European Arc Welding Symbols

Based on BS EN 22553 Welded brazed and soldered joints — Symbolic representation on drawings

BS 499-2c:1999

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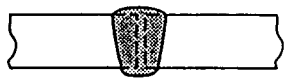
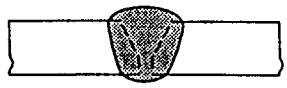
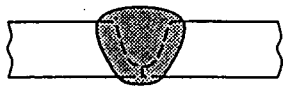
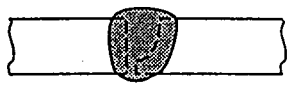
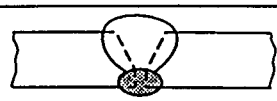
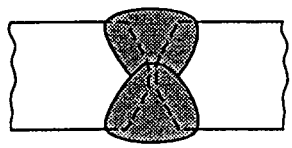
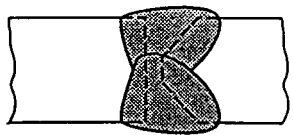
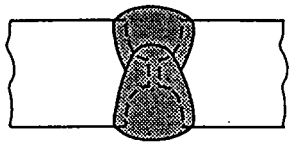
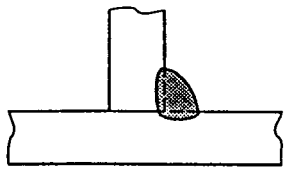
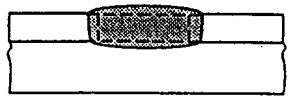
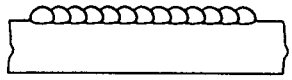
NOTE 1 All drawings where these symbols are used are to be referenced BS EN 22553 (ISO 2553:1992).

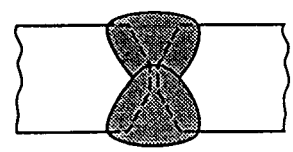
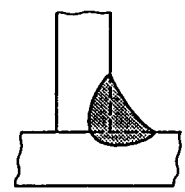
1. ELEMENTARY SYMBOLS

Type of weld	Illustration	Symbol
Butt weld between plates with raised edges which are melted down completely		
Square but weld		
Single-V butt weld		
Single-bevel butt weld		
Single-U butt weld		
Single-J butt weld		
Backing run		
Double-V butt weld		
Double-bevel butt weld		
Double-U butt weld		
Fillet weld		
Plug weld (plug or slot weld — USA)		
Surfacing		

2. SUPPLEMENTARY SYMBOLS

Shape of weld surface or weld	Supplementary symbol
Flat (usually finished flush by grinding or machining)	
Convex	
Concave	
Toes shall be blended smoothly — may require dressing	
Permanent backing strip used	
Removable backing strip used	

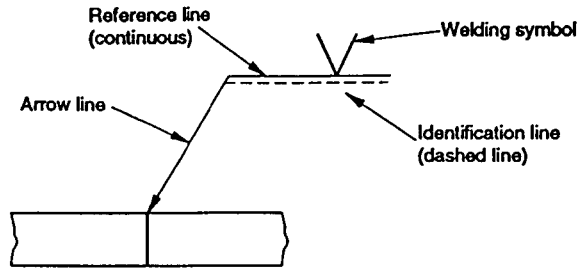
Examples of the use of supplementary symbols

Designation	Illustration	Symbol
Flat (flush) single-V butt weld with permanent backing strip		
Flat (flush) single-V butt weld with flat (flush) backing run		
Convex double-V weld		
Concave fillet weld		
Fillet weld with toes smoothly blended		

3. REFERENCE LINES AND OTHER INFORMATION

Method of representation

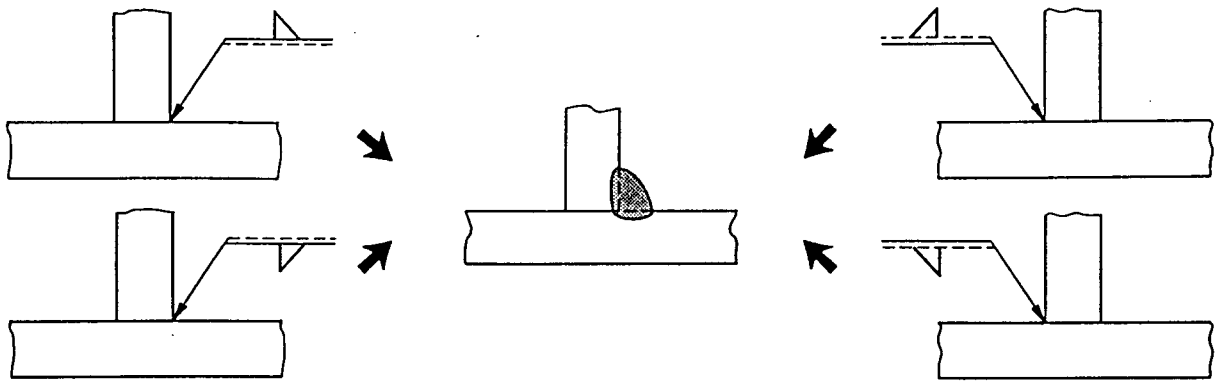
The arrow may be used to indicate a welded joint on an elevation or cross section



Location of welding symbol on reference line

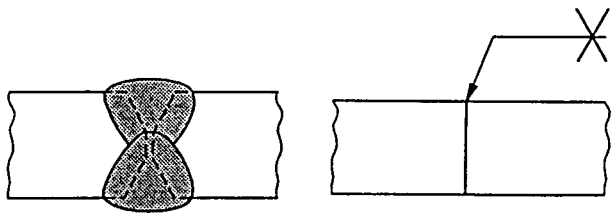
It is recommended that the arrow line is placed on the side of the joint to be welded unless there is not enough space

It is recommended that the welding symbol is placed on the reference line but this is not mandatory

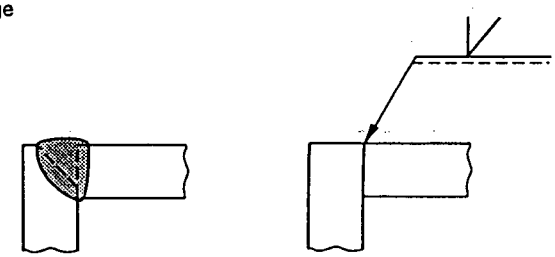


Special rules for butt welds

For symmetrical welds the identification line (dashed) is omitted

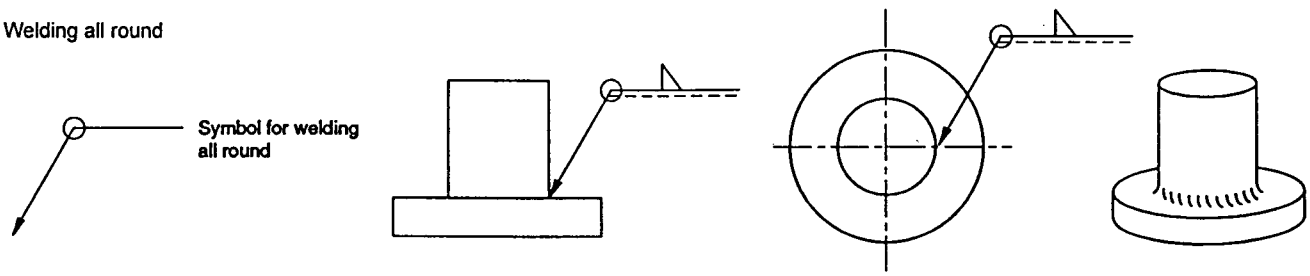


For single J and bevel butt welds, the arrow points to the prepared edge

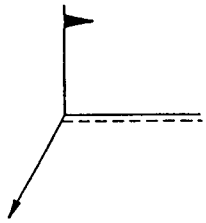


Other Information

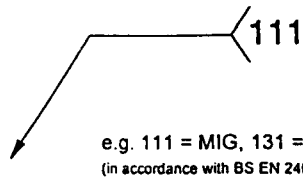
Welding all round



Site welding

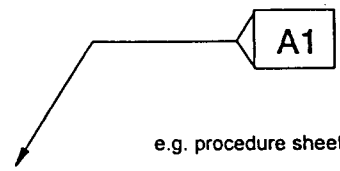


Welding process



e.g. 111 = MIG, 131 = MMA
(in accordance with BS EN 24063)

Specific instructions



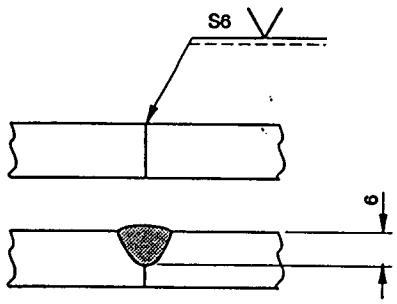
e.g. procedure sheet A.1

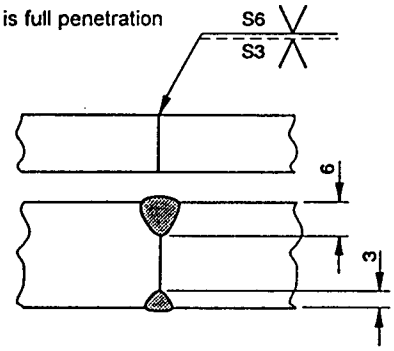
NOTE 2 For old drawings produced in accordance with BS 499-2 the corresponding chart BS 499-2C should be used.

4. WELD DIMENSIONS

Butt welds

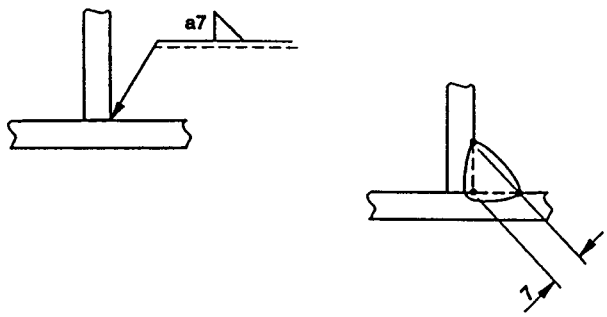
's' = minimum specified throat (penetration) thickness. If no dimension is shown, the weld is full penetration



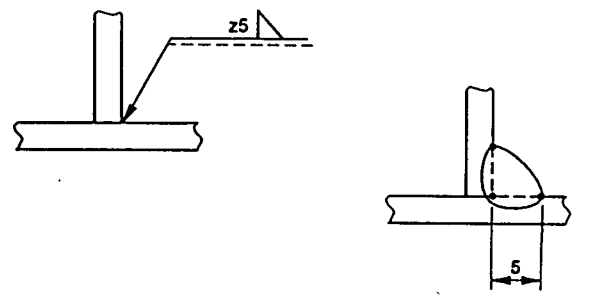


Fillet welds

'a' = throat thickness

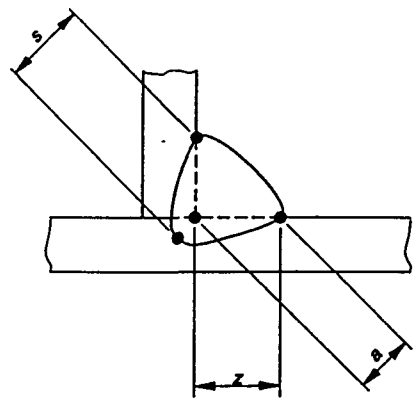


'z' = leg length



Deep penetration fillet welds

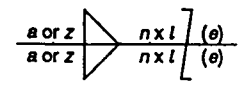
The throat thickness is designated by 's' and the dimensions are given for example 's8a6'

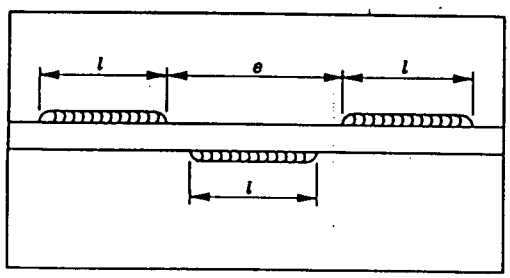


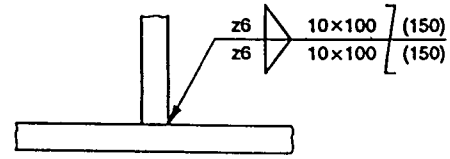
Weld length

For continuous welds the length of weld is given to the right of the welding symbol

For intermittent welds, l = weld length, e = distance between welds, n = number of welds

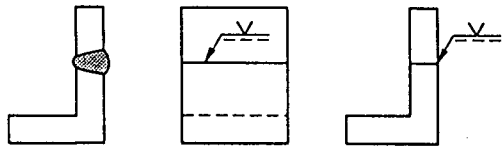
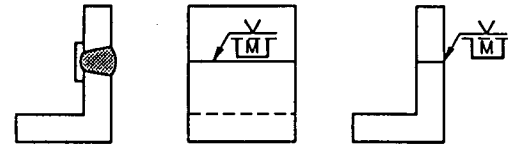
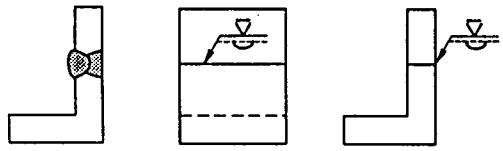
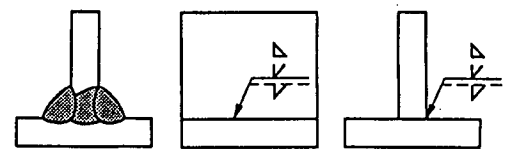
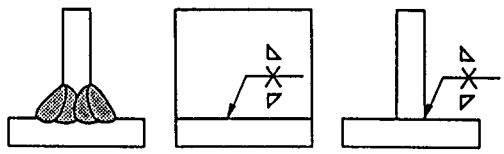
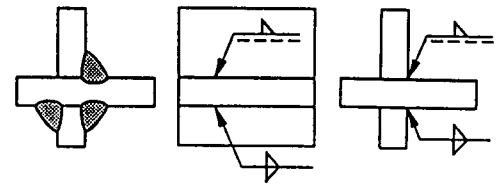
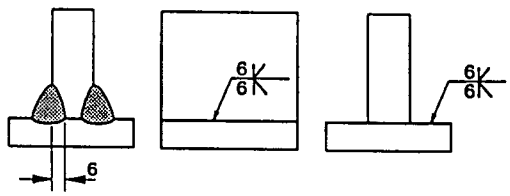






e.g. 10 staggered welds per side, leg length 6 mm, 100 mm long and 150 mm apart

5. EXAMPLES SHOWING THE USE OF SYMBOLS

Description	Illustration	Symbol	Description	Illustration	Symbol
Single V-butt weld			Single V-butt weld with permanent backing strip		
Single V-butt weld with backing run			Single bevel T-butt weld with reinforcing fillets		
Double bevel T-butt weld with reinforcing fillets			Cruciform joint fillet welded on three sides		
Partial penetration T-butt weld (6 mm penetration both sides)			Cruciform joint fillet welded on opposite sides