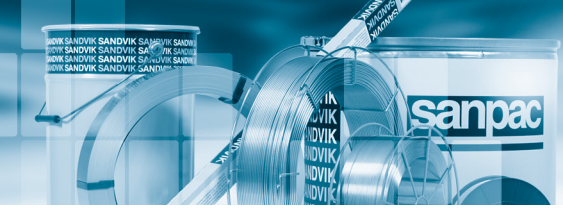

Datasheet updated 2012-08-03 09:01:20 (supersedes all previous editions)

Sandvik 22.12.HTR

(Covered electrodes)

Sandvik 22.12.HTR is covered electrode with rutile-acid coating and about 110% metal recovery. It is used for welding of austenitic stainless steels of UNS 30815 type (e.g. Sandvik 253 MA) and similar high-temperature steels, such as ASTM 309 and 309S.

Sandvik 22.12.HTR gives a chromium-nickel weld metal that is scaling resistant in air up to 1150°C (2102°F). Spray transfer gives a bead with a finely rippled surface. There is little spatter and very good slag removal.

CHEMICAL COMPOSITION - ALL-WELD METAL

The following data is valid for non heat treated all-weld metal.

CHEMICAL COMPOSITION, WT%

C	Si	Mn	P max	S max	Cr	Ni	N
0.06	1.5	0.8	0.03	0.03	22	10.5	0.18

MICROSTRUCTURE - ALL-WELD METAL

Austenitic matrix with a ferrite content of about 6FN according to the DeLong diagram.

CORROSION RESISTANCE - ALL-WELD METAL

Corrosion resistance
Wet corrosion resistance similar to weld metal of the 19Cr 9Ni steel type.

Oxidation resistance
Up to 1150 °C (2102°F) in air.

RECOMMENDED WELDING DATA

Diameter, mm	2.5	3.25	4.0
Current, A	45-70	70-110	100-140

Redrying electrodes when necessary: 300 °C (570°F)/2h

MARKING

Marking at grip end	Sandvik 22.12.HTR

DEPOSITION DATA

ELECTRODE DATA

Electrode diameter, mm	2.5	3.25	4.0
Length, mm	300	350	350
Weights: kg/100 pcs	2.2	3.6	6.0
kg/box	4.0	4.5	5.1
Electrodes/box	184	124	85
Max deposition rate, kg weld metal/h, approx	1.1	1.6	2.1
Effective value kg weld metal/kg electrodes	0.62	0.62	0.64
Change value Electrodes/kg weld metal	71	42	25
Burn off time per electrode at max current, s	46	51	64

WORKING DATA

Welding positions	all except vertical down
Current/polarity	direct current/electrode positive or alternating current at an open circuit voltage of at least 60V

APPLICATIONS

Sandvik 22.12.HTR is intended primarily for welding the high temperature steels Sandvik 253MA®[1] and Avesta 253MA®[1], UNS S30815.

It is also suitable for welding other high temperature steels, such as AISI 309 and EN 1.4828.

[1] 253MA® is a trademark owned by Outokumpu Stainless.

DISCLAIMER:
Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.