INTERPLANT STANDARD – STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR CRANE WHEEL ASSEMBLY LIVE AXLE TYPE (Second Revision)**	**IPSS:1-08-010-18 (Second Revision)**
	Corresponding Indian Standard Does Not Exist	Formerly: IPSS:1-08-010-09 (First Revision)

0. FOREWORD

0.1 Interplant Standardization activity in Steel Industry is being pursued by IPSS Secretariat which functions under Centre for Engineering & Technology (CET), the in-house consultancy organization of SAIL.

0.2 This Interplant Standard has been prepared by the Standards Committee on Lifting and hoisting Equipment, IPSS 1:8 with the active participation of the representatives of all the steel plants, established manufacturers and leading consultants and was first revised in March 2009.

0.3 The Standard discussed again in presence of experts from SAIL, RINL, TATA STEEL, ESSAR, JSPL and Consultants of MECON, HEC & DASTURCO and revised with second revision in **August, 2018**.

0.3 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and assemblies used in steel plant equipment and provide guidance in indenting stores or equipment by individual steel plants. For exercising effective control on inventories, it is advisable to select a fewer number of sizes/types from those mentioned in this standard. These limited sizes/types can be adopted as Plant Standards for an individual steel plant. It is not desirable to make deviations in technical requirements.

0.4 This revision incorporates the changes based on the experience of the user plants as well as revisions of Indian Standards referred to in this standard.

1. SCOPE – This Inter Plant Standard covers the material and overall dimensional parameters for the crane wheel assemblies of live axle type, suitable for use in cranes in the steel plants.

1.1 The crane wheels used in these wheel assemblies shall conform to IPSS:1-08-001-18 `Specification for Crane Wheels'.

2. REQUIREMENTS

2.1 General Requirements

2.1.1 The crane wheel assembly may be for either a driving or a trailing wheel.

2.1.2 The crane wheel assemblies shall be provided with anti-friction bearings only.

2.2 Materials of Construction - The material of construction for various components, as shown in figure 1 shall be as follows:

a) **Wheel** – Shall conform to IPSS:1-08-001-18

b) **Axle** (Parts 1 & 2) – 42CrMo4 as per DIN 17200: 1987 (Steels for quenching and tempering).

c) **Bearing Housing** (Part 3) – Fe410W Gr B of IS 2062:2006 `Hot rolled low, medium and high tensile structural steel (sixth revision) or Gr CS280-520W of IS 1030:1998 `Carbon steel castings for general engineering purposes (fifth revision)'

d) **Covers and Spacer Rings** (Parts 4,5,6&7) – Fe410 Gr B of IS 2062:2006.

e) **Fasteners** – Shall conform to IS 1363 & IS 1367 `Technical supply conditions for threaded fasteners'.

f) **Keys** – Keys & keyways shall conform to IS 2048:1983 `Specification for parallel keys and keyways (second revision)' and

g) **Couplings** – Couplings shall conform to IPSS:1-01-005-86 `Specification for gear type flexible couplings'.

2.3 **Tolerances** – The tolerances, wherever not specified, shall be according to the `medium' class of IS 2102 (Part 1) – 1993 `General tolerances for dimensions and form and position : Part 1 general tolerances for linear and angular dimensions (third revision)'.

3. **DIMENSIONS** – The dimensions of a crane wheel assembly live axle type, for both driving wheels as well as trailing wheels are shown in Table-1, Fig-A, Fig 1-6 respectively.

4. **LUBRICATION** – Suitable drilled holes shall be provided for lubrication with hole diameter of minimum 6 mm and with a grease nipple conforming to IS 4009 (Part 1):1981 `Specification for grease nipple: Part 1 Button head grease nipples (first revision)'. Suitable grease retaining arrangement shall be provided on the bearing and covers.

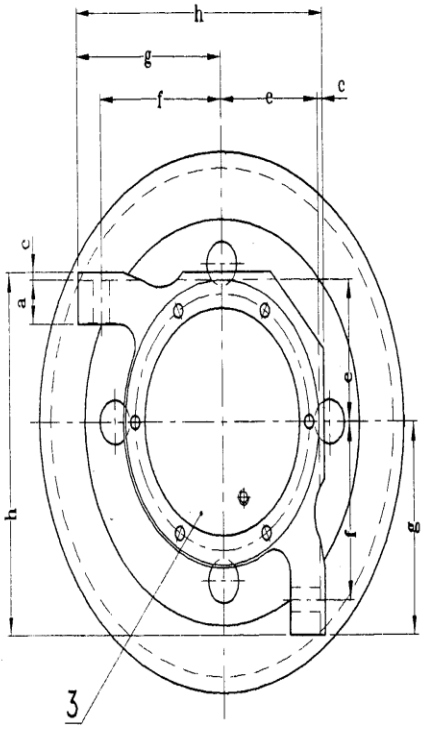
5. Tread width up to 630 mm – 15 mm clearance and above 630 mm – 20 mm

CRANE WHEEL ASSEMBLY

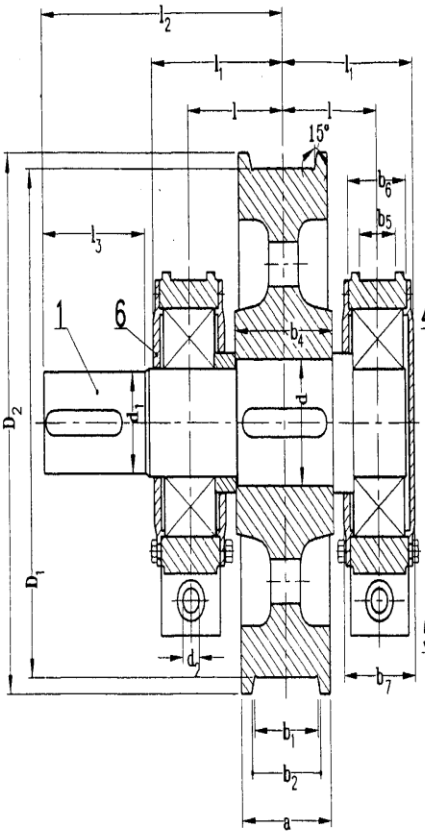
LIVE AXLE TYPE

I.P.S.S. 1-08-010

FIG. A

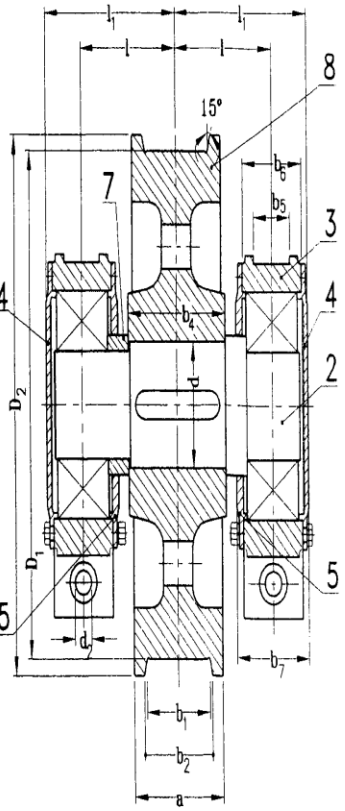


BEARING HOUSING



DRIVING WHEEL

FIG. 1



TRAILING WHEEL

FIG. 2

EXAMPLE FOR ORDER

2 Driving Wheels. D = ø800B
2 Trailing Wheels D = ø800B

N = Narrow. B = Broad. W = Wide.

DIMENSIONS OF CRANE WHEEL ASSEMBLY, LIVE AXLE TYPE

TABLE 1

(Clause 3)

(ALL DIMENSIONS IN MILLIMETRE)

(To be read with FIG. A)

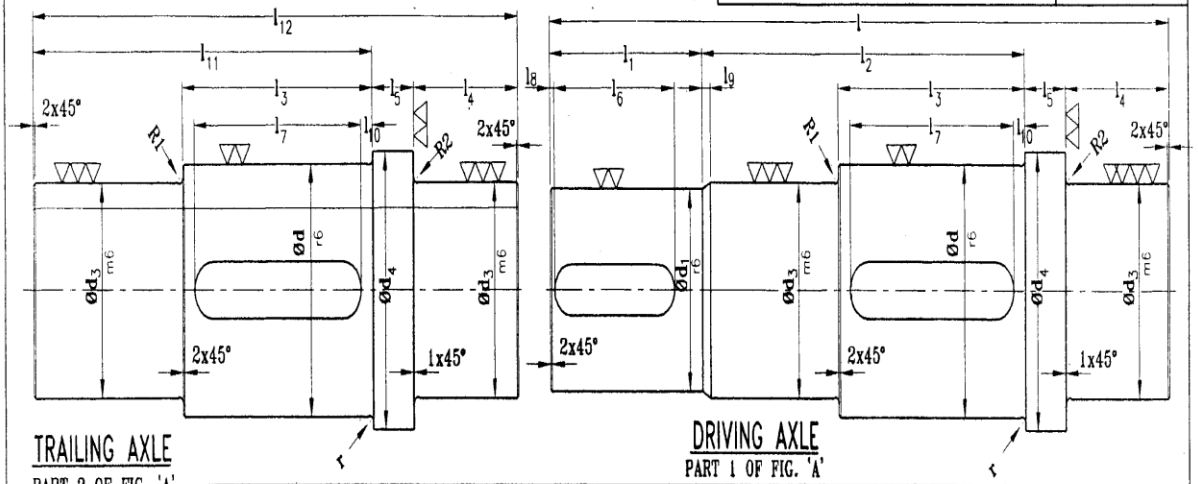
Wheel Size $D_{1_{h9}}$	D_2	b_1	a	b_2	b_4	$d_{1_{r6}}$	d^{H7}_{r6}	d_2	$b5_{H7}$	b_6	b_7	l	l_1	l_2	l_3	a	c	e	f	g	h	Self aligning double row Sph.Roller Brg.	Bearing Size	Wt. of wheel(kg) Driving	Wt. of wheel(kg) Trailing	Recommended Rail
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
320	360	70	110	81	130	70	90	22	35	70	90	120	165	320	140	30	10	120	140	165	295	22316	170/80x58	130	122	CR 50, CR 60
400	450	80	125	94	140	90	120	26	50	85	112	135	191	360	150	40	10	135	160	190	335	22320	215/100x73	220	202	CR 50, CR 60
500 N		75	160	89																						
500 B	550	95	160	109	160	100	130	26	50	96	124	150	212	400	160	40	10	150	180	215	375	22322	240/110x80	321	309	CR 50, CR 60
500 W		110	160	124																				337	325	CR 80
630 N		90	190	104																				510	490	CR 60
630 B	680	110	190	124	190	120	150	32	70	110	140	175	245	450	175	50	12	175	210	255	442	22326	280/130x93	509	489	CR 80
630 W		130	190	144																				508	488	CR 100
710 N		90	200	104																				914	886	CR 60
710 B	760	130	200	144	200	130	170	32	70	120	150	200	275	480	185	50	12	200	240	285	497	22328	300/140x102	912	884	CR 80, CR 100
710 W		150	200	164																				910	882	CR 100, CR 120
800 N		110	210	124					80	124								200	240	285	497			916	878	CR 80
800 B	850	130	210	144	210	145	180	32			154	290	277	520	220	50	12					22330	320/150x108	878	848	CR 80, CR 100
800 W		150	210	164					85	150								250	310	365	627			850	820	CR 100, CR 120, CR 140
900 N		110	210	124					70	124														920	880	CR 80
900 B	950	130	210	144	230	160	200	39			170	225	310	570	240	70	12	225	280	335	572	22334	360/170x120	887	842	CR 100, CR 120
900 W		150	210	164					85	140														840	800	CR 100, CR 120, CR 140
1000	1050	150	210	164	240	170	210	39	85	150	174	225	312	600	265	70	12	250	310	365	627	22338	400/190x132	1541	1488	CR 100, CR 120, CR 140

1 N = 0.225 lbf

CRANE WHEEL ASSEMBLY

LIVE AXLE TYPE

I.P.S.S. 1-08-010 FIG. 1



TRAILING AXLE

PART 2 OF FIG. 'A'

DRIVING AXLE

PART 1 OF FIG. 'A'

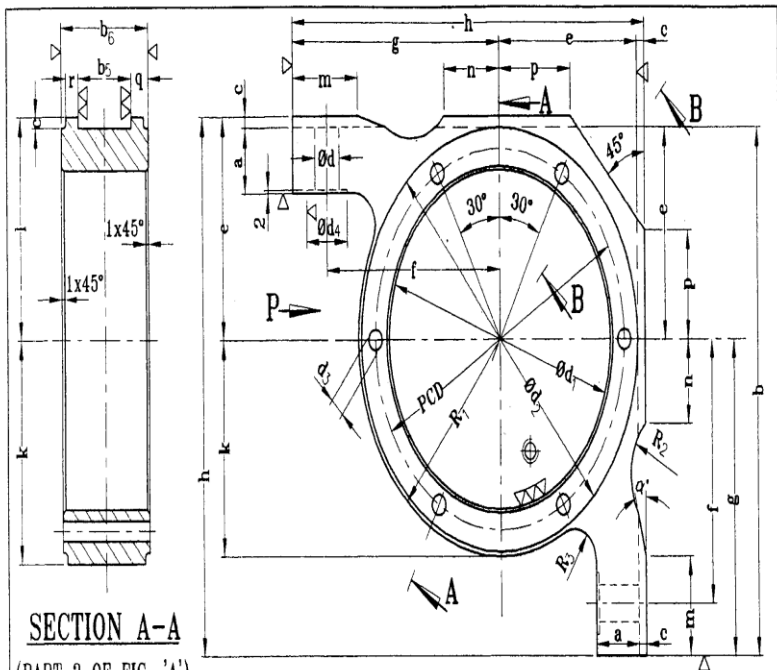
Wheel Size	$d_{1\ r6}$	d_{r6}	$d_{3\ m6}$	d_4	r	R1	R2	l	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	l_{11}	l_{12}	FEATHER KEY		Wt. of Axle(kg)	
																					Coupling	Wheel	Driving	Trailing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
320	70	90	75	100	2.5	5.0	5.0	470	140	225	108	57.5	47.5	125	90	5	10	10	213	318	20x12x125	22x14x90	21	14
400	90	120	90	115	2.5	6.0	6.0	523	150	265	123	67.5	40.5	125	110	5	10	8	231	339	22x14x125	25x14x110	36	27
500 N																								
500 B	100	130	110	135	1.5	2.5	5.0	593	160	320	158	83	30	125	140	5	10	10	271	384	28x16x125	32x18x140	48	37
500 W																								
630 N																							76	
630 B	120	150	130	155	1.5	2.5	6.0	675	175	365	178	96.5	38.5	160	160	5	10	10	313	448	32x18x160	36x20x160	76	56
630 W																							81	
710 N			130	155	7.0	8.0	6.5	720	185	375	178	96.5	63.5		160				338	498	32x18x160	36x20x160	100	70
710 B	130	170	150	200	7.5	7.0	10.0	743	185	405	208	112	41	160	190	5	10	10	361	514	36x20x160	45x25x190	107	80
710 W															210				431	613	45x25x160	50x28x220	110	90
800 N								773		375	178	112	66		160				356	534	36x20x180	40x22x160	110	70
800 B	145	180	150	175	2.5	7.5	7.0	778	220	405	208	112	41	180	180	5	10	14	361	514		40x22x180	121	80
800 W			190	240	11.0	2.5	11.0	848		445	248	136	47		220				431	613	45x25x180	50x28x220	150	100
900 N			150	180	5.5	10.0	7.5	833		405	188	112	76		170				376	564	36x20x200	40x22x170	160	110
900 B	160	200	170	190	5.0	7.5	3.0	849	240	425	208	124	60	200	190	5	10	14	392	576	40x22x200	45x25x190	170	120
900 W															220				423	606	45x25x200	50x28x220	180	130
1000	170	210	190	220	3.0	3.0	8.0	880	265	425	208	136	54	250	190	5	10	10	398	588	40x22x250	45x25x190	190	140

BEARING HOUSING

LIVE AXLE TYPE

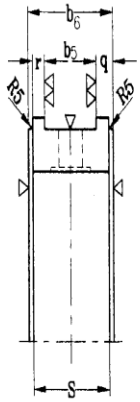
I.P.S.S. 1-08-010

FIG. 2

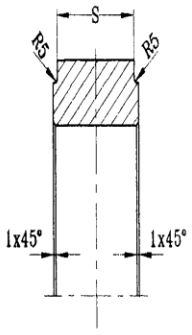


SECTION A-A

(PART 3 OF FIG. 'A')



VIEW - P



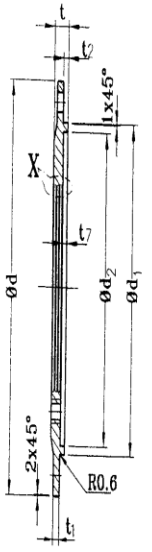
SECTION B-B

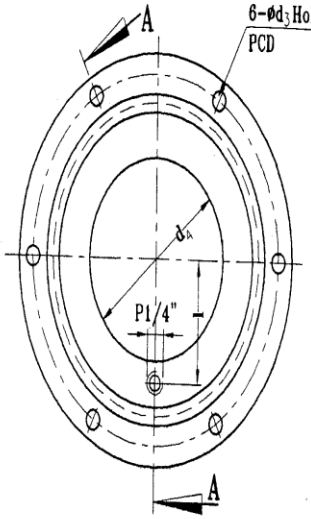
Wheel Size	a	$b_{\pm 0.1}$	b_5^{H7}	$b_{6\ -0.1}$	c	d	d_1^{H7}	d_2	$d_3^{+0.5}$	d_4	PCD	R_1	R_2	R_3	$e_{-0.5}$	$f_{-0.5}$	g	h	k	l	m	n	p	q	r	s	t ~	α°	Weight in kg.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
320	30	285	35	70	10	22	160	240	11	40	210	125	40	15	120	140	165	295	125	130	60	40	65	17.5	10	55	140	15'	14
400	40	325	50	85	10	26	190	270	13	50	240	140	40	15	135	160	190	335	140	145	60	40	75	17.5	10	70	155	15'	20
500 N 500 B 500 W	40	365	50	96	10	26	240	300	17	50	270	155	50	15	150	180	215	375	155	160	70	40	80	23	15	80	170	15'	33
630 N 630 B 630 W	50	430	70	110	12	32	280	350	22	60	315	180	50	35	175	210	255	442	180	187	90	70	105	20	15	100	206	30'	50
710 N 710 B 710 W	50	485	70	120	12	32	300	400	22	60	350	205	75	35	200	240	285	497	205	212	80	70	105	25	15	110	225	15'	70
800 N 800 B	50	485	80	124	12	32	320	400	22	60	360	205	75	35	200	240	285	497	205	212	80	70	105	22	15	110	225	15'	81
800 W		615	85	150			400	500			450	259			250	310	365	627	255	262	105	90	130						
900 N 900 B	70	560	70	124	12	39	360	450	22	65	405	230	75	35	225	280	335	572	230	237	105	90	115	27.5	20	125	250	15'	100
900 W			85	140																									
1000	70	615	85	150	12	39	400	500	26	65	450	255	75	35	250	310	365	627	255	262	105	90	130	32.5	25	135	280	15'	121

COVER FOR CRANE WHEEL ASSEMBLY

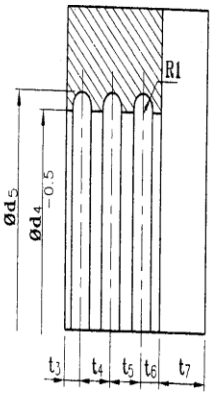
LIVE AXLE TYPE

I.P.S.S. 1-08-010 FIG.3





SECTION A-A



DETAIL - X

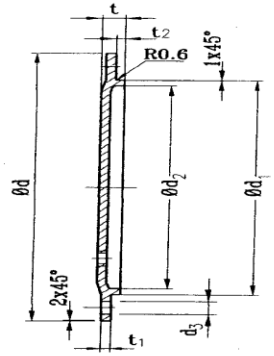
PART 6 OF FIGURE 'A'

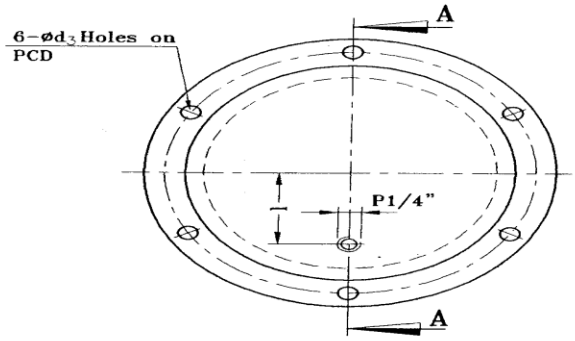
Wheel Size	d	d_1 r6	d_2	d_3	d_4 -0.5	d_5	PCD	t	t_1	t_2 +0.1 0	t_3	t_4	t_5	t_6	t_7	l	Total Wt.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
320	240	160	140	11	76	104	210	17.5	10	7.5	2	4	4	2	5.5	55	5.1
400	270	190	170	13	91	119	240	20.5	10	10.5	3	4	4	2	6.5	70	7.5
500 N	300	240	220	17	111	139	270	18.0	10	8.0	2	4	4	2	6.0	75	7.5
500 B																	
500 W																	
630 N	350	280	260	22	131	159	315	18.5	10	8.5	2	4	4	2	6.5	100	11.2
630 B						159											
630 W																	
710 N	400	300	280	22	131	159	350	18.5	10	8.5	2	4	4	2	6.5	110	15.5
710 B					151	204		18.0		8.0					6.0		13.6
710 W		320															
800 N	400	320	280	22	151	179	360	18.0	10	8.0	2	4	4	2	6.0	120	14.7
800 B	500	400	380		191	244	450	19.0		9.0					7.0		22.5
800 W																	
900 N	450	320	280	22	151	184	405	18.0	10	8.0	2	4	4	2	6.0	135	18.8
900 B		340	340		171	194		19.0		10.0					7.0		19.5
900 W																	
1000	500	400	380	26	191	224	450	19	10	9	2	4	4	2	7.0	150	23.6

BLIND COVER FOR CRANE WHEEL ASSEMBLY

LIVE AXLE TYPE

I.P.S.S. 1–08–010 FIG.4





SECTION A–A

(PART 4 OF FIG. 'A')

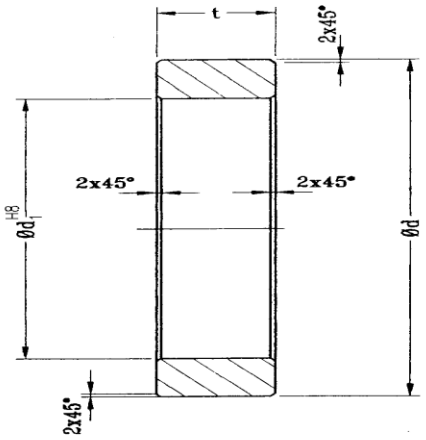
Wheel Size	d	$d_{1\,f8}$	d_2	d_3	PCD	t	t_1	$t_2{}^{-0.1}_{0}$	t_3	l	Total Wt. kg.
1	2	3	4	5	6	7	8	9	10	11	12
320	240	160	140	11	210	17.5	10	7.5	9.0	55	1.0
400	270	190	170	13	240	20.5	10	10.5	12.0	70	1.5
500 N 500 B 500 W	300	240	220	17	270	18.0	10	8.0	9.5	75	2.0
630 N 630 B 630 W	350	280	260	22	315	18.5	10	8.5	10.0	100	2.7
710 N	400	300	280	22	350	18.5	10	8.5	10.0	110	3.5
710 B 710 W		320				18.0		8.0			
800 N 800 B	400	320	280	22	360	18.0	10	8.0	10.0	120	4.0
800 W	500	400	380		450	19.0		9.0			
900 N	450	320	280	22	405	18.0	10	8.0	12.0	135	4.3
900 B 900 W		360	340			19.0		10.0			
1000	500	400	380	26	450	19.0	10	9.0	10.0	150	5.5

8

DISTANCE RING FOR CRANE WHEEL ASSEMBLY

LIVE AXLE TYPE

I.P.S.S. 1–08–010 FIG.5



PART 7 OF FIG. 'A'

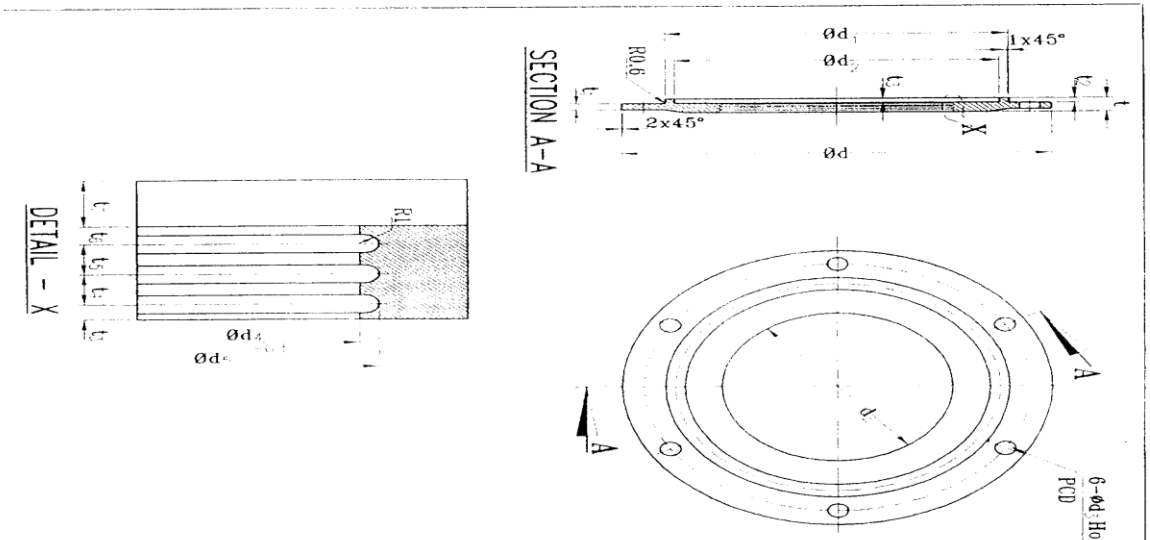
Wheel Size	d	d_1^{H8}	t	Total Wt.
1	2	3	4	5
320	100	75	47.5	1.0
400	115	90	40.5	1.3
500 N 500 B 500 W	135	110	30.0	1.0
630 N 630 B 630 W	155	130	38.5	1.3
710 N	155	130	63.5	2.2
710 B 710 W	200	150	41.0	2.1
800 N	175	150	66.0	3.3
800 B			41.0	2.1
800 W	240	190	47.0	3.6
900 N	180	150	76.0	3.8
900 B 900 W	190	170	60.0	4.1
1000	220	190	54.0	4.1

9

COVER FOR CRANE WHEEL ASSEMBLY

LIVE AXLE TYPE

I.P.S.S. 1-08-010 FIG. 6



PART 5 OF FIGURE 'A'

Wheel Size	d	d_1	d_2	d_3	d_4	d_5	PCD	t	t_1	t_2	t_3	t_4	t_5	t_6	t_7	Total Wt.
		$_{-1.8}$			$_{-0.5}$					$^{+0.1}_{0}$						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
320	240	160	140	11	101	79	210	17.5	10	7.5	2	4	4	2	5.5	5.6
400	270	190	170	13	116	94	240	20.5	10	10.5	3	4	4	3	6.5	8.2
500 N																
500 B	300	240	220	17	136	114	270	18.0	10	8.0	2	4	4	2	6.0	8.6
500 W																
630 N																
630 B	350	280	260	22	156	134	315	18.5	10	8.5	2	4	4	2	6.5	12.0
630 W																
710 N		300			156	134		18.5		8.5				6.5	16.3	
710 B	400	320	280	22	201	154	350	18.0	10	8.0	2	4	4	2	6.0	15.2
710 W																
800 N																
800 B	400	320	280	22	176	154	360	18.0	10	8.0	2	4	4	2	6.0	15.2
800 W	500	400	380		241	194	450	19.0		9.0				7.0	25.0	
900 N		320	280		181	151		18.0		8.0				6.0	19.9	
900 B	450	360	340	22	191	174	405	19.0	10	10.0	2	4	4	2	7.0	20.3
900 W																
1000	500	400	380	26	221	194	450	19.0	10	9.0	2	4	4	2	7.0	25.0