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??

(?)?? 50????????????  
??45?52hrc????????????28-32hrc  
40cr??  
???gcr15????65mn????????????????????????50?58hrc??  
????????????????38crmoaia??  
???????????? 50??  
50????????hrc42~46????????????????????50????????????50????????????????????????????????

50????

??13\*30mm????????  
??

50??????

????????%?c 0.47~0.55?si 0.17~0.37?mn 0.50~0.80?p?0.035?s?0.035?ni?0.30?cr?0.15?cu?0.25?[1]

50??????

???? ?b (mpa)??630(64) ???? ?s (mpa)??375(38) ??? ?5 (%)??14 ????? ? (%)??40 ??? akv (j)??31(4)  
????? ?kv (j/cm<sup>2</sup>)??39(4) ?? ???????241hb;?????207hb ??????????25mm.

50??????

????? ?????? ac1=725??ac3=760??ar3=721??ar1=690? ???? ?830?±10????????? ??????????  
?????830? ±10????????????????600?±10??????????



