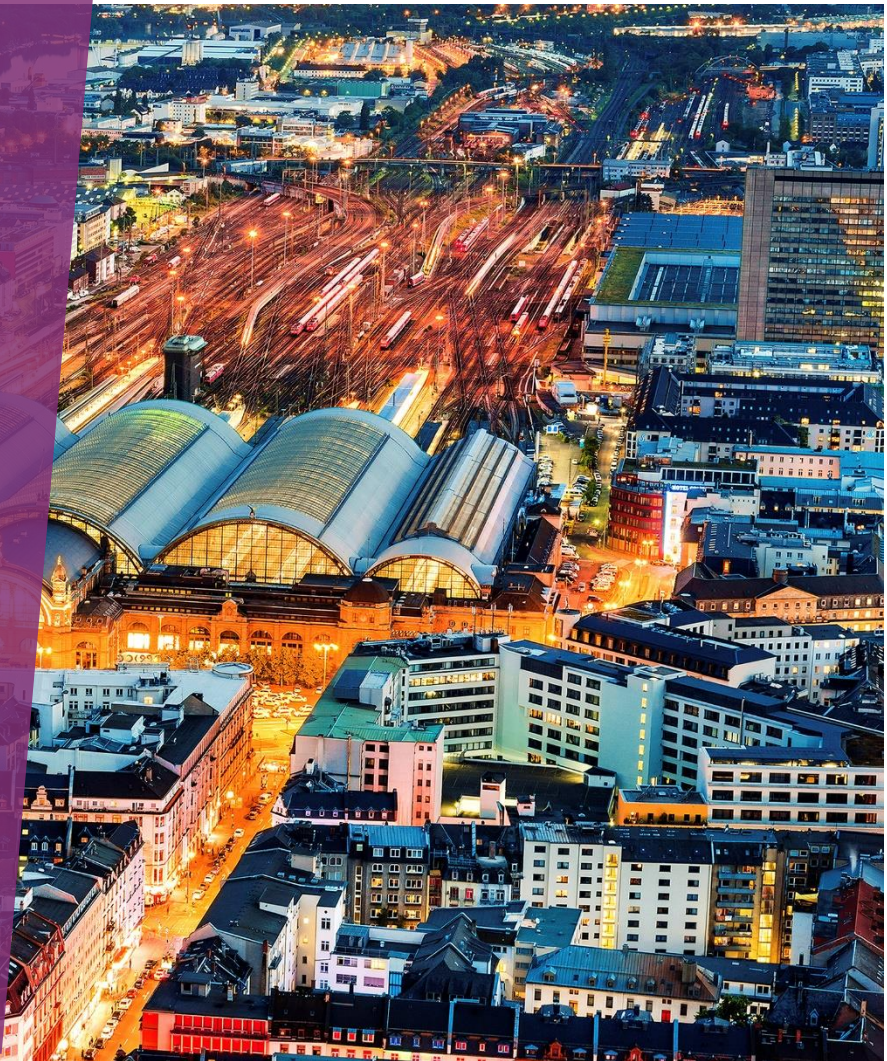




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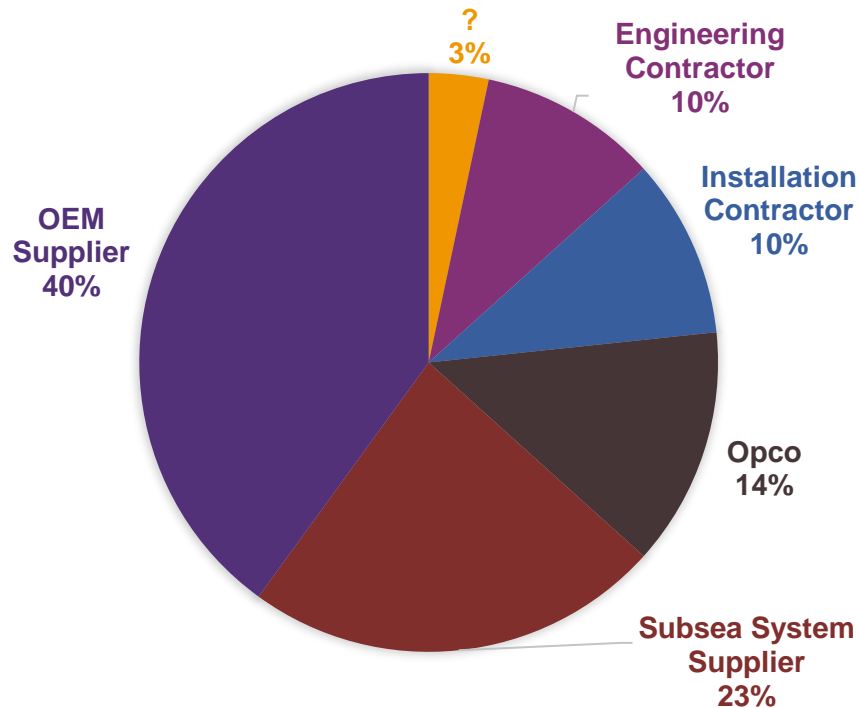
Supplier Feedback - Questionnaire Results

EX66 – Subsea manifold
valves
October 2021



Thankyou!

Thanks to all the suppliers that have taken part in the feedback questionnaire for the development of Subsea Manifold valve specification. Your input will help shape the content and format of the document.



All responses confidential however the EX66 team wanted to share some of the more quantitative results.

EX66 Core team developed a supplier questionnaire with the aim to address the varying responses and concerns raised by some subsea system suppliers.

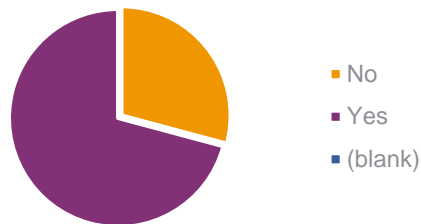
Questionnaire sent to system suppliers and OEM's specifically but wider responses received as the possibility to contribute was made public for full transparency.

Some Opco responses received but omitted as their official input is provided through the EX66 workgroup.

EX66 core team feedback shown in blue text

Would your company be supportive of combined industry subsea valve and/or actuator specifications to help drive industry standardization and cost reduction?

Subsea pipeline valves and manifold valves

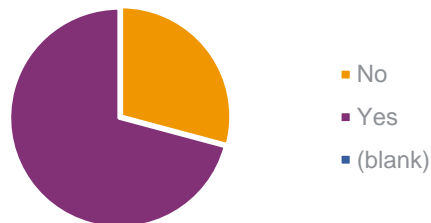


Impacts S-708 and current subsea manifold valve specification development

72% in favour of combining valve specifications

Main suppliers opposing a joint valve specification are those that manufacturer actuators only or don't have ball or gate valves as their main product line.

Subsea pipeline actuators and manifold actuators



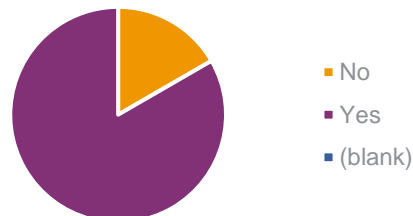
Supports 2021 decision to combine actuator specifications for S-731

72% in favour of combining valve specifications

100% of actuator only suppliers support this

Recognises that API 6DSSX is a new specification and that API 17D had previously driven the market for subsea actuators

Subsea pipeline and manifold valves and actuators

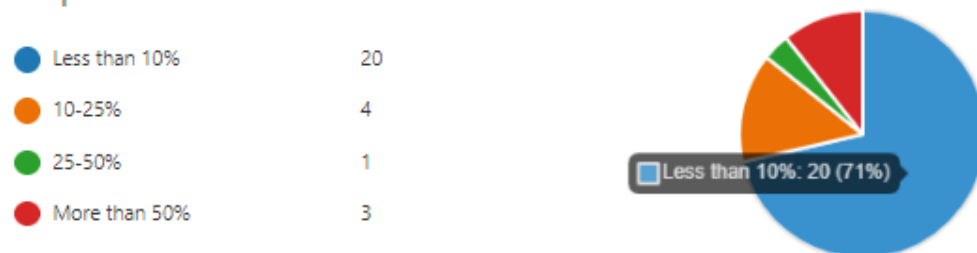


Potential for future development

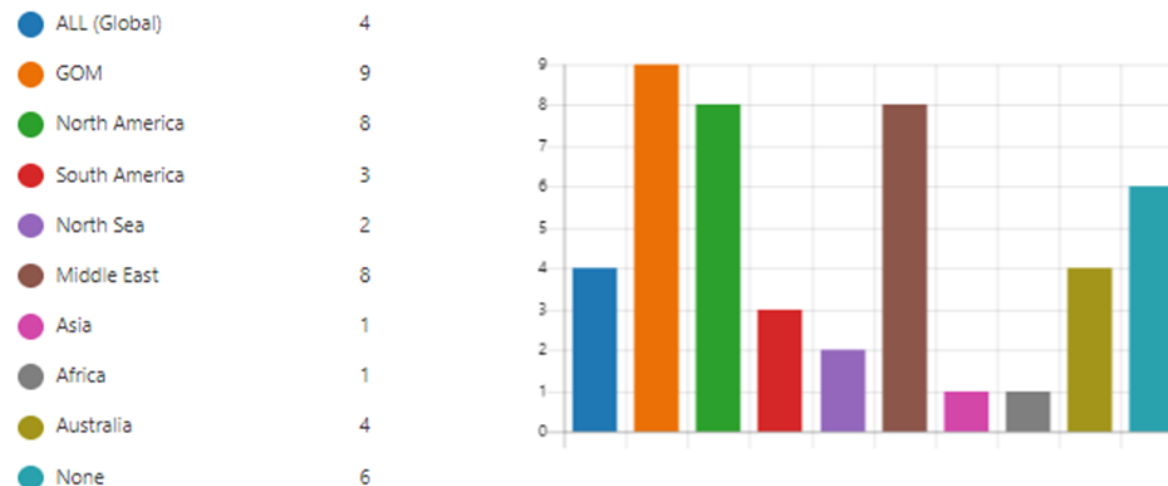
80% in favour of combining all specifications

Recognises that subsea valves and actuators are commonly supplied as the a single unit and that the fundamental technology is the same irrespective of industry code

What percentage orders for subsea manifold and pipeline valves have API monogram requirement?

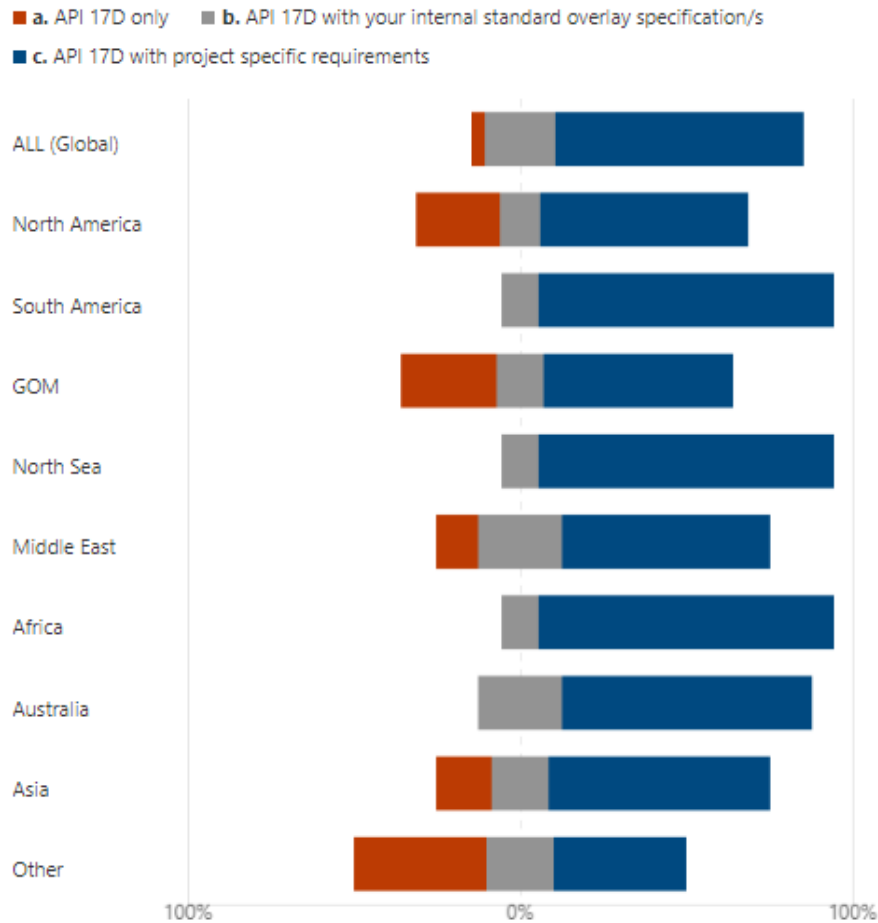


In which regions have you come across the requirement for API monogram?



For information only - There are no plans to remove any current API requirements so monogramming will not be effected

What specification does your company use to specify manifold valves to API 5, 10, 15ksi and/or intermediate pressure ratings in each applicable region. Select all that apply.



The 5% of suppliers that can provide API 17D only globally have products limited to small bore designs.

GOM / North America main user of API 17D only equipment

Positive to see that around 15% of suppliers have developed their own standard overlay specifications to procure equipment

Around 80% of suppliers however still use project specific requirements. This highlights the need to combine Opco requirements through the JIP33 effort.

If a different specification is used (ref. question 7), please specify.

DNVGL-ST-F101

API 20E/F

DNVGL -RP-0034

API 17P

API 6A

API 6DSS

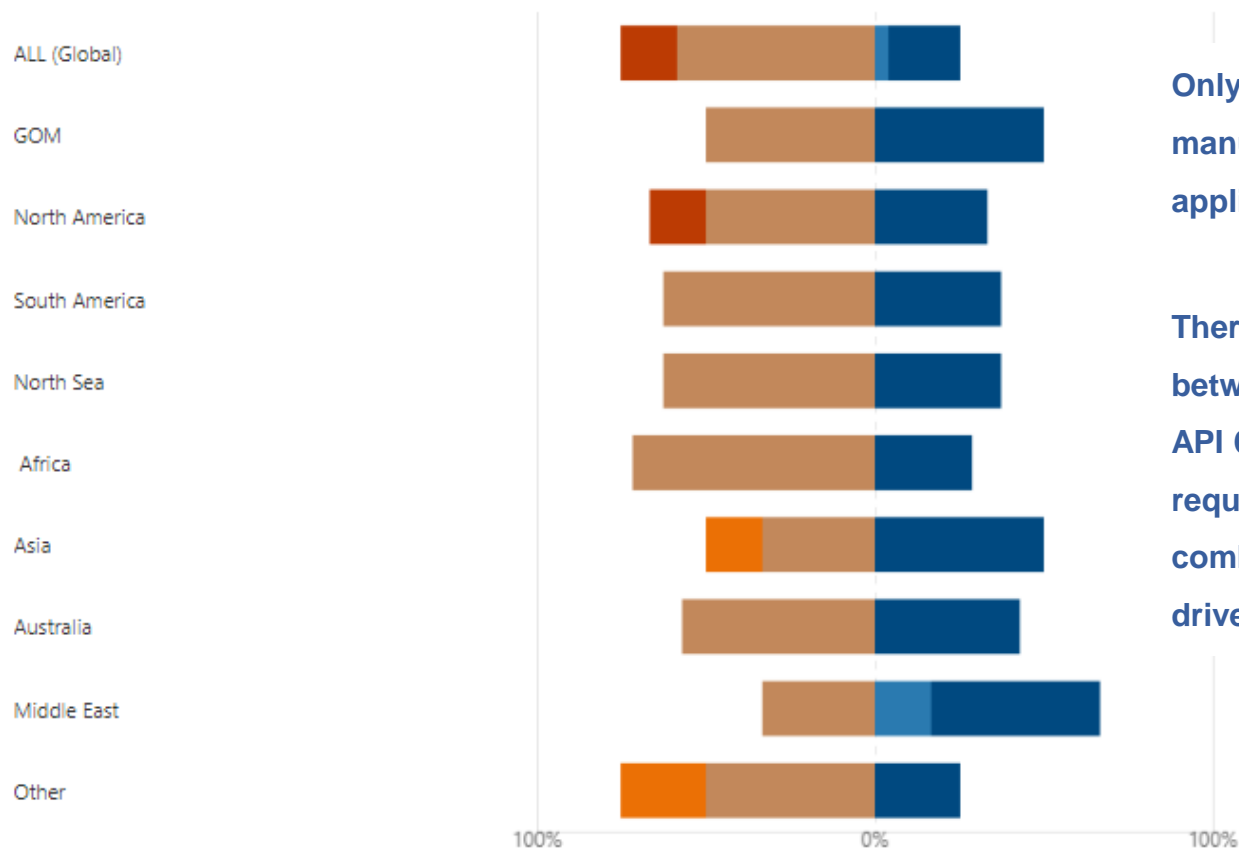
ISO 10423

ASME B31.8

ISO 10723

Does your company manufacture / use ball valves for manifold applications rated API 5, 10, 15 ksi or intermediate pressure ratings ? Select all that are applicable.

- a. No ■ b. Yes, per API 17D with your internal standard overlay specifications
- c. Yes, per API 17D with project specific requirements ■ d. Yes, per API 6DSS (except pressure rating/ testing)
- e. Yes, per API 6DSS (except pressure rating/ testing) with your internal standard overlay specifications
- f. Yes, per API 6DSS (except pressure rating/ testing) with project specific requirements



Only 15% of suppliers do not use/ manufacture ball valves for manifold applications globally

There is roughly an equal split between suppliers using API 17D and API 6DSS project specific requirements – this supports combining the two standards to help drive standardisation

If a different specification is used (ref. question 9), please specify.

DNVGL-ST-F101

API 20E/F

DNVGL -RP-0034

API 17P

API 6A

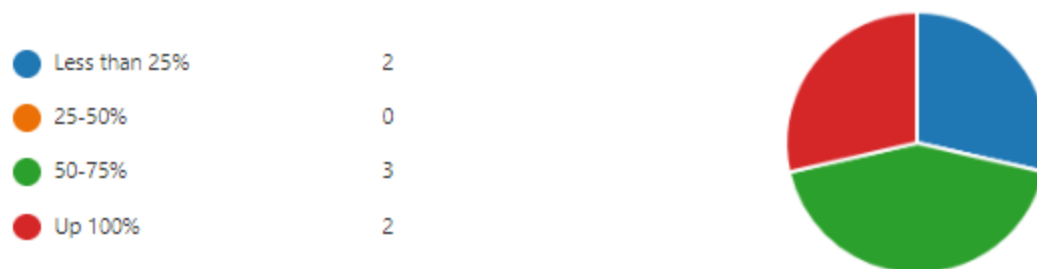
API 6DSS

ISO 10423

ASME B31.8

ISO 10723

If answered 'b.' to question 7 and 9, what approximate percentage of OpCo specific requirements are currently covered in your standard company subsea specifications.



Of the ~15% of suppliers that have their own internal specifications only 27% include all Opco requirements – this supports the need for a joint standard industry specification.

Has your company developed any intermediate pressure ratings that are considered by your company to be standard outwith API 17D / API 6DSS? If so please specify.

7500psi - Majority of suppliers have this in their product range

12500psi - Some instances

Team to evaluate with possible inclusion into subsea manifold valve specification

With reference to the design criteria as defined in API 6DSS Clause 5.20.1 what equivalent value is defined in your standard company subsea specifications for manifold valves?

Aim of question was to select a requirement from API 6DSS that did not have an equivalent value in API 17D.

5.20.1 Design Thrust or Torque

The design thrust or torque for all drive train calculations shall be at least two times the calculated breakaway thrust or torque.

Reponses varied from 1.25 to 2.5 with varying methods of determining design thrust or torque.

Do you follow same the material requirements for pipeline and manifold valves?

The majority of suppliers do have some degree of standardised common requirements. We believe that common material requirements will help drive standardisation giving the suppliers the potential to stock some materials.

Summary

There is majority support for creating combined subsea valve specification

Most suppliers have a 7.5ksi standard option, a few with 12.5ksi – potentially include both

Most suppliers use common material requirements

"project specific overlay used" in the majority cases – this supports the need of standard specification to eliminate the need for a “project specific overlay” in the future

Thankyou again for your contributions!



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