Grade	% C	% Mn	% P max.	% S max.	% Si	Typical UTS (5.5 mm dia) N/mm^2	Elong % Approx	Typical end use
SWRH 27	0.24/0.31	0.30/0.60	0.030	0.030	0.15/0.30	565/695	16	Low Carbon PC wire
SWRH 32	0.29/0.36	0.30/0.60	0.030	0.030	0.15/0.30	600/715	15	
SWRH 37	0.34/0.41	0.30/0.60	0.030	0.030	0.15/0.30	620/745	15	Concrete nail
SWRH 42A	0.39/0.46	0.30/0.60	0.030	0.030	0.15/0.30	665/775	14	
SWRH 42B	0.39/0.46	0.60/0.90	0.030	0.030	0.15/0.30	685/815	14	Wire for umbrella rib, Cycle spoke, Motor cycle spoke
SWRH 47A	0.44/0.51	0.30/0.60	0.030	0.030	0.15/0.30	735/855	13	
SWRH 47B	0.44/0.51	0.60/0.90	0.030	0.030	0.15/0.30	755/875	13	
SWRH 52A	0.49/0.56	0.30/0.60	0.030	0.030	0.15/0.30	825/945	13	Crimping wire for bed spring.
SWRH 52B	0.49/0.56	0.60/0.90	0.030	0.030	0.15/0.30	845/965	13	
SWRH 57A	0.54/0.61	0.30/0.60	0.030	0.030	0.15/0.30	860/970	12	
SWRH 57B	0.54/0.61	0.60/0.90	0.030	0.030	0.15/0.30	880/980	12	Spring wire, rope wire, Tyre bead wire, ACSR wire, bale wire
SWRH 62A	0.59/0.66	0.30/0.60	0.030	0.030	0.15/0.30	920/1040	11	
SWRH 62B	0.59/0.66	0.60/0.90	0.030	0.030	0.15/0.30	950/1070	11	
SWRH 67A	0.64/0.71	0.30/0.60	0.030	0.030	0.15/0.30	960/1080	10	
SWRH 67B	0.64/0.71	0.60/0.90	0.030	0.030	0.15/0.30	970/1090	10	
SWRH 72A	0.69/0.76	0.30/0.60	0.030	0.030	0.15/0.30	1030/1150	9	
SWRH 72B	0.69/0.76	0.60/0.90	0.030	0.030	0.15/0.30	1050/1170	9	Tire bead wire, spring wire, ropes PC wire, PC strand, etc.
SWRH 77A	0.74/0.81	0.30/0.60	0.030	0.030	0.15/0.30	1090/1210	9	
SWRH 77B	0.74/0.81	0.60/0.90	0.030	0.030	0.15/0.30	1120/1250	8	

SWRH 82A	0.79/0.86	0.30/0.60	0.030	0.030	0.15/0.30	1140/1270	8	
SWRH 82B	0.79/0.86	0.60/0.90	0.030	0.030	0.15/0.30	1170/1290	8	
Similar grades of equivalent to SAE / AISI 1026, 1030, 1040, 1050, 1055, 1060, 1065, 1070, 1080 are also delivered.								

Grade / Equivalent	% C	% Mn	% P max.	% S max.	% Si max.	UTS (Max) N/mm^2	Elong min. %	Typical End Use
SWRM 6/1006	0.08 max.	0.60 max.	0.040	0.040	0.15	420	30	Binding wire, Annealed wire
SWRM 8/1008	0.10 max.	0.60 max.	0.040	0.040	0.15	440	25	Telegraph wire, nails
SWRM 10/1010	0.08/0.13	0.30/0.60	0.040	0.040	0.15	460	23	Galvanized wire, Barbed wire
SWRM 12/1012	0.10/0.15	0.30/0.60	0.040	0.040	0.15	510	22	Nail wire, Staple wire, wire mesh
SWRM 15/1015	0.13/0.18	0.30/0.60	0.040	0.040	0.20	520	21	Rivet wire
SWRM 17/1017	0.15/0.20	0.30/0.60	0.040	0.040	0.20	530	21	Rivet wire
SWRM 20/1020	0.18/0.23	0.30/0.60	0.040	0.040	0.20	550	21	Rivet wire
SWRM 22/1022	0.20/0.25	0.30/0.60	0.040	0.040	0.20	600	20	Concrete Reinforcement

Grade / Equivalent	% C	% Mn	% P max.	% S max.	% Si max.	UTS (max.) N/mm^2	Elong min. %
1005 / SAE 1005	0.06 max	0.35 max	0.040	0.040	0.10	400	35
1006 / SAE 1006	0.08 max	0.25 - 0.40	0.040	0.040	0.10	420	30

1008/ SAE 1008	0.10 max	0.30 - 0.50	0.040	0.040	0.10	440	25
1010 / SAE 1010	0.08 – 0.13	0.30 – 0.60	0.040	0.040	0.10	460	23
1012 / SAE 1012	0.10 – 0.15	0.30 – 0.60	0.040	0.040	0.10	510	22
1015 / SAE 1015	0.13 – 0.18	0.30 – 0.60	0.040	0.040	0.10	520	21
1018 / SAE 1018	0.15 – 0.20	0.60 – 0.90	0.040	0.040	0.10	550	21
1020 / SAE 1020	0.18 – 0.23	0.30 – 0.60	0.040	0.040	0.10	570	21

Grade	% C	% Mn	% P max.	% S max.	% Si max.	% Al min.	Typical End Use
SWRCH 6A **CHQ6A**	0.08 max	0.60 max	0.030	0.035	0.10	0.02	Fasteners
SWRCH 8A **CHQ8A**	0.10 max	0.60 max	0.030	0.035	0.10	0.02	
SWRCH 10A **CHQ10A**	0.08 – 0.13	0.30 – 0.60	0.030	0.035	0.10	0.02	
SWRCH 18A **CHQ18A**	0.15 – 0.20	0.60 – 0.90	0.030	0.035	0.10	0.02	
SWRCH 22A **CHQ22A**	0.18 – 0.23	0.70 – 1.0	0.030	0.035	0.10	0.02	

Grade	% C max.	% Mn	% P max.	% S max.	% Si max.	% Cu max.	Mechanical Properties	Typical End Use
SWRY 11	0.09	0.35/0.65	0.020	0.023	0.03	0.20	UTS-430 N/mm^2 max.	Stick electrodes

Grade	% C	% Mn	% P max.	% S max.	% Si	% Cu max.	Tensile Strength N/mm^2 or Mpa	Elongation Min %
ER70S-4	0.06/0.15	1.00/1.50	0.025	0.035	0.65/0.85	0.20	480 min.	22
ER70S-6	0.06/0.15	1.40/1.85	0.025	0.035	0.80/1.10	0.20	480 min.	22
EM 12K	0.05/0.15	0.80/1.25	0.030	0.030	0.10/0.35	0.20	415 min.	22
EM 12	0.06/0.15	0.80/1.25	0.030	0.030	0.10 max.	0.20	415 min.	22

Steel Grade	Tensile Test			Bend Test		Ratio TS/YS
	Yield Strength (YS)	Tensile Strength (TS)	Elongation in 200 mm, Min.	Rounded Corner	Arch Diameter	
	MPa	MPa	%		mm	
BjTP 280	Min. 280 Maks. 405	Min. 350	11 (d ≤ 10 mm)	180°	3.5d (d ≤ 16 mm)	-
			12 (d ≥12 mm)	180°	5d (d ≥ 19 mm)	
BjTS 280	Min. 280 Maks. 405	Min. 350	11 (d ≤ 10 mm)	180°	3.5d (d ≤ 16 mm)	**Min. 1.25**
			12 (d ≥13 mm)	180°	5d (d ≥ 19 mm)	
BjTS 420A	Min. 420 Maks. 545	Min. 525	9 (d ≤ 19 mm)	180°	3.5d (d ≤ 16 mm)	
			8 (22 ≤ d ≤ 25 mm)	180°	5d (19 ≤ d ≤ 25 mm)	
			7 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 420B	Min. 420 Maks. 545	Min. 525	14 (d ≤ 19 mm)	180°	3.5d (d ≤ 16 mm)	
			12 (22 ≤ d ≤36 mm)	180°	5d (19 ≤ d ≤ 25 mm)	
			10 (d > 36 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 520	Min. 520	Min. 650	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	

	Maks. 645		6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 550	Min. 550 Maks. 675	Min. 687,5	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	
			6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 700	Min. 700 Maks. 825	Min. 805	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	**Min. 1.15**
			6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	

COMPOSITION OF REINFORCING STEELS								
Type of analysis	**Chemical composition, % max. All grades**			**Carbon equivalent value (*Ceq*) for standard grades**				
	C	P	S	250N	500L	500N	300E	
Cast analysis	0.22	0.050	0.050	0.43	0.39	0.44	0.43	
Product analysis	0.24	0.055	0.055	0.45	0.41	0.46	0.45	

CHARACTERISTIC MECHANICAL PROPERTIES OF REINFORCING STEELS						
Property	**250N (Note 1)**	**500L (Note 2)**	**500N**	**300E (Seismic)**	**500E (Seismic)**	**Type of specified value**
Yield stress (MPa) $R_{ek.L}$	≥ 250	≥ 500	≥ 500	≥ 300	≥ 500	CvL: p = 0.95
$R_{ek.U}$	-	≤ 750	≤ 650	≤ 380	≤ 600	CvU: p = 0.05
Ratio , R_m/R_e	≥ 1.08	≥ 1.03	≥ 1.08	≥ 1.15	≥ 1.15	CvL: p = 0.90
	-	-	-	≥ 1.50	≥ 1.4 0	CvU: p = 0.10
Uniform elongation A_{gt}(%)	≥ 5.0	≥ 1.5	≥ 5.0	≥ 15.0	≥ 10.0	CvL: p = 0.90

Steel Grade	Tensile Test			Bend Test	
	Yield Kgf / mm² (N/mm²)	Tensile Kgf / mm² (N/mm²)	Elongation (%)	Rounded Corner	Arch Diamete
BjTP 24	Minimum 24 (235)	Minimum 39 (380)	20	180^0	3 x d
BjTP 30	Minimum 30	Minimum 45	18	180^0	3 x d

eel Grade	Tensile Test Yield Kgf / mm² (N/mm²)	Tensile Kgf / mm² (N/mm²)	Elongation (%)	Bend Test Rounded Corner	Arch Diameter
BjTP 280	Min. 280	Minimum 350	11 (d ≤ 10 mm)	180^0	3,5d (d ≤ 16 mm)
	Max. 405		12 (d ≥12 mm)	180^0	

Grade	Chemical Composition (%)				Tensile Test							
	C (max.)	Mn (max.)	P (max.)	S (max.)	Yield Strength (N/mm²) Thickness (mm) t≤16	16<t≤40	40<t≤100	t>100	Tensile Strength (N/mm²)	Elongation Thickness (mm)	Test Piece	% (min.)
SS400	-	-	0.05	0.05	245 min.	235 min.	215 min.	205 min.	400 - 510	6≤t≤16	No. 1A	17
										16<t≤50	No. 1A	21
										40<t	No.4	23
SS540	0.30	1.60	0.04	0.04	400 min.	390 min.	-	-	540 min.	6≤t≤16	No. 1A	13

										16<t≤40	No. 1A	17

Grade	Chemical Composition (%)				Tensile Test					
	C (max.)	Mn (max.)	P (max.)	S (max.)	Yield Strength min. (N/mm²) Thickness (mm) t≤16	Yield Strength min. (N/mm²) Thickness (mm) 16<t≤20	Tensile Strength (N/mm²)	Elongation Thickness (mm)	Elongation Test Piece	Elongation % (min.)
Bj P 34 (SS41)	-	-	-	-	205	195	330 - 430	t≤t5	No. 5	26
								5<t≤16	No. 1A	21
								16≤t≤20	No.1A	26
Bj P 34 (SS41)	-	-	0.05	0.05	245	235	400 - 510	t≤t5	No. 5	21
								5<t≤16	No. 1A	17
								16≤t≤20	No.1A	21
Bj P 50 (SS50)	-	-	0.05	0.05	285	275	490 - 610	t≤t5	No. 5	19
								5<t≤16	No. 1A	15
								16≤t≤20	No.1A	19
Bj P 55 (SS55)	0.30	1.60	0.04	0.04	400	390	540 min.	t≤t5	No. 5	16
								5<t≤16	No. 1A	13
								16≤t≤20	No.1A	17

EQUAL ANGLES				
Standard Sectional Dimension (mm)				Unit Mass
Leg Length	Thickness	Radius		Kg/m
a x b	*t*	*r1*	*r2*	

40X40	3	4.5	2	1.82
	4	4.5	3	2.39
	5	4.5	3	2.95
45X45	3	6.5	3	2.04
	4	6.5	3	2.74
	5	6.5	3	3.38
50X50	3	6.5	3	2.27
	4	6.5	3	3.06
	5	6.5	3	3.77
	6	6.5	3	4.43
	8	6.5	4.5	5.68
55x55	4	6.5	4.5	3.33
	5	6.5	4.5	4.16
60X60	4	6.5	3	3.68
	5	6.5	3	4.55
	6	6.5	3	5.41
	8	8	2.4	7.09
	10	8	2.4	8.69
65X65	4	8.5	3	3.94
	5	8.5	3	5.00
	6	8.5	4	5.91
	8	8.5	6	7.66
	10	6	3	9.02
70X70	5	8.5	4	5.29
	6	8.5	4	6.38
	7	8.5	4	7.38
75X75	5	8.5	4	5.67
	6	8.5	4	6.85
	7	8.5	4	7.94
	8	8.5	6	9.00
	9	8.5	6	9.96

	10	8	5	10.50
	12	8.5	6	13.00
	5	8.5	4	6.05
80X80	6	8.5	4	7.32
	7	9	4.5	8.48
	8	9	4.5	9.61
	6	10	5	8.28
	7	10	5	9.59
90X90	8	10	5	10.89
	9	10	5	12.17
	6	10	5	9.16
	7	10	5	10.58
100X100	8	10	7	12.06
	10	10	7	14.90
	12	10	7	18.14
	10	13	6.5	18.20
120X120	11	13	6.5	19.90
	12	13	6.5	21.60

UNEQUAL ANGLES				
Standard Sectional Dimension (mm)				Unit Mass
Leg Length	Thickness	Radius		Kg/m
a x b	*t*	*r1*	*r2*	
100X75	7	10	5	9,32
	10	10	5	13,0
125X75	7	10	5	10,7
	10	10	7	14,9

	13	10	7	19,1

U CHANNEL					
Standard Sectional Dimension (mm)					Unit Mass Kg/m
Leg Length	Thickness		Radius		
a x b	*t1*	*t2*	*r1*	*r2*	
U 80X45	6	8	8	4	8,8
U 100X50	5	7,5	8	4	9,36

Grade	Base Metal Test							
	Chemical Analysis	Sulphur Print	Ferrite Grain Size	Austenite Grain Size	Tensile Test	Bend Test	Charpy Impact Test	Weldability Test
KI-A	√	√	√	√	√	√	√	**N/A**
KI-A40	√	√	√	√	√	√	√	√

Nails & Nail Wire

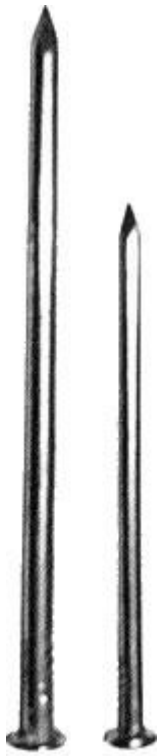
Product specification

Supplied in cartons weighing 30 kg, 25kg, 20 kg, 50 lbs.

Flexible packaging available in smaller weights as per customer requirement and specification.

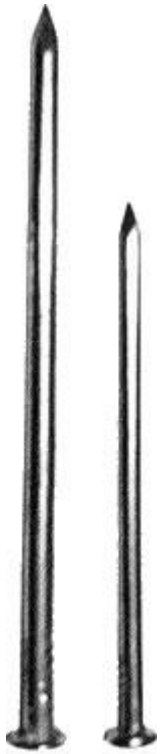
Commons Nails (Focused for domestic sale)

Size (Length)		Dia. (mm)	
Inches	mm	Shank	Head
1	25.4	1.65	3,60
1 1/4	31.7	1,85	4
1 1/2	38.1	2.1	4.8
1 3/4	44.4	2.41	5
2	50.8	2.87	6.2
2 1/2	63.5	3.05	6.5
2	76.2	3.41	7.2
3 1/2	88.9	3.77	8.5
4	101.6	4.11	9
5	127	5.15	9.5
6	152.4	5.58	10.5



Bright Common Nails (Focused for export sale)

Size	Size (Length)		Dia (mm)		Approx. Number per Lb
	Inches	mm	Shank	Head	
2D	1	25.4	1.82	4.36	847
3D	1.25	31.7	2.1	5.15	543
4D	1.5	38.1	2.59	6.37	294
5D	1.75	44.4	2.59	6.37	254
6D	2	50.8	2.87	6.74	167
7D	2.25	57.2	2.92	6.74	150
8D	2.5	63.5	3.33	7.14	101
9D	2.75	69.8	3.33	7.14	92
10D	3	76.2	3.75	7.93	66
12D	3.25	82.5	3.75	7.93	61
16D	3.5	88.9	4.11	8.73	47
20D	4	101.6	4.87	10	29
30D	4.5	114.3	5.25	10.1	22



40D	5	127	5.72	10.2	17
60D	6	152.4	6.66	11	10

Green Vinyl Sinkers

Size	Size (Length)		Dia (mm)		Approx Number
	Inches	mm	Shank	Head	per Lb
2D	1	25.4	1.59	3.95	1084
3D	1.12	28.5	1.7	4.36	923
4D	1.37	34.9	2.03	5.15	527
5D	1.62	41.2	2.18	5.55	387
6D	1.87	47.6	2.32	5.95	293
7D	2.12	53.9	2.51	6.35	223
8D	2.37	60.3	2.87	6.7	153
1OD	2.87	73	3.05	7.14	111
12D	3.12	79.3	3.42	7.9	81
16D	3.25	82.6	3.77	8.73	64

20D	3.75	95.2	4.49	9.52	40
30D	4.28	108.7	4.87	10.32	30

Wire Gauges

	ASWG		BWG		SWG	
Gauge	Dia mm	Weight mm	Dia mm	Weight mm	Dia mm	Weight Mm
4	5,723	20.1	6.045	22.5	5.892	21.4
4 - 1/4	5.613	19.4	5.944	21.8	5.766	20.5
4 - 1/2	5.486	18.5	5.817	20.9	5.639	19.6
4 - 3/4	5.385	17.9	5.715	20.1	5.512	18,7
5	5.258	17	5.588	19.3	5.384	17.9
5 - 1/4	5.156	16.4	5.486	18,5	5.258	17
5 - 1/2	5.08	15.9	5.385	17.9	5.131	16.2
5 - 3/4	4.978	15.3	5.258	17	5.004	15.4
6	4.877	14.7	5.156	16.4	4.877	14.7
6 - 1/4	4.775	14	5.004	15.4	4.775	14
6 - 1/2	4.699	13.6	4.877	14.7	4.674	13.5
6 - 3/4	4.597	13	4.724	13.8	4.572	12.9

7	4.496	12.5	4.572	12.9	4.47	12.3
7 - 1/4	4.394	11.9	4.47	12.3	4.369	11.8
7 - 1/2	4.318	11.5	4.394	11.9	4.267	11.2
7 - 3/4	4.216	11	4.293	11.4	4.166	10.7
8	4.115	10.4	4.191	10.8	4.064	10.2
8 - 1/4	4.039	10.1	4.086	10.3	3.962	9.67
8 - 1/2	3.937	9.55	3.988	9.8	3.861	9.19
8 - 3/4	3,861	9.19	3.861	9.19	3.759	8.71
9	3.767	8.74	3.759	8.71	3.657	8.24
9 - 1/4	3.683	8.36	3.683	8.36	3.556	7.79
9 - 1/2	3.607	8.02	3.581	7.9	3.454	7.35
9 - 3/4	3.505	7.57	3.505	7.57	3.353	6.93
10	3.429	7.25	3.404	7,14	3.251	6.51
10 - 1/4	3.327	6.82	3,327	6.82	3.175	6.21
10 - 1/2	3.251	6.51	3.226	6.41	3.099	5.93
10 - 3/4	3.15	6.11	3.15	6.11	3.023	5.63
11	3.061	5.77	3.048	5.73	2.946	5.35
11 - 1/4	2.972	5,44	2.972	5.44	2.87	5.08
11 - 1/2	2.87	5.08	2,921	5.26	2.794	4,81
11 - 3/4	2.769	4.72	2.845	4.99	2.718	4.55
12	2.68	4.43	2.769	4.73	2.641	4.3

12 - 1/4	2.591	4.14	2.692	4.47	2.565	4.05
12 - 1/2	2.515	3.9	2.591	4.14	2.489	3.82
12 - 3/4	2.413	3.59	2.515	3.9	2.413	3.59
13	2.324	3.33	2.413	3.59	2.336	3.36
13 - 1/4	2.261	3.15	2.337	3,37	2.261	3.15
13 - 1/2	2.184	2.94	2.261	3.15	2.184	2.94
13 - 3/4	2.108	2.74	2.184	2.94	2.108	2.74
14	2.032	2,54	2.108	2.74	2.032	2.54
14 - 1/4	1.981	2.42	2.032	2.54	1.981	2.42
14 - 1/2	1.93	2.3	1.981	2.42	1.93	2.3
14 - 3/4	1.88	2.18	1.905	2.24	1.88	2.18
15	1.829	2.06	1.829	2.06	1.829	2.06
15 - 1/4	1.778	1.95	1.778	1.95	1.778	1.95
15 - 1/2	1.702	1.79	1.753	1.89	1.727	1.84
15 - 3/4	1.651	1.68	1.702	1.79	1.676	1.73

Board of Directors

The below members of the board of directors are responsible for the strategic direction and oversight of the business.

Name	Status

Name	Status
Philippe Darmayan	President Director
Praful Venugopal	Executive Director
Baldeo Prasad Banka	Non-Executive Director
Sanjay Shukla	Director Treasury
Nur Saidah (Ms.)	Director Compliance

Vision, Mission and Values

Vision

Be a Steel Producer with outperforming benchmark in Safety, Human Relations, Costs and Value Creation & be responsible to the society.

Mission

Be the first choice of our Customers.

Core Values and Governance

Conduct our business with highest integrity, honesty, transparency, unity, sustainable excellence and commitment to the social development.

Highlights & Achievements

TIME (Years)	Highlights & Achievements
1976	PT. Ispat Indo established as a Greenfield Project. Indo is the mother Greenfield Project.
1978	Wire rod mills commissioned for 60,000 tons annual capacity.
1981	Steel melt shop commissioned with 70 tons capacity with Electric Arc Furnace (EAF) from NKK Japan and Casting Machine from Kobe Japan to supply billets for the wire rod mills
1984	The first company to export steel wire from Indonesia.
1986	Furnace converted to Eccentric Bottom Tapping (EBT) and new Ladle Furnace commissioned to improve product quality. Received the prestigious “UPAKARTI” Award from President Suharto for outstanding effort in helping to develop local small-scale industries.
1991	Adopted high-speed casting and total submerged and shrouded casting to improve quality in collaboration with Hamburger Stahlwerke (HSW) Germany.
1992	Modernized the steel plant with computer control and bottom stirring processing for quality improvement.
1994	Awarded the ISO 9002:1994 Certification of QMS from LRQA. Quality Control Circle activities started for upgrading quality and for eliminating root cause of defects.

1995	Updated and installed new dust extraction as per design & consultancy obtained from Nikko Industries Company, Japan in melting shop for clean sky.Signed contract with Kawasaki Japan for productivity & quality improvement.
1998	Approval from MITI for marking products as per JIS G 3505 for Low Carbon Wire Rod, JIS G 3506 for High Carbon Wire Rod and JIS G 3112 for Deformed Bar.
1999	Approval from MITI for marking products as per JIS G 3503 for Electrode Grade Wire Rod. Billet and wire rod production crossed over half-a-million tons.
2000	Added new Ferro Alloy Feeding System for quality improvement and customer satisfaction.
2001	Implementation of Bar Coded Identification Labels for control and inventory management of each coil. Morgan Water Cooling System for temperature control to achieve consistent metallurgical properties in wire rods.
2003	Upgraded the Quality Management System to the latest version of ISO 9001:2000. Addition of Carbjet for regulated Carbon Injection in furnace. Furnace upgraded with Water System in EAF.
2004	EAF upgraded with Oxyfuel Burners for productivity improvement in furnace.
2005	Extension of EAF Dust Collection System, installation of canopy and increase in capacity.
2006	Recertification of ISO 9000 : 2000. Best efforts (winner) in PLN – East Java for energy conservation. Acquisition of 60% shareholding in PT. Ispat Bukit Baja (IBB) producing steel angels and

	PT. Ispat Panca Putera (IPP) capable to produce round bars and debars. Installation of new Charging Crane in Steel Melt Shop for improvement in charge weight. Improvements in Electrode Regulation System for optimizing EAF power consumption. Introduction of dual fire in BRF for use of IDO / Barol with gas. First steel company in Indonesia to install Crusher for Slag processing.
2007	Golden award from Ministry of Manpower for efforts in safety. Certification of ISO 14001 : 2004. Recognition by PDAM for efficiency in water management. Completion of concreting for scrap storage area. Changing of withdrawal units at Billet Caster. Conversion of Finishing Area PLC from S5 to S7. Leading steel industry to develop commercial usage of steel slag, dust and sludge.
2008	Kick-Off for TPM Program implementation (under consultancy of JIPMs – Japan). Won 2nd Runner Up in Sidoarjo Regency for CSR. SMK3 surveillance with 95% compliance to retain Gold Award. Completion of 100% acquisition of PT. Ispat Bukit Baja and PT. Ispat Panca Putera with a total investment of US$ 31 Millions. The first Indonesian company to get an export order for exporting steel angles from

	Indonesia (under execution). Gas cutting torch system commissioned to replace CCM hydraulic shear system. Progressing for OHSAS 18001 : 2007 certification. Progressing for ISO/IEC 17025 certification. Progressing for new CMMS to have integrated computerized management system. Achieved SNI certification for production of bars in coil at PT. Ispat Indo. Achieved SNI certification for production of d-bars at Ispat Panca Putera.
2009	Achieved certificate new JIS mark scheme certified by Japan Quality Assurance Organization (JQA). Achieved upgrade new version ISO 9001 : 2008 at PT. Ispat Indo and PT. Ispat Wire Products . SIRIM Certification Products by SIRIM International Quality Assurance Malaysia Achieved 90% done and satisfy, (wait testing results including IPP,IWP and IBB). Achieved zero Accident (Achieve) 1,826,850 man hours. On Progress Blue grade on PROPER.
2010	Achieved upgrade new version ISO 9001 : 2008 at PT. Ispat Bukit Baja. Achieved upgrade new version ISO 9001 : 2008 at PT. Ispat Panca Putera. Achieved Accreditation Laboratory ISO / IEC 17025.2005 by National Accreditation Committee of Indonesia (KAN).

	On progress for “Award for TPM Excellence 2nd Category Challenge to WCM” (December 2010). Awarded for 5R Competition Eastern Java 2010 (for categories Production, Store and Office). Awarded Blue on PROPER 2010.
2011	On progress for “Master Plan for World Class Manufacturing (WCM) ” (June 2011). On Progress to get Certificate ISO 14001:2004 at PT. Ispat Panca Putera. Achieved re-certification ISO 14001 for PT. Ispat Indo. Achieved certification ISO 14001 for PT. Ispat Bukit Baja. Achieved certification SNI for PT. Ispat Bukit Baja. Achieved for 5 R competition East Java 2011. 1st Winner for CSR - Sidoarjo. Level 4 in Green Industry Implementation. Installation Electromagnetik Stirer System (EMS) in Continuous Casting Machine.
2012	Achieved zero accident 2012 for PT. Ispat Indo, PT. Ispat Wire Products, PT. Ispat Panca Putera and PT. Ispat Bukit Baja. New installation Thermo Mechanical Treatment in rolling process PT. Ispat Panca Putera. Achieved ISO 14001:2004 at PT. Ispat Panca Putera.

	Achieved gold flag SMK3 at PT. Ispat Bukit Baja. Achieved SNI recertification PT. Ispat Indo (SNI-07-2052-2002 and SNI-07-0954-2005). Awarded Green Flag Industrial level 5 from Industrial Ministry Indonesia.
2013	Preparation data and procedure for renewal audit JIS in 2014. Cooperation with BARISTAND (Industrial Research and standarization) for testing concrete reinforcing steel. Renewal certification SMK3 PT Ispat Indo. Zero Accident award for PT Ispat Indo and PT Ispat wire Products. Certification SMK3 PT Ispat Wire Products. Certification of inspection Ariana horizontal lifeline system. Climate Survey 2013. Successful install tranformer 100MVA.
2014	Complete trial in one ladle for IPV Porous Plug technology from Vesuvius. Installation of New 150/45 T Teeming Crane and Dismantling of 140/45 T Crane at Tapping Bay, Steel Melt Shop. Assessment KAN for Re-Accreditation Certification Laboratory base on ISO/IEC 17025. PT. Ispat Panca Putera achieved certificate from BLH (Badan Lingkungan Hidup). Golden Award SMK3 for PT. Ispat Indo.

	PT. Ispat Indo Successful Maintained of Zero LTA. Compliance of all 122 recertification of operation machines & equipments. PT. Ispat Wire Products successful to get SMK3 Certified (Achievement 90, 96%). Zero Accident Award (PT. Ispat Indo, PT. Ispat Wire Products and Ispat Panca Putera). Certification for ISO 50001:2011Energy Management System (EnMS). Best Environment Management Reporting in East Java.
2015 - 2016	Awarded with Certification of ISO 9001:2008 for Ispat Indo and Ispat Wire Products . Awarded with Certification product of SIRIM QAS Malaysia for Ispat Indo for product MS 16120-2:2008 (HC and LC) and MS 2319:2010 (Electrode grade) . Awarded with Certification ACRS standard for Ispat Panca Putera to produce Reinforcement Steel (export quality to Australian Market) . HIV – Aids gold award as care company by Ministry of Man Power & Transmigration . Arcelor certification fatality prevention standard in level 3 by IRCA Global . Zero accident award for Ispat Group. Green Industry awarded set to level 5. Awarded with Certification product of SIRIM QAS for Ispat Indo with product MS 16120-2:2008 and MS 2319:2010 . Proficiency Testing with KS, Baristand and BBLM.

2017 - 2020	Ispat Indo Certification SNI 07-2052:2017 & SNI 07-0954. Ispat Panca Putera Certification SNI 07-2052:2017. ISO 17025:2017 Acreditation laboratory by KAN. Certified ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 & ISO 50001:2018 Ispat Indo. Certified ISO 9001:2015 & ISO 14001:2015 Ispat Panca Putera. Certified ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Ispat Bukit Baja. Certified ISO 9001:2015 Ispat Iwire Products. Certified product certification SIRIM MS 2319:2010 & MS ISO 16120-2:2008. Certified JIS Certification product JIS G3503, JISG3505 and JIS G3506 Ispat Indo. Intermediate Proficiency Testing with KS, Baristand and BBLM. Achieved certificate SMK3 Ispat Bukit Baja. Achieved certificate SMK3 Ispat Panca Putera. Achieved certificate SMK3 Ispat Indo. Awarded Social Business Innovation Awards 2017, Category Metal & Allied Products From Warta Ekonomi. Nominate Of ASEAN OSHNET Awards on Excellence Category by Ministry of Manpower. Sustainable Business Awarded, Category for Cooling Efficiency & Energy Management from Global Initiative Singapore. Zero Accident Awarded by Ministry of Man Power & Governer.

	Awarded for best implementation for energy management system By Ministry of Energy & Mineral Resources Compliance Regulation of Environmental Management by Ministry of Environment & Forest. 5R competition East Java gold & silver category by Governer East Java. HIV-AIDS Platinum Awarded.

Grade	% C	% Mn	% P max.	% S max.	% Si	Typical UTS (5.5 mm dia) N/mm2	Elong % Approx	Typical end use
SWRH 27	0.24/0.31	0.30/0.60	0.030	0.030	0.15/0.30	565/695	16	Low Carbon PC wire
SWRH 32	0.29/0.36	0.30/0.60	0.030	0.030	0.15/0.30	600/715	15	
SWRH 37	0.34/0.41	0.30/0.60	0.030	0.030	0.15/0.30	620/745	15	Concrete nail
SWRH 42A	0.39/0.46	0.30/0.60	0.030	0.030	0.15/0.30	665/775	14	Wire for umbrella rib, Cycle spoke, Motor cycle spoke
SWRH 42B	0.39/0.46	0.60/0.90	0.030	0.030	0.15/0.30	685/815	14	
SWRH 47A	0.44/0.51	0.30/0.60	0.030	0.030	0.15/0.30	735/855	13	
SWRH 47B	0.44/0.51	0.60/0.90	0.030	0.030	0.15/0.30	755/875	13	Crimping wire for bed spring.
SWRH 52A	0.49/0.56	0.30/0.60	0.030	0.030	0.15/0.30	825/945	13	
SWRH	0.49/0.56	0.60/0.90	0.030	0.030	0.15/0.30	845/965	13	Spring wire, rope

52B								wire, Tyre bead wire, ACSR wire, bale wire
SWRH 57A	0.54/0.61	0.30/0.60	0.030	0.030	0.15/0.30	860/970	12	
SWRH 57B	0.54/0.61	0.60/0.90	0.030	0.030	0.15/0.30	880/980	12	
SWRH 62A	0.59/0.66	0.30/0.60	0.030	0.030	0.15/0.30	920/1040	11	
SWRH 62B	0.59/0.66	0.60/0.90	0.030	0.030	0.15/0.30	950/1070	11	
SWRH 67A	0.64/0.71	0.30/0.60	0.030	0.030	0.15/0.30	960/1080	10	
SWRH 67B	0.64/0.71	0.60/0.90	0.030	0.030	0.15/0.30	970/1090	10	
SWRH 72A	0.69/0.76	0.30/0.60	0.030	0.030	0.15/0.30	1030/1150	9	Tire bead wire, spring wire, ropes PC wire, PC strand, etc.
SWRH 72B	0.69/0.76	0.60/0.90	0.030	0.030	0.15/0.30	1050/1170	9	
SWRH 77A	0.74/0.81	0.30/0.60	0.030	0.030	0.15/0.30	1090/1210	9	
SWRH 77B	0.74/0.81	0.60/0.90	0.030	0.030	0.15/0.30	1120/1250	8	
SWRH 82A	0.79/0.86	0.30/0.60	0.030	0.030	0.15/0.30	1140/1270	8	
SWRH 82B	0.79/0.86	0.60/0.90	0.030	0.030	0.15/0.30	1170/1290	8	
Similar grades of equivalent to SAE / AISI 1026, 1030, 1040, 1050, 1055, 1060, 1065, 1070, 1080 are also delivered.								

Grade /	% C	% Mn	% P	% S	% Si	UTS (max.)	Elong
Equivalent			max.	max.	max.	N/mm^2	min. %
1005 / SAE 1005	0.06 max	0.35 max	0.040	0.040	0.10	400	35
1006 / SAE 1006	0.08 max	0.25 - 0.40	0.040	0.040	0.10	420	30
1008/ SAE 1008	0.10 max	0.30 - 0.50	0.040	0.040	0.10	440	25
1010 / SAE 1010	0.08 – 0.13	0.30 – 0.60	0.040	0.040	0.10	460	23
1012 / SAE 1012	0.10 – 0.15	0.30 – 0.60	0.040	0.040	0.10	510	22
1015 / SAE 1015	0.13 – 0.18	0.30 – 0.60	0.040	0.040	0.10	520	21
1018 / SAE 1018	0.15 – 0.20	0.60 – 0.90	0.040	0.040	0.10	550	21
1020 / SAE 1020	0.18 – 0.23	0.30 – 0.60	0.040	0.040	0.10	570	21

Grade	% C	% Mn	% P	% S	% Si	% Al	Typical End Use
			max.	max.	max.	min.	
SWRCH 6A **CHQ6A**	0.08 max	0.60 max	0.030	0.035	0.10	0.02	Fasteners
SWRCH 8A **CHQ8A**	0.10 max	0.60 max	0.030	0.035	0.10	0.02	
SWRCH 10A **CHQ10A**	0.08 – 0.13	0.30 – 0.60	0.030	0.035	0.10	0.02	
SWRCH 18A **CHQ18A**	0.15 – 0.20	0.60 – 0.90	0.030	0.035	0.10	0.02	
SWRCH 22A **CHQ22A**	0.18 – 0.23	0.70 – 1.0	0.030	0.035	0.10	0.02	

No.	Steel Grade	%C	%Mn	%P max.	%S max.	%Si	%Cr max.	%Cu max.	%Ni max.
1	C4D	0.06 max.	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
2	C7D	0.05 - 0.09	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
3	C9D	0.10 max.	0.60 max.	0.035	0.035	0.30 max.	0.25	0.30	0.25
4	C10D	0.08 - 0.13	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
5	C12D	0.10 - 015	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
6	C15D	0.12 - 0.17	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
7	C18D	0.15 - 0.20	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
8	C20D	0.18 - 0.23	0.30 - 0.60	0.035	0.035	0.30 max.	0.20	0.30	0.25
9	C26D	0.24 - 0.29	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.20	0.30	0.25
10	C32D	0.30 - 0.35	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.20	0.30	0.25
11	C38D	0.35 - 0.40	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.20	0.30	0.25
12	C42D	0.40 - 0.45	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.20	0.30	0.25
13	C48D	0.45 - 0.50	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
14	C50D	0.48 - 0.53	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20

15	C52D	0.50 - 0.55	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
16	C56D	0.53 - 0.58	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
17	C58D	0.55 - 0.60	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
18	C60D	0.58 - 0.63	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
19	C62D	0.60 - 0.65	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
20	C66D	0.63 - 0.68	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
21	C68D	0.65 - 0.70	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
22	C70D	0.68 - 0.73	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
23	C72D	0.70 - 0.75	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
24	C76D	0.73 - 0.78	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
25	C78D	0.75 - 0.80	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
26	C80D	0.78 - 0.83	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20
27	C82D	0.80 - 0.85	0.50 - 0.80	0.030	0.030	0.10 - 0.30	0.15	0.25	0.20

Grade	% C max.	% Mn	% P max.	% S max.	% Si max.	% Cu max.	Mechanical Properties	Typical End Use
SWRY 11	0.09	0.35/0.65	0.020	0.023	0.03	0.20	UTS-430 N/mm^2 max.	Stick electrodes

Grade	**% C max.**	**% Mn**	**% P max.**	**% S max.**	**% Si max.**	**% Cu max.**	**Mechanical Properties**	**Typical End Use**
SWRY 11	0.09	0.35/0.65	0.020	0.023	0.03	0.20	UTS-430 N/mm^2 max. %EL = 30 min.	Stick electrodes

Grade	**% C**	**% Mn**	**% P max.**	**% S max.**	**% Si**	**% Cu max.**	**Tensile Strength N/mm^2 or Mpa**	**Elongation Min %**
ER70S-4	0.06/0.15	1.00/1.50	0.025	0.035	0.65/0.85	0.20	480 min.	22
ER70S-6	0.06/0.15	1.40/1.85	0.025	0.035	0.80/1.10	0.20	480 min.	22
EM 12K	0.05/0.15	0.80/1.25	0.030	0.030	0.10/0.35	0.20	415 min.	22
EM 12	0.06/0.15	0.80/1.25	0.030	0.030	0.10 max.	0.20	415 min.	22

Steel Grade	Tensile Test			Bend Test		Ratio TS/YS
	Yield Strength (YS)	Tensile Strength (TS)	Elongation in 200 mm, Min.	Rounded Corner	Arch Diameter	
	MPa	MPa	%		mm	
BjTP 280	Min. 280 Maks. 405	Min. 350	11 (d ≤ 10 mm)	180°	3.5d (d ≤ 16 mm)	-
			12 (d ≥12 mm)	180°	5d (d ≥ 19 mm)	
BjTS 280	Min. 280 Maks. 405	Min. 350	11 (d ≤ 10 mm)	180°	3.5d (d ≤ 16 mm)	Min. 1.25
			12 (d ≥13 mm)	180°	5d (d ≥ 19 mm)	
BjTS 420A	Min. 420 Maks. 545	Min. 525	9 (d ≤ 19 mm)	180°	3.5d (d ≤ 16 mm)	
			8 (22 ≤ d ≤ 25 mm)	180°	5d (19 ≤ d ≤ 25 mm)	
			7 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 420B	Min. 420 Maks. 545	Min. 525	14 (d ≤ 19 mm)	180°	3.5d (d ≤ 16 mm)	
			12 (22 ≤ d ≤36 mm)	180°	5d (19 ≤ d ≤ 25 mm)	
			10 (d > 36 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 520	Min. 520 Maks. 645	Min. 650	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	
			6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 550	Min. 550 Maks. 675	Min. 687,5	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	
			6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	
BjTS 700	Min. 700 Maks. 825	Min. 805	7 (d ≤ 25 mm)	180°	5d (d ≤ 25 mm)	Min. 1.15
			6 (d ≥ 29 mm)	180°	7d (29 ≤ d ≤ 36 mm)	
				90°	9d (d > 36 mm)	

COMPOSITION OF REINFORCING STEELS								
Type of analysis	**Chemical composition, % max.**			**Carbon equivalent value (*Ceq*) for standard grades**				
	All grades							
	C	P	S	250N	500L	500N	300E	500E
Cast analysis	0.22	0.050	0.050	0.43	0.39	0.44	0.43	0.49
Product analysis	0.24	0.055	0.055	0.45	0.41	0.46	0.45	0.51

CHARACTERISTIC MECHANICAL PROPERTIES OF REINFORCING STEELS						
Property	**250N**	**500L**	**500N**	**300E**	**500E**	**Type of specified value**
	(Note 1)	**(Note 2)**		**(Seismic)**	**(Seismic)**	
Yield stress (MPa) $R_{ek.L}$	≥ 250	≥ 500	≥ 500	≥ 300	≥ 500	CvL: p = 0.95
$R_{ek.U}$	-	≤ 750	≤ 650	≤ 380	≤ 600	CvU: p = 0.05
Ratio , R_m/R_e	≥ 1.08	≥ 1.03	≥ 1.08	≥ 1.15	≥ 1.15	CvL: p = 0.90
	-	-	-	≥ 1.50	≥ 1.4 0	CvU: p = 0.10
Uniform elongation A_{gt}(%)	≥ 5.0	≥ 1.5	≥ 5.0	≥ 15.0	≥ 10.0	CvL: p = 0.90

Steel Grade	Tensile Test			Bend Test	
	Yield Kgf / mm^2	Tensile Kgf / mm^2	Elongation	Rounded Corner	Arch Diameter
	(N/mm^2)	(N/mm^2)	(%)		
BjTP 24	Minimum 24	Minimum 39	20	180^0	3 x d
	(235)	(380)			
BjTP 30	Minimum 30	Minimum 45			
	(295)	(440)	18	180^0	3 x d

Steel Grade	Tensile Test			Bend Test	
	Yield Kgf / mm^2	Tensile Kgf / mm^2	Elongation	Rounded Corner	Arch Diameter
	(N/mm^2)	(N/mm^2)	(%)		
BjTP 280	Min. 280	Minimum 350	11 (d ≤ 10 mm)	180^0	3,5d (d ≤ 16 mm)
	Max. 405		12 (d ≥12 mm)	180^0	

General Structure / Structural Steel

Product specification

These specifications for the used Transmission Tower, Communications Tower, Construction , etc.

These specifications covered:

- Equal Angle Bars (SNI 07-2054-2006 Equivalent to JIS G 3101 and JIS G 3192)
- Flat Bars (JIS G 3101 for structural steel)
- U-Channel (SNI 07-0052-2006 Equivalent to JIS G 3101 and JIS G 3192)
- Steel Strips

Led Length: 40mm x 40 mm; 50mm x 50mm; 60mm x 60mm; 70mm x 70mm; 80mm x 80mm; 90mm x 90mm; 100 mm x 100 mm; 120mm x 120mm; 130mm x 130mm

Thickness: 3 mm – 12 mm

Grade	Chemical Composition (%)				Tensile Test							
					Yield Strength (N/mm²)				Tensile Strength (N/mm²)	Elongation		
					Thickness (mm)							
	C (max.)	Mn (max.)	P (max.)	S (max.)	t≤16	16<t≤40	40<t≤100	t>100		Thickness (mm)	Test Piece	% (min.)
SS400	-	-	0.05	0.05	245 min.	235 min.	215 min.	205 min.	400 - 510	6≤t≤16	No. 1A	17
										16<t≤50	No. 1A	21
										40<t	No.4	23
SS540	0.30	1.60	0.04	0.04	400 min.	390 min.	-	-	540 min.	6≤t≤16	No. 1A	13
										16<t≤40	No. 1A	17

Grade	Chemical Composition (%)				Tensile Test					
	C (max.)	Mn (max.)	P (max.)	S (max.)	Yield Strength min. (N/mm²) Thickness (mm)		Tensile Strength (N/mm²)	Elongation		
					t≤16	16<t≤20		Thickness (mm)	Test Piece	% (min.)
Bj P 34 (SS41)	-	-	-	-	205	195	330 - 430	t≤t5	No. 5	26
								5<t≤16	No. 1A	21
								16≤t≤20	No.1A	26
Bj P 34 (SS41)	-	-	0.05	0.05	245	235	400 - 510	t≤t5	No. 5	21
								5<t≤16	No. 1A	17
								16≤t≤20	No.1A	21
Bj P 50 (SS50)	-	-	0.05	0.05	285	275	490 - 610	t≤t5	No. 5	19
								5<t≤16	No. 1A	15
								16≤t≤20	No.1A	19
Bj P 55 (SS55)	0.30	1.60	0.04	0.04	400	390	540 min.	t≤t5	No. 5	16
								5<t≤16	No. 1A	13
								16≤t≤20	No.1A	17

Size Standard sectional dimension

EQUAL ANGLES				
Standard Sectional Dimension (mm)				Unit Mass Kg/m
Leg Length a x b	Thickness t	Radius		
		r1	r2	
40X40	3	4.5	2	1.82
	4	4.5	3	2.39
	5	4.5	3	2.95
45X45	3	6.5	3	2.04
	4	6.5	3	2.74
	5	6.5	3	3.38
50X50	3	6.5	3	2.27
	4	6.5	3	3.06
	5	6.5	3	3.77
	6	6.5	3	4.43
	8	6.5	4.5	5.68
55x55	4	6.5	4.5	3.33
	5	6.5	4.5	4.16
60X60	4	6.5	3	3.68
	5	6.5	3	4.55
	6	6.5	3	5.41
	8	8	2.4	7.09
	10	8	2.4	8.69
65X65	4	8.5	3	3.94
	5	8.5	3	5.00
	6	8.5	4	5.91

	8	8.5	6	7.66
	10	6	3	9.02
70X70	5	8.5	4	5.29
	6	8.5	4	6.38
	7	8.5	4	7.38
75X75	5	8.5	4	5.67
	6	8.5	4	6.85
	7	8.5	4	7.94
	8	8.5	6	9.00
	9	8.5	6	9.96
	10	8	5	10.50
	12	8.5	6	13.00
80X80	5	8.5	4	6.05
	6	8.5	4	7.32
	7	9	4.5	8.48
	8	9	4.5	9.61
90X90	6	10	5	8.28
	7	10	5	9.59
	8	10	5	10.89
	9	10	5	12.17
100X100	6	10	5	9.16
	7	10	5	10.58
	8	10	7	12.06
	10	10	7	14.90
	12	10	7	18.14
120X120	10	13	6.5	18.20

	11	13	6.5	19.90
	12	13	6.5	21.60

UNEQUAL ANGLES				
Standard Sectional Dimension (mm)				Unit Mass Kg/m
Leg Length a x b	Thickness t	Radius r1	Radius r2	
100X75	7	10	5	9,32
	10	10	5	13,0
125X75	7	10	5	10,7
	10	10	7	14,9
	13	10	7	19,1

U CHANNEL					
Standard Sectional Dimension (mm)					Unit Mass Kg/m
Leg Length a x b	Thickness t1	Thickness t2	Radius r1	Radius r2	
U 80X45	6	8	8	4	8,8
U 100X50	5	7,5	8	4	9,36

Note :

Length : 6 m, 9 m and 12 m

Standards : SNI 07-2054-2006, JIS G 3101 and JIS G 3192, AS/NZS3679.1 and BS EN10025

Steel Profile Manufacturers for Angel and Channel

For Biro Klasifikasi Indonesia

Grade	Base Metal Test							
	Chemical Analysis	Sulphur Print	Ferrite Grain Size	Austenite Grain Size	Tensile Test	Bend Test	Charpy Impact Test	Weldability Test
KI-A	√	√	√	√	√	√	√	**N/A**
KI-A40	√	√	√	√	√	√	√	√