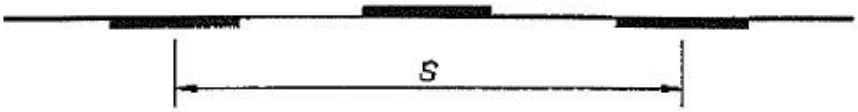
ANNEX B TYPE AND SIZE OF WELDS FOR VARIOUS STRUCTURAL CONNECTIONS FOR ALUMINIUM ALLOYS AND STEEL

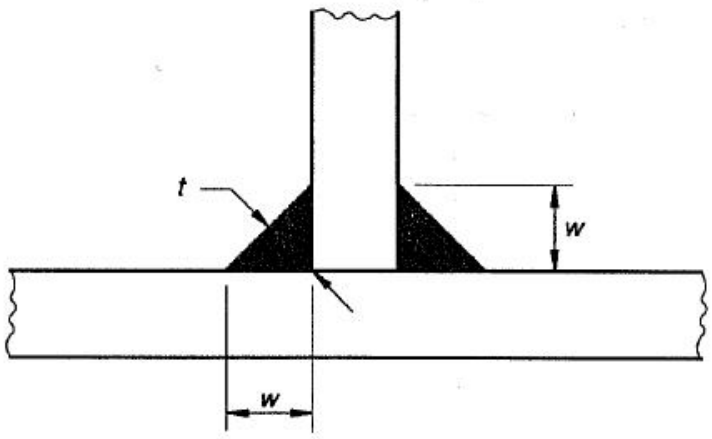


(a) Staggered intermittent fillet welds

(b) Chain intermittent fillet welds

LEGEND:
S = spacing of intermittent fillet welds

Figure B.1— Size and Spacing of Fillet Welds



LEGEND:
t = throat distance of weld
w = leg length of weld

Figure B.2—Dimensions of Intermittent Fillet Welds

Table B.1 Type and size of welds for various structural connections

Millimetres

Minimum thickness of members	≤5	>5 ≤6.5	>6.5 ≤8	>8 ≤9.5
Nominal length of fillet weld	40	65	75	75
A2 Nominal leg length of fillet weld (*w*)	3	5	6.5	6.5
Nominal throat distance of fillet weld (*t*)	2	3.5	4.5	4.5
Structural connections*	**Spacing of welds (*s*)†**			
Single bottom:				
Centre keelson to keel plate	DC	DC	DC	DC
Floors to centre keelson	DC	DC	DC	DC
Intercostals to bar keel	DC	DC	DC	DC
Intercostals to floors	DC	DC	DC	DC
Rider bar to centre keelson on intercostals (tee joint)	260‡	260‡	280‡	300‡
Rider bar to floors (tee joint) adjacent to engines and propellers	DC	DC	DC	DC
Rider bars to floors elsewhere (tee joint)	260‡	260‡	280‡	300‡
Rider bar to floors (corner joint)	DC	DC	DC	DC
Floors to bottom adjacent to propeller	DC	DC	DC	DC
Floors to bottom adjacent to engine	DC	DC	DC	DC
Floors to bottom forward of 025 *L*	225	225	250	225
Floors to bottom in tanks	225‡	225‡	250	225
….Floor to bottom elsewhere	300‡	300‡	300	275
Frames:				
Transverse frames to side shell forward of 0.25 L	225‡‖	225‡‖	250‖	225‖
Transverse frames to side shell in tanks	225‡‖	225‡‖	250‖	225‖
Transverse frames to side shell elsewhere	300‡‖	300‡‖	300‖	275‖
Longitudinal frames to side shell forward of 0.25 L	225‡‖	225‡‖	250‖	225‖
Longitudinal frames to side shell in tanks	225‡‖	225‡‖	250‖	225‖
Longitudinal frames to side shell elsewhere	300‡‖	300‡‖	300‖	275‖
Frame brackets to frames, floors and deck beams	DC	DC	DC	DC
Riders bars to frames (tee joint)	260	260	280	300
Rider bars to frames (corner joint)	DC	DC	DC	DC
Decks:				
Peripheries of strength decks, exposed decks and all watertight or oiltight decks	DC	DC	DC	DC
Beams (transverse or longitudinal) to decks adjacent to tanks	225‡	225‡	250	225
Beams (transverse or longitudinal) to decks elsewhere	300‡	300‡	300	275
Beam knees to beams, frames and other end attachments	DC	DC	DC	DC
Hatch coamings to exposed decks	DC	DC	DC	DC
Transverse or deep beam to decks adjacent to tanks	200	200	225	200
Transverse or deep beams to decks elsewhere	225	225	250	225
Girders and webs:				
Girders and webs to shell and bulkheads or decks in tanks	200	200	225	200
Girders and webs to shell and to bulkheads or decks elsewhere	225	225	250	225
Webs to face plate where area of face plate does not exceed 64.5cm²	250‡	250‡	300	275
Webs to face plate where area of face plate exceeds 64.5 cm²	---	---	250	225
Girder to deck beams	DC	DC	DC	DC
Web to deck, side and bottom longitudinals	DC	DC	DC	DC
Girder end brackets	DC	DC	DC	DC

(Continued)

Table B1 (continued)

Bulkheads:				
Peripheries of swash bulkheads	200	200	225	200
Peripheries of non-tight structural bulkheads	200	225	250	225
Peripheries of watertight or oiltight bulkheads	DC	DC	DC	DC
Stiffeners to deep tank bulkheads	300‡	300‡	300	275
Stiffeners to watertight bulkheads (except in tanks) and deckhouse fronts §	300‡	300‡	300	275
Stiffeners to non-tight structural bulkheads, deckhouse sides and afterends §	300‡	300‡	300	275
Stiffener brackets to beams and decks	DC	DC	DC	DC
Machinery seatings:				
Machinery seatings to floors and shells	DC	DC	DC	DC
Double bottoms:				
Floors to shell forward of 0.25 *L*	225	225	250	225
Floors to shell adjacent to engines	DC	DC	DC	DC
Floors to shell elsewhere	300‡	300‡	300	275
Floors to centre vertical keel plate	DC	DC	DC	DC
Floors to margin plate	DC	DC	DC	DC
Floors to inner bottom forward of 0.25 *L*	275‡	275‡	275	250
Floors to inner bottom adjacent to engines	DC	DC	DC	DC
Floors to inner bottom elsewhere	300‡	300‡	300	275
Wide-spaced floors with longitudinal framing to shell and inner bottom	DC	DC	DC	DC
Non-watertight centre girder to inner bottom or plate keel adjacent to engines and to shell or bar keel	DC	DC	DC	DC
Non-tight centre girder to inner bottom or plate keel elsewhere	150	150	150	125
Watertight or oiltight centre girder to inner bottom, rider plate, shell or bar keel	DC	DC	DC	DC
Intercostals and continuous longitudinal girders to shell and to inner bottom adjacent to engines	DC	DC	DC	DC
Intercostals and continuous longitudinal girders to shell elsewhere and to floors	275‡	275‡	275	250
Watertight and oiltight periphery connections of longitudinal girders in double bottom.	DC	DC	DC	DC
Deckhouses and superstructures:				
The boundaries of deckhouses and superstructures to deck plate	DC	DC	DC	DC

NOTES:

* All members that are crossed by or carry the ends of structural members shall have a pair of matched intermittent welds on each side of each such intersection.

† Where double continuous welds are required for connections of plating greater than 4.8 mm in thickness or where double continuous welds are adopted for connections of plating greater than 4.8 mm in thickness, the nominal leg length of the welds may be reduced by 1.6 mm.

‡ Fillet welds shall be staggered.

§ Unbracketed stiffeners of shell, watertight and oiltight bulkheads and deckhouse fronts shall have double continuous welds for one tenth of their length at each end. Unbracketed stiffeners of non-watertight structural bulkheads, deckhouse sides and after ends shall have a pair of matched intermittent welds at each end.

‖ Frames shall have double continuous welds adjacent to brackets.

LEGEND:

DC = double continuous fillet weld

L = waterline length of vessel