

Technical Guide for Heavy Forgings

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Audience: International EPC procurement teams, project engineers, QA/QC personnel, and OEM sourcing teams.

Purpose: This guide helps buyers select the proper forging family, prepare RFQs efficiently, and communicate technical and documentation requirements in a clearer way.

Important Notice: This is a general technical communication and RFQ preparation guide. Final manufacturing route, tolerances, heat treatment, NDT scope, and documentation package shall follow the approved drawing, specification, ITP/QCP, and purchase order requirements.

1. Core Product Scope

Product Family	Typical Applications	Key Communication Terms
Large Ring Forgings	Rotating interfaces, gear ring blanks, large ring components	rolled ring forging / open die forging / machining allowance / traceability
Heavy Shaft Forgings	Drive shafts, main shafts, propulsion shafts, stepped shafts	shaft forging / straightness / concentricity / heat treatment / UT
Cylinder / Hollow Forgings	Cylinder sections, sleeves, bushings, hollow structural components	hollow forging / wall thickness / ID-OD concentricity / NDT

Extended scope may include forged pipe products, forged flanges, disc/tube sheet forgings, and other custom heavy forgings.

2. How to Select the Right Forging Family

2.1 Quick Selection Logic

- If the component is ring-shaped or used as a rotating interface or gear ring blank, start with Large Ring Forgings.
- If the component transmits torque or serves as a rotating/support shaft, start with Heavy Shaft Forgings.
- If the component is a thick-wall cylindrical or hollow structure (sleeve, bushing, hollow shaft, barrel), start with Cylinder/Hollow Forgings.
- If the component is a tubular transition piece, short pipe, or nozzle-type part, consider forged pipe products.
- If the component is a piping connection part, consider forged flanges.

2.2 Typical Buyer Focus Points

- Is machining allowance clearly defined?
- Is the delivery condition clear (forged blank / rough machined / other project-defined condition)?
- Are heat treatment requirements clearly defined?
- Is the NDT scope defined (UT / MT / PT / PMI)?
- Are documentation requirements defined (EN 10204 3.1, MTC, dimensional report, NDT reports, traceability list)?

3. Technical Communication Guide - Ring Forgings

3.1 Typical Applications

- Gear ring blanks
- Wind tower flange ring blanks
- Custom rings per drawing

3.2 Key Technical Points

- Ring geometry (OD / ID / Height) and tolerances
- Forging route selection (ring rolling and/or open die forging as applicable)
- Flatness, roundness, and runout requirements
- Machining allowance planning for faces, bores, and bolt-circle operations
- Heat treatment and NDT requirements (UT / MT / PT / PMI as specified)
- Traceability marking and documentation linkage (EN 10204 3.1 / MTC + inspection records)

3.3 Recommended RFQ Inputs for Ring Forgings

Field	Suggested Input
Product CODE (if available)	Website catalog code / internal reference code
Drawing No. / Revision	Required for quotation accuracy
Material Grade	Standard + grade
Key Dimensions	OD / ID / Height + tolerance (if available)
Machining Allowance	By drawing or agreed values
Heat Treatment	Project-defined or to be clarified
NDT Scope	UT / MT / PT / PMI + acceptance criteria (if available)
Documentation	EN 10204 3.1 / MTC, dimensional report, NDT reports, traceability list

4. Technical Communication Guide - Shaft Forgings

4.1 Typical Applications

- Solid shafts and stepped shafts
- Hollow shafts
- Propulsion shafts
- Mining and heavy equipment shafts

4.2 Key Technical Points

- Straightness and concentricity requirements
- Critical journals, shoulders, and fit-up sections
- Machining allowance and datum planning
- Dimensional stability after heat treatment
- UT coverage and critical-zone inspection requirements
- Traceability and consistency across MTC/NDT/dimensional records

4.3 Recommended RFQ Inputs for Shaft Forgings

Field	Suggested Input
Drawing No. / Revision	Required
Material Grade	Standard + grade
Shaft Type	Solid / Stepped / Hollow / Propulsion / Mining
Critical Geometry	Journals, shoulders, overall length, bores (if any)
Heat Treatment	Project-defined or to be clarified
NDT	UT and other methods as specified
Delivery Condition	Forged blank / rough machined
Documentation	EN 10204 3.1 / MTC + inspection records

5. Technical Communication Guide - Cylinder and Hollow Forgings

5.1 Typical Applications

- Heavy wall cylinder forgings
- Sleeves and bushings
- Custom hollow forgings per drawing

5.2 Key Technical Points

- Wall thickness uniformity
- ID/OD concentricity
- Face squareness and parallelism
- Machining allowance planning for ID/OD and end faces
- Heat treatment and NDT scope
- Delivery condition and downstream machining interface

5.3 Recommended RFQ Inputs for Cylinder/Hollow Forgings

Field	Suggested Input
Drawing No. / Revision	Required
ID / OD	Target dimensions and tolerance (if available)
Wall Thickness	Nominal thickness + allowable deviation (if available)
Length / Height	Overall dimension
Material Grade	Standard + grade
NDT Scope	UT / MT / PT / PMI as required
Documentation	EN 10204 3.1 / MTC + inspection records

6. Material, Heat Treatment and Inspection Communication Framework

6.1 Material Series (Examples Seen in the Product Directory)

- Examples visible in product names: ASTM A105/A105N Forged Short Pipe, ASTM A350 LF2/S355 Forged Short Pipe, ASTM A182 F11/F22 25CrMo4 Forged Short Pipe, ASTM A182 F91/F92 Forged Short Pipe, 304/316/316L, Duplex, 2205, Super Duplex, 2507

Actual supply range, substitution options, and heat treatment route must be confirmed against the approved drawing and project specification.

6.2 Heat Treatment Communication

- Clarify whether the project specifies heat treatment route, mechanical properties, or customer standards at RFQ stage.
- If not clearly defined, complete technical clarification before quotation to avoid rework or documentation mismatch.
- For website wording, use project-safe expressions such as 'project-specified heat treatment' or 'as specified'.

6.3 NDT Communication

- Define UT / MT / PT / PMI scope, coverage, locations, and acceptance criteria in the RFQ whenever possible.
- If third-party inspection is required, clarify witness/hold points and documentation expectations early.
- For website wording, use 'UT / MT / PT / PMI available as specified' rather than fixed commitments without project basis.

7. Documentation and Traceability

- Typical documentation (as specified): EN 10204 3.1 / MTC, heat treatment records, dimensional inspection reports, NDT reports, traceability list, packing list.
- Clarify whether third-party-issued or witnessed documents are required at RFQ stage.
- Keep product CODE aligned with internal ERP / production / inspection records to support consistent website-business-quality documentation mapping.
- For website copy, emphasize 'full traceability' and 'third-party inspection support' with an 'as specified' boundary.

8. Recommended Website Wording

Use Case	Recommended Wording	Note
Product page core description	drawing-based manufacturing / machining allowance / NDT / traceability	Engineering-procurement oriented wording
Downloads page - technical guide	technical guide for RFQ preparation	Emphasize practical RFQ support value
Downloads page - product catalog	product catalog for initial supplier evaluation	Emphasize screening and evaluation use
Certificate sample files	reference only	Avoid confusion with final project documentation package

9. RFQ Quick Checklist (Copy/Paste Template)

- Drawing No. / Revision
- Product CODE and Product Name
- Material Grade
- Quantity
- Delivery Condition (forged blank / rough machined)
- Heat Treatment Requirement
- NDT Scope (UT / MT / PT / PMI)
- Documentation Requirement (EN 10204 3.1 / MTC / reports / traceability)
- Target Lead Time and Delivery Terms

10. Appendix - Product Directory Category Snapshot

Top Category
Cylinder / Hollow Forgings
Forged Disc / Disk Forging
Forged Flanges
Forged Pipe
Heavy Shaft Forgings
Large Ring Forgings
Other Forgings

Recommended website Downloads categories: Product Catalogs / Technical Guides / Certificate Samples.