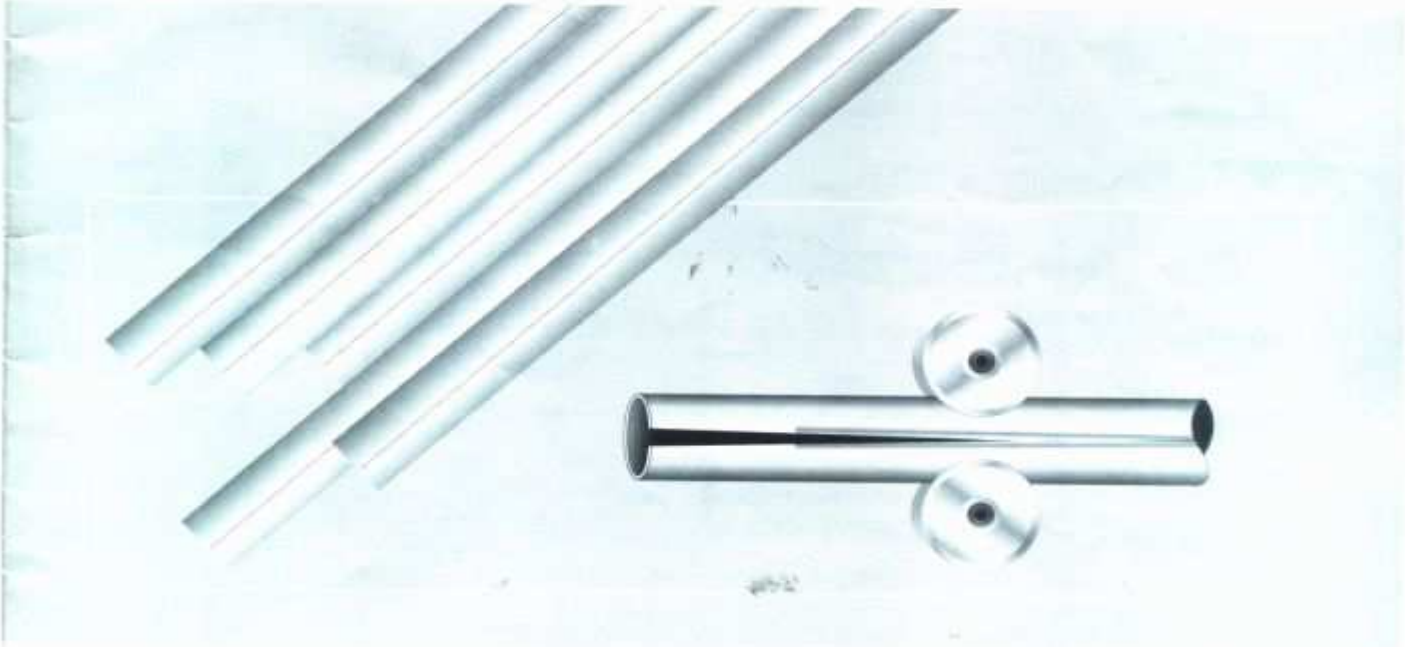
SPINDO

PT. STEEL PIPE INDUSTRY OF INDONESIA

ERW (Electric Resistance Welded, Steel Pipe)



ISO 9001
KEMA

5L-0313

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Refer to : - BS 1387/67
- ASTM A-53 / ASTM A 252
- JIS
- SII/SNI

RANGE OF SIZE **ERW STEEL PIPE**

Nominal Diameter	Wall Thickness	inch	0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315
		mm	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
A (mm)	B (inch)									
	¼									
	3/8				3.3					
15	½	0.9			3.4					
20	¾					3.9				
25	1									
32	1¼	0.95					5.1			
40	1½							5.55		
50	2									
65	2½							5.5		
80	3									
	3½									
100	4								6.6	
125	5		1.1							7.1
150	6									7.5
175	7				3.9					8.2
200	8									

LEGEND :
1. Tolerance Diameter : ± 1%
2. Wall Thickness Tolerance : +not specified / - 10% (BS 1387/67)
3. Hydrostatic Test : 50 kg/cm²; 700 psi; BS 1387/67 per request or depends on applicable standard
4. Length : 6 m/pipe or as per request

Deviate from standard can be carried out after technical clarification and agreement.

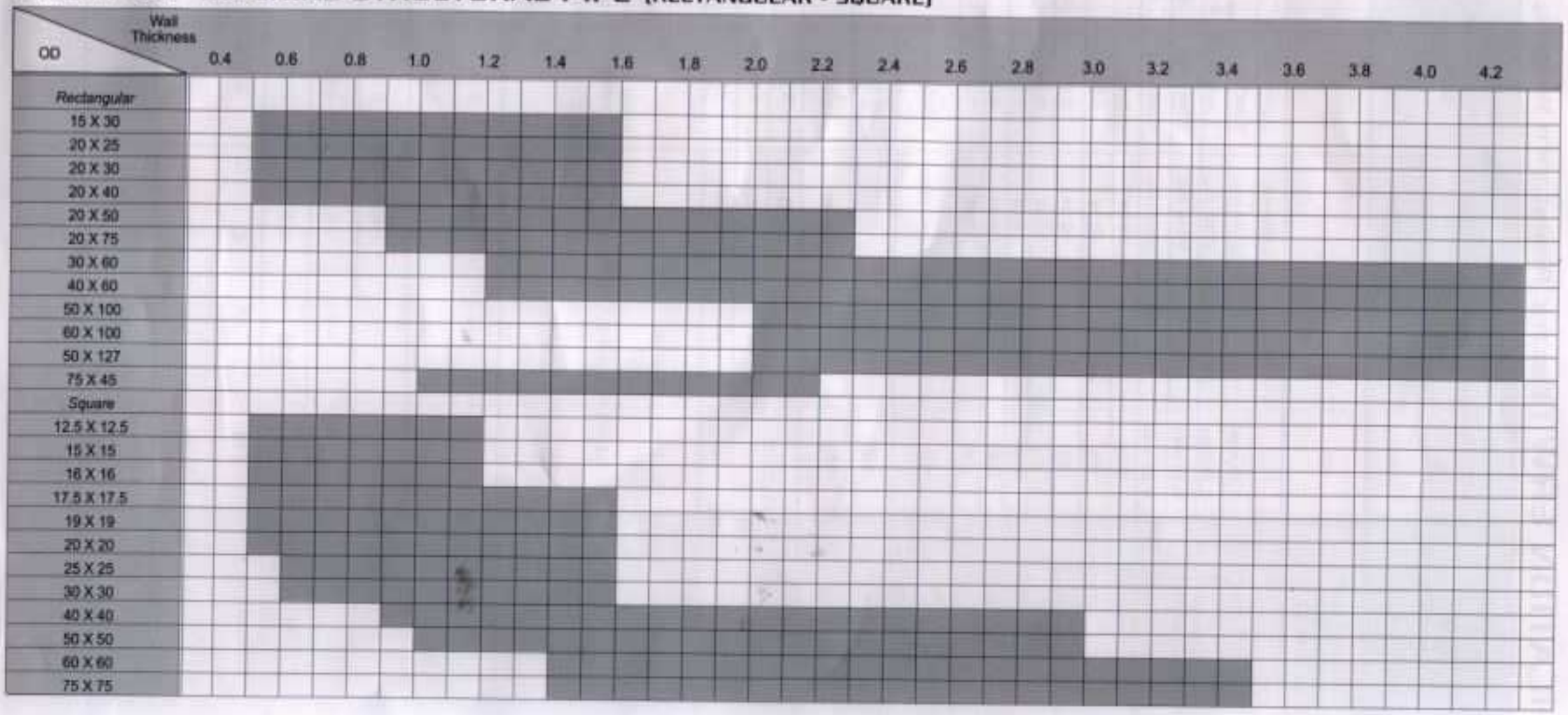
SPINDO

RANGE OF SIZE **ERW PIPE FOR FURNITURE**

OD inch	OD mm	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
	9					■	■	■															
	10					■	■	■															
	11					■	■	■															
	12					■	■	■															
1/2	12.7				■	■	■	■	■														
	14				■	■	■																
5/8	15.9		■	■	■	■	■	■	■														
	17.3						■	■	■														
3/4	19.1		■	■	■	■	■	■	■														
	20.1						■	■															
	21.3						■	■															
7/8	22.2			■	■	■	■	■	■														
	25			■	■	■	■	■	■														
	25.3			■	■	■	■	■	■														
1	25.4			■	■	■	■	■	■	■	■												
	27.5			■	■	■	■	■	■														
1 1/8	28.6					■	■	■	■	■													
1¼	31.7				■	■	■	■	■	■													
	33.5						■	■	■	■													
	34						■	■	■	■													
	34.2						■	■	■	■													
1 3/8	34.9						■	■	■	■	■												
1½	38.1				■	■	■	■	■	■													
	40.8				■	■	■	■	■														
1 5/8	41.2				■	■	■	■															
	42.7						■	■	■	■	■												
1¾	44.5						■	■	■	■	■												
	45						■	■	■	■	■												
1 7/8	47.6						■	■	■	■	■												
2	50.8						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	54						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	59.6						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
2 ¼	57.1						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
2 3/8	60.3						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
2½	63.5						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	74.8							■	■	■	■	■	■	■	■	■	■	■	■	■	■		
3	76.2							■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	79.5							■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	80							■	■	■	■	■	■	■	■	■	■	■	■	■	■		
4	101.6							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

SPINDO

RANGE OF SIZE MACHINE STRUCTURAL PIPE (RECTANGULAR - SQUARE)

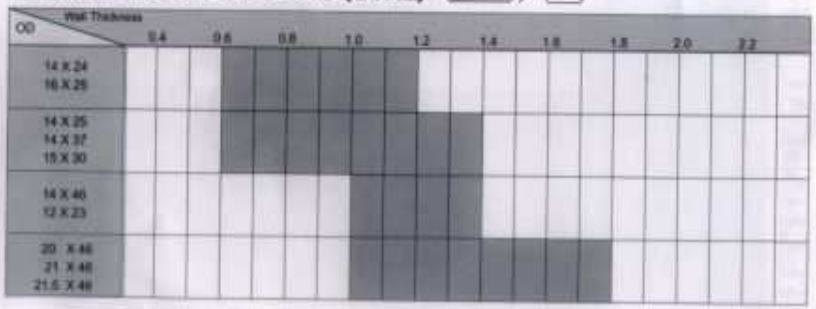


LEGEND :

1. Wall Thickness Tolerance : ± 10% (JIS 3445) or depends on applicable standard
2. Length : 6 m/pipe or depends on customers request

Deviate from standard can be carried out after technical clarification and agreement.

FURNITURE STEEL PIPE (OVAL)



SPINDO

TECHNICAL SPECIFICATION ERW [Electric Resistance Welding]

STANDARD SPECIFICATION	GRADE	MAIN APPLICATION	CHEMICAL COMPOSITION (%)				
			C	Mn	P	S	OTHERS
			Max	Max	Max	Max	
JIS G 3442 - 88	S G P W	Galvanized steel pipes for water applications	--	--	--	--	--
JIS G 3444 - 94	STK 290	Carbon steel tubes for general structural applications	--	--	0.050 max	0.050 max	--
	STK 400		0.25 max	--	0.040 max	0.040 max	--
	STK 500		0.24 max	0.30 to 1.30	0.040 max	0.040 max	Si (0.35 max)
	STK 490		0.18 max	1.50 max	0.040 max	0.040 max	Si (0.55 max)
	STK 540		0.23 max	1.50 max	0.040 max	0.040 max	Si (0.55 max)
JIS G 3445 - 88	STK M 11A	Carbon steel tubes for machine structural applications	0.12	0.6	0.04	0.04	Si (0.35)
	STK M 12A		0.2	0.6	0.04	0.04	Si (0.35)
	STK M 12B		0.2	0.6	0.04	0.04	Si (0.35)
	STK M 12C		0.2	0.6	0.04	0.04	Si (0.35)
	STK M 13A		0.25	0.3 - 0.6	0.04	0.04	Si (0.35)
	STK M 13B		0.25	0.3 - 0.9	0.04	0.04	Si (0.35)
	STK M 13C		0.25	0.3 - 0.9	0.04	0.04	Si (0.35)
JIS G 3452 - 88	S G P	Carbon steel pipe for ordinary piping	--	--	0.040 max	0.040 max	--
ASTM A 53 - 90	A	Steel pipe for general applications	0.25	0.95	0.05	0.045	--
	B		0.3	1.2	0.05	0.045	--
ASTM A 252	1	Steel Pipe Piles	--	--	0.05	--	--
	2		--	--	0.05	--	
	3		--	--	0.05	--	
BS 1387 - 67	Light	Steel tube suitable for welding or screwing	0.2	1.2	0.045	0.045	--
	Medium						
	Heavy						
SNI 0039 - 87	Light	Galvanized Steel Pipe	--	--	0.05	0.05	--
	Medium		--	--	0.05	0.05	--
SNI 0068 - 87	1 (PKB - 30)	Steel Pipe for General Construction	--	--	0.05	0.05	--
	2 (PKB - 41)		0.25	--	0.04	0.04	--
	3 (PKB - 51)		0.3	0.30 - 1.00	0.04	0.04	Si ≤ 0.35
	4 (PKB - 50)		0.18	1.55			Si ≤ 0.55
	5 (PKB - 55)		0.23	1.5			Si ≤ 0.55
SII 0296 - 83	PUR	Union Pipe (Conduit)	Hot Rolled Coil 0.1	0.25 - 0.5	0.04	0.04	Si (0,04 max)
	PUB		Cold Rolled Coil 0.12	0.5	0.04	0.045	--
	PUT						

PHYSICAL REQUIREMENT			BEND TEST		FLATENNING TEST	HYDROSTATIC TEST	TOLERANCES	
Tensile Strength [N/mm2(min)]	Yield Strength [N/mm2]	Elongation (min %)	Diameter of Bend	Angle of Bend		BAR	Outside Diameter	Wall Thickness
--	--	--	8D	90°	--	--	≤ 2" ±0.5 mm 2½" ±0.7 mm 3"-5" ±0.8 mm 8" ±1.0 mm	+ Not specified - 12.5%
290 min	--	30	6D	90°	2/3 D		< 50 mm ± 0.5 mm ≥ 50 mm ± 1%	t < 4 mm + 0.6 mm - 0.5 mm 4 ≤ t < 12 mm +15% -12.50% t ≥ 12 mm + 15% - 1.5 mm
400 min	235 min	23	6D		2/3 D			
500 min	355 min	15	8D		7/8 D			
490 min	315 min	23	6D		7/8 D			
540 min	390 min	20	6D		7/8 D			
290	--	35	4D	180°	1/2 D		Specified Respectively in size	Specified Respectively in size
340	175	35	6D	90°	2/3 D			
390	275	25	6D	90°	2/3 D			
470	355	20	--	--	--			
370	215	30	6D	90°	2/3 D			
440	305	20	6D	90°	3/4 D			
510	380	15	--	--	--			
290	--	30	6D	90°	2/3 D	P = 25 bar	≤ 2" ±0.5 mm 2½ ±0.7 mm 3"-6" ±0.8 mm 7" ±0.9 mm 8" ±1.0 mm	+ Not Specified - 12.50%
330	205	$e=625000\ A^{0.2}/U^{0.9}$	NPS >2;12D Close Coiling 8D	90°	1/3 D	NB ≤ 3" 172 bar NB > 3 193 bar	≤ ¼" ±1/64 in ≥ 2" ±1%	+ Not Specified - 12.50%
415	240			180°				
344,9	206,8	30 (48 t + 15.00)	--	--	--	--	± 1%	- 12.50%
413,5	241.1	25 (40 t + 12.50)						
454,7	309,7	20 (32 t + 10.00)						
320 min	195 min	20	ungalvanized 6D	(NPS < 2") 180°	3/4 D	P = 50 bar	Specified respectively in size	- 8 %
			galvanized tubes 8D	90°				- 10 %
								- 10 %
294.21	--	30	6D	90°	2/3 D	P = 50 bar	≤ 2" ±0.5 mm 2½ ±0.7 mm 3"-6" ±0.8 mm 8" ±1.0 mm	+ Not Specified - 15%
294	--	30	--	--	2/3 D	--	± 1% (for PKB-41; ± 0.5%)	+ Not Specified - 12.50%
402	235	23			2/3 D			
500	353	15			7/8 D			
490	314	23			7/8 D			
539	392	28			7/8 D			
275		30	4D	90°	--	--	Specified respectively in size	± Not Specified
			4 or 5 D	90°				
275		37	4D	90°				

SPINDO

ERW. CARBON STEEL PIPE FOR ORDINARY USES (SUITABLE FOR SCREWING)

BS 1387 - 67
SNI 07 - 0039 - 87 / SII 0161 - 81

GRADE / CLASS	NOMINAL DIAMETER		OUTSIDE DIAMETER		WALL THICKNESS	WEIGHT OF BLACK TUBE		NO. OF THREADS PER INCH
			Max	Min		PLAIN END	SCREWED AND SOCKETED	
	Inch	mm	mm	mm	mm	kg/m	kg/m	
LIGHT	1/2	15	21,4	21,0	2,0	0,947	0,956	14
	3/4	20	26,9	26,4	2,35	1,38	1,39	14
	1	25	33,8	33,2	2,65	1,98	2,0	11
	1 ¼	32	42,5	41,9	2,65	2,54	2,57	11
	1 ½	40	48,4	47,8	2,9	3,23	3,27	11
	2	50	60,2	59,6	2,9	4,08	4,15	11
	2 ½	65	76,0	75,2	3,25	5,71	5,83	11
	3	80	88,7	87,9	3,25	6,72	6,89	11
	4	100	113,9	113,0	3,65	9,75	10,0	11
MEDIUM	1/2	15	21,7	21,1	2,6	1,21	1,22	14
	3/4	20	27,2	26,6	2,6	1,56	1,57	14
	1	25	34,2	33,4	3,2	2,41	2,43	11
	1 ¼	32	42,9	42,1	3,2	3,10	3,13	11
	1 ½	40	48,8	48,0	3,2	3,57	3,61	11
	2	50	60,8	59,8	3,6	5,03	5,10	11
	2 ½	65	76,6	75,4	3,6	6,43	6,55	11
	3	80	89,5	88,1	4,0	8,37	8,54	11
	4	100	114,9	113,33	4,5	12,2	12,5	11
	5	125	140,6	138,7	4,85	16,6	17,1	11
	6	150	166,1	164,1	4,85	19,7	20,3	11
HEAVY	1/2	15	21,7	21,1	3,2	1,44	1,45	14
	3/4	20	27,2	26,6	3,2	1,87	1,88	14
	1	25	34,2	33,4	4,0	2,94	2,96	11
	1 ¼	32	42,9	42,1	4,0	3,80	3,83	11
	1 ½	40	48,8	48,0	4,0	4,38	4,42	11
	2	50	60,8	59,8	4,5	6,19	6,26	11
	2 ½	65	76,6	75,4	4,5	7,93	8,05	11
	3	80	89,5	88,1	4,85	10,3	10,5	11
	4	100	114,9	113,33	5,4	14,5	14,8	11
	5	125	140,6	138,7	5,4	17,9	18,4	11
	6	150	166,1	164,1	5,4	21,3	21,9	11

SPINDO

STEEL PIPE FOR GENERAL USES
BSA - 1 (BS 1387 - 67)

Hydrostatic Test Pressure : 50 kgf/cm2 (700 psi)
Tolerance on Wall Thickness : + not specified - 10 %

NOMINAL DIAMETER		OUTSIDE DIAMETER		WALL THICKNESS	WEIGHT OF BLACK TUBE		NO. OF THREADS PER INCH
		Max	Min		PLAIN END	SCREWED AND SOCKETED	
Inch	mm	Inch	mm	mm	kg/m	kg/m	
1/2	15	21,4	21,0	1,9	0,904	0,913	14
3/4	20	26,9	26,4	2,1	1,271	1,280	14
1	25	33,8	33,2	2,45	1,880	2,900	11
1 ¼	32	42,5	41,9	2,45	2,400	2,430	11
1 ½	40	48,4	47,8	2,6	2,920	2,960	11
2	50	60,2	59,6	2,6	3,670	3,740	11
2 ½	65	76,0	75,2	3,0	5,370	5,490	11
3	80	88,7	87,9	3,0	6,310	6,480	11
4	100	113,9	113,0	3,25	8,830	9,140	11
5	125	140,6	138,7	3,6	12,162	12,649	11
6	150	166,1	164,1	3,6	14,426	15,003	11
8	200	219,1	216,3	4,5	23,344	-	-

STEEL PIPE FOR GENERAL APPLICATIONS
STEEL PIPE ZINC COATED FOR WATER APPLICATION

JIS G 3452 - 88 (SGP)
JIS G 3442 - 88 (SGPW)

CLASS	SYMBOL MATERIAL	TENSILE STRENGTH Kgf/MM2 (N/MM2)	YIELD STRENGTH Kgf/MM2 (N/MM2)
Steel Pipe for general applications Steel Pipe Zinc Coated for water	S G P S G P W	30 Min (294 Min)	

Hydrostatic Test : 25 kg/cm
Standard Length : 6 m

Nominal Diameter		Outside Diameter	Tolerance on outside diameter		Wall Thickness	Tolerance on Wall Thickness	Pipe Weight without socket
A (mm)	B (inch)	mm	Pipes to be cut in taper thread	Other pipes	mm	(%)	(kg/m)
15	1/2	21,7	± 0,5 mm	± 0,5 mm	2,8		1,31
20	3/4	27,2	± 0,5 mm	± 0,5 mm	2,8		1,68
25	1	34,0	± 0,5 mm	± 0,5 mm	3,2		2,43
32	1¼	42,7	± 0,5 mm	± 0,5 mm	3,5		3,38
40	1½	48,6	± 0,5 mm	± 0,5 mm	3,5		3,89
50	2	60,5	± 0,5 mm	± 1%	3,8	+ Not Specified	5,31
65	2½	76,3	± 0,7 mm	± 1%	4,2	- 12,5 %	7,47
80	3	89,1	± 0,8 mm	± 1%	4,2		8,79
100	4	114,3	± 0,8 mm	± 1%	4,5		12,2
125	5	139,8	± 0,8mm	± 1%	4,5		15,0
150	6	165,2	± 0,8 mm	± 1,6 mm	5,0		19,8
175	7	190,7	± 0,9 mm	± 1,6 mm	5,3		24,2
200	8	216,3	± 1,0 mm	± 0,8 mm	5,8		30,1

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ERW.CARBON STEEL PIPES FOR **PRESSURE SERVICE**
JIS G 3454 - 88 (STPG)

CLASS	MATERIAL	TENSILE STRENGTH Kgf/MM2 (N/MM2)	YIELD STRENGTH Kgf/MM2 (N/MM2)
Class 2	STPG 38	38 Min (373 Min)	22 Min (216 Min)
Class 3	STPG 42	42 Min (412 Min)	25 Min (245 Min)

Nominal Diameter		Outside Diameter	Schedule 20				Schedule 30				Schedule 40				Schedule 60				Schedule 80				Nominal Diameter	
mm	in	mm	Wall Thickness mm	Weight kg/m	Hydro Static Test kgf/cm2 Clas 2	Hydro Static Test kgf/cm2 Clas 3	Wall Thickness mm	Weight kg/m	Hydro Static Test kgf/cm2 Clas 2	Hydro Static Test kgf/cm2 Clas 3	Wall Thickness mm	Weight kg/m	Hydro Static Test kgf/cm2 Clas 2	Hydro Static Test kgf/cm2 Clas 3	Wall Thickness mm	Weight kg/m	Hydro Static Test kgf/cm2 Clas 2	Hydro Static Test kgf/cm2 Clas 3	Wall Thickness mm	Weight kg/m	Hydro Static Test kgf/cm2 Clas 2	Hydro Static Test kgf/cm2 Clas 3	mm	in
15	1/2	21.7									2.8	1.31	50	50	3.2	1,46	70	70					15	1/2
20	3/4	27.2									2.9	1.74	50	50	3.4	2,00	70	70					20	3/4
25	1	34.0									3.4	2.57	50	50	3.9	2,89	100	70	4.5	3.27	70	70	25	1
32	1 ¼	42.7									3.6	3.47	70	100	4.5	4,24	100	100	4.9	4.57	130	140	32	1 ¼
40	1 ½	48.6									3.7	4.1	70	100	4.7	4,89	100	120	5.1	5.47	130	140	40	1 ½
50	2	60.5	3.2	4.52	70	100					3.9	5.44	70	100	4.9	6,72	100	120	5.5	7.46	130	140	50	2
65	2 ½	76.3	4.5	7.97	70	100					5.2	9.12	70	100										
80	3	89.1	4.5	9.39	70	100					5.5	11.3	70	100										
	3 ½	101,6									5,74	13,56	70	100										
100	4	114.3	4.9	13.2	100	100					6.0	16.0	100	100										
125	5	139.8	5.1	16.9	100	100					6.6	21.7	100	100										
150	6	165.2	5.5	21.7	100	100	7.0	36.1	100	100	7.1	27.7	100	100										
200	8	216.3	6.4	33.1	70	100	7.8	49.9	70	100	8.2	42.1	100	100										

CARBON STEEL PIPES FOR **GENERAL APPLICATIONS**
ASTM A 53 GRADE A
ASTM A 120

NOMINAL SIZE	OUTSIDE DIAMETER		WALL THICKNESS		NOMINAL WEIGHT PLAIN END	SCHEDULE NO.	NOMINAL WEIGHT THREAD AND COUPLING
inch	inch	mm	inch	mm	kg/m		kg/m
1/2	0,840	21,3	0,109	2,77	1,27	40	1,27
			0,147	3,73	1,62	80	1,62
3/4	1,050	26,7	0,113	2,87	1,68	40	1,68
			0,154	3,73	1,62	80	1,62
1	1,315	33,4	0,133	3,38	2,50	40	1,68
			0,179	4,55	3,23	80	3,25
1 ¼	1,660	42,2	0,140	3,56	3,38	40	3,40
			0,191	4,85	4,47	80	4,50
1 ½	1,900	48,3	0,145	3,68	4,05	40	4,06
			0,200	5,08	5,41	80	5,45
2	2,375	60,3	0,154	3,91	5,44	40	5,48
			0,218	5,54	7,48	80	7,55
2½	2,875	73,0	0,203	5,16	8,62	40	8,68
			0,276	7,01	11,41	80	5,45
3	3,500	88,9	0,216	5,49	11,29	40	11,35
			0,300	7,52	15,27	80	15,39
4	4,500	114,3	0,237	6,02	16,07	40	16,22
			0,337	8,56	22,32	80	22,60
5	5,563	141,3	0,258	6,55	21,78	40	22,07
6	6,625	168,3	0,280	7,11	28,26	40	28,58
8	8,625	219,1	0,277	7,04	36,79	30	38,07
			0,322	8,18	42,53	40	43,73

SPINDO

CARBON STEEL TUBES FOR GENERAL STRUCTURAL PURPOSE
JIS G 3444 - 94 (STK) / SNI 0068 - 87

CLASS	NOTATION		TENSILE STRENGTH Kgf/MM2 (N/MM2)	STRETCH LIMIT Kgf/MM2 (N/MM2)
	SII	JIS		
Class 1	PKB 30	STK 30	30 Min (294 Min)	———
Class 2	PKB 41	STK 41	41 Min (402 Min)	24 Min (235 Min)
Class 3	PKB 51	STK 51	51 Min (500 Min)	26 Min (353 Min)
Class 4	PKB 50	STK 50	50 Min (490 Min)	32 Min (314 Min)
Class 5	PKB 55	STK 55	55 Min (539 Min)	40 Min (392 Min)

Nominal Diameter		Outside Diameter	Wall Thickness	Unit Mass	Informative Reference			
A (mm)	B (inch)	mm	mm	kg/m	Cross Sectional Area (cm2)	Geometrical Moment of Inersia (cm4)	Modul of Section (cm3)	Radius of Gyration of Area (cm)
15	1/2	21,7	2,0	0.972	1,238	0,607	0,560	0,700
20	3/4	27,2	2,0	1,24	1,583	1,26	0,930	0,890
			2,3	1,41	1,799	1,41	1.03	0,880
25	1	34,0	2,3	1,80	2,291	2,89	1,70	1,12
32	1 1/4	42,7	2,3	2,29	2,919	5,97	2,80	1,43
			2,8	2,76	3,510	7,02	3,29	1,41
40	1 1/2	48,6	2,3	2,63	3,345	8,99	3,70	1,64
			2,8	3,16	4,029	10,6	4,36	1,62
			3,2	3,58	4,564	11,8	4,86	1,61
50	2	60,5	2,3	3,30	4,205	17,8	5,90	2,06
			3,2	4,52	5,760	23,7	7,84	2,03
			4,0	5,57	7,100	28,5	9,41	2,00
65	2 1/2	76,3	2,8	5,08	6,465	43,7	11,5	2,60
			3,2	5,77	7,349	49,2	12,9	2,59
			4,0	7,13	9,085	59,5	15,6	2,56
80	3	89,1	2,8	5,96	7,591	70,7	15,9	3,05
			3,2	6,78	8,636	79,8	17,9	3,04
			4,0	8,39	10,69	97,0	21,8	3,01
100	4	114,3	3,2	8,77	11,17	172	30,2	3,93
			3,5	9,83	12,52	192	33,6	3,92
			4,5	12,2	15,52	234	41,0	3,89
			5,6	15,0	19,12	283	49,6	3,85
125	5	139,8	3,6	12,1	15,40	357	51,1	4,82
			4,0	13,4	17,07	394	56,3	4,80
			4,5	15,0	19,13	438	62,7	4,79
			6,0	19,8	25,22	566	80,9	4,74
150	6	165,2	4,5	17,8	22,72	734	88,9	5,68
			5,0	19,8	25,16	808	97,8	5,67
			6,0	23,6	30,01	952	115	5,63
			7,0	27,3	34,79	109x10	132	5,60
200	8	216,3	4,5	23,5	29,94	168x10	155	7,49
			6,0	31,1	39,64	219x10	203	7,44
			7,0	36,1	46,03	252x10	233	7,40
			8,0	41,1	52,35	284x10	263	7,37

SPINDO

CARBON STEEL TUBES FOR MACHINE STRUCTURAL PURPOSE
JIS G - 3445 - 88 (STKM) / SNI 0067 - 87

Nominal Diameter		Tolerance on outside diameter		Tolerance on wall thickness	
A (mm)	B (inch)	No : 2	No : 3	No : 2	No : 3
15	1/2	Under 50 mm ± 25 mm	Under 25 mm ± 0,12mm	Under 3 mm ± 0,3mm	Under 2 mm ± 0,15 mm
20	3/4			3 mm or over ± 8%	2 mm or over ± 8%
25	1		25 mm or over ± 0,15mm		
32	1 1/4				
40	1 1/2		40 mm or over ± 0,18mm		
50	2	50 mm or over ± 0,5%	50 mm or over ± 0,20mm		
65	2 1/2		60 mm or over ± 0,23mm		
			70 mm or over ± 0,25mm		
80	3		80 mm or over ± 0,30mm		
			90 mm or over ± 0,40mm		
100	4		100 mm or over ± 0,5 %		
125	5				
150	6				
200	8				

SQUARE STEEL PIPES FOR GENERAL CONSTRUCTIONS
JIS G. 3466 - 88 (STKR)

NOTATION	TENSILE STRENGTH Kgf/MM2 (N/MM2)	STRETCH LIMIT Kgf/MM2 (N/MM2)
STKR 41	41 MM (402 Min)	25 Min (245 Min)
STKR 50	50 Min (490 Min)	33 Min (324 Min)

SQUARE

Side Length A X B mm	Wall Thickness t mm	Unit Mass kg/m
40x40	1,6	1,88
	2,3	2,62
	3,2	3,80
50x50	1,6	2,38
	2,3	3,34
	3,2	4,50
60x60	1,6	2,88
	2,3	4,06
	3,2	5,50
75x75	1,6	3,64
	2,3	5,14
	3,2	7,01
*90x90	2,3	6,23
	3,2	8,51
*100x100	2,3	6,95
	3,2	9,52
	4,0	11,70
	4,5	13,10
*125x125	3,2	12,0
	4,5	12,60
	5,0	18,3
*150x150	4,5	20,1
	5,0	22,3

RECTANGLE

Side Length A X B mm	Wall Thickness t mm	Unit Mass kg/m
	1,6	1,63
	2,3	2,25
	1,6	2,13
	2,3	2,98
	3,2	3,99
	1,6	2,88
	2,3	4,06
	3,2	5,50
	1,6	2,88
	2,3	4,06
	3,2	5,50
	2,3	5,14
	3,2	7,01
	4,5	9,55
	2,3	6,11
	3,2	8,35
	1,6	1,88
	2,3	2,62
	1,6	2,88
	2,3	4,06
	3,2	5,50
	3,2	9,52
	4,0	11,7
	4,5	13,1
	6,0	17,0
	4,5	15,2
	5,0	16,8
	6,0	19,8
	3,2	12,0
	4,5	16,6
	6,0	21,7
	4,5	20,1
	6,0	26,4

SPINDO

COLD ROLLED STEEL TUBE FOR : (muffler, furniture, bicycle)

OUTSIDE DIAMETER		THICKNESS	WEIGHT PER METER	WEIGHT PER PCS
IN	MM	MM	KG/M	KG
	11	0.4 - 0.6		
	12.5	0.7 - 1.0		
	13.5	0.7 - 1.0		
	15	0.7 - 1.6		
5/8	15.9	0.7 - 1.6	0.367	2.205
3/4	19.1	0.7 - 1.8	0.418	2.510
	21.4	1.2 - 3.0	0.435	1.610
7/8	22.2	0.8 - 1.8	0.446	2.678
1	25.4	0.7 - 2.4	0.509	3.054
	26.9	1.2 - 3.0	0.530	3.178
1 1/8	28.5	0.8 - 1.8	0.523	3.137
	30	0.8 - 1.8	0.597	3.582
1 1/4	31.8	0.7 - 2.4	0.621	3.729
	33.8	1.2 - 3.3	0.602	3.610
1 3/8	34.9	1.0 - 1.8	0.716	4.296
1 1/2	38.1	0.7 - 2.4	0.760	4.557
	38.6	0.8 - 2.4	0.869	5.215
1 5/8	41.3	0.7 - 1.8	0.906	5.433
	42.5	1.2 - 1.8	1.048	6.287
1 3/4	44.6	1.2 - 1.8	1.092	6.552
	47	0.7 - 1.8	1.223	6.341
1 7/8	47.6	1.2 - 1.8	1.267	7.602
	48.4	1.4 - 3.6	1.354	8.123
2	50.8	0.7 - 3.0		
	53.0	0.7 - 3.0		
2 1/4	57.2	1.4 - 2.0		
	60.2	1.4 - 3.8		
3	76.2	1.6 - 3.6		
41.90		1.40	1.398	8.389
		1.50	1.494	8.966
		1.60	1.590	9.540
47.80		1.40	1.602	9.611
		1.50	1.713	10.275
		1.60	1.823	10.937
61.50		1.20	1.784	10.706
		1.35	2.002	12.015
		1.40	2.075	12.449
		1.50	2.219	13.316
		1.60	2.363	14.180

SQUARE PIPE/OVAL FOR FURNITURE

DIMENSION A X B MM	THICKNESS MM	DIMENSION A X B MM	THICKNESS MM
12.5 x 12.5	0.7 - 1.6	12.5 x 12.5	0.7 - 1.6
15 x 15	0.7 - 1.6	15 x 30	0.7 - 1.6
17.5 x 17.5	0.7 - 1.6	20 x 40	0.7 - 2.0
19 x 19	0.7 - 1.6	25 x 50	0.7 - 2.5
20 x 20	0.7 - 1.6	30 x 60	0.7 - 2.5
		20 x 30	0.7 - 2.5
25 x 25	0.7 - 1.6	OVAL	
30 x 30	0.7 - 3.0		
40 x 40	0.7 - 3.0	14 X 37 | 16 X 25	1,0 - 2,0
50 x 50	1.6 - 3.0	15 X 30 | 20 X 46	1,0 - 2,0
60 x 60	2.0 - 3.0		
75 x 75	2.0 - 3.5	SEMI OVAL	
90 x 90	2.0 - 3.5	14 X 24	0,8 - 2,0

Thickness Tolerance : + not defined
: - 10 %
Diameter Tolerace : +/- 1%
Length Unit : 6 meter per pipe
Material Specification : 1. Cold Rolled Steel JIS - SPCC - SD
2. Hot Rolled Steel JIS - SPHT - 1,2 & 3

Deviating from standard measurement is supplied according to the agreement.

SPINDO

Marking and Packaging for Export

1). Marking

Each pipe and tube is marked with the manufacturer name, specification number, grade and size.

Example for **Galvanized Pipe / Black Pipe**

PT.SPINDO	BS 1387 - 67	HEAVY	Ø3" X 6000 mm
Manufacturer name	Specification number	Grade	Size

2). Packaging

Pipes or tubes are bundled and packaged at one of the following methods, depends on size, number of joints and application

Round Bundle

Hexagonal Bundle

Square Bundle

3). Legend

G: Galvanized
B: Black
P: Plain without thread
T: Thread
C: Coupling
E: End

Example

GPE : **G**alvanized **P**lain **E**nd
BTC : **B**lack **T**hreaded with **C**oupling

4). Note

Other packaging shape can be carried out as customer request given the properties best suited to the intended application.

TELEPHONE POLE DIMENSIONS

STANDARD : STEL - L - 003 - 1996

No.	Description	Notation	Type of Pole			
			T.6	T.7	T.8	T-9
1.	Total length	L	(6000 +/-15) mm	(7000 +/-15) mm	(8000 +/-15) mm	(9000 +/-15) mm
2	Length of Pole upper portion	L1	(2200 +/5,5) mm	(1570 +/-3,4) mm	(1570 +/-3,0) mm	(2200+/-3,8) mm
3.	Length of Pole middle portion	L2		(1570 +/-3,4) mm	(1570 +/-3,0) mm	(2200+/-3,8) mm
4.	Length of Pole lower portion	L3	(4000 +/5,5) mm	(4260 +/-8,2) mm	(5260 +/-9,0) mm	(5000 +/-7,4) mm
5.	Length of Pole uper portion	l 1	(2000 +/-40) mm	(1370 +/-40) mm	(1370 +/-40) mm	(2000 +/-40) mm
6.	Length of Pole middle portion	l 2		(1370 +/-40) mm	(1370 +/-40) mm	(2000 +/-40) mm
7.	Length of Pole lower portion	l 3	(4000+/-10,5) mm	(4260+/-8,2) mm	(5260 +/-9) mm	(5000 +/-7,4) mm
8.	Outer Pole Diameter upper portion	D 1	76,3 +/ 0,5%	76,3 mm+/- 0,5%	76,3 mm+/- 0,5%	76,3 mm+/- 0,5%
9.	Outer Pole Diameter middle portion	D 2		114,3mm +/-0,5%	114,3mm +/-0,5%	114,3mm +/-0,5%
10.	Outer Pole Diameter Lower portion	D 3	114,3 +/-0,5%	139,8mm +/-0,5%	139,8mm +/-0,5%	139,8mm +/-0,5%
11.	Thickness of Pole upper section	t 1	4,5 mm+/-0,25 mm	2,9mm +/-0,22 mm	2,9mm +/-0,22 mm	4,5mm +/-0,25 mm
12.	Thickness of Pole middle section	t 2		2,9mm +/-0,22 mm	2,9mm +/-0,22 mm	4,5mm +/-0,25 mm
13.	Thickness of Pole lower section	t 3	4,7 mm+/-0,25 mm	3,6mm +/-0,24 mm	4,1mm +/-0,25 mm	4,7mm +/-0,25 mm
14.	Minimum weight of Pole (including caps)	-	68 kg	71,4 kg	91,0 kg	120,0 kg
	Nominal weight of Pole (including caps)	-	72 kg	77,0 kg	97,6 kg	127,3 kg
15.	Load bearing capacity equivalent horizontal load factor tolerance of 2,5 on a point of 10-cm from the top end, with the pole planted to the depht of 1/5 the pole lenght	-	140 kgf	140 kgf	140 kgf	140 kgf

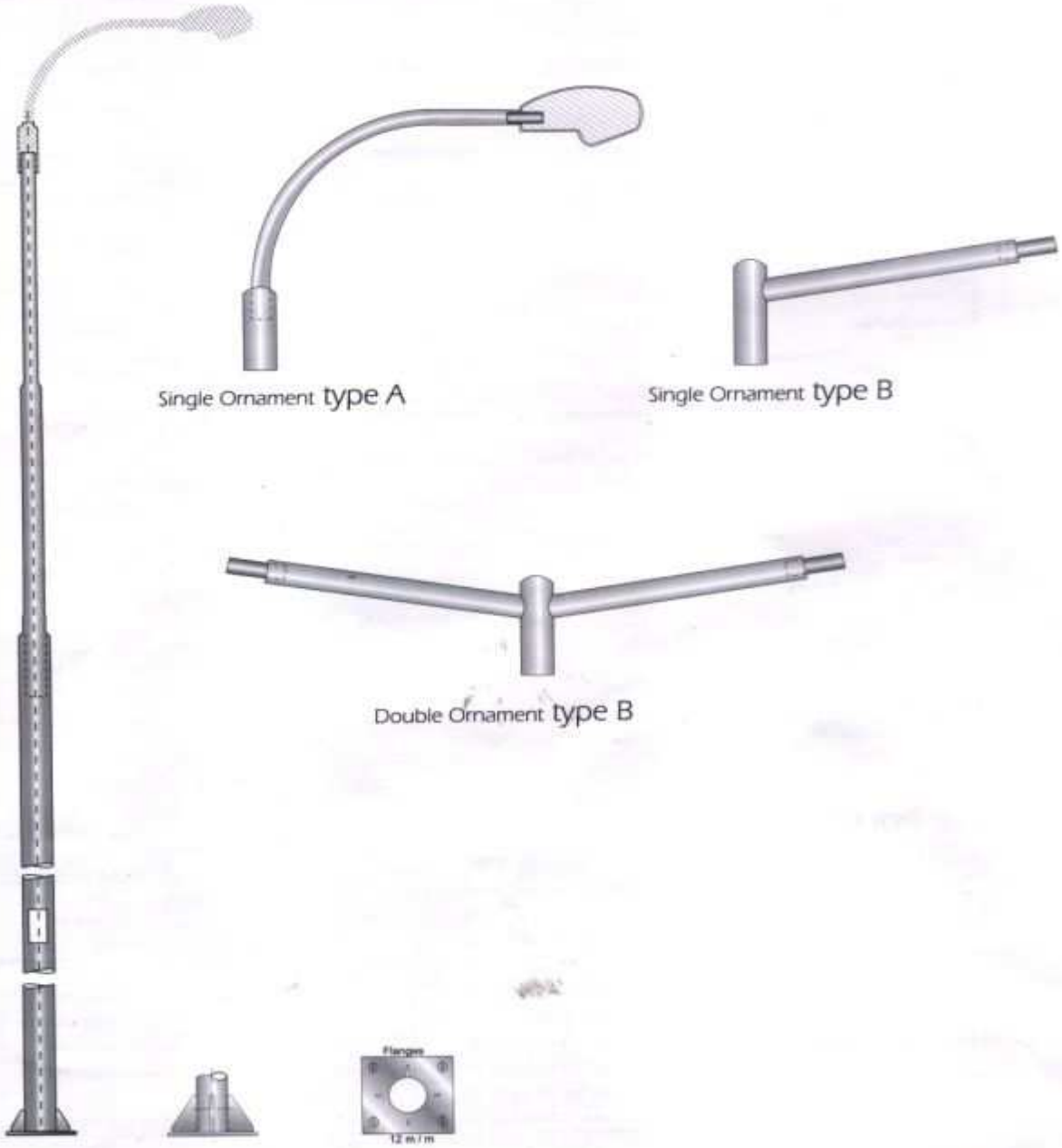
ELECTRIC POLE DIMENSIONS

L M K STANDARD

TYPE	D I M E N S I			BERAT STANDARD
7.90 daN	ø 5 " x 3,6 x 4,00 M	ø 4 " x 3,2 x 2,00 M	ø 3 " x 3,2 x 1,70 M	83,4 KG
7.100 daN	ø 5 " x 4,5 x 4,00 M	ø 4 " x 3,5 x 1,70 M	ø 3 " x 3,2 x 1,70 M	100,6 KG
7.156 daN	ø 6 " x 4,5 x 4,00 M	ø 4 " x 4,5 x 2,20 M	ø 3 " x 4,0 x 1,70 M	126,4 KG
9.80 daN	ø 5 " x 3,5 x 5,00 M	ø 4 " x 3,5 x 2,20 M	ø 3 " x 3,2 x 2,20 M	105,2 KG
9.90 daN	ø 5 " x 4,5 x 5,00 M	ø 4 " x 4,5 x 2,20 M	ø 3 " x 3,5 x 2,20 M	129,5 KG
9.100 daN	ø 5 " x 6,0 x 5,00 M	ø 4 " x 4,5 x 2,50 M	ø 3 " x 4,0 x 2,50 M	162,0 KG
9.156 daN	ø 6 " x 4,5 x 5,00 M	ø 5 " x 4,5 x 2,50 M	ø 4 " x 4,5 x 2,50 M	164,0 KG
9.200 daN	ø 7 " x 6,0 x 5,00 M	ø 5 " x 6,0 x 2,50 M	ø 4 " x 4,5 x 2,50 M	233,0 KG
9.350 daN	ø 8 " x 8,0 x 5,00 M	ø 7 " x 6,0 x 2,50 M	ø 5 " x 6,0 x 2,50 M	348,0 KG
9.500 daN	ø 10 " x 7,0 x 5,00 M	ø 8 " x 6,0 x 2,50 M	ø 6 " x 5,0 x 2,50 M	379,0 KG
11.156 daN	ø 6 " x 4,5 x 6,50 M	ø 5 " x 4,5 x 2,45 M	ø 4 " x 4,5 x 2,45 M	195,9 KG
11.200 daN	ø 7 " x 7,0 x 6,00 M	ø 6 " x 6,0 x 3,00 M	ø 4 " x 5,6 x 3,00 M	306,0 KG
11.350 daN	ø 10 " x 7,0 x 6,00 M	ø 7 " x 7,0 x 3,00 M	ø 6 " x 4,5 x 3,00 M	446,0 KG
11.500 daN	ø 10 " x 9,0 x 6,00 M	ø 8 " x 8,0 x 3,00 M	ø 7 " x 4,5 x 3,00 M	564,0 KG
12.140 daN	ø 6 " x 4,5 x 7,50 M	ø 5 " x 4,5 x 2,45 M	ø 4 " x 4,5 x 2,45 M	213,7 KG
12.200 daN	ø 8 " x 6,0 x 8,00 M	ø 5 " x 6,0 x 2,50 M	ø 4 " x 4,5 x 2,50 M	347,0 KG
12.350 daN	ø 10 " x 7,0 x 8,00 M	ø 7 " x 6,0 x 2,50 M	ø 5 " x 6,0 x 2,50 M	505,0 KG
12.500 daN	ø 12 " x 7,0 x 8,00 M	ø 8 " x 6,0 x 2,50 M	ø 6 " x 5,0 x 2,50 M	590,0 KG
13.200 daN	ø 8 " x 7,0 x 6,00 M	ø 7 " x 6,0 x 6,00 M	ø 4 " x 4,0 x 2,00 M	423,0 KG
13.500 daN	ø 10 " x 8,0 x 6,00 M	ø 8 " x 7,0 x 6,00 M	ø 4 " x 5,6 x 2,00 M	585,0 KG
14.200 daN	ø 8 " x 7,0 x 8,00 M	ø 6 " x 6,0 x 6,50 M	-	464,0 KG
14.350 daN	ø 10 " x 8,0 x 8,00 M	ø 8 " x 6,0 x 6,50 M	-	642,0 KG

SPINDO

STEEL LIGHTING POLE



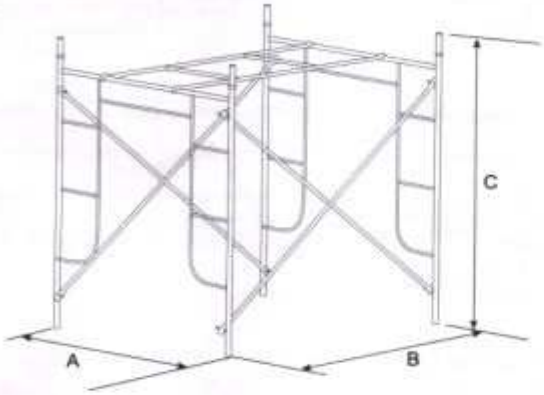
Tinggi Tiang Lampu Mercury (6m - 18m):

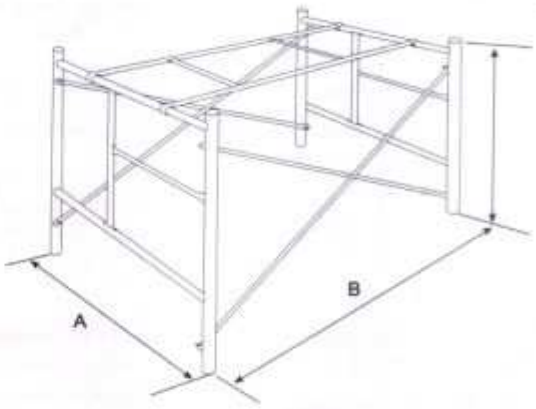
The Lighting Pole construction can be made according to the drawing plan / construction of customer's demand or according to the standard construction design of PT. SPINDO

Finishing : * Galvanizing steel Lighting Pole
* Red Primer painted Lighting Pole

SPINDO

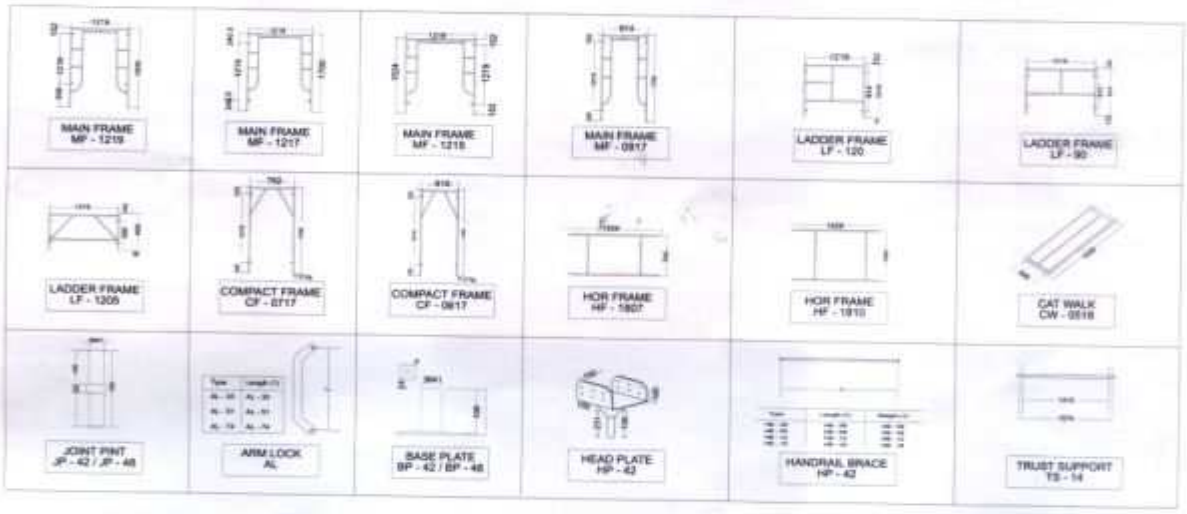
SCAFFOLDING

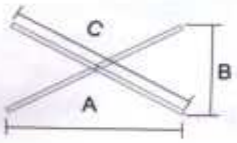




TYPE	A	B	C
MF - 1217	1,829	1,829	1,700
MF - 1219	1,219	1,829	1,930

TYPE	A	B	C
MF - 120	1,219	1,829	1,219
MF -90	1,219	1,829	914





CROSS BRACE CB-

FIGURE NO SHOWN

TYPE	A	B	C	WEIGHT
CB-0618	1829	610	1928	3.7
CB-0618	1524	610	1642	3.1
CB-0618	1219	610	1363	2.6
CB-0618	914	610	1099	2.1
CB-0618	1829	280	1850	3.6
CB-0618	1524	280	1549	3.0

TYPE	A	B	C	WEIGHT
CB-1218	1829	1219	2198	4.2
CB-1215	1524	1219	1952	3.7
CB-1212	1219	1219	1724	3.3
CB-0918	1829	914	2045	3.9
CB-0915	1524	914	1777	3.4
CB-0912	1219	914	1524	2.9

Scaffolding finishing : - Hot Dipped Galvanized
- Red Primer Painted
- Bare pipe / Blackpipe

SPINDO

GENERAL GALVANIZING

Steel is strong material for building constructions as well as transmission towers, but it still has to be protected from corrosion. There are many ways to protect it from corrosion but the most economical way is to coat with zinc in Hot Dip Galvanizing system

The reasons using Hot Dip Galv are :

1. Extend the age of steel or iron (for Example : Coating thickness for 600 gr/m^2 is free from maintenance for over 30 year in rural and 15 - 25 years in urban area.
2. It is not peeled off easily because it has been united with its base coat so the activities of assembly and transportation will be easier.
3. Giving protection of little scratches, both zinc are cathodic for small area as it closes it self automatically after a while.
4. Giving a comprehensive protection including sharp indentations, also can be controlled and assembled on location easily.
5. Simplifies the control of assembly on location because of its flat surface and clean appearance , and easy to find out if the condition does not reached out, for example : spots, etc.
   The cost is also very economical.

IMPROVEMENT

The wide consumption of galvanized steel pipe welding on location has increase the demands of locals reparations that has broken by welding .

There are 2 ways to improve : (Comform to the Australian standard 1650 appendix (G))

1. Using paint coat that contains of large Zn (comform to the Australia standard 2204), including Zinc Galv. No. 1; ZRP.10 in it, etc. Paint coat for maximum thickness 100 micron and if it required the same colour for the outest coat, it can be lined with Aluminium paint.

2. Using stick and powder, for example C I G galvanizing bar, All state galvover, etc.

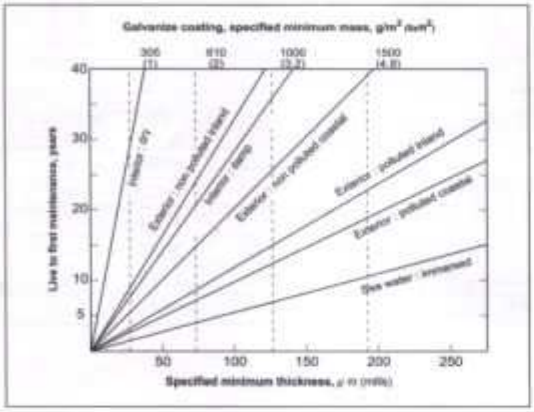
Standard. We use hot dip galvanizing conform to the standard of SII, British Standard, DIN, ASTM, JIS, Australia dan New Zealand.

For example, the zinc coat thickness according to the Australian Standard AS 1650 are :

PRODUCT	MINIMUM COAT THICKNESS PRODUCT	
	Coat Weight G/M²	Weight Equivalent µ M
Steel, thickness > 5 mm	600	84
Steel, thickness 2 mm ≤ t < 5 mm	450	63
Steel, thickness < 2mm	350	49
Centrifugal Result	300	42

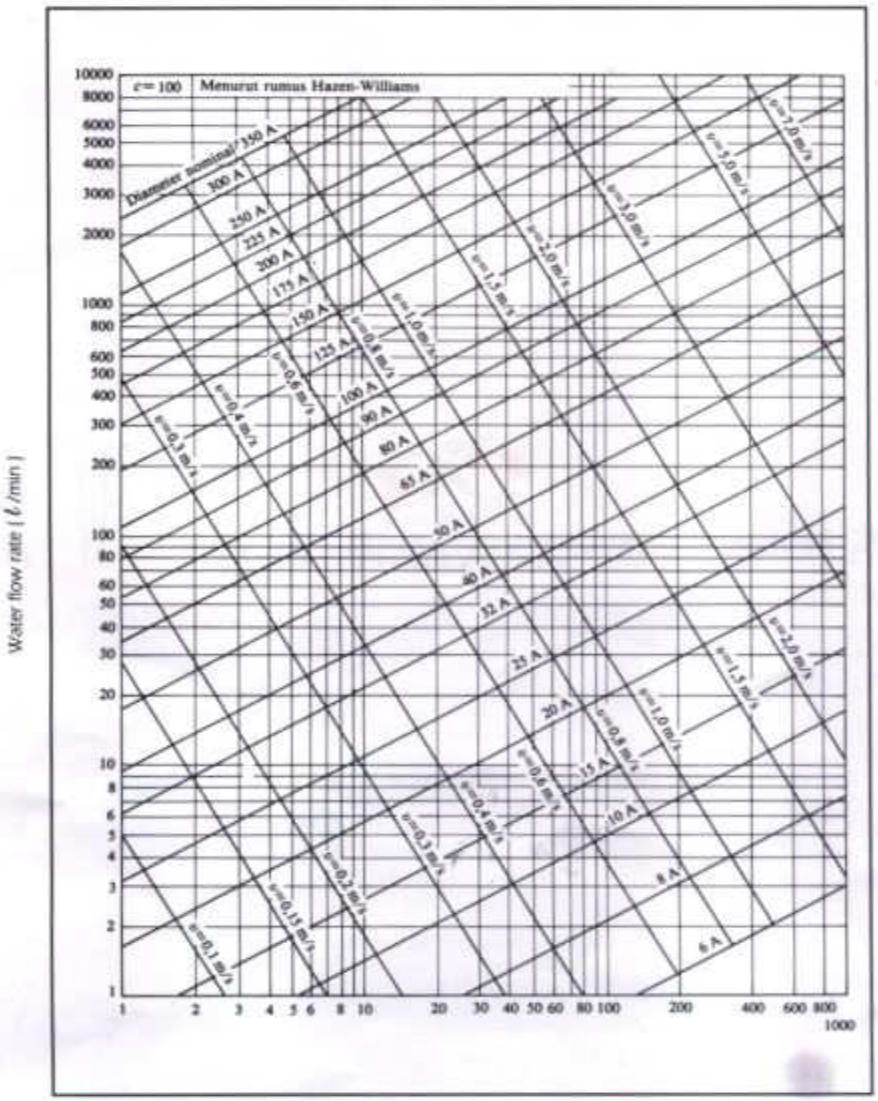
Galvanized coat on corners and end of material is always thicker compared with paint that usually thinner in this critical region

Galvanized test material that has been lost its zinc coat before it tested in industrial area, the picture show that corrosion can be prevented for diameter up to 3 mm, and minimum for dia 5 mm



Time for the first maintenance of zinc coat material in several environment conditions (BS Standard 5493/1977).

SPINDO



Friction Pressure Loss (mm Hg / m)
Pipe Sizing Graph for Carbon Steel Pipe

Calculation of Pipe Weight (Carbon Steel pipe)

$= 0.02466.t.(D - t)$ kg/m

Legend :

t = Wall Thickness (mm)

D = Outside Diameter .O.D (mm)

Conversion Table

LENGTH

	m.metre	c.metre	metre	k.metre	inch	foot	yard
m.meter	1	0.1000	0.00100	-	0.03937	0.00328	0.00109
c. meter	10.0000	1	0.01000	0.00001	0.39371	0.03281	0.01094
meter	1000.00	100.00	1	0.00100	39.3707	3.28089	1.09363
k. meter	-	100000	1000.00	1	39370.7	32.80.89	1093.63
inch	25.3995	2.53995	0.02540	0.00003	1	3280.89	0.02778
foot	304.794	30.4794	0.30479	0.00030	12.0000	1	0.33333
yard	91.4383	91.4383	0.91438	0.00091	26.0000	3.00000	1

CAPACITY

	cub.metre	litre	cub.inch	cub.foot	cub.yard	U.S.Gallon	U.K.gallon
cub.meter	1	1000.00	610027.1	35.3147	1.30802	264.186	220.216
litre	0.00100	1	61.0271	0.03532	0.00131	0.26419	0.22022
cub.inch	0.00002	0.01639	1	0.00058	0.00002	0.00433	0.00361
cub.foot	0.02832	28.3167	1728.00	1	0.03704	7.48051	6.23549
cub.yard	0.76455	764.554	46656.0	27.0000	1	201.974	168.358
U.S. gallon	0.00379	3.78543	231.000	0.13368	0.00495	1	0.83270
U.K.gallon	0.00455	4.54596	277.413	0.16037	0.00594	1.20091	1

SPINDO