DESENHO TÉCNICO MECÂNICO I (SEM0564)

AULA 11 - NOÇÕES DE SOLDAGEM E SIMBOLOGIA







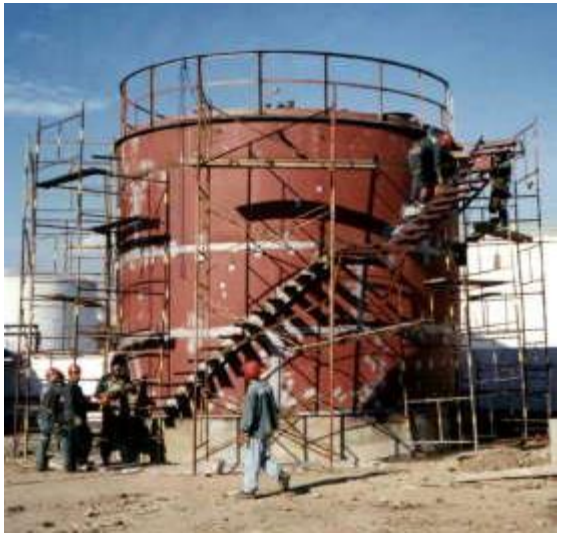
Notas de Aulas v.2017

Casos Reais de Soldagem







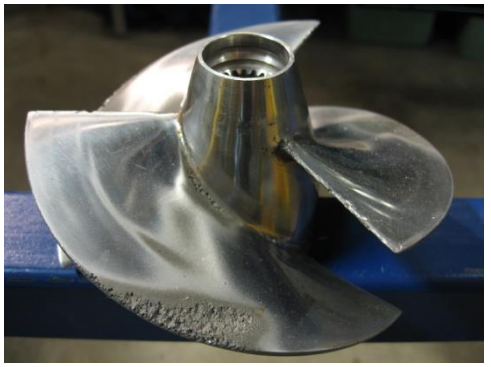




Casos Reais de Soldagem











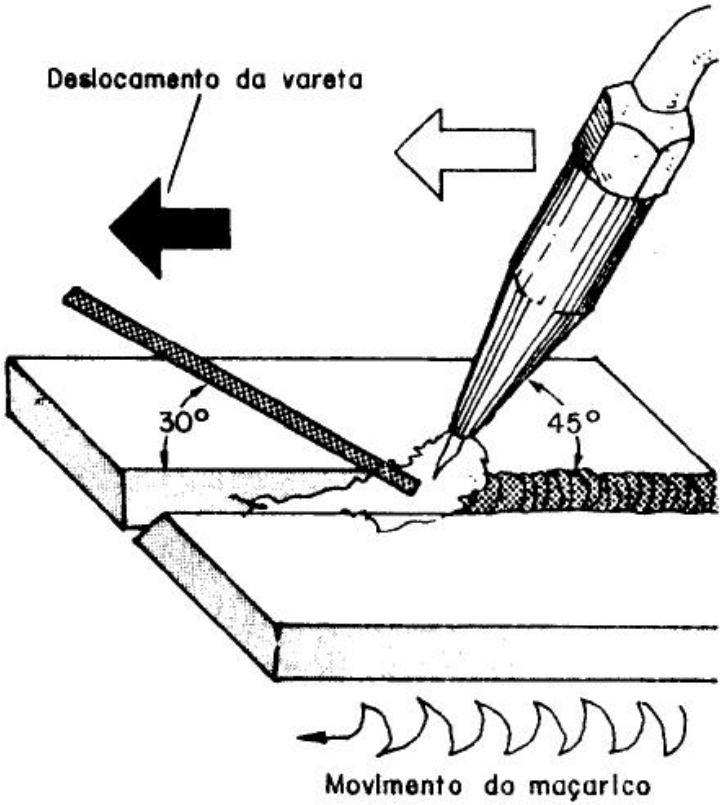
Soldagem

Processo de união de peças metálicas, cujas superfícies tornam-se liquefeitas pela ação do calor e/ou pressão, com ou sem adição de metal.

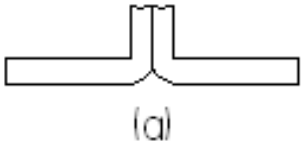
Processos de Soldagem

1. Soldagem por chama:

- Um dos mais antigos
- Baixo custo
- Aquecimento das peças a soldar
- Oxigênio e acetileno
- Com ou sem adição de material



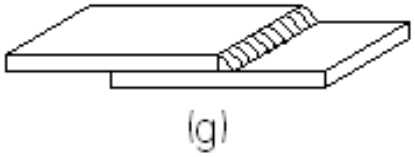
Posições de soldagem



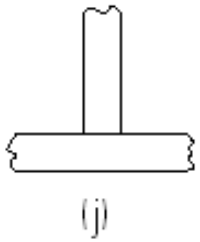
Topo com flange



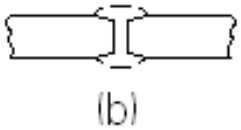
Topo em duplo V



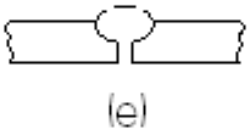
Sobreposta



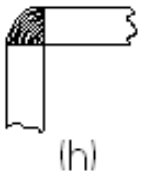
Em T



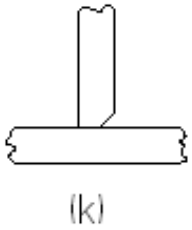
Topo reta



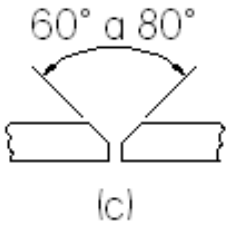
Topo em U



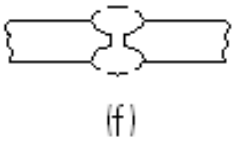
De centro



Em T



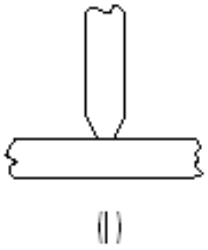
Topo em V



Topo em duplo U



De canto



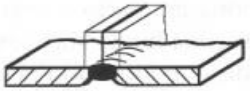
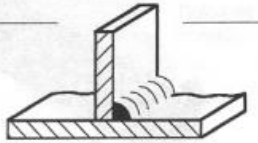
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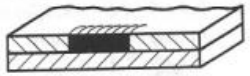
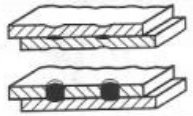
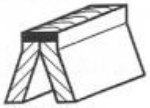
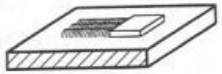
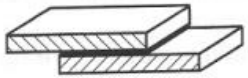
Símbolos Básicos

SÍMBOLOS BÁSICOS					
SEM PREPARAÇÃO		COM PREPARAÇÃO			
FILETE OU CANTO	SEM CHANFRO	V	BISEL	U	J
					

SÍMBOLOS COMPLEMENTARES	
SOLDA EM TODA VOLTA	SOLDA NO CAMPO (ou na montagem)
	

Representação das Juntas e Símbolos

	Designação	Ilustração	Símbolo
1	Junta de bordas rebordadas completamente fundidas		
2	Junta de borda reta		
3	Junta em V simples		
4	Junta em meio V simples		
5	Junta em Y simples		
6	Junta em meio Y simples		
7	Junta em tulipa (ou em U)		
8	Junta em meio U (ou em J)		
9	Cordão de confirmação na raiz da junta		
10	Junta em ângulo		

	Designação	Ilustração	Símbolo
11	Soldagem em entalhe (ou perna de solda)		
12	Soldagem por pontos		
13	Soldagem em linha contínua		
14	Junta em V simples de bordas inclinadas		
15	Junta em meio V simples de bordas inclinadas		
16	Soldagem de borda		
17	Enchimento		
18	Junta de superfície		
19	Junta inclinada		
20	Junta dobrada		

Simbologia de Soldagem

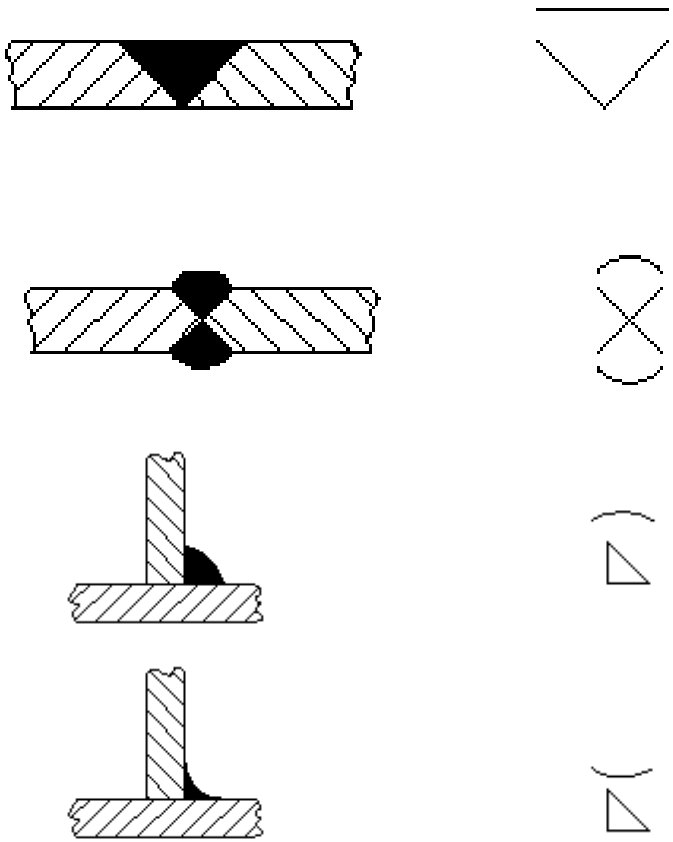
Símbolos Elementares (Juntas)

Designação	Ilustração	Símbolo
Junta em V dupla		
Junta em meio V dupla		
Junta em Y dupla		
Junta em meioY dupla		
Junta em U dupla		

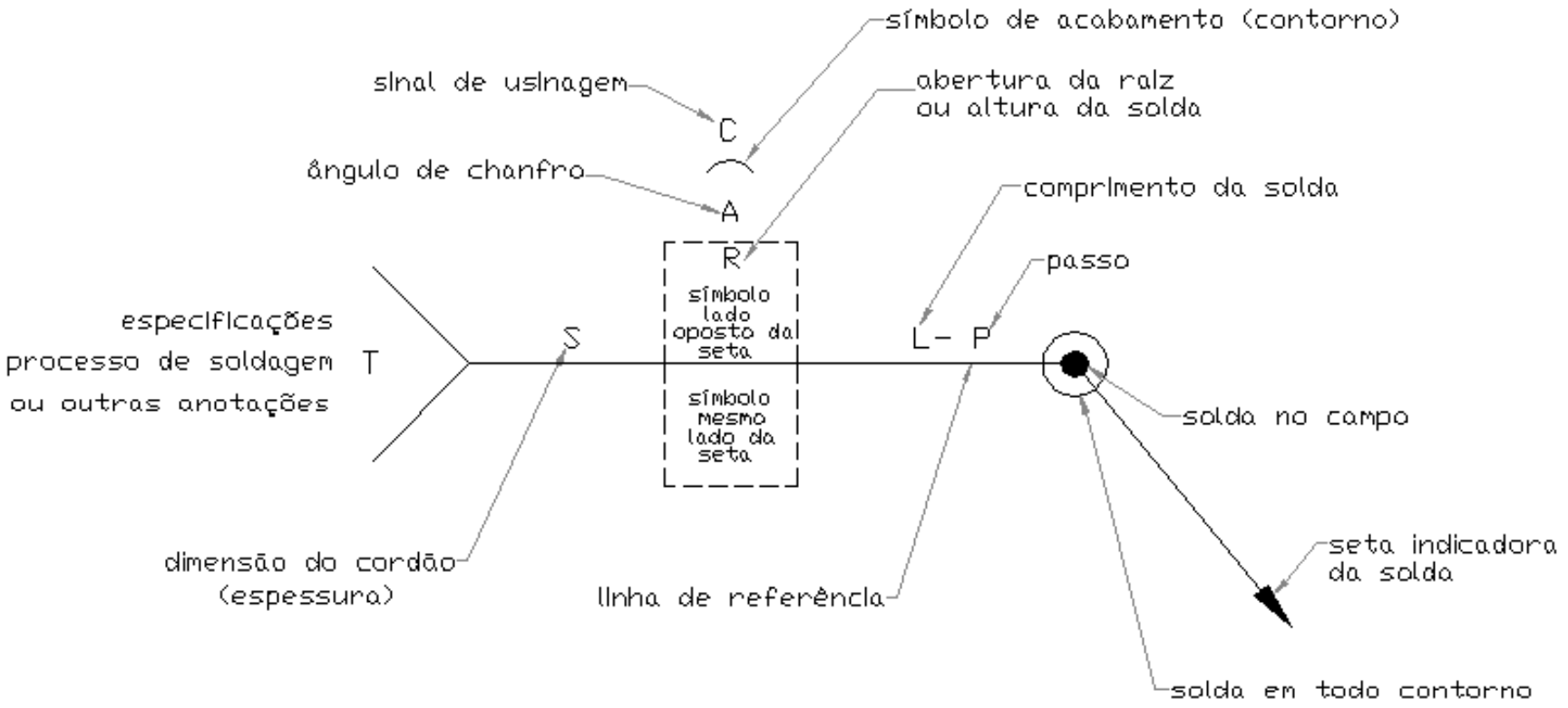
Símbolos Suplementares (Solda)

Designação	Símbolo
Plana	
Convexa	
Côncava	
De bordos arredondados tangentes	
Cobre-junta permanente	
Cobre-junta removível	

Simbologia de Soldagem

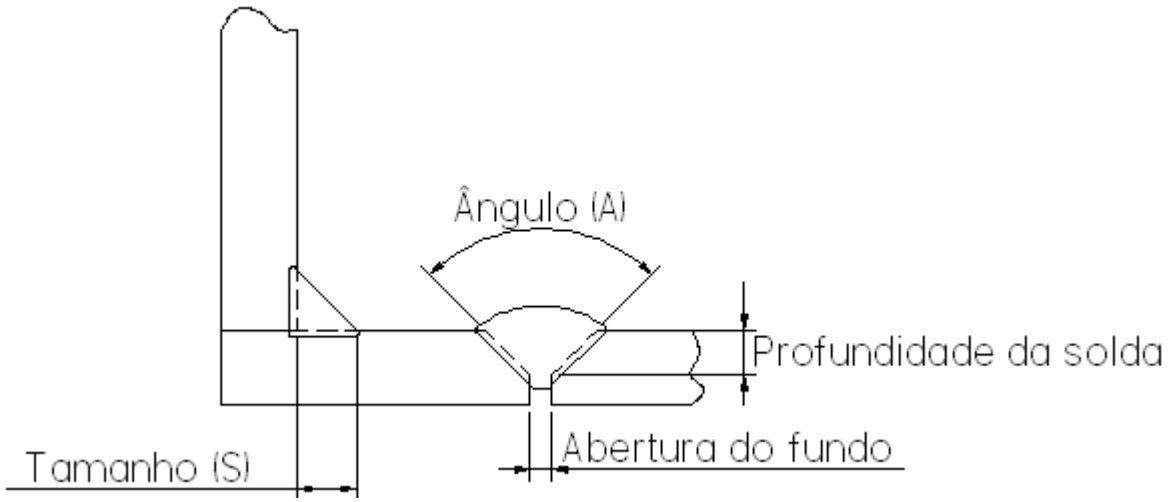


Simbologia

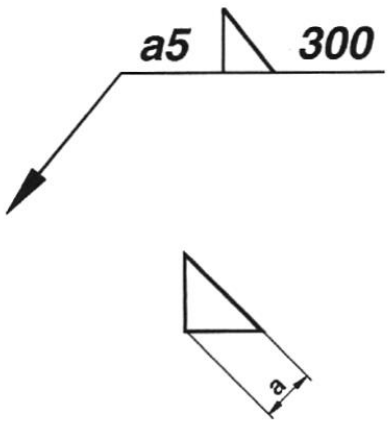

símbolo de acabamento (contorno)
sinal de usinagem
abertura da raiz
ou altura da solda
C
ângulo de chanfro
A
R
comprimento da solda
passo
símbolo
lado
oposto da
seta
símbolo
mesmo
lado da
seta
especificações
processo de soldagem
ou outras anotações
T
S
L
P
solda no campo
seta indicadora
da solda
dimensão do cordão
(espessura)
linha de referência
solda em todo contorno

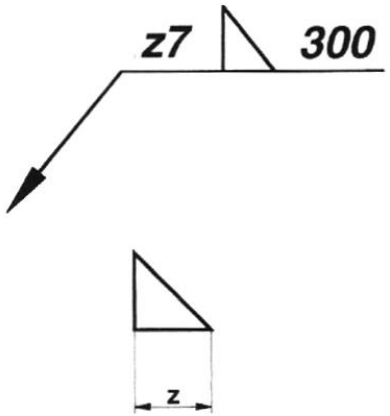
Dimensão da solda

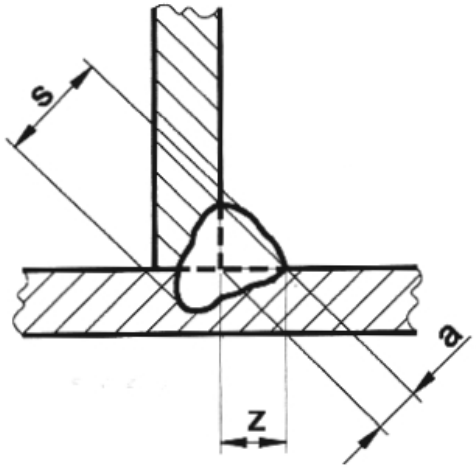
Dimensões fundamentais a serem dadas nos símbolos de soldagem.

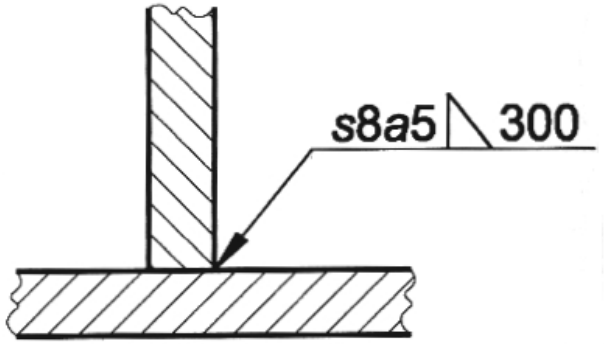


Cotagem dos Cordões de Solda

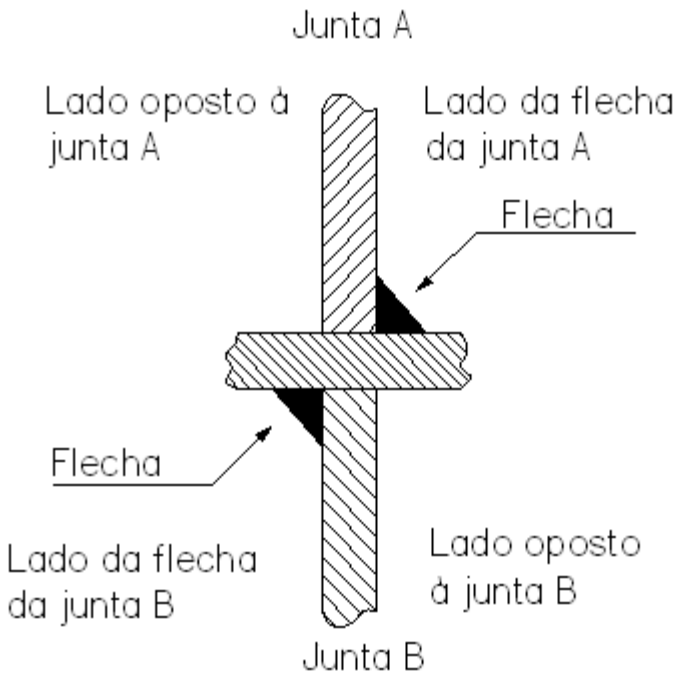


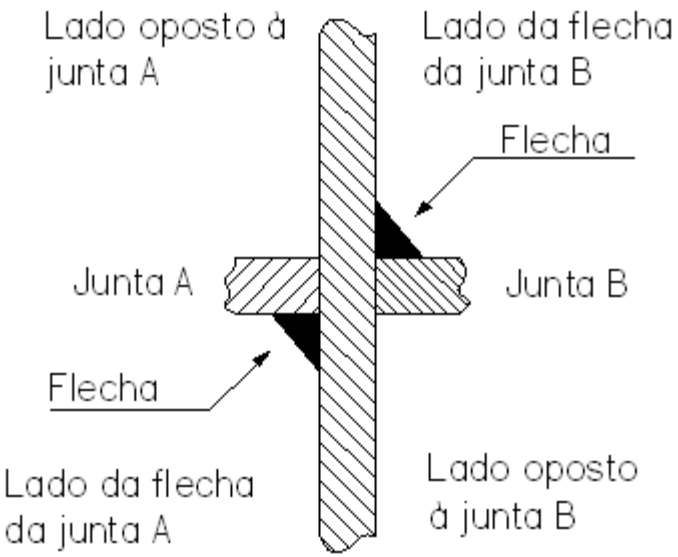




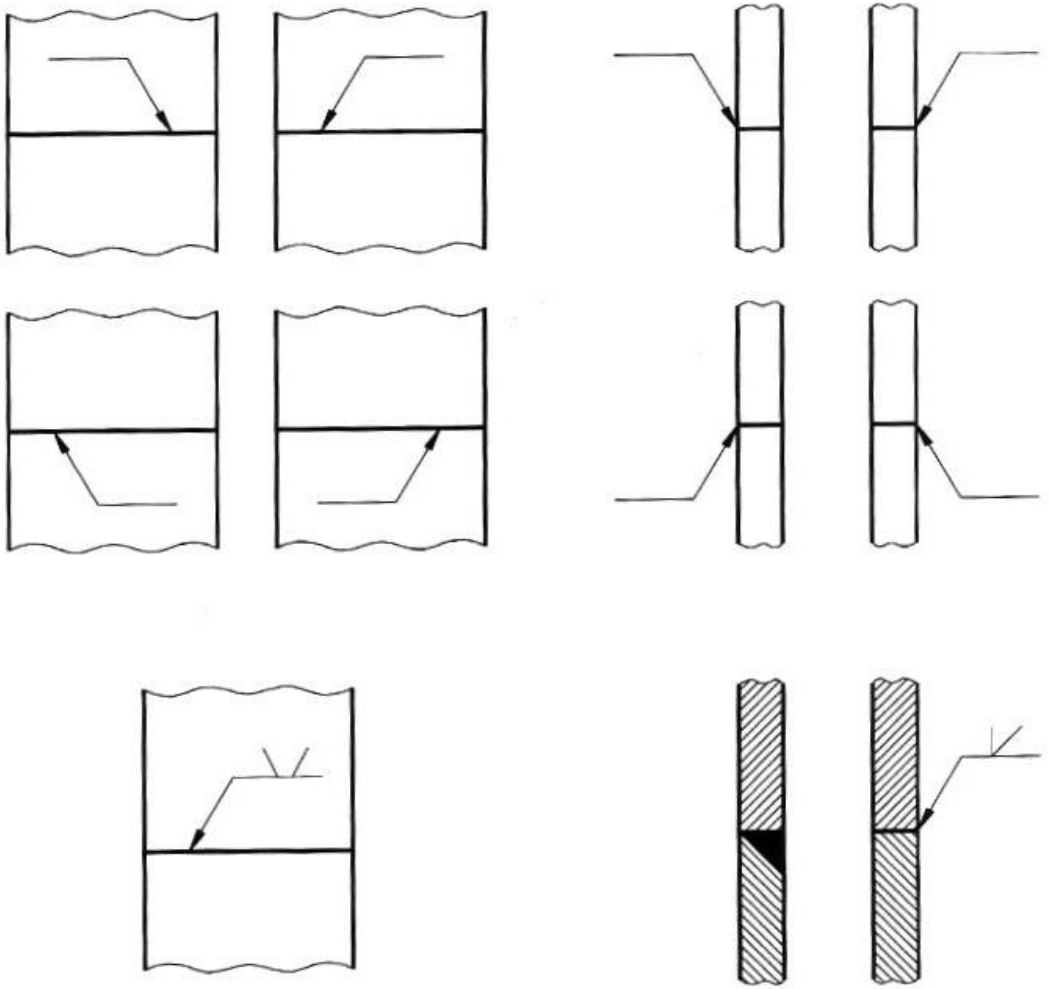


Em cruz com duas soldas em ângulo

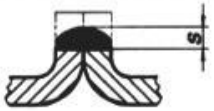
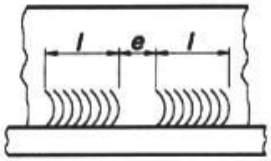




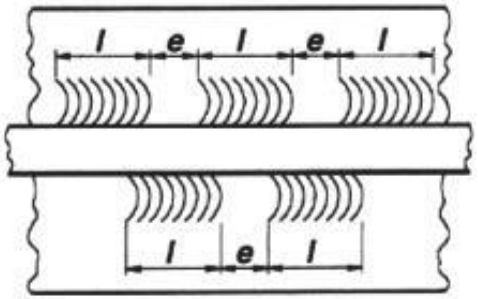
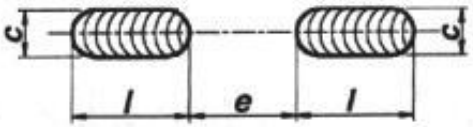
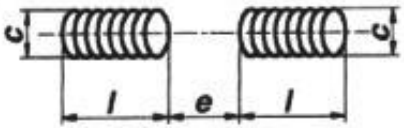
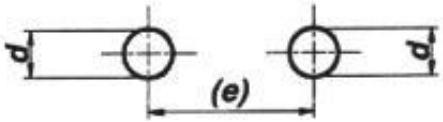
Posições Possíveis da Flecha na Solda



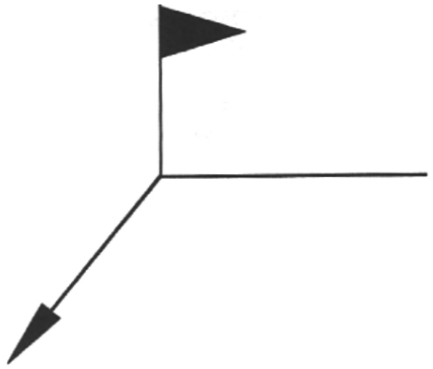
Outros Exemplos de Cotagem dos Cordões de Solda

	Designação	Ilustração	Inscrição
			
1	Junta de bordas		
			
2	Junta de bordas retas		
3	Juntas em ângulo contínuas		
4	Junta em ângulo descontínua		

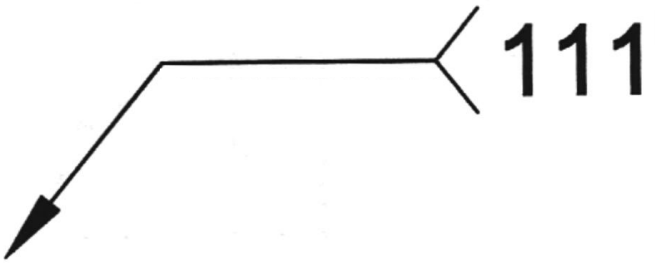
Outros Exemplos de Cotagem dos Cordões de Solda

5	Junta em ângulo intermitente desfasada		a n xl (e) a n xl (e) z n xl (e) z n xl (e)
6	Soldagem em entalhe descontínua		c n xl(e)
7	Soldagem em linha descontínua		c n xl(e)
8	Soldagem por pontos		d n(e)

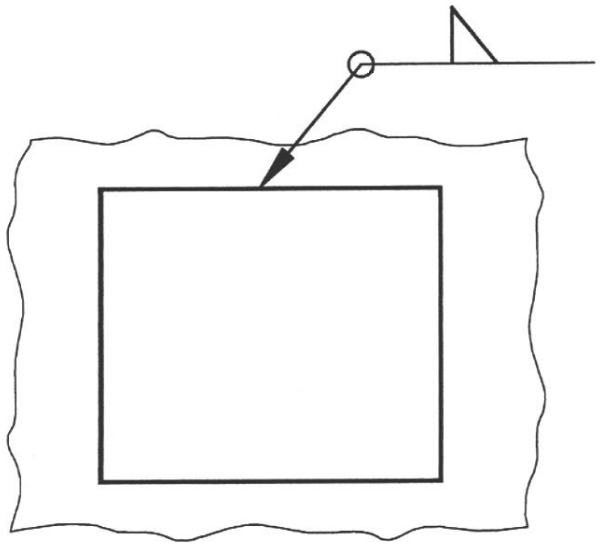
Outros Exemplos de Cotagem dos Cordões de Solda



Soldagem no campo

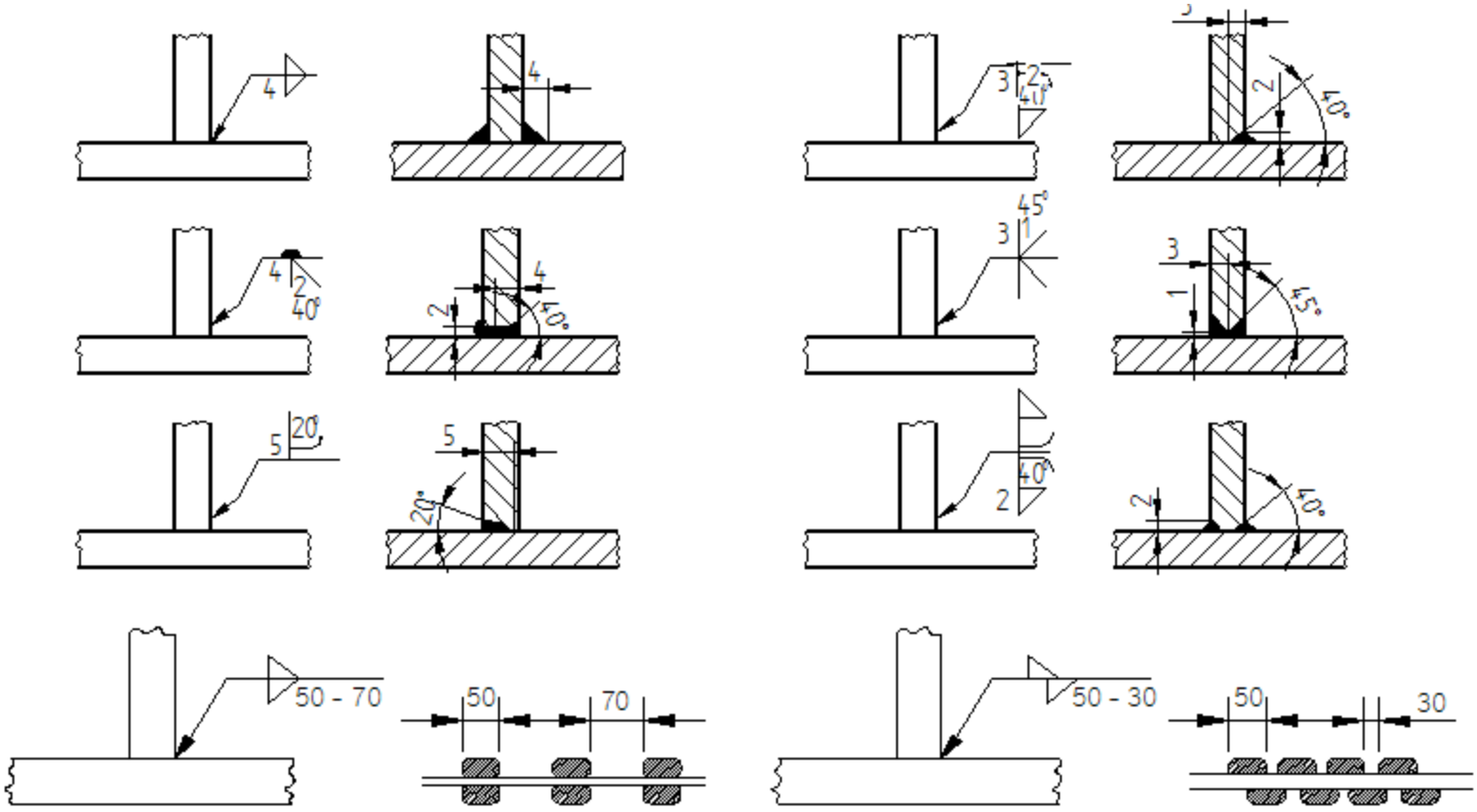


Especificação do processo de soldagem

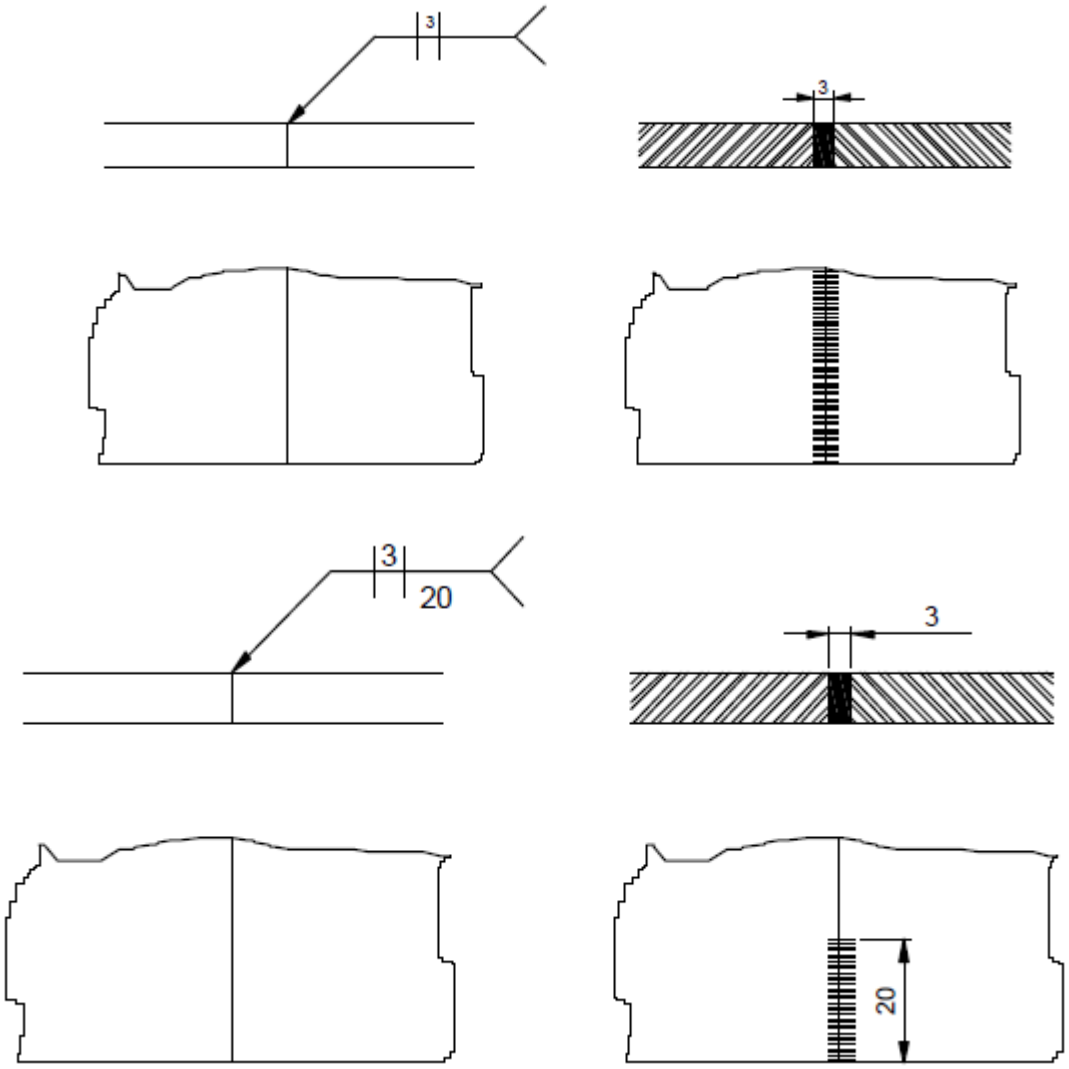


Soldagem ao redor

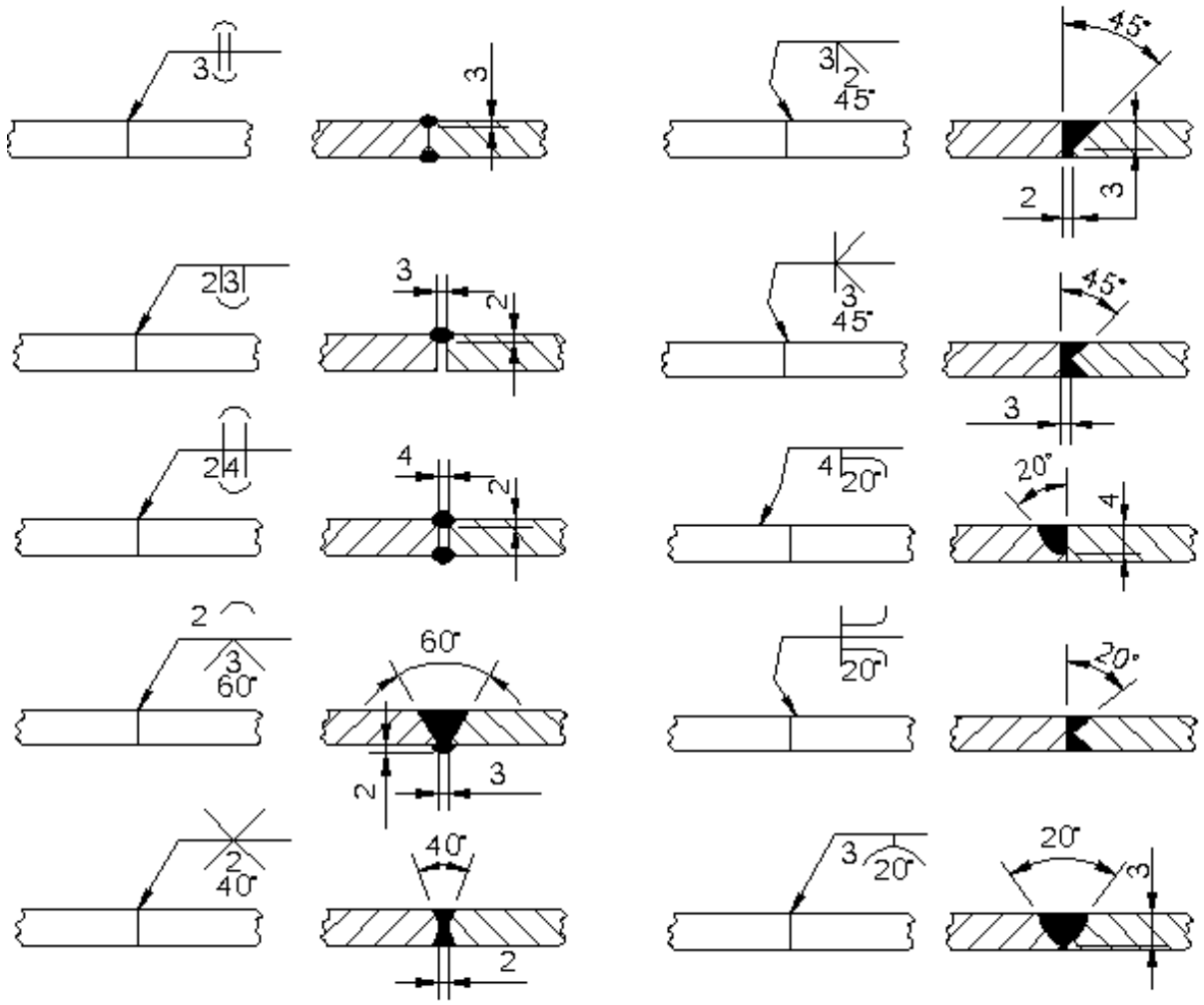
EXEMPLO – Uniões em T



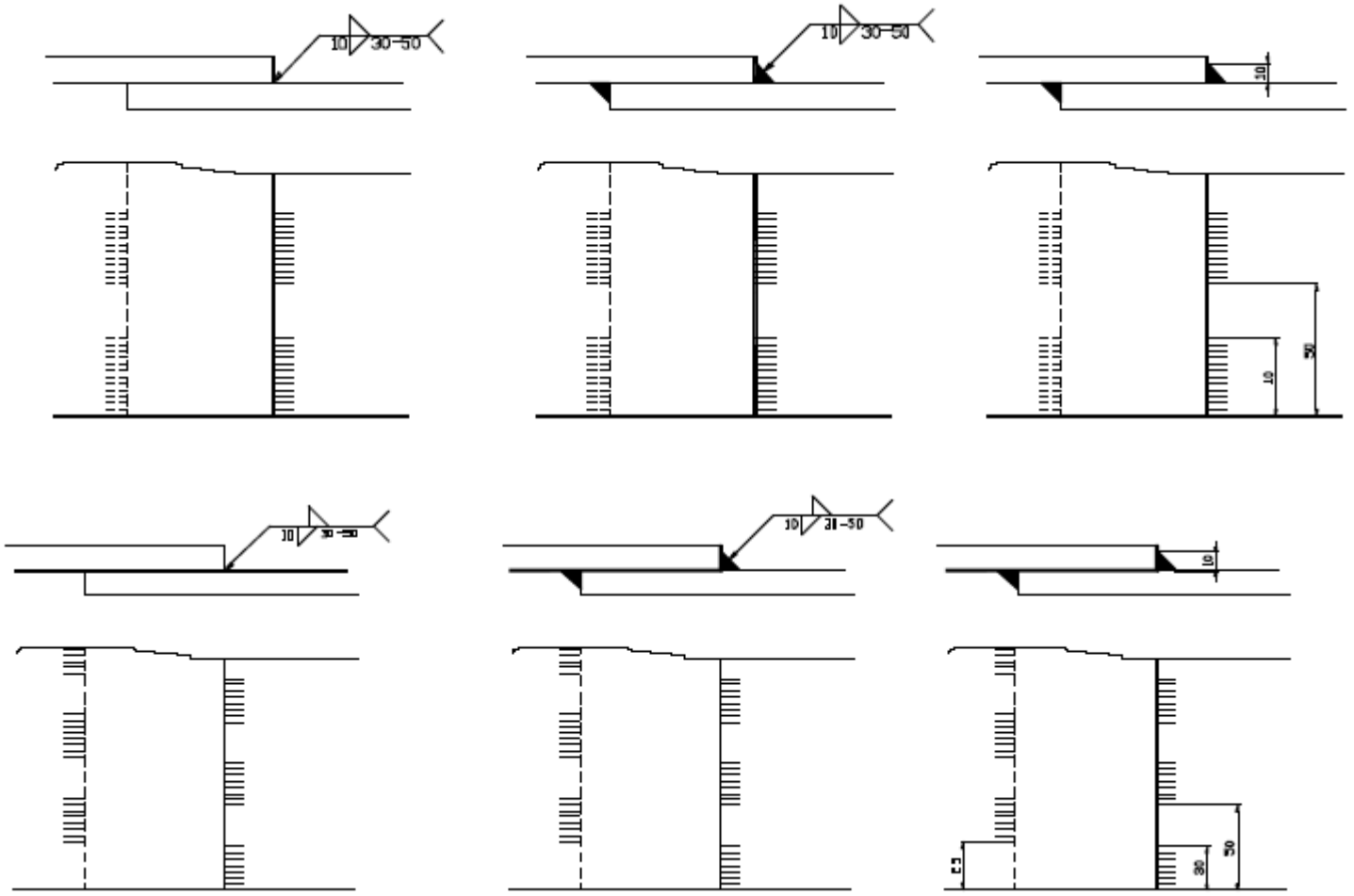
EXEMPLO – Uniões de Topo



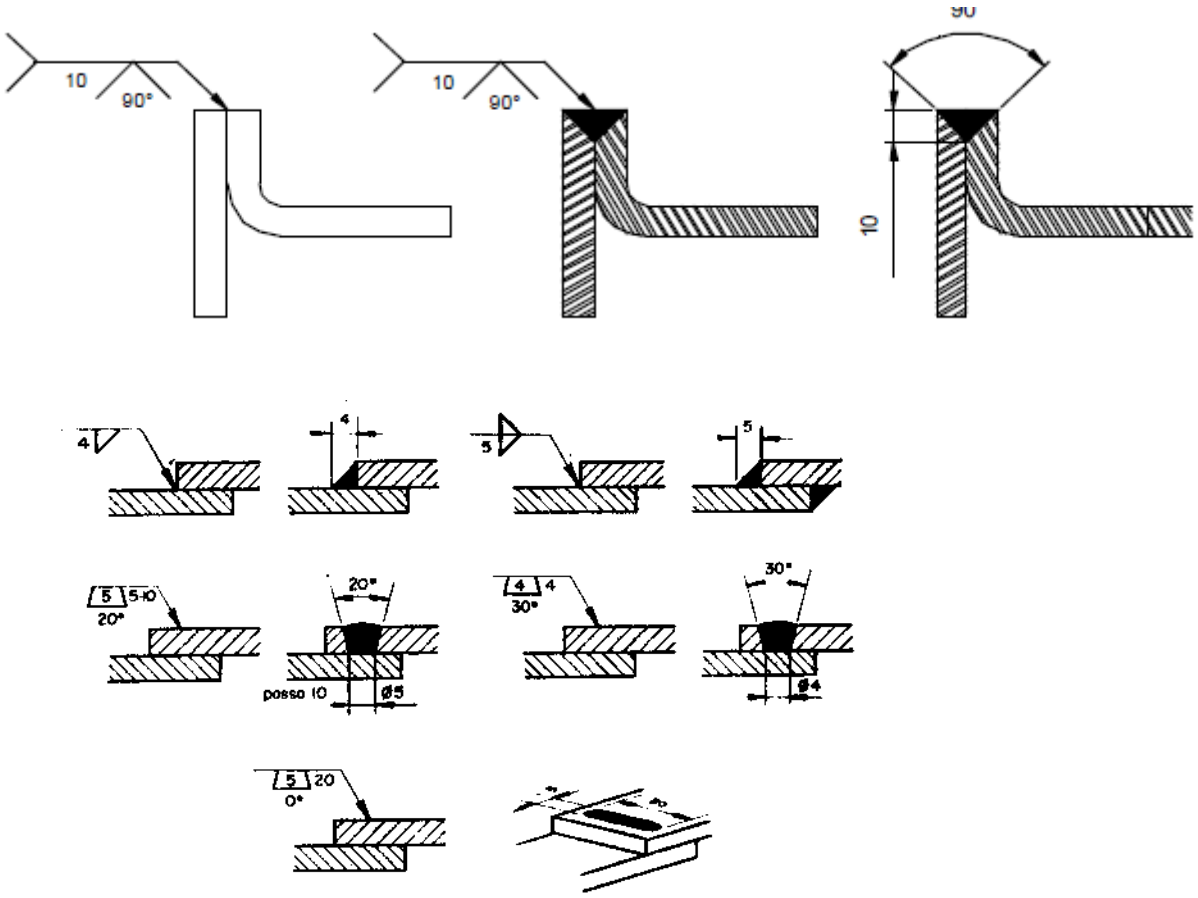
EXEMPLO – Uniões de Topo



EXEMPLO – Uniões Sobrepostas

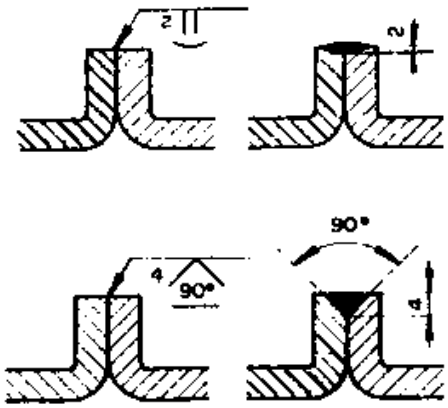


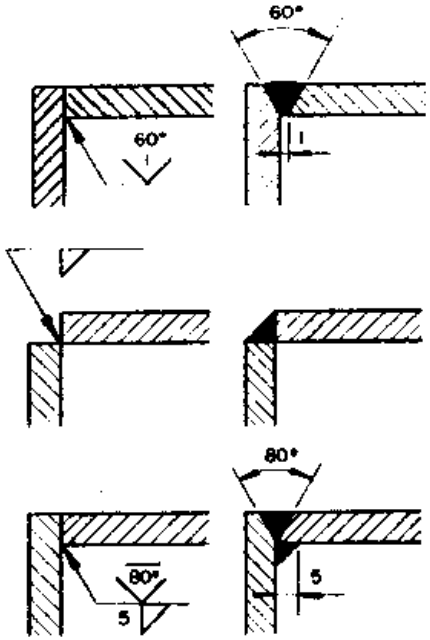
EXEMPLO – Uniões Sobrepostas

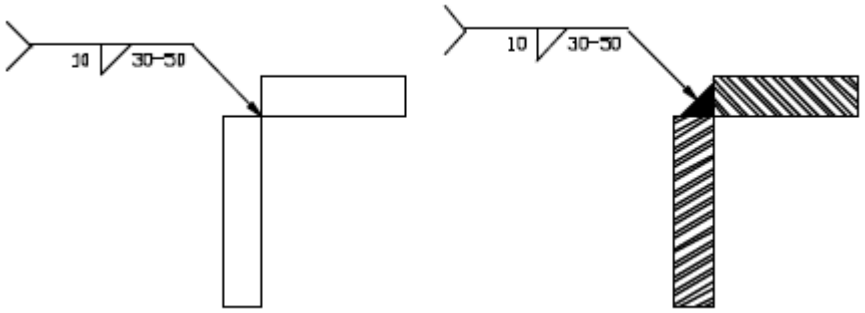


EXEMPLOS

- **Uniões em aresta**
- **Uniões em ângulo**

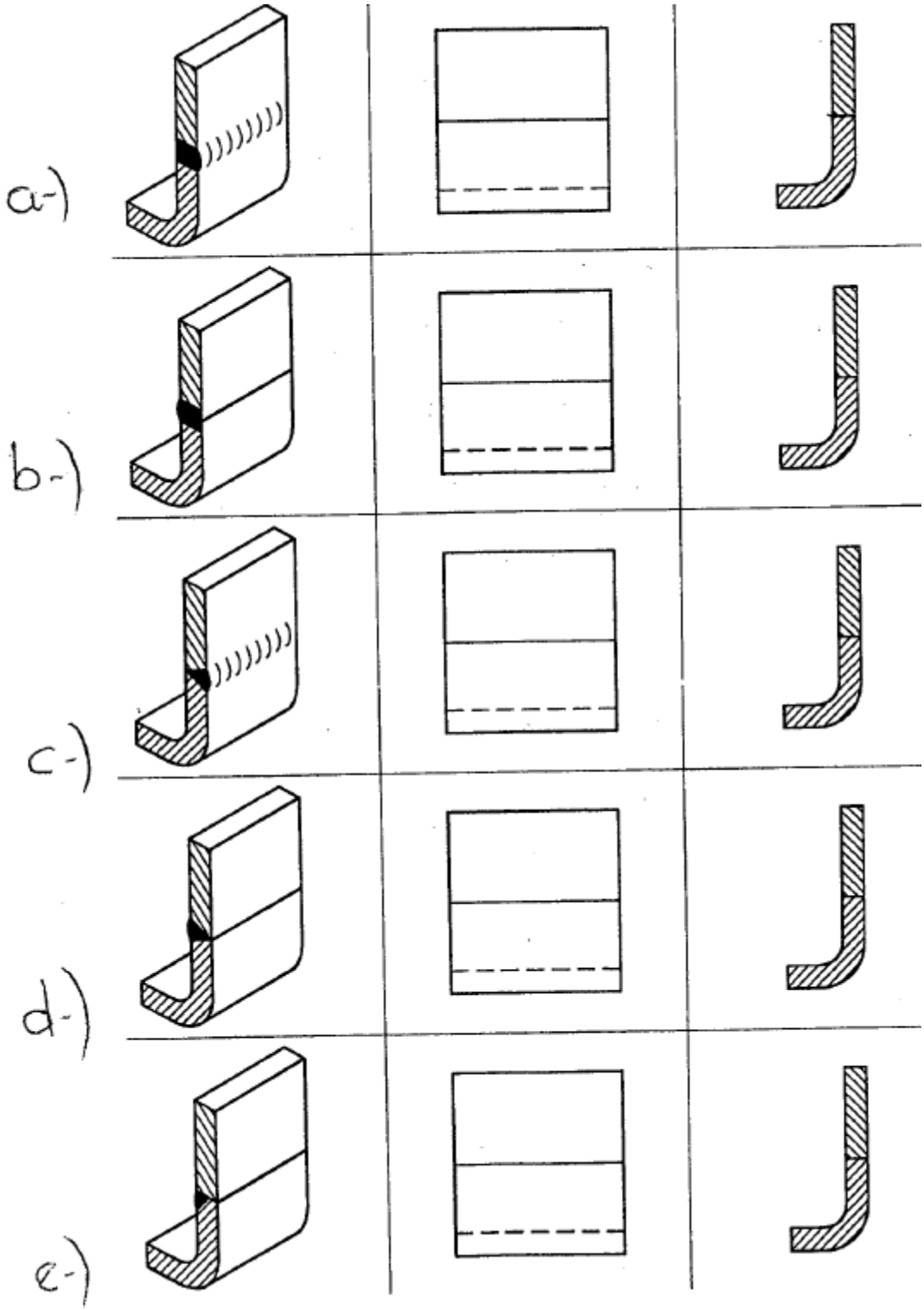


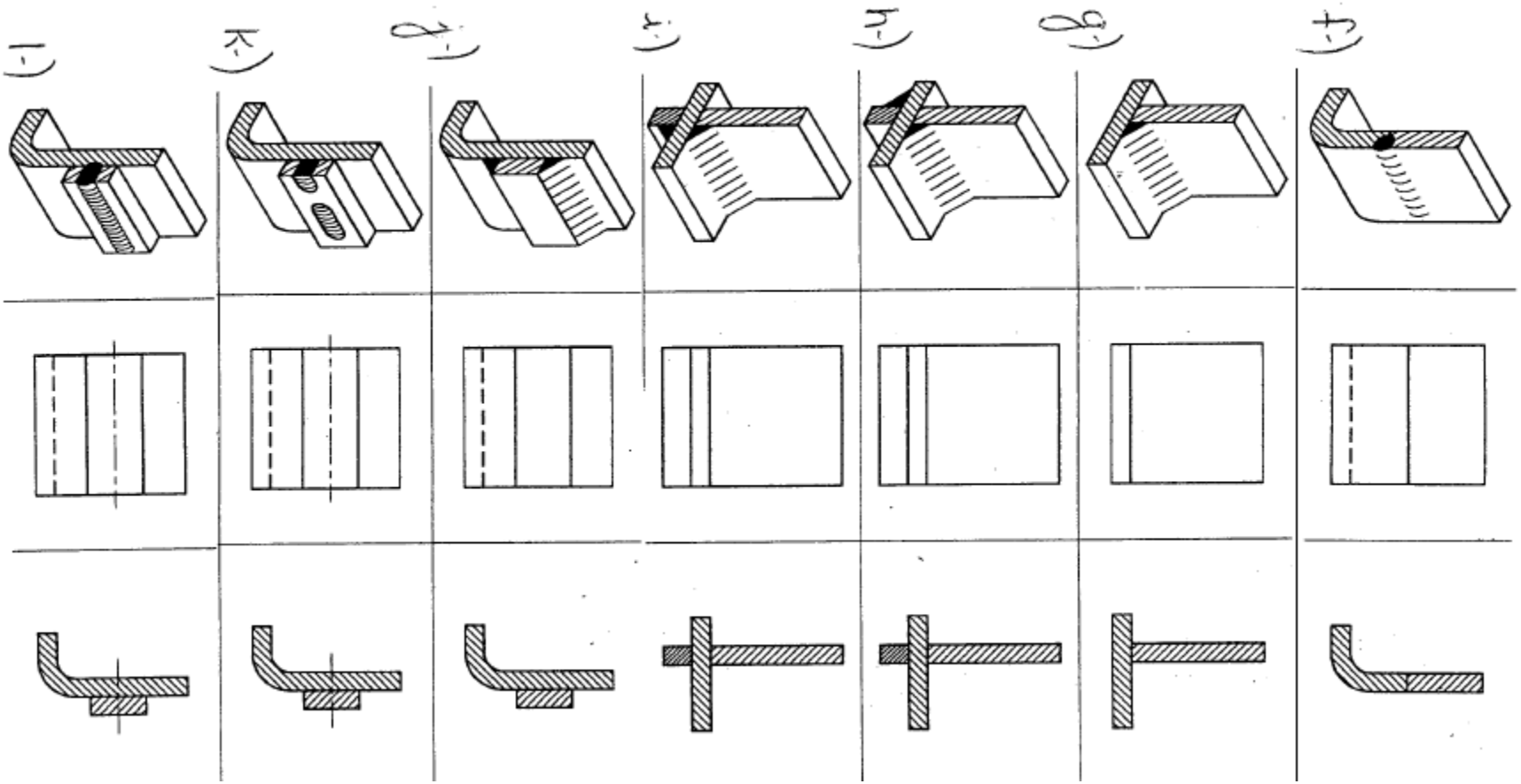




Fonte: Desenhista de Máquinas – Escola pro-tec (1983)

Exercício 1 - Usando a simbologia correta, referencie as soldas desenhadas à esquerda de duas maneiras diferentes (em vista e em corte), em cada uma das colunas à direita.





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