

Charpy Impact Toughness

(EN 1563: EN-GJS-400-18-LT grade ductile iron)

Cast-Fab Technologies, Inc. has been in continuous production of high quality grades of ductile iron requiring high impact strength at low temperatures since 1996.

We have the technology for your application

Cast-Fab Technologies, Inc. identified, developed and controls the key process variables needed to consistently produce this grade of iron resulting in our ability to produce castings for an ever-broadening array of engineering designs. This material is used for applications such as wind turbines, gas turbine castings, isolation and control valves, nuclear transport and storage vessels, large press frames and other high-quality requirement castings.

Consistency

Our process control ensures castings consistently pass the 3-test specimen minimum and average requirements for absorbed energy when tested at -20°C . We do this as cast, with the benefits of shorter cycle times in manufacturing, better control of dimensions on castings and improved throughput for customer orders. In addition, the yield strength is maintained well above minimum requirements.

Proven Results

	Yield Strength, 0.2% offset R_p N/mm ²	Elongation %	Impact Resistance (Energy Absorbed), Average of 3 specimens Joules
EN-GJS-400-18U-LT specification minimum	220	12	10
Average (N = 700 tests)	263	23	14
Standard Deviation	7	3	1
Demonstrated Process Capability Index C_p	1.90	1.10	1.65

100% of castings meeting mechanical property requirements

Results based on:

- 700 tests from a 1.3 MT (3,000 pound) casting produced in first half of 2009.
- Cast-on samples according to EN 1563 Figure 6, bar type D for relevant wall thickness t , of $60\text{ mm} < t \leq 200\text{ mm}$.
- Properties are for “as-cast” results produced in continuous series production.

Impact resistance results based on:

- Testing in accordance with EN 10045-1
- V-notched test pieces machined from cast-on samples according to EN 1563 Figure 5
- Testing temperature of -20°C

Tensile results based on:

- Testing in accordance with EN 10002-1
- Machined test piece dimensions of $d = 14\text{ mm}$ and $L_0 = 70\text{ mm}$