUT & WASHER)

- Diameters 1/4" to 1"; lengths 1" to 6"ASTM E1512, DIN 7452, ISO 14592

SLEEVE ANCHORS

- Diameters 1/4" to 1"; lengths
- 1" to 6"ASTM E1512,
- DIN 529

THREADED INSERTS

- Diameters M2 to M10 (metric), gauge 2 to 12 (imperial); lengths vary No specific, general thread standards,
- DIN 529

EXPANSION ANCHORS
(WEDGE ANCHORS)

- Same as Wedge Anchor Same as Wedge Anchor,
- ISO 9001 Certified, IS 5624

DROP IN ANCHOR

- Diameters 1/4" to 1"; lengths 1" to 4" General anchor standards,
- DIN 529

TOGGLE BOLTS

- Diameters 1/4" to 3/8"; lengths
- 1" to 6"No specific, general bolt standards,
- ASTM C1002

PANEL FASTENERS (QUARTER-TURN FASTENERS)

- Varies by type and application Manufacturer-specific, general quick-release standards,
- DIN 967

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NON-THREADED FASTENERS

PINS

COTTER PIN

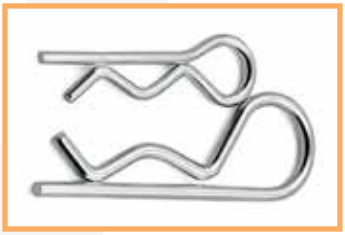
- Diameters 1/16" to 3/8";
- lengths 1/2" to 6"
- ASME B18.8.2, ISO 8751, DIN 94, ISO 1234

DOWEL PIN

- Diameters 1mm to 20mm (metric),
- 1/16" to 3/4" (imperial); lengths vary
- ISO 8734, ASME B18.8.1, ISO 8734, DIN 6325

TAPER PIN

- Small diameters 1/8" to 1/2";
- lengths 1" to 6"ASME B18.8.3,
- ISO 8752, DIN 1



SPRING PIN

- Diameters 1/8" to 1/2";
- lengths 1/2" to 4"ASME B18.27,
- ISO 8753, ISO 8752, DIN 1481

COILED PIN

- Diameters 0.5mm to 5mm;
- lengths vary No specific, general pin standards,
- ISO 8748

QUICK-RELEASE PINS

- Varies by type and application Manufacturer-specific, general quick-release standards,
- ASME B18.8.6

WASHERS

FLAT WASHERS

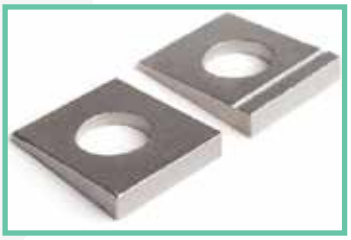
- For metric bolts M1.6 to M100, imperial 1/4" to 1-1/2"ISO 7089, ASME B18.22.1,
- ISO 7089, DIN 125

SPRING WASHERS

- For metric bolts M2 to M36, imperial
- 1/4" to 1-1/2"ISO 7091, ASME B18.21.1,
- ISO 7089, DIN 127

STAR WASHERS

- Same as lock washers, M2 to M36 (metric),
- 1/4" to 1-1/2" (imperial)
- ISO 7091, ASME B18.21.1, DIN 6797



TAPER WASHER

- Varies by angle and size required No specific, general washer standards,
- DIN 434, DIN 435

SERRATED LOCK WASHER

- For metric bolts M2 to M36,
- imperial 1/4" to 1-1/2"
- ISO 7091, ASME B18.21.1, DIN 6798

DISC WASHER

- Same as flat washers, M1.6 to M100
- 1/4" to 1-1/2" (imperial)
- ISO 7089, ASME B18.22.1, DIN 2093

STRUCTURAL WASHER

- For metric bolts M16 to M36, imperial
- 3/4" to 1-1/2"ASTM F436
- ISO 7090, EN 14399-6

PRODUCT CATALOGUE

NON-THREADED FASTENERS

STAMPED PARTS

Varies by specific partNo specific, general manufacturing standards

NAILS

Varies, from a few mm to several cm in length, different diameters ASTM F1667, specific types have own standards, IS 723

CIRCLIPS

- **External Circlip**
  Diameters 5mm to 200mmISO 7226, DIN 471
- **Internal Circlip**
  Diameters 5mm to 200mmISO 7227, DIN 472

RIVETS

- Diameters 1/16" to 1"; lengths vary ASTM F844
- ISO 7785, ISO 15977

AUTO COMPONENTS & CNC PRECISION PARTS

PRECISION ENGINEERING COMPONENTS

METAL TURNED PARTS

AUTOMOTIVE TURNED PARTS

HARDWARE PARTS

AUTOMOBILE COMPONENTS

PRECISION CNC TURNING COMPONENTS

These are typically custom-made components based on customer specifications and manufacturing feasibility.

PRECISION CNC MILLING COMPONENTS

PRODUCT CATALOGUE

FASTENER MATERIAL GRADES & SPECIFICATIONS

1. MILD STEEL (MS) GRADES

Mild Steel (MS) fasteners are low-carbon steel, commonly used in general-purpose applications.

Grade	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Density (g/cm³)	Corrosion Resistance	Temperature Resistance (°C)	Weldability	Standards
Grade 4.6	400	240	22%	7.85	Low (Needs Coating)	Up to 300°C	Excellent	ISO 898-1, IS 1364, DIN 933
Grade 5.6	500	300	20%	7.85	Low (Needs Coating)	Up to 300°C	Excellent	ISO 898-1, IS 1364, DIN 931
Grade 6.8	600	360	18%	7.85	Medium (With Coating)	Up to 350°C	Good	ISO 898-1, IS 1364

2. HIGH-TENSILE STEEL (HIGH-STRENGTH) GRADES

High-tensile fasteners are heat-treated alloy steel, designed for load-bearing and high-strength applications.

Grade	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Density (g/cm³)	Corrosion Resistance	Temperature Resistance (°C)	Weldability	Standards
Grade 8.8	800 – 1000	640	12%	7.85	Medium (Needs Zinc Coating)	Up to 400°C	Poor (Risk of Brittleness)	ISO 898-1, IS 3757, ASTM A325
Grade 10.9	1000 – 1200	900	10%	7.85	Medium (Needs Galvanizing)	Up to 450°C	Poor (Risk of Crack Formation)	ISO 898-1, IS 3757, ASTM A490
Grade 12.9	1200 – 1400	1080	8%	7.85	Low (Needs Special Coatings)	Up to 500°C	Not Recom-mended	ISO 898-1, DIN 267, ASTM A574

FASTENER MATERIAL GRADES & SPECIFICATIONS

3. STAINLESS STEEL (SS) GRADES

Stainless Steel (SS) fasteners are used in corrosive environments, offering rust resistance and durability.

AUSTENITIC STAINLESS STEEL (MOST COMMON)								
Grade	**Tensile Strength (MPa)**	**Yield Strength (MPa)**	**Elongation (%)**	**Density (g/cm³)**	**Corrosion Resistance**	**Temperature Resistance (°C)**	**Weldability**	**Standards**
A2-50 (SS 304)	500	210	40%	7.9	Good	Up to 870°C	Excellent	ISO 3506-1
A2-70 (SS 304)	700	450	35%	7.9	Good	Up to 870°C	Excellent	ISO 3506-1
A2-80 (SS 304)	800	600	30%	7.9	Good	Up to 870°C	Excellent	ISO 3506-1
A4-70 (SS 316)	700	485	30%	7.98	Excellent	Up to 870°C	Excellent	ISO 3506-1
A4-80 (SS 316)	800	600	25%	7.98	Excellent	Up to 870°C	Excellent	ISO 3506-1

MARTENSITIC STAINLESS STEEL (HIGH-WEAR APPLICATIONS)								
Grade	**Tensile Strength (MPa)**	**Yield Strength (MPa)**	**Elongation (%)**	**Density (g/cm³)**	**Corrosion Resistance**	**Temperature Resistance (°C)**	**Weldability**	**Standards**
SS 410	750 – 900	450	20%	7.75	Medium	Up to 650°C	Poor (Brittle after welding)	ASTM A276
SS 420	850 – 1000	500	18%	7.74	Medium	Up to 700°C	Limited (Heat treatment required)	ASTM A276

FASTENER MATERIAL GRADES & SPECIFICATIONS

DUPLEX STAINLESS STEEL (FOR EXTREME CORROSION AND STRENGTH)								
Grade	**Tensile Strength (MPa)**	**Yield Strength (MPa)**	**Elongation (%)**	**Density (g/cm³)**	**Corrosion Resistance**	**Temperature Resistance (°C)**	**Weldability**	**Standards**
2205 Duplex	620 – 800	450	25%	7.8	Excellent	Up to 315°C	Good (Preheat required)	ASTM A182, ASTM A479
Super Duplex 2507	800 – 900	550	20%	7.8	Outstanding	Up to 315°C	Good (Controlled welding needed)	ASTM A182, ASTM A479
Grade 6.8	600	360	18%	7.85	Medium (With Coating)	Up to 350°C	Good	ISO 898-1, IS 1364

4. SPECIALTY GRADES FOR HIGH-PERFORMANCE APPLICATIONS

Material	**Tensile Strength (MPa)**	**Yield Strength (MPa)**	**Elongation (%)**	**Density (g/cm³)**	**Corrosion Resistance**	**Temperature Resistance (°C)**	**Weldability**	**Standards**
ASTM A193 B7 (Alloy Steel)	1000	860	12%	7.85	Medium (Needs Coating)	Up to 450°C	Poor (Cracks Easily)	ASTM A193
ASTM A320 L7 (Cryogenic Steel)	1000	900	12%	7.85	Medium	-200°C to 450°C	Good	ASTM A320
Brass Fasteners	500	200	45%	8.5	Very High	Up to 300°C	Excellent	ASTM B16
Aluminum Fasteners	250 – 400	150	50%	2.7	Very High	Up to 200°C	Excellent	ASTM B211

INDUSTRY-SPECIFIC FASTENER SELECTION GUIDE

Industry	Commonly Used Fasteners (From Our Product Range)	Material Recommendations	Special Considerations	Applicable Standards
Automotive	Hex Head Bolts, Flange Bolts, Nylock Nuts, Threaded Rods, SEMS Screws, Captive Panel Screws, Knurled Thumb Screws	High-Tensile 8.8, 10.9, 12.9, Stainless Steel 304	• High vibration resistance required. • Must withstand torque, shear, and fatigue loads. • Corrosion-resistant coatings (Zinc, Dacromet) recommended.	ISO 898-1, DIN 931, ISO 4032
Construction	Anchor Bolts, Expansion Anchors, HSFG Bolts, U-Bolts, Pin Type Anchor Bolts, Wedge Anchors, Hex Nuts, Structural Washers	Mild Steel (MS 4.6, 5.6), Hot-Dip Galvanized, Stainless Steel 316	• Fasteners must support high load-bearing capacity. • Corrosion resistance needed for outdoor use (Hot-Dip Galvanizing). • Seismic-rated fasteners may be required for earthquake zones.	ASTM A307, IS 3757, DIN 529
Aerospace	Countersunk Torx Screws, Rivets, A4-80 Stainless Fasteners, High-Tensile Hex Bolts, Hex Flange Self-Tapping Screws, Wing Nuts	Stainless Steel A4-80, Titanium, Super Duplex 2507	• Fasteners must withstand high temperature & pressure. • Lightweight materials (Titanium, SS A4-80) preferred. • Strict quality control & dimensional accuracy required.	ISO 3506-1, DIN 912, ASTM F568
Oil & Gas	ASTM A193 B7 Studs, Heavy Hex Nuts, Duplex SS Nuts, Chemical Anchors, Wedge Anchors, Threaded Inserts	ASTM A193 B7, Super Duplex, Inconel, A4-80 Stainless Steel	• Fasteners must handle high pressure & extreme temperatures. • Corrosion-resistant materials (Super Duplex, A4-80 SS) required. • Must comply with API & offshore oil drilling standards.	ASTM A193, A194, ISO 898-2
Marine & Offshore	A4-80 SS Bolts, Super Duplex Fasteners, Eye Bolts, Hex Head Bolts, Stainless Steel Flange Nuts, Rivets	Stainless Steel 316, Super Duplex 2507	• Saltwater corrosion resistance is critical (Use A4-80 or Super Duplex). • High tensile strength required for offshore structures. • Weldable fasteners may be needed for shipbuilding applications.	ISO 3506-1, ASTM F593, DIN 580
Electronics & Electrical	Machine Screws, Self-Tapping Screws, Rivet Nuts, Brass Fasteners, Aluminium Pop Rivets, Lock Nuts	Stainless Steel 304, Brass, Aluminum	• Non-magnetic fasteners preferred (Brass, SS 304). • Good conductivity required for electrical components. • Lightweight screws needed for PCBs & enclosures.	DIN 7985, ISO 14583, IEC 60364

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INDUSTRY-SPECIFIC FASTENER SELECTION GUIDE

Industry	Commonly Used Fasteners (From Our Product Range)	Material Recommendations	Special Considerations	Applicable Standards
Railways	Fishplate Bolts, U-Bolts, Structural Washers, HSFG Bolts, Heavy Hex Nuts ASTM A194 GR2H, Square Nuts	High-Tensile 8.8, 10.9, 12.9, Stainless Steel 316	• High vibration and fatigue resistance required. • Weather-resistant coatings for outdoor track fasteners. • Heavy-load endurance needed for railway joints & bridges.	EN 14399, IS 1367, ASTM A325
Agriculture & Heavy Machinery	Coach Screws, Carriage Bolts, Hex Nuts, Lock Nuts, T-Bolts, Knurled Thumb Screws	High-Tensile 8.8, 10.9, Stainless Steel 304	• Fasteners must handle high torque & impact loads. • Corrosion resistance required for outdoor weather conditions. • Rust-proof coatings recommended (Zinc, HDG, Dacromet).	ISO 4014, DIN 603, ASTM F3125
Furniture & Woodworking	Wood Screws, Chipboard Screws, Lag Screws, Panel Fasteners, Threaded Inserts, Countersunk Screws	Mild Steel, Brass, Stainless Steel 304	• Decorative finishes (Brass, SS 304) are preferred. • Fasteners must be easy to install without pre-drilling. • Anti-corrosion coating needed for outdoor furniture.	ISO 14566, DIN 571, ASME B18.6.1
Defense & Military Equipment	High-Tensile Hex Bolts, Captive Panel Screws, Heavy Hex Nuts, Lock Nuts, Wing Nuts	High-Tensile 10.9, 12.9, Stainless Steel A4-80	• Must withstand high impact, shock loads, and extreme conditions. • Anti-corrosion treatments required for outdoor use. • Compliance with military-grade specifications (MIL-S-1222, ASTM F568).	MIL-S-1222, ASTM F568
Shipbuilding & Marine Structures	A4-80 Stainless Fasteners, Super Duplex Bolts, U-Bolts, Eye Bolts	Stainless Steel 316, Super Duplex 2507	• Saltwater-resistant materials required. • Non-corrosive coatings (Teflon, HDG) recommended. • Fasteners must pass marine-grade tensile tests.	ISO 3506-1, ASTM F593, BS EN 10204
Renewable Energy (Solar & Wind)	Stainless Steel U-Bolts, Expansion Anchors, Flange Nuts, Threaded Rods	Stainless Steel 304, Hot-Dip Galvanized	• High resistance to UV exposure and weather conditions. • Rust-proof coatings (Zinc, HDG) preferred. • High wind load resistance needed for solar panel mounts.	ISO 3506, ASTM A153, EN 1090-2
Food Processing & Pharma	A2-70, A4-80 SS Fasteners, Nylock Nuts, Screws with FDA-Compliant Coatings	Stainless Steel 304, 316	• Hygienic and non-toxic materials required. • Easy-to-clean surfaces (Polished SS) preferred. • Corrosion-resistant (Stainless Steel A4-80) for washdown areas.	ISO 3506, DIN 7985, FDA Compliant
Mining & Heavy Excavation	High-Tensile 12.9 Bolts, Lock Nuts, Huck Bolts, U-Bolts	High-Tensile Steel 10.9, 12.9, Super Duplex	• Must handle shock, impact, and heavy loads. • Abrasion-resistant coatings (Dacromet, Zinc Flake). • Fatigue-resistant fasteners needed for drilling equipment.	ASTM A325, EN 14399, ISO 898

COATING & SURFACE TREATMENTS FOR FASTENERS

Fasteners are exposed to corrosive environments, mechanical loads, and extreme temperatures. Choosing the right coating or surface treatment enhances corrosion resistance, durability, and performance.

Types of Coatings & Surface Treatments for Fasteners

Coating Type	Corrosion Resistance	Appearance	Thickness (µm)	Key Benefits	Common Applications
Zinc Plating (Electroplated Zinc)	Medium (Indoor Use)	Shiny Silver/ Yellow	5 - 15 µm	• Cost-effective • Protects against rust, • Good for general use	Indoor, Automotive, Electrical, Furniture
Hot-Dip Galvanizing (HDG)	High (Outdoor Use)	Matte Gray, Thick Coating	50 - 85 µm	• Best for outdoor & heavy-duty use • Prevents rust for decades	Construction, Bridges, Railways, Solar
Mechanical Galvanizing	High (Outdoor Use)	Matte Silver/ Gray	25 - 40 µm	• Alternative to HDG, • Provides uniform coating • No risk of hydrogen embrittlement	Structural Fasteners, Heavy Machinery
Dacromet Coating (Zinc Flake Coating)	Very High (Extreme Environments)	Matte Silver-Gray	8 - 12 µm	• High corrosion resistance • Chemical & heat resistant, • No hydrogen embrittlement	Aerospace, Military, Wind Energy, Mining
Geomet Coating (Advanced Zinc Flake)	Very High	Light Gray/ Silver	7 - 10 µm	• Superior rust protection • Environmentally friendly (Chrome-free) • Excellent adhesion	Automotive, Bridges, Marine, Wind Power
Black Oxide	Low	Black	0.5 - 2 µm	• Increases wear resistance • Aesthetic finish • Reduces glare & friction	Tools, Firearms, Decorative Fasteners
Nickel Plating	Medium	Shiny Silver	3 - 8 µm	• Improves hardness • Protects against wear & oxidation	Electronics, Automotive, Decorative Hardware
Teflon® Coating (PTFE)	Very High (Chemical Resistance)	Multiple Colors	10 - 25 µm	• Non-stick • Excellent chemical resistance • Reduces friction	Oil & Gas, Food Processing, Medical
Phosphate Coating (Zinc or Manganese)	Medium	Dark Gray/ Black	5 - 10 µm	• Absorbs lubricants well • Reduces friction, • Improves adhesion for paints	Automotive, Military, Engine Components
Powder Coating	Low	Custom Colors	40 - 80 µm	• Decorative • Protects against minor corrosion	Architectural, Furniture, Outdoor Fixtures
Copper Plating	Low	Reddish-Brown	1 - 5 µm	• Improves electrical conductivity • Prevents galling in stainless steel fasteners	Electrical, Marine, Decorative Fasteners
Brass Plating	Low	Gold/Brass Look	1 - 3 µm	• Aesthetic appearance • Corrosion-resistant	Decorative Hardware, Electrical Connectors
Silver Plating	Low	Bright Silver	3 - 6 µm	• High conductivity • Anti-seizing	Electrical, Aerospace, Precision Fasteners
Nickel Plating	Medium	Shiny Silver	3 - 8 µm	• Improves hardness • Protects against wear & oxidation	Electronics, Automotive, Decorative Hardware

CHOOSING THE RIGHT COATING: INDUSTRY APPLICATIONS

INDUSTRY	RECOMMENDED COATINGS	REASON
Construction & Structural	Hot-Dip Galvanizing (HDG), Mechanical Galvanizing	High corrosion resistance for outdoor structures
Automotive	Geomet, Zinc Plating, Dacromet	Protection from road salt, high temperatures
Aerospace & Defense	Dacromet, Teflon, Black Oxide	Extreme temperatures, wear & tear, non-glare finish
Oil & Gas	Teflon (PTFE), Zinc Flake (Dacromet, Geomet)	Chemical resistance, protection from seawater
Marine & Offshore	A4-80 Stainless Steel, Teflon, Zinc Flake	Protection from saltwater corrosion
Electrical & Electronics	Nickel, Silver, Copper, Brass Plating	Conductivity, wear resistance
Furniture & Decorative	Powder Coating, Brass Plating, Black Oxide	Aesthetic appeal, minor corrosion resistance

COATING & CORROSION RESISTANCE CHART

A salt spray test (ASTM B117) measures how long coated fasteners resist corrosion.

Coating Type	Salt Spray Test (Hours Until Rust)	Thickness (µm)	Best For
Zinc Plating (Standard)	48 - 120 Hours	5 - 15 µm	Indoor Use, Light-Duty
Hot-Dip Galvanizing (HDG)	500 - 1000 Hours	50 - 85 µm	Outdoor Use, Construction
Dacromet / Geomet (Zinc Flake)	1000 - 2000 Hours	7 - 12 µm	Aerospace, Marine, Industrial
Black Oxide	24 - 48 Hours	0.5 - 2 µm	Aesthetic, Low Corrosion
Teflon (PTFE) Coating	2000+ Hours	10 - 25 µm	Chemical, High Heat Environments

CUSTOMIZATION CAPABILITIES

At Rajal Industries, we understand that standard fasteners may not always meet your project's unique requirements. That's why we offer fully customizable solutions, including non-standard dimensions, specialized materials, coatings, and precision machining.

We also provide bulk ordering solutions tailored to industrial suppliers, OEMs, and large-scale infrastructure projects, ensuring efficient logistics, reduced handling costs, and fast global shipping.

CUSTOMIZATION CAPABILITIES FOR FASTENERS

- Custom Dimensions, Threads & Tolerances

Our manufacturing capabilities allow for fully customized fasteners, ensuring compatibility with industry-specific requirements.

- **Diameters:** M2 – M100 | #2 – 4"
- **Lengths:** Up to 1500mm for bolts & studs
- **Thread Pitches:** Metric (Coarse & Fine), UNC, UNF, BSW, BSF, ACME, Trapezoidal
- **Tolerance Control:** Up to ±0.01mm (ISO 4759-1, DIN 2768)

MATERIAL CUSTOMIZATION FOR STRENGTH, CORROSION RESISTANCE & WEIGHT REDUCTION

We manufacture fasteners in specialty metals & alloys to meet temperature, stress, and environmental demands.

High-Tensile & Structural Materials

Grade	Tensile Strength (MPa)	Yield Strength (MPa)	Applications
Grade 8.8	800 – 1000	640	Automotive, Structural Engineering
Grade 10.9	1000 – 1200	900	Heavy Machinery, Railways
Grade 12.9	1200 – 1400	1080	Aerospace, High-Stress Applications

Stainless Steel & Corrosion-Resistant Alloys

Material	Corrosion Resistance	Applications
A2-70 (SS 304)	Good	General Use, Automotive
A4-80 (SS 316)	Excellent	Marine, Chemical, Offshore
Duplex 2205	Very High	Oil & Gas, High Chloride Exposure
Super Duplex 2507	Outstanding	Subsea, Desalination Plants

High-Temperature & Lightweight Alloys

Material	Temperature Resistance (°C)	Common Uses
Titanium (Grade 5, Ti-6Al-4V)	-250 to 600°C	Aerospace, Medical Devices
Inconel 718 (Nickel Alloy)	-200 to 980°C	Gas Turbines, Power Generation
Hastelloy C276	Up to 1100°C	Chemical Plants, Acid Resistance
Aluminum 7075	Up to 200°C	Lightweight Applications

CUSTOM COATINGS & SURFACE TREATMENTS FOR EXTENDED PERFORMANCE

Fasteners can be customized with advanced coatings to enhance wear resistance, lubrication, and anti-corrosion properties.

Coating Type	Coating Thickness (µm)	Corrosion Resistance (Salt Spray Hours)	Best For
Zinc Plating	5 - 15 µm	48 – 120	Indoor, General Use
Hot-Dip Galvanizing (HDG)	50 - 85 µm	500 – 1000	Outdoor, Bridges, Construction
Dacromet / Geomet	7 - 12 µm	1000 – 2000	Aerospace, Wind Energy, Military
Teflon (PTFE) Coating	10 - 25 µm	2000+	Chemical, High Heat Applications

MACHINING & PRECISION MODIFICATIONS

We offer a wide range of secondary operations for unique fastening solutions.

Process	Purpose
CNC Machining & Milling	Custom nuts, bolts, & non-standard fasteners
Thread Locking (Precote, Loctite, Nylock)	Pre-coated fasteners for vibration resistance
Drilling & Cross-Hole Tapping	Vented screws, oil passage bolts
Knurling & Serration	Improved grip, anti-slip
Slotting & Hexagonal Broaching	Custom drive types for specialty applications
Heat Treatment & Hardening	Up to HRC 60+ for high-strength applications

CUSTOM HEAD & DRIVE TYPE MODIFICATIONS

Fasteners can be tailored to unique applications with non-standard head styles & drive types.

HEAD TYPES: Hex, Round, Truss, Square, T-Head, Eye Bolts

DRIVE TYPES: Torx, Hex, Pozidriv, Security Drives (One-Way, Pin Torx)

PACKAGING & BULK ORDERING DETAILS

We offer custom packaging solutions for OEMs, industrial suppliers, and distributors, ensuring efficient logistics and damage-free delivery.

STANDARD PACKAGING FORMATS

Packaging Type	Capacity	Best For
Poly Bags (HDPE / LDPE)	1kg – 25kg	Small-Size Fasteners
Corrugated Cardboard Boxes	5kg – 50kg	Bulk Packing, Industrial Use
Plastic Containers / Jars	Varies	Retail Display, Hardware Stores
Wooden Crates & Pallets	100kg – 1000kg	Large Orders, Heavy Fasteners

PRIVATE LABELLING & CUSTOM BRANDING

We provide customized packaging options for industrial distributors, retailers, and OEMs.

- **Laser Engraving & Stamping –** Custom branding on fasteners
- **Barcoding & QR Codes – Digital traceability & inventory management**
- **Branded Cartons & Custom Printed Boxes – With company logos & batch details**
- **Pre-Assembled Fastener Kits –** Custom assortments for MRO applications

BULK ORDERING & LOGISTICS

We handle bulk orders efficiently, ensuring quick turnaround & cost-effective delivery.

- **Minimum Order Quantities (MOQ):** Flexible based on fastener type
- **Lead Time: 2-**6 weeks (Standard) | 7-10 days (Express Orders)
- **Export Compliance:** Fasteners are ROHS / CE Compliant
- **Global Shipping: Ai**r Freight (Express), Sea Freight (Bulk), FCL / LCL Container Loads

WHY CHOOSE OUR CUSTOM FASTENER & BULK SUPPLY SOLUTIONS?

- **ISO & ASTM Compliance –** Manufactured to global industry standards
- **Scalable Production –** From prototypes to mass production
- **Flexible MOQ –** Small & high-volume orders available
- **Efficient Supply Chain –** Custom packaging, branding & logistics solutions

CONTACT INFORMATION & INQUIRY PROCESS

At Rajal Industries, we are committed to providing efficient communication, seamless order processing, and dedicated customer support. Whether you require bulk fastener supplies, customized fasteners, or export solutions, our team is always ready to assist you with technical guidance, pricing details, and logistics support.

RAJAL Industries

GET IN TOUCH WITH US

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www.rajalindustries.com

Follow us!

INQUIRY PROCESS

We welcome inquiries from domestic and international clients for standard and custom fasteners. Here's how you can reach us:

- **PRODUCT INQUIRIES & QUOTATIONS:**
  Share your requirements, including fastener type, size, grade, quantity, and any special specifications.
- **BULK ORDERS & OEM PARTNERSHIPS:**
  We offer flexible MOQ (Minimum Order Quantities) and tailored solutions for industrial buyers.
- **TECHNICAL ASSISTANCE:**
  Need guidance on material selection, coatings, or application-specific fasteners? Our team is here to help.
- **INTERNATIONAL CLIENTS & EXPORT ORDERS:**
  We ensure smooth documentation, packaging, and logistics for seamless global deliveries.

HOW TO PLACE AN ORDER?

Step 1: Send your inquiry via email, phone, or our website contact form.

Step 2: Our team will review your requirements and provide a detailed quotation.

Step 3: Confirm the order, and we proceed with production, quality checks, and dispatch.

ORDER CONFIRMATION PROCESS:

- Order Confirmation with Terms Drawing Approval
- Sampling (if required)
- Mass Production
- Documentation (QC Inspection Report, Photos, Videos, Packing List)
- Dispatch.