

BUSINESS OPERATING PROCEDURE			
DOCUMENT #: 710.005.001	REVISION #: 006	RELEASE DATE: 8/4/2026	
REF: AS9100 8.5.1	PLANT: ➤HEP	Page 1 of 4	INFORMATION CONTAINED HEREIN IS THE PROPERTY OF HOWMET CORPORATION. REPRODUCTION, DISCLOSURE OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED IN WRITING BY HOWMET CORPORATION.
OWNER: ➤ SUPPLIER QUALITY DIRECTOR			
TITLE: PRODUCT, MATERIAL FIXED PROCESS CONTROL PLAN			

1. PURPOSE:

- The purpose of this procedure is to establish a fixed process control plan for Howmet **Engine Products** approved material, products and / or **services**.

2. SCOPE:

- This procedure applies to **external HEP** suppliers when stipulated in a **HEP** purchase order or **HEP** specification.

3. REFERENCES:

- 3.1 ETQ ASL ETQ Approved Supplier List (ASL)
- 3.2 Applicable **HEP** customer quality and technical specifications
- 3.3 **HEP** Non-disclosure Agreements (NDA)
- 3.4 [700.004.001](#) Supplier Quality Flowdown Document
- 3.5 [710.005.001F01](#) Product, Material Fixed Process Control Plan Form

4. DEFINITIONS:

- 4.1 Howmet Engine **Products** – also known as **HEP**
- 4.2 ETQ Approved Supplier List (ASL) - Database where approved supplier listing is maintained
- 4.3 Non-disclosure Agreements (NDA) - A legal document between **HEP** and its suppliers use to protect proprietary technical data and other intellectual property.
- 4.4 **BU SQA** – **HEP Business Unit** Supplier Quality Assurance
- 4.5 **FPCP** – Fixed Process Control Plan
- 4.6 **Product** – Ceramic Core, casting, die, etc.
- 4.7 **Material** – Power blends, fused alumina, chemical solutions, etc.

5. PROCEDURE:

- 5.1 The word “shall” indicates mandatory requirements. The word “should” indicates a preferred approach. Suppliers choosing an approach other than those described in this specification shall be responsible for demonstrating their approach meets the requirements in this specification.
- 5.2 The appropriate **HEP** Plant **shall** work with the supplier to establish and evaluate the process control plan for the **HEP** approved material or product.
- 5.3 The supplier shall submit a Fixed Process Control Plan **utilizing 710.005.001F01 or their own internal document to the appropriate HEP plant personnel along with the associated process flow chart. The**

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FPCP shall have its own unique control plan identification. The supplier or HEP plant personnel shall reach out to BU SQA if a unique control plan identification is requested to be assigned by BU SQA.

- 5.3.1 The following steps shall be used to submit a FPCP:
 - Supplier to submit FPCP to HEP plant for review and approval(s)
 - HEP approval shall follow specific plant(s) internal procedure or have required signatures per HEP BOP 710.005.001F01
 - HEP plant to forward to BU SQA for review and approval
 - BU SQA to return approved FPCP to HEP plant for retention along with BU SQA retention
 - HEP plant shall send approved copy to the supplier if FPCP only relates to their site. If FPCP is applicable to multiple plants then BU SQA shall be responsible for sending to the supplier
- 5.3.2 Once approved, all applicable HEP purchase orders shall reference the latest revision of the applicable FPCP.
- 5.4 Each FPCP shall describe the actions that are required at each step of the process, with references to the specific applicable procedures, specifications and / or work instructions. A single control plan may apply to a family of products that have commonality and are produced by the same process at the same manufacturing location. Each FPCP shall contain comprehensive documentation of product and process characteristics, process controls, tests, and the measurement system that occurs throughout production.
- 5.5 All FPCP revisions with significant changes shall follow the same submittal process steps as the initial approval. HEP approval shall be complete prior to the implementation of the changes unless an approved temporary deviation is in place. Each revised FPCP shall clearly reflect all addition, deletion and/or changes of controls and measurement systems. When outside processors are used, process controls shall be flowed to subcontractors.
- 5.6 Control Plan Significant Product/Material Fixed Process Change Approval
 - 5.6.1 Significant Product/Material Fixed Process Changes include but are not limited to the following:
 - Change in manufacturing location.
 - Change in the sequence of an operation
 - Change in the method of an operation.
 - Adding or deleting an operation.
 - Change of material or product
 - Changing the source of a material, sub-component or out-sourced operation.
 - Changes in chemical or physical properties and changes to specification limits for chemical and physical properties
 - Changing types of equipment.
 - Changes in tooling & rework to tooling (Ceramic Cores) & changes in tooling/die wear control.
 - Changes in dimensional target/tolerance of material to make final product (Ceramic Cores).
 - Change in product inspection or test methods.
 - Change in packaging and / or identification.
 - Change in material or batch numbering method.

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Change in software program, which affect product features, characteristics or properties, and upper and lower specification limits for ceramics.
Changes in packing media (Ceramic Cores) & changes in part orientation during thermal cycle.
Changes to thermal cycle for ceramics.

- 5.6.2 If there is any doubt regarding the significance of the change to a product/material or process, the supplier representative shall contact the appropriate HEP Plant personnel or HEP BU SQA for concurrence prior to submitting for and incorporating any change.
- 5.7 HEP Supplier Nondisclosure Agreements

Nondisclosure agreements are required when business activities involve any customer, supplier or Howmet proprietary information, intellectual property, processes or product information exchange. The HEP plant purchasing representative or engineering representative shall contact the Research Center to initiate the NDA.
- 5.8 Export Control

Some HEP process technologies and products are controlled as “unclassified” technical data and United States export regulations must be followed. Refer to SPI 1309, Technical Information, Export Control Restrictions where required.
- 5.9 Subcontract Control

Subcontracting of products, materials or services is prohibited unless the subcontractor, location and scope of work are defined within the FPCP and flow chart submitted for approval. The supplier shall ensure control of all Subcontractors compliance in accordance with 700.004.001 Supplier Quality Flowdown Document section regarding Subcontractor Control requirements.
- 5.10 Retention of Product & Material FPCP Records
 - 5.10.1 The supplier shall maintain a HEP approved copy of the FPCP, flow chart and any related product/process approval records as well as all previous revisions and related approval records. Records of all subcontracted work shall also be maintained in accordance with 700.004.001 Supplier Quality Flowdown Document section regarding Documented Information / Records and Retention.
 - 5.10.2 HEP Plants and/or BU SQA shall retain the master copy of all FPCPs and flow charts.

6. RECORDS:

- 6.1 710.005.001F01 Product, Material Fixed Process Control Plan and Flow Chart.
- 6.2 Fixed Process Control Plan Number Log, if applicable.

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➤ 7. Revision Box:
Changes above will have a ➤ and blue text.

Revision	Changes
006	Changed Howmet references to HEP, removed multiple outdated document references, delete and archive 710.005.001F02 & F03, clarified FPCP submittal steps, clarified revision changes submittal process, removed paragraph references to BOP 700.004.001, removed process inactivity requirement