

HOT ROLL BAND PRODUCT CAPABILITIES

GAUGE		
Minimum Ordered Gauge	Aim Set-Up Gauge	Half Standard Tolerance
.042 – .051"	Ordered +0.003"	-0/+0.005"
.052 – .071"	Ordered +0.003"	-0/+0.006"
.072 – .098"	Ordered +0.003"	-0/+0.007"
.099 – .180"	Ordered +0.003"	-0/+0.008"
.181 – .230"	Ordered +0.004"	-0/+0.009"
.231 – .313"	Ordered +0.005"	-0/+0.012"
.314 – .375"	Ordered +0.007"	-0/+0.013"

Half tolerance per ASTM A568 Table S1.1 and A635 Table S1.1

WIDTH	
Minimum Order Width	Mill Edge Tolerance
38.5 – 50.0"	-0, +1.125"
50.1 – 62.0"	-0, +1.500"

Standard Mill Edge Tolerance per ASTM A568 Table 6 and A635 Table 3.

ASTM A606 – CORROSION RESISTANCE STEEL						
Specification	Property Specification			Minimum Order Gauge	Minimum Order Width	Comment
	Yield	Tensile	Elongation			
A606 Type 4	50 min	70 min	22 min	.050 – .064" .065 – .370"	48" 48" or 60"	Recommend processed finish under .080"

ASTM A786 – FLOOR PLATE
 SDI produces as rolled floor plate coils as light as .075" min with pattern No.4 per ASTM A786. Aim lug height is 0.02-0.06". Please see Floor Plate information sheet for details.

HOT ROLL BAND PRODUCT CAPABILITIES

ASTM A1011/1018 – HIGH-STRENGTH LOW-ALLOY STEEL (HSLAS)						
Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Comment
	Yield	Tensile	Elongation			
A1011 HSLAS 45 Class 1	45 min	60 min 23% min El < 0.097"	25 min	.045 – .065" .066 – .200" .201 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 45 Class 1	45 min	60 min aim El 25 min	22 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 45 Class 2	45 min	55 min 23% min El < 0.097"	25 min	.045 – .065" .066 – .100" .101 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 45 Class 2	45 min	55 min aim El 25 min	22 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 50 Class 1	50 min	65 min 20% min El < 0.097"	22 min	.045 – .064" .065 – .100" .150 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 50 Class 1	50 min	65 min aim El 22 min	20 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 50 Class 2	50 min	60 min 20% min El < 0.097"	22 min	.045 – .065" .066 – .100" .101 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 50 Class 2	50 min	60 min aim El 22 min	20 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 55 Class 1	55 min	70 min 18% min El < 0.097"	20 min	.048 – .064" .065 – .150" .151 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 55 Class 1	55 min	70 min aim El 20 min	18 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 55 Class 2	55 min	65 min 18% min El < 0.097"	20 min	.045 – .064" .065 – .149" .150 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 55 Class 2	55 min	65 min aim El 20 min	18 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 60 Class 1	60 min	75 min 16% min El < 0.097"	18 min	.048 – .064" .065 – .174" .175 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 60 Class 1	60 min	75 min aim El 18 min	16 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 60 Class 2	60 min	70 min 16% min El < 0.097"	18 min	.048 – .064" .065 – .150" .151 – .229"	40.0 – 56.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 60 Class 2	60 min	70 min aim El 18 min	16 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 65 Class 1	65 min	80 min 14% min El < 0.097"	16 min	.048 – .065" .066 – .185" .186 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 65 Class 1	65 min	80 min aim El 16 min	14 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 65 Class 2	65 min	75 min 14% min El < 0.097"	16 min	.048 – .064" .065 – .174" .175 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 65 Class 2	65 min	75 min aim El 16 min	14 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 70 Class 1	70 min	85 min 12% min El < 0.097"	14 min	.048 – .075" .076 – .200" .201 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 70 Class 1	70 min	85 min aim El 14 min	12 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS 70 Class 2	70 min	80 min 12% min El < 0.097"	14 min	.048 – .065" .066 – .185" .186 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS 70 Class 2	70 min	80 min aim El 14 min	12 min	.230 – .375"	40.0 – 62.0"	

High-strength low-alloy steel utilizing Niobium (Columbium), Titanium, Vanadium, or combination. SDI provides tensile test certificate. Equivalent to old ASTM A607.

HOT ROLL BAND PRODUCT CAPABILITIES

ASTM A1011/1018 – HIGH-STRENGTH LOW-ALLOY STEEL WITH IMPROVED FORMABILITY (HSLAS-F)

Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Comment
	Yield	Tensile	Elongation			
A1011 HSLAS-F 50	50 min	60 min 22% min elong < 0.097"	24 min	.045 – .065" .066 – .100" .101 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS-F 50	50 min	60 min aim El 24 min	22 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS-F 60	60 min	70 min 20% min elong < 0.097"	22 min	.048 – .065" .066 – .160" .161 – .229"	40.0 – 56.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS-F 60	60 min	70 min aim El 22 min	16 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS-F 70	70 min	80 min 18% min elong < 0.097"	20 min	.048 – .065" .066 – .185" .186 – .229"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 HSLAS-F 70	70 min	80 min aim El 14 min	12 min	.230 – .375"	40.0 – 62.0"	
A1011 HSLAS-F 80	80 min	90 min 16% min elong < 0.097"	18 min	.050 – .065" .066 – .120" .121 – .229"	40.0 – 52.0" 40.0 – 56.0" 40.0 – 61.0"	Recommend processed finish under .080"
A1018 HSLAS-F 80	80 min	90 min aim El 14 min	12 min	.230 – .375"	40.0 – 62.0"	

High-strength low-alloy steel utilizing Niobium (Columbium), Titanium, Vanadium, or combination. SDI provides tensile test certificate. Equivalent to old ASTM A715.

ASTM A1011/1018 – MILD STEEL

Specification	Minimum Ordered Gauge	Minimum Ordered Width	Comment
A1011 CS Type B	.042 – .050"	40.0 – 56.0"	Recommend processed finish under .080"
	.051 – .229"	40.0 – 62.0"	
A1018 CS Type B	.230 – .375"	40.0 – 62.0"	
A1011 DS Type B	.042 – .050"	40.0 – 56.0"	Recommend processed finish under .080"
	.051 – .229"	40.0 – 62.0"	
A1018 DS Type B	.230 – .375"	40.0 – 62.0"	

CS TYPE B is commercial quality steel for common use including moderate forming.

DS TYPE B is specially treated steel by using boron. Mechanical properties show low strength and high elongation, but poor stretch flanging (hole expanding) quality.

HOT ROLL BAND PRODUCT CAPABILITIES

ASTM A1011/1018 – STRUCTURAL STEEL (SS)

Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Comment
	Yield	Tensile	Elongation			
A1011 SS 30	30 min	49 min 24% min El < 0.097" 21% min El < 0.064"	25 min	.042 – .050" .051 – .229"	40.0 – 56.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 SS 30	30 min	49 min	22 min	.230 – .375"	40.0 – 62.0"	
A1011 SS 33	33 min	52 min 22% min El < 0.097" 18% min El < 0.064"	23 min	.042 – .050" .051 – .229"	40.0 – 56.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 SS 33	33 min	52 min	22 min	.230 – .375"	40.0 – 62.0"	
A1011 SS 36 Type 1	36 min	53 min 21% min El < 0.097" 17% min El < 0.064"	22 min	.042 – .050" .051 – .229"	40.0 – 56.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 SS 36 Type 1	36 min	53 min	21 min	.230 – .375"	40.0 – 62.0"	
A1011 SS 36 Type 2	36 min	58 – 80 20% min El < 0.097" 16% min El < 0.064"	21 min	.050 – .065" .066 – .150" .151 – .229"	40.0 – 58.0" 40.0 – 62.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1018 SS 36 Type 2	36 min	58 – 80	21 min	.230 – .375"	40.0 – 62.0"	Trial only using low C, Si-Mn steel
A1011 SS 40*	40 min	55 min 20% min El < 0.097" 15% min El < 0.064"	21 min	.050 – .065" .066 – .229"	40.0 – 58.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1011 SS 45 Type 1	45 min	60 min 18% min El < 0.097" 13% min El < 0.064"	19 min	.050 – .065" .066 – .229"	40.0 – 58.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1011 SS 50	50 min	65 min 16% min El < 0.097" 11% min El < 0.064"	17 min	.050 – .065" .066 – .180"	40.0 – 58.0" 40.0 – 62.0"	Recommend processed finish under .080"
A1011 SS 57 Modified **	57 min	70 min 14% min El < 0.097" 9% min El < 0.064"	15 min	.050 – .065" .066 – .100" .101 – .229"	40.0 – 56.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"

*SDI cannot make A1018 SS 40 for lack of bending capability. Please consider placing order as HSLA steel for thickness over .230".

**SS 57 Modified contains Nb(Cb) .01 to .03%.

High-strength steel utilizing C and Mn. Equivalent to old ASTM A570.

ASTM A1011 – ULTRA HIGH STRENGTH STEEL (UHSS) (UNDER DEVELOP)

Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Comment
	Yield	Tensile	Elongation			
A1011 UHSS Grade 90 Type 1	90 min	100 min 14% min El < 0.097"	16 min	.065 – .180"	Inquire	Trial only
A1011 UHSS Grade 100 Type 1	100 min	110 min 12% min El < 0.097"	14 min			Under develop

This is the strongest HSLA steel. SDI provides tensile test certificate.

HOT ROLL BAND PRODUCT CAPABILITIES

BLACK BAND FOR CONVERSION

Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Produce as
	Yield	Tensile	Elongation			
For conversion to ASTM A36*	36 min	58 – 80 min	23 min	.055 – .065" .066 – .149" .150 – .229" .230 – .375"	40.0 – 56.0" 40.0 – 61.0" 40.0 – 62.0" 40.0 – 62.0"	HSLAS Grade 45 HSLAS Grade 45 SS 36 Type 2 HSLAS Grade 45

Specification	Tensile Test Specification			Minimum Ordered Gauge	Minimum Ordered Width	Comment
	Yield	Tensile	Elongation			
For conversion to ASTM A414 Grade C	33 min	55 – 70 min	22 min	.055 – .270"	Inquire	Trial only
For conversion to ASTM A414 Grade G	45 min	75 – 95 min	16 min			Under develop

Any other specs for Pipe & Tube (ASTM and API) as well as cut to length plate are not available. Please contact mill metallurgist to determine if other possible existing specs may be compatible.

SDI does not have black band processing unit. The black band coil will be produced as hot mill finish for these specs listed below. SDI provides two tensile tests per heat.

JIS G3131, G3113, G3134 (TRIAL ONLY)

Specification	Tensile Test Specification			Nominal Order Gauge	Minimum Order Width	Comment
	Yield	Tensile	Elongation *			
SPHD	N/A	39.2 min	35 min *	.047 – .055" .056 – .200"	40.0 – 56.0" 40.0 – 62.0"	Process finish trial
SPHC	N/A	39.2 min	29 min *	.047 – .055" .056 – .200"	40.0 – 56.0" 40.0 – 62.0"	Process finish trial
SAPH 310	26.8 min	45.0 min	36 min *	.047 – .055" .056 – .200"	40.0 – 56.0" 40.0 – 62.0"	Process finish trial
SAPH 370	32.6 min	53.7 min	35 min *	.047 – .055" .056 – .200"	40.0 – 56.0" 40.0 – 62.0"	Process finish trial
SAPH 400	37.0 min	58.0 min	34 min *	.060 – .200"	40.0 – 62.0"	Process finish trial
SAPH 440	44.2 min	63.8 min	32 min *	.060 – .200"	40.0 – 62.0"	Process finish trial
SPFH 540	51.5 min	78.3 min	23 min *	.181 – .375"	40.0 – 62.0"	As hot rolled trial
SPFH 590	60.9 min	85.6 min	21 min *	.080 – .180" .181 – .375"	40.0 – 61.0" 40.0 – 62.0"	Process finish trial As hot rolled trial

Elongations shown on the table are for .098 – .123" (2.5 – 3.2 mm).

These are mild steel or high-strength steel for automotive structural use. SDI perform tensile test using JIS No.5 test piece. Please notify Metallurgist to set up trial.

HOT ROLL BAND PRODUCT CAPABILITIES

SAE J1392						
Specification	Tensile Test Specification			Minimum Order Gauge	Minimum Order Width	Comment
	Yield	Tensile	Elongation			
035 XLF	35 min	N/A	28 min	.050 – .250" .251 – .375"	40.0 – 62.0" 40.0 – 62.0"	Recommend processed finish under .080"
045 XLF	45 min	55 min	25 min	.045 – .065" .066 – .100" .101 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
045 YLF	45 min	60 min	25 min	.045 – .065" .066 – .100" .101 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
050 XLF	50 min	60 min	22 min	.045 – .065" .066 – .100" .101 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
050 YLF	50 min	65 min	22 min	.045 – .064" .065 – .149" .150 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
050 ZLF	50 min	70 min	22 min	.048 – .064" .065 – .150" .151 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
060 XLF*	60 min	70 min	20 min	.048 – .079" .080 – .160"	40.0 – 52.0" 40.0 – 62.0"	Recommend processed finish under .080"
060 YLF	60 min	75 min	20 min	.048 – .064" .065 – .100" .101 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
070 XLF	70 min	80 min	17 min	.048 – .065" .066 – .185" .074 – .375"*	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
070 YLF	70 min	85 min	17 min	.048 – .075" .076 – .200" .201 – .375"*	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
080 XLF	80 min	90 min	14 min	.050 – .110" .111 – .160" .161 – .375"	40.0 – 52.0" 40.0 – 61.0" 40.0 – 62.0"	Recommend processed finish under .080"
080 YLF	80 min	95 min	14 min	.060 – .075" * .076 – .180" *	40.0 – 52.0" 40.0 – 61.0"	Recommend processed finish under .080"

035 XLF is softest HSLA using Ti addition.

060 XLF is available only up to .160" due to chemistry limit of Mn=.90mx.

040 XLF (EI=27 min) is inquiry only because we make it same as 045 XLF.

045 ZLF (EI=25 min) is inquiry only because we make it same as 050 YLF.

060 ZLF (EI=20 min) is inquiry only because we make it same as 070 XLF.

070 XLF to 080 YLF is made as Ti-HSLA for heavy gauge (see * in table) which may show moderate formability and high property variation.

High-strength low-alloy steel utilizing Niobium (Columbium), Titanium, Vanadium, or combination. SDI provides tensile test certificate.

HOT ROLL BAND PRODUCT CAPABILITIES

SAE J2340

Specification	Tensile Test Specification			Minimum Order Gauge	Minimum Order Width	Comment
	Yield	Tensile	Elongation			
300 SF	43.5 – 58.0 min	56.6 min	26 min	.060 – .375"	Inquire	
300 XF	43.5 – 58.0 min	53.6 min	28 min	.045 – .375"	Inquire	Process finish trial
300 YF	43.5 – 58.0 min	58.0 min	25 min			Under develop
340 SF	49.5 – 64.0 min	64.0 min	24 min	.060 – .100"	Inquire	Process finish trial
340 XF	49.5 – 64.0 min	59.5 min	25 min	.045 – .375"	Inquire	
340 YF	49.5 – 64.0 min	64.0 min	24 min	.045 – .250"	Inquire	Process finish trial
380 XF	55.0 – 69.6 min	65.5 min	23 min	.045 – .375"	Inquire	Process finish trial
380 YF	55.0 – 69.6 min	69.5 min	22 min			Under develop
420 XF	61.0 – 75.5 min	71.0 min	22 min	.048 – .375"	Inquire	Process finish trial
420 YF	61.0 – 75.5 min	75.5 min	19 min			Under develop
490 XF	71.0 – 85.6 min	81.2 min	20 min	.048 – .375"	Inquire	Process finish trial
550 XF	79.8 – 98.6 min	89.9 min	18 min	.050 – .200"	Inquire	Recommend processed inquiry for Mo addition

035 XLF is softest HSLA using Ti addition.

060 XLF is available only up to .160" due to chemistry limit of Mn=.90mx.

040 XLF (EI=27 min) is inquiry only because we make it same as 045 XLF.

045 ZLF (EI=25 min) is inquiry only because we make it same as 050 YLF.

060 ZLF (EI=20 min) is inquiry only because we make it same as 070 XLF.

070 XLF to 080 YLF is made as Ti-HSLA for heavy gauge (see * in table) which may show moderate formability and high property variation.

High-strength low-alloy steel utilizing Niobium (Columbium), Titanium, Vanadium, or combination. SDI provides tensile test certificate.

HOT ROLL BAND PRODUCT CAPABILITIES

STANDARD CARBON STEEL

Specification	C	Mn	Si	P	S	Applicable SAE No as SAE J403 *
SAE 1006	.02 – .06"	.25" max	.09" max	.025" max	.010" max	1005
SAE 1008	.05 – .07"	.30 – .50"				1008
SAE 1015	.14 – .18"	.30 – .60"				1015
SAE 1017	.16 – .20"	.40 – .60"				1017
SAE 1018	.16 – .20"	.60 – .90"				1018
SAE 1020	.18 – .23"	.40 – .60"				1020
SAE 1021	.18 – .23"	.60 – .90"				1021
SAE 1022	.18 – .23"	.70 – 1.00"				1022
SAE 1050	.48 – .55"	.60 – .090"				1050

SDI grade designation may not be equivalent to SAE J403 chemistry spec.

SAE 1006 is designed to be the leanest chemistry for formability.

SAE 1008 is designed to aim for similar property to SAE 1010.

Specification	Sheet Specification Produced as	Minimum Order Gauge	Minimum Order Width	Comment
SAE 1006 SAE 1008	ASTM A1011 CS	.042 – .050" .051 – .229"	40.0 – 56.0" 40.0 – 62.0"	Recommend processed finish under .080"
	ASTM A1018 CS	.230 – .375"	40.0 – 62.0"	
SAE 1015 SAE 1017 SAE 1018 SAE 1020 SAE 1021	ASTM A659*	.055 – .065" .066 – .229" .230 – .375" *	40.0 – 58.0" 40.0 – 62.0" 40.0 – 62.0"	Recommend processed finish under .080"
SAE 1022 SAE 1050	N/A *	Inquire	Inquire	Recommend processed finish under .080"

*Surface cracks may appear on heavy gauge medium carbon steel when product deformed including bending.

The steel produced as commercial quality with specified standard chemistry listed below. SDI is not responsible for mechanical property.

STANDARD PACKAGE

1 OD band and 3 ID bands, 30" ID.

SHAPE AND SURFACE

Hot rolling process has limited shape control especially on light gauge. Heads and tails of this process sometimes create surface defects. Additional post process may be needed to minimize these quality aspects.

SDI offer process line finish to improve quality especially on light gauge .080" and under. SDI also takes process finish trial for products outside of normal product limit. Please review "Hot Roll Processed Black band products" for detail capability.

CHEMISTRY

Each heat chemistry is tested at the tundish and reported on the certification. Some specific chemistry requirements may not be available. Please inquire for details.

MECHANICAL PROPERTY

Two coils per heat (sample coil OD) are tested for the orders that require tensile test. Standard ASTM tensile is used and reported on the certification. SDI can not guarantee Rockwell hardness value.

UNIQUE SPECIFICATION

SDI can not accept customer spec or customer specific property requirements. Please contact mill metallurgist to determine if other possible existing specs may be compatible.

PIW

700 – 1150. Process line can split to make small PIW coils.