

PUBLIC RFQ REFERENCE DATASET

Alloy steel grade routes without false equivalence.

A buyer-facing map of six JOTAIN round-bar and grinding-rod supply routes, their standard systems, published conditions, RFQ checks, and record-level official sources.

6

ROUTE RECORDS

12

OFFICIAL SOURCE RECORDS

4

HTML / CSV / JSON / PDF

Use boundary. A comparison route is not a substitution approval. Source links identify standard families and editions, not compliance evidence for a specific heat, bar, or finished part. The accepted order and its named standard, edition, condition, dimensions, tests, certificate, and purchaser approvals control supply.

Version 2026-08-26 | [Open the live HTML dataset](#)

HOW TO USE THIS DATASET

Start with the governing route, not the slash designation.

The slash labels collect terms buyers often compare. They do not combine separate standards and they do not pre-approve a substitution. Select one governing standard and edition, then state the ordered product form, section, condition, tests, documents, and any permitted deviations.

1. Name one controlling standard and edition in the RFQ.
2. Treat every alternative as a separate clause-level proposal requiring purchaser approval.
3. Keep chemistry, heat-treatment condition, size range, test position, sampling, and certificate requirements together.
4. Use catalogue links to identify a route; use order and lot records to prove what was supplied.

ROUTE OVERVIEW

Route	Systems	Published size	Published condition	Substitution status
42CrMo4 / SAE 4140	ISO / EN; SAE; JIS; GB/T; ASTM	20–400 mm; 3–12 m	Quenched and tempered (QT)	Commonly compared routes; not an automatic equivalence
40Cr	GB/T; ISO / EN; JIS	20–300 mm; 3–12 m	Annealed / quenched and tempered	Comparison routes; purchaser approval required before substitution
CK45 / C45 / SAE 1045	Legacy DIN drawing language; ISO / EN; SAE; JIS; GB/T	20–350 mm; 3–12 m	Hot rolled / normalized / annealed	Medium-carbon comparison routes; not interchangeable without review
34CrNiMo6 / SAE 4340	ISO / EN; SAE; ASTM	20–400 mm; 3–12 m	Quenched and tempered (QT)	Commonly compared routes; buyer must approve any change
35CrMo	GB/T; ISO / EN; SAE	20–350 mm; 3–12 m	Quenched and tempered (QT)	Comparison routes; full-table review and purchaser approval required
65Mn grinding-rod route	GB/T; JIS	60–160 mm; Fixed length to accepted order	Heat treated / cut to length	Separate standard routes; not automatic equivalents

Published dimensions are JOTAIN supply-review ranges, not dimensions guaranteed by a material standard and not an inventory promise.

ROUTE RECORDS 1-2

Order language first. Alternatives second.

42CrMo4 / SAE 414042crmo4-sae-4140	
Designation routes	42CrMo4 / 1.7225 (ISO or EN route); SAE 4140 (SAE J404 chemistry route); SCM440 (JIS route); 42CrMo (GB route)
Systems / regions	ISO / EN; SAE; JIS; GB/T; ASTM International / Europe; United States; Japan; China
Published route	Round bar; diameter 20–400 mm; length 3–12 m; Quenched and tempered (QT); Black / peeled / machined
Control	Name one material or product standard and edition. Do not merge chemistry limits from separate standards.
RFQ checks	Standard and edition; diameter; condition or strength class; test position; sampling; result document
Mapped sources	ISO 683-2:2016 - Alloy steels for quenching and tempering SAE J404 200901 - Chemical Compositions of SAE Alloy Steels JIS G 4053:2026 - Low-alloyed steels for machine structural use GB/T 3077-2015 - Alloy structure steels ASTM A322-24 - Steel Bars, Alloy, Standard Grades ASTM A434/A434M-24 - Quenched-and-tempered alloy steel bars

40Cr40cr	
Designation routes	40Cr (GB route); 41Cr4 (ISO or EN route); SCr440 (JIS route)
Systems / regions	GB/T; ISO / EN; JIS China; International / Europe; Japan
Published route	Round bar; diameter 20–300 mm; length 3–12 m; Annealed / quenched and tempered; Hot rolled / forged / machined after review
Control	Compare the full ordered chemistry, condition, dimensions, properties, and testing requirements.
RFQ checks	Governing standard and edition; condition; diameter; property target; test position; sampling; result document
Mapped sources	GB/T 3077-2015 - Alloy structure steels ISO 683-2:2016 - Alloy steels for quenching and tempering JIS G 4053:2026 - Low-alloyed steels for machine structural use

ROUTE RECORDS 3-4

Order language first. Alternatives second.

CK45 / C45 / SAE 1045		ck45-c45-sae-1045
Designation routes	CK45 (legacy DIN drawing language); C45E / 1.1191 and C45 / 1.0503 (EN routes); SAE 1045; S45C (JIS route); 45 (GB route)	
Systems / regions	Legacy DIN drawing language; ISO / EN; SAE; JIS; GB/T Germany / Europe; International / Europe; United States; Japan; China	
Published route	Round bar; diameter 20–350 mm; length 3–12 m; Hot rolled / normalized / annealed; As ordered; rough machining and custom lengths after review	
Control	Keep each designation under its own standard. State product form, condition, dimensions, tests, and certificate separately.	
RFQ checks	Named designation and standard; condition; diameter; property target; test position; inspection document	
Mapped sources	ISO 683-1:2016 - Non-alloy steels for quenching and tempering SAE J403 202402 - Chemical Compositions of SAE Carbon Steels JIS G 4051:2023 - Carbon steels for machine structural use GB/T 699-2015 - Quality carbon structure steels	

34CrNiMo6 / SAE 4340		34crnimo6-sae-4340
Designation routes	34CrNiMo6 / 1.6582 (ISO or EN route); SAE 4340 (SAE J404 chemistry route)	
Systems / regions	ISO / EN; SAE; ASTM International / Europe; United States	
Published route	Round bar; diameter 20–400 mm; length 3–12 m; Quenched and tempered (QT); Hot rolled / forged / machined	
Control	Name the controlling product standard, QT class or property target, diameter, and required results.	
RFQ checks	Product standard; condition or QT class; diameter; test position; sampling; UT scope; result document	
Mapped sources	ISO 683-2:2016 - Alloy steels for quenching and tempering SAE J404 200901 - Chemical Compositions of SAE Alloy Steels ASTM A322-24 - Steel Bars, Alloy, Standard Grades ASTM A434/A434M-24 - Quenched-and-tempered alloy steel bars	

ROUTE RECORDS 5-6

Order language first. Alternatives second.

35CrMo35crmo	
Designation routes	35CrMo (GB route); 34CrMo4 (ISO or EN route); SAE 4135
Systems / regions	GB/T; ISO / EN; SAE China; International / Europe; United States
Published route	Round bar; diameter 20–350 mm; length 3–12 m; Quenched and tempered (QT); Hot rolled / forged / machined
Control	Use the chemistry table in the governing standard and keep the ordered condition and property basis separate.
RFQ checks	Governing standard; QT target; diameter; required results; test position; sampling; UT scope
Mapped sources	GB/T 3077-2015 - Alloy structure steels ISO 683-2:2016 - Alloy steels for quenching and tempering SAE J404 200901 - Chemical Compositions of SAE Alloy Steels

65Mn grinding-rod route65mn-grinding-rod	
Designation routes	65Mn (GB/T spring-steel route); SUP6 or SUP6A (JIS spring-steel route). Any other regional designation needs its own governing standard and clause-level review.
Systems / regions	GB/T; JIS China; Japan
Published route	Finished grinding rod / round-bar feedstock; diameter 60–160 mm; length Fixed length to accepted order; Heat treated / cut to length; Black / peeled / processed after route review
Control	The accepted order must fix the grade standard, rod diameter, heat-treatment lot, hardness method and locations, acceptance band, and trial terms.
RFQ checks	Standard; diameter and length; lot definition; hardness method and locations; straightness sampling; operating history; trial acceptance
Mapped sources	GB/T 1222-2025 - Spring steels JIS G 4801:2021 - Spring steels

OFFICIAL REFERENCE TRAIL

Catalogue records, with their limits made visible.

These are publisher or national-standards catalogue records for the standard families mapped to individual routes. The links do not prove compliance for a specific heat, bar, processing lot, finished component, or delivery.

<u>ISO 683-1:2016 - Non-alloy steels for quenching and tempering</u> ISO ISO / international Official catalogue record for the ISO product and delivery route. The named edition remains current but is under systematic review as of this dataset version.	<u>ISO 683-2:2016 - Alloy steels for quenching and tempering</u> ISO ISO / international Official catalogue record for the ISO product and delivery route. The named edition remains current but is under systematic review as of this dataset version.
<u>SAE J403 202402 - Chemical Compositions of SAE Carbon Steels</u> SAE International SAE / United States Official SAE record for SAE carbon-steel chemistry designations. It is not a complete bar property or heat-treatment contract.	<u>SAE J404 200901 - Chemical Compositions of SAE Alloy Steels</u> SAE International SAE / United States Official SAE record for SAE alloy-steel chemistry designations. It is not a complete quenched-and-tempered bar property contract.
<u>ASTM A322-24 - Steel Bars, Alloy, Standard Grades</u> ASTM International ASTM / United States Official active ASTM product-route record for hot-wrought alloy steel bars. It applies only when the accepted order invokes it.	<u>ASTM A434/A434M-24 - Quenched-and-tempered alloy steel bars</u> ASTM International ASTM / United States Official active ASTM product-route record. The accepted order still has to name the class, size basis, tests, and document requirements.
<u>GB/T 3077-2015 - Alloy structure steels</u> SAMR / SAC GB/T / China Official Chinese national-standard catalogue record for the GB alloy structural-steel route.	<u>GB/T 699-2015 - Quality carbon structure steels</u> SAMR / SAC GB/T / China Official Chinese national-standard catalogue record for the GB quality carbon structural-steel route.
<u>GB/T 1222-2025 - Spring steels</u> SAMR / SAC GB/T / China Official current Chinese national-standard catalogue record for the spring-steel material route. It does not define finished grinding-rod service performance.	<u>JIS G 4051:2023 - Carbon steels for machine structural use</u> Japanese Standards Association JIS / Japan Official JSA catalogue record for the Japanese machine-structural carbon-steel product route.
<u>JIS G 4053:2026 - Low-alloyed steels for machine structural use</u> Japanese Standards Association JIS / Japan Official JSA catalogue record for the current Japanese machine-structural low-alloy steel product route.	<u>JIS G 4801:2021 - Spring steels</u> Japanese Standards Association JIS / Japan Official JSA catalogue record for the Japanese spring-steel material route. It does not define finished grinding-rod service performance.

DOWNLOADS AND VERSIONING

[HTML dataset](#) | [CSV download](#) | [JSON download](#)
Version: 2026-08-26. Record count: 6. Source count: 12.

Method: JOTAIN's published supply-route statements are separated from official standard-system catalogue records. No chemistry or mechanical-property tables are reproduced. Recheck the official publisher before using an edition in a purchase order.