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[Glossary of Gasket Terms](#)

A

[Adhesion](#)

The sticking of the gasket material to either or both flanges of a mechanical assembly.

[Adhesive](#)

An adhesive is a compound that adheres or bonds two items together. Adhesives may come from either natural or synthetic sources. Some modern adhesives are extremely strong, and are becoming increasingly important in modern construction and industry.

[Antistick](#)

A coating or surface treatment that prevents the gasket material from adhering to the flanges.

[Application Cure](#)

A gasket material is cured in application due to the temperature exposure.

[Arithmetic Mean](#)

Calculated mathematical average.

[ASTM](#)

American Society for Testing and Materials.

B

[Beater Addition](#)

A manufacturing process used to make gasket material. A water based process where the elastomer is chemically deposited onto the fibers and fillers.

[Binder](#)

The elastomer or rubber used in gasket material.

[Blowout](#)

Occurs when internal pressure tends to push the gasket material out from between flanges. Blowout usually occurs in areas of low flange pressure and high internal pressure.

[Bolt Length](#)

A gasket selection and flange design factor that includes the "effective bolt length" (defined as the distance from the underside of the bolt head to the closest engaged thread), the washer, and the thickness of the compressed gasket.

[Bolt Loading](#)

The load generated by a bolt when it is tightened.

Bolt-Hole Distortion

Flange is permanently distorted directly beneath the bolt. Caused by initial bolt torque.

Broken Corner

A corner of a mechanical assembly that is "broken off" instead of being machined into a perfect radius. Usually done to reduce manufacturing costs.

C

Chemical Resistance

A gasket materials degradation resistance to the fluid or fluids being sealed.

Cocking

When the flanges of a mechanical assembly are not parallel to each other.

Compressibility

The amount (%) of material thickness reduction that occurs when the proper external load is applied to a material according to ASTM F 36 test procedures.

COMPRESSION

Expressed in percent, it is a measure of how much the materials thickness is reduced under a given compressive stress.

Compression Set

The residual deformation of a material after removal of the compressive stress.

Conformability

The ability of a gasket material to conform to flange surface roughness and out-of-flatness.

Controlled Swell

A gasket material that exhibits a controlled increase in thickness (swell) in the presence of oil.

Creep Relaxation

A measure of the loss of bolt stretch that occurs in a tightened joint when the gasket material, flanges, washers, and bolt threads relax (lose thickness).

CRUSH EXTRUSION

Expressed in psi (or MPa), this is a measure of the maximum compressive force that a material can withstand before it has more than 15% lateral extrusion.

Crush Resistance

Expressed in psi (or MPa), this is a measure of the maximum compressive force that a material can withstand before it has more than 15% lateral extrusion.

D

DENSITY

A measure of the mass of a material divided by its volume.

Dielectric

The average voltage gradient at which dielectric failure or breakdown occurs under prescribed conditions. The dielectric strength is expressed in volts per mil of thickness.

Dimensional Stability

How well a cut gasket retains its original dimensions when exposed to temperature and humidity extremes.

Dynamometer

An instrument for measuring force exerted or power expended.

E

Elastic Modulus

The conductivity properties of a material as required by the application.

F

Fillet

A curved or rounded edge of a flange, where two surfaces come together.

Flange

A surface or section of a part designed specifically as an attachment point for connecting two parts together. Often the word flange is used to describe the entire part if it is a simple cover plate or pan.

FLUID IMMERSION

A test method for measuring a sealing material's resistance to the fluid it is being used to seal. Fluid immersions can be performed with any fluid that needs to be sealed in a mechanical assembly, but ASTM specifies standard fluids that are used as indicators for various types of applications. The standard fluids that are used on product specifications are distilled water, ASTM Fuel B and ASTM Oil #3.

G

GASKET EXTRUSION

Refers to the tendency of a gasket to flow from between flanges, particularly around bolt holes where stresses are concentrated.

Gasket Extrusion

Refers to the tendency of a gasket to flow from between flanges, particularly around bolt holes where stresses are concentrated.

H

Hardness

Resistance to indentation. Usually measured with a Durometer. See ASTM D 2240.

I

Ignition Loss

The weight of material sample that is lost when the material is exposed to excessive temperature.

Initial Flange Pressure

The stress on a gasket attained when a joint is initially tightened.

L

Load/Compression

Thickness reduction that occurs with a given gasket material at various known applied external loads, thereby establishing a load/compression curve.

M

M Factor

Also known as "maintenance" factor. Relates to the additional preload capability needed in the flange bolts (or other fasteners) to overcome internal pressure and maintain sealing pressure on the gasket after internal pressure is applied to a joint.

P

Pore Volume

The volume of porosity present within a gasket.

Preload

The tightening force produced in a bolt when its prescribed torque is initially applied.

Profilometer

Device that measures flange surface roughness.

Proof Load

The maximum stress that can be sustained within a bolt repeatedly without damaging the material. Normally equal to 85% of the yield strength of the bolt material.

R

RECOVERY

Expressed in %, it is a measure of the resiliency of the material. The number indicates the percentage of "spring back" of the material after it has been compressed under a given load (the standard loads for materials are the same as those used for compression). For example, a material with 60% recovery means it regains 60% of the thickness it lost after being compressed under a given load.

S

Seal Point

The minimum compression stress needed by a gasket material to achieve an effective seal against a particular fluid and pressure.

Sealability

Measured as a leakage rate, generally in ML per hour. It is a measure of how much fluid escapes from a gasket in a controlled flange surface under specific compression loading and fluid pressure.

Sealing Stress

The amount of flange pressure present in a flanged joint assembly to compress and seat a gasket material in order to create an effective seal.

Sheeter

A manufacturing process used to make gasket material. This is a process where the solid rubber is banded to a roll and softened with solvents. The fibers and fillers are then added and masticated into the rubber.

Stress Riser

A small band or rib machined or embossed into the mating surface of a flange. Helps to strengthen the flange and to concentrate the sealing load onto a smaller area of the gasket.

Surface Roughness

The deviation of the topography of an actual surface from an ideal atomically smooth and planar surface.

T

Temperature Resistance

A gasket material's ability to retain physical and sealing properties after exposure to elevated temperatures.

TENSILE LOSS

Expressed in %, it is a measure of how much tensile strength is lost after fluid immersion, compared to the original tensile strength of the material.

Tensile Strength

The maximum stress that can be applied in the plane of the gasket material (not perpendicular to its surface) while stretching a specimen to rupture.

Thermal Conductivity

A measure of the rate at which a material conducts heat through its thickness.

Thickness Increase

Expressed in %, a measure of how much thickness a material has gained (swelled) after immersion in a fluid, compared to its original thickness.

Torque

A measure of force applied to an object to create a rotational or twisting effect about some point.

Torque Loss

The percentage of initial bolt torque that is lost after operation of finished assembly.

Torque Retention

A term used to express how much of the initial bolt torque remains on the bolts after an assembly has been exposed to operating conditions.

Typical Values

Estimates of gasket material properties that are used until enough statistical data can be accumulated to write accurate product specifications.

U

Ultimate Load

The maximum stress a material can withstand at the point of failure.

W

WEIGHT INCREASE

Expressed in %, shows how much weight the material has gained over its original weight after immersion in the given fluid.

Y

Y Stress

Represents the pressure in PSI (MPa) over the contact area of the gasket that is required to provide a sealed joint, with no internal pressure in the assembly. Used in connection with M Factor. Also known as the "yield" factor.

Yield Load

The stress at which the fastener material begins to permanently stretch and no longer behave elastically.

Young's Elastic Modulus

The ratio of tensile or compressive stress to corresponding strain below the proportional limit of the material.