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FILE NO: 47894.000006

November 19, 2001

VIA ELECTRONIC MAIL

The Honorable Robert B. Zoellick
United States Trade Representative
600 17th Street, N.W.
Washington, D.C. 20580
Attn: Andrew Stephens

Re: Section 201 Investigation - Certain Steel Products - (Cold-Rolled Steel)

Dear Ambassador Zoellick:

On behalf of Sandvik Steel Company ("Sandvik"), we hereby submit the attached amendments to Sandvik's exclusion request, filed with your office on November 13, 2001, for certain cold-rolled products in the above referenced investigation. The amendments provide more specific details on the product characteristics of the following products for which Sandvik is seeking exclusion: woodband saw steel, grade 20C steel for shock absorbers, flapper valves and doctor blades, cement kiln steel, and die steel.

Please contact the undersigned should you have additional questions with respect to this matter.

Sincerely,

William Silverman

SPECIFICATION

WOOD BANDSAW STEEL, SANDVIK 15LM AND SANDVIK 15N2 Account 560	Reg nr: 634 6062 Rev 4 Enclosure - Date: 1998-04-14 Replaces: 1996-09-06
Prepared by: SBPS C Persson Approved by: SBP C Anderzén Authorised by: SBQ G Borgquist	Changes:

SCOPE

Sandvik strip steel for manufacture of wood band saws is made with bright polished or super blue surface finish. The material has straight smooth edges, good flatness and straightness.

STEEL GRADES

For smaller sizes and Dim 231,8 x 1,47, 231,8 x 1,65 ,231,8 x 1,73 , 206,4 x 1,47 and 231,8 x 1,83
Sandvik 15LM (AISI 1074, W-Nr 1.1248) C=0.75%, Si=0.2%, Mn=0.75%

For larger sizes:
Sandvik 15N2
C=0.75%, Si=0.25%, Mn=0.35%, Ni=2.0%

MICRO-STRUCTURE

The microstructure shall consist of tempered martensite with completely or almost completely dissolved carbides

INCLUSIONS

Pipe

Code 1 = approved Code 2-4 = not approved

CONTROLLED DOCUMENT
Only if this stamp is in original red ink
#2 G. Sahlagen
SEP - 8 1998

DECARBURIZATION

- Complete decarburization: not allowed.
- Total decarburization: max 4% of the strip thickness.

MECHANICAL PROPERTIES

Strip thickness mm	Strip thickness inch	Tensile strength N/mm²	Hardness HRC
-1.83	-0.072	1450 +/- 80	42-46
≥ 1.83 -	≥ 0.072 -	1350 +/- 60	40-43

SURFACE

Surface finish
Bright polished or Super Blue

Surface roughness (Cut off 0.8 mm)

Thickness, mm	Max Ra, µm
- 1.20	0.25
1.20 - 1.50	1.0
≥ 1.50 -	1.5

WOOD BANDSAW STEEL, SANDVIK 15LM AND SANDVIK 15N2 Account 560	Reg nr: 634 6062 Rev 4 Enclosure - Date: 1998-04-14 Replaces: 1996-09-06

Surface defects

Material with surface defects that can serve as indication of fractures are not approved.

Surface defects with round, smooth outlines (such as roll marks) can be allowed.

Maximum approved scratch depth for longitudinal and transversal scratches is 10 µm.

EDGES

Square, smooth

SHAPE

Flatness
Max. unflatness: 0.10 % of the nominal strip width
Multishift 0.07 % of the nominal strip width

Coilset
Max coilset: 10 mm/m.

Straightness

Strip width		Max deviation from straightness			
mm	inch	mm/0.9	inch/3 ft	mm/3m	inch/10 ft
< 50	< 1.97	0.50	0.020	-	-
50 - 185	1.97-7.28	0.35	0.014	-	-
> 185 -	> 7.28	0.10	0.004	0.60	0.025

SIZE

Thickness tolerance = T1
Multishift = T2

Within a strip the maximum allowed difference between max. and min. size is half the tolerance zone for T1. *For multishift T2*
Width: Standard B1
Multishift B2
Standard dimensions, see the table 1.

COILS

Inside diameter (ID): See the table 1.
Outside diameter (OD): Max. 1250 mm

FORMS OF SUPPLY

Hardened and tempered strip steel in coils.

MARKING

The material is delivered unmarked or branded "SANDVIK MADE IN SWEDEN".

WOOD BANDSAW STEEL, SANDVIK 15LM AND SANDVIK 15N2 Account 560	Reg nr: 634 6062 Rev 4 Enclosure – Date: 1998-04-14 Replaces: 1996-09-06

TABLE 1 Standard dimensions and coil size (inner diameter)

Bright polished surface

Dimension, mm	inch BWG	Inner diameter, mm
16.0 x 0.60		
20.0 x 0.60		
25.0 x 0.60		
30.0 x 0.60		
20.0 x 0.70		
25.0 x 0.70		
30.0 x 0.70		
35.0 x 0.70		
40.0 x 0.80		
45.0 x 0.80		
76.2 x 0.89	3 x 20 BWG	
45.0 x 0.90		
50.0 x 0.90		
60.0 x 0.90		
50.0 x 1.00		
55.0 x 1.00		
60.0 x 1.00		
70.0 x 1.00		350
80.0 x 1.00		360
90.0 x 1.00		350
100.0 x 1.00		350
110.0 x 1.00		350
120.0 x 1.00		350
104.8 x 1.07	4 1/8 x 19 BWG	350
130.2 x 1.07	5 1/8 x 19 BWG	350
155.6 x 1.07	6 1/8 x 19 BWG	350
80.0 x 1.10		350
90.0 x 1.10		350
100.0 x 1.10		350
110.0 x 1.10		350
120.0 x 1.10		350
100.0 x 1.20		350
114.3 x 1.20		350
120.0 x 1.20		350
130.0 x 1.20		350
150.0 x 1.20		600

Dimension, mm	inch BWG	Inner diameter, mm
132.2 x 1.25	5 1/8 x 18 BWG	350
155.6 x 1.25	6 1/8 x 18 BWG	600
181.0 x 1.25	7 1/8 x 18 BWG	600
206.4 x 1.25	8 1/8 x 18 BWG	600
150.0 x 1.30		600
155.6 x 1.47	6 1/8 x 17 BWG	600
181.0 x 1.47	7 1/8 x 17 BWG	600
206.4 x 1.47	8 1/8 x 17 BWG	600
231.8 x 1.47	9 1/8 x 17 BWG	600
260.4 x 1.47	10 1/4 x 17 BWG	600
206.4 x 1.65	8 1/8 x 16 BWG	900
231.8 x 1.65	9 1/8 x 16 BWG	900
260.4 x 1.65	10 1/4 x 16 BWG	900
285.8 x 1.65	11 1/4 x 16 BWG	900
311.2 x 1.65	12 1/4 x 16 BWG	900
231.8 x 1.83	9 1/8 x 15 BWG	900
260.4 x 1.83	10 1/4 x 15 BWG	900
285.8 x 1.83	11 1/4 x 15 BWG	900
311.2 x 1.83	12 1/4 x 15 BWG	900
285.8 x 1.98	11 1/4 x 0.078	900
311.2 x 1.98	12 1/4 x 0.078	900
311.2 x 2.11	12 1/4 x 14 BWG	900
336.6 x 2.11	13 1/4 x 14 BWG	900
362.0 x 2.11	14 1/4 x 14 BWG	900
362.0 x 2.26	14 1/4 x 0.089	900
311.2 x 2.41	12 1/4 x 13 BWG	900
336.6 x 2.41	13 1/4 x 13 BWG	900
362.0 x 2.41	14 1/4 x 13 BWG	900
387.4 x 2.41	15 1/4 x 13 BWG	900
412.8 x 2.41	16 1/4 x 13 BWG	900
412.8 x 2.77	16 1/4 x 12 BWG	900
412.8 x 3.05	16 1/4 x 11 BWG	900

Super Blue surface

Dimension, mm	inch BWG	Inner diameter, mm
104.8 x 1.07	4 1/8 x 19 BWG	350
130.2 x 1.07	5 1/8 x 18 BWG	350
130.0 x 1.20		350
150.0 x 1.20		600
130.2 x 1.25	5 1/8 x 18 BWG	350
155.6 x 1.25	6 1/8 x 18 BWG	600

Dimension, mm	inch BWG	Inner diameter, mm
181.0 x 1.25	7 1/8 x 18 BWG	600
150.0 x 1.30		600
155.6 x 1.47	6 1/8 x 17 BWG	600
181.0 x 1.47	7 1/8 x 17 BWG	600
206.4 x 1.47	8 1/8 x 17 BWG	600
231.8 x 1.47	9 1/8 x 17 BWG	600

SANDVIK Steel

SPECIFICATION

SHOCK ABSORBER STEEL SANDVIK 20C Account 569	Reg nr: **634 6960** Rev 1 Enclosure Date: 1996-05-23 Replaces: 1994-04-26
Prepared by: SBPB L.Berglund Approved by SBP K.Olsson Authorised by: SBQ G.Borgquist	Changes: See extra bold type

SCOPE

This product specification covers hardened and tempered high carbon strip steel in thicknesses from 0.102 mm (.004") up to and including 0.508 mm (.020") intended for the manufacturing of valve plates in shock absorbers.

CHEMICAL COMPOSITION (WEIGHT-%)

C	0.95-1.05
Si	0.20-0.35
Mn	0.35-0.50
P	max 0.020
S	max 0.010

CONTROLLED DOCUMENT
Only if this stamp is in original red ink

MICROSTRUCTURE

Matrix of very fine needled, tempered martensite with a uniform distribution of small undissolved carbides.

DECARBURIZATION

No decarburization is allowed.

TENSILE STRENGTH AND HARDNESS

The tensile strength and the hardness vary with the material thickness.

Thickness		Tensile strength		Corresp. hardness figures, Vickers (HV, approximate values)
mm	inch	N/mm²	psi	
0.102	.004	***2100***	***305 000***	***615***
0.114	.0045	2100	305 000	615
0.152	.006	2050	297 000	600
0.203	.008	2000	290 000	590
0.254	.010	1950	283 000	575
0.305	.012	1900	276 000	560
0.381	.015	1850	268 000	550
0.406	.016	1850	268 000	550
0.508	.020	1750	254 000	520

Tolerance on the tensile strength ± 80 N/mm² (± 11.5 psi)

Sandvik inspection figures are always based on tensile testing which should also be conclusive in case of complaints

SANDVIK

Gary Schlager
Sandvik Steel US
Strip Division
+1 616 928 7241 ext: 1303

10/04/01 12:52 PM

To:
cc:
oc:
Fax to:
Subject: Re PRODUCT SPECIFICATION FOR CARBON VALVE STEEL SANDVIK 20C. (PKTO 567)

Produktspecifikationer Procedure SP634-020

SANDVIK

Produktspecifikationer Procedure SP634-020

PRODUCT SPECIFICATION FOR CARBON VALVE STEEL SANDVIK 20C. (PKTO 567)

Revision 1
634 6760

SCOPE

This product specification covers hardened and tempered high carbon strip steel in thicknesses up to and including 1,20 mm (.047 inch) intended for the manufacturing of valves for compressors.

CHEMICAL COMPOSITION (WEIGHT-%)

C	0,95-1,05
Si	0,20-0,35
Mn	0,35-0,50
P	max 0,020
S	max 0,010

MICROSTRUCTURE
A matrix of very fine needled, tempered martensite with a uniform distribution of small undissolved carbides.

DECARBURIZATION
No decarburization is allowed.

NON METALLIC INCLUSIONS
The area percentage of non metallic inclusions in the strip material will be

maximum:
oxide inclusions: 0,01%
sulfide inclusions: 0,03%

assessed according to Swedish Standard SS 11 11 18 at a magnification of 200 times.

TENSILE STRENGTH AND HARDNESS
The tensile strength and the hardness vary with the material thickness.

Thickness mm	Thickness inch	Tensile strength MPa	Tensile strength psi	Corresp. hardness figures, Vickers (HV, approximate values)
<0,125	<.005	2100	305 000	615
0,125-<0,175	.005-<.007	2050	297 000	600
0,175-<0,225	.007-<.009	2000	290 000	590
0,225-<0,275	.009-<.011	1950	283 000	575
0,275-<0,375	.011-<.015	1900	276 000	560
0,375-<0,425	.015-<.017	1850	268 000	550
0,425-<0,475	.017-<.019	1800	261 000	535
0,475-<0,625	.019-<.025	1750	254 000	520
0,625-<0,825	.025-<.033	1700	247 000	510
0,825-<1,150	.033-<.045	1650	239 000	495
1,150-<1,200	.045-<.047	1600	232 000	480

Tolerance on the tensile strength. ± 80 N/mm² (± 11600 psi).

Sandvik inspection figures are always based on tensile testing which should also be conclusive in case of complaints.

SURFACE FINISH
Bright fine polished.

SURFACE ROUGHNESS
Maximum allowable surface roughness, measured with a cut off length of 0,25 mm (.01 inch)

Thickness mm	Thickness inch	Ra µm	Ra µ"	Rmax µm	Rmax µ"
≤0,508	≤.020	0,13	5,2	1,5	60
>0,508-≤1,20	>.020-≤.047	0,25	10	2,5	100

SURFACE DEFECTS
Surface defects (e.g. pits and roll marks):

Thicknesses up to and including 0,508 mm (.≤020 inch): A small number of surface defects with a depth or height of maximum 2 µm (80 µ") is allowed.

Thicknesses over 0,508 mm up to and including 1,20 mm (> 020"-≤.047"): A small number of surface defects with a depth or height of maximum 3 µm (120 µm).

Scratches:

Thickness mm	Thickness inch	Max allowed depth µm	Max allowed depth µ"
≤0,203	≤.008	0,5	20
>0,203-≤0,508	>.008-≤.020	0,8	32
>0,508-≤1,20	>.020-≤.047	1,0	40

Measuring method:

Surface defects and scratches shall be measured with a surface roughness skid instrument. The measurements shall exclude any burrs.

EDGE FINISH

Slit and deburred. Material with other edge finishes can be delivered on request.

FLATNESS
The maximum allowed unflatness in 0,20% of the nominal strip width measured across and along the rolling direction.

The unflatness shall be measured with the strip lying under its own weight on a flat surface and shall exclude the influence of residual stresses from the slitting.

STRAIGHTNESS
Out-of-straightness is stated in millimetres and is defined as the maximum deviation of the edge from a straight line
The straightness tolerance is R2:

Strip width		Max allowed unstraightness	
mm	inch	mm/m	inch/3 feet
≥8-<20	≥.315-<.787	2,0	.072
≥20-<50	≥.787-<1.969	1,5	.054
≥50-<125	≥1.969-<4.921	1,25	.045
≥125-	≥4.921-	1,0	.036

Material with tighter straightness tolerances can be supplied on request.

DIMENSIONAL TOLERANCES

Thickness		Tolerances	
mm	inch	width	thickness
>0,381	≤.015	B1	T3
>0,381-0,508	≤.015-≤.020	B1	T2
>0,508-1,20	>.020-≤.047	B1	T1

Material with closer tolerances can be supplied on request.

MARKING
Each coil is marked with steel grade, heat number, lot number and nominal size and coil number.
The net and gross weight are marked on the case.

PACKING
The coils are wrapped in paper and packed in wooden cases. For overseas shipment the coils are also put into a sealed plastic bag containing silica gel inside the wooden case.

RUST PROTECTION
The material is protected against corrosion with an oil, type Castrol Rustlo 656.

Document History...

History...

Created By:	Henrik Sand on 2000-08-11 15.13	Document No:	SP634-029
Issued By:	Lars Berglund on 2000-09-26 16 43	Revision No:	Revision 1
Authorised By:	Ulrika Rydstrand on 2000-09-26 17:20		
Restored By:	Anders Ekelund on 2000-09-28 08:35		

SHOCK ABSORBER STEEL SANDVIK 20C	Reg nr: 634 6960 Rev 1 Enclosure___ Date: 1996-05-23 Replaces: 1994-04-26

SURFACE FINISH Bright polished.

SURFACE ROUGHNESS Maximum allowable surface roughness, measured with a cut off length of 0.25 mm (.01 inch) is Ra 0.13 µm (5.2 µ") and Rmax 1.5 µm (60 µ").

SURFACE DEFECTS Surface defects (e.g. pits and roll marks):

A small number of surface defects with a depth or height of maximum 5 µm (200 µ") is allowed.

Scratches:

The maximum depth of scratches allowed is 2.0 µm (80 µ").

Measuring method:

Surface defects and scratches shall be measured with a surface roughness skid instrument. The measurements shall exclude any burrs.

EDGE FINISH Slit and deburred. Material with other edge finishes can be delivered on request.

FLATNESS The maximum allowed unflatness is 0.30% of the nominal strip width measured across and along the rolling direction.

The unflatness shall be measured with the strip lying under its own weight on a flat surface and shall exclude the influence of residual stresses from the slitting.

STRAIGHTNESS Out-of-straightness is stated in millimetres and is defined as the maximum deviation of the edge from a straight line. The straightness tolerance is R2:

Strip width		Max. allowed unstraightness	
mm	inch	mm/m	inch/3 feet
≥8-<20	≥.315-<.787	2.0	.072
≥20-<50	≥.787-<1.969	1.5	.054
≥50-<125	≥1.696-<4.921	1.25	.045

SHOCK ABSORBER STEEL SANDVIK 20C	Reg nr: 634 6960	Rev 1	Enclosure
	Date: 1996-05-23		
	Replaces: 1994-04-26		

DIMENSIONAL TOLERANCES

Thickness mm	Thickness inch	Tolerances width	Tolerances thickness
-0.508	-.020	B1	T3

Material with closer tolerances can be supplied on request.

MARKING

Each coil is marked with lot number, heat number, steel grade and nominal size.
The net and gross weights are marked on the case.

PACKING

The coils are packed in cases. For overseas shipment the coils are wrapped in paper and sealed in a plastic bag containing silica gel inside the case.

DELIVERY FORM

Delivered in coils on paper bobbins, ID 350 mm (13.78").

RUST PROTECTION

The material is protected against corrosion with an oil, type Castrol Rustilo 656.

SANDVIK

Bertil Waldén
AB Sandvik Steel
SBPV
+46 26 263702

11/09/01 04:38 AM

To: Mike Bowerfind/4620/SANDVIK@SANDVIK, Cary Schlager/4620/SANDVIK@SANDVIK
cc:
Fax to:
Subject: Re: H/T CARBON STRIP STEEL 13C FOR CEMENT KILN

Hi again

Below you have the spec for cement kiln/Bertil
Produktspecifikationer Procedure SP634-023

SANDVIK Produktspecifikationer Procedure SP634-023

H/T CARBON STRIP STEEL 13C FOR CEMENT KILN

Revision 1
634 7064

SCOPE
Material intended for seal plates for kilns in cement industries.

CHEMICAL COMPOSITION WEIGHT-%

Element	Nominal	Max
C	0.65	
Si	0.25	
Mn	0.65	
P		0.020
S		0.010

MICROSTRUCTURE
Fine grained and homogeneous.
Matrix of tempered martensite with a small amount of undissolved carbides.

DECARBURIZATION
No free ferrit is allowed. Total decarburization should not exceed 4% per plane.

MECHANICAL PROPERTIES
Tensile strength: 1200-1700 N/mm2
(Standard 1280 +/- 80 N/mm2)

SURFACE FINISH
Grey hardened condition.
Ra/CLA - max 0.25 m
Cut off 0.25 mm
Rmax - max 2.5 m

EDGE CONDITION
Slit edges free from cracks and damages.

DIMENSIONS
Thickness: 0.4-1.40 mm
Tolerance: T1

Width : 250-1200 mm
Tolerance: B1

FLATNESS
Unflatness across the strip: Max 0.4% of the nominal strip width.

COIL SIZE
Inside diameter 600 mm. Coil weight max 6.5 kg/mm strip width.

Document History...

History...

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Document No: SP034-023
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SANDVIK
Steel

DIE STEEL - SPECIFICATION 1996

NOMINAL VALUES AND TOLERANCES

Hardness body, HV5:

Dieflex	400 +/-25
Dieflex X	445 +/-25
Superhard	500 +/-25

Hardness edge, HV0.3:

Dieflex	550 +40/-30
Superhard	500 +/-25

Depth of edge hardening:

0.55 mm	0.40 - 0.70 mm

Bendability, degrees, radius 0.0394":

Dieflex	min 105
Superhard	no specified bending commitments [illegible]

Height tolerance:

+/-0.08 mm (+/- 0.0031")

Thickness tolerance:

thickn. 2.07 mm	+/-0.08 mm (+/-0.0031")
thickn. 2.5-3.0 mm	+/-0.10 mm (+/- 0.0039")

Flatness, % of height:

0.3

Straightness:

1mm / 1 mtr length (0.0394" / 39" length)

Coil set:

80 mm / 1 mtr length (3.150" / 39" length)

Edge angle, degrees:

52 +/-2 (Double edge)
55 +/-2 (Single edge)

Finish of edge:

Shaved (Double edge,AE,TAE)
Ground (Single edge except AE,TAE)