



Escola SENAI "Santos Dumont"

Desenho Assistido por Computador
Ferramenta: CATIA V5
APOSTILA DE EXERCÍCIOS

EDUCAÇÃO PROFISSIONAL TÉCNICA

NOME DO ALUNO: _____ N^o: _____

PROFESSOR: _____ TURMA _____

CAD CATIAV5 - Desenho Assistido por Computador
Desenho Assistido por Computador utilizando a ferramenta CATIAV5

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Trabalho elaborado pela Escola SENAI “Santos Dumont”, para a Formação Continuada.

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Revisão	03
Colaboração	--
Versão preliminar	Junho / 2004

SENAI Serviço Nacional de Aprendizagem Industrial
Av. Pedro Rachid, 304 – Bairro Santana
CEP — 12211-180 – São José dos Campos - SP

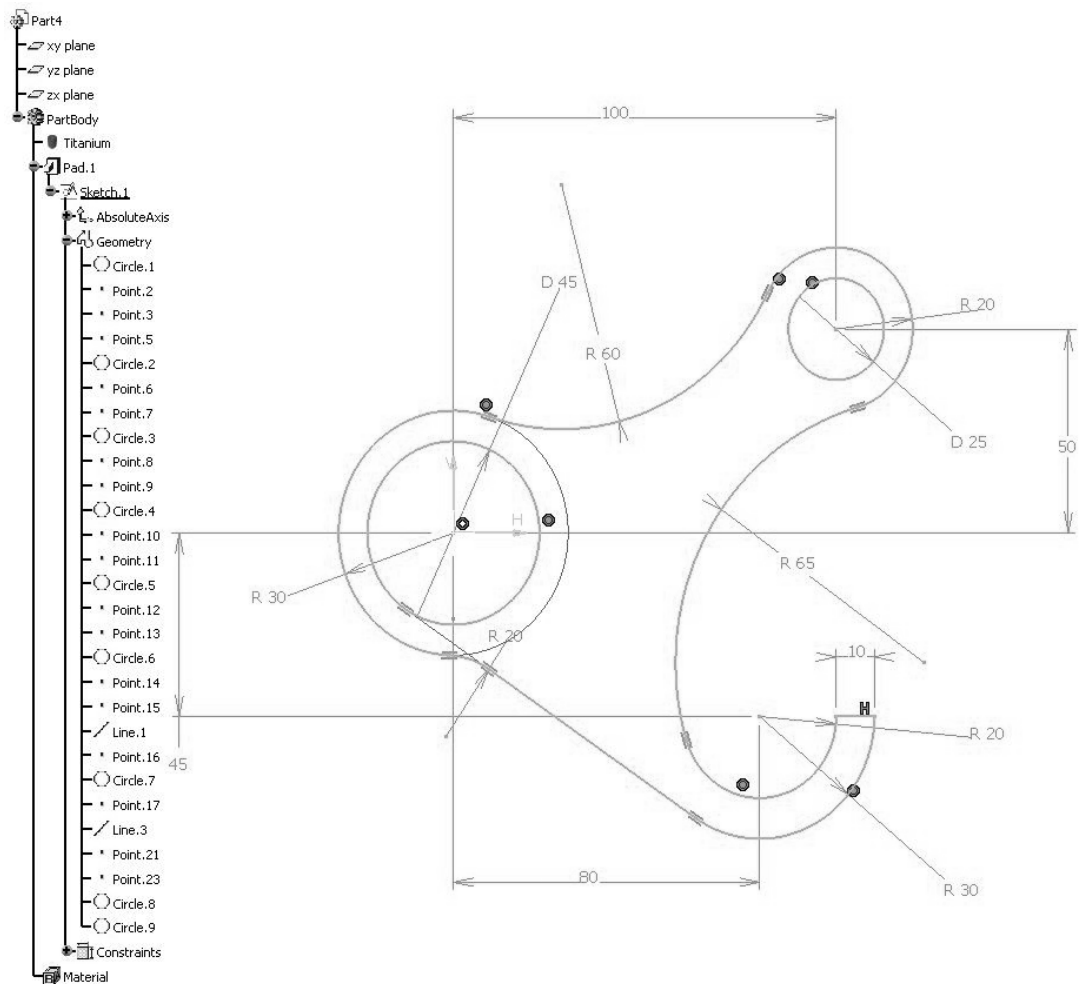
Telefone (0XX12) 3921-0299

SENAI on-line 0800 – 551000

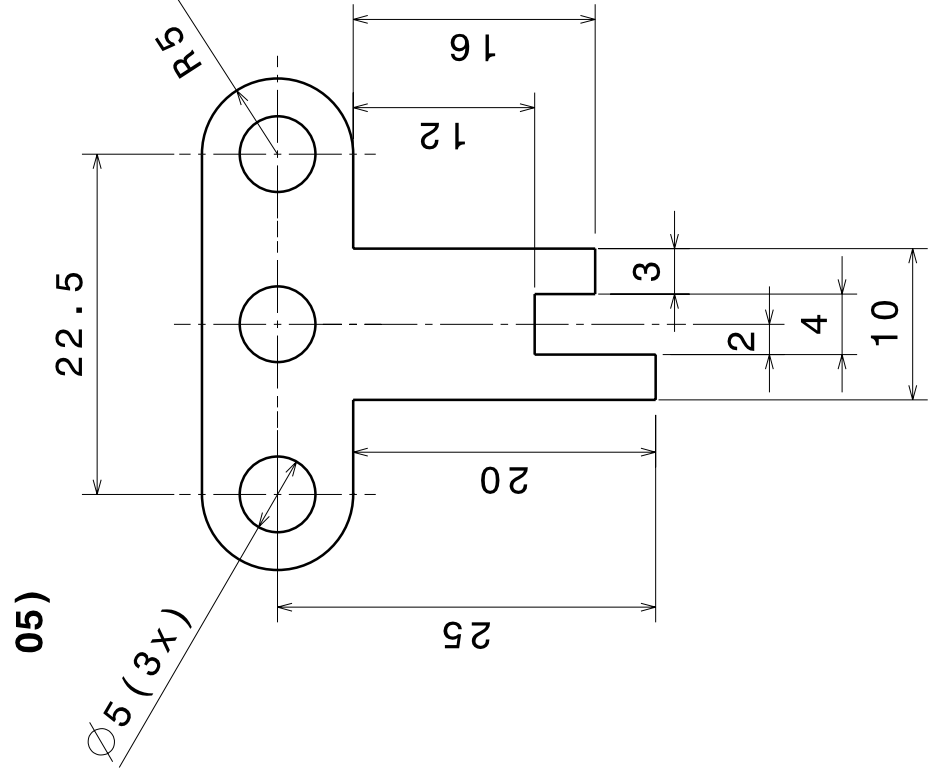
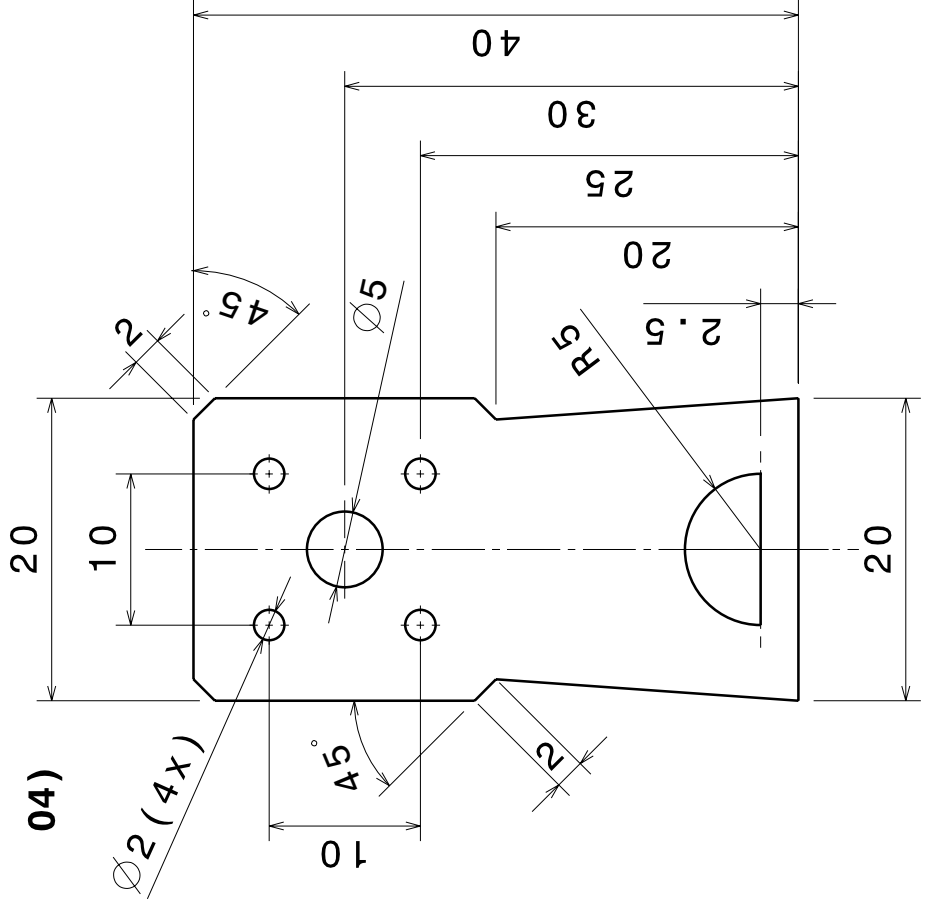
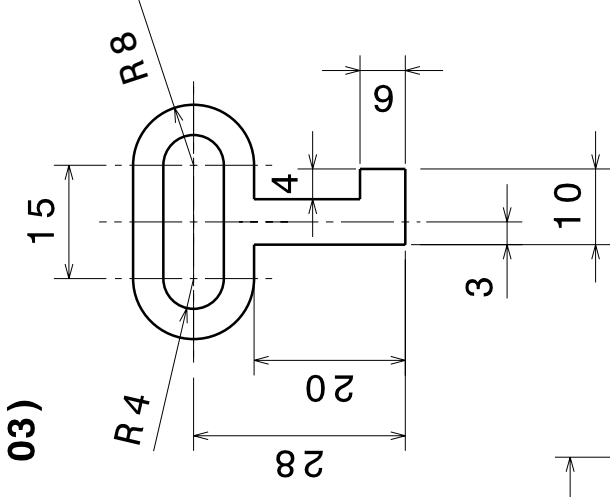
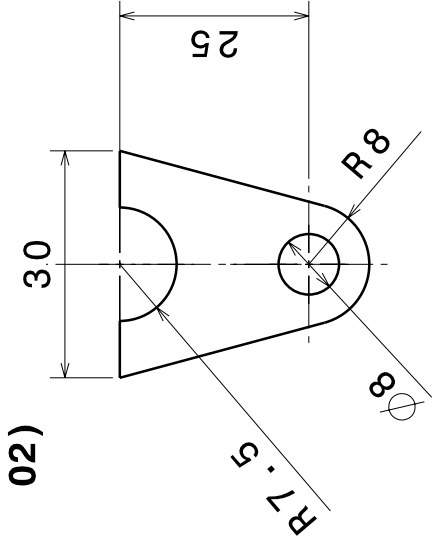
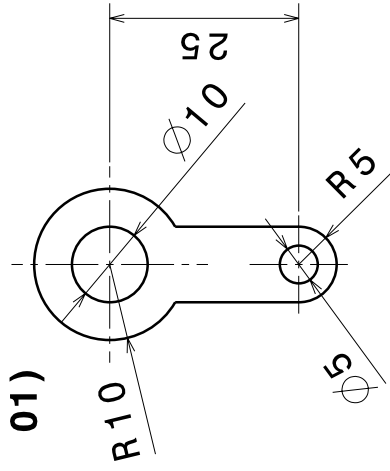
E-mail senaisaojose@sp.senai.br
Home page [http:// www.sp.senai.br](http://www.sp.senai.br)

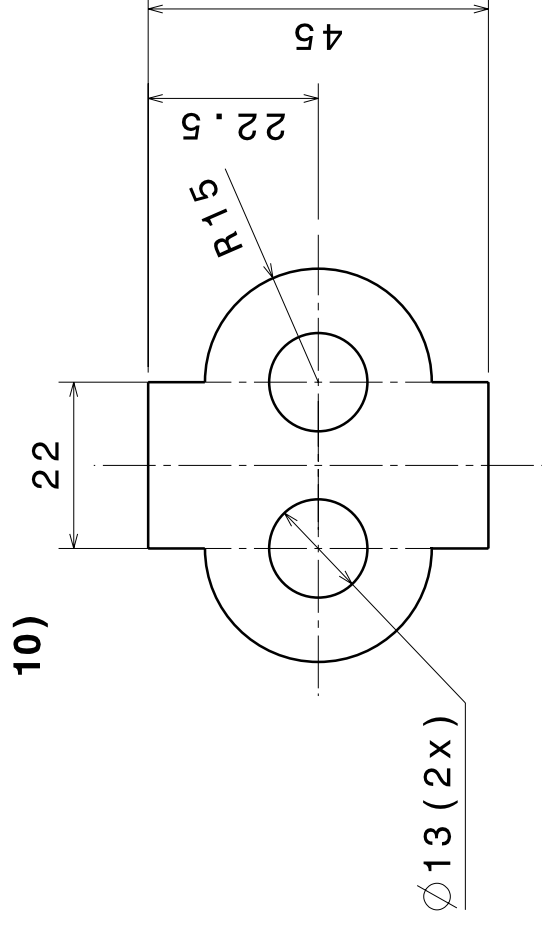
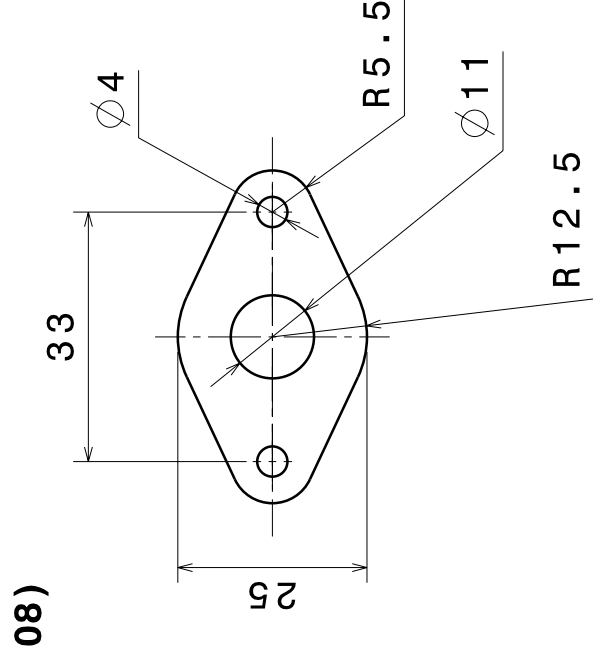
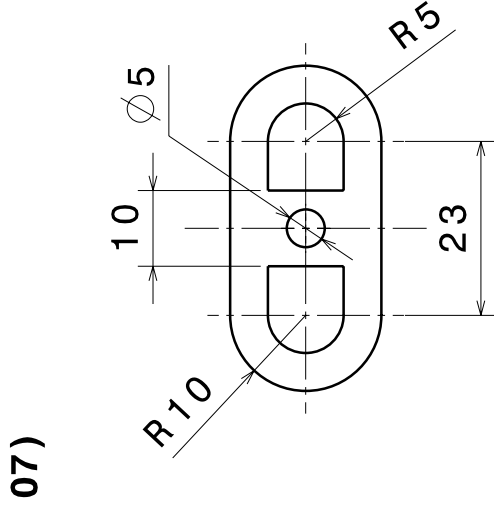
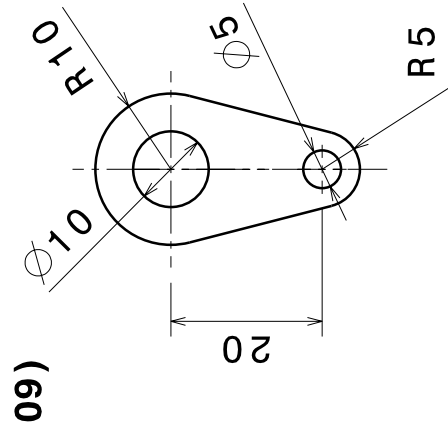
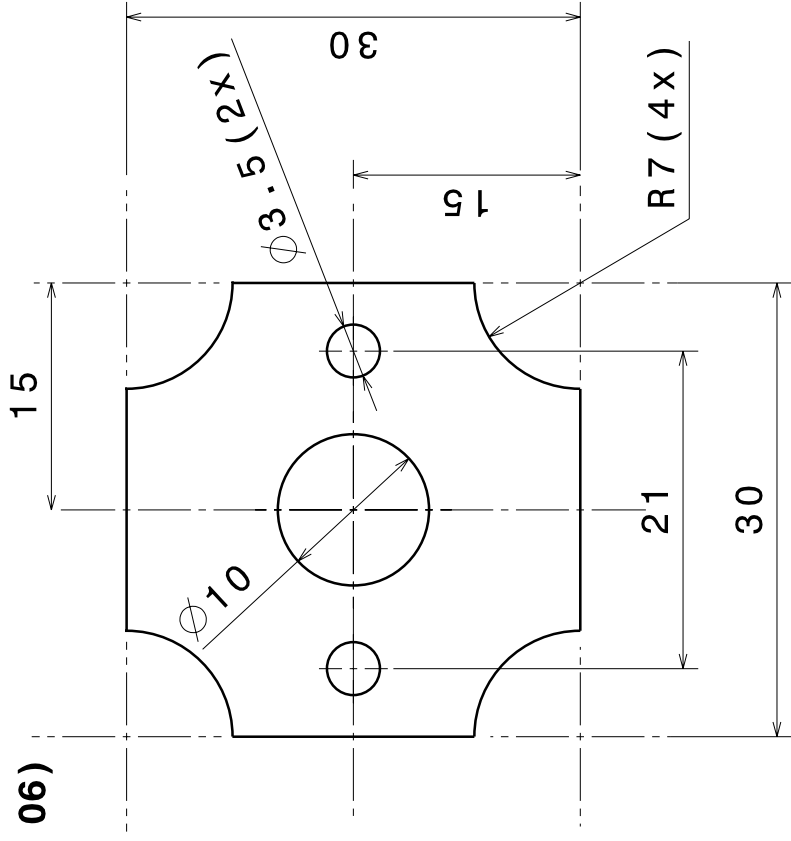
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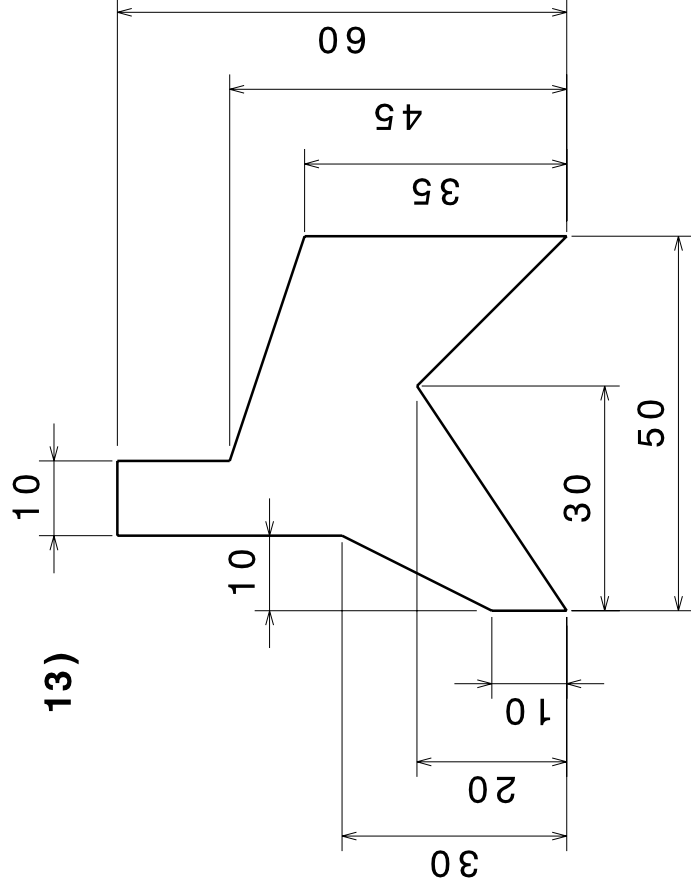
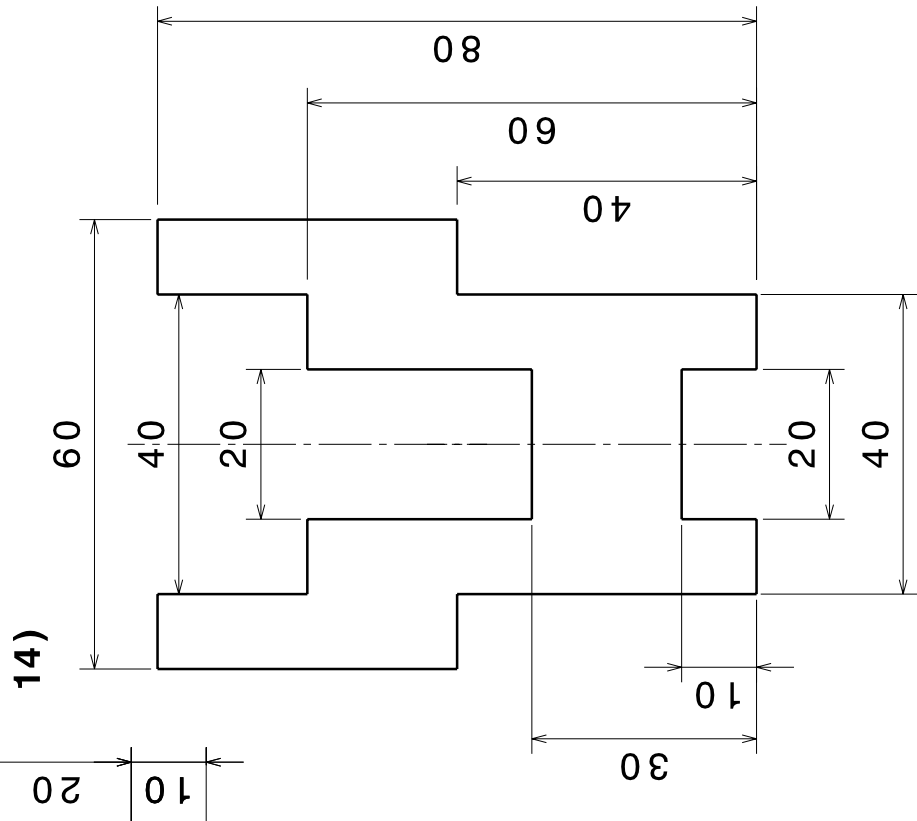
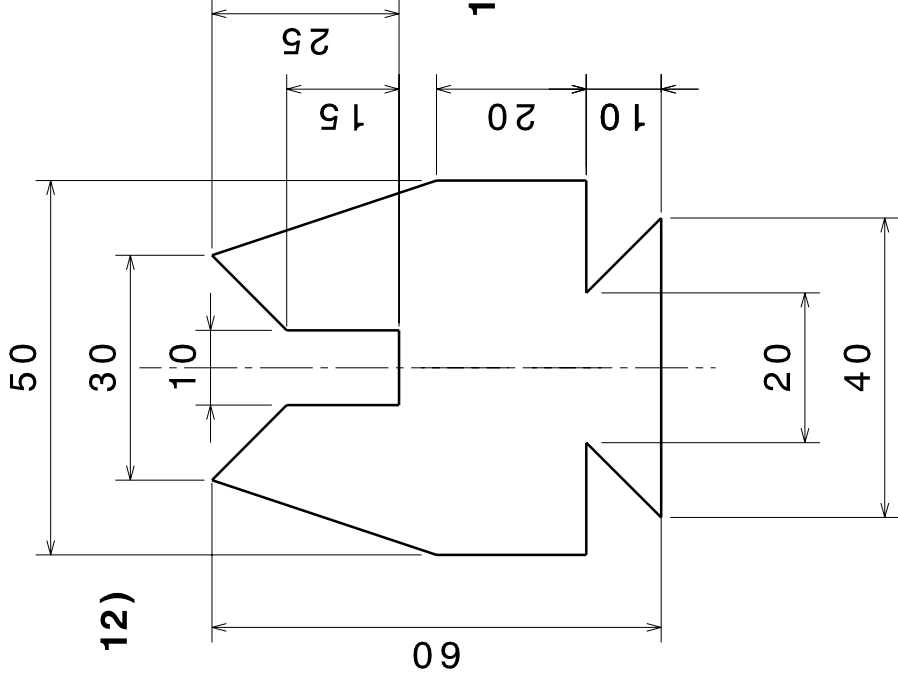
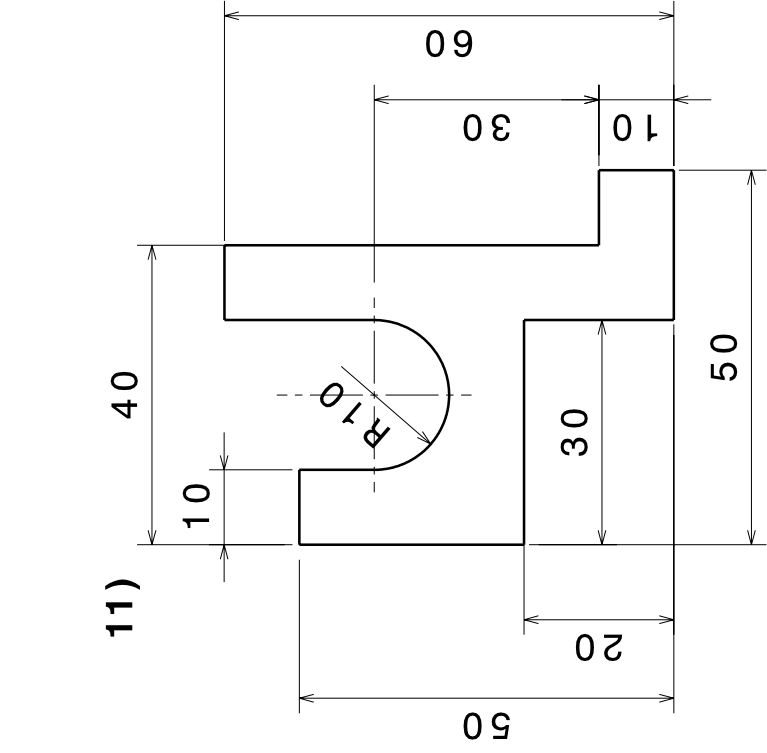
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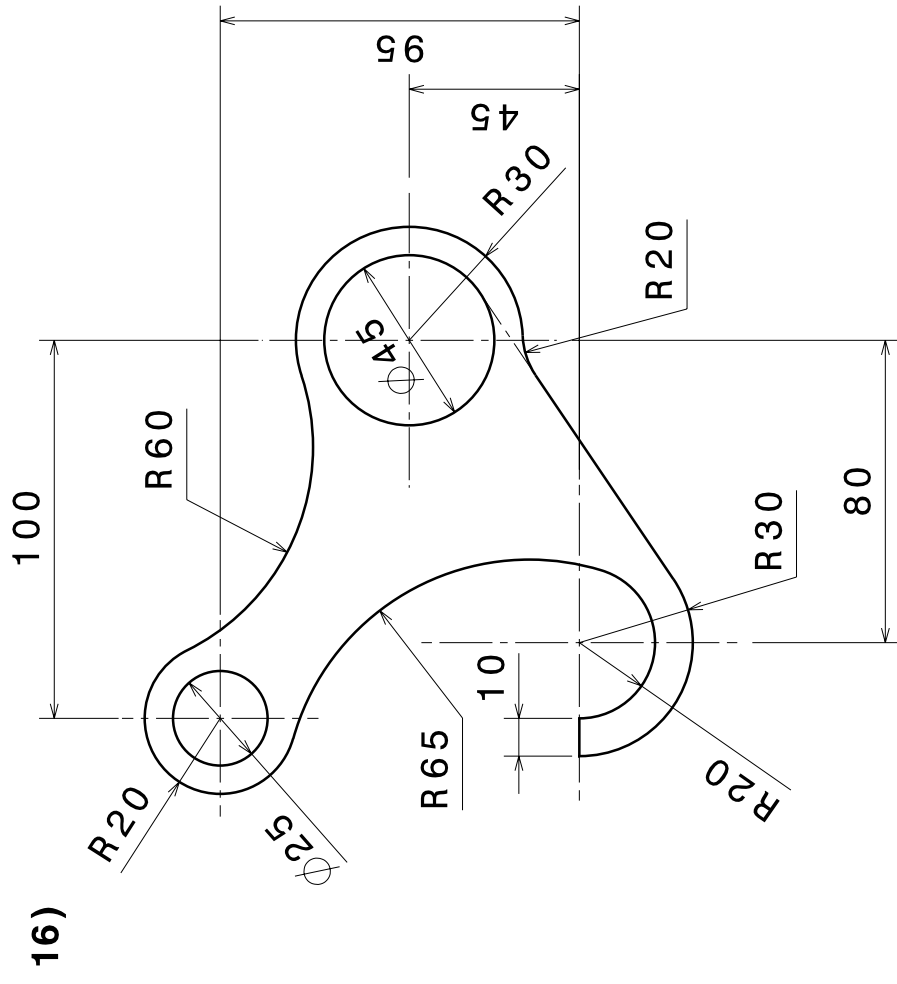
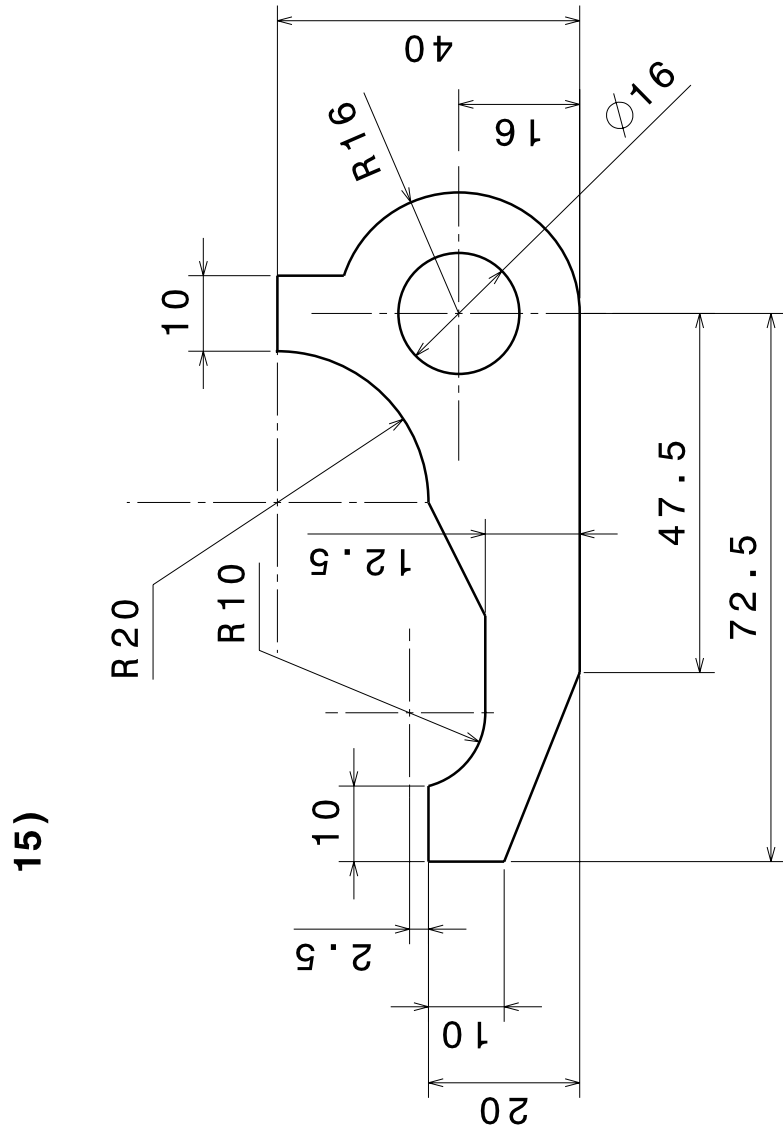


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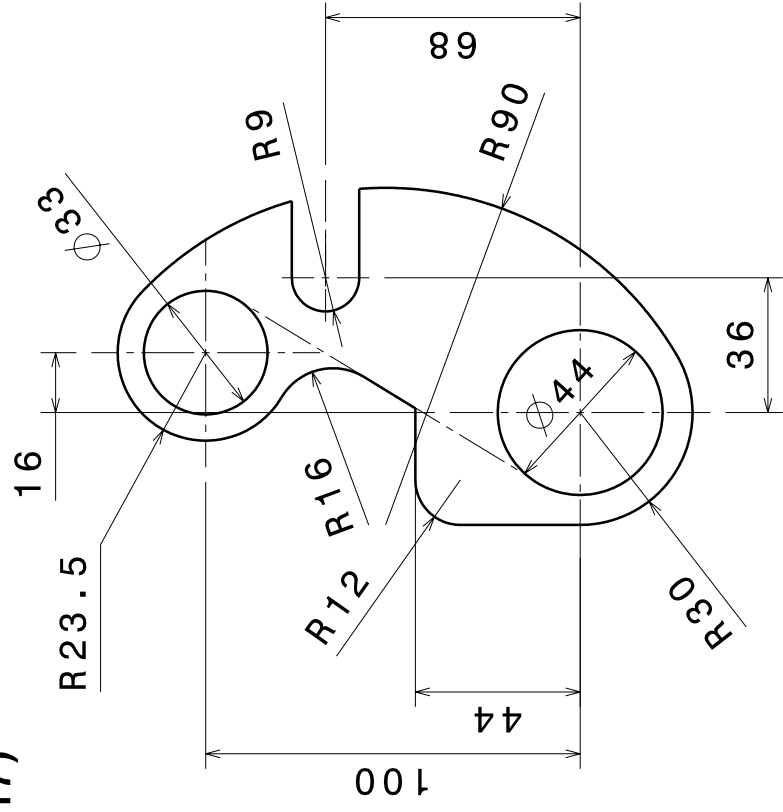




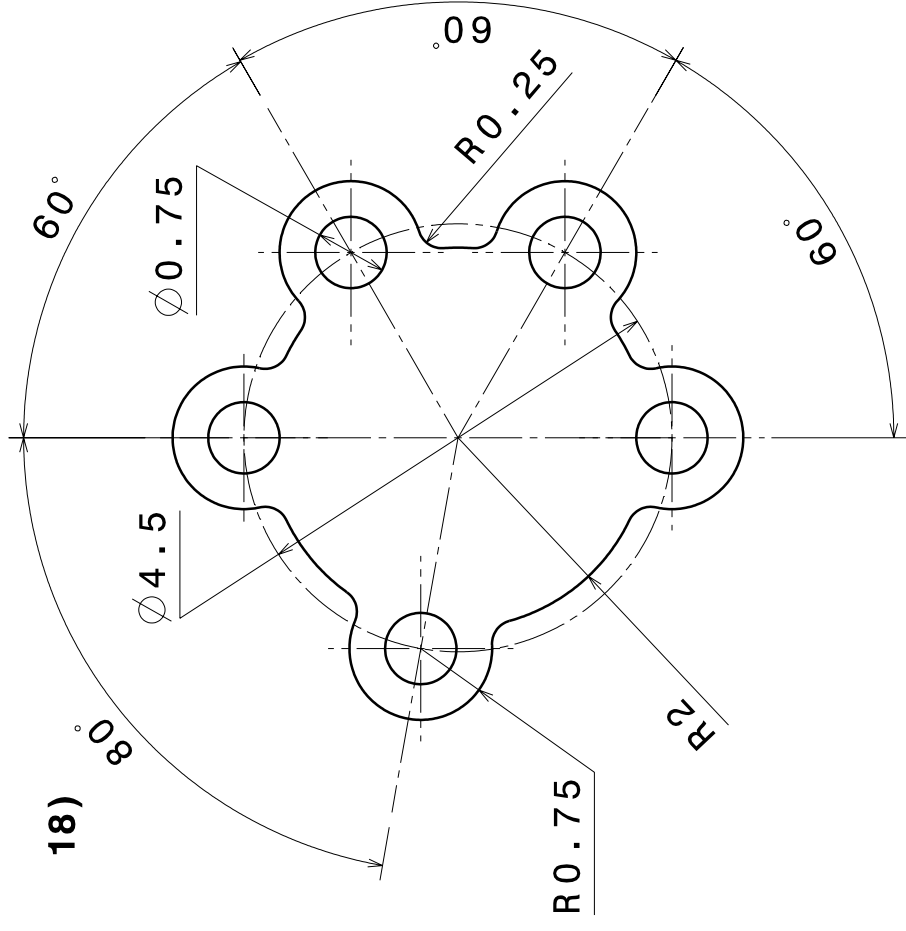


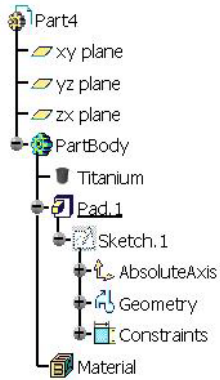


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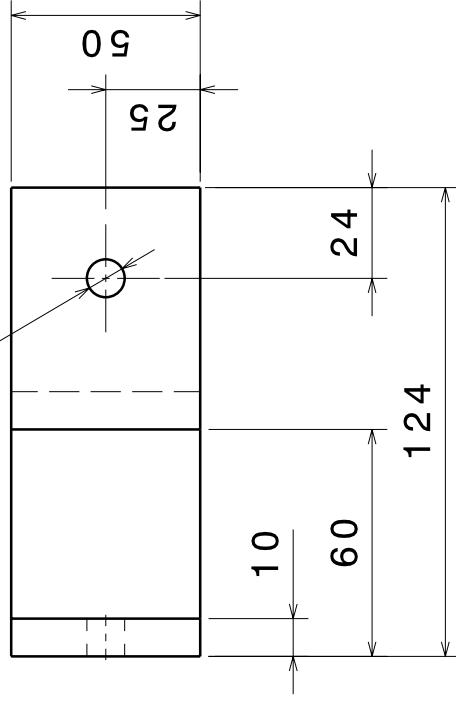
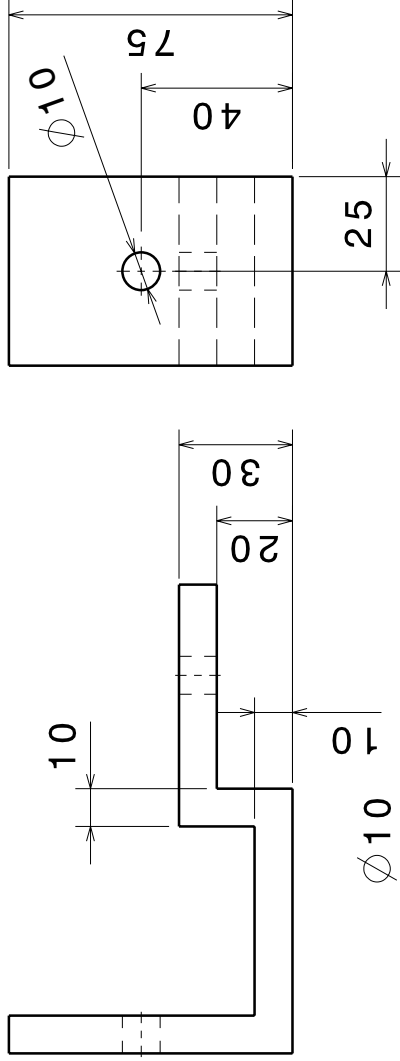
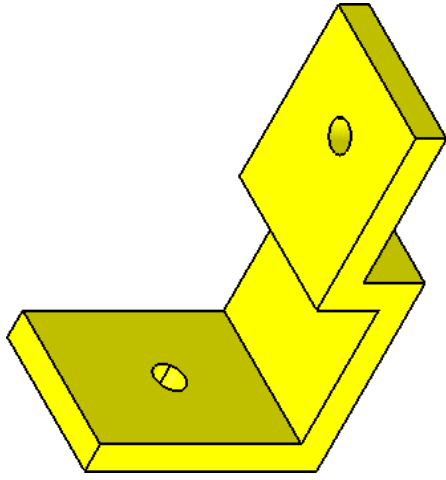


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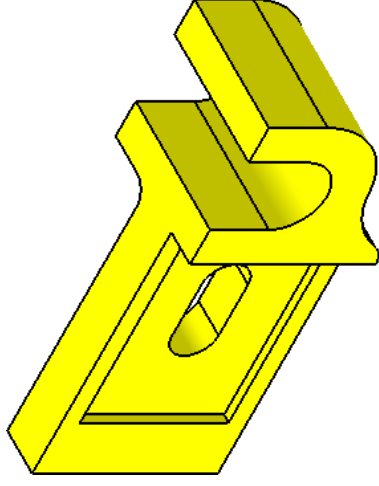
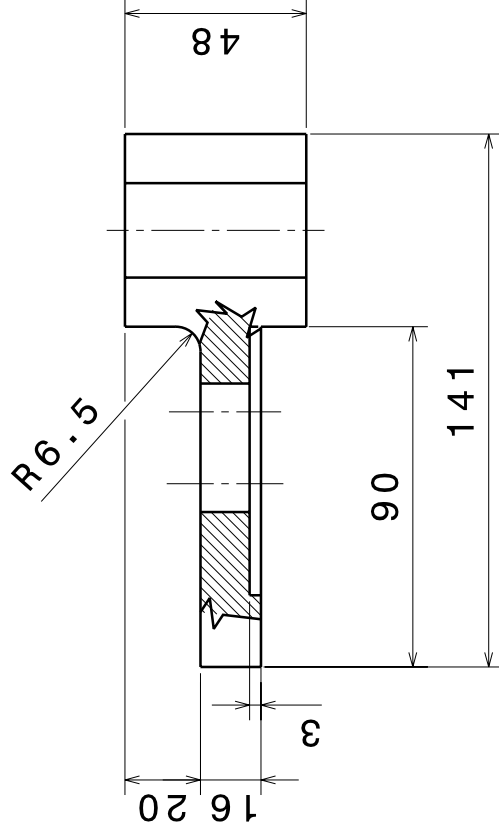
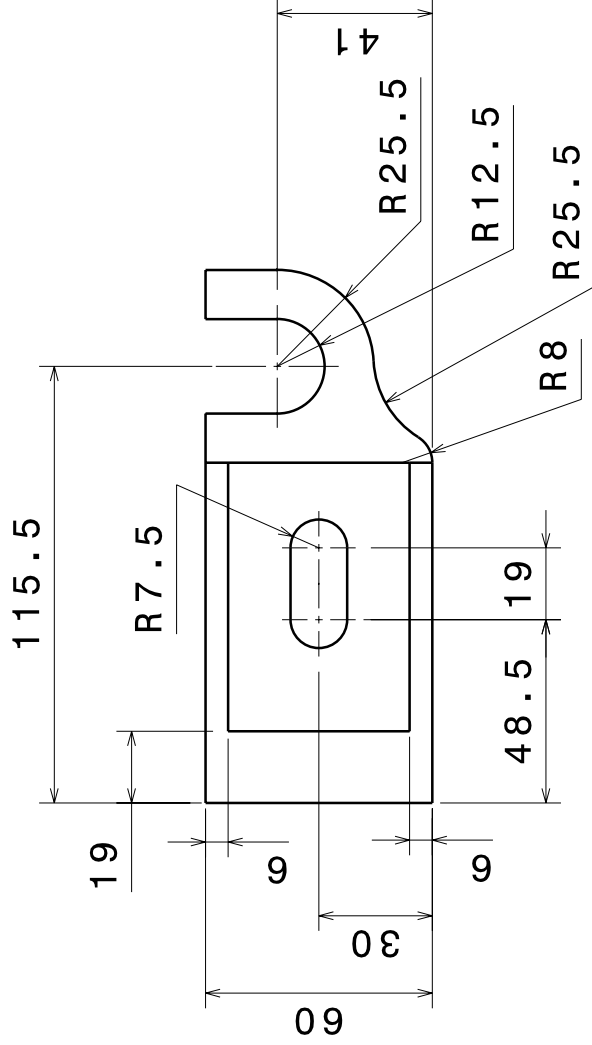




Part Design



SENAI	Escola Senai "Santos Dumont"			Escala: 1:2
	Desenhado por: Ugo Luiz		Unidade mm	Página: 09
	Desenho: ExPartDesign01		Data: 18/11/05	
			C.F.P.: 3.02	



Escola Senai "Santos Dumont"



Unidade mm

Escala:

1:2

Desenhado por: Ugo Luiz

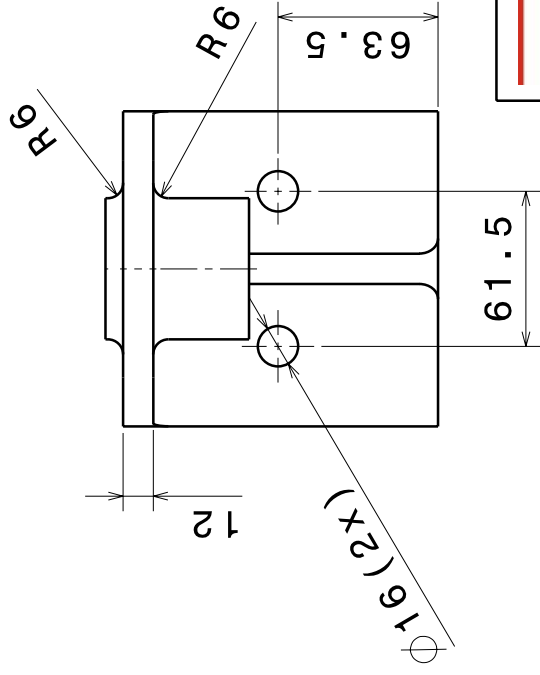
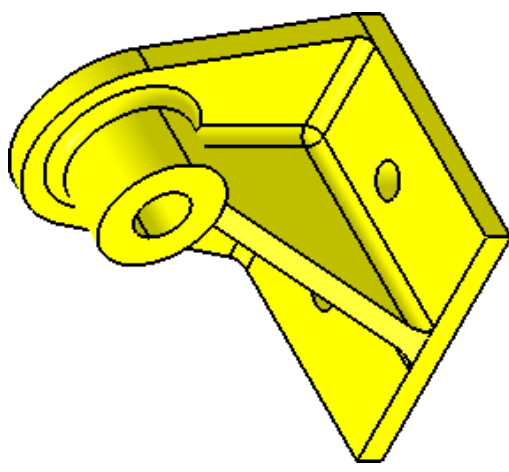
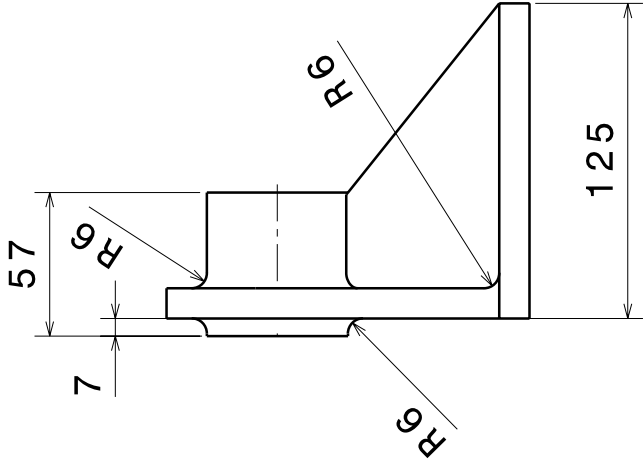
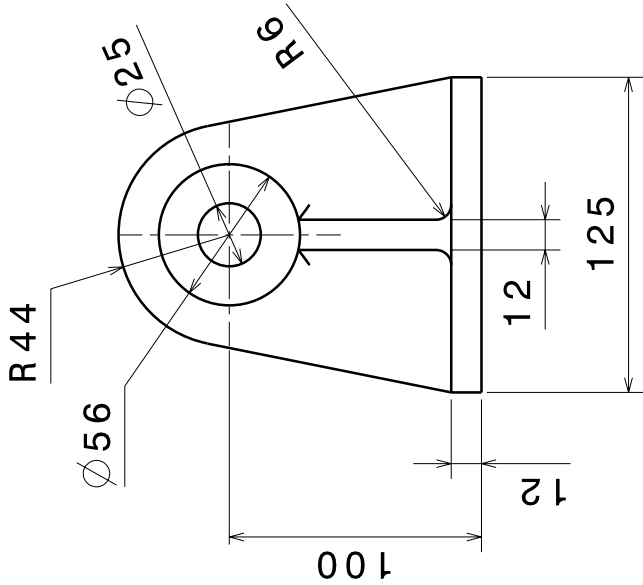
Página:

Desenho: ExPartDesign02

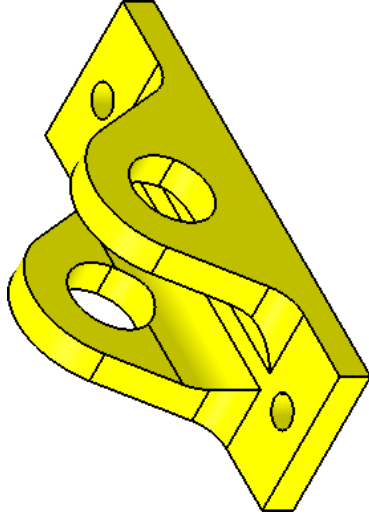
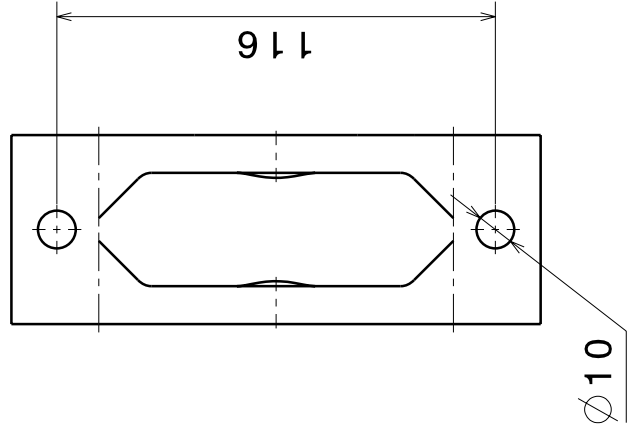
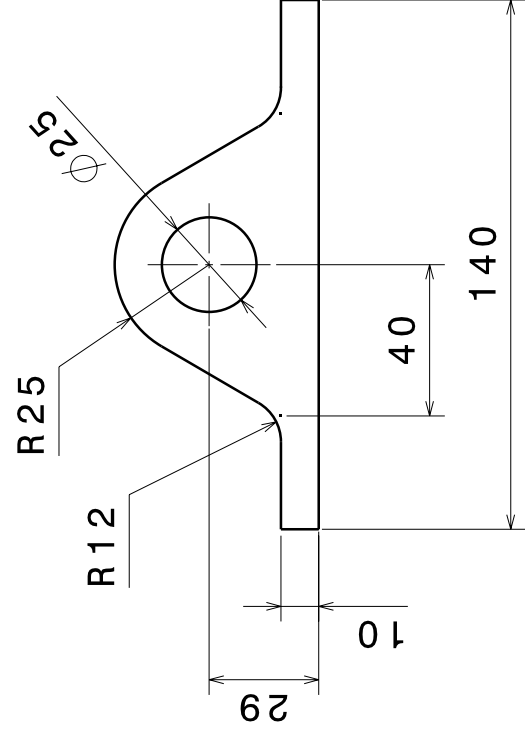
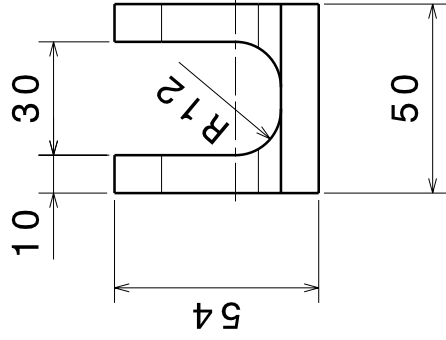
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Data: 18/11/05

C.F.P.: 3.02



SENAI	Escola Senai "Santos Dumont"		Escala: 1:2
		Unidade mm	Página: 11
	Desenhado por: Ugo Luiz	Data: 18/11/05	
	Desenho: ExPartDesign03	C.F.P.: 3.02	



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign04

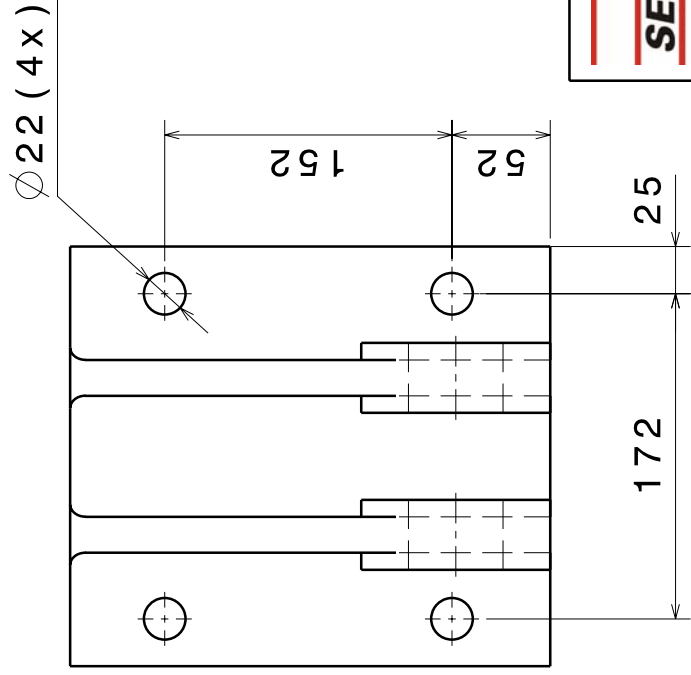
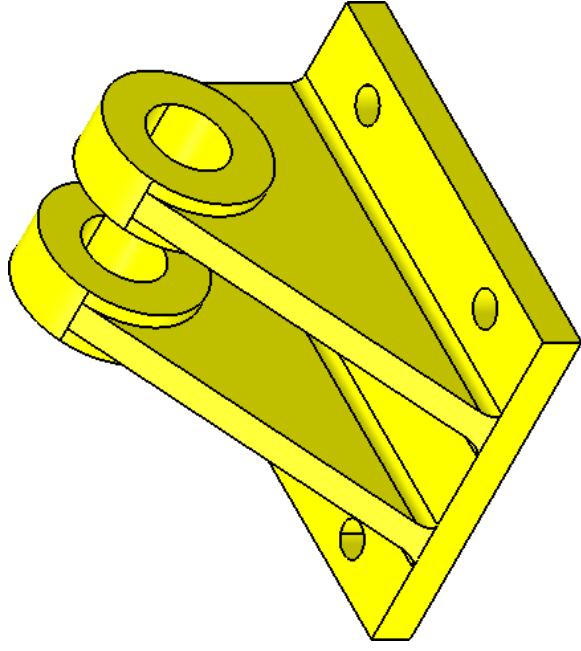
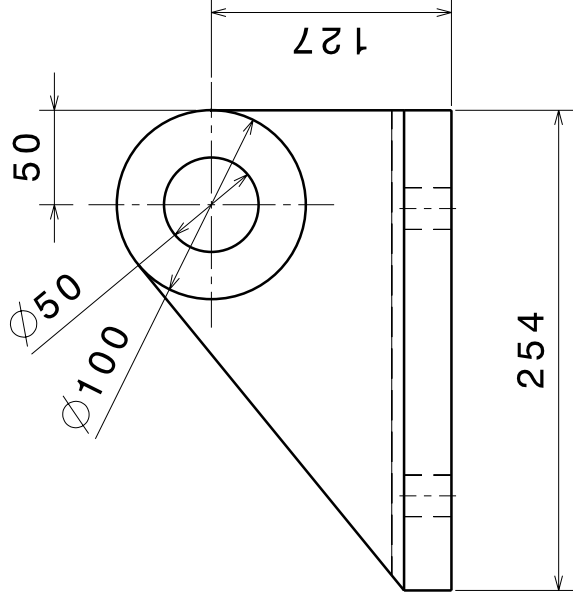
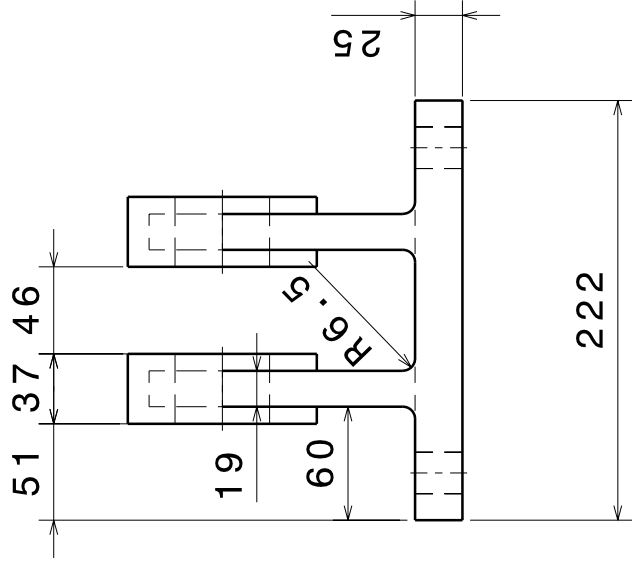


Unidade mm

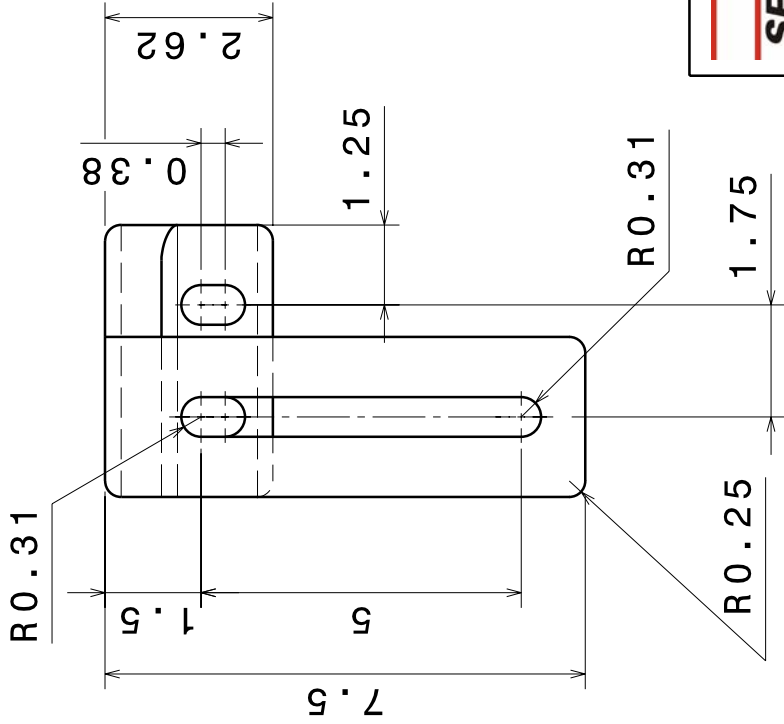
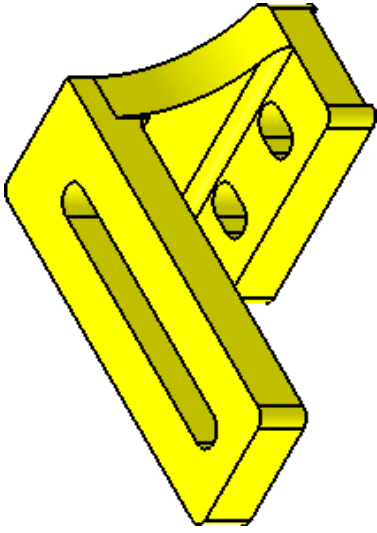
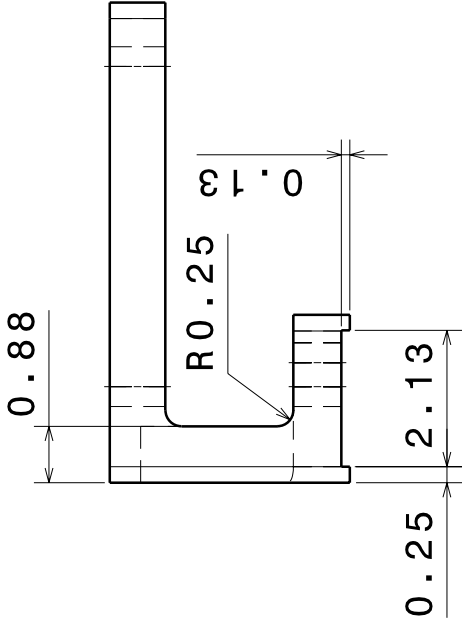
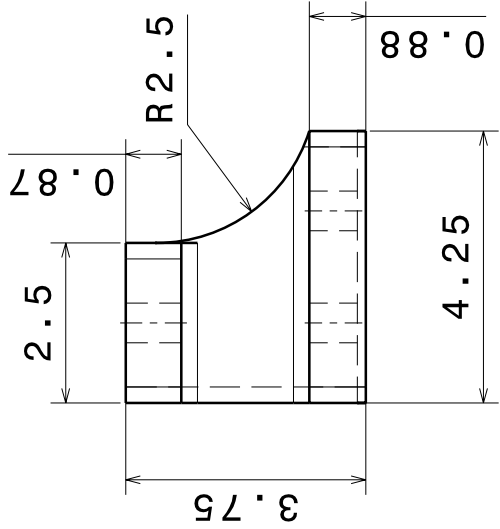
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Data: 18/11/05

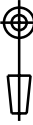
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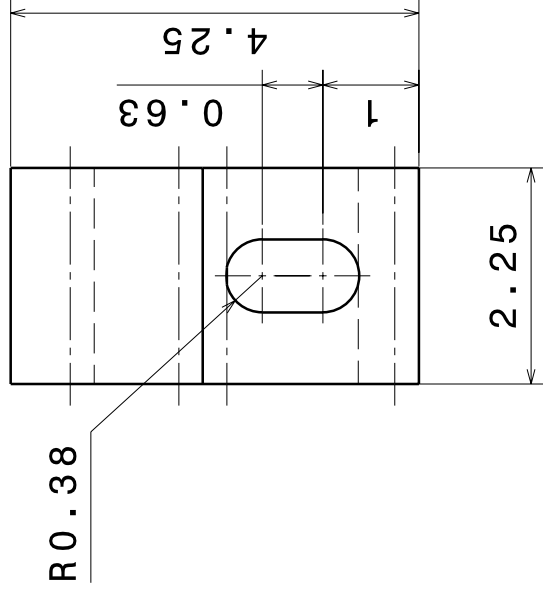
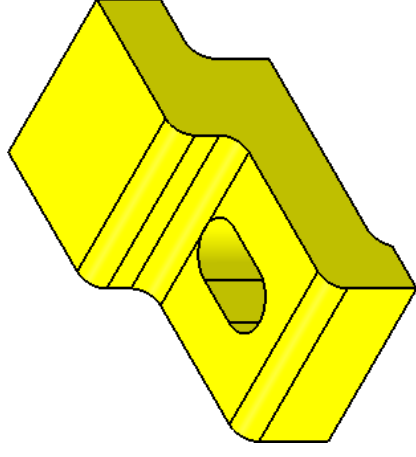
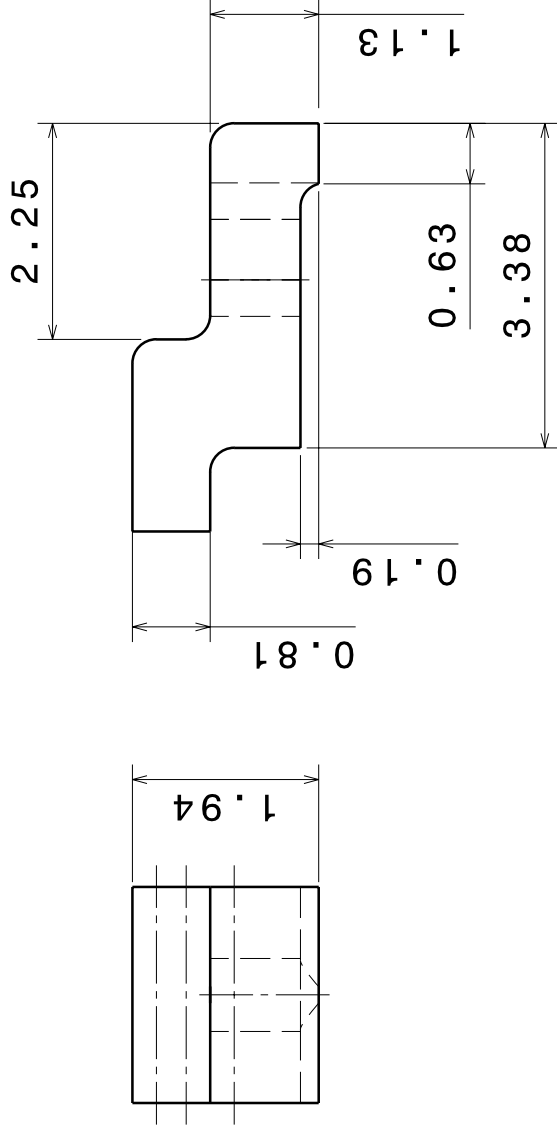


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	Desenho: ExPartDesign05	C.F.P.: 3.02		13



Dimensões em polegadas

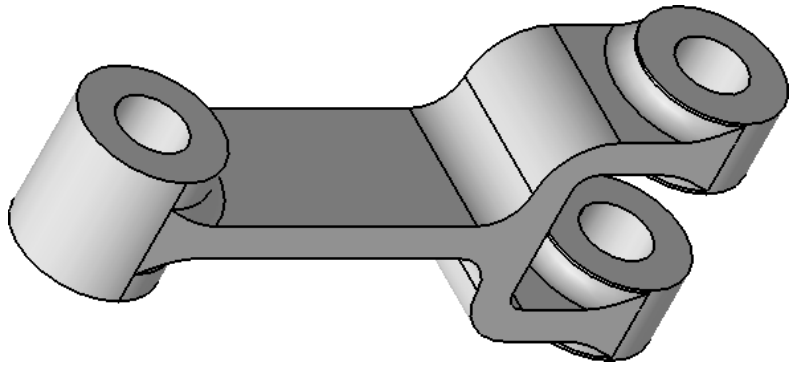
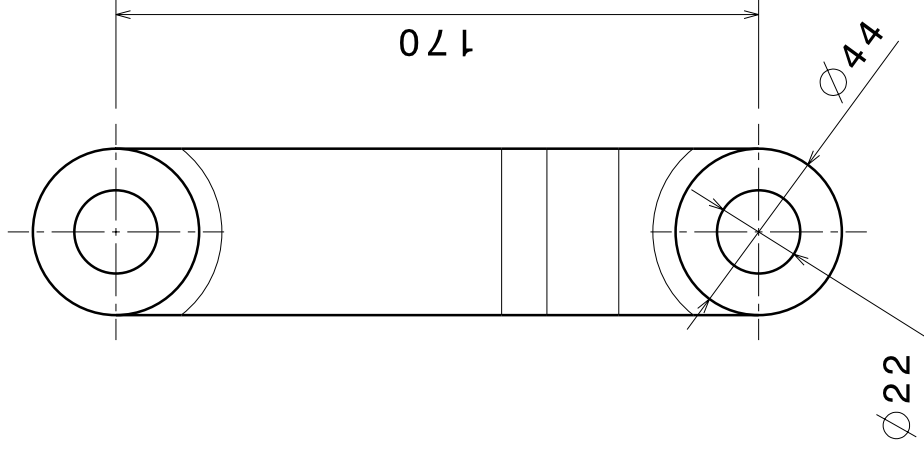
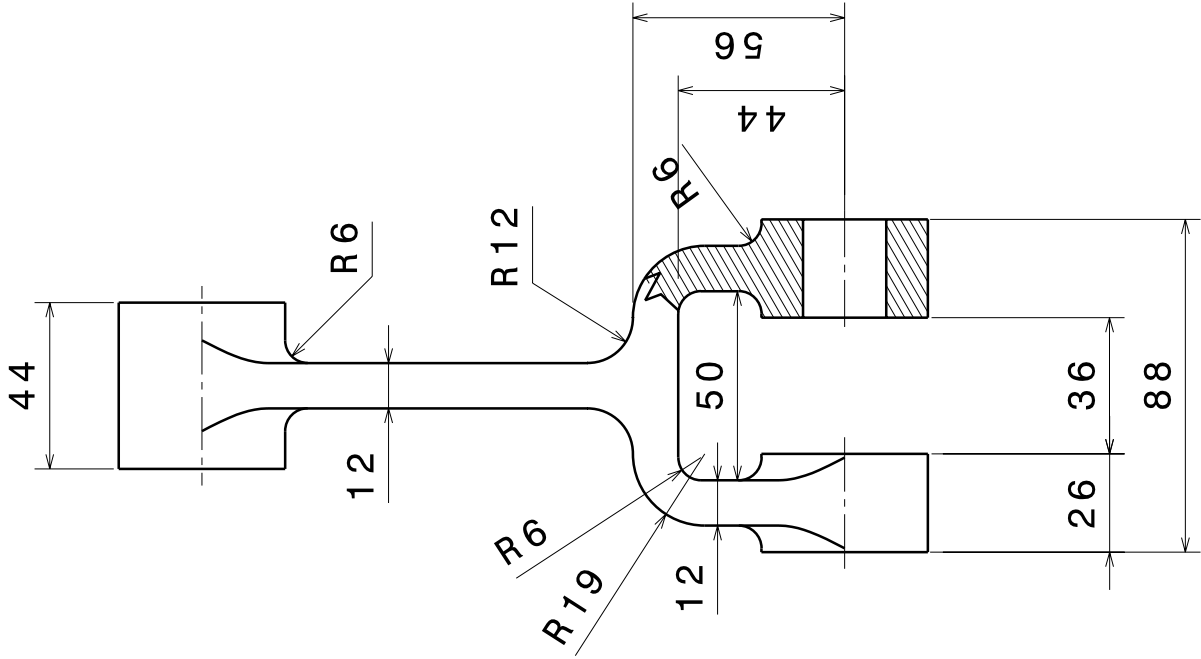
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	Desenhado por: Ugo Luiz		Data: 18/11/05	Página: 14
Desenho: ExPartDesign06		C.F.P.: 3.02		



Todos raios não indicados 0,25"

Dimensões em polegadas

SENAI	Escola Senai "Santos Dumont"		Escala:	
		Unidade mm	1:2	
	Desenhado por: Ugo Luiz	Data: 18/11/05		Página:
	Desenho: ExPartDesign07	C.F.P.: 3.02		15



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign08



Unidade mm

Escala:

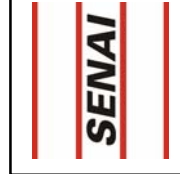
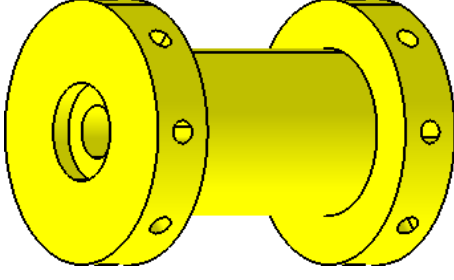
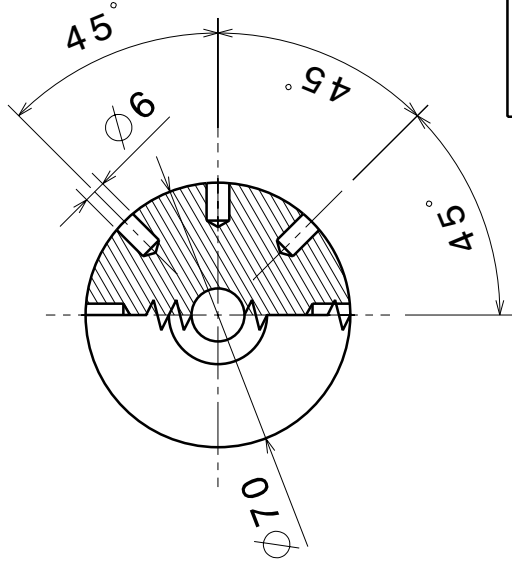
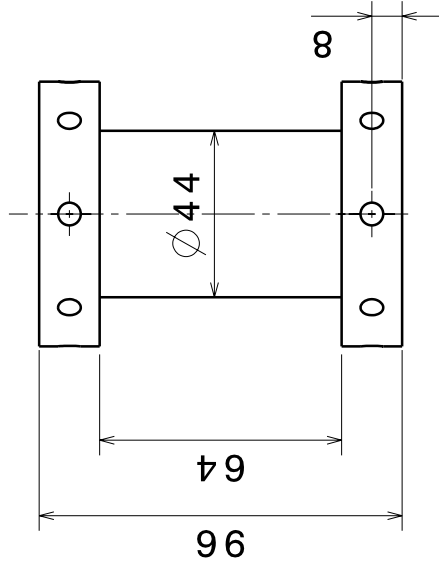
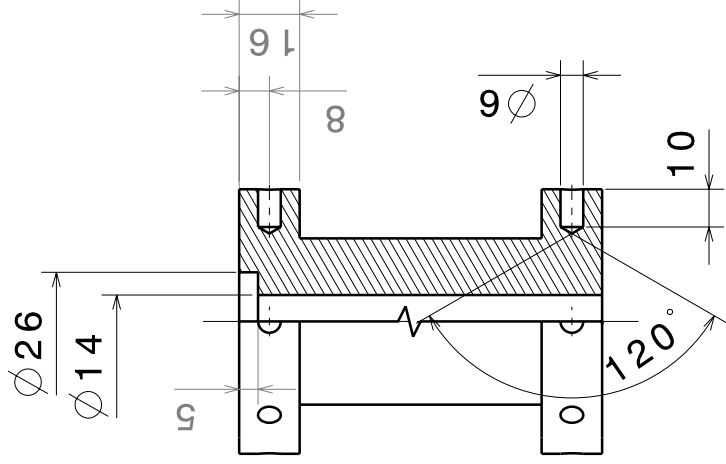
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Data: 18/11/05

Página:

16

C.F.P.: 3.02



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign09



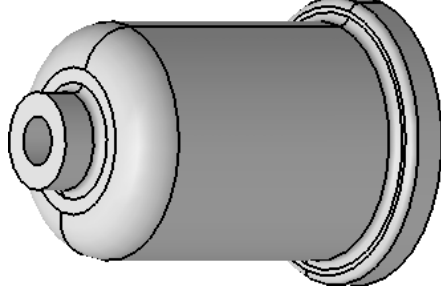
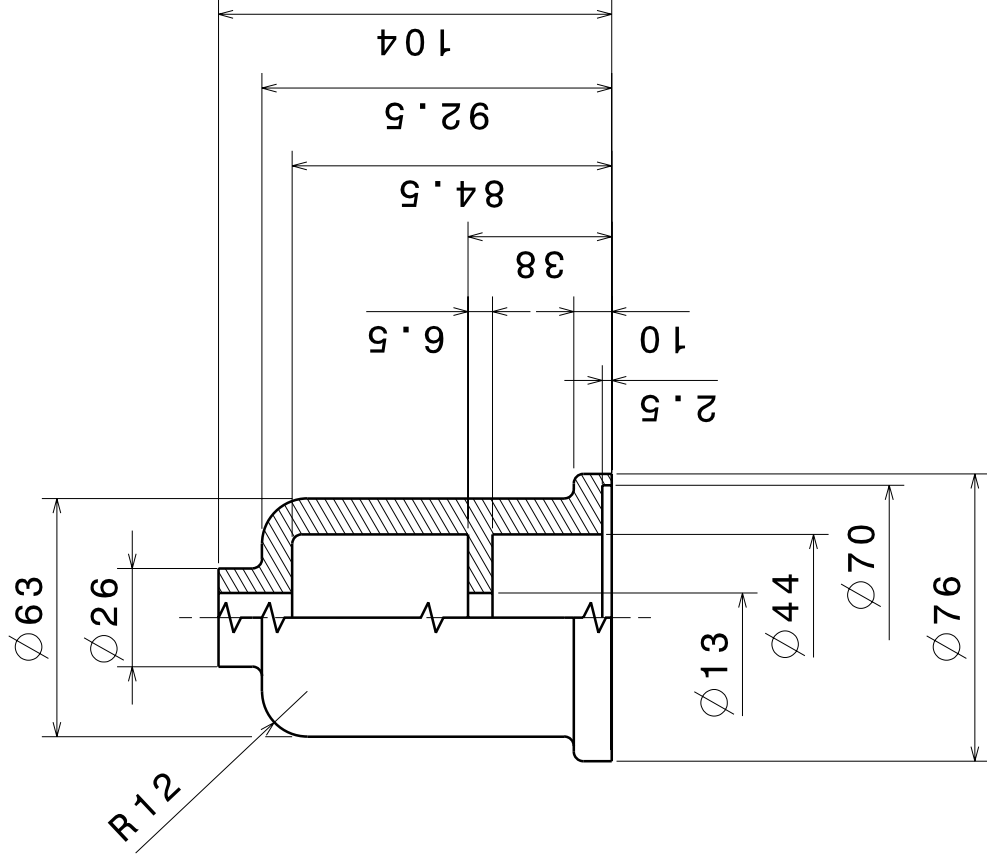
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Escala: 1:2

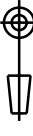
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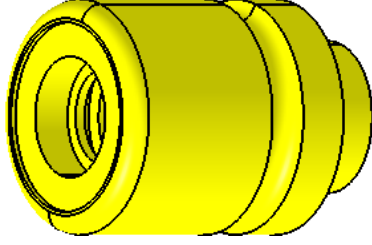
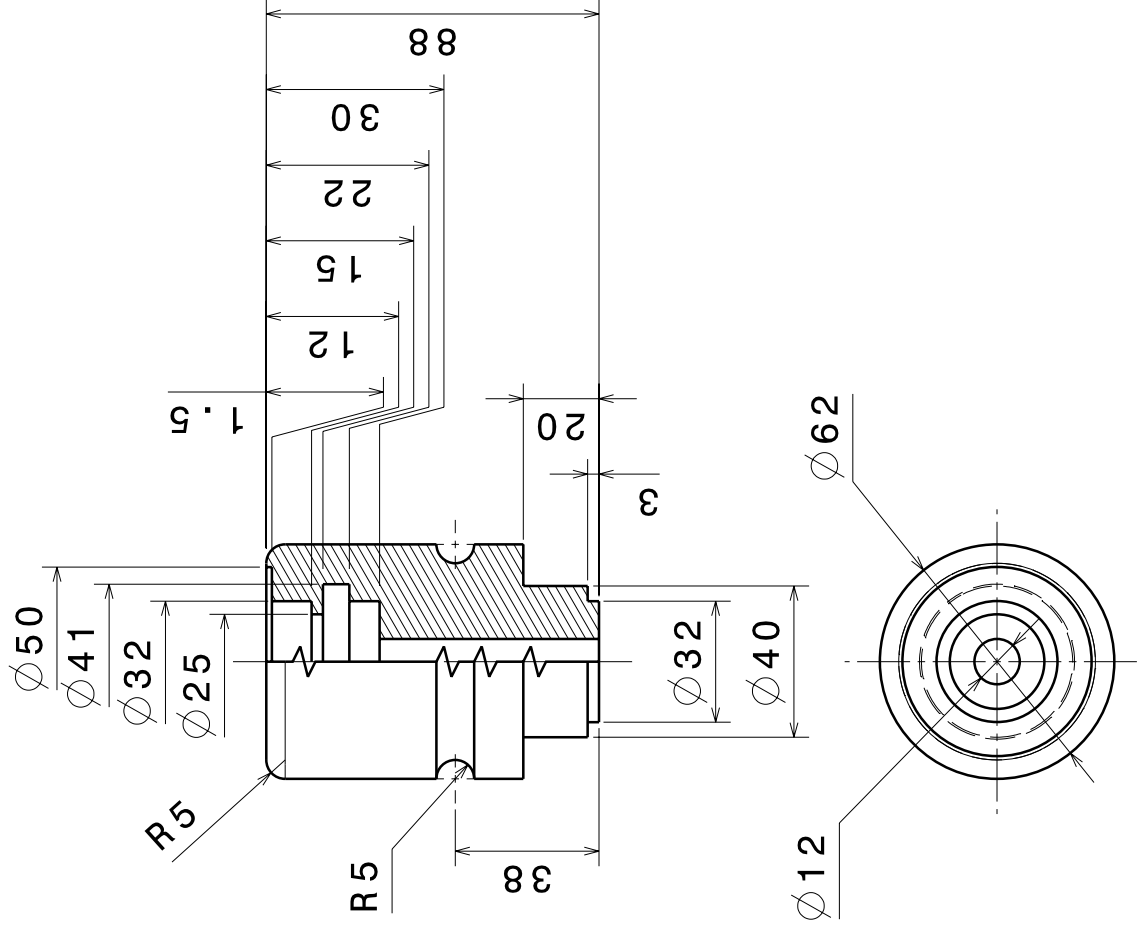
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C.F.P.: 3.02



Todos raios não indicados 2,5 mm

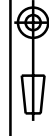
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		C.F.P.: 3.02		



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign11



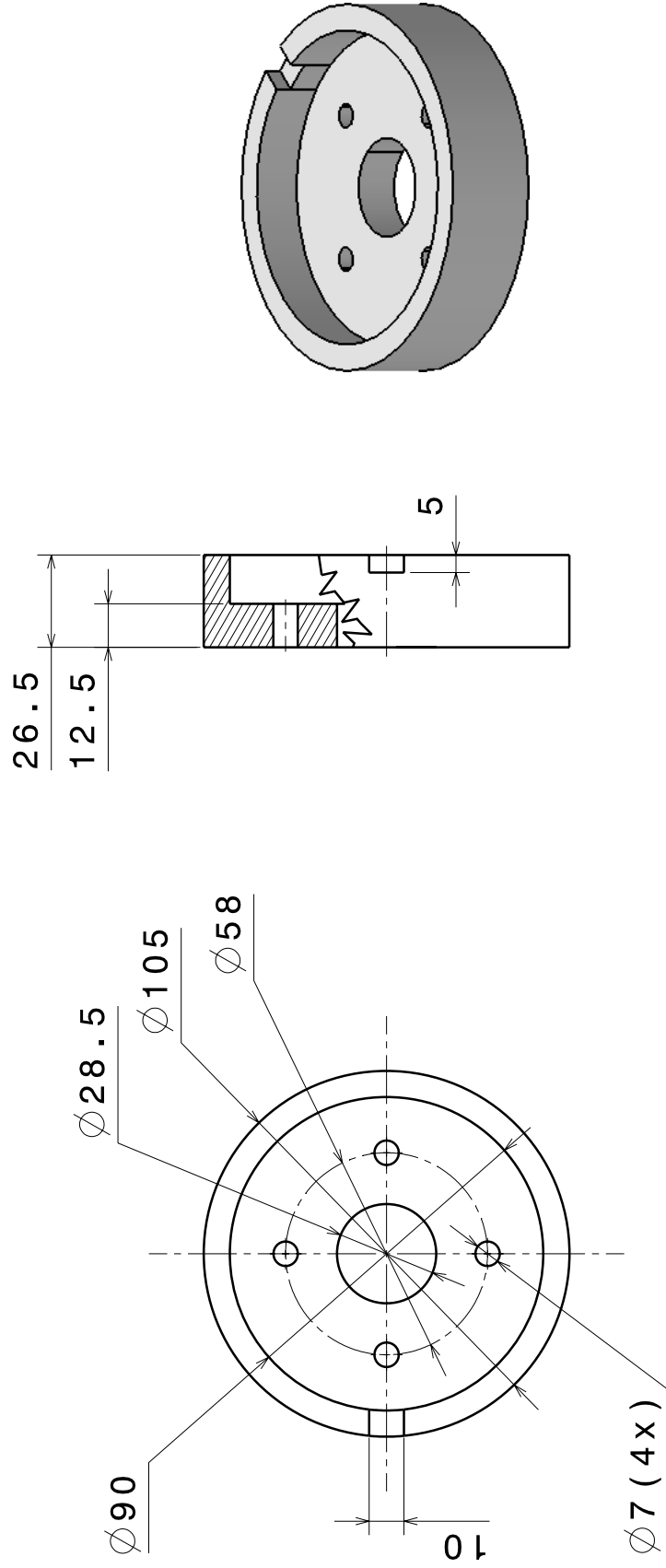
Unidade mm

Escala:
1:2

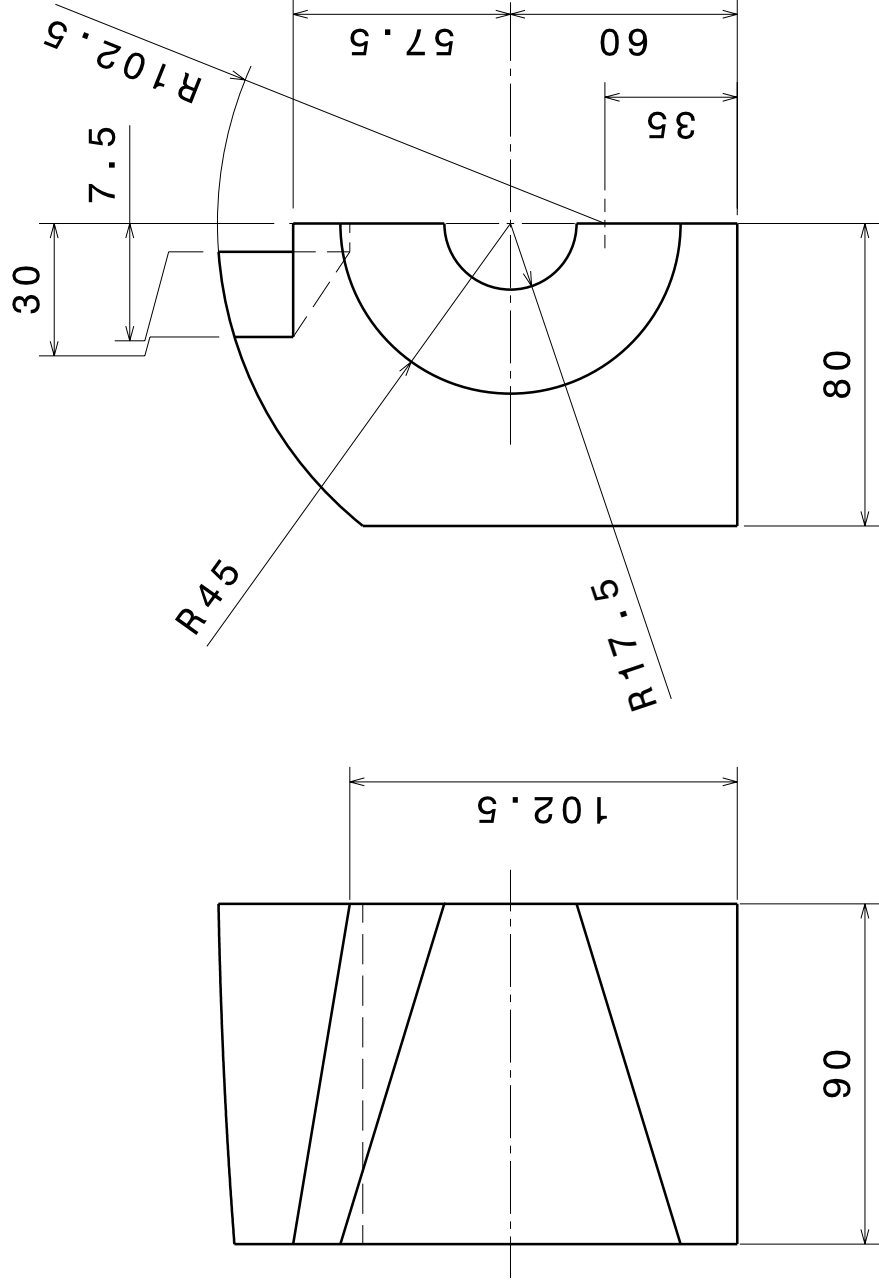
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Página:
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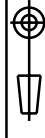
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Desenhado por: Ugo Luiz				Data: 18/11/05	Página:
Desenho: ExPartDesign12				C.F.P.: 3.02	20



Escola Senai "Santos Dumont"



Escala: 1:2

Unidade mm

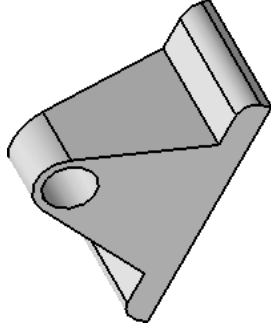
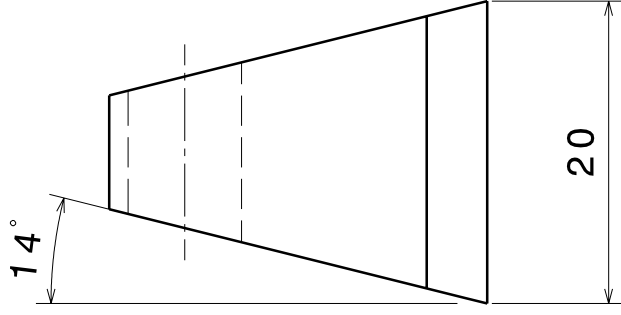
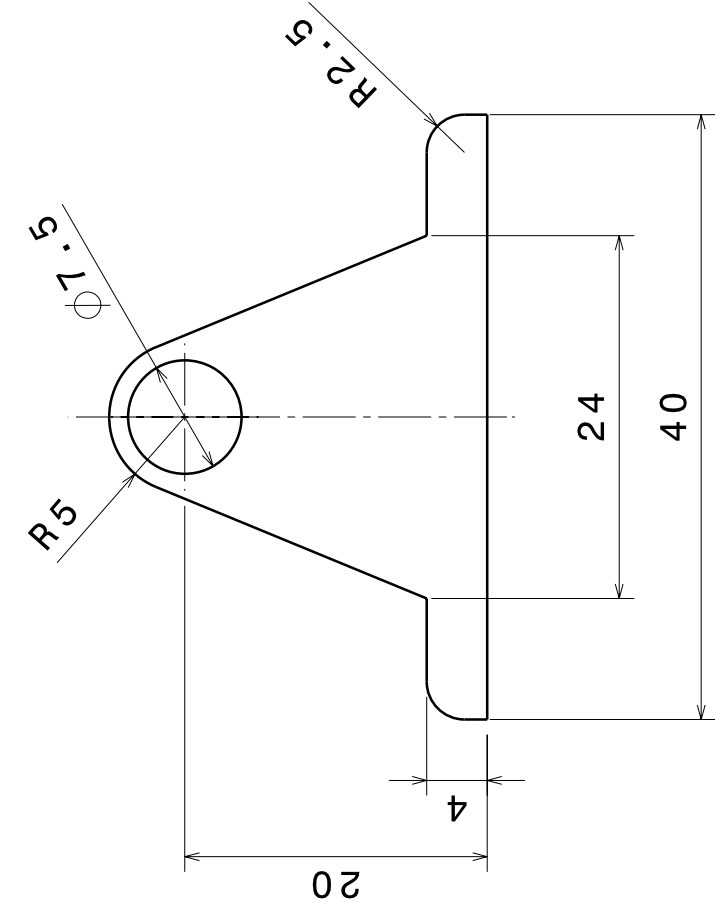
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Página: 21

Desenho: ExPartDesign13

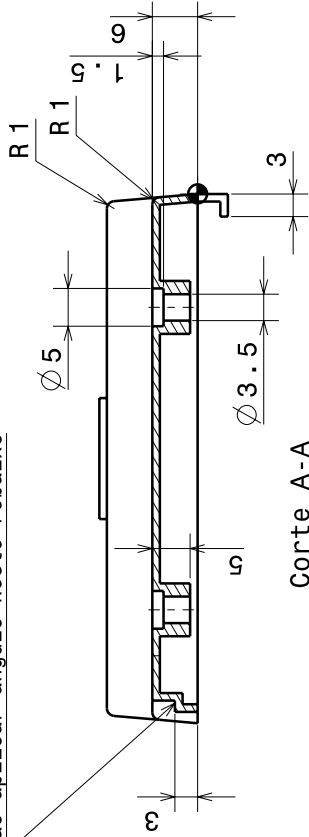
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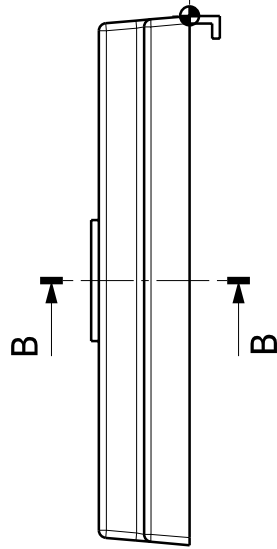


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			Unidade mm	1:2
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	Desenho: ExPartDesign14		C.F.P.: 3.02	22

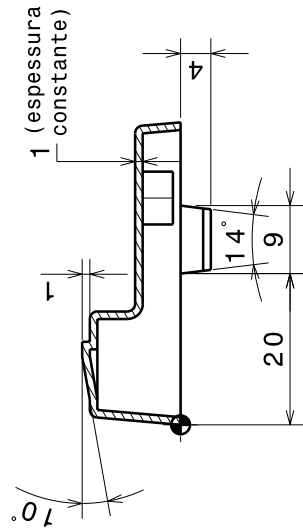
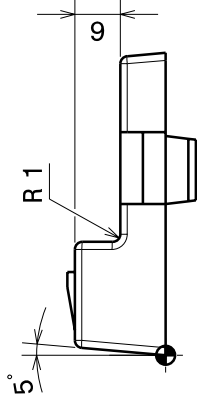
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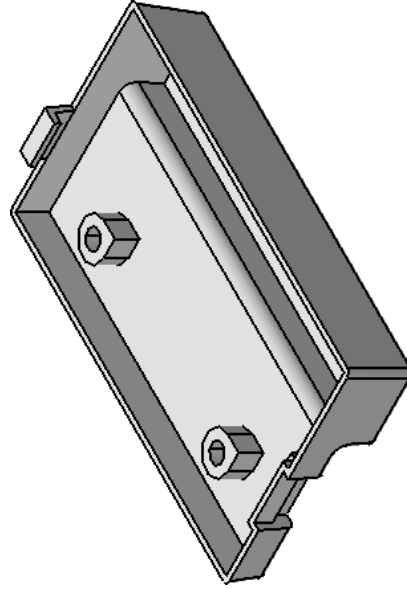
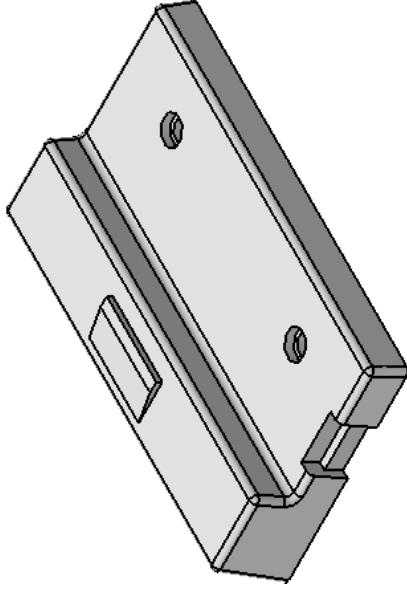
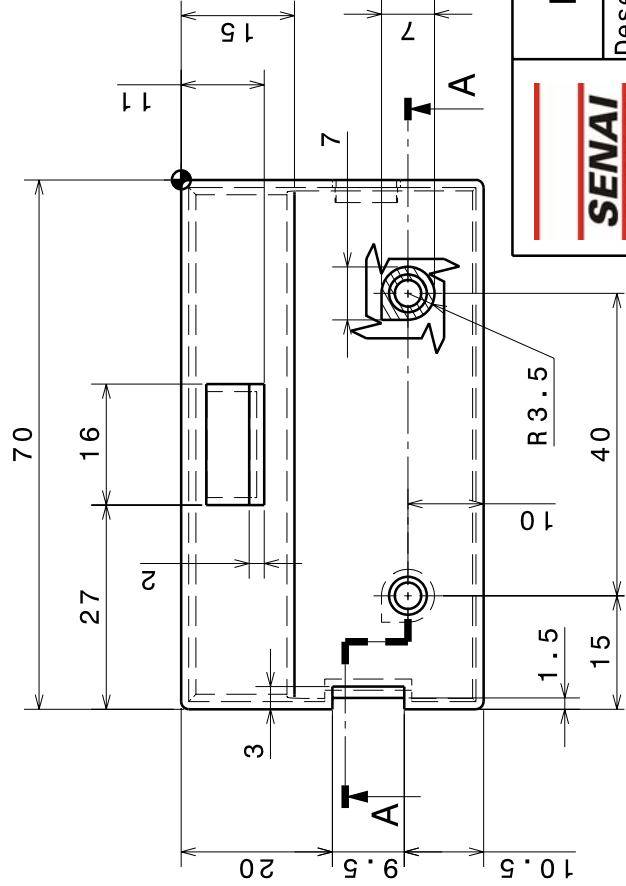
Corte A-A



Corte B-B

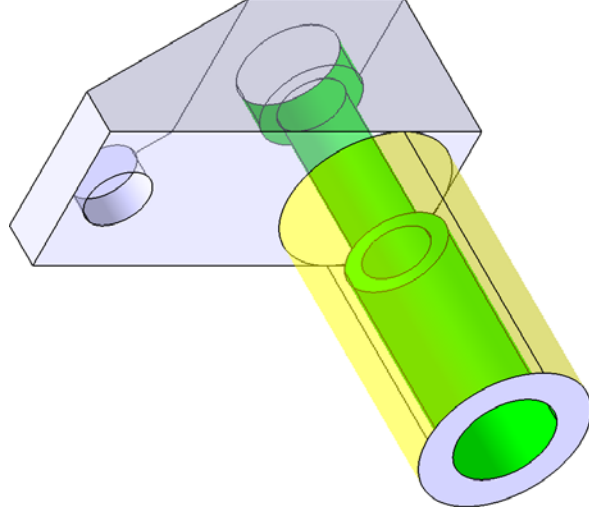
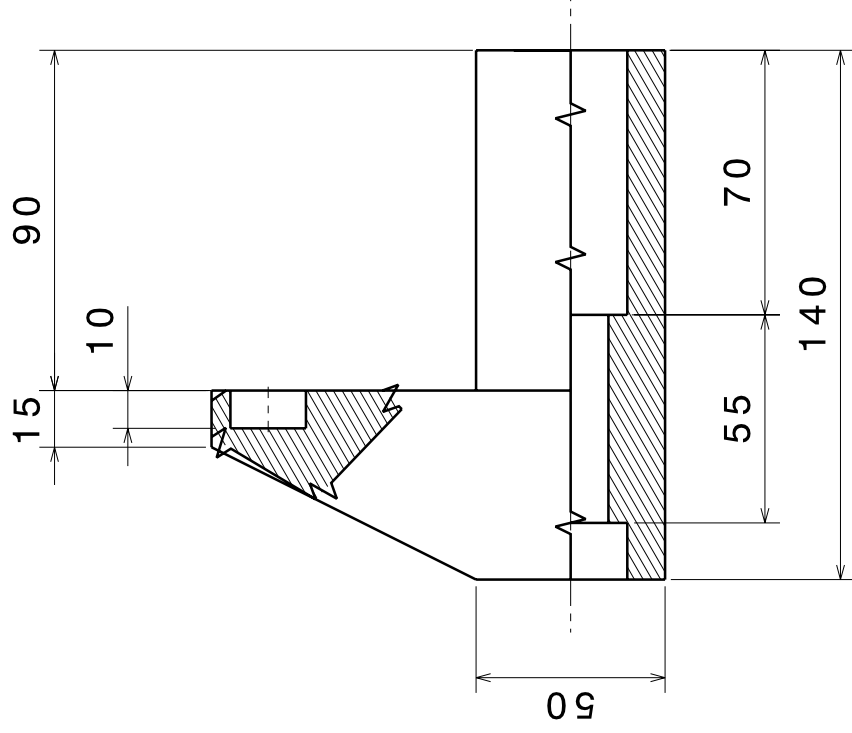
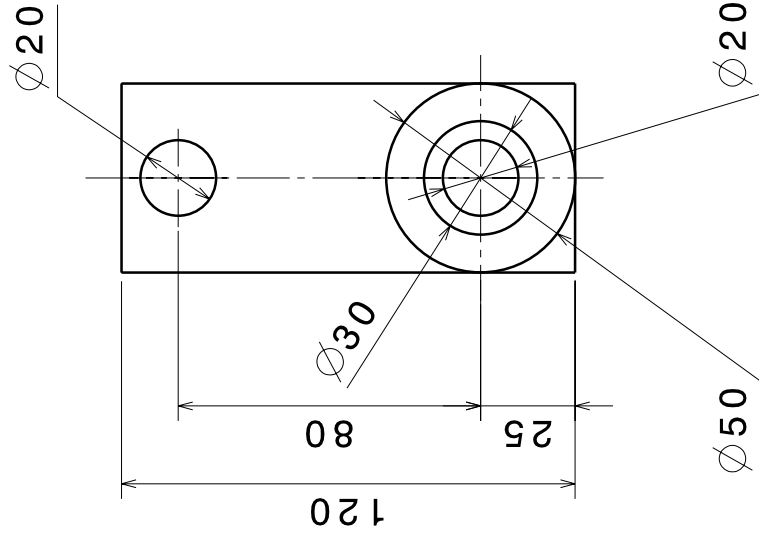


Corte B-B



Referência Coordenada: 0,0,0
Todos os raios não indicados adotar 1mm

SENAI	Escola Senai "Santos Dumont"			Escala:	
	Desenhado por: Fabiana Passador			Unidade mm	
			Desenho: ExPartDesign15		Data: 11/12/05
					C.F.P.: 3.02
					Página: 23



Escola Senai "Santos Dumont"

Unidade mm

Escala: 1:2

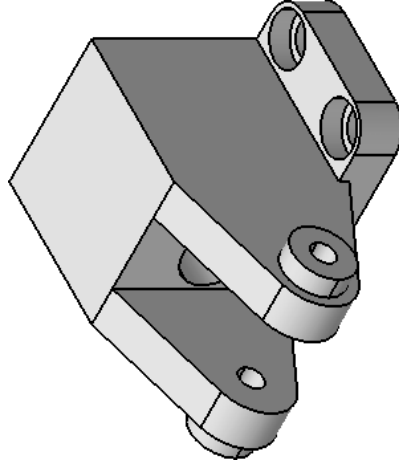
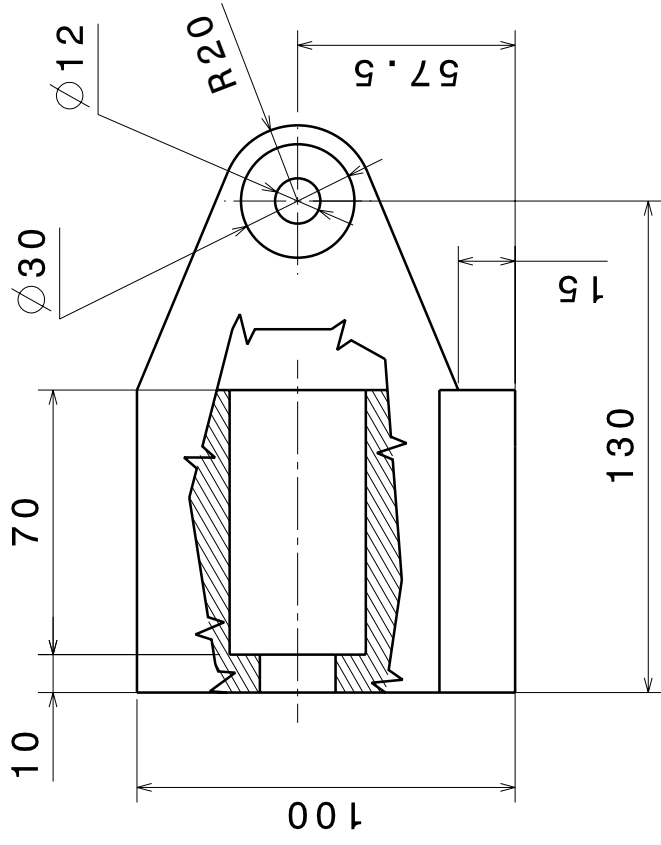
Desenhado por: Ugo Luiz

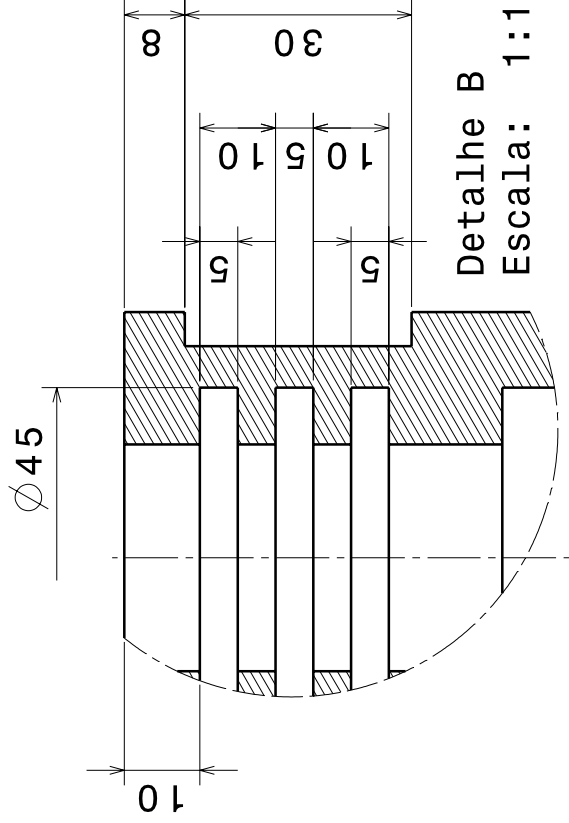
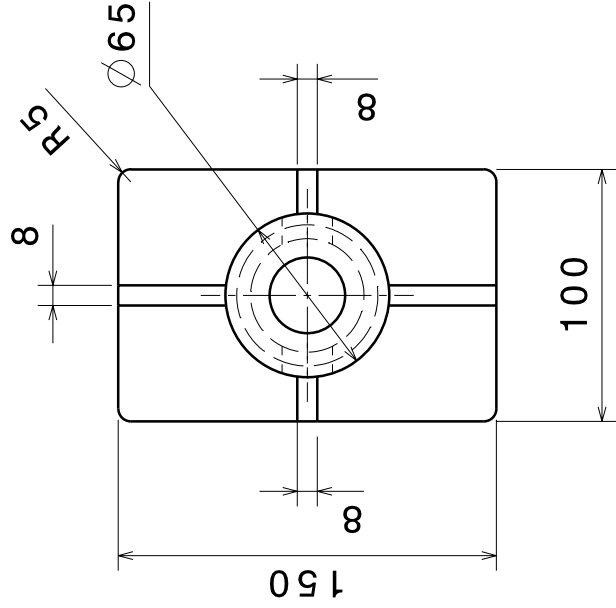
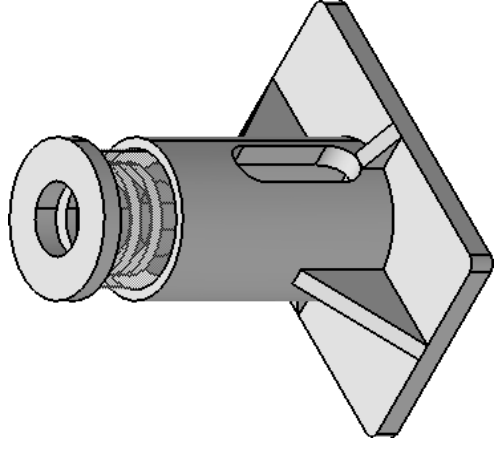
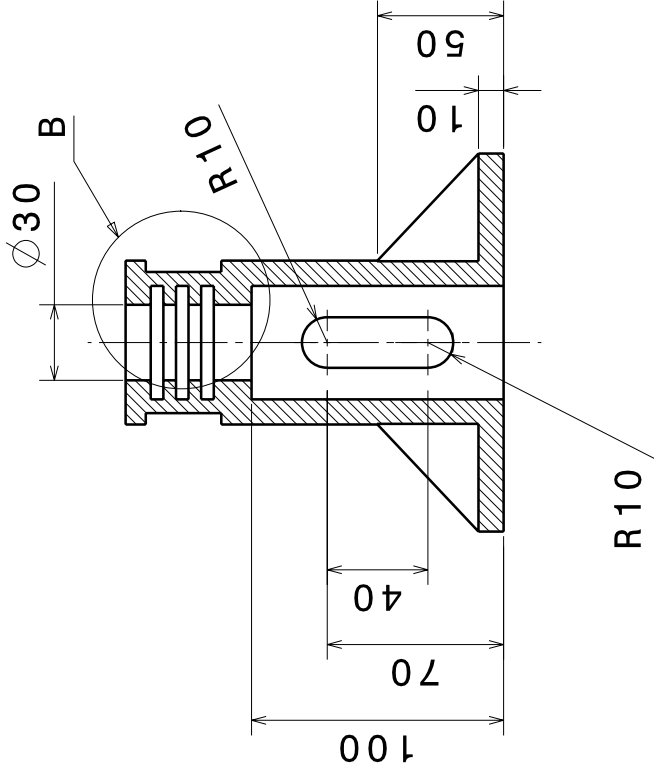
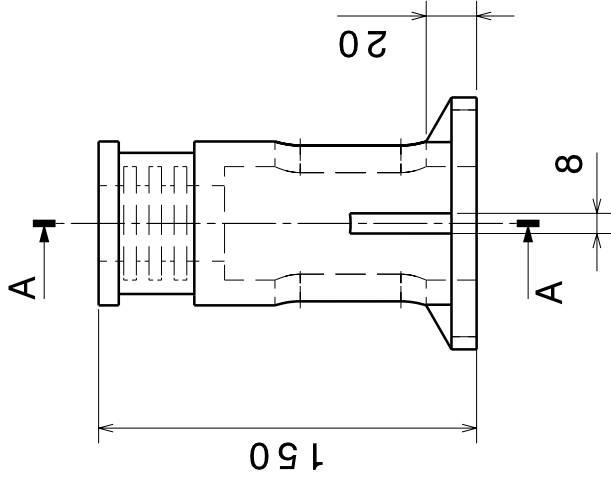
Página: 24

Desenho: ExPartDesign16

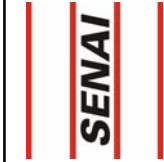
Data: 27/10/05

C.F.P.: 3.02





Detalhe B
Escala: 1:1



Escola Senai "Santos Dumont"

Unidade mm
Escala: 1:2

Desenhado por: Ugo Luiz

Data: 12/11/05
Página: 26

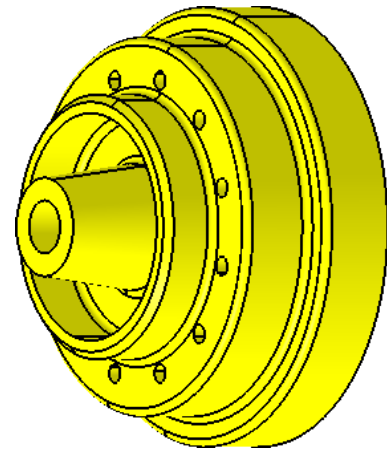
Desenho: ExPartDesign18

C.F.P.: 3.02

Technical drawing of a stepped shaft (Figure 1.10). The drawing shows a shaft with four steps. The dimensions are as follows:

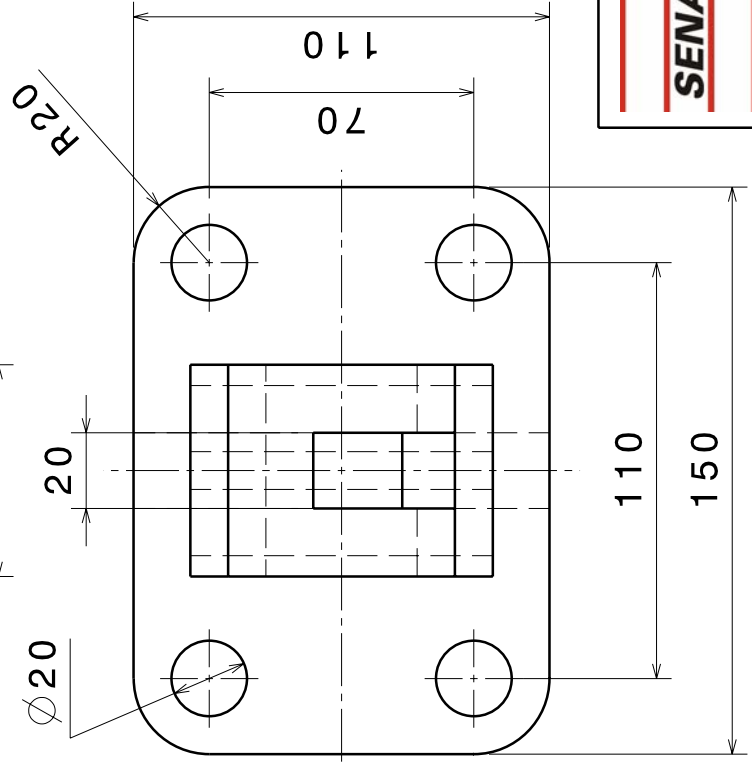
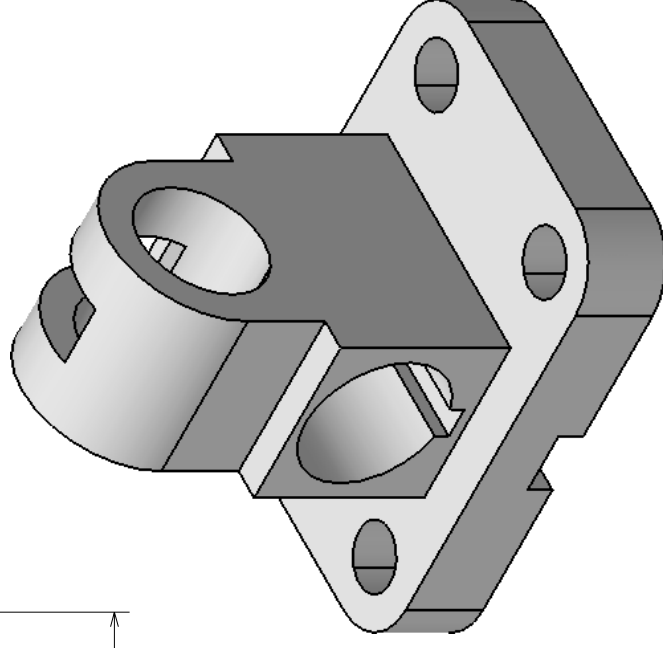
- Total length: 116
- Section A is located at a distance of 100 from the left end.
- Step 1 (from left): diameter $\varnothing 70$, length 70.
- Step 2: diameter $\varnothing 26$, length 15.
- Step 3: diameter $\varnothing 30$, length 30.
- Step 4: diameter $\varnothing 50$, length 50.
- Section A is located at a distance of 70 from the right end.
- Section A is located at a distance of 85 from the left end.

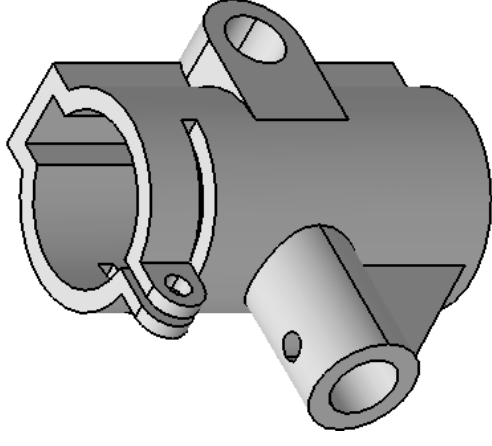
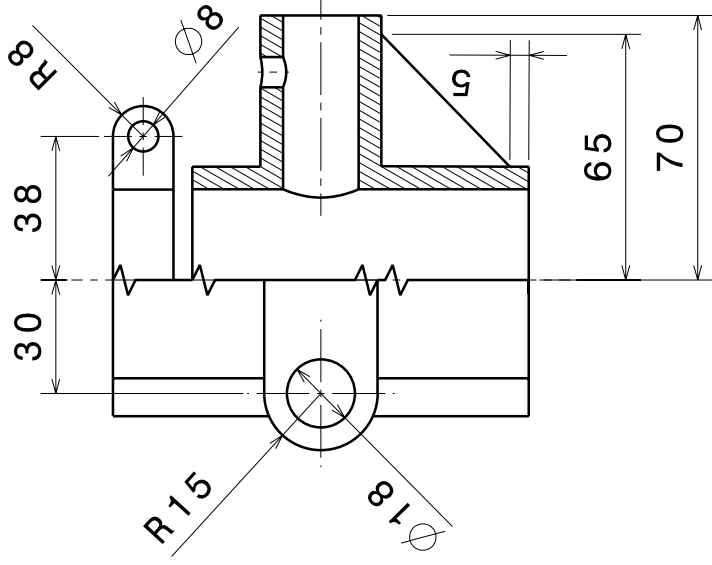
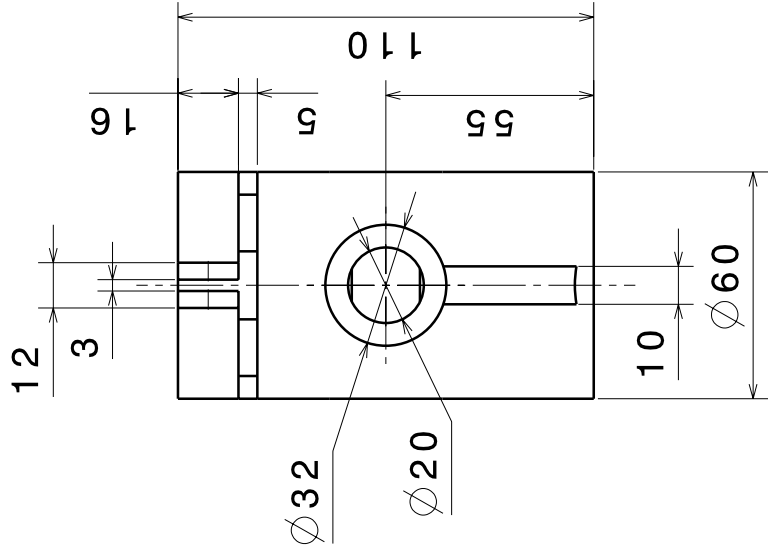
Technical drawing of a circular mechanical part, likely a flange or end view of a shaft. The drawing shows concentric circles representing different diameters. A central circle is labeled with a diameter of $\varnothing 8$. A larger circle is labeled with a diameter of $\varnothing 12$. A dimension line indicates a distance of 12 from the center to the outer edge. There are 12 small circles arranged in a ring, each containing a plus sign (+). A dashed line indicates a vertical centerline.



Corte A-A
Escala: 1:2

	Escola Senai "Santos Dumont"			Escala: 1:1
			Unidade mm	
	Desenhado por: Ugo Luiz		Data: 12/11/05	Página:
	Desenho: ExPartDesign19		C.F.P.: 3.02	27





Escola Senai "Santos Dumont"



Unidade mm

Escala: 1:2

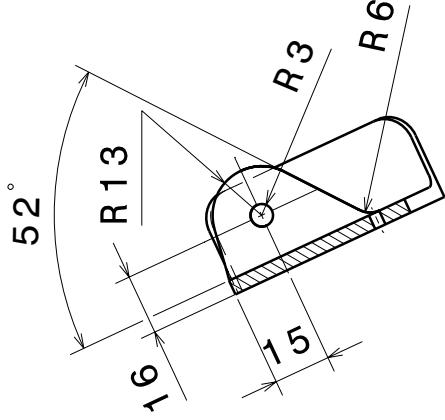
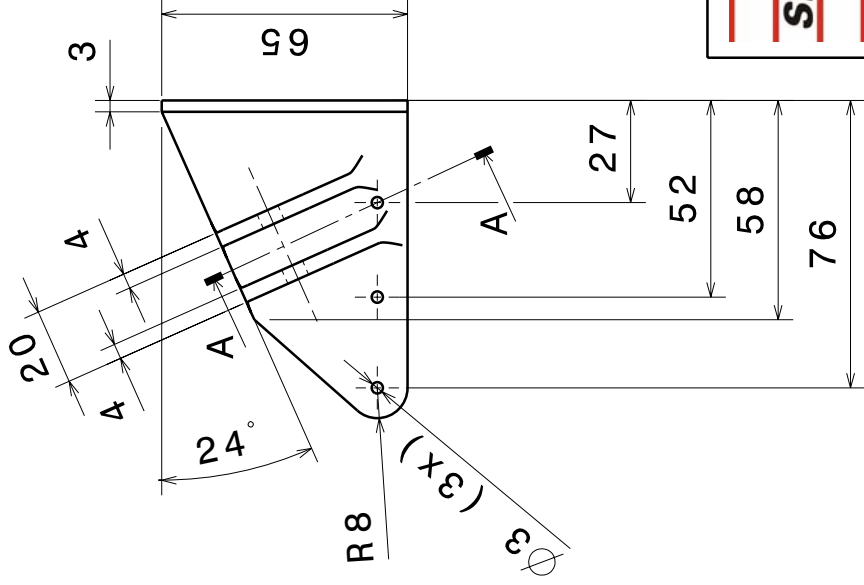
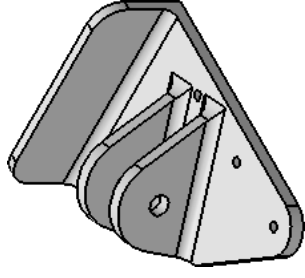
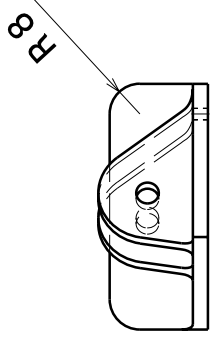
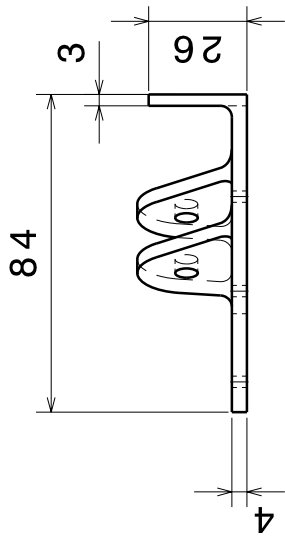
Desenhado por: Ugo Luiz

Página: 29

Desenho: ExPartDesign21

Data: 12/11/05

C.F.P.: 3.02



Secção A-A



Escola Senai "Santos Dumont"



Unidade mm

Escola: 1:2

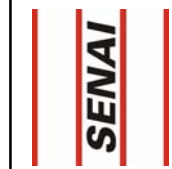
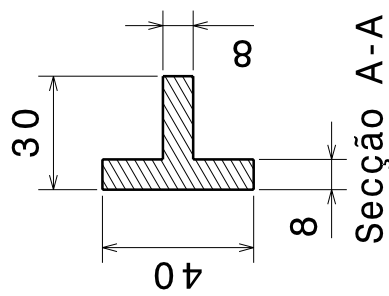
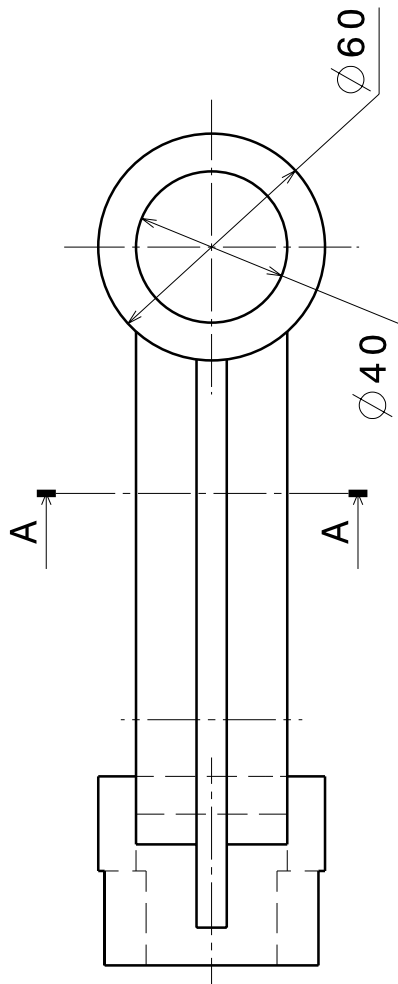
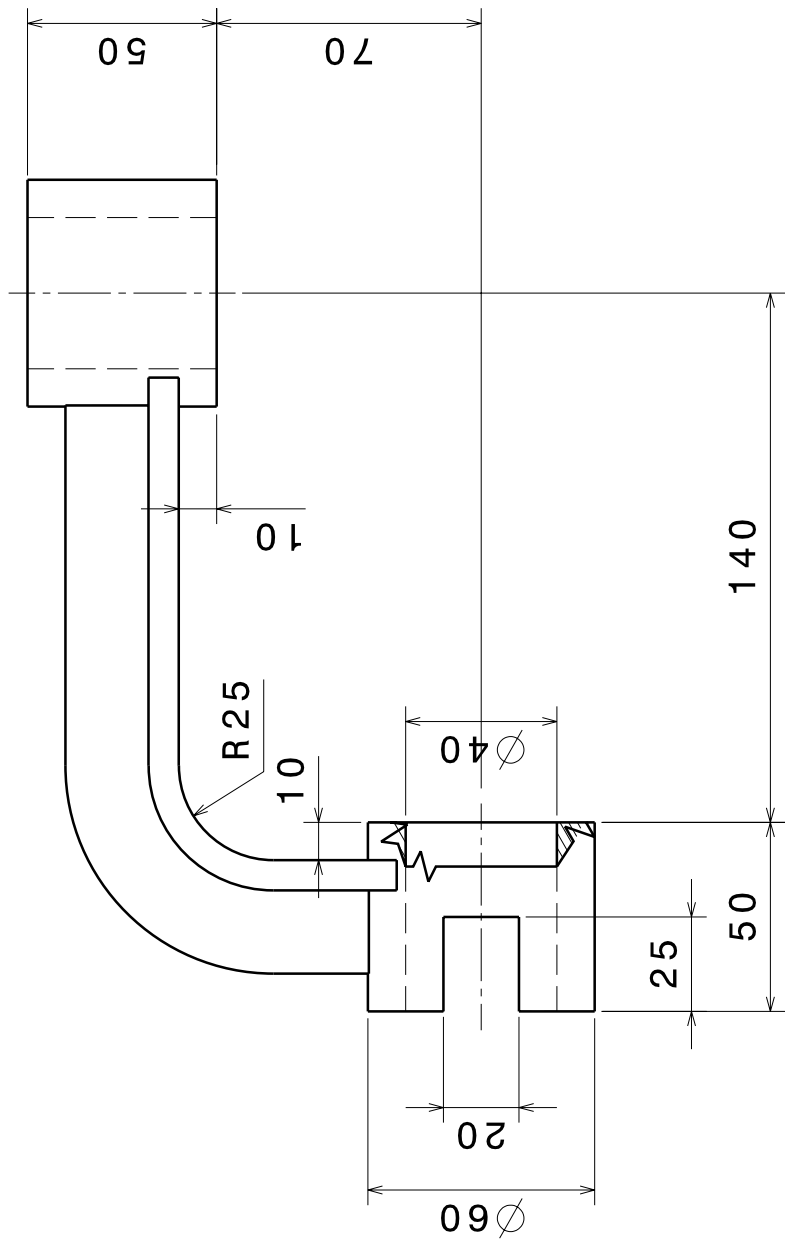
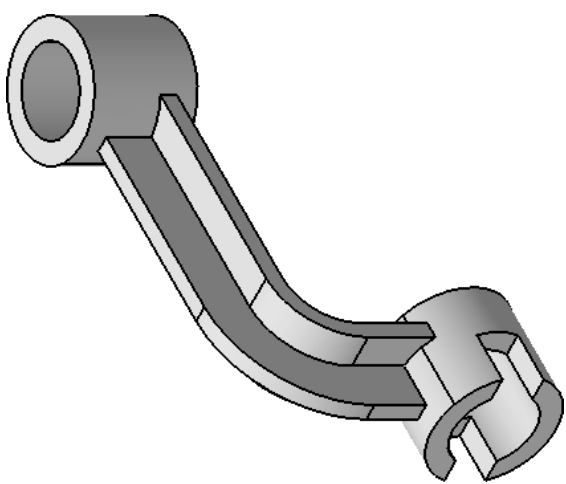
Desenhado por: Ugo Luiz

Data: 27/10/05

Página: 31

Desenho: ExPartDesign23

C.F.P.: 3.02



Escola Senai "Santos Dumont"



Escala:

1:2

Unidade mm

Desenhado por: Ugo Luiz

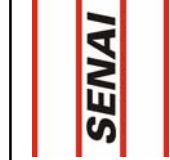
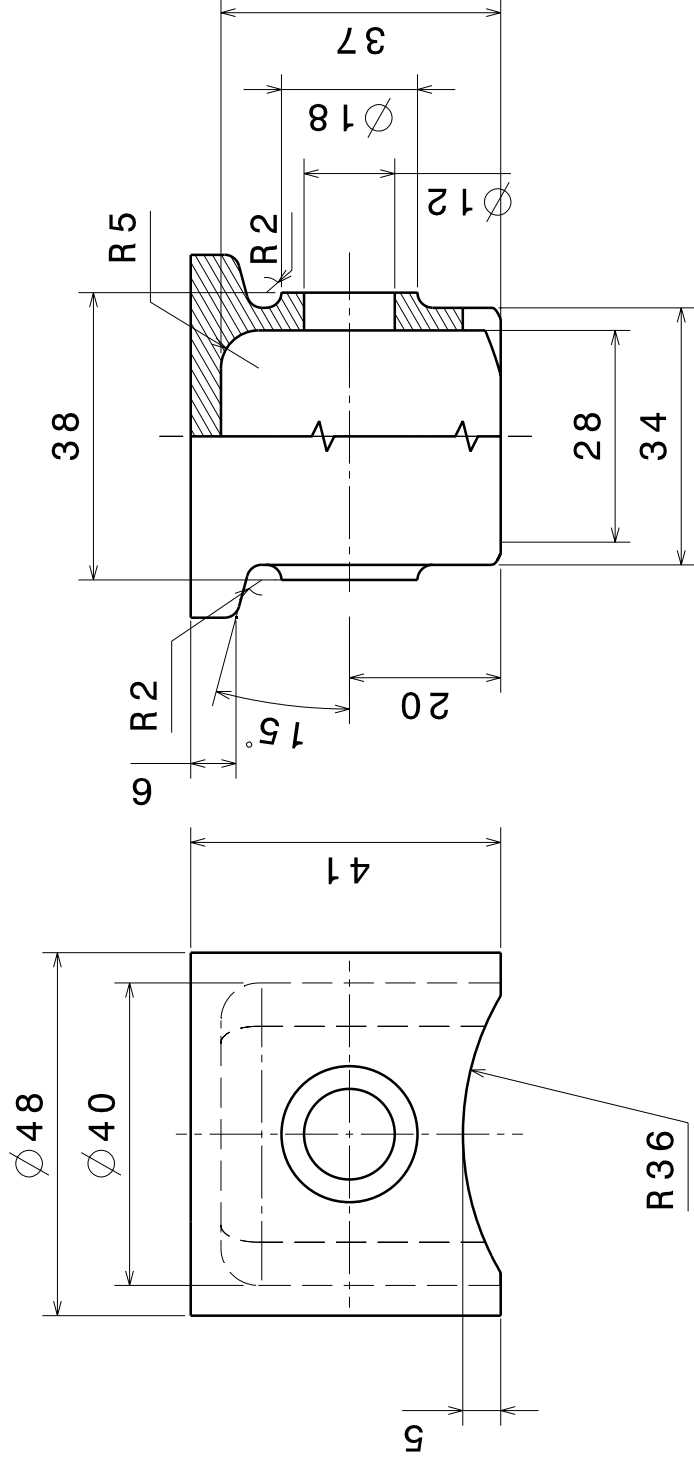
Página:

Desenho: ExPartDesign24

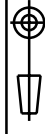
Data: 27/10/05

C.F.P.: 3.02

32



Escola Senai "Santos Dumont"



Unidade mm

Escala: 1:1

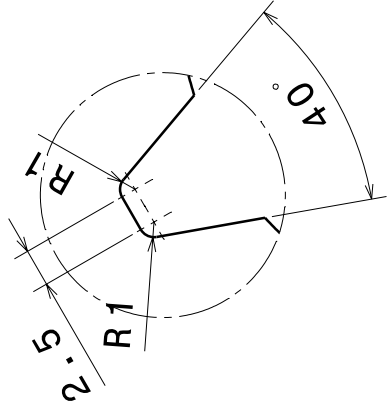
Desenhado por: Ugo Luiz

Data: 27/10/05

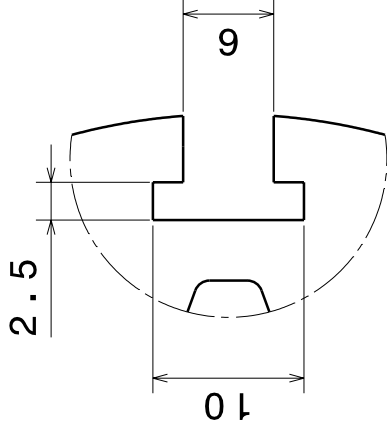
Desenho: ExPartDesign25

Página: 33

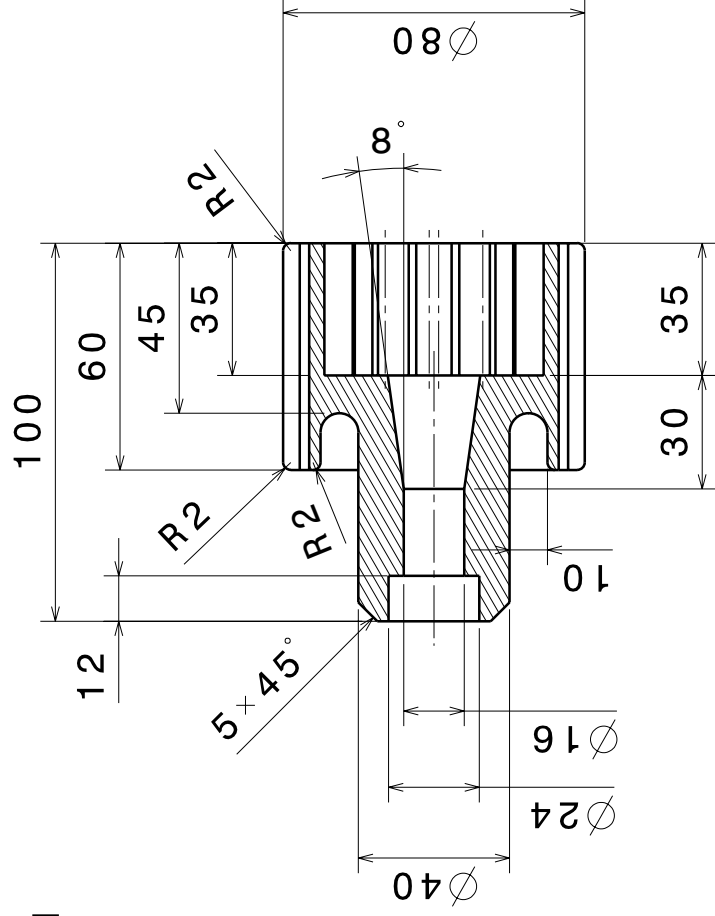
C.F.P.: 3.02



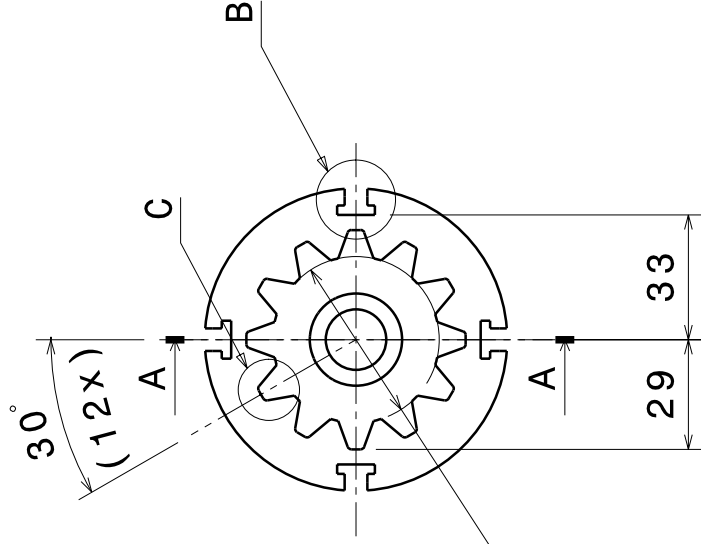
Detalhe C
Escala: 2:1



Detalhe B
Escala: 2:1



Secção A-A



Escola Senai "Santos Dumont"



Escala: 1:2

Unidade mm

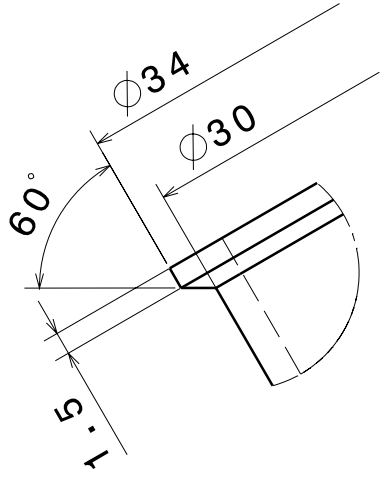
Desenhado por: Ugo Luiz

Página: 34

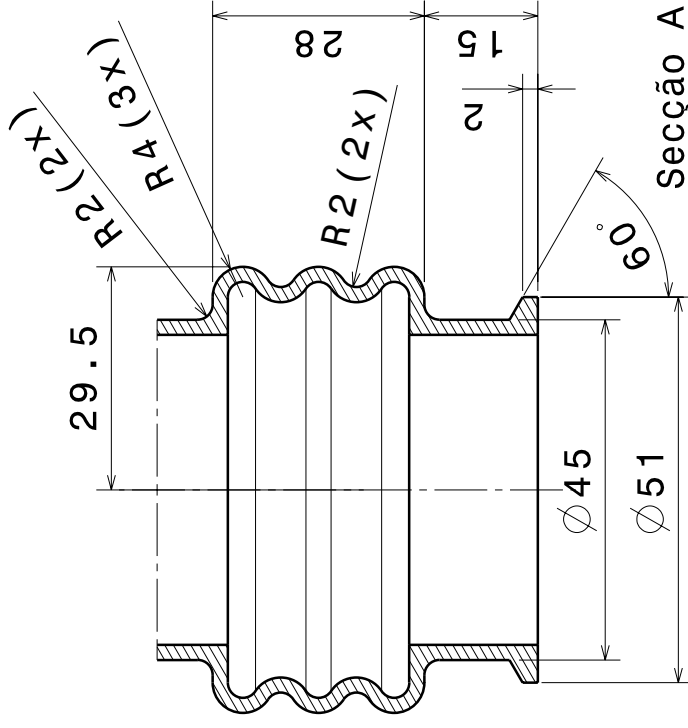
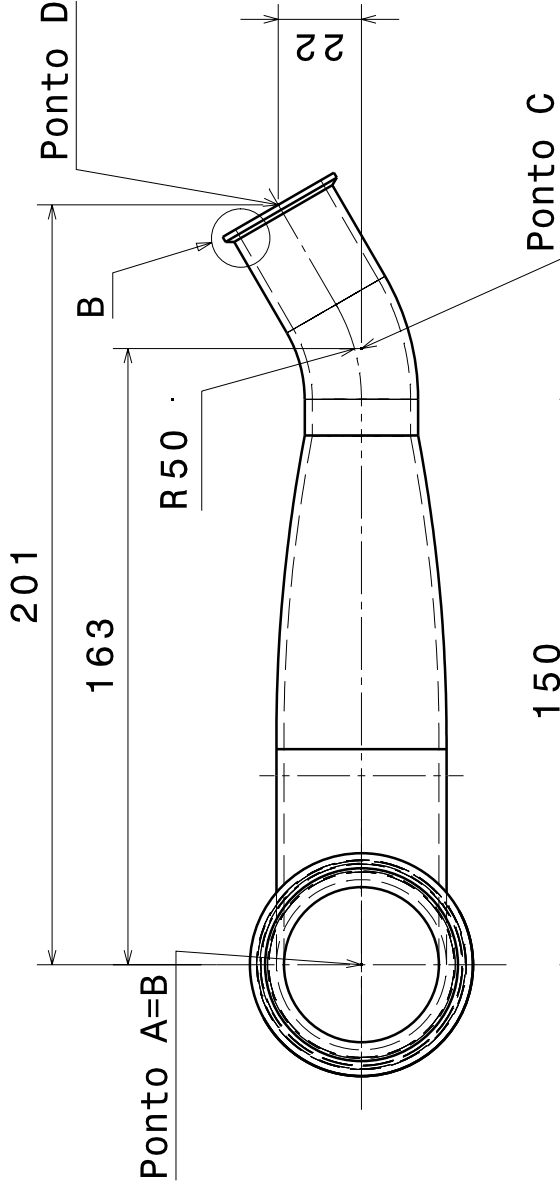
Desenho: ExPartDesign26

Data: 27/10/05

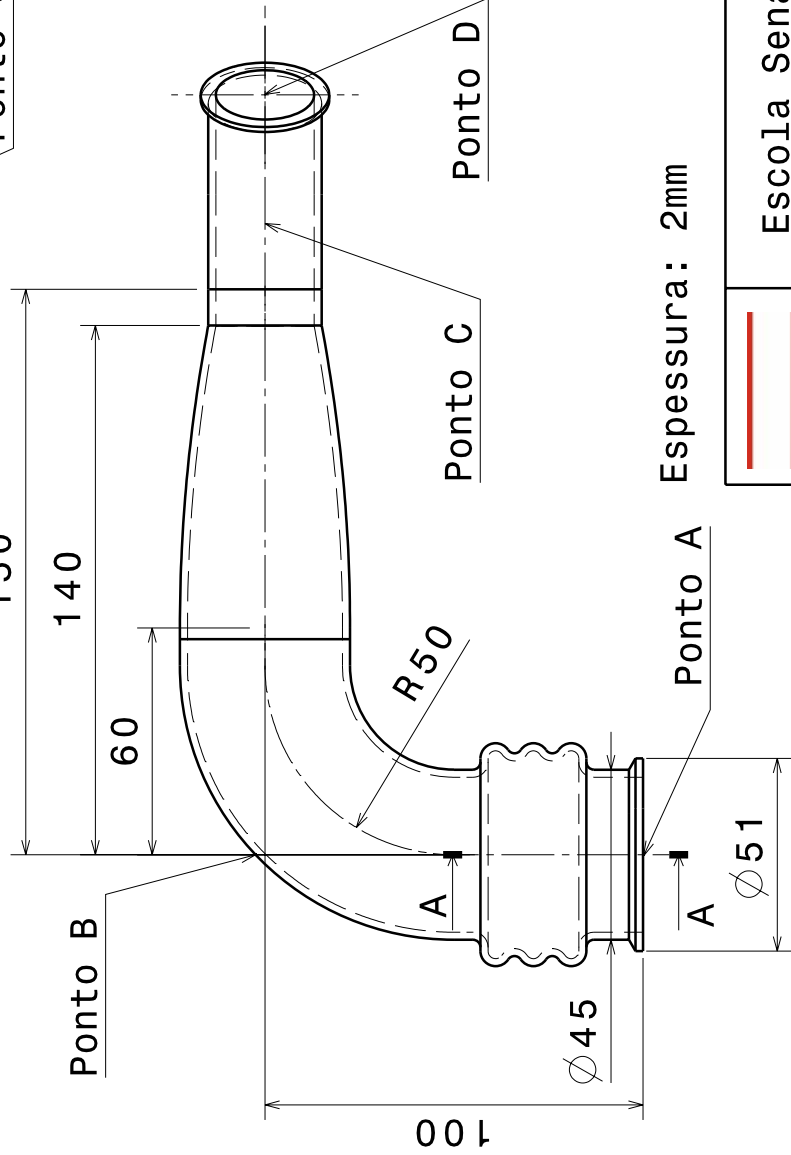
C.F.P.: 3.02



Detalhe B
Escala: 2:1



Secção A-A
Escala 1:1



EspeSSura: 2mm



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign27



Escala:

1:2

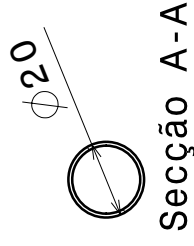
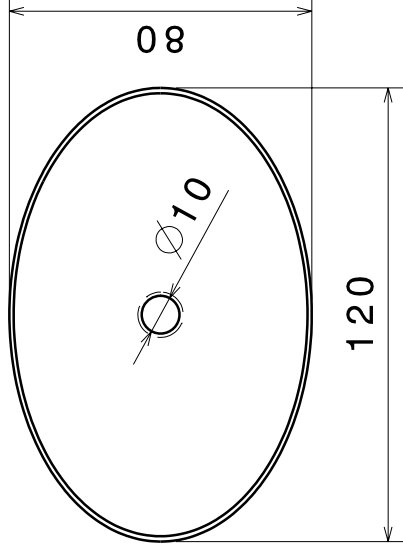
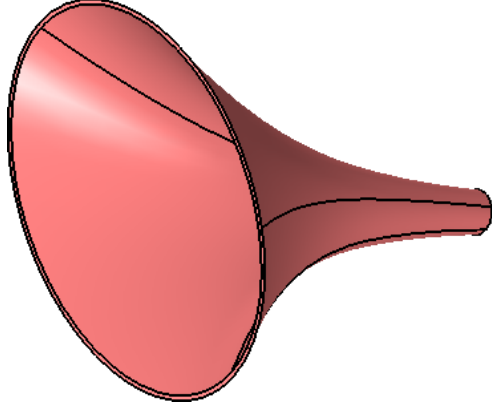
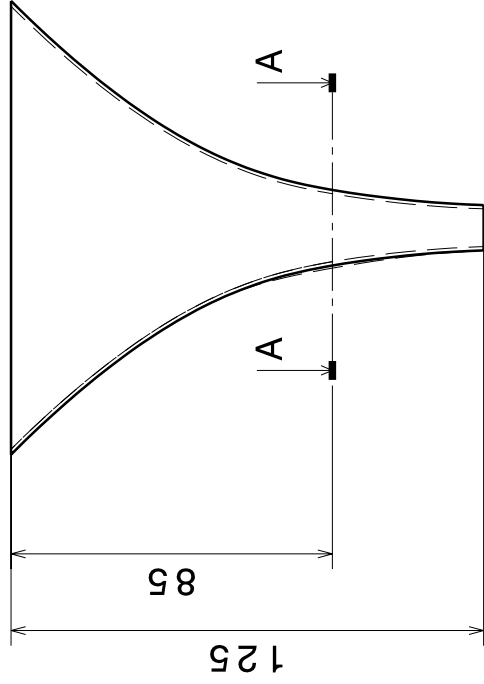
Unidade mm

Data: 27/10/05

Página:

35

C.F.P.: 3.02



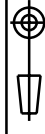
A espessura da parede é 1mm.



Escola Senai "Santos Dumont"

Desenhado por: Ugo Luiz

Desenho: ExPartDesign28

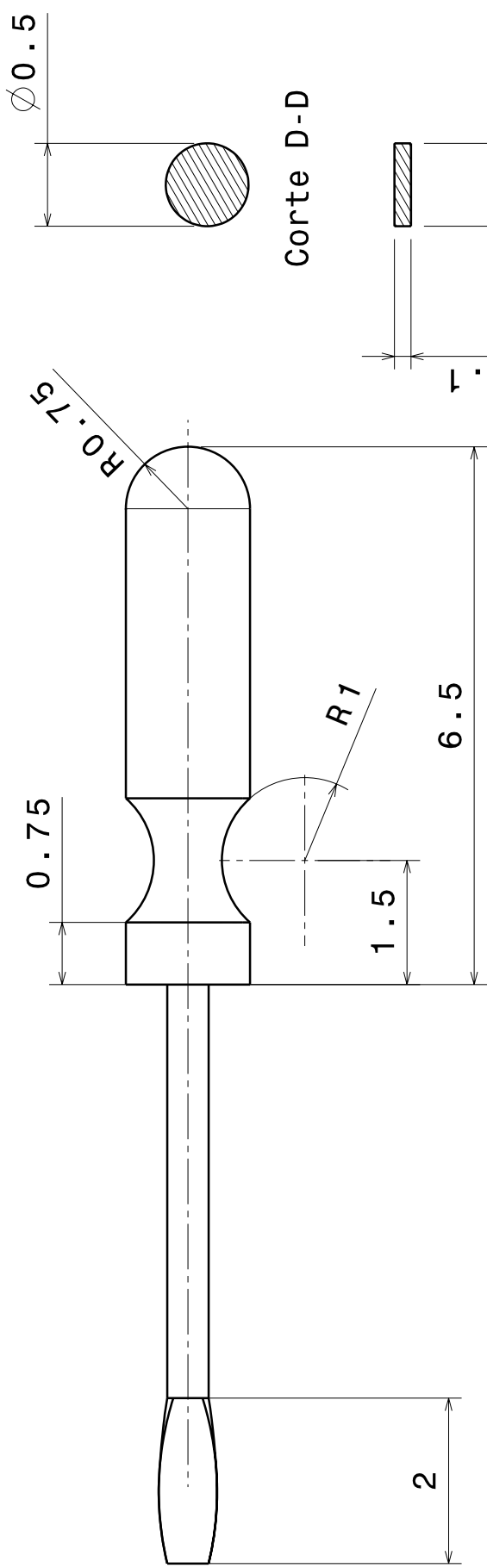


Unidade mm

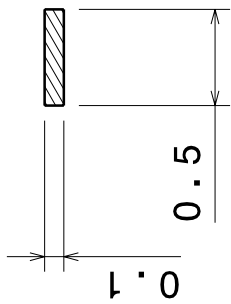
Escala:
1:2

Data: 27/10/05

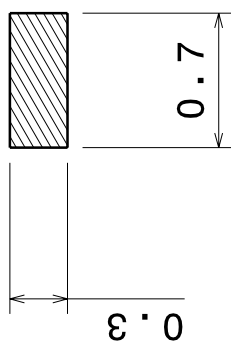
Página:
36



Corte D-D

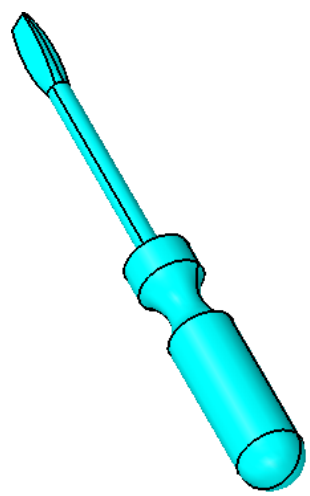


Corte C-C

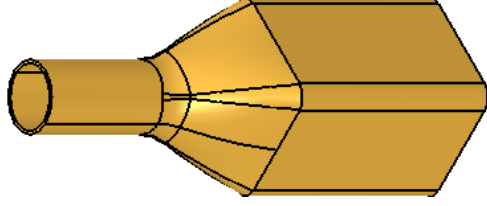
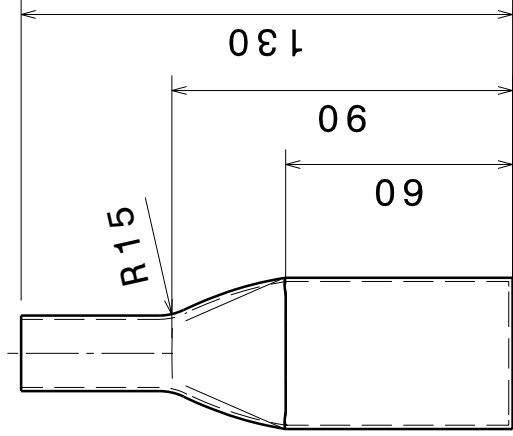


Corte B-B

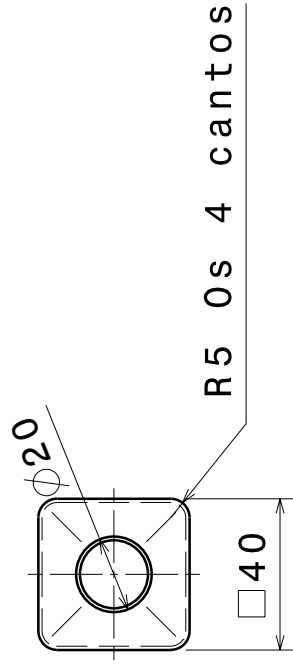
Todas as medidas estão em polegadas.



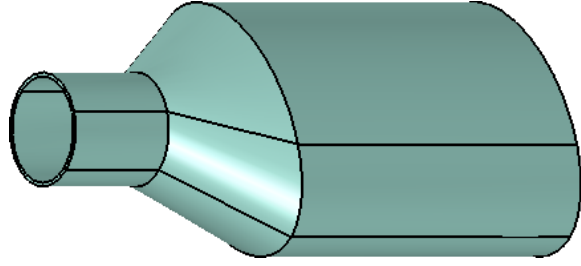
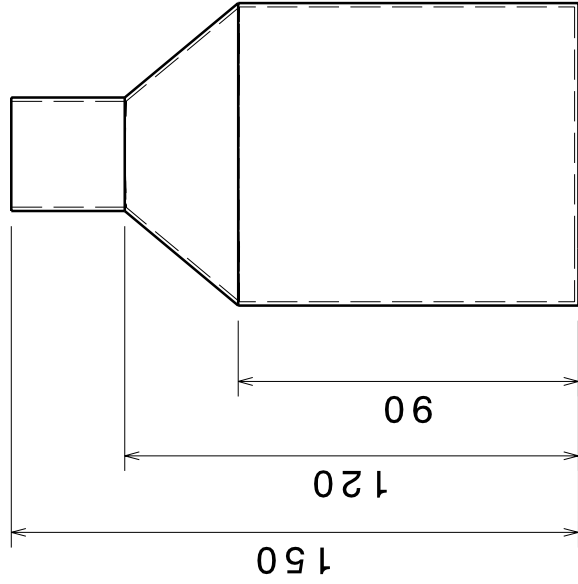
SENAI	Escola Senai "Santos Dumont"			Escala:
			Unidade mm	1:2
	Desenhado por: Ugo Luiz		Data: 27/10/05	Página:
	Desenho: ExPartDesign29		C.F.P.: 3.02	37



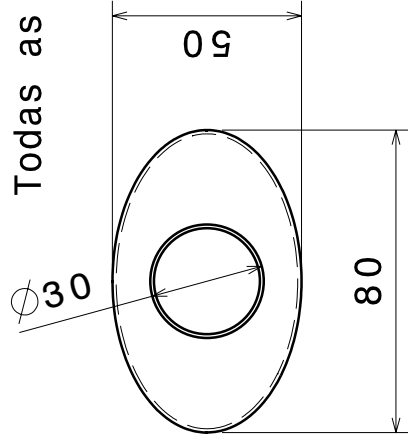
Todas as paredes espessura de 1mm.



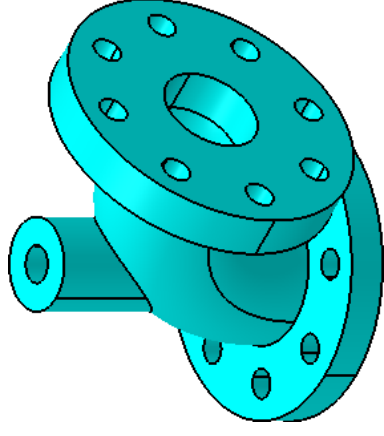
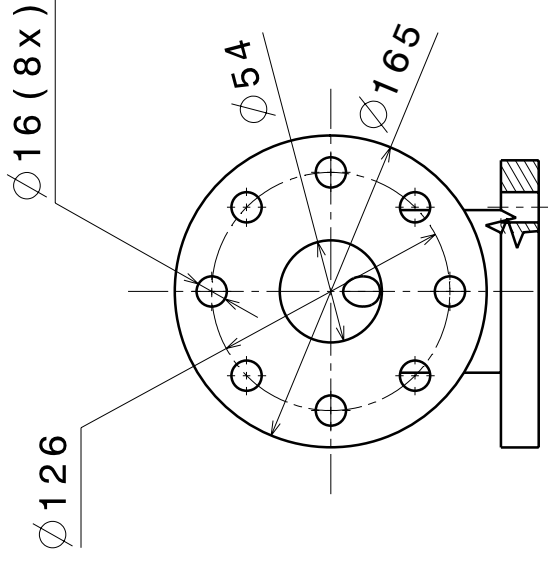
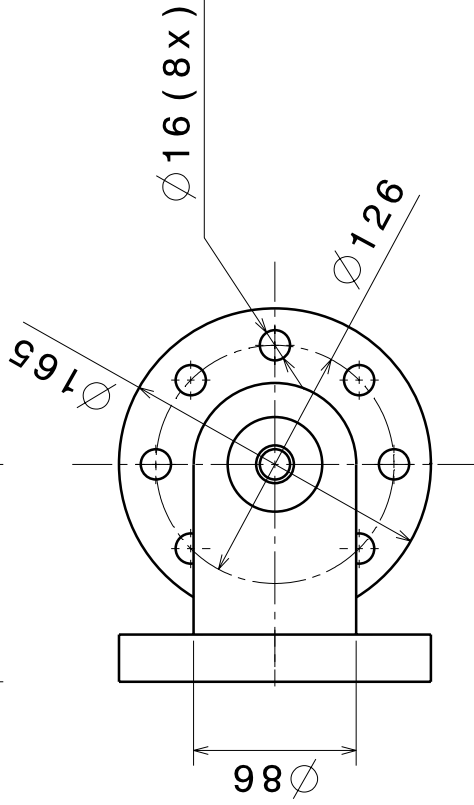
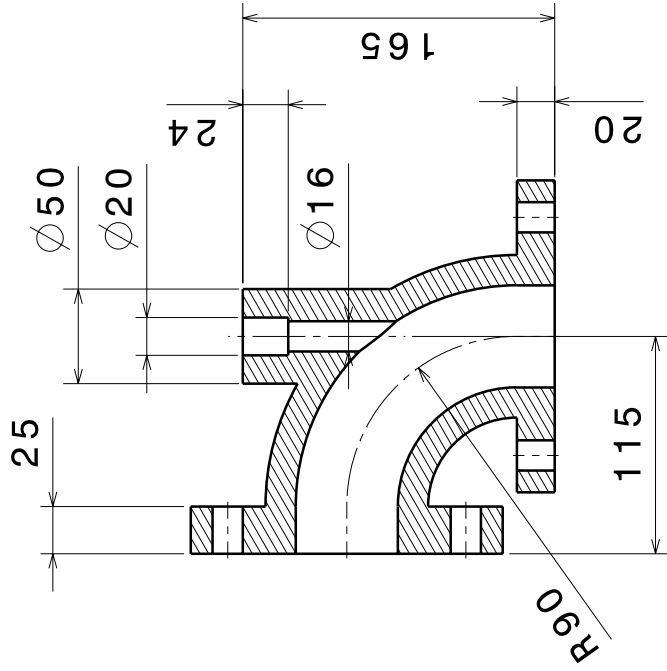
SENAI	Escola Senai "Santos Dumont"			Escola:
			Unidade mm	1:2
	Desenhado por: Ugo Luiz			Página:
	Desenho: ExPartDesign30		Data: 27/10/05	38
			C.F.P.: 3.02	



Todas as paredes espessura de 1mm.



SENAI	Escola Senai "Santos Dumont"			Escala:
			Unidade mm	1:2
	Desenhado por: Ugo Luiz		Data: 27/10/05	Página:
	Desenho: ExPartDesign31		C.F.P.: 3.02	39



Escola Senai "Santos Dumont"



Escala:

1:2

Unidade mm

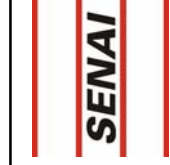
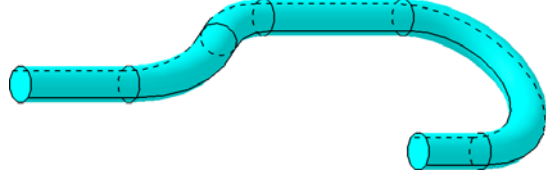
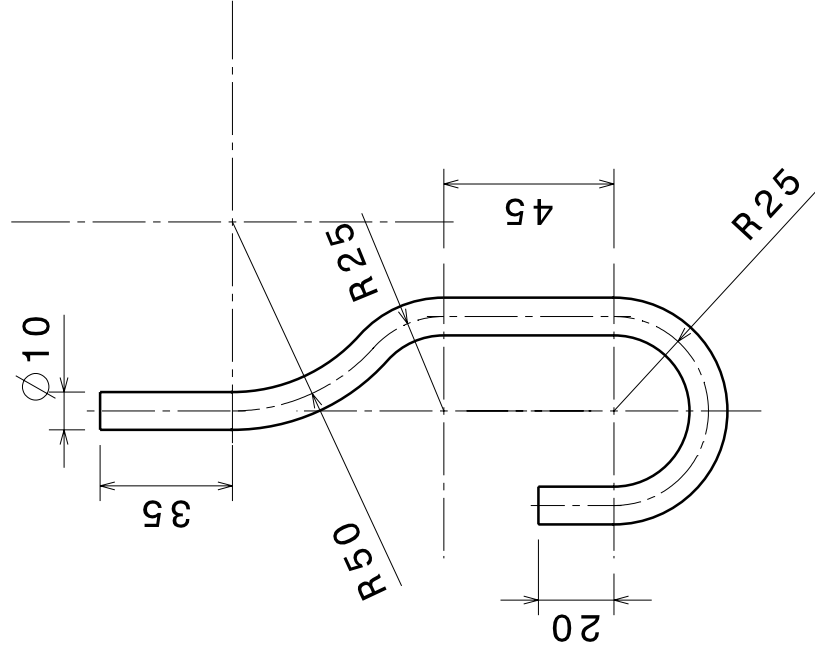
Data: 18/11/05

Página:

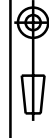
40

Desenhado por: Ugo Luiz

Desenho: ExPartDesign32



Escola Senai "Santos Dumont"



Escala:

1:2

Unidade mm

Data: 18/11/05

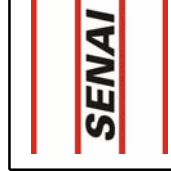
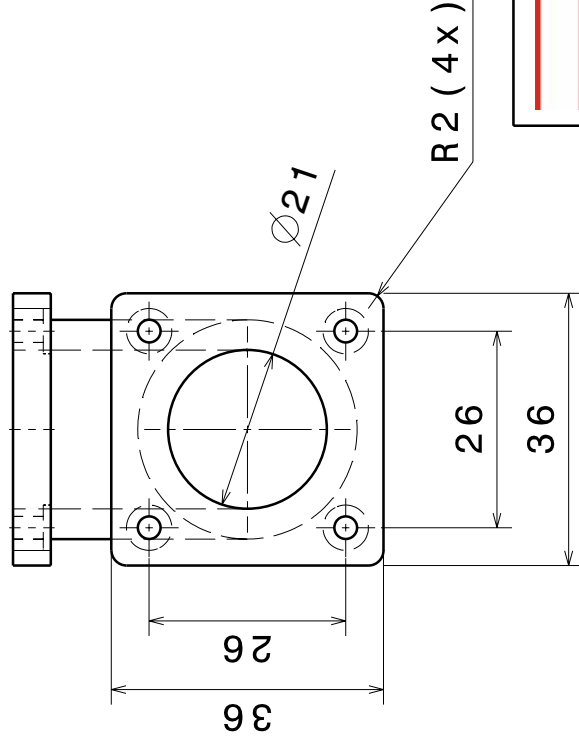
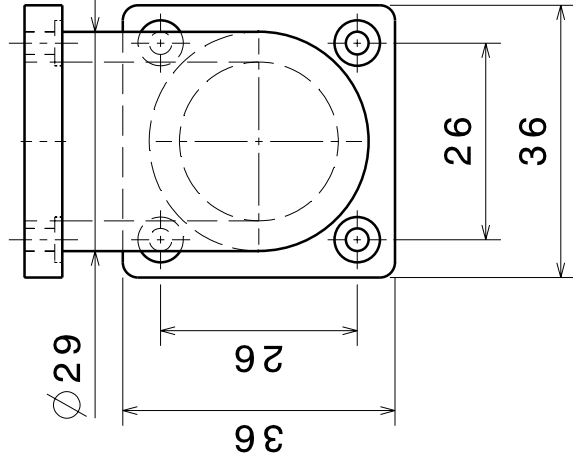
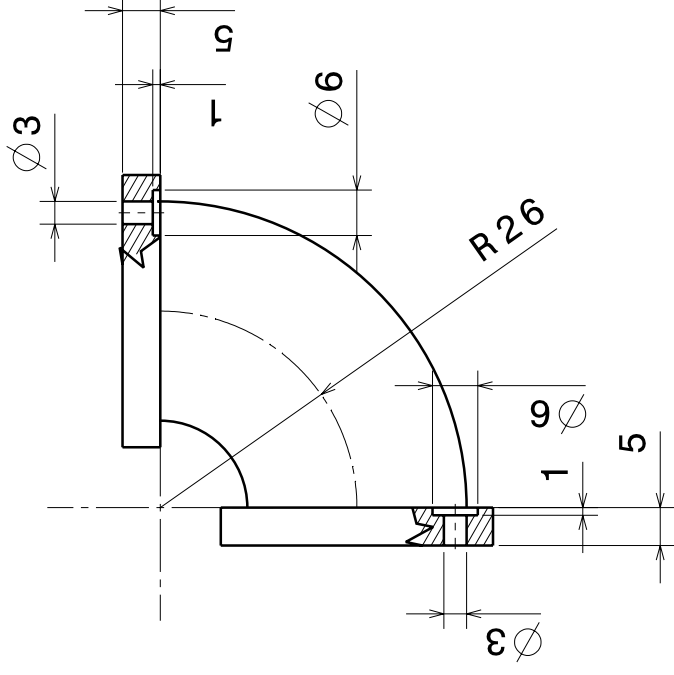
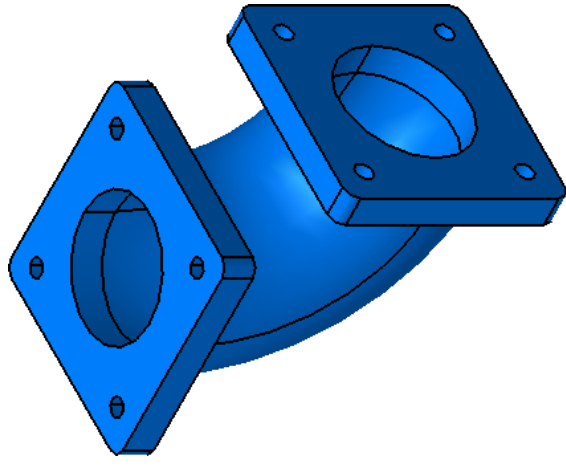
Página:

41

Desenhado por: Ugo Luiz

Desenho: ExPartDesign33

C.F.P.: 3.02



Escola Senai "Santos Dumont"

Unidade mm

Escala: 1:2

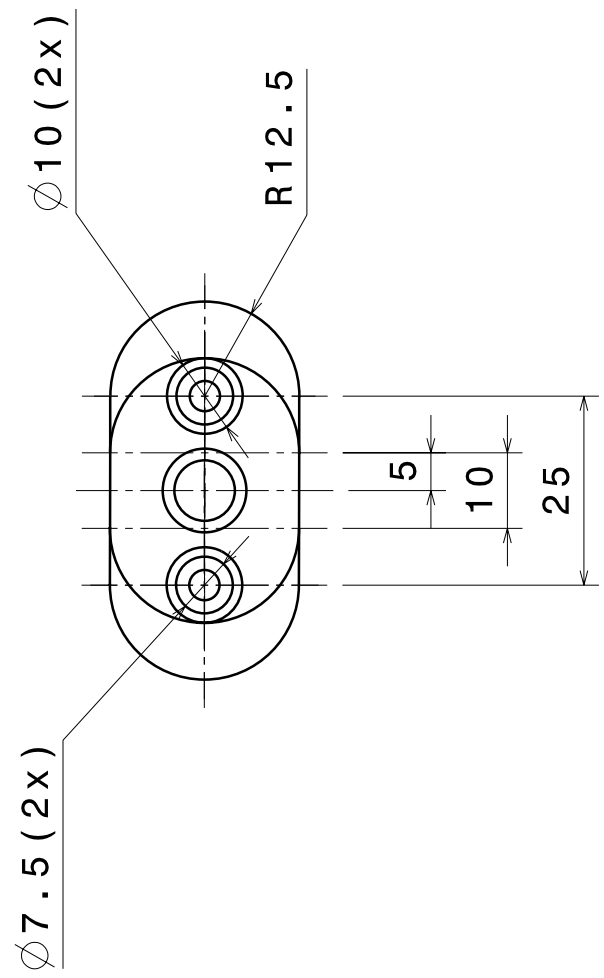
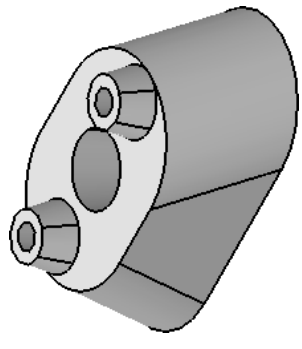
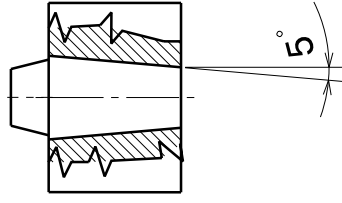
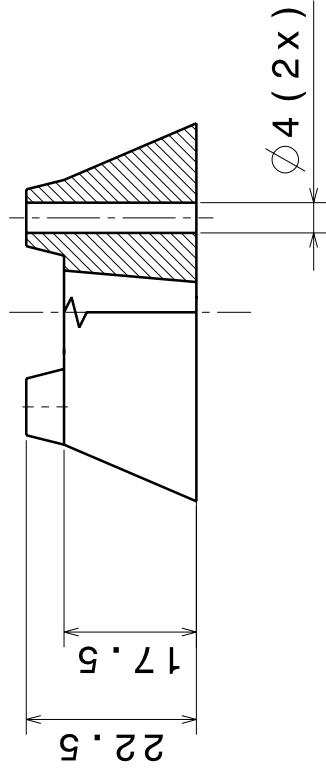
Desenhado por: Ugo Luiz

Página: 42

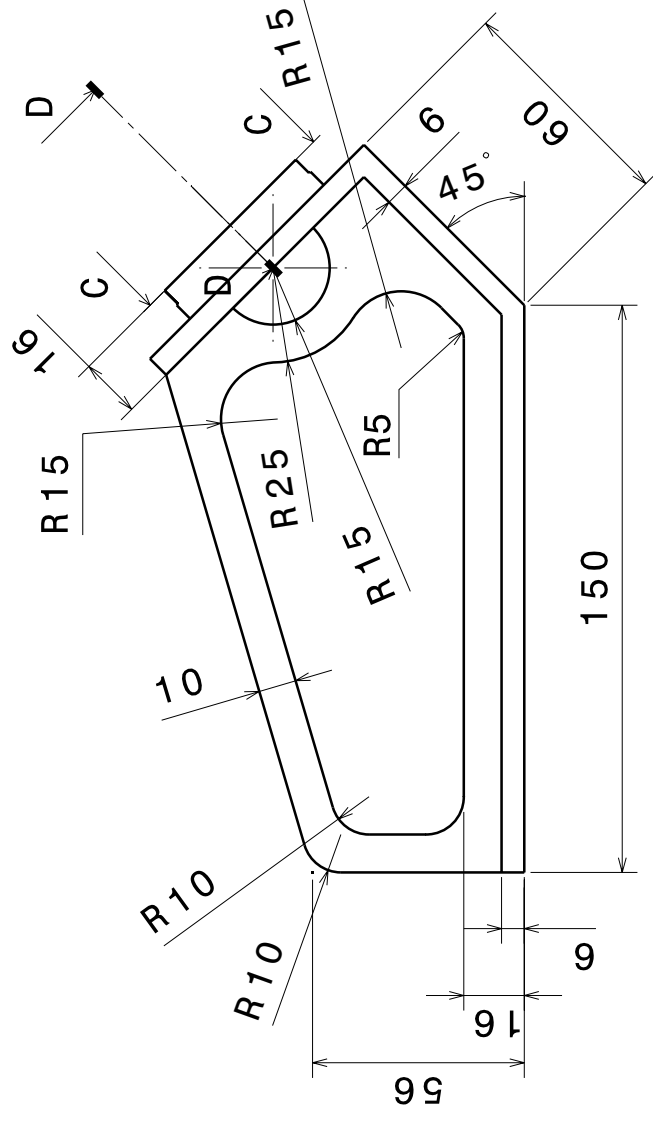
Desenho: ExPartDesign34

Data: 18/11/05

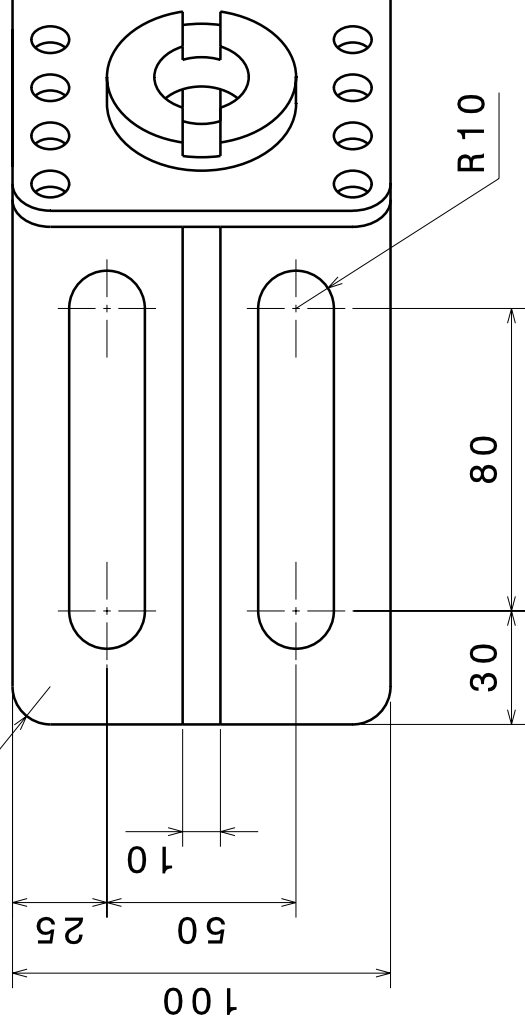
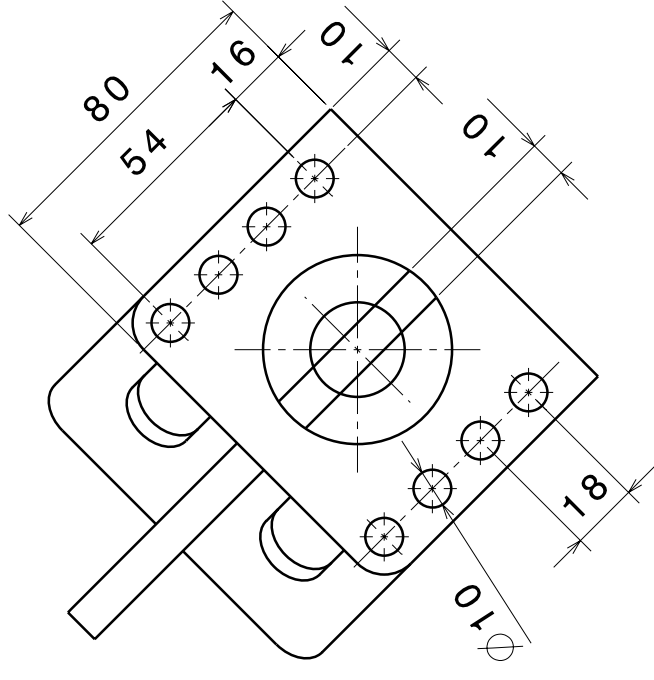
C.F.P.: 3.02



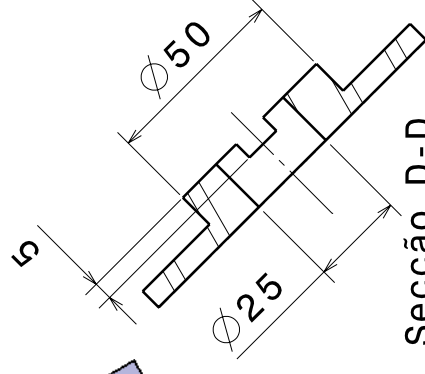
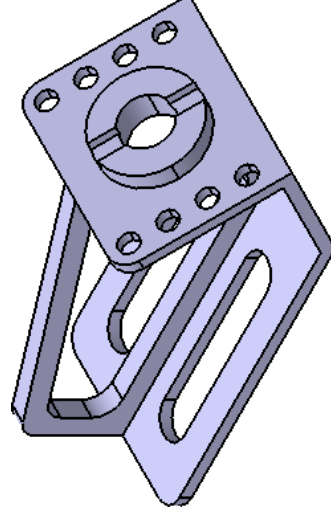
SENAI		Escola Senai "Santos Dumont"			Escala: 1:2	
		Desenhado por: Ugo Luiz		Unidade mm		
		Desenho: ExPartDesign35		Data: 18/11/05	Página: 43	
				C.F.P.: 3.02		



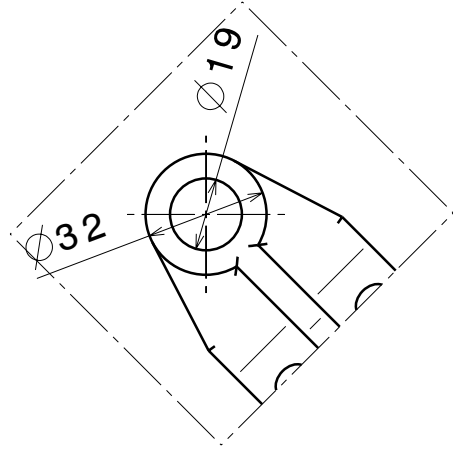
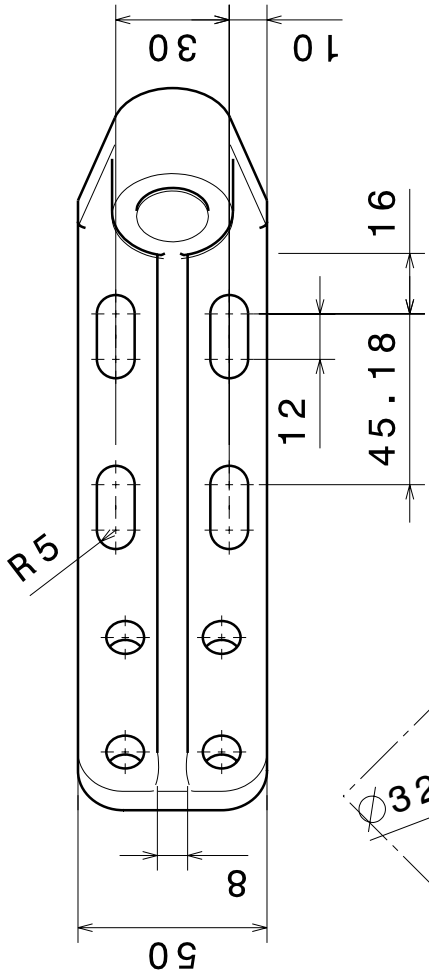
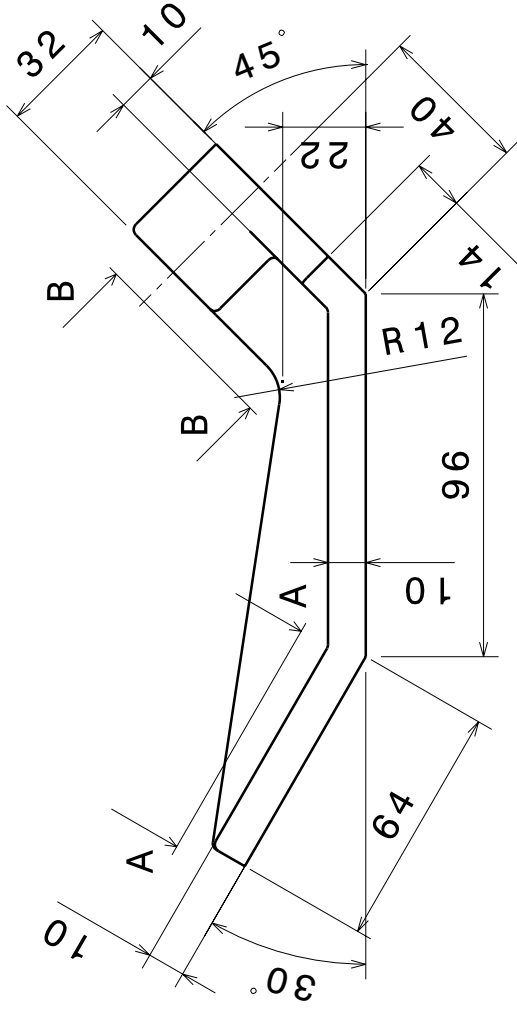
Vista C-C



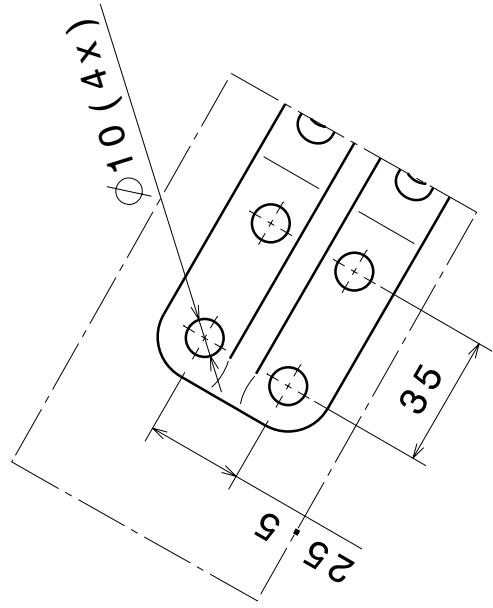
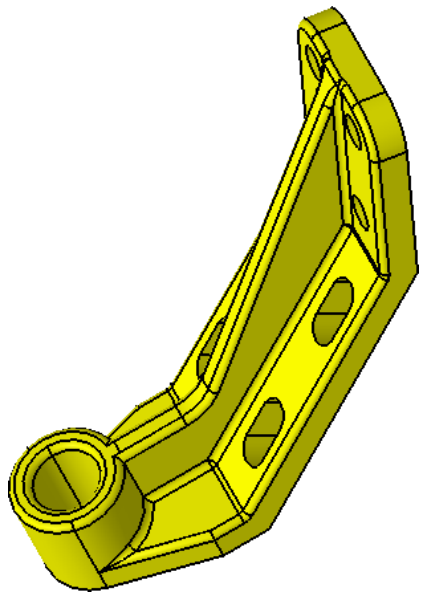
Secção D-D



SENAI	Escola Senai "Santos Dumont"			Escala:
			Unidade mm	1:4
	Desenhado por: Ugo Luiz		Data: 27/10/05	
	Desenho: ExPartDesign36		C.F.P.: 3.02	
				Página:
				44



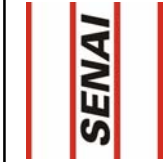
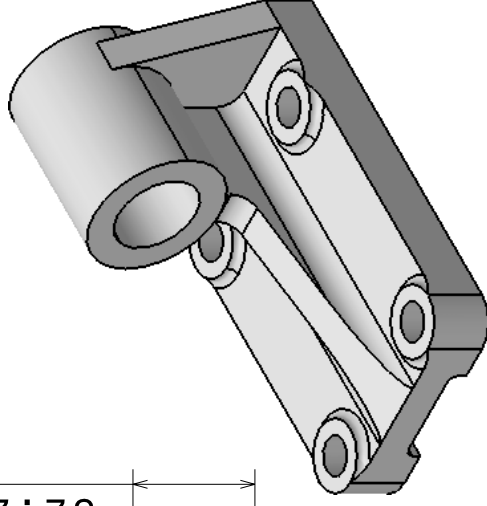
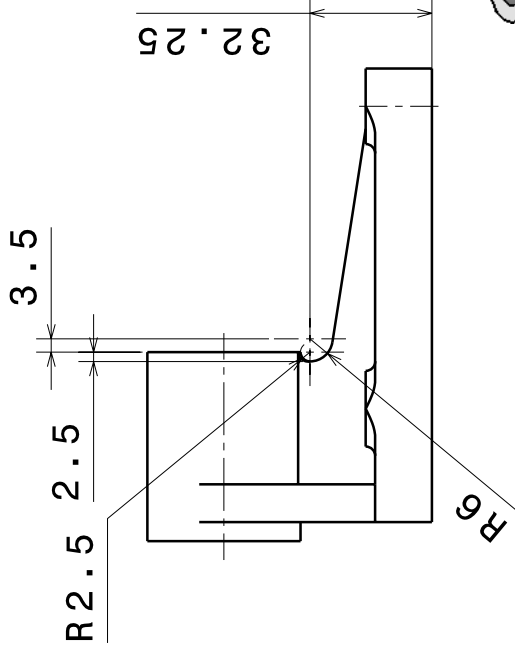
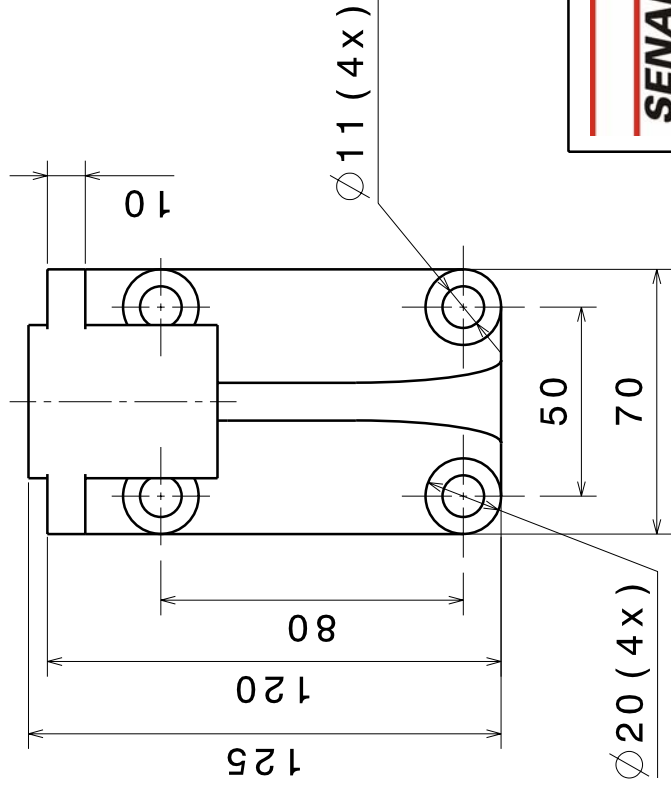
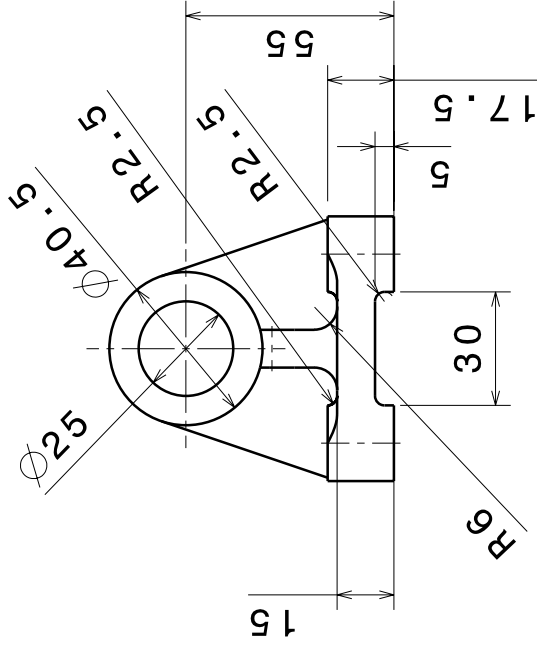
Vista Auxiliar B



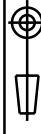
Vista Auxiliar A

Todos raios não indicados adotar 2mm

SENAI	Escola Senai "Santos Dumont"			Escala:
			Unidade mm	1:2
	Desenhado por: Ugo Luiz		Data: 27/10/05	
	Desenho: ExPartDesign37		C.F.P.: 3.02	
			Página: 45	



Escola Senai "Santos Dumont"



Escala:

1:2

Unidade mm

Data: 12/11/05

Página:

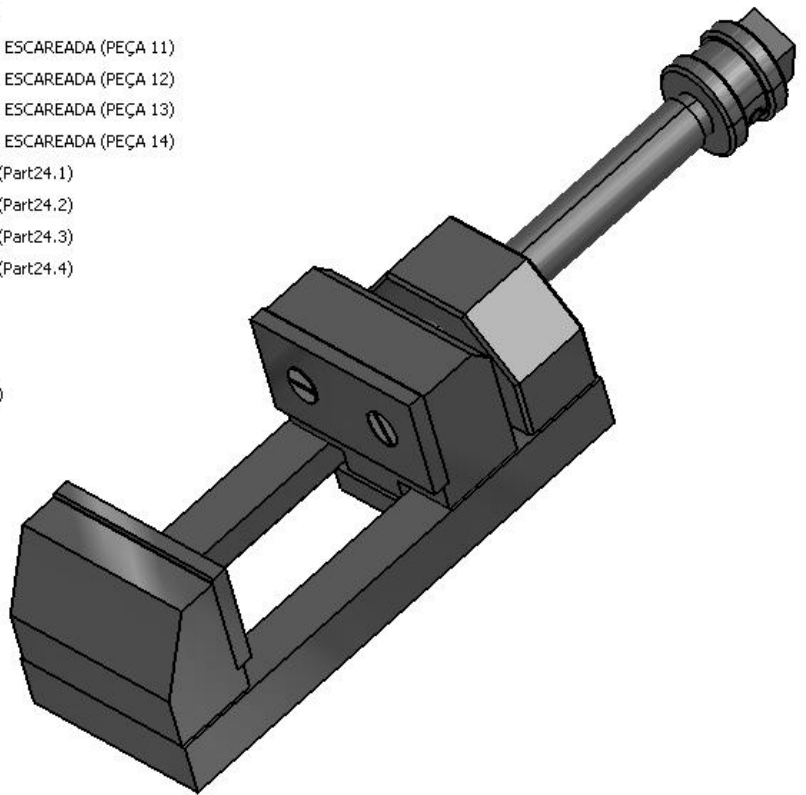
46

Desenhado por: Ugo Luiz

Desenho: ExPartDesign38

C.F.P.: 3.02

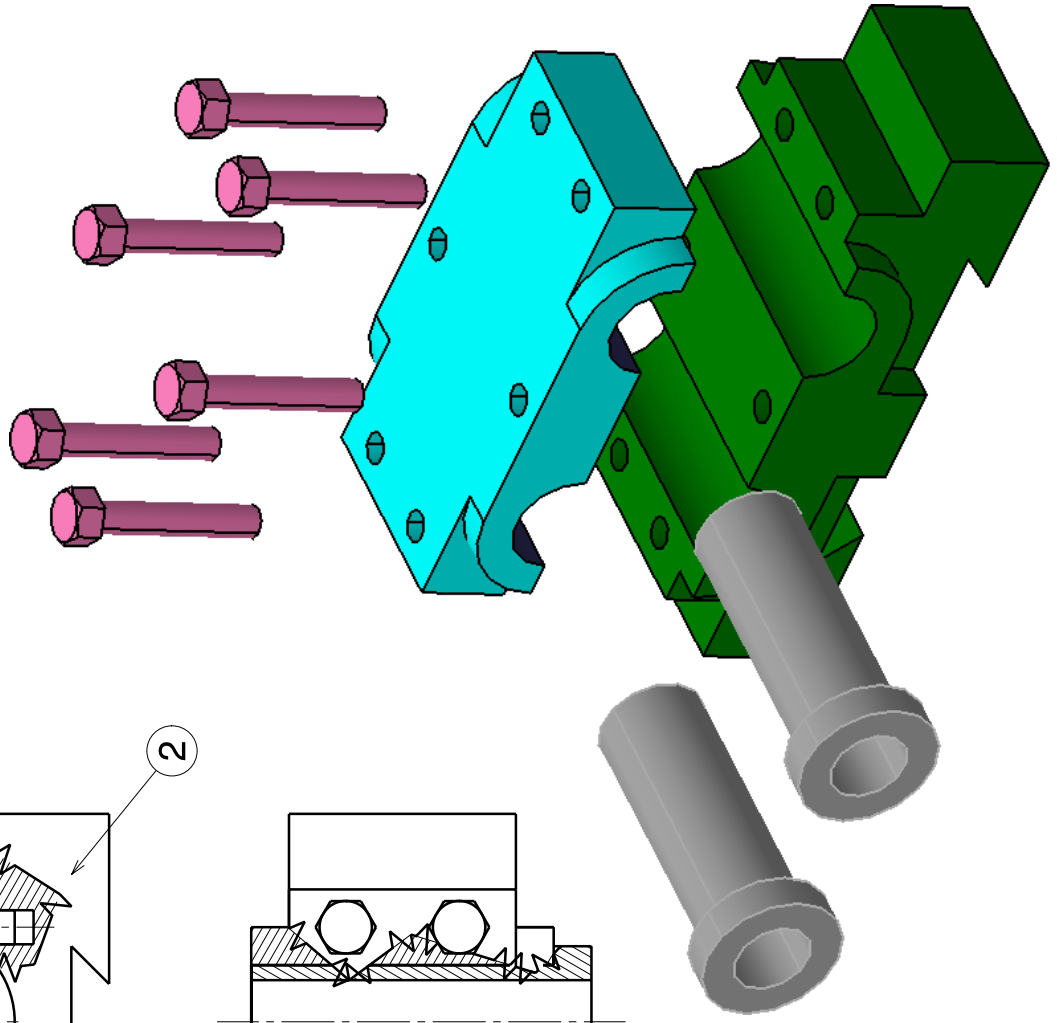
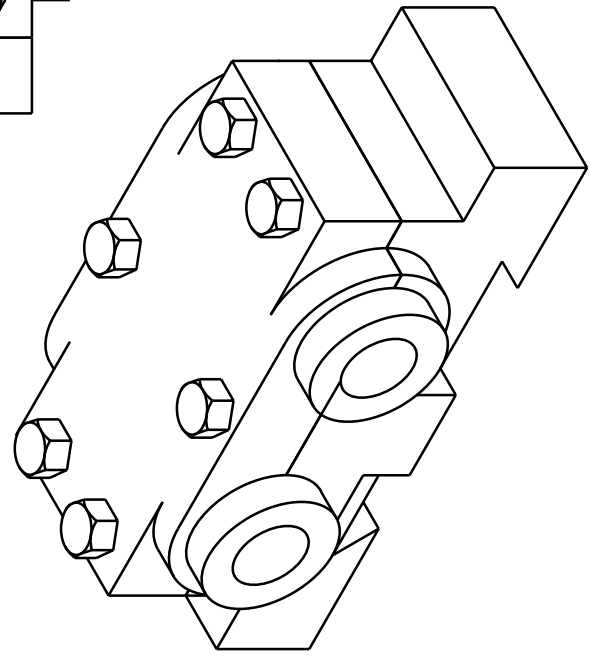
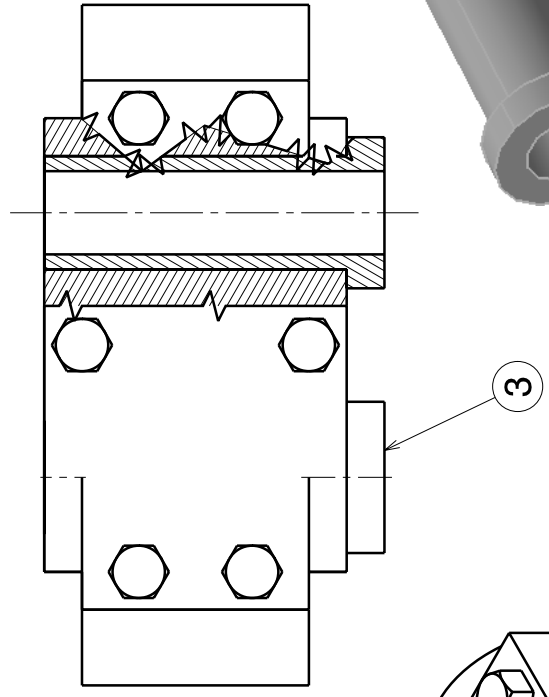
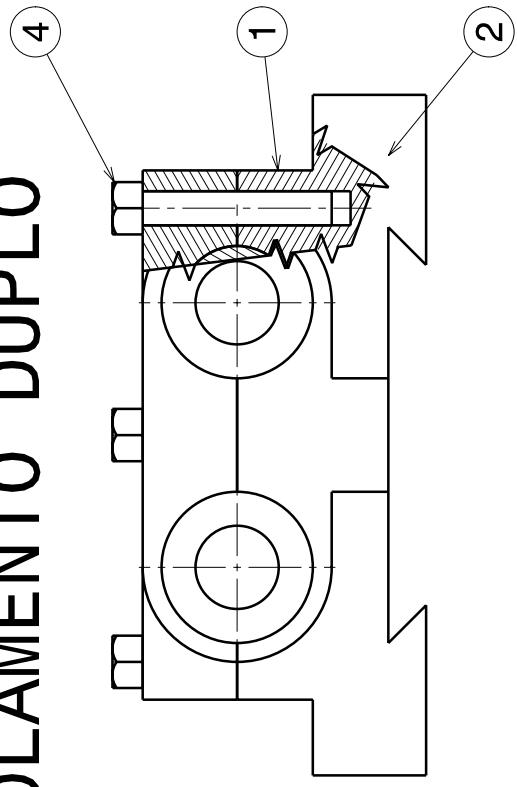
- Morsa
- base (peça 01)
- Base do eixo roscado (Peça 02)
- Mandibula fixa (peça 03)
- Base da Mandibula Movel (PEÇA 04)
- PARAFUSO M5x10 (PEÇA 05)
- PARAFUSO M5x10 (PEÇA 06)
- MANDIBULA MOVEL (PEÇA 07)
- eixo roscado (PEÇA 08)
- BATENTE (PEÇA 09)
- BATENTE (PEÇA 10)
- PARAFUSO CABEÇA ESCAREADA (PEÇA 11)
- PARAFUSO CABEÇA ESCAREADA (PEÇA 12)
- PARAFUSO CABEÇA ESCAREADA (PEÇA 13)
- PARAFUSO CABEÇA ESCAREADA (PEÇA 14)
- PARAFUSO M6x16 (Part24.1)
- PARAFUSO M6x16 (Part24.2)
- PARAFUSO M6x16 (Part24.3)
- PARAFUSO M6x16 (Part24.4)
- PINO 2 (Part6.1)
- PINO 2 (Part6.2)
- PINO 1 (Part5.2)
- MANIPULO (Part3.2)
- Constraints
- Applications



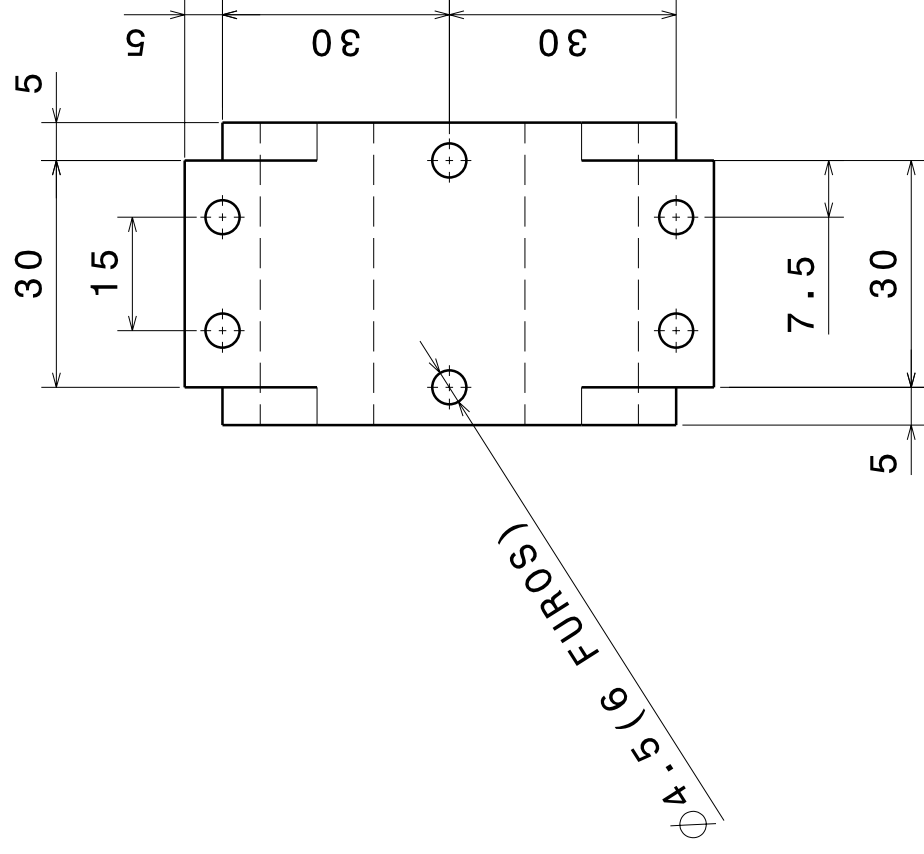
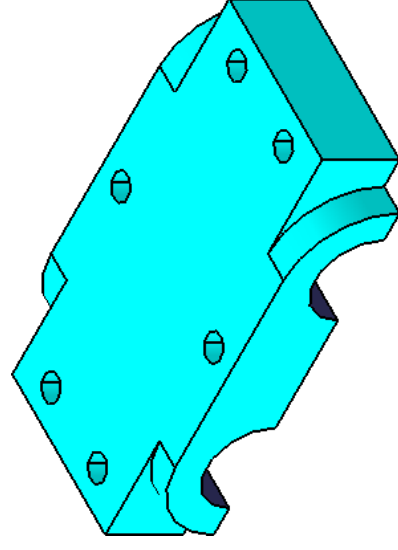
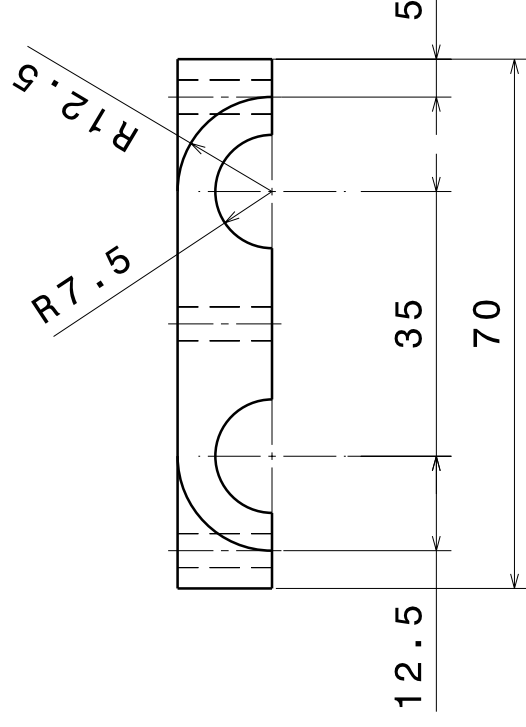
Assembly Design

CONJUNTO ROLAMENTO DUPLA

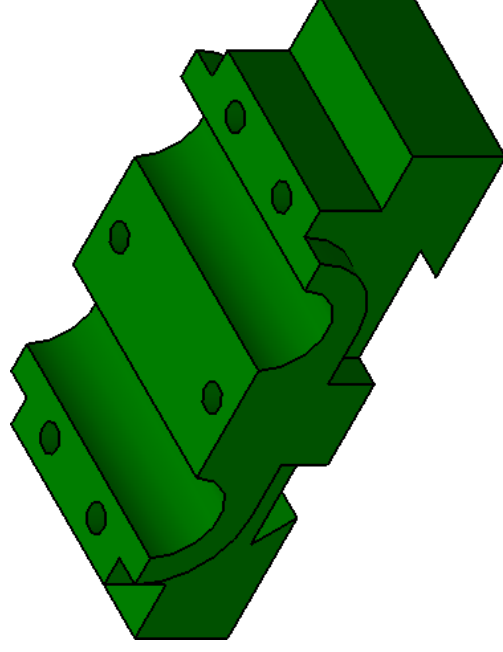
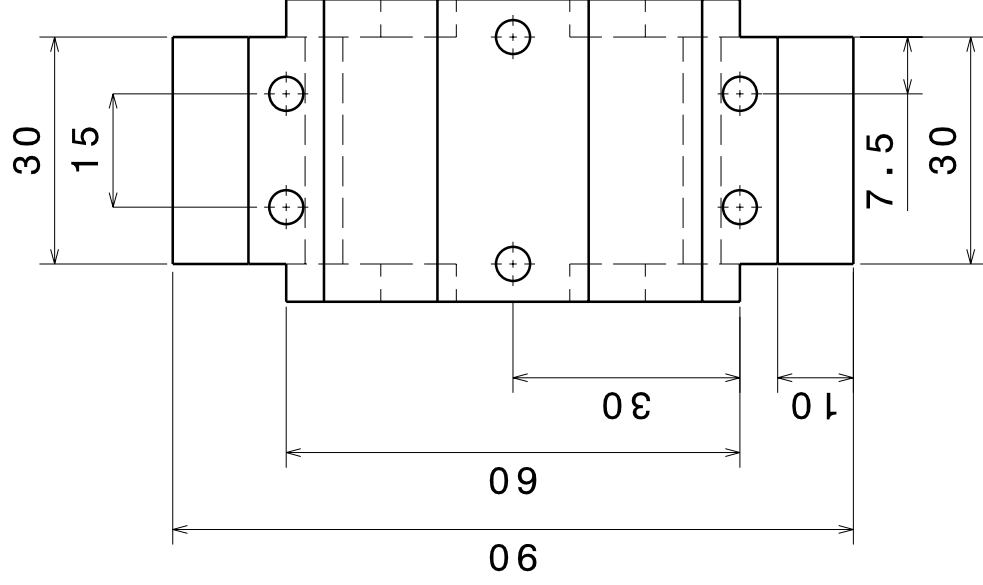
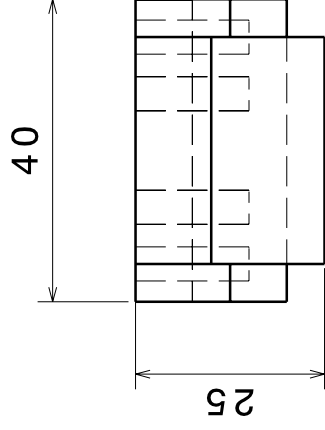
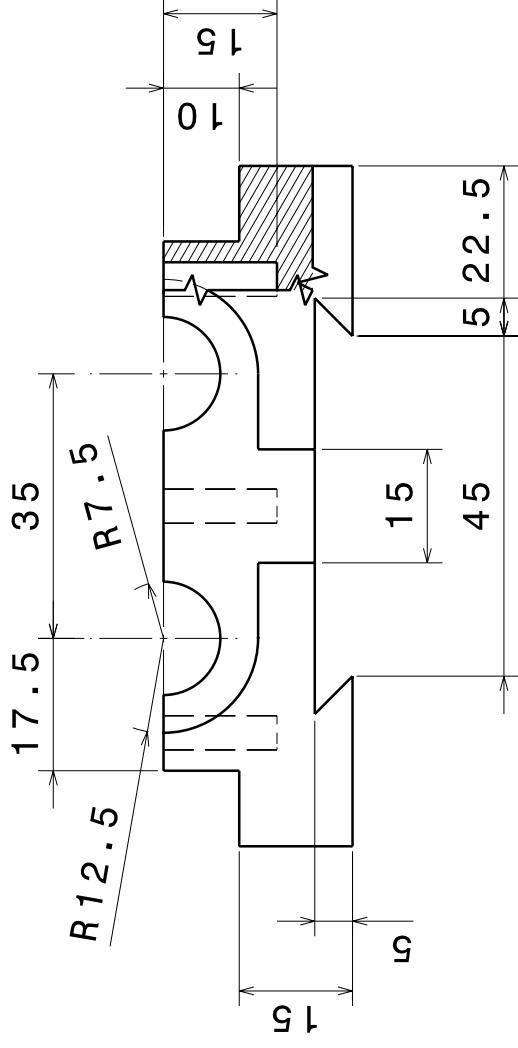
ITEM	DESCRIÇÃO	QUANTIDADE
1	CAPA	1
2	BASE	1
3	BUCHA	2
4	PARAFUSO	6



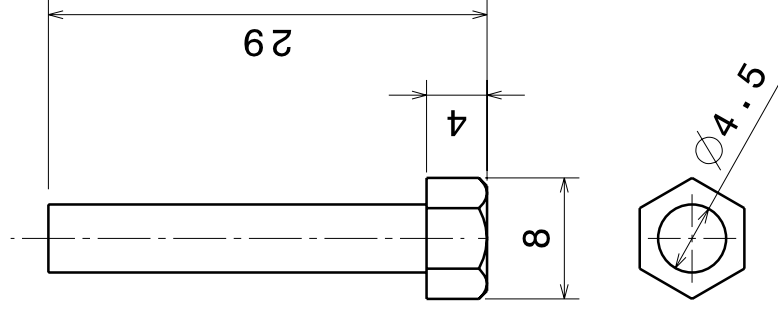
CAPA



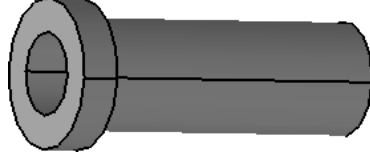
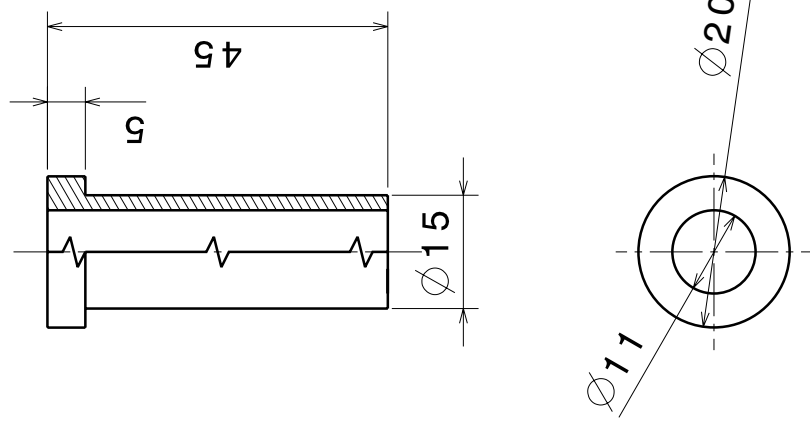
BASE



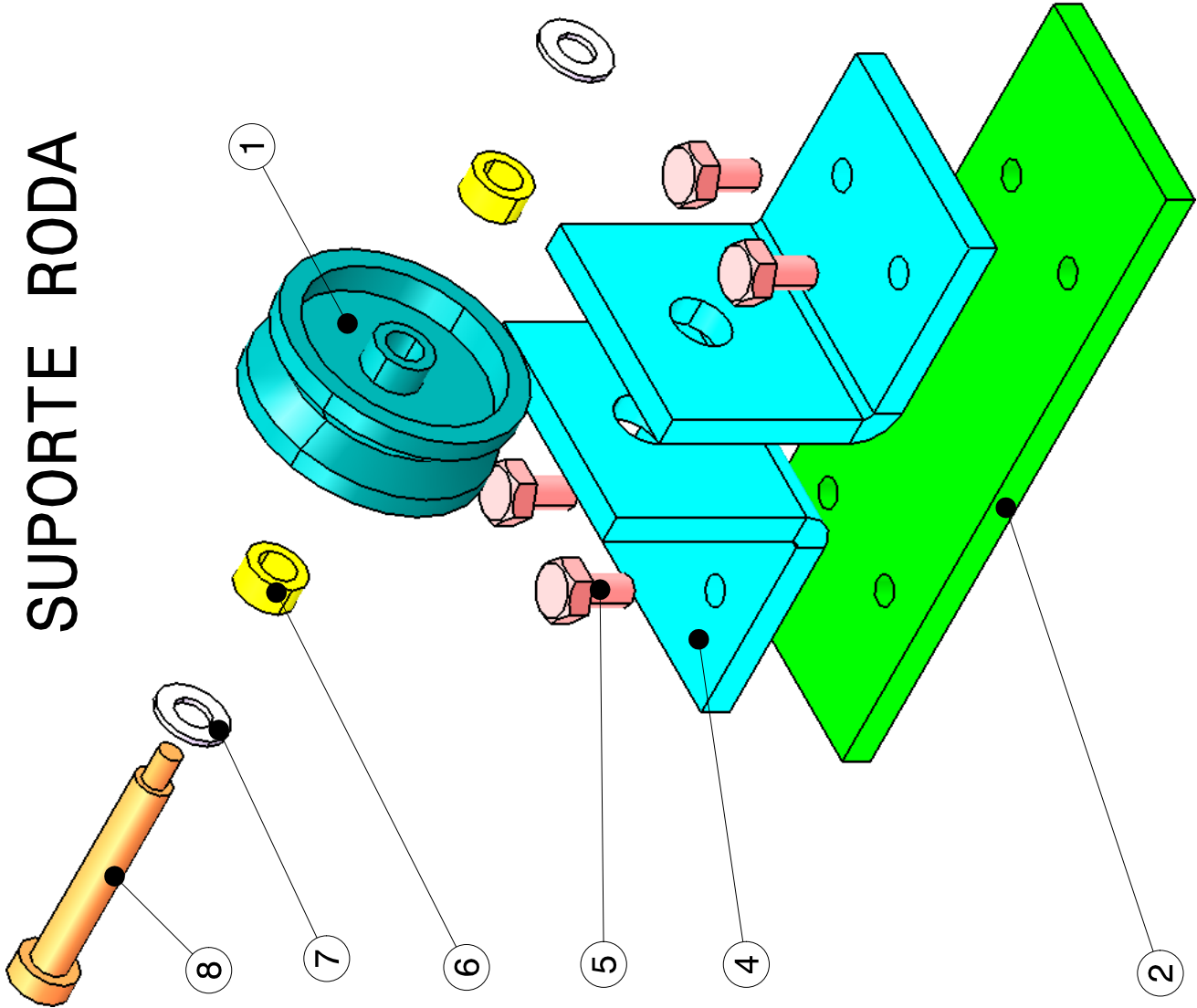
PARAFUSO



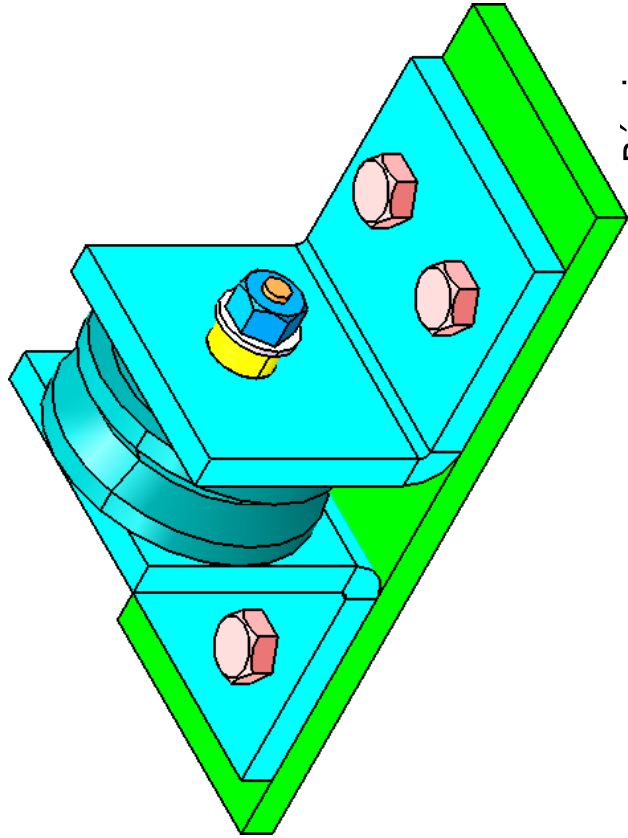
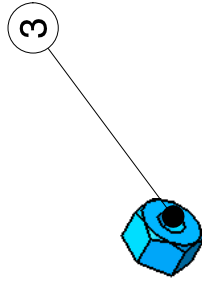
BUCHA



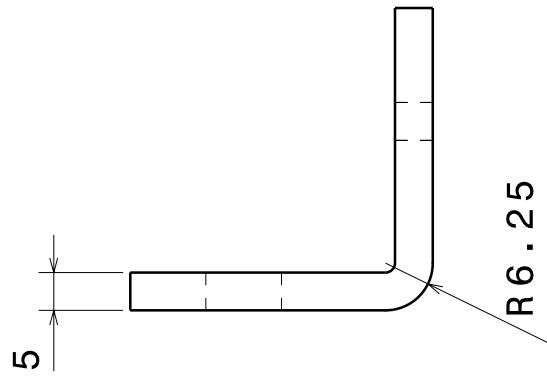
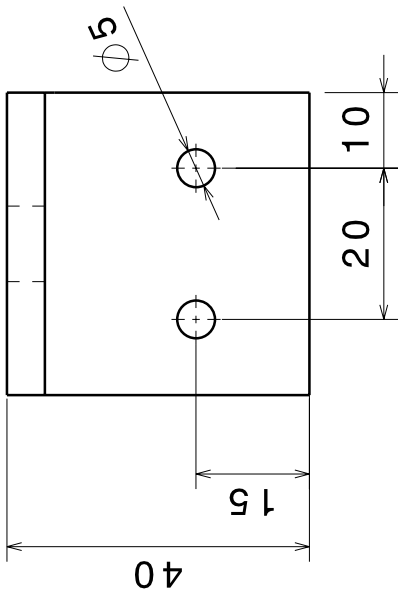
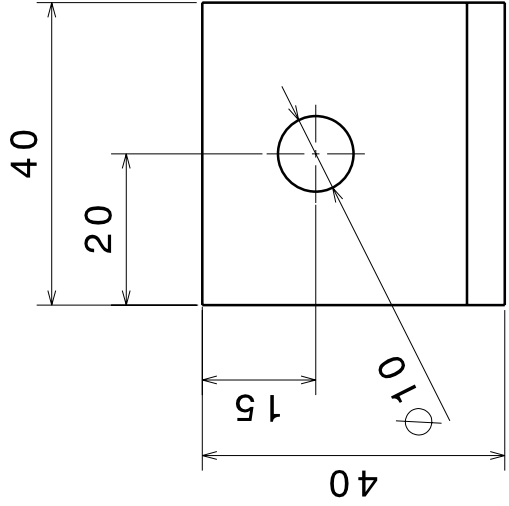
SUPORTE RODA



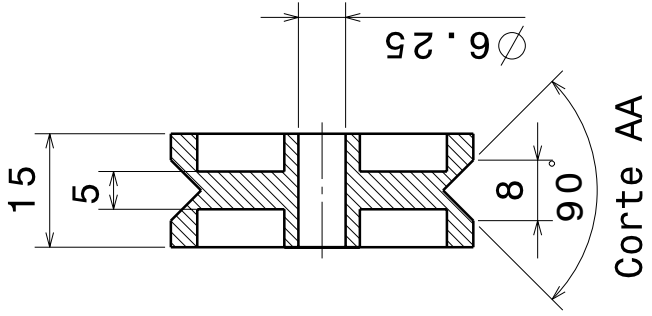
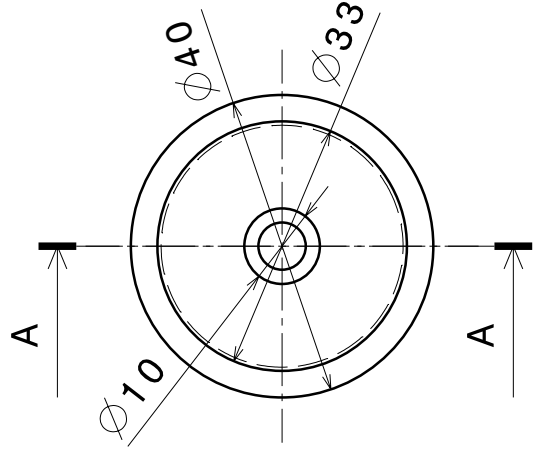
ITEM	DESCRIÇÃO	QUANTIDADE
1	RODA	1
2	BASE	1
3	PORCA	1
4	SUPORTE	2
5	PARAFUSO	4
6	BUCHA	2
7	ARRUELA	2
8	PARAFUSO ESPECIAL	1



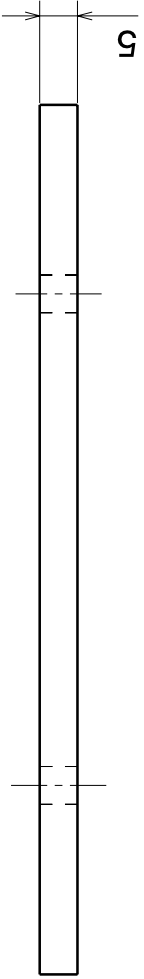
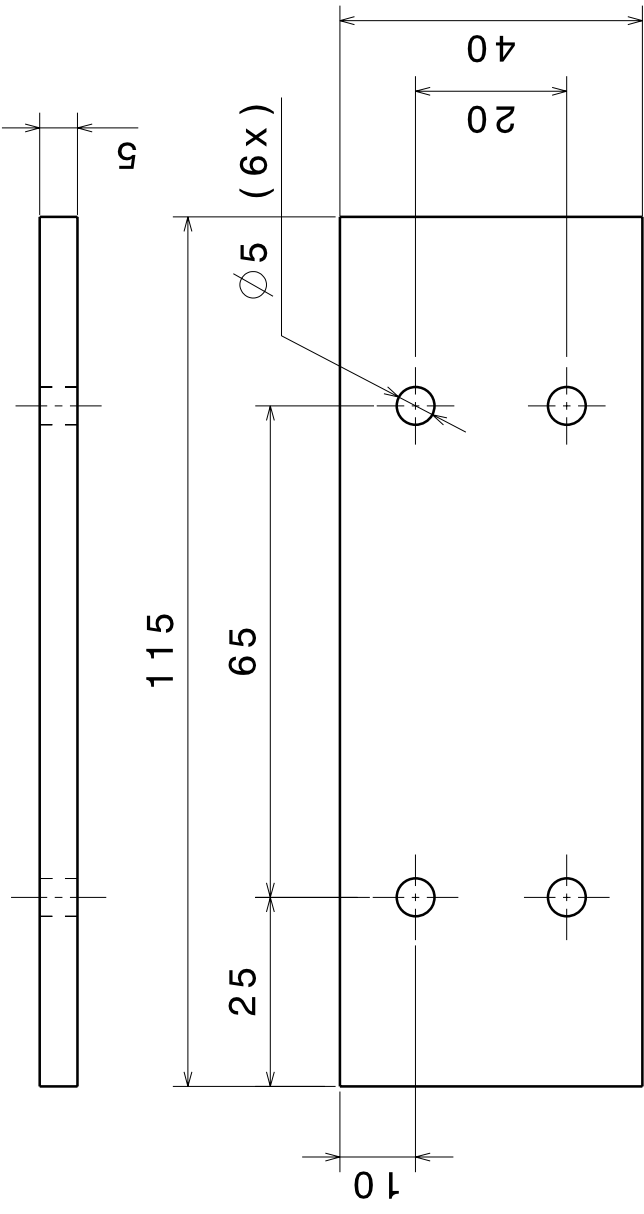
SUPORTE



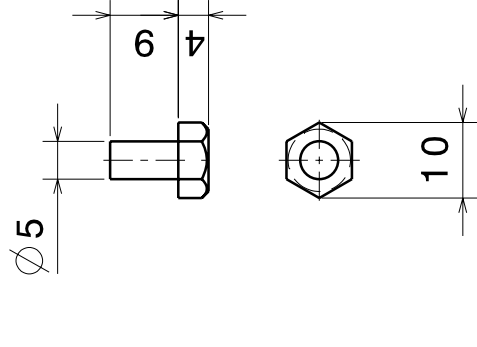
RODA



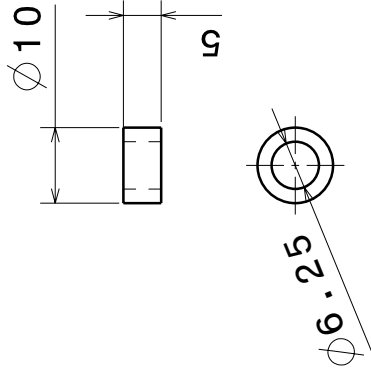
BASE



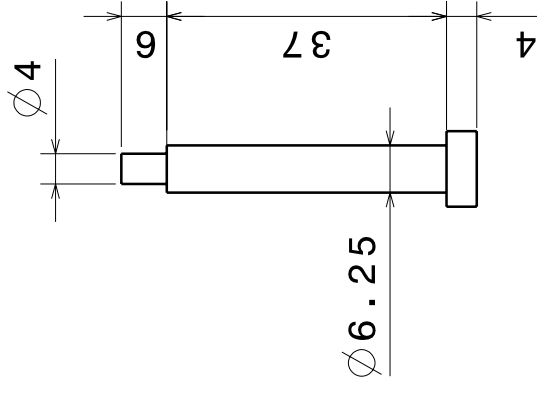
PARAFUSO



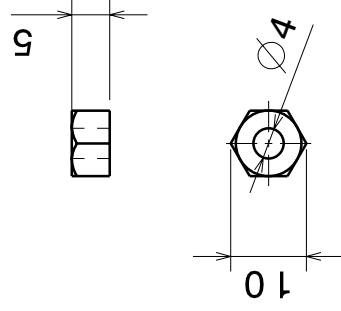
BUCHA



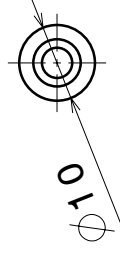
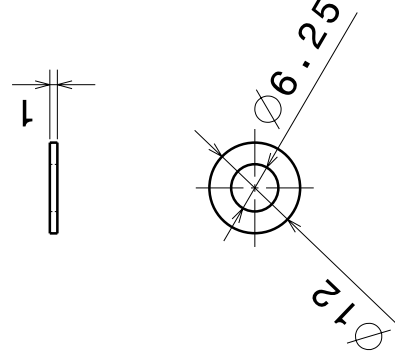
PARAFUSO ESPECIAL



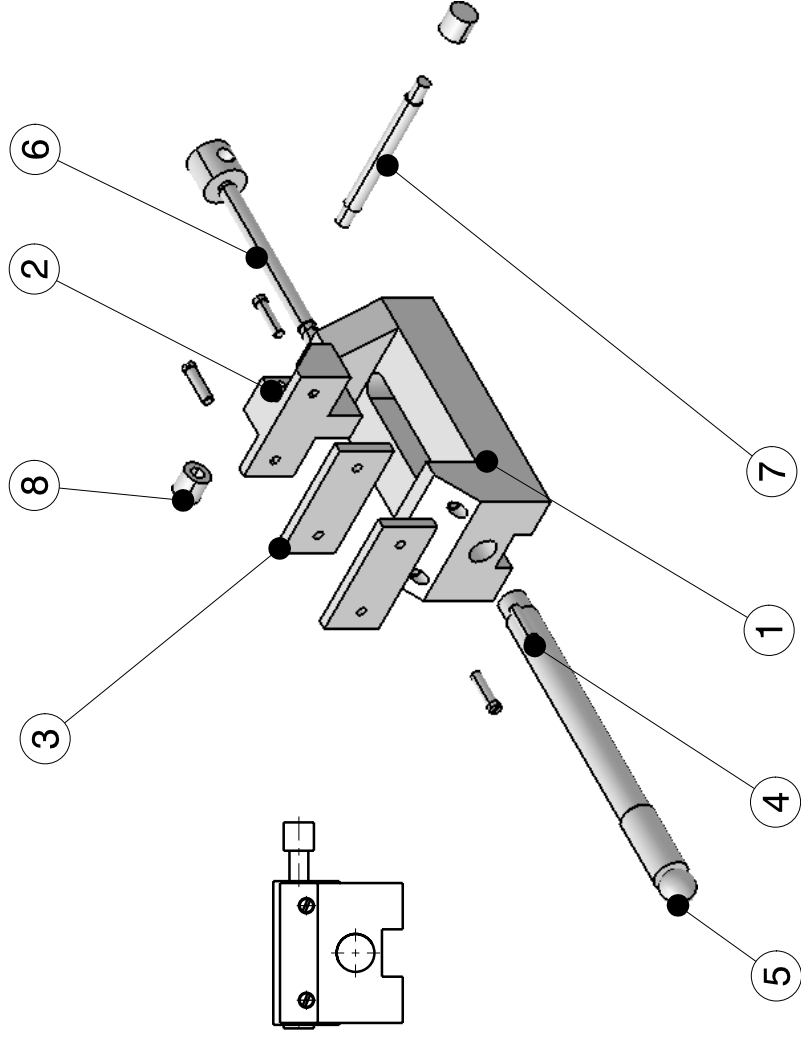
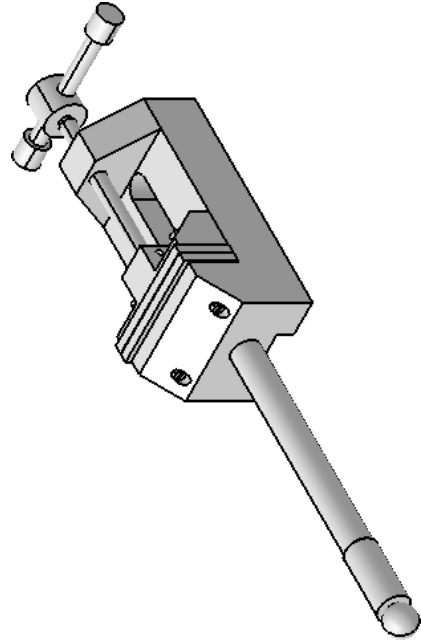
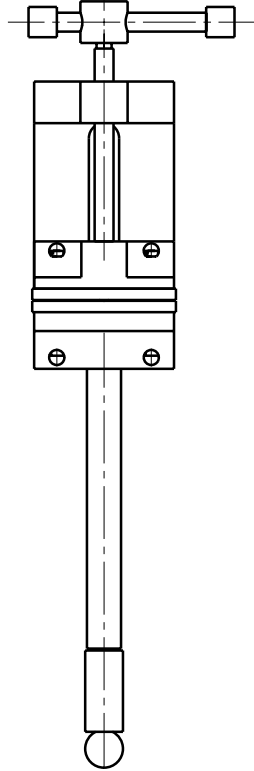
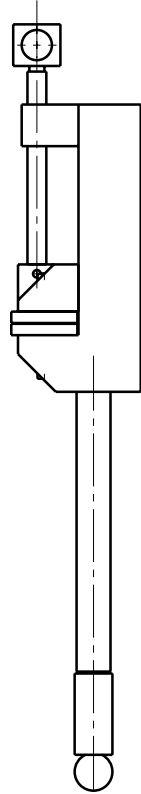
PORCA



ARRUELA

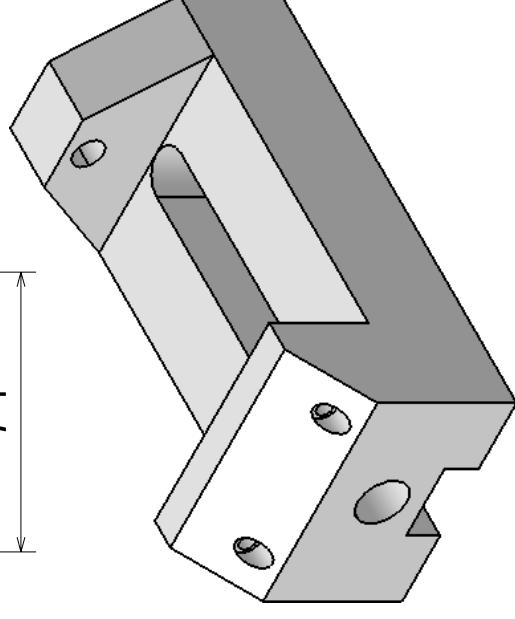
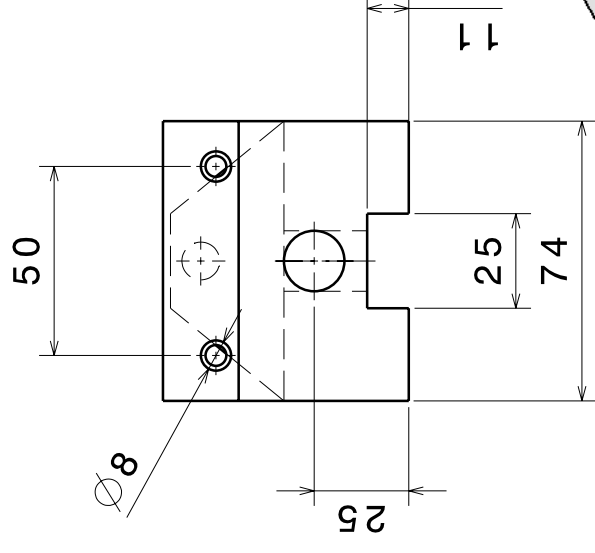
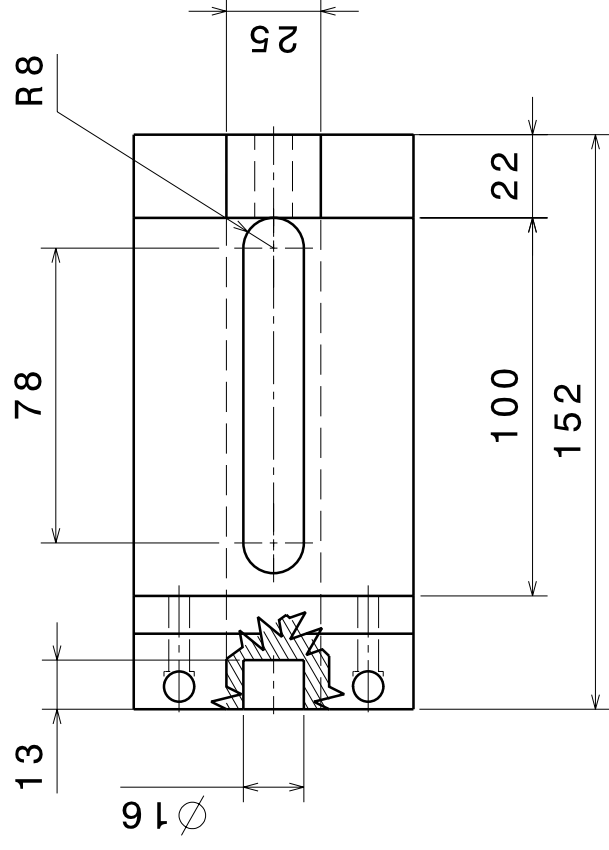
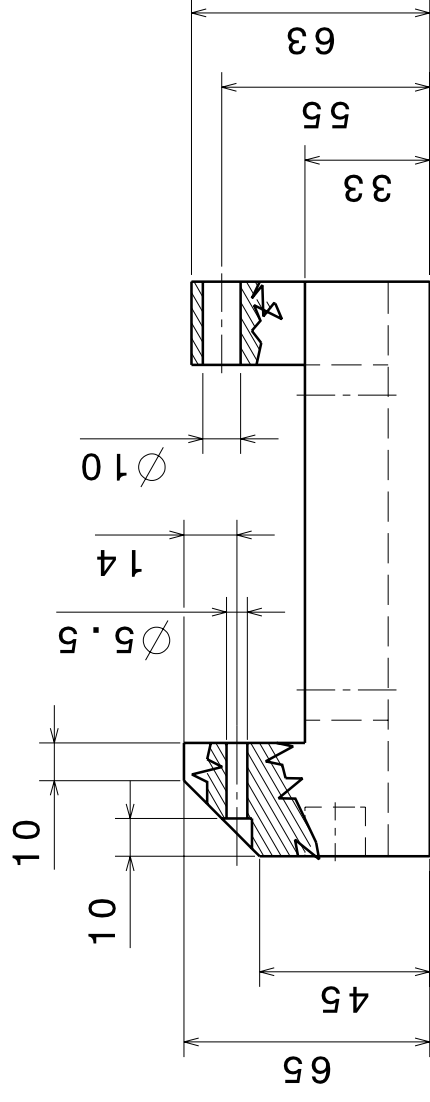


MORSA

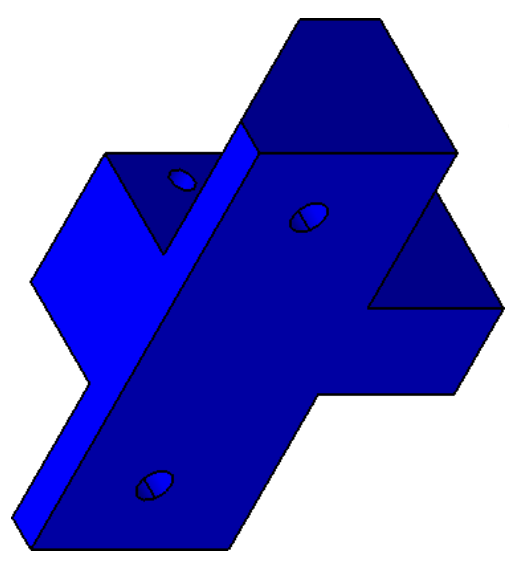
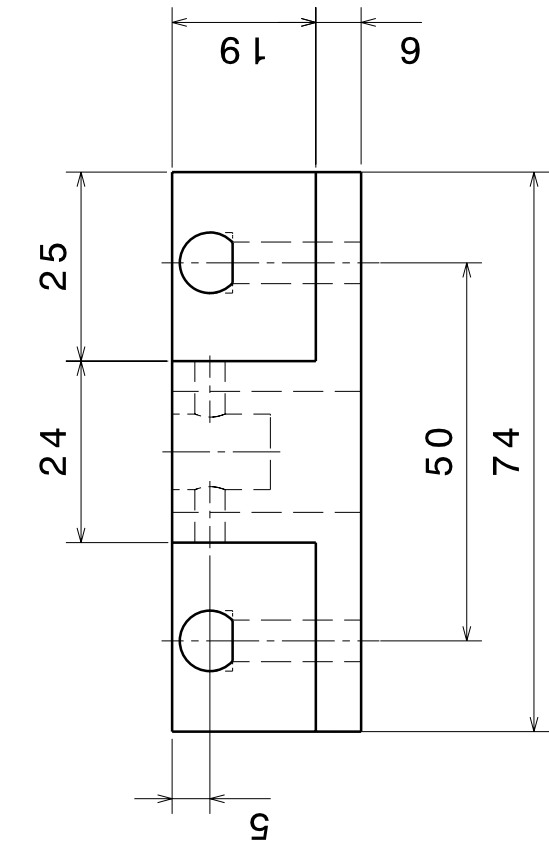
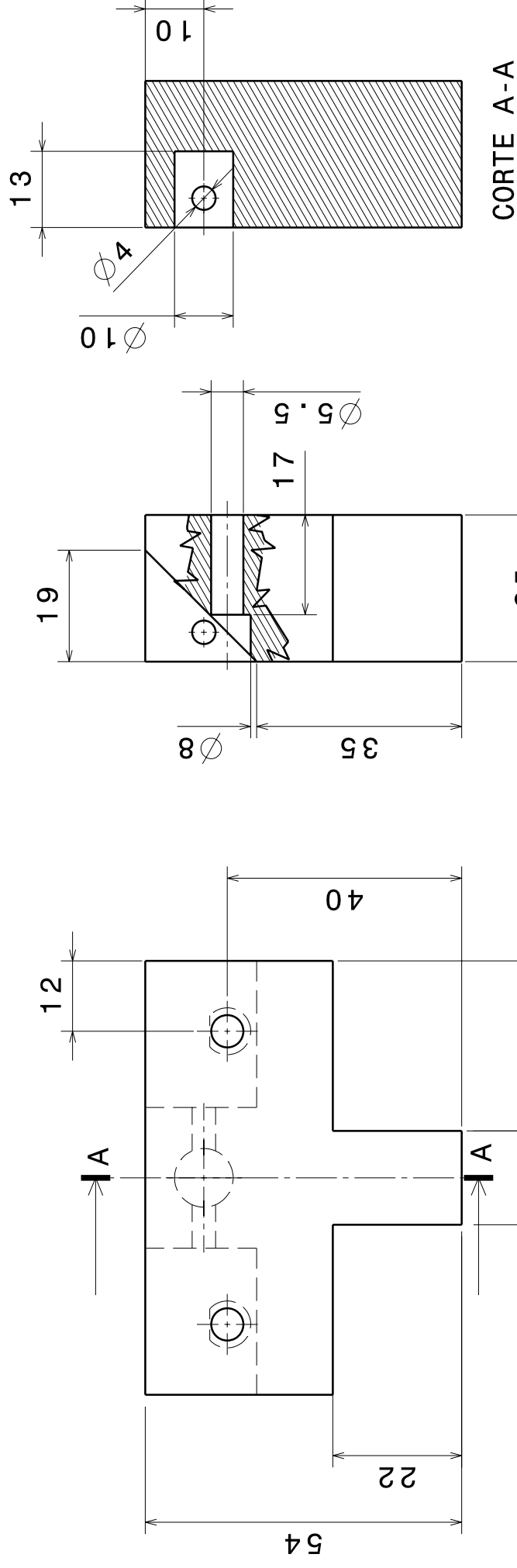


ITEM	DESCRIÇÃO	QUANTIDADE
1	BASE	1
2	MANDÍBULA MÓVEL	1
3	PLACA MANDÍBULA	2
4	PARAFUSO	4
5	GUIA DE PROTEÇÃO	1
6	EIXO	1
7	EIXO MANIVELA	1
8	PROTEÇÃO EIXO MANIVELA	2

BASE

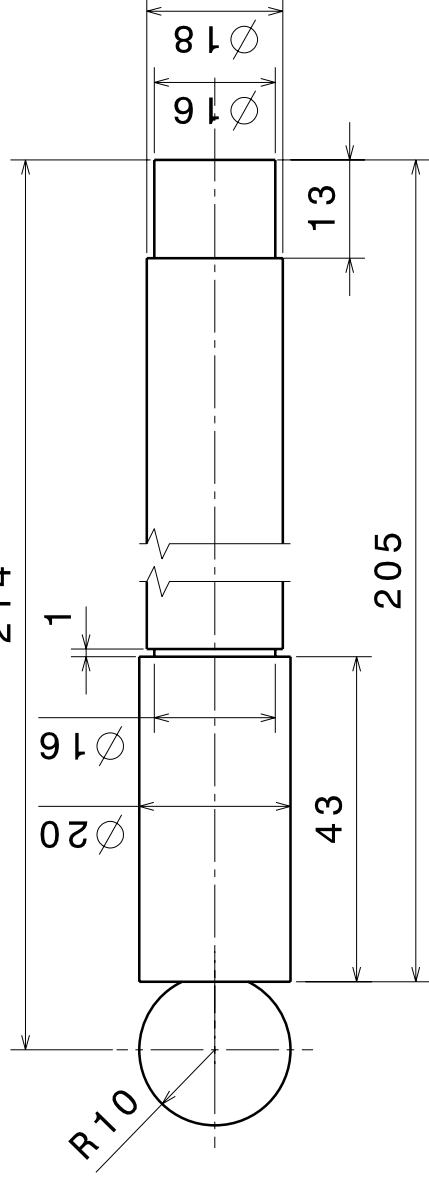


MANDÍBULA MÓVEL

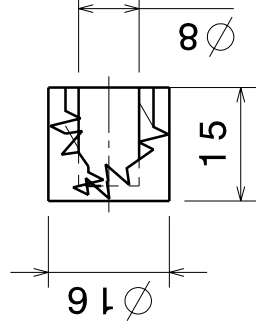


GUIA DE PROTEÇÃO

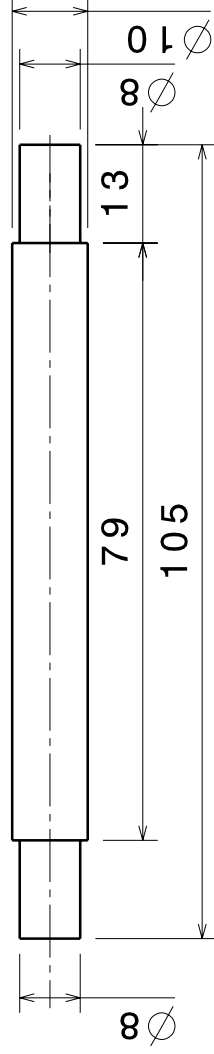
214



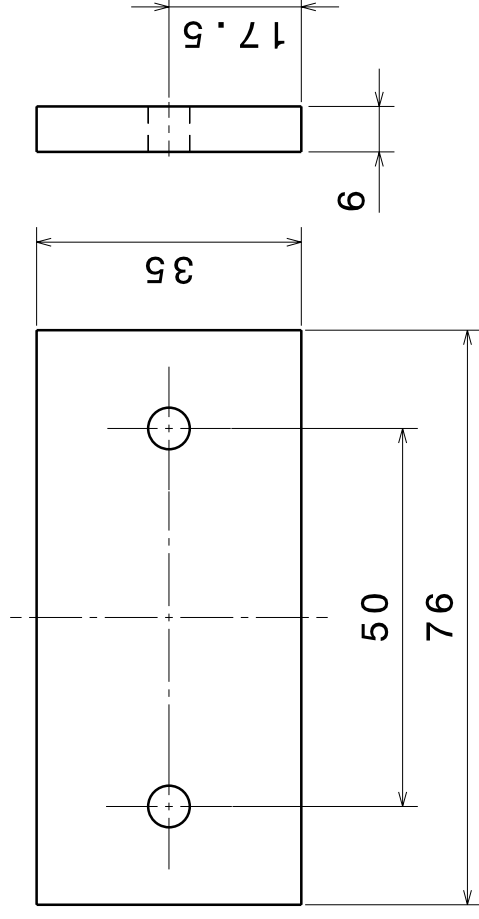
PROTEÇÃO EIXO MANIVELA



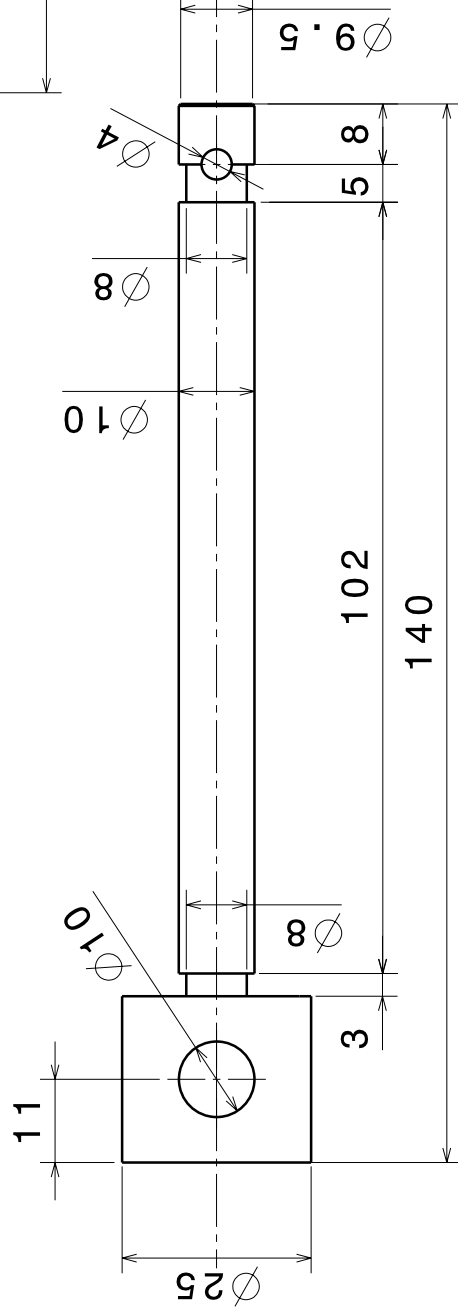
EIXO MANIVELA



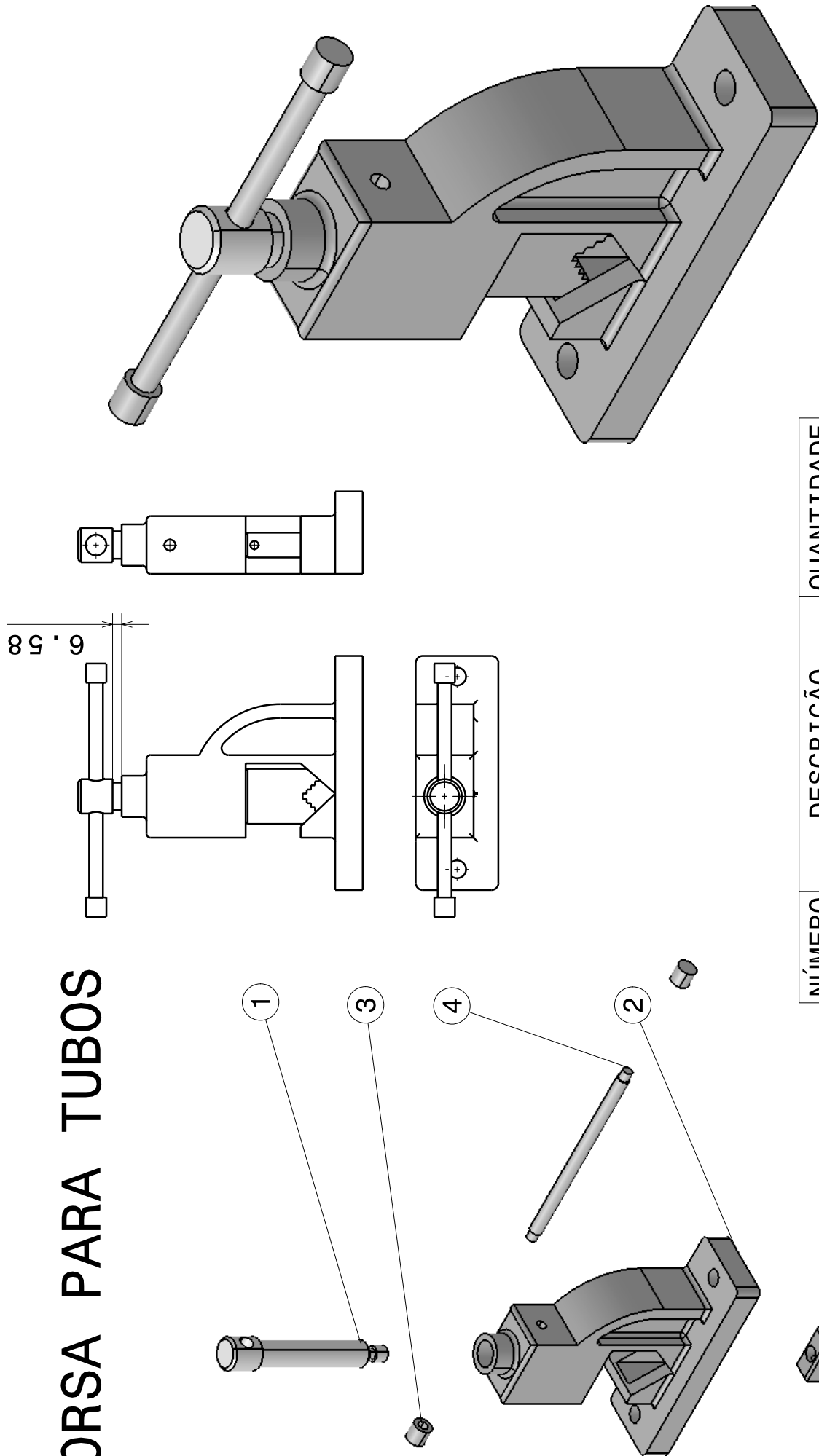
PLACA MANDÍBULA



EIXO

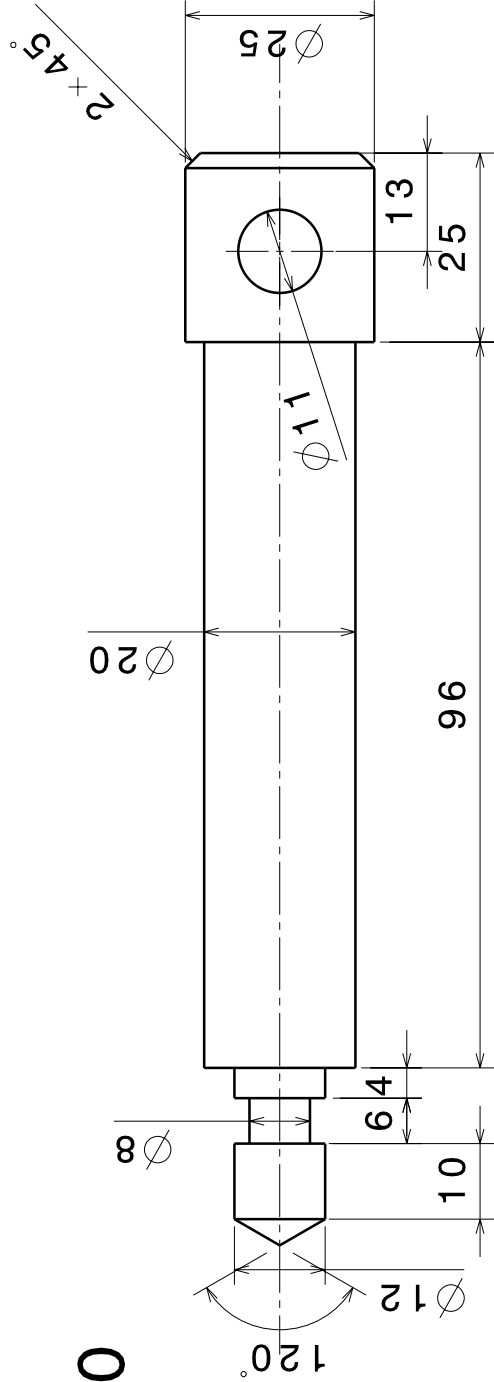


MORSA PARA TUBOS

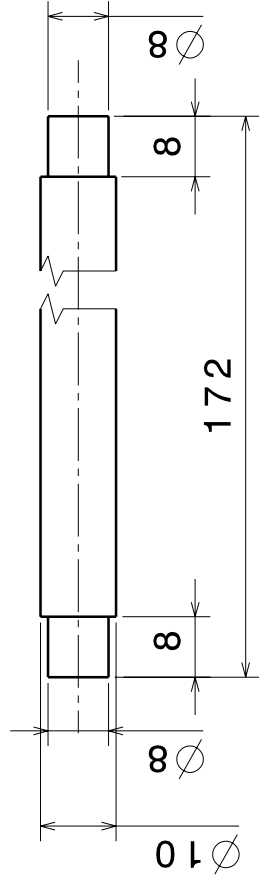


NÚMERO	DESCRIÇÃO	QUANTIDADE
1	PARAFUSO	1
2	BASE	1
3	PARAFUSO MANIVELA	2
4	MANIVELA	1
5	MANDÍBULA MÓVEL	1

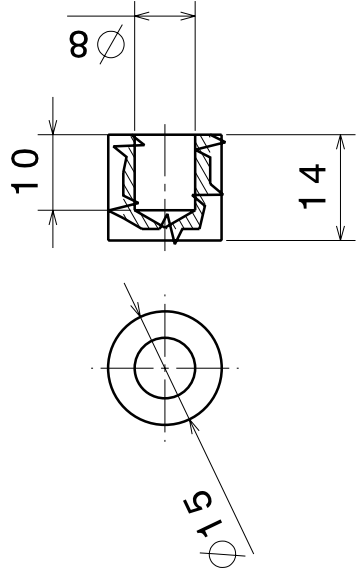
PARAFUSO



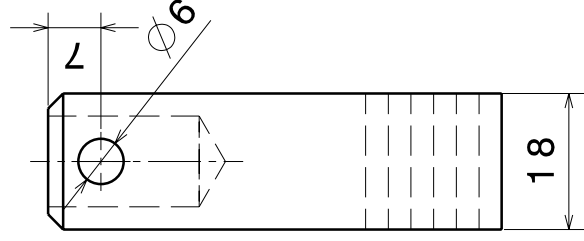
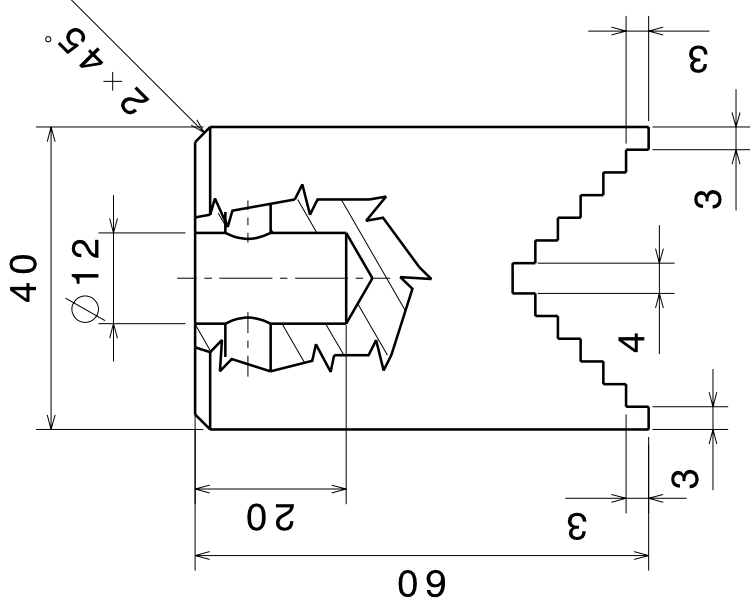
MANIVELA



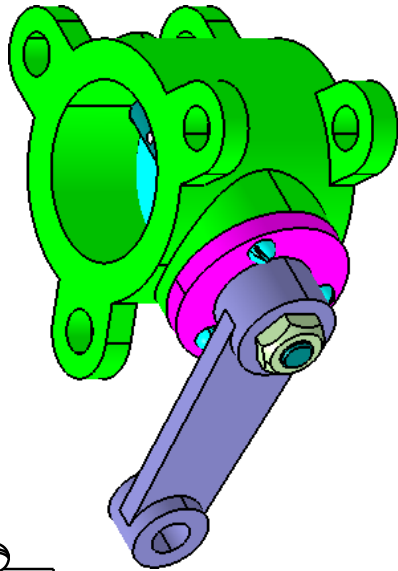
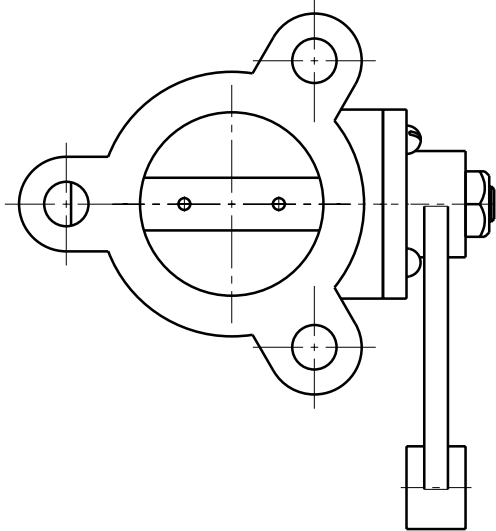
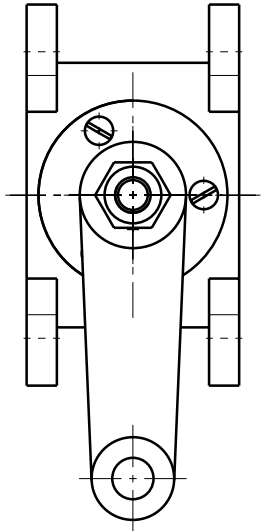
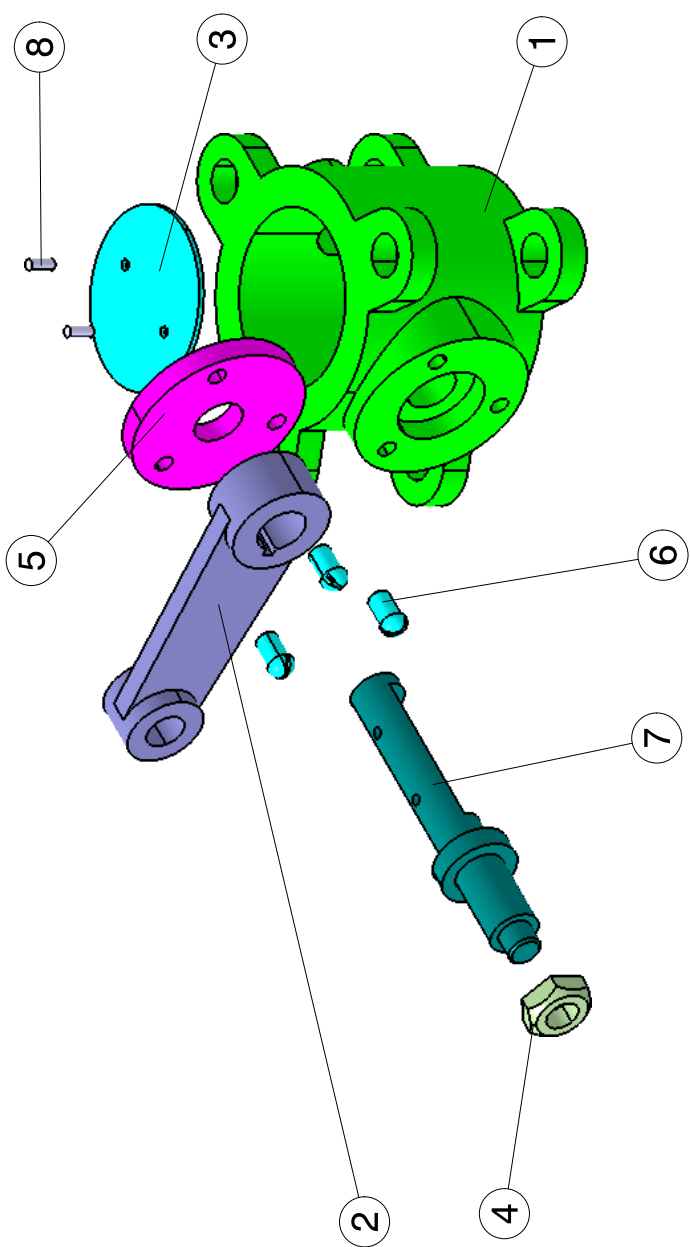
PARAFUSO MANIVELA



MANDÍBULA MÓVEL

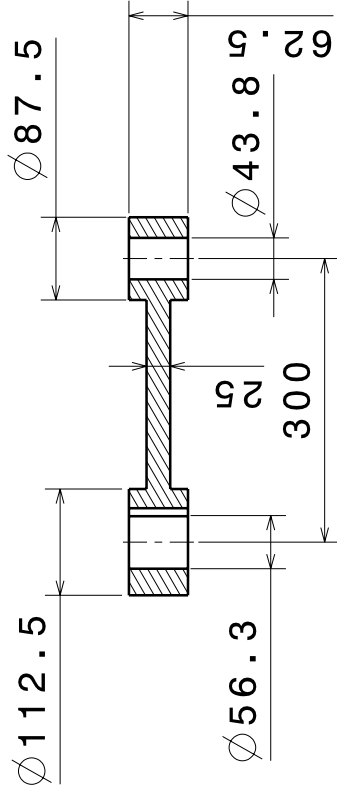
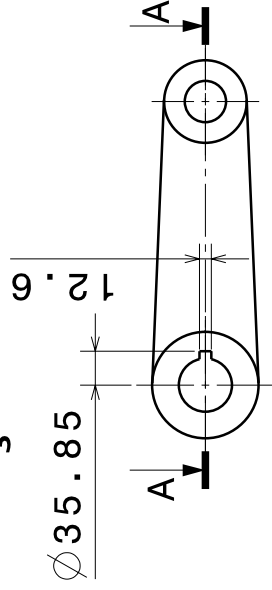


VÁLVULA BORBOLETA

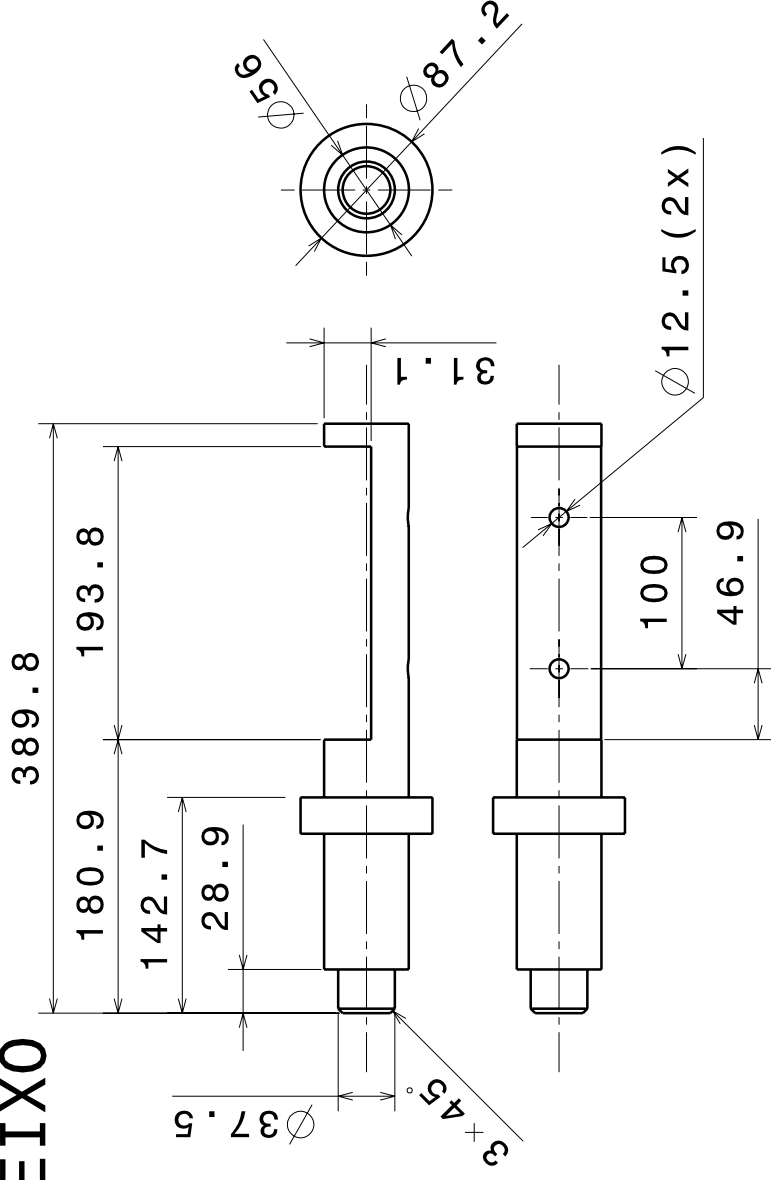


NÚMERO	PEÇA	QUANTIDADE
1	CORPO DA VÁLVULA	1
2	BRAÇO	1
3	PLACA	1
4	PORCA	1
5	RETENTOR	1
6	PARAFUSO	3
7	EIXO	1
8	PINO	2

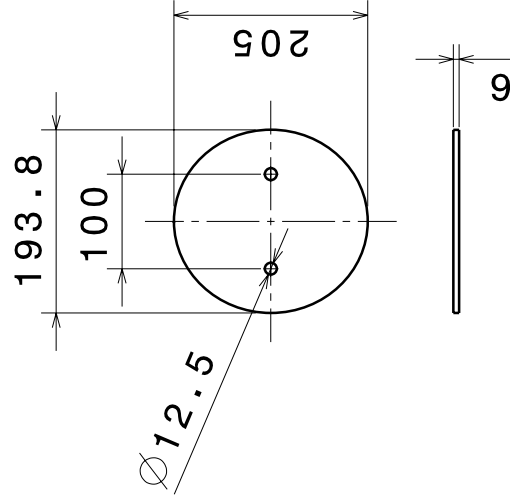
BRAÇO



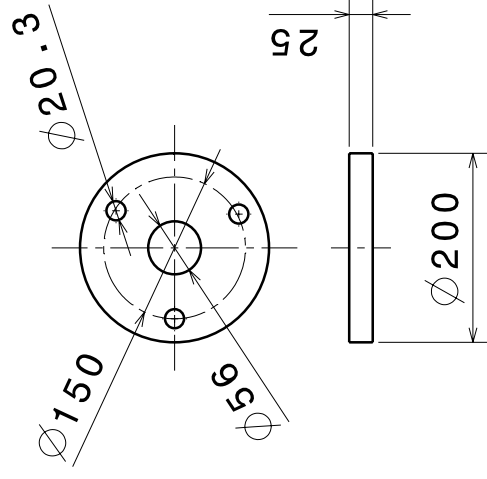
EIXO



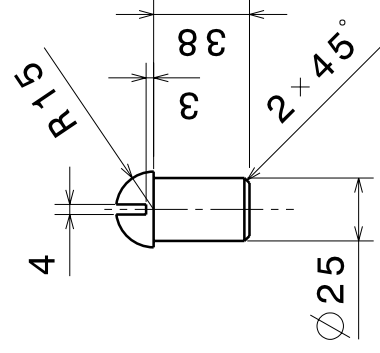
PLACA



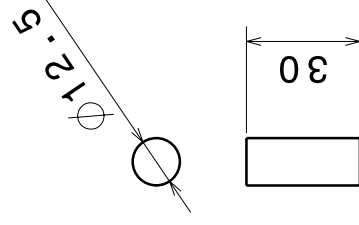
RETENTOR



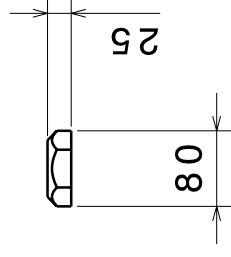
PARAFUSO



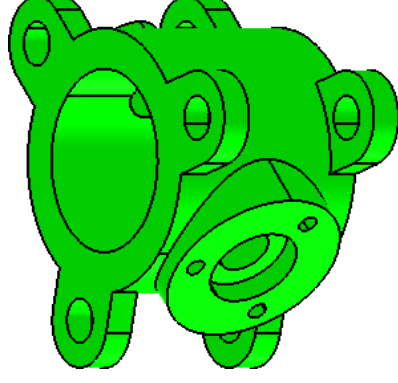
PINO

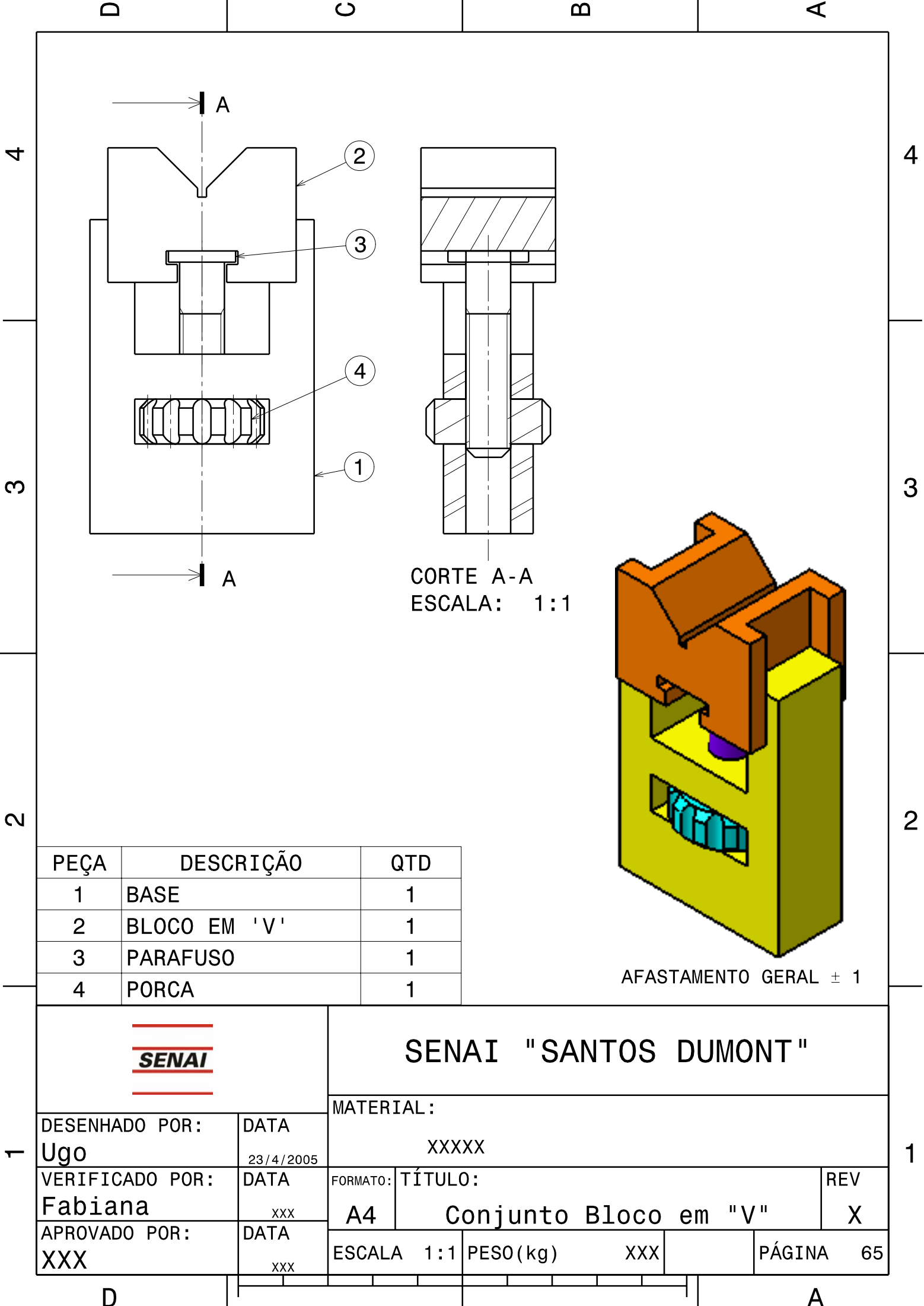


PORCA

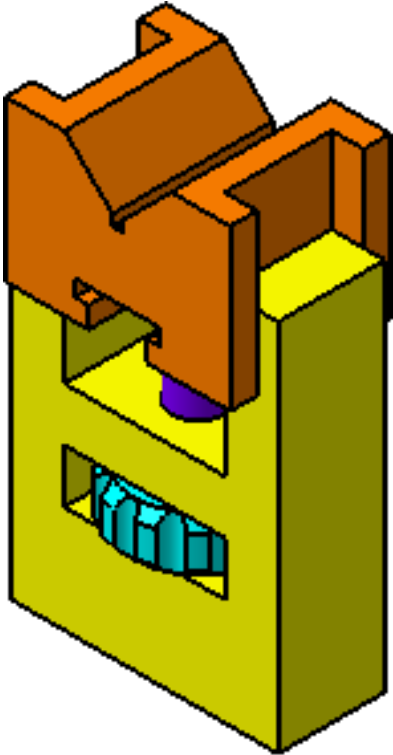


Technical drawing of a circular part. The drawing shows concentric circles with dimensions 150 and 200. The outermost circle is labeled 200. Inside it, there is a dashed circle labeled 150. Further in, there are two solid circles, one labeled 100 and another labeled 50. The part is mounted on a rectangular base with four vertical supports. Arrows point from the dimension lines to the corresponding circles.





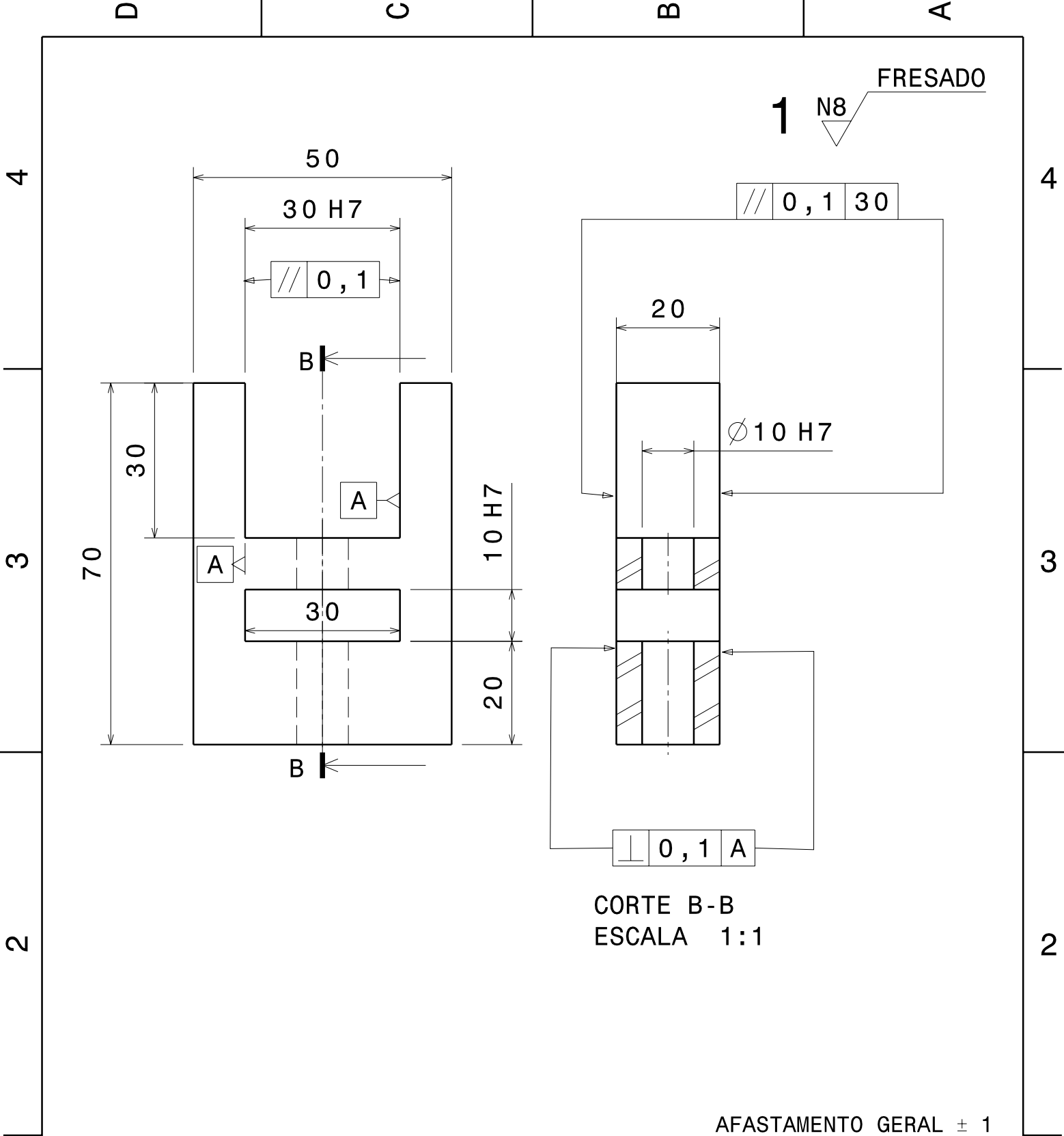
CORTE A-A
ESCALA: 1:1



AFASTAMENTO GERAL ± 1

PEÇA	DESCRIÇÃO	QTD
1	BASE	1
2	BLOCO EM 'V'	1
3	PARAFUSO	1
4	PORCA	1

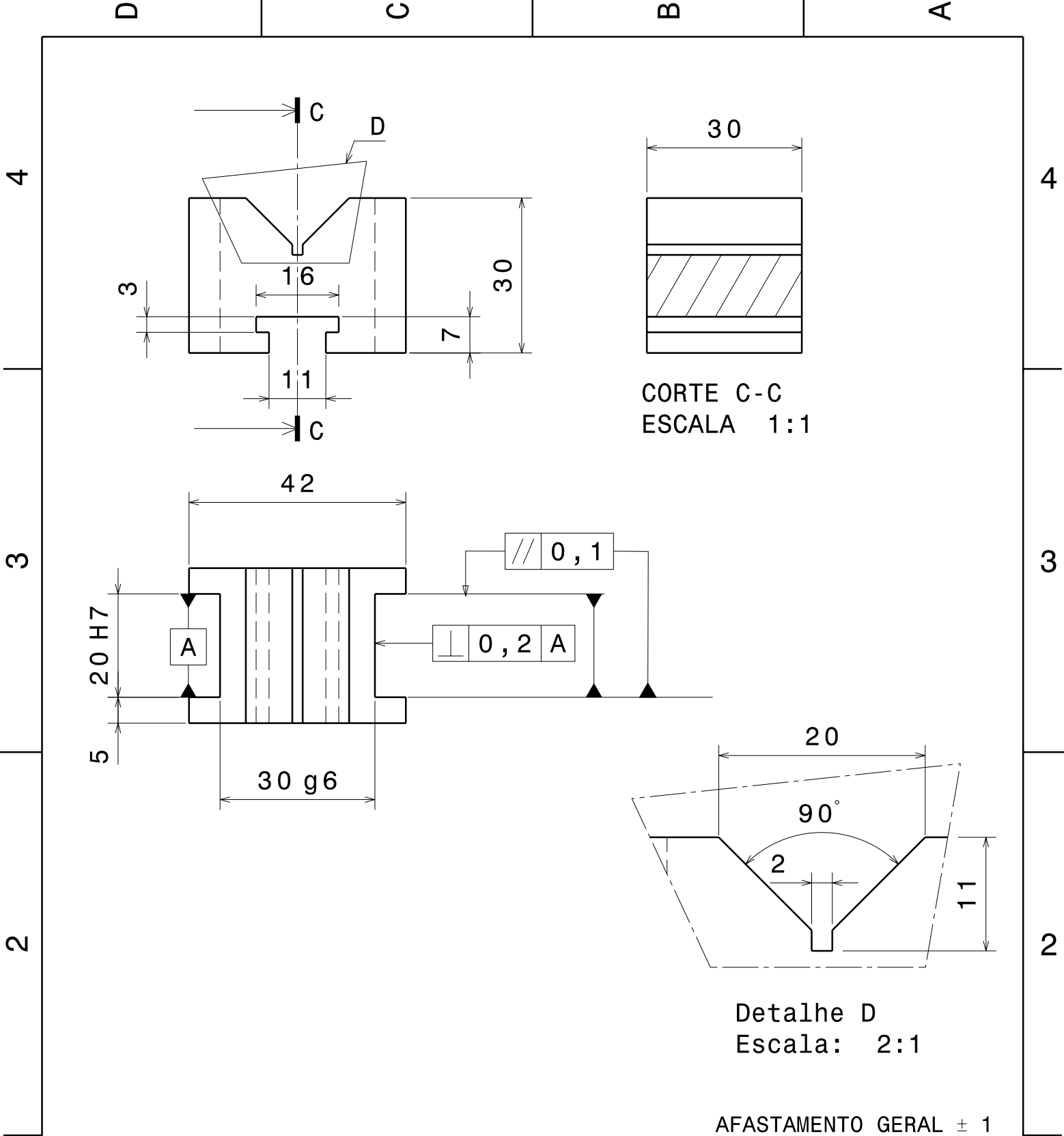
SENAI		SENAI "SANTOS DUMONT"				
		MATERIAL:				
DESENHADO POR: Ugo	DATA 23/4/2005	XXXXXX				
VERIFICADO POR: Fabiana	DATA XXX	FORMATO: A4	TÍTULO: Conjunto Bloco em "V"			REV X
APROVADO POR: XXX	DATA XXX	ESCALA 1:1	PESO(kg)	XXX		PÁGINA 65



SENAI "SANTOS DUMONT"

MATERIAL:			
AÇO ABNT 1010/20 □ 25,4X76,5X55			
FORMATO:	TÍTULO:		REV
A4	BASE		X
ESCALA	1:1	PESO (kg)	PÁGINA
		XXX	66

DESENHADO POR:	DATA
Ugo	23/4/2005
VERIFICADO POR:	DATA
Fabiana	XXX
APROVADO POR:	DATA
XXX	XXX



SENAI "SANTOS DUMONT"

MATERIAL:

FERRO FUNDIDO $\square$ 35X48

DESENHADO POR:

Ugo

DATA

23/4/2005

VERIFICADO POR:

Fabiana

DATA

XXX

FORMATO:

A4

TÍTULO:

BLOCO EM 'V'

REV

X

APROVADO POR:

XXX

DATA

XXX

ESCALA

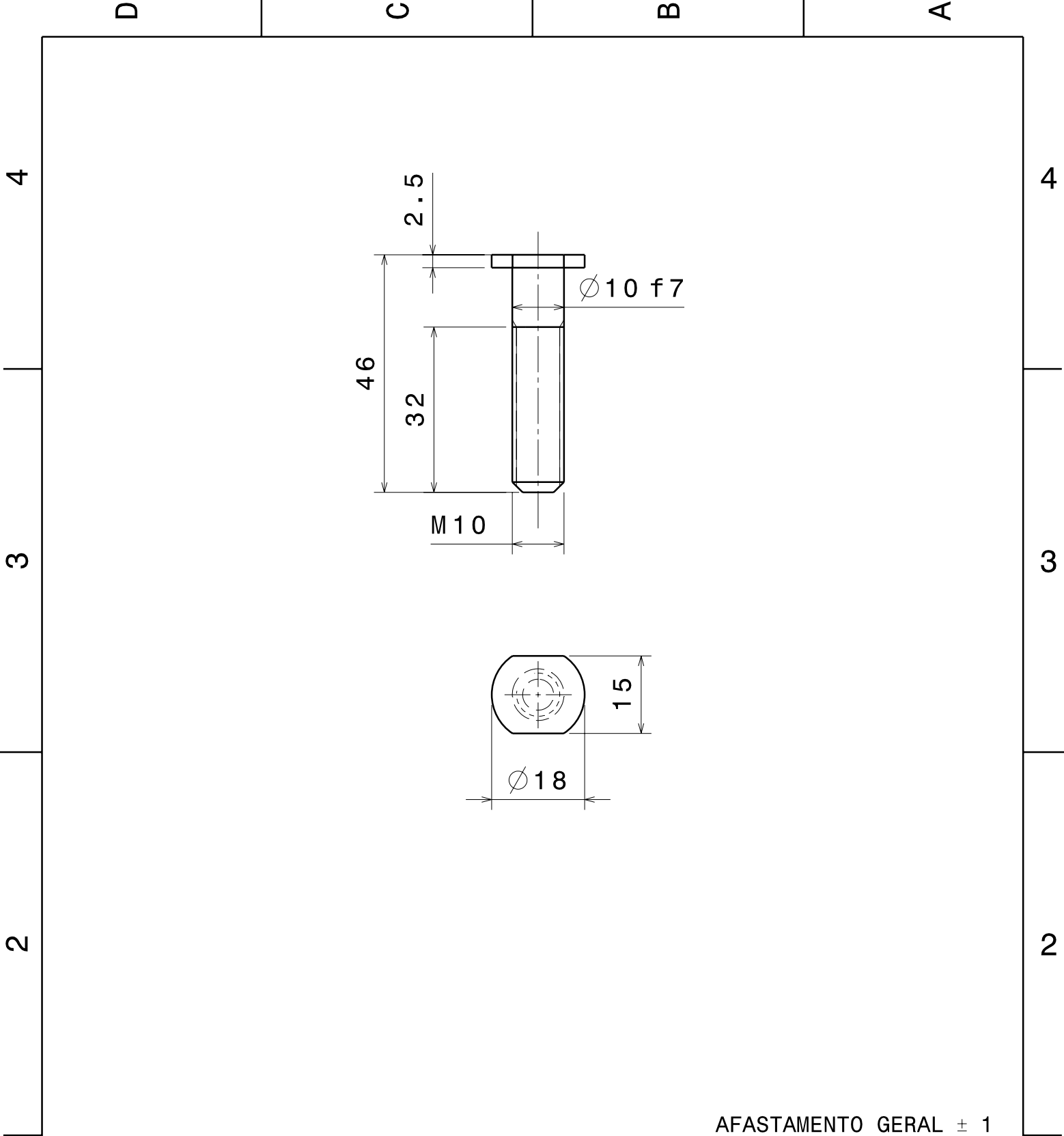
1:1

PESO (kg)

XXX

PÁGINA

67



AFASTAMENTO GERAL ± 1



SENAI "SANTOS DUMONT"

MATERIAL:

AÇO ABNT 1010/20 -TREF.Ø19X50

DESENHADO POR:
Ugo

DATA
23/4/2005

VERIFICADO POR:
Fabiana

DATA
XXX

APROVADO POR:
XXX

DATA
XXX

FORMATO:
A4

TÍTULO:

PARAFUSO

REV
X

ESCALA 1:1

PESO(kg)

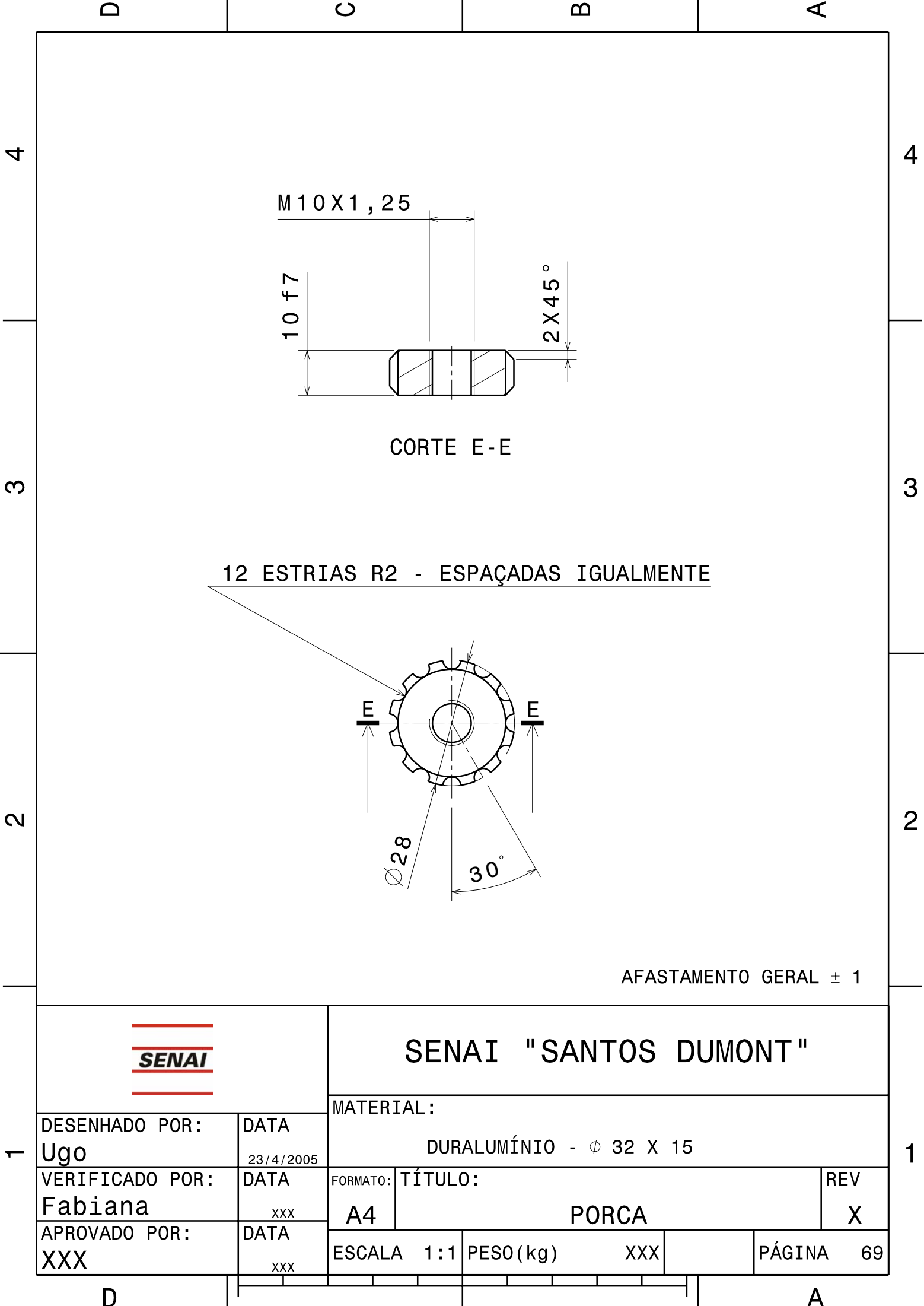
XXX

PÁGINA

68

D

A



SENAI "SANTOS DUMONT"

MATERIAL:

DURALUMÍNIO - ϕ 32 X 15

DESENHADO POR:

Ugo

DATA

23/4/2005

VERIFICADO POR:

Fabiana

DATA

XXX

FORMATO:

A4

TÍTULO:

PORCA

REV

X

APROVADO POR:

XXX

DATA

XXX

ESCALA

1:1

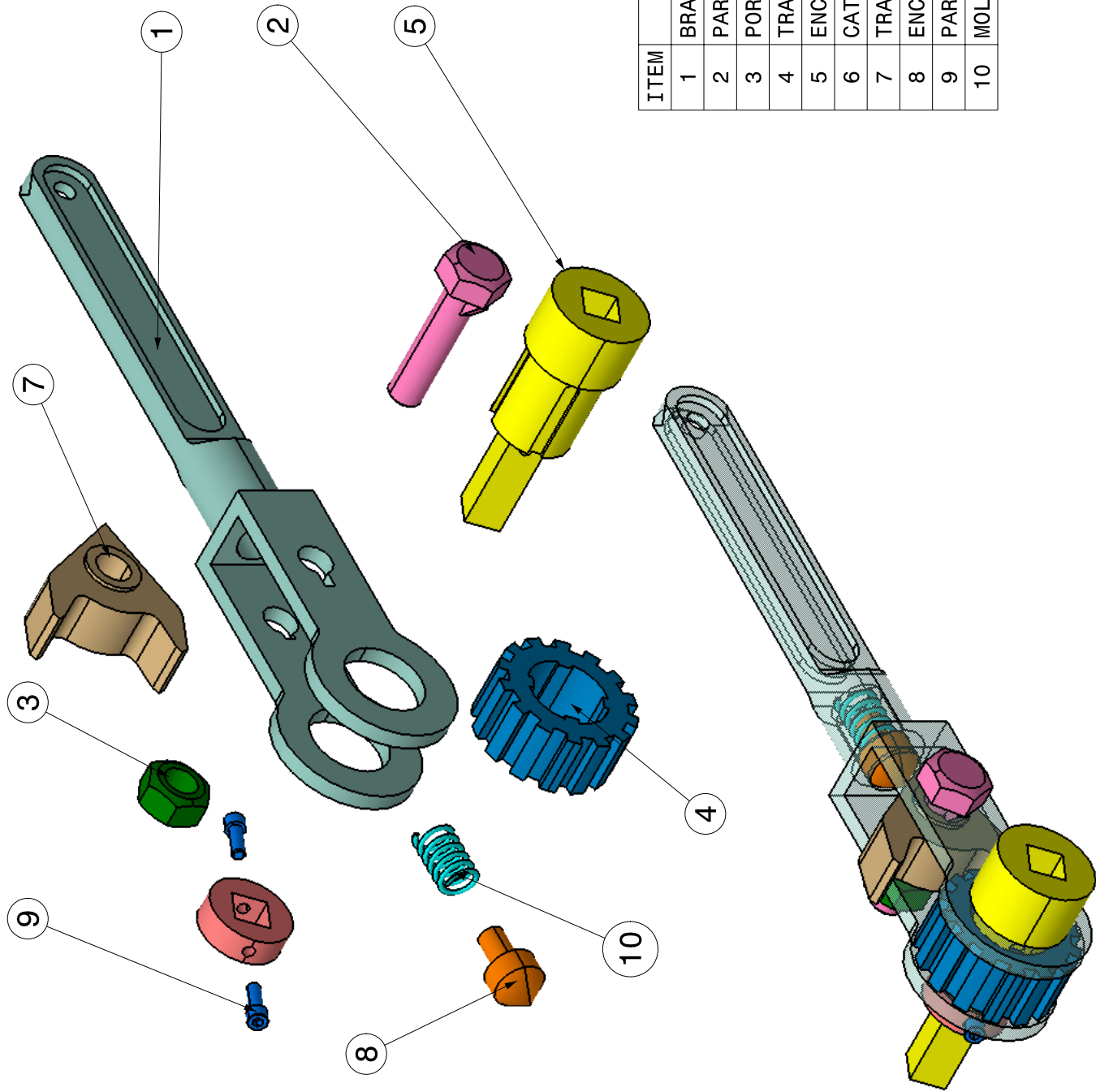
PESO (kg)

XXX

PÁGINA

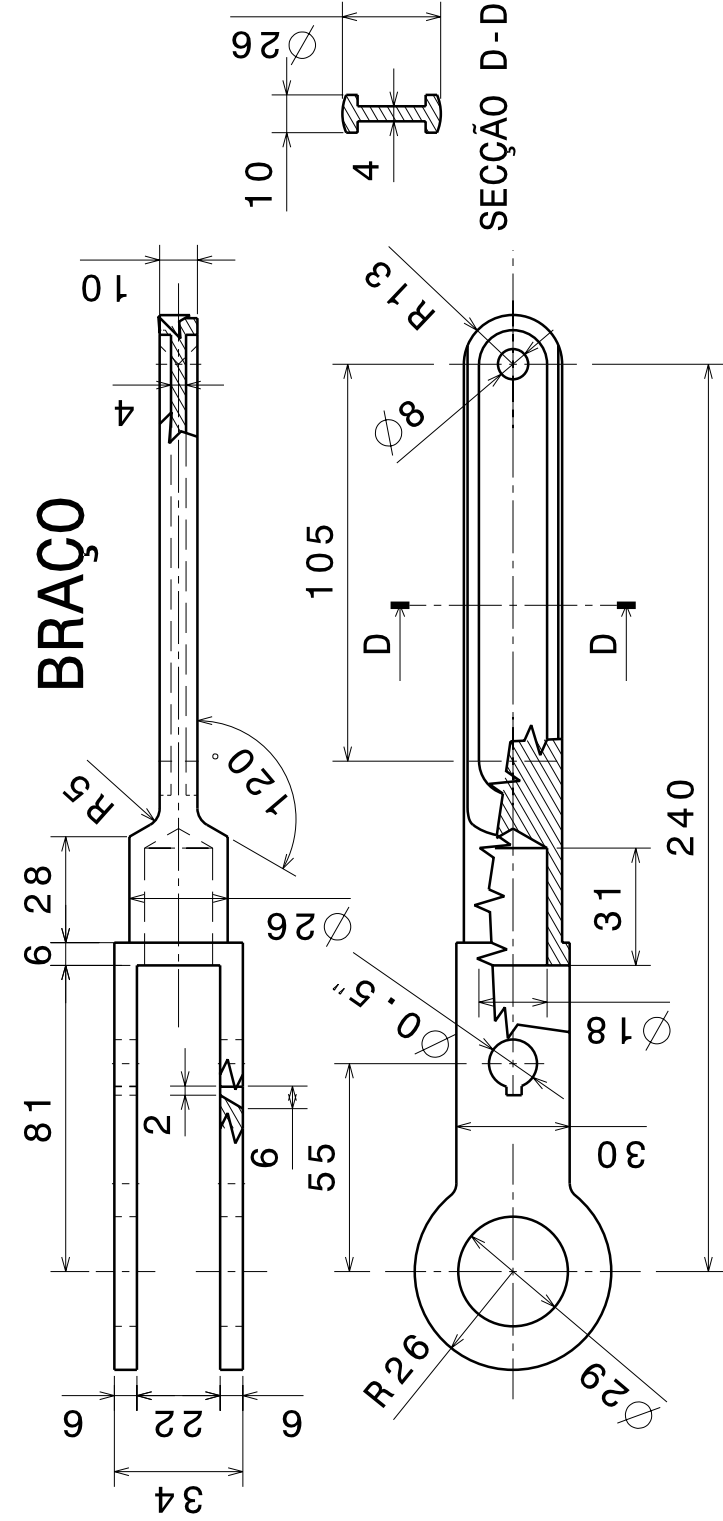
69

CHAVE ROQUETE

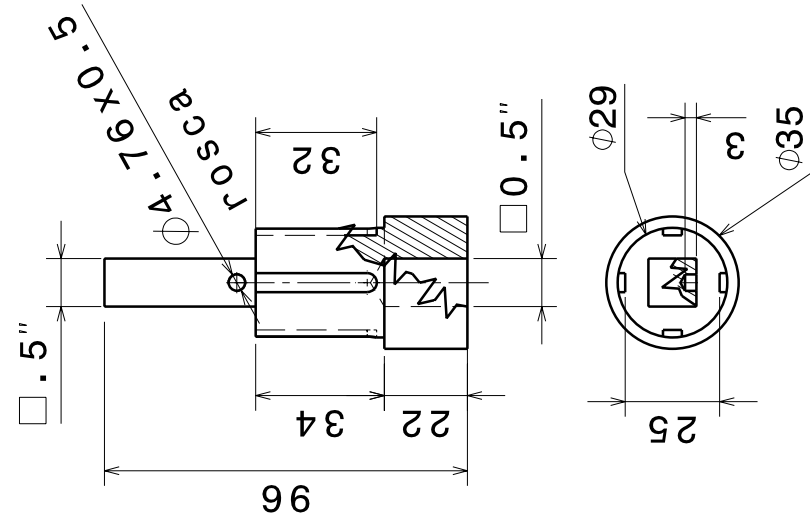


ITEM	DESCRIÇÃO	QUANTIDADE
1	BRAÇO	1
2	PARAFUSO SEXTAVADO COM NERVURA	1
3	PORCA SEXTAVADA	1
4	TRANQUETA	1
5	ENCAIXE	1
6	CATRACA	1
7	TRAVA	1
8	ENCOSTO	1
9	PARAFUSO ALLEN	2
10	MOLA	1

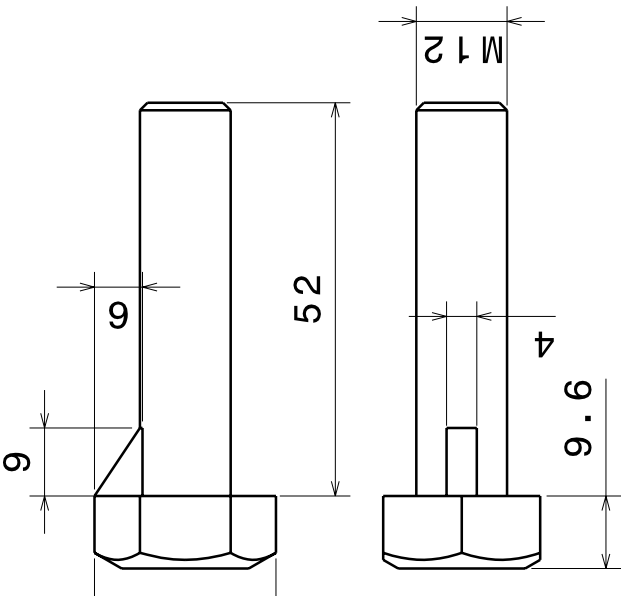
BRAÇO



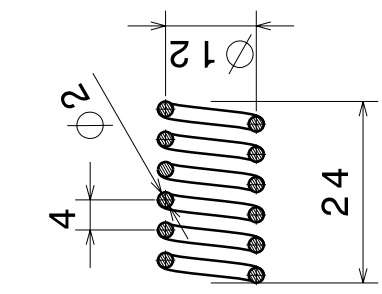
ENCAIXE



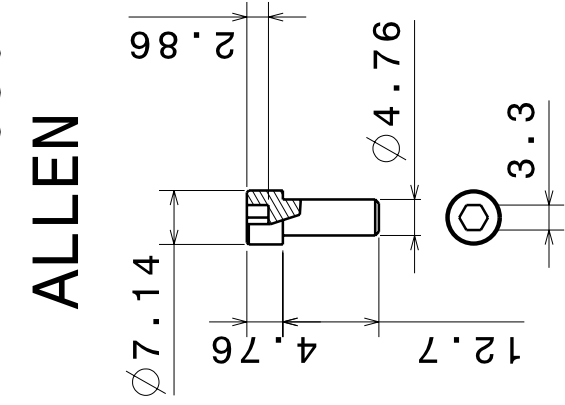
PARAF S. E NERV



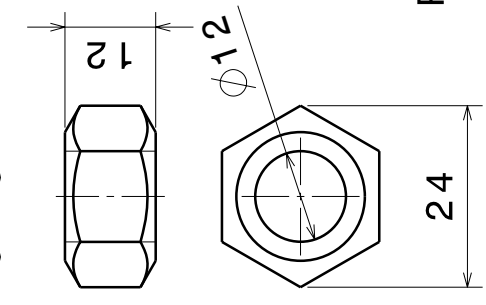
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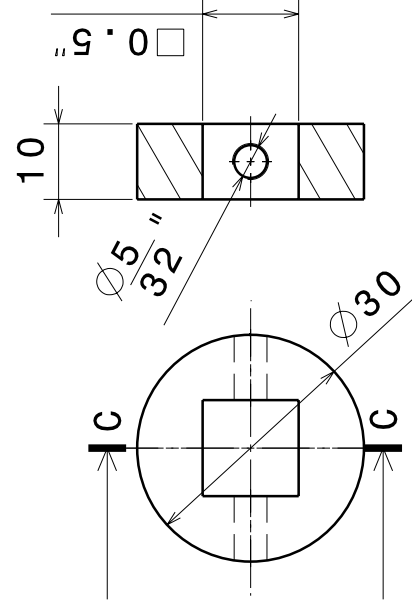
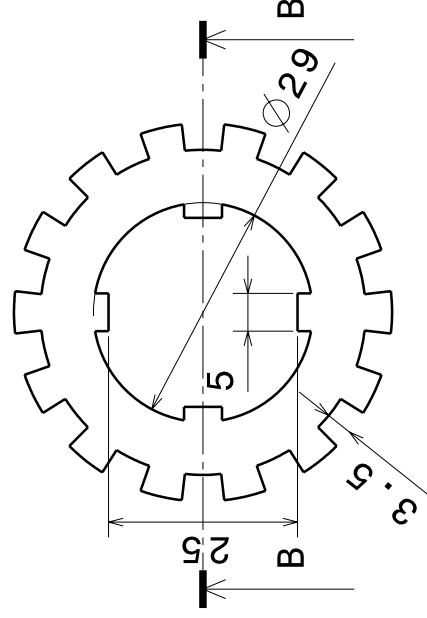
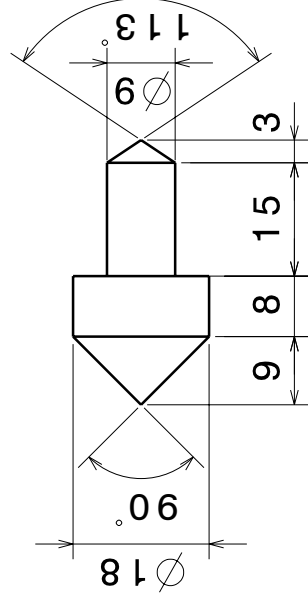
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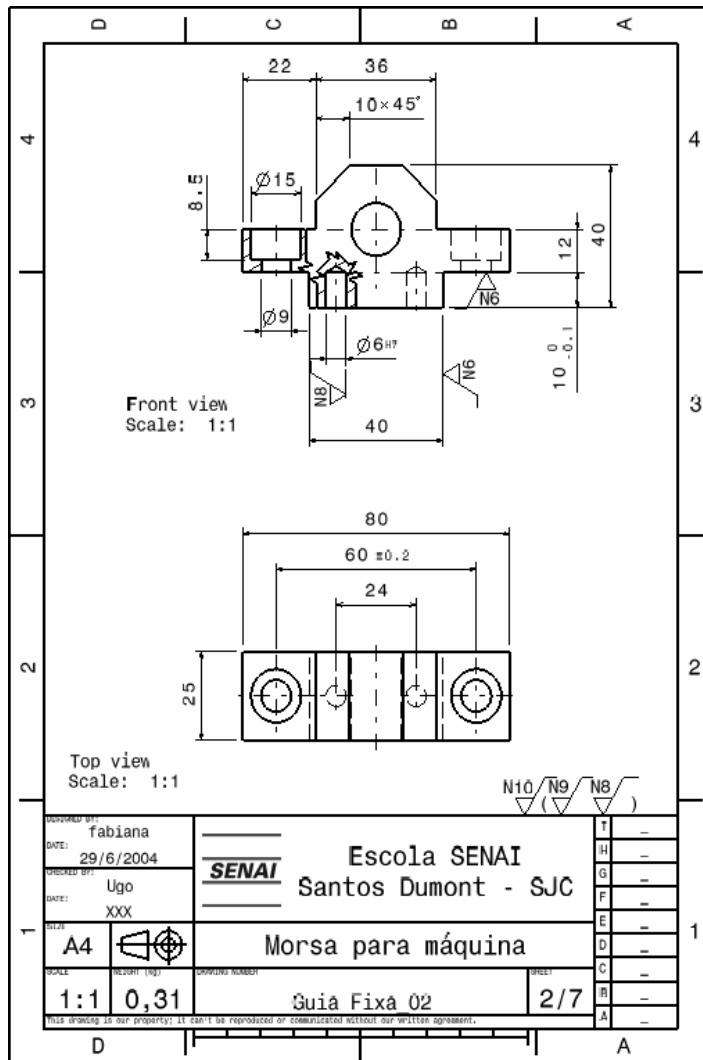
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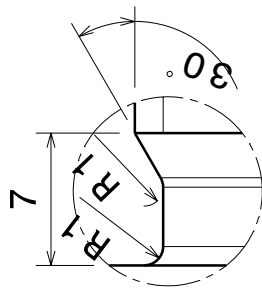
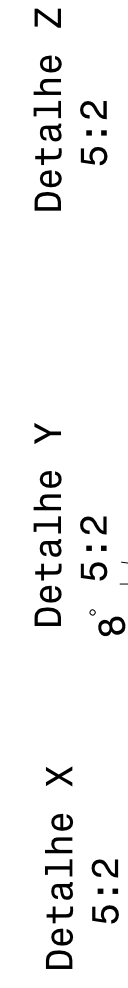
TRAVA



Página 72

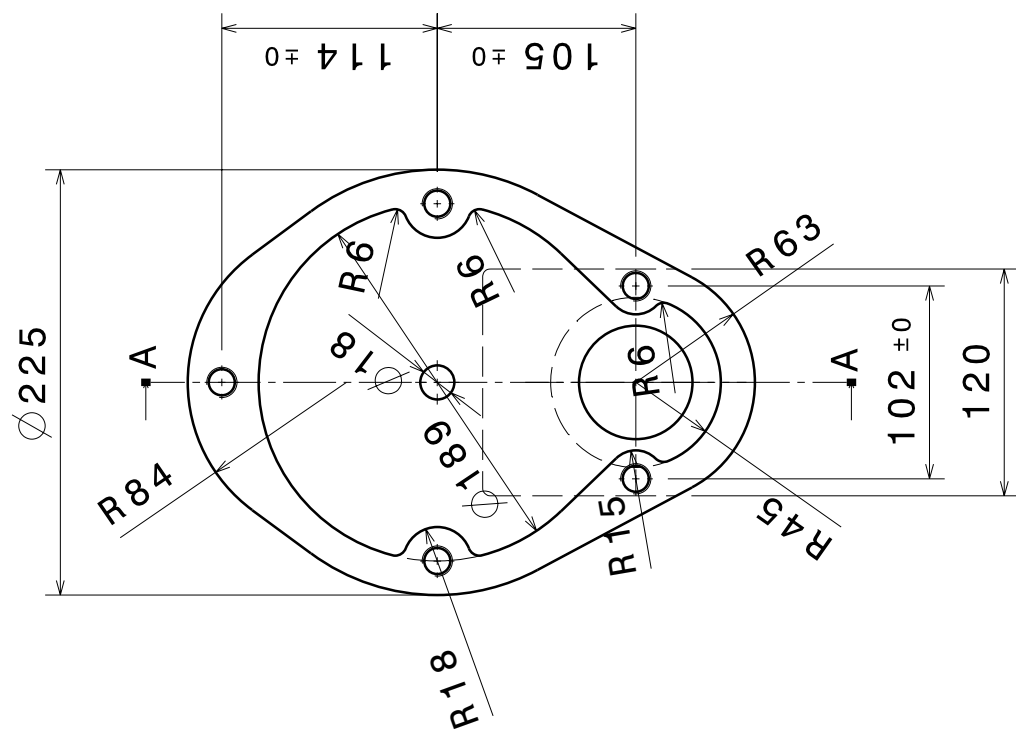
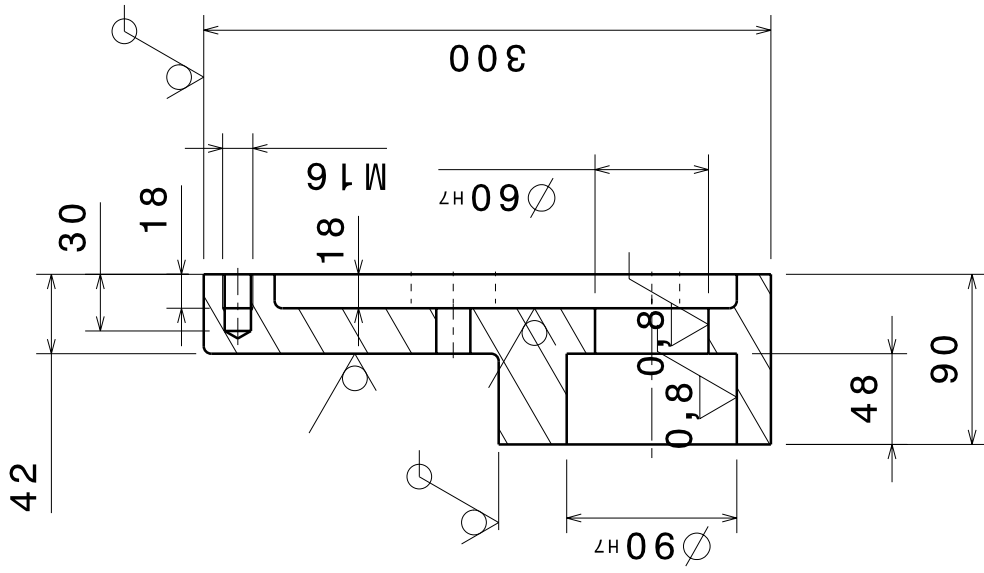


Drafting

$$\left(\begin{array}{c} 0,8 \\ \triangle \end{array} \right)$$


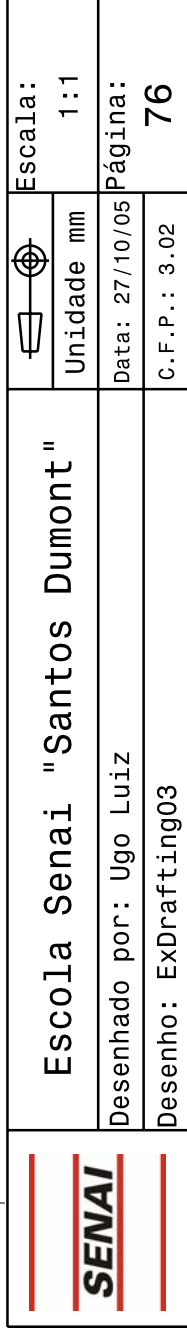
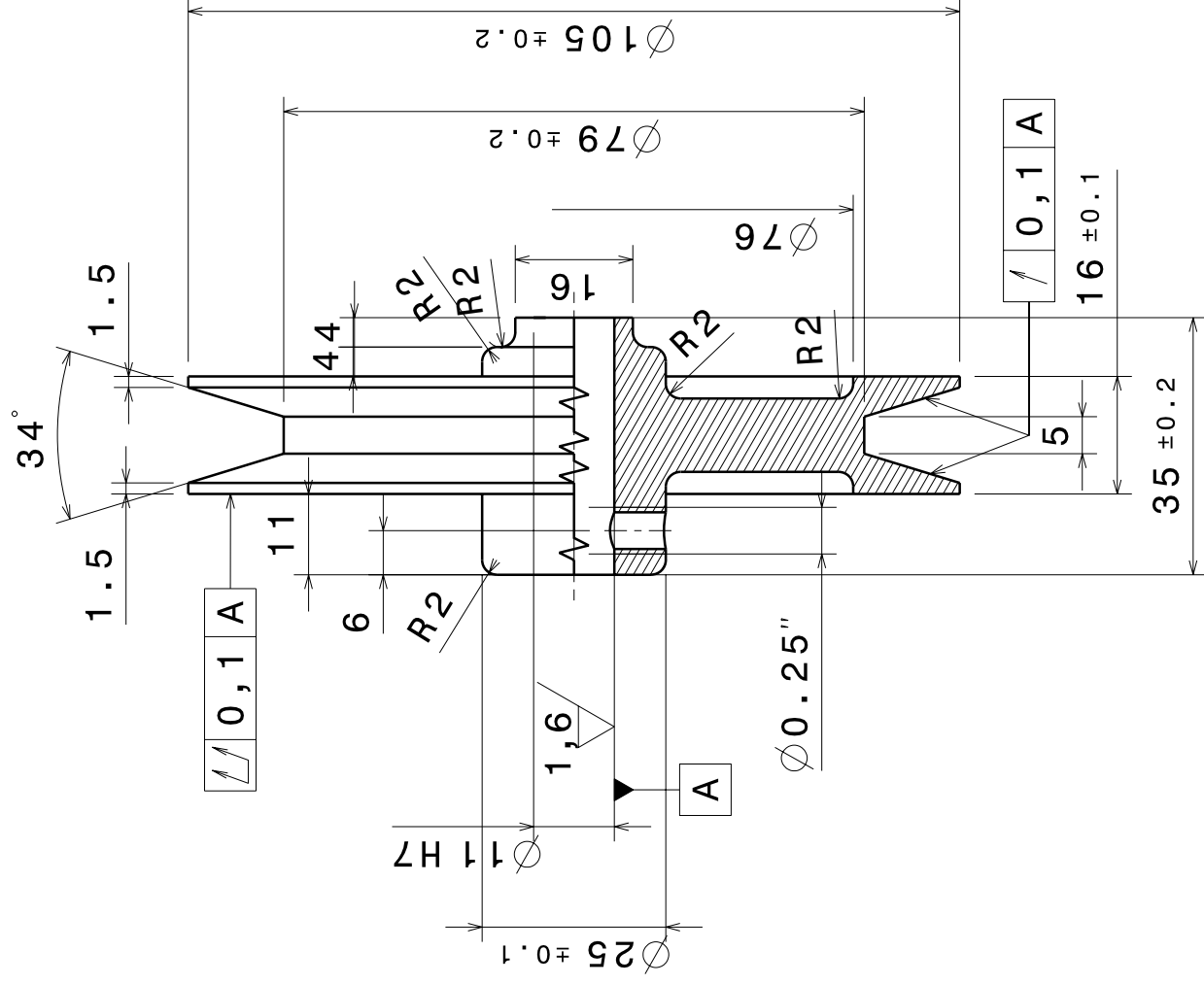
	Escola Senai "Santos Dumont"			Escala: 1:2
			Unidade mm	
	Desenhado por: Ugo Luiz		Data: 27/10/05	Página: 74
	Desenho: ExDrafting01		C.F.P.: 3.02	

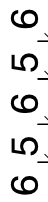
6,3 (0,8)

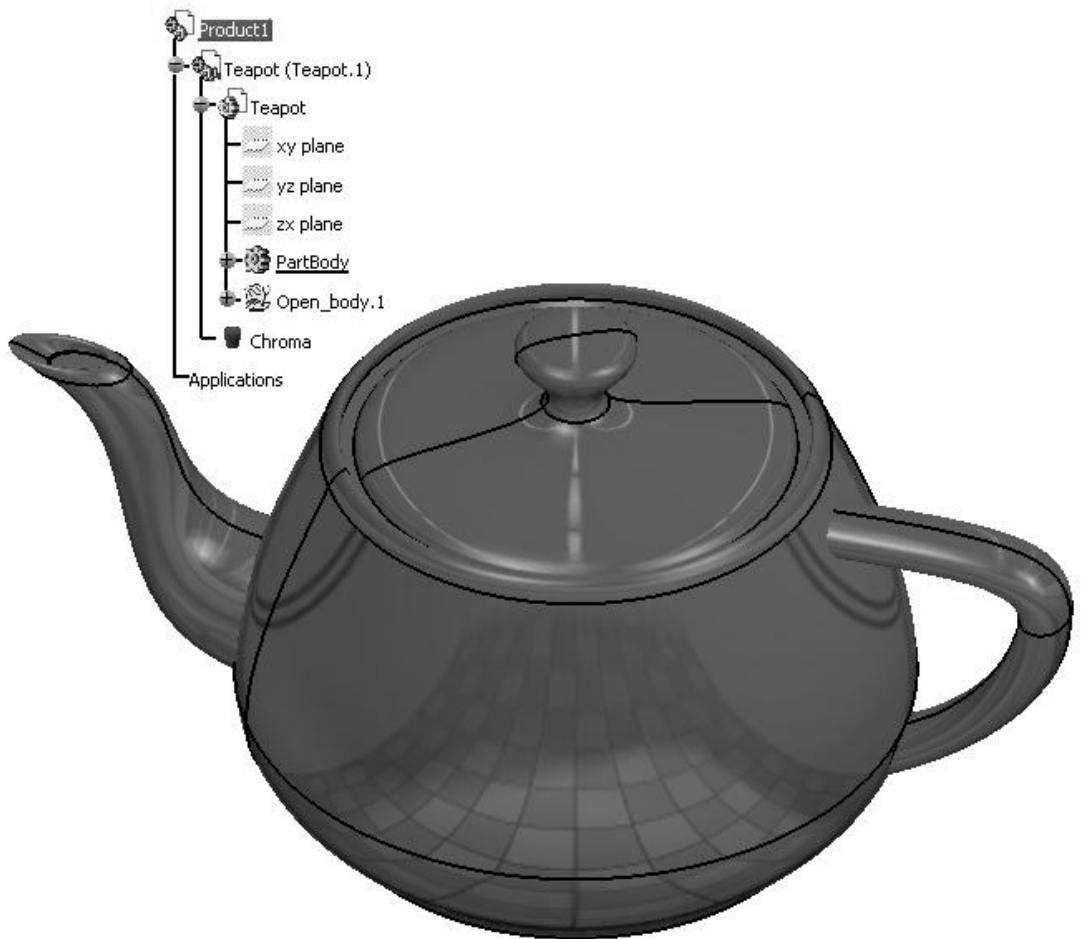


SENAI	Escola Senai "Santos Dumont"		Escala:	
			1:2	
	Desenhado por: Ugo Luiz	Unidade mm	Página:	
	Desenho: ExDrafting02		Data: 27/10/05	75
			C.F.P.: 3.02	

Data: 27/10/05	C.F.P.: 3.02
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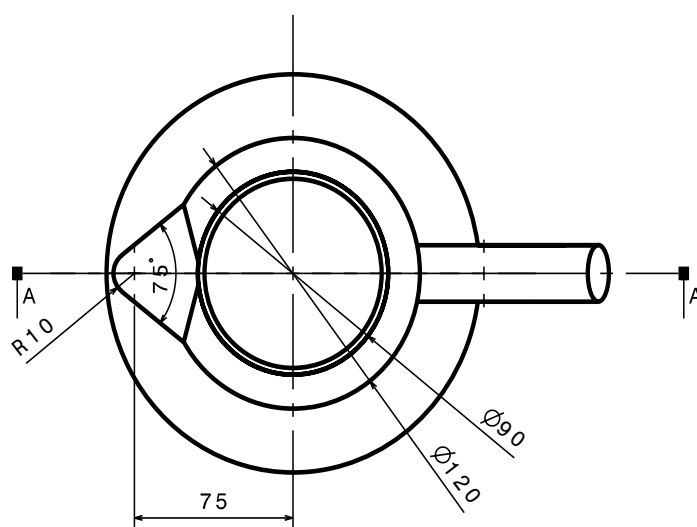
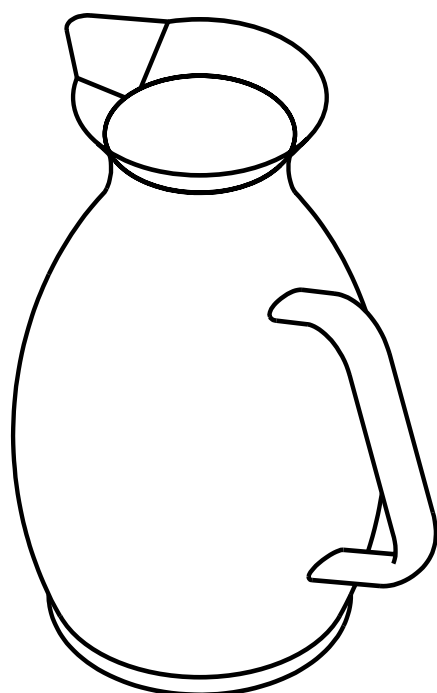
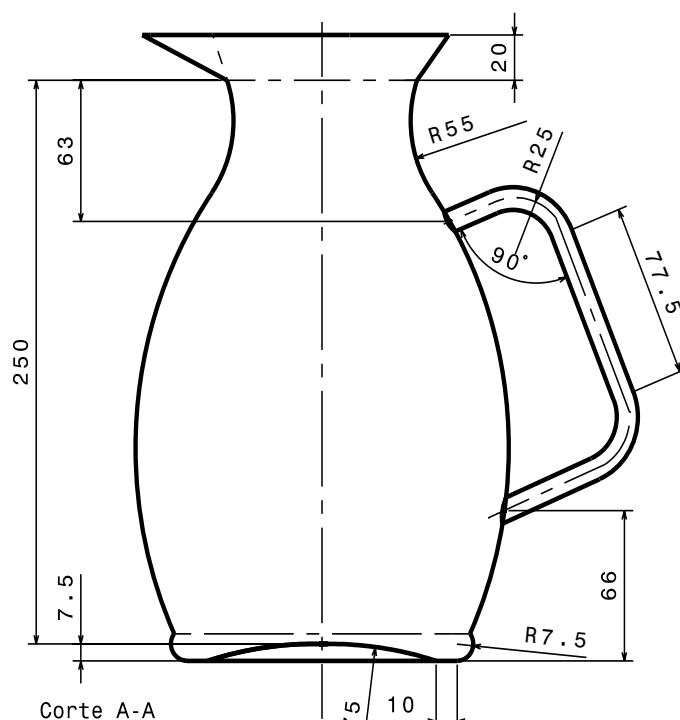
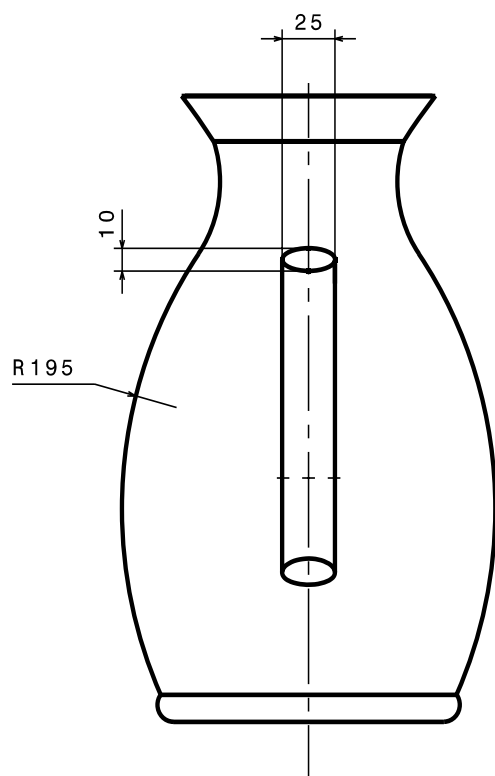




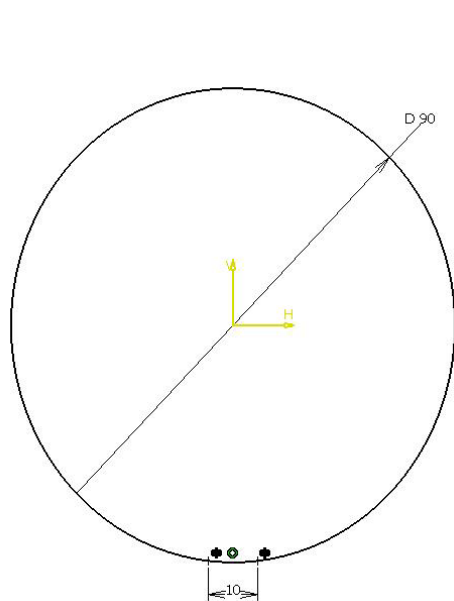


Wireframe & Surface

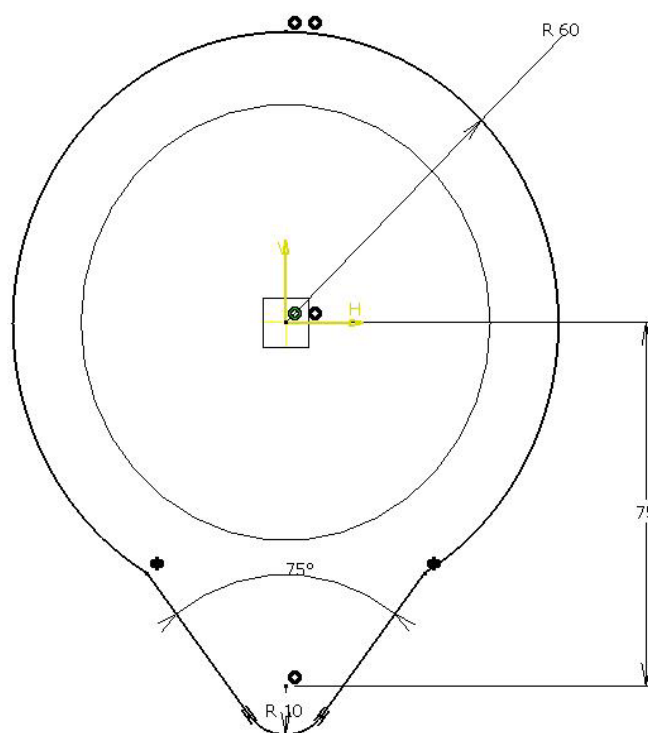
Faça o exercício abaixo no módulo *Wireframe & Surface Design*.



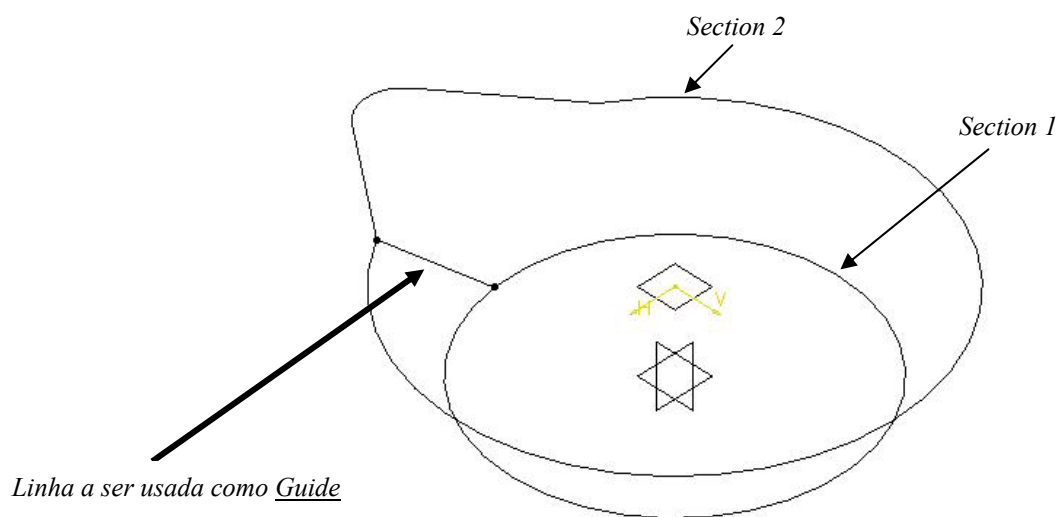
1. Desenhar os sketches para o comando *Loft Surface*



Primeira secção da superfície

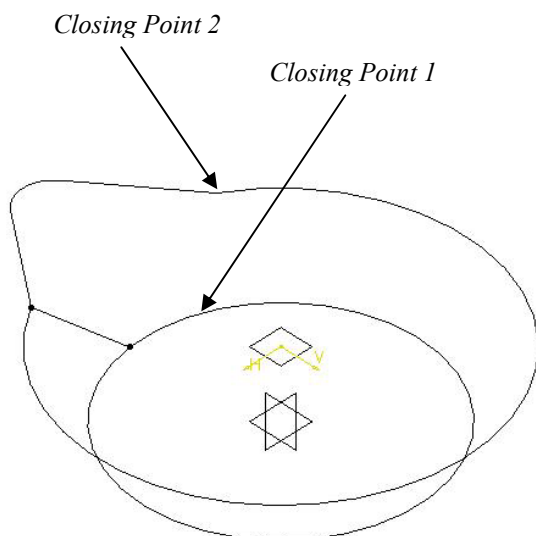


Segunda secção da superfície

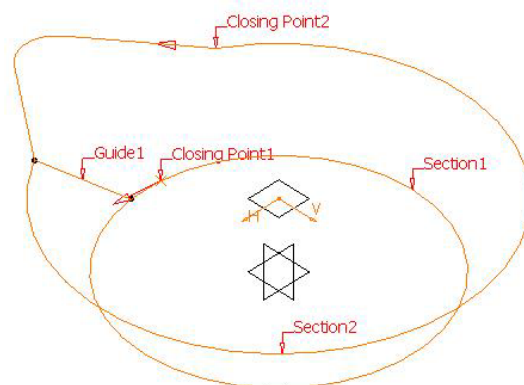


Linha criada entre dois pontos nas secções

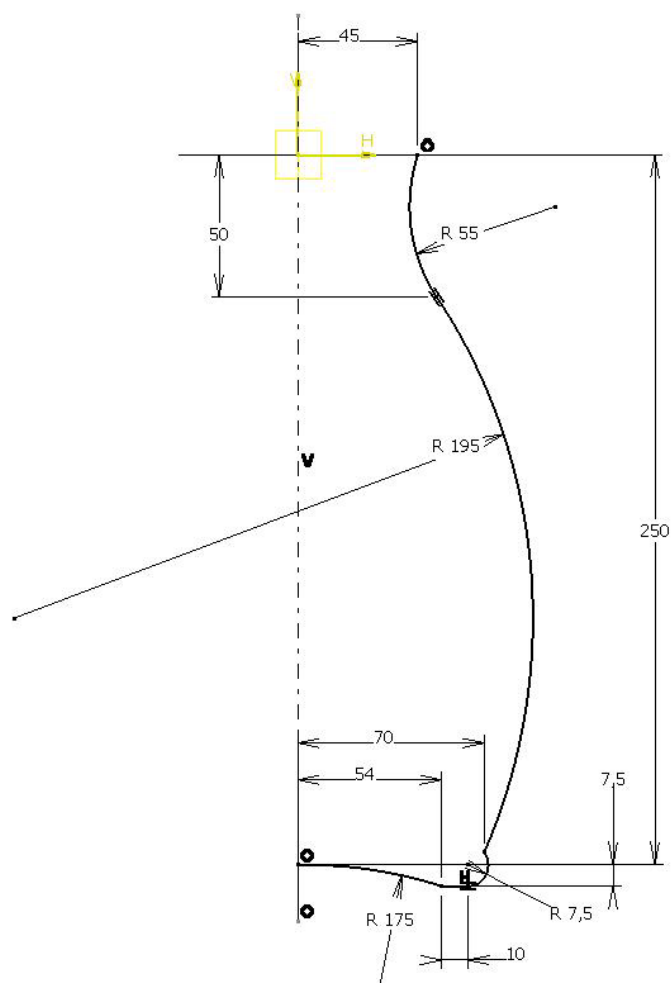
2. Criar o Loft Surface



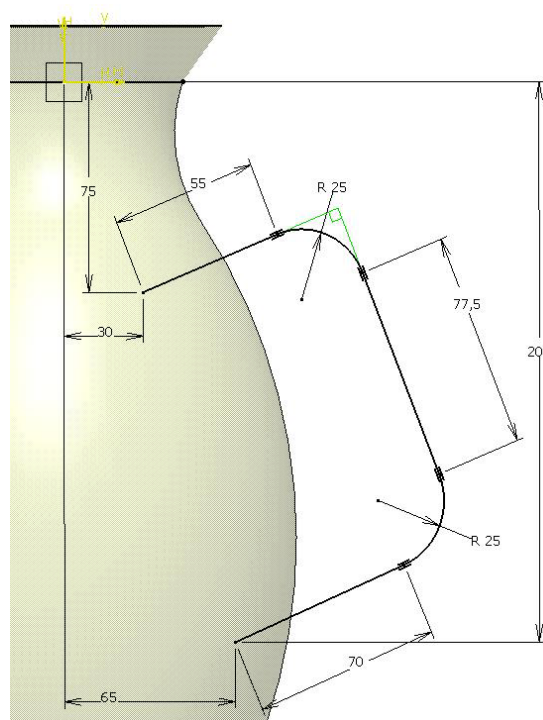
Posição dos “Closing Points”



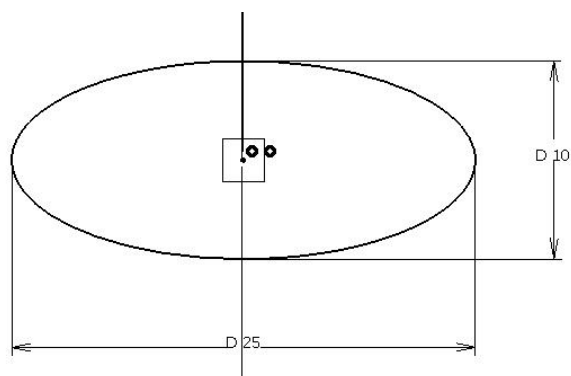
3. Criar o Sketcher para a superfície de revolução



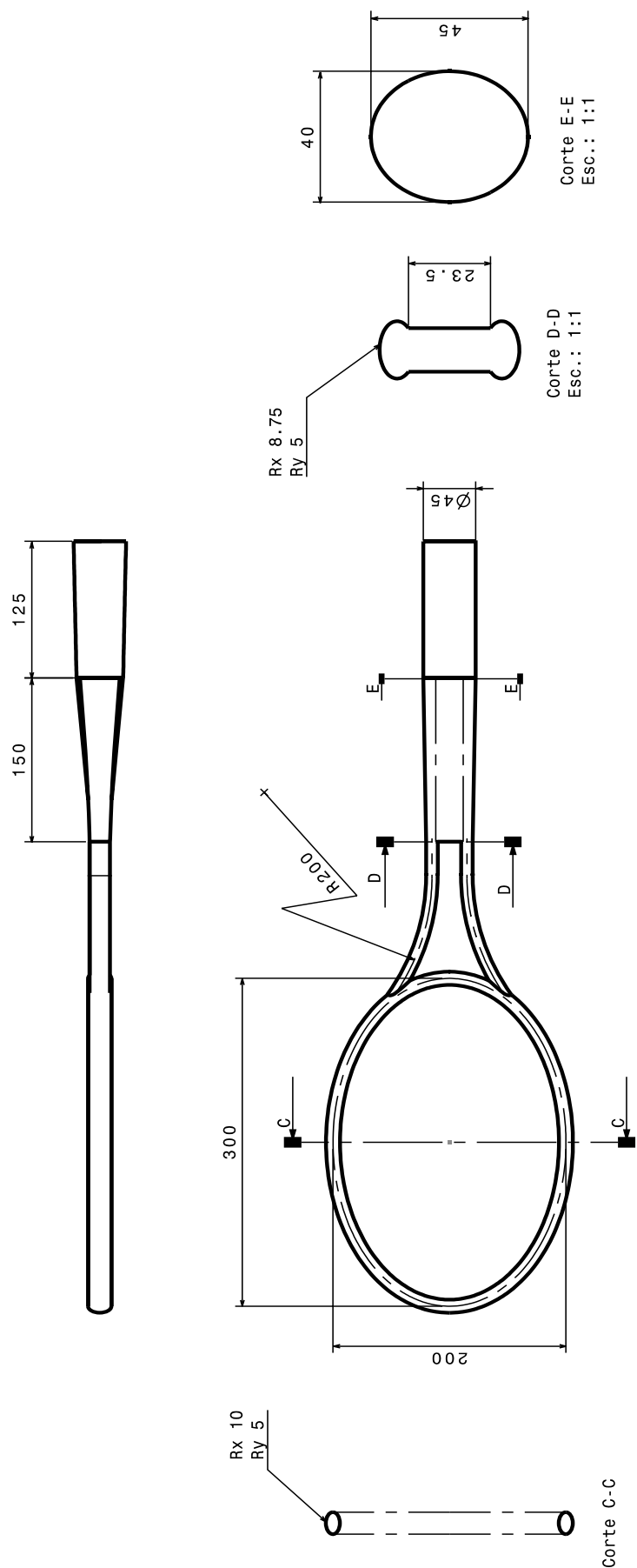
4. Criar o Sketcher para a Sweep



Guia do Sweep

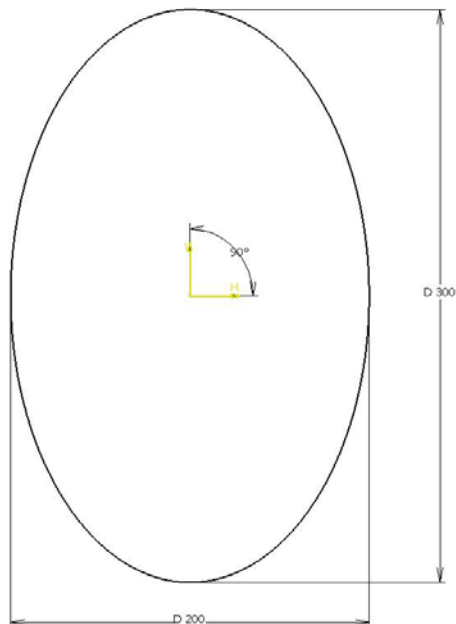
5. Criar o Perfil do Sweep**6. Usar o comando Split para retirar a porção interna do sweep.**

Faça a peça abaixo no módulo *Wireframe & Surface Design*.

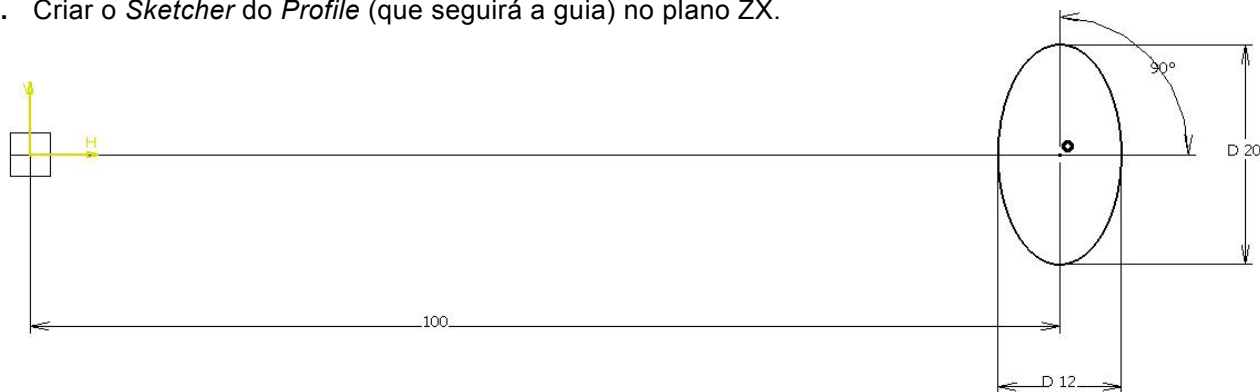


Para o primeiro *Sweep*, seguir os itens de 1 a 3.

1. Criar o *Sketcher* da curva guia no plano XY.

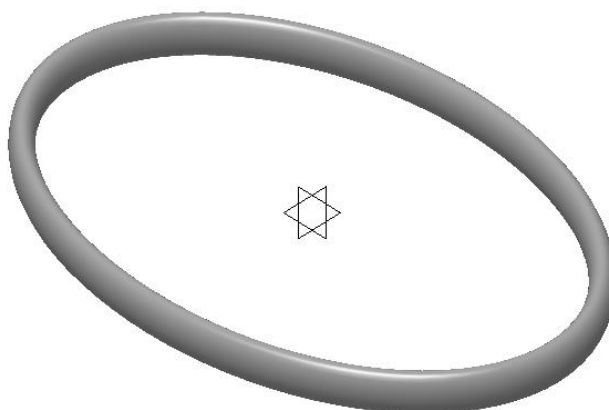


2. Criar o *Sketcher* do *Profile* (que seguirá a guia) no plano ZX.

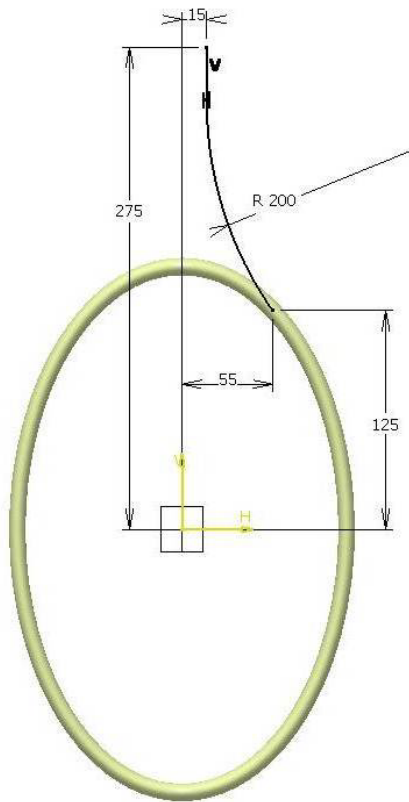


3. Através de o comando *Swept Surface Definition* criar a superfície abaixo, onde:

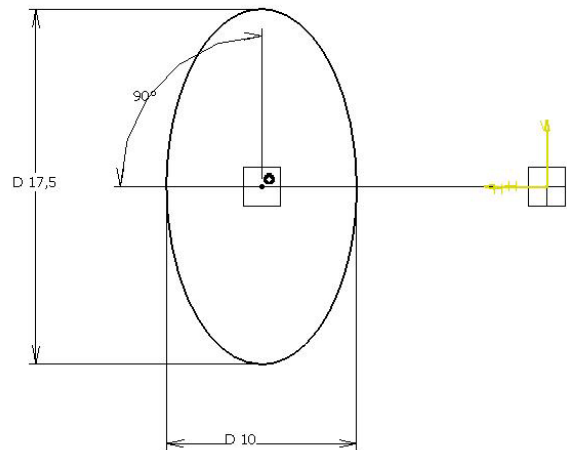
- *Profile*: passo 2
- *Guide*: passo 1



4. No plano XY, desenhar a curva abaixo:



5. Criar um plano normal à curva anterior (sobre o ponto final da parte “reta”), e nele, desenhar o *Sketcher* abaixo



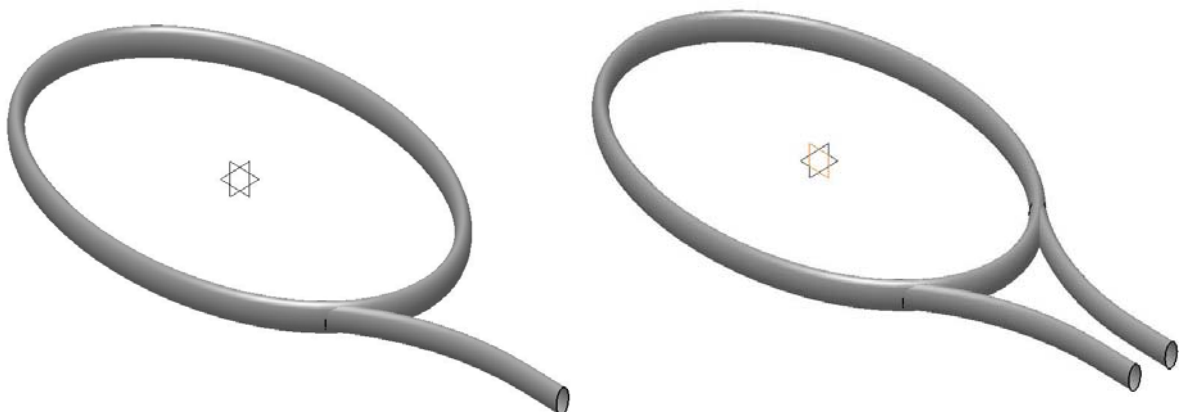
OBS.: O centro da elipse deve ser coincidente ao ponto final da curva

6. Através de o comando *Swept Surface Definition* criar a superfície abaixo, onde:

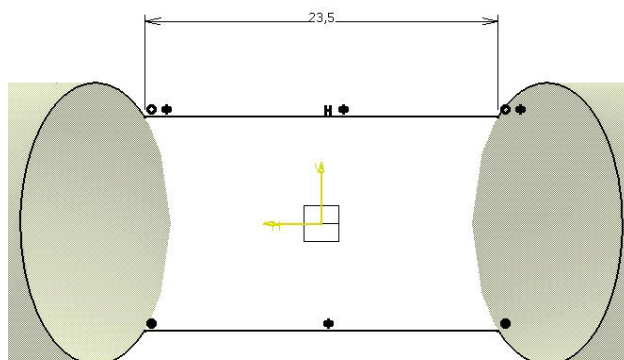
- *Profile*: passo 5
- *Guide*: passo 4



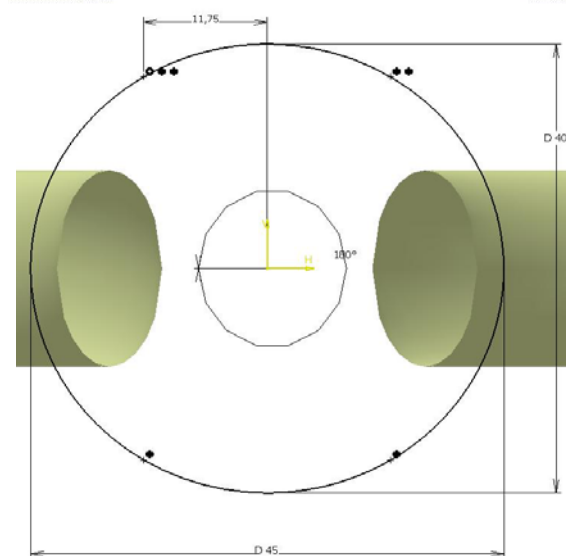
7. Com o comando *Symmetry*, fazer a simetria do *Swept Surface* através do plano YZ, como mostrado à seguir:



8. Criar um *Sketch* no **Plane.1** (criado no passo 5) usando linhas e o comando *Project 3D Elements* selecionando as duas elipses.



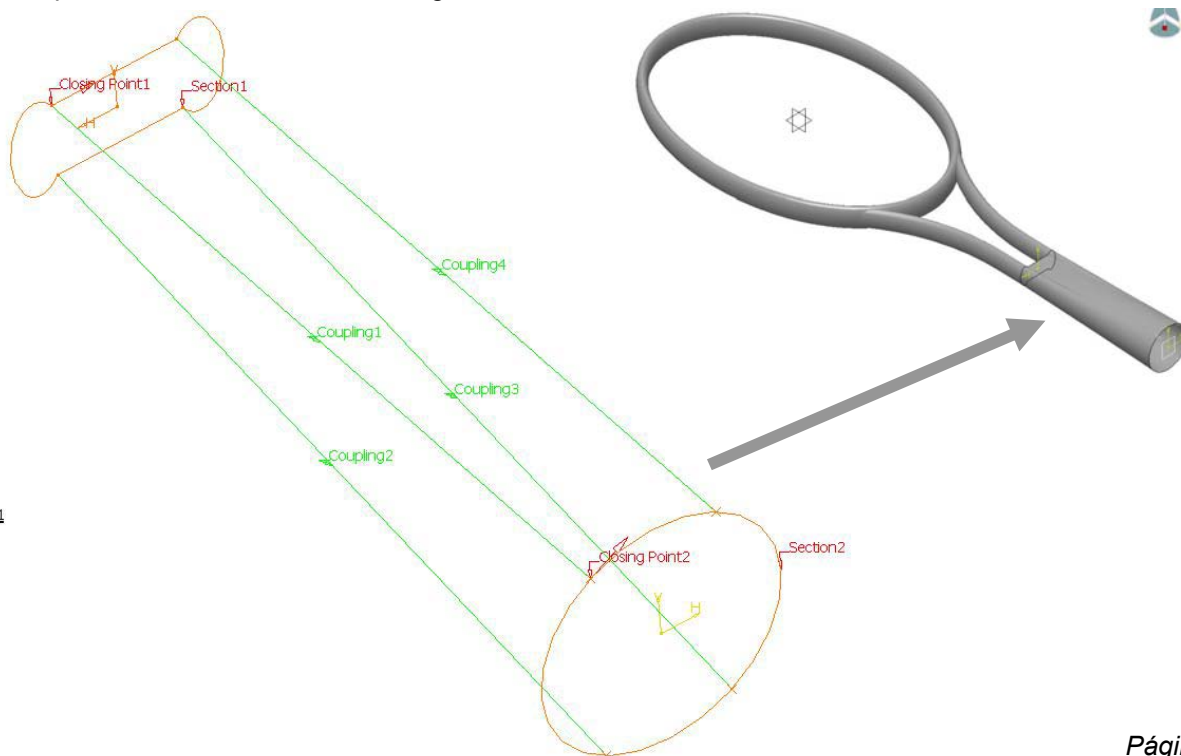
9. Criar um plano paralelo ao plano ZX de 425 mm. Criar sobre ele um novo *Sketcher* com uma elipse e quatro pontos.



10. Através de o comando *Multisections Surfaces* criar outra superfície selecionando os *sketchers* criados nos passos 8 e 9.

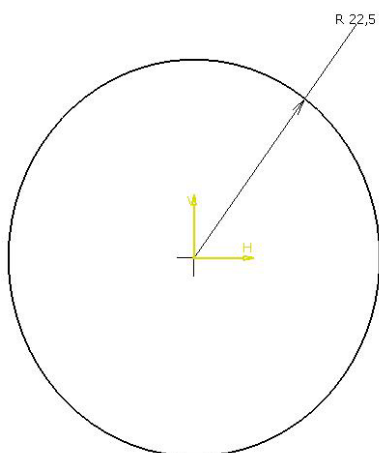


11. Será necessário reposicionar o **Closing point 2** clicando nele com o **BDM** escolhendo a opção *Replace*. Recolocá-lo conforme figura abaixo:

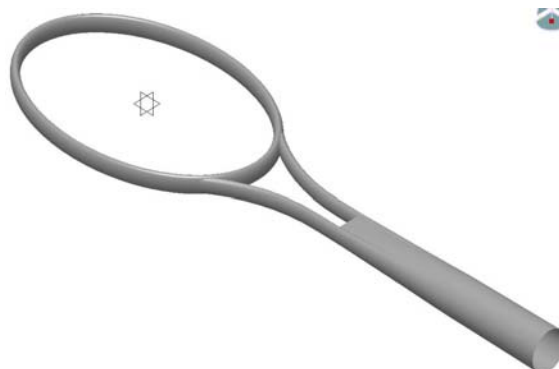


12. Na caixa de diálogo *Multisections Surfaces Definition* selecionar a tabela **Coupling** e em seguida o botão **Add**. Selecione o primeiro ponto da primeira secção e o primeiro da segunda até completar quatro *Couplings*, conforme figura anterior.

13. Criar um plano paralelo ao plano ZX a 550 mm, e nele criar o sketcher abaixo:



14. Através do comando *Blend Surface*, selecione o Sketcher criado no passo 9 e 13 para criar o final do cabo da raquete.



15. Fechar a base do cabo da raquete como comando *Fill*.



Referências bibliográficas

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1 edition. Canada, Thonson Delmar Learning, 2004.

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PROVENZA, Francesco. **Desenhista de Máquinas**

46ª edição. São Paulo, Editora F. Provenza, 1991.

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