

Hardfacing cored wire

Classification

DIN 8555-83 : MF7-GF-250-KP

General description

Lincore 15CrMn is a self shielded, open arc, flux cored tubular electrode that exhibits excellent arc characteristics, clean slag detachability, and low spatter levels. Although, Lincore 15CrMn is primarily designed for the open arc operation, it may be used under neutral flux for conditions requiring spatter elimination and removal of arc glare.

Application

Lincore 15CrMn produces a premium austenitic chromium-manganese deposit. The term premium is used because the weld metal has sufficient alloy content to produce a single pass austenitic deposit on ordinary carbon steel. The deposit rapidly work hardens under impact making it particularly suitable for applications of high impact and gouging coupled with moderate abrasion. In addition to surfacing, the high crack resistance of this alloy design makes Lincore 15CrMn an ideal electrode for joining manganese steel to itself or carbon steels with minimal the risk of centerline cracking. Joining by the SAW process, however, is not recommended.

Typical applications include:

- Railroad frogs
- Track ends
- Crusher hammers and screens
- Earth moving equipment
- Rebuilding of austenitic manganese plates and components
- Construction equipment



Mechanical properties, all weld metal

Typical hardness values

As deposited	18 - 22 HRC (210-235 HB)
Work Hardened	40 - 50 HRC (375-490HB)

Packaging and available sizes

Unit type	Net weight/unit (kg)	Diameter (mm)	
		2.0	2.8
Wire reel 14C	6.35	X	
Wire reel 22RR	10	X	
Wire reel 50C	22.68	X	X

Lincore® 15CrMn: rev. EN 20

Lincore[®] 15CrMn

Additional information

All work-hardened base material and previously deposited material should be removed prior to applying a new deposit, since such areas are prone to embrittlement and possible cracking. No preheat is required on austenitic manganese steels although a preheat of between 150-200°C may be necessary on carbon and low steels to prevent heat affected zone cracking.

Narrow stringer beads are preferred to avoid excessive heat build up in the base material. High heat input welds and interpass temperatures above 260°C causes manganese carbide precipitation resulting in embrittlement.

There is no definite limitation to the number of passes that may be deposited, however, it is good practise to peen each pass immediately after welding to minimise internal stresses and possible distortion and cracking.

Lincore 15CrMn deposits work harden rapidly making them difficult to machine. For best results carbide or ceramic cutting tools and rigid tooling should be used. Grinding can also be successfully employed.

For applications involving severe impact and abrasion, a build-up of Lincore 15CrMn coupled with a single pass of Wearshield 60 or Lincore 60-O should be employed.

The Lincore 15CrMn deposit can not be cut using the oxy-fuel process due to the high chromium content, however, plasma arc and air carbon arc processes are appropriate.

Welding positions



ISO/ASME PA/1G

Current type

DC +

Chemical composition (w%) typical, all weld metal

C	Mn	Si	Cr
0.4	15.0	0.25	16.0

Structure

In the as welded condition, the microstructure consists of a soft chromium manganese alloy austenite which rapidly work hardens under impact loading

Calculation Data

Diameter (mm)	Wire Feed Speed (m/min)	Current (Amps)	Arc Voltage (volts)	Deposition Rate (kg/h)
2.0	3.2 to 8.9	210 - 380	26 - 32	3.3 - 9.7
2.8	1.9 to 4.4	250 - 380	26 - 30	2.5 - 7.5

Complementary products

Complementary products include Wearshield[®] 15CrMn