

ABSTRACT OF THE DISCLOSURE**HEAVY-WALL H-SHAPED STEEL HAVING HIGH TOUGHNESS AND YIELD STRENGTH
AND PROCESS FOR MAKING STEEL STRENGTH**

A high-strength heavy-wall H-shaped steel is excellent in Z-direction toughness at the flange thickness center. The heavy-wall H-shaped steel is comprised of by weight from about 0.05 to 0.18% C, up to about 0.60% Si, from about 1.00% to about 1.80% Mn, up to about 0.020% P, under 0.004% S, from 0.016% to 0.050% Al, from 0.04% to 0.15% V, and from 0.0070% to 0.0200% N, and one or more of from about 0.02% to about 0.60% Cu, from about 0.02% to about 0.60% Ni, from about 0.02% to about 0.50% Cr, and from about 0.01% to about 0.20% Mo; and the balance being Fe and incidental impurities. Also, $(V \times N)/S \geq 0.150$; the Ti content is within a range satisfying $0.002 \leq Ti \leq 1.38 \times N - 8.59 \times 10^{-4}$; $C_{eq} (= C + Si/24 + Mn/6 + Ni/40 + Cr/5 + Mo/4 + V/14)$ is within a range of from about 0.36 wt% to about 0.45 wt%, and the yield strength is at least 325 MPa.