Instructions for the use of the NIST Charpy Results Submission Interface

Starting October 1st, 2026, customers of the NIST Charpy Machine Verification Program are able to submit their verification test results online, including digital pictures of their tested specimens, via a **new submission interface**. This submission procedure is intended to replace the paper/PDF questionnaire, which customers have been emailing to charpy@nist.gov, along with the digital pictures. After an interim period of six months, only online submissions will be accepted for processing.

To access the web interface and submit their results, existing customers must follow these steps:

a. Log into your account at https://shop.nist.gov using your credentials.
b. Click (at the top) on “My Account”, then (on the right side) on “My Orders”.
c. Click on your latest completed order. On the next page:
   - if you have used the site already before, click on the button “Access Charpy Web Site”;
   - if this is your first time using the site, click on the button “Send Charpy Email”; you will receive an email with a link (“Access Charpy Web Site”) that will take you to the submission interface.
d. After clicking “Continue” and providing your credentials again, you will be taken to the submission site, where you can enter your machine information, your test results, and upload digital pictures of your tested specimens.
e. Your indirect verification results will be attached to your web submission, and also sent via a separate email.

CHARPY MACHINE VERIFICATION PROGRAM

This questionnaire will assist you in performing a successful Charpy impact verification test. The lot number, serial number, and absorbed energy results of the tested specimens must be provided in order to obtain certified values. For more details, please consult the current ASTM E23 standard. This information is necessary to evaluate the condition of your machine. A downloadable, fillable, and printable PDF version of this questionnaire is available at https://tsapps.nist.gov/srmext/questionnaires/Charpy_questionnaire.pdf.

NOTE: in order to expedite processing, please fill out electronically or WRITE LEGIBLY!

What type of Verification Letter do you require? ☐ Only ASTM ☐ Only ISO ☐ Both

Location of Machine

Company _____

Address _____

_____

City _____ State/Province _____

Country _____ ZIP/Postal Code _____

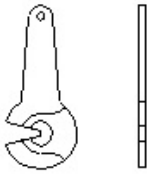
Email Address (required for receipt of NIST Verification Letter)

_____

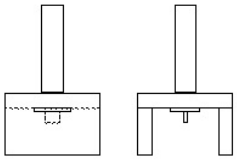
Test Machine (please indicate the energy units used: ☐ Joule ☐ ft·lbf)

1. Machine Manufacturer _____ Serial Number _____
2. What is the maximum energy capacity of the machine? _____ (J / ft·lbf)
3. What is the typical range in absorbed energy of the steels tested at your facility? _____ (J / ft·lbf)
4. If the machine is adjustable, what capacity was used for this test? _____ (J / ft·lbf) ☐ N/A
5. Is your machine mounted according to the requirements of ASTM E23 and the machine manufacturer's recommendations? ☐ YES ☐ NO
6. Is your machine equipped with a carbide striker and/or anvils? ☐ YES (striker) ☐ YES (anvils) ☐ NO
7. Are your anvils and/or striker newly installed? ☐ YES ☐ NO
8. Please indicate your specific pendulum design below.

C-type ☐



U-type ☐



Other *(Please add picture.)* ☐

9. If shrouds are used, do they comply with the ASTM E23 requirements? ☒ YES ☐ NO ☐ Not used
10. Do your anvils and striker conform to ASTM E23 requirements and tolerances? ☒ YES ☐ NO
11. Date of your previous NIST verification (MM/DD/YY): _____ (leave empty if not verified before)
12. Is your machine ☐ compensated, or ☐ not compensated for windage and frictional losses?

Pre-Test Checks and Operations

1. Does the striker pass through the center of the anvils within 0.40 mm (0.016 in.)? ☒ YES ☐ NO
2. With the pendulum in the free hanging position, engage the energy indicator. The indicator read should read within 0.2 % of the machine capacity being used.
3. What is the friction/windage loss of your machine? _____ (J / ft·lbf)
4. Without a specimen on the anvils and the with the pendulum released from its latched position, what is the dial reading after a free swing? _____ (J / ft·lbf)

   This reading should be zero. If this reading is not zero and your machine is compensated for windage and friction, please adjust the dial to read zero. If your machine is not compensated for windage and friction, please correct the energy values for windage and friction losses.

Calculation of the Lower Limit of the Usable Range for Your Machine

(NOTE: CHARPY DATA SHOULD NOT BE GENERATED BELOW THE LOWER LIMIT OF THE MACHINE.)

1. If your machine is equipped with a digital readout, what is the resolution? _____ (J / ft·lbf) ☐ N/A
2. If your machine is equipped with an analog scale, what is the difference between two adjacent marks on the energy scale at 15 J (11 ft·lbf)? _____ (J / ft·lbf) ☐ N/A

   What is the resolution, *i.e.*, the smallest discernible energy value readable between these marks? *(This is normally ½ to ¼ of the difference between two adjacent marks on the scale.)* _____ (J / ft·lbf) ☐ N/A

   Lower usable limit of your machine: multiply the resolution above by 25. Result: _____ (J / ft·lbf)

Example 1 (Digital Readout):
The machine has a capacity of 407 J and is equipped with a digital readout. The resolution of the readout is 0.14 J at 15 J. The lower limit of the usable range for the machine is: 25 × 0.14 J = 3.5 J.

Example 2 (Analog Scale):
The machine has a capacity of 407 J and is equipped with an analog scale. If the energy divisions between the marks at 15 J correspond to 0.5 J, you should be able to estimate to at least 0.25 J. This is your resolution. Multiply by 25. The lower limit of the usable range for the machine is: 25 × 0.25 J = 6.25 J.

Test Temperature Requirements

1. The test temperature for SRM 2092 (low-energy) and SRM 2096 (high-energy) specimens is **-40 °C ± 1 °C (-40 °F ± 2 °F)**. NIST recommends the specimens be held at temperature for at least 10 minutes, and tested within 5 seconds after removing them from the cooling medium.
2. The test temperature for SRM 2561 (low-energy) specimens is **21 °C ± 1 °C (70 °F ± 2 °F)**.
3. The test temperature for SRM 2563 (high-energy) and SRM 2098 (super-high-energy) specimens is **21 °C ± 3 °C (70 °F ± 5 °F)**.

TEST RESULTS

INDICATE ENERGY UNITS (please select) Joules

Series: LL-_____ **SRM** Choose an item. **(Low Energy)**		**Series HH-_____** **SRM** Choose an item. **(High-Energy)**		**Series SH-_____** **SRM 2098** **(Super-High Energy)**	
Specimen Number	**Value**	**Specimen Number**	**Value**	**Specimen Number**	**Value**
Average Value		**Average Value**		**Average Value**	

Date of Test _____
(Month / Day / Year)

Company Representative

_____ Telephone _____
Company Representative (PRINT)

_____ Email _____
Company Representative (SIGNATURE)

Third Party Representative

_____ Email _____
Third party (company name)

Naming a third party here gives your permission to release the verification data (NIST letter) to the third party. If an email address is provided, the third party will be copied automatically on the NIST verification letter.

ELECTRONIC TRANSMISSION OF TEST RESULTS

After completing your tests, please thoroughly complete this questionnaire (a fillable PDF version is available at https://tsapps.nist.gov/srmext/questionnaires/Charpy_questionnaire.pdf) and email it to charpy@nist.gov, together with high-quality digital pictures of your tested samples.

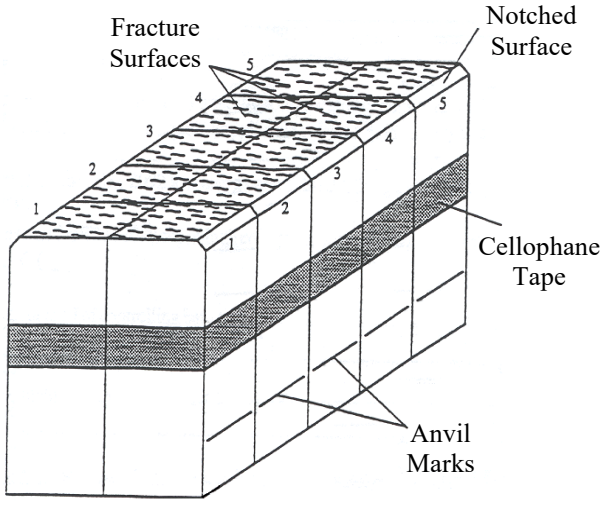
Instructions for taking digital pictures of the tested samples

- Take photos of the specimens grouped or taped together (exclusively with transparent scotch tape), so that the marks left by the anvils are clearly visible and can be examined, as in the example provided below.
- Email photos of both specimen halves showing anvil marks to charpy@nist.gov.
- The required minimum resolution for the digital photos is 1024 × 768.
- Please take separate pictures of specimens from each energy level, *i.e.*, low-energy in photo 1, high-energy in photo 2, and super-high energy in photo 3.
- Do not send pictures of individual specimens (we also need to verify the alignment of the anvil marks among the different specimens tested).
- Make sure that the specimens in the pictures are clearly identified, by including the lot id/number in the name of the electronic file (*e.g.* LL-158.jpg).
- **Please do not include anything else in the picture, including the sample box** (see example below).

ALTERNATIVE PROCEDURE (not recommended)

You can also ship your broken samples and completed questionnaire to: *Charpy Program Coordinator, NIST, Division 647, 325 Broadway, Boulder, CO 80305-3337.*

- Please secure the 5 broken specimens (10 halves) from a particular energy level as one unit, using **clear cellophane tape**.
- Pair broken halves back-to-back, with fracture surfaces facing up and notched surfaces facing out (see drawing below).



Attention International Customers:

When returning tested specimens from outside the United States, please include the following statement on the U.S. Customs Declaration:

"Contents include U.S. manufactured steel test bars being returned to the U.S. for evaluation and are valued at less than 10 U.S. dollars."