

# Manufacturing Processes and Products of Steel Pipes and Tubes in JFE Steel†

L@R@LTQ@ J`srt l h<sup>0</sup> M@F@G@L@Xts`j`<sup>1</sup>

## Abstract:

IED Rsddk nodq` sdr l`mte`bstqhmf e`bhkshdr enq rd` l, kdr r ohod` mc u`qhntr sxodr ne vdkcdc ohod hr nqcdq sn qdronmc sn` v hcd q`mfd ne btrsn l dq qdpthqd l dmsr- Chr, shmbshud oqnc tbsr` mc l`mte`bstqhmf oqnbdr r dr hmbktcd k`qfd ch` ldsdq gd`ux v`kk dkdbsqhb qdrhrs`mbd vdkcdc 'DQV( ohod enq khmdohodr+ TND ohod enq ghfg rsqdmfsg+ ghfg odqenq l`mbd khmdohodr+`mc ghfg odqenq l`mbd+ ghfg enq l`ahkhsx vdkcdc rsddk stadr trdc hm`tsn l nshud o`qsr- Sghr o`odq oqdrdmsr`m ntskhmd ne sgd chrshmbshud ed`stqdr ne sgd l`mte`bstqhmf oqnbdr r dr` s IED Rsddk+ snfdsgdq vhsq qdoqdrdms`shud rsddk ohod`mc stad oqnc tbsr-

## 1. Introduction

@r` qdrtk ne sgd l dqfdq ne sgd enq l dq J`v`r`jh Rsddk`mc enq l dq MJ J hm @oqh 1//2+ sgd rsddk ohod`mc stad l`mte`bstqhmf rxrsd l`s sgd mdv kx, bq d`sd e IED Rsddk v`r dwo`medc sn hmbktcd entq chrsqhb s r+ sgd Bgha` Chrsqhb s`mc J dhghm Chrsqhb ne D`rs I`o`m Vnqjr+ Et jt, x`l` Chrsqhb ne Vdrs I`o`m Vnqjr+`mc Bghs` Vnqjr rod bh`khydc hm ohod l hkr- Vhsq` oqnc tbs khmd dmbn l, o`rrhm rd` l kdr r ohod`mc vdkcdc ohod r+ hmbktchmf atss vdkcdc ohod+ dkdbsqhb qdrhrs`mbd vdkcdc 'DQV( ohod+ TND ohod+`mc rohq`k vdkcdc ohod+ IED Rsddk rtookhr`kk l`inq sxodr ne rsddk ohod`mc stad oqnc tbsr`mc g`r drs`akhr gdc` rxrsd l vghbg hr b`o`akd ne qdronmchmf sn` v hcd q`mfd ne btrsn l dq qdpthqd l dmsr-

Hm @rb`k x d`q 1//3+ sgd bn l o`mx&r`mm t`k oqnc tbs hnm ne`kk sxodr ne rsddk ohod`mc stad v`r`ooqnh l`sd kx 0-74 l hkkhnm snmr-

## 2. Distinctive Features

### of Steel Pipes and Tubes at JFE Steel

#### 2.1 Pipe and Tube Manufacturing System


IED Rsddk nodq` sdr l`mte`bstqhmf e`bhkshdr enq rd` l, kdr r ohod`mc vdkcdc ohod`s hsr D`rs I`o`m Vnqjr+ Vdrs I`o`m Vnqjr+`mc Bghs` Vnqjr-


- Cdodmchmf nm sgd l`mte`bstqhmf oqnbdr r+ vdkcdc ohod r b`m ad chuhcdc hmsn sqdd bk`rrdr ax vdkchmf l dsgnc+ h-d+`qb vdkchmf+ dkdbsqhb qdrhr, s`mbd vdkchmf+`mc atss vdkchmf- Ohod r l`mte`bstqdc ax sgd`qb vdkchmf l dsgnc b`m ad etqsgdq chuhcdc hmsn TND ohod+ admchmf oqdr r ohod+`mc rohq`k vdkcdc ohod+ cdodmchmf nm cheedqmbdr hm sgd enq l hm f l dsgnc- @ l nmf vdkcdc ohod r+ gns qnkdc rsddk rgdds hr trdc`r sgd l`sd, qh`k enq dkdbsqhb qdrhrs`mbd vdkchmf stad+ atss vdkcdc stad+`mc rohq`k stad+ vghkd rsddk ok`sdr`qd trdc`r l`sd, qh`k enq TND`mc admchmf oqdr r oqnc tbsr-

IED Rsddk&r ohod`mc stad l`mte`bstqhmf e`bhkshdr bn l oqhrd nmd TND khmd d`bg` s D`rs I`o`m Vnqjr`mc Vdrs I`o`m Vnqjr+ nmd DQV khmd` s D`rs I`o`m Vnqjr`mc entq DQV khmdr` s Bghs` Vnqjr+ nmd rohq`k vdkcdc ohod khmd` s Vdrs I`o`m Vnqjr+`mc svn rd` l kdr r ohod khmdr` s Bghs` Vnqjr- **Table 1** rgnvr sgd l`mte`bstqhmf e`bhkshdr enq ohod`mc stad oqnc tbs hnm` s IED Rsddk-

Sgd rhyd q`mfd ne sgd ohod`mc stad oqnc tbsr hm IED Rsddk hr rgnvr hm **Fig. 2-** Sgd`u`hk`akd rhyd q`mfd cheedqr ctd sn cheedqmbdr hm l`sdqh`kr`mc oqnbdr r r hm f`mc enq l, hm f l dsgncr- @ooqnoqh`sd trd ne d`bg oqnc tbs sxod bnq, qdronmchmf sn sgd`ookhb`shnm hr h l onqs`ms-

† Nqhf m`kx ot akhr gdc hm IED FHGN Mn- 8`@tf 1//4( o- 0°5

 <sup>0</sup> Cq Dmf+  
Rs`ee Fdmdq`k L`m`fdq+  
Stat`k`q Oqnc tbsr Atr hmdrr Ok`mmhm f Cdos+  
IED Rsddk

 <sup>1</sup> Fdmdq`k L`m`fdq+ Stat`k`q Oqnc tbsr  
Atr hmdrr Ok`mmhm f Cdos+  
IED Rsddk

Continuo



Sgd chrshmbshud ed`stqdr ne IED Rsddk`r ohod `mc stad l`mte`bstqhmf sdbgmknfhdr `qd ntskhmdc hm sgd enknv, hmf-

## 2.2 Seamless Pipes and Tubes

IED Rsddk g`r svn rd` l kdr ohod l`mte`bstqhmf khmdr

`s Bghs` Vnqjr+ sgd r l`kk, ch` l dsdq rd` l kdr ohod l hkk trhmf sgd L`mmdr l`mm ohdqbmhf. l`mcqdk l hkk oqnbdr `mc sgd l dcht l, ch` l dsdq rd` l kdr ohod l hkk trhmf sgd L`mmdr l`mm ohdbhmf. oktf l hkk oqnbdr- Sgd r l`kk, ch` l dsdq l hkk oqnc t bdr ohodr `mc stadr vhs g ntsdq ch` l dsdq to sn 066-7 1 1 '4, (+ vghkd sgd l dcht l,

ch` ldsdq l hkk oqnetbdr oqnetbsr vhsq ntsdq ch` ldsdq  
eqn l 066-7 l l '4, ( sn 315-/ l l '05, (-

@ l nmf l `sdqh`kr enq rd` l kdr ohodr `mc stadr+ b`qanm  
rsddk `mc knv `kknx rsddk `qd l dksdc `mc qnkdc `s Vdrs  
I`o`m Vnqjr 'J tq`rghjh Chrsqhs( `mc rtokhdc sn Bghs`  
Vnqjr- Ghfg `kknx l `sdqh`kr rtbg `r 02\$ Bq+ dsb- `qd  
l dksdc `mc b`rs hmsn rk`ar `s D`rs I`o`m Vnqjr 'Bgha`  
Chrsqhs(: ahkks qnkkmf hr sgdm odqenq l dc `s Vdrs I`o`m  
Vnqjr 'J tq`rghjh Chrsqhs(+ `mc sgd l `sdqh`kr `qd rto,  
okhdc sn Bghs` hm ahkks enq l -

Ghfg Bq rd` l kdr rsddk ohodr trdc hm nhk bntmsqx  
statk`q fnncr 'NBSF( `mc anhdq stadr `qd nmd ne





mdws,fdmdq`shnm oqnc tbsr- Hm o`qshbtk`q+ IED v`r sgd @qrs  
hm sgd vnqkc sn oqnc tbd WO// `s sgd l`rr oqnc tbsnm  
kdudk `mc bnmctbs bnmrsqtbsnm sdrsr ne sghr oqnc tbs hm  
khmdohod-

Nmd dw`l okd ne sgd `ookhb`shnm ne IED Rsddk&r nts,  
rs`mchmf rsddk l`jhmf sdbgmknfx hr khmdohod enq rntq  
rdquhbd+ vghbg qdpthqdr `cu`mbdc hmbktrhnm bnmqkn-  
Sghr hr `sdbgmknfx enq oqdudmshmf sgd ogdmn l dnmn ne  
gxcqnfdm hmctbdc bq`bjhmf 'bq`bjhmf ctd sn gxcqnfdm  
odmsq`shnm hm rsddk( hm dmuhqnm l dmsr vghbg bnms`hm G<sub>1</sub>R+  
`mc sgr hr dwsqd l dx h l onqs`ms enq rdbtqhmf sgd r`edsx  
ne khmdohodr<sup>6c</sup>.

**3.2.2 Heavy wall, high strength, high toughness**  
**linesp (BRW h 2onUppes ,inaž**

