

General Specification

SS 29 R2 17-4 H1150

LENGTH REQUIREMENTS:

- Lengths under 10' are not acceptable.
- Up to 10% allowance is given for longer or shorter bar lengths.
- Where billet size does not allow the length requirements below to be met, prior approval is required.
 - UP TO 3/4" 12"-12'2" (12' – 12'6" allowed only with prior approval)
 - OVER 3/4" TO 5" 11'-13' (AIM FOR 12'2"MIN) with uniform length per bundle to 1-1/2"
 - 5" AND OVER: 11'-14' (AIM FOR 12'2" MIN.)

FINISH DEFINITIONS:

The finish stated in the item description on the Purchase Order must meet the following requirements where surface finish specifications are defined in Root Mean Squared (RMS) micro inches.

A conversion table is listed below as a reference to a Roughness Average (Ra) in micro inches and microns:

RMS ($\hat{A}\mu\text{in}$)	Ra ($\hat{A}\mu\text{in}$)	Ra ($\hat{A}\mu\text{m}$)
50	45.0	1.14
70	63.1	1.60
125	113	2.86
250	225	5.72

RMS ($\hat{A}\mu\text{in}$) = Root Mean Squared (Microinches)

Ra ($\hat{A}\mu\text{in}$) = Roughness Average (Microinches)

Ra ($\hat{A}\mu\text{m}$) = Roughness Average (Microns)

Scratches and Rust

- The processing and handling of bars must be done in a manner which surface scratching is minimized and no scratching should exceed ASTM A484.
- All bars must be free of surface rust contamination.

Smooth Turned (ST) Cold Finished or Cold Drawn (CD)

- $\leq 1/2$ " annealed and bright drawn
- $> 1/2$ " to 3" aim for a maximum surface finish of 50 RMS ($\hat{A}\mu\text{in}$); GUARANTEE 70 MAX RMS
- Bright finish with no or light turn marks, degreased and diameter tolerance as per ASTM A484, polishing or grinding may be required to meet this requirement).
- CD Round Bars are acceptable for bars ordered as ST provided bars are surface defect free.

Hot Rolled Annealed and Pickled (HRAP)

- Rough finish (imperfections shall not exceed ASTM A484).

Rough Turned Bars (RT)

- Guarantee a maximum surface finish capable of clean-up to nominal size ordered and defect free on size.
- Bright finish with slightly heavier turn marks, degreased and diameter tolerance as per ASTM A484
- Rough Turned Straightness – 1/8 in 5' Cold Finish Straightness tolerance is required.
- Rough Turned Bar should have the following diameter tolerance to allow clean-up to size.
 - 3" to 3-1/2" +.020/+ .0468
 - over 3-1/2" to 4-1/2" +.030/+ .0625
 - over 4-1/2" to 5-1/2" +.040/+ .0781
 - over 5-1/2" to 6-1/2" +.080/+ .1250
 - over 6-1/2" to 8" +.090/+ .1565
 - over 8" to 12" +.100/+ .1875
 - over 12" to 15" +.125/+ .2187
 - over 15" to 22" +.125/+ .2500

COLOR CODING AND PACKAGING:

COLOR CODING:

Bars shipped to Energy Steel Products must have the following color coding on each end:

303	YELLOW
304/304L	RED
316/316L	GREEN
321	GREY
347	LIME GREEN
410	PINK
416	WHITE
440C	BROWN
630 (17-4 PH) H1150	BLUE / YELLOW

HEAT NUMBER IDENTIFICATION:

Heat Number etched or die-stamped at least one end (preferably both ends), 1" and over.

BUNDLES AND WEIGHT CONSIDERATIONS:

Each bundle must be tagged with Size, Grade, Heat Number and Net weight, Purchase Order Number, piece count and Country of Origin.

- 2,000 - 2,200 LB bundle weights (1,000 – 1,200 LB bundle weights also accepted)
- 10% allowance for bundle weights to a maximum 2,500 lb.

Single Bar Weight Limits are:

- Houston: Maximum weight allowance for single bars is 17,000 lb.
- Chicago: Maximum weight allowance for single bars is 10,000 lb.

PACKAGING:

Boxing Preferred Maximum box height – 10”

Minimum Acceptable Packaging - Bundles to be fully wrapped and metal strapped in a manner to prevent damage from handling or rust contamination during transportation. Strapping must not make direct contact with bars.

Bars shipped on a Less than container load (LCL) bars must be boxed if less than 1” in cross-section.

DOCUMENTATION AND OTHER CONSIDERATIONS:

DOCUMENTATION:

Each shipment requires a detailed Packing Slip and Mill Test Certificate. The detailed Packing Slip must state the Purchase Order Number, full product description, individual bundle quantities, in Lbs. Heat Number per bundle and preferably the ENERGY STEEL product code.

The Mill Test Certificate must be written in English, stating the ENERGY STEEL Purchase Order Number, Full Description, Heat Number, Quantity, Specifications and Requirements as listed in this document. Only legible ORIGINAL Mill Test Certificates are acceptable. Mill Test Certificates must be signed and dated by an authorized person, including title.

For Offshore Shipments, the Packing slip and Mill Test Certificates must be issued immediately upon shipment to ensure receipt well before delivery.

For Local Shipments, a Packing Slip and LEGIBLE Mill Test Certificate must accompany the shipment.

ORDER ACKNOWLEDGEMENT:

Acknowledgement of Purchase Orders must be returned within fourteen (14) days.

SHIPPING:

- 10% of total weight ordered - overages are subject to return or price ALLOWANCE: re-negotiation.
- Off-shore Shipment containers must be properly blocked and braced to prevent shifting.
- Full container loads can be received in all locations except 40’ containers in Houston.
- Load to be as close to container doors as possible to facilitate quick unloading.
- All 40’ containers to Houston and Less than container loads to all locations must be received on a flat bed.
- Local Shipments to all locations must be on a flat bed unless prior approved.
- All Loads to be packed on 4 X 4 runners and properly braced to avoid shifting.

SHIPPING ADVICE:

Offshore shipments - a copy of the packing slip must be emailed directly to the Receiving Branch within seven (7) days of shipping. Transmitted copy must indicate date of sailing and preferably an ETA at the destination city. Twenty-four hours delivery notice must be given on F.O.B. delivered shipments. Forwarding company to contact Receiving Branch.

Local Shipments - 24 hour delivery notice and copy of the packing slip are required by the Receiving Department for shipping approval. Shipments without prior notice are subject to refusal at the Vendor's cost.

EXPEDITING:

Deliveries must be confirmed within fourteen (14) days of order placement. Monthly updates of all outstanding orders must be issued directly to each branch with copy to purchasing. Updates must include items shipped but not yet received. Correspondence to be sent by e-mail.

ENERGY STEEL PRODUCTS PURCHASING RIGHTS:

Energy Steel Products reserves the following rights:

- To access the Vendor's premises for the purpose of performing audits, surveys, inspections and verification of Vendor's procedures, as well as compliance with contracts.
- To have the same accessibility to vendor premises for Energy Steel Products customers as relevant.
- To reject material that does not meet all Specifications and Requirements and charge back all costs associated to material rejection, including any inbound transportations costs to the Vendor's account.
- To charge back to Vendor all costs associated to the rework of substandard material
- To refuse damaged shipments that were shipped F.O.B. delivered.
- Shipments received thirty (30) days before or after the required delivery date are subject to refusal or re-negotiation at Energy Steel Products option.

QUALITY RECORDS:

Vendor must maintain all quality records that relate to work or services performed for seven (7) years or for a retention period mutual agreed upon. Quality records must be readily available upon request.

EXCEPTIONS:

Requests for exceptions to material specification SS1 Rev. 5 must be submitted in writing and allowance given prior approval by Energy Steel Products.

CHIEF EXECUTIVE OFFICER
ENERGY STEEL PRODUCTS, LLC.

DATE