

VAM® Connection Data Sheets Manual

While we try to make our Connection Data Sheets as much self-explanatory as possible, please find in the present document additional information to help you understand the terms used.

A. General comments

a. Disclaimer

Though utmost care has been used when preparing these Connection Data Sheets (CDS), we cannot be held liable for any consequence of a possible mistake or misuse of the information given.

b. Where to find VAM® Connection Data Sheets?

Approved Connection Data Sheets are provided by the following websites. Specific grades can be found on each one.

www.vamservices.com

For API and V&M grades

Sumitomo website

For API and SMI grades

VAM® USA website

For API, North American grades and other proprietary grades

If you can't find the CDS you are looking for, ask Mr Help at

mr.help@vamservices.com.

Additional information can be found on the VAM® Services website or the VAM® Running Book.

c. Drift

The drift is the guaranteed internal diameter of both pipe and connection.

API Drift refers to the drift calculation formula included in the API 5CT standard.

Alt. Drift refers to the alternate drifts listed in the API 5CT standard.

Special Drift refers to any other drift commonly used by the industry.

When an alternate drift exists on a given size, it replaces the API Drift.

B. Pipe properties

a. General

In some specific cases, the grade of the coupling is not the same as the grade of the pipe. Performances indicated in CDS represent the overall resulting performance of the product, taking into account the pipe, grades, connection and options.

b. Min. Ultimate Tensile Strength

The Minimum Ultimate Tensile Strength represents the minimum value of rupture obtained during tensile tests.

c. Compression Yield Strength (CRA)

In some cases, especially for Corrosion Resistant Alloys, the Compression Yield Strength is lower than the Tensile Yield Strength. This is indicated in the CDS and considered for the overall compression loading performances.

d. Minimum Wall Thickness

The minimum API 5CT tolerance for wall thickness is 87.5% of the nominal wall thickness.

In some cases, an option exists to specify a reduced tolerance with a minimum of 90% of the nominal wall thickness.

This allows considering a higher Internal Pressure loading of the pipe or an increased safety margin in case of internal wear during usage.

e. Oversize tolerance

In some cases, the Outside Diameter tolerance of the pipe will need to go beyond the API 5CT tolerances.

In such case, the value indicated on the CDS is compared to the nominal pipe OD (ex: +1.5% over pipe nominal OD).

Running tools should be selected considering this potential oversize.

C. Connection properties

a. Connection type

Premium stands for a connection with a metal-to-metal seal and gas type sealability

Semi-Premium stands for a connection without a metal-to-metal seal and water type sealability

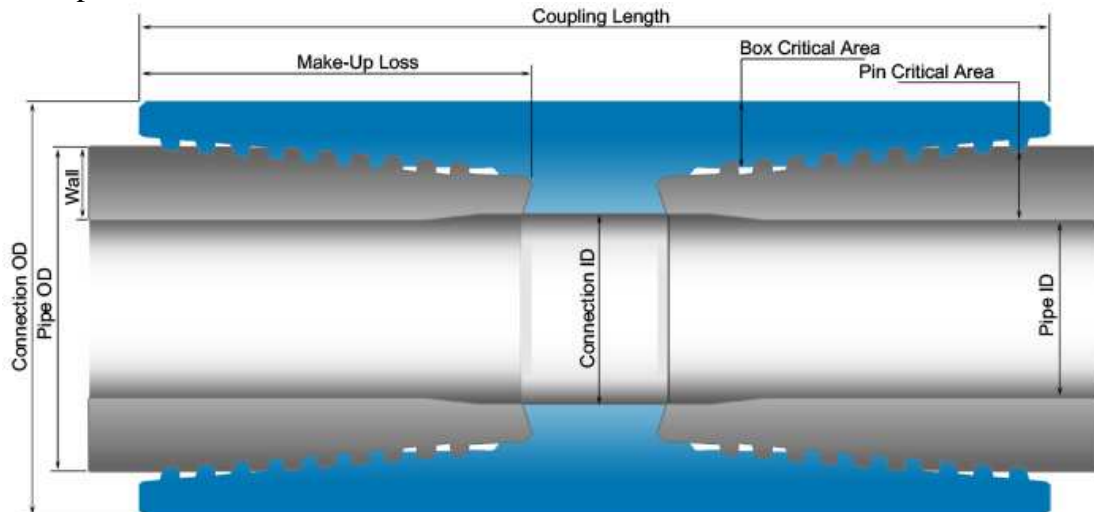
Integral stands for a connection whose box end is directly threaded on the pipe

T&C stands for Threaded and Coupled, a connection which uses a coupling made-up to the pipe to act as a box end

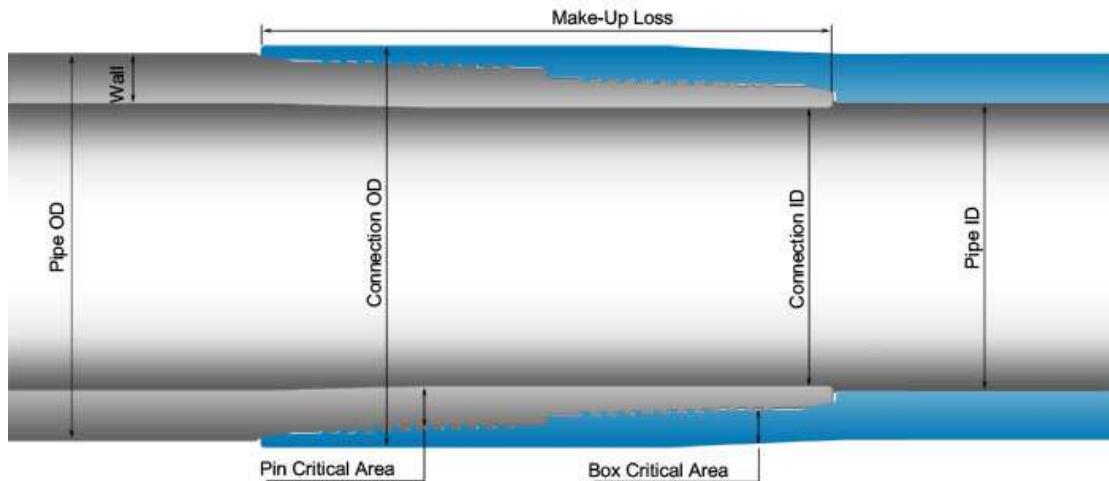
Flush stands for a connection whose Outside Diameter is the same as the pipe body

Semi-Flush stands for a connection whose Outside Diameter is close to the pipe body

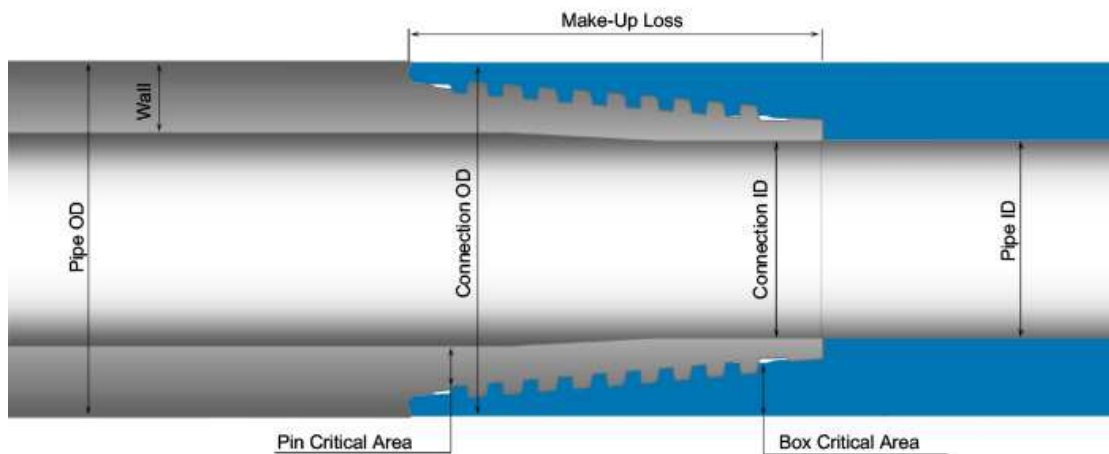
Example of a T&C connection:



Example of a Semi-Flush Connection:



Example of a Flush Connection:



b. Swaging

The pictures present on the left of the Connection Data Sheets are generic. In some cases they will not reflect the actual swaging state of the specified product.

An accurate way to check if a specific product is swaged is to compare the Connection nominal ID value with the pipe Nominal ID value.

c. OD and ID tolerances

The connection OD and connection ID values are nominal values.

d. Definitions

SAF stands for Stress Amplification Factor and is a unit to describe the fatigue performance of a connection.

Make-up Loss is the length that will be “swallowed” during the make-up.

Critical Cross Section is for the minimum section of the connection. It mainly drives the axial loads and should be equal or superior to the Pipe Nominal Cross Section Area to achieve 100% tensile efficiency.

e. Connection efficiencies

The connection efficiencies (Tension, Compression, Internal Pressure, External Pressure) are calculated based on the type of connection and the eventual Special Clearance option. They are expressed compared to the pipe loadings.

f. List of options

Special Clearance is a connection with a reduced Outside Diameter. As a consequence its axial loading performances are reduced, as well as the Max. Load on Coupling Face.

Special Bevel is a connection with a bigger chamfer machined on the coupling face. As a consequence, the maximum load on coupling face is reduced.

D. Joint Loading Performances

a. How loadings are calculated

Tensile Yield Strength:

Pipe Min. Yield Strength * Pipe Nominal Cross Section Area * Connection Tension Efficiency

Compression resistance:

Pipe Compression Yield Strength (CRA) if any, or Pipe Min. Yield Strength * Pipe Nominal Cross Section Area * Connection Compression Efficiency

Internal Yield Pressure:

Pipe Internal Yield Pressure (API 5CT MIYP or specific value) * Connection Internal Pressure Efficiency

External Pressure Resistance:

Pipe collapse value provided by the pipe manufacturer * Connection External Pressure Efficiency

b. Bending

The bending performance indicated is of course limited to the performance envelope of the pipe and the connection.

c. Max. Load on Coupling Face

This value represents the maximum load that the connection coupling face can support. In case of Special Clearance and Special Bevel option, this value is reduced.

The data provided in this CDS are “Engineering values” calculated based on the pipe and connection dimensions and design and the minimum nominal material properties (Yield Strength). No safety factors are considered in these values. It is the responsibility of the operators and the users of the Products to define the relevant safety factors to operate in safe conditions considering the operations conditions and equipments used.

The **Maximum Load on Coupling Face** values calculated are “Engineering values” calculated based on the pipe and connection dimensions and design and the minimum nominal material properties (Yield Strength).

It is the responsibility of the operators and the users of the Products to define the relevant safety factors to operate in safe conditions considering the elevator used. The state of the interface between the elevator can impact the **Load capacity of the interface elevator / coupling face**.

E. Torque Values

Max. Torque with Sealability is the maximum torque a connection can be made-up to and retain its sealability performances. This value is not available on all connections.

Mill & Licencee Liner Torque Min. and Max. values describe the torque tolerance to make-up the connection on the Mill end and for sub-assemblies.

Field Liner Torque is the maximum torque a connection can be made-up at in the field, and the maximum torque the string can be rotated at.

F. Units

In imperial units, the ksi is used. It stands for Kilopound force per Square Inch and is equal to 1000 psi.