1. Introduction

Demand for special steel has grown dramatically in recent years, centering on the automobile industry. In order to respond to this demand, JFE Steel has increased its steel bar and wire rod production capacity. It was possible to increase total production capacity by 40% by increasing the capacity of the round billet finishing line at the Billet Mill and the bar finishing line at the Wire Rod and Bar Mill, as these are the bottleneck processes in the two plants. This report introduces the content of these expansion projects.

2. Equipment Expansion Projects

2.1 Billet Mill Round Billet Finishing Line

e pan ion i h he en e ipmen la , making i
nece a o loca e he g inde a he deli e ide of he
MMT. A he p oce ing o , af e a in pec ion b
he a oma ic in pec ion facili ie , a ne ca -e able
a con c ed a he en ide of he g inding line in
o de o feed he bille o he ne g inde e ipmen .
The line emplo he a ance em in hich a
emo al i pe fo med b he g inde e ipmen af e
cha ging o he ne line and he defec e id al a ail-
abili af e g inding i in pec ed b MMT, and i laid
o pe fo m epea ed g inding b he g inde e ip-
men if e id al a a e de ec ed. A ne label eade
a al o in alled fo iden i ca ion managemen and
e l managemen af e cha ging f om he e i ing line
o he ne line. T acking con ol i pe fo med in 1 bille
ni .

In od c ion of he g inde e ipmen and MMT
made i po ible o inc ea e he nd bille ni hing
capaci . A a e l , i ha become po ible o inc ea e
p od c ion of bille fo he Wi e Rod and Ba Mill and
nd bille fo e e nal ale, hich a e man fac ed
b he Bille Mill.

2.2 Wire Rod and Bar Mill Bar Finishing Line

2.2.1 Outline of capacity increase

In o de o inc ea e he p oce ing capaci of he
Wi e Rod and Ba Mill ni hing line, a ne dedica ed
line a con c ed fo mall diame e ba (16 mm 45 mm
dia.). D e o lack of pace in he e i ing Wi e Rod and
Ba Mill, hi line a con c ed in a epa a e a d.
The e i ing ba ni hing line (16 mm 90 mm dia.),
hich i loca ed in he ame a d a he olling line, i
called No. 1 ni hing line, and he ne line i No. 2
ni hing line. A No. 1 line, he aim a o inc ea e he
ope a ing ime a e b ed cing he f e enc of i e
change in he in pec ion facili ie and o he e ipmen ,
b ing hi line a a dedica ed line fo la ge diame e
od i h diame e of 45 mm dia. and la ge . Beca e
No. 2 ni hing line i loca ed in a epa a e a d, i i
nece a o an po he ba . Ho e e , di ec an po
of ba af e olling a made po ible b in alling pal-
le hich a e capable of handling a m bille (empe -
a e p o 250 C) and h enable an po a ion af e
olling. **Figure 2** ho he la d of No. 2 ni hing
line. Di inc i e fea e of hi line incl de: (1) ma e-
ial handling i po ible ing onl one c ane beca e
he ma e ial feed and collec ion one e e a anged in
clo e p o imi y and (2) he ma e ial feed bed i loca ed
in he cen al pa of he line. Beca e hi line la d
fea e a U- n a he in pec ion line af e cha ging,

ide. **Table 2** shows the main specification of the 2-roll straightener and the inspection facilities. Two nonconforming material eject beds (MLFT eject carry-out bed, RUT eject carry-out bed) are arranged at the delivery side of the respective inspection facilities, enabling automatic sorting based on the pass/fail result of inspection by the inspection facilities. Material which are passed by the inspection facilities are transported to the delivery side carry-out bed, and product labels are attached to the end of the product by a labeler. Labeling is performed in one bar unit. Bars are charged into a material collecting pocket, in unit corresponding to the number of bars in one bundle, and transported to the banding machine, which performs banding at 4 or 6 points. The bundle are then discharged to the material collection bed and shipped.

As described above, it is possible to increase the

capacity of the Wire Rod and Bar Mill by adopting a two line system at the bar line by constructing a new No. 2 finishing line.

3. Conclusion

Measures to increase the finishing line capacities of the Billet Mill and Wire Rod and Bar Mill were introduced. As a result of these measures, the finishing capacity of the bar and wire rod division was increased by