WELDING SYMBOLS
(BASED ON NOTES BY DR. G. GRONDIN)

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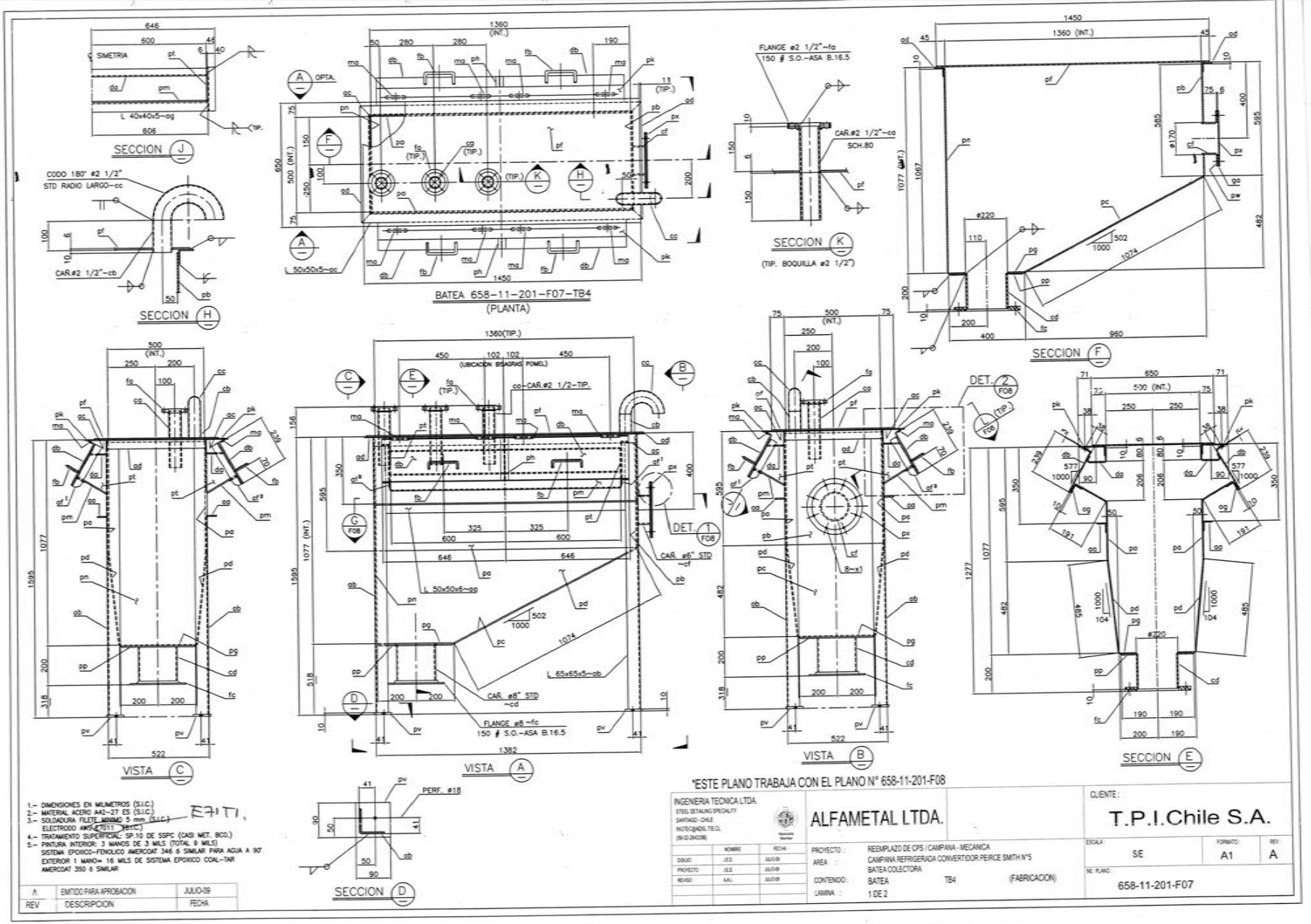
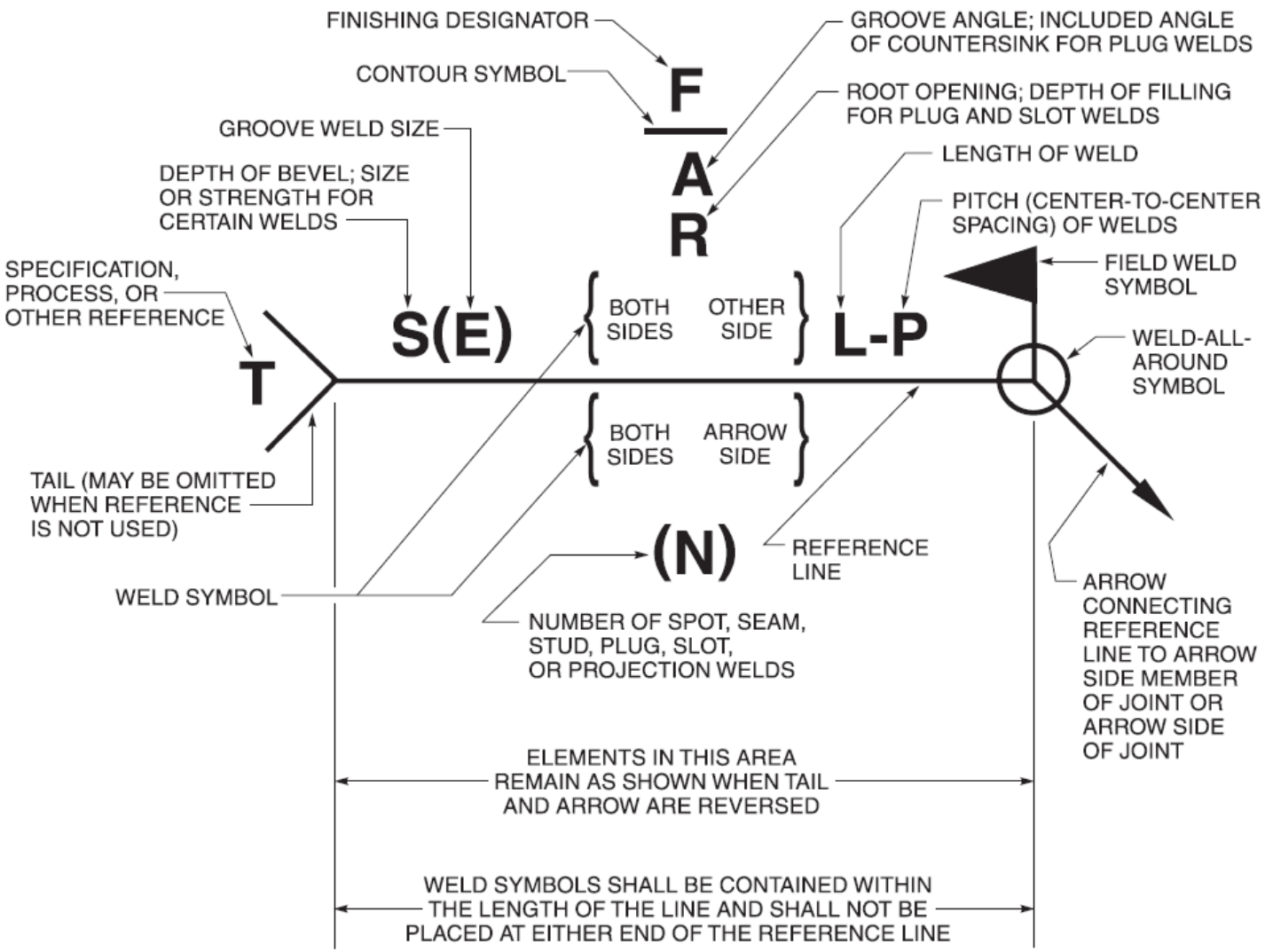
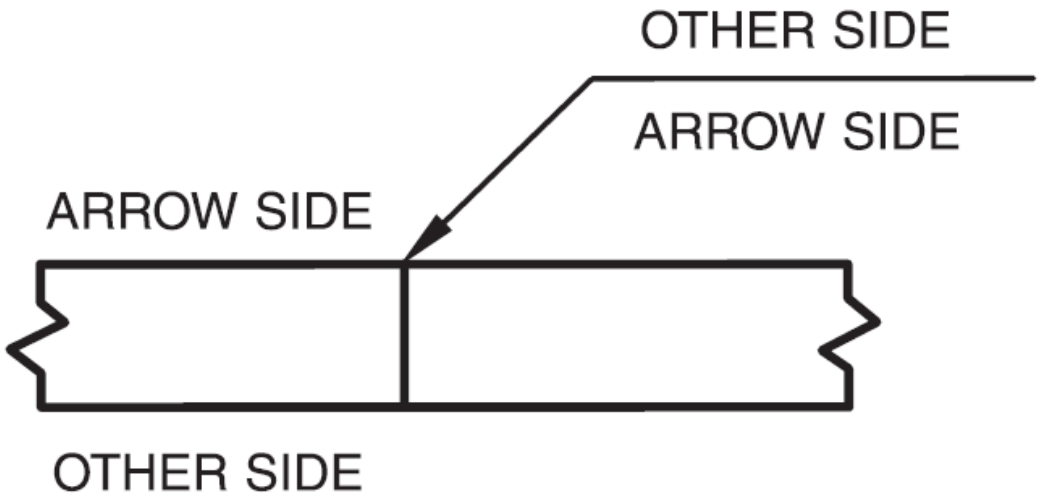
Reference material

- AWS Standards
  - AWS A2.4 Standard symbols for welding, brazing, and non-destructive examination
    - Available for free at UofA in Knovel

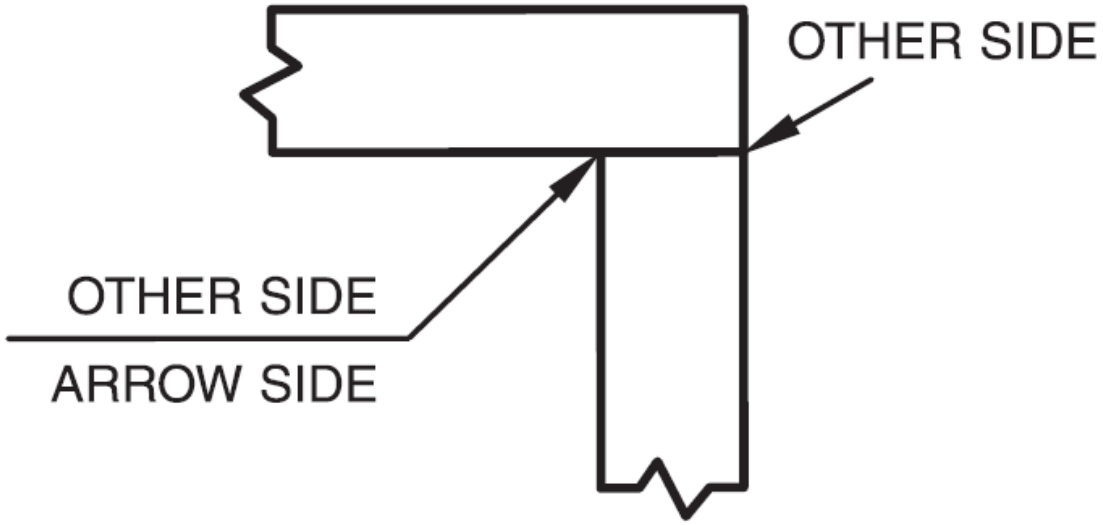

SECCION J
SECCION H
SECCION K
SECCION F
SECCION E
SECCION D
VISTA C
VISTA A
VISTA B
BATEA 658-11-201-F07-TB4
(PLANTA)
*ESTE PLANO TRABAJA CON EL PLANO N° 658-11-201-F08
1.- DIMENSIONES EN MILIMETROS (S.I.C.)
2.- MATERIAL ACERO A42-27 ES (S.I.C.)
3.- SOLDADURA FILETE MINIMO 5 mm (S.I.C.)
ELECTRODO AWS E-7011 (S.I.C.)
4.- TRATAMIENTO SUPERFICIAL: SP.10 DE SSPC (CASI MET. BCO.)
5.- PINTURA INTERIOR: 3 MANOS DE 3 MILS (TOTAL 9 MILS)
SISTEMA EPOXICO-FENOLICO AMERCOAT 346 ó SIMILAR PARA AGUA A 90°
EXTERIOR 1 MANO= 16 MILS DE SISTEMA EPOXICO COAL-TAR
AMERCOAT 350 ó SIMILAR
A EMITIDO PARA APROBACION JULIO-09
REV DESCRIPCION FECHA
INGENIERIA TECNICA LTDA.
ALFAMETAL LTDA.
CLIENTE:
T.P.I.Chile S.A.
PROYECTO: REEMPLAZO DE CPS I CAMPANA - MECANICA
AREA: CAMPANA REFRIGERADA CONVERTIDOR PEIRCE SMITH N°5
BATEA COLECTORA
CONTENIDO: BATEA TB4 (FABRICACION)
LAMINA: 1 DE 2
ESCALA: S/E
FORMATO: A1
REV: A
NO. PLANO: 658-11-201-F07

Arrow Symbol

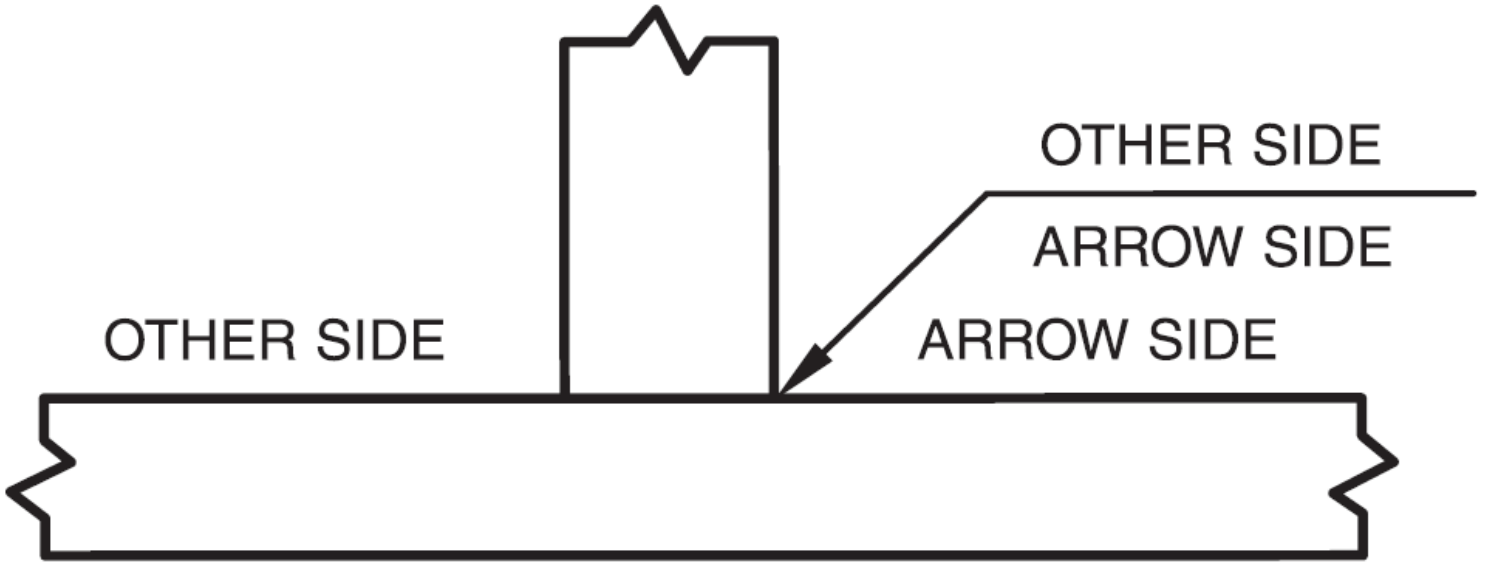




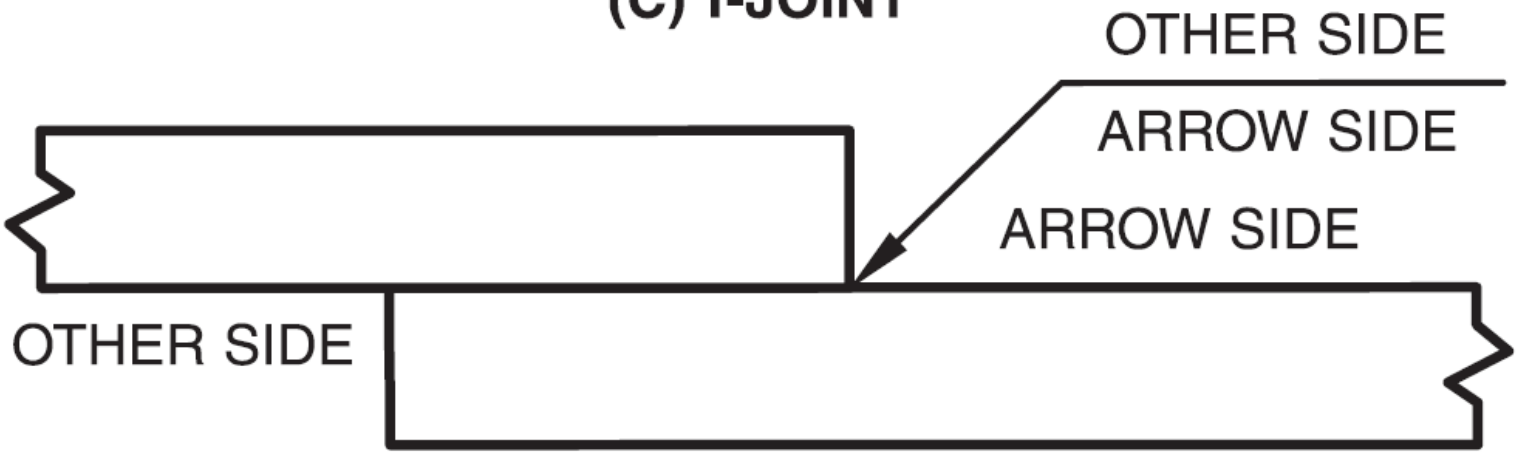
(A) BUTT JOINT



(B) CORNER JOINT

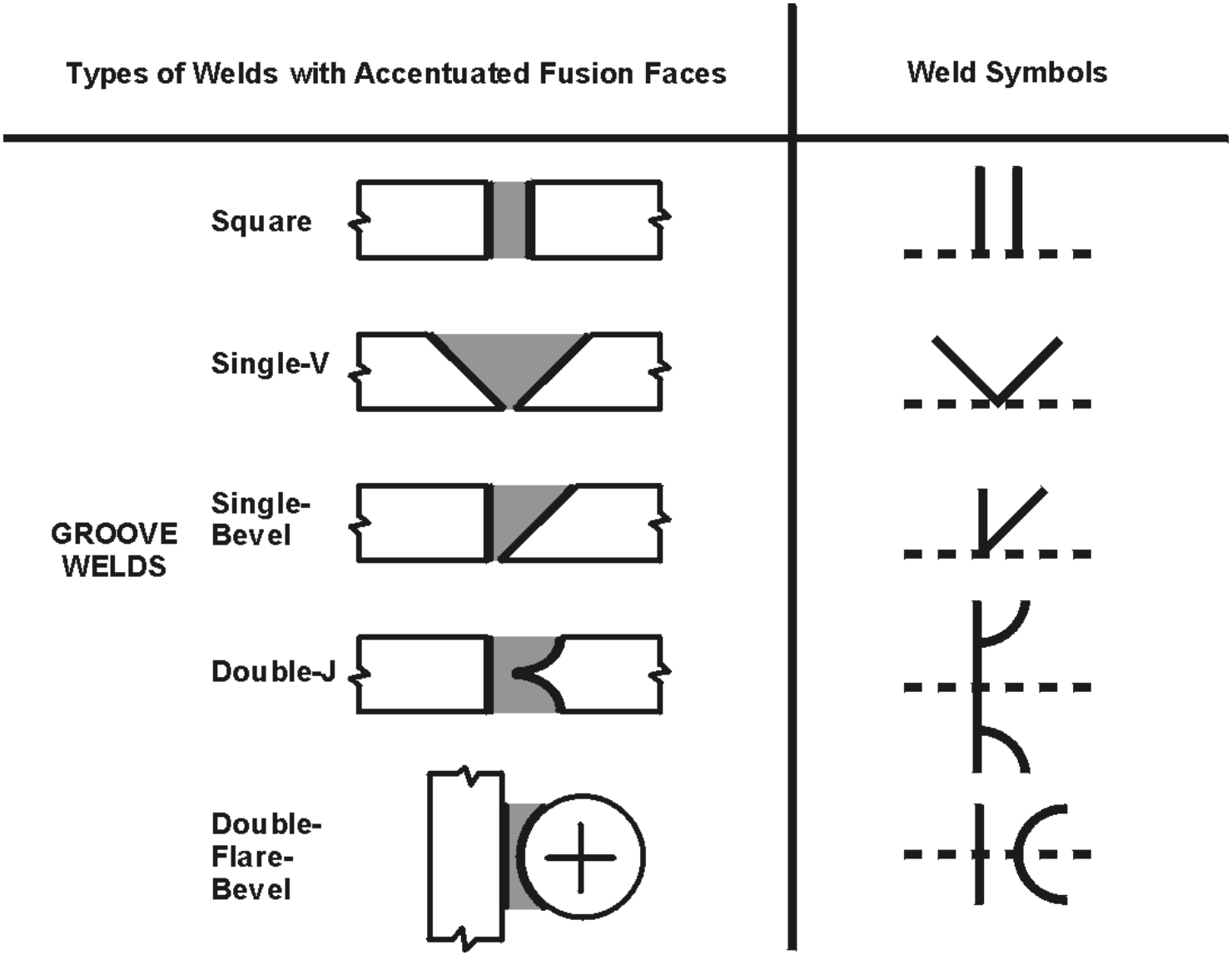


(C) T-JOINT

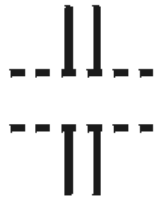
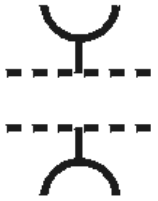


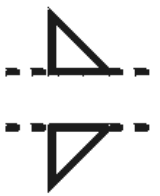
(D) LAP JOINT

Types of Welds



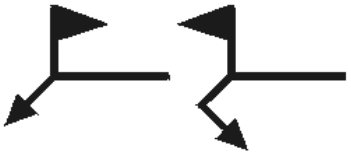
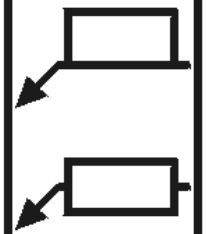
Types of Welds

GROOVE WELDS							
Square	Scarf*	V	Bevel	U	J	Flare-V	Flare-Bevel
							

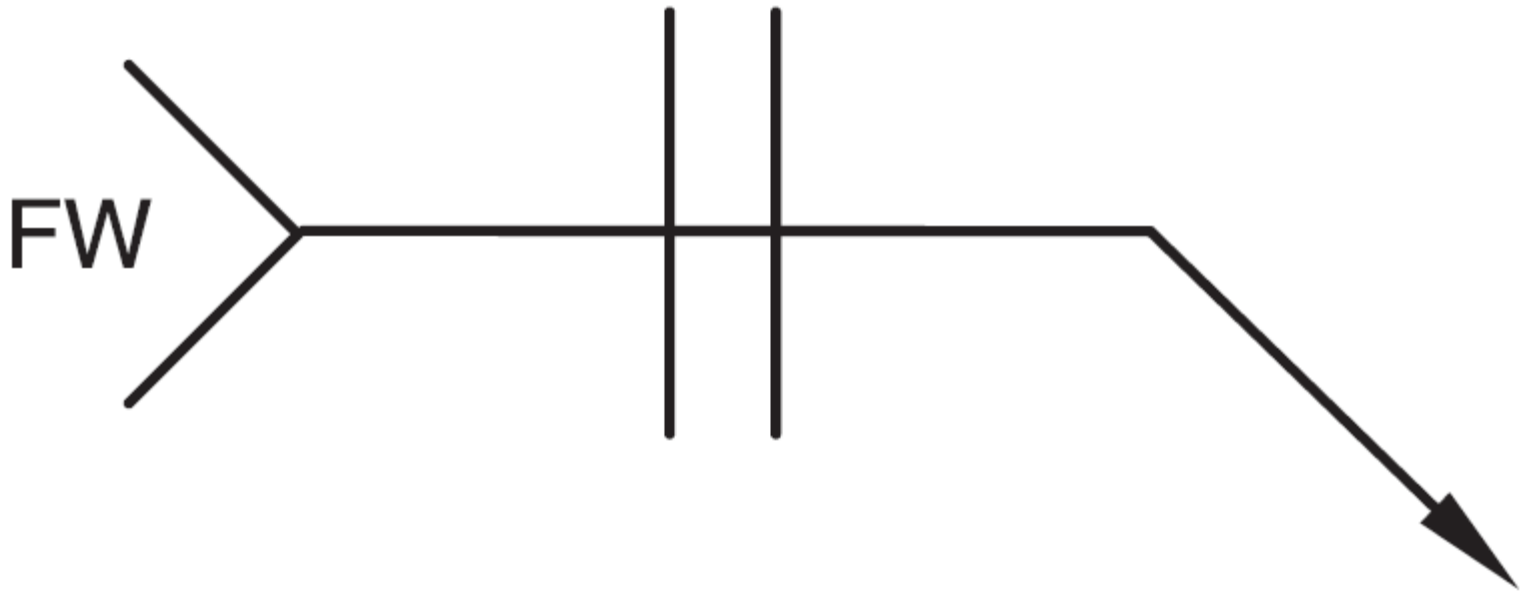
Fillet	Plug or Slot	Stud	Spot or Projection	Seam	Back or Backing	Surfacing	Flange	
							Edge	Corner
								

**Used predominantly in brazed joints - see section on Brazing.*

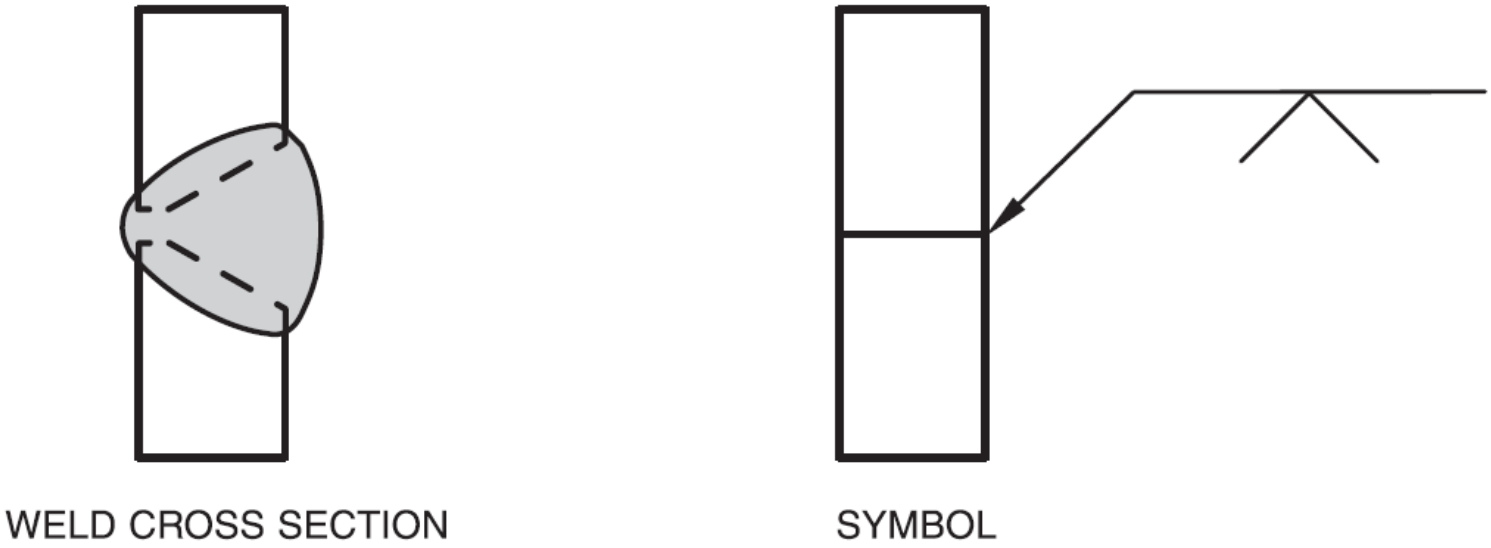
Types of Welds

Weld all around	Field Weld	Melt Through	Consumable Insert (Square)	Backing or Spacer (Rectangle)	Contour		
					Flush or Flat	Convex	Concave
							

Symbol with no side significance

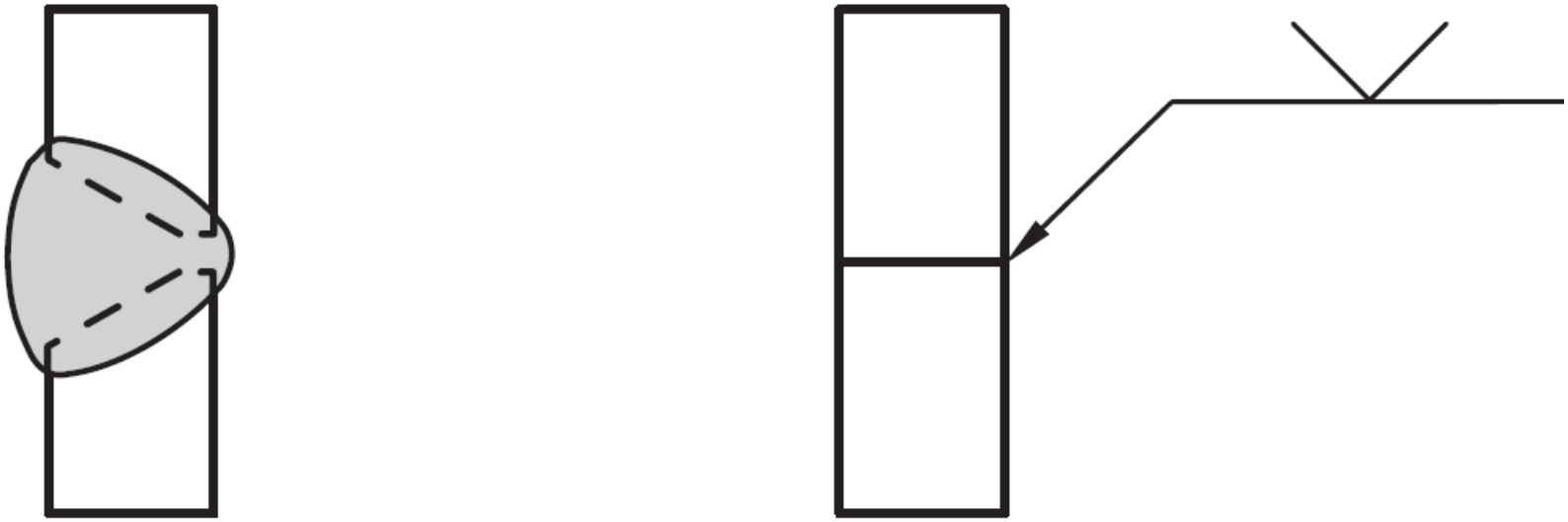


Symbol with side significance



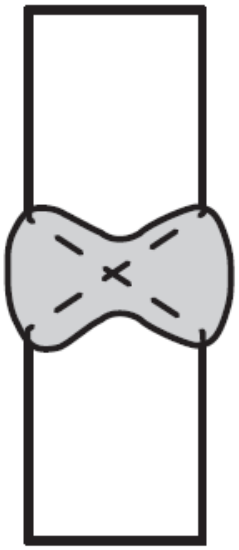
(A) ARROW-SIDE V-GROOVE WELD SYMBOL

Symbol with side significance

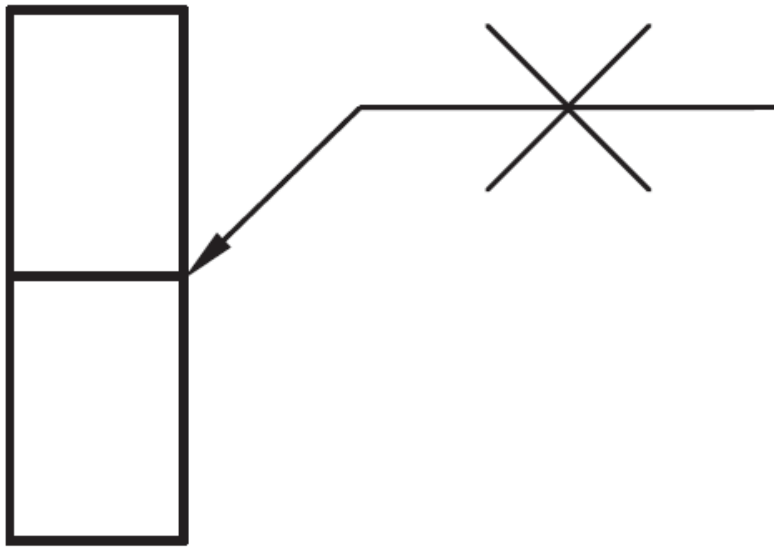


(B) OTHER-SIDE V-GROOVE WELD SYMBOL

Symbol without side significance



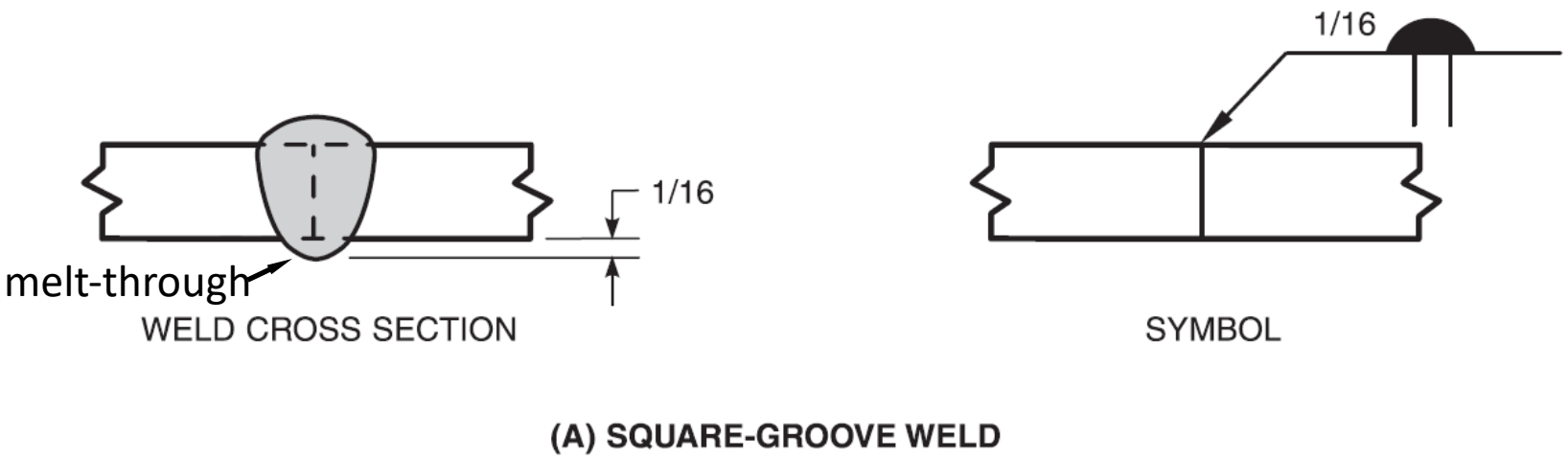
WELD CROSS SECTION



SYMBOL

(C) BOTH-SIDES V-GROOVE WELD SYMBOL

Symbol with side significance



(A) SQUARE-GROOVE WELD

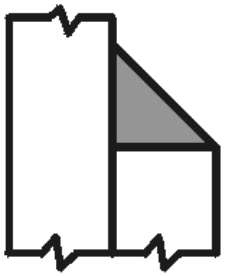
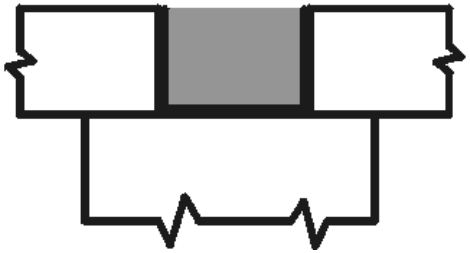
Symbol with side significance

(C) SINGLE-V-GROOVE WELD

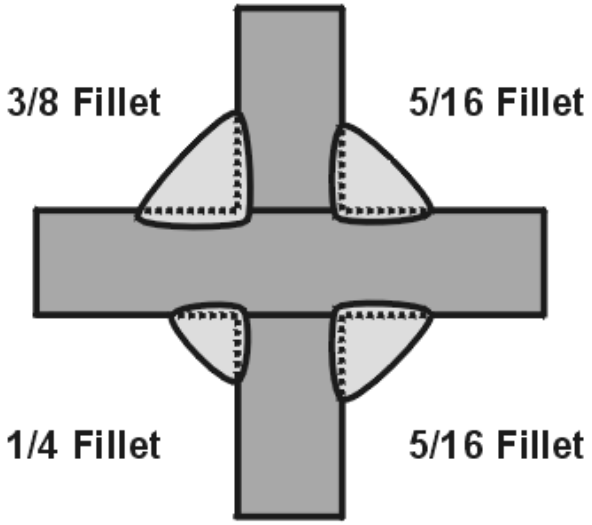
Symbol with side significance

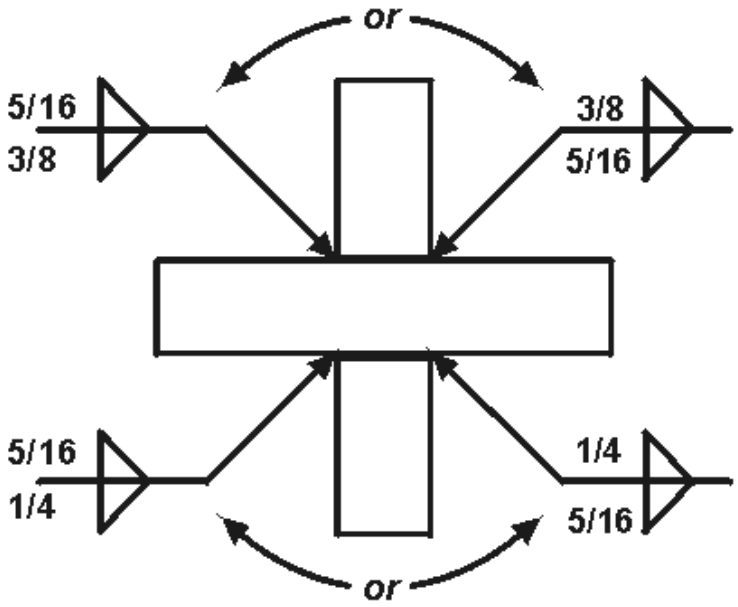
(D) EDGE WELD ON FLANGED BUTT JOINT

Fillet and Plug Welds

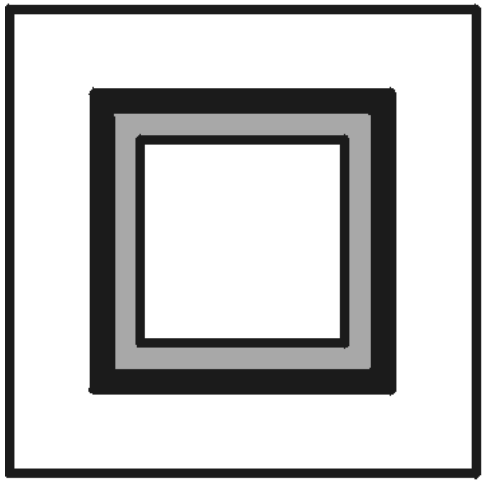
Types of Welds with Accentuated Fusion Faces		Weld Symbols
FILLET WELDS		
PLUG WELDS		

Fillets

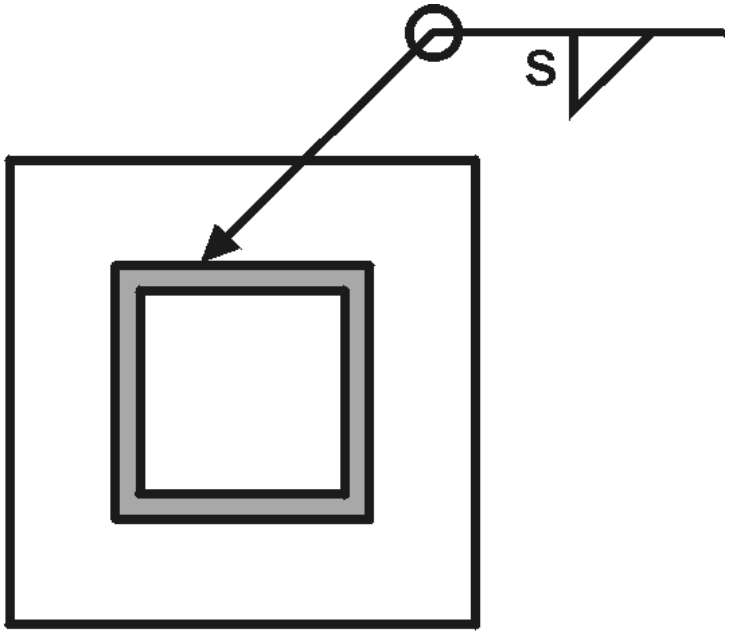

3/8 Fillet
5/16 Fillet
1/4 Fillet
5/16 Fillet


or
5/16
3/8
3/8
5/16
5/16
1/4
1/4
5/16
or

All Around

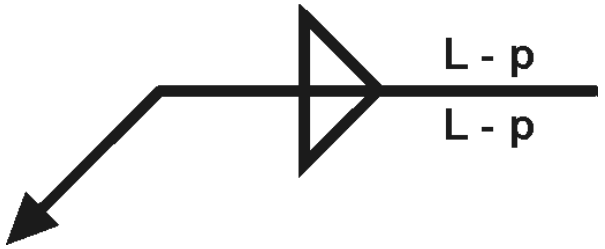


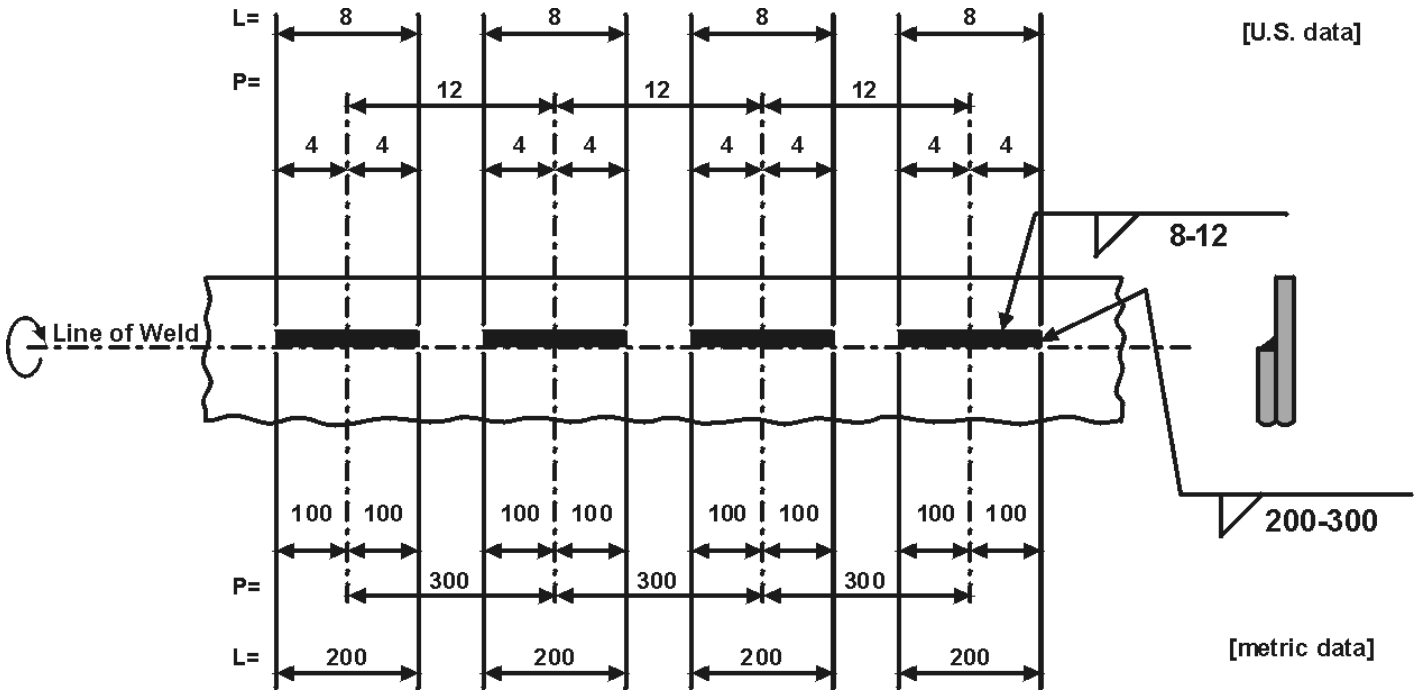
Desired Weld



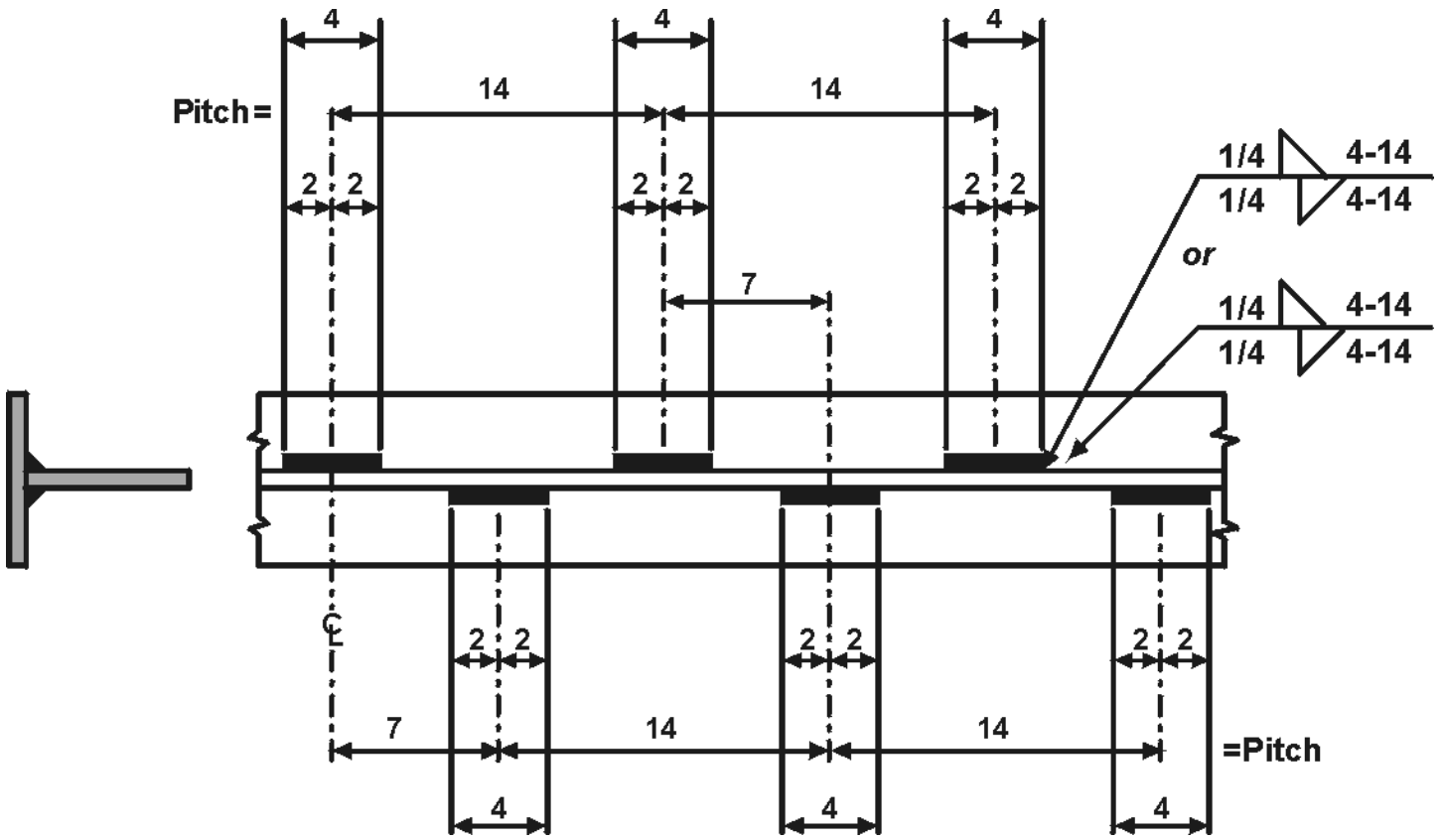
Required Welding Symbol

Stitch Welds





Stitch Welds



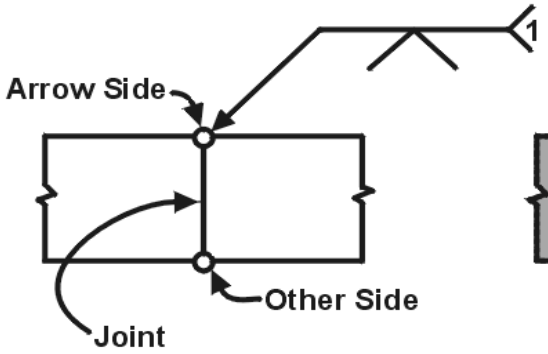
Groove Welds

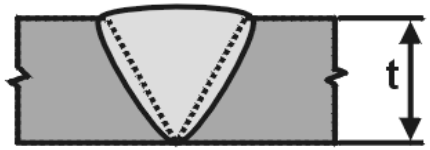
GROOVE WELD IN A BUTT JOINT

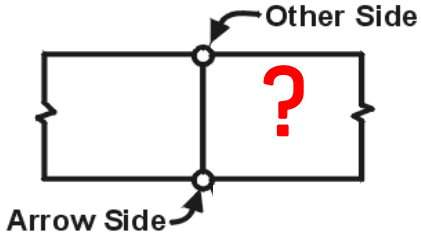
Required:

A Single-V-Groove Weld

ALTERNATIVE 1:







SYMBOL 1

indicates preparation to be made from the Arrow Side

WELD

Groove Welds

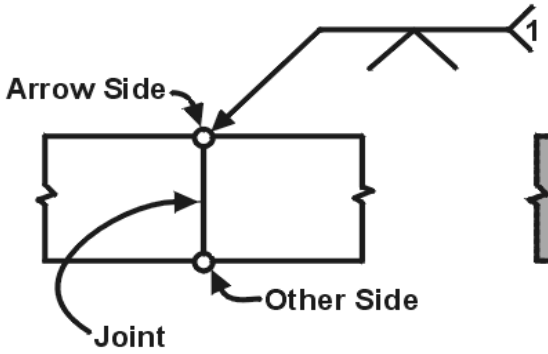
GROOVE WELD IN A BUTT JOINT

Required:

A Single-V-Groove Weld

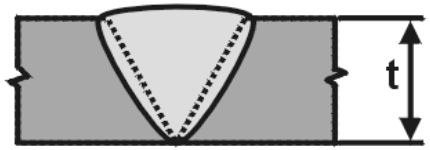
▼

ALTERNATIVE 1:

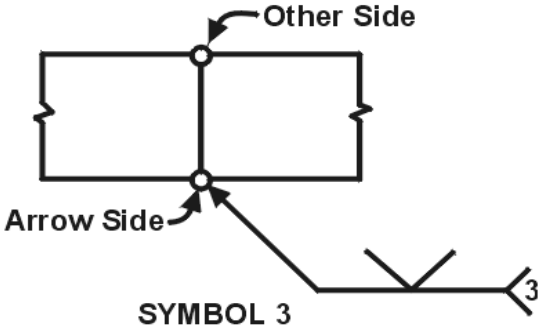


SYMBOL 1

indicates preparation to be made from the Arrow Side



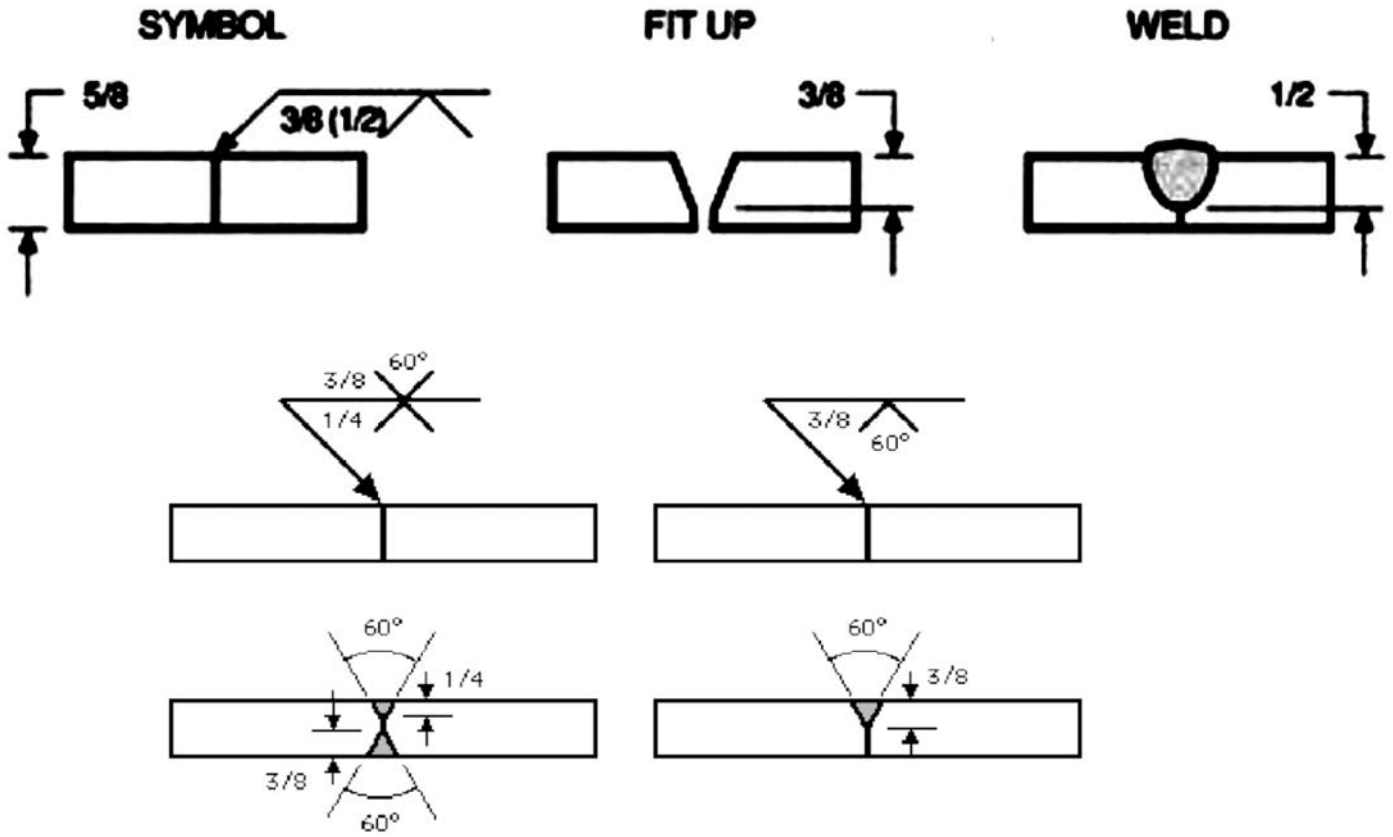
WELD



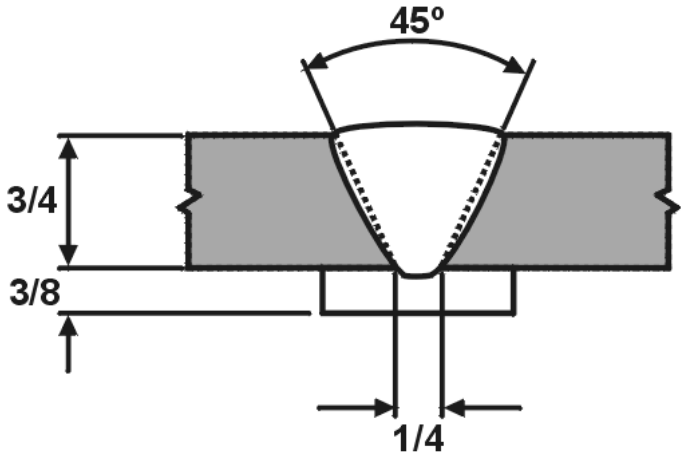
SYMBOL 3

Preparation from the same side could have been obtained using Symbol 3 as shown

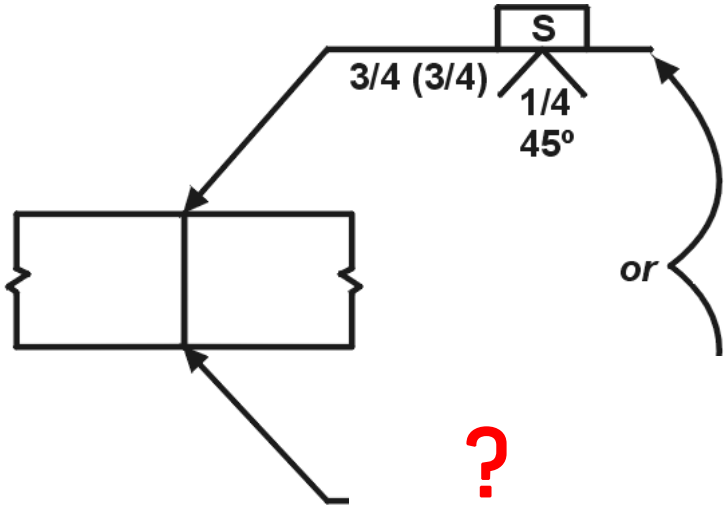
Partial Joint Penetration



Steel Backing

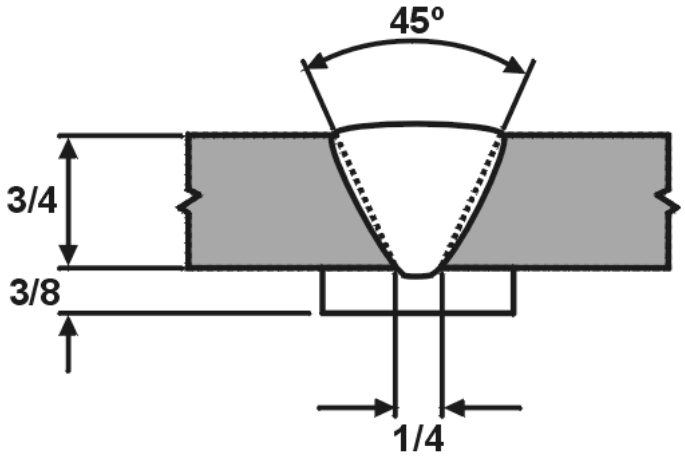


Desired Weld

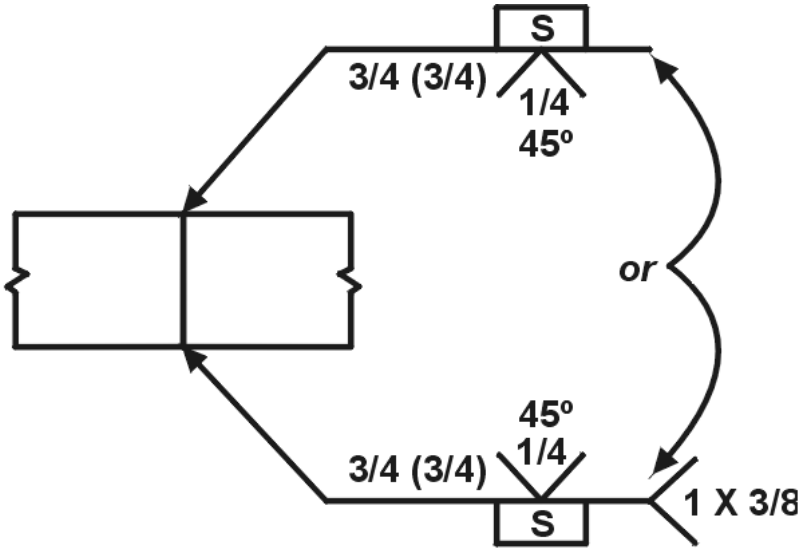


Symbol

Steel Backing



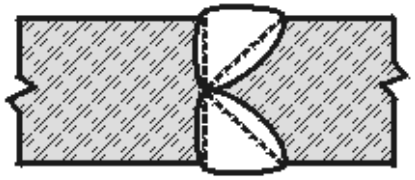
Desired Weld



Symbol

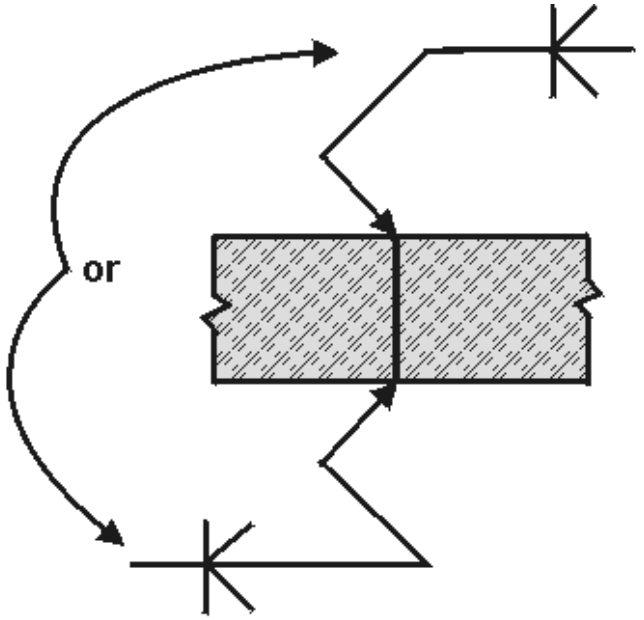
Beveled Member

DOUBLE-BEVEL-GROOVE WELD IN A BUTT JOINT WITH THE CHAMFERED MEMBER SPECIFIED



Desired Weld

Preparation specified on the right-side member as shown

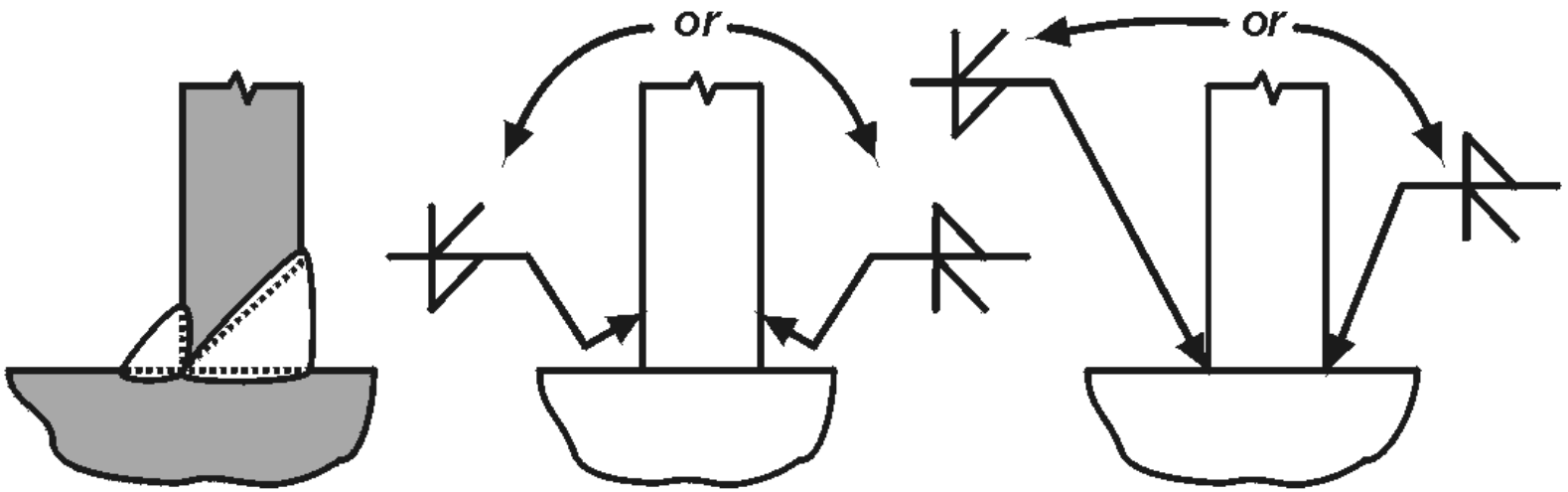


Symbol

The arrows point to the right member to be chamfered

Combinations

SINGLE- BEVEL-GROOVE AND A FILLET WELD IN A T-JOINT



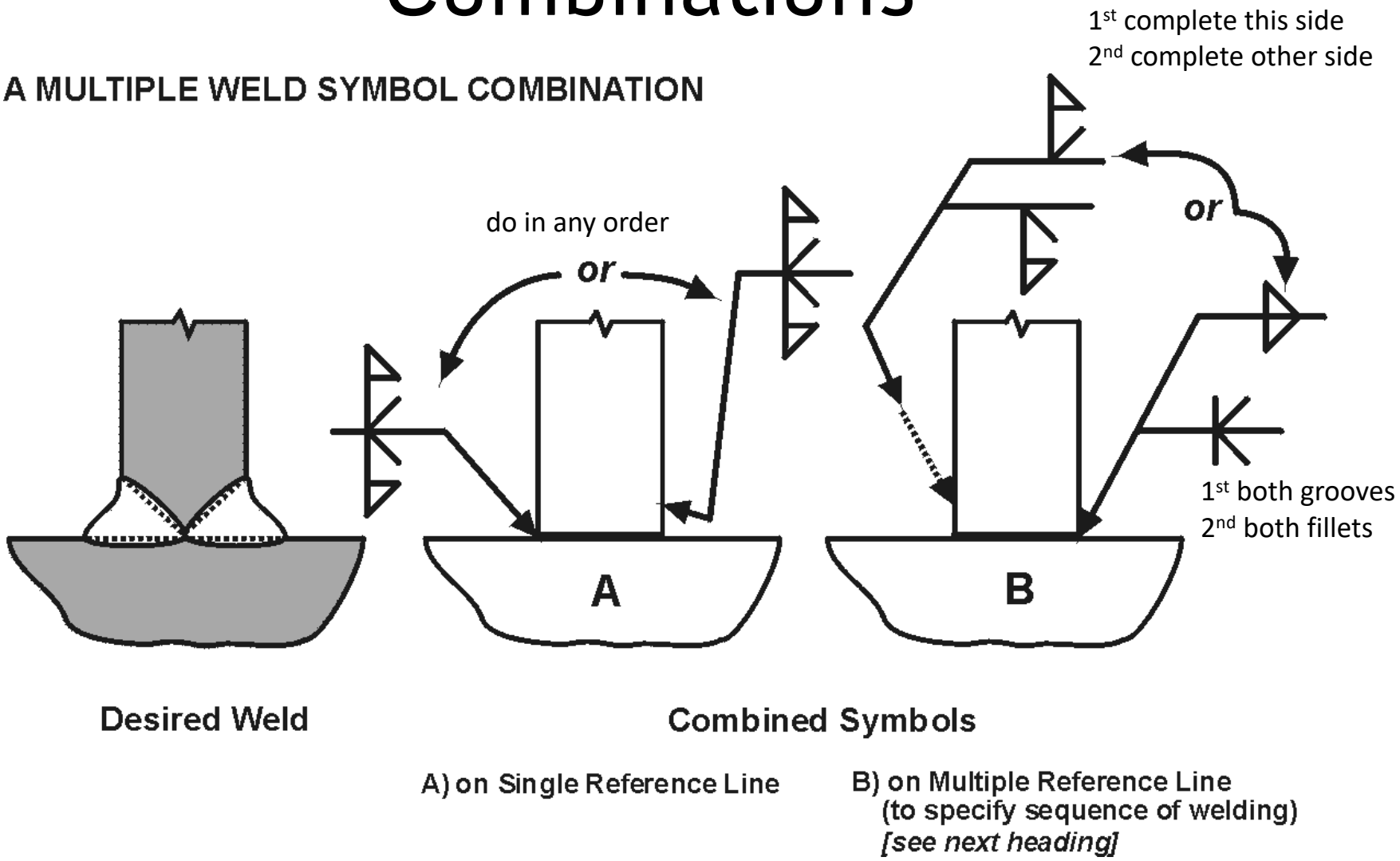
Desired Weld

Symbol
Arrow with a Break

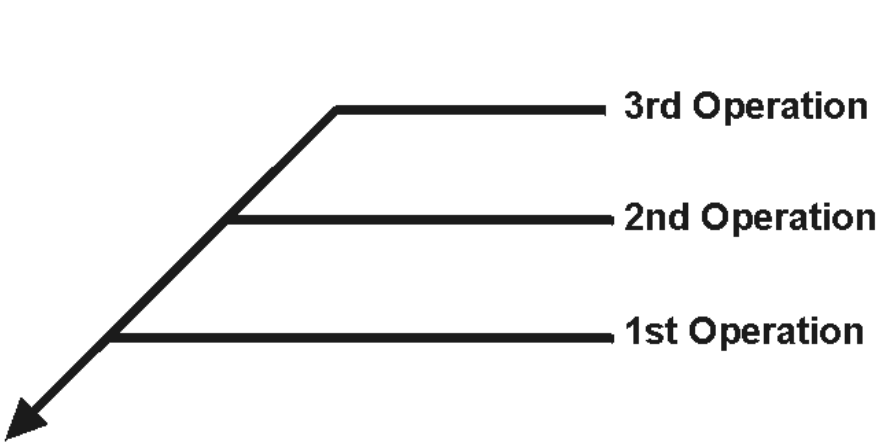
Symbol
Arrow without a Break is acceptable as only *one* (the intended) member can be prepared

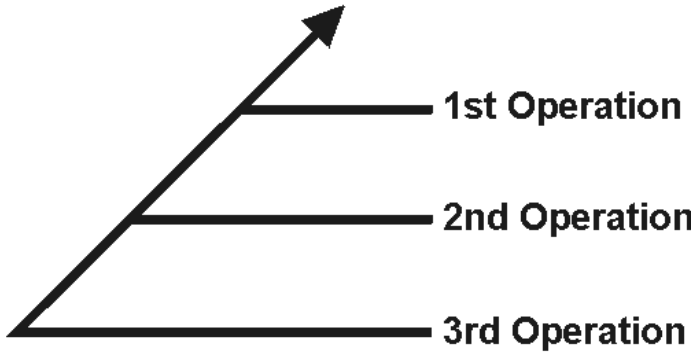
[As a matter of principal, it is recommended to use the arrow with a break]

Combinations

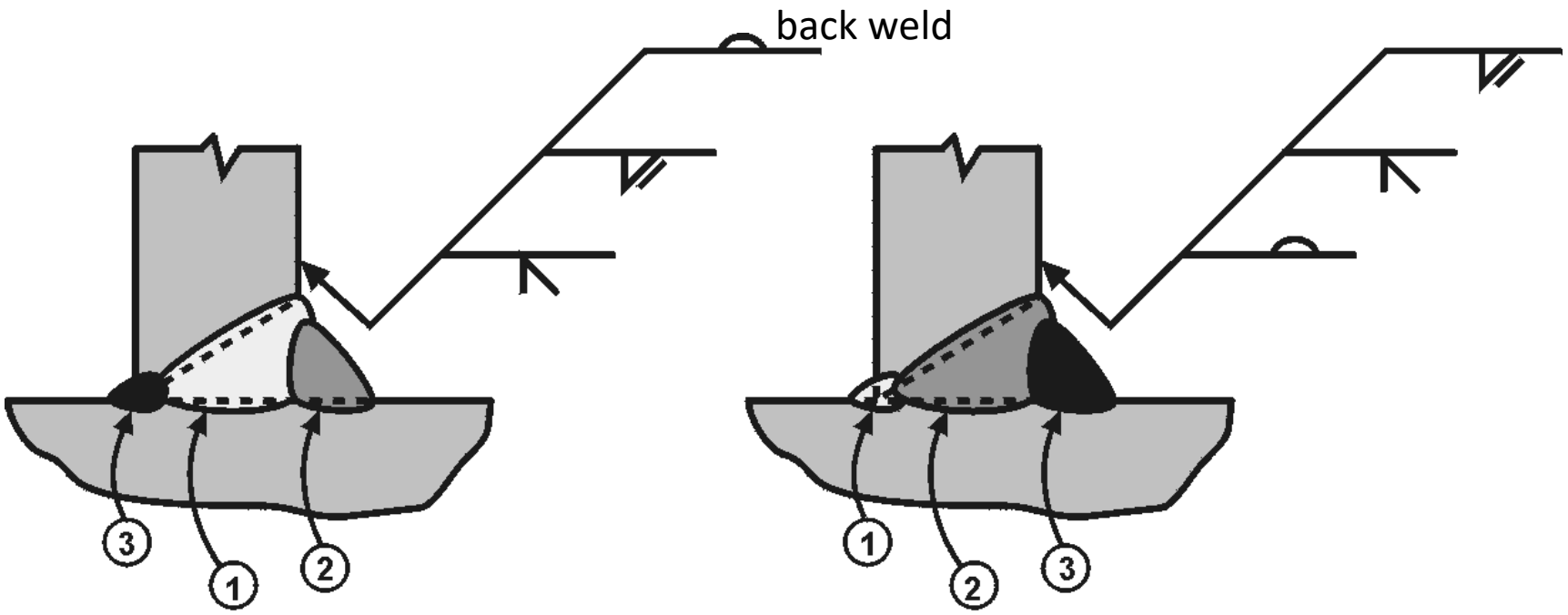


Weld Order


3rd Operation
2nd Operation
1st Operation


1st Operation
2nd Operation
3rd Operation

Weld Order

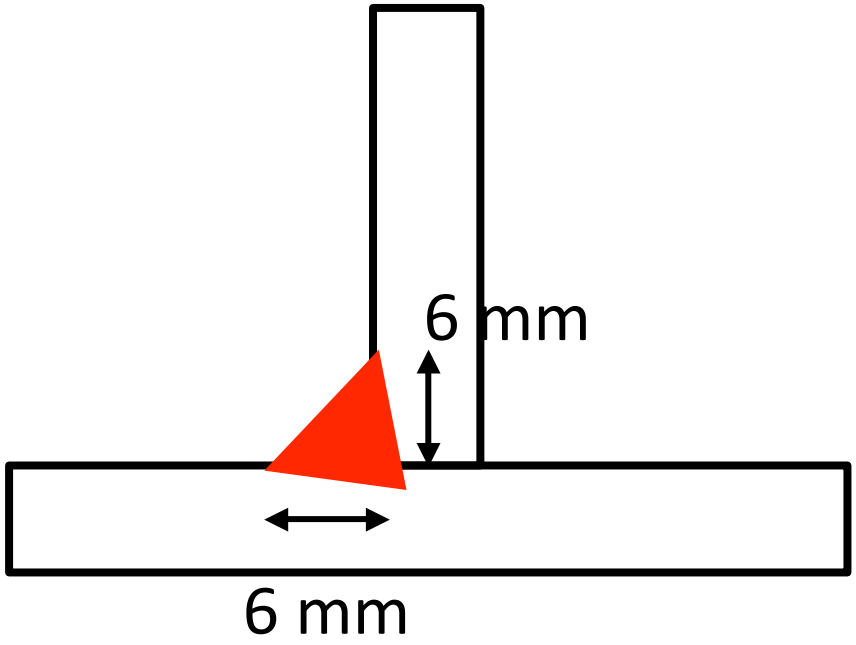


Desired Weld and Sequence

Desired Weld and Sequence

Exam Questions

5. Draw the welding symbol for the fillet weld below:

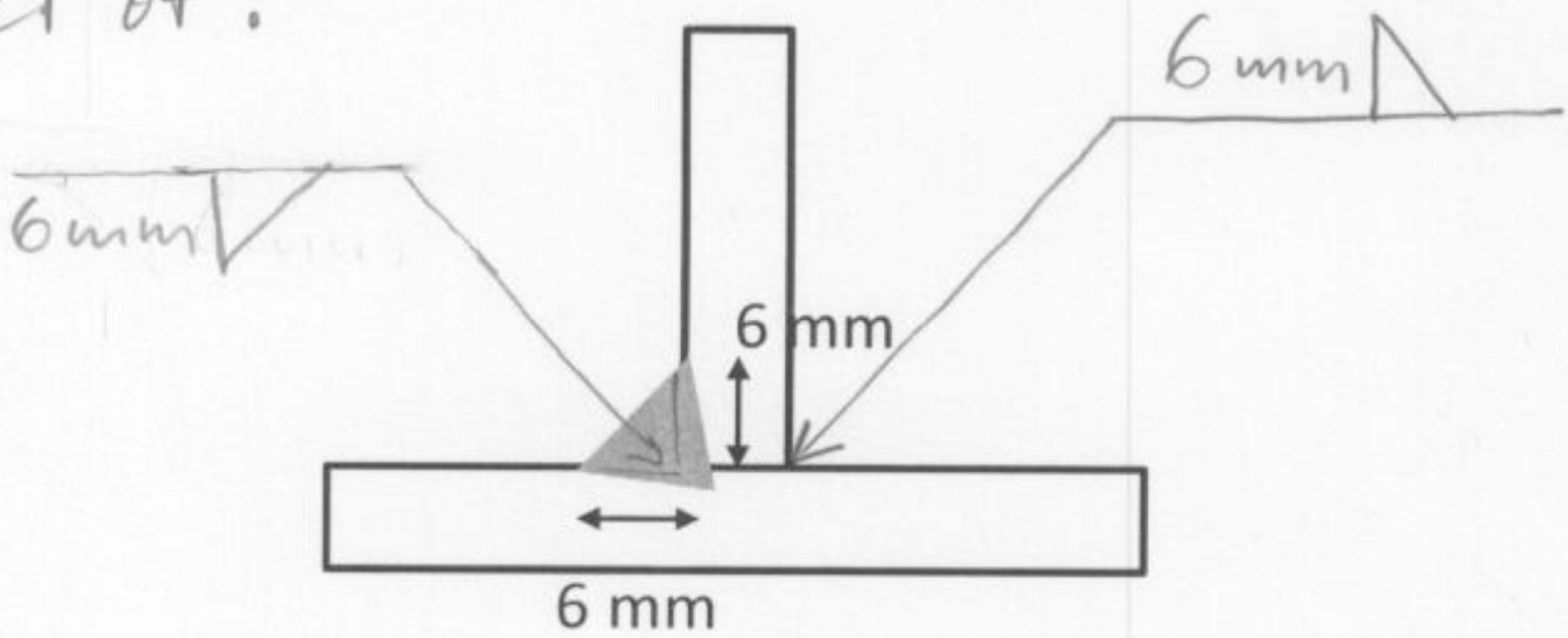


Ex. 2, 2011

Exam Questions

5. Draw the welding symbol for the fillet weld below:

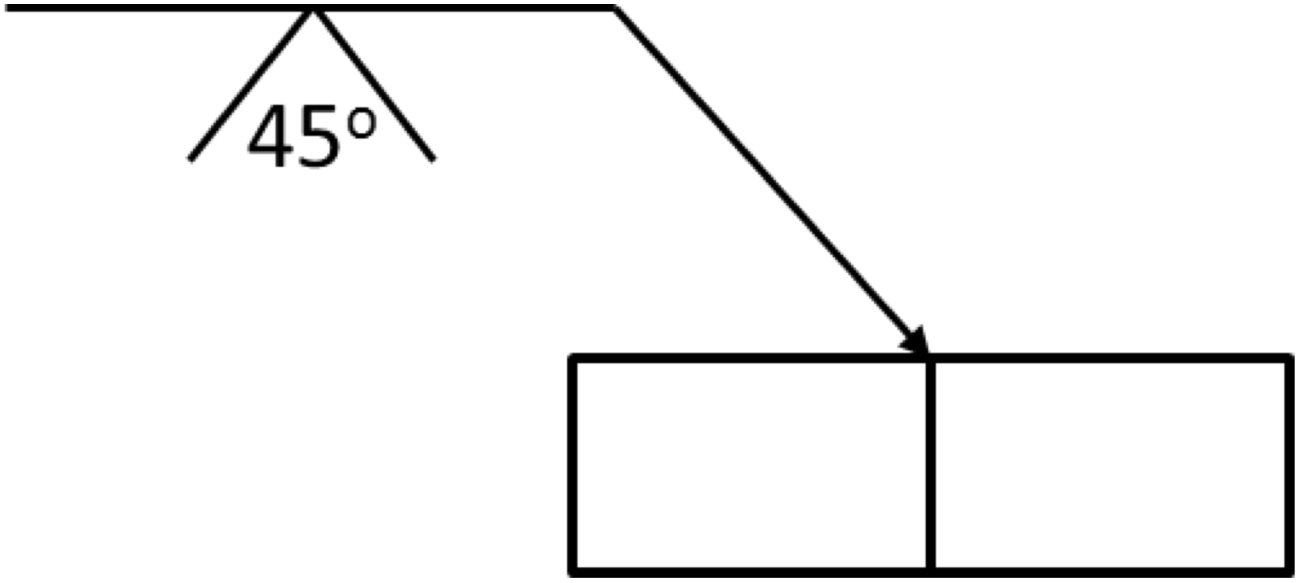
either of:



Ex. 2, 2011

Exam Questions

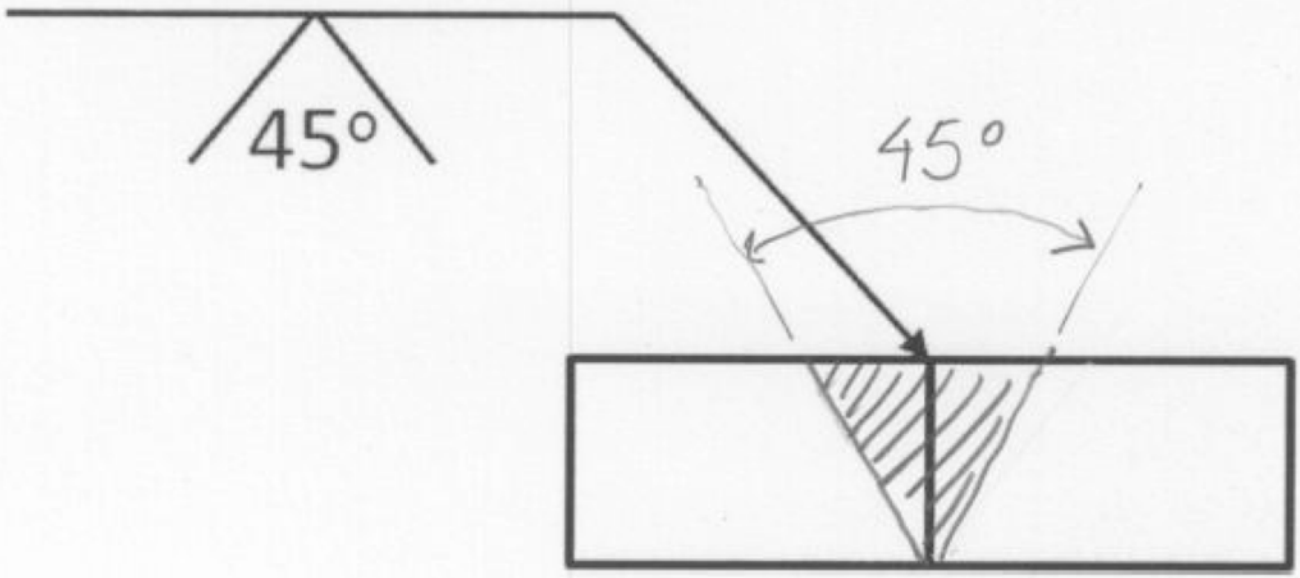
6. Draw the joint configuration from the welding symbols below.



Ex. 2, 2011

Exam Questions

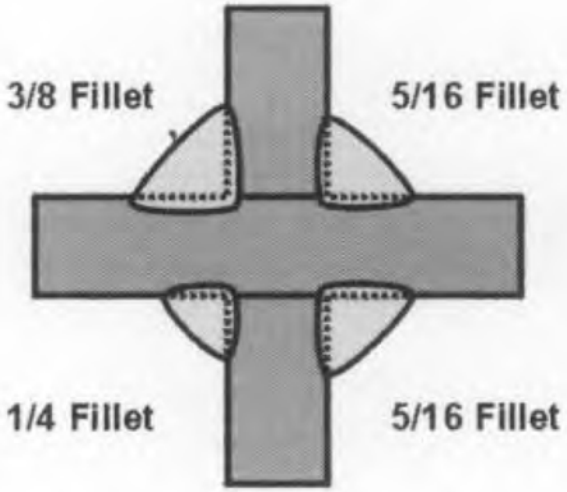
6. Draw the joint configuration from the welding symbols below.



Ex. 2, 2011

Exam Questions

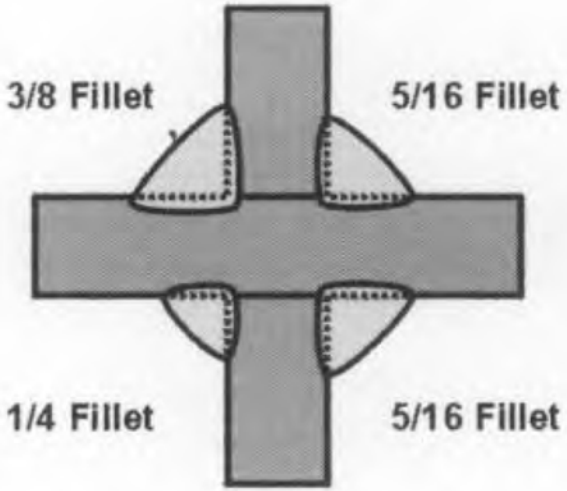
5. Draw the welding symbol for all welds below:

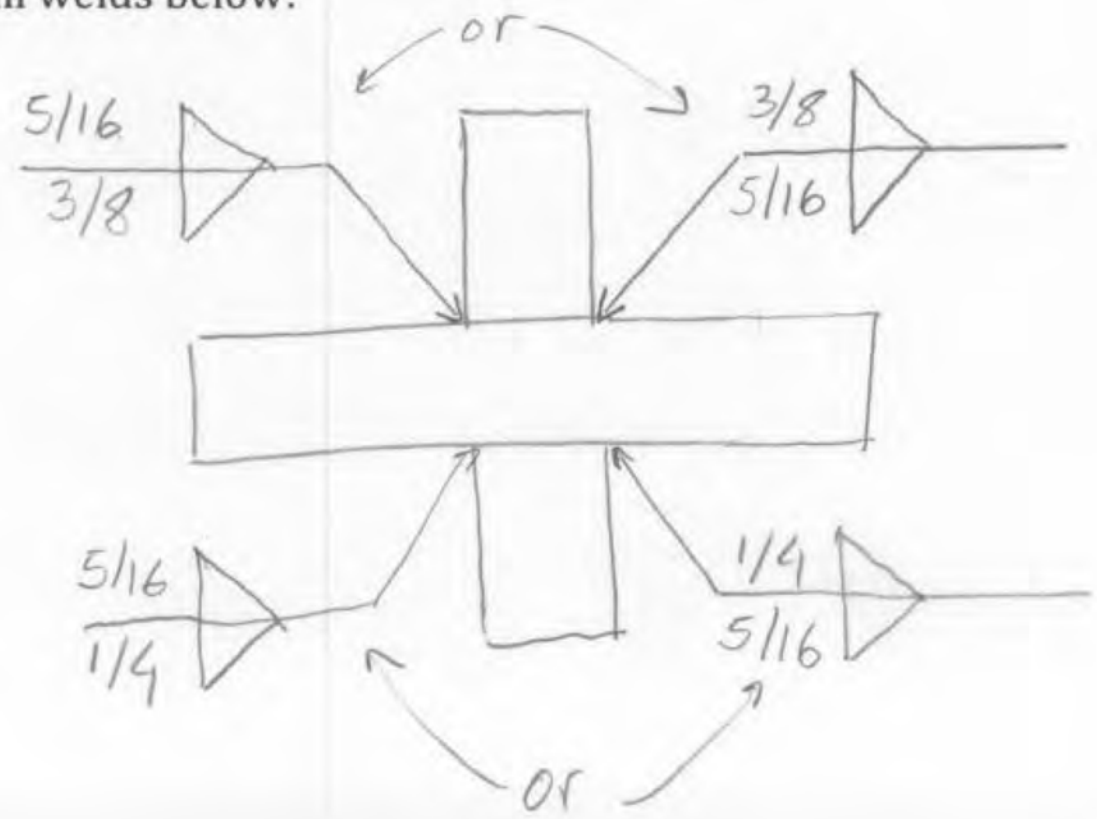


Ex. 2, 2012

Exam Questions

5. Draw the welding symbol for all welds below:

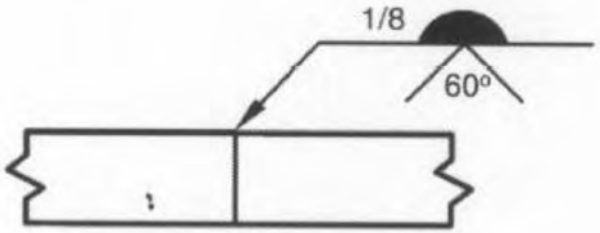




Ex. 2, 2012

Exam Questions

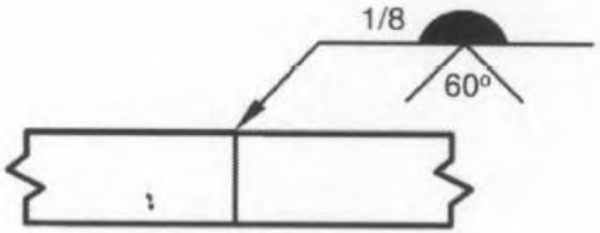
6. Draw the joint configuration corresponding to the welding symbol below.

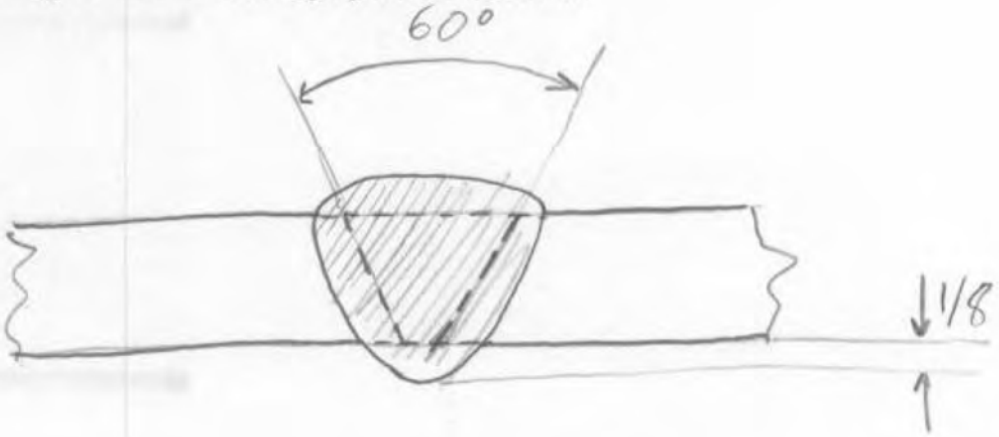


Ex. 2, 2012

Exam Questions

6. Draw the joint configuration corresponding to the welding symbol below.



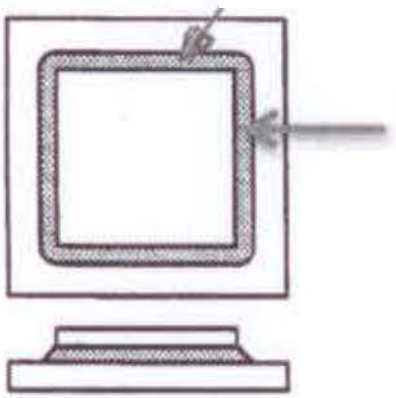


Ex. 2, 2012

Exam Questions

8. Draw the welding symbol for the welds below:

8.a



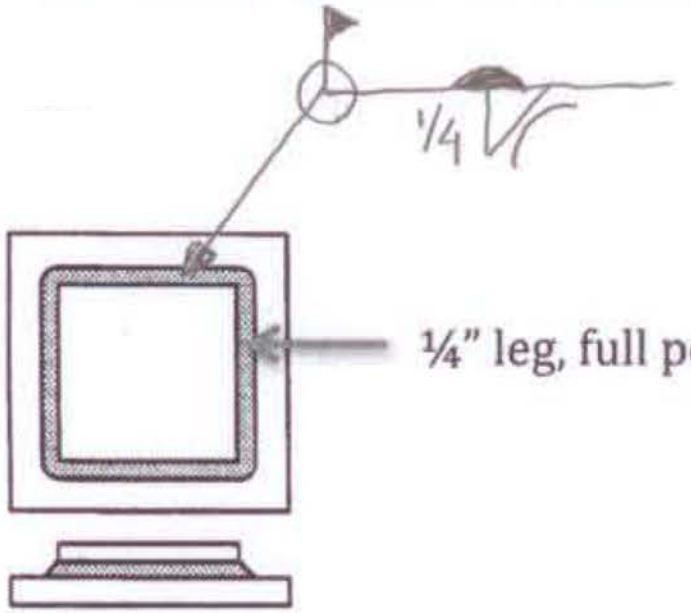
¼" leg, full penetration, concave surface, made in the field

Ex. 2, 2013

Exam Questions

8. Draw the welding symbol for the welds below:

8.a

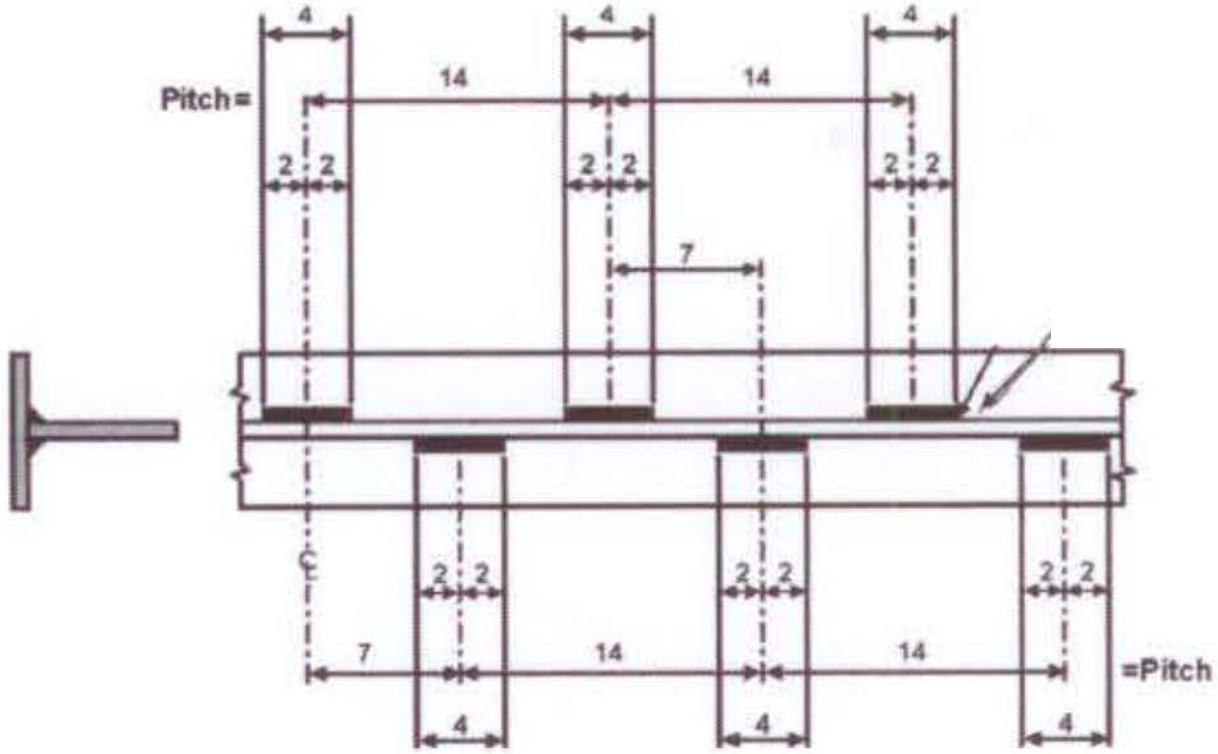


¼" leg, full penetration, concave surface, made in the field

Ex. 2, 2013

Exam Questions

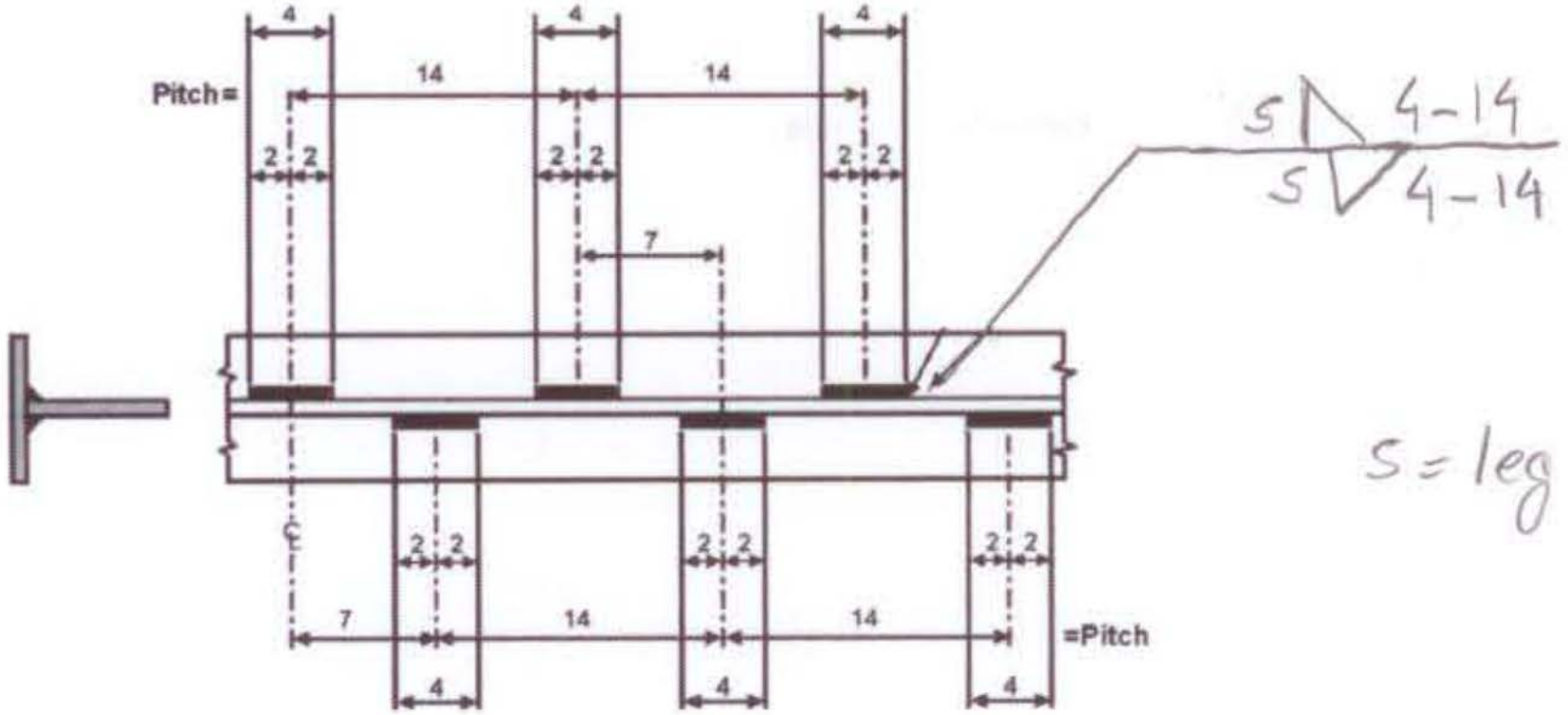
8.b



Ex. 2, 2013

Exam Questions

8.b

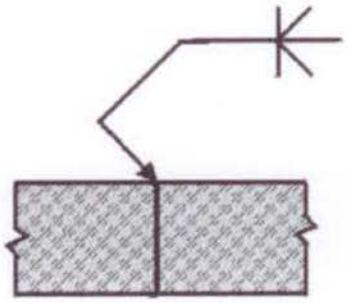


Ex. 2, 2013

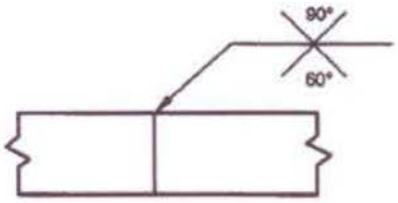
Exam Questions

9. Draw the weld cross section corresponding to the welding symbols below. 8

9.a



9.b

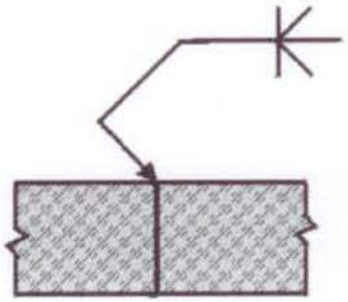


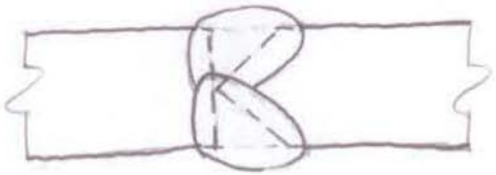
Ex. 2, 2013

Exam Questions

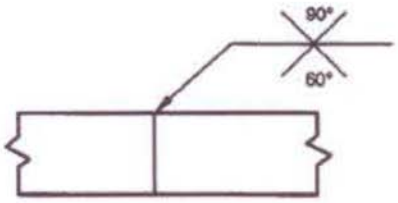
9. Draw the weld cross section corresponding to the welding symbols below. 8

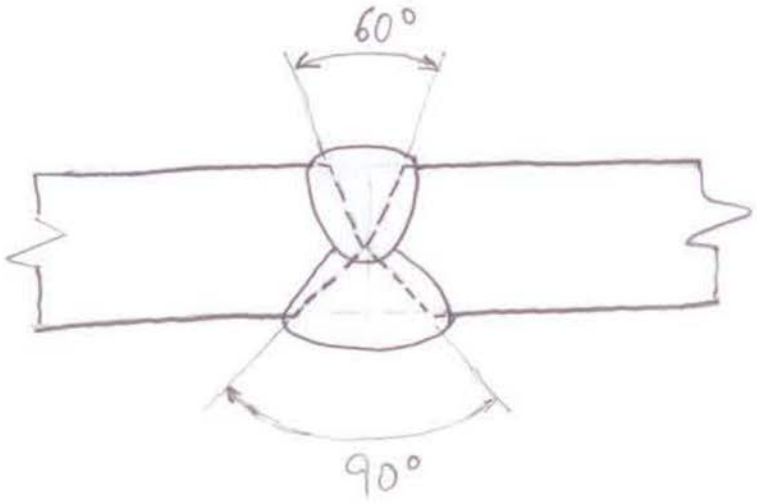
9.a





9.b





Ex. 2, 2013