
API Specification

11D1

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Packers and Bridge Plugs

National Adoption of ISO 14310:2008—Petroleum
and natural gas industries—Packers and bridge
plugs

Functional Specification

API Monogram® Required Yes No

5 Functional specification

5.1 General

The user/purchaser shall prepare a functional specification for ordering products that conform to this International Standard and specify the following requirements and operating conditions, as applicable, and/or identify the supplier's/manufacturer's specific product. These requirements and operating conditions may be conveyed by means of a dimensional drawing, data sheet or other suitable documentation.

5.2 Type description

The user/purchaser shall specify, as applicable, the following type:

- packer or bridge plug;
- permanent, retrievable or repositionable.

5.3 Well parameters

The user/purchaser shall specify, as applicable, the following well parameters:

- dimensions, material, grade of the casing and tubing;
- end connections above/below the packer or bridge plug;
- well angle from the vertical at the setting position of the packer or bridge plug;
- deviations and restrictions through which the packer or bridge plug is required to pass;
- configuration of tubing (single or multiple strings) and other lines (electrical/hydraulic) that are required to pass through or by-pass the packer;
- relationship of packer or bridge plug with other well devices/tubing/casing by means of a well schematic drawing, if applicable;
- expected minimum and maximum values of production/injection pressures, pressure differentials, temperatures, changes in temperatures and flow rates;
- any other relevant well parameter(s).

5.4 Operational parameters

The user/purchaser shall specify, as applicable, any of the following operational parameters:

- installation method, including conveyance method and setting method;
- setting depth;
- retrieving or repositioning method and number of repositionings, if applicable;
- anticipated loading conditions, including combined loading (pressure, tension/compression) and torque, applied to the packer or bridge plug prior to and during setting, during use and during retrieving;
- expected setting temperature and anticipated temperature cycle during well operations;
- size, type and configuration of devices that will be run through the packer, if applicable;
- any other relevant operational parameters.

5.5 Environmental compatibility

5.5.1 General

If the user/purchaser has access to the corrosion property data of the operating environment based on historical data and/or research, he shall state to the supplier/manufacturer which material(s) has/have the ability to perform as required within the corrosion environment per the requirements of 5.5.3, as applicable. Otherwise, material compatibility shall be specified according to 5.5.2.

5.5.2 Well environment

The user/purchaser shall identify the density, chemical/physical composition, and the condition of the fluid and/or its components, including solid (sand production, scale, etc.), liquid and/or gaseous, to which the packer or bridge plug is exposed during its expected life cycle.

5.5.3 Material designation

5.5.3.1 If the user/purchaser chooses to specify materials, the following designations may be used:

- standard service (3.36);
- NACE service (3.24).

5.5.3.2 Material selection may be made for a group of components using the following designations:

- flow-wetted components (3.13);
- internally wetted components (3.18);
- exposed components (3.11);

— other components.

5.6 Compatibility with related well equipment

The user/purchaser, where applicable, shall specify the interface connection designs and material requirements, free-passage requirements, and external/internal dimensional limitations necessary to ensure that the product will conform to its expected application. The user/purchaser shall identify, as applicable, the following:

- top and bottom tubular connection(s) and the material and dimensions of the connections to the conduit(s);
- internal receptacle profile(s), bore dimensions(s), outside diameter, inside diameter and the respective locations;
- size, type and configuration of other products and conduits used in connection with this product.

5.7 Design validation

The user/purchaser shall specify the required design validation grade. This International Standard provides seven standard design validation grades (V6 to V0), as defined in 6.5.

5.8 Quality control

The user/purchaser shall specify the required quality grade. This International Standard provides three quality grades (Q3, Q2 and Q1) of quality control, as defined in 7.4.