صنایع مفتولی سپند پیچ یزد

# SEPAND PITCH YAZD

Creating a Safe Connection at a Global Level

www.sepandpitch.com

سپند پیچ یزد
SEPAND PITCH YAZD

## Company Introduction

In 2014, Sepand-Pitch-Yazd was established on an area of 85,000 square meters, based on 30 years of continuous activity in the bolts and nuts industry under the brand name Chehreh-Yazd (CHY). This establishment was part of the development plan of Chehreh-Yazd. The aim of this investment is to provide the needs of domestic industries, self-sufficiency and to localize the technical knowledge of this sector. To achieve this goal, Sepand-Pitch was equipped with the latest and most advanced machinery and technologies of this field. By relying on the expertise of talented university graduates and the skills of Iranian craftsmen, it has been able to offer the most diverse range of bolts and nuts to the Iran's industry. At Sepand-Pitch-Yazd, all pre-production processes, such as wire preparation (phosphating, drawing, and annealing), as well as all post-production finishing operations (heat treatment and coating), are carried out in a continuous and integrated manner. In this factory, the production process of bolts and nuts is done using the cold forging method (pressing wire into molds without any need of raising the wire's temperature), selected as the most suitable method to ensure that the ultimate products will reach consumers with the highest precision and metallurgical quality.

## Production of Bolts and Nuts

Bolts and nuts are recognized as the most important and the safest type of connection in the world. This can be figured out from the vast consumption tonnage of this products in addition to the wide range of their applications. In addition to fitting the market's demand for standard-sized bolts/nuts, Sepand-Pitch-Yazd, also has a very high capability and capacity to supply customized bolts and nuts for various specialized industries.
The raw materials for safety bolts/nuts, as well as pre-tensioned bolts, critical sliding bolts, and friction bolts produced by Sepand-Pitch-Yazd, comply with Japanese JIS standards and are manufactured with grades of SCM435 and SCM440. Construction bolts/nuts are produced according to the latest standards in Europe and the United States, such as EN14399, ASTM A490, and A325, in accordance with "Section 10" of the National Building Regulations. Furthermore, automotive bolts/nuts are manufactured according to automotive industry standards like Renault_NES_PSA_KES. Given the increasing use of zinc flake coatings for construction and automotive products, Sepand-Pitch-Yazd utilizes the highest quality materials available worldwide. The materials used for the zinc flake coating are sourced from Geomet and licensed from NOF Company in France, with a friction coefficient controlled according to K1 and K2 methods. Due to the removal of chromium from the composition of the raw materials, additive to the fact that this coating has no adverse environmental effects, it also offers better surface quality and appearance comparing with the other coating layers. The corrosion resistance of this coating layer is tested in a 1000-hours salt spray test with a minimum coating thickness of 10 microns.
The main customers of this company include the automotive industries, heating and cooling industries, construction industries, electrical industries, water industries, petrochemical and refinery industries, rail industries, household appliances, and agricultural equipment.

ANSI ISO EN BS DIN JIS ASTM

Renault NES PSA KES

## Complete Production Cycle of Bolts and Nuts

In terminology, any production unit that has at least one wire pressing or forming unit is recognized as a bolt and nut workshop. However, like any other industry, the production of bolts and nuts has prerequisites before the production and processes after the production. Due to the high complexity and specialization of the pre-production preparation processes and the post-production finishing stages, as well as the high cost of investment, most bolt/nut manufacturers use to outsource these processes. At Sepand-Pitch-Yazd, due to quality oversight and a strong commitment to the final consumer, in addition to the large and distinct cold forging unit capable of producing a wide range of sizes -from small to very large- the wire preparation and finishing operations units support the production unit as pre- and post-production units. It is a matter of pride that the large factory of Sepand-Pitch-Yazd utilizes its excess capacity in wire preparation and finishing operations to provide contracting services to other bolt/nut manufacturers and various metal industries.


## Strategy of Sepand-Pitch-Yazd

Sepand-Pitch-Yazd organization is recognized as a strategy-oriented organization. At the end of each year, parallel to the status monitoring of achieving strategic goals based on the Balanced Scorecard (BSC), SWOT-update, additive to defining the path towards achieving visions, a three-year vision and updated mission will be aimed by means of defining the strategic initiatives.

## Wire Preparation

With 30 years of continuous activity in the bolts and nuts industry in Iran, we have gained valuable experiences in wire preparation processes. Considering the needs of other industries for these sorts of services and due to the possessing of the necessary technical knowledge and sufficient experience in Sepand-Pitch, we aimed to create wire preparation capacity to address a significant portion of industry needs of Iran's.
Despite the high technical complexities and specialization of the preparation processes, Sepand-Pitch-Yazd offers wire preparation services for all grades of wire, including low-carbon, medium-carbon, and alloy steels, using various methods in consistency with customer needs and specifications.

## Wire Preparation Includes

- Pickling
- Phosphate coating
- Wire Drawing
- Annealing

In metallurgy and materials science, the annealing process refers to a type of heat treatment that results in changes to the mechanical properties of metals. These changes typically lead to a reduction in hardness, along with an increase in ductility and malleability of the metal. In the other words, annealing heat treatment is the opposite of hardening heat treatment.

## Finishing Process Steps

1- Hardening

The heat treatment furnace is used to enhance the hardness and strength of metal products. Sepand Pitch Yazd Company, equipped with a complete continuous heat treatment line, can offer its products possessing a black coating by means of methods such as carburizing and quench tempering via protective atmosphere.

## 2- Zinc Electroplating

Galvanization one of the best-known methods for protecting metals against corrosion. During this process, the base metal is protected by protective covering layer of Zinc. Sepand-Pitch-Yazd utilizing the high-end fully automatic galvanizing line, is capable of providing galvanization services with various chromate coatings.

## 3- Zinc Flake Coating

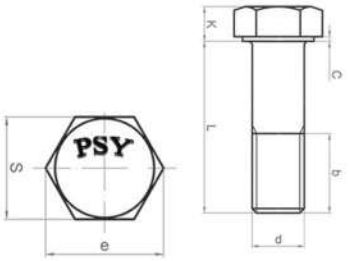
Zinc Flake Coating method is one of the newest and most up-to-date methods for protecting metals against corrosion. This coating layer offers very high resistance to corrosion and has variate advantages over galvanization method, including the prevention of hydrogen embrittlement and self-consistency with the subsequent coating layers.
Sepand-Pitch-Yazd offers its coating services using high-quality Geomet-NOF materials from France, utilizing a fully automated Dacromet line to provide extremely high-end services to its customers.

# Mechanical Properties of Bolts,Screws, Studs

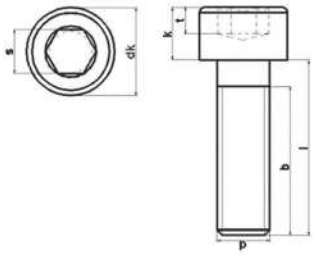
| Name | Standard Title | Standard & Products | Grade | Nominal Size Dia.or Length | Mechanical Reqirements | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Tensile Stength Min | Hardness | | |
| | | | | | | Surface Max | core | |
| | | | | | | | Min | Max |
| **SAE** | | | | | | | | |
| Bolt | Mechanical and quality requirements for externally threaded fasteners | SAE J429 | 2 | 1/4thru3/4 | 520 Mpa | — | 80 HRB | 100 HRB |
| | | | | Over 3/4 thru 1-1/2 | 400 Mpa | — | 70 HRB | 100 HRB |
| | | | 5 | 1/4 thru 1 | 830 Mpa | 54 HR30N | 25 HRC | 34 HRC |
| | | | | Over 1 thru 1-1/2 | 830 Mpa | 50 HR30 | 19 HRC | 30 HRC |
| | | | 8 | 1/4 thru 1-1/2 | 1040 Mpa | 58.6 HR30N | 33 HRC | 39 HRC |
| **ASTM** | | | | | | | | |
| Bolt | Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications | ASTM A193 | B7 | UP to 2-1/2 | 861 Mpa | — | — | 35 HRC |
| | | | | Over 2-1/2 to 4 | 792 Mpa | — | — | |
| | | | | Over 4 to 7 | 689 Mpa | — | — | |
| | | | B16 | UP to 2-1/2 | 861 Mpa | — | — | 35 HRC |
| | | | | Over 2-1/2 to 4 | 758 Mpa | — | — | |
| | | | | Over 4 to 7 | 689 MPa | — | — | |
| Bolt | Standard Specification for high strength bolt for structural steel joint | ASTM A325 | M16 to M36 | — | 830 MPa | — | 23 HRC | 34 HRC |
| Bolt | Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric) | ASTM A490 (ASTM F3125) | A490 | M12 to M36 | 1040 Mpa | — | 33 HRC | 38 HRC |
| | | | | | | — | | |
| | | | | | | — | | |
| | | | | | | — | | |
| Bolts, Studs | Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners | ASTM A354 | BC | 1/4 to 2 1/2 | 861 Mpa | — | 26 HRC | 36 HRC |
| | | | BC | Over 2 1/2 | 792 MPa | — | 22 HRC | 33 HRC |
| | | | BD | 1/4 to 2 1/2 | 10340 MPa | — | 33 HRC | 39 HRC |
| | | | BD | Over 2 1/2 | 965 Mpa | — | 31 HRC | 39 HRC |
| Bolt | Standard Specification for Alloy-Steel and Stainless Steel Bolting for Low-Temperature Service | ASTM A320/ A320 M | L7, L7A, L7B, L7C, L70, L71, L72, L73 | Up to 2 1/2 | 860 Mpa | — | — | 35 HRC |
| | | | L43 | Up to 4 | 860 Mpa | — | — | 35 HRC |
| | | | L7M | Up to 2 1/2 | 690 Mpa | — | — | 99 HRB |
| | | | L1 | UP to 1/2 | 860 Mpa | — | — | — |
| **ISO** | | | | | | | | |
| Bolts, screws and studs | Mechanical properties of fasteners made of carbon steel and alloy steel Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread | ISO 898.1 M5 to M39 | 4.6 | — | 420 Mpa | — | HRB 67 | HRB 95 |
| | | | 4.8 | — | 420 Mpa | — | HRB 71 | HRB 95 |
| | | | 5.6 | — | 520 Mpa | — | HRB 79 | HRB 95 |
| | | | 5.8 | — | 520 Mpa | — | HRB 82 | HRB 95 |
| | | | 6.8 | — | 600 Mpa | — | HRB 89 | HRB 99.5 |
| | | | 8.8 | d<16 | 800 Mpa | — | HRC 22 | HRC 32 |
| | | | | d>16 | 830 Mpa | — | HRC 23 | HRC 34 |
| | | | 9.8 | — | 900 Mpa | — | 286 HB | 355 HB |
| | | | 10.9 | — | 1040 Mpa | 390 HV | HRC 32 | HRC 39 |
| | | | 12.9 | — | 1220 Mpa | 435 HV | HRC 39 | HRC 44 |
| Fasteners | Fasteners — Mechanical properties of fasteners made of carbon steel and alloy steel Nuts with specified property classes | ISO 898-2 M5 to M39 | 04 | — | — | — | 88,8 HRB | 33,9 HRC |
| | | | 05 | — | — | — | 71,2 HRB | 33,9 HRC |
| | | | 5 | — | — | — | 71,2 HRB | 33,9 HRC |
| | | | 6 | — | — | — | 78,8 HRB | 33,9 HRC |
| | | | 8 | — | — | — | 91,5 HRB | 34,8 HRC |
| | | | 10 | — | — | — | 98,9 HRB | 34,8 HRC |
| | | | 12 | — | — | — | 26,5 HRC | 34,8 HRC |
| tapping screws | Heat-treated steel tapping screws — Mechanical properties | ISO 2702 | ST 2,2 - ST 2,6 - ST 2,9 - ST 3,3 - ST 3,5 - ST 3,9 | threads ≤ ST3,9 | — | 450 HV0,3 | 270 HV5 | 390 HV5 |
| | | | ST 4,2 - ST 4,8 - ST 6,3 - ST8 - ST 9,5 | threads > ST3,9 | — | | 270 HV10 | 390 HV10 |
| tapping screws | Drilling screws with tapping screw thread — Mechanical and functional properties | ISO 10666 | ST 2,9 - ST 3,5 | threads < ST 4 , 2 | — | 530 HV0,3 | 320 HV5 | 400 HV5 |
| | | | ST 4,2 to ST 5,5 ST 6,3 | threads > ST 4 , 2 | — | | 320 HV10 | 400 HV10 |
| **DIN** | | | | | | | | |
| tapping screws | Self Drilling Tapping Screw | Din 7504 | ST 2,9 - ST 3,5 | — | — | 560 HV0,3 | 270 HV5 | 425 HV5 |
| | | | ST 3,9 to ST 5,5 | — | — | | | |
| | | | ST 6,3 | — | — | | | |

# Variety of products

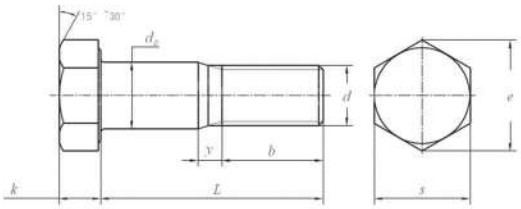
## Hex Bolts (M4 to M30)



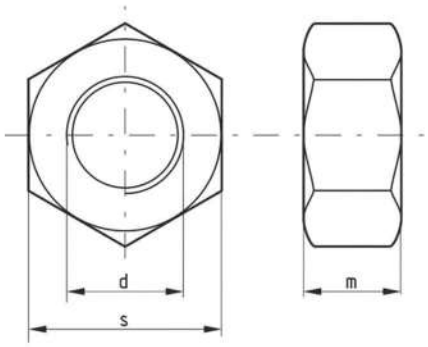

## Socket Head Screws



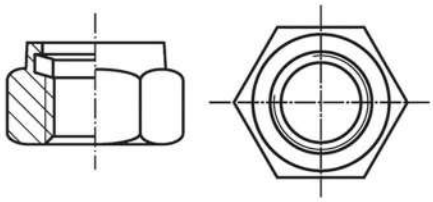

## High-Strength Bolts (HV) from Size M12 to M30



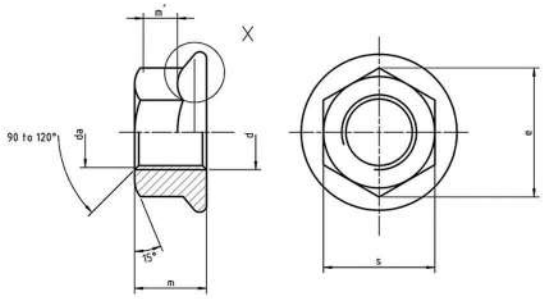

## HV Nuts from Size M12 to M24

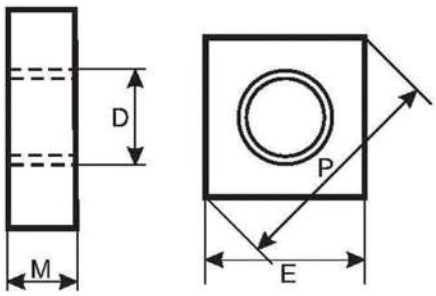
## Prevailing torque type hexagon thin nuts with nonmetallic insert



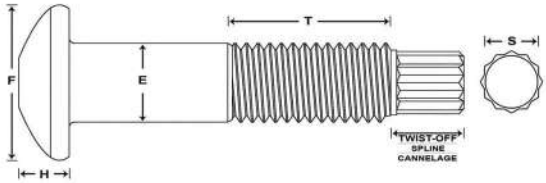
## Serrated Flange Nuts DIN 6923 Z



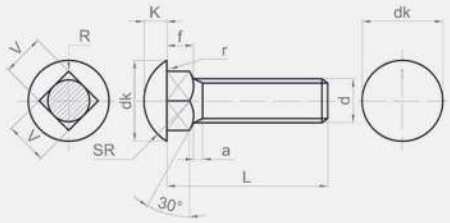

## Square Nuts



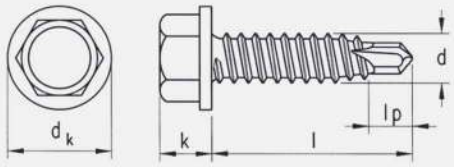

## TC Bolts (M12 to M30)



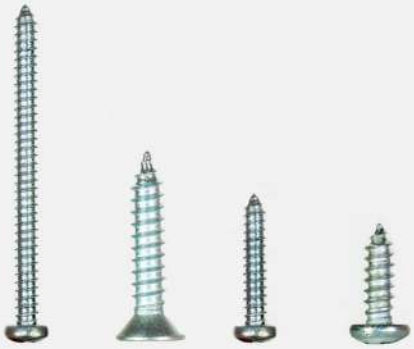
## Socket Head Bolts (Metric and Inch)

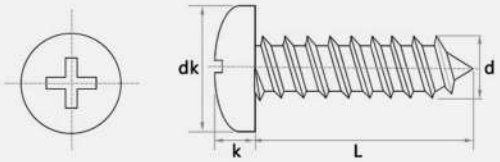



## Self-Drilling Screws

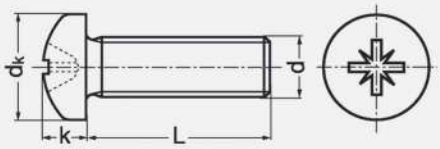



## Self-Tapping Screws: Slotted, Phillips, and Slotted-Phillips

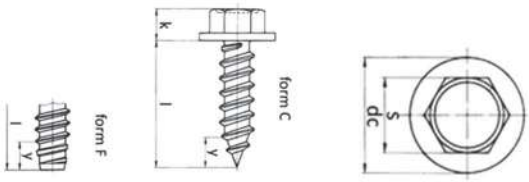




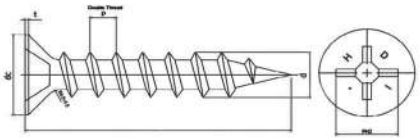

## Washer Bolts



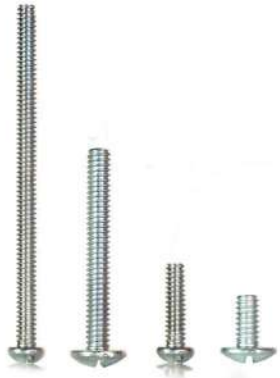
## Flanged Bolts: Iron and Steel, Ordinary Self-Tapping

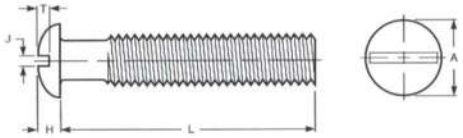



## MDF Screws



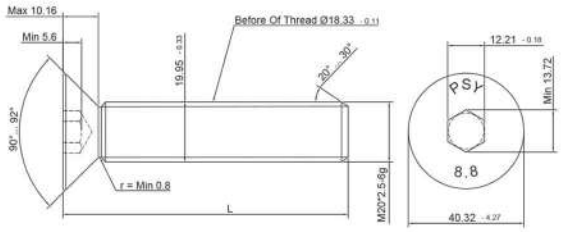
## Types of Slotted Screws in Sizes 3/16, 1/4, 5/16, 3/8 inches (Varnished, Aluminum)



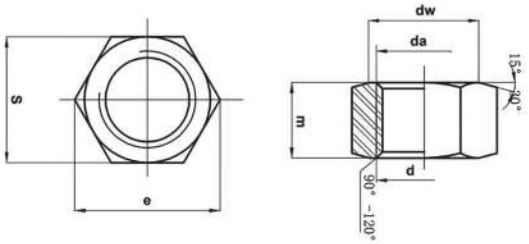



## Automotive/Vehicle Screws

## Countersunk Head Cap Socket Screws




## Hexagon nuts (M4 to M24)



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SEPAND PITCH YAZD

## Customized Bolts/Nuts for Customers Based on Samples or Drawings

## Metric Screws in 12.9 ,10.9 ,8.8 ,6.8 ,5.6 Grades

## Laboratory

Sepand-Pitch-Yazd which is equipped with a modern laboratory equipment, is capable of conducting relevant tests to assess the quality and merit of its materials as well as its products to ensure the overall quality of all of its products and raw materials. To guarantee the quality and credibility of test results, Sepand-Pitch-Yazd laboratory successfully passed the audit for national accreditation by the Iranian National Standards Organization in 2023 and has implemented the ISO/IEC-17025 quality management system for laboratories. This serves as a significant advantage for enhancing the credibility of test results and increasing customer satisfaction.
Additionally, the Sepand-Pitch-Yazd laboratory has received certifications from the Method Engineering Unit of Sapco (Iran Khodro Parts Supply) and the Method Engineering Unit of Sazegostar Saipa.

## Capabilities of Sepand-Pitch-Yazd Laboratory

- Hardness and Mechanical Property Testing of Metals: The laboratory conducts hardness testing and assesses mechanical properties of metals using Rockwell, Brinell, and Vickers methods, in accordance with the ISO-6508, ISO-6507, and ISO-6506 standards.
- Tensile Testing at Room Temperature: The laboratory performs tensile tests at ambient temperature based on the ISO-6892 standard.
- Test for the coefficient of friction and preload torque of bolts and nuts according to ISO-16047 and EN-14399 standards and Chapter 10 of the National Building Regulations.
- Torque testing for products with thread lock and locking nuts, and other products possessing torque requirements according to PSA-B14-1230 and ISO-2320 standards.
- Corrosion testing in a neutral salt spray environment according to ASTM-B117 standard.
- Measurement of coating thickness using microscopic and magnetic methods according to ASTM-B487 and ASTM-B499 standards.
- Metallographic testing of steel parts, raw materials, and bolt/nut products according to ASTM-F2282, ASTM-E1077, and ISO 898 standards.
- Testing the mechanical properties of screwdriver and self-drilling screws according to ISO-10666 and ISO 2702 standards.
- Functional piercing testing for the first time in the bolt/nut industry based on standard requirements using a penetration testing device and in accordance with ISO-10666 and ISO 2702 standards.
- Dimensional testing using a high-precision VMM (Video Measurement Machine).

## Highest level of quality control

Since adherence to standards in the production processes of bolts/nuts is of utmost importance, Sepand-Pich-Yazd has utilized its maximum capabilities to deliver high-quality products to consumers.

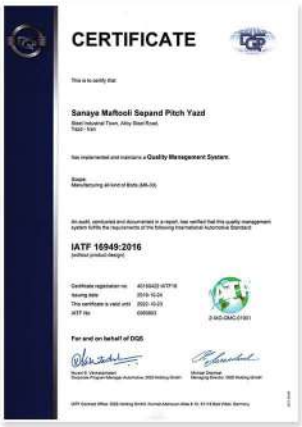
## Quality Control Unit

- Obtaining the mandatory standard license in accordance with the requirements of the National Standard Organization of Iran, ISIR-2874-1 and ISIRI-2874-2.
- Control and inspection based on international sampling methods according to the standards MIL-STD-1916, ANSI/ASQC Z1.9, and ISO 2859.
- Qualitative analysis based on quality control tools.
- Implementation and regular monitoring of calibration based on OIML methods.
- Implementation of quality control for incoming items, during production, and for the final products to ensure customer satisfaction referring the quality of product.

## Standards and Certifications

Sepand-Pich-Yazd is honored to receive a standard license from the National Standards Organization of Iran as well as ISO-9001-2015 and IATF-16949-2016 certificates.







# Some Customers

صنایع مفتولی سپند پیچ یزد

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