



PROCESS
INDUSTRY
PRACTICES

TECHNICAL REVISION
October 2022

Refractory

**PIP RFIA1000
Refractory Anchor and Accessory
Installation Details**

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

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Drawings

RFIA1001 Anchor Pattern and Orientation – Longhorn, V and Y Anchors
RFIA1002 Longhorn Anchor – Lining Thickness ≤ 75 mm (3 inches)
RFIA1003 Modified Picket Fence Anchor – Lining Thickness = 50 mm (2 inches)

RFIA1004 Footed V Anchor – Single-Layer Lining, T = 75 - 150 mm (3 - 6 inches)
RFIA1005 Footed Y Anchor – Single-Layer Lining, T > 150 mm (6 inches)
RFIA1006 Two-Component Footed V Anchor – Multi-Layer Lining
RFIA1007 Hexmesh Anchor – Lance and Non-Lance – General Abrasion Service
RFIA1008 Hexmesh Anchor – Lance and Non-Lance – Coking or Thermal Cycling or Mechanical Cycling Service
RFIA1009 Hexmesh Anchor – Lance and Non-Lance – Tightly Rolled Hexmesh
RFIA1010 Hexmesh Anchor – Lance and Non-Lance – Lining Transition
RFIA1011 Flexmesh Anchor
RFIA1012 Corner Tab, Variable Tab and U-Tab Anchors
RFIA1013 Radius Tab Anchor
RFIA1014 Monster Corner Tab Anchor – Lining Thickness = 100 mm (4 inches)
RFIA1015 Mini Type–S Hexalt Anchor
RFIA1016 Type–S Hexalt Anchor
RFIA1017 Type–S Hexalt Anchor – Lining Transition
RFIA1018 Type–C Hexalt Anchor

- RFIA1019 Type-T Hexalt Anchor
- RFIA1020 Type-K Hexalt Anchor
- RFIA1021 Type-D Hexalt Anchor
- RFIA1022 Hexcell Hexalt Anchor
- RFIA1023 SpeedCell® Hexalt Anchor
- RFIA1024 Ceramic Anchor with C-Clip –
Monolithic Refractory Lining
- RFIA1025 Corrugated Ceramic Anchor with
Wall-Clip and Link Assembly – Plastic
Refractory Lining
- RFIA1026 Support Shelf – Firebrick
Refractory Lining
- RFIA1027 Ceramic Anchor Assembly –
IFB Normal Operating Temperature
Above 1430°C (2600°F) and Dense
Firebrick Linings
- RFIA1028 Tie-Back Anchor – Normal
Operating Temperature 1430°C
(2600°F) and Below IFB Lining
- RFIA1029 Pin-Stud/Clip-Washer and
Threaded-Stud/Nut-Washer Anchors –
Ceramic Fiber Blanket or Blanket/Board
Lining
- RFIA1030 Threaded-Stud and Nut-Washer
Anchor – Ceramic Fiber Blanket/Board
Lining
- RFIA1031 Ceramic Pin-Stud and Ceramic
Clip-Washer Anchor – Ceramic Fiber
Blanket or Blanket/Board Lining
- RFIA1032 Anchor Stud – Ceramic Fiber
Module Lining
- RFIA1033 Support Shelf – Plastic Refractory
Lining
- RFIA1034 Anchor Assembly - Ceramic Fiber
Modules
- RFIA1035 Cast Anchor Assembly – Plastic
Refractory Lining
- RFIA1036 Stud-Bolt for Wall-Clip Anchor or
Plastic Refractory Lining Support Shelf
- RFIA1037 Ceramic Fiber Diaper and
Moldable – Ceramic Fiber Blanket or
Blanket/Board Lining

1. Scope

This Practice provides installation details for refractory anchors and accessories for monolithic refractory, ceramic fiber, and firebrick linings used in equipment and piping. Included are details for anchor assembly, pattern, spacing, and weld attachments.

2. References

Applicable parts of the following Practices and industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP RFSA1000 – *Refractory Anchor and Accessory Specification*
- PIP RFSM1000 – *Monolithic Refractory Material Specification*
- PIP RFTA1000 – *Refractory Anchor and Accessory Installation Qualification, Inspection, and Testing*
- PIP VESPMI01 – *Positive Material Identification Specification*

2.2 Industry Codes and Standards

- ASTM International (ASTM)
 - ASTM C71 – *Standard Terminology Related to Refractories*
- The Society for Protective Coatings (SSPC)
 - SSPC-SP 3 – *Power Tool Cleaning*
 - SSPC-SP 7/NACE No. 4 – *Brush-Off Blast Cleaning*

3. Definitions

With the exception of terms listed in this section, terms used in this Practice are defined in accordance with *PIP RFSA1000* and *ASTM C71*.

coking: Service in which coke is deposited in any refractory voids during normal operation

positive material identification (PMI): Procedure used to test and evaluate alloy materials to confirm that they are the specified materials

termination (edging) bar: Metallic plate that defines the end of a monolithic lining

thermal cycling: Service in which repetitive variation of the operating temperature at the exposed refractory surface is a design consideration