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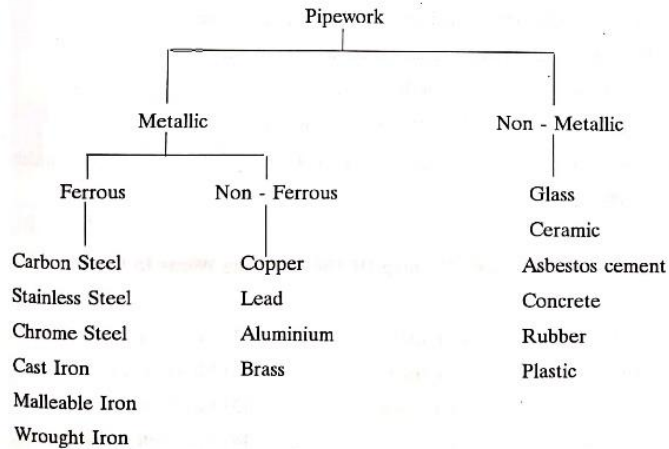
Unit 8

Unit 8

Pipes

A pipe is a form of tube used to convey fluids safely from one point to another. The fluids may be in gaseous state or in liquid form such as air, steam, water and oil. The fluids may be required to flow through pipes under various conditions, at low or high pressure, so the pipes are made of different materials and in various sizes.

To effect the economical purchase of pipes for a specific purpose correct classification of pipes is required. Pipes can be classified on the basis of the material used in manufacturing them, the strength of the pipes and the field of their applications. The different varieties of pipe which can be purchased makes the selection of such items difficult, especially to those engineers who are not constantly dealing with the subject. The chart below highlights the magnitude of the problem.



As the chart shows metallic pipes are divided into ferrous and non-ferrous metals. The former contains iron and the latter does not contain iron. Steel pipes are the most commonly used for general work in all sorts of industries and for supplying water in buildings.

Ordinary steel pipes which have been galvanized are mainly used for water supply requirements. These pipes are known as Galvanized iron pipes cast iron and ductile iron pipes have served industry and the community for many years and consequently have gained a great deal of respect from pipework engineers. With the advent of ductile iron the advantages offered have been increased even further, making the use of such products a more favourable proposition. Ductile iron is produced by treating molten iron of a suitable quality with magnesium, resulting in a metal structure of greater strength ductility, and toughness.

EXERCISE(1) Read The Following And Complete The Sentences:

- 1) Metallic pipes are divided into and metals .
- 2) Ferrous metals contain such as and
- 3) Plastics and are both
- 4) Brass is an alloy which does not have any
- 5) The term iron pipe is applied to ordinary pipe which has been galvanized .

EXERCISE(2) Give The Meaning Of The Following Words In Farsi:

- | | | |
|---------------|---------------|-------------------------|
| 1) Convey | 6) Fluids | 11) Economical Purchase |
| 2) Sorts | 7) Liquid | 12) Manufacturing |
| 3) Properties | 8) Various | 13) Cast Iron |
| 4) Pipework | 9) Variety | 14) Malleable Iron |
| 5) Ductile | 10) Toughness | 15) Wrought Iron |

Unit 9

Copper, Lead And Brass Pipes

Certain common metals have malleable and ductile properties, If a metal is malleable it can be hammered or pressed into a new shape. Copper is a good example of this. It is also a ductile metal because it can be stretched into another shape. Lead also has these properties, although it is less ductile than copper. Copper pipes are generally available in the form of tubes or coils.

They are used for a variety of purposes such as hydraulics control lines around machinery and domestic oil burner and heating systems. Lead pipe is utilized in plumbing because of its superior rust resisting property and also it can be bent with ease around corners, making fittings and joints unnecessary.

Brass pipes are made of approximately 85% copper and 15% zinc. They are used where the fluid being conveyed has corrosive properties such as pipes used in chemical plants.

EXERCISE(1) Complete The Following Sentences :

- 1) Copper pipes exist in the shape of and
- 2) Copper is a metal because it can be stretched .
- 3) Some metals such as and are malleable and ductile .
- 4) Tin and wrought iron have malleable properties. This means that they can be hammered or into a new
- 5) is unlike the other metals because its shape cannot be altered by , pressing or , and it is not corrosion resistant .
- 6) Pipes which are mixtures of copper and zinc are called pipes.
- 7) Plastic pipes are more useful than other pipes because of their and
- 8) Brass pipes are employed in plants because they are resistant to corrosion.

Unit 10

Plastic Pipes

Plastic pipes are used for many aspects of plumbing such as cold water systems both above and below ground , drainage and rainwater systems . Items such as lavatory cisterns , baths , sinks and basins , and cold water storage tankes are also available in plastic . Lightness and durability are the main advantages that plastic pipes have over metal pipes .

Plastic pipe has the added advantage that there is little risk of pipe bursting if the water inside freezes . It does not corrode and the inside of the pipe is very smooth so there is little chance of deposits building up insides and obstructing the flow of water . Plastic pipes are not , however , the ideal plumbing material for all requirements , despite their many advantages . Most plastics cannot be subjected to much constant heat so their use is normally confined to cold water services . Research is being carried out to find plastic pipes suitable for hot water apply and central heating systems .

EXERCISE(1) Answer The Following Questions :

- 1) Explain the uses of plastic pipes.
- 2) Where do we mainly use plastic pipes? Give at least four examples.
- 3) How is Galvanized iron pipe produced ?
- 4) Where do we use steel pipes ? What are their advantages and disadvantages over plastic pipes ?

EXERCISE(2) Give The Meaning Of The Following Words In Farsi:

- | | |
|----------------------------|------------------------|
| 1) Lavatory cisterns | 6) Rainwater |
| 2) Basins..... | 7) Lightness |
| 3) Drainage | 8) Durability |
| 4) Sinks..... | 9) Pipe bursting |
| 5) Corrosion | 10) Deposit |

Voc Exercise

VOCABULARY EXERCISES (Units 1 - 10)

EXERCISE(1) Choose The Word Nearest To The Meaning Of The Word In

Brackets:

- 1) (Achieve) allow , revive , acute , obtain.
- 2) (Attach) put , connect , exert , relate.
- 3) (Available) accessible , changeable , breakable , arguable.
- 4) (Burst) crush , crack , Smash , Squeeze.
- 5) (Category) Signature , career , service , class.
- 6) (Coat) cover , coil , cock , cog.
- 7) (Coil) tube , pipe , slet , pin.
- 8) (Deposit) sediment , desert , keep , construct.
- 9) (Discharge) rest , unload , out line , Journey.
- 10) (Ductile) elastic , deformable , degrade , solid.
- 11) (Dull) dark , bright , shine , clear.
- 12) (Eject) leave , change , interfere , throw out.
- 13) (Exert) apply , construct , encounter , flourish.
- 14) (Hang) Suspend , clog , impede , prvent.
- 15) (Hold) gain , persist , retain , restrain.
- 16) (Peen) pean , peg , stem , stick.
- 17) (Perceive) observe , remark , distinct , chain.
- 18) (Perpendicular) vertical , parallel , similar , analogous.
- 19) (Pulley) pan , peen , roller , grooved wheel.
- 20) (Reel) pulley , punch , over rich , belt.
- 21) (Resist) withstand , interfere , impose , reveal.
- 22) (Revolve) reach , rise , turn , rotate.
- 23) (Rod) slope , bar , beam , solid.
- 24) (Rolling) spinning , running , moving , displaying.
- 25) (Sort) kind , retain , compact , carry.
- 26) (Spherical) entire , ring , globular , polygonal.
- 27) (Stretch) pull , push , strip , spill.
- 28) (String) thread , Joint , thiny rope , chain.
- 29) (Trench) orifice , surface , slope , cleft.
- 30) (Withstand) yield , leave , quit , resist.

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