Dindas I-Joist web holes

Web holes may be cut in the I-Joist web to accommodate electrical wiring, plumbing lines and other mechanical systems based on the following rules:

- 1. Holes must be sized and located in compliance with the holes charts. Holes may be located vertically anywhere in the web provided a minimum distance of 3 mm of web remaining between the edge of the hole and the flanges.
- 2. Where more than one hole is necessary, the distance between the adjacent holes edges must be a minimum of twice the diameter of the largest circular hole or twice the size of the largest square/rectangular hole.
- 3. Knockout holes (40 mm circular predrilled holes spaced approximatively 400 mm on center spacing) are not considered holes and they can be utilised anywhere they occur. Knockouts can be ignored for the purposes of calculating the minimum distances between the holes and the maximum number of holes allowed for each span.
- 4. A 40 mm circular hole is permitted anywhere in cantilever spans. A 40 mm circular hole can be placed anywhere in the web provided that it meets the requirements of rule 2.
- 5. A group of circular holes at approximately the same location shall be permitted if they meet the requirements for a single circular hole circumscribed around them.
- 6. All holes must be cut in a workman-like manner.
- 7. No more than three holes (any shapes) are permitted per span (excluding knockouts).



Knockout holes

Knockouts are prescored holes for the contractor's convenience to install electrical or small plumbing lines. They are 40 mm in diameter, and are spaced approximately 400 mm on center along the length of the I-Joist. Where possible, it is preferable to use knockouts instead of field cutting holes. For floor applications, position the I-Joists so the knockouts are all on the bottom of the joist, making it easier to install electrical wiring or residential sprinkler systems.

How to use the hole chart

- Read across the top of hole chart to the desired hole size (or the next bigger size).
- Follow this column down to the row that represents the I-Joist depth and designation.
- This number indicates the minimum distance from the face of the support to the centerline of the hole.

Example:

Need a 140 mm round hole in a 240 mm $RFPI^{\circledast}400$ Joist with a design span of 4.0 m:

From the hole chart for the round and square web holes: For a 150 mm round hole, the minimum distance is 1.1 m. Therefore the minimum distance for the 140 mm round hole is 1.1 m.



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Circular and square holes

	Design span (m)	Min. distance from face of nearest support to center of hole, "x" (m)									
Joist series		Circular holes: max. diameter (mm)									
		75	100	125	150	175	200	225	250	275	300
					Squa	re holes:	max. size	(mm)			
		50	75	90	110	130	150	160	180	200	225
	3.0	0.2	0.3	0.3	0.4						
RFPI® 20 240x45	4.0	0.2	0.3	0.6	1.0						
	5.0	0.3	0.7	1.2	1.8						
	5.5	0.6	1.1	1.6	2.1						
RFPI® 20 300x45	3.0	0.2	0.3	0.3	0.3	0.3	0.3				
	4.0	0.2	0.3	0.3	0.3	0.5	1				
	5.0	0.2	0.3	0.3	0.8	1.2	1.7				
	6.0	0.2	0.5	1	1.4	1.9	2.5				
RFPI® 20 360x45	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.6	1		
	5.0	0.2	0.3	0.3	0.3	0.4	0.8	1.3	1.7		
	6.0	0.2	0.3	0.3	0.6	1.1	1.5	2.0	2.5		
	0.0	0.2	0.3	0.5	1.0	1.4	1.8	2.3	2.8		
RFPI® 400 240x52	3.0	0.2	0.3	0.5	0.4						
	5.0	0.2	0.3	1.0	1.1						
	5.5	0.0	1.1	1.2	2.1						
	3.0	0.0	0.3	0.3	0.3	0.3	0.3				
RFPI® 400 300x52	4.0	0.2	0.3	0.3	0.3	0.5	0.9				
	5.0	0.2	0.3	0.3	0.7	1.1	1.6				
	6.0	0.2	0.4	0.9	1.3	1.8	2.4				
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.9		
RFPI® 400 360x52	5.0	0.2	0.3	0.3	0.3	0.3	0.7	1.1	1.6		
	6.0	0.2	0.3	0.3	0.4	0.9	1.3	1.8	2.4		
	6.5	0.2	0.3	0.3	0.8	1.2	1.7	2.2	2.7		
RFPI® 400 400x52	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9
	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.6
	6.0	0.2	0.3	0.3	0.3	0.3	0.4	0.9	1.3	1.8	2.3
	6.5	0.2	0.3	0.3	0.3	0.3	0.7	1.2	1.7	2.2	2.7
RFPI® 70 240x58	3.0	0.2	0.3	0.3	0.3						
	4.0	0.2	0.3	0.4	0.9						
	5.0	0.2	0.5	1	1.6						
	6.0	0.7	1.2	1.7	2.3						
RFPI® 70 300x58	4.0	0.2	0.3	0.3	0.3	0.4	0.8				
	5.0	0.2	0.3	0.3	0.6	1.0	1.6				
	6.0	0.2	0.3	0.7	1.2	1.7	2.3				
	6.5	0.2	0.6	1.1	1.6	2.1	2.7	0.4	0.0		
RFPI [®] 70 360x58	4.0	0.2	0.3	0.3	0.3	0.3	0.3	1.0	0.8		
	6.0	0.2	0.3	0.3	0.3	0.3	1.2	1.0	23		
	6.5	0.2	0.3	0.3	0.6	1.1	1.6	2.1	2.6		
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9
RFPI® 70 400x58	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.1	1.6
	6.0	0.2	0.3	0.3	0.3	0.3	0.4	0.9	1.3	1.8	2.3
	6.5	0.2	0.3	0.3	0.3	0.3	0.7	1.2	1.7	2.2	2.7
RFPI® 90 300x90	4.0	0.2	0.3	0.3	0.3	0.3	0.3				
	5.0	0.2	0.3	0.3	0.3	0.3	0.9				
	6.0	0.2	0.3	0.3	0.3	1.0	1.6				
	6.5	0.2	0.3	0.3	0.7	1.3	2				
RFPI® 90 360x90	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4		
	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.5	1.1		
	6.0	0.2	0.3	0.3	0.3	0.3	0.6	1.2	1.8		
	6.5	0.2	0.3	0.3	0.3	0.4	0.9	1.5	2.1		
RFPI® 90 400x90	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6
	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.3
	6.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.9	1.4	2
	6.5	0.2	0.3	0.3	0.3	0.3	0.3	0.7	1.2	1.7	2.3

Never drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Start the rectangular hole by drilling a 25 mm-diameter hole in each of the four corners and then make the cuts between the holes to minimise damage to the I-joist.

Notes:

- 1. Distances "x" in this table apply to single or continuous spans with a maximum oc. spacing of 600 mm and the loading conditions shown below.
- 2. Distances "x" in this table are valid for the maximum design spans indicated in the table. The design spans shown shall be verified for the specific loading conditions before checking the hole location. For shorter design spans, the minimum hole distances from the next available (longer) design span shall be used.
- 3. Hole location distance is measured from inside face of the nearest bearing support to center of hole.
- 4. A minimum distance of 3 mm must be maintained between the top or bottom of the hole and the flange edge.
- 5. Where more than one hole is necessary, the distance between adjacent hole edges shall equal or exceed twice the diameter of the largest circular hole or twice the size of the largest square hole or twice the length of the longest side of the rectangular hole. Each hole must be sized and located in compliance with the requirements of the table specific to the shape of the hole.
- For I-joists with more than one span, use the longest span to determine the hole size and location in either span.
- 7. A group of circular holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.
- 8. Square holes are not permitted for cantilever spans.
- 9. Square holes should be located at midheight of the web.
- 10. The sizes of square holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.

Loading conditions:

- Dead load: self-weight + 62 kg/m²
- Live load: 2.0k Pa or 1.8 kN
- Structural member: Self-contained dwelling; Category 1
- Dry use service conditions: Equilibrium moisture content of the joist shall not exceed 18%

For square holes, avoid over-cutting the corners, as this may cause stress concentration. Start the square hole by drilling a 25 mm-diameter hole in each of the four corners and then make the cuts between the holes to minimise damage to the web.