



# CHARPY IMPACT SPECIMEN NOTCH BROACHING MACHINES

## STANDARDS

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ASTM E23

ISO 148

### ***ASTM E23, ISO 148 & DIN 50115-Compliant Specimen Preparation***

Charpy Impact Specimen Notch Broaching Machines are precision sample-preparation systems that cut accurate V-notches and U-notches into pre-machined Charpy and Izod impact test specimens — the critical step that determines whether a notched-bar impact test produces valid, reproducible, regulator-accepted results. Without correctly profiled, perpendicular, repeatable notches that meet international standards (ASTM E23, ISO 148, DIN 50115), even the most advanced impact tester cannot deliver defensible material-toughness data. The broaching machine, the broach, and the operator workflow together define the quality of every Charpy and Izod test that follows.

Qualitest offers a comprehensive range of Charpy notch preparation equipment to suit every laboratory size, budget, and throughput requirement. The portfolio spans the genuine Blacks Charpy / Izod notching broaches (CNC-ground in the UK, serial-numbered, supplied with Certificate of Conformance, available in standard and 'hard cut' profiles for stainless steel and tough alloys); the Blacks/RJW Hand-Operated Charpy Notch Broaching Machine for small-batch work; the Blacks/RJW Motorized Charpy Notch Broaching Machine in fixed and variable speed configurations for higher-volume and difficult-to-machine materials; the Blacks/RJW Charpy Specimen Milling Machine (CNM Series) for preparing 10 mm square specimens from rough-sawn billets; the high-throughput Hydraulic Notch Broaching Machine QualiBroach™ H2 with dual-station processing; the high-precision Motorized Notch Broaching Machine QualiBroach™ E2 / E3 with dual- or triple-knife broaches; and the cost-effective Manual Notch Broaching Machine QualiBroach™ M1. Together, these machines give every test laboratory complete independence in producing accurate, standards-compliant Charpy and Izod specimens — without waiting for an external machine shop.

## Applications in Industries

- **Steel & Metals Industry** — Specimen preparation for impact-toughness verification of carbon steels, low-alloy steels, stainless steels, and difficult-to-machine superalloys.
- **Pipeline, Offshore & Pressure Vessel Manufacturing** — Notched-bar testing of welds, base materials, and heat-affected zones for ASME, API, and pipeline-integrity qualification programs.
- **Automotive & Aerospace** — Charpy/Izod specimen preparation for crashworthiness, fastener qualification, fatigue & fracture toughness research, and aerospace alloy validation.
- **Power Generation (Conventional & Nuclear)** — Impact-toughness testing of turbine components, pressure-vessel steels, and nuclear-grade alloys under regulatory surveillance programs.
- **Heavy Industry & Construction** — Structural steel verification, bridge & crane fabrication QC, mining equipment, shipbuilding, and heavy-fabrication impact validation.
- **Third-Party Testing & Certification Labs** — High-throughput specimen preparation for commercial test houses serving multiple industries with rapid turn-around requirements.
- **Universities, R&D & Materials Science** — Notched-bar testing for fracture mechanics research, ductile-to-brittle transition studies, and graduate-level materials characterization.

## Product Comparison Table

Product	Drive / Method & Key Specs	Best Suited For
<b>Charpy / Izod Notching Broaches (Blacks/RJW)</b>	Genuine Blacks broaches, CNC-ground in the UK; serial-numbered, supplied with Certificate of Conformance; standard & 'hard cut' variants; 5 standard broach profiles meeting BS, ISO, EN, ASTM & other international notch standards; regrind service available	All hand, motorized & milling Charpy/Izod machines — essential consumable for every notch-cutting workflow

<p><b>Hand-Operated Charpy Notch Broaching Machine (Blacks/RJW)</b></p>	<p>Manual hand-wheel broach travel; bench-mounted; ~40-second cycle per specimen; cuts V &amp; U notches in 10 mm square, sub-size and 0.45" diameter specimens; optional multi-notch attachment; for carbon steels, easily machined low-alloy, non-ferrous &amp; plastics</p>	<p>Test houses &amp; laboratories producing small batches of test pieces — ideal entry-level Blacks machine</p>
<p><b>Motorized Charpy Notch Broaching Machine (Blacks/RJW)</b></p>	<p>Self-contained floor-mounted unit; Fixed (220-240 V, 0.5 kVA, 27 mm/s @ 50 Hz, 40-sec floor-to-floor) and Variable (1.0 kVA, infinitely variable 7.1-37.8 mm/s, PLC-protected thyristor drive) speed versions; safety guards, limit switches, emergency stop; precision twin lead screws</p>	<p>Medium-to-high-volume labs; variable model also handles stainless &amp; difficult-to-machine alloy steels with hard-cut broaches</p>
<p><b>Charpy Specimen Milling Machine — CNM (Blacks/RJW)</b></p>	<p>Bench-mounted milling machine for preparing 10 mm square Charpy/Izod specimens from rough-sawn billets; meets ASTM E23 &amp; ISO 148; CNM-158A1 fixed-speed &amp; CNM-VSA1 variable-speed configurations; no cutting fluid required; removable swarf tray</p>	<p>Labs preparing their own square specimens from rough stock — pair with motorized broacher for a complete in-house workflow</p>
<p><b>Hydraulic Notch Broaching Machine — QualiBroach™ H2</b></p>	<p>Hydraulic drive with electric control; adjustable broach rise/fall speed; integrated lubrication; high-precision linear guide; processes TWO samples simultaneously; W18Cr4V alloy broach (~20,000 specimens up to HRC40); ASTM E23, ISO 148, DIN 50115</p>	<p>Production-style labs needing dual-station throughput, consistent surface finish &amp; stable, high-quality forming</p>
<p><b>Motorized Notch Broaching Machine — QualiBroach™ E2 / E3</b></p>	<p>High-precision ball-screw drive + linear-guide support; ~10-second cycle; E2 dual-knife broach (2 notches simultaneously — V+U, 2 V or 2 U); E3 triple-knife (3 V, 3 U, or V+U combinations); no ATC; W18Cr4V broach (~20,000 specimens up to HRC40); ASTM E23, ISO 148, ISO 0083</p>	<p>High-throughput labs needing fast, multi-notch precision cutting — E3 ideal for the highest sample volumes</p>
<p><b>Manual Notch Broaching Machine — QualiBroach™ M1</b></p>	<p>Cost-effective single-station manual unit; ~10-second cycle per notch; W18Cr4V broach (~20,000 specimens up to HRC45); compact footprint</p>	<p>Cost-conscious labs with low-volume notching needs — ideal entry-level QualiBroach™ platform</p>

# Why Choose Qualitest for Your Notch Broaching Needs

Qualitest is a globally recognized supplier of advanced testing instruments and laboratory equipment, serving customers across more than 80 countries with one of the most comprehensive Charpy specimen preparation portfolios available anywhere in the world.

## Two Trusted Brand Lines — Blacks/RJW & QualiBroach™

Qualitest is the worldwide distributor for the genuine Blacks Charpy / RJW machines — manufactured in the United Kingdom since 1966 and exported to over 70 countries — and the manufacturer of the QualiBroach™ family of hydraulic, motorized, and manual broaching machines. Together they cover every notch-preparation workflow from small artisan labs to high-throughput production testing.

## Full International Standards Compliance

Every Qualitest notch broaching machine and broach is engineered to meet the most demanding global standards — ASTM E23, ISO 148, ISO 0083, DIN 50115, BS and EN notch profiles — ensuring the impact-toughness data you produce is universally accepted, audit-ready, and defensible in customer certifications and regulatory submissions.

## Precision Engineering for Long Service Life

From CNC-ground UK-made Blacks broaches with serial-number traceability and Certificate of Conformance, to W18Cr4V tool-steel QualiBroach™ blades capable of 20,000 specimens per broach, to high-precision ball-screw drives with linear-guide support — every Qualitest machine is engineered for the precision, durability, and repeatability that demanding impact-testing labs require.

## Safety & Operator Comfort Built In

Safety guards with limit-switch interlocks, emergency stop buttons, thermal overload protection, PLC-protected motor drives, spring-loaded debris guards, and ergonomically positioned hand clamps protect operators and equipment through every cutting cycle — meeting CE marking and international workplace safety requirements.

## **Global Support & Cost-Effective Value**

Qualitest delivers premium notch-broaching performance at a transparent, competitive price point — combined with global service, training, and broach regrind support. Replacement broaches, spare parts, multi-notch attachments, sub-size cartridges, and go/no-go gauges (with UKAS certificates) are stocked and available worldwide.

## **Notch with Precision. Test with Confidence.**

In Charpy and Izod impact testing, the validity of every result depends on the quality of the notch beneath it. A poorly cut notch — wrong profile, wrong depth, wrong perpendicularity, or wrong surface finish — invalidates the test, wastes the specimen, and undermines the entire material-qualification program. The laboratories that consistently deliver defensible impact-toughness data are the ones equipped with notch-preparation machines built for precision, repeatability, and full international-standards compliance — and the Qualitest Charpy notch broaching portfolio gives you exactly that.

Whether you are setting up a new mechanical-testing laboratory, expanding throughput in a commercial test house, supporting a pipeline weld-qualification program, or running notched-bar research in a university materials lab, Qualitest has the broaching platform engineered to meet your exact needs. From the trusted Blacks/RJW heritage to the high-throughput QualiBroach™ platform, every Qualitest machine is built to deliver world-class notch quality backed by industry-leading service and support.



ADVANCED TESTING TECHNOLOGIES

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## Connect with us

Contact our **QualiTeam** today to find out how we can help your organization **select the most suitable testing solution** for your application, requirements, and budget.

### Qualitest USA (Corporate Sales Office)

Toll-Free: 1.877.884.TEST (8378) | Fax: 954.697.8211  
E-mail: [info@qualitest-inc.com](mailto:info@qualitest-inc.com)  
Address: 8201 Peters Rd., #1000,  
Plantation, FL 33324, USA.

### Qualitest Canada & International

Tel: +1.905.944.9825 | Fax: +1.905.944.0304  
E-mail: [sales@qualitest-inc.com](mailto:sales@qualitest-inc.com)  
Address: 70 East Beaver Creek Rd., #9, Richmond Hill,  
Ontario L4B 3B2, Canada.

### Qualitest Latin America (Mexico and LATAM Region)

E-mail: [ventas@qualitest-inc.com](mailto:ventas@qualitest-inc.com)

### Qualitest KSA (Regional Office)

Tel: +966 11 500 6659  
Address: Level 7, 3.09, District 3, King Abdullah  
Financial District, Riyadh, Saudi Arabia

### Qualitest Singapore (ASIA PACIFIC Regional Office)

Tel: +65 6393 5480 | E-mail: [singapore@qualitest-inc.com](mailto:singapore@qualitest-inc.com)  
Address: 50 Raffles Place, Singapore Land Tower,  
Level 46, Singapore, 048623.

### Qualitest Indonesia (Representative Office)

Tel: +62 21 2985 9522 | Fax: +62 21 2985 9889  
E-mail: [indonesia@qualitest-inc.com](mailto:indonesia@qualitest-inc.com)  
Address: One Pacific Place Level 11, Jl. Jend. Sudirman,  
Kav. 52-53, SCBD Area, Jakarta 12190, Indonesia.

### Qualitest FZE (Regional GCC/ME Office)

Tel: +971 4 8819252 | Fax: +971 4 8819262  
Email: [gcc@qualitest-inc.com](mailto:gcc@qualitest-inc.com)  
Address: Jafza One, BB 1610, Jebel Ali Free Zone,  
PO Box 261440, Dubai, UAE.

### Qualitest India

E-mail: [india@qualitest-inc.com](mailto:india@qualitest-inc.com)  
Address: 15th Floor, Dev Corpora, Pokhran Road No.1,  
Eastern Express Highway, Thane, Maharashtra,  
Mumbai, 400601, India

