



# RL FASTENERS

*Engineered for you*

STAINLESS STEEL & ALLOY STEEL FASTENERS



## PRODUCT BROCHURE

## R L FASTENERS PROFILE

R L FASTENERS Company is the result of tireless efforts of many minds and standing on best engineering standards and ethics. The prime motto of company is to research new methods and techniques to enhance quality of the products keeping in mind the increasing expectations of the customers.

The products manufactured are forged from cold headed quality medium carbon steel, alloy steel and stainless steel. We manufacture fasteners in DIN, ISO, IS and BS standards. We are equipped with latest technology machines, heat treatment facility, tools and testing instruments, technical knowledge and manpower for manufacturing of fasteners. All manufacturing facilities are supported with an online quality assurance system employing statistical process control. Each fastener lot is marked with code numbers for trace ability of origin to the steel mill.

Our diversified range of fasteners includes half and fully threaded Hexagon head bolts, Hexagon head nuts, Allen bolts, screws with half and full thread and washers. The fasteners are proposed for the use in high pressure and high temperature, high tensile, corrosive and underwater applications. We manufacture as per customer's required specifications and under third party inspection of their choices. It's our aim to built long-lasting business associations with our estimated clients, by providing them a product that stands as testimony to our reliability, commitment and excellence.

## WHY US

- ▶ Standard material testing and inspection.
- ▶ Smooth and smart production process.
- ▶ High in process as well as after process quality control and assurance.
- ▶ International standards quality parameters.
- ▶ Total customer satisfaction.
- ▶ On-time delivery.
- ▶ Professional trading and services.

## OUR QUALITY TESTING

We are highly dedicated to uphold the highest standards throughout the manufacturing. We are equipped with high tech instruments and quality procedures.

- ▶ XRF material testing machine
- ▶ Hardness testing machine
- ▶ Torque testing machine
- ▶ Impact testing machine
- ▶ UTS testing machine
- ▶ Plating thickness testing
- ▶ Salt spray testing
- ▶ Magnetic particle inspection
- ▶ Metallurgical lab

## MATERIALS USED

SS 302, 304, 304L, 316, 316L/ EN8, EN9/ ASTM A193, A325, F568 etc.



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## STAINLESS STEEL BOLTS

|           |                                  |  |
|-----------|----------------------------------|--|
| Standards | DIN 933 / ISO 4017 / IS 1364 (1) |  |
| Grades    | A2-70, A2-80, A4-70, A4-80       |  |
| Size      | M4 to M16                        |  |
| Length    | 10 mm to 150 mm                  |  |

|  |           |                                  |
|--|-----------|----------------------------------|
|  | Standards | DIN 931 / ISO 4014 / IS 1364 (2) |
|  | Grades    | A2-70, A2-80, A4-70, A4-80       |
|  | Size      | M4 to M16                        |
|  | Length    | 10 mm to 150 mm                  |

|           |              |  |
|-----------|--------------|--|
| Standards | BSW 1083     |  |
| Grades    | A2-70, A4-70 |  |
| Size      | 1/4" to 5/8" |  |
| Length    | 3/4" to 6"   |  |

|  |           |   |
|--|-----------|---|
|  | Standards | DIN 912 / ISO 4762 (half & full thread) |
|  | Grades    | A2-70, A4-70                            |
|  | Size      | M4 to M16                               |
|  | Length    | 10 mm to 150 mm                         |

|           |   |  |
|-----------|---|--|
| Standards | DIN 603 / ISO 8677 (half & full thread) |  |
| Grades    | A2-70, A4-70                            |  |
| Size      | M4 to M16                               |  |
| Length    | 10 mm to 150 mm                         |  |



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|           |                   |  |
|-----------|-------------------|--|
| Standards | DIN 571 / IS 1120 |  |
| Grades    | A2-70             |  |
| Size      | M5 to M10         |  |
| Length    | 10 mm to 150 mm   |  |

|  |           |                 |
|--|-----------|-----------------|
|  | Standards | DIN 7984        |
|  | Grades    | A2-70,          |
|  | Size      | M6 to M12       |
|  | Length    | 10 mm to 150 mm |



## SCREWS & RIVETS

|           |                             |  |
|-----------|-----------------------------|--|
| Standards | DIN 84 / ISO 1207 / IS 1366 |  |
| Grades    | A2                          |  |
| Size      | M4 to M10                   |  |
| Length    | 6 mm to 50 mm               |  |

|  |           |                             |
|--|-----------|-----------------------------|
|  | Standards | DIN 85 / ISO 1580 / IS 6101 |
|  | Grades    | A2                          |
|  | Size      | M4 to M10                   |
|  | Length    | 6 mm to 50 mm               |

|           |                              |  |
|-----------|------------------------------|--|
| Standards | DIN 963 / ISO 2009 / IS 1365 |  |
| Grades    | A2                           |  |
| Size      | M4 to M16                    |  |
| Length    | 10 mm to 50 mm               |  |



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|  |           |                                    |
|--|-----------|------------------------------------|
|  | Standards | DIN 7991 / ISO 10642 (full thread) |
|  | Grades    | A2-70, A4-70                       |
|  | Size      | M4 to M16                          |
|  | Length    | 10 mm to 150 mm                    |

|           |                              |  |
|-----------|------------------------------|--|
| Standards | DIN 965 / ISO 7046 / IS 7485 |  |
| Grades    | A2                           |  |
| Size      | M4 to M10                    |  |
| Length    | 6 mm to 50 mm                |  |

|  |           |                                   |
|--|-----------|-----------------------------------|
|  | Standards | DIN 7981/ISO 7049(Philips & pozi) |
|  | Grades    | A2, A4                            |
|  | Size      | #2.9 to #6.3                      |
|  | Length    | 9.5 mm to 50 mm                   |

|           |                                   |  |
|-----------|-----------------------------------|--|
| Standards | DIN 7982/ISO 7050(Philips & pozi) |  |
| Grades    | A2, A4                            |  |
| Size      | #2.9 to #6.3                      |  |
| Length    | 9.5 mm to 50 mm                   |  |

|  |           |                             |
|--|-----------|-----------------------------|
|  | Standards | DIN 7971/ISO 1481 / IS 7173 |
|  | Grades    | A2                          |
|  | Size      | #2.9 to #6.3                |
|  | Length    | 9.5 mm to 50 mm             |

|           |                             |  |
|-----------|-----------------------------|--|
| Standards | DIN 7972/ISO 1482 / IS 7170 |  |
| Grades    | A2                          |  |
| Size      | #2.9 to #6.3                |  |
| Length    | 9.5 mm to 50 mm             |  |

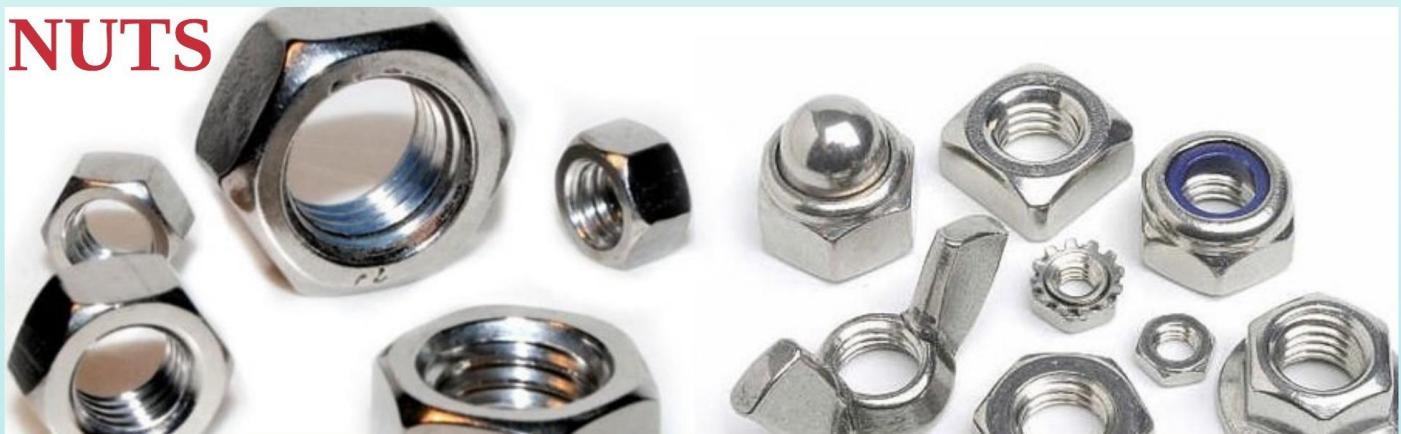


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|  |           |                               |
|--|-----------|-------------------------------|
|  | Standards | DIN 7985 / ISO 7045 / IS 7483 |
|  | Grades    | A2                            |
|  | Size      | M4 to M10                     |
|  | Length    | 6 mm to 50 mm                 |

|           |                 |  |
|-----------|-----------------|--|
| Standards | DIN 661 / R1051 |  |
| Grades    | A2, A4          |  |
| Size      | M4 to M10       |  |
| Length    | 6 mm to 50 mm   |  |

|  |           |                 |
|--|-----------|-----------------|
|  | Standards | DIN 660 / R1051 |
|  | Grades    | A2, A4          |
|  | Size      | M4 to M10       |
|  | Length    | 6 mm to 50 mm   |



|           |                               |  |
|-----------|-------------------------------|--|
| Standards | DIN 934/ISO 4032 / IS 1364(3) |  |
| Grades    | A2-70, A2-80, A4-70, A4-80    |  |
| Size      | M4 to M16                     |  |

|  |           |              |
|--|-----------|--------------|
|  | Standards | BSW 1083     |
|  | Grades    | A2-70, A2-80 |
|  | Size      | 1/4" to 5/8" |



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|           |                    |  |
|-----------|--------------------|--|
| Standards | DIN 439 (lock nut) |  |
| Grades    | A2-70, A4-70       |  |
| Size      | M4 to M16          |  |

|  |           |                      |
|--|-----------|----------------------|
|  | Standards | UNI 5587 (thick nut) |
|  | Grades    | A2-70, A2-80         |
|  | Size      | 1/4" to 5/8"         |

|           |                              |  |
|-----------|------------------------------|--|
| Standards | DIN 982 / ISO 7040 / IS 7002 |  |
| Grades    | A2-70                        |  |
| Size      | M4 to M16                    |  |



|           |                            |  |
|-----------|----------------------------|--|
| Standards | DIN 975                    |  |
| Grades    | A2-70, A2-80, A4-70, A4-80 |  |
| Size      | M4 to M24                  |  |
| Length    | 100 mm to 5800 mm          |  |

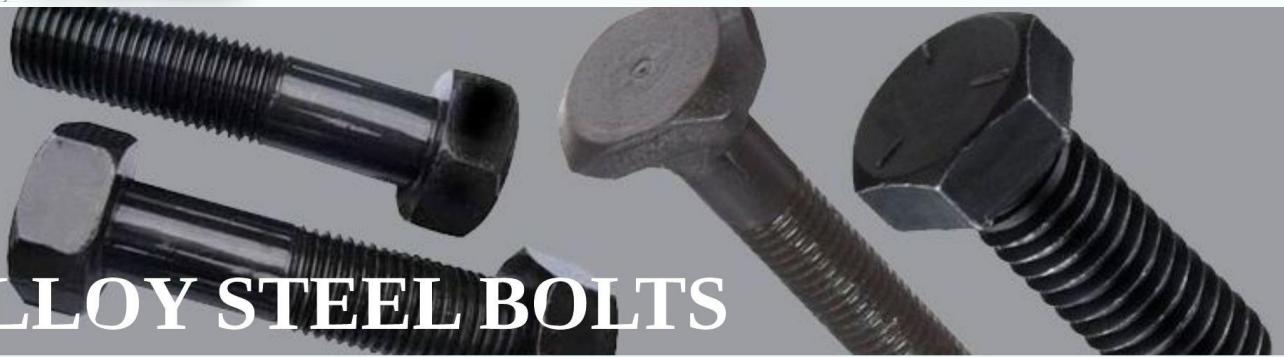
|  |           |                            |
|--|-----------|----------------------------|
|  | Standards | DIN 976 (type A & B)       |
|  | Grades    | A2-70, A2-80, A4-70, A4-80 |
|  | Size      | M4 to M24                  |
|  | Length    | 100 mm to 5800 mm          |



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## ALLOY STEEL BOLTS

|           |                                |  |  |
|-----------|--------------------------------|--|--|
| Standards | DIN 933/ ISO 4017/ IS 1364 (1) |  |  |
| Grades    | 8.8                            |  |  |
| Size      | M4 to M16                      |  |  |
| Length    | 10 mm to 150 mm                |  |  |

|  |           |              |
|--|-----------|--------------|
|  | Standards | BSW 1083     |
|  | Grades    | 8.8          |
|  | Size      | 1/4" to 5/8" |
|  | Length    | 3/4" to 6"   |

|           |                                 |  |  |
|-----------|---------------------------------|--|--|
| Standards | DIN 912/ ISO 4762 (half & full) |  |  |
| Grades    | 10.9                            |  |  |
| Size      | M6 to M16                       |  |  |
| Length    | 10 mm to 150 mm                 |  |  |



## ALLOY STEEL NUTS

|           |                              |  |  |
|-----------|------------------------------|--|--|
| Standards | DIN 934/ISO 4032/ IS 1364(3) |  |  |
| Grades    | 8                            |  |  |
| Size      | M4 to M16                    |  |  |



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|  |           |              |
|--|-----------|--------------|
|  | Standards | BSW 1083     |
|  | Grades    | 8            |
|  | Size      | 1/4" to 5/8" |



## WASHERS

|           |                    |  |
|-----------|--------------------|--|
| Standards | DIN 127 B/ IS 3063 |  |
| Grades    | A2, A4             |  |
| Size      | M2 to M16          |  |

|  |           |                              |
|--|-----------|------------------------------|
|  | Standards | DIN 125 / ISO 7089 / IS 2016 |
|  | Grades    | A2, A4                       |
|  | Size      | M1.6 to M16                  |

- Customized products are available on request.
- We also develop product as per customer's specifications/ drawings.
- Austenitic stainless steel is generally non- magnetic but after cold work it may show slight magnetic properties. (ISO 3506-1)

### MECHANICAL PROPERTIES

| MATERIAL                       | TENSILE STRENGTH       | 0.2 % YIELD STRENGTH  | ROCKWELL HARDNESS |
|--------------------------------|------------------------|-----------------------|-------------------|
| <b>8.8 (ALLOY STEEL)</b>       | 828 N/mm <sup>2</sup>  | 635 N/mm <sup>2</sup> | C24 to C38        |
| <b>10.9 (ALLOY STEEL)</b>      | 1035 N/mm <sup>2</sup> | 897 N/mm <sup>2</sup> | C24 to C38        |
| <b>A2-70 (STAINLESS STEEL)</b> | 700 N/mm <sup>2</sup>  | 450 N/mm <sup>2</sup> | B80 to C32        |
| <b>A4-80 (STAINLESS STEEL)</b> | 800 N/mm <sup>2</sup>  | 600 N/mm <sup>2</sup> | B80 to C32        |

1. The tensile strength is calculated on the stress area.

2. TS is determined according to test method on actual screw length and on a prepared test piece; the nominal thread diameter.
3. It is calculated and reported in terms of nominal tensile stress area of the thread.
4. Extension measurements are determined in accordance with test procedure on actual screw or bolt length.

### CHEMICAL COMPOSITION

- ▶ **AUSTENITIC STEEL FASTENERS**
- A2 : Austenitic steel, cold worked.
- A4 : Austenitic steel, cold worked with added chromium.

| GRADE | CHEMICAL COMPOSITION |    |    |       |      |         |     |       |    |
|-------|----------------------|----|----|-------|------|---------|-----|-------|----|
|       | C                    | Si | Mn | P     | S    | Cr      | Mo  | Ni    | Cu |
| A2    | 0.1                  | 1  | 2  | 0.05  | 0.03 | 15-20   | A   | 8-19  | 4  |
| A4    | 0.08                 | 1  | 2  | 0.045 | 0.03 | 16-18.5 | 2-3 | 10-15 | A  |

- ▶ **ALLOY STEEL FASTENERS**

| CLASS | MATERIAL & TREATMENT  | CHEMICAL COMPOSITION |      |      |
|-------|---|----------------------|------|------|
|       |   | C                    | P    | S    |
| 8.8   | Medium carbon steel, quenched & tempered  | 0.25-0.55            | 0.04 | 0.05 |
| 10.9  | Medium carbon steel additive e.g. boron, Mn, Cr, or Alloy steel – quenched & tempered | 0.20-0.50            | 0.04 | 0.05 |

1. Alloy steel shall contain one or more of chromium, nickel, molybdenum or vanadium.

### RECOMMENDED TIGHTENING TORQUE

- ▶ **AUSTENITIC STEEL FASTENERS (A2 & A4) (Nm)**

| TORQUE<br>(Property<br>class) | THREAD DIAMETER |     |      |      |     |     |     |     |
|-------------------------------|-----------------|-----|------|------|-----|-----|-----|-----|
|                               | M4              | M5  | M6   | M8   | M10 | M12 | M14 | M16 |
| 70                            | 2.6             | 5.1 | 8.8  | 21.4 | 44  | 74  | 119 | 183 |
| 80                            | 3.5             | 6.9 | 11.8 | 28.7 | 58  | 100 | 159 | 245 |

1. All fasteners are thread rolled with smooth clean threads to reduce seizing risk while tightening bolt.

► ALLOY STEEL FASTENERS(Nm)

| TORQUE<br>(Property<br>class) | THREAD DIAMETER |    |    |    |     |     |     |     |
|-------------------------------|-----------------|----|----|----|-----|-----|-----|-----|
|                               | M4              | M5 | M6 | M8 | M10 | M12 | M14 | M16 |
| 8.8                           | 4               | 7  | 12 | 30 | 55  | 100 | 160 | 245 |
| 10.9                          | 6               | 9  | 16 | 40 | 75  | 135 | 215 | 335 |

**PACKAGING**

Fasteners are packaged and traded with standard and careful methods.



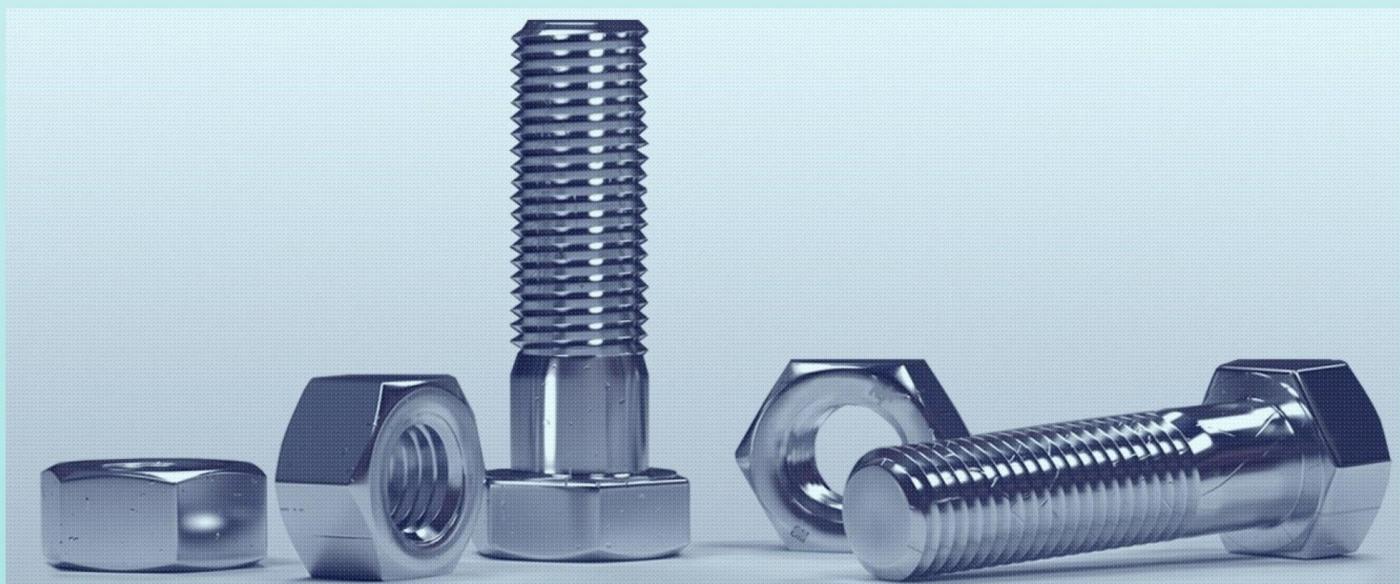
Fasteners are packed in small cardboard boxes with different weight sizes. Packing box sizes are available in 25, 50, 100, 200, 500 & 1000 pieces per box.



For bulk quantity and longer distance small cardboard boxes packed in wooden palates.

Dimensions : 800 x 1200 x 750 mm (as per STD Euro pallets)

Wt. : 800 kgs.





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# RL FASTENERS

MANUFACTURER & EXPORTER OF STAINLESS STEEL & ALLOY STEEL FASTENERS

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