

GB Connections
RECOMMENDED PRACTICE
For
CASING on LOCATION

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APPROVED BY:



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1.0 SCOPE

This document provides GB Connections' Recommended Practice for the care of Finished Casing on Location before running. While this document directly applies to casing provided by GB Connections, GBC authorized threading facilities, and End-Users, the information herein is generally applicable to any finished casing in the field. To summarize, this document addresses:

- Receiving and Visual Inspection of Tubes.
- Rack Storage.
- Removal, cleaning, and storage of thread protectors.
- Drifting.
- ID Clean-out.
- Cleaning exposed threads.
- Visual thread inspection.
- Tallying.
- Application of thread compound.
- Re-installation of thread protectors.

GB Connections has developed this Recommended Practice for Casing on Location to assist End-Users in proper handling, storage, and preservation of finished tubular goods at the well site and/or on offshore drilling rigs. This document should be used in conjunction with applicable industry documents, corporate policies and procedures, accepted industry practices, and applicable practical knowledge.

2.0 APPLICABLE INDUSTRY DOCUMENTS

In addition to practices presented in this document, those stated in the latest API and ISO Specifications and Recommended Practices also apply, including:

- API Spec 5CT – “Specification for Casing and Tubing” (ISO 11960);
- API Spec 5B, “Specification for Threading, Gauging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads”;
- API RP 5B1 – “Recommended Practice for Gauging and Inspection of Casing, Tubing, and Line Pipe Threads”;
- API RP 5A5 – “Recommended Practice for Field Inspection of New Casing, Tubing, and Plain-End Drill Pipe” (ISO 15463);
- API RP 5C1 – “Recommended Practice for Care and Use of Casing and Tubing”.

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3.0 PERSONNEL

All personnel involved in and around handling and storage of tubular goods shall be properly trained and knowledgeable about the risks, equipment, and processes for the appropriate activity. Each Receiving Party shall maintain documentation of training and experience of all personnel involved.

4.0 SAFETY

Safety is the responsibility of the Receiving Party, Third Party Inspection Firm, Storage Facility, or Responsible Well Site Personnel (“Responsible Party”). In addition, the Responsible Party is solely responsible for the implementing and use of Personal Protective Equipment (PPE) appropriate for every task associated with this Recommended Practice including, but not limited to: hardhats (if needed), long sleeves, gloves, safety glasses and shoes, dust masks/respirators, etc. All safety equipment shall be checked daily to ensure it is in good working order and appropriate for the risks associated with the task at hand.

Policies and procedures relating to safety along with personnel safety training records shall be maintained in accordance with API Requirements, existing policies of Receiving Party, and general industry practices.

5.0 RECOMMENDED PRACTICE FOR THE CARE OF FINISHED CASING ON LOCATION

Care of tubulars at the well site or offshore rigs is divided into several logical steps presented below.

5.1. Receiving and Visual Inspection of Tubes.

As pipe is received, each joint should be visually inspected for obvious physical damage to the tube body OD and ends. All OD markings should be legible. Marking information typically includes but is not limited to:

- Size, weight and grade.
- Manufacturer.
- Heat number.
- Inspection markings.
- API/ISO markings (as appropriate).
- Connection identification markings.

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- Color bands including End-Users and API markings.

In addition, the entire OD surface should be inspected for physical damage. Practical judgment should be used when visually inspecting the pipe body, as minor OD scale, lack of mill varnish, etc. does not affect downhole performance of casing.

Any observed damage should be assessed to determine if the joint is suitable for down-hole use. Particular attention should be given to whether OD surface damage will affect the drift diameter and cause tools to hang up in the ID. Additionally, damaged ends and thread protectors should be examined closely to determine if the underlying connections (threads) are also damaged rendering them unusable.

Full body inspection is not possible for stacked and racked tubulars. Such inspection should be done as the pipe is placed in the racks. However, in instances where there is limited space and/or time, random inspection of accessible joints and threads will still be possible. Although random inspection provides some basis for acceptance, it is not ideal. When full length inspection of each joint cannot be accomplished during unloading, the End-User should designate personnel to examine each tube as it is removed from the racks and handled for running.

It is important that inspection be performed with adequate lighting. Suitable lighting equipment and/or flashlights should be used as needed to aid thorough visual inspection.

5.2. Rack Storage.

Casing in racks should be stacked in layers with wood stripping. All racks shall be stable and provide sufficient support to limit deflection of pipe due to its own weight and the weight of multiple layers. For example, small diameter pipe such as 4 ½" OD should have at least 3 support points even spaced over the average joint length. The number of layers in a rack should be determined on the basis of space and casing size, weight, and grade.

Pipe chocks should be used to retain joints at the ends of incomplete layers.

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5.3. Removal, Cleaning and Storage of Thread Protectors.

Thread protectors will have to be removed for drift testing and to allow visual thread inspection. Upon removal, all thread protectors should be removed from the area or carefully protected to avoid contamination.

Should the thread compound on the protectors become contaminated with dust and/or debris, the protectors shall be thoroughly cleaned, dried and have new thread compound applied prior to re-use. Solvents may be used provided they are compatible with thread protector materials (see manufacturer's information). Pressure washing is also an acceptable method for cleaning thread protectors. Thread protectors shall be completely dried before application of thread compounds and re-installation.

Most End-Users have policies with respect to managing excess liquids and solvents used for cleaning threads and protectors. A plan that includes catching, collecting, and properly discarding excess solvents is necessary before starting cleaning operations.

Tools, such as strap or pipe wrenches, may be used to assist in removal provided they do not damage thread protectors. The tools should only be used until the protector can be rotated by hand. Protectors should then be manually turned until they can be pulled axially from the pin or box threads with no interference.

Under no circumstance should pipe wrenches or other metal devices be applied to unprotected pin or box threads to assist in rolling of pipe. Exposed threads shall not be used as steps to climb on top of racks as debris from work boots can contaminate thread compounds or damage exposed threads.

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5.4. Drifting.

Most End-Users perform a full-length drift test before running casing. This procedure ensures that tools and equipment can pass easily through the casing after running. ID restrictions that inhibit planned downhole tool deployment are time consuming and costly.

Drift testing shall be performed in accordance with requirements stated in the latest edition of API Specification 5CT. Prior to performing a drift test, the length and diameter of the drift plug shall be carefully measured to ensure compliance with dimensions specified in API Specification 5CT, Table E.28.

It is recommended that the full-length drift test be performed before cleaning the threads as a lot of debris is carried along the ID by the drift plug. It is further recommended to drift from the box end toward the pin end; this avoids depositing debris on the box threads as the drift plug exits the casing.

Workers should place the drift plug into the tube from the box end, exercising care to avoid damaging the box threads. The plug should then be pulled full-length until it exits the joint at the pin end.

During testing, the drift plug should travel smoothly from one end to the other. Joints requiring excessive force to aid drift plug advancement should be carefully evaluated to determine if they are suitable for downhole deployment.

5.5. ID Cleanout.

The ID of every joint should be checked carefully to ensure that nothing has been left in the pipe, such as pipe plugs used during the threading process, gloves, rags, tools, etc. Anything found including shavings, scale, and all other debris shall be completely removed before the pipe is deployed downhole. Personnel shall implement appropriate safety procedures including the use of Personal Protective Equipment (PPE) for all personnel performing ID Clean out.

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It is exceedingly important to avoid contaminating thread protectors during ID Cleanout operations. Extra care here will avoid having to clean the thread protectors prior to their re-use.

5.6. Cleaning Exposed Threads.

In preparation for visual inspection, all pin and box threads shall have all thread compound completely removed. The exposed threads shall then be completely dried. The following can be used to assist the cleaning operation, provided they do not conflict with End-User policies.

- Pressure Washing and/or Solvents – See Section 5.3 which addresses management of excess fluids, solvents, etc.
- Brushes including nylon, other soft bristle or small diameter (0.006" to 0.0118") wire shoe handle brushes have historically been used. Knot type wire wheels are strictly prohibited.
- Compressed air (to aid drying; be sure existing policies allow the use of compressed air).
- Rags.

The following may be lightly applied to protect exposed threads during the inspection, cleaning, and final preparations for running, and to avoid corrosive pitting common to coastal and offshore environments.

- Light machine oil,
- WD-40, or
- Other nonflammable, protective rust inhibitors

Casing threads should never be allowed to sit exposed. All operations, such as visual inspection and drift testing, should be performed in a timely manner. Upon completion of these activities, thread protectors and fresh thread compound should be re-installed to avoid threadform corrosion, pitting, scale build up, contamination, etc.

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5.7. **Visual Thread Inspection.**

After pin and box threads are cleaned and thoroughly dried, they should be visually inspected. Visual inspection involves carefully observing the entire threaded area for physical damage, corrosion, pitting, and/or other obvious defects in the threads or sealing areas of the connection.

Practical knowledge should be applied. Physical damage that cannot be field repaired is cause for reject. Discoloration, light scale, or light pitting should be evaluated relative to connection performance to determine if the condition is cause for reject. For example, light pitting in the run-out area of API BTC pin threads should not be cause for reject as pitting in this area does not affect fit, form, or function of the connection. Pitting in the perfect threads, on the other hand, should be cause for reject. The inspector should carefully evaluate discoloration of surface coatings to determine their effect on downhole connection performance before declaring a reject. If available, thread profile gauges may be used to aid visual inspection.

5.8. **Tallying.**

Most End-Users tally the pipe before running. A good time to do the tally is prior to final cleaning and re-installation of thread protectors. This allows the most accurate measurement since the tape can be set against both pin nose and box-end bearing face for a direct length measurement requiring only compensation for make-up loss.

5.9. **Application of Thread Compound.**

GB Connections and API Connections threaded to GB Connections' specifications are generally thread compound friendly; i.e. thread compounds can be applied sparingly and should **not** be applied excessively. Sufficient thread compound has been applied when all threads are covered **with no gaps or bare spots** leaving the threadform discernible beneath the compound. Carefully review and follow field makeup procedures with respect to amount, application, and distribution of thread compounds.

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Again, thread compound should be applied sparingly; **avoid over-doping** to the point where excessive amounts are squeezed out during assembly.

Thread Compounds: API Modified, Best-O-Life 2000 or equivalent.

Storage Compounds: Kendex or equivalent.

Compounds for rotary shouldered connections shall not be used on any GB Connection.

All thread compounds shall be fresh, free of contamination and debris, and well mixed.

Dilution of thread compounds with any substance is strictly forbidden.

Kendex is a storage compound and NOT suitable for downhole use. If Kendex is applied, all threads must be cleaned and re-doped prior to running.

5.10. Re-Installation Of Thread Protectors.

Prior to re-installation, all thread protectors should be visually inspected for damage. If the thread protectors were protected from contamination, they should be suitable for re-use as-is, assuming sufficient thread compound remains in the protector and the compound has not dried out and remains free of contamination. All protectors should be threaded onto the freshly doped pin and box threads until they face-off, and then lightly tightened with the aid of a strap wrench or other suitable implement.

As a final step before installation of thread protectors, the casing ID should be visually inspected to be sure there are no gloves, tools, trash, or other debris. Anything observed should be removed before installing protectors.

Thread protectors are to be installed by alignment over the threads and turning onto the pipe or into the coupling. Installation may be assisted with the use of a strap wrench or other suitable implement. It is not acceptable to hammer or strike the protectors in any way to assist installation.

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Protectors with dried or contaminated compounds shall be completely cleaned and dried. A light, even coat of thread compound should be applied to the protector before installation.

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