***AZERBORU - SEAMLESS PIPE PLANT RENOVATION PROJECT***

*O.D. RANGE* 2.3/8” ÷ 9.5/8” (10.3/4”)

***Technical Description of***

***Nr. 1 Cold Straightener to be installed at the end of H.R.L. Cooling Bed in substitution of an existing one.***

***O.D. 2.3/8” ÷ 9.5/8” (10.3/4”)***

**for**

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# SCOPE OF SUPPLY

The scope of supply consists, for Engineering and for Manufacturing, of *Nr. 1 – Cold Straightening Machine*, to be installed at the end of the current H.R.L cooling bed, to process seamless pipes to produce OCTG, Line Pipes and Mechanical pipes.

# REFERENCE CONCEPTS FOR PLANT RENOVATION PROJECT

## Equipment Production

|  |  |  |  |
| --- | --- | --- | --- |
| 🞍 | *Tubing, Casing (and Coupling Stock)*  *Line Pipe*  *Mechanical and General purpose hot rolled* | *:*  *:*  *:* | - API 5CT – 11th Edition;  - GOST 31446-2017;  - GOST 632-80;  - GOST 633-80;  - Premium Joint (T&C).  - API 5L 46th Edition;  - GOST 8732-78;  - GOST 32528-2013.  ASTM A106, A333, A335, A53 |
| 🞍 | *Duty* | *:* | Continuous |
| 🞍 | *Detailed Reference Mix*  *and productivity required* | *:* | See Annex 1.  Note: Reference length indicated in Annex1 represent the finished pipe length. The supplier must add an extra 10% length for its productivity calculations. |

## Product Range

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 🞍 *Pipe Dimensional Range*  *- O.D. (in)* | | : | 2.3/8” ÷ 9.5/8” (10.3/4” for Coupling Stock) | |
| *(mm)* | | : | 60.3 ÷ 244.5 (273) | |
| *- W.T. (mm)* | | : | 4.8 ÷ 20 | |
| *- Length (m)* | | : | 6 ÷ 14 | |
| *- Max Weight (Kg)* | | : | 1200 | |
| 🞍 | *Steel Quality* | : | | All API and equivalent GOST Steel Grades for OCTG according to Standards listed at point 1, including 9Cr (13Cr).  API and equivalent GOST Steel Grades, for Line Pipe up to X80, according to Standards listed at point 2.1. | |

## Pipe Conditions and main Machine Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| 🞍 | *Body Conditions (inlet)* | : | Seamless pipe, as rolled from Hot Rolling Mill or in-line normalized. |
| 🞍 | *Ends Condition (inlet)* | : | Plain End, Non-Upset. |
| 🞍 | *Pipe Temperature* | : | Up to 80 °C. |
| 🞍 | *Inspection Type* | : | The pipe does not rotate during inspection. | |
| 🞍 | *Straightening speed* | : | Variable, up to 90 m/min | |
| 🞍 | *Tube conditions after Straightening process* | : | Deviation from straight, or chord height, will not exceed the following:  \* 1/1000 of the total length of the pipe measured from one end of the pipe to other end;  \* 3 mm maximum drop in the 1.5 m length at each end. |

# SUPPLY DESCRIPTION

Cold Straightener shall be an automatic 6/7 rolls machine, designed to straighten hot rolled or in-line normalized pipes present at the end of a chain cooling bed, allowing head and tail end of the tube to pass through without deforming the ends (open/close system of the extremity rolls). The machine shall be designed for quick adjustment of rolls to suit the product size in process.

The Supplier shall verify, through an on-site inspection:

* the available room:
* the possibility to maintain the existing channels or the need to install its own inlet/outlet channels with the necessary length, considering the interfacing constraints and the current loading/unloading systems. In both cases, deviation limits on pipe straightness, described at the previous point 2.3, shall be guaranteed by the Supplier.

Inlet and outlet channels will be offered with separate price.

Roller Ways of inlet and outlet channels, when supplied, shall be equipped with Inverters.

The machine control system will include software to process all pipes of the Mix (see Annex 1) and shall exchange signals with Level 2 Automation System.

Straightening machine shall not dent the tubes in any way.

The supplier ensures the supply of wear-resistant parts for the first year of operation.

Technical documentation for the maintenance of the supplied equipment is supplied

# ANNEX

Annex 1 : Reference Production Mix and Productivity

Annex 2 : Layout

**Annex 2: Reference Production Mix and Productivity**



***(\*) NOTE: 130 pipe/hr guaranteed productivity for pipe length up to 10m with OD up to 114,3mm***

**Annex 2: Layout**

