

JOB ROLE – AUTOMOTIVE SERVICE TECHNICIAN

Sector: Automotive
(Qualification Pack Code : **ASC/Q01402**)



PSS Central Institute of Vocational Education
Shyamla Hills, Bhopal – 462013, Madhya Pradesh, India

www.psscive.ac.in

UNIT 2: Fasteners

Session 1: Automotive bolts/machine screws

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Session Objectives

1. The student will be able to understand importance of bolts and machine screws as fasteners.
2. Able to identify different types of bolts.
3. Able to loosen and tighten different types of bolts and screws using hand tools .

Introduction

An automobile vehicle is an assembly of a large number of sub-assemblies and components. The assemblies such as engine-clutch-gearbox-differential-wheels-brakes etc. together may form a vehicle. Each of these assemblies is formed by joining many components. Some of the components or sub-assemblies can move with respect to each other, others are physically fixed together, with no relative motion possible. The first type of connection is called a kinematic joint, and the second type is called a rigid joint (or a structure).

Automotive bolts/machine screws

Automotive bolts often known as threaded fasteners is one of the types of auto fasteners that comprises of either a threaded pin or rod having a head at one end. The bolts are inserted through holes in assembled parts and fastened by a mated nut with a help of torque. Therefore a bolt is an externally threaded headed fastener, which is used in conjunction with a nut.

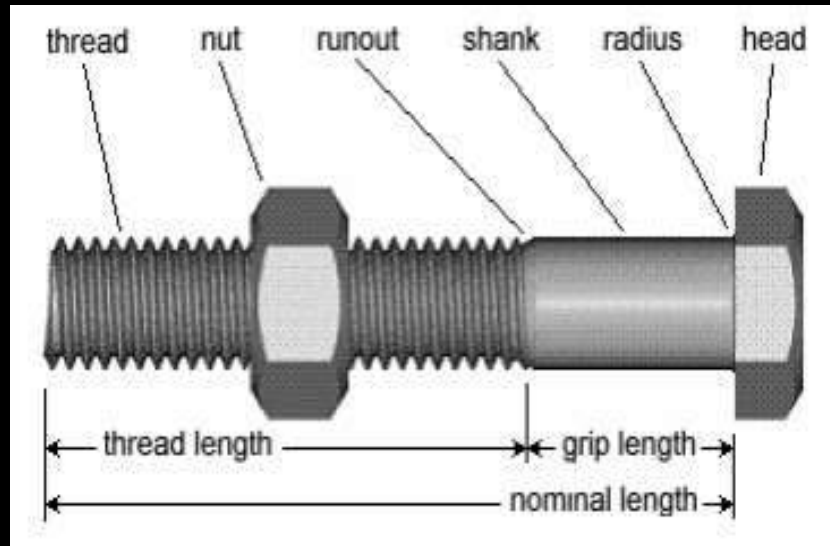
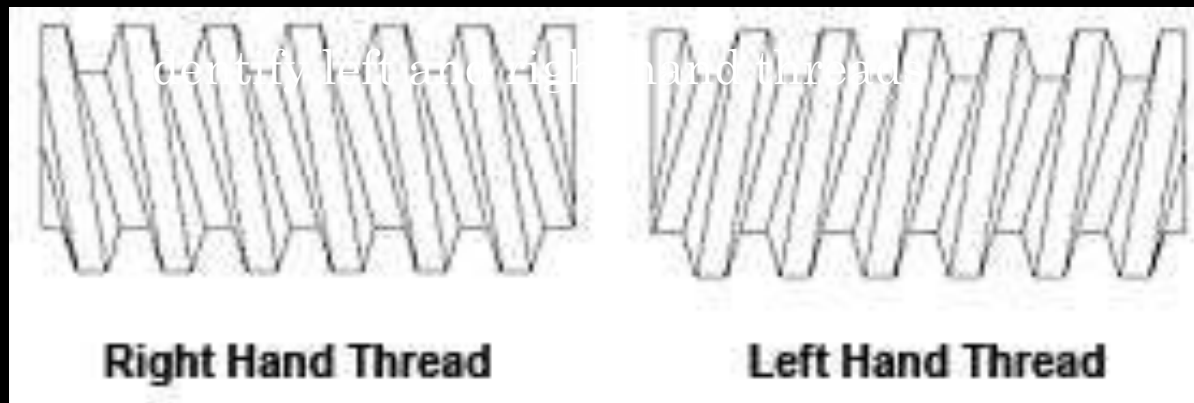


Fig- Parts of standard bolt

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Thread on the bolt

A thread is a ridge of uniform section in the form of a helix on the internal or external surface of a cylinder or it could be described as a sloping plane curled around a cylinder. External threads are on the bolts or screws and internal threads are on the nuts. There are two types or directions of the thread helix, left hand and right hand threads. Most Common threads are right hand threads. Always be sure to check if the lead screw is right hand or left hand threads before purchasing.







left and right hand threads.

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Types of bolts

The ISO most recommended paper sizes for technical drawings are known as A-FORMATS. In the A-Format series, the largest size is A0. The size of an A1 paper is half the size of A0 while A2 is half the size of A1 and so forth. Note that a higher order paper size (which is always smaller in size) is obtained by simply halving the preceding size along its longer side. For technical drawings A4 is considered to be the smallest paper size. The A format paper sizes are shown below:

Type	Shape	Features
Anchor bolt		Available in roll thread as well as cut thread and "J" shaped Anchor bolts: Available in roll thread as well as cut thread.

Type	Shape	Features
Carriage bolt		<p>A type of threaded fastener designed to be used with wood, although specialized versions can be used to fasten metal components. Carriage Bolts come in an assortment of lengths, diameters, and thread pitches.</p>
Elevator bolt		<p>A type of threaded fastener designed to be used with wood, although specialized versions can be used to fasten metal components.</p>
Eye bolts		<p>An Eye Bolt is a screw with a loop on one end and threads on the other end. Eye bolts are commonly used to attach cables to objects, for instance attaching a string to the back of a painting to allow the painting to hang from a nail on a wall.</p>
Flange bolt		<p>Flange Bolts are also known as Frame Bolts, Hex Frame Flange Bolts and Hex Flange Screws.</p>

Summary

In this session you have learnt about, An automobile vehicle is an assembly of a large number of sub-assemblies and components. The assemblies such as engine-clutch-gearbox-differential-wheels-brakes etc. together may form a vehicle. Each of these assemblies is formed by joining many components. Some of the components or sub-assemblies can move with respect to each other, others are physically fixed together, with no relative motion possible. The first type of connection is called a **kinematic joint**, and the second type is called a **rigid joint** (or a **structure**).

- A thread is a ridge of uniform section in the form of a helix on the internal or external surface of a cylinder or it could be described as a sloping plane curled around a cylinder.

Project Coordinator : Dr. Saurabh Prakash, Professor,
Department of Engineering and Technology

Assistance

Er. Kuber Singh , Consultant



Joint Director

PSS Central Institute of Vocational Education
Shyamla Hills, Bhopal – 462013 , Madhya Pradesh, India

E-mail: jdpsscive@gmail.com

Tel. +91 755 2660691, 2704100, 2660391, 2660564

Fax +91 755 2660481

Website: www.psscive.ac.in