

## GLOSSARY OF OILFIELD TERMS AND DEFINITIONS

<b>Adaptor Flange</b>	An intermating flange that connects between two other flanges that are different connection types from each other. Two types are available:- Double Studded Adaptor (DSA), or a Single Studded Adaptor (SSA).
<b>Adaptor Spool</b>	A pressure control housing body with two different end connections to fit between two other pieces of equipment. Can often be used instead of a Double Studded Adaptor because at least one of the components to which it connects has a studded flange connection.
<b>ANSI</b>	American National Standards Institute. (Formerly known by the name American Standards Association) (ASA). This organisation sets standards for ASME:- ANSI B16.5, Weld Neck, Blind and Screwed Flanges commonly used in refineries and process industries.
<b>Annular</b>	Refers to the space between the inside diameter of a cased or drilled hole and a secondary string of casing suspended inside this space.
<b>API</b>	American Petroleum Institute. The organisation that develops and publishes API specifications.
<b>API 16A</b>	(Also ISO 13533) American Petroleum Institute publication specification used as the industry Specification for Drilling Equipment.
<b>API 6A</b>	(Also ISO 10423) The American Petroleum Institute publication specification utilised as the oil industry Specification for Wellheads and Christmas Tree Equipment.
<b>API Monogram</b>	The registered trademark of the American Petroleum Institute (API). Qualified licensed manufacturers are authorised to use the API Monogram and their license number, on their documentation and on product labels to signify equipment meets the requirements of API specifications.
<b>API 17D</b>	The American Petroleum Institute specification used for Subsea Wellhead and Christmas Tree Equipment.
<b>ASTM</b>	American Society for Testing and Materials. The organisation providing a vast array of specifications for test standards, methodology and materials.

**Austenitic Stainless Steel**

300 series stainless steel (example 316, 304, 321) with a chemical composition of chromium 16% minimum, nickel, 8% minimum, and carbon .08% maximum.

**B7, B7M**

ASTM specification for bolting, A193 Grade B7, specified in API Spec 6A for standard service flange bolting. B7M is B7 Modified with controlled hardness (charpies tested) in the bolt (and 2HM nut) for sour service (NACE) exposed bolts.

**BHN**

Abbreviation for Brinell Hardness Number. (New abbreviation is now:- HBW).

**Bolt Circle**

The dimension of a theoretical circle through the center point of a series of holes, drilled equally spaced, near the mid circumference of a flange.

**Bolting Tension**

The energy resulting from applying Torque to nuts onto bolts/studs providing the required compressive force to hold connections in contact under pressure or load.

**Bolting Torque**

The rotational force applied to nuts onto stud bolts require to tighten and apply tension to the bolts in order to hold flanges or other connections.

**BOP**

An Abbreviation for Blowout Preventer.

**Braden Head**

See casing head

**Break-out**

To Break apart; to disconnect flanged or screwed Connectors.

**Brinell Hardness**

A measure of steel hardness, measured by pressing a tungsten carbide tool against a surface using a designated force, producing an impression which is measured and then given a special numerical value which relates to steel tensile strength. API 6A specifies minimum Brinell Hardness requirements. NACE MR-0175 references maximum hardness in determining steel's suitability for use in H2S Service.

**Buffer Chamber**

(Header) pressure vessel with multiple inlets and outlets, utilised to contain and direct the discharge from Chokes in a drilling Manifold system.

**Butt Weld Joint**

A form of weld joint having specially prepared surfaces that makes a 'Full Penetration Weld'. A small gap between the adjacent pieces of pipe or fittings is left then deposited weld metal will bridge, fill, and close.

**Butt Weld Fitting**

Any fitting that has Butt weld ends.

**BX**

Refer 6 BX.

**Carbon Steel**

Iron based metal with carbon and manganese added to specific limits. Only residual small amounts of other elements are added for deoxidisation or to control the effects of sulphur.

<b>Casing</b>	Oilwell Pipe used to line the bore hole of a well.
<b>Casing Spool</b>	A piece of well control equipment attached below the Casing Head, used to suspend and seal a secondary casing string with casing slips. <i>(Australian Pipeline Valve manufacture FMC® and CIW® style spools and heads in short delivery).</i>
<b>Casing Head</b>	A piece of well control equipment (flanged, welded or hub clamp) attached to the top of surface casing, allowing the attachment of Blowout Preventers during the drilling, phase and later used to hang and suspend a secondary string of casing set inside hung on a set of casing slips. <i>(Australian Pipeline Valve manufacture FMC® and CIW® style spools and heads in short delivery).</i>
<b>Cast Steel</b>	Steel manufactured by pouring molten steel into a metal or wooden mold to produce the desired shape after solidification and cooling.
<b>Casting</b>	A shape made from cast steel.
<b>Charpy V-Notch Test</b>	A test performed (at a nominated temperature) utilising a calibrated falling pendulum (hammer) fracturing a Specimen of Material and measuring the force required.
<b>Choke</b>	Pressure control equipment (choke valve) used to restrict and regulate the flow of well fluids to maintain a desired pressure and flow rate. Chokes typically have hardened internal replaceable parts specifically designed to resist erosion caused by high pressure, high velocity or abrasive fluids typically used as part of a Choke Manifold or Xmas Tree. <i>Australian Pipeline Valve (APV) manufacture a full range of in-line and right angle adjustable chokes in short delivery in needle and seat CIW® style H2 in standard and H2S service. APV also manufacture multiple orifice chokes (M.O.V).</i>
<b>Choke Manifold</b>	A complete assembly of valves, Fittings, Flanges and Chokes configured to control and regulate the flow of fluid from a well bore.
<b>Christmas Tree</b>	A complete assembly of Gate Valves and studded outlets and a top connector etc. used to regulate and control the flow of oil and gas during well production. <i>Australian Pipeline Valve manufacture full range of valves and components required to assemble Christmas Trees in short delivery in FMC® and Cameron® style.</i>
<b>Clamp Hub</b>	'Hub Clamp Connector' a type of end connector documented in API Spec 16A that joins with a hub and attaches with a Clamp.
<b>Combination Adaptor Ring Gasket</b>	A custom Ring Gasket that allows two flanges with different ring grooves to join and seal when Made-up. These gaskets are also available with different pitch diameters on each side of the gasket.

<b>Concentric Reducer</b>	A pipe fitting that reduces from a larger to a smaller size each end. Available in threaded (swage nipple) or butt weld preparations, with the ends concentric along a common axis.
<b>Connector</b>	Pressure containing / pressure controlling wellhead equipment that allows a mechanical joint that can provide a pressure seal can be Flange, Hub, Union, connection.
<b>Corrosion Resistant Ring Grooves</b>	(CRA) Ring Grooves can be lined (overlaid) with corrosion resistant material such as either CRA (Like 410SS) or an austenitic stainless steel.
<b>Corrosion Resistant Alloy</b>	Non ferrous alloys where the total sum of the specified amount one or more of the following alloy elements exceeds 50%: cobalt, chromium, titanium, molybdenum, Nickel often used in critical service applications for flanges, spools, valves etc.
<b>Corrosion Resistant Material</b>	Nonferrous or Ferrous alloys, more corrosion resistant than low alloy steels. Examples:- Stainless Steels, Duplex Steel, CRA's etc.
<b>Cross</b>	A Fitting with four connections in the same plan with two of these connections forming an in-line run. Crosses can also be 5 Way and 6 Way. (Australian Pipeline Valve manufacture studded 4 Way Crosses and 3 way Tees in short delivery).
<b>Cross-over Fitting</b>	Any pipe fitting, or component, having two different end connection types such as, e.g. line pipe one end X8 Round Tubing Threads other end, male or female, and various sizes and combinations of male or female connectors, in various connection types.
<b>Coupling</b>	Joins to pieces of pipe or casing female both ends. A reducing coupling joins two different sizes, female both ends.
<b>Double Extra Strong</b>	(XXS ) also referred to as Double Extra Heavy (XXH); A designation of pipe with a wall thickness twice that of Extra Strong Pipe.
<b>Double Studded Adaptor</b>	(DSA) A flange with a through bore and a ring groove on each side, drilled and tapped bolt hole sets on both sides and tapped end studs complete with nuts fitted on both sides. The two sides are different in size and/or pressure rating. (If they are the same it is just a 'spacer'). Utilised to adapt between different flange end connections.
<b>Drift</b>	A gauge of special dimensions used to pass through the Run of (minimum bore) equipment to prove that the bore of the run will pass working tools.
<b>Drilling Choke</b>	A Choke designated by its manufacturer as suitable for drilling service, (utilised as part of Choke Manifold).

<b>Drilling Spool</b>	Equipment used with Blowout Preventers to space pieces of equipment apart. Is fitted with outlets to attach lines extending to Choke and Kill Manifolds. Also referred to as a 'Mud Cross'.
<b>DSA</b>	See Double Studded Adaptor.
<b>Elastomer</b>	A flexible elastic material used for moulded seals, such as O-rings and face seals. Elastomeric compound formulations used to sealing various fluids. Example Viton (Fluoro-Elastomer).
<b>End Connection</b>	The connection on either end of pressure control equipment.
<b>Extra Strong</b>	(XS) also referred to as Extra Heavy (XH); A specification of pipe wall specified in API Spec 5L thicknesses. See our table of Carbon Steel Pipe Dimensions.
<b>Figure 602</b>	A hammer union model number 6,000 psi rated.
<b>Figure 1502</b>	A hammer union model number typically 15,000 psi rated (but down rated (or H2S service).
<b>Figure 2202</b>	A hammer union model number typically 20,000 psi rated (but down rated (or H2S service).
<b>Fitting</b>	Designed to fit between other equipment for the purpose of adapting or connecting that other equipment to facilitate flow control. Examples: Tee Cross, Buttweld Fitting.
<b>Flange</b>	A single disc with holes to accept bolts or with hole drilled and tapped with or with out Tapped End Studs, with a sealing means such as a gasket, used to join pressure-containing equipment.
<b>Flange, ANSI</b>	A flange specified in American National Standard Institute, ANSI) standards.
<b>Flange, API</b>	A flange specified, in American Petroleum Institute (API) standards.
<b>Flange, Adaptor</b>	A flange that will connect between two different flanges. Usually a Double Studded Adaptor (DSA), or a Single Studded Adapter (SSA). Also can be a Double Flanged Adaptor.
<b>Flange, Blind</b>	A flange with no bore or outlet, designed to close off an outlet or end connection.
<b>Flange, Companion</b>	A Raised Face or Ring Joint (RTJ) Flange, with a threaded outlet. Also called a Threaded Flange.
<b>Flange, MSS</b>	A flange specified to Manufacturing Standardisation Society, Standard Practice MSS-SP-44. Typically specified for 26" and larger flanges.
<b>Flange, Open Face</b>	A flange connection with drilled through bolt holes. An open face flange will mate with another open face flange or with a Studded Face Flange.

<b>Flange, Outlet</b>	An integral flange outlet, connected to a Body usually a side outlet (for example on a tee or a spool).
<b>Flange, RTJ</b>	A flange that utilises a Ring Gasket has the designation “Ring Type Joint” (RTJ). All API Spec. 6A flanges have “Ring Type Joint” sealing surfaces. ASME (ANSI) standard flanges are also available in RTJ.
<b>Flange Series</b>	Out of date term, applied in the past to API flanges. The flange series because the ANSI (ASME) Rating. API6A flanges are now rated in psi working pressure.
<b>Flange, Spacer</b>	A flange, usually made with a ring joint connection on both sides, to fit between two other flanges to space them apart.
<b>Flange, Studded Face</b>	A flange connection with the bolt circles drilled and tapped into its face so as to accept Tapped End Studs (i.e the connections on a Studded Cross or Tee). A studded face flange will mate with an Open Face Flange.
<b>Flange, SV</b>	API Specification 17D specifies Swivel Flanges (flanges that swivel around a hub) identified as ‘SV Flanges’. Specified in a limited range of sizes in 5,000 psi and 10,000 psi.
<b>Flange, Target</b>	See Target Flange.
<b>Flange, Test</b>	A Blind Flange, with a tapped test port in it’s center or side to allow application of pressure or the attachment of a gauge.
<b>Flange, Threaded</b>	A screwed flange with an internal (also called Flange, Companion) or external thread opposite its Ring Groove side to mate with threaded pipe.
<b>Flange, Weld Neck</b>	A flange with a butt weld neck for welding to pipe or butt weld fittings. Material grade may vary from that required for Integral Flanges in order to facilitate field welding to carbon steel pipe.
<b>Flow line</b>	Any pipeline, that contains, transports and controls the fluid.
<b>Fluoropolymer Coating</b>	A specialised coating typically used on stud bolts, nuts, and other surfaces that need characteristics of low friction, wear resistance, and protection from corrosion; (commonly used for offshore service) also marketed as ‘Xylan’ or Teflon coating.
<b>Forged Steel</b>	Steel, pressed and shaped, under heat, using compressive force to breakup and close any internal Discontinuities.
<b>Forging</b>	See Forged Steel. Also, the act of using compressive force (presses or hammers) to pressure form steel into a desired shape.
<b>Full Penetration Weld</b>	A weld performed between two adjacent pieces, the weld metal extending through the entire wall.

**Gauge**

A pre-calibrated device for determining the relative size or shape of an object compared to a standard (such as a Drift). A device to measure pressure of a pressure containing system.

**H2S**

Hydrogen Sulphide.

**H2S Service**

Hydrogen Sulphide Service. A term to indicate that equipment material specifications meet the requirements of NACE Standard MR-0175, for use in controlling fluid containing partial pressure (a specific percentage as nominated by the standard) of Hydrogen Sulphide.

**Hammer Unions**

(Wing Unions) fast acting connectors and commonly used in temporary flow-lines. Hammer Unions consists of 3 pieces.

- A) A male connector with a spherical machined sealing surface.
- B) A female connector with a tapered machined sealing surface and external 'Acme' threads.
- C) A wing nut with internal 'Acme' threads that fits over the male connector and screws onto the female connector holding the two connectors together, ensuring a seal. Some higher pressure and larger size hammer unions contain an elastomeric secondary seal such as Buna or Viton.

**Hammer Wrench**

"Flogging Spanner" A wrench with a heavy box end and shortened heavy handle having an elongated square shaped end. Designed to allow heavy striking with a sledge hammer to tighten or loosen nuts on stud bolts.

**Hardness**

A measured factor that predicts the amount a metal will resist abrasion and bending, as well as indicating Ultimate Strength. Commonly expressed as 'Brinell Hardness' and 'Rockwell Hardness'. ASTM E140 provides a guide for comparing hardness determined by different methods and expressed on different scales.

**Head**

The standing column of fluid in the bore of a well. The measure of pressure at the bottom of a column of fluid in a well bore or in any vertical fluid containing system or pipe.

**Header**

Refer to 'Buffer Chamber'.

**Heat Treatment**

Heating and then cooling metal to produce selected and intended conditions and properties in the material such as strength and hardness. This process affects mechanical properties:- Tensile Strength, Yield Strength, Elongation, Reduction of Area, and hardness (Impact Strength).

**HBW**

Brinell Hardness abbreviation.

**HRB**

(Also often abbreviated as RB) Abbreviation for Rockwell Hardness. Refer to Rockwell B Hardness.

<b>HRC</b>	(Also often abbreviated as RC) Abbreviation for Rockwell Hardness. Refer to Rockwell C Hardness.
<b>HV</b>	Hardness Vickers. The Vickers hardness test method is another method of testing. This method is often used in testing of weld samples to meet NACE requirements. An indent is performed under load. (See all hardness related definitions).
<b>Hydrostatic test</b>	(Hydro Test) A pressure test method where water is pumped by pumping into a vessel or equipment system or valve until the pressure reaches a specific level. The pressure is then held for a specific period of time without observed leaks or pressure reduction. Typical test standards include API6A, API6D, API598, MSS, BS etc.
<b>Hydrogen Sulphide</b>	(H <sub>2</sub> S) a deadly poison that also has a destructive effect on high strength low alloy steels when the hardness of these steels exceeds a hardness of 22 Rockwell C.
<b>I.D.</b>	Inside Diameter.
<b>Impact Strength</b>	The amount of energy required to fracture a Specimen of Material performing an impact blow, performed at a specified temperature, known as a 'Charpy V-Notch Test'.
<b>Inlay</b>	A form of weld metal deposit, where the weld deposit fills a ring groove or other cavity. A Corrosion Resistant Alloy weld metal is deposited in oversize ring grooves then machined to accept Ring Gaskets.
<b>Integral</b>	Not welded or fabricated, a single component. For instance connectors Flanges, Hubs, made as part of a body, (can also be joined to a body by welding but in themselves are integral).
<b>International Standards Organisation</b>	('ISO') this standards organisation has formed a partnership with the American Petroleum Institute to establish equipment and quality standards and specifications. ISO and API have reciprocal cross-referenced and dual standards.
<b>ISO</b>	Refer International Standards Organisation (above).
<b>Joint - Blast</b>	(Blast Joint) For tubing strings in oil wells, 'Blast Joint' means to a piece of heavy walled specifically manufactured tubing joint, run in the tubing string and positioned along side a perforated zone section to resist external erosion caused by high velocity production fluid entering from that zone, thereby resisting wear.
<b>Kill</b>	The process of pumping heavier fluid into a well bore to bring a well into Balance and cease the outflow production from the well.
<b>ksi</b>	(Abbreviation) One thousand pounds per square inch used to indicate material (i.e. steel) strength can also be shortened to 'K'.



<b>L7, L7M</b>	ASTM specification for bolting, A320 Grade L7, specified in API Spec 6A for low temperature bolting. L7M is L7 bolting modified with controlled hardness in the (impact tested) (and a GR4M nut) for sour service (NACE) exposed bolts.
<b>Line Pipe</b>	(LP) Pipe generally for use in the oil and gas industry for the transmission of oil and gas under pressure, or for a variety of process flow applications. Common specifications API Spec 5L and API Spec 5LX. See Carbon Steel Pipe Dimensions at this web site.
<b>Low Alloy Steel</b>	An iron based metal alloy with small amounts of other elements added which is to produce a desired response to heat treatment cycles and to achieve targeted mechanical properties.
<b>LP</b>	See Line Pipe.
<b>LP Thread</b>	Line Pipe Thread (NPT).
<b>Lubricator Adaptor</b>	Top Connector (same, see below definition)
<b>M</b>	Abbreviation for thousand psi in designating working pressure.
<b>Manifold</b>	Assembly of valves fittings and flanges configured to regulate and control the flow of pressure fluid from a well bore.
<b>Microstructure</b>	The physical particulate order and arrangement of constituents of steel as observed on a prepared sample through a microscope.
<b>M.S.P.</b>	Maximum Service Pressure.
<b>Mud Cross</b>	Refer to 'Drilling Spool'.
<b>NACE MR-01 75</b>	A standard produced by the 'National Association of Corrosion Engineers' (N.A.C.E) defining the chemistry, hardness and microstructure of Material used to make equipment to contain or control well production and transmission line fluids that include specified levels of hydrogen sulphide.
<b>Nipple, Swage</b>	A pipe fitting that reduces from a larger size to a smaller size. Can be threaded or weld ends. Swage 'Nipples' are male both ends. See 'Cross over' for male X female, see 'Reducing coupling' for female X female.
<b>Nominal</b>	A designation to prefix a suffix such as 'bore' (i.e. Nominal bore) It indicates an approximate or variable size or dimension which may require further definition, (for example by also nominating a 'schedule' (See - 'schedule')).
<b>Non-Destructive</b>	(NDE) also referred to as Non-Destructive.

<b>Evaluation</b>	Examination. It refers to a means of Non-Destructive Testing, a group of activities using various methods to find, measure, locate or determine numerous facets of about Material or equipment, that allows an inspector to decide (in accordance with required standards) if any identified characteristics or conditions constitute flaws.
<b>O.D.</b>	Outside Diameter.
<b>O.E.M.</b>	'Original Equipment Manufacturer'. A company which first designed and built parts or equipment.
<b>One Piece Construction</b>	Refers to integral flanged or other equipment made from a single piece of steel. Must not be welded or fabricated or assembled.
<b>Outlet Connection</b>	A connection on a Run. Used to inlet or outlet the flow fluid or gas into a Choke or Manifold.
<b>Overlay</b>	A form of metal weld deposit covering a base metal surface. Typically a Corrosion Resistant Alloy (CRA) prevent corrosion caused by well fluids (for example containing H <sub>2</sub> S).
<b>Pack-Off Adaptor</b>	Used in a wellhead below the Tubing Head (Tubing Spool) to adapt between flange sizes or pressure ratings and provide a seal around a secondary casing string.
<b>Pitch Diameter</b>	(PCD) the theoretical diameter of the mid point (circular center line) of a ring groove or flange bolt holes. Determined by measuring from the inside of the ring groove or bolt hole on one side to the outside of the ring groove or flange bolt holes, if the outlet is at the end of a run then it is called an 'end connection' exact opposite side.
<b>Post Weld Heat Treatment</b>	(PWHT) Heat treating process used after welding. It involves heating the weld deposit and base metal area affected to a nominated temperature long enough to reduce residual stress. This process, may also serve to satisfy NACE MR-0175 requirements for equipment used in H <sub>2</sub> S Service.
<b>Pressure, Working</b>	'Maximum Service Pressure' the maximum pressure that specific units of equipment such as spools, valves, wellhead etc. should experience in use. API 6A specifies that the Maximum Service Pressure be marked on all equipment (the pressure rating limited by the lowest pressure connector on the equipment).
<b>Pressure Test</b>	The process of applying fluid or gas pressure to the inside of equipment bodies, or upstream of equipment or even piping system closure mechanisms, to prove equipment pressure containment (to prescribed test standard shut off requirements) integrity. Also see 'Hydrostatic-Test'.

## **Procedure Qualification Record**

(PQR) A document detailing the testing program undergone to validate the Welding Procedure Specification (WPS). The PQR contains records of the performance of all factors called out in the 'WPS' including the test results of all, volumetric, mechanical, and surface tests made test welds performed to prove that production welds carried out in conformance with the 'WPS' meet the specified requirements. Example specification:- ASME SEC. IX QW-200.2.

**PSI** 'Pounds per Square Inch' to indicating pressure or load.

**PSL** 'Product Specification Level.' As specified in API Spec 6A. A tiered progression of testing and inspection requirements for materials and equipment prescribing different levels of service.

**PSL-1** 'Product Specification Level 1'. The minimum level of testing and inspection required for material and equipment as described in API Spec 6A.

**PSL-2** 'Product Specification Level 2'. A level of testing and inspection for material and equipment alternate to (higher and more stringent) and in addition to PSL 1 requirements as described in API Spec 6A.

**PSL-3** 'Product Specification Level 3'. A level of testing and inspection for material and equipment alternate (higher and more stringent) to and in addition to PSL 1 and 2 requirements as described in API Spec 6A.

**PSL-3G** 'Product Specification Level 3G.' A level of testing and inspection for material and equipment described in API Spec 6A as PSL 3, with the additional requirement of gas testing.

**PSL-4** 'Product Specification Level 4.' Includes the API 6A as well as requirements for PSL 3G, additional restrictions on material qualification and heat treating, as well as the prohibition of welding (except for overlay/inlay of corrosion resistant material).

## **Qualified Welder**

Also referred to as 'Certified Welder'. A person performing welding in accordance with a given Welding Procedure Specification. A sample weld has passed all required examinations required for acceptance. Welder qualification requires that the welder perform welding, using the procedure methods and equipment within specified time periods, and maintains required records of this performance. Example specification:- ASME SEC. IX ART. III QW-304 and QW-305.

## **Qualified Welding**

A defined Welding Procedure Specification, referencing the 'Procedure Qualification Record' which proves that the procedure results in the desired properties in the weld metal, heat area zone and base metal after any post weld heat treatment is performed.

<b>R</b>	The prefix designation, followed by a number, (i.e. R-27) designating a standard hexagonal or oval Ring Gasket (used for RTJ Flanges) 'R' gaskets are available in CAD plated soft iron as well as stainless steel and other grade of steel.
<b>Raised Face</b>	(RF) that section of the face of a flange (near the I.D.) raised above the face of the flange providing sealing surface for a flat (CNAF or spiral wound) gasket or a ring groove (RTJ) to provide a seal with a Ring Gasket. (API Spec. 6A flanges only use ring gaskets). Only 6BX Open Face Flanges (API 10 10,000 and 15,000 psi) must have a raised face, generally 1/16" or (1/8" minimum height), API Spec. 6A permits the omission of raised faces on all other flange connectors. ANSI (ASME) Flanges do specify a raised face in class 150 to 2500.
<b>RFWN</b>	See: 'WNRF'.
<b>Reducing Coupling</b>	See Coupling.
<b>Ring Gasket</b>	A circular metal ring gasket, with a number designation, designed to fit into grooves machined into the face of flanges and/or other connectors or other equipment.
<b>Ring Groove</b>	A closely toleranced groove machined into the face of a Connector, designed to accept a Ring Gasket and achieve a 'metal to metal' seal when Made-up. Designation by an R, RX or BX size.
<b>Riser</b>	Pressure control equipment device used to space apart other equipment to a nominated height or position. Also see Spacer Spool.
<b>Rockwell B Hardness</b>	Hardness of metallic materials measured by pressing an indenter against a surface with a specific force. The depth of the indentation is also measured to provide a numerical value for that depth. The Rockwell 'B scale' provides more accuracy than HRC 20.
<b>Rockwell C Hardness</b>	A hardness rating of steel or Alloys, measured by pressing an indenter against a surface with a nominated force. Indentation also measures the depth of the depth of indentation is also measured to provide a numerical value for that depth. The numerical value relates to Tensile Strength. NACE Standard MR-0175 references hardness in determining steel's suitability for use in 'H2S Service'.
<b>RTJ</b>	'Ring Type Joint'. Also see RTJ Flanges.
<b>RTJWN</b>	See 'WN-RTJ'.
<b>Run</b>	The passage through a Body, that will pass fluid and tools.
<b>Rust</b>	Metallic Loss caused by Corrosion (iron oxide).

<b>RX</b>	A prefix for API Spec. 6A self energising ring gasket seal rings. RX ring gaskets will fit all R ring grooves in API-6B flanges and only RX ring gaskets fit 'SR' ring grooves in API Spec. 16A hubs. RX gaskets are supplied in low alloy cad plated carbon steel, stainless steel and all open grades of steel.
<b>SBX</b>	A Ring Gasket the same as BX gasket but drilled with a vent hole for subsea use.
<b>Schedule</b>	An ASME (ANSI) standard term used to indicate the wall thickness of standard pipe sizes. Example:- 'schedule 40'.
<b>Seal Contact Area</b>	The areas that gaskets seal against in any type connection.
<b>Segmented Flanges</b>	Also called "Dual" or "5 Bolt" flanges. Used to connect valves and tubing head adaptors on Christmas Trees where 2 producing tubing strings hang inside a single cased well bore. A 'dual completion' they have a special eccentric configuration that allows the producing tubing to have a small clearance profile.
<b>Series</b>	See Flange Series.
<b>Service</b>	Used to denote the suitability of equipment for use in a particular environment Example:- High Temperature, service.
<b>Single Studded Adaptor</b>	A flange with a bore and a ring groove on each side, with a drilled 'through bolt' circle the same as an Open Face Flange on it's larger side and a drilled and tapped bolt end studs circle on it's smaller side.
<b>Snubbing</b>	Used to describe the process of installing pipe into a pressurised well bore, using specialised equipment such as 'Blowout Preventers'.
<b>Sour</b>	Natural gas or Crude oil contaminated with sulphur, especially hydrogen sulphide (H <sub>2</sub> S).
<b>Spacer Spool</b>	Pressure control equipment having end connections and an extended body, used to raise or space apart blowout preventers or even wellheads and choke manifolds.
<b>Spool - Blast</b>	(Blast Spool) A term applied to Choke Manifolds, a specially manufactured spool attached directly to the outlet connection of a Drilling Choke to provide protection form the effects of high velocity fluid erosion.
<b>SRX</b>	A RX Ring Gasket drilled with a vent hole for subsea use.
<b>SS Flanges</b>	API Spec 17D specifies these for up to 11" flanges in 5,000 psi working pressure with BX ring grooves, in either full stainless steel or inlayed with Corrosion Resistant Material.

<b>Stainless Steel</b>	An iron based metal alloy with a high chromium content sufficient to reduce or prevent Metal Loss Corrosion. Depending on the grade other elements such as magnesium are also added.
<b>Standard Weight</b>	(STD) - A designation of ASME pipe wall thickness. Equal to schedule 40 up to 250NB (10"). Over this size schedule 40 is heavier.
<b>Stand - off</b>	The distance between Made-up connections faces utilising ring gaskets, measured near the ring groove.
<b>Stress Relief</b>	See 'Post Weld Heat Treatment'.
<b>String</b>	A vertical arrangement of drill pipe, casing or tubing suspended in a well bore.
<b>Stud Bolts</b>	Stud bolts for Open Face Flanges that are fully threaded end to end (with no bolt head).
<b>Subsea</b>	Oilfield wellhead equipment used offshore and below the surface of the water.
<b>Surface</b>	Oilfield wellhead equipment used on land or above the waterline in offshore applications.
<b>Swage Nipple</b>	See Nipple Swage.
<b>Sweet</b>	Crude oil or natural gas without appreciable amounts of sulphur i.e. 'Standard Service'.
<b>Swivel Union</b>	Also known as a 'Chicksan', Swivel unions are a rotatable union used for drilling loops. They are available in various configurations. (These swivels are not designed for continuous rotating service).
<b>Tapped End Studs</b>	Stud bolts threaded on each end, with an unthreaded portion on the body center diameter (or can be all threaded). The thread length dimension on one end controls the depth of engagement of that end into a tapped hole.
<b>Tee</b>	A Fitting with three connections in the same plane with two of these connections forming an in-line Run. A Tee may have a fourth outlet not in the same plane as the run. (If there is a fourth outlet on the same plane it is called a cross not a tee). <i>(Australian Pipeline Valve manufacture tees and crosses for xmas trees and manifolds in short delivery).</i>
<b>Teflon</b>	Fluoropolymer (PTFE).
<b>Tensile Strength</b>	The breaking strength of a Specimen when subjected to a stretching force sufficient to break it (usually expressed in ksi).
<b>Tension</b>	The amount of stretching force placed into a bolt by the tightening of the nut (usually measured in pounds per square inch).

<b>Test Flange</b>	A blind flange, usually with a lead filled cavity used to cushion and minimise the wear caused by erosion from high velocity and abrasive fluids.
<b>Top Connector</b>	The Top Connector of a Christmas Tree also referred to as a 'tree cap' that allows full bore access to the bore of the valves. Usually a flange bottom and union top (ACME thread) with a cap. The cap normally is LP tapped to facilitate a needle valve & test gauge. Referred to as a Bottom Hole Test Adaptor.
<b>TPI</b>	Threads per Inch.
<b>Transition Piece</b>	(Also see Reducer Adaptor) can identify any interface fitting. In the past, API Spec 6A specified weld end reducers that adapt weld necks of 6BX flanges to standard pipe sizes and schedules. API no longer specifies transition pieces in API Spec 6A.
<b>Tree Cap</b>	See Top Connector ( <i>Australian Pipeline Valve manufacture Tree Caps, in CIW®, FMC® (OCT) style in short delivery</i> ).
<b>Tree Top</b>	See Top Connector.
<b>Trim</b>	A general term used to describe the metallurgy and other material considerations used when specifying pressure control equipment for use in particular corrosive environments. E.g. "H2S Trim."
<b>Triple Extra Strong</b>	See XXXS Also, See XXXH, (XXXS) also referred to as triple extra heavy (XXXH) a super heavy wall pipe schedule 3 times thicker than XS pipe. Generally custom ordered and manufactured.
<b>Tubing</b>	Pipe suspended in a well bore, inside the annulus of the casing, used to produce fluid or gas from the well. Used as the production string.
<b>Tubing Head</b>	(Tubing Spool) Equipment attached above the Casing Spool and, used to suspend and seal the production Tubing string. ( <i>Australian Pipeline Valve manufacture spools in FMC® (OCT) and CIW® style in short delivery</i> ).
<b>Tubing Head Adaptor</b>	'Adaptor Flange' Attached above the Tubing Head, used to attach the Christmas Tree onto the tubing head. ( <i>Australian Pipeline Valve manufacture Adaptor Flanges in short delivery</i> ).
<b>UN</b>	National Coarse threads, in form and pitch, but outside the Unified System (UNC), up to e.g. 1" x 8 TPI threads fall within the UNC System, 1-1/8" x 8 TPI threads and all larger bolts threaded 8 TPI fall outside the Unified System, and are classified under 8UN.
<b>UNC</b>	Unified National Coarse. The most common standardised inch bolt thread for heavy duty fasteners used for rapid assembly.

<b>Valve</b>	A unit of pressure controlling equipment with a bore between End Connections containing a flow isolation or control mechanism to stop and seal or control flow through the bore. <i>Australian Pipeline Valve manufacture a full range of API6A valves in short delivery. Australian Pipeline Valve manufacture hydraulic and pneumatic actuated slab and expanding API6A gate valves up to 10,000 psi in double acting and spring return (SSDV) in fail open and fail closed available with manual overrides, hi-lo pilots etc in WKM® and CIW® style.</i>
<b>Velocity, Fluid</b>	The speed, that fluid passes through the inside of a pipe, tube or valve.
<b>Volumetric Examination</b>	A non-destructive method of examining the volume of material for the purpose of detecting any internal discontinuities that may require evaluation and Acceptance according to certain Criteria.
<b>Wear Bushing</b>	A removable sacrificial and protective insert used inside a Casing Spool or Head during drilling to prevent damage to casing suspension and sealing surfaces.
<b>Weld Neck</b>	An extended prolongation on a flange or fitting with a 'butt weld' bevel connection to match with mating pipe with a similar bevel.
<b>Welding Procedure</b>	A (WPS) document outlining necessary parameters and Specification specifications for field welds meeting specified requirements. Refer to Procedure Qualification Record (PQR). Reference ASME SEC. IX ART. II
<b>Wellhead</b>	Refers to the total set of equipment attached above the Casing from the 'Braden Head' ('Section A') to the Christmas Tree used to control a well. <i>Australian Pipeline Valve (APV) manufacture expanding and slab Christmas tree API6A gate valves up to 10,000 psi in WKM® style as well as CIW® F, FC &amp; FL style. APV also manufacture mud gate valves with all parts interchangeable with popular Demco® 'DM' style.</i>
<b>Wetted</b>	Any part of a valve or pressure control equipment that has contact with well fluid.
<b>Wing Unions</b>	See Hammer Unions.
<b>WN</b>	'Weld Neck' the bevelled neck of a Flange prepared for welding to pipe. (Refer to WNRF and UNRTJ below)
<b>WNRF</b>	(RFWN) when applied to flanges, this means: Weld Neck Raised Face.
<b>WNRTJ</b>	(RTJWN) when applied to flanges, this means: Weld Neck Ring Type Joint.
<b>Working Pressure</b>	See Maximum Service Pressure.



<b>Workover</b>	A small 'workover rig' is used to re-enter an existing well to perform a remedial action that will restore or improve production of oil and/or gas.
<b>XH</b>	Extra Heavy. See Extra Strong (XS).
<b>XXH</b>	Double Extra Heavy - See Double Extra Strong (XXS).
<b>XXXH</b>	Triple Extra Heavy. See Triple Extra Strong (XXXS).
<b>XS</b>	Extra Strong, a designation of pipe wall thickness. The same as schedule 80 up to 200NB (8"), but schedule 80 is heavier over 200NB (8").
<b>XXS</b>	Double Extra Strong, a designation of pipe wall thickness.
<b>XXXS</b>	Triple Extra Strong, a designation of pipe wall thickness.
<b>Xylan</b>	Fluoropolymer Coating, typically used on stud bolts – off shore specification.
<b>22 RC</b>	22 RC, 99 RB, 237 HBW and 248 HV represent the most important upper hardness limit for non-austenitic steel for H2S service applications specified in NACE MR-O175 referenced in API Spec 6A.
<b>2H, 2HM</b>	ASTM specification for Hex nuts, material standard A194, used with API flange studs. '2H' nuts are used for standard service. When specifications (NACE) require B7M studs, use '2HM' nuts.
<b>3M</b>	3,000 psi (pounds per square inch) Maximum Service Pressure.
<b>5M</b>	Indicates a maximum service pressure of 5,000 pounds per square inch (psi).
<b>6B</b>	API6B A term relating to API Spec 6A flanges which have R or RX ring grooves. API originally specified these flanges in API STD 6B, R or RX appears in the prefix of the numbered ring gaskets, which fit 6B flanges.
<b>6BX</b>	(API6BX also called BX). API Spec 6A flanges, which have 'BX', ring grooves.
<b>60K</b>	API Spec 6A abbreviation for 60,000 psi, minimum yield strength for Material, such as flanges, casing pipe, spools etc.
<b>10M</b>	10,000 psi (pounds per square inch) Maximum Service Pressure.
<b>15M</b>	Indicates a maximum service pressure of 15,000 pounds per square inch (psi).
<b>20M</b>	20,000 psi (pounds per square inch) Maximum Service Pressure.
<b>30M</b>	30,000 psi (pounds per square inch) Maximum Service Pressure.

- 35K** 35,000 psi, minimum Yield Strength relates to carbon steel line pipe, not API6A material.
- 36K** 36,000 psi, minimum Yield Strength for Material.
- 45K** API Spec 6A abbreviation for 45,000 psi minimum yield strength material. Typically used for welding flanges and fittings utilised in conjunction with carbon steel line pipe.
- 75K** Denotes:- API Spec 6A 75,000 psi, minimum yield strength for material.
- 4130** A low alloy steel containing molybdenum and chromium for strengthening. The carbon content is nominally 0.30% and with this low carbon content the alloy is excellent for weldability. The alloy can be hardened by heat treatment. Typically used for weld end components.
- 4140** Chromium, manganese, molybdenum low alloy steel providing toughness, good torsional strength good fatigue strength characteristics once heat treated. The carbon content of 0.40% makes this steel less suitable for welding than 4130. Typically used for integral spools, threaded and flanged components not requiring welding.

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*Australian Pipeline Valve are major oilfield suppliers. We manufacture:- expanding and slab gate valves, ball valves, butterfly valves, check valves, needle valves, oilfield plug valves, chokes, tees, crosses, seal adaptor flanges, wellheads etc.*

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