



Exploration & Production

GENERAL SPECIFICATION

PIPING VALVES VESSELS

GS PVV 172

Hot tapping

01	10/03	Change of Group name and logo
00	02/01	First issue
Rev.	Date	Notes



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1. Scope

This general specification conveys the COMPANY practices and minimum requirements for a hot tap connection onto a pipe or vessel.

A hot tap connection is made by welding and drilling on equipment in operation.

Safety aspect must be considered.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
API Procedure Publication 2201	Procedure for welding or Hot Tapping on equipment containing flammables

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
ASME B 16-34	Valves - Flanged and Buttwelding End

Other documents

Reference	Title
Not applicable	



Total General Specifications

Reference	Title
GS PVV 611	Welding of Pressure containing piping and equipment

3. Design

Nozzle design shall be in accordance with IIS/IIW Publication 164-64 (Appendix 1 attached).

The following data shall be made available:

- Process data (operating and design pressures and temperatures, nature of the fluid, etc.)
- Location of the hot tap
- Actual thickness of the pipe at the location of the hot tape
- Material designation and characteristics
- Mechanical data (nominal thickness, diameter, corrosion allowance, etc.).

4. Limitation

Hot tapping shall not be done if one of the following conditions is met:

- Wall thickness below 6 mm
- Post weld heat treatment performed at the construction stage
- Pipe or equipment internally coated, cladded or lined
- Pipe or equipment containing gas with more than 35% of oxygen
- Pipe or equipment under vacuum.

Additionally, hot tapping shall not be performed on the following:

- Floating roof tanks
- Radius of head or bend
- Upstream of rotating machine unless such equipment is protected by a filter.

5. Work preparation

In advance of any hot tap connection, the following written documents shall be prepared:

- Hot tape procedure
- Connection design drawing and detail sketches
- Detailed welding procedure supported by qualification tests
- Safety instruction note.

6. Hot tap machines

Only commercial machines made by a well know COMPANY shall be used.



The maximum working pressure and temperature rating of the machine shall never be exceeded.

Before each operation, the machine cutter shall be carefully inspected; in case of any doubt a full size test shall be carried out to demonstrate the machine capability to perform the job.

7. Hot tap operation

Before installation, the valve shall be pressure tests to check its tightness in the shut-off position. This test must be done in accordance with [ASME B 16-34](#) ("Valve Closure Test").

The location to be hot tapped shall be marked and properly examined by ultrasonic examination for wall thickness measurement and in order to check the absence of imperfections.

Note: Ultrasonic examination of austenitic material may be difficult to carry out.

Hot tapping shall be made only in lamination-free areas with adequate metal thicknesses.

Only low hydrogen welding processes shall be used for welding. Weld shall be inspected by Non Destructive Examination (Magnetic particle examination for ferritic materials and dye penetrant for austenitic materials).

After welding is completed, and before drilling, the welded branch together with the valve and the drilling machine shall be pressure tested using diesel oil. Test pressure shall be equal to 1.5 times the design pressure.

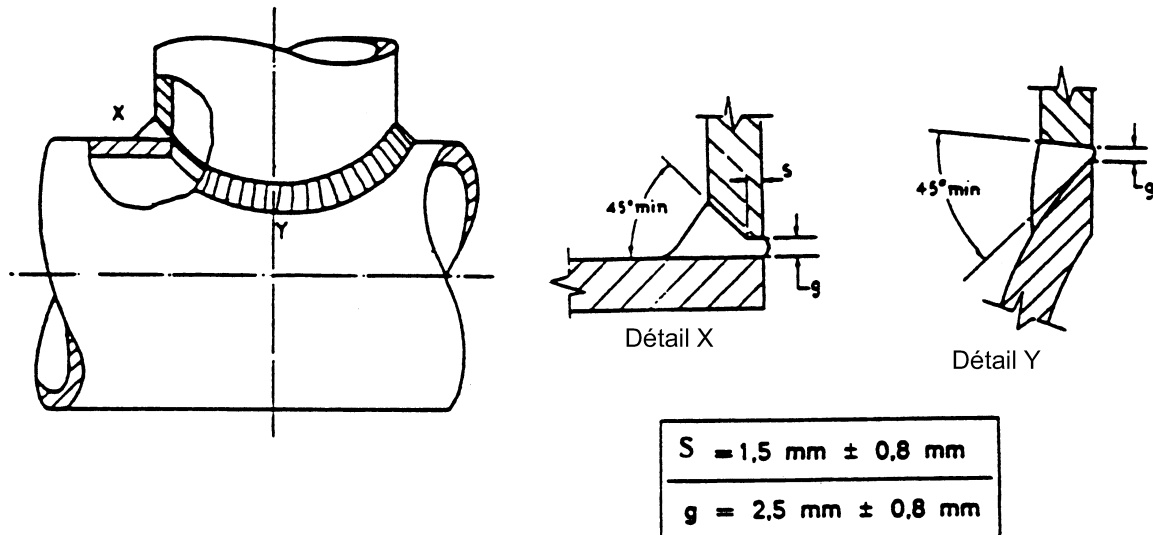
8. Documentation

After completion, all documents required by this specification shall be submitted to the COMPANY.

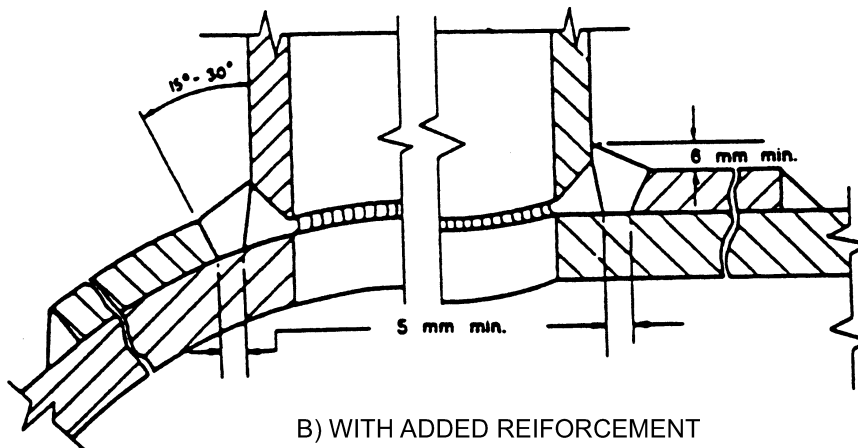
This documents shall include the following, in addition to those required in paragraph 5 "Work Preparation":

- Pressure tests results
- Thickness measurement
- NDE examination reports.

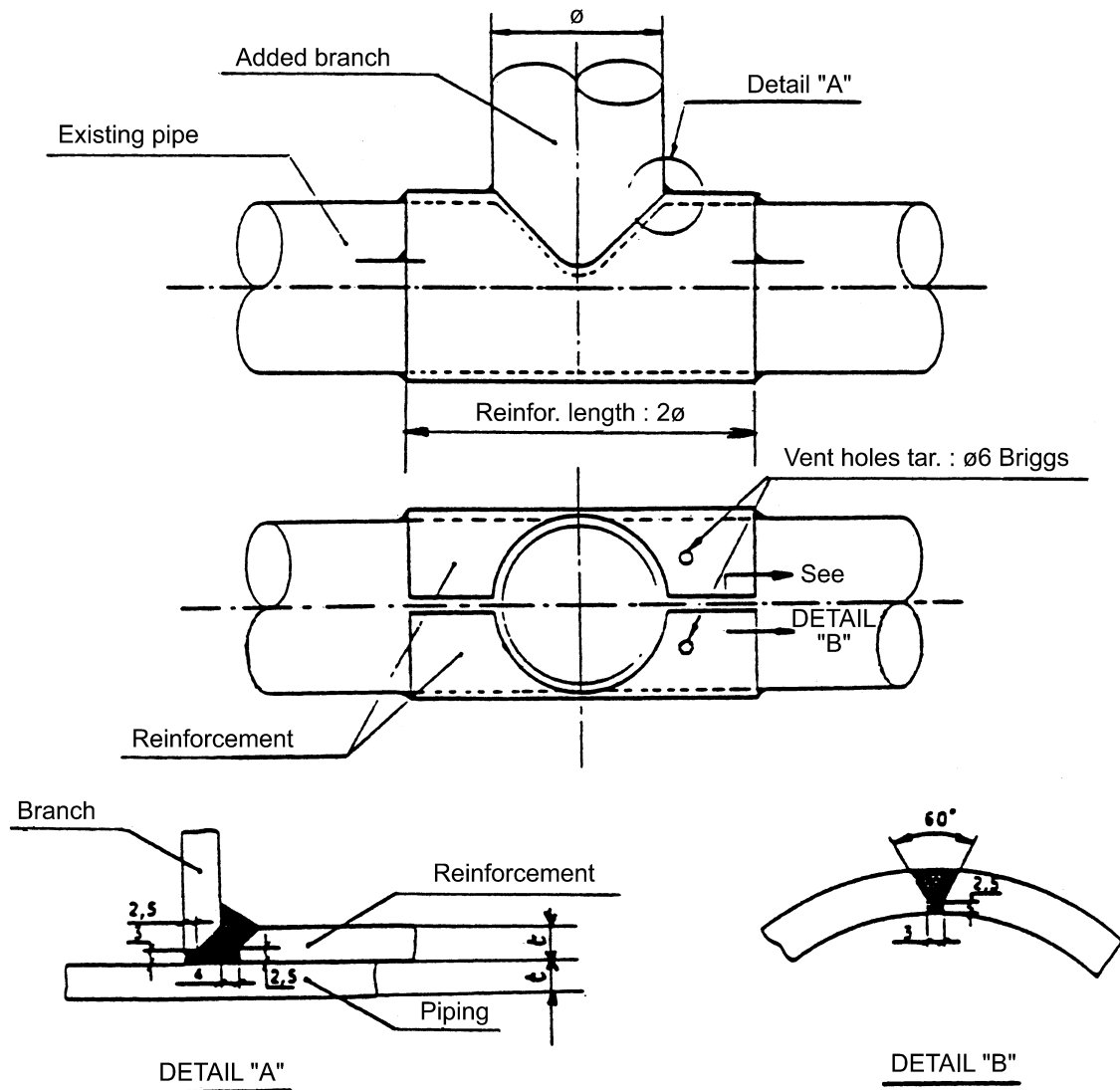
Appendix 1 Branch attachment welds



A) WITHOUT ADDED REINFORCEMENT



B) WITH ADDED REINFORCEMENT



C) BRANCH CONNECTION FOR BRANCH SIZE EQUAL TO RUN PIPE