

Piping Flange Fundamentals Quiz



SAVR_{EE}
3D INTERACTIVE MEDIA

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First Edition, 2021 | saVRee UG | Schluderstrasse 2, Munich, 80634 Germany | www.saVRee.com | contact@savree.com

Piping Flange Fundamentals Quiz

CHAPTER – INTRODUCTION

QUESTION 1

Select *all* of the correct options. A flange assembly consists of:

- a) Two flanges.
- b) Fasteners
- c) None, or a single, gasket.
- d) One or two gaskets.

QUESTION 2

The *two* main parts of a flange are:

- a) Blade
- b) Sword
- c) Hub
- d) Port

QUESTION 3

Which of these is *not* a type of joint:

- a) Bolted
- b) Threaded
- c) Welded
- d) Pressed

QUESTION 4

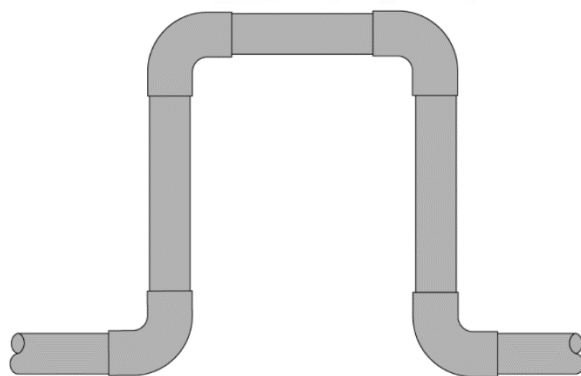
Why are expansion joints no longer favoured i.e. why are piping loops becoming more common?

- a) Expansion joints must be maintained and replaced periodically, their reliability is low, and they cost more financially over the long-term compared to a piping loop.
- b) Expansion joints have failed catastrophically in the past. Following a large failure in 1998, expansion joints were no longer favoured for use in the piping industry.

QUESTION 5

What component is shown in the image?

- a) Piping loop.
- b) Expansion joint.

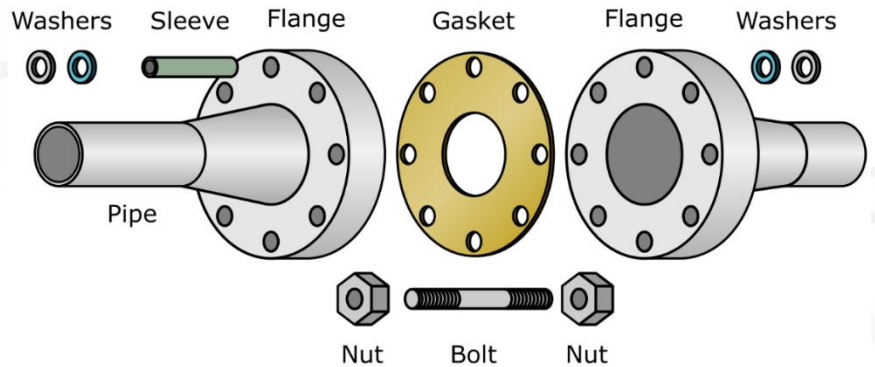


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QUESTION 6

What type of gasket is shown in the image?

- a) Raised face.
- b) Ring type joint (RTJ).
- c) Full face.



QUESTION 7

Which equation is correct?

- a) $\text{Pressure} = \text{Force} \times \text{Area}$
- b) $\text{Pressure} = \text{Force} / \text{Area}$

CHAPTER – THE NEED FOR STANDARDISATION

QUESTION 8

What does the acronym NPS mean?

- a) National Pipe Size
- b) Normal Pipe Size
- c) Nominal Pipe Size
- d) Neighbouring Pipe Size

QUESTION 9

Which of these is *not* a large regulatory organisation?

- a) American Society of Mechanical Engineers (ASME)
- b) Scandinavian Society of Codes and Standards (SSCS)
- c) International Organisation for Standardisation (ISO)
- d) European Standards/Normative (EN)

CHAPTER – PIPES AND PIPING

QUESTION 10

The terms 'pipe' and 'piping' mean the same thing.

- a) True
- b) False

QUESTION 11

Which of these options is *not* a commonly manufactured pipe type?

- a) Seamless
- b) Longitudinally welded.
- c) Spiral welded.
- d) Horizontally welded.

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QUESTION 12

Select *all* common pipe end types:

- a) Bevel
- b) Plain
- c) Threaded
- d) Pressed

QUESTION 13

What does the acronym IPS mean?

- a) Internal Pipe System
- b) Internal Pipe Surface
- c) Iron Pipe Size
- d) Iron Pipe System

QUESTION 14

A pipe's NPS value always relates to the exterior diameter of the pipe in inches.

- a) True
- b) False

QUESTION 15

The wall thickness of a pipe is also known as a pipe's:

- a) Savings
- b) Buffer.
- c) Limit.
- d) Schedule.

QUESTION 16

The pressure class of a flange is dictated by its pressure rating only.

- a) True
- b) False

QUESTION 17

The pressure class of a flange depends upon which factors? Select *all* correct options.

- a) Pressure rating.
- b) Temperature rating.
- c) Flow rate.
- d) Material.

QUESTION 18

The outside diameter of a flange increases as its pressure class increases.

- a) True
- b) False

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CHAPTER – FLANGE FACES

QUESTION 19

Which of the given options is *not* a common flange face type?

- a) Plain
- b) Male and Female
- c) Raised
- d) Ring Type Joint (RTJ)

QUESTION 20

Plain face flanges use soft gaskets.

- a) True
- b) False

QUESTION 21

Raised face flanges can be used across a wide range of pressures and temperatures.

- a) True
- b) False

QUESTION 22

What does the acronym RTJ mean?

- a) Ring Time Join
- b) Raised Type Joint
- c) Ring Type Joint
- d) Raised Type Joining

QUESTION 23

Common R-type RTJ gaskets are indicated. Select the *two* correct answers:

- a) Oval shaped.
- b) Hexagonal shaped.
- c) Circular shaped.
- d) Octagonal shaped.

CHAPTER – FLANGE FACE SURFACES

QUESTION 24

A phonographic flange is a type of:

- a) Spiral serrated flange.
- b) Smooth surface flange.

QUESTION 25

Stock finish surfaces belong to the spiral serrated flange category:

- a) True
- b) False

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QUESTION 26

Stock finish flanges are the most popular type of serrated flange surface.

- a) True
- b) False

QUESTION 27

The *surface finish* describes the surface of the flange sealing face.

- a) True
- b) False

CHAPTER – ROUGHNESS AND SURFACE FINISH

QUESTION 28

There are two ways to describe the roughness average; this is achieved using the AARH and RMS methods.

- a) True
- b) False

QUESTION 29

Calculating the roughness average using the AARH and RMS methods yields roughly the same result.

- a) True
- b) False

CHAPTER – GASKETS AND SEALING AGENTS

QUESTION 30

What does the acronym CNAF mean?

- a) Counter neon altering fibres.
- b) Compressed non-asbestos fibre.
- c) Compressed non-antacid filter.
- d) Compressed neutral-asbestos fibre.

QUESTION 31

Soft gaskets are favoured for pressures above 20 bar (290 psi).

- a) True
- b) False

QUESTION 32

There are three main gasket types. These are, soft, composite, and hard.

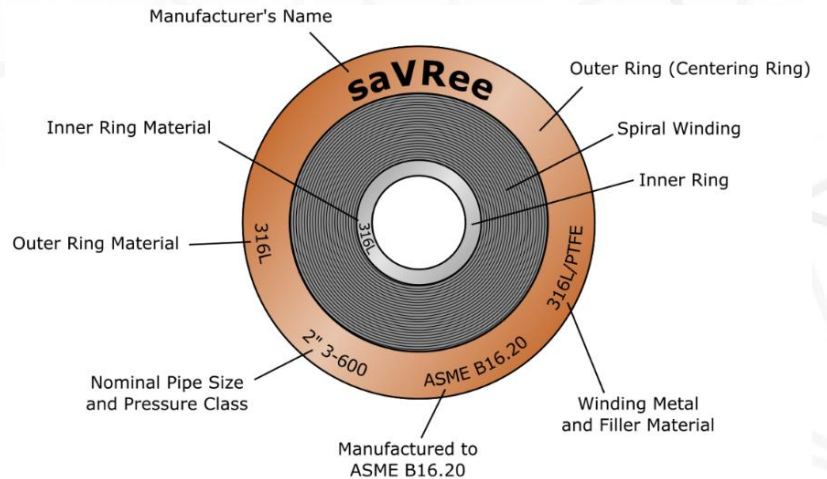
- a) True
- b) False

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QUESTION 33

What type of gasket is shown in the image?

- a) Soft
- b) Composite
- c) Hard

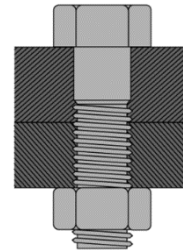


CHAPTER – NUTS AND BOLTS

QUESTION 34

What type of fastener is shown in the image?

- a) Stud
- b) Double End Stud
- c) Screw
- d) Bolt



QUESTION 35

Which side of the nut shown in the image is the non-load bearing side?

- a) The side facing away from the viewer.
- b) The side facing the viewer.



QUESTION 36

Washers may be used for a single purpose, or to satisfy more than a single purpose (distributing load, electrically isolating components etc.).

- a) True
- b) False

QUESTION 37

When assembling a bolted joint, the bolting procedure is beneficial although rarely required.

- a) True
- b) False

QUESTION 38

The number of flange bolts on a flange is always a multiple of four i.e. 4, 8, 12 etc.

- a) True
- b) False

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CHAPTER – FLANGE TYPES

QUESTION 39

Select **all** common flange types.

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange

QUESTION 40

With reference to flanges, select the **two** most relevant weld joint types.

- a) Plug
- b) Butt
- c) Compound
- d) Edge
- e) Spot
- f) Fillet

QUESTION 41

Welding neck flanges are the most common flange type.

- a) True
- b) False

QUESTION 42

Welding neck flanges may use flat, raised, or RTJ faces.

- a) True
- b) False

QUESTION 43

Welding neck flanges should **not** be used for high pressure applications.

- a) True
- b) False

QUESTION 44

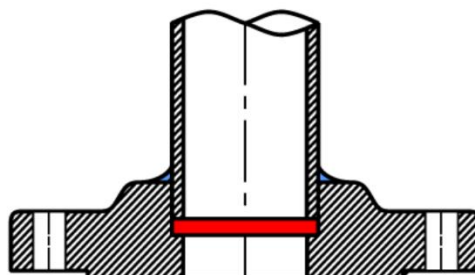
Slip-on flanges are also known as *hubbed flanges*.

- a) True
- b) False

QUESTION 45

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange

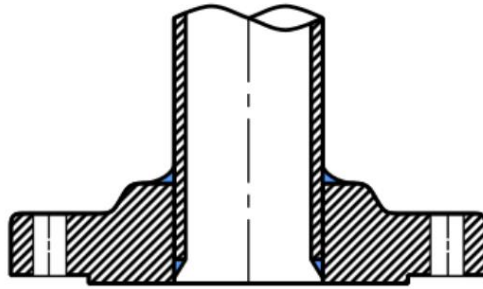


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QUESTION 46

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange



QUESTION 47

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange



QUESTION 48

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange



QUESTION 49

Lap joint flanges are favoured for smaller pipe sizes.

- a) True
- b) False

QUESTION 50

Blind flanges are available in *all* face types.

- a) True
- b) False

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QUESTION 51

A butt weld is a full penetration weld.

- a) True
- b) False

QUESTION 52

Slip on flanges are used for medium to low pressure classes only.

- a) True
- b) False

QUESTION 53

Threaded flanges are generally used for pipe sizes of 4 inches or less.

- a) True
- b) False

QUESTION 54

Threaded flanges are used for critical systems i.e. those conveying poisonous, toxic, and/or highly corrosive fluids.

- True
- False

QUESTION 55

Lap joint flanges require no welds (*hint: the stub end is not part of the flange*).

- a) True
- b) False

QUESTION 56

Welding neck flanges have low mechanical strength.

- a) True
- b) False

QUESTION 57

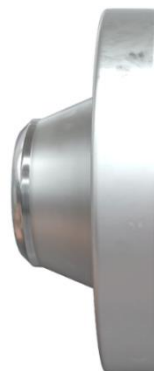
Information relating to a lap joint flange's *stub end* can be found in the ASME B16.5 standard.

- a) True
- b) False

QUESTION 58

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange

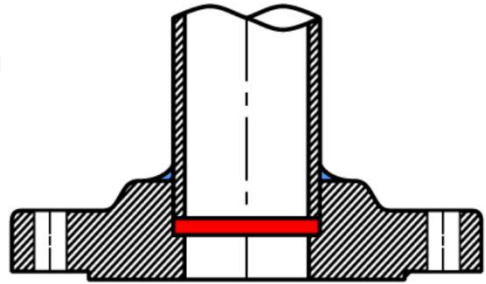


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QUESTION 59

With reference to the image shown, what does the red area indicate?

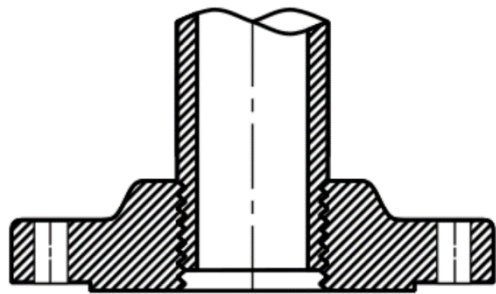
- a) A gap left to allow for creep.
- b) A gap left to allow for general thermal expansion when the flange is in service.
- c) A gap left to allow for thermal expansion when the pipe end is welded to the flange.



QUESTION 60

What type of flange is shown in the image?

- a) Welding Neck Flange
- b) Slip-on Flange
- c) Socket Weld Flange
- d) Lap Joint Flange
- e) Threaded Flange
- f) Blind Flange



Piping Flange Fundamentals Quiz

ANSWERS

- | | | | |
|-----|-------------|-----|---|
| 1. | a/b/c | 52. | a |
| 2. | a/c | 53. | a |
| 3. | d | 54. | b |
| 4. | a | 55. | a |
| 5. | a | 56. | b |
| 6. | c | 57. | b |
| 7. | b | 58. | a |
| 8. | c | 59. | c |
| 9. | b | 60. | e |
| 10. | b | | |
| 11. | d | | |
| 12. | a/b/c | | |
| 13. | c | | |
| 14. | b | | |
| 15. | d | | |
| 16. | b | | |
| 17. | a/b/d | | |
| 18. | a | | |
| 19. | b | | |
| 20. | a | | |
| 21. | a | | |
| 22. | c | | |
| 23. | a/d | | |
| 24. | a | | |
| 25. | a | | |
| 26. | a | | |
| 27. | a | | |
| 28. | a | | |
| 29. | a | | |
| 30. | b | | |
| 31. | b | | |
| 32. | a | | |
| 33. | b | | |
| 34. | d | | |
| 35. | b | | |
| 36. | a | | |
| 37. | b | | |
| 38. | a | | |
| 39. | a/b/c/d/e/f | | |
| 40. | b/f | | |
| 41. | a | | |
| 42. | a | | |
| 43. | b | | |
| 44. | a | | |
| 45. | c | | |
| 46. | b | | |
| 47. | d | | |
| 48. | f | | |
| 49. | b | | |
| 50. | a | | |
| 51. | a | | |