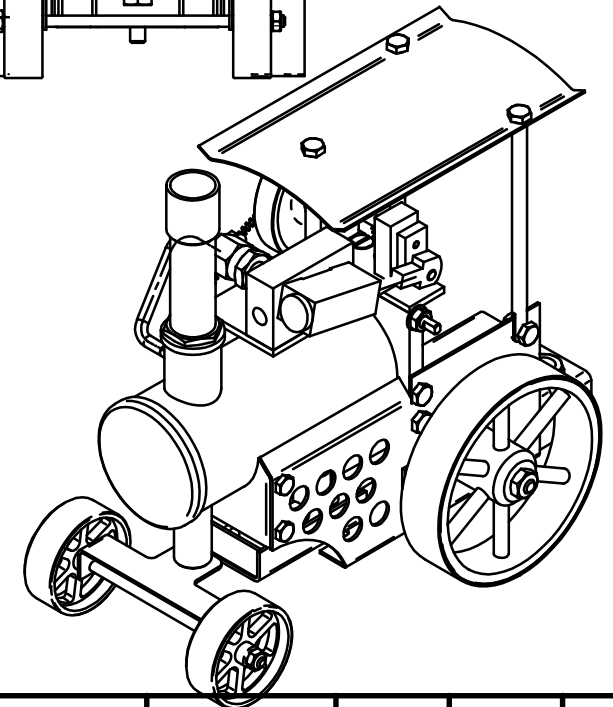
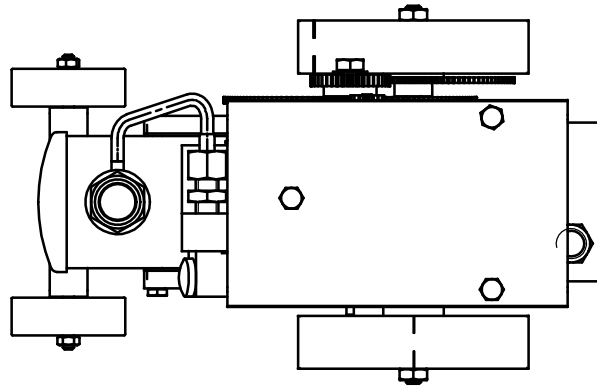
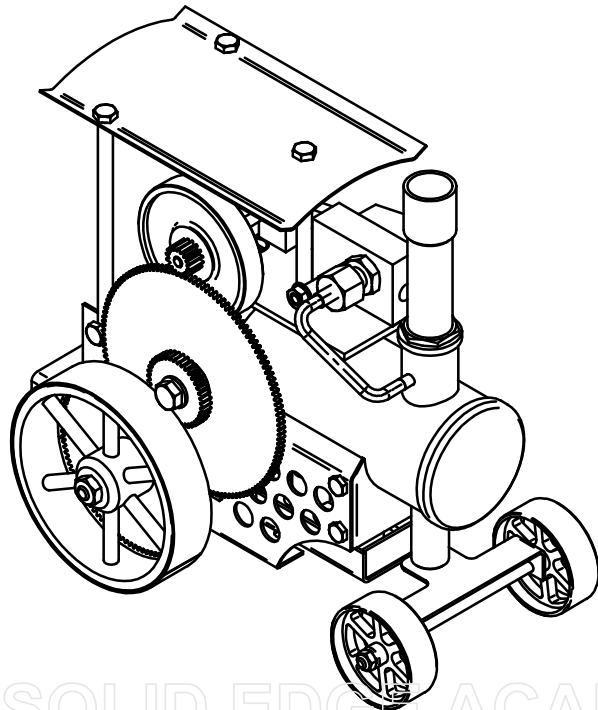
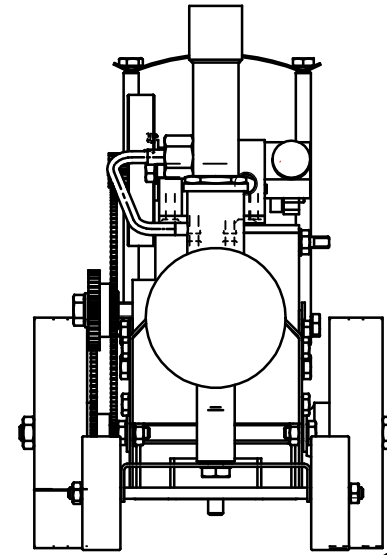
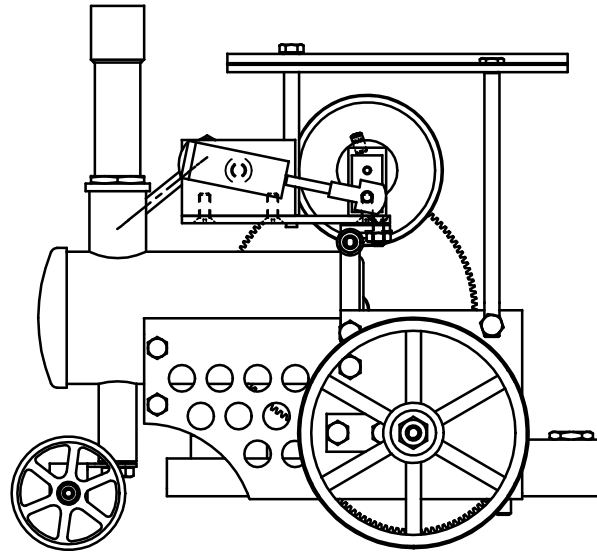
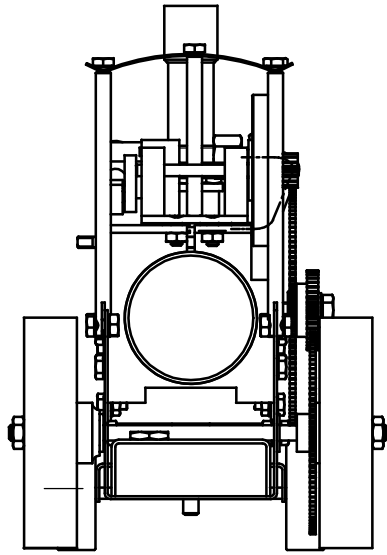


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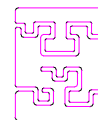
Tractor OTTO 



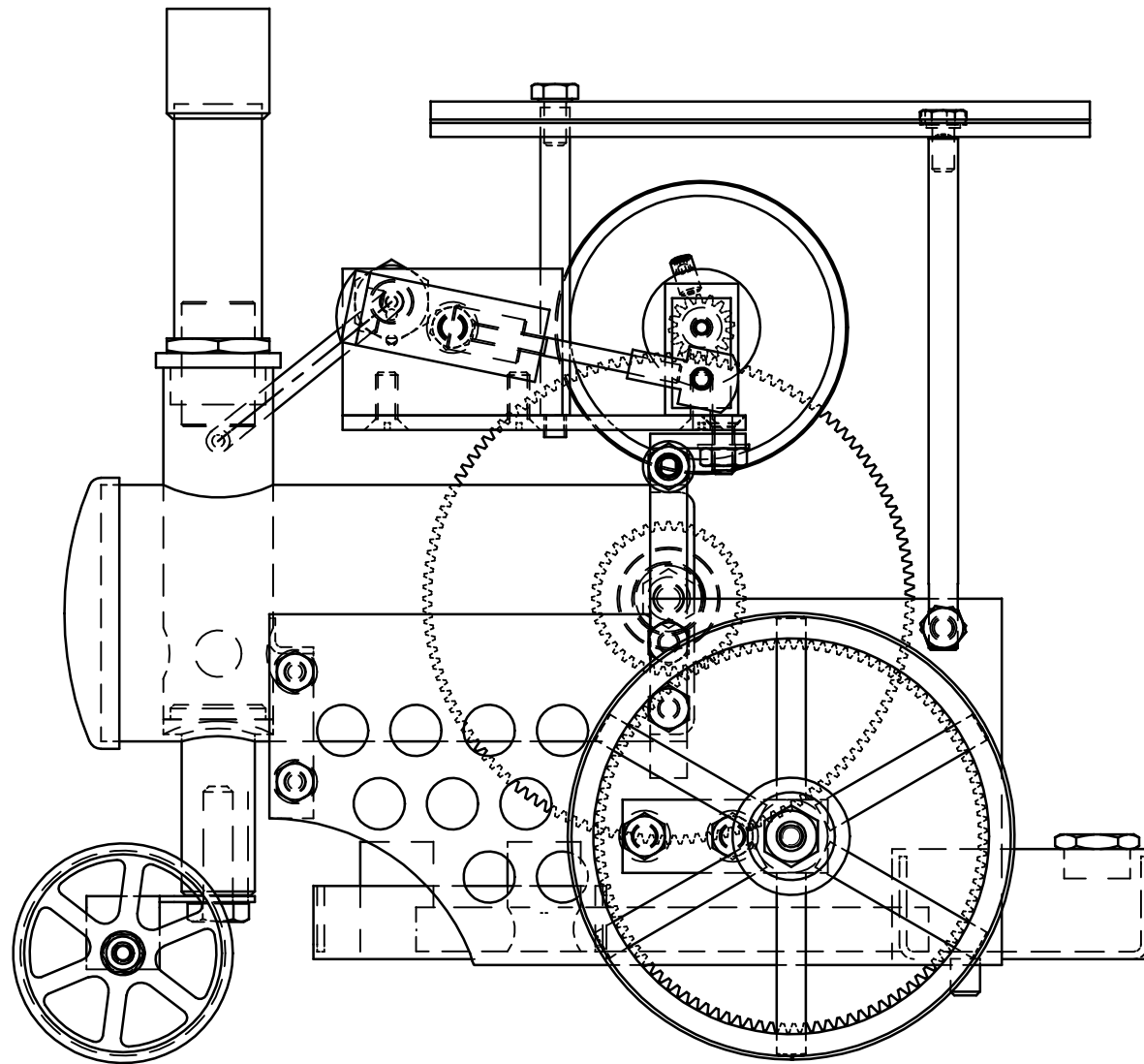
Dibujado: ___Juan___ Fecha: 29/04/2003
Revisado: _____ Fecha: 29/04/2003

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TRACTOR OTTO



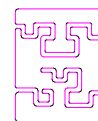
VISTA GENERAL



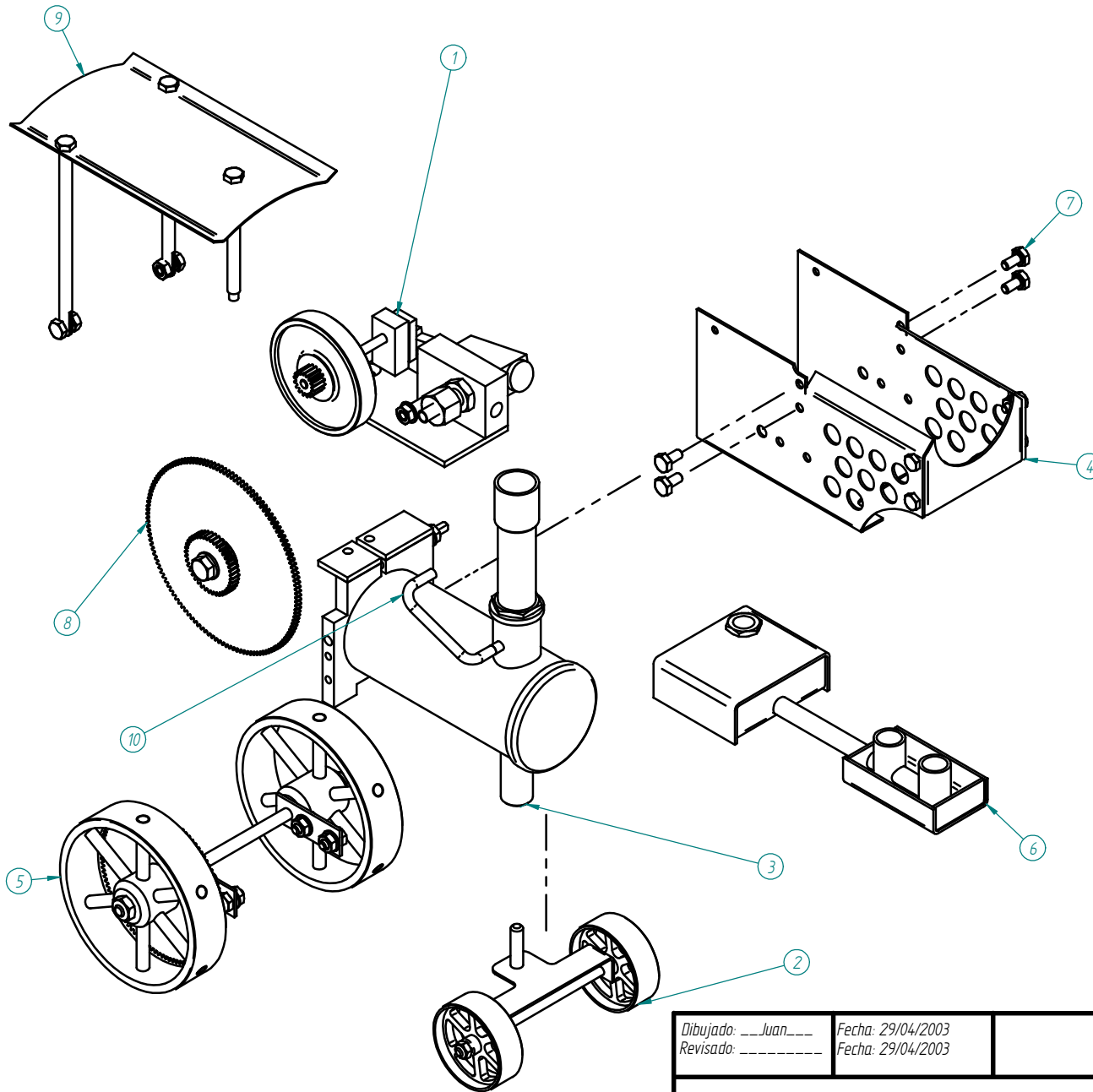
Dibujado: ___Juan___ Fecha: 29/04/2003
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TRACTOR OTTO



LATERAL GENERAL

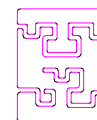


Elemento	Cant.	Título	Masa
1	1	Motor Otto	177,61 g
2	1	Dirección	34,71 g
3	1	Montaje caldera	188,17 g
4	1	Carrocería	80,27 g
5	1	Conjunto tracción	184,54 g
6	1	Quemador Otto	70,68 g
7	4	Tor M3 x 6	3,16 g
8	1	Transmisión	53,23 g
9	1	Capota	41,37 g
10	1	Tubo vapor	2,37 g

Dibujado: Juan Fecha: 29/04/2003
 Revisado: Fecha: 29/04/2003

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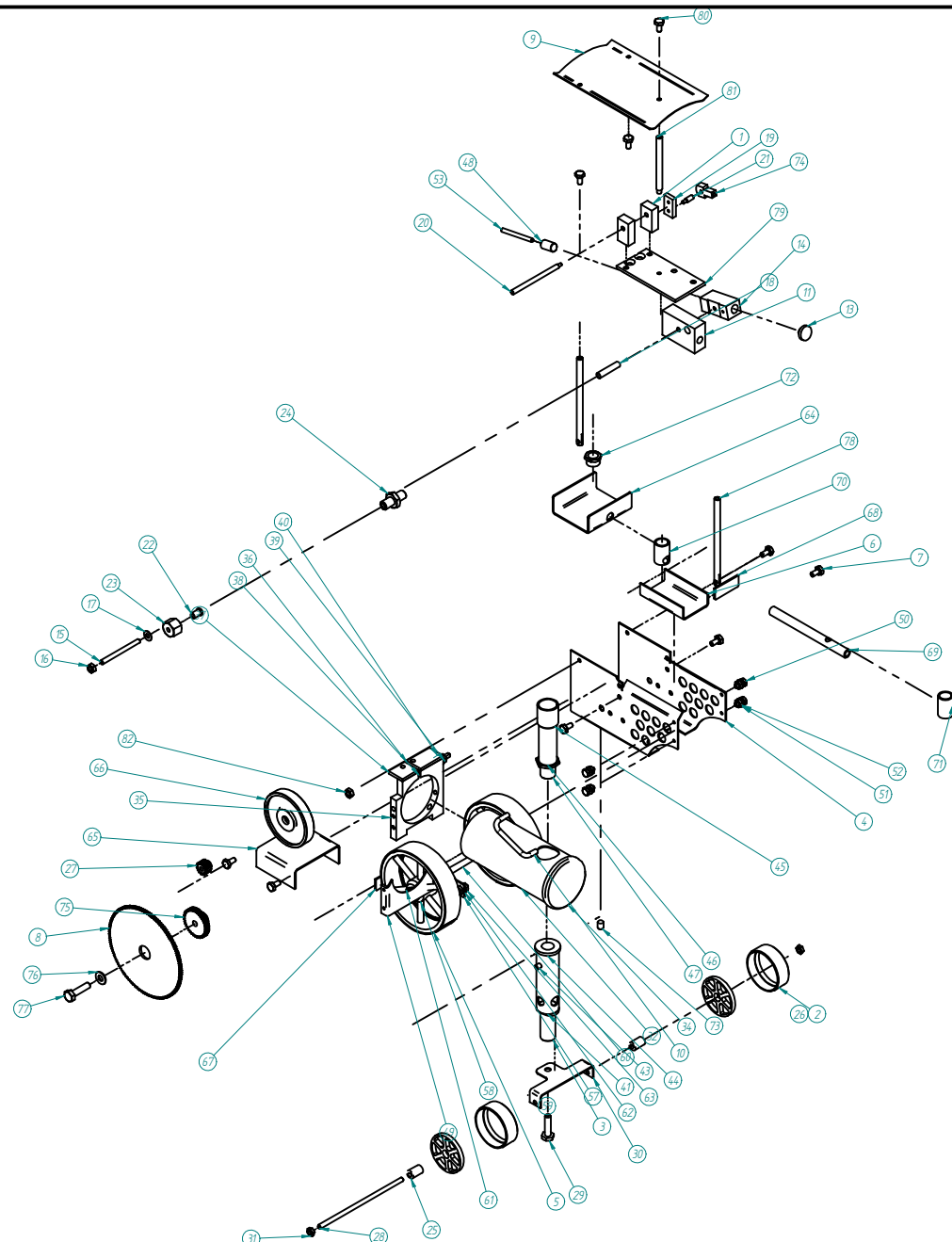
TRACTOR OTTO



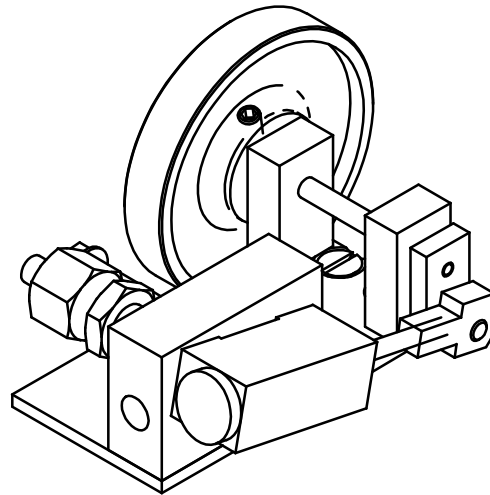
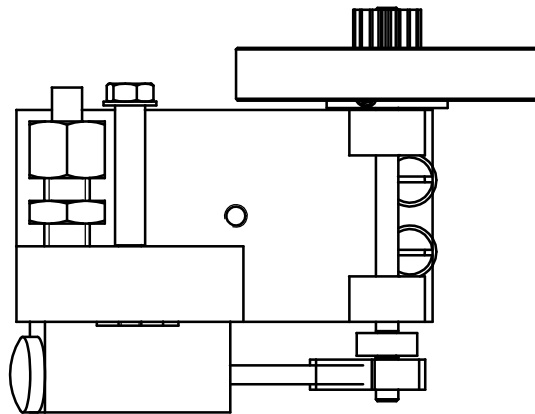
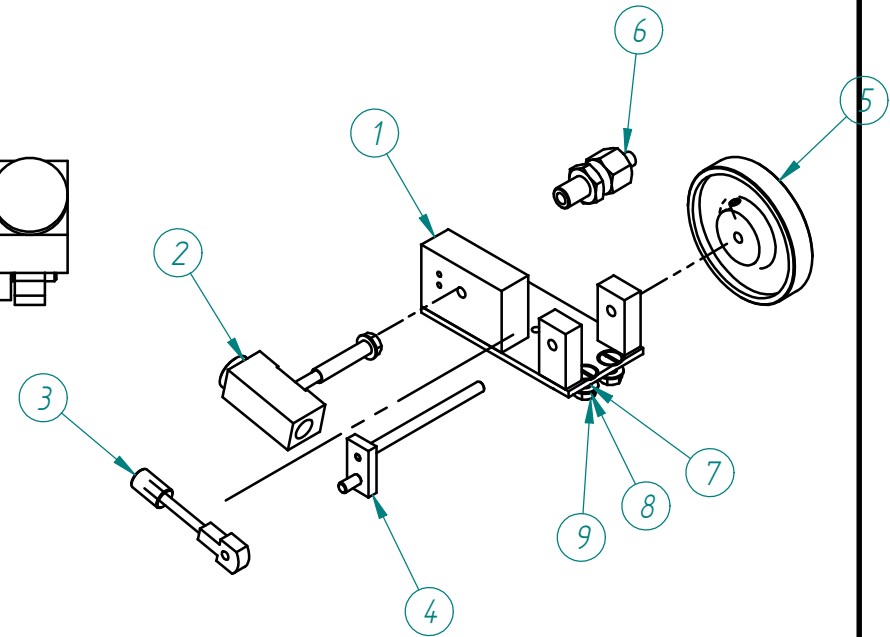
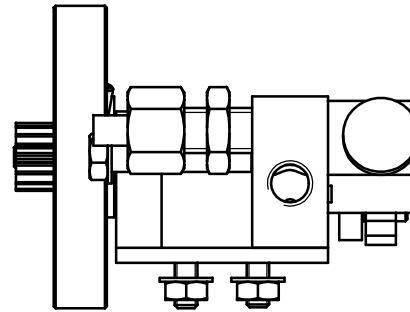
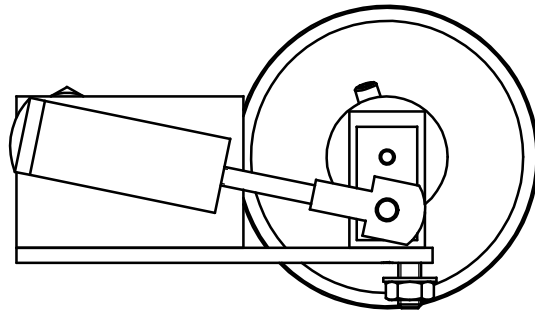
DESPIECE SUBCONJUNTOS

Elemento	Cant.	Título	Comentarios	Material	Masa
1	1	Volante inercia	Latón 40x10 mm	Latón	45,38 g
2	1	Engrane 16 d x m05	Engrane m a.5 16 dientes dp8 dext 9	Latón	199 g
3*	1	Prisionero volante	TORS/c M3x5mm	Aceero	0,24 g
4	1	Pistón Otto	Latón D6x10 mm H7	Latón	2,06 g
5	1	Biela	Aceero D25x45	Aceero	1,14 g
6	1	Coinete biela	Latón 15x8x4mm	Latón	2,43 g
7	8	Tor M3 x 6	Tor hex M3x6 zincado	Aceero	6,32 g
8	2	Cajinete cigüeñal	Latón 18x10x6mm	Latón	15,86 g
9	1	Placa base motor	Ch aceero 55x28 x 2mm	Latón	22,27 g
10	1	Tubo vapor	Capilar Cu 3,2mm	Cobre	2,37 g
11	1	Cárter	Latón 30x20x10mm	Latón	44,37 g
12*	6	Tor avelanado M3 x 6	Tor avelanado M3x6 zincado	Aceero	3,09 g
13	1	Tapa cilindro Otto	Latón 12x10x25mm	Latón	2,30 g
14	1	Cilindro Otto	Latón 12x10x25mm	Latón	17,71 g
15	1	Eje Cilindro Otto	Varilla Latón M3x20mm	Latón	1,97 g
16	3	Tca M3	Tca M3 zincada	Aceero	1,05 g
17	3	Arandel M3	Arandela M3 zincada	Aceero	0,36 g
18	1	Muelle cilindro	Muelle 3,2 mm x 16mm	Aceero	0,44 g
19	1	Cigüeñal	Ll Aceero 15x8x3	Aceero	2,66 g
20	1	Eje cigüeñal	Varilla Aceero D3x4,3mm	Aceero	2,44 g
21	1	Eje biela	Varilla Aceero D3x4,3mm	Aceero	0,40 g
22	1	Tetón racor M6	Latón D5x15	Latón	0,47 g
23	1	Tca racor M6	Latón hex D10	Latón	4,37 g
24	1	Machón M6	Latón Hexagonal D 10	Latón	4,62 g
25	2	Cubo rueda delantera	Latón D 6mm	Latón	3,36 g
26	2	Radios rueda delantera	Ch latón 3mm	Latón	13,04 g
27	2	Llanta rueda delantera	Tubo Al D 30x15	Aluminio	5,72 g
28	1	Eje delantero	Varilla aceero D3mm	Aceero	4,28 g
29	1	Tor M4x40 hexagonal	Tor hex M4x40 zincado	Aceero zincado	2,43 g
30	1	Dirección	Chapa latón 70x25x0,8mm	Latón	5,24 g
31	2	Tca M3 pavonada	Tca M3 pavonada	Aceero	0,63 g
32	1	Cuerpo caldera	Tubo Cu D35x80	Cobre	64,62 g
33*	1	Tapa caldera interior	Chapa Cu D45x1mm	Cobre	10,08 g
34	1	Tapa caldera	Chapa Cu D45x1mm	Cobre	11,03 g
35	1	Chasis tractor	Latón 45x4x6mm	Latón	29,61 g
36	1	Soporte motor	Latón21x13x2mm	Latón	4,15 g
37	1	Soporte motor 2	Latón15x13x2mm	Latón	2,93 g
38	1	Tirante presion chasis	Varilla Latón M3x40mm	Latón	2,21 g
39	1	arandela M3	Arandela M3 zincada	Aceero	0,12 g
40	1	Tca M3	Tca M3 zincada	Aceero	0,35 g
41	1	Llenado	Chapa Cu D45x1mm	Cobre	0,00 g
42	1	Base llenado	Latón D17x7mm	Latón	16,66 g
43	1	Salida vapor	Tubo Cu D6x1x15mm	Cobre	0,19 g
44	1	Tpa llenado	Latón D17x7mm	Latón	5,62 g
45	1	Cubierta chimenea	Tubo Cu D16x1x15mm	Cobre	4,69 g
46	1	Cpo chimenea	Tubo Cu D14x1x32mm	Cobre	8,63 g
47	1	Base chimenea	Latón HEX d14x17mm	Latón	11,79 g

Elemento	Cant.	Título	Comentarios	Material	Masa
48	1	Lateral izdo	Chapa gda .8	Aceero	70,94 g
49	1	Asiento caldera	Ch 60x30x0,8mm aceero gda	Aceero	5,78 g
50	4	Tor M3 x6	Tor M3x6 zincado	Aceero	2,17 g
51	4	Arandela M3	Arandela zincada M3	Aceero	0,35 g
52	4	Tca M3	Tca M3 zincada	Aceero	1,03 g
53	2	Llanta rueda trasera	Tubo Al D 60x15	Latón	39,36 g
54*	1	Cubo rueda trasera	Latón D 16mm	Latón	24,39 g
55*	12	Radio rueda trasera	Varilla latón D 4mm	Latón	30,11 g
56*	2	Cubierta trasera	Ch Latón 190x16x0,5mm	Latón	212,6 g
57	2	Soporte eje tracción	Ch latón 28x10x1mm	Latón	4,05 g
58	1	Cubo rueda trasera	Latón D 16mm	Latón	0,00 g
59*	1	Engrane 105 d x m05	Engrane 105 dientes, m05 dp25,5 d ext 53,5 e=15mm	Latón	25,16 g
60	1	Eje trasero	Varilla aceero D4mm	Aceero	9,78 g
61	2	Tca M4 pavonada	Tca M4 pavonada	Aceero	1,72 g
62	4	Arandel M3	Arandela M3 zincada	Aceero	0,47 g
63	4	Tca M3	Tca M3 zincada	Aceero	1,40 g
64	1	Tapa inferior depósito	Ch Latón 1mm	Latón	18,55 g
65	1	Tapa superior depósito	Ch Latón 1mm	Latón	19,28 g
66	1	Bandeja quemador	Ch Latón 1mm	Latón	13,03 g
67	1	Tapa delantera bandeja quemador	Ch Latón 1mm	Latón	1,35 g
68	1	Tapa trasera bandeja quemador	Ch Latón 1mm	Latón	1,58 g
69	1	Tubo ppal quemador	Tubo Cu 6x4mm	Cobre	8,68 g
70	1	Tobera trasera	Tubo Cu 10x8mm	Cobre	2,91 g
71	1	Tobera delantera	Tubo Cu 10x8mm	Cobre	3,15 g
72	1	entranque D9 xM8	Latón	Latón	1,65 g
73	1	Pitón fijación	Varilla latón 4 mm	Latón	0,49 g
74	1	Engrane 132 d x m05	Engrane 132 d mod 0,5 dp 66 dext 67	Latón	39,01 g
75	1	Engrane 3 40dxm05	Engrane 40 d x m05 x dp 20 x dext 21	Latón	11,33 g
76	1	Arandela M4	Arandela M4 zincada	Aceero	0,31 g
77	1	Tor M4x16	Tor M4 x 16 zincado	Aceero	2,59 g
78	2	Tirante trasero capota	Varilla latón D4 x 45	Latón	12,49 g
79	1	Capota	Chapa latón 90x55x0,5	Latón	20,23 g
80	5	Tor M3 x 6	Tor hex M3x6 zincado	Aceero	3,95 g
81	1	Tirante delantero capota	Varilla latón 114 x 45	Latón	4,00 g
82	2	Tca M3	Tca M3 zincada	Aceero	0,70 g



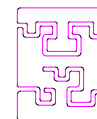
Dibujado: Juan	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				
TRACTOR OTTO				DESPIECE GLOBAL	
				pg 4	



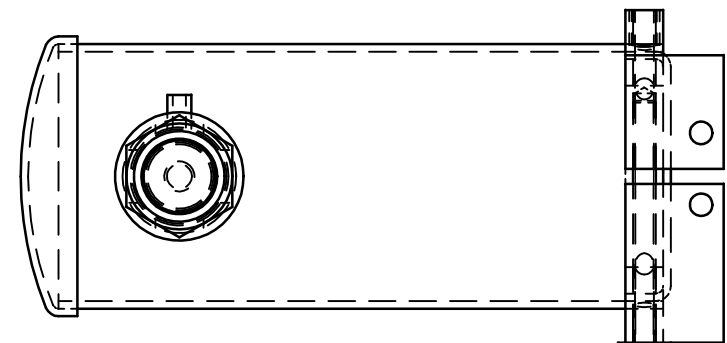
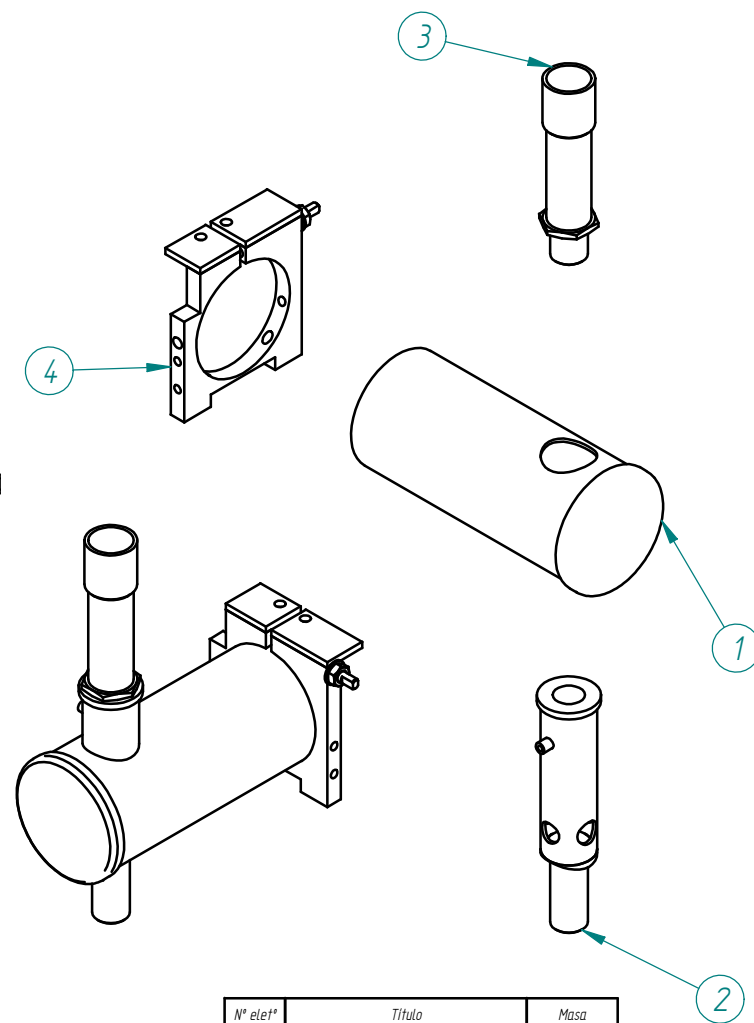
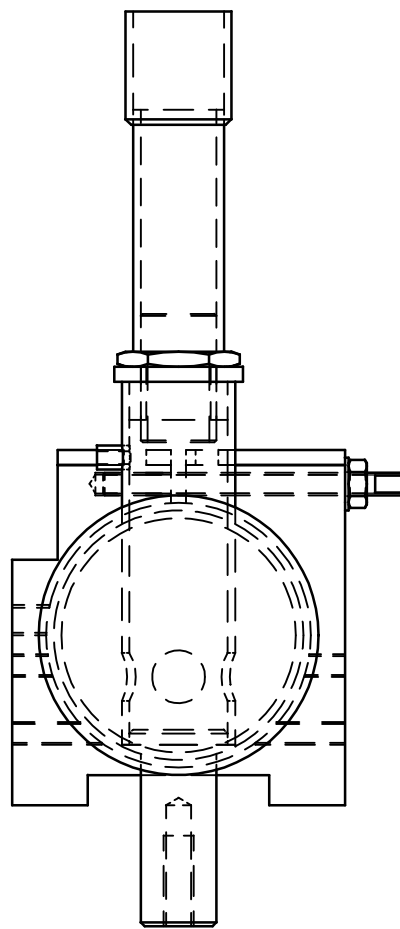
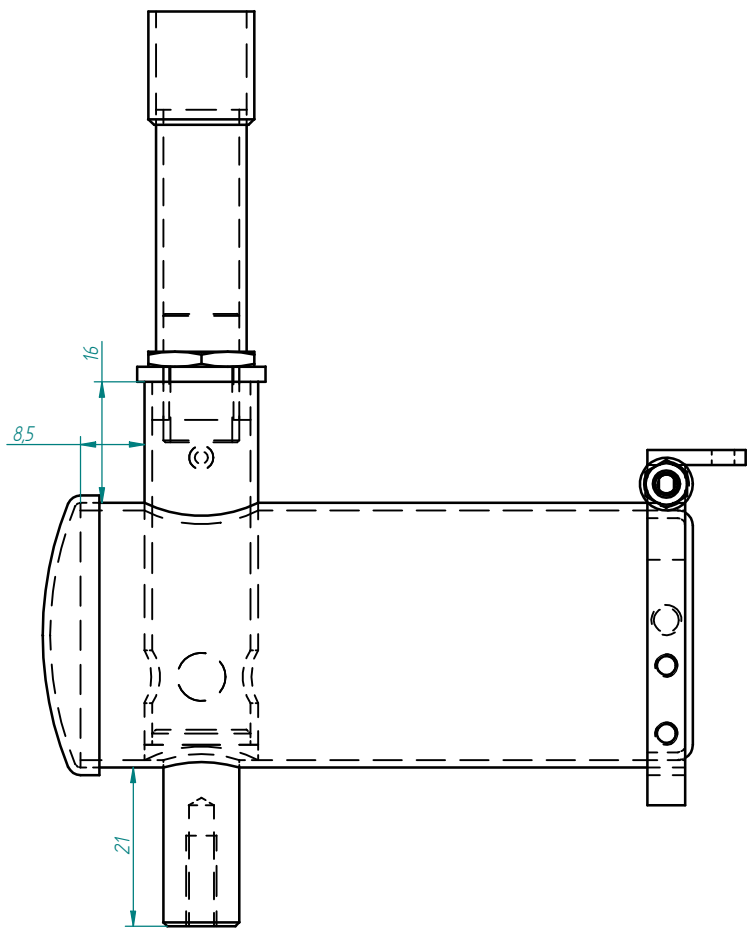
Nº ele ^{1*}	Título	Masa
1	Base motor	83,01 g
2	Cilindro	22,89 g
3	Pistón	5,63 g
4	Cigüeñal	5,50 g
5	Volante inercia	47,61 g
6	Racor M6 x 3,2	9,46 g
7	Tor avelalnado M3 x 6	2,57 g
8	Arandel M3	0,24 g
9	Tca M3	0,70 g

Dibujado: Juan Fecha: 29/04/2003
 Revisado: Fecha: 29/04/2003

SOLID EDGE ACADEMIC COPY TRACTOR OTTO
 CONJUNTO MOTOR



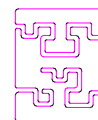
VISTA GENERAL Y DESPIECE PARTES



Nº elem*	Título	Masa
1	Cuerpo caldera	0,00 g
2	Salida vapor	0,00 g
3	Chimenea	0,00 g
4	Chasis	0,00 g

Dibujado: Juan Fecha: 29/04/2003
 Revisado: Fecha: 29/04/2003

SOLID EDGE ACADEMIC COPY TRACTOR OTTO
 CONJUNTO CALDERA



VISTA GENERAL Y DESPIECE PARTES

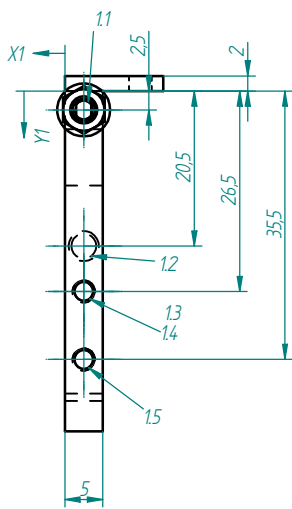
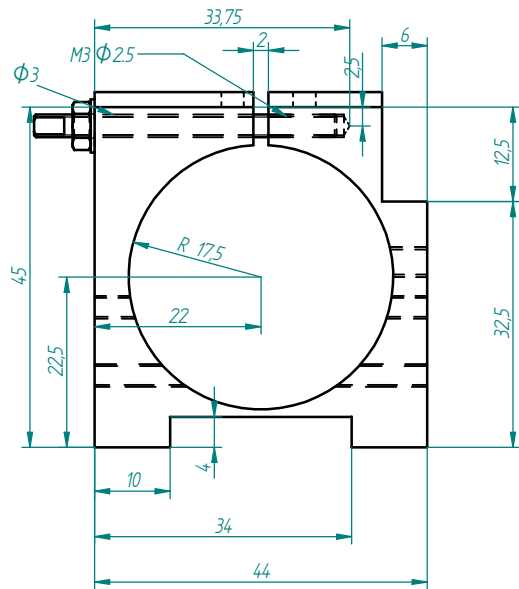
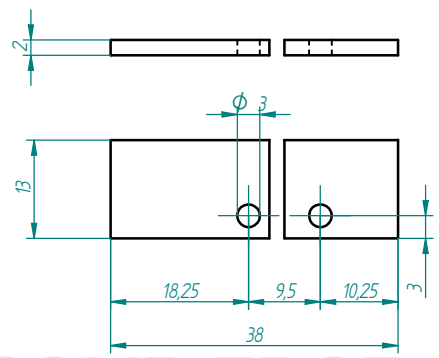
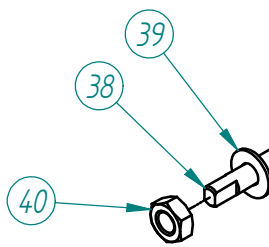
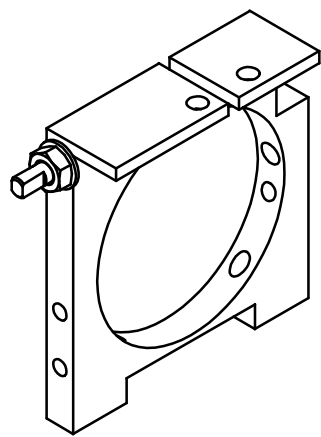
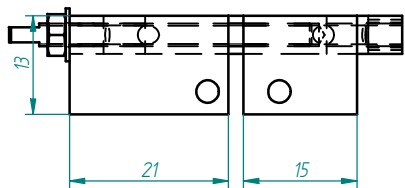
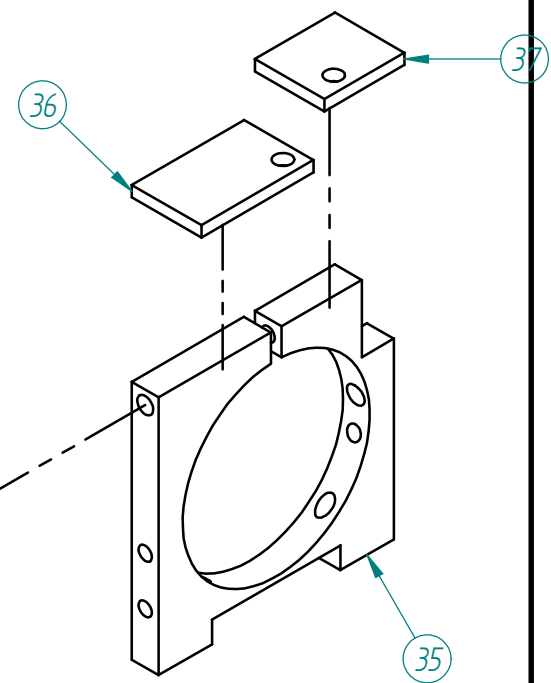


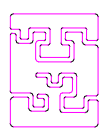
Tabla de Agujeros

Agujero	Tamaño	X	Y	Rosca
11	Ø 2,5	2,5	-2,5	M3
12	Ø 3,3	2,5	-20,5	M4
13	Ø 2,5	2,5	-26,5	M3
14	Ø 2,5	2,5	-26,5	M3
15	Ø 2,5	2,5	-35,5	M3

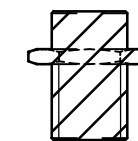
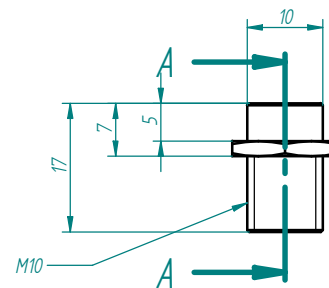
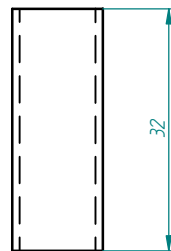
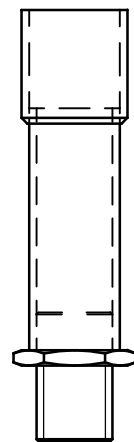
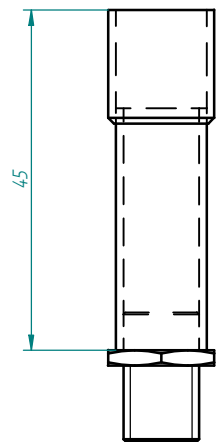


Nº	Cant.	Título	Comentarios	Material	Masa
35	1	Chasis tractor	Latón 45x44x6mm	Latón	29,61 g
36	1	SopORTE motor	Latón 21x13x2mm	Latón	4,15 g
37	1	SopORTE motor 2	Latón 15x13x2mm	Latón	2,93 g
38	1	Tirante presion chasis	Varilla Latón M3x40mm	Latón	2,21 g
39	1	arandela M3	Arandela M3 zincada	Acero	0,12 g
40	1	Tca M3	Tca M3 zincada	Acero	0,35 g

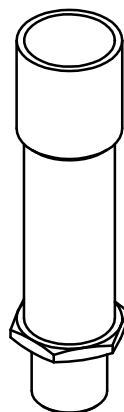
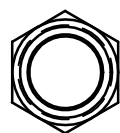
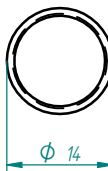
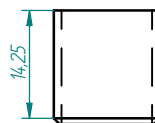
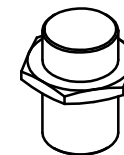
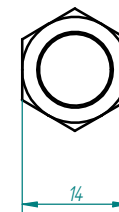
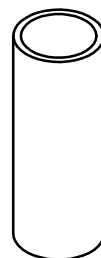
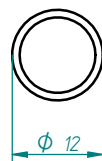
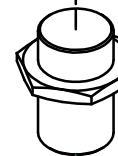
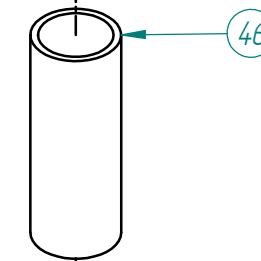
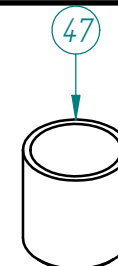
Dibujado: <u>Juan</u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				
TRACTOR OTTO		DESPIECE PARTES CHASIS			
CONJUNTO CALDERA					
					pg 7



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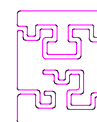
CORTE A-A

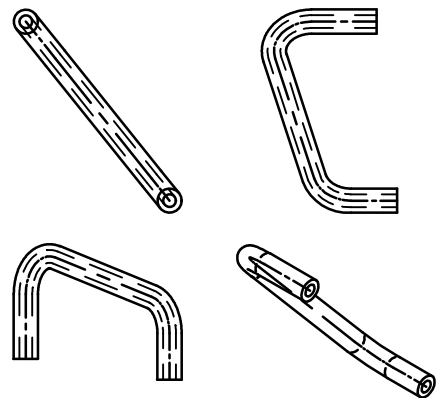
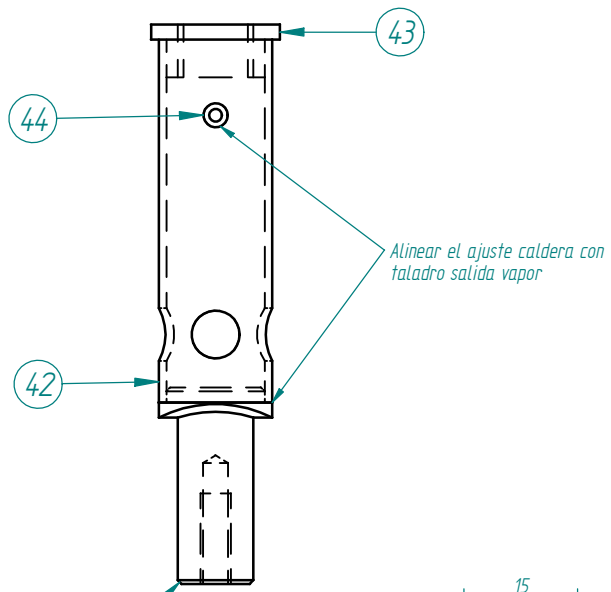


N°	Cant.	Título	Comentarios	Material	Masa
45	1	Base chimenea	Latón HEX d14x17mm	Latón	11,79 g
46	1	Cpo chimenea	Tubo Cu D14x1x32mm	Cobre	8,63 g
47	1	Cubierta chimenea	Tubo Cu D16x1x15mm	Cobre	4,69 g

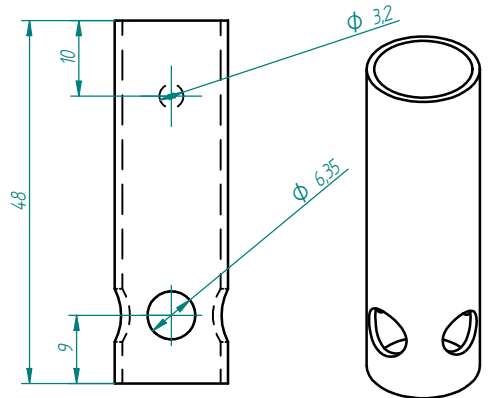
Dibujado: Juan
Revisado:

Fecha: 29/04/2003
Fecha: 29/04/2003

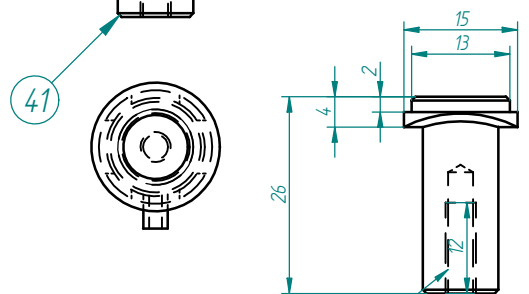




10. Tubo vapor



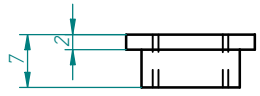
41. Llenado



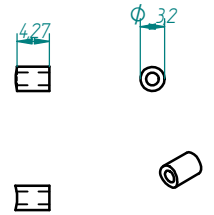
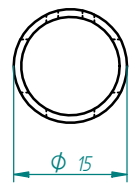
M4x12mm

$\phi 33$

Limar ajuste interior a caldera



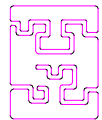
44. Tapa de llenado



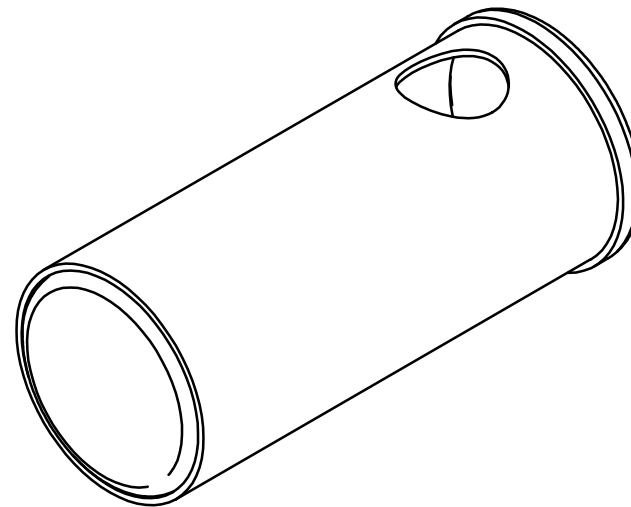
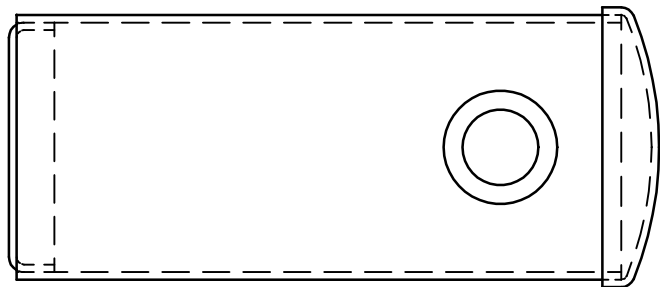
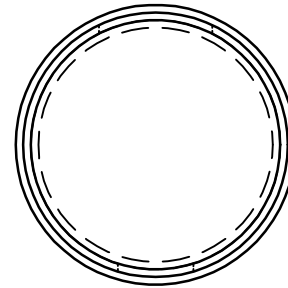
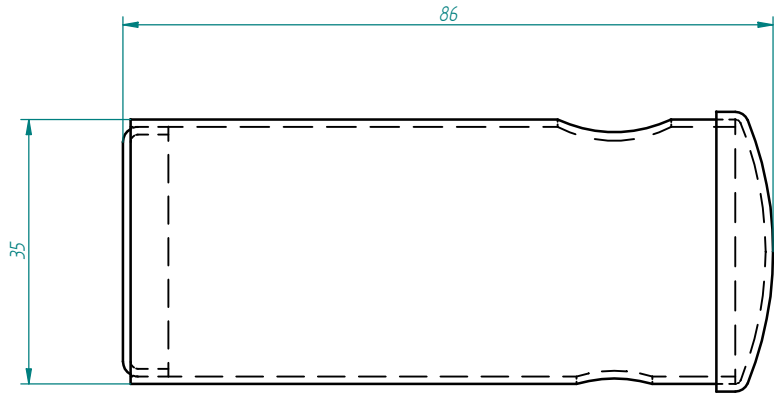
Nº	Cant.	Título	Comentarios	Material	Masa
41	1	Base llenado	Latón D17x7mm	Latón	16,66 g
42	1	Llenado	Chapa Cu D45x1mm	Cobre	0,00 g
43	1	Tpa llenado	Latón D17x7mm	Latón	5,62 g
44	1	Salida vapor	Tubo Cu D6x1x15mm	Cobre	0,19 g

Dibujado: Juan
 Revisado: Fecha: 29/04/2003
 Fecha: 29/04/2003

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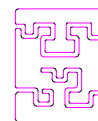


DESPIECE PARTES BASE CHIMENEA Y LLENADO

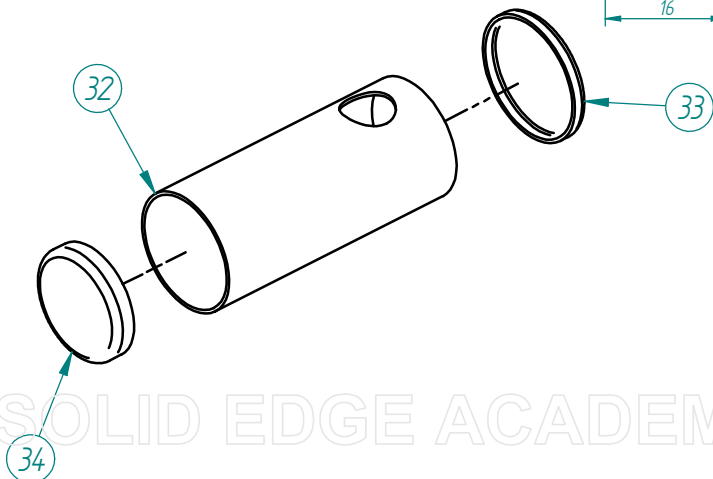
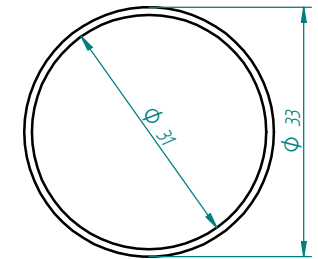
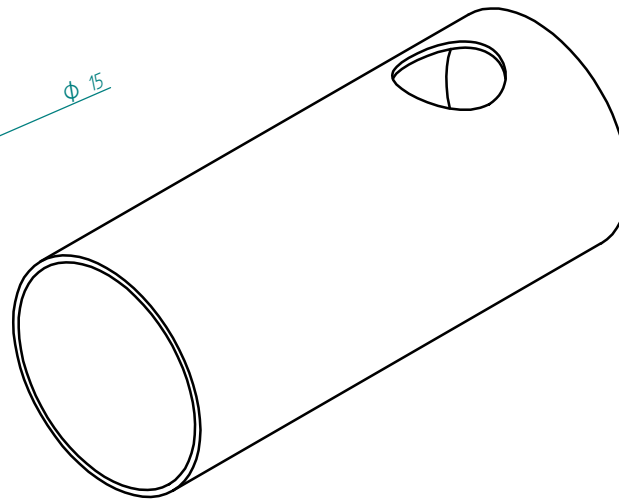
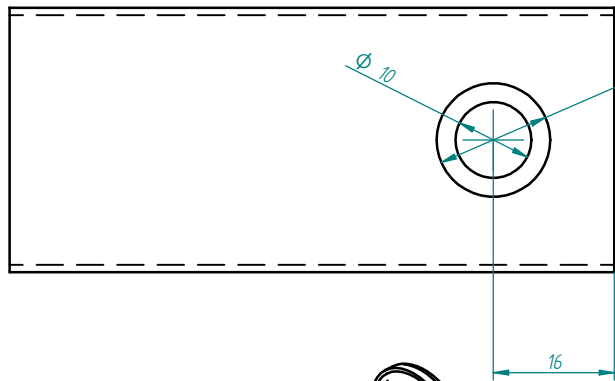
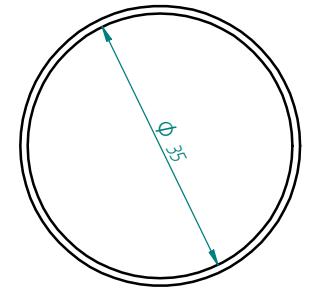
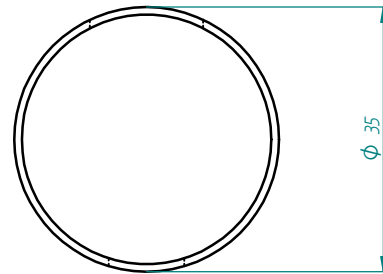
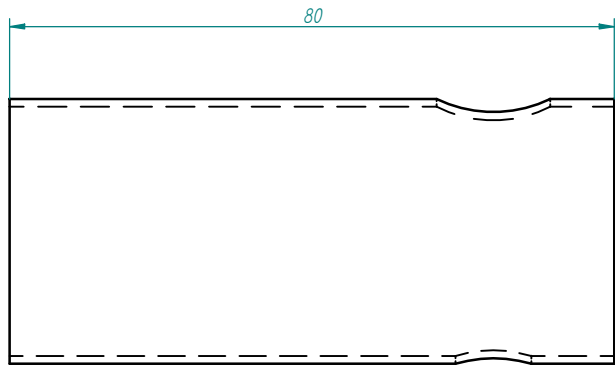


Dibujado: <u> Juan </u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				

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CONJUNTO CALDERA



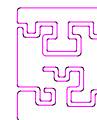
VISTA GENERAL CALDERA



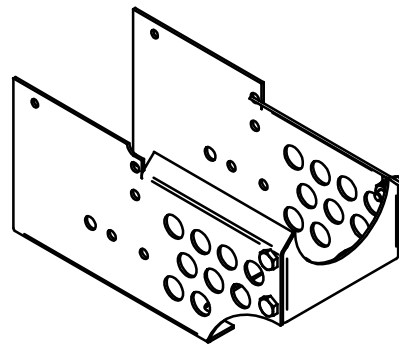
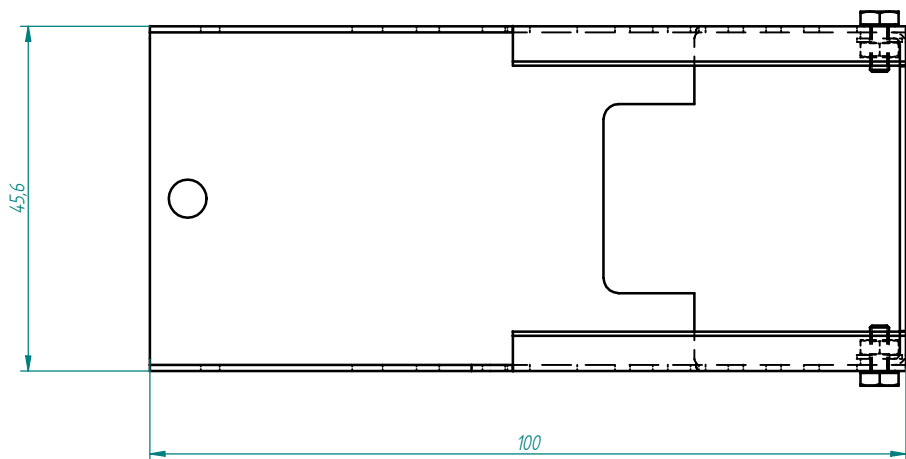
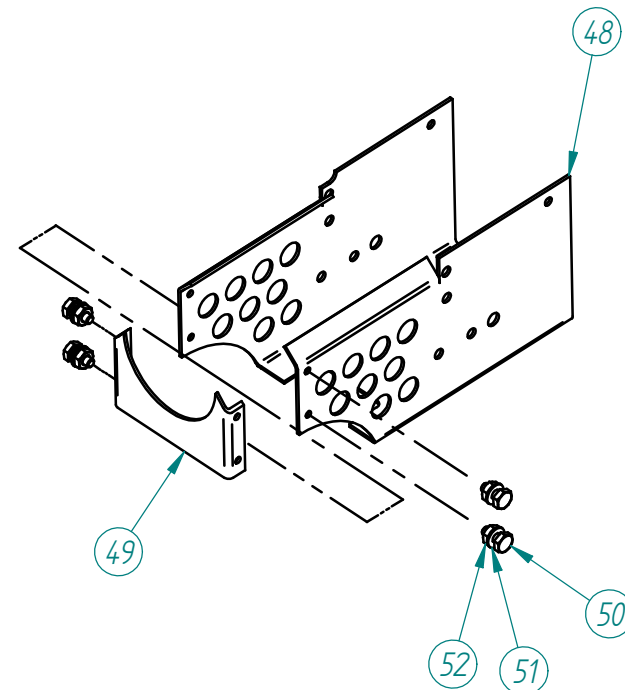
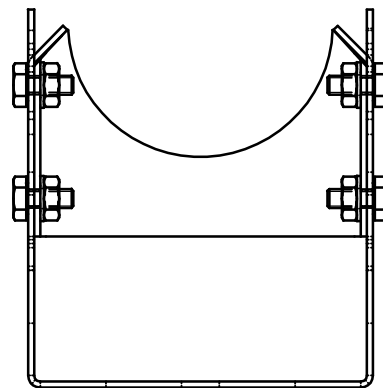
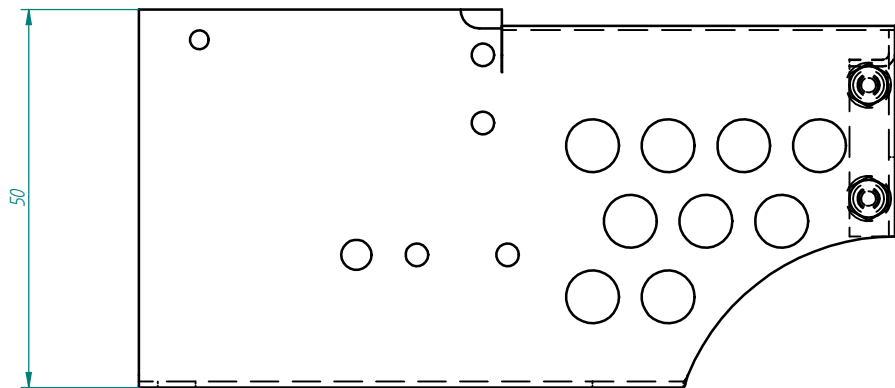
N°	Cant.	Título	Comentarios	Material	Masa
32	1	Cuerpo caldera	Tubo Cu D35x80	Cobre	64,62 g
33	1	Tapa caldera	Chapa Cu D45x1mm	Cobre	11,03 g
34	1	Tapa caldera interior	Chapa Cu D45x1mm	Cobre	10,08 g

Dibujado: ___Juan___ Fecha: 29/04/2003
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TRACTOR OTTO
 CONJUNTO CALDERA



DESPIECE CALDERA



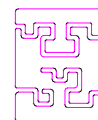
Nº	Cant.	Título	Comentarios	Material	Masa
48	1	Lateral izdo	Chapa gda ,8	Acero	70,94 g
49	1	Asiento caldera	Ch 60x30x0.8mm acero gdo	Acero	5,78 g
50	4	Tor M3 x6	Tor M3x6 zincado	Acero	2,17 g
51	4	Arandela M3	Arandela zincada M3	Acero	0,35 g
52	4	Tca M3	Tca M3 zincada	Acero	1,03 g

Dibujado: ___Juan___
Revisado: _____

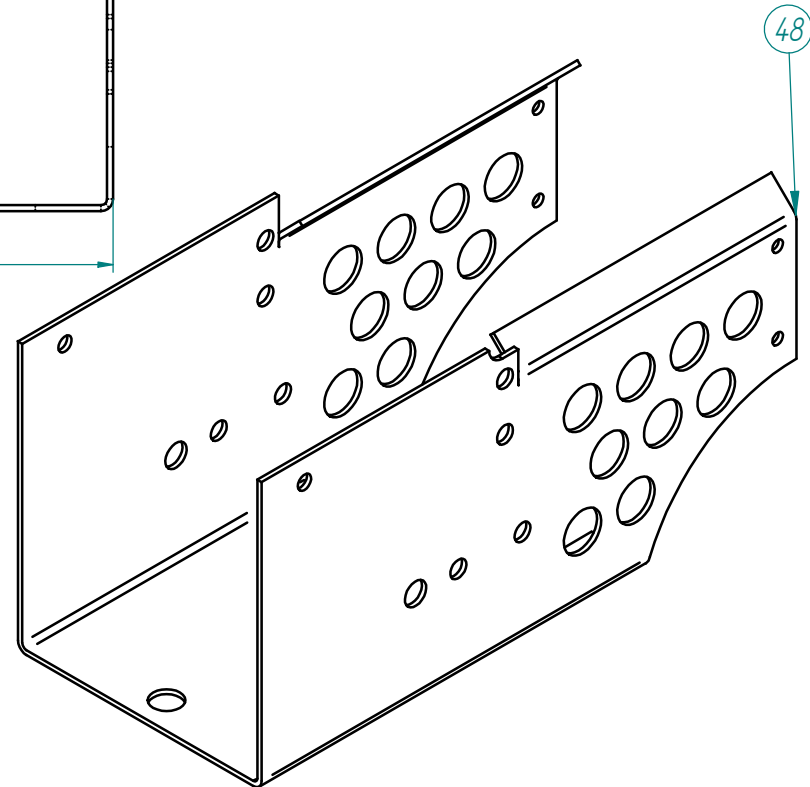
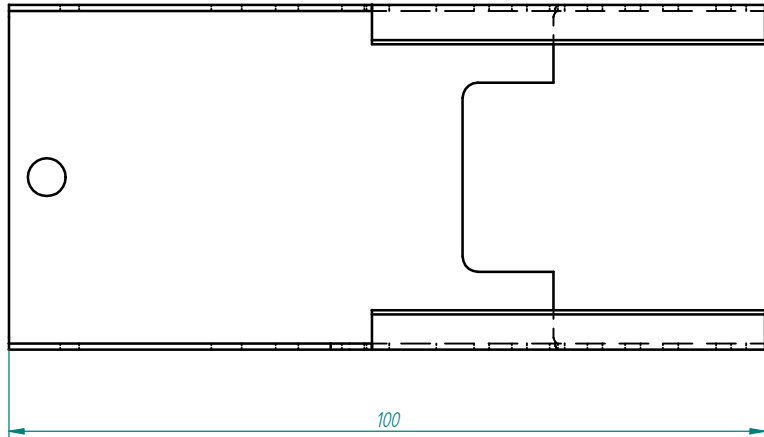
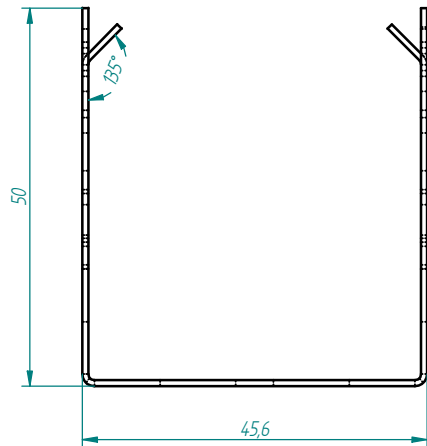
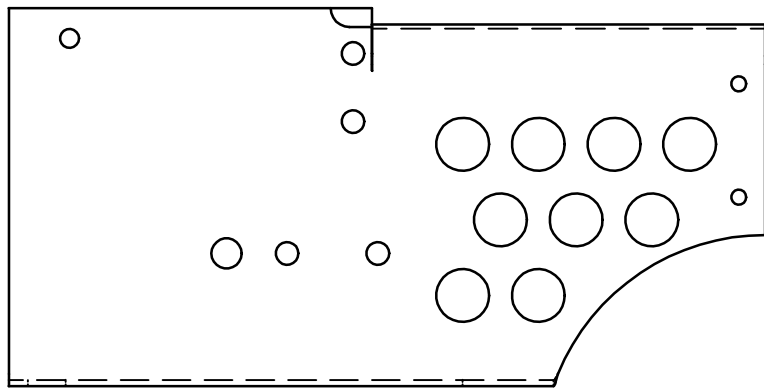
Fecha: 29/04/2003
Fecha: 29/04/2003

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CONJUNTO CARROCERIA

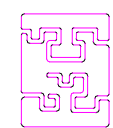


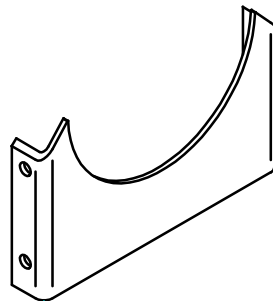
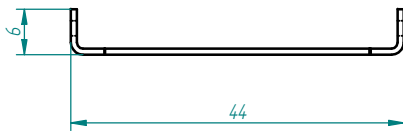
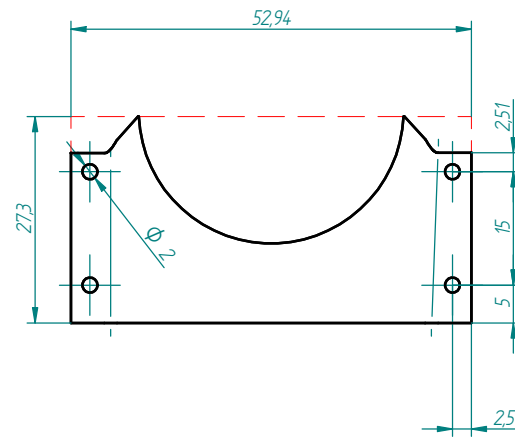
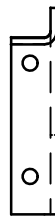
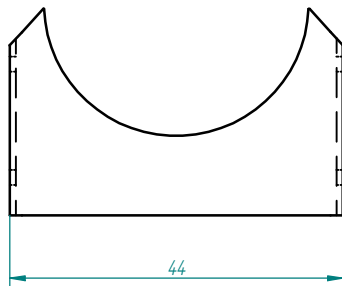
VISTA Y DESPIECE GENERAL



N°	Cant.	Título	Comentarios	Material	Masa
48	1	Lateral izdo	Chapa gda ,8	Acero	70,94 g

Dibujado: <i>___Juan___</i>	Fecha: 29/04/2003				
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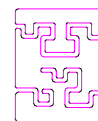
49

N°	Cant.	Título	Comentarios	Material	Masa
49	1	Asiento caldera	Ch 60x30x0.8mm acero gdo	Acero	5,78 g

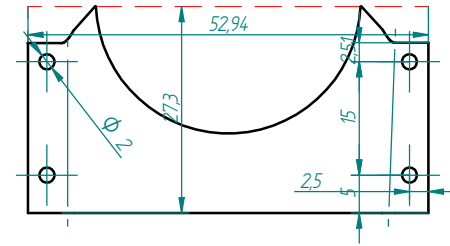
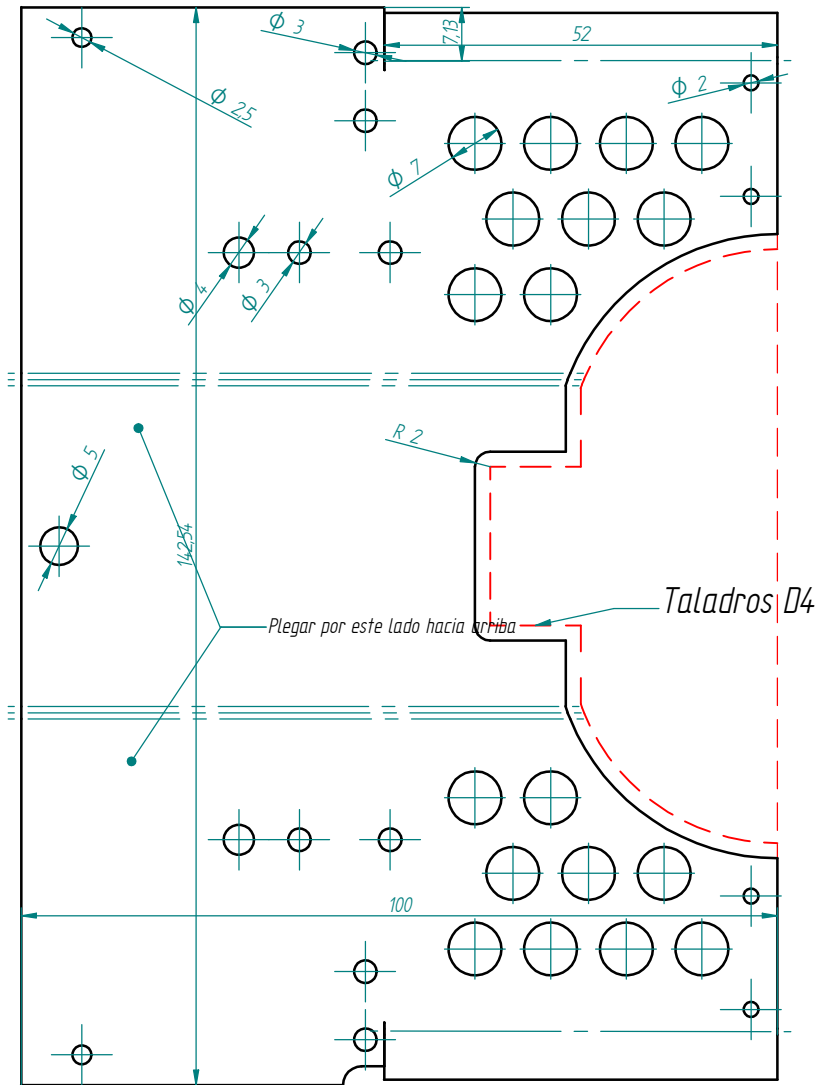
Dibujado: Juan
Revisado: _____

Fecha: 29/04/2003
Fecha: 29/04/2003

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CONJUNTO CARROCERIA

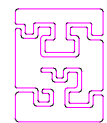


ASIENTO CALDERA

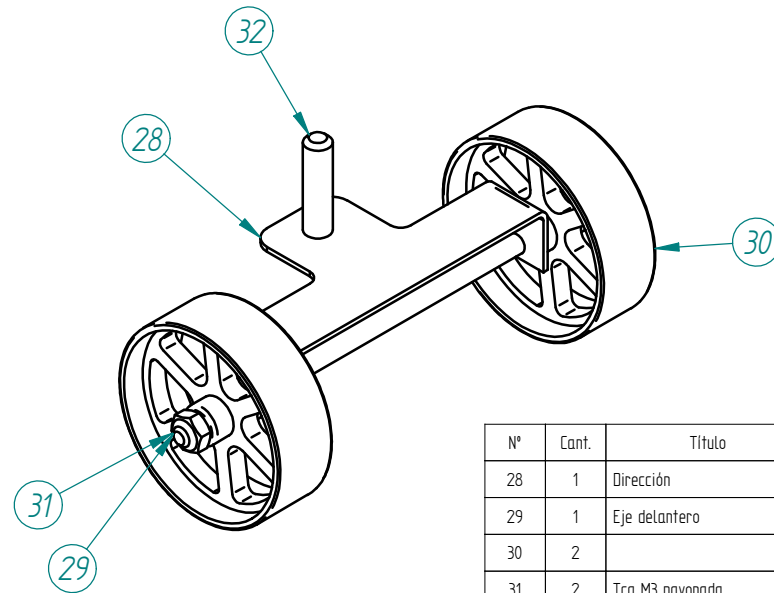
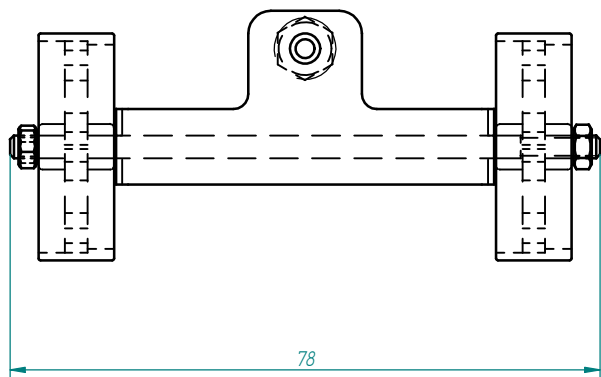
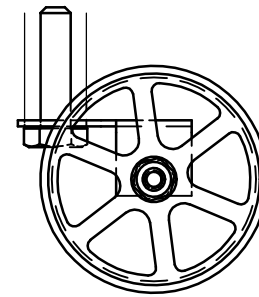
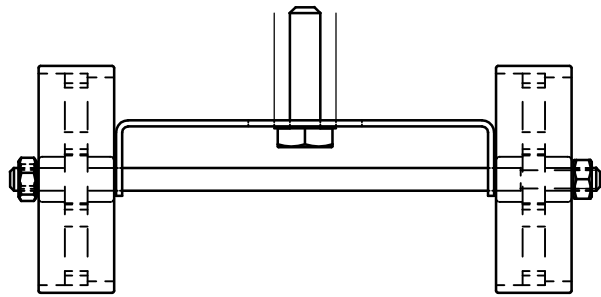


Dibujado: Juan	Fecha: 29/04/2003				
Revisado:	Fecha: 29/04/2003				

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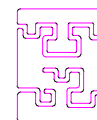


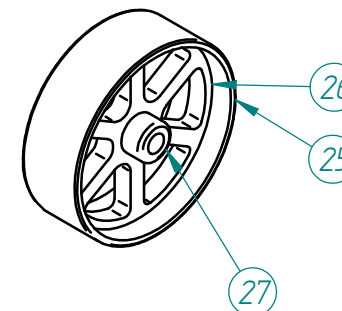
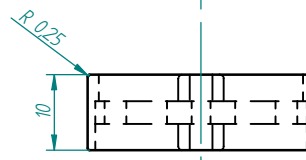
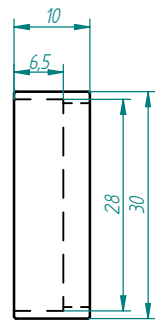
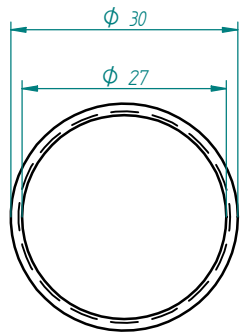
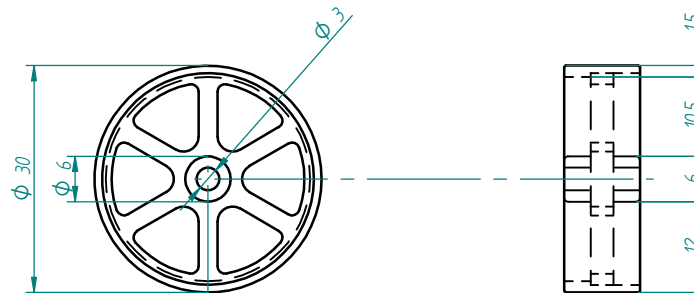
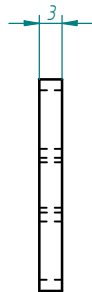
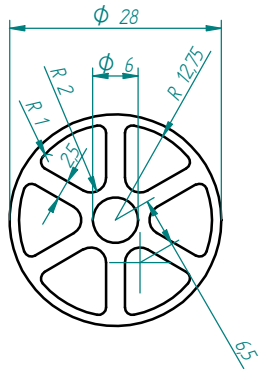
DESARROLLOS CARROCERÍA



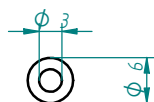
N°	Cant.	Título	Comentarios	Material	Masa
28	1	Dirección	Chapa latón 70x25x0.8mm	Latón	5,24 g
29	1	Eje delantero	Varilla acero Ø3mm	Acero	4,28 g
30	2				0,00 g
31	2	Tca M3 pavonada	Tca M3 pavonada	Acero	0,63 g
32	1	Tor M4x40 hexagonal	Tor hex M4x40	Acero zincado	2,43 g

Dibujado: Juan Fecha: 29/04/2003
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27. Llanta rueda

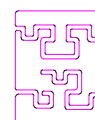


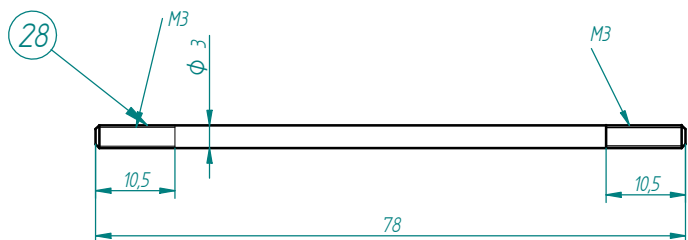
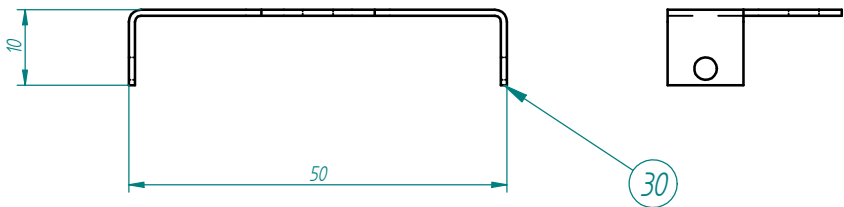
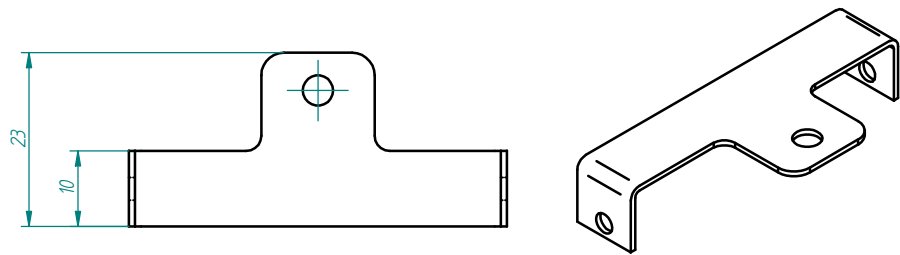
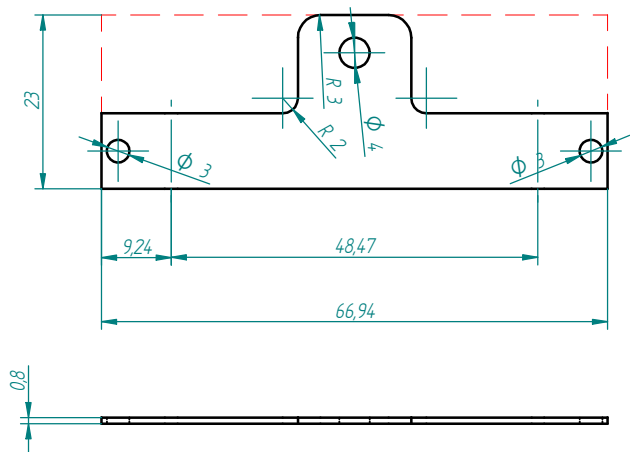
25. Cubo rueda

N°	Cant.	Título	Comentarios	Material	Masa
25	1	Llanta rueda delantera	Tubo AL D 30x15	Aluminio	2,86 g
26	1	Radios rueda delantera	Ch Latón 3mm	Latón	6,52 g
27	1	Cubo rueda delantera	Latón D 6mm	Latón	1,68 g



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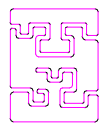


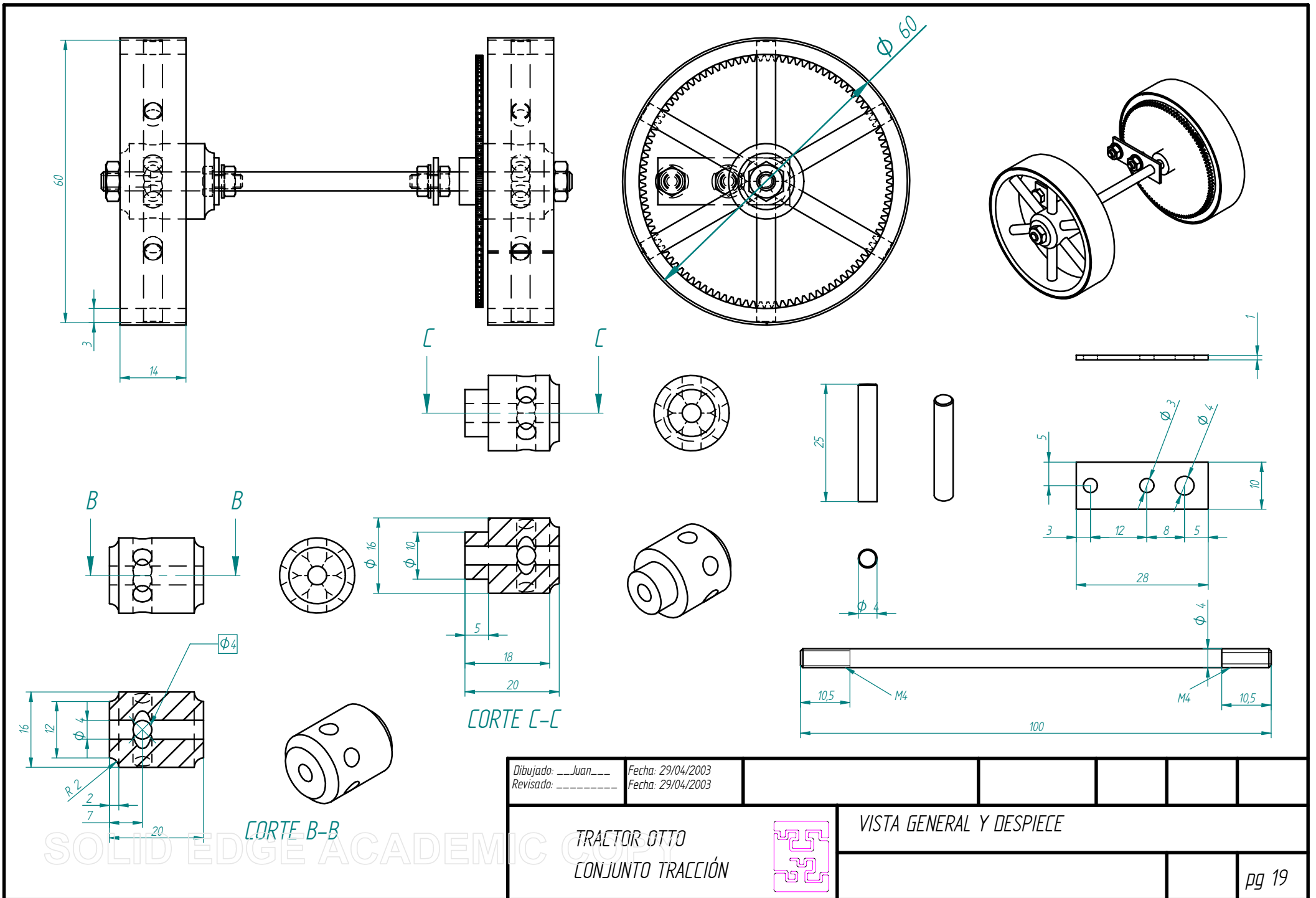


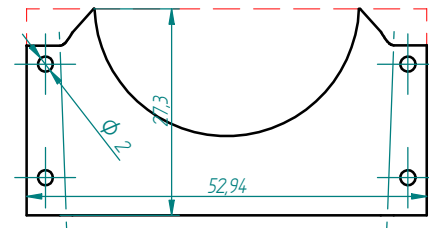
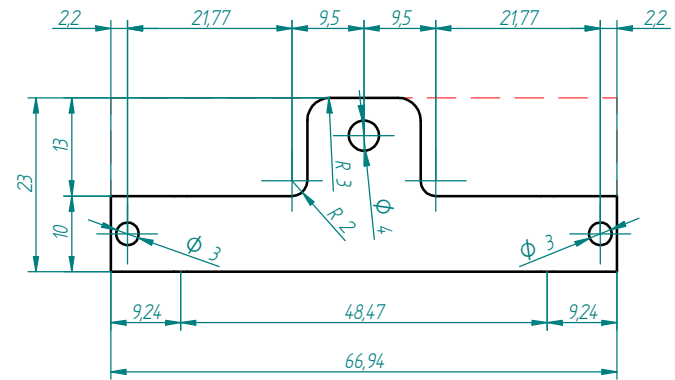
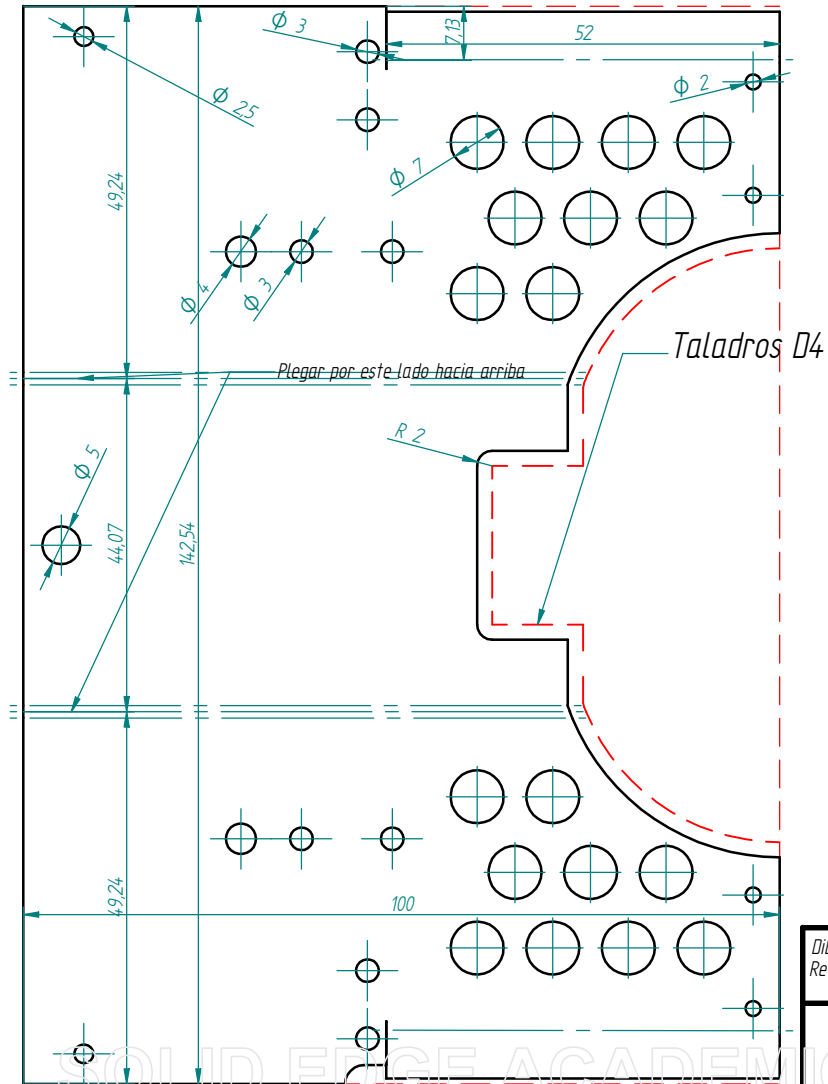
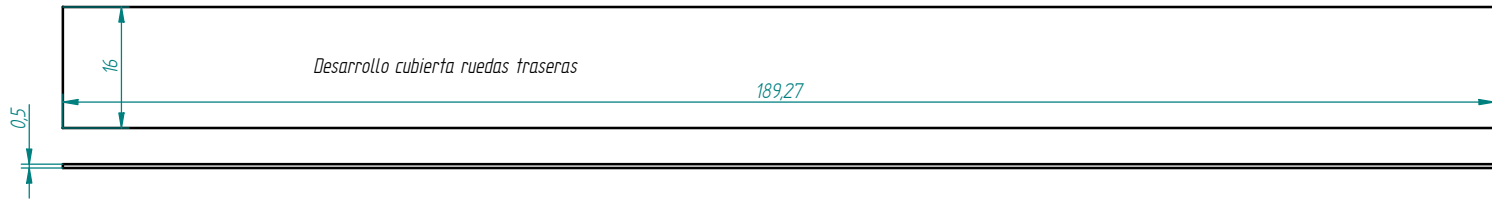
N°	Cant.	Título	Comentarios	Material	Masa
28	1	Eje delantero	Varilla acero D3mm	Acero	4,28 g

N° Elef°	Cant.	Título	Comentarios	Mat.	Masa
30	1	Dirección	Chapa Latón 70x25x0.8mm	Latón	5,24 g

Dibujado: <u> Juan </u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				

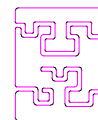




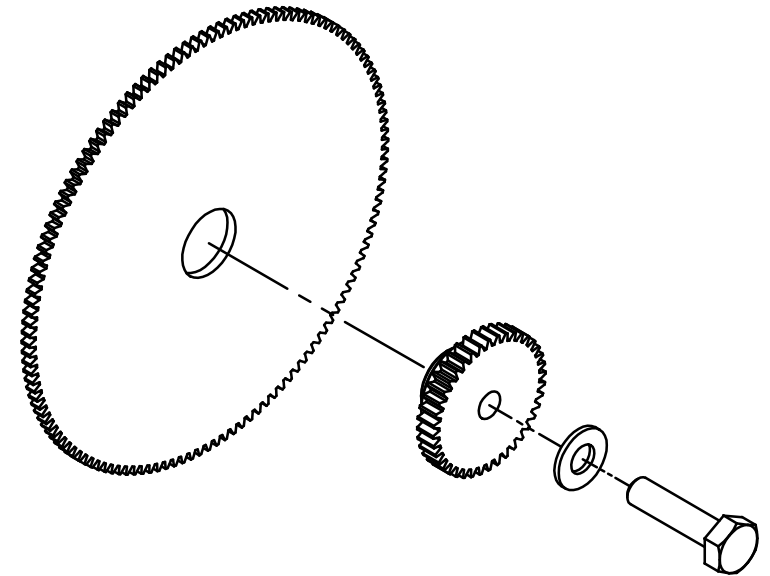
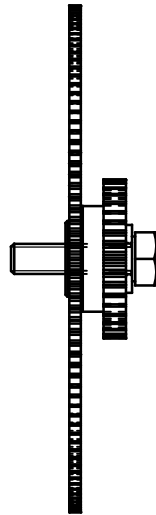
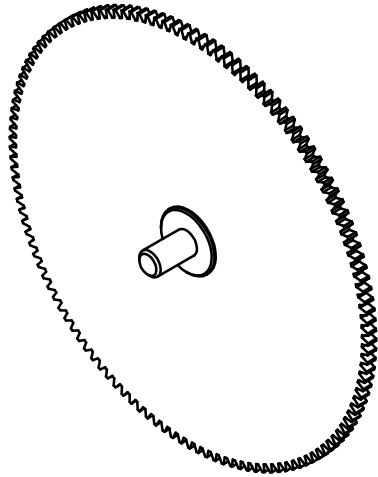
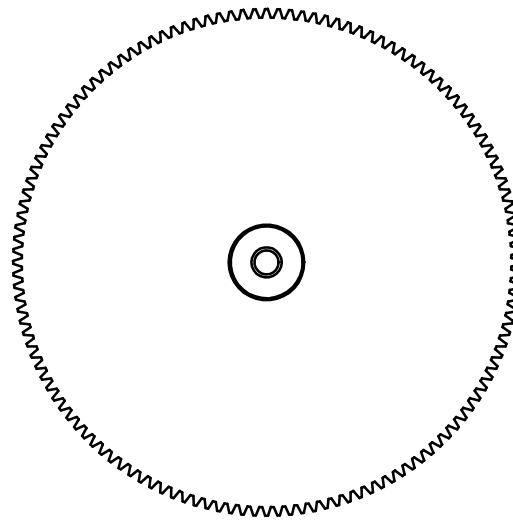
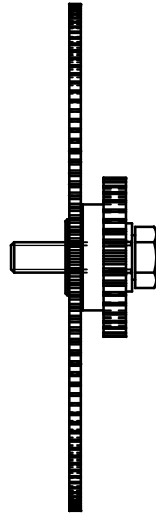
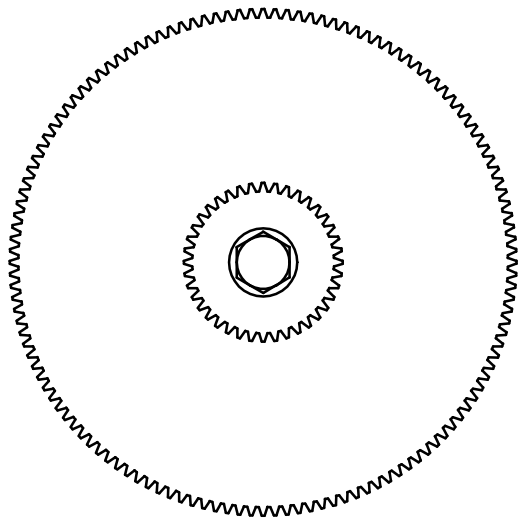


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 Fecha: 29/04/2003

TRACTOR OTTO
 PLANTILLAS



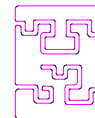
PLANTILLAS CARROCERIA DIRECCION Y TRACCION



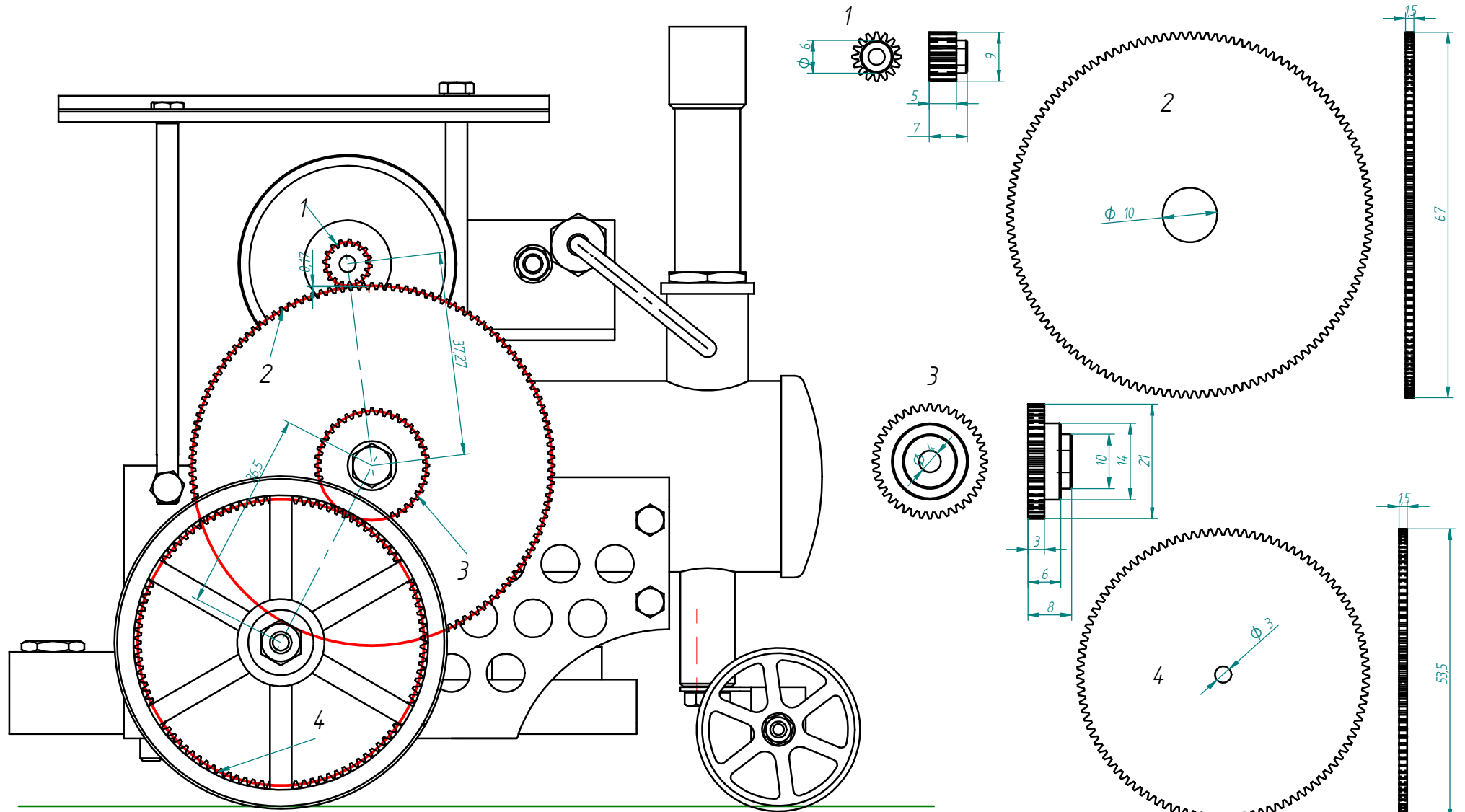
Dibujado: Juan
Revisado:

Fecha: 29/04/2003
Fecha: 29/04/2003

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CONJUNTO TRANSMISION



VISTA GENERAL Y DESPIECE



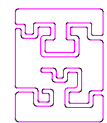
1:1

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Engrane 1	0,50	d ₁	8	9	1,125	37,000	7,875	8,25
Engrane 2		d ₂	66	67			65,875	
2	Módulo m	Diam. primitivo d	nº dientes z=d/m	Diam. Ext. d _e =d+2m	Prof. Diente h=2,25*m	Dist. centros C=(d ₁ +d ₂)/2	Diam. fondo d _f	Reducción 1 a...
Engrane 3	0,50	d ₁	20	21	1,125	36,250	19,875	2,63
Engrane 4		d ₂	52,5	105			53,5	

Dibujado: Juan
Revisado: _____

Fecha: 29/04/2003
Fecha: 29/04/2003

TRACTOR OTTO
CONJUNTO TRANSMISION



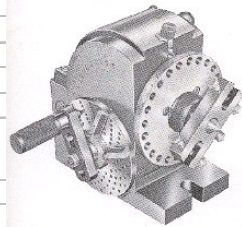
DEFINICION DE ENGRANAJE

FICHA TALLADO ENGRANE

PROYECTO ENGRANE

OTTO 1

1 DIVISOR VERTEX



nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
16	0,5	22,500	22,000	30,000	1350

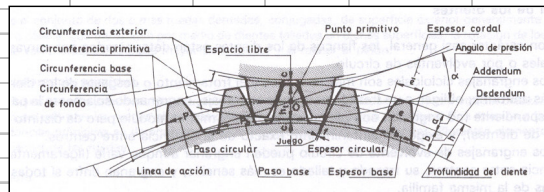
1 vuelta = 9°

	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	37,500	8	2	7,500	288,000	4,80
	16	0,563	33,750	40,000	0	2	8,000	0,000	0,00
	17	0,529	31,765	42,500	8	2	8,500	254,118	4,24
	18	0,500	30,000	45,000	0	2	9,000	0,000	0,00
	19	0,474	28,421	47,500	8	2	9,500	227,368	3,79
20	0,450	27,000	50,000	0	2	10,000	0,000	0,00	
PALTO 2	21	0,429	25,714	52,500	8	2	10,500	205,714	3,43
	23	0,391	23,478	57,500	8	2	11,500	187,826	3,13
	27	0,333	20,000	67,500	8	2	13,500	160,000	2,67
	29	0,310	18,621	72,500	8	2	14,500	148,966	2,48
	31	0,290	17,419	77,500	8	2	15,500	139,355	2,32
33	0,273	16,364	82,500	8	2	16,500	130,909	2,18	
PLATO 3	37	0,243	14,595	92,500	8	2	18,500	116,757	1,95
	39	0,231	13,846	97,500	8	2	19,500	110,769	1,85
	41	0,220	13,171	102,500	8	2	20,500	105,366	1,76
	43	0,209	12,558	107,500	8	2	21,500	100,465	1,67
	47	0,191	11,489	117,500	8	2	23,500	91,915	1,53
49	0,184	11,020	122,500	8	2	24,500	88,163	1,47	

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

Diámetro primitivo	$d=m \cdot z$	8
Diámetro exterior	$d_e=d+2m$	9
Profundidad diente	$h=2,25 \cdot m$	1,125

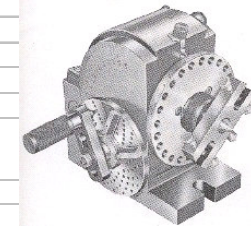


FICHA TALLADO ENGRANE

PROYECTO ENGRANE

OTTO 2

2 DIVISOR VERTEX



nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
132	0,5	2,727	2,000	43,636	163,6363636

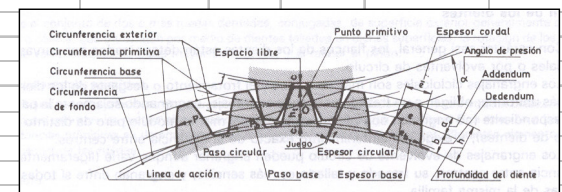
1 vuelta = 9°

	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	4,545	72	0	4,545	2.592,000	43,20
	16	0,563	33,750	4,848	112	0	4,848	3.780,000	63,00
	17	0,529	31,765	5,152	20	0	5,152	635,294	10,59
	18	0,500	30,000	5,455	60	0	5,455	1.800,000	30,00
	19	0,474	28,421	5,758	100	0	5,758	2.842,105	47,37
	20	0,450	27,000	6,061	8	0	6,061	216,000	3,60
	21	0,429	25,714	6,364	48	0	6,364	1.234,286	20,57
PALTO 2	23	0,391	23,478	6,970	128	0	6,970	3.005,217	50,09
	27	0,333	20,000	8,182	24	0	8,182	480,000	8,00
	29	0,310	18,621	8,788	104	0	8,788	1.936,552	32,28
	31	0,290	17,419	9,394	52	0	9,394	905,806	15,10
	33	0,273	16,364	10,000	0	0	10,000	0,000	0,00
PLATO 3	37	0,243	14,595	11,212	28	0	11,212	408,649	6,81
	39	0,231	13,846	11,818	108	0	11,818	1.495,385	24,92
	41	0,220	13,171	12,424	56	0	12,424	737,561	12,29
	43	0,209	12,558	13,030	4	0	13,030	50,233	0,84
	47	0,191	11,489	14,242	32	0	14,242	367,660	6,13
	49	0,184	11,020	14,848	112	0	14,848	1.234,286	20,57

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

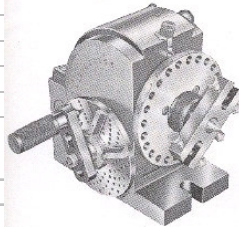
Diámetro primitivo	$d=m \cdot z$	66
Diámetro exterior	$d_e=d+2m$	67
Profundidad diente	$h=2,25 \cdot m$	1,125



FICHA TALLADO ENGRANE

PROYECTO	ENGRANE
OTTO	3

3 DIVISOR VERTEX



nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
40	0,5	9,000	9,000	0,000	540

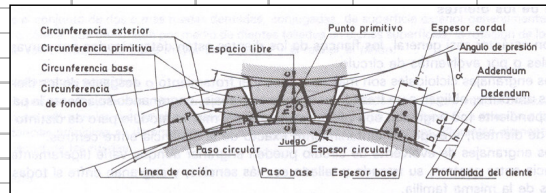
1 vuelta = 9°

	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	15,000	0	1	0,000	0,000	0,00
	16	0,563	33,750	16,000	0	1	0,000	0,000	0,00
	17	0,529	31,765	17,000	0	1	0,000	0,000	0,00
	18	0,500	30,000	18,000	0	1	0,000	0,000	0,00
	19	0,474	28,421	19,000	0	1	0,000	0,000	0,00
20	0,450	27,000	20,000	0	1	0,000	0,000	0,00	
PALTO 2	21	0,429	25,714	21,000	1,42109E-13	1	0,000	0,000	0,00
	23	0,391	23,478	23,000	0	1	0,000	0,000	0,00
	27	0,333	20,000	27,000	0	1	0,000	0,000	0,00
	29	0,310	18,621	29,000	0	1	0,000	0,000	0,00
	31	0,290	17,419	31,000	-1,4211E-13	1	0,000	0,000	0,00
33	0,273	16,364	33,000	0	1	0,000	0,000	0,00	
PLATO 3	37	0,243	14,595	37,000	0	1	0,000	0,000	0,00
	39	0,231	13,846	39,000	0	1	0,000	0,000	0,00
	41	0,220	13,171	41,000	0	1	0,000	0,000	0,00
	43	0,209	12,558	43,000	0	1	0,000	0,000	0,00
	47	0,191	11,489	47,000	0	1	0,000	0,000	0,00
49	0,184	11,020	49,000	0	1	0,000	0,000	0,00	

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

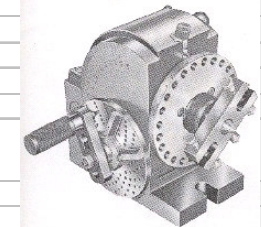
Diámetro primitivo $d=m \cdot z$	20
Diámetro exterior $d_e=d+2m$	21
Profundidad diente $h=2,25 \cdot m$	1,125



FICHA TALLADO ENGRANE

PROYECTO	ENGRANE
OTTO	4

4 DIVISOR VERTEX



nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
105	0,5	3,429	3,000	25,714	205,7142857

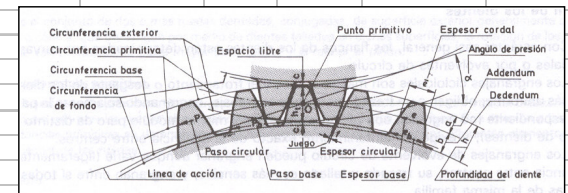
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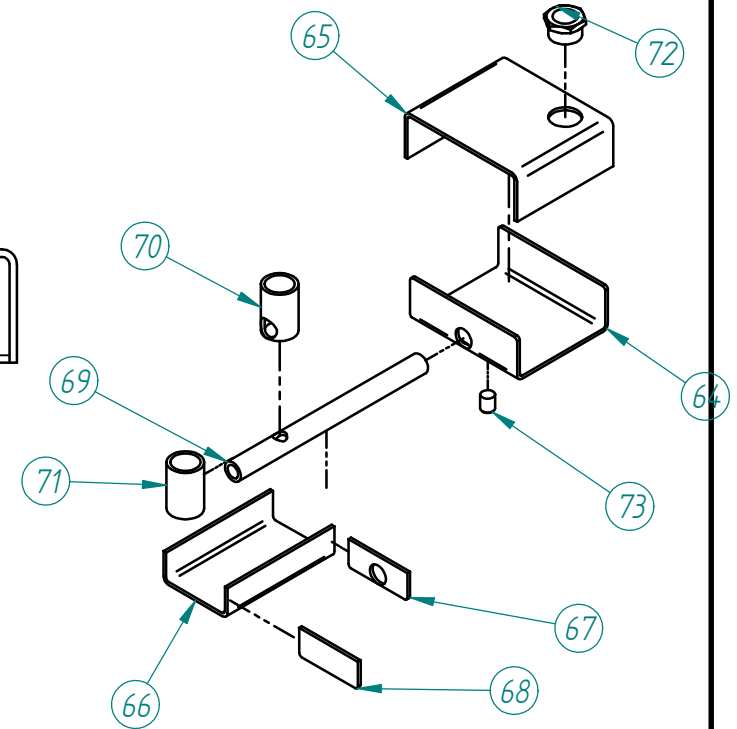
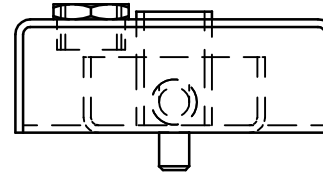
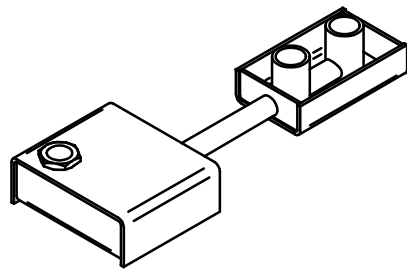
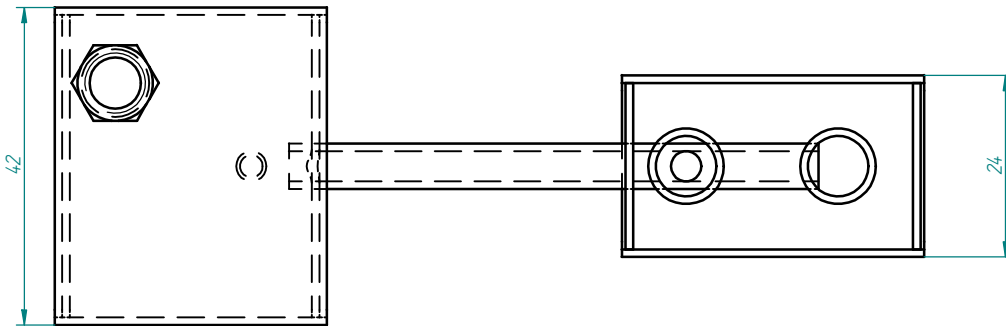
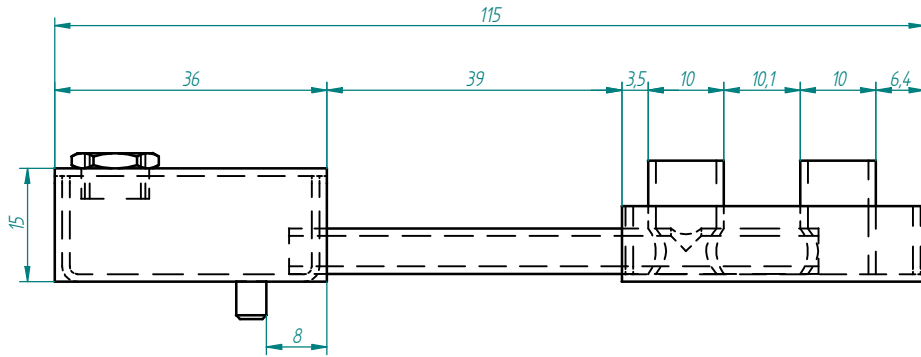
	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	5,714	75	0	5,714	2.700,000	45,00
	16	0,563	33,750	6,095	10	0	6,095	337,500	5,63
	17	0,529	31,765	6,476	50	0	6,476	1.588,235	26,47
	18	0,500	30,000	6,857	90	0	6,857	2.700,000	45,00
	19	0,474	28,421	7,238	25	0	7,238	710,526	11,84
20	0,450	27,000	7,619	65	0	7,619	1.755,000	29,25	
PALTO 2	21	0,429	25,714	8,000	0	0	8,000	0,000	0,00
	23	0,391	23,478	8,762	80	0	8,762	1.878,261	31,30
	27	0,333	20,000	10,286	30	0	10,286	600,000	10,00
	29	0,310	18,621	11,048	5	0	11,048	93,103	1,55
	31	0,290	17,419	11,810	85	0	11,810	1.480,645	24,68
33	0,273	16,364	12,571	60	0	12,571	981,818	16,36	
PLATO 3	37	0,243	14,595	14,095	10	0	14,095	145,946	2,43
	39	0,231	13,846	14,857	90	0	14,857	1.246,154	20,77
	41	0,220	13,171	15,619	65	0	15,619	856,098	14,27
	43	0,209	12,558	16,381	40	0	16,381	502,326	8,37
	47	0,191	11,489	17,905	95	0	17,905	1.091,489	18,19
49	0,184	11,020	18,667	70	0	18,667	771,429	12,86	

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

Diámetro primitivo $d=m \cdot z$	52,5
Diámetro exterior $d_e=d+2m$	53,5
Profundidad diente $h=2,25 \cdot m$	1,125

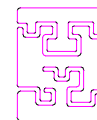




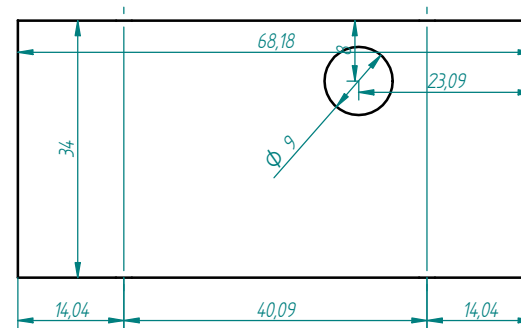
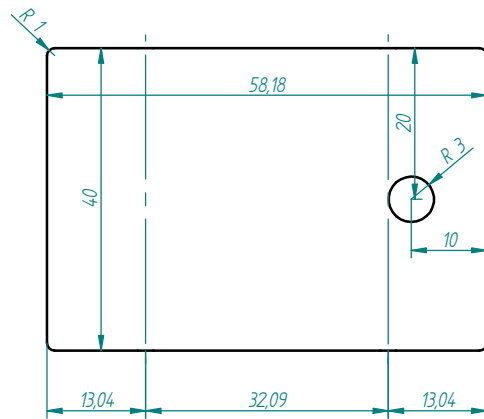
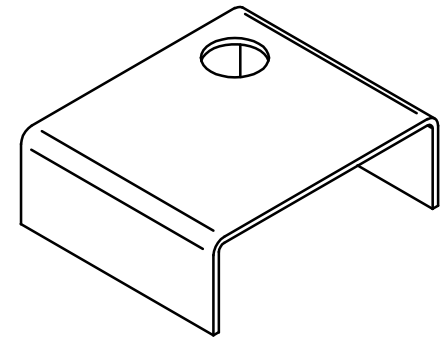
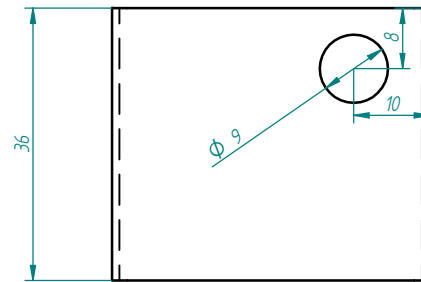
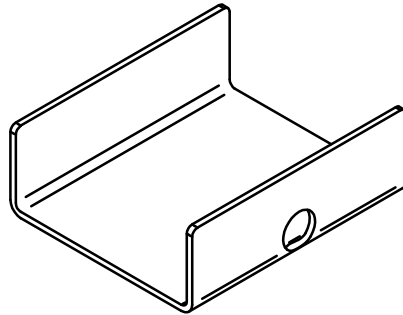
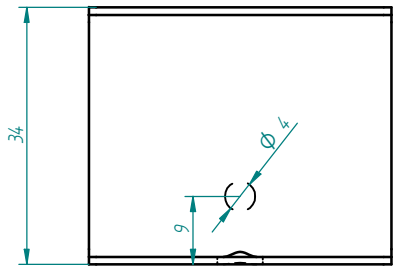
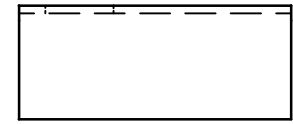
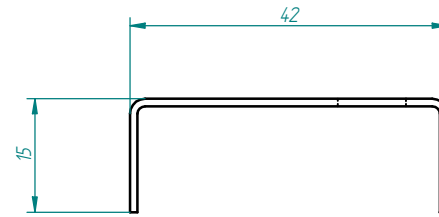
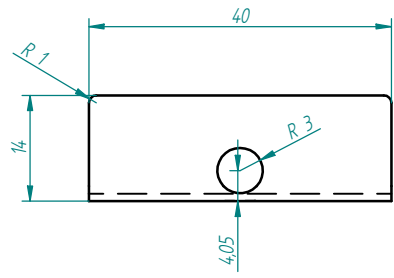
N°	Cant.	Título	Comentarios	Material	Masa
64	1	Tapa inferior depósito	Ch Latón 1mm	Latón	18,55 g
65	1	Tapa superior depósito	Ch Latón 1mm	Latón	19,28 g
66	1	Bandeja quemador	Ch Latón 1mm	Latón	13,03 g
67	1	Tapa delantera bandeja quemador	Ch Latón 1mm	Latón	1,35 g
68	1	Tapa trasera bandeja quemador	Ch Latón 1mm	Latón	1,58 g
69	1	Tubo ppal quemador	Tubo Cu 6x4mm	Cobre	8,68 g
70	1	Tobera trasera	Tubo Cu 10x8mm	Cobre	2,91 g
71	1	Tobera delantera	Tubo Cu 10x8mm	Cobre	3,15 g
72	1	entronque D9 xM8	Latón	Latón	1,65 g
73	1	Piñón fijación	Varilla Latón 4 mm	Latón	0,49 g

Dibujado: ___Juan___ Fecha: 29/04/2003
 Revisado: _____ Fecha: 29/04/2003

TRACTOR OTTO
 CONJUNTO QUEMADOR

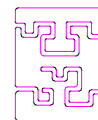


VISTA GENERAL Y DESPIECE

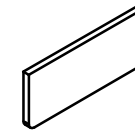
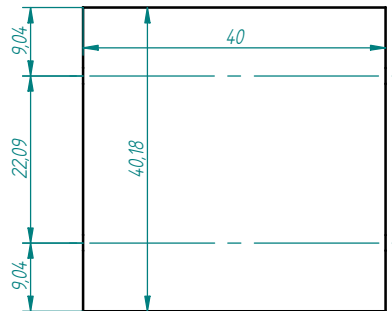
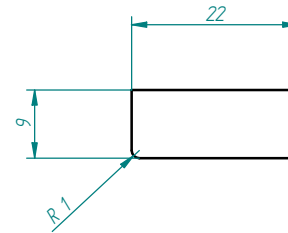
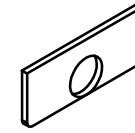
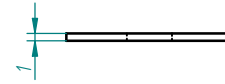
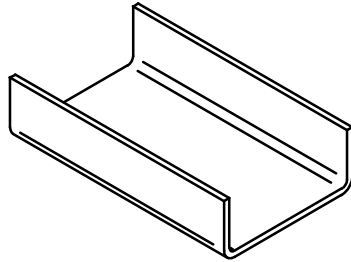
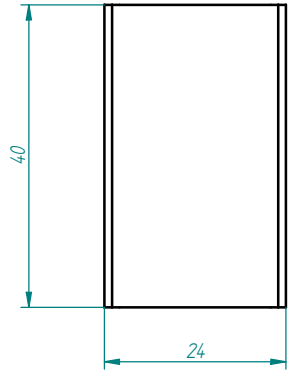
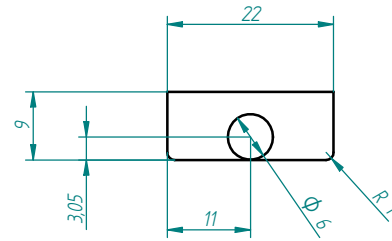
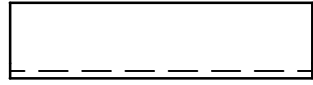


Dibujado: <u>Juan</u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				

SOLID EDGE ACADEMIC COPY TRACTOR OTTO CONJUNTO QUEMADOR



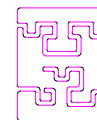
DEPOSITO ALCOHOL



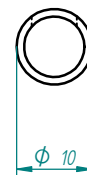
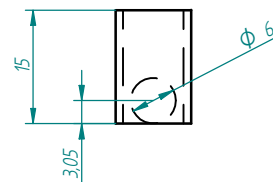
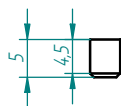
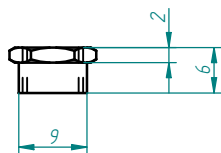
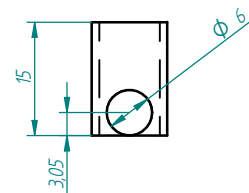
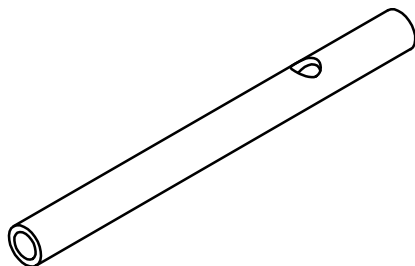
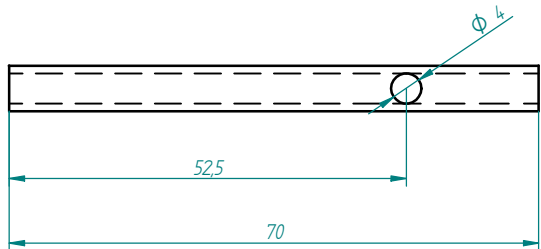
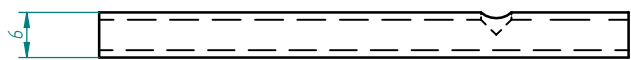
Dibujado: Juan
Revisado: _____

Fecha: 29/04/2003
Fecha: 29/04/2003

SOLID EDGE ACADEMIC COPY TRACTOR OTTO
CONJUNTO QUEMADOR



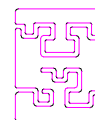
BANDEJA QUEMADOR



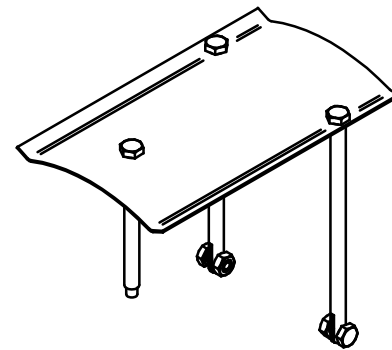
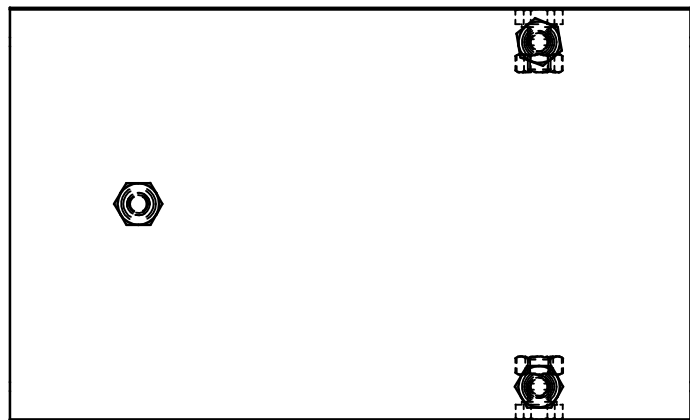
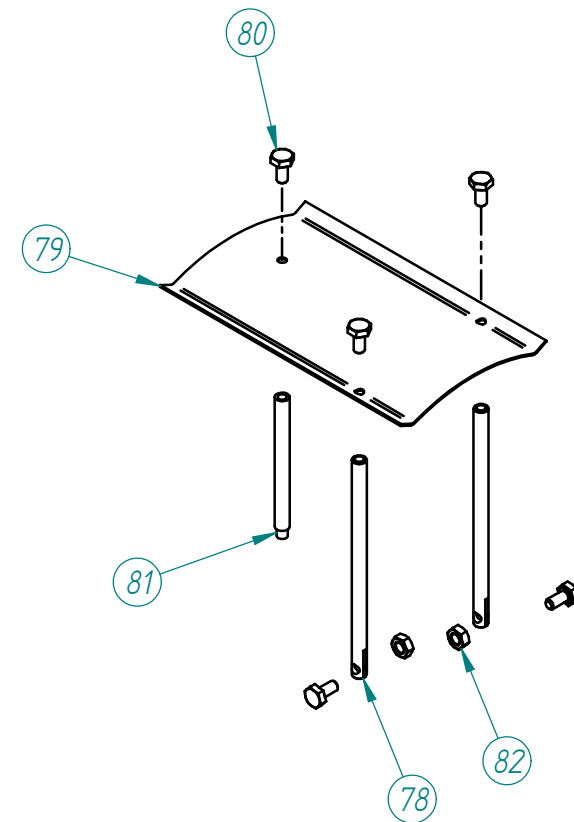
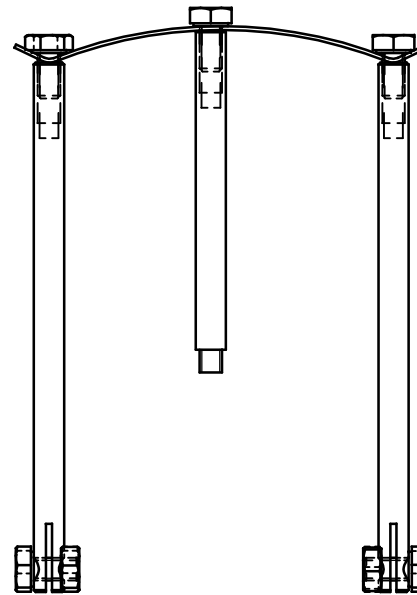
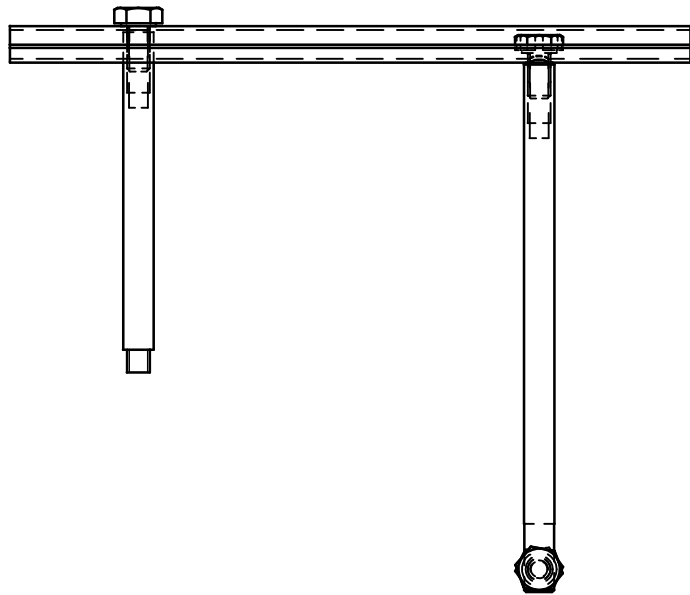
Dibujado: Juan
Revisado: _____

Fecha: 29/04/2003
Fecha: 29/04/2003

SOLID EDGE ACADEMIC COPY TRACTOR OTTO
CONJUNTO QUEMADOR

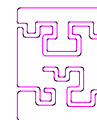


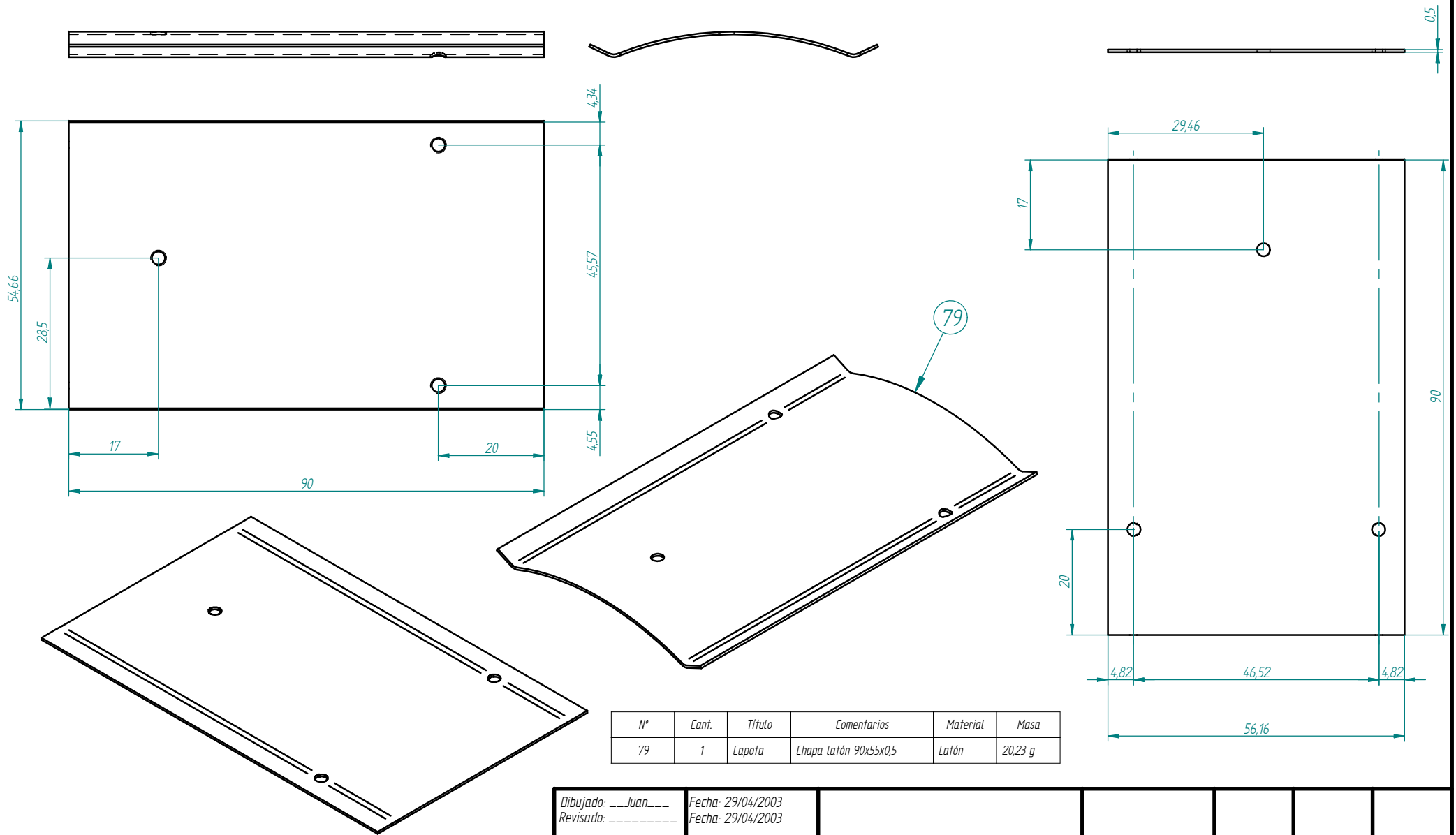
TUBERIA Y LLENADO QUEMADOR



N°	Cant.	Comentarios	Título	Material	Masa
78	2	Varilla latón D4 x 45	Tirante trasero capota	Latón	12,49 g
79	1	Chapa Latón 90x55x0,5	Capota	Latón	20,23 g
80	5	Tor hex M3x6 zincado	Tor M3 x 6	Acero	3,95 g
81	1	Varilla latón D4 x 45	Tirante delantero capota	Latón	4,00 g
82	2	Tca M3 zincada	Tca M3	Acero	0,70 g

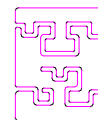
Dibujado: ___Juan___ Fecha: 29/04/2003
 Revisado: _____ Fecha: 29/04/2003



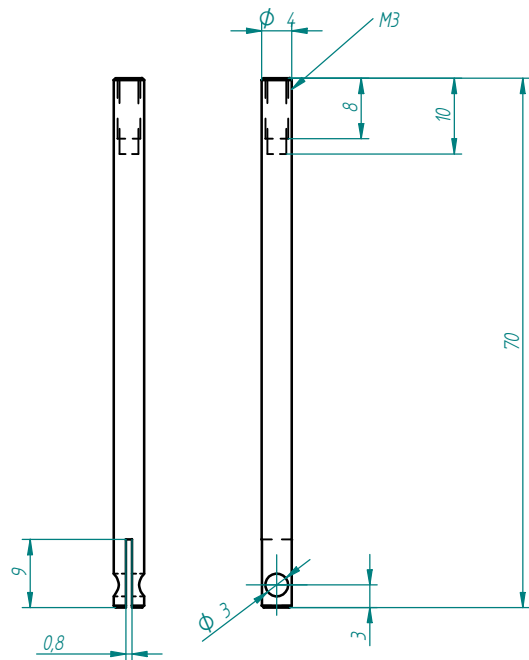


Dibujado: <u> Juan </u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				

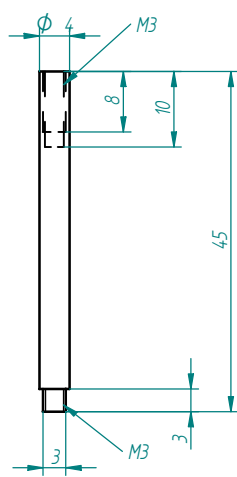
SOLID EDGE ACADEMIC **TRACTOR OTTO**
CONJUNTO CAPOTA



TEJADO



78



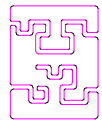
81

N°	Cant.	Título	Comentarios	Material	Masa
81	1	Tirante delantero capota	Varilla latón D4 x 45	Latón	4,00 g

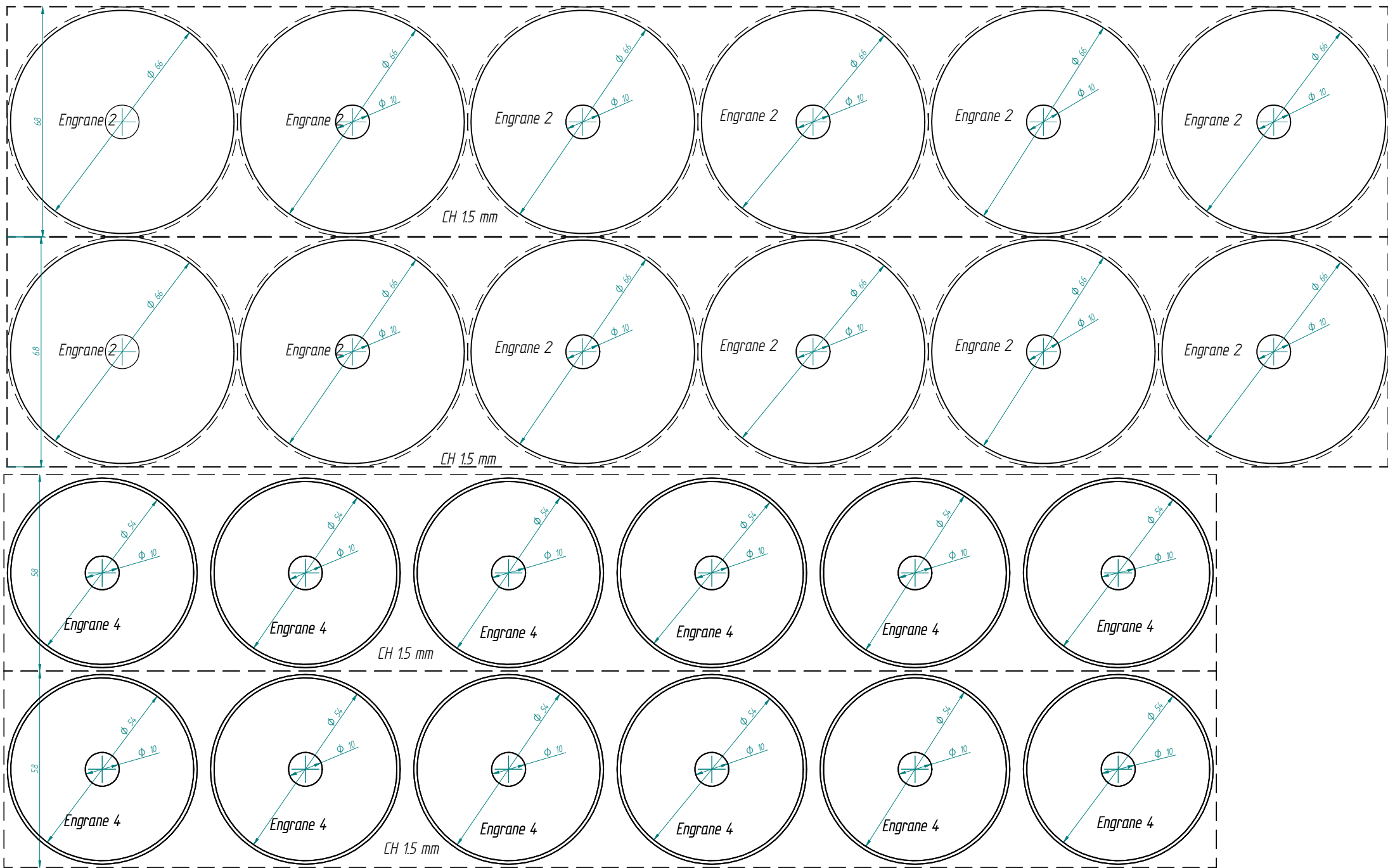
N°	Cant.	Título	Comentarios	Material	Masa
78	1	Tirante trasero capota	Varilla latón D4 x 45	Latón	6,25 g

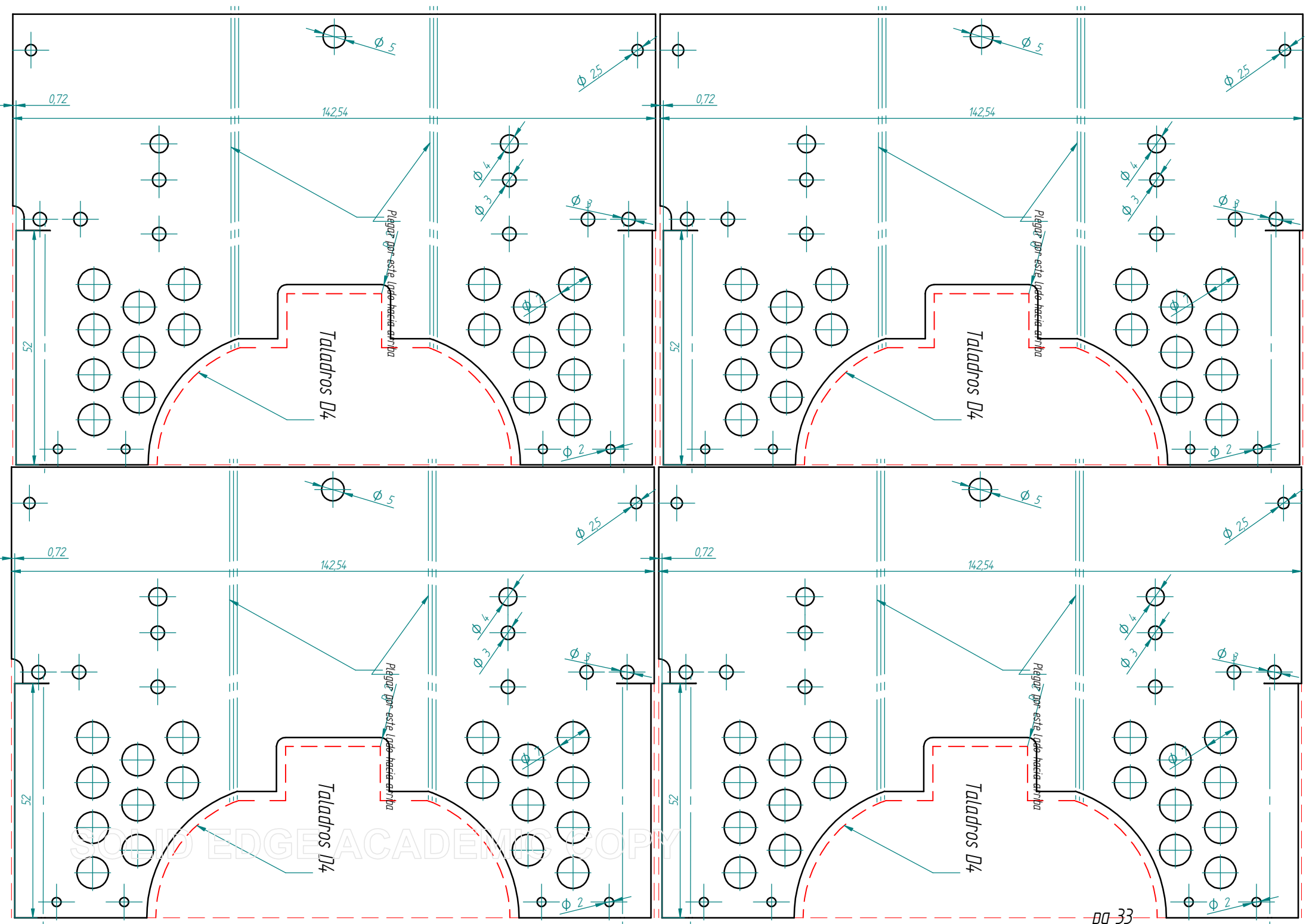
Dibujado: <u>Juan</u>	Fecha: 29/04/2003				
Revisado: _____	Fecha: 29/04/2003				

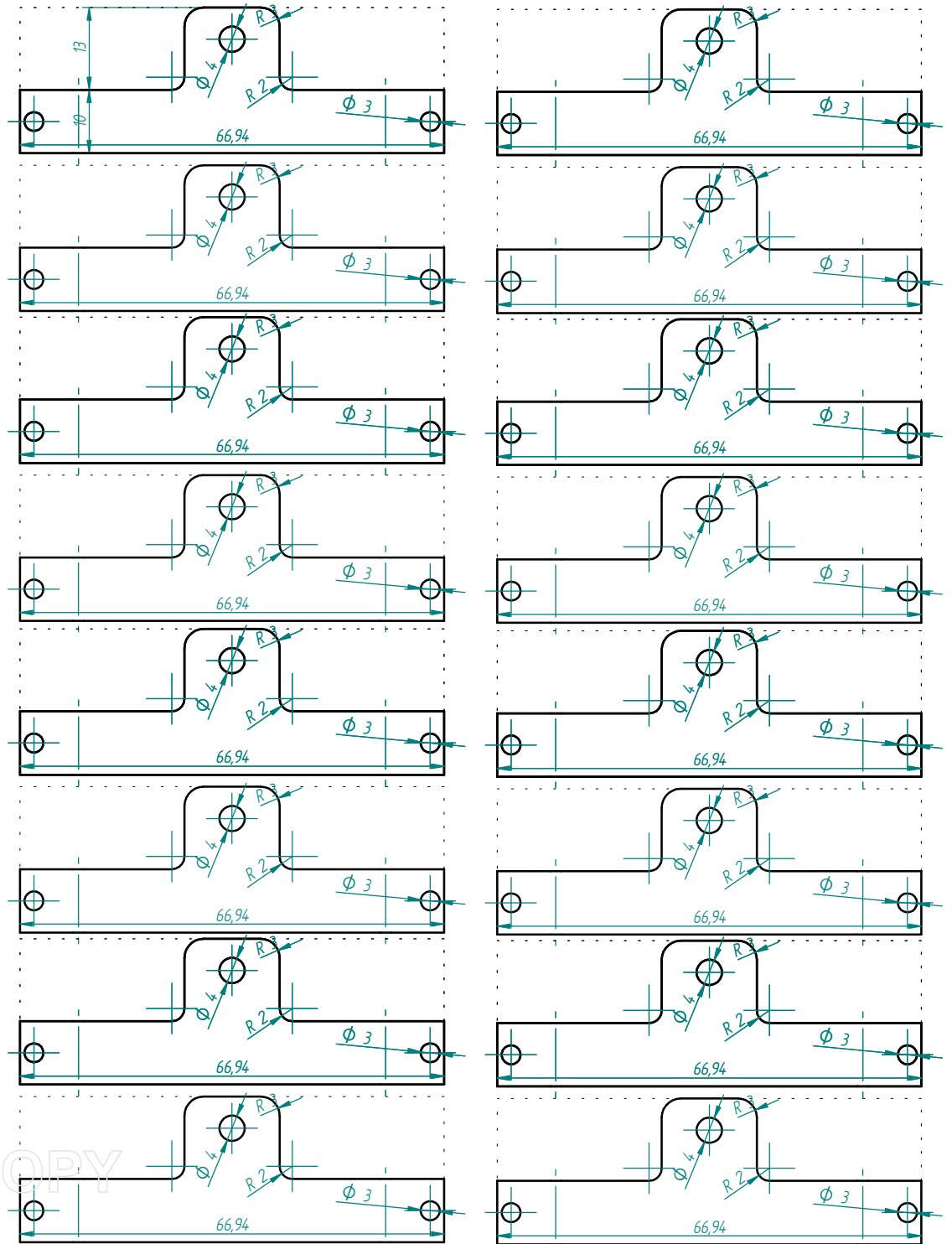
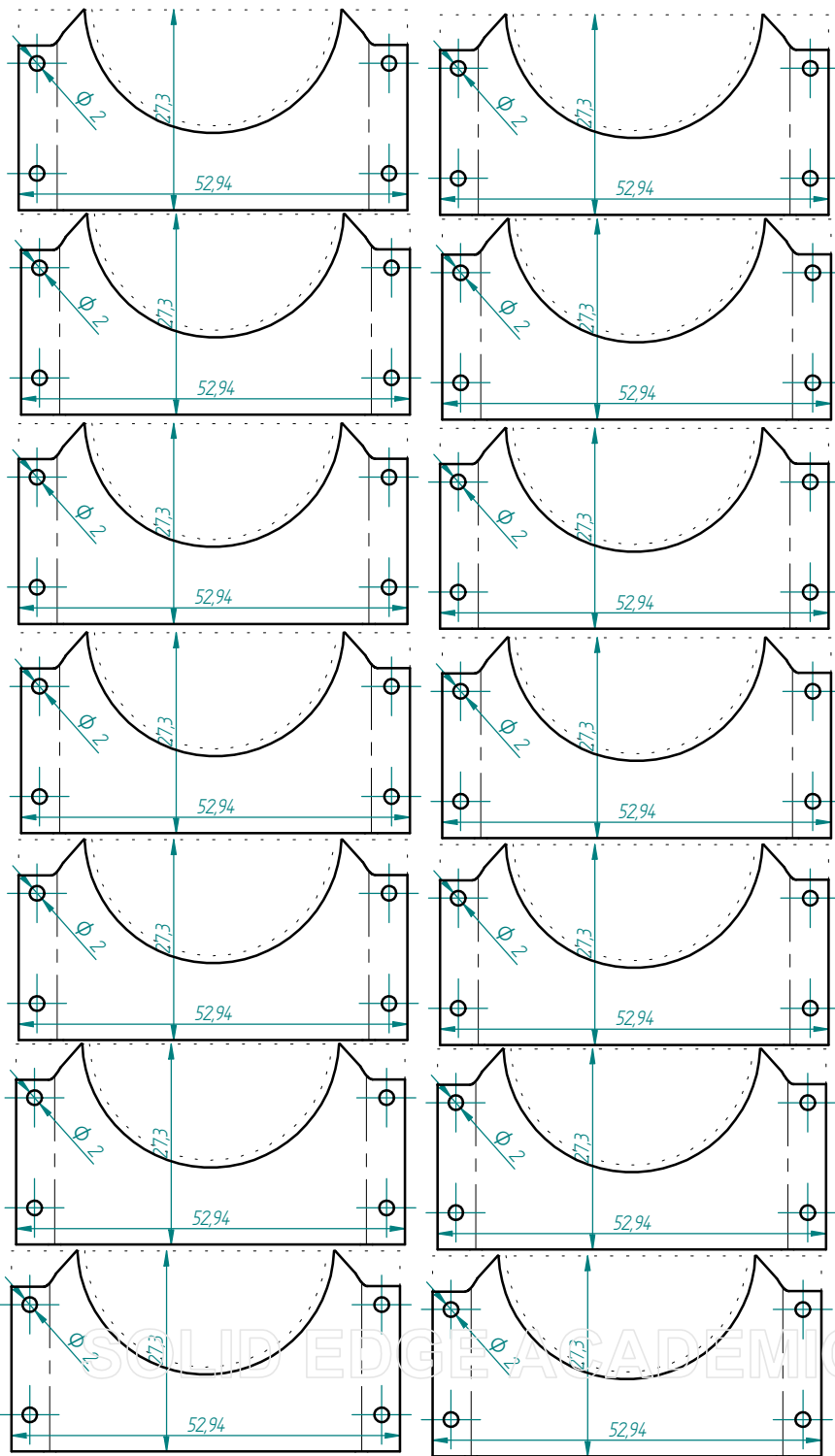
TRACTOR OTTO
CONJUNTO CAPOTA

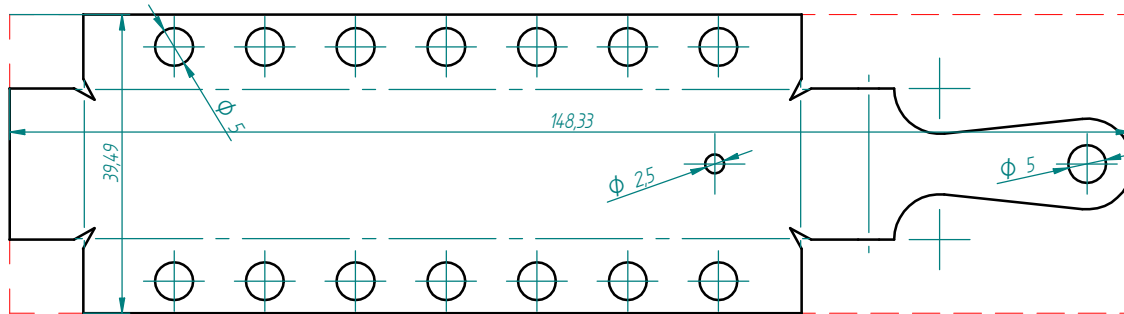
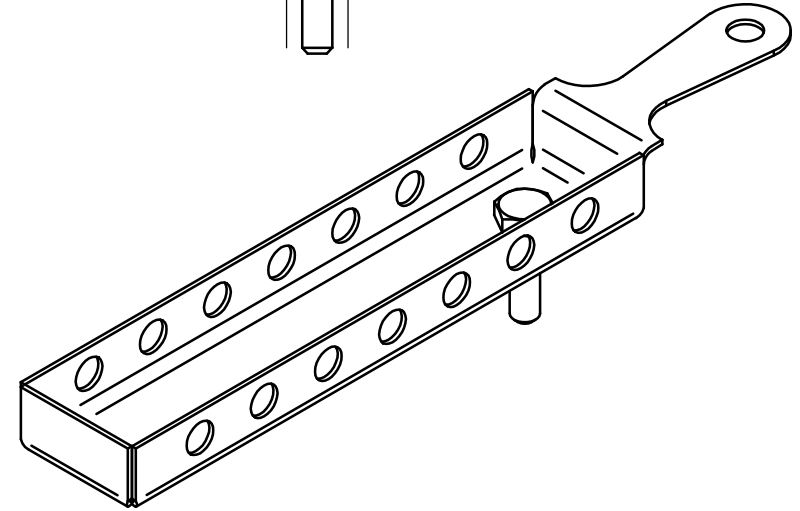
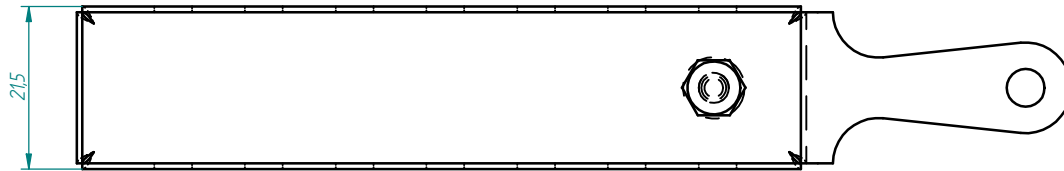
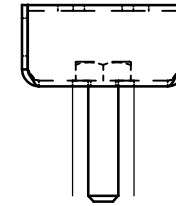
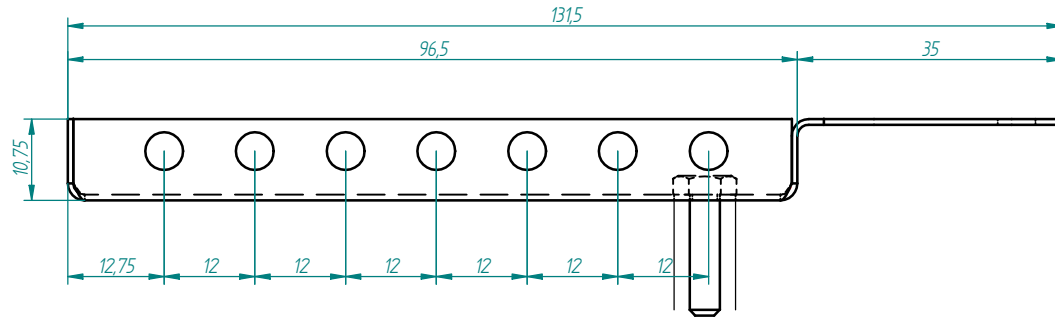


TIRANTES TEJADO





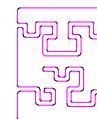




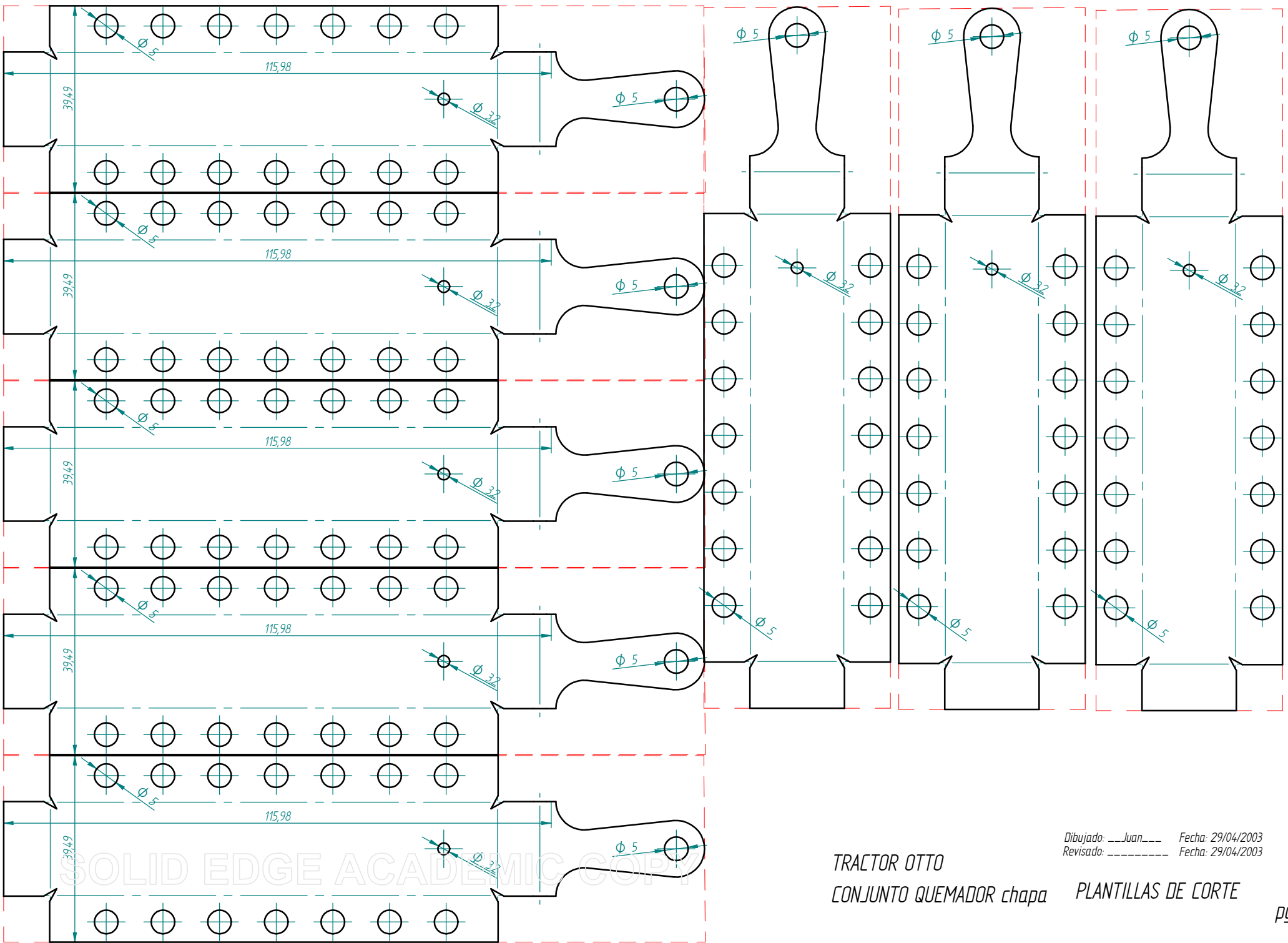
Dibujado: Juan
 Revisado: Fecha: 29/04/2003
 Fecha: 29/04/2003

SOLID EDGE ACADEMIC COPY

TRACTOR OTTO
 CONJUNTO QUEMADOR chapa



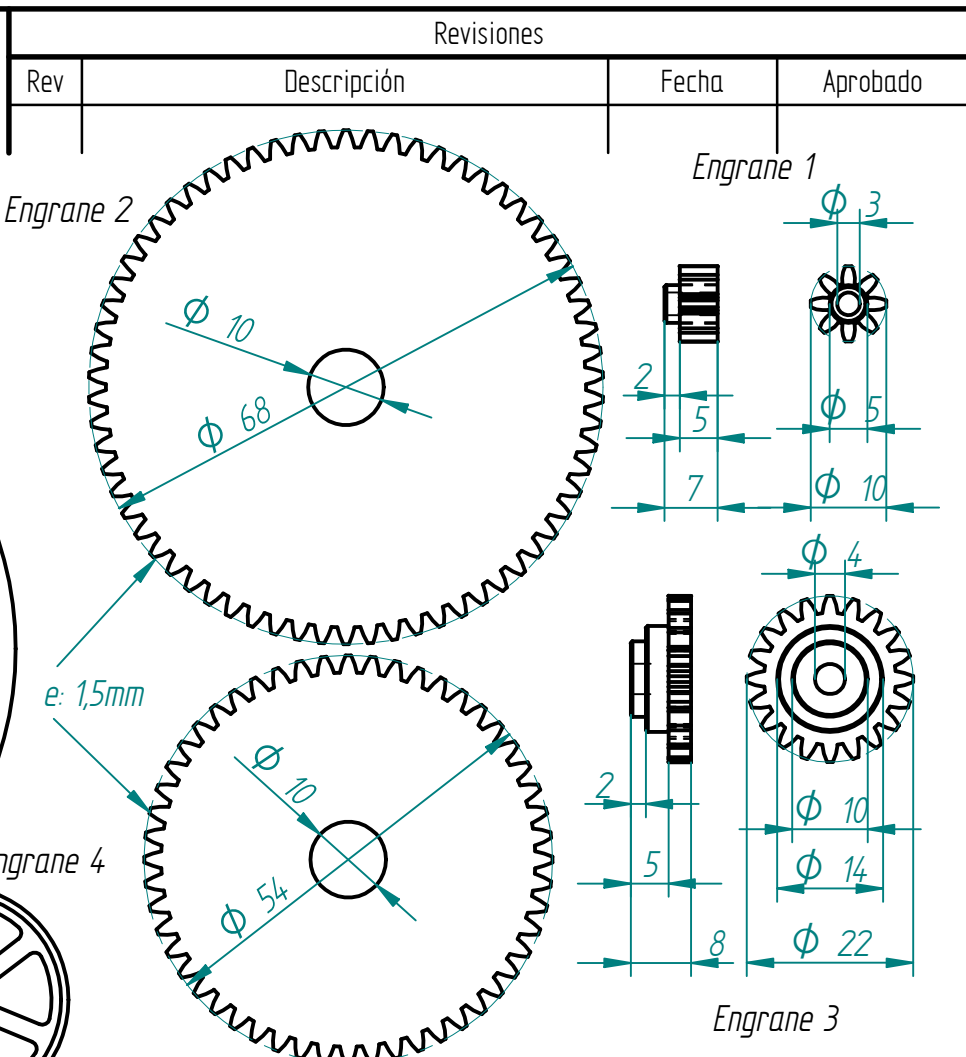
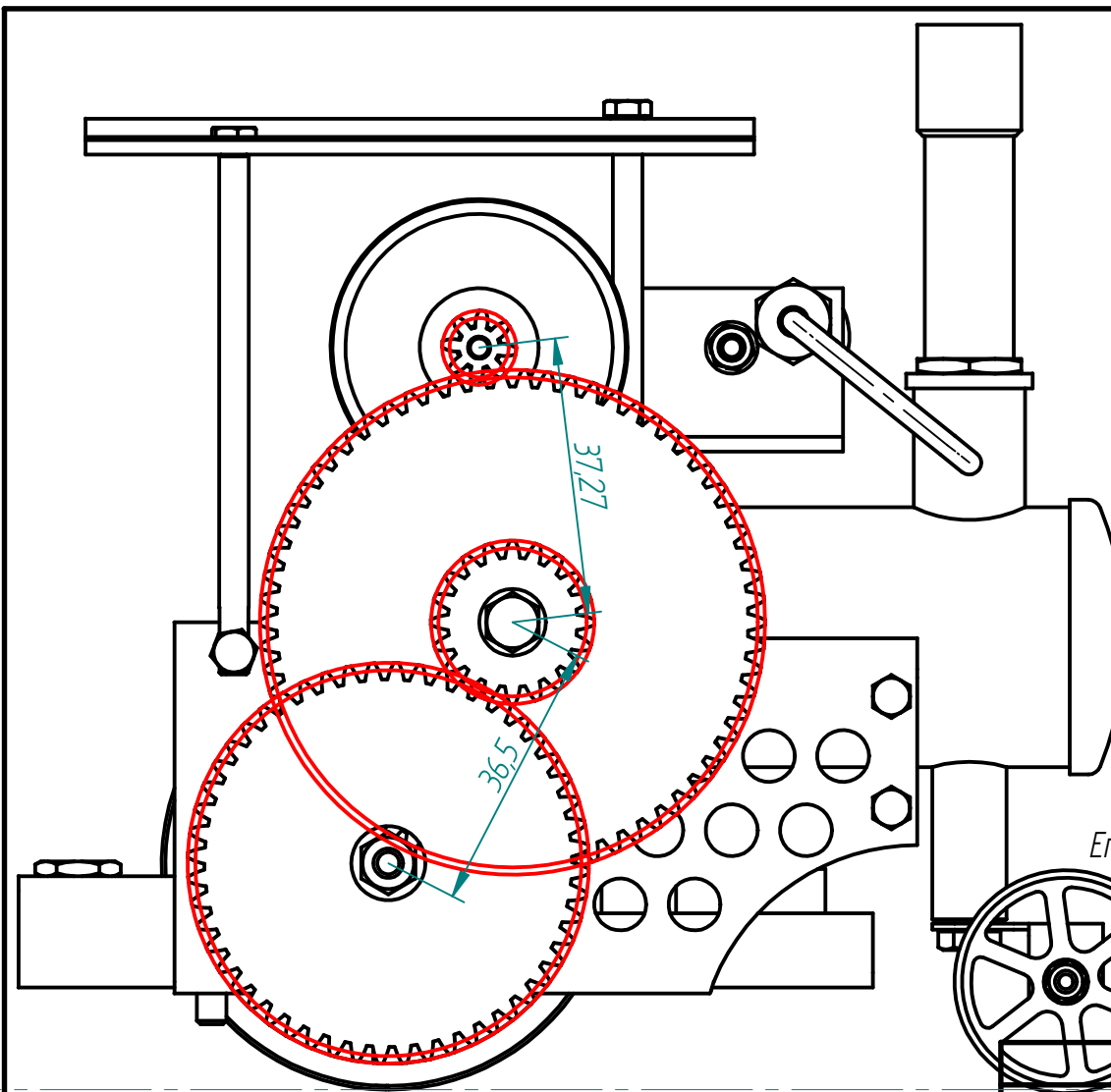
VISTA GENERAL Y DESPIECE



TRACTOR OTTO
 CONJUNTO QUEMADOR chapa

Dibujado: Juan Fecha: 29/04/2003
 Revisado: Fecha: 29/04/2003

PLANTILLAS DE CORTE



1	Módulo <i>m</i>	Diam. primitivo <i>d</i>	nº dientes <i>z=d/m</i>	Diam. Ext. <i>d_e=d+2m</i>	Prof. Diente <i>h=2,25*m</i>	Dist. centros <i>C=(d₁+d₂)/2</i>	Diam. fondo <i>d_f</i>	Reducción 1 a...
Engrane 1	1,00	<i>d₁</i>	8	10	2,250	37,000	7,750	8,25
Engrane 2	1,00	<i>d₂</i>	66	68	2,250	37,000	65,750	8,25

2	Módulo <i>m</i>	Diam. primitivo <i>d</i>	nº dientes <i>z=d/m</i>	Diam. Ext. <i>d_e=d+2m</i>	Prof. Diente <i>h=2,25*m</i>	Dist. centros <i>C=(d₁+d₂)/2</i>	Diam. fondo <i>d_f</i>	Reducción 1 a...
Engrane 3	1,00	<i>d₁</i>	20	22	2,250	36,000	19,750	2,60
Engrane 4	1,00	<i>d₂</i>	52	54	2,250	36,000	51,750	2,60

Nombre	Fecha	TRACTOR OTTO	
Dibujado	juan	14/03/05	Peñascal <small>fundación</small> <small>fundazioa</small>
Comprobado			
Aprobado 1			
Aprobado 2			Título <i>Conjunto transmisión módulo 1</i>
Salvo indicación contraria cotas en milímetros ángulos en grados tolerancias ±0,5 y ±1°			A4 Plano <i>Detalles engranes modulo 1</i> Rev
			Escala <i>1:1</i> Peso



FICHA TALLADO ENGRANE

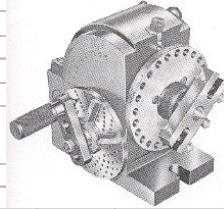
PROYECTO	ENGRANE
OTTO Mod 1	1



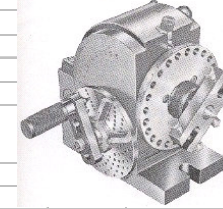
FICHA TALLADO ENGRANE

PROYECTO	ENGRANE
OTTO Mod 1	2

1 DIVISOR VERTEX



2 DIVISOR VERTEX



nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
8	1,0	45,000	45,000	0,000	2700

nº dientes z	módulo m	áng./diente α°	grados	minutos	Total minutos
66	1,0	5,455	5,000	27,273	327,2727273

1 vuelta = 9°

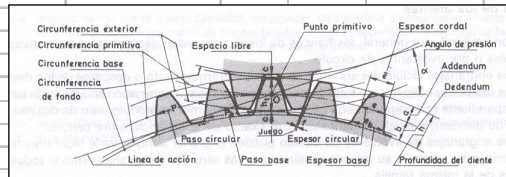
1 vuelta = 9°

	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	75,000	0	5	0,000	0,000	0,00
	16	0,563	33,750	80,000	0	5	0,000	0,000	0,00
	17	0,529	31,765	85,000	0	5	0,000	0,000	0,00
	18	0,500	30,000	90,000	0	5	0,000	0,000	0,00
	19	0,474	28,421	95,000	1,13687E-13	5	0,000	0,000	0,00
20	0,450	27,000	100,000	0	5	0,000	0,000	0,00	
21	0,429	25,714	105,000	1,13687E-13	5	0,000	0,000	0,00	
PALTO 2	23	0,391	23,478	115,000	0	5	0,000	0,000	0,00
	27	0,333	20,000	135,000	0	5	0,000	0,000	0,00
	29	0,310	18,621	145,000	0	5	0,000	0,000	0,00
	31	0,290	17,419	155,000	-2,27374E-13	5	0,000	0,000	0,00
	33	0,273	16,364	165,000	0	5	0,000	0,000	0,00
PLATO 3	37	0,243	14,595	185,000	0	5	0,000	0,000	0,00
	39	0,231	13,846	195,000	0	5	0,000	0,000	0,00
	41	0,220	13,171	205,000	0	5	0,000	0,000	0,00
	43	0,209	12,558	215,000	-2,27374E-13	5	0,000	0,000	0,00
	47	0,191	11,489	235,000	0	5	0,000	0,000	0,00
49	0,184	11,020	245,000	-2,27374E-13	5	0,000	0,000	0,00	

	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	9,091	6	0	9,091	216,000	3,60
	16	0,563	33,750	9,697	46	0	9,697	1.552,500	25,88
	17	0,529	31,765	10,303	20	0	10,303	635,294	10,59
	18	0,500	30,000	10,909	60	0	10,909	1.800,000	30,00
	19	0,474	28,421	11,515	34	0	11,515	966,316	16,11
20	0,450	27,000	12,121	8	0	12,121	216,000	3,60	
21	0,429	25,714	12,727	48	0	12,727	1.234,286	20,57	
23	0,391	23,478	13,939	62	0	13,939	1.455,652	24,26	
27	0,333	20,000	16,364	24	0	16,364	480,000	8,00	
29	0,310	18,621	17,576	38	0	17,576	707,586	11,79	
31	0,290	17,419	18,788	52	0	18,788	905,806	15,10	
33	0,273	16,364	20,000	0	0	20,000	0,000	0,00	
37	0,243	14,595	22,424	28	0	22,424	408,649	6,81	
39	0,231	13,846	23,636	42	0	23,636	581,538	9,69	
41	0,220	13,171	24,848	56	0	24,848	737,561	12,29	
43	0,209	12,558	26,061	4	0	26,061	50,233	0,84	
47	0,191	11,489	28,485	32	0	28,485	367,660	6,13	
49	0,184	11,020	29,697	46	0	29,697	506,939	8,45	

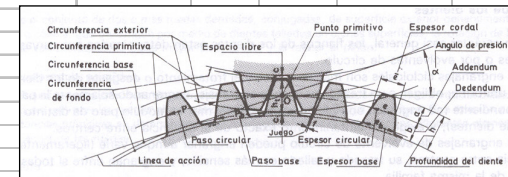
Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2	DATOS DEL ENGRANE (mm)	
	Diámetro primitivo $d=m \cdot z$	8
	Diámetro exterior $d_e=d+2m$	10
	Profundidad diente $h=2,25 \cdot m$	2,25



Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2	DATOS DEL ENGRANE (mm)	
	Diámetro primitivo $d=m \cdot z$	66
	Diámetro exterior $d_e=d+2m$	68
	Profundidad diente $h=2,25 \cdot m$	2,25





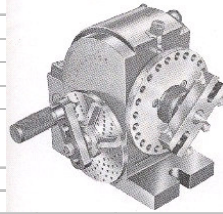
FICHA TALLADO ENGRANE

PROYECTO	ENGRANE
OTTO Mod 1	3

3 DIVISOR VERTEX

nº dientes z	módulo m	áng./diente α °	grados	minutos	Total minutos
20	1,0	18,000	18,000	0,000	1080

1 vuelta = 9 °

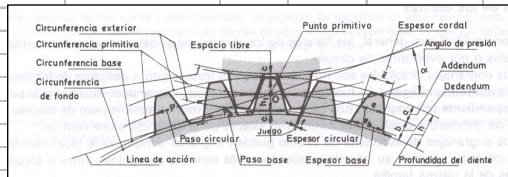


	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	30,000	0	2	0,000	0,000	0,00
	16	0,563	33,750	32,000	0	2	0,000	0,000	0,00
	17	0,529	31,765	34,000	0	2	0,000	0,000	0,00
	18	0,500	30,000	36,000	0	2	0,000	0,000	0,00
	19	0,474	28,421	38,000	0	2	0,000	0,000	0,00
20	0,450	27,000	40,000	0	2	0,000	0,000	0,00	
PALTO 2	21	0,429	25,714	42,000	1,42109E-13	2	0,000	0,000	0,00
	23	0,391	23,478	46,000	0	2	0,000	0,000	0,00
	27	0,333	20,000	54,000	0	2	0,000	0,000	0,00
	29	0,310	18,621	58,000	0	2	0,000	0,000	0,00
	31	0,290	17,419	62,000	-1,42109E-13	2	0,000	0,000	0,00
33	0,273	16,364	66,000	0	2	0,000	0,000	0,00	
PLATO 3	37	0,243	14,595	74,000	0	2	0,000	0,000	0,00
	39	0,231	13,846	78,000	0	2	0,000	0,000	0,00
	41	0,220	13,171	82,000	0	2	0,000	0,000	0,00
	43	0,209	12,558	86,000	0	2	0,000	0,000	0,00
	47	0,191	11,489	94,000	0	2	0,000	0,000	0,00
49	0,184	11,020	98,000	0	2	0,000	0,000	0,00	

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

Diámetro primitivo $d=m \cdot z$	20
Diámetro exterior $d_e=d+2m$	22
Profundidad diente $h=2,25 \cdot m$	2,25



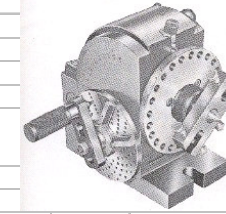
FICHA TALLADO ENGRANE

PROYECTO	ENGRANE
OTTO Mod 1	4

4 DIVISOR VERTEX

nº dientes z	módulo m	áng./diente α °	grados	minutos	Total minutos
52	1,0	6,923	6,000	55,385	415,3846154

1 vuelta = 9 °



	agujeros del plato	grados /agujero	minutos /agujero	agujeros /diente	error final en minutos	vueltas	agujeros	Error total minutos	Error total grados
PLATO 1	15	0,600	36,000	11,538	28	0	11,538	1.008,000	16,80
	16	0,563	33,750	12,308	16	0	12,308	540,000	9,00
	17	0,529	31,765	13,077	4	0	13,077	127,059	2,12
	18	0,500	30,000	13,846	44	0	13,846	1.320,000	22,00
	19	0,474	28,421	14,615	32	0	14,615	909,474	15,16
20	0,450	27,000	15,385	20	0	15,385	540,000	9,00	
PALTO 2	21	0,429	25,714	16,154	8	0	16,154	205,714	3,43
	23	0,391	23,478	17,692	36	0	17,692	845,217	14,09
	27	0,333	20,000	20,769	40	0	20,769	800,000	13,33
	29	0,310	18,621	22,308	16	0	22,308	297,931	4,97
	31	0,290	17,419	23,846	44	0	23,846	766,452	12,77
33	0,273	16,364	25,385	20	0	25,385	327,273	5,45	
PLATO 3	37	0,243	14,595	28,462	24	0	28,462	350,270	5,84
	39	0,231	13,846	30,000	0	0	30,000	0,000	0,00
	41	0,220	13,171	31,538	28	0	31,538	368,780	6,15
	43	0,209	12,558	33,077	4	0	33,077	50,233	0,84
	47	0,191	11,489	36,154	8	0	36,154	91,915	1,53
49	0,184	11,020	37,692	36	0	37,692	396,735	6,61	

Módulo	Nº de fresa	Dientes a tallar
1-10	1	12-13
	2	14-16
	3	17-20
	4	21-25
	5	26-34
	6	35-54
	7	35-135
	8	35-cremall.

2 DATOS DEL ENGRANE (mm)

Diámetro primitivo $d=m \cdot z$	52
Diámetro exterior $d_e=d+2m$	54
Profundidad diente $h=2,25 \cdot m$	2,25

