SUPERMA-X80®

ERNDTEBRÜCKER
EISENWERK

SUPERMA - X80®

The gas produced from many fields contains not only hydrocarbons but also CO_2 and water. Carbon steel pipes will be damaged by corrosion if wet CO_2 is present. To counteract this, chemical inhibitors are injected into the gas, or corrosion resistant steels such as duplex are used. The use of inhibitors is becoming more and more a problem, not only because of the high operational costs involved, but also due to the environmental problem of chemical disposal. In the current climate of low energy prices and cost-effective thinking, the correct choice of materials in the oil and gas industry is becoming increasingly more important.

The choice is governed by mechanical properties, corrosion resistance, availability and cost. Due to its high strength and corrosion resistance duplex steels are often used. Duplex pipes are expensive, especially then, when only resistance against CO_2 corrosion is required.

13 % Cr martensitic steel pipes have been used in the oil and gas industry for many years now in down hole wellstream applications, however, up to now they have only been available in small diameters and seamless as this steel has always been considered not weldable or at least very difficult to weld due to the high carbon content.

EEW is now in the position to offer three grades of longitudinaly welded low carbon supermartensitic stainless steel pipes under the EEW trade mark

SUPERMA-X80 ®

Grade 1	11Cr 2.5Ni	sweet gas, no H_2S
Grade 2	12Cr 4,5Ni 1,5Mo	mild sour gas, max. 10 ppm H_2S
Grade 3	12Cr 6,5Ni 2,5Mo	mild sour gas, max. 50 ppm H_2S

With EEW's capabilities the cold forming of this steel with a nominal yield strength of 550 N/mm² is no problem. The usual line pipe sizes of 16", 18" and 20" can be formed in 13 metre lengths with wall thicknesses up to 31,8 mm, 34,9 mm and 40,5 mm respectively. Not only are larger diameters also available in these lengths but diameters smaller than 16" can be delivered in single lengths of six metres. Individual dimensions can be taken from our separate production diagrams.

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Chemistry

Grade	C %	Mn %	P %	S %	Si %	Cr %	Ni %	Mo %
1	0,015	2,0	0,030	0,005	0,4	10,0 - 12,0	1,0 - 3,0	0,5
2	0,015	2,0	0,030	0,005	0,4	11,0 - 13,0	4,0 - 5,0	1,0 - 2,0
3	0,015	2,0	0,030	0,005	0,4	11,0 - 13,0	6,0 - 7,0	2,0 - 3,0

individual values are maximum values

Mechanical characteristics (at room temperature)

Grades	Rp 0.2 (N/mm²)	Rm (N/mm²)	RP 0.2/Rm (max.)	A (% min) Lo = 5.65√So
1 to 3	550	700 - 900	0.85	15

Charpy - V impact tests (full size specimens)

Grade	Test Temperature	Base metal		Weld and HAZ	
		average	min value	average	min value
1	-20°C	70 J	50 J	40 J	30 J
2 & 3	-40°C	70 J	50 J	40 J	30 J

Welding

SUPERMA-X80® has a good weldability and can be welded using matching consumables, duplex or super-duplex consumables. This has the advantage that if a flange or fitting is not available in the required grade of SUPERMA-X80®, duplex material can be taken from stock and welded without problems.

Post Weld heat Treatment

There is no need for p.w.h.t. when welded with duplex or super-duplex consumables.
The best results are achieved after a short post weld heat treatment at approx. 620°C when welded with matching consumables.

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Approvals

EEW has already been qualified as a supplier of longitudinally welded SUPERMA-X80® pipes by

Stoomwezen B.V.
Nederlandse Aardolie Maatschappij B.V. (NAM)

EEW has the following company approvals:

- ISO 9002 certificate No. 920990
- API 5L
- API 2B
- ASME U - Stamp
- ASME S – Stamp
- ASME U2 - Stamp
- TÜV AD HP-0

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