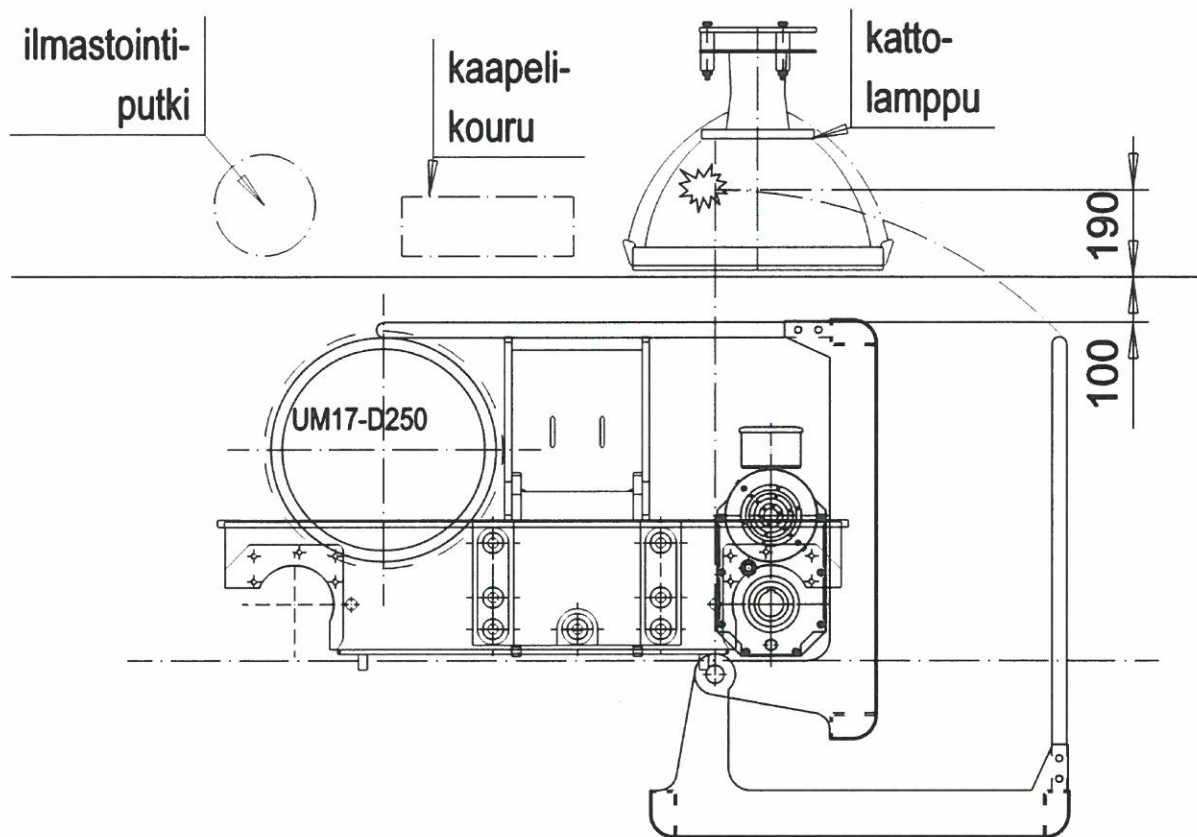


Parannusehdotus pienellä kattoetäisyydellä sisääntaitettavasta Smarton-huoltotasosta:

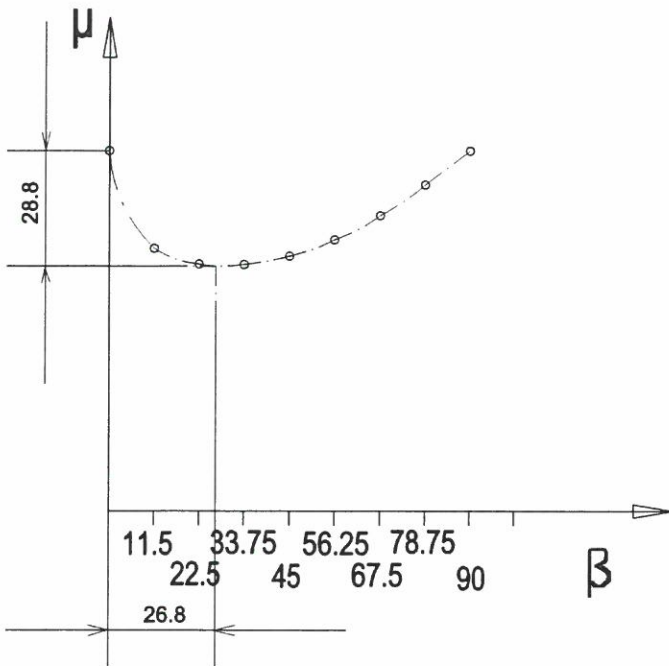
1. SMT vaunun huoltotason avaaminen ja USA:n kattoetäisyys

Verrattuna muihin markkinoilla oleviin ratkaisuihin **Smarton** vaunun lähestymismitta pienenee huomattavasti sisääntaitettavan huoltotason ansiosta. Kaide nousee kuitenkin 380mm ylös kun sitä taitetaan huoltoasemalta ajoasemaan. Turvaetäisyys kattoon on useissa Euroopan maissa säädetty 500mm:ksi. Tietyissä markkina-alueissa, esim. Espanjassa, Isobritanniassa ja USA:ssa tilanne on erilainen ja turvaetäisyys on pienempi. Espanjassa turvaetäisyys on monesti 100 mm, USA:ssa etäisyys on 4 tuuma, (101.6 mm), ja Isobritanniassa 150mm. Etelä-Amerikka seuraa USA:n mallia.



Huoltotason kaiteen ylin kohta on siis ylöstaitettaessa noin 190mm korkeampi kuin näiden maiden normin edellyttämä katon raja. Usein tehtaan katossa ovat kattovasojat, ja kattovasojen välinen etäisyys on suurempi kuin vaunun huoltotason leveys (esim. 6000mm tai 7500mm) ja täten avaaminen onnistuu. Kuitenkin halleissa ovat valoheittimet, kaapelikourut, sprinkleriputket ym. laitteita melkein samalla tasolla kuin kattovasojen alapinta, silloin on haasteellista löytää sopivan paikan, missä huoltotaso avautuisi. Virhetilanteissa sillan- ja vaunusiirto saattavat olla rikki, eikä silloin pääsee ajamaan vaunua pois. Näin virhetilanteissa huoltotason avautuminen voisi olla estynyt.

Jos merkataan kippauskulma β :ksi ja kaiteen kulma huoltotasoa nähden μ :ksi, niin saadaan niiden väliseksi siirtofunktioksi seuraavan käyrän:

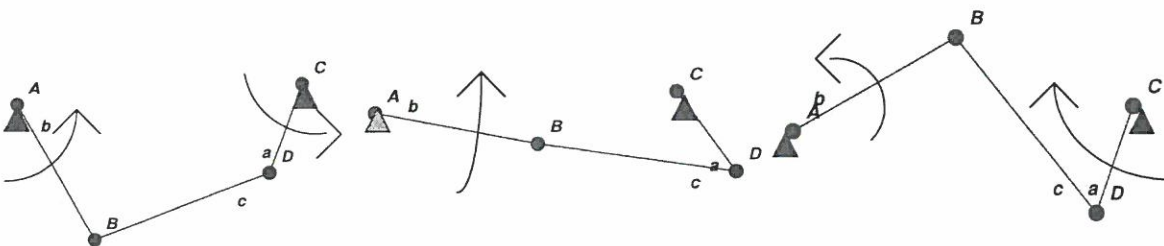


Jos katsoja istuu kiinteästi huoltotasossa, hän näkee vasemalla käyttävän kulman β , ja oikealla käytetyn kulman μ . Sekä käyttävän kulman alkuasemassa $\beta = 0^\circ$ ja loppuasemassa $\beta = 90^\circ$ kulma μ :n täytyy olla 90° . Väliasemassa $\beta = 26.8^\circ$ käytetty kulma μ on kuolopisteessä $\mu = 90^\circ - 28.8^\circ = 61.8^\circ$.

3. Ensimmäinen Ohjausvivusto

Saadakseen aikaiseksi mekanismin, jolla kaiteen yläreuna pysyy aina katon reunan alapuolella, pitää siis ensin löytää mekanismin, joka saa mahdollisimman samanlaisen käyrän aikaiseksi, siis palautuu käyttävän kulman käännettäessä 90° samaan alkukulmaan ja jolla on kuolokohta kulmalla $\beta = 26.8^\circ$.

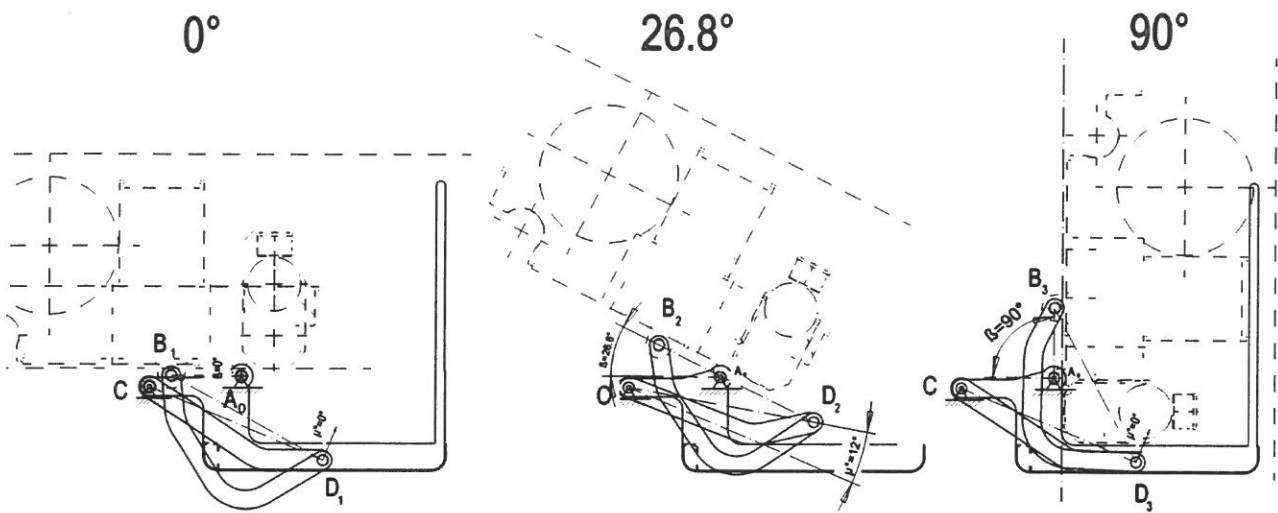
Tätä tehtävää pystytään toteuttamaan nelinivelmekanismin avulla:



1.

2.

3.



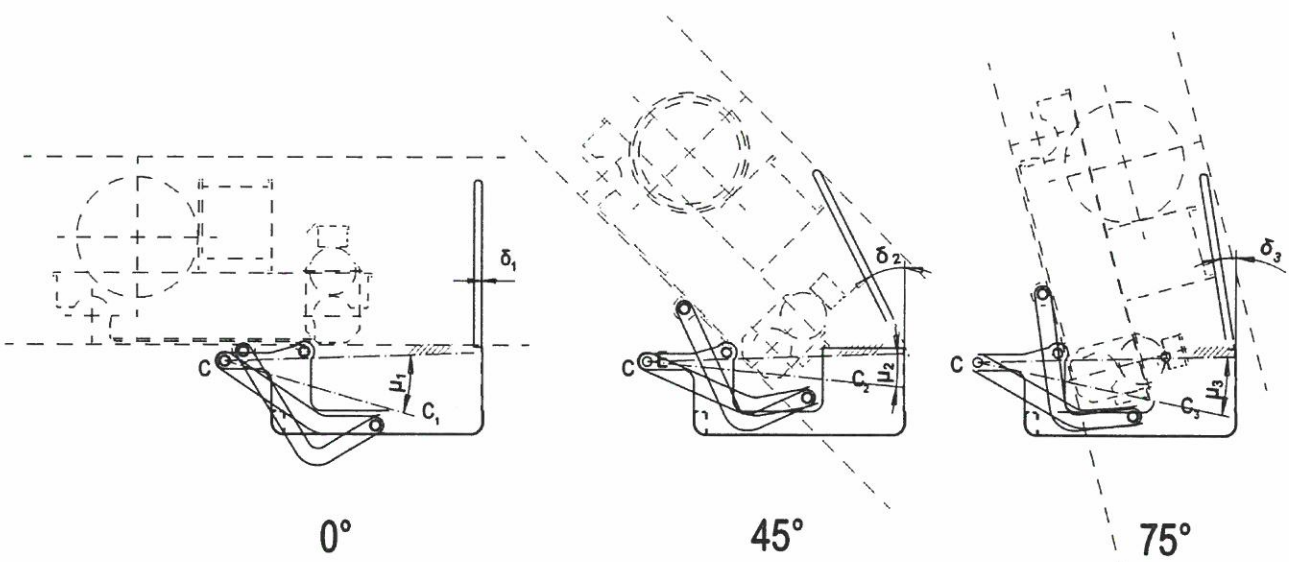
Tässä kuvitteellinen katsoja istuu huoltotasossa, ja näkee kuinka vaunun runko kääntyy ylös.

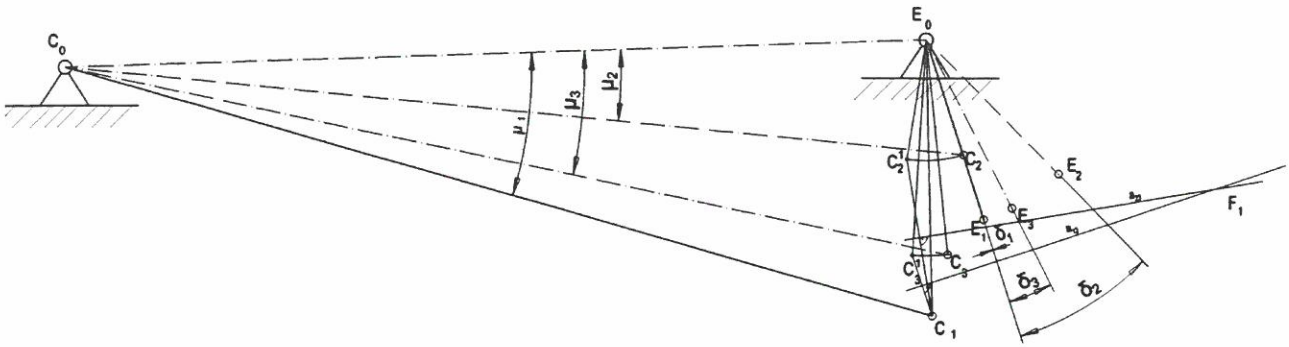
4. Toinen Ohjausvivusto

Toisella ohjausvivustolla ohjataan kaiteen liikettä. Käytännöllisistä syistä piste B:tä kannattaa laittaa vaunun runkoon päädyn alapuolelle, mihin pystyy helposti lisäämään nivelpisteen. Vuoroin huoltotasossa oleva piste "C" pitää olla pisteen "A":n takana, koska muutoin kulma μ^* :n edestakainen liike ei toteudu. Nivelpiste "D" taas määräytyy ylöstaitetun aseman (90°) mukaan. Nivelen "D":n liike on rajoitettu siirtokoneiston takia. Se ei voi myöskään olla huoltotason alapuolella koska silloin se suurentaisi vaunun lähestymismittaa. Nivel "D" voi ainoastaan sijoita siirtokoneiston ja huoltotason pohjan välissä. Toisiokulmaksi saadaan silloin $\mu^* = 12^\circ$.

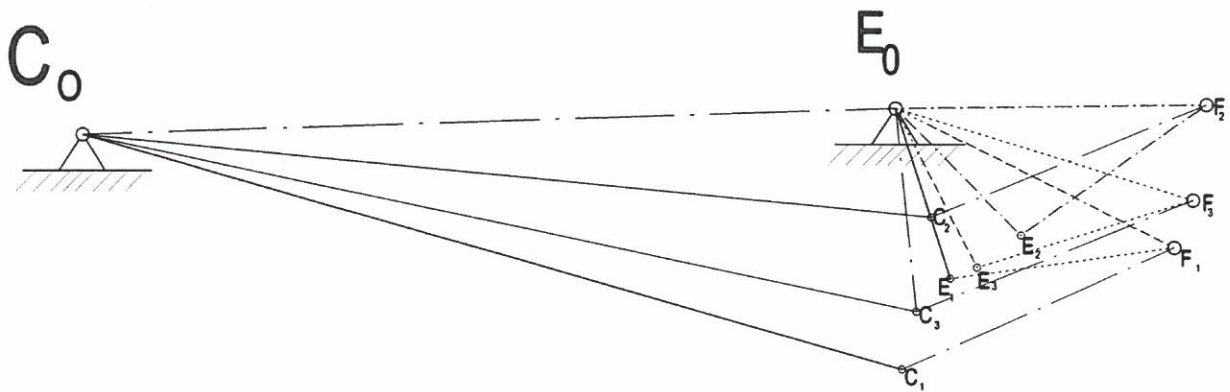
Missään vaiheessa kaiteen kärki ei saa törmäätä vaunun rungon osiin.

Valitaan mielivaltaisesti asemat 0° , 45° ja 75° ja piirretään kuviin halutun kaiteen aseman, niin että huoltotason kaide silloin punottuu katon ja vaunun köysipyöräpalkin väliseen rakoon.





Kutsutaan löydetty nivelpiste F_1 :ksi. Tämän nivelpiste siis on kiertokamman huoltokaitessa kiinni oleva nivelpiste, E_0 vuorostaan on itse huoltotasossa kiinni. Kaidetta ohjaava nivelkampi on C_1F_1 . Piiretään vielä kaikki kolme asentoa.



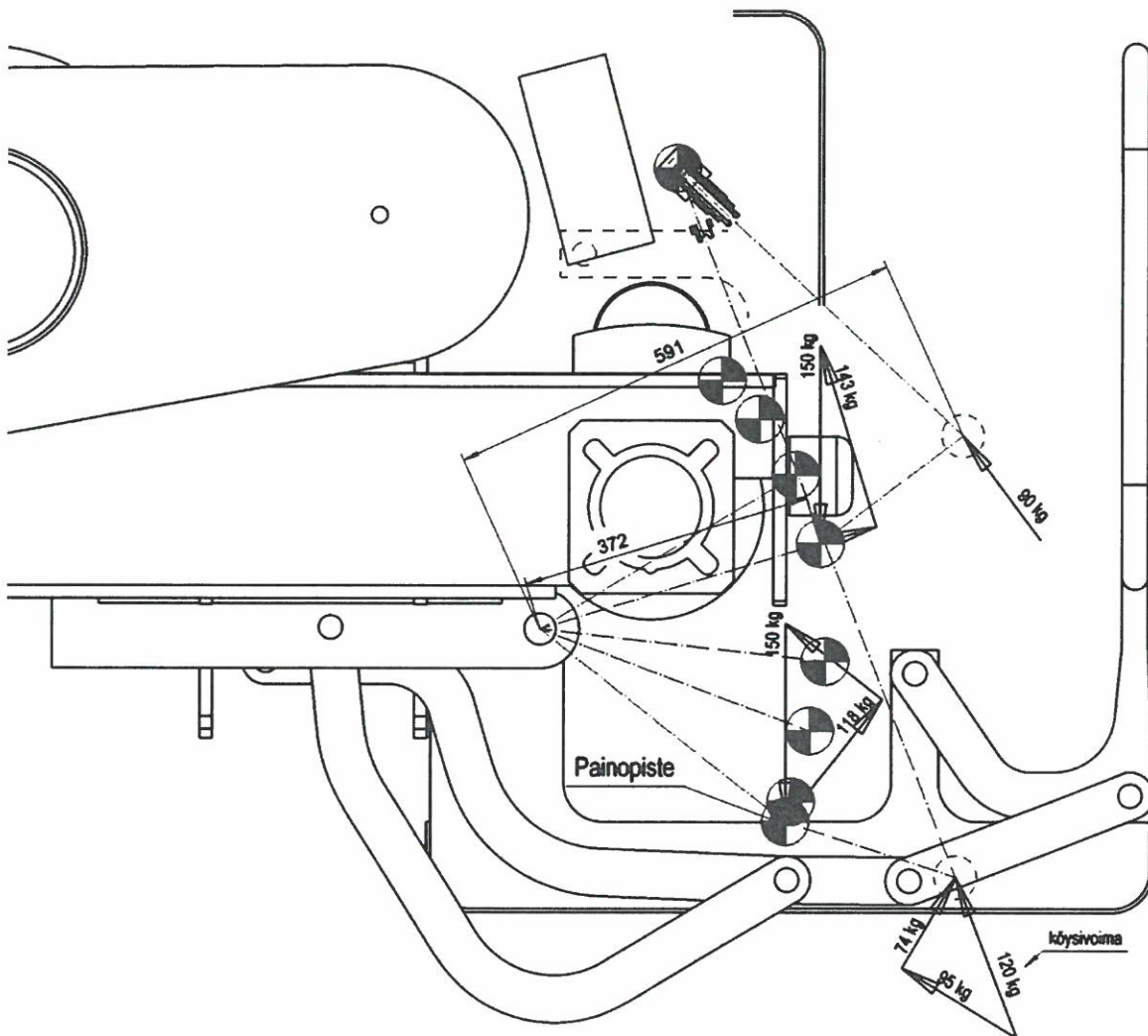
F sijaitetaan sopivasti kaitteen uloimpaan reunaan. Kaitteen nivelpiste E_0 valitaan niin että se jää siirtokoneistoston yläpuolella.

5. Yhdistetyn Ohjausvivuston Tarkistus

Tämän jälkeen varmistetaan että huoltotason kaide törmää missään vaiheessa kattoon piirtämällä kokonaismekanismiin eri asentoihin.

6. Laskelmat

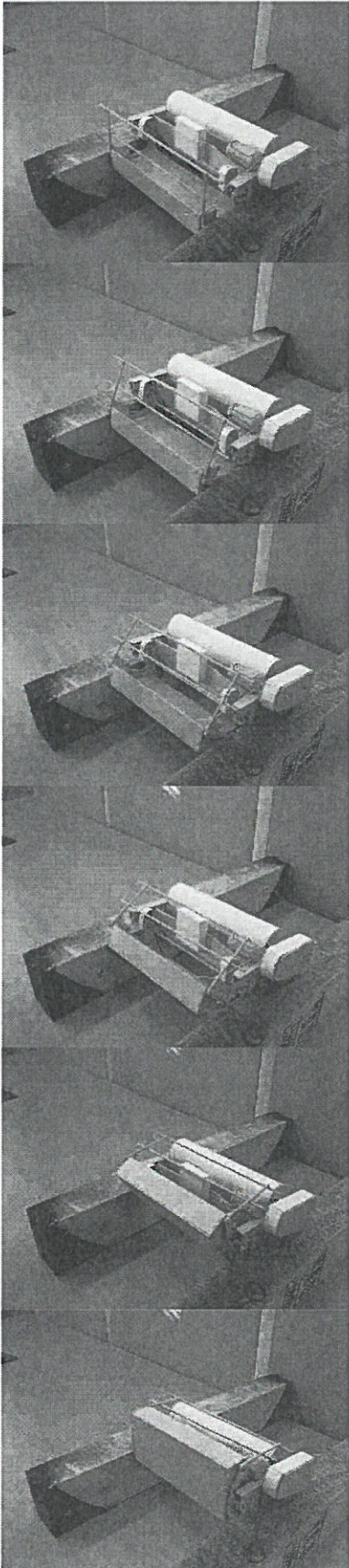
Sen jälkeen kun huoltotaso on suunniteltu, pystytään painopistettä CAD-ohjelman avulla laskemaan asemakohtaisesti automaattisesti. Ohjelma lisää painopisten aseman automaattisesti piirustukseen. Huoltotason liikkuvien osien (katso piirustukset SMT17SP1) paino noin 150kg.

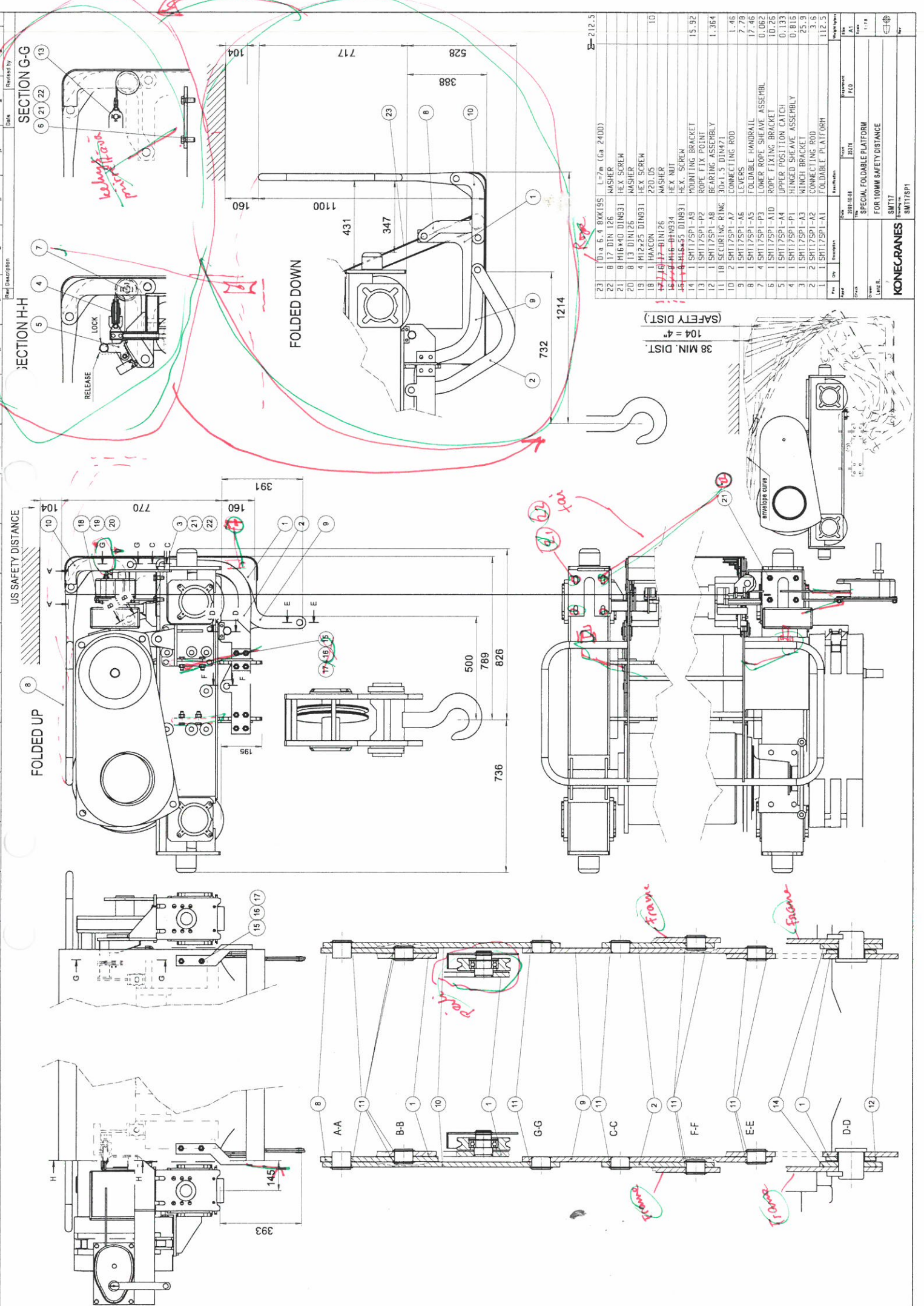


Painopisteen voima jakautuu vektorisesti pyörimisnapakohtaisen ja pyörimisen suuntaisen menevään osioon. Koska köysipyörä sijaitsee isomalla säteellä pyörimisnavalta kuin painopiste, pienenee köysipyörälle vaikuttava voima säteiden suhteen mukaan. Köysivoima suurenee kuitenkin köysipyörän voimakolmion mukaan. Alimmaisessa asemassa voimakolmio jakautuu epäedullisemmin kuin ylemmissä asemissa. Koska köysirikaussuhde on 1:2, jaetaan köysivoima vielä kahdella. Köysivoimaksi saadaan $120 \text{ kg}/2 = 60 \text{ kg} = 600 \text{ N}$.

7. Vanerimalli

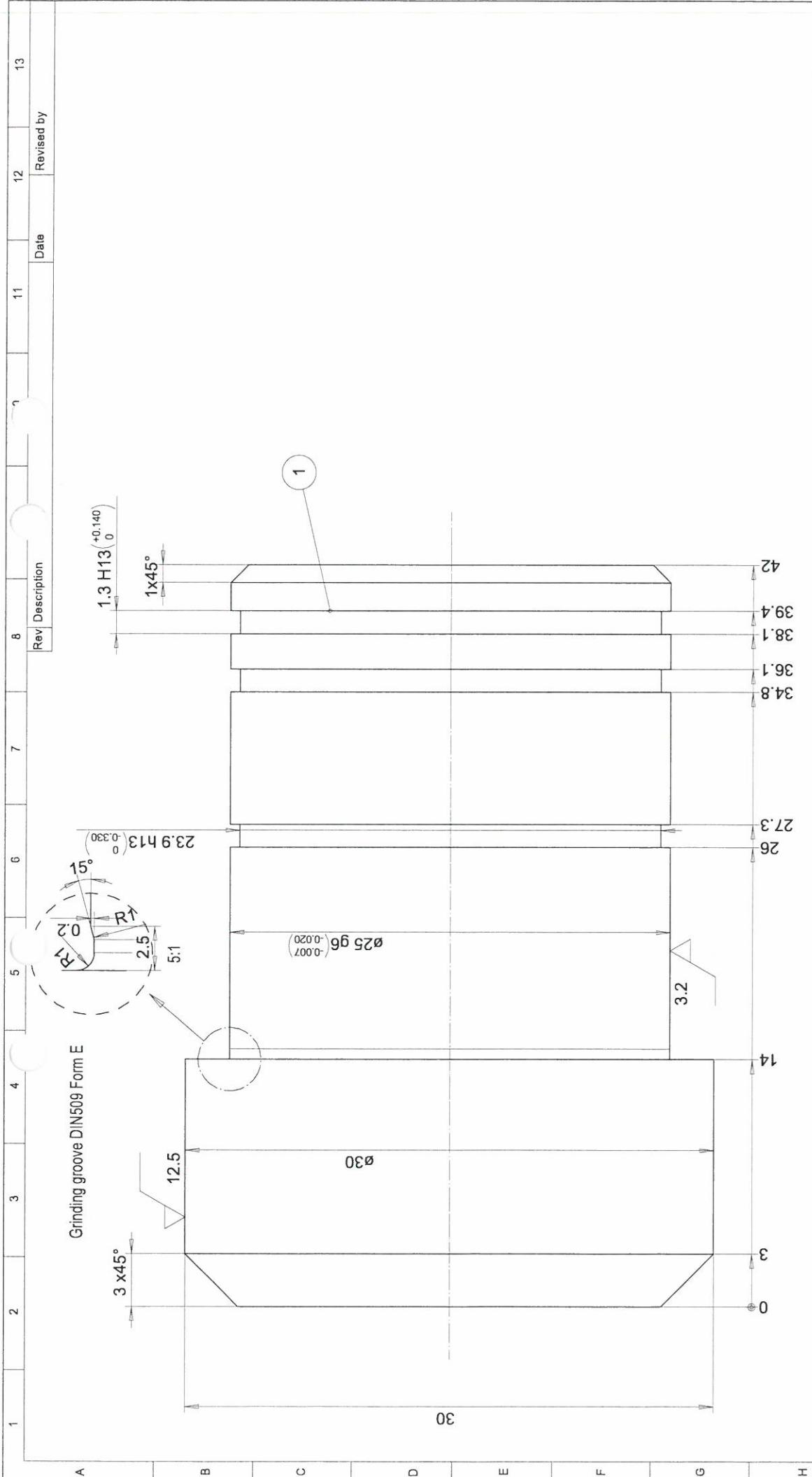
Vanerista tehty pieni malli havainnollistaa periaatteen:





Part No.	Qty	Description	Part No.	Qty	Description
1	10	M16x4 BXR195 WASHER	15	1	M16x45 DIN931 HEX SCREW
2	8	M17 DIN 126 HEX SCREW	16	1	M16x45 DIN931 HEX NUT
3	8	M16x40 DIN931 HEX SCREW	17	1	M17SP1-A9 MOUNTING BRACKET
4	8	M13 DIN126 WASHER	18	1	M17SP1-P2 ROPE FIX POINT
5	4	M12x25 DIN931 HEX SCREW	19	1	M17SP1-A8 BEARING ASSEMBLY
6	1	HAACON 220.05	20	1	SECURING RING 30x1.5 DIN971
7	1	M16x17-B1N126 WASHER	21	2	M17SP1-A7 CONNECTING ROD
8	1	M16x45 DIN931 HEX NUT	22	1	M17SP1-A6 LEVER
9	1	M17SP1-A9 MOUNTING BRACKET	23	1	M17SP1-A5 FOLDABLE HANDRAIL
10	1	M17SP1-P2 ROPE FIX POINT	24	1	M17SP1-P3 LOWER ROPE SHEAVE ASSEMBLY
11	1	M17SP1-A8 BEARING ASSEMBLY	25	1	M17SP1-A4 UPPER FIXING BRACKET
12	1	SECURING RING 30x1.5 DIN971	26	1	M17SP1-A3 UPPER POSITION CATCH
13	2	M17SP1-A7 CONNECTING ROD	27	1	M17SP1-P1 HINGED SHEAVE ASSEMBLY
14	1	M17SP1-A6 LEVER	28	1	M17SP1-A2 WINCH BRACKET
15	1	M16x45 DIN931 HEX SCREW	29	2	M17SP1-A1 CONNECTING ROD
16	1	M16x45 DIN931 HEX NUT	30	1	FOLDABLE PLATFORM
17	1	M17SP1-A9 MOUNTING BRACKET	31	1	FOR 100MM SAFETY DISTANCE
18	1	M17SP1-P2 ROPE FIX POINT	32	1	FOR 100MM SAFETY DISTANCE
19	1	M17SP1-A8 BEARING ASSEMBLY	33	1	FOR 100MM SAFETY DISTANCE
20	1	SECURING RING 30x1.5 DIN971	34	1	FOR 100MM SAFETY DISTANCE
21	2	M17SP1-A7 CONNECTING ROD	35	1	FOR 100MM SAFETY DISTANCE
22	1	M17SP1-A6 LEVER	36	1	FOR 100MM SAFETY DISTANCE
23	1	M17SP1-A5 FOLDABLE HANDRAIL	37	1	FOR 100MM SAFETY DISTANCE
24	1	M17SP1-P3 LOWER ROPE SHEAVE ASSEMBLY	38	1	FOR 100MM SAFETY DISTANCE
25	1	M17SP1-A4 UPPER FIXING BRACKET	39	1	FOR 100MM SAFETY DISTANCE
26	1	M17SP1-A3 UPPER POSITION CATCH	40	1	FOR 100MM SAFETY DISTANCE
27	1	M17SP1-P1 HINGED SHEAVE ASSEMBLY	41	1	FOR 100MM SAFETY DISTANCE
28	1	M17SP1-A2 WINCH BRACKET	42	1	FOR 100MM SAFETY DISTANCE
29	2	M17SP1-A1 CONNECTING ROD	43	1	FOR 100MM SAFETY DISTANCE
30	1	FOLDABLE PLATFORM	44	1	FOR 100MM SAFETY DISTANCE
31	1	FOR 100MM SAFETY DISTANCE	45	1	FOR 100MM SAFETY DISTANCE
32	1	FOR 100MM SAFETY DISTANCE	46	1	FOR 100MM SAFETY DISTANCE
33	1	FOR 100MM SAFETY DISTANCE	47	1	FOR 100MM SAFETY DISTANCE
34	1	FOR 100MM SAFETY DISTANCE	48	1	FOR 100MM SAFETY DISTANCE
35	1	FOR 100MM SAFETY DISTANCE	49	1	FOR 100MM SAFETY DISTANCE
36	1	FOR 100MM SAFETY DISTANCE	50	1	FOR 100MM SAFETY DISTANCE
37	1	FOR 100MM SAFETY DISTANCE	51	1	FOR 100MM SAFETY DISTANCE
38	1	FOR 100MM SAFETY DISTANCE	52	1	FOR 100MM SAFETY DISTANCE
39	1	FOR 100MM SAFETY DISTANCE	53	1	FOR 100MM SAFETY DISTANCE
40	1	FOR 100MM SAFETY DISTANCE	54	1	FOR 100MM SAFETY DISTANCE
41	1	FOR 100MM SAFETY DISTANCE	55	1	FOR 100MM SAFETY DISTANCE
42	1	FOR 100MM SAFETY DISTANCE	56	1	FOR 100MM SAFETY DISTANCE
43	1	FOR 100MM SAFETY DISTANCE	57	1	FOR 100MM SAFETY DISTANCE
44	1	FOR 100MM SAFETY DISTANCE	58	1	FOR 100MM SAFETY DISTANCE
45	1	FOR 100MM SAFETY DISTANCE	59	1	FOR 100MM SAFETY DISTANCE
46	1	FOR 100MM SAFETY DISTANCE	60	1	FOR 100MM SAFETY DISTANCE
47	1	FOR 100MM SAFETY DISTANCE	61	1	FOR 100MM SAFETY DISTANCE
48	1	FOR 100MM SAFETY DISTANCE	62	1	FOR 100MM SAFETY DISTANCE
49	1	FOR 100MM SAFETY DISTANCE	63	1	FOR 100MM SAFETY DISTANCE
50	1	FOR 100MM SAFETY DISTANCE	64	1	FOR 100MM SAFETY DISTANCE
51	1	FOR 100MM SAFETY DISTANCE	65	1	FOR 100MM SAFETY DISTANCE
52	1	FOR 100MM SAFETY DISTANCE	66	1	FOR 100MM SAFETY DISTANCE
53	1	FOR 100MM SAFETY DISTANCE	67	1	FOR 100MM SAFETY DISTANCE
54	1	FOR 100MM SAFETY DISTANCE	68	1	FOR 100MM SAFETY DISTANCE
55	1	FOR 100MM SAFETY DISTANCE	69	1	FOR 100MM SAFETY DISTANCE
56	1	FOR 100MM SAFETY DISTANCE	70	1	FOR 100MM SAFETY DISTANCE
57	1	FOR 100MM SAFETY DISTANCE	71	1	FOR 100MM SAFETY DISTANCE
58	1	FOR 100MM SAFETY DISTANCE	72	1	FOR 100MM SAFETY DISTANCE
59	1	FOR 100MM SAFETY DISTANCE	73	1	FOR 100MM SAFETY DISTANCE
60	1	FOR 100MM SAFETY DISTANCE	74	1	FOR 100MM SAFETY DISTANCE
61	1	FOR 100MM SAFETY DISTANCE	75	1	FOR 100MM SAFETY DISTANCE
62	1	FOR 100MM SAFETY DISTANCE	76	1	FOR 100MM SAFETY DISTANCE
63	1	FOR 100MM SAFETY DISTANCE	77	1	FOR 100MM SAFETY DISTANCE
64	1	FOR 100MM SAFETY DISTANCE	78	1	FOR 100MM SAFETY DISTANCE
65	1	FOR 100MM SAFETY DISTANCE	79	1	FOR 100MM SAFETY DISTANCE
66	1	FOR 100MM SAFETY DISTANCE	80	1	FOR 100MM SAFETY DISTANCE
67	1	FOR 100MM SAFETY DISTANCE	81	1	FOR 100MM SAFETY DISTANCE
68	1	FOR 100MM SAFETY DISTANCE	82	1	FOR 100MM SAFETY DISTANCE
69	1	FOR 100MM SAFETY DISTANCE	83	1	FOR 100MM SAFETY DISTANCE
70	1	FOR 100MM SAFETY DISTANCE	84	1	FOR 100MM SAFETY DISTANCE
71	1	FOR 100MM SAFETY DISTANCE	85	1	FOR 100MM SAFETY DISTANCE
72	1	FOR 100MM SAFETY DISTANCE	86	1	FOR 100MM SAFETY DISTANCE
73	1	FOR 100MM SAFETY DISTANCE	87	1	FOR 100MM SAFETY DISTANCE
74	1	FOR 100MM SAFETY DISTANCE	88	1	FOR 100MM SAFETY DISTANCE
75	1	FOR 100MM SAFETY DISTANCE	89	1	FOR 100MM SAFETY DISTANCE
76	1	FOR 100MM SAFETY DISTANCE	90	1	FOR 100MM SAFETY DISTANCE
77	1	FOR 100MM SAFETY DISTANCE	91	1	FOR 100MM SAFETY DISTANCE
78	1	FOR 100MM SAFETY DISTANCE	92	1	FOR 100MM SAFETY DISTANCE
79	1	FOR 100MM SAFETY DISTANCE	93	1	FOR 100MM SAFETY DISTANCE
80	1	FOR 100MM SAFETY DISTANCE	94	1	FOR 100MM SAFETY DISTANCE
81	1	FOR 100MM SAFETY DISTANCE	95	1	FOR 100MM SAFETY DISTANCE
82	1	FOR 100MM SAFETY DISTANCE	96	1	FOR 100MM SAFETY DISTANCE
83	1	FOR 100MM SAFETY DISTANCE	97	1	FOR 100MM SAFETY DISTANCE
84	1	FOR 100MM SAFETY DISTANCE	98	1	FOR 100MM SAFETY DISTANCE
85	1	FOR 100MM SAFETY DISTANCE	99	1	FOR 100MM SAFETY DISTANCE
86	1	FOR 100MM SAFETY DISTANCE	100	1	FOR 100MM SAFETY DISTANCE

(SAFETY DIST.)
104 = 4"
38 MIN. DIST.

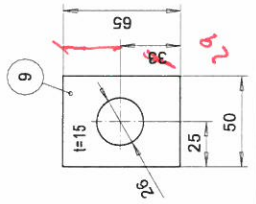
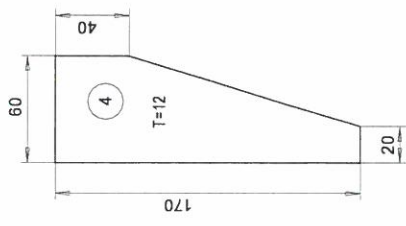
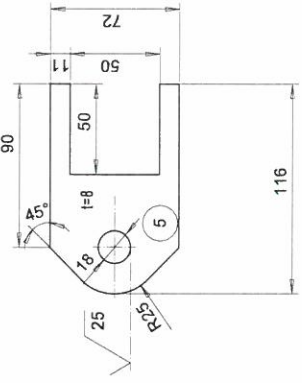
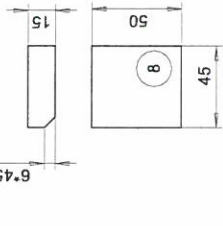
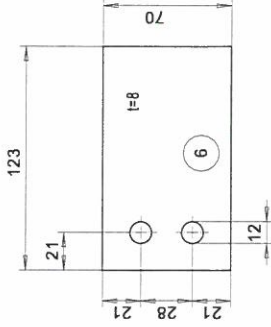
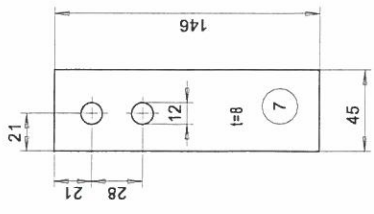
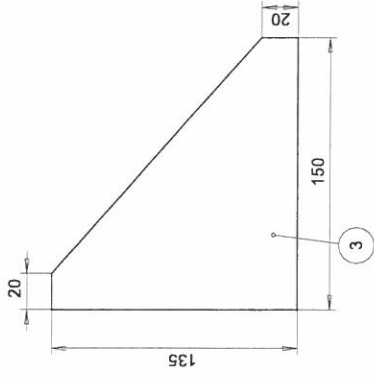
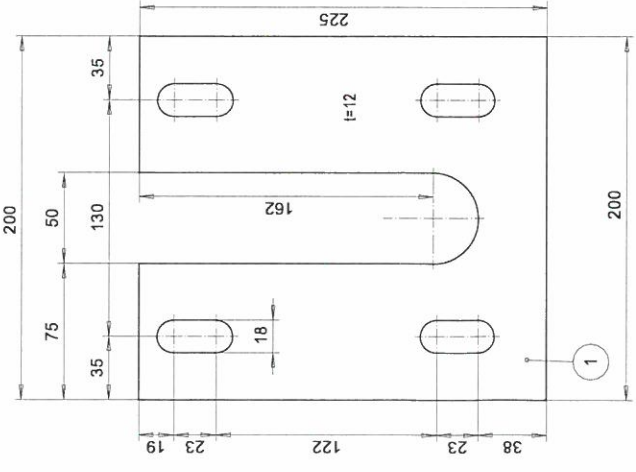
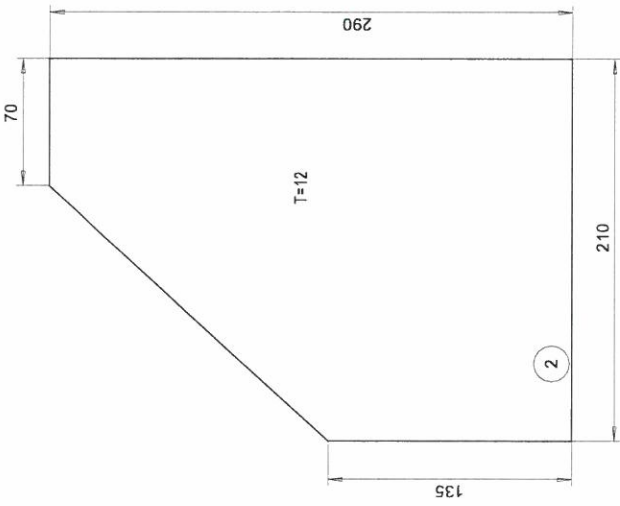


1	1	ROUND30S355J2G	L=42	0.180
Pos	Qty	Description	Specification	Weight kg/pos
Appd		Date	2009-10-25	Project
Check		Title	25276	Department
Drawn			AXLE FOR ROPE SHEAVE	Size
PCDRLE			FOLDABLE PLATFORM	A3
			SMT17	Scale
			SMT17SP1-A1-OP1	5:1
				Rev

REQUIREMENTS FOR FABRICATION SEE DRAWING D5315

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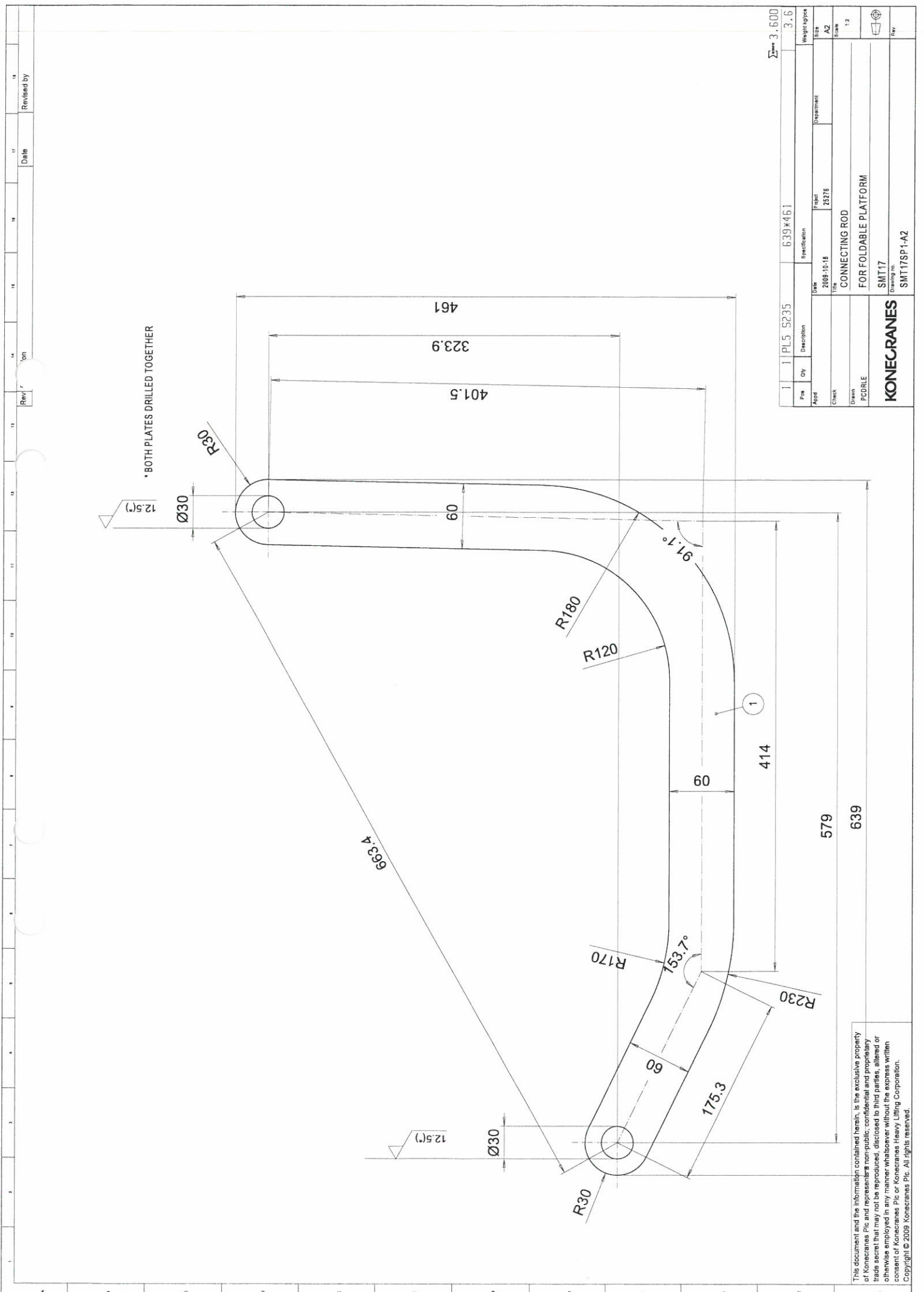
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
																	Rev	on	Date	Revised by																													



Pos	Qty	Description	Specification	Weight kg/pcs
9	1	PL15 S235JRG	50X65	11.47
8	1	PL15 S235JRG	45X50	0.32
7	1	PL8 S235JRG	146X45	0.258
6	1	PL8 S235JRG	123X70	0.39
5	1	PL8 S235JRG	72X116	0.527
4	1	PL12 S235JRG	170X60	0.273
3	1	PL12 S235JRG	150X135	0.67
2	1	PL12 S235JRG	210X290	1.2
1	1	PL12 S235JRG	200X226	4.7
				3.13

Weight kg/pcs		Department	
Size	A2	Project	28278
Scale	1:2	Title	PARTS FOR ROPE FIX BRACKET
Drawn	RLE	Check	
KONECRANES			
Drawing no. SMT17SP1-A10-0P1			

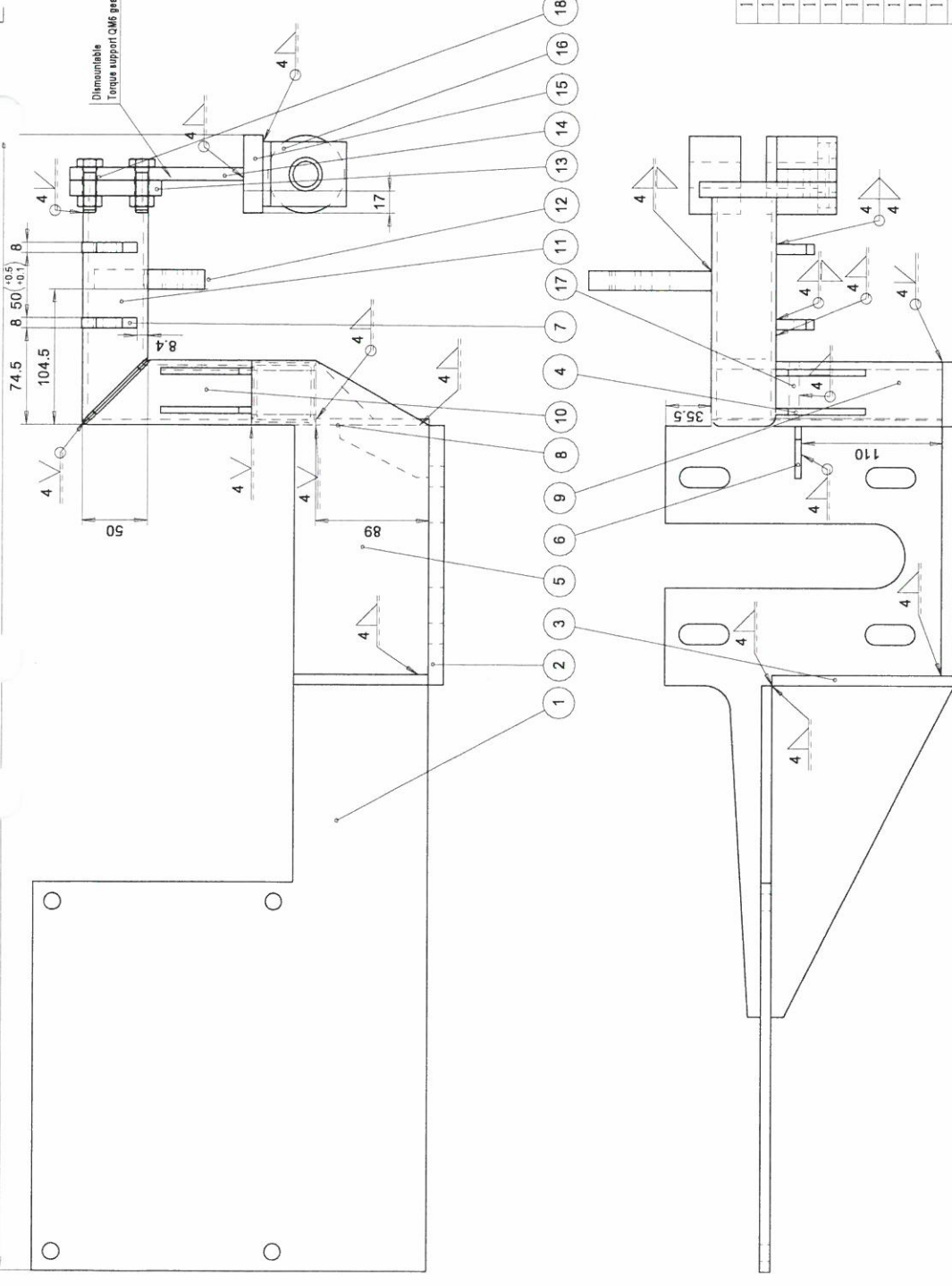
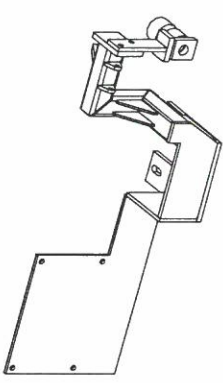
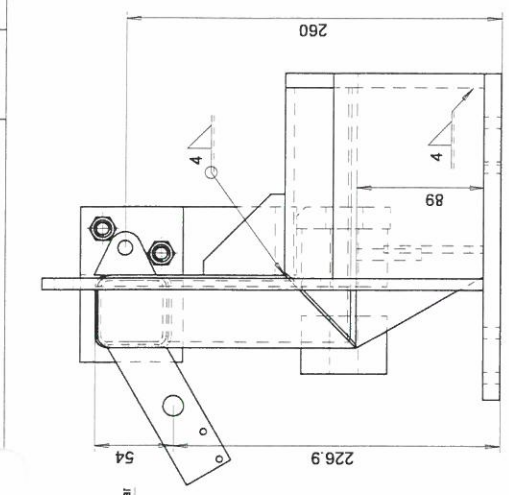
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* BOTH PLATES DRILLED TOGETHER

1	1	PL5_S235	639*461	3.6
Part Description		Specification	Weight kg/pce	
2008-10-18	2008-10-18	2008-10-18	A2	
Date		Title	Scale	
2008-10-18		CONNECTING ROD	1:2	
Check		Drawn	PCDRLE	
2008-10-18		FOR FOLDABLE PLATFORM		
SMT17		Drawing no.	SMT17SP1-A2	
KONECRANES		Rev.		

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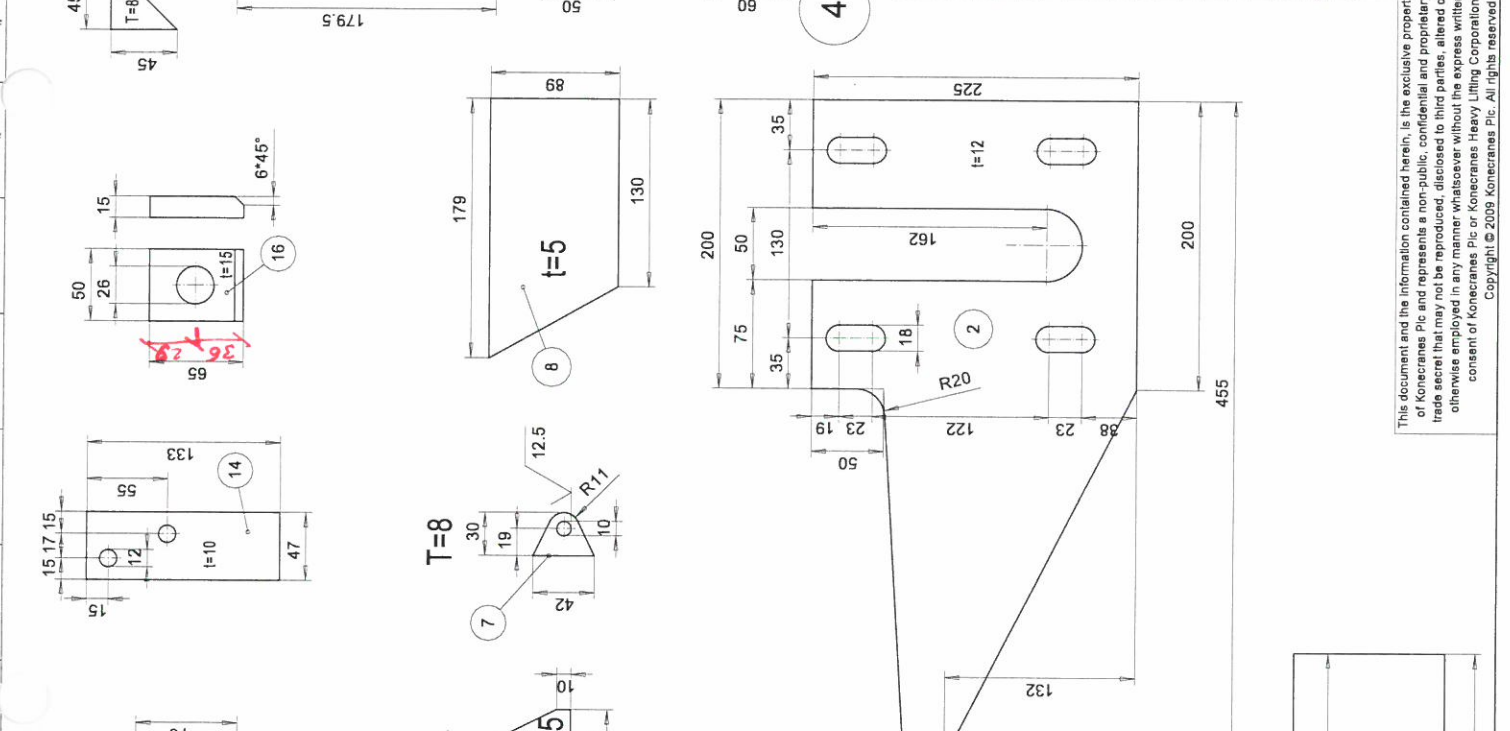
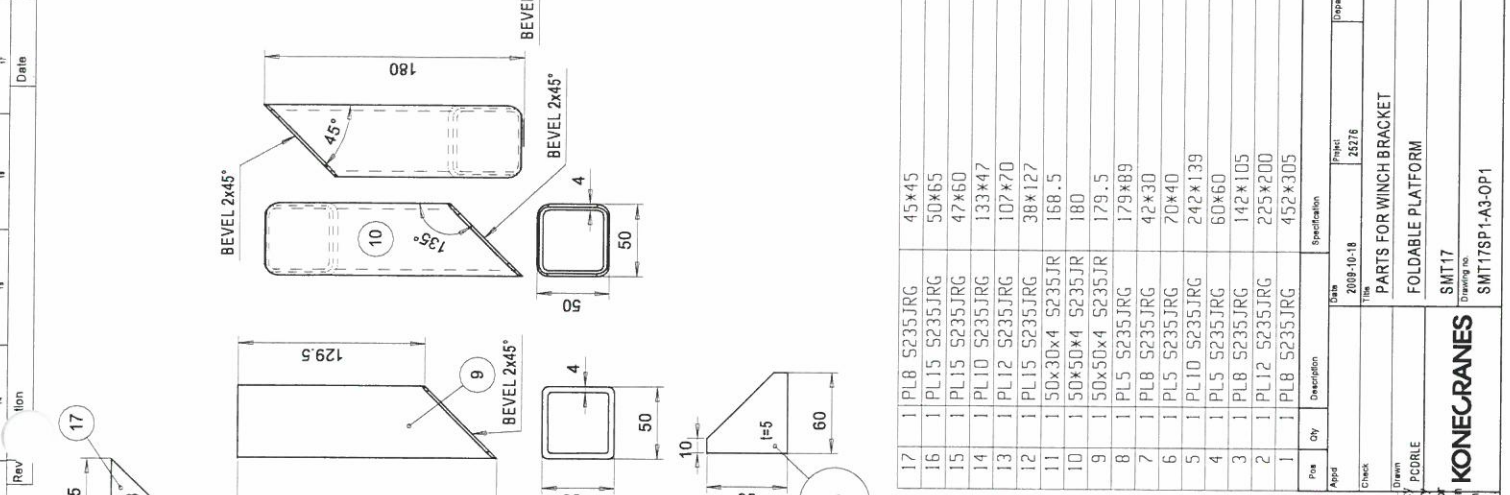


Pos	Qty	Description	Specification	Weight	Weight kg
19	2	13 DINI26	WASHER		
18	2	M10x35 DIN931	HEX SCREW		
17	1	SMT17SP1-A3-0P1 (17)		0.064	
16	1	SMT17SP1-A3-0P1 (16)		0.31	
15	1	SMT17SP1-A3-0P1 (15)		0.55	
14	1	SMT17SP1-A3-0P1 (14)		0.47	
13	1	SMT17SP1-A3-0P1 (13)		0.7	
12	1	SMT17SP1-A3-0P1 (12)		0.51	
11	1	SMT17SP1-A3-0P1 (11)		0.55	
10	1	SMT17SP1-A3-0P1 (10)		0.7	
9	1	SMT17SP1-A3-0P1 (9)		0.9	
8	1	SMT17SP1-A3-0P1 (8)		0.45	
7	2	SMT17SP1-A3-0P1 (7)		0.05	
6	1	SMT17SP1-A3-0P1 (6)		0.075	
5	1	SMT17SP1-A3-0P1 (5)		1.9	
4	2	SMT17SP1-A3-0P1 (4)		0.1	
3	1	SMT17SP1-A3-0P1 (3)		0.86	
2	1	SMT17SP1-A3-0P1 (2)		5.6	
1	1	SMT17SP1-A3-0P1 (1)		6.71	

Appd	Date	Project	Department
	2009-10-18	25276	
Check	Title		
	WINCH BRACKET		
Drawn			
	FOR FOLDABLE PLATFORM		
PCDR			
	SMT17		
Weight kg	Scale		
	1:2.5		
Rev			
	SMT17SP1-A3		

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Rev	Revision	Date	Revised by

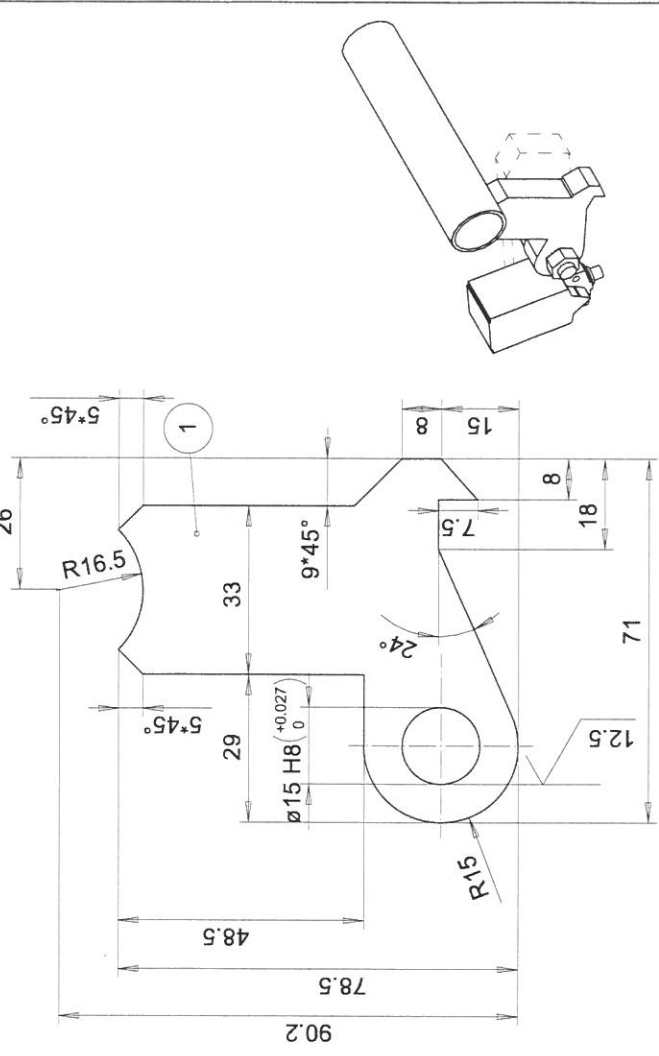


Item	Qty	Description	Spec	Weight (kg)
17	1	PL8 5235JRG	45x45	0.064
16	1	PL15 5235JRG	50x65	0.31
15	1	PL15 5235JRG	47x60	0.55
14	1	PL10 5235JRG	133x47	0.47
13	1	PL12 5235JRG	107x70	0.7
12	1	PL15 5235JRG	38x127	0.51
11	1	50x30x4 5235JR	168.5	0.55
10	1	50x50x4 5235JR	180	0.7
9	1	PL5 5235JRG	179.5	0.9
8	1	PL5 5235JRG	179x89	0.45
7	1	PL8 5235JRG	42x30	0.05
6	1	PL5 5235JRG	70x40	0.075
5	1	PL10 5235JRG	242x139	1.9
4	1	PL5 5235JRG	60x60	0.1
3	1	PL8 5235JRG	142x105	0.86
2	1	PL12 5235JRG	225x200	5.6
1	1	PL8 5235JRG	452x305	6.71

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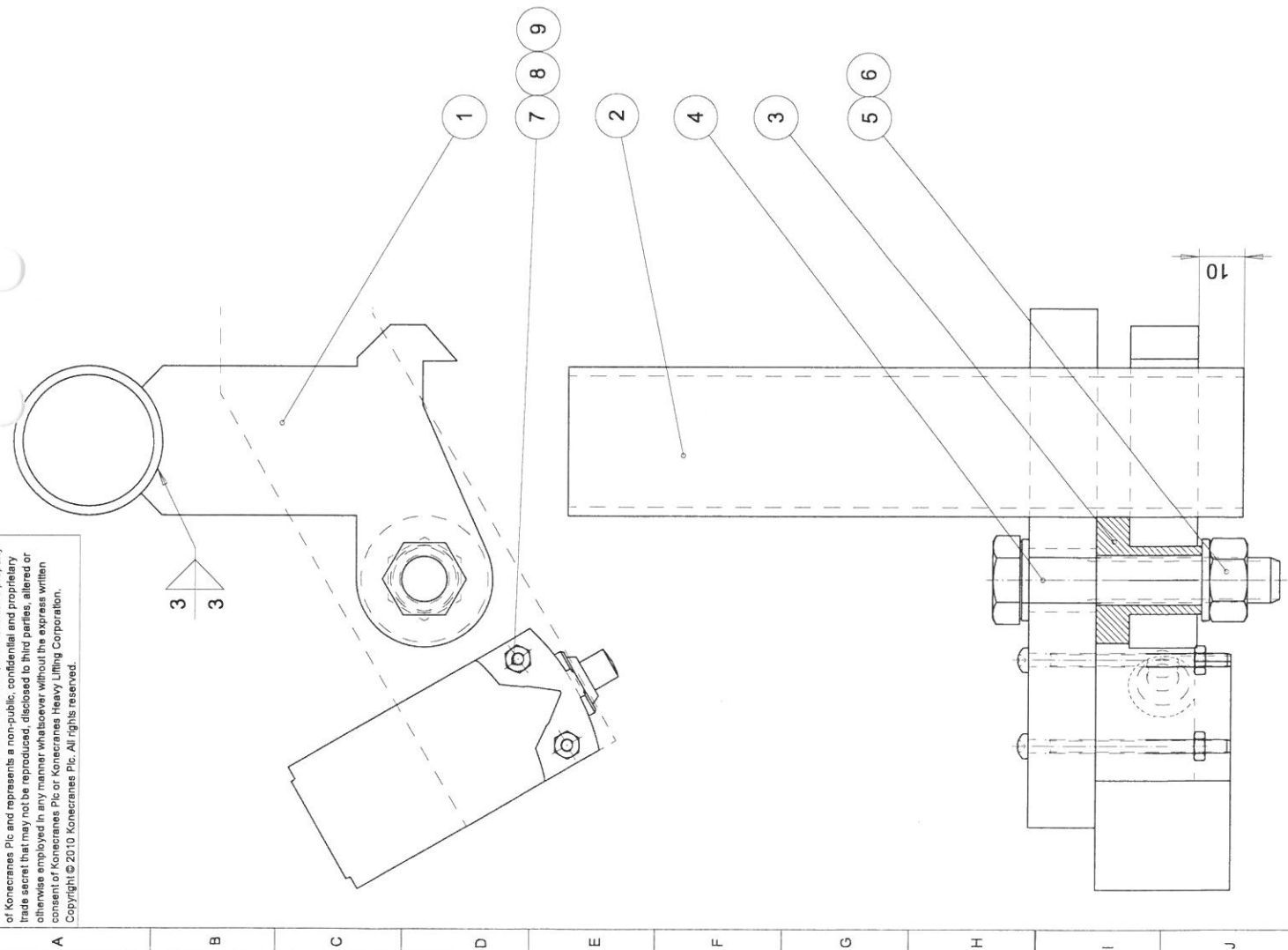
1	2	3	4	5	6	7	8	9	10	11	12	13
Rev Description								Date	Revised by			



Pos	Qty	Description	Specification	Weight kg/pcs
9	2	WASHER	4 DIN126	
8	2	NUT	M3 DIN934	
7	2	PANHEAD SCREW	M3*45 ISO7045	
6	1	WASHER 12	DIN126	
5	1	HEX NUT	M10 DIN934	
4	1	HEX. SCREW	M10*60 DIN931	0.041
3	1	BUSHING	SMT17SP1-A4-0P1	0.23
2	1	TUBE D33.7*2	DIN2440 L=150	0.332
1	1	PL15 S235JRG	78.5*71	

0.603

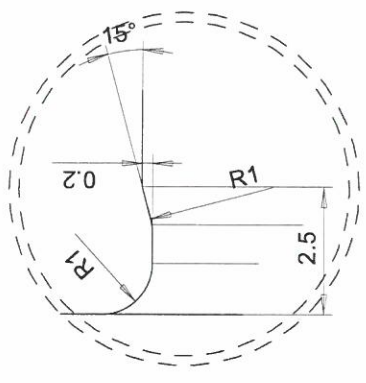
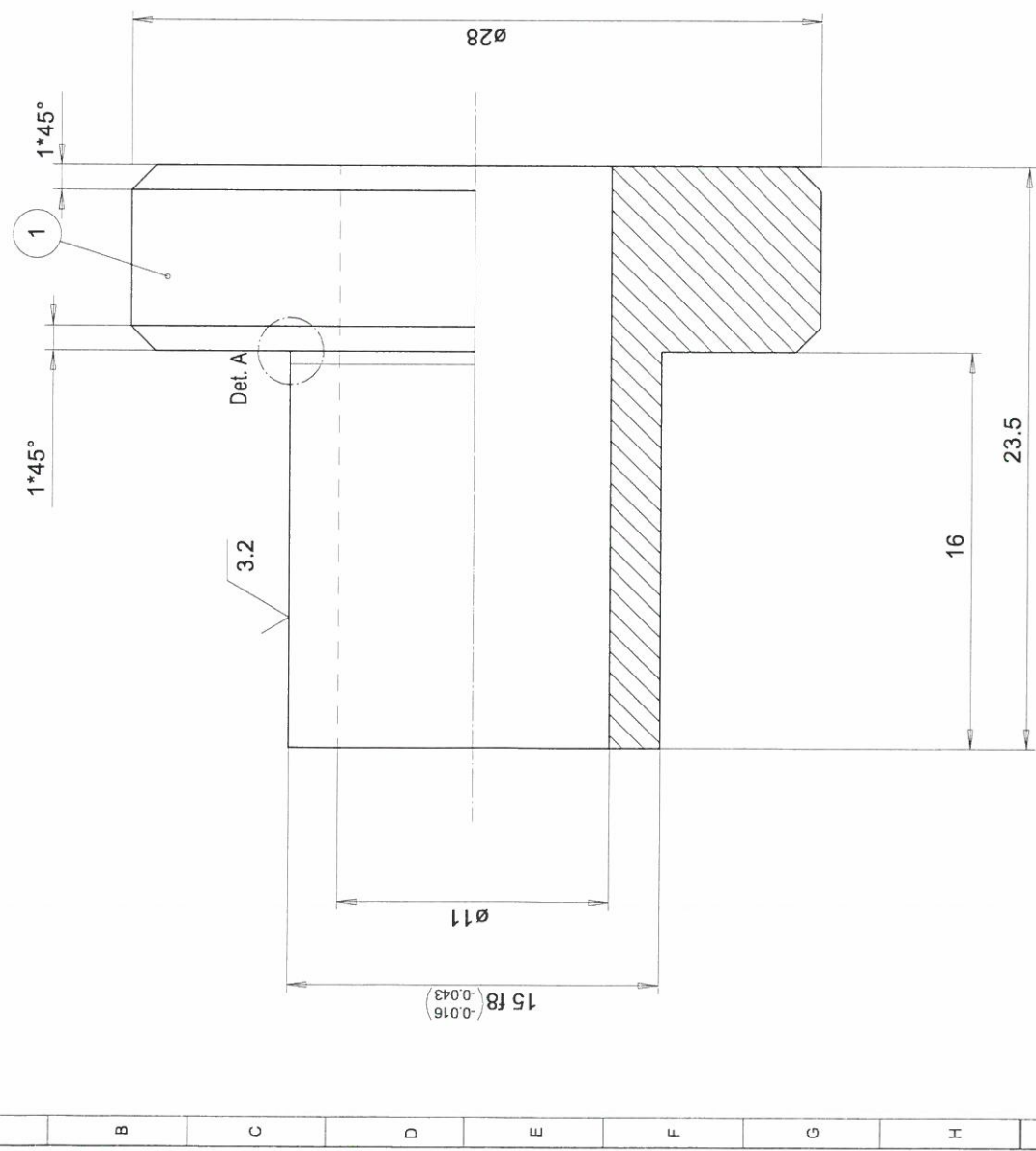
Appd	Date	Project	Department
	2009-10-25	25276	
Check	Title		
	UPPER POSITION CATCH		
Drawn			
HDS RLE	FOLDABLE PLATFORM		
KONECRANES			
SMT17			
Drawing no. SMT17SP1-A4			
Rev			
	1:1		
	A3		
	Size		
	Weight kg/pcs		



1	2	3	4	5	6	7	8	9	10	11	12	13
Rev Description												
Date												
Revised by												

Grinding groove DIN509 Form E

Det. A

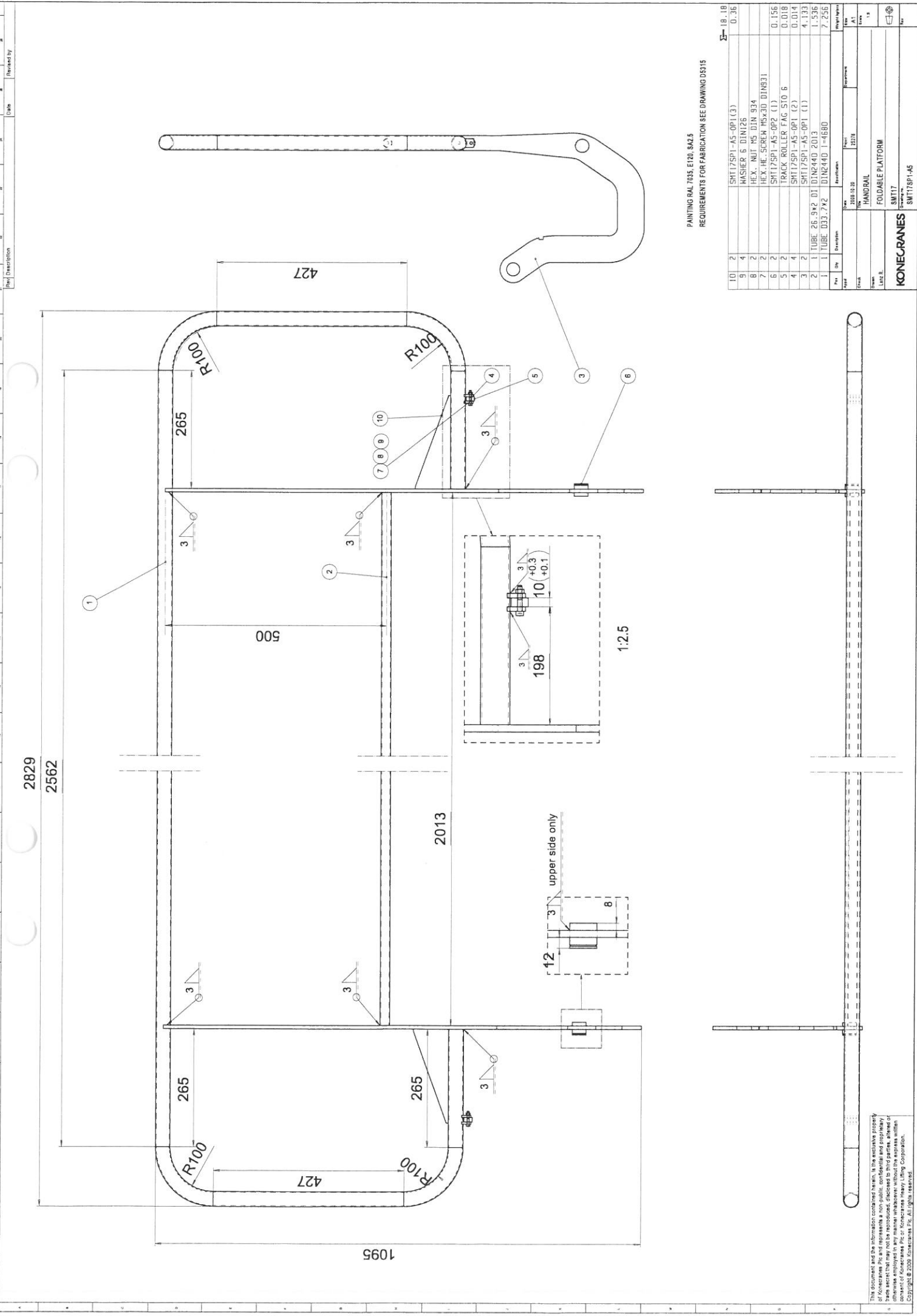


10:1

1		1	RD 30	S355J2G3	L=23.5	0.041	
Pos	Qty	Description	Specification	Weight kg/pcs			
Appd	Date	Project	Department	Size			
Check	Title	25276	BUSHING	A3			
Drawn	FOLDABLE PLATFORM			Scale			
HDS RLE	SMT17			5:1			
KONECRANES			Drawing no.				
SMT17SP1-A4-OP1			Rev				

REQUIREMENTS FOR FABRICATION SEE DRAWING D5315

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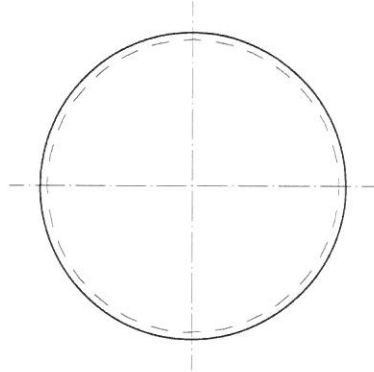
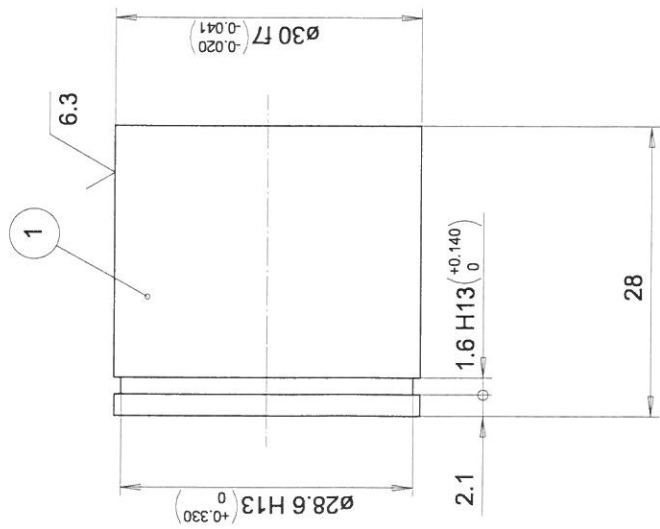
PAINTING RAL 7035, E120, RAL 5
 REQUIREMENTS FOR FABRICATION SEE DRAWING D3115

Pos	Qty	Description	Material	Weight
10	2	SMT17SP1-A5-OP1 (3)		0.36
9	4	WASHER 6 DIN126		
8	2	HEX. NUT M5 DIN 934		
7	2	HEX. HE. SCREW M5x30 DIN931		
6	2	SMT17SP1-A5-OP2 (1)		0.156
5	2	TRACK ROLLER FAG S10 6		0.018
4	4	SMT17SP1-A5-OP1 (2)		0.014
3	2	SMT17SP1-A5-OP1 (1)		4.133
2	1	TUBE 26.9x2 DT DIN2440 2013		1.536
1	1	TUBE D33.7x2 DIN2440 1=4E80		7.256

Part	Material	Weight
Handrail	2013	
FOLDABLE PLATFORM		
SMT17		
SMT17SP1-A5		

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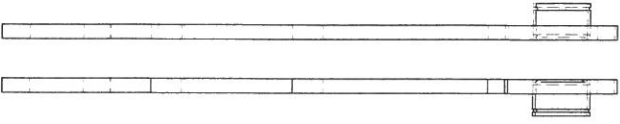
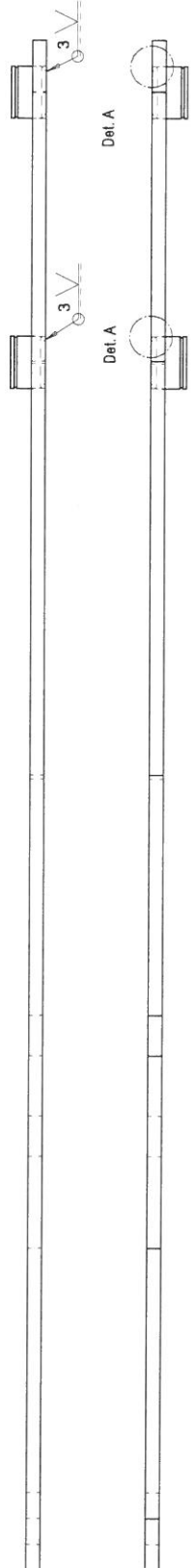
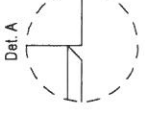
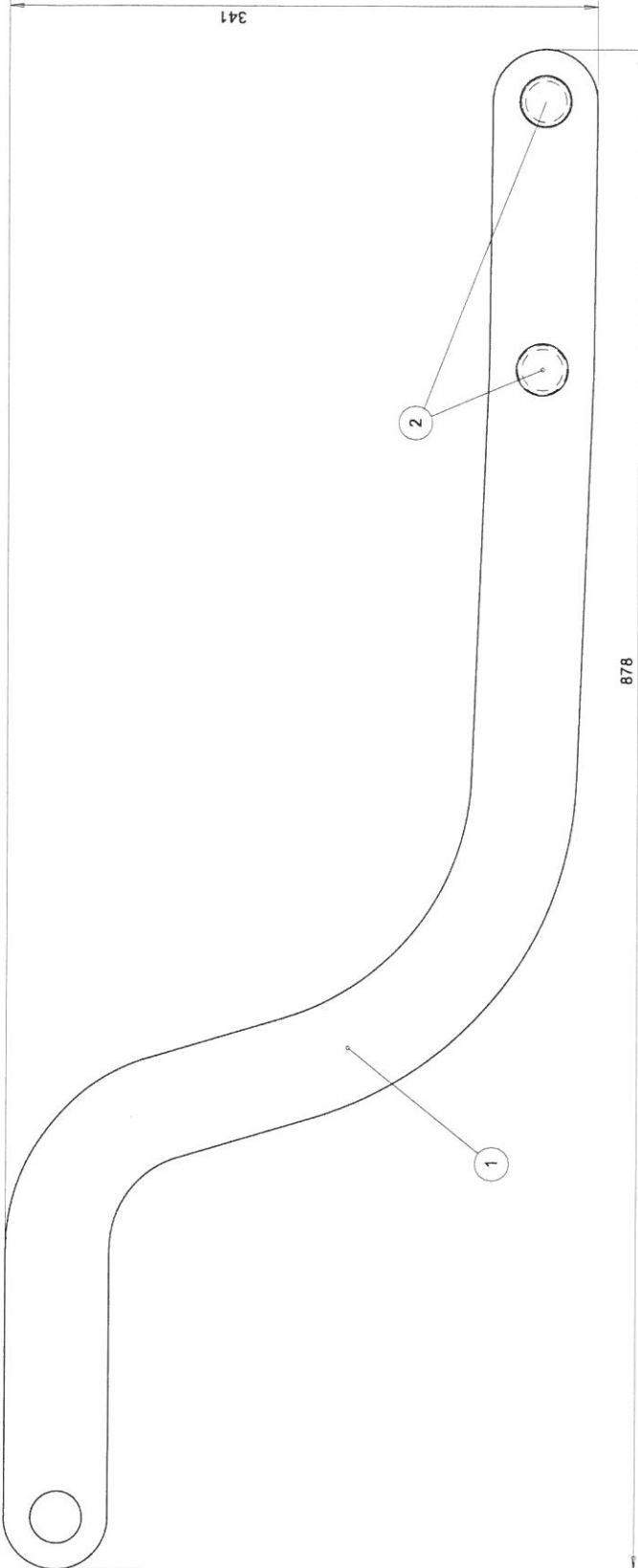
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Rev		Description		Date		Revised by						



Σ Weight		0.156	
1		ROUND 35 S235J I=28	
Pos	Qty	Description	Specification
Appd		Date	2009-10-20
Check		Project	25276
Drawn		Title	AXLE
		FOLDABLE PLATFORM	
		SMT17	
		Drawing no.	
		SMT17SP1-A5-OP2	
		Department	
		PCD	
		Scale	
		2:1	
		Size	
		A3	
		Rev	

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12	11	10	9	8	7	6	5	4	3	2	1	Rev	Ion	Date	Revised by
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2	4	AXLE	SMT17SP1-A6-OP2	(1)	0.108
1	2	LEVER	SMT17SP1-A6-OP1	(1)	3.674

Part	Qty	Description	Specification	Project	Department
App'd	2009-10-22			25276	PCD
Check					
Drawn					
Lutz R.					
LEVER					
FOLDABLE PLATFORM					
SMT17					
Drawing no. SMT17SP1-A6					

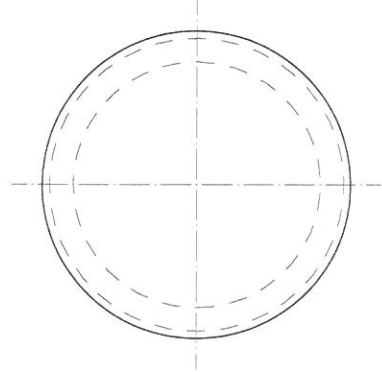
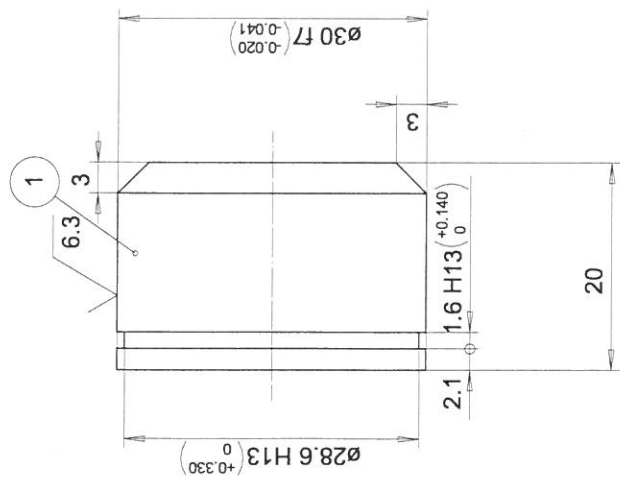
Weight approx	Size
	A2
	Scale
	1:2.5
	Rev

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Σ 7.780

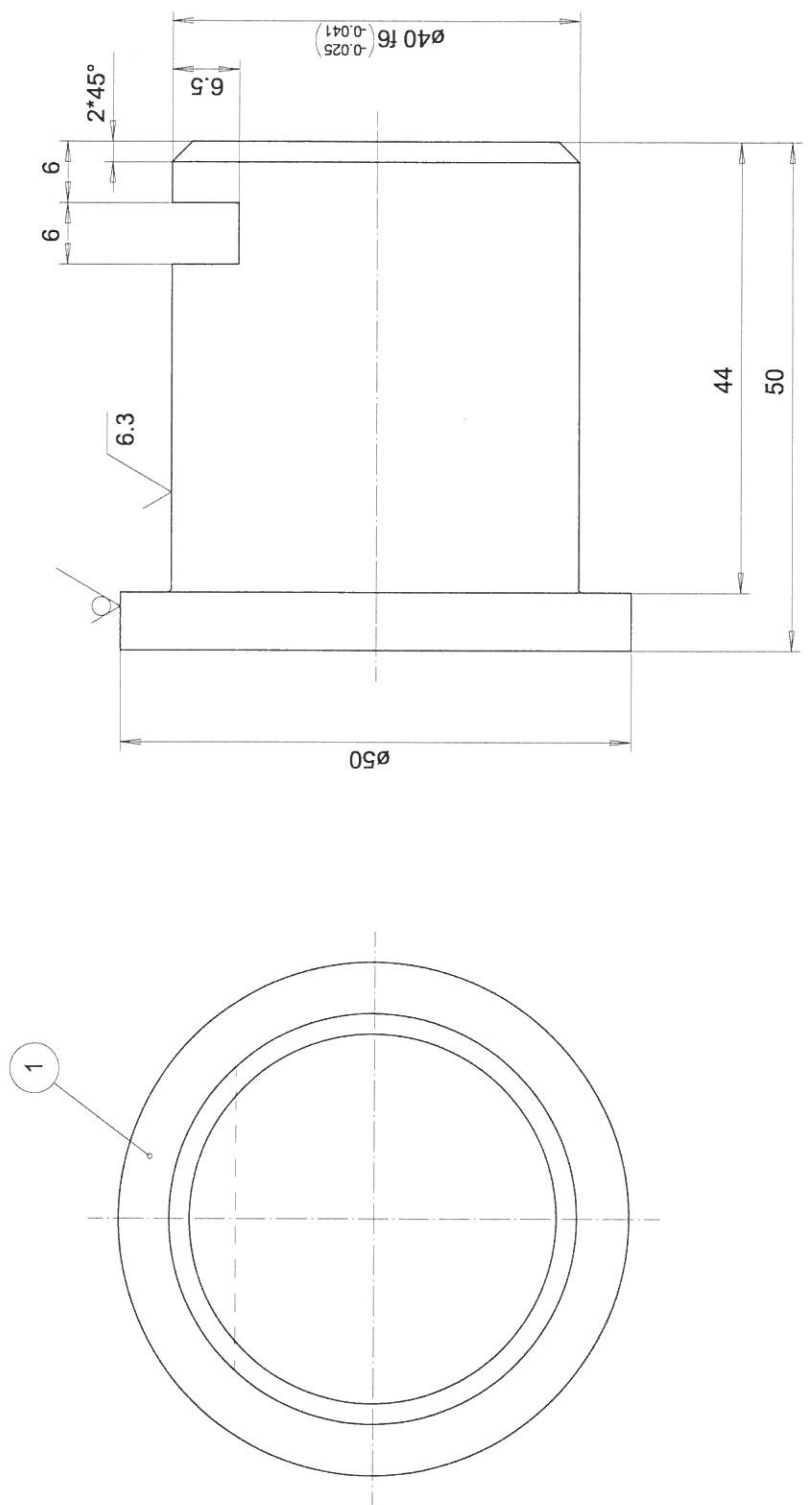
1	2	3	4	5	6	7	8	9	10	11	12	13
Rev Description								Date	Revised by			



Σ Weight		0.108	
1		1 ROUND 35 S235J	1=23
Pos	Qty	Description	Specification
Appd		Date	2009-10-23
Check		Title	AXLE
Drawn		FOLDABLE PLATFORM	
Lenz R.		SMT17	
KONECRANES		Drawing no. SMT17SP1-A6-OP2	
Weight kg/pcs	0.108		
Size	A3		
Scale	2:1		
Project	25276		
Department	PCD		

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Rev Description												Revised by
Date												



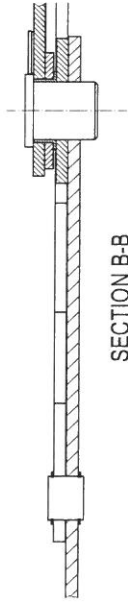
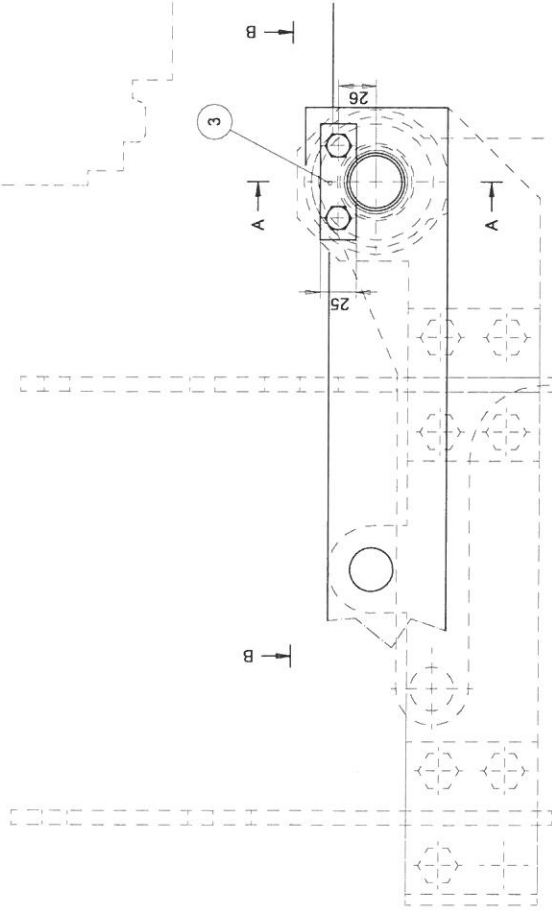
1		1 ROUND 50 S235J L=55		L=55		0.512		0.512		
Pos	Qty	Description	Specification	Weight/kg/pcs	Size					
Appd		Date	2009-10-26	Project	25276	Department	PCD			
Check		Title	AXLE		Scale	2:1				
Drawn	Lenz R.		FOLDABLE PLATFORM							
KONECRANES		SMT17								
		Drawing no.		SMT17SP1-A7-OP1						

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SECTION A-A

2023.5

2007.5



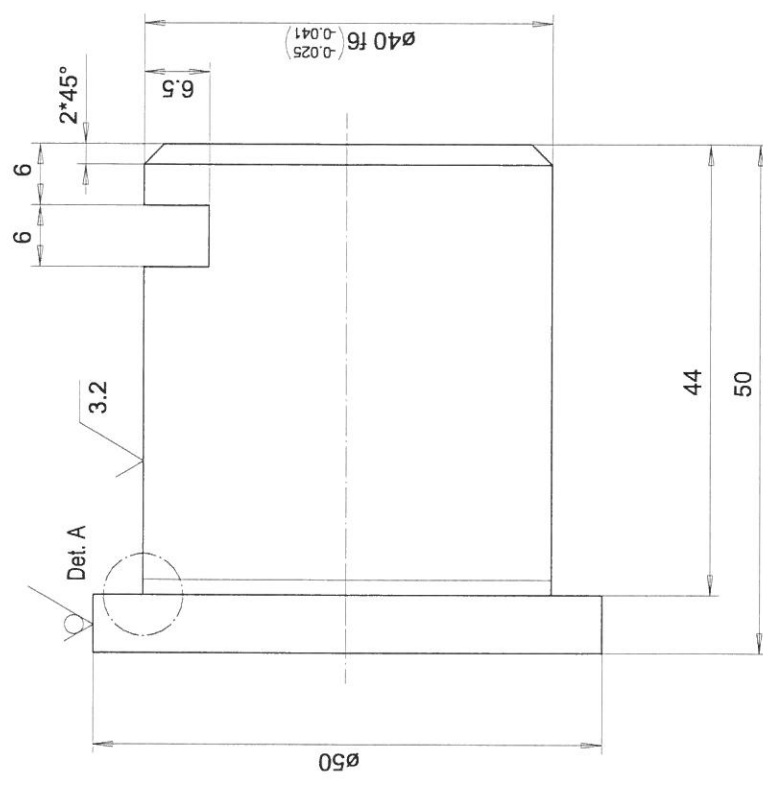
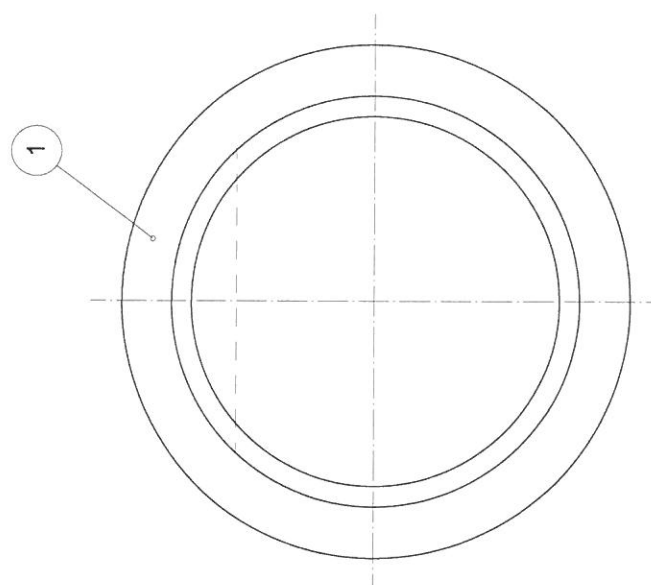
SECTION B-B

5	4	HEX. SCREW	M10x20 DIN931	Weight	0.512
4	2	WASHER	11 DIN126	Height	
3	4	AXLE HOLDER	80x25 DIN15058	Scale	1:2.5
2	2	Flanged Bush	BB4016DU Glacier	Department	
1	2	AXLE	SMT17SP1-AB-0P1	Project	25276
Appd		Date	2008-10-25	File	25276
Check		BEARING ASSEMBLY			
Drawn		FOLDABLE PLATFORM			
PCDRLE		SMT17			
KONECRANES		Drawing no. SMT17SP1-AB			

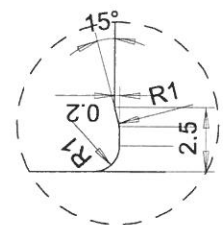
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10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Rev	Date	Revised by																			

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Rev Description												Revised by
Date												



Det. A Grinding groove DIN509 Form E

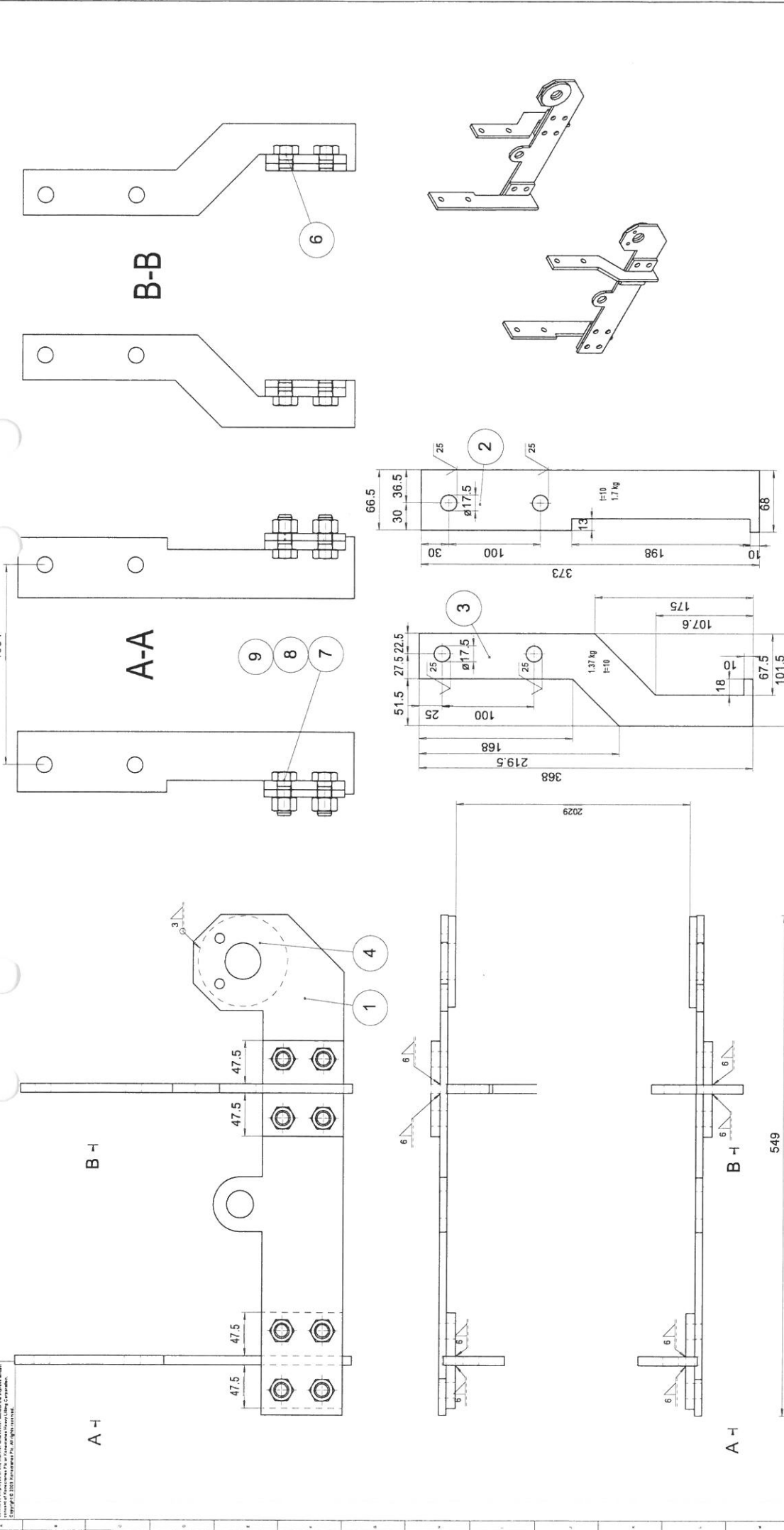


5:1

1	1	ROUND 50	S235J	L=55	Weight kg/pcs	0.512
Pos	Qty	Description	Specification			
Appd	Date	Project	Department	Size		
Check	2008-10-26	25276	PCD	A3		
Drawn	Title			Scale		
Lenz R.	AXLE			2:1		
FOLDABLE PLATFORM						
SMT17						
SMT17SP1-A8-OP1						
Drawing no.						
KONECRANES						
Rev						

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REQUIREMENTS FOR FABRICATION SEE DRAWING D5315



Pos.	Qty.	Description	Material	Weight
9	16	WASHER	M16 DIN126	
8	8	HEX NUT	M16 DIN934	
7	8	HEX SCREW	M16x40 DIN933	
6	8	HEX SCREW	M16x10 DIN933	
5	4	PL10 S235JRG	105x80	0.67
4	2	PL8 S235JRG	100x100	0.414
3	2	PL10 S235JRG	368x102	1.37
2	2	PL10 S235JRG	373x66.5	1.7
1	2	PL8 S235JRG	349x168	3.37

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

Part	Code	Material	Weight
9	908-1131	Steel	13218
8	908-1132	Steel	13218
7	908-1133	Steel	13218
6	908-1134	Steel	13218
5	908-1135	Steel	13218
4	908-1136	Steel	13218
3	908-1137	Steel	13218
2	908-1138	Steel	13218
1	908-1139	Steel	13218

16.39

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Rev Description								Date		Revised by		

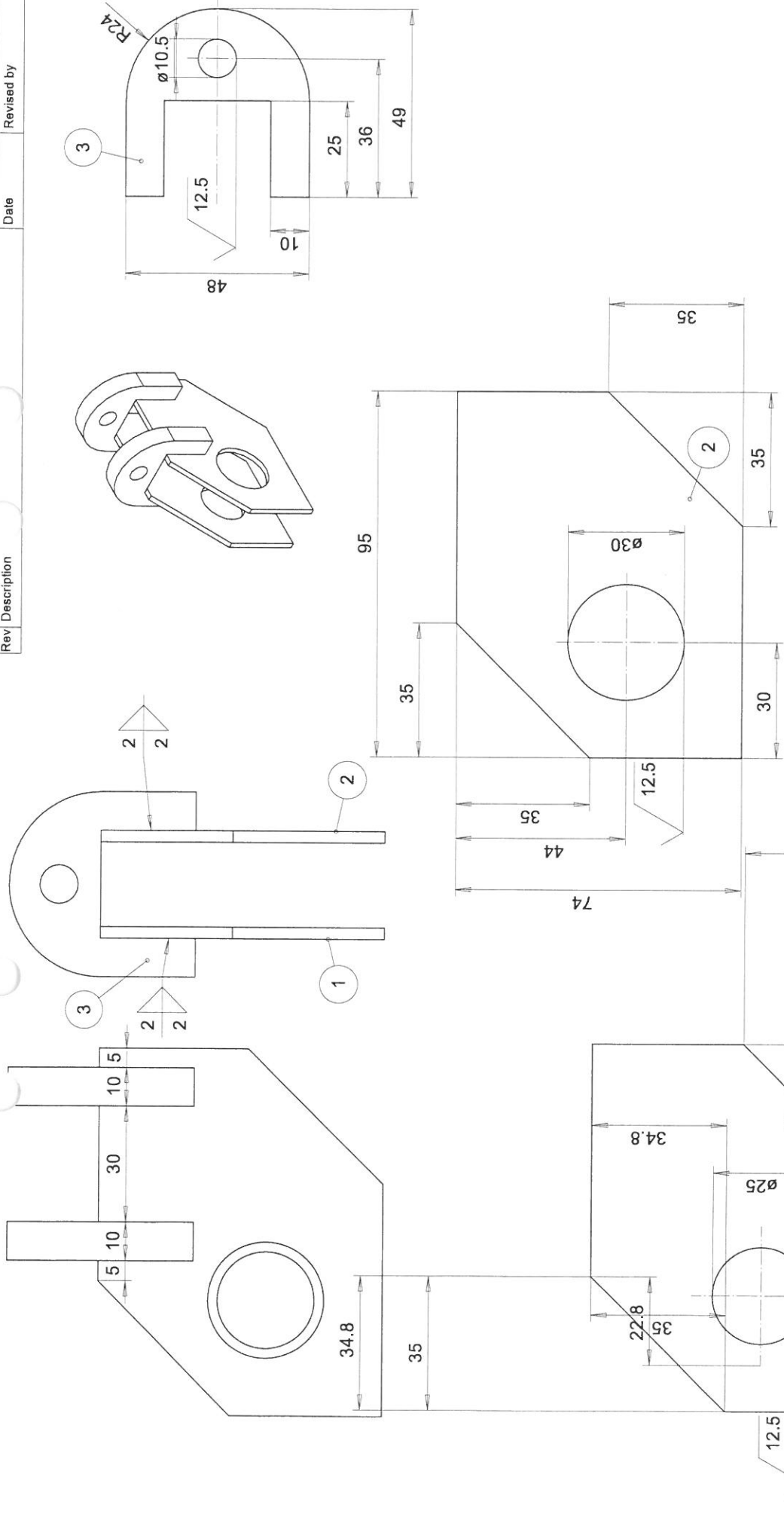
1.020

Pos	Qty	Description	Specification	Weight/kgpcs
9	1	RET. RING	DIN 471-25*1.2	
8	1	RET. RING	DIN 472- 47*1.75	
7	1	RET. RING	DIN 471 16*1	
6	1	SHAFT	SMT17SP1-P1-OP4	
5	1	SHAFT	SMT17SP1-P1-OP2	0.145
4	1	BUSHING	SMT17SP1-P1-OP3	0.01
3	1	BEARING	6005-2RS1 (east)	0.08
2	1	LATCH	SMT17SP1-P1-OP1 (P.1+2+3)	0.255
1	1	ROPE SHEAVE	D101606-A	0.53

Appd	Date	Project	Department
	2009-10-08	25276	
Check	Title		
	HINGED SHEAVE ASSEMBLY		
Drawn			
Lenz R.	CABRIO FOLDABLE PLATFORM		
KONECRANES			
SMT17			
Drawing no. SMT17SP1-P1			
Size	Scale	Rev	
A3	1:1		

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Rev Description												Date	Revised by

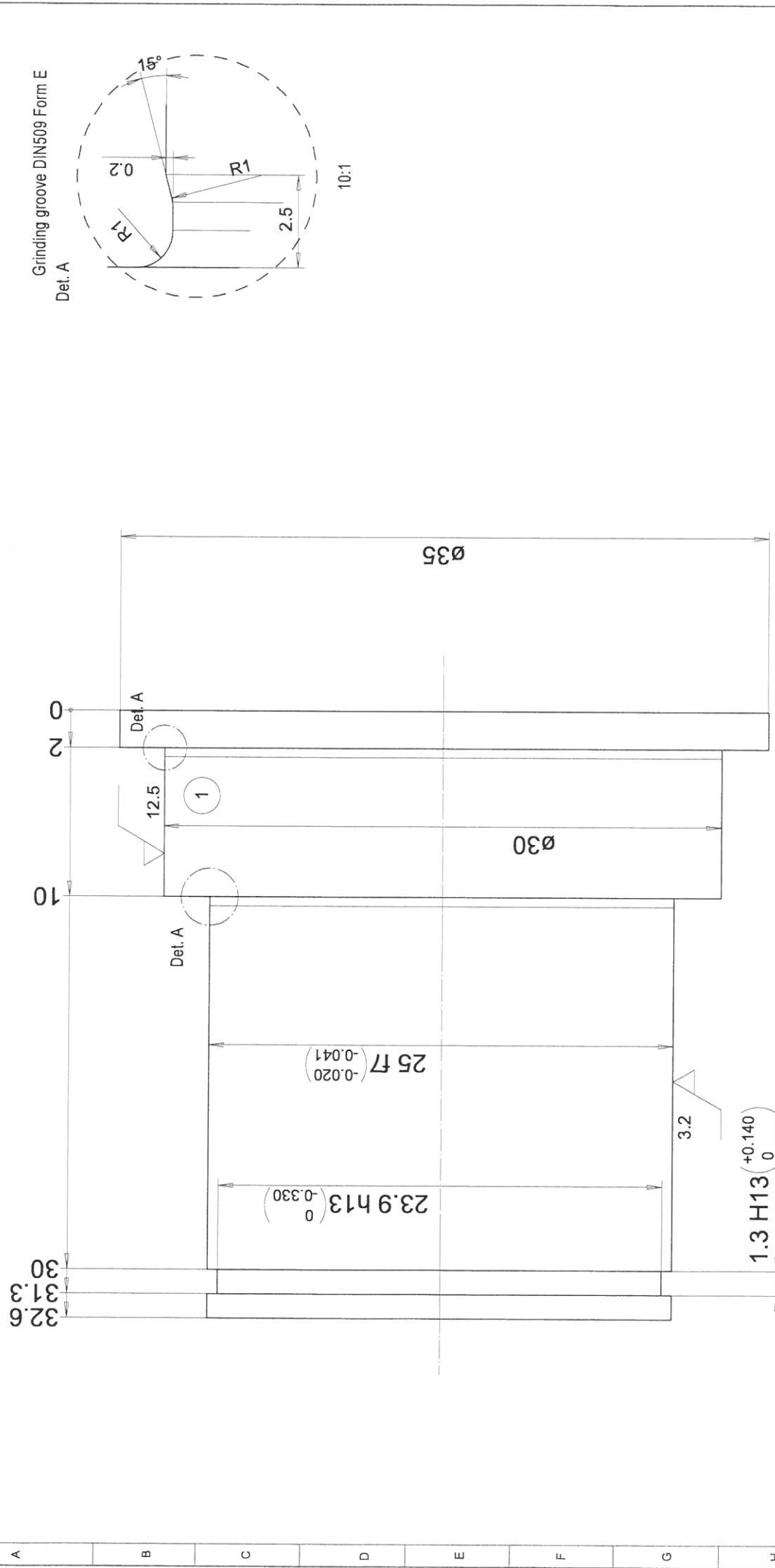


3	2	PL10	S355J2G3	48x49	0.232
2	1	PL3	S355J2G3	95x74	0.104
1	1	PL3	S355J2G3	95x74	0.012
					0.012

Appd	Date	Project	Department	Weight kg/pcs
	2009-10-08	25276	PCD	Size
Check	Title	Scale		
	PARTS FOR HINGED SHEAVE	1:1		
Drawn	CABRIO FOLDABLE PLATFORM			
Lenz R.	SMT17			
	Drawing no.			
	SMT17SP1-P1-OP1			

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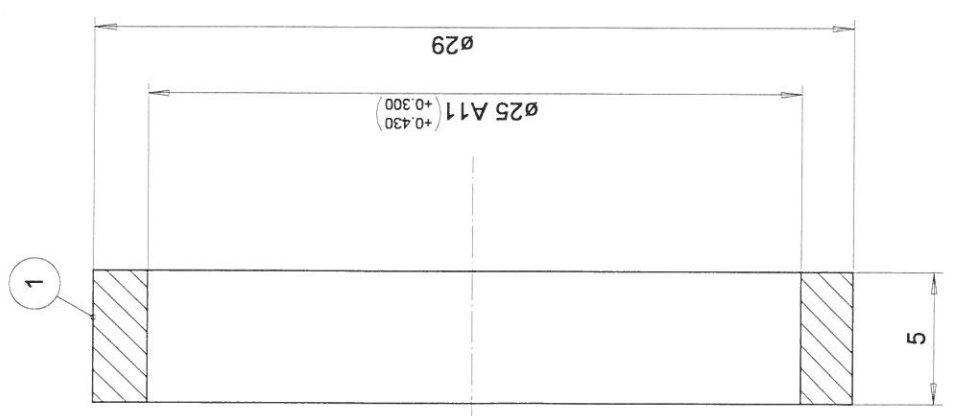
1	2	3	4	5	6	7	8	9	10	11	12	13
Revised by												
Date												



1	1	RD40	S355J2G2	L=33	0.145
Pos	Qty	Description	Specification	Weight kg/pcs	0.145
Appd	Date	2010-08-07	Project	25276	Department
Check	Title	SHAFT FOR SWIVELING ROPE SHEAVE	Scale	5:1	Size
Drawn	FOLDABLE PLATFORM				A3
HDSRLE	SMT17				5:1
KONECRANES					Rev
DRAWING no. SMT17SP1-P1-OP2					

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REQUIREMENTS FOR FABRICATION SEE DRAWING D5315

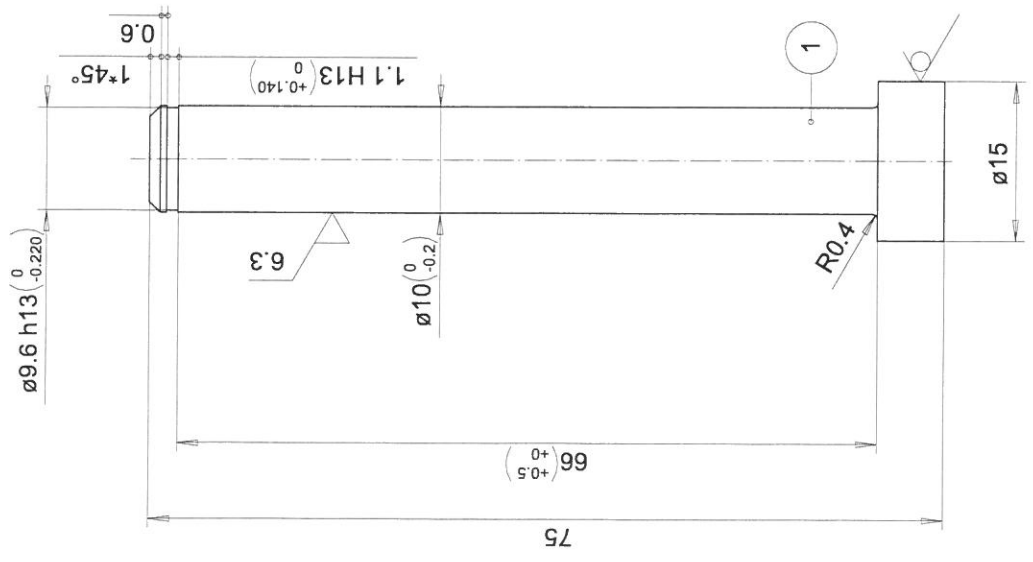


ALL EDGES BROKEN

Pos	Qty	Description	Specification	Date	Project	Department	Weight kg/pcs
Appd				2010-06-07	25276		0.000
Check				Title			Size
Drawn				BUSH			A3
HDS RLE				SWIVELING ROPE SHEAVE			Scale
				SMT17			1:1
				Drawing no.			Rev
				SMT17SP1-P1-OP3			

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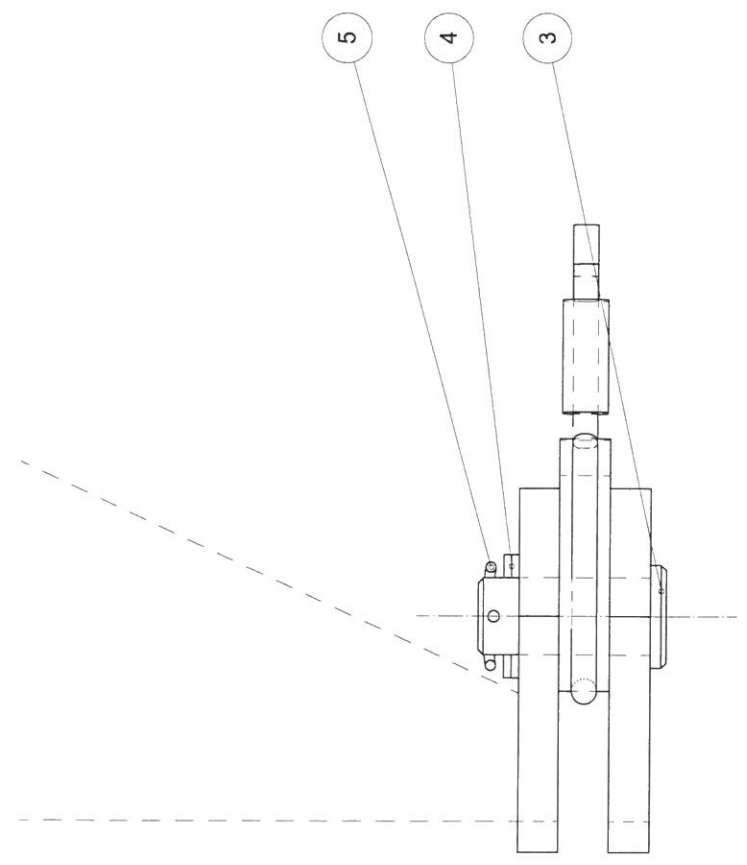
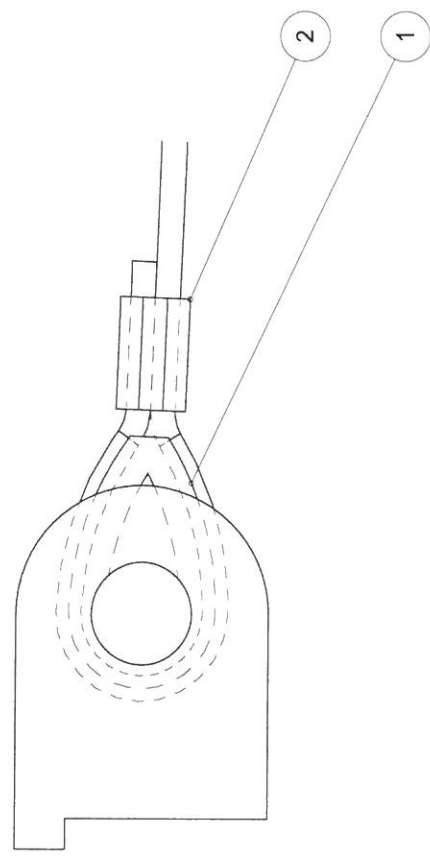
Part No.	Revision	Date	Rev. by	Acc.
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Σ tolerances 0.050

1	1	ROUND 15	S355J	EN10060	0.050
Appd	Qty	Description	Specification	Department	Weight kg/pcs
					Size
Check		Date	Project		A3
Drawn		2010-08-22	25276		Scale
RLE		Title	SHAFT		1:1
			SWIVELING ROPE SHEAVE		
			SMT17		
			Drawing no.		Rev
			SMT17SP1-P1-OP4		

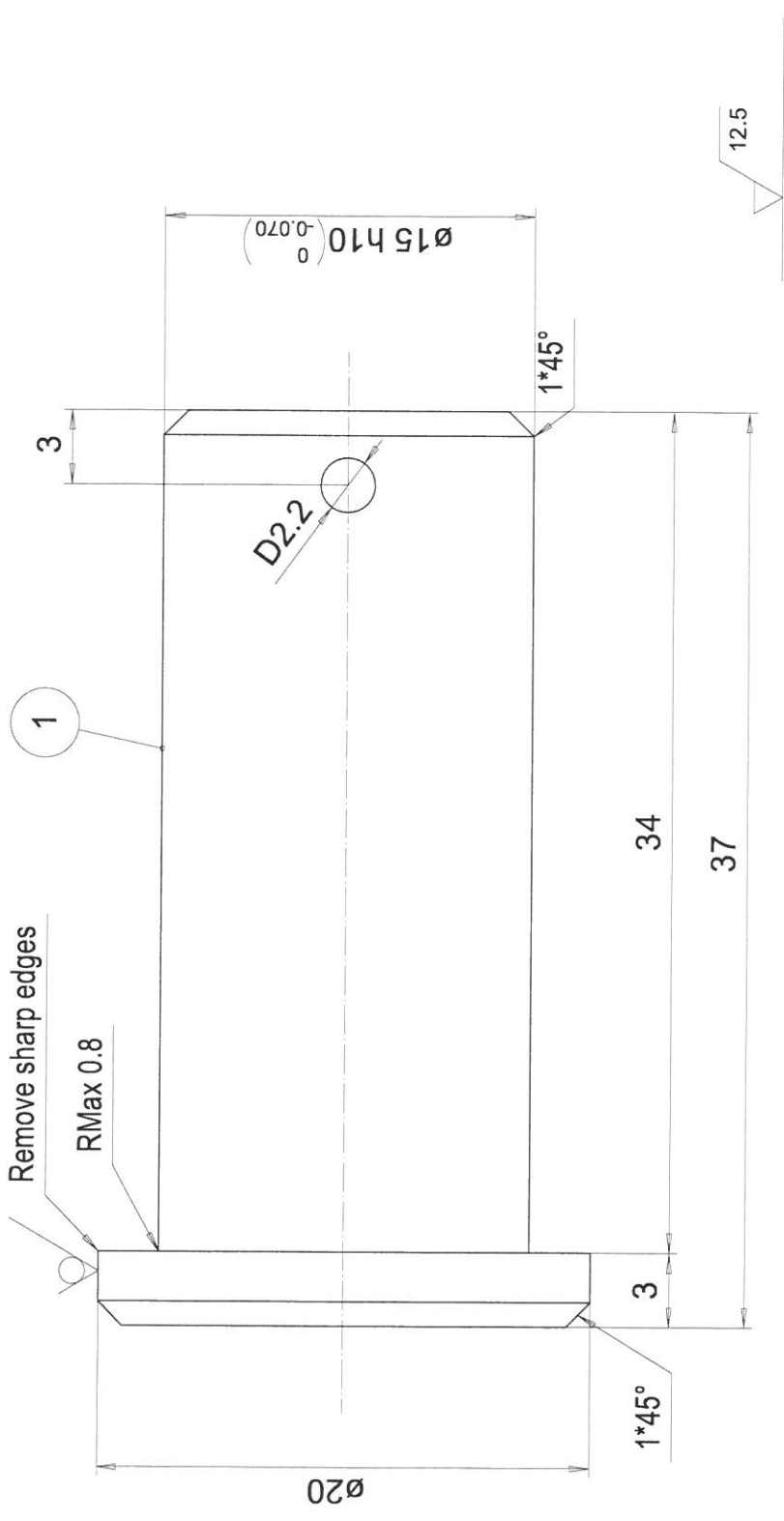
KONECRANES



5	1	LOCKING RING	D003485										
4	2	WASHER	16 DIN126										
3	1	SHAFT	SHT17SP1-P2-0P1										
2	1	ROPE CLAMP	TALU05 (Haklift)										
1	1	THIMBLE	DTN 3090 -N6										
Appd		Date		Project		Department		Weight kg/lbs					
		2009-10-25		25276		PCD		Size					
Check		Title		ROPE THIMBLE ASSEMBLY		Scale		A3					
Drawn		PCDRLE		WINCH MECHANISM		Scale		1:1					
KONECRANES		SMT17		Drawing no.		SMT17SP1-P2		Rev					

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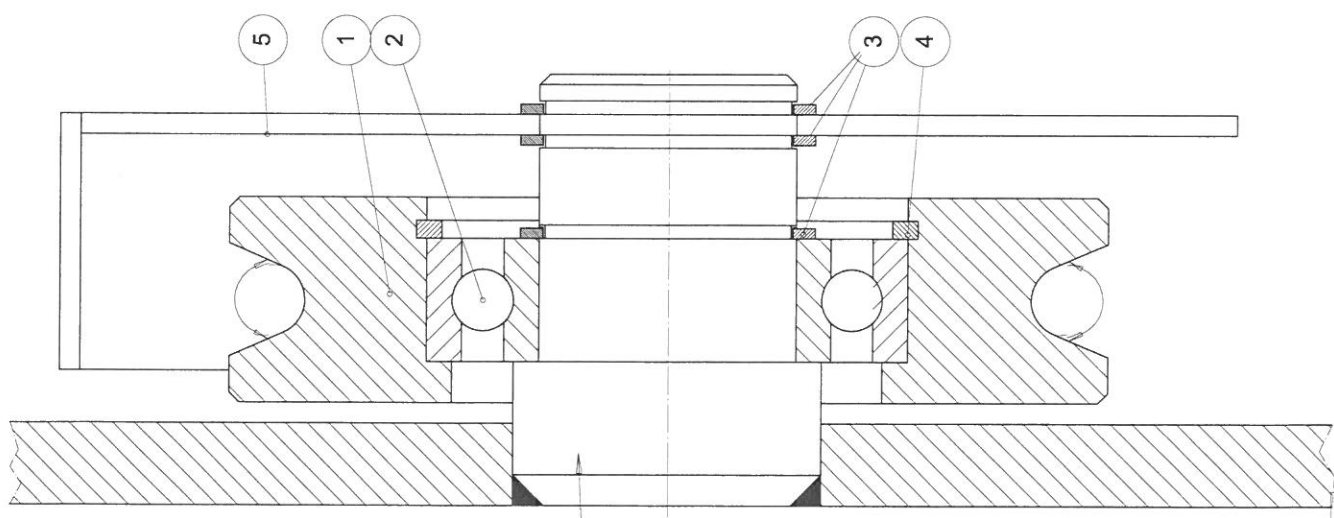
1	2	3	4	5	6	7	8	9	10	11	12	13
Rev Description												
Date											Revised by	



1		1 RD 20 S355J2G3 DIN1013 L=37		Weight kg/lbs	
Pos	Qty	Description	Specification	Size	
Appd		Date	Project	Department	
Check		2010-06-07	25276		A3
Drawn		Title		Scale	
HDS RLE		SHAFT AT ROPE FIXING		5:1	
		FOLDABLE PLATFORM			
		SMT17			
		Drawing no.			
		SMT17SP1-P2-OP1			
KONECRANES					

Σ more 0.000

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SMT17SP1-A1-OP1

5	1	COVER	D109634-A	0.11	Σ Weight kg/pcs
4	1	RING DIN472	47x1.75		
3	3	RING DIN471	25x1.2		
2	1	BEARING	6005-2RS1	0.08	
1	1	ROPE SHEAVE	D101606-A	0.53	
Appd		Specification		Weight kg/pcs	
Check		Date	Project	Department	Size
Drawn		2009-10-31	25276		A3
PCDRLE		LOWER SHEAVE ASSEMBLY			Scale
		FOLDABLE PLATFORM			2:1
		SMT17			Rev
		Drawing no. SMT17SP1-P3			

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