

INDRA 10D

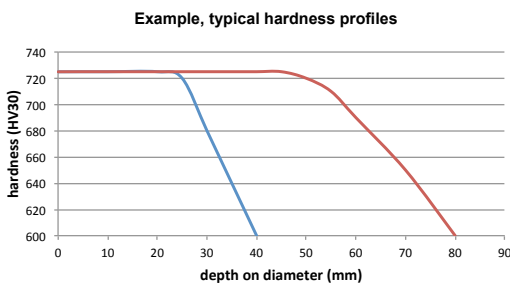
Forged Semi High Speed Steel (EAF or ESR)

Chemical composition

	C	Mn	Si	Cr	Mo	V
INDRA 10D	0.65	0.4	0.4	8.0	0.5	0.1
	0.95	0.8	1.0	10.0	1.5	1.0
INDRA 5D	0.4	0.2	0.1	4.4	0.8	0.1
	0.7	0.6	1.0	5.5	1.4	0.5

Properties

Max hardness	HV	750
Yield strength (Core)	(MPa)	500-700
Young's modulus	(GPa)	210



Comparative properties

	Wear resistance	Grindability	Roughness retention
INDRA 10D			
INDRA 5D			

Description

Forged semi high speed steel with 10% chromium manufactured according to Union Electric Åkers specification.

Martensitic structure tempered at high temperature (500°C) with homogeneous distribution of fine carbides.

The steel is refined in an electric furnace (EAF) followed by ladle metallurgy and vacuum degassing. When required, the EAF ingot can be further refined by ESR (Electro Slag Remelting).

The ingot is forged with high forging ratio. Preliminary heat treatments are applied on forged blank to obtain suitable mechanical properties in the core and necks.

The roll barrel is then induction hardened and tempered to obtain a hard and wear resistant surface layer, the depth of which can be varied according to requirements by careful selection of the hardening parameters.

Applications

Work rolls in 4-high, 6-high mill configurations for cold rolling of ferrous products with high incidents rate: silicon mill, tin plate mill.

Intermediate rolls in 6-high mill configurations for cold rolling of ferrous and non ferrous products.

Features & Benefits

- High wear resistance.
- High tempering temperature giving a better resistance against mill accidents.