

# STANDARD SPECIFICATIONS

## FOR OPEN WEB STEEL JOISTS, K-SERIES

Adopted by the Steel Joist Institute November 4, 1985  
Revised to November 10, 2003 - Effective March 01, 2005

### SECTION 1. SCOPE

This specification covers the design, manufacture and use of Open Web Steel Joists, **K-Series**. Load and Resistance Factor Design (LRFD) and Allowable Strength Design (ASD) are included in this specification.

### SECTION 2. DEFINITION

The term "Open Web Steel Joists **K-Series**," as used herein, refers to open web, parallel chord, load-carrying members suitable for the direct support of floors and roof decks in buildings, utilizing hot-rolled or cold-formed steel, including cold-formed steel whose yield strength\* has been attained by cold working. **K-Series** Joists shall be designed in accordance with this specification to support the uniformly distributed loads given in the Standard Load Tables for Open Web Steel Joists, **K-Series**, attached hereto.

The KCS Joist is a **K-Series** Joist which is provided to address the problem faced by specifying professionals when trying to select joists to support uniform plus concentrated loads or other non-uniform loads.

The design of chord sections for **K-Series** Joists shall be based on a yield strength of 50 ksi (345 MPa). The design of web sections for **K-Series** Joists shall be based on a yield strength of either 36 ksi (250 MPa) or 50 ksi (345 MPa). Steel used for **K-Series** Joists chord or web sections shall have a minimum yield strength determined in accordance with one of the procedures specified in Section 3.2, which is equal to the yield strength assumed in the design.

\* The term "Yield Strength" as used herein shall designate the yield level of a material as determined by the applicable method outlined in paragraph 13.1 "Yield Point", and in paragraph 13.2 "Yield Strength", of ASTM A370, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*, or as specified in paragraph 3.2 of this specification.

Standard Specifications and Load Tables, Open Web Steel Joists, **K-Series**,

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### SECTION 3. MATERIALS

#### 3.1 STEEL

The steel used in the manufacture of chord and web sections shall conform to one of the following ASTM Specifications:

- Carbon Structural Steel, ASTM A36/A36M.
- High-Strength, Low-Alloy Structural Steel, ASTM A242/A242M.
- High-Strength Carbon-Manganese Steel of Structural Quality, ASTM A529/A529M, Grade 50.
- High-Strength Low-Alloy Columbium-Vanadium Structural Steel, ASTM A572/A572M, Grade 42 and 50.
- High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 inches (100 mm) Thick, ASTM A588/A588M.
- Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Corrosion Resistance, ASTM A606.
- Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, ASTM A1008/A1008M
- Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, ASTM A1011/A1011M

or shall be of suitable quality ordered or produced to other than the listed specifications, provided that such material in the state used for final assembly and manufacture is weldable and is proved by tests performed by the producer or manufacturer to have the properties specified in Section 3.2.

#### 3.2 MECHANICAL PROPERTIES

The yield strength used as a basis for the design stresses prescribed in Section 4 shall be either 36 ksi (250 MPa) or 50 ksi (345 MPa). Evidence that the steel furnished meets or exceeds the design yield strength shall, if requested, be provided in the form of an affidavit or by witnessed or certified test reports.

For material used without consideration of increase in yield strength resulting from cold forming, the specimens shall be taken from as-rolled material. In the case of material, the mechanical properties of which conform to the requirements of one of the listed specifications, the test specimens and procedures shall conform to those of such specifications and to ASTM A370.



In the case of material, the mechanical properties of which do not conform to the requirements of one of the listed specifications, the test specimens and procedures shall conform to the applicable requirements of ASTM A370, and the specimens shall exhibit a yield strength equal to or exceeding the design yield strength and an elongation of not less than (a) 20 percent in 2 inches (51 millimeters) for sheet and strip, or (b) 18 percent in 8 inches (203 millimeters) for plates, shapes and bars with adjustments for thickness for plates, shapes and bars as prescribed in ASTM A36/A36M, A242/A242M, A529/A529M, A572/A572M, A588/A588M, whichever specification is applicable on the basis of design yield strength.

The number of tests shall be as prescribed in ASTM A6/A6M for plates, shapes, and bars; and ASTM A606, A1008/A1008M and A1011/A1011M for sheet and strip.

If as-formed strength is utilized, the test reports shall show the results of tests performed on full section specimens in accordance with the provisions of the AISI North American Specifications for the Design of Cold-Formed Steel Structural Members. They shall also indicate compliance with these provisions and with the following additional requirements:

- a) The yield strength calculated from the test data shall equal or exceed the design yield strength.
- b) Where tension tests are made for acceptance and control purposes, the tensile strength shall be at least 6 percent greater than the yield strength of the section.
- c) Where compression tests are used for acceptance and control purposes, the specimen shall withstand a gross shortening of 2 percent of its original length without cracking. The length of the specimen shall be not greater than 20 times the least radius of gyration.
- d) If any test specimen fails to pass the requirements of the subparagraphs (a), (b), or (c) above, as applicable, two retests shall be made of specimens from the same lot. Failure of one of the retest specimens to meet such requirements shall be the cause for rejection of the lot represented by the specimens.

### 3.3 PAINT

The standard shop paint is intended to protect the steel for only a short period of exposure in ordinary atmospheric conditions and shall be considered an impermanent and provisional coating.

When specified, the standard shop paint shall conform to one of the following:

- a) Steel Structures Painting Council Specification, SSPC No. 15.
- b) Or, shall be a shop paint which meets the minimum performance requirements of the above listed specification.

## SECTION 4.

# DESIGN AND MANUFACTURE

### 4.1 METHOD

Joists shall be designed in accordance with these specifications as simply supported, uniformly loaded trusses supporting a floor or roof deck so constructed as to brace the top chord of the joists against lateral buckling. Where any applicable design feature is not specifically covered herein, the design shall be in accordance with the following specifications:

- a) Where the steel used consists of hot-rolled shapes, bars or plates, use the American Institute of Steel Construction, *Specification for Structural Steel Buildings*.
- b) For members that are cold-formed from sheet or strip steel, use the American Iron and Steel Institute, *North American Specification for the Design of Cold-Formed Steel Structural Members*.

#### Design Basis:

Designs shall be made according to the provisions in this Specification for either Load and Resistance Factor Design (LRFD) or for Allowable Strength Design (ASD).

#### Load Combinations:

##### LRFD:

When load combinations are not specified to the joist manufacturer, the required stress shall be computed for the factored loads based on the factors and load combinations as follows:

$$1.4D$$

$$1.2D + 1.6 ( L, \text{ or } L_r, \text{ or } S, \text{ or } R )$$

##### ASD:

When load combinations are not specified to the joist manufacturer, the required stress shall be computed based on the load combinations as follows:

$$D$$

$$D + ( L, \text{ or } L_r, \text{ or } S, \text{ or } R )$$

Where:

D = dead load due to the weight of the structural elements and the permanent features of the structure

L = live load due to occupancy and movable equipment

$L_r$  = roof live load

S = snow load

R = load due to initial rainwater or ice exclusive of the ponding contribution

When special loads are specified and the specifying professional does not provide the load combinations, the provisions of ASCE 7, "Minimum Design Loads for Buildings and Other Structures" shall be used for LRFD and ASD load combinations.



## 4.2 DESIGN AND ALLOWABLE STRESSES

### Design Using Load and Resistance Factor Design (LRFD)

Joists shall have their components so proportioned that the required stresses,  $f_u$ , shall not exceed  $\phi F_n$  where,

- $f_u$  = required stress ksi (MPa)
- $F_n$  = nominal stress ksi (MPa)
- $\phi$  = resistance factor
- $\phi F_n$  = design stress

### Design Using Allowable Strength Design (ASD)

Joists shall have their components so proportioned that the required stresses,  $f$ , shall not exceed  $F_n / \Omega$  where,

- $f$  = required stress ksi (MPa)
- $F_n$  = nominal stress ksi (MPa)
- $\Omega$  = safety factor
- $F_n / \Omega$  = allowable stress

#### Stresses:

#### (a) Tension: $\phi_t = 0.90$ (LRFD) $\Omega = 1.67$ (ASD)

For Chords:  $F_y = 50$  ksi (345 MPa)

For Webs:  $F_y = 50$  ksi (345 MPa), or  $F_y = 36$  ksi (250 MPa)

$$\text{Design Stress} = 0.9F_y \text{ (LRFD)} \quad (4.2-1)$$

$$\text{Allowable Stress} = 0.6F_y \text{ (ASD)} \quad (4.2-2)$$

#### (b) Compression: $\phi_c = 0.90$ (LRFD) $\Omega_c = 1.67$ (ASD)

For members with  $\ell/r \leq 4.71 \sqrt{E/QF_y}$

$$F_{cr} = Q \left[ 0.658 \left( \frac{QF_y}{F_e} \right) \right] F_y \quad (4.2-3)$$

For members with  $\ell/r > 4.71 \sqrt{E/QF_y}$

$$F_{cr} = 0.877F_e \quad (4.2-4)$$

Where  $F_e$  = Elastic buckling stress determined in accordance with Equation 4.2-5.

$$F_e = \frac{\pi^2 E}{\left( \frac{\ell}{r} \right)^2} \quad (4.2-5)$$

For hot-rolled sections, "Q" is the full reduction factor for slender compression elements.

$$\text{Design Stress} = 0.9F_{cr} \text{ (LRFD)} \quad (4.2-6)$$

$$\text{Allowable Stress} = 0.6F_{cr} \text{ (ASD)} \quad (4.2-7)$$

In the above equations,  $\ell$  is taken as the distance in inches (millimeters) between panel points for the chord mem-

bers and the appropriate length for web members, and  $r$  is the corresponding least radius of gyration of the member or any component thereof.  $E$  is equal to 29,000 ksi (200,000 MPa).

Use  $1.2 \ell/r_x$  for a crimped, first primary compression web member when a moment-resistant weld group is not used for this member; where  $r_x$  = member radius of gyration in the plane of the joist.

For cold-formed sections the method of calculating the nominal column strength is given in the AISI, *North American Specification for the Design of Cold-Formed Steel Structural Members*.

#### (c) Bending: $\phi_b = 0.90$ (LRFD) $\Omega_b = 1.67$ (ASD)

Bending calculations are to be based on using the elastic section modulus.

For chords and web members other than solid rounds:  
 $F_y = 50$  ksi (345 MPa)

$$\text{Design Stress} = 0.9F_y \text{ (LRFD)} \quad (4.2-8)$$

$$\text{Allowable Stress} = 0.6F_y \text{ (ASD)} \quad (4.2-9)$$

For web members of solid round cross section:  
 $F_y = 50$  ksi (345 MPa), or  $F_y = 36$  ksi (250 MPa)

$$\text{Design Stress} = 1.45F_y \text{ (LRFD)} \quad (4.2-10)$$

$$\text{Allowable Stress} = 0.95F_y \text{ (ASD)} \quad (4.2-11)$$

For bearing plates:

$F_y = 50$  ksi (345 MPa), or  $F_y = 36$  ksi (250 MPa)

$$\text{Design Stress} = 1.35F_y \text{ (LRFD)} \quad (4.2-12)$$

$$\text{Allowable Stress} = 0.90F_y \text{ (ASD)} \quad (4.2-13)$$

## 4.3 MAXIMUM SLENDERNESS RATIOS

The slenderness ratio,  $\ell/r$ , where  $\ell$  is as used in Section 4.2 (b) and  $r$  is the corresponding least radius of gyration, shall not exceed the following:

Top chord interior panels	90
Top chord end panels	120
Compression members other than top chord	200
Tension members	240

## 4.4 MEMBERS

### (a) Chords

The bottom chord shall be designed as an axially loaded tension member.

The radius of gyration of the top chord about its vertical axis shall not be less than  $\ell/145$  where  $\ell$  is the spacing in inches (millimeters) between lines of bridging as specified in Section 5.4(c).

The top chord shall be considered as stayed laterally by the floor slab or roof deck when attachments are in accordance with the requirements of Section 5.8(e) of these specifications.



The top chord shall be designed for only axial compressive stress when the panel length,  $\ell$ , does not exceed 24 inches (609 mm). When the panel length exceeds 24 inches (609 mm), the top chord shall be designed as a continuous member subject to combined axial and bending stresses and shall be so proportioned that:

**For LRFD:**

at the panel point:

$$f_{au} + f_{bu} \leq 0.9F_y \quad (4.4-1)$$

at the mid panel: for  $\frac{f_{au}}{\phi_c F_{cr}} \geq 0.2$ ,

$$\frac{f_{au}}{\phi_c F_{cr}} + \frac{8}{9} \left[ \frac{C_m f_{bu}}{1 - \left( \frac{f_{au}}{\phi_c F_e} \right)} \right] Q \phi_b F_y \leq 1.0 \quad (4.4-2)$$

for  $\frac{f_{au}}{\phi_c F_{cr}} < 0.2$ ,

$$\left( \frac{f_{au}}{2\phi_c F_{cr}} \right) + \left[ \frac{C_m f_{bu}}{1 - \left( \frac{f_{au}}{\phi_c F_e} \right)} \right] Q \phi_b F_y \leq 1.0 \quad (4.4-3)$$

$f_{au} = P_u/A =$  Required compressive stress, ksi (MPa)

$P_u =$  Required axial strength using LRFD load combinations, kips (N)

$f_{bu} = M_u/S =$  Required bending stress at the location under consideration, ksi (MPa)

$M_u =$  Required flexural strength using LRFD load combinations, kip-in. (N-mm)

$S =$  Elastic Section Modulus, in.<sup>3</sup> (mm<sup>3</sup>)

$F_{cr} =$  Nominal axial compressive stress in ksi (MPa) based on  $\ell/r$  as defined in Section 4.2(b),

$C_m = 1 - 0.3 f_{au}/\phi F_e$  for end panels

$C_m = 1 - 0.4 f_{au}/\phi F_e$  for interior panels

$F_y =$  Specified minimum yield strength, ksi (MPa)

$F_e = \frac{\pi^2 E}{\left( \frac{\ell}{r_x} \right)^2}$ , ksi (MPa)

Where  $\ell$  is the panel length, in inches (millimeters), as defined in Section 4.2(b) and  $r_x$  is the radius of gyration about the axis of bending.

$Q =$  Form factor defined in Section 4.2(b)

$A =$  Area of the top chord, in.<sup>2</sup> (mm<sup>2</sup>)

**For ASD:**

at the panel point:

$$f_a + f_b \leq 0.6F_y \quad (4.4-4)$$

at the mid panel: for  $\frac{f_a}{F_a} \geq 0.2$ ,

$$\frac{f_a}{F_a} + \frac{8}{9} \left[ \frac{C_m f_b}{1 - \left( \frac{1.67f_a}{F_e} \right)} \right] Q F_b \leq 1.0 \quad (4.4-5)$$

for  $\frac{f_a}{F_a} < 0.2$ ,

$$\left( \frac{f_a}{2F_a} \right) + \left[ \frac{C_m f_b}{1 - \left( \frac{1.67f_a}{F_e} \right)} \right] Q F_b \leq 1.0 \quad (4.4-6)$$

$f_a = P/A =$  Required compressive stress, ksi (MPa)

$P =$  Required axial strength using ASD load combinations, kips (N)

$f_b = M/S =$  Required bending stress at the location under consideration, ksi (MPa)

$M =$  Required flexural strength using ASD load combinations, kip-in. (N-mm)

$S =$  Elastic Section Modulus, in.<sup>3</sup> (mm<sup>3</sup>)

$F_a =$  Allowable axial compressive stress based on  $\ell/r$  as defined in Section 4.2(b), ksi (MPa)

$F_b =$  Allowable bending stress;  $0.6F_y$ , ksi (MPa)

$C_m = 1 - 0.50 f_a/F_e$  for end panels

$C_m = 1 - 0.67 f_a/F_e$  for interior panels

**(b) Web**

The vertical shears to be used in the design of the web members shall be determined from full uniform loading, but such vertical shears shall be not less than 25 percent of the end reaction. Due consideration shall be given to the effect of eccentricity. The effect of combined axial compression and bending may be investigated using the provisions of Section 4.4(a), letting  $C_m = 0.4$  when bending due to eccentricity produces reversed curvature.

Interior vertical web members used in modified Warren type web systems shall be designed to resist the gravity loads supported by the member plus an additional axial load of 1/2 of 1.0 percent of the top chord axial force.

**(c) Extended Ends**

The magnitude and location of the loads to be supported, deflection requirements, and proper bracing of extended



top chords or full depth cantilever ends shall be clearly indicated on the structural drawings.

**4.5 CONNECTIONS**

**(a) Methods**

Joist connections and splices shall be made by attaching the members to one another by arc or resistance welding or other accredited methods.

(1) Welded Connections

- a) Selected welds shall be inspected visually by the manufacturer. Prior to this inspection, weld slag shall be removed.
- b) Cracks are not acceptable and shall be repaired.
- c) Thorough fusion shall exist between weld and base metal for the required design length of the weld; such fusion shall be verified by visual inspection.
- d) Unfilled weld craters shall not be included in the design length of the weld.
- e) Undercut shall not exceed 1/16 inch (2 millimeters) for welds oriented parallel to the principal stress.
- f) The sum of surface (piping) porosity diameters shall not exceed 1/16 inch (2 millimeters) in any 1 inch (25 millimeters) of design weld length.
- g) Weld spatter that does not interfere with paint coverage is acceptable.

(2) Welding Program

Manufacturers shall have a program for establishing weld procedures and operator qualification, and for weld sampling and testing. (See Technical Digest #8 - Welding of Open Web Steel Joists.)

(3) Weld Inspection by Outside Agencies (See Section 5.12 of these specifications)

The agency shall arrange for visual inspection to determine that welds meet the acceptance standards of Section 4.5(a)(1) above. Ultrasonic, X-Ray, and magnetic particle testing are inappropriate for joists due to the configurations of the components and welds.

**(b) Strength**

- (1) Joint Connections - Joint connections shall be capable of withstanding forces due to an ultimate load equal to at least 1.35 times the LRFD, or 2.0 times the ASD load shown in the applicable Standard Load Table.
- (2) Shop Splices – Splices may occur at any point in chord or web members. Members containing a butt weld splice shall develop an ultimate tensile force of at least 57 ksi (393 MPa) times the full design area of the chord or web. The term “member” shall be defined as all component parts comprising the chord or web, at the point of the splice.

**(c) Eccentricity**

Members connected at a joint shall have their centroidal axes meet at a point if practical. Otherwise, due consideration shall be given to the effect of eccentricity. In no case shall eccentricity of any web member at a joint exceed 3/4 of the over-all dimension, measured in the plane of the web, of the largest member connected. The eccentricity of any web member shall be the perpendicular distance from the centroidal axis of that web member to the point on the centroidal axis of the chord which is vertically above or below the intersection of the centroidal axes of the web members forming the joint. Ends of joists shall be proportioned to resist bending produced by eccentricity at the support.

**4.6 CAMBER**

Joists shall have approximate camber in accordance with the following:

**TABLE 4.6-1**

<u>Top Chord Length</u>		<u>Approximate Camber</u>	
20'-0"	(6096 mm)	1/4"	(6 mm)
30'-0"	(9144 mm)	3/8"	(10 mm)
40'-0"	(12192 mm)	5/8"	(16 mm)
50'-0"	(15240 mm)	1"	(25 mm)
60'-0"	(18288 mm)	1 1/2"	(38 mm)

The specifying professional shall give consideration to coordinating joist camber with adjacent framing.

**4.7 VERIFICATION OF DESIGN AND MANUFACTURE**

**(a) Design Calculations**

Companies manufacturing K-Series Joists shall submit design data to the Steel Joist Institute (or an independent agency approved by the Steel Joist Institute) for verification of compliance with the SJI Specifications. Design data shall be submitted in detail and in the format specified by the Institute.

**(b) Tests of Chord and Web Members**

Each manufacturer shall, at the time of design review by the Steel Joist Institute or other independent agency, verify by tests that the design, in accordance with Sections 4.1 through 4.5 of this specification, will provide the theoretical strength of critical members. Such tests shall be evaluated considering the actual yield strength of the members of the test joists.

Material tests for determining mechanical properties of component members shall be conducted.

**(c) Tests of Joints and Connections**

Each manufacturer shall verify by shear tests on representative joints of typical joists that connections will meet the provision of Section 4.5(b). Chord and web members may be reinforced for such tests.



**(d) In-Plant Inspections**

Each manufacturer shall verify their ability to manufacture K-Series Joists through periodic In-Plant Inspections. Inspections shall be performed by an independent agency approved by the Steel Joist Institute. The frequency, manner of inspection, and manner of reporting shall be determined by the Steel Joist Institute. The plant inspections are not a guarantee of the quality of any specific joists; this responsibility lies fully and solely with the individual manufacturer.

## SECTION 5. APPLICATION

**5.1 USAGE**

These specifications shall apply to any type of structure where floors and roofs are to be supported directly by steel joists installed as hereinafter specified. Where joists are used other than on simple spans under uniformly distributed loading as prescribed in Section 4.1, they shall be investigated and modified if necessary to limit the required stresses to those listed in Section 4.2.

**CAUTION:** If a rigid connection of the bottom chord is to be made to the column or other support, it shall be made only after the application of the dead loads. The joist is then no longer simply supported, and the system must be investigated for continuous frame action by the specifying professional.

The designed detail of a rigid type connection and moment plates shall be shown on the structural drawings by the specifying professional. The moment plates shall be furnished by other than the joist manufacturer.

**5.2 SPAN**

The span of a joist shall not exceed 24 times its depth.

**5.3 END SUPPORTS****(a) Masonry and Concrete**

K-Series Joists supported by masonry or concrete are to bear on steel bearing plates and shall be designed as steel bearing. Due consideration of the end reactions and all other vertical or lateral forces shall be taken by the specifying professional in the design of the steel bearing plate and the masonry or concrete. The ends of K-Series Joists shall extend a distance of not less than 4 inches (102 millimeters) over the masonry or concrete support and be anchored to the steel bearing plate. The plate shall be located not more than 1/2 inch (13 millimeters) from the face of the wall and shall be not less than 6 inches (152 millimeters) wide perpendicular to the length of the joist. The plate is to be designed by the specifying professional and shall be furnished by other than the joist manufacturer.

Where it is deemed necessary to bear less than 4 inches (102 millimeters) over the masonry or concrete support, special consideration is to be given to the design of the

steel bearing plate and the masonry or concrete by the specifying professional. The joists must bear a minimum of 2 1/2 inches (64 millimeters) on the steel bearing plate.

**(b) Steel**

Due consideration of the end reactions and all other vertical and lateral forces shall be taken by the specifying professional in the design of the steel support. The ends of K-Series Joists shall extend a distance of not less than 2 1/2 inches (64 millimeters) over the steel supports.

**5.4 BRIDGING**

Top and bottom chord bridging is required and shall consist of one or both of the following types.

**(a) Horizontal**

Horizontal bridging shall consist of continuous horizontal steel members. Attachments to the joist chords shall be made by welding or mechanical means and shall be capable of resisting a nominal (unfactored) horizontal force of not less than 700 pounds (3114 Newtons).

The ratio of unbraced length to least radius of gyration,  $\ell/r$ , of the bridging member shall not exceed 300, where  $\ell$  is the distance in inches (millimeters) between attachments and  $r$  is the least radius of gyration of the bridging member.

**(b) Diagonal**

Diagonal bridging shall consist of cross-bracing with a  $\ell/r$  ratio of not more than 200, where  $\ell$  is the distance in inches (millimeters) between connections and  $r$  is the least radius of gyration of the bracing member. Where cross-bracing members are connected at their point of intersection, the  $\ell$  distance shall be taken as the distance in inches (millimeters) between connections at the point of intersection of the bracing members and the connections to the chord of the joists. Connections to the chords of steel joists shall be made by positive mechanical means or by welding.

**(c) Quantity and Spacing**

The number of rows of top chord bridging shall not be less than as shown in Bridging Tables 5.4-1 and 5.4-2 and the spacing shall meet the requirements of Section 4.4(a). The number of rows of bottom chord bridging, including bridging required per Section 5.11, shall not be less than the number of top chord rows. Rows of bottom chord bridging are permitted to be spaced independently of rows of top chord bridging. The spacing of rows of bottom chord bridging shall meet the slenderness requirement of Section 4.3 and any specified strength requirements.

**(d) Bottom Chord Bearing Joists**

Where bottom chord bearing joists are utilized, a row of diagonal bridging shall be provided near the support(s). This bridging shall be installed and anchored before the hoisting cable(s) is released.



**TABLE 5.4-1**

U. S. UNITS					
<b>NUMBER OF ROWS OF TOP CHORD BRIDGING**</b>					
Refer to the <b>K-Series</b> Load Table and Specification Section 6 for required bolted diagonal bridging. Distances are Joist Span lengths in feet - See "Definition of Span" preceding Load Table.					
*Section Number	One Row	Two Rows	Three Rows	Four Rows	Five Rows
#1	Up thru 16	Over 16 thru 24	Over 24 thru 28		
#2	Up thru 17	Over 17 thru 25	Over 25 thru 32		
#3	Up thru 18	Over 18 thru 28	Over 28 thru 38	Over 38 thru 48	
#5	Up thru 19	Over 19 thru 29	Over 29 thru 39	Over 39 thru 50	Over 50 thru 52
#6	Up thru 19	Over 19 thru 29	Over 29 thru 39	Over 39 thru 51	Over 51 thru 56
#7	Up thru 20	Over 20 thru 33	Over 33 thru 45	Over 45 thru 58	Over 58 thru 60
#8	Up thru 20	Over 20 thru 33	Over 33 thru 45	Over 45 thru 58	Over 58 thru 60
#9	Up thru 20	Over 20 thru 33	Over 33 thru 46	Over 46 thru 59	Over 59 thru 60
#10	Up thru 20	Over 20 thru 37	Over 37 thru 51	Over 51 thru 60	
#11	Up thru 20	Over 20 thru 38	Over 38 thru 53	Over 53 thru 60	
#12	Up thru 20	Over 20 thru 39	Over 39 thru 53	Over 53 thru 60	

\* Last digit(s) of joist designation shown in Load Table

\*\* See Section 5.11 for additional bridging required for uplift design.

**TABLE 5.4-2**

METRIC UNITS					
<b>NUMBER OF ROWS OF TOP CHORD BRIDGING**</b>					
Refer to the <b>K-Series</b> Metric Load Table and Specification Section 6 for required bolted diagonal bridging. Distances are Joist Span lengths in millimeters - See "Definition of Span" preceding Load Table.					
*Section Number	One Row	Two Rows	Three Rows	Four Rows	Five Rows
#1	up thru 4877	Over 4877 thru 7315	Over 7315 thru 8534		
#2	up thru 5182	Over 5182 thru 7620	Over 7620 thru 9754		
#3	up thru 5486	Over 5486 thru 8534	Over 8534 thru 11582	Over 11582 thru 12192	
#4	up thru 5791	Over 5791 thru 8534	Over 8534 thru 11582	Over 11582 thru 14630	
#5	up thru 5791	Over 5791 thru 8839	Over 8839 thru 11887	Over 11887 thru 15240	Over 15240 thru 15850
#6	up thru 5791	Over 5791 thru 8839	Over 8839 thru 11887	Over 11887 thru 15545	Over 15545 thru 17069
#7	up thru 6096	Over 6096 thru 10058	Over 10058 thru 13716	Over 13716 thru 17678	Over 17678 thru 18288
#8	up thru 6096	Over 6096 thru 10058	Over 10058 thru 13716	Over 13716 thru 17678	Over 17678 thru 18288
#9	up thru 6096	Over 6096 thru 10058	Over 10058 thru 14021	Over 14021 thru 17983	Over 17983 thru 18288
#10	up thru 6096	Over 6096 thru 11278	Over 11278 thru 15545	Over 15545 thru 18288	
#11	up thru 6096	Over 6096 thru 11582	Over 11582 thru 16154	Over 16154 thru 18288	
#12	up thru 6096	Over 6096 thru 11887	Over 11887 thru 16154	Over 16154 thru 18288	

\* Last digit(s) of joist designation shown in Load Table

\*\* See Section 5.11 for additional bridging required for uplift design.



## 5.5 INSTALLATION OF BRIDGING

Bridging shall support the top and bottom chords against lateral movement during the construction period and shall hold the steel joists in the approximate position as shown on the joist placement plans.

The ends of all bridging lines terminating at walls or beams shall be anchored thereto.

## 5.6 END ANCHORAGE

### (a) Masonry and Concrete

Ends of K-Series Joists resting on steel bearing plates on masonry or structural concrete shall be attached thereto with a minimum of two 1/8 inch (3 millimeters) fillet welds 1 inch (25 millimeters) long, or with two 1/2 inch (13 millimeters) ASTM A307 bolts, or the equivalent.

### (b) Steel

Ends of K-Series Joists resting on steel supports shall be attached thereto with a minimum of two 1/8 inch (3 millimeters) fillet welds 1 inch (25 millimeters) long, or with two 1/2 inch (13 millimeters) ASTM A307 bolts, or the equivalent. When K-Series Joists are used to provide lateral stability to the supporting member, the final connection shall be made by welding or as designated by the specifying professional.

### (c) Uplift

Where uplift forces are a design consideration, roof joists shall be anchored to resist such forces (Refer to Section 5.11 Uplift).

## 5.7 JOIST SPACING

Joists shall be spaced so that the loading on each joist does not exceed the design load (LRFD or ASD) for the particular joist designation and span as shown in the applicable load tables.

## 5.8 FLOOR AND ROOF DECKS

### (a) Material

Floor and roof decks may consist of cast-in-place or precast concrete or gypsum, formed steel, wood, or other suitable material capable of supporting the required load at the specified joist spacing.

### (b) Thickness

Cast-in-place slabs shall be not less than 2 inches (51 millimeters) thick.

### (c) Centering

Centering for cast-in-place slabs may be ribbed metal lath, corrugated steel sheets, paper-backed welded wire fabric, removable centering or any other suitable material capable of supporting the slab at the designated joist spacing. Centering shall not cause lateral displacement or damage to the top chord of joists during installation or removal of the centering or placing of the concrete.

### (d) Bearing

Slabs or decks shall bear uniformly along the top chords of the joists.

### (e) Attachments

The spacing for slab or deck attachments along the joist top chord shall not exceed 36 inches (914 millimeters), and shall be capable of resisting a nominal (unfactored) lateral force of not less than 300 pounds (1335 Newtons), i.e., 100 plf (1.46 kN/m).

### (f) Wood Nailers

Where wood nailers are used, such nailers in conjunction with deck or slab shall be attached to the top chords of the joists in conformance with Section 5.8(e).

### (g) Joist With Standing Seam Roofing

The stiffness and strength of standing-seam roof clips varies from one manufacturer to another. Therefore, some roof systems cannot be counted on to provide lateral stability to the joists which support the roof. Sufficient stability must be provided to brace the joists laterally under the full design load. The compression chord must resist the chord axial design force in the plane of the joist (i.e., x-x axis buckling) and out of the plane of the joist (i.e., y-y axis buckling). Out-of-plane strength may be achieved by adjusting the bridging spacing and/or increasing the compression chord area, the joist depth, and the y-axis radius of gyration. The effective slenderness ratio in the y-direction equals  $0.94 L/r_y$ ; where L is the bridging spacing in inches (millimeters). The maximum bridging spacing may not exceed that specified in Section 5.4(c).

Horizontal bridging members attached to the compression chords and their anchorage's must be designed for a compressive axial force of  $0.0025nP$ , where n is the number of joists between end anchors and P is the chord design force in kips (Newtons). The attachment force between the horizontal bridging member and the compression chord is  $0.005P$ . Horizontal bridging attached to the tension chords shall be proportioned so that the slenderness ratio between attachments does not exceed 300. Diagonal bridging shall be proportioned so that the slenderness ratio between attachments does not exceed 200.



### 5.9 DEFLECTION

The deflection due to the design nominal live load shall not exceed the following:

**Floors:** 1/360 of span.

**Roofs:** 1/360 of span where a plaster ceiling is attached or suspended.  
1/240 of span for all other cases.

The specifying professional shall give consideration to the effects of deflection and vibration\* in the selection of joists.

- \* For further reference, refer to Steel Joist Institute Technical Digest #5, "Vibration of Steel Joist-Concrete Slab Floors" and the Institute's Computer Vibration Program.

### 5.10 PONDING\*

The ponding investigation shall be performed by the specifying professional.

- \* For further reference, refer to Steel Joist Institute Technical Digest #3, "Structural Design of Steel Joist Roofs to Resist Ponding Loads" and AISC Specifications.

### 5.11 UPLIFT

Where uplift forces due to wind are a design requirement, these forces must be indicated on the contract drawings in terms of NET uplift in pounds per square foot (Pascals). The contract documents shall indicate if the net uplift is based upon LRFD or ASD. When these forces are specified, they must be considered in the design of joists and/or bridging. A single line of **bottom chord** bridging must be provided near the first bottom chord panel points whenever uplift due to wind forces is a design consideration.\*

- \* For further reference, refer to Steel Joist Institute Technical Digest #6, "Structural Design of Steel Joist Roofs to Resist Uplift Loads".

### 5.12 INSPECTION

Joists shall be inspected by the manufacturer before shipment to verify compliance of materials and workmanship with the requirements of these specifications. If the purchaser wishes an inspection of the steel joists by someone other than the manufacturer's own inspectors, they may reserve the right to do so in their "Invitation to Bid" or the accompanying "Job Specifications".

Arrangements shall be made with the manufacturer for such inspection of the joists at the manufacturing shop by the purchaser's inspectors at purchaser's expense.

### 5.13 PARALLEL CHORD SLOPED JOISTS

The span of a parallel chord sloped joist shall be defined by the length along the slope. Minimum depth, load-carrying capacity, and bridging requirements shall be determined by the sloped definition of span. The Standard Load Table capacity shall be the component normal to the joist.

## SECTION 6.\*

# ERECTION STABILITY AND HANDLING

When it is necessary for the erector to climb on the joists, extreme caution must be exercised since unbridged joists may exhibit some degree of instability under the erector's weight.

### (a) Stability Requirements

- 1) Before an employee is allowed on the steel joist: BOTH ends of joists at columns (or joists designated as column joists) shall be attached to its supports. For all other joists a minimum of one end shall be attached before the employee is allowed on the joist. The attachment shall be in accordance with Section 5.6 – End Anchorage.

When a bolted seat connection is used for erection purposes, as a minimum, the bolts must be snug tightened. The snug tight condition is defined as the tightness that exists when all plies of a joint are in firm contact. This may be attained by a few impacts of an impact wrench or the full effort of an employee using an ordinary spud wrench.

- 2) On steel joists that do not require erection bridging as shown by the unshaded area of the Load Tables, only one employee shall be allowed on the steel joist unless all bridging is installed and anchored.

\* For a thorough coverage of this topic, refer to SJI Technical Digest #9, "Handling and Erection of Steel Joists and Joist Girders".

- 3) Where the span of the steel joist is within the Red shaded area of the Load Table, the following shall apply:
  - a) The row of bridging nearest the mid span of the steel joists shall be bolted diagonal erection bridging; and
  - b) Hoisting cables shall not be released until this bolted diagonal erection bridging is installed and anchored, unless an alternate method of stabilizing the joist has been provided; and
  - c) No more than one employee shall be allowed on these spans until all other bridging is installed and anchored.
- 4) When permanent bridging terminus points cannot be used during erection, additional temporary bridging terminus points are required to provide stability.
- 5) In the case of bottom chord bearing joists, the ends of the joist must be restrained laterally per Section 5.4(d).
- 6) After the joist is straightened and plumbed, and all bridging is completely installed and anchored, the ends of the joists shall be fully connected to the supports in accordance with Section 5.6 End Anchorage.



**(b) Landing and Placing Loads**

- 1) Except as stated in paragraphs 6(b)(3) and 6(b)(4) of this section, no “construction loads”<sup>(1)</sup> are allowed on the steel joists until all bridging is installed and anchored, and all joist bearing ends are attached.
- 2) During the construction period, loads placed on the steel joists shall be distributed so as not to exceed the capacity of the steel joists.
- 3) The weight of a bundle of joist bridging shall not exceed a total of 1000 pounds (454 kilograms). The bundle of joist bridging shall be placed on a minimum of 3 steel joists that are secured at one end. The edge of the bridging bundle shall be positioned within 1 foot (0.30 m) of the secured end.

(1) See Appendix E for definition of “construction load”. A copy of the OSHA Steel Erection Standard §1926.757, Open Web Steel Joists, is included in Appendix E for reference purposes.

- 4) No bundle of deck may be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless the following conditions are met:
  - a) The contractor has first determined from a “*qualified person*”<sup>(2)</sup> and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load;
  - b) The bundle of decking is placed on a minimum of 3 steel joists;
  - c) The joists supporting the bundle of decking are attached at both ends;
  - d) At least one row of bridging is installed and anchored;
  - e) The total weight of the decking does not exceed 4000 pounds (1816 kilograms); and
  - f) The edge of the decking shall be placed within 1 foot (0.30 meters) of the bearing surface of the joist end.
  - g) The edge of the construction load shall be placed within 1 foot (0.30 meters) of the bearing surface of the joist end.

**(c) Field Welding**

- 1) All field welding shall be performed in accordance with the contract documents. Field welding shall not damage the joists.
- 2) On cold-formed members whose yield strength has been attained by cold working, and whose as-formed strength is used in the design, the total length of weld at any one point shall not exceed 50 percent of the overall developed width of the cold-formed section.

**(d) Handling**

Care shall be exercised at all times to avoid damage to the joists and accessories.

**(e) Fall Arrest Systems**

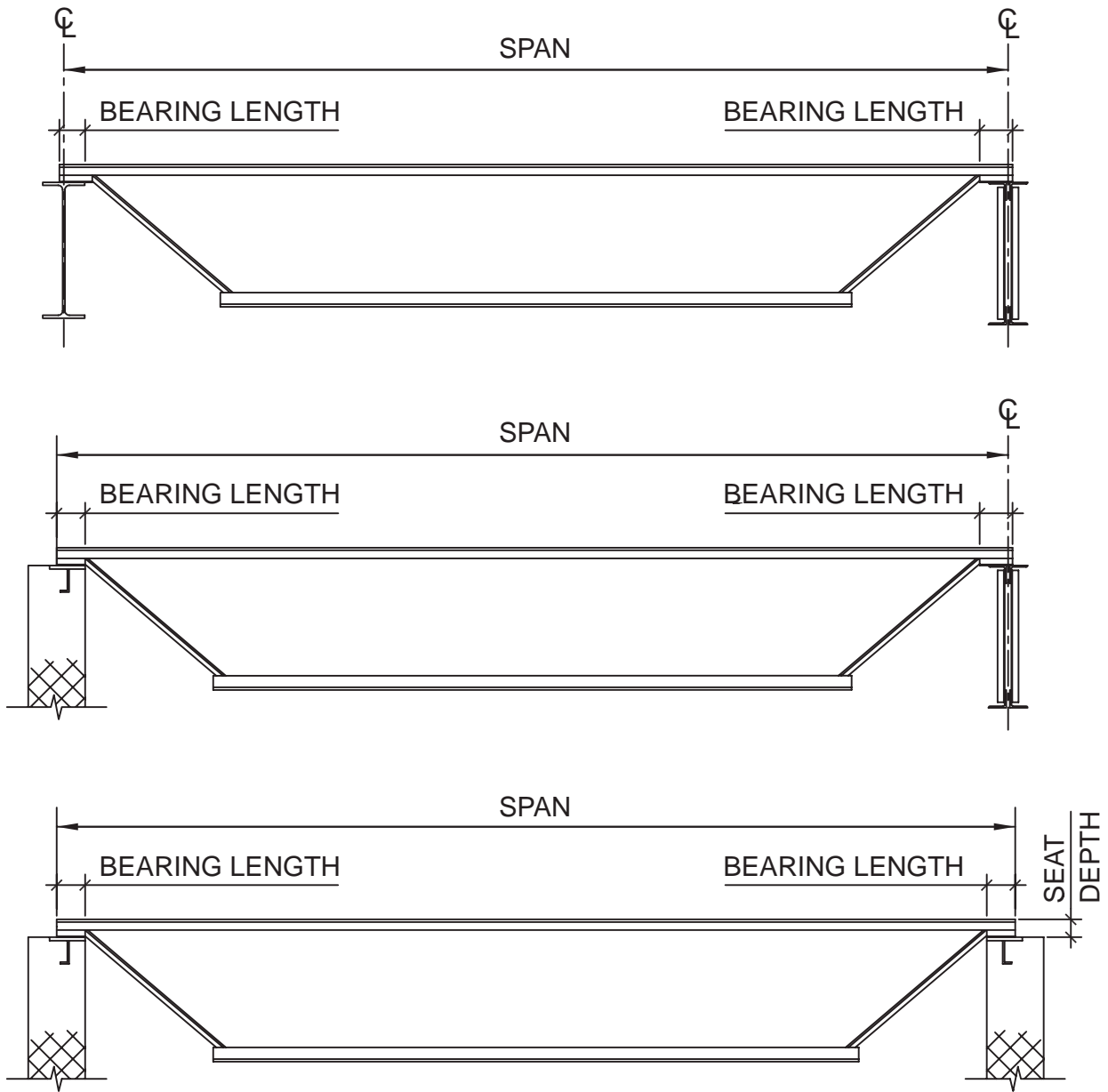
Steel joists shall not be used as anchorage points for a fall arrest system unless written direction to do so is obtained from a “*qualified person*”<sup>(2)</sup>.

(2) See Appendix E for OSHA definition of “qualified person”.



## DEFINITION OF SPAN

(U. S. Customary Units)



- NOTES:**
- 1) DESIGN LENGTH = SPAN - 0.33 FT.
  - 2) BEARING LENGTH FOR STEEL SUPPORTS SHALL NOT BE LESS THAN 2 1/2 INCHES; FOR MASONRY AND CONCRETE NOT LESS THAN 4 INCHES.
  - 3) PARALLEL CHORD JOISTS INSTALLED TO A SLOPE GREATER THAN 1/2 INCH PER FOOT SHALL USE SPAN DEFINED BY THE LENGTH ALONG THE SLOPE.



# STANDARD LRFD LOAD TABLE

## OPEN WEB STEEL JOISTS, K-SERIES

Based on a 50 ksi Maximum Yield Strength  
 Adopted by the Steel Joist Institute May 1, 2000  
 Revised to November 10, 2003 – Effective March 01, 2005

The black figures in the following table give the TOTAL safe factored uniformly distributed load-carrying capacities, in pounds per linear foot, of **LRFD K-Series** Steel Joists. The weight of factored DEAD loads, including the joists, must be deducted to determine the factored LIVE load-carrying capacities of the joists. Sloped parallel-chord joists shall use span as defined by the length along the slope.

The figures shown in **RED** in this load table are the unfactored nominal LIVE loads per linear foot of joist which will produce an approximate deflection of 1/360 of the span. LIVE loads which will produce a deflection of 1/240 of the span may be obtained by multiplying the figures in **RED** by 1.5. In no case shall the TOTAL load capacity of the joists be exceeded.

The approximate joist weights per linear foot shown in these tables do not include accessories.

The approximate moment of inertia of the joist, in inches<sup>4</sup> is;

$$I_j = 26.767(W_{LL})(L^3)(10^{-6}), \text{ where } W_{LL} = \text{RED figure in the Load Table and } L = (\text{Span} - 0.33) \text{ in feet.}$$

For the proper handling of concentrated and/or varying loads, see Section 6.1 in the Code of Standard Practice for Steel Joists and Joist Girders.

**Where the joist span exceeds the unshaded area** of the Load Table, the row of bridging nearest the mid span shall be diagonal bridging with bolted connections at the chords and intersections.

# LRFD

STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES  
 Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	8K1	10K1	12K1	12K3	12K5	14K1	14K3	14K4	14K6	16K2	16K3	16K4	16K5	16K6	16K7	16K9
Depth (in.)	8	10	12	12	12	14	14	14	14	16	16	16	16	16	16	16
Approx. Wt (lbs./ft.)	5.1	5.0	5.0	5.7	7.1	5.2	6.0	6.7	7.7	5.5	6.3	7.0	7.5	8.1	8.6	10.0
Span (ft.)																
8	825 550															
9	825 550															
10	825 480	825 550														
11	798 377	825 542														
12	666 288	825 455	825 550	825 550	825 550											
13	565 225	718 363	825 510	825 510	825 510											
14	486 179	618 289	750 425	825 463	825 463	825 550	825 550	825 550	825 550							
15	421 145	537 234	651 344	814 428	825 434	766 475	825 507	825 507	825 507							
16	369 119	469 192	570 282	714 351	825 396	672 390	825 467	825 467	825 467	825 550	825 550	825 550	825 550	825 550	825 550	825 550
17		415 159	504 234	630 291	825 366	592 324	742 404	825 443	825 443	768 488	825 526	825 526	825 526	825 526	825 526	825 526
18		369 134	448 197	561 245	760 317	528 272	661 339	795 397	825 408	684 409	762 456	825 490	825 490	825 490	825 490	825 490
19		331 113	402 167	502 207	681 269	472 230	592 287	712 336	825 383	612 347	682 386	820 452	825 455	825 455	825 455	825 455
20		298 97	361 142	453 177	613 230	426 197	534 246	642 287	787 347	552 297	615 330	739 386	825 426	825 426	825 426	825 426
21			327 123	409 153	555 198	385 170	483 212	582 248	712 299	499 255	556 285	670 333	754 373	822 405	825 406	825 406
22			298 106	373 132	505 172	351 147	439 184	529 215	648 259	454 222	505 247	609 289	687 323	747 351	825 385	825 385
23			271 93	340 116	462 150	321 128	402 160	483 188	592 226	415 194	462 216	556 252	627 282	682 307	760 339	825 363
24			249 81	312 101	423 132	294 113	367 141	442 165	543 199	381 170	424 189	510 221	576 248	627 269	697 298	825 346
25						270 100	339 124	408 145	501 175	351 150	390 167	469 195	529 219	576 238	642 263	771 311
26						249 88	313 110	376 129	462 156	324 133	360 148	433 173	489 194	532 211	592 233	711 276
27						231 79	289 98	349 115	427 139	300 119	334 132	402 155	453 173	493 188	549 208	658 246
28						214 70	270 88	324 103	397 124	279 106	310 118	373 138	421 155	459 168	510 186	612 220
29										259 95	289 106	348 124	391 139	427 151	475 167	570 198
30										241 86	270 96	324 112	366 126	399 137	444 151	532 178
31										226 78	252 87	304 101	342 114	373 124	415 137	498 161
32										213 71	237 79	285 92	321 103	349 112	388 124	466 147



# LRFD

**STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
**Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)**

Joist Designation	18K3	18K4	18K5	18K6	18K7	18K9	18K10	20K3	20K4	20K5	20K6	20K7	20K9	20K10	22K4	22K5	22K6	22K7	22K9	22K10	22K11
Depth (In.)	18	18	18	18	18	18	18	20	20	20	20	20	20	20	22	22	22	22	22	22	22
Approx. Wt. (lbs./ft.)	6.6	7.2	7.7	8.5	9	10.2	11.7	6.7	7.6	8.2	8.9	9.3	10.8	12.2	8	8.8	9.2	9.7	11.3	12.6	13.8
Span (ft.)																					
↓																					
18	825 550	825 550	825 550	825 550	825 550	825 550	825 550														
19	771 494	825 523	825 523	825 523	825 523	825 523	825 523														
20	694 423	825 490	825 490	825 490	825 490	825 490	825 490	775 517	825 550	825 550	825 550	825 550	825 550	825 550							
21	630 364	759 426	825 460	825 460	825 460	825 460	825 460	702 453	825 520	825 520	825 520	825 520	825 520	825 520							
22	573 316	690 370	777 414	825 438	825 438	825 438	825 438	639 393	771 461	825 490	825 490	825 490	825 490	825 490	825 548	825 548	825 548	825 548	825 548	825 548	825 548
23	523 276	630 323	709 362	774 393	825 418	825 418	825 418	583 344	703 402	793 451	825 468	825 468	825 468	825 468	777 491	825 518	825 518	825 518	825 518	825 518	825 518
24	480 242	577 284	651 318	709 345	789 382	825 396	825 396	535 302	645 353	727 396	792 430	825 448	825 448	825 448	712 431	804 483	825 495	825 495	825 495	825 495	825 495
25	441 214	532 250	600 281	652 305	727 337	825 377	825 377	493 266	594 312	669 350	729 380	811 421	825 426	825 426	657 381	739 427	805 464	825 474	825 474	825 474	825 474
26	408 190	492 222	553 249	603 271	672 299	807 354	825 361	456 236	549 277	618 310	673 337	750 373	825 405	825 405	606 338	682 379	744 411	825 454	825 454	825 454	825 454
27	378 169	454 198	513 222	558 241	622 267	747 315	825 347	421 211	508 247	573 277	624 301	694 333	825 389	825 389	561 301	633 337	688 367	768 406	825 432	825 432	825 432
28	351 151	423 177	477 199	519 216	577 239	694 282	822 331	391 189	472 221	532 248	579 269	645 298	775 353	825 375	522 270	588 302	640 328	712 364	825 413	825 413	825 413
29	327 136	394 159	444 179	483 194	538 215	646 254	766 298	364 170	439 199	495 223	540 242	601 268	723 317	825 359	486 242	547 272	597 295	664 327	798 387	825 399	825 399
30	304 123	367 144	414 161	451 175	502 194	603 229	715 269	370 153	411 179	462 201	504 218	561 242	675 286	799 336	453 219	511 245	556 266	619 295	745 349	825 385	825 385
31	285 111	343 130	387 146	421 158	469 175	564 207	669 243	318 138	384 162	433 182	471 198	525 219	631 259	748 304	424 198	478 222	520 241	580 267	697 316	825 369	825 369
32	267 101	322 118	363 132	396 144	441 159	529 188	627 221	298 126	360 147	406 165	442 179	492 199	592 235	702 276	397 180	448 201	489 219	544 242	654 287	775 337	823 355
33	252 92	303 108	342 121	372 131	414 145	498 171	589 201	280 114	339 134	381 150	415 163	463 181	556 214	660 251	373 164	421 183	459 199	511 221	615 261	729 307	798 334
34	237 84	285 98	321 110	349 120	390 132	468 156	555 184	264 105	318 122	358 137	391 149	435 165	523 195	621 229	352 149	397 167	448 182	481 202	579 239	687 280	774 314
35	223 77	268 90	303 101	330 110	367 121	441 143	523 168	249 96	300 112	339 126	369 137	411 151	493 179	585 210	331 137	373 153	408 167	454 185	546 219	648 257	741 292
36	211 70	253 82	286 92	312 101	348 111	417 132	495 154	235 88	283 103	319 115	348 125	388 139	466 164	553 193	313 126	354 141	385 153	429 169	516 201	612 236	700 269
37								222 81	268 95	303 106	330 115	367 128	441 151	523 178	297 116	334 130	364 141	406 156	487 185	579 217	663 247
38								211 74	255 87	286 98	312 106	348 118	418 139	496 164	280 107	316 119	345 130	384 144	462 170	549 200	628 228
39								199 69	241 81	271 90	297 98	330 109	397 129	471 151	267 98	300 110	327 120	364 133	438 157	520 185	595 211
40								190 64	229 75	258 84	282 91	313 101	376 119	447 140	253 91	285 102	310 111	346 123	417 146	495 171	565 195
41															241 85	271 95	295 103	330 114	396 135	471 159	538 181
42															229 79	259 88	282 96	313 106	378 126	448 148	513 168
43															219 73	247 82	268 89	300 99	360 117	427 138	489 157
44															208 68	235 76	256 83	286 92	343 109	408 128	466 146



# LRFD

**STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	24K4	24K5	24K6	24K7	24K8	24K9	24K10	24K12	26K5	26K6	26K7	26K8	26K9	26K10	26K12
Depth (In.)	24	24	24	24	24	24	24	24	26	26	26	26	26	26	26
Approx. Wt. (lbs./ft.)	8.4	9.3	9.7	10.1	11.5	12.0	13.1	16.0	9.8	10.6	10.9	12.1	12.2	13.8	16.6
Span (ft.) ↓															
24	780 516	825 544	825 544	825 544	825 544	825 544	825 544	825 544							
25	718 456	810 511	825 520	825 520	825 520	825 520	825 520	825 520							
26	663 405	748 453	814 493	825 499	825 499	825 499	825 499	825 499	813 535	825 541	825 541	825 541	825 541	825 541	825 541
27	615 361	693 404	754 439	825 479	825 479	825 479	825 479	825 479	753 477	820 519	825 522	825 522	825 522	825 522	825 522
28	571 323	643 362	700 393	781 436	825 456	825 456	825 456	825 456	699 427	762 464	825 501	825 501	825 501	825 501	825 501
29	531 290	600 325	652 354	727 392	804 429	825 436	825 436	825 436	651 384	709 417	790 463	825 479	825 479	825 479	825 479
30	496 262	559 293	609 319	679 353	750 387	816 419	825 422	825 422	607 346	661 377	738 417	816 457	825 459	825 459	825 459
31	465 237	523 266	570 289	636 320	702 350	765 379	825 410	825 410	568 314	619 341	690 378	763 413	825 444	825 444	825 444
32	435 215	490 241	535 262	595 290	658 318	717 344	823 393	823 393	534 285	580 309	648 343	715 375	778 407	823 431	823 431
33	409 196	462 220	502 239	559 265	619 289	673 313	798 368	798 368	501 259	546 282	609 312	672 342	732 370	798 404	798 404
34	385 179	435 201	472 218	526 242	582 264	634 286	753 337	774 344	472 237	514 257	573 285	633 312	688 338	774 378	774 378
35	363 164	409 184	445 200	496 221	549 242	598 262	709 308	751 324	445 217	484 236	540 261	597 286	649 310	751 356	751 356
36	343 150	387 169	421 183	469 203	519 222	565 241	670 283	730 306	420 199	457 216	510 240	564 263	613 284	729 334	730 334
37	324 138	366 155	399 169	444 187	490 205	534 222	634 260	711 290	397 183	433 199	483 221	534 242	580 262	690 308	711 315
38	307 128	346 143	378 156	421 172	465 189	507 204	601 240	691 275	376 169	411 184	457 204	505 223	550 241	654 284	691 299
39	292 118	328 132	358 144	399 159	441 174	480 189	570 222	673 261	357 156	390 170	433 188	480 206	522 223	619 262	673 283
40	277 109	312 122	340 133	379 148	420 161	456 175	541 206	657 247	340 145	370 157	412 174	456 191	496 207	589 243	657 269
41	264 101	297 114	324 124	361 137	399 150	435 162	516 191	640 235	322 134	352 146	393 162	433 177	472 192	561 225	640 256
42	252 94	283 106	309 115	343 127	379 139	414 151	490 177	625 224	307 125	336 136	373 150	412 164	450 178	534 210	625 244
43	240 88	270 98	294 107	328 118	363 130	394 140	468 165	609 213	294 116	319 126	357 140	394 153	429 166	508 195	610 232
44	229 82	258 92	280 100	313 110	346 121	376 131	447 154	580 199	280 108	306 118	340 131	376 143	409 155	486 182	597 222
45	219 76	246 86	268 93	298 103	330 113	360 122	427 144	555 185	268 101	291 110	325 122	360 133	391 145	465 170	583 212
46	208 71	235 80	256 87	286 97	316 106	345 114	408 135	531 174	256 95	279 103	310 114	343 125	375 135	444 159	570 203
47	199 67	225 75	246 82	274 90	303 99	330 107	391 126	508 163	246 89	267 96	298 107	328 117	358 127	426 149	553 192
48	192 63	216 70	235 77	262 85	291 93	316 101	375 118	487 153	235 83	256 90	285 100	315 110	343 119	408 140	529 180
49									225 78	246 85	274 94	303 103	330 112	391 131	508 169
50									216 73	235 80	262 89	291 97	316 105	375 124	487 159
51									208 69	226 75	252 83	279 91	304 99	361 116	469 150
52									199 65	217 71	243 79	268 86	292 93	346 110	451 142



# LRFD

**STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	28K6	28K7	28K8	28K9	28K10	28K12	30K7	30K8	30K9	30K10	30K11	30K12
Depth (In.)	28	28	28	28	28	28	30	30	30	30	30	30
Approx. Wt. (lbs./ft.)	11.4	11.8	12.7	13.0	14.3	17.1	12.3	13.2	13.4	15.0	16.4	17.6
Span (ft.) ↓												
28	822 541	825 543	825 543	825 543	825 543	825 543						
29	766 486	825 522	825 522	825 522	825 522	825 522						
30	715 439	796 486	825 500	825 500	825 500	825 500	825 543	825 543	825 543	825 543	825 543	825 543
31	669 397	745 440	825 480	825 480	825 480	825 480	801 508	825 520	825 520	825 520	825 520	825 520
32	627 361	699 400	772 438	823 463	823 463	823 463	751 461	823 500	823 500	823 500	823 500	823 500
33	589 329	657 364	726 399	790 432	798 435	798 435	706 420	780 460	798 468	798 468	798 468	798 468
34	555 300	618 333	684 364	744 395	774 410	774 410	664 384	735 420	774 441	774 441	774 441	774 441
35	523 275	583 305	645 333	702 361	751 389	751 389	627 351	693 384	751 415	751 415	751 415	751 415
36	495 252	550 280	609 306	663 332	730 366	730 366	592 323	654 353	712 383	730 392	730 392	730 392
37	468 232	522 257	576 282	627 305	711 344	711 344	559 297	619 325	673 352	711 374	711 374	711 374
38	444 214	493 237	546 260	594 282	691 325	691 325	531 274	586 300	639 325	691 353	691 353	691 353
39	420 198	469 219	519 240	564 260	670 306	673 308	504 253	556 277	606 300	673 333	673 333	673 333
40	399 183	445 203	492 222	535 241	636 284	657 291	478 234	529 256	576 278	657 315	657 315	657 315
41	379 170	424 189	468 206	510 224	606 263	640 277	454 217	502 238	547 258	640 300	640 300	640 300
42	361 158	403 175	445 192	486 208	576 245	625 264	433 202	480 221	522 240	619 282	625 284	625 284
43	345 147	385 163	426 179	463 194	550 228	610 252	414 188	457 206	498 223	591 263	610 270	610 270
44	330 137	367 152	406 167	442 181	525 212	597 240	394 176	436 192	475 208	564 245	597 258	597 258
45	315 128	351 142	388 156	423 169	501 198	583 229	376 164	417 179	454 195	538 229	583 246	583 246
46	301 120	336 133	372 146	405 158	480 186	570 219	361 153	399 168	435 182	516 214	570 236	570 236
47	288 112	321 125	355 136	387 148	459 174	558 210	345 144	382 157	415 171	493 201	558 226	558 226
48	276 105	309 117	340 128	370 139	441 163	547 201	331 135	366 148	399 160	472 188	543 215	547 216
49	265 99	295 110	327 120	355 130	423 153	535 193	318 127	351 139	382 150	454 177	520 202	535 207
50	255 93	283 103	313 113	342 123	405 144	525 185	304 119	337 130	367 141	436 166	499 190	525 199
51	244 88	273 97	301 106	328 115	390 136	507 175	292 112	324 123	352 133	418 157	480 179	514 192
52	235 83	262 92	289 100	315 109	375 128	487 165	282 106	312 116	339 126	402 148	462 169	504 184
53	226 78	252 87	279 95	304 103	360 121	469 156	271 100	300 109	327 119	387 140	444 159	495 177
54	217 74	243 82	268 89	292 97	348 114	451 147	261 94	288 103	313 112	373 132	427 150	486 170
55	210 70	234 77	259 85	282 92	334 108	435 139	252 89	277 98	303 106	360 125	412 142	468 161
56	202 66	226 73	249 80	271 87	322 102	420 132	243 84	268 92	292 100	346 118	397 135	451 153
57							234 80	259 88	282 95	334 112	384 128	435 145
58							226 76	250 83	271 90	322 106	370 121	420 137
59							219 72	241 79	262 86	312 101	358 115	406 130
60							211 69	234 75	253 81	301 96	346 109	393 124



# STANDARD ASD LOAD TABLE

## OPEN WEB STEEL JOISTS, K-SERIES

Based on a 50 ksi Maximum Yield Strength  
 Adopted by the Steel Joist Institute November 4, 1985  
 Revised to November 10, 2003 - Effective March 01, 2005

The black figures in the following table give the TOTAL safe uniformly distributed load-carrying capacities, in pounds per linear foot, of **ASD K-Series** Steel Joists. The weight of DEAD loads, including the joists, must be deducted to determine the LIVE load-carrying capacities of the joists. Sloped parallel-chord joists shall use span as defined by the length along the slope.

The figures shown in **RED** in this load table are the nominal LIVE loads per linear foot of joist which will produce an approximate deflection of 1/360 of the span. LIVE loads which will produce a deflection of 1/240 of the span may be obtained by multiplying the figures in **RED** by 1.5. In no case shall the TOTAL load capacity of the joists be exceeded.

The approximate joist weights per linear foot shown in these tables do not include accessories.

The approximate moment of inertia of the joist, in inches<sup>4</sup> is;

$$I_j = 26.767(W_{LL})(L^3)(10^{-6}), \text{ where } W_{LL} = \text{RED figure in the Load Table and } L = (\text{Span} - 0.33) \text{ in feet.}$$

For the proper handling of concentrated and/or varying loads, see Section 6.1 in the Code of Standard Practice for Steel Joists and Joist Girders.

**Where the joist span exceeds the unshaded area** of the Load Table, the row of bridging nearest the mid span shall be diagonal bridging with bolted connections at the chords and intersections.

# ASD

STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES  
 Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	8K1	10K1	12K1	12K3	12K5	14K1	14K3	14K4	14K6	16K2	16K3	16K4	16K5	16K6	16K7	16K9
Depth (in.)	8	10	12	12	12	14	14	14	14	16	16	16	16	16	16	16
Approx. Wt (lbs./ft.)	5.1	5.0	5.0	5.7	7.1	5.2	6.0	6.7	7.7	5.5	6.3	7.0	7.5	8.1	8.6	10.0
Span (ft.)																
8	550 550															
9	550 550															
10	550 480	550 550														
11	532 377	550 542														
12	444 288	550 455	550 550	550 550	550 550											
13	377 225	479 363	550 510	550 510	550 510											
14	324 179	412 289	500 425	550 463	550 463	550 550	550 550	550 550	550 550							
15	281 145	358 234	434 344	543 428	550 434	511 475	550 507	550 507	550 507							
16	246 119	313 192	380 282	476 351	550 396	448 390	550 467	550 467	550 467	550 550	550 550	550 550	550 550	550 550	550 550	550 550
17		277 159	336 234	420 291	550 366	395 324	495 404	550 443	550 443	512 488	550 526	550 526	550 526	550 526	550 526	550 526
18		246 134	299 197	374 245	507 317	352 272	441 339	530 397	550 408	456 409	508 456	550 490	550 490	550 490	550 490	550 490
19		221 113	268 167	335 207	454 269	315 230	395 287	475 336	550 383	408 347	455 386	547 452	550 455	550 455	550 455	550 455
20		199 97	241 142	302 177	409 230	284 197	356 246	428 287	525 347	368 297	410 330	493 386	550 426	550 426	550 426	550 426
21			218 123	273 153	370 198	257 170	322 212	388 248	475 299	333 255	371 285	447 333	503 373	548 405	550 406	550 406
22			199 106	249 132	337 172	234 147	293 184	353 215	432 259	303 222	337 247	406 289	458 323	498 351	550 385	550 385
23			181 93	227 116	308 150	214 128	268 160	322 188	395 226	277 194	308 216	371 252	418 282	455 307	507 339	550 363
24			166 81	208 101	282 132	196 113	245 141	295 165	362 199	254 170	283 189	340 221	384 248	418 269	465 298	550 346
25						180 100	226 124	272 145	334 175	234 150	260 167	313 195	353 219	384 238	428 263	514 311
26						166 88	209 110	251 129	308 156	216 133	240 148	289 173	326 194	355 211	395 233	474 276
27						154 79	193 98	233 115	285 139	200 119	223 132	268 155	302 173	329 188	366 208	439 246
28						143 70	180 88	216 103	265 124	186 106	207 118	249 138	281 155	306 168	340 186	408 220
29										173 95	193 106	232 124	261 139	285 151	317 167	380 198
30										161 86	180 96	216 112	244 126	266 137	296 151	355 178
31										151 78	168 87	203 101	228 114	249 124	277 137	332 161
32										142 71	158 79	190 92	214 103	233 112	259 124	311 147





**STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
**Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)**

Joist Designation	18K3	18K4	18K5	18K6	18K7	18K9	18K10	20K3	20K4	20K5	20K6	20K7	20K9	20K10	22K4	22K5	22K6	22K7	22K9	22K10	22K11
Depth (In.)	18	18	18	18	18	18	18	20	20	20	20	20	20	20	22	22	22	22	22	22	22
Approx. Wt. (lbs./ft.)	6.6	7.2	7.7	8.5	9	10.2	11.7	6.7	7.6	8.2	8.9	9.3	10.8	12.2	8	8.8	9.2	9.7	11.3	12.6	13.8
Span (ft.)																					
18	550 550	550 550	550 550	550 550	550 550	550 550	550 550														
19	514 494	550 523	550 523	550 523	550 523	550 523	550 523														
20	463 423	550 490	550 490	550 490	550 490	550 490	550 490	517 517	550 550	550 550	550 550	550 550	550 550	550 550							
21	420 364	506 426	550 460	550 460	550 460	550 460	550 460	468 453	550 520	550 520	550 520	550 520	550 520	550 520							
22	382 316	460 370	518 414	550 438	550 438	550 438	550 438	426 393	514 461	550 490	550 490	550 490	550 490	550 490	550 548	550 548	550 548	550 548	550 548	550 548	550 548
23	349 276	420 323	473 362	516 393	550 418	550 418	550 418	389 344	469 402	529 451	550 468	550 468	550 468	550 468	518 491	550 518	550 518	550 518	550 518	550 518	550 518
24	320 242	385 284	434 318	473 345	526 382	550 396	550 396	357 302	430 353	485 396	528 430	550 448	550 448	550 448	475 431	536 483	550 495	550 495	550 495	550 495	550 495
25	294 214	355 250	400 281	435 305	485 337	550 377	550 377	329 266	396 312	446 350	486 380	541 421	550 426	550 426	438 381	493 427	537 464	550 474	550 474	550 474	550 474
26	272 190	328 222	369 249	402 271	448 299	538 354	550 361	304 236	366 277	412 310	449 337	500 373	550 405	550 405	404 338	455 379	496 411	550 454	550 454	550 454	550 454
27	252 169	303 198	342 222	372 241	415 267	498 315	550 347	281 211	339 247	382 277	416 301	463 333	550 389	550 389	374 301	422 337	459 367	512 406	550 432	550 432	550 432
28	234 151	282 177	318 199	346 216	385 239	463 282	548 331	261 189	315 221	355 248	386 269	430 298	517 353	550 375	348 270	392 302	427 328	475 364	550 413	550 413	550 413
29	218 136	263 159	296 179	322 194	359 215	431 254	511 298	243 170	293 199	330 230	360 242	401 268	482 317	550 359	324 242	365 272	398 295	443 327	532 387	550 399	550 399
30	203 123	245 144	276 161	301 175	335 194	402 229	477 269	227 153	274 179	308 201	336 218	374 242	450 286	533 336	302 219	341 245	371 266	413 295	497 349	550 385	550 385
31	190 111	229 130	258 146	281 158	313 175	376 207	446 243	212 138	256 162	289 182	314 198	350 219	421 259	499 304	283 198	319 222	347 241	387 267	465 316	550 369	550 369
32	178 101	215 118	242 132	264 144	294 159	353 188	418 221	199 126	240 147	271 165	295 179	328 199	395 235	468 276	265 180	299 201	326 219	363 242	436 287	517 337	549 355
33	168 92	202 108	228 121	248 131	276 145	332 171	393 201	187 114	226 134	254 150	277 163	309 181	371 214	440 251	249 164	281 183	306 199	341 222	410 261	486 307	532 334
34	158 84	190 98	214 110	233 120	260 132	312 156	370 184	176 105	212 122	239 137	261 149	290 165	349 195	414 229	235 149	265 167	288 182	321 202	386 239	458 280	516 314
35	149 77	179 90	202 101	220 110	245 121	294 143	349 168	166 96	200 112	226 126	246 137	274 151	329 179	390 210	221 137	249 153	272 167	303 185	364 219	432 257	494 292
36	141 70	169 82	191 92	208 101	232 111	278 132	330 154	157 88	189 103	213 115	232 125	259 139	311 164	369 193	209 126	236 141	257 153	286 169	344 201	408 236	467 269
37								148 81	179 95	202 106	220 115	245 128	294 151	349 178	198 116	223 130	243 141	271 156	325 185	386 217	442 247
38								141 74	170 87	191 98	208 106	232 118	279 139	331 164	187 107	211 119	230 130	256 144	308 170	366 200	419 228
39								133 69	161 81	181 90	198 98	220 109	265 129	314 151	178 98	200 110	218 120	243 133	292 157	347 185	397 211
40								127 64	153 75	172 84	188 91	209 101	251 119	298 140	169 91	190 102	207 111	231 123	278 146	330 171	377 195
41															161 85	181 95	197 103	220 114	264 135	314 159	359 181
42															153 79	173 88	188 96	209 106	252 126	299 148	342 168
43															146 73	165 82	179 89	200 99	240 117	285 138	326 157
44															139 68	157 76	171 83	191 92	229 109	272 128	311 146



# ASD

**STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	24K4	24K5	24K6	24K7	24K8	24K9	24K10	24K12	26K5	26K6	26K7	26K8	26K9	26K10	26K12
Depth (In.)	24	24	24	24	24	24	24	24	26	26	26	26	26	26	26
Approx. Wt. (lbs./ft.)	8.4	9.3	9.7	10.1	11.5	12.0	13.1	16.0	9.8	10.6	10.9	12.1	12.2	13.8	16.6
Span (ft.)															
↓															
24	520 516	550 544	550 544	550 544	550 544	550 544	550 544	550 544							
25	479 456	540 511	550 520	550 520	550 520	550 520	550 520	550 520							
26	442 405	499 453	543 493	550 499	550 499	550 499	550 499	550 499	542 535	550 541	550 541	550 541	550 541	550 541	550 541
27	410 361	462 404	503 439	550 479	550 479	550 479	550 479	550 479	502 477	547 519	550 522	550 522	550 522	550 522	550 522
28	381 323	429 362	467 393	521 436	550 456	550 456	550 456	550 456	466 427	508 464	550 501	550 501	550 501	550 501	550 501
29	354 290	400 325	435 354	485 392	536 429	550 436	550 436	550 436	434 384	473 417	527 463	550 479	550 479	550 479	550 479
30	331 262	373 293	406 319	453 353	500 387	544 419	550 422	550 422	405 346	441 377	492 417	544 457	550 459	550 459	550 459
31	310 237	349 266	380 289	424 320	468 350	510 379	550 410	550 410	379 314	413 341	460 378	509 413	550 444	550 444	550 444
32	290 215	327 241	357 262	397 290	439 318	478 344	549 393	549 393	356 285	387 309	432 343	477 375	519 407	549 431	549 431
33	273 196	308 220	335 239	373 265	413 289	449 313	532 368	532 368	334 259	364 282	406 312	448 342	488 370	532 404	532 404
34	257 179	290 201	315 218	351 242	388 264	423 286	502 337	516 344	315 237	343 257	382 285	422 312	459 338	516 378	516 378
35	242 164	273 184	297 200	331 221	366 242	399 262	473 308	501 324	297 217	323 236	360 261	398 286	433 310	501 356	501 356
36	229 150	258 169	281 183	313 203	346 222	377 241	447 283	487 306	280 199	305 216	340 240	376 263	409 284	486 334	487 334
37	216 138	244 155	266 169	296 187	327 205	356 222	423 260	474 290	265 183	289 199	322 221	356 242	387 262	460 308	474 315
38	205 128	231 143	252 156	281 172	310 189	338 204	401 240	461 275	251 169	274 184	305 204	337 223	367 241	436 284	461 299
39	195 118	219 132	239 144	266 159	294 174	320 189	380 222	449 261	238 156	260 170	289 188	320 206	348 223	413 262	449 283
40	185 109	208 122	227 133	253 148	280 161	304 175	361 206	438 247	227 145	247 157	275 174	304 191	331 207	393 243	438 269
41	176 101	198 114	216 124	241 137	266 150	290 162	344 191	427 235	215 134	235 146	262 162	289 177	315 192	374 225	427 256
42	168 94	189 106	206 115	229 127	253 139	276 151	327 177	417 224	205 125	224 136	249 150	275 164	300 178	356 210	417 244
43	160 88	180 98	196 107	219 118	242 130	263 140	312 165	406 213	196 116	213 126	238 140	263 153	286 166	339 195	407 232
44	153 82	172 92	187 100	209 110	231 121	251 131	298 154	387 199	187 108	204 118	227 131	251 143	273 155	324 182	398 222
45	146 76	164 86	179 93	199 103	220 113	240 122	285 144	370 185	179 101	194 110	217 122	240 133	261 145	310 170	389 212
46	139 71	157 80	171 87	191 97	211 106	230 114	272 135	354 174	171 95	186 103	207 114	229 125	250 135	296 159	380 203
47	133 67	150 75	164 82	183 90	202 99	220 107	261 126	339 163	164 89	178 96	199 107	219 117	239 127	284 149	369 192
48	128 63	144 70	157 77	175 85	194 93	211 101	250 118	325 153	157 83	171 90	190 100	210 110	229 119	272 140	353 180
49									150 78	164 85	183 94	202 103	220 112	261 131	339 169
50									144 73	157 80	175 89	194 97	211 105	250 124	325 159
51									139 69	151 75	168 83	186 91	203 99	241 116	313 150
52									133 65	145 71	162 79	179 86	195 93	231 110	301 142



# ASD

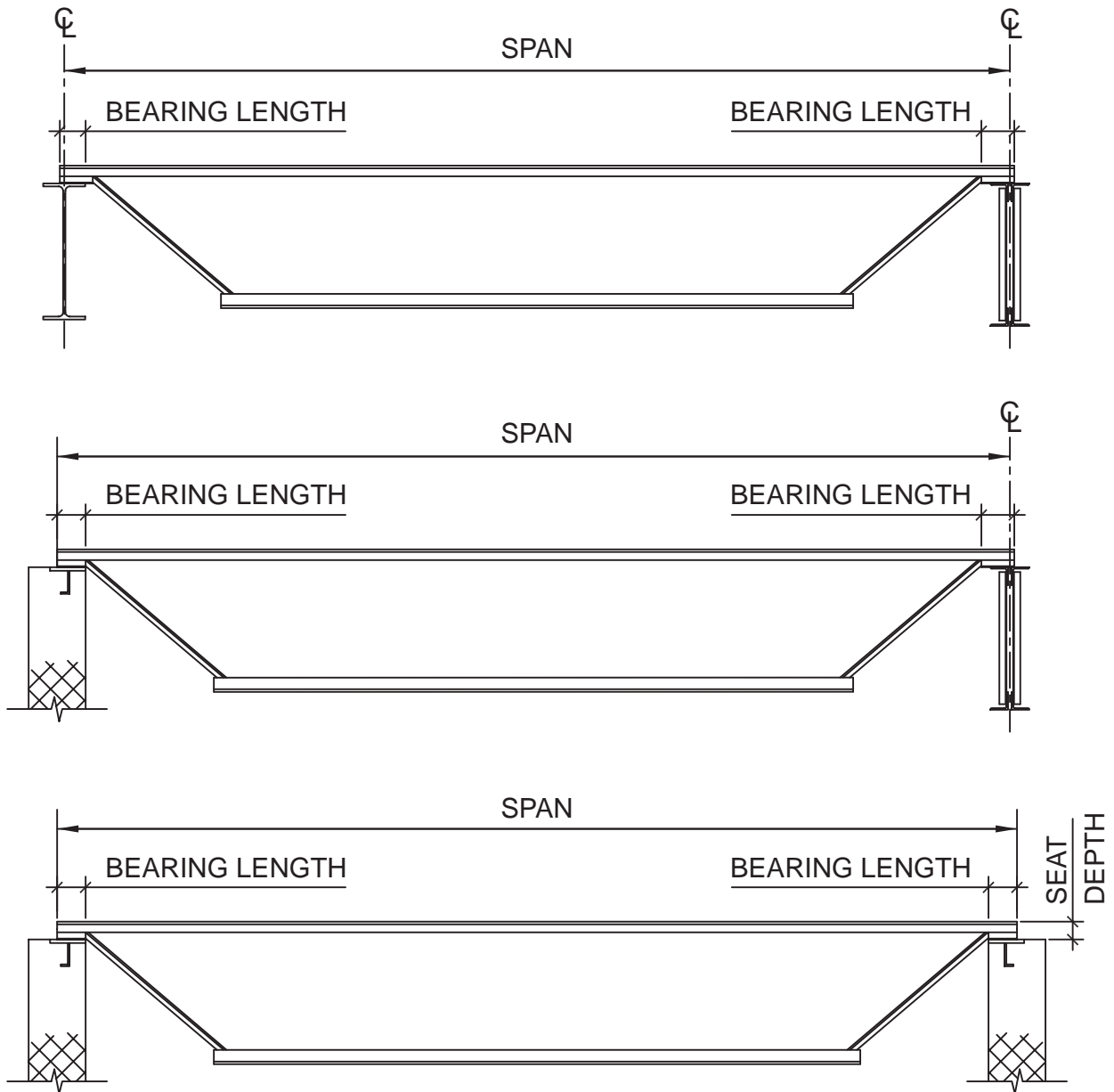
## STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES Based on a 50 ksi Maximum Yield Strength - Loads Shown in Pounds per Linear Foot (plf)

Joist Designation	28K6	28K7	28K8	28K9	28K10	28K12	30K7	30K8	30K9	30K10	30K11	30K12
Depth (In.)	28	28	28	28	28	28	30	30	30	30	30	30
Approx. Wt. (lbs./ft.)	11.4	11.8	12.7	13.0	14.3	17.1	12.3	13.2	13.4	15.0	16.4	17.6
Span (ft.)												
↓												
28	548 541	550 543	550 543	550 543	550 543	550 543						
29	511 486	550 522	550 522	550 522	550 522	550 522						
30	477 439	531 486	550 500	550 500	550 500	550 500	550 543	550 543	550 543	550 543	550 543	550 543
31	446 397	497 440	550 480	550 480	550 480	550 480	534 508	550 520	550 520	550 520	550 520	550 520
32	418 361	466 400	515 438	549 463	549 463	549 463	501 461	549 500	549 500	549 500	549 500	549 500
33	393 329	438 364	484 399	527 432	532 435	532 435	471 420	520 460	532 468	532 468	532 468	532 468
34	370 300	412 333	456 364	496 395	516 410	516 410	443 384	490 420	516 441	516 441	516 441	516 441
35	349 275	389 305	430 333	468 361	501 389	501 389	418 351	462 384	501 415	501 415	501 415	501 415
36	330 252	367 280	406 306	442 332	487 366	487 366	395 323	436 353	475 383	487 392	487 392	487 392
37	312 232	348 257	384 282	418 305	474 344	474 344	373 297	413 325	449 352	474 374	474 374	474 374
38	296 214	329 237	364 260	396 282	461 325	461 325	354 274	391 300	426 325	461 353	461 353	461 353
39	280 198	313 219	346 240	376 260	447 306	449 308	336 253	371 277	404 300	449 333	449 333	449 333
40	266 183	297 203	328 222	357 241	424 284	438 291	319 234	353 256	384 278	438 315	438 315	438 315
41	253 170	283 189	312 206	340 224	404 263	427 277	303 217	335 238	365 258	427 300	427 300	427 300
42	241 158	269 175	297 192	324 208	384 245	417 264	289 202	320 221	348 240	413 282	417 284	417 284
43	230 147	257 163	284 179	309 194	367 228	407 252	276 188	305 206	332 223	394 263	407 270	407 270
44	220 137	245 152	271 167	295 181	350 212	398 240	263 176	291 192	317 208	376 245	398 258	398 258
45	210 128	234 142	259 156	282 169	334 198	389 229	251 164	278 179	303 195	359 229	389 246	389 246
46	201 120	224 133	248 146	270 158	320 186	380 219	241 153	266 168	290 182	344 214	380 236	380 236
47	192 112	214 125	237 136	258 148	306 174	372 210	230 144	255 157	277 171	329 201	372 226	372 226
48	184 105	206 117	227 128	247 139	294 163	365 201	221 135	244 148	266 160	315 188	362 215	365 216
49	177 99	197 110	218 120	237 130	282 153	357 193	212 127	234 139	255 150	303 177	347 202	357 207
50	170 93	189 103	209 113	228 123	270 144	350 185	203 119	225 130	245 141	291 166	333 190	350 199
51	163 88	182 97	201 106	219 115	260 136	338 175	195 112	216 123	235 133	279 157	320 179	343 192
52	157 83	175 92	193 100	210 109	250 128	325 165	188 106	208 116	226 126	268 148	308 169	336 184
53	151 78	168 87	186 95	203 103	240 121	313 156	181 100	200 109	218 119	258 140	296 159	330 177
54	145 74	162 82	179 89	195 97	232 114	301 147	174 94	192 103	209 112	249 132	285 150	324 170
55	140 70	156 77	173 85	188 92	223 108	290 139	168 89	185 98	202 106	240 125	275 142	312 161
56	135 66	151 73	166 80	181 87	215 102	280 132	162 84	179 92	195 100	231 118	265 135	301 153
57							156 80	173 88	188 95	223 112	256 128	290 145
58							151 76	167 83	181 90	215 106	247 121	280 137
59							146 72	161 79	175 86	208 101	239 115	271 130
60							141 69	156 75	169 81	201 96	231 109	262 124



## DEFINITION OF SPAN

(Metric Units)



- NOTES:**
- 1) DESIGN LENGTH = SPAN - 102 mm.
  - 2) BEARING LENGTH FOR STEEL SUPPORTS SHALL NOT BE LESS THAN 64 mm; FOR MASONRY AND CONCRETE NOT LESS THAN 102 mm.
  - 3) PARALLEL CHORD JOISTS INSTALLED TO A SLOPE GREATER THAN 1:24 SHALL USE SPAN DEFINED BY THE LENGTH ALONG THE SLOPE.



# METRIC LRFD LOAD TABLE

## OPEN WEB STEEL JOISTS, K-SERIES

Based on a Maximum 345 MPa Yield Strength  
 Adopted by the Steel Joist Institute May 1, 2000  
 Revised to November 10, 2003 - Effective March 01, 2005

The black figures in the following table give the TOTAL safe factored uniformly distributed load-carrying capacities, in kiloNewtons per meter (kN/m) of **LRFD K-Series** Steel Joists. The weight (kN/m) of the factored DEAD loads, including the joists, must be deducted to determine the factored LIVE load-carrying capacities of the joists. Sloped parallel-chord joists shall use span as defined by the length along the slope.

The figures shown **RED** in this load table are the unfactored nominal LIVE loads per linear meter of joist which will produce an approximate deflection of L/360 of the span. LIVE loads which produce a deflection of L/240 of the span may be obtained by multiplying the figures in **RED** by 1.5. In no case shall the TOTAL load capacity of the joists be exceeded.

The approximate joist weights, in kiloNewtons per meter (kN/m), shown in these tables do not include accessories.

The approximate moment of inertia of the joist, in mm<sup>4</sup>, is:

$$I_j = 2.6953(W_{LL})(L^3)(10^{-5}), \text{ where } W_{LL} = \text{RED figure in the load table:}$$

$$L = (\text{span} - 102) \text{ in millimeters.}$$

For the proper handling of concentrated and/or varying loads, see Section 6.1 in the Code of Standard Practice for Steel Joists and Joist Girders.

**Where the joist span exceeds the unshaded area** of the Load Table, the row of bridging nearest the mid span shall be diagonal bridging with bolted connections at the chords and intersections.

# LRFD

METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS K-SERIES  
 Based on a Maximum 345 MPa Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)

Joist Designation	8K1	10K1	12K1	12K3	12K5	14K1	14K3	14K4	14K6	16K2	16K3	16K4	16K5	16K6	16K7	16K9
Depth (mm)	203	254	305	305	305	356	356	356	356	406	406	406	406	406	406	406
Approx. Mass (kg/m)	7.6	7.4	7.4	8.5	10.6	7.7	8.9	10.0	11.5	8.2	9.4	10.4	11.2	12.1	12.8	14.9
Approx. Mass (kN/m)	0.07	0.07	0.07	0.08	0.10	0.08	0.09	0.10	0.11	0.08	0.09	0.10	0.11	0.12	0.13	0.15
Span (mm)																
2438	12.03 8.02															
2743	12.03 8.02															
3048	12.03 7.00	12.03 8.02														
3353	11.64 5.50	12.03 7.90														
3658	9.71 4.20	12.03 6.64	12.03 8.02	12.03 8.02	12.03 8.02											
3962	8.25 3.28	10.48 5.29	12.03 7.44	12.03 7.44	12.03 7.44											
4267	7.09 2.61	9.01 4.21	10.94 6.20	12.03 6.75	12.03 6.75	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02							
4572	6.15 2.11	7.83 3.41	9.50 5.02	11.88 6.24	12.03 6.33	11.18 6.93	12.03 7.39	12.03 7.39	12.03 7.39							
4877	5.38 1.73	6.85 2.80	8.31 4.11	10.42 5.12	12.03 5.77	9.80 5.69	12.03 6.81	12.03 6.81	12.03 6.81	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02
5182		6.06 2.32	7.35 3.41	9.19 4.24	12.03 5.34	8.64 4.72	10.83 5.89	12.03 6.46	12.03 6.46	11.20 7.12	12.03 7.67	12.03 7.67	12.03 7.67	12.03 7.67	12.03 7.67	12.03 7.67
5486		5.38 1.95	6.54 2.87	8.18 3.57	11.09 4.62	7.70 3.96	9.65 4.94	11.60 5.79	12.03 5.95	9.98 5.96	11.12 6.65	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15
5791		4.83 1.64	5.86 2.43	7.33 3.02	9.93 3.92	6.89 3.35	8.64 4.18	10.39 4.90	12.03 5.58	8.93 5.06	9.96 5.63	11.97 6.59	12.03 6.64	12.03 6.64	12.03 6.64	12.03 6.64
6096		4.35 1.41	5.27 2.07	6.61 2.58	8.95 3.35	6.21 2.87	7.79 3.59	9.36 4.18	11.49 5.06	8.05 4.33	8.97 4.81	10.79 5.63	12.03 6.21	12.03 6.21	12.03 6.21	12.03 6.21
6401			4.77 1.79	5.97 2.23	8.09 2.88	5.62 2.48	7.04 3.09	8.49 3.61	10.39 4.36	7.28 3.72	8.12 4.15	9.78 4.85	11.01 5.44	11.99 5.91	12.03 5.92	12.03 5.92
6706			4.35 1.54	5.45 1.92	7.37 2.51	5.12 2.14	6.41 2.68	7.72 3.13	9.45 3.77	6.63 3.23	7.37 3.60	8.88 4.21	10.02 4.71	10.90 5.12	12.03 5.61	12.03 5.61
7010			3.96 1.35	4.96 1.69	6.74 2.18	4.68 1.86	5.86 2.33	7.04 2.74	8.64 3.29	6.06 2.83	6.74 3.15	8.12 3.67	9.15 4.11	9.96 4.48	11.09 4.94	12.03 5.29
7315			3.63 1.18	4.55 1.47	6.17 1.92	4.29 1.64	5.36 2.05	6.45 2.40	7.92 2.90	5.56 2.48	6.19 2.75	7.44 3.22	8.40 3.61	9.15 3.92	10.17 4.34	12.03 5.04
7620						3.94 1.45	4.94 1.80	5.95 2.11	7.31 2.55	5.12 2.18	5.69 2.43	6.85 2.84	7.72 3.19	8.40 3.47	9.36 3.83	11.25 4.53
7925						3.63 1.28	4.57 1.60	5.49 1.88	6.74 2.27	4.72 1.94	5.25 2.15	6.32 2.52	7.13 2.83	7.77 3.07	8.64 3.40	10.37 4.02
8230						3.37 1.15	4.22 1.43	5.10 1.67	6.23 2.02	4.37 1.73	4.88 1.92	5.86 2.26	6.61 2.52	7.20 2.74	8.01 3.03	9.61 3.59
8534						3.13 1.02	3.94 1.28	4.72 1.50	5.80 1.80	4.07 1.54	4.53 1.72	5.45 2.01	6.15 2.26	6.69 2.45	7.44 2.71	8.93 3.21
8839										3.78 1.38	4.22 1.54	5.07 1.80	5.71 2.02	6.23 2.20	6.93 2.43	8.31 2.88
9144										3.52 1.25	3.94 1.40	4.72 1.63	5.34 1.83	5.82 1.99	6.47 2.20	7.77 2.59
9449										3.30 1.13	3.67 1.26	4.44 1.47	4.99 1.66	5.45 1.80	6.06 1.99	7.26 2.34
9754										3.10 1.03	3.45 1.15	4.15 1.34	4.68 1.50	5.10 1.63	5.66 1.80	6.80 2.14



# LRFD

**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
**Based on a Maximum 345 MPa Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)**

Joist Designation	18K3	18K4	18K5	18K6	18K7	18K9	18K10	20K3	20K4	20K5	20K6	20K7	20K9	20K10	22K4	22K5	22K6	22K7	22K9	22K10	22K11
Depth(mm)	457	457	457	457	457	457	457	508	508	508	508	508	508	508	559	559	559	559	559	559	559
Approx. Mass (kg/m)	9.8	10.7	11.5	12.6	13.4	15.2	17.4	10.0	11.3	12.2	13.2	13.8	16.1	18.2	11.9	13.1	13.7	14.4	16.8	18.8	20.5
Approx. Mass (kN/m)	0.10	0.11	0.11	0.12	0.13	0.15	0.17	0.10	0.11	0.12	0.13	0.14	0.16	0.18	0.12	0.13	0.13	0.14	0.16	0.18	0.20
Span (mm)																					
↓																					
5486	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02														
5791	11.25 7.20	12.03 7.63	12.03 7.63	12.03 7.63	12.03 7.63	12.03 7.63	12.03 7.63														
6096	10.13 6.17	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	11.31 7.54	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02	12.03 8.02							
6401	9.19 5.31	11.07 6.21	12.03 6.71	12.03 6.71	12.03 6.71	12.03 6.71	12.03 6.71	10.24 6.61	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58							
6706	8.36 4.61	10.06 5.39	11.33 6.04	12.03 6.39	12.03 6.39	12.03 6.39	12.03 6.39	9.32 5.73	11.25 6.72	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.15	12.03 7.99	12.03 7.99	12.03 7.99	12.03 7.99	12.03 7.99	12.03 7.99	12.03 7.99
7010	7.63 4.02	9.19 4.71	10.35 5.28	11.29 5.73	12.03 6.10	12.03 6.10	12.03 6.10	8.51 5.02	10.26 5.86	11.58 6.58	12.03 6.82	12.03 6.82	12.03 6.82	12.03 6.82	11.33 7.16	12.03 7.55	12.03 7.55	12.03 7.55	12.03 7.55	12.03 7.55	12.03 7.55
7315	7.00 3.53	8.42 4.14	9.50 4.64	10.35 5.03	11.51 5.57	12.03 5.77	12.03 5.77	7.81 4.40	9.41 5.15	10.61 5.77	11.55 6.27	12.03 6.53	12.03 6.53	12.03 6.53	10.39 6.28	11.73 7.04	12.03 7.22	12.03 7.22	12.03 7.22	12.03 7.22	12.03 7.22
7620	6.43 3.12	7.77 3.64	8.75 4.10	9.52 4.45	10.61 4.91	12.03 5.50	12.03 5.50	7.20 3.88	8.66 4.55	9.76 5.10	10.63 5.54	11.84 6.14	12.03 6.21	12.03 6.21	9.58 5.56	10.79 6.23	11.75 6.77	12.03 6.91	12.03 6.91	12.03 6.91	12.03 6.91
7925	5.95 2.77	7.18 3.23	8.07 3.63	8.80 3.95	9.80 4.36	11.77 5.16	12.03 5.26	6.65 3.44	8.01 4.04	9.01 4.52	9.82 4.91	10.94 5.44	12.03 5.91	12.03 5.91	8.84 4.93	9.96 5.53	10.85 5.99	12.03 6.62	12.03 6.62	12.03 6.62	12.03 6.62
8230	5.51 2.46	6.63 2.88	7.48 3.23	8.14 3.51	9.08 3.89	10.90 4.59	12.03 5.06	6.15 3.07	7.42 3.60	8.36 4.04	9.10 4.39	10.13 4.85	12.03 5.67	12.03 5.67	8.18 4.39	9.23 4.91	10.04 5.35	11.20 5.92	12.03 6.30	12.03 6.30	12.03 6.30
8534	5.12 2.20	6.17 2.58	6.96 2.90	7.57 3.15	8.42 3.48	10.13 4.11	11.99 4.83	5.71 2.75	6.89 3.22	7.77 3.61	8.44 3.92	9.41 4.34	11.31 5.15	12.03 5.47	7.61 3.94	8.58 4.40	9.34 4.78	10.39 5.31	12.03 6.02	12.03 6.02	12.03 6.02
8839	4.77 1.98	5.75 2.32	6.47 2.61	7.04 2.83	7.85 3.13	9.43 3.70	11.18 4.34	5.31 2.48	6.41 2.90	7.22 3.25	7.88 3.53	8.77 3.91	10.55 4.62	12.03 5.23	7.09 3.53	7.99 3.96	8.71 4.30	9.69 4.77	11.64 5.64	12.03 5.82	12.03 5.82
9144	4.44 1.79	5.36 2.10	6.04 2.34	6.58 2.55	7.33 2.83	8.80 3.34	10.44 3.92	4.96 2.23	5.99 2.61	6.74 2.93	7.35 3.18	8.18 3.53	9.85 4.17	11.66 4.90	6.61 3.19	7.46 3.57	8.12 3.88	9.04 4.30	10.87 5.09	12.03 5.61	12.03 5.61
9449	4.15 1.61	5.01 1.89	5.64 2.13	6.15 2.30	6.85 2.55	8.23 3.02	9.76 3.54	4.64 2.01	5.60 2.36	6.32 2.65	6.87 2.88	7.66 3.19	9.21 3.77	10.92 4.43	6.19 2.88	6.98 3.23	7.59 3.51	8.47 3.89	10.17 4.61	12.03 5.38	12.03 5.38
9754	3.89 1.47	4.70 1.72	5.29 1.92	5.77 2.10	6.43 2.32	7.72 2.74	9.15 3.22	4.35 1.83	5.25 2.14	5.93 2.40	6.45 2.61	7.18 2.90	8.64 3.42	10.24 4.02	5.80 2.62	6.54 2.93	7.13 3.19	7.94 3.53	9.54 4.18	11.31 4.91	12.01 5.18
10058	3.67 1.34	4.42 1.57	4.99 1.76	5.42 1.91	6.04 2.11	7.26 2.49	8.60 2.93	4.09 1.66	4.94 1.95	5.56 2.18	6.06 2.37	6.76 2.64	8.12 3.12	9.63 3.66	5.45 2.39	6.15 2.67	6.69 2.90	7.46 3.22	8.97 3.80	10.63 4.48	11.64 4.87
10363	3.45 1.22	4.15 1.43	4.68 1.60	5.10 1.75	5.69 1.92	6.82 2.27	8.09 2.68	3.85 1.53	4.64 1.78	5.23 1.99	5.71 2.17	6.34 2.40	7.63 2.84	9.06 3.34	5.14 2.17	5.80 2.43	6.30 2.65	7.02 2.94	8.44 3.48	10.02 4.08	11.29 4.58
10668	3.26 1.12	3.91 1.31	4.42 1.47	4.81 1.60	5.36 1.76	6.43 2.08	7.63 2.45	3.63 1.40	4.37 1.63	4.94 1.83	5.38 1.99	5.99 2.20	7.20 2.61	8.53 3.06	4.83 1.99	5.45 2.23	5.95 2.43	6.63 2.69	7.96 3.19	9.45 3.75	10.81 4.26
10973	3.08 1.02	3.69 1.19	4.18 1.34	4.55 1.47	5.07 1.61	6.08 1.92	7.22 2.24	3.43 1.28	4.13 1.50	4.66 1.67	5.07 1.82	5.66 2.02	6.80 2.39	8.07 2.81	4.57 1.83	5.16 2.05	5.62 2.23	6.26 2.46	7.53 2.93	8.93 3.44	10.22 3.92
11278								3.23 1.18	3.91 1.38	4.42 1.54	4.81 1.67	5.36 1.86	6.43 2.20	7.63 2.59	4.33 1.69	4.88 1.89	5.31 2.05	5.93 2.27	7.11 2.69	8.44 3.16	9.67 3.60
11582								3.08 1.07	3.72 1.26	4.18 1.43	4.55 1.54	5.07 1.72	6.10 2.02	7.24 2.39	4.09 1.56	4.61 1.73	5.03 1.89	5.60 2.10	6.74 2.48	8.01 2.91	9.17 3.32
11887								2.91 1.00	3.52 1.18	3.96 1.31	4.33 1.43	4.81 1.59	5.80 1.88	6.87 2.20	3.89 1.43	4.37 1.60	4.77 1.75	5.31 1.94	6.39 2.29	7.59 2.69	8.69 3.07
12192								2.78 0.93	3.34 1.09	3.76 1.22	4.11 1.32	4.57 1.47	5.49 1.73	6.52 2.04	3.69 1.32	4.15 1.48	4.53 1.61	5.05 1.79	6.08 2.13	7.22 2.49	8.25 2.84
12497															3.52 1.24	3.96 1.38	4.31 1.50	4.81 1.66	5.77 1.97	6.87 2.32	7.85 2.64
12802															3.34 1.15	3.78 1.28	4.11 1.40	4.57 1.54	5.51 1.83	6.54 2.15	7.48 2.45
13106															3.19 1.06	3.61 1.19	3.91 1.29	4.37 1.44	5.25 1.70	6.23 2.01	7.13 2.29
13411															3.04 0.99	3.43 1.10	3.74 1.21	4.18 1.34	5.01 1.59	5.95 1.86	6.80 2.13



# LRFD

**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a Maximum 345 MPa Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)

Joist Designation	24K4	24K5	24K6	24K7	24K8	24K9	24K10	24K12	26K5	26K6	26K7	26K8	26K9	26K10	26K12
Depth (mm)	610	610	610	610	610	610	610	610	660	660	660	660	660	660	660
Approx. Mass (kg/m)	12.5	13.8	14.4	15.0	17.1	17.9	19.5	23.8	14.6	15.8	16.2	18.0	18.2	20.5	24.7
Approx. Mass (kN/m)	0.12	0.14	0.14	0.15	0.17	0.18	0.19	0.23	0.14	0.15	0.16	0.18	0.18	0.20	0.24
Span (mm)															
7315	11.38 7.53	12.03 7.93	12.03 7.93	12.03 7.93	12.03 7.93	12.03 7.93	12.03 7.93	12.03 7.93							
7620	10.48 6.65	11.82 7.45	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58							
7925	9.67 5.91	10.92 6.61	11.88 7.19	12.03 7.28	12.03 7.28	12.03 7.28	12.03 7.28	12.03 7.28	11.86 7.80	12.03 7.89	12.03 7.89	12.03 7.89	12.03 7.89	12.03 7.89	12.03 7.89
8230	8.97 5.26	10.11 5.89	11.01 6.40	12.03 6.99	12.03 6.99	12.03 6.99	12.03 6.99	12.03 6.99	10.98 6.96	11.97 7.57	12.03 7.61	12.03 7.61	12.03 7.61	12.03 7.61	12.03 7.61
8534	8.34 4.71	9.39 5.28	10.22 5.73	11.40 6.36	12.03 6.65	12.03 6.65	12.03 6.65	12.03 6.65	10.20 6.23	11.12 6.77	12.03 7.31	12.03 7.31	12.03 7.31	12.03 7.31	12.03 7.31
8839	7.74 4.23	8.75 4.74	9.52 5.16	10.61 5.72	11.73 6.26	12.03 6.36	12.03 6.36	12.03 6.36	9.50 5.60	10.35 6.08	11.53 6.75	12.03 6.99	12.03 6.99	12.03 6.99	12.03 6.99
9144	7.24 3.82	8.16 4.27	8.88 4.65	9.91 5.15	10.94 5.64	11.90 6.11	12.03 6.15	12.03 6.15	8.86 5.04	9.65 5.50	10.77 6.08	11.90 6.66	12.03 6.69	12.03 6.69	12.03 6.69
9449	6.78 3.45	7.63 3.88	8.31 4.21	9.28 4.67	10.24 5.10	11.16 5.53	12.03 5.98	12.03 5.98	8.29 4.58	9.04 4.97	10.06 5.51	11.14 6.02	12.03 6.47	12.03 6.47	12.03 6.47
9754	6.34 3.13	7.15 3.51	7.81 3.82	8.69 4.23	9.61 4.64	10.46 5.02	12.01 5.73	12.01 5.73	7.79 4.15	8.47 4.50	9.45 5.00	10.44 5.47	11.36 5.93	12.01 6.28	12.01 6.28
10058	5.97 2.86	6.74 3.21	7.33 3.48	8.16 3.86	9.04 4.21	9.82 4.56	11.64 5.37	11.64 5.37	7.31 3.77	7.96 4.11	8.88 4.55	9.80 4.99	10.68 5.39	11.64 5.89	11.64 5.89
10363	5.62 2.61	6.34 2.93	6.89 3.18	7.68 3.53	8.49 3.85	9.25 4.17	10.98 4.91	11.29 5.02	6.89 3.45	7.50 3.75	8.36 4.15	9.23 4.55	10.04 4.93	11.29 5.51	11.29 5.51
10668	5.29 2.39	5.97 2.68	6.50 2.91	7.24 3.22	8.01 3.53	8.73 3.82	10.35 4.49	10.96 4.72	6.50 3.16	7.07 3.44	7.88 3.80	8.71 4.17	9.47 4.52	10.96 5.19	10.96 5.19
10973	5.01 2.18	5.64 2.46	6.15 2.67	6.85 2.96	7.57 3.23	8.25 3.51	9.78 4.13	10.66 4.46	6.12 2.90	6.67 3.15	7.44 3.50	8.23 3.83	8.95 4.14	10.63 4.87	10.66 4.87
11278	4.72 2.01	5.34 2.26	5.82 2.46	6.47 2.72	7.15 2.99	7.79 3.23	9.25 3.79	10.37 4.23	5.80 2.67	6.32 2.90	7.04 3.22	7.79 3.53	8.47 3.82	10.06 4.49	10.37 4.59
11582	4.48 1.86	5.05 2.08	5.51 2.27	6.15 2.51	6.78 2.75	7.39 2.97	8.77 3.50	10.09 4.01	5.49 2.46	5.99 2.68	6.67 2.97	7.37 3.25	8.03 3.51	9.54 4.14	10.09 4.36
11887	4.26 1.72	4.79 1.92	5.23 2.10	5.82 2.32	6.43 2.53	7.00 2.75	8.31 3.23	9.82 3.80	5.21 2.27	5.69 2.48	6.32 2.74	7.00 3.00	7.61 3.25	9.04 3.82	9.82 4.13
12192	4.04 1.59	4.55 1.78	4.96 1.94	5.53 2.15	6.12 2.34	6.65 2.55	7.90 3.00	9.58 3.60	4.96 2.11	5.40 2.29	6.01 2.53	6.65 2.78	7.24 3.02	8.60 3.54	9.58 3.92
12497	3.85 1.47	4.33 1.66	4.72 1.80	5.27 1.99	5.82 2.18	6.34 2.36	7.53 2.78	9.34 3.42	4.70 1.95	5.14 2.13	5.73 2.36	6.32 2.58	6.89 2.80	8.18 3.28	9.34 3.73
12802	3.67 1.37	4.13 1.54	4.50 1.67	5.01 1.85	5.53 2.02	6.04 2.20	7.15 2.58	9.12 3.26	4.48 1.82	4.90 1.98	5.45 2.18	6.01 2.39	6.56 2.59	7.79 3.06	9.12 3.56
13106	3.50 1.28	3.94 1.43	4.29 1.56	4.79 1.72	5.29 1.89	5.75 2.04	6.82 2.40	8.88 3.10	4.29 1.69	4.66 1.83	5.21 2.04	5.75 2.23	6.26 2.42	7.42 2.84	8.90 3.38
13411	3.34 1.19	3.76 1.34	4.09 1.45	4.57 1.60	5.05 1.76	5.49 1.91	6.52 2.24	8.47 2.90	4.09 1.57	4.46 1.72	4.96 1.91	5.49 2.08	5.97 2.26	7.09 2.65	8.71 3.23
13716	3.19 1.10	3.59 1.25	3.91 1.35	4.35 1.50	4.81 1.64	5.25 1.78	6.23 2.10	8.09 2.69	3.91 1.47	4.24 1.60	4.75 1.78	5.25 1.94	5.71 2.11	6.78 2.48	8.51 3.09
14021	3.04 1.03	3.43 1.16	3.74 1.26	4.18 1.41	4.61 1.54	5.03 1.66	5.95 1.97	7.74 2.53	3.74 1.38	4.07 1.50	4.53 1.66	5.01 1.82	5.47 1.97	6.47 2.32	8.31 2.96
14326	2.91 0.97	3.28 1.09	3.59 1.19	4.00 1.31	4.42 1.44	4.81 1.56	5.71 1.83	7.42 2.37	3.59 1.29	3.89 1.40	4.35 1.56	4.79 1.70	5.23 1.85	6.21 2.17	8.07 2.80
14630	2.80 0.91	3.15 1.02	3.43 1.12	3.83 1.24	4.24 1.35	4.61 1.47	5.47 1.72	7.11 2.23	3.43 1.21	3.74 1.31	4.15 1.45	4.59 1.60	5.01 1.73	5.95 2.04	7.72 2.62
14935									3.28 1.13	3.59 1.24	4.00 1.37	4.42 1.50	4.81 1.63	5.71 1.91	7.42 2.46
15240									3.15 1.06	3.43 1.16	3.83 1.29	4.24 1.41	4.61 1.53	5.47 1.80	7.11 2.32
15545									3.04 1.00	3.30 1.09	3.67 1.21	4.07 1.32	4.44 1.44	5.27 1.69	6.85 2.18
15850									2.91 0.94	3.17 1.03	3.54 1.15	3.91 1.25	4.26 1.35	5.05 1.60	6.58 2.07



# LRFD

**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
**Based on a Maximum 345 MPa Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)**

Joist Designation	28K6	28K7	28K8	28K9	28K10	28K12	30K7	30K8	30K9	30K10	30K11	30K12
Depth (mm)	711	711	711	711	711	711	762	762	762	762	762	762
Approx. Mass (kg/m)	17.0	17.6	18.9	19.3	21.3	25.4	18.3	19.6	19.9	22.3	24.4	26.2
Approx. Mass (kN/m)	0.17	0.17	0.19	0.19	0.21	0.25	0.18	0.19	0.20	0.22	0.24	0.26
Span (mm)												
↓												
8534	11.99 7.89	12.03 7.92	12.03 7.92	12.03 7.92	12.03 7.92	12.03 7.92						
8839	11.18 7.09	12.03 7.61	12.03 7.61	12.03 7.61	12.03 7.61	12.03 7.61						
9144	10.44 6.40	11.62 7.09	12.03 7.29	12.03 7.29	12.03 7.29	12.03 7.29	12.03 7.92	12.03 7.92	12.03 7.92	12.03 7.92	12.03 7.92	12.03 7.92
9449	9.76 5.79	10.87 6.42	12.03 7.00	12.03 7.00	12.03 7.00	12.03 7.00	11.68 7.41	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58	12.03 7.58
9754	9.15 5.26	10.20 5.83	11.27 6.39	12.01 6.75	12.01 6.75	12.01 6.75	10.96 6.72	12.01 7.29	12.01 7.29	12.01 7.29	12.01 7.29	12.01 7.29
10058	8.60 4.80	9.58 5.31	10.59 5.82	11.53 6.30	11.64 6.34	11.64 6.34	10.31 6.12	11.38 6.71	11.64 6.82	11.64 6.82	11.64 6.82	11.64 6.82
10363	8.09 4.37	9.01 4.85	9.98 5.31	10.85 5.76	11.29 5.98	11.29 5.98	9.69 5.60	10.72 6.12	11.29 6.43	11.29 6.43	11.29 6.43	11.29 6.43
10668	7.63 4.01	8.51 4.45	9.41 4.85	10.24 5.26	10.96 5.67	10.96 5.67	9.15 5.12	10.11 5.60	10.96 6.05	10.96 6.05	10.96 6.05	10.96 6.05
10973	7.22 3.67	8.03 4.08	8.88 4.46	9.67 4.84	10.66 5.34	10.66 5.34	8.64 4.71	9.54 5.15	10.39 5.58	10.66 5.72	10.66 5.72	10.66 5.72
11278	6.82 3.38	7.61 3.75	8.40 4.11	9.15 4.45	10.37 5.02	10.37 5.02	8.16 4.33	9.04 4.74	9.82 5.13	10.37 5.45	10.37 5.45	10.37 5.45
11582	6.47 3.12	7.20 3.45	7.96 3.79	8.66 4.11	10.09 4.74	10.09 4.74	7.74 3.99	8.55 4.37	9.32 4.74	10.09 5.15	10.09 5.15	10.09 5.15
11887	6.12 2.88	6.85 3.19	7.57 3.50	8.23 3.79	9.78 4.46	9.82 4.49	7.35 3.69	8.12 4.04	8.84 4.37	9.82 4.85	9.82 4.85	9.82 4.85
12192	5.82 2.67	6.50 2.96	7.18 3.23	7.81 3.51	9.28 4.14	9.58 4.24	6.98 3.41	7.72 3.73	8.40 4.05	9.58 4.59	9.58 4.59	9.58 4.59
12497	5.53 2.48	6.19 2.75	6.82 3.00	7.44 3.26	8.84 3.83	9.34 4.04	6.63 3.16	7.33 3.47	7.99 3.76	9.34 4.37	9.34 4.37	9.34 4.37
12802	5.27 2.30	5.88 2.55	6.50 2.80	7.09 3.03	8.40 3.57	9.12 3.85	6.32 2.94	7.00 3.22	7.61 3.50	9.04 4.11	9.12 4.14	9.12 4.14
13106	5.03 2.14	5.62 2.37	6.21 2.61	6.76 2.83	8.03 3.32	8.90 3.67	6.04 2.74	6.67 3.00	7.26 3.25	8.62 3.83	8.90 3.94	8.90 3.94
13411	4.81 1.99	5.36 2.21	5.93 2.43	6.45 2.64	7.66 3.09	8.71 3.50	5.75 2.56	6.37 2.80	6.93 3.03	8.23 3.57	8.71 3.76	8.71 3.76
13716	4.59 1.86	5.12 2.07	5.66 2.27	6.17 2.46	7.31 2.88	8.51 3.34	5.49 2.39	6.08 2.61	6.63 2.84	7.85 3.34	8.51 3.59	8.51 3.59
14021	4.40 1.75	4.90 1.94	5.42 2.13	5.91 2.30	7.00 2.71	8.31 3.19	5.27 2.23	5.82 2.45	6.34 2.65	7.53 3.12	8.31 3.44	8.31 3.44
14326	4.20 1.63	4.68 1.82	5.18 1.98	5.64 2.15	6.69 2.53	8.14 3.06	5.03 2.10	5.58 2.29	6.06 2.49	7.20 2.93	8.14 3.29	8.14 3.29
14630	4.02 1.53	4.50 1.70	4.96 1.86	5.40 2.02	6.43 2.37	7.99 2.93	4.83 1.97	5.34 2.15	5.82 2.33	6.89 2.74	7.92 3.13	7.99 3.15
14935	3.87 1.44	4.31 1.60	4.77 1.75	5.18 1.89	6.17 2.23	7.81 2.81	4.64 1.85	5.12 2.02	5.58 2.18	6.63 2.58	7.59 2.94	7.81 3.02
15240	3.72 1.35	4.13 1.50	4.57 1.64	4.99 1.79	5.91 2.10	7.66 2.69	4.44 1.73	4.92 1.89	5.36 2.05	6.37 2.42	7.28 2.77	7.66 2.90
15545	3.56 1.28	3.98 1.41	4.40 1.54	4.79 1.67	5.69 1.98	7.39 2.55	4.26 1.63	4.72 1.79	5.14 1.94	6.10 2.29	7.00 2.61	7.50 2.80
15850	3.43 1.21	3.83 1.34	4.22 1.45	4.59 1.59	5.47 1.86	7.11 2.40	4.11 1.54	4.55 1.69	4.94 1.83	5.86 2.15	6.74 2.46	7.35 2.68
16154	3.30 1.13	3.67 1.26	4.07 1.38	4.44 1.50	5.25 1.76	6.85 2.27	3.96 1.45	4.37 1.59	4.77 1.73	5.64 2.04	6.47 2.32	7.22 2.58
16459	3.17 1.07	3.54 1.19	3.91 1.29	4.26 1.41	5.07 1.66	6.58 2.14	3.80 1.37	4.20 1.50	4.57 1.63	5.45 1.92	6.23 2.18	7.09 2.48
16764	3.06 1.02	3.41 1.12	3.78 1.24	4.11 1.34	4.88 1.57	6.34 2.02	3.67 1.29	4.04 1.43	4.42 1.54	5.25 1.82	6.01 2.07	6.82 2.34
17069	2.95 0.96	3.30 1.06	3.63 1.16	3.96 1.26	4.70 1.48	6.12 1.92	3.54 1.22	3.91 1.34	4.26 1.45	5.05 1.72	5.80 1.97	6.58 2.23
17374							3.41 1.16	3.78 1.28	4.11 1.38	4.88 1.63	5.60 1.86	6.34 2.11
17678							3.30 1.10	3.65 1.21	3.96 1.31	4.70 1.54	5.40 1.76	6.12 1.99
17983							3.19 1.05	3.52 1.15	3.83 1.25	4.55 1.47	5.23 1.67	5.93 1.89
18288							3.08 1.00	3.41 1.09	3.69 1.18	4.40 1.40	5.05 1.59	5.73 1.80



# METRIC ASD LOAD TABLE

## OPEN WEB STEEL JOISTS, K-SERIES

Based on a Maximum 345 MPa Yield Strength  
 Adopted by the Steel Joist Institute May 2, 1994  
 Revised to May 5, 2003 – Effective March 01, 2005

The black figures in the following table give the TOTAL safe uniformly distributed load-carrying capacities, in kiloNewtons per meter (kN/m) of **ASD K-Series** Steel Joists. The weight (kN/m) of the DEAD loads, including the joists, must be deducted to determine the LIVE load-carrying capacities of the joists. Sloped parallel-chord joists shall use span as defined by the length along the slope.

The figures shown **RED** in this load table are the LIVE loads per linear meter of joist which will produce an approximate deflection of L/360 of the span. LIVE loads which produce a deflection of L/240 of the span may be obtained by multiplying the figures in **RED** by 1.5. In no case shall the TOTAL load capacity of the joists be exceeded.

The approximate joist weights, in kiloNewtons per meter (kN/m), shown in these tables do not include accessories.

The approximate moment of inertia of the joist, in mm<sup>4</sup> is:

$$I_j = 2.6953(W_{LL})(L^3)(10^{-5}), \text{ where } W_{LL} = \text{RED figure in the load table:}$$

$$L = (\text{span} - 102) \text{ in millimeters.}$$

For the proper handling of concentrated and/or varying loads, see Section 6.1 in the Code of Standard Practice for Steel Joists and Joist Girders.

**Where the joist span exceeds the unshaded area** of the Load Table, the row of bridging nearest the mid span shall be diagonal bridging with bolted connections at the chords and intersections.

# ASD

**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
 Based on a 245 MPa Maximum Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)

Joist Designation	8K1	10K1	12K1	12K3	12K5	14K1	14K3	14K4	14K6	16K2	16K3	16K4	16K5	16K6	16K7	16K9
Depth (mm)	203	254	305	305	305	356	356	356	356	406	406	406	406	406	406	406
Approx. Mass (kg/m)	7.6	7.4	7.4	8.5	10.6	7.7	8.9	10.0	11.5	8.2	9.4	10.4	11.2	12.1	12.8	14.9
Approx. Mass (kN/m)	0.07	0.07	0.07	0.08	0.10	0.08	0.09	0.10	0.11	0.08	0.09	0.10	0.11	0.12	0.13	0.15
Span (mm)																
2438	8.02															
	8.02															
2743	8.02															
	8.02															
3048	8.02	8.02														
	7.00	8.02														
3353	7.76	8.02														
	5.50	7.90														
3658	6.47	8.02	8.02	8.02	8.02											
	4.20	6.64	8.02	8.02	8.02											
3962	5.50	6.99	8.02	8.02	8.02											
	3.28	5.29	7.44	7.44	7.44											
4267	4.72	6.01	7.29	8.02	8.02	8.02	8.02	8.02	8.02							
	2.61	4.21	6.20	6.75	6.75	8.02	8.02	8.02	8.02							
4572	4.10	5.22	6.33	7.92	8.02	7.45	8.02	8.02	8.02							
	2.11	3.41	5.02	6.24	6.33	6.93	7.39	7.39	7.39							
4877	3.59	4.56	5.54	6.94	8.02	6.53	8.02	8.02	8.02	8.02	8.02	8.02	8.02	8.02	8.02	8.02
	1.73	2.80	4.11	5.12	5.77	5.69	6.81	6.81	6.81	8.02	8.02	8.02	8.02	8.02	8.02	8.02
5182		4.04	4.90	6.12	8.02	5.76	7.22	8.02	8.02	7.47	8.02	8.02	8.02	8.02	8.02	8.02
		2.32	3.41	4.24	5.34	4.72	5.89	6.46	6.46	7.12	7.67	7.67	7.67	7.67	7.67	7.67
5486		3.59	4.36	5.45	7.39	5.13	6.43	7.73	8.02	6.65	7.41	8.02	8.02	8.02	8.02	8.02
		1.95	2.87	3.57	4.62	3.96	4.94	5.79	5.95	5.96	6.65	7.15	7.15	7.15	7.15	7.15
5791		3.22	3.91	4.88	6.62	4.59	5.76	6.93	8.02	5.95	6.64	7.98	8.02	8.02	8.02	8.02
		1.64	2.43	3.02	3.92	3.35	4.18	4.90	5.58	5.06	5.63	6.59	6.64	6.64	6.64	6.64
6096		2.90	3.51	4.40	5.96	4.14	5.19	6.24	7.66	5.37	5.98	7.19	8.02	8.02	8.02	8.02
		1.41	2.07	2.58	3.35	2.87	3.59	4.18	5.06	4.33	4.81	5.63	6.21	6.21	6.21	6.21
6401			3.18	3.98	5.39	3.75	4.69	5.66	6.93	4.85	5.41	6.52	7.34	7.99	8.02	8.02
			1.79	2.23	2.88	2.48	3.09	3.61	4.36	3.72	4.15	4.85	5.44	5.91	5.92	5.92
6706			2.90	3.63	4.91	3.41	4.27	5.15	6.30	4.42	4.91	5.92	6.68	7.26	8.02	8.02
			1.54	1.92	2.51	2.14	2.68	3.13	3.77	3.23	3.60	4.21	4.71	5.12	5.61	5.61
7010			2.64	3.31	4.49	3.12	3.91	4.69	5.76	4.04	4.49	5.41	6.10	6.64	7.39	8.02
			1.35	1.69	2.18	1.86	2.33	2.74	3.29	2.83	3.15	3.67	4.11	4.48	4.94	5.29
7315			2.42	3.03	4.11	2.86	3.57	4.30	5.28	3.70	4.13	4.96	5.60	6.10	6.78	8.02
			1.18	1.47	1.92	1.64	2.05	2.40	2.90	2.48	2.75	3.22	3.61	3.92	4.34	5.04
7620						2.62	3.29	3.96	4.87	3.41	3.79	4.56	5.15	5.60	6.24	7.50
						1.45	1.80	2.11	2.55	2.18	2.43	2.84	3.19	3.47	3.83	4.53
7925						2.42	3.05	3.66	4.49	3.15	3.50	4.21	4.75	5.18	5.76	6.91
						1.28	1.60	1.88	2.27	1.94	2.15	2.52	2.83	3.07	3.40	4.02
8230						2.24	2.81	3.40	4.15	2.91	3.25	3.91	4.40	4.80	5.34	6.40
						1.15	1.43	1.67	2.02	1.73	1.92	2.26	2.52	2.74	3.03	3.59
8534						2.08	2.62	3.15	3.86	2.71	3.02	3.63	4.10	4.46	4.96	5.95
						1.02	1.28	1.50	1.80	1.54	1.72	2.01	2.26	2.45	2.71	3.21
8839										2.52	2.81	3.38	3.80	4.15	4.62	5.54
										1.38	1.54	1.80	2.02	2.20	2.43	2.88
9144										2.34	2.62	3.15	3.56	3.88	4.31	5.18
										1.25	1.40	1.63	1.83	1.99	2.20	2.59
9449										2.20	2.45	2.96	3.32	3.63	4.04	4.84
										1.13	1.26	1.47	1.66	1.80	1.99	2.34
9754										2.07	2.30	2.77	3.12	3.40	3.77	4.53
										1.03	1.15	1.34	1.50	1.63	1.80	2.14



**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 345 MPa Maximum Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)

Joist Designation	18K3	18K4	18K5	18K6	18K7	18K9	18K10	20K3	20K4	20K5	20K6	20K7	20K9	20K10	22K4	22K5	22K6	22K7	22K9	22K10	22K11
Depth(mm)	457	457	457	457	457	457	457	508	508	508	508	508	508	508	559	559	559	559	559	559	559
Approx. Mass (kg/m)	9.8	10.7	11.5	12.6	13.4	15.2	17.4	10.0	11.3	12.2	13.2	13.8	16.1	18.2	11.9	13.1	13.7	14.4	16.8	18.8	20.5
Approx. Mass (kN/m)	0.10	0.11	0.11	0.12	0.13	0.15	0.17	0.10	0.11	0.12	0.13	0.14	0.16	0.18	0.12	0.13	0.13	0.14	0.16	0.18	0.20
Span (mm)																					
5486	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02														
5791	7.50 7.20	8.02 7.63	8.02 7.63	8.02 7.63	8.02 7.63	8.02 7.63	8.02 7.63														
6096	6.75 6.17	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.15	7.54 7.54	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02	8.02 8.02							
6401	6.12 5.31	7.38 6.21	8.02 6.71	8.02 6.71	8.02 6.71	8.02 6.71	8.02 6.71	6.82 6.61	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58							
6706	5.57 4.61	6.71 5.39	8.02 6.04	8.02 6.39	8.02 6.39	8.02 6.39	8.02 6.39	6.21 5.73	7.50 6.72	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.15	8.02 7.99	8.02 7.99	8.02 7.99	8.02 7.99	8.02 7.99	8.02 7.99	8.02 7.99
7010	5.09 4.02	6.12 4.71	6.90 5.28	7.53 5.73	8.02 6.10	8.02 6.10	8.02 6.10	5.67 5.02	6.84 5.86	7.72 6.58	8.02 6.82	8.02 6.82	8.02 6.82	8.02 6.82	7.55 7.16	8.02 7.55	8.02 7.55	8.02 7.55	8.02 7.55	8.02 7.55	8.02 7.55
7315	4.67 3.53	5.61 4.14	6.33 4.64	6.90 5.03	7.67 5.57	8.02 5.77	8.02 5.77	5.21 4.40	6.27 5.15	7.07 5.77	7.70 6.27	8.02 6.53	8.02 6.53	8.02 6.53	6.93 6.28	7.82 7.04	8.02 7.22	8.02 7.22	8.02 7.22	8.02 7.22	8.02 7.22
7620	4.29 3.12	5.18 3.64	5.83 4.10	6.34 4.45	7.07 4.91	8.02 5.50	8.02 5.50	4.80 3.88	5.77 4.55	6.50 5.10	7.09 5.54	7.89 6.14	8.02 6.21	8.02 6.21	6.39 5.56	7.19 6.23	7.83 6.77	8.02 6.91	8.02 6.91	8.02 6.91	8.02 6.91
7925	3.96 2.77	4.78 3.23	5.38 3.63	5.86 3.95	6.53 4.36	7.85 5.16	8.02 5.26	4.43 3.44	5.34 4.04	6.01 4.52	6.55 4.91	7.29 5.44	8.02 5.91	8.02 5.91	5.89 4.93	6.64 5.53	7.23 5.99	8.02 6.62	8.02 6.62	8.02 6.62	8.02 6.62
8230	3.67 2.46	4.42 2.88	4.99 3.23	5.42 3.51	6.05 3.89	7.26 4.59	8.02 5.06	4.10 3.07	4.94 3.60	5.57 4.04	6.07 4.39	6.75 4.85	8.02 5.67	8.02 5.67	5.45 4.39	6.15 4.91	6.69 5.35	7.47 5.92	8.02 6.30	8.02 6.30	8.02 6.30
8534	3.41 2.20	4.11 2.58	4.64 2.90	5.04 3.15	5.61 3.48	6.75 4.11	7.99 4.83	3.80 2.75	4.59 3.22	5.18 3.61	5.63 3.92	6.27 4.34	7.54 5.15	8.02 5.47	5.07 3.94	5.72 4.40	6.23 4.78	6.93 5.31	8.02 6.02	8.02 6.02	8.02 6.02
8839	3.18 1.98	3.83 2.32	4.31 2.61	4.69 2.83	5.23 3.13	6.28 3.70	7.45 4.34	3.54 2.48	4.27 2.90	4.81 3.25	5.25 3.53	5.85 3.91	7.03 4.62	8.02 5.23	4.72 3.53	5.32 3.96	5.80 4.30	6.46 4.77	7.76 5.64	8.02 5.82	8.02 5.82
9144	2.96 1.79	3.57 2.10	4.02 2.34	4.39 2.55	4.88 2.83	5.86 3.34	6.96 3.92	3.31 2.23	3.99 2.61	4.49 2.93	4.90 3.18	5.45 3.53	6.56 4.17	7.77 4.90	4.40 3.19	4.97 3.57	5.41 3.88	6.02 4.30	7.25 5.09	8.02 5.61	8.02 5.61
9449	2.77 1.61	3.34 1.89	3.76 2.13	4.10 2.30	4.56 2.55	5.48 3.02	6.50 3.54	3.09 2.01	3.73 2.36	4.21 2.65	4.58 2.88	5.10 3.19	6.14 3.77	7.28 4.43	4.13 2.88	4.65 3.23	5.06 3.51	5.64 3.89	6.78 4.61	8.02 5.38	8.02 5.38
9754	2.59 1.47	3.13 1.72	3.53 1.92	3.85 2.10	4.29 2.32	5.15 2.74	6.10 3.22	2.90 1.83	3.50 2.14	3.95 2.40	4.30 2.61	4.78 2.90	5.76 3.42	6.82 4.02	3.86 2.62	4.36 2.93	4.75 3.19	5.29 3.53	6.36 4.18	7.54 4.91	8.01 5.18
10058	2.45 1.34	2.94 1.57	3.32 1.76	3.61 1.91	4.02 2.11	4.84 2.49	5.73 2.93	2.72 1.66	3.29 1.95	3.70 2.18	4.04 2.37	4.50 2.64	5.41 3.12	6.42 3.66	3.63 2.39	4.10 2.67	4.46 2.90	4.97 3.22	5.98 3.80	7.09 4.48	7.76 4.87
10363	2.30 1.22	2.77 1.43	3.12 1.60	3.40 1.75	3.79 1.92	4.55 2.27	5.39 2.68	2.56 1.53	3.09 1.78	3.48 1.99	3.80 2.17	4.23 2.40	5.09 2.84	6.04 3.34	3.42 2.17	3.86 2.43	4.20 2.65	4.68 2.94	5.63 3.48	6.68 4.08	7.53 4.58
10668	2.17 1.12	2.61 1.31	2.94 1.47	3.21 1.60	3.57 1.76	4.29 2.08	5.09 2.45	2.42 1.40	2.91 1.63	3.29 1.83	3.59 1.99	3.99 2.20	4.80 2.61	5.69 3.06	3.22 1.99	3.63 2.23	3.96 2.43	4.42 2.69	5.31 3.19	6.30 3.75	7.20 4.26
10973	2.05 1.02	2.46 1.02	2.78 1.02	3.03 1.02	3.38 1.61	4.05 1.92	4.81 2.24	2.29 1.28	2.75 1.50	3.10 1.67	3.38 1.82	3.77 2.02	4.53 2.39	5.38 2.81	3.05 1.83	3.44 2.05	3.75 2.23	4.17 2.46	5.02 2.93	5.95 3.44	6.81 3.92
11278								2.15 1.18	2.61 1.38	2.94 1.54	3.21 1.67	3.57 1.86	4.29 2.20	5.09 2.59	2.88 1.69	3.25 1.89	3.54 2.05	3.95 2.27	4.74 2.69	5.63 3.16	6.45 3.60
11582								2.05 1.07	2.48 1.26	2.78 1.43	3.03 1.54	3.38 1.72	4.07 2.02	4.83 2.39	2.72 1.56	3.07 1.73	3.35 1.89	3.73 2.10	4.49 2.48	5.34 2.91	6.11 3.32
11887								1.94 1.00	2.34 1.18	2.64 1.31	2.88 1.43	3.21 1.59	3.86 1.88	4.58 2.20	2.59 1.43	2.91 1.60	3.18 1.75	3.54 1.94	4.26 2.29	5.06 2.69	5.79 3.07
12192								1.85 0.93	2.23 1.09	2.51 1.22	2.74 1.32	3.05 1.47	3.66 1.73	4.34 2.04	2.46 1.32	2.77 1.48	3.02 1.61	3.37 1.79	4.05 2.13	4.81 2.49	5.50 2.84
12497															2.34 1.24	2.64 1.38	2.87 1.50	3.21 1.66	3.85 1.97	4.58 2.32	5.23 2.64
12802															2.23 1.15	2.52 1.28	2.74 1.40	3.05 1.54	3.67 1.83	4.36 2.15	4.99 2.45
13106															2.13 1.06	2.40 1.19	2.61 1.29	2.91 1.44	3.50 1.70	4.15 2.01	4.75 2.29
13411															2.02 0.99	2.29 1.10	2.49 1.21	2.78 1.34	3.34 1.59	3.96 1.86	4.53 2.13



**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 345 MPa Yield Strength - Loads Shown in KiloNewtons per Meter (kN/m)

Joist Designation	24K4	24K5	24K6	24K7	24K8	24K9	24K10	24K12	26K5	26K6	26K7	26K8	26K9	26K10	26K12
Depth (mm)	610	610	610	610	610	610	610	610	660	660	660	660	660	660	660
Approx. Mass (kg/m)	12.5	13.8	14.4	15.0	17.1	17.9	19.5	23.8	14.6	15.8	16.2	18.0	18.2	20.5	24.7
Approx. Mass (kN/m)	0.12	0.14	0.14	0.15	0.17	0.18	0.19	0.23	0.14	0.15	0.16	0.18	0.18	0.20	0.24
Span (mm)															
↓ 7315	7.58 7.53	8.02 7.93	8.02 7.93	8.02 7.93	8.02 7.93	8.02 7.93	8.02 7.93	8.02 7.93							
7620	6.99 6.65	7.88 7.45	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58							
7925	6.45 5.91	7.28 6.61	7.92 7.19	8.02 7.28	8.02 7.28	8.02 7.28	8.02 7.28	8.02 7.28	7.90 7.80	8.02 7.89	8.02 7.89	8.02 7.89	8.02 7.89	8.02 7.89	8.02 7.89
8230	5.98 5.26	6.74 5.89	7.34 6.40	8.02 6.99	8.02 6.99	8.02 6.99	8.02 6.99	8.02 6.99	7.32 6.96	7.98 7.57	8.02 7.61	8.02 7.61	8.02 7.61	8.02 7.61	8.02 7.61
8534	5.56 4.71	6.26 5.28	6.81 5.73	7.60 6.36	8.02 6.65	8.02 6.65	8.02 6.65	8.02 6.65	6.80 6.23	7.41 6.77	8.02 7.31	8.02 7.31	8.02 7.31	8.02 7.31	8.02 7.31
8839	5.16 4.23	5.83 4.74	6.34 5.16	7.07 5.72	7.82 6.26	8.02 6.36	8.02 6.36	8.02 6.36	6.33 5.60	6.90 6.08	7.69 6.75	8.02 6.99	8.02 6.99	8.02 6.99	8.02 6.99
9144	4.83 3.82	5.44 4.27	5.92 4.65	6.61 5.15	7.29 5.64	7.93 6.11	8.02 6.15	8.02 6.15	5.91 5.04	6.43 5.50	7.18 6.08	7.93 6.66	8.02 6.69	8.02 6.69	8.02 6.69
9449	4.52 3.45	5.09 3.88	5.54 4.21	6.18 4.67	6.82 5.10	7.44 5.53	8.02 5.98	8.02 5.98	5.53 4.58	6.02 4.97	6.71 5.51	7.42 6.02	8.02 6.47	8.02 6.47	8.02 6.47
9754	4.23 3.13	4.77 3.51	5.21 3.82	5.79 4.23	6.40 4.64	6.97 5.02	8.01 5.73	8.01 5.73	5.19 4.15	5.64 4.50	6.30 5.00	6.96 5.47	7.57 5.93	8.01 6.28	8.01 6.28
10058	3.98 2.86	4.49 3.21	4.88 3.48	5.44 3.86	6.02 4.21	6.55 4.56	7.76 5.37	7.76 5.37	4.87 3.77	5.31 4.11	5.92 4.55	6.53 4.99	7.12 5.39	7.76 5.89	7.76 5.89
10363	3.75 2.61	4.23 2.93	4.59 3.18	5.12 3.53	5.66 3.85	6.17 4.17	7.32 4.91	7.53 5.02	4.59 3.45	5.00 3.75	5.57 4.15	6.15 4.55	6.69 4.93	7.53 5.51	7.53 5.51
10668	3.53 2.39	3.98 2.68	4.33 2.91	4.83 3.22	5.34 3.53	5.82 3.82	6.90 4.49	7.31 4.72	4.33 3.16	4.71 3.44	5.25 3.80	5.80 4.17	6.31 4.52	7.31 5.19	7.31 5.19
10973	3.34 2.18	3.76 2.46	4.10 2.67	4.56 2.96	5.04 3.23	5.50 3.51	6.52 4.13	7.10 4.46	4.08 2.90	4.45 3.15	4.96 3.50	5.48 3.83	5.96 4.14	7.09 4.87	7.10 4.87
11278	3.15 2.01	3.56 2.26	3.88 2.46	4.31 2.72	4.77 2.99	5.19 3.23	6.17 3.79	6.91 4.23	3.86 2.67	4.21 2.90	4.69 3.22	5.19 3.53	5.64 3.82	6.71 4.49	6.91 4.59
11582	2.99 1.86	3.37 2.08	3.67 2.27	4.10 2.51	4.52 2.75	4.93 2.97	5.85 3.50	6.72 4.01	3.66 2.46	3.99 2.68	4.45 2.97	4.91 3.25	5.35 3.51	6.36 4.14	6.72 4.36
11887	2.84 1.72	3.19 1.92	3.48 2.10	3.88 2.32	4.29 2.53	4.67 2.75	5.54 3.23	6.55 3.80	3.47 2.27	3.79 2.48	4.21 2.74	4.67 3.00	5.07 3.25	6.02 3.82	6.55 4.13
12192	2.69 1.59	3.03 1.78	3.31 1.94	3.69 2.15	4.08 2.34	4.43 2.55	5.26 3.00	6.39 3.60	3.31 2.11	3.60 2.29	4.01 2.53	4.43 2.78	4.83 3.02	5.73 3.54	6.39 3.92
12497	2.56 1.47	2.88 1.66	3.15 1.80	3.51 1.99	3.88 2.18	4.23 2.36	5.02 2.78	6.23 3.42	3.13 1.95	3.42 2.13	3.82 2.36	4.21 2.58	4.59 2.80	5.45 3.28	6.23 3.73
12802	2.45 1.37	2.75 1.54	3.00 1.67	3.34 1.85	3.69 2.02	4.02 2.20	4.77 2.58	6.08 3.26	2.99 1.82	3.26 1.98	3.63 2.18	4.01 2.39	4.37 2.59	5.19 3.06	6.08 3.56
13106	2.33 1.28	2.62 1.43	2.86 1.56	3.19 1.72	3.53 1.89	3.83 2.04	4.55 2.40	5.92 3.10	2.86 1.69	3.10 1.83	3.47 2.04	3.83 2.23	4.17 2.42	4.94 2.84	5.93 3.38
13411	2.23 1.19	2.51 1.34	2.72 1.45	3.05 1.60	3.37 1.76	3.66 1.91	4.34 2.24	5.64 2.90	2.72 1.57	2.97 1.72	3.31 1.91	3.66 2.08	3.98 2.26	4.72 2.65	5.80 3.23
13716	2.13 1.10	2.39 1.25	2.61 1.35	2.90 1.50	3.21 1.64	3.50 1.78	4.15 2.10	5.39 2.69	2.61 1.47	2.83 1.60	3.16 1.78	3.50 1.94	3.80 2.11	4.52 2.48	5.67 3.09
14021	2.02 1.03	2.29 1.16	2.49 1.26	2.78 1.41	3.07 1.54	3.35 1.66	3.96 1.97	5.16 2.53	2.49 1.38	2.71 1.50	3.02 1.66	3.34 1.82	3.64 1.97	4.31 2.32	5.54 2.96
14326	1.94 0.97	2.18 1.09	2.39 1.19	2.67 1.31	2.94 1.44	3.21 1.56	3.80 1.83	4.94 2.37	2.39 1.29	2.59 1.40	2.90 1.56	3.19 1.70	3.48 1.85	4.14 2.17	5.38 2.80
14630	1.86 0.91	2.10 1.02	2.29 1.12	2.55 1.24	2.83 1.35	3.07 1.47	3.64 1.72	4.74 2.23	2.29 1.21	2.49 1.31	2.77 1.45	3.06 1.60	3.34 1.73	3.96 2.04	5.15 2.62
14935									2.18 1.13	2.39 1.24	2.67 1.37	2.94 1.50	3.21 1.63	3.80 1.91	4.94 2.46
15240									2.10 1.06	2.29 1.16	2.55 1.29	2.83 1.41	3.07 1.53	3.64 1.80	4.74 2.32
15545									2.02 1.00	2.20 1.09	2.45 1.21	2.71 1.32	2.96 1.44	3.51 1.69	4.56 2.18
15850									1.94 0.94	2.11 1.03	2.36 1.15	2.61 1.25	2.84 1.35	3.37 1.60	4.39 2.07



**METRIC LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES**  
Based on a 345 MPa Yield Strength - Load Shown in KiloNewtons per Meter (kN/m)

Joist Designation	28K6	28K7	28K8	28K9	28k10	28K12	30K7	30K8	30K9	30K10	30K11	30K12
Depth (mm)	711	711	711	711	711	711	762	762	762	762	762	762
Approx. Mass (kg/m)	17.0	17.6	18.9	19.3	21.3	25.5	18.3	19.6	19.9	22.3	24.4	26.2
Approx. Mass (kN/m)	0.17	0.17	0.19	0.19	0.21	0.25	0.18	0.19	0.20	0.22	0.24	0.26
Span (mm)												
↓ 8534	7.99 7.89	8.02 7.92	8.02 7.92	8.02 7.92	8.02 7.92	8.02 7.92						
8839	7.45 7.09	8.02 7.61	8.02 7.61	8.02 7.61	8.02 7.61	8.02 7.61						
9144	6.96 6.40	7.74 7.09	8.02 7.29	8.02 7.29	8.02 7.29	8.02 7.29	8.02 7.92	8.02 7.92	8.02 7.92	8.02 7.92	8.02 7.92	8.02 7.92
9449	6.50 5.79	7.25 6.42	8.02 7.00	8.02 7.00	8.02 7.00	8.02 7.00	7.79 7.41	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58	8.02 7.58
9754	6.10 5.26	6.80 5.83	7.51 6.39	8.01 6.75	8.01 6.75	8.01 6.75	7.31 6.72	8.01 7.29	8.01 7.29	8.01 7.29	8.01 7.29	8.01 7.29
10058	5.73 4.80	6.39 5.31	7.06 5.82	7.69 6.30	7.76 6.34	7.76 6.34	6.87 6.12	7.58 6.71	7.76 6.82	7.76 6.82	7.76 6.82	7.76 6.82
10363	5.39 4.37	6.01 4.85	6.65 5.31	7.23 5.76	7.53 5.98	7.53 5.98	6.46 5.60	7.15 6.12	7.53 6.43	7.53 6.43	7.53 6.43	7.53 6.43
10668	5.09 4.01	5.67 4.45	6.27 4.85	6.82 5.26	7.31 5.67	7.31 5.67	6.10 5.12	6.74 5.60	7.31 6.05	7.31 6.05	7.31 6.05	7.31 6.05
10973	4.81 3.67	5.35 4.08	5.92 4.46	6.45 4.84	7.10 5.34	7.10 5.34	5.76 4.71	6.36 5.15	6.93 5.58	7.10 5.72	7.10 5.72	7.10 5.72
11278	4.55 3.38	5.07 3.75	5.60 4.11	6.10 4.45	6.91 5.02	6.91 5.02	5.44 4.33	6.02 4.74	6.55 5.13	6.91 5.45	6.91 5.45	6.91 5.45
11582	4.31 3.12	4.80 3.45	5.31 3.79	5.77 4.11	6.72 4.74	6.72 4.74	5.16 3.99	5.70 4.37	6.21 4.74	6.72 5.15	6.72 5.15	6.72 5.15
11887	4.08 2.88	4.56 3.19	5.04 3.50	5.48 3.79	6.52 4.46	6.55 4.49	4.90 3.69	5.41 4.04	5.89 4.37	6.55 4.85	6.55 4.85	6.55 4.85
12192	3.88 2.67	4.33 2.96	4.78 3.23	5.21 3.51	6.18 4.14	6.39 4.24	4.65 3.41	5.15 3.73	5.60 4.05	6.39 4.59	6.39 4.59	6.39 4.59
12497	3.69 2.48	4.13 2.75	4.55 3.00	4.96 3.26	5.89 3.83	6.23 4.04	4.42 3.16	4.88 3.47	5.32 3.76	6.23 4.37	6.23 4.37	6.23 4.37
12802	3.51 2.30	3.92 2.55	4.33 2.80	4.72 3.03	5.60 3.57	6.08 3.85	4.21 2.94	4.67 3.22	5.07 3.50	6.02 4.11	6.08 4.14	6.08 4.14
13106	3.35 2.14	3.75 2.37	4.14 2.61	4.50 2.83	5.35 3.32	5.93 3.67	4.02 2.74	4.45 3.00	4.84 3.25	5.74 3.83	5.93 3.94	5.93 3.94
13411	3.21 1.99	3.57 2.21	3.95 2.43	4.30 2.64	5.10 3.09	5.80 3.50	3.83 2.56	4.24 2.80	4.62 3.03	5.48 3.57	5.80 3.76	5.80 3.76
13716	3.06 1.86	3.41 2.07	3.77 2.27	4.11 2.46	4.87 2.88	5.67 3.34	3.66 2.39	4.05 2.61	4.42 2.84	5.23 3.34	5.67 3.59	5.67 3.59
14021	2.93 1.75	3.26 1.94	3.61 2.13	3.94 2.30	4.67 2.71	5.54 3.19	3.51 2.23	3.88 2.45	4.23 2.65	5.02 3.12	5.54 3.44	5.54 3.44
14326	2.80 1.63	3.12 1.82	3.45 1.98	3.76 2.15	4.46 2.53	5.42 3.06	3.35 2.10	3.72 2.29	4.04 2.49	4.80 2.93	5.42 3.29	5.42 3.29
14630	2.68 1.53	3.00 1.70	3.31 1.86	3.60 2.02	4.29 2.37	5.32 2.93	3.22 1.97	3.56 2.15	3.88 2.33	4.59 2.74	5.28 3.13	5.32 3.15
14935	2.58 1.44	2.87 1.60	3.18 1.75	3.45 1.89	4.11 2.23	5.21 2.81	3.09 1.85	3.41 2.02	3.72 2.18	4.42 2.58	5.06 2.94	5.21 3.02
15240	2.48 1.35	2.75 1.50	3.05 1.64	3.32 1.79	3.94 2.10	5.10 2.69	2.96 1.73	3.28 1.89	3.57 2.05	4.24 2.42	4.85 2.77	5.10 2.90
15545	2.37 1.28	2.65 1.41	2.93 1.54	3.19 1.67	3.79 1.98	4.93 2.55	2.84 1.63	3.15 1.79	3.42 1.94	4.07 2.29	4.67 2.61	5.00 2.80
15850	2.29 1.21	2.55 1.34	2.81 1.45	3.06 1.59	3.64 1.86	4.74 2.40	2.74 1.54	3.03 1.69	3.29 1.83	3.91 2.15	4.49 2.46	4.90 2.68
16154	2.20 1.13	2.45 1.26	2.71 1.38	2.96 1.50	3.50 1.76	4.56 2.27	2.64 1.45	2.91 1.59	3.18 1.73	3.76 2.04	4.31 2.32	4.81 2.58
16459	2.11 1.07	2.36 1.19	2.61 1.29	2.84 1.41	3.38 1.66	4.39 2.14	2.53 1.37	2.80 1.50	3.05 1.63	3.63 1.92	4.15 2.18	4.72 2.48
16764	2.04 1.02	2.27 1.12	2.52 1.24	2.74 1.34	3.25 1.57	4.23 2.02	2.45 1.29	2.69 1.43	2.94 1.54	3.50 1.82	4.01 2.07	4.55 2.34
17069	1.97 0.96	2.20 1.06	2.42 1.16	2.64 1.26	3.13 1.48	4.08 1.92	2.36 1.22	2.61 1.34	2.84 1.45	3.37 1.72	3.86 1.97	4.39 2.23
17374							2.27 1.16	2.52 1.28	2.74 1.38	3.25 1.63	3.73 1.86	4.23 2.11
17678							2.20 1.10	2.43 1.21	2.64 1.31	3.13 1.54	3.60 1.76	4.08 1.99
17983							2.13 1.05	2.34 1.15	2.55 1.25	3.03 1.47	3.48 1.67	3.95 1.89
18288							2.05 1.00	2.27 1.09	2.46 1.18	2.93 1.40	3.37 1.59	3.82 1.80



# OPEN WEB STEEL JOISTS, K-SERIES

## KCS JOISTS

The KCS Joists:

1. Provide a versatile **K-Series Joist** that can be easily specified to support uniform loads plus concentrated and non-uniform loads.
2. Eliminate many repetitive load diagrams required on contract documents and allow some flexibility of load locations.

KCS joists are designed in accordance with the Standard Specification for **K-Series Joists**.

Standard **K-Series Joists** are designed for simple span uniform loading which results in a parabolic moment diagram for chord forces and a linearly sloped shear diagram for web forces. When non-uniform and/or concentrated loads are encountered the shear and moment diagrams required may be shaped quite differently and may not be covered by the shear and moment design envelopes of a standard **K-Series Joist**.

KCS Joist chords are designed for a flat positive moment envelope. The moment capacity is constant at all interior panels. The top chord end panel is designed for axial load based on the force in the first tension web, which is based on the specified shear. A uniform load of 825 plf (12030 N/m) LRFD or 550 plf (8020 N/m) ASD is used to check end panel bending.

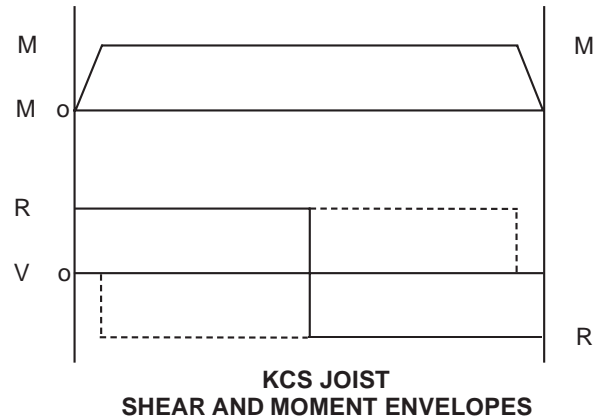
The web forces are determined based on a flat shear envelope. All webs are designed for a vertical shear equal to the specified shear capacity. Furthermore, all webs (except the first tension web which remains in tension under all simple span gravity loads) will be designed for 100% stress reversal.

Both LRFD and ASD KCS Joist load tables list the shear and moment capacity of each joist. The selection of a KCS Joist requires the specifying professional to calculate the maximum moment and shear imposed and select the appropriate KCS Joist. If a KCS Joist cannot be selected from the load table or if any uniform load exceeds 825 plf (12030 N/m) LRFD or 550 plf (8020 N/m) ASD or if the maximum concentrated load exceeds the shear capacity of the joist, use double KCS Joists or select an **LH-Series Joist**. For the **LH-Series Joist**, supply a load diagram. When net uplift loads, end moments or other external horizontal loads are a design consideration; these loads shall be provided to the joist manufacturer by the specifying professional.

As is the case with standard **K-**, **LH-** and **DLH-Series Joists**, chord bending due to concentrated loads must be addressed. In the case of concentrated loads, the specifying professional shall handle them in one of two ways: 1) specify on the structural drawings that an extra web must be field applied at all concentrated loads not occurring at joist panel points, or 2) provide exact locations of all concentrated loads for which the joist manufacturer shall provide necessary reinforcement.

Please reference SJI Technical Digest #9 "Handling and Erection of Steel Joists and Joist Girders" for further information.

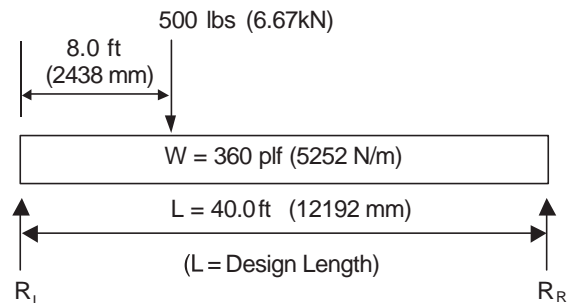
**NOTE:** In the following examples joist selection is based on minimum depth and minimum weight (plf, kg/m). Other selections may be more suitable for specific job conditions.



## LRFD EXAMPLES

### EXAMPLE 1

#### LRFD FACTORED LOADS



$$M = 938 \text{ in.-kip (105.9 kN-m)}$$

$$R_L = 8400 \text{ lbs (37.37 kN)}, R_R = 7500 \text{ lbs (33.36 kN)}$$

Select a 22KCS3,  $M = 987 \text{ in.-kip (111.5 kN-m)}$

$$R = 9900 \text{ lbs (44.0 kN)}$$

Bridging section no. 9 for  $L = 40 \text{ ft. (12192 mm)}$

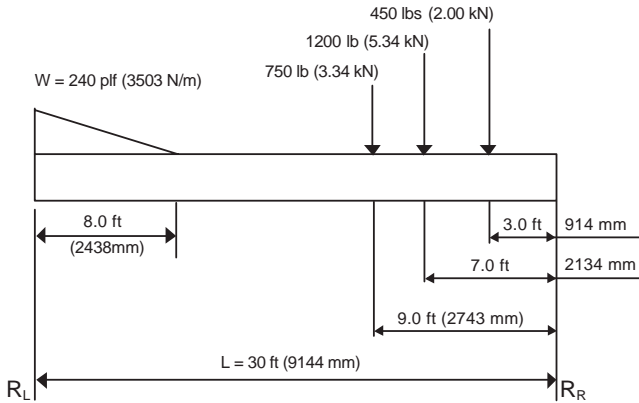
Use 22K9 to determine bridging and stability requirements.

Since a standard KCS Joist can be selected from the load table a load diagram is not required.



**EXAMPLE 2**

**LRFD FACTORED LOADS**



$M = 664 \text{ in.-kip (75.03 kN-m)}$

$R_L = 7500 \text{ lbs (33.36 kN)}, R_R = 8010 \text{ lbs (35.63 kN)}$

Select a 22KCS2,  $M = 732 \text{ in.-kip (82.64 kN-m)}$

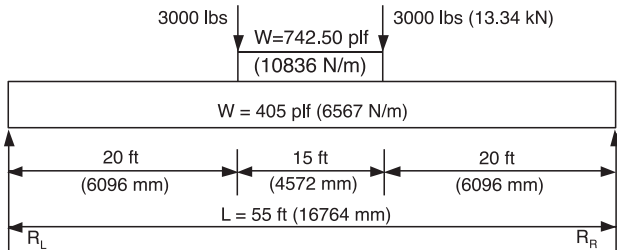
$R = 8850 \text{ lbs (39.38 kN)}$

Bridging section no. 6 for  $L = 30 \text{ ft. (9144 mm)}$

Use 22K6 to determine bridging and stability requirements. Since the maximum factored uniform load of 639 plf (9318 N/m) (405 plf (5911 N/m) + 240 plf (3503 N/m)) does not exceed the maximum KCS Joist uniform load of 825 plf (12040 N/m) and a standard KCS Joist can be selected from the load table, a load diagram is not required.

**EXAMPLE 3**

**LRFD FACTORED LOADS**



$M = 4365 \text{ in.-kip (492.81 kN-m)}$

$R_L = R_R = 21000 \text{ lbs (93.41 kN)}$

EXCEEDS CAPACITY OF 30KCS5 (MAXIMUM KCS JOIST AND EXCEEDS MAXIMUM FACTORED UNIFORM LOAD OF 825 plf (12040 N/m).

**OPTION A:** Use double joists each having a minimum  $M = 2183 \text{ in.-kip (246.65 kN-m)}$  and  $R = 10500 \text{ lbs (46.71 kN)}$  and a uniform load of 594 plf (8669 N/m).

Select two 28KCS5,  $M = 2556 \text{ in.-kip (288.7 kN-m)}$ ,  $R = 13800 \text{ lbs (61.3 kN)}$ .

Bridging section no. 12 for  $L = 55 \text{ ft. (16764 mm)}$  Use 28K12 to determine bridging and stability requirements.

**OPTION B:** Select an LH-Series Joist. Calculate an equivalent uniform load based on the maximum moment or shear:

$W_M = \frac{8M}{L^2} = 962 \text{ plf (14.04 kN/m)}$

$W_V = \frac{2R}{L} = 764 \text{ plf (11.14 kN/m)}$

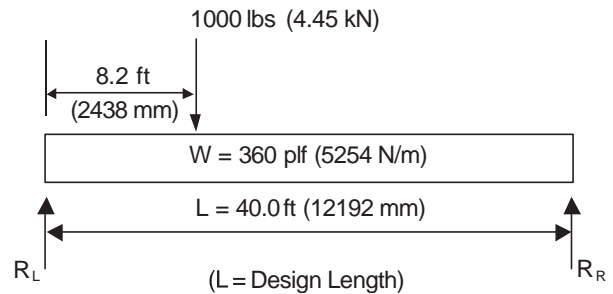
Use 962 plf (14.04 kN/m)

From the LH-Series LRFD Load Table select a 32LH13,  $W = 1035 \text{ plf (15.10 kN/m)}$  for a 55 ft. (16764 mm) span. Specify a 32LH13SP and present a load diagram on the structural drawings with the following note:

**JOIST MANUFACTURER SHALL DESIGN FOR THE LOADING SHOWN IN THE LOAD DIAGRAM.**

**ASD EXAMPLES**

**EXAMPLE 1**



$M = 625 \text{ in.-kip (70.6 kN-m)}$

$R_L = 5600 \text{ lbs (24.9 kN)}, R_R = 5000 \text{ lbs (22.2 kN)}$

Select a 22KCS3,  $M = 658 \text{ in.-kip (74.3 kN-m)}$

$R = 6600 \text{ lbs (29.3 kN)}$

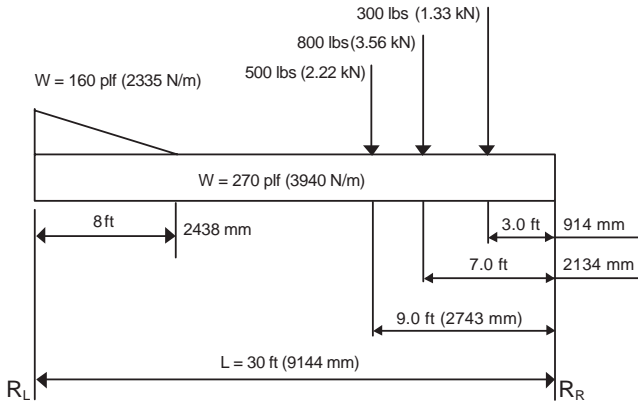
Bridging section no. 9 for  $L = 40 \text{ ft. (12192 mm)}$

Use 22K9 to determine bridging and stability requirements.

Since a standard KCS Joist can be selected from the load table a load diagram is not required.



**EXAMPLE 2**



$M = 443$  in.-kip (50.1 kN-m)

$R_L = 5000$  lbs (22.24 kN),  $R_R = 5340$  lbs (23.75 kN)

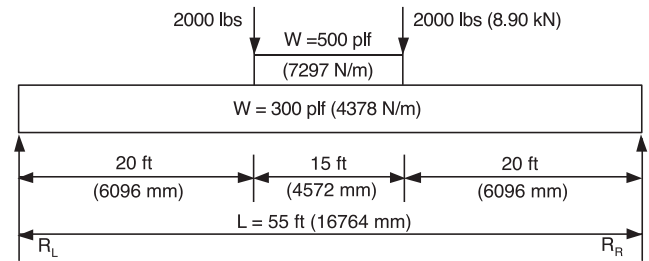
Select a 22KCS2,  $M = 488$  in.-kip (55.1 kN-m)

$R = 5900$  lbs (26.2 kN)

Bridging section no. 6 for  $L = 30$  ft. (9144 mm)

Use 22K6 to determine bridging and stability requirements. Since the maximum uniform load of 430 plf [6275 N/m] ( $270$  plf (3940 N/m) +  $160$  plf (2335 N/m)) does not exceed the maximum KCS Joist uniform load of 550 plf (8020 N/m) and a standard KCS Joist can be selected from the load table, a load diagram is not required.

**EXAMPLE 3**



$M = 2910$  in.-kip (328.5 kN-m)

$R_L = R_R = 14000$  lbs (62.28 kN)

EXCEEDS CAPACITY OF 30KCS5 (MAXIMUM KCS JOIST) AND EXCEEDS MAXIMUM UNIFORM LOAD OF 550 plf (8027 N/m).

**OPTION A:** Use double joists each having a minimum  $M = 1455$  in.-kip (164.3 kN-m) and  $R = 7000$  lbs (31.14 kN) and a uniform load of 400 plf (5838 N/m).

Select two 28KCS5,  $M = 1704$  in.-kip (192.5 kN-m),  $R = 9200$  lbs (40.9 kN)

Bridging section no. 12 for  $L = 55$  ft. (16764 mm) Use 28K12 to determine bridging and stability requirements.

**OPTION B:** Select an LH-Series Joist. Calculate an equivalent uniform load based on the maximum moment or shear:

$$W_M = \frac{8M}{L^2} = 641 \text{ plf (9.35 kN/m)}$$

$$W_V = \frac{2R}{L} = 509 \text{ plf (7.43 kN/m)}$$

Use 641 plf (9.35 kN/m)

From the LH-Series ASD Load Table select a 32LH13,  $W = 690$  plf (10.06 kN/m) for a 55 ft. (16764 mm) span. Specify a **32LH13SP** and present a load diagram on the structural drawings with the following note:

**JOIST MANUFACTURER SHALL DESIGN FOR THE LOADING SHOWN IN THE LOAD DIAGRAM.**



# LRFD

**STANDARD LOAD TABLE FOR KCS OPEN WEB STEEL JOISTS**  
Based on a 50 ksi Maximum Yield Strength

JOIST DESIGNATION	DEPTH (inches)	MOMENT CAPACITY (inch-kips)	SHEAR CAPACITY* (lbs)	APPROX. WEIGHT** (lbs/ft)	GROSS MOMENT OF INERTIA (in. <sup>4</sup> )	BRIDGING TABLE SECTION NUMBER
10KCS1	10	258	3000	6.0	29	1
10KCS2	10	337	3750	7.5	37	1
10KCS3	10	444	4500	10.0	47	1
12KCS1	12	313	3600	6.0	43	3
12KCS2	12	411	4500	8.0	55	5
12KCS3	12	543	5250	10.0	71	5
14KCS1	14	370	4350	6.5	59	4
14KCS2	14	486	5100	8.0	77	6
14KCS3	14	642	5850	10.0	99	6
16KCS2	16	523	6000	8.5	99	6
16KCS3	16	705	7200	10.5	128	9
16KCS4	16	1080	7950	14.5	192	9
16KCS5	16	1401	8700	18.0	245	9
18KCS2	18	592	7050	9.0	127	6
18KCS3	18	798	7800	11.0	164	9
18KCS4	18	1225	8550	15.0	247	10
18KCS5	18	1593	9300	18.5	316	10
20KCS2	20	663	7800	9.5	159	6
20KCS3	20	892	9000	11.5	205	9
20KCS4	20	1371	11850	16.5	308	10
20KCS5	20	1786	12600	20.0	396	10
22KCS2	22	732	8850	10.0	194	6
22KCS3	22	987	9900	12.5	251	9
22KCS4	22	1518	11850	16.5	377	11
22KCS5	22	1978	12900	20.5	485	11
24KCS2	24	801	9450	10.0	232	6
24KCS3	24	1080	10800	12.5	301	9
24KCS4	24	1662	12600	16.5	453	12
24KCS5	24	2172	13350	20.5	584	12
26KCS2	26	870	9900	10.0	274	6
26KCS3	26	1174	11700	12.5	355	9
26KCS4	26	1809	12750	16.5	536	12
26KCS5	26	2364	13800	20.5	691	12
28KCS2	28	939	10350	10.5	320	6
28KCS3	28	1269	12000	12.5	414	9
28KCS4	28	1954	12750	16.5	626	12
28KCS5	28	2556	13800	20.5	808	12
30KCS3	30	1362	12000	13.0	478	9
30KCS4	30	2100	12750	16.5	722	12
30KCS5	30	2749	13800	21.0	934	12

\*MAXIMUM UNIFORMLY DISTRIBUTED LOAD CAPACITY IS 825 PLF AND SINGLE CONCENTRATED LOAD CANNOT EXCEED SHEAR CAPACITY

\*\*DOES NOT INCLUDE ACCESSORIES



**STANDARD LOAD TABLE FOR KCS OPEN WEB STEEL JOISTS**  
Based on a 50 ksi Maximum Yield Strength

JOIST DESIGNATION	DEPTH (inches)	MOMENT CAPACITY* (inch-kips)	SHEAR CAPACITY* (lbs)	APPROX. WEIGHT** (lbs/ft)	GROSS MOMENT OF INERTIA (in. <sup>4</sup> )	BRIDGING TABLE SECTION NUMBER
10KCS1	10	172	2000	6.0	29	1
10KCS2	10	225	2500	7.5	37	1
10KCS3	10	296	3000	10.0	47	1
12KCS1	12	209	2400	6.0	43	3
12KCS2	12	274	3000	8.0	55	5
12KCS3	12	362	3500	10.0	71	5
14KCS1	14	247	2900	6.5	59	4
14KCS2	14	324	3400	8.0	77	6
14KCS3	14	428	3900	10.0	99	6
16KCS2	16	349	4000	8.5	99	6
16KCS3	16	470	4800	10.5	128	9
16KCS4	16	720	5300	14.5	192	9
16KCS5	16	934	5800	18.0	245	9
18KCS2	18	395	4700	9.0	127	6
18KCS3	18	532	5200	11.0	164	9
18KCS4	18	817	5700	15.0	247	10
18KCS5	18	1062	6200	18.5	316	10
20KCS2	20	442	5200	9.5	159	6
20KCS3	20	595	6000	11.5	205	9
20KCS4	20	914	7900	16.5	308	10
20KCS5	20	1191	8400	20.0	396	10
22KCS2	22	488	5900	10.0	194	6
22KCS3	22	658	6600	12.5	251	9
22KCS4	22	1012	7900	16.5	377	11
22KCS5	22	1319	8600	20.5	485	11
24KCS2	24	534	6300	10.0	232	6
24KCS3	24	720	7200	12.5	301	9
24KCS4	24	1108	8400	16.5	453	12
24KCS5	24	1448	8900	20.5	584	12
26KCS2	26	580	6600	10.0	274	6
26KCS3	26	783	7800	12.5	355	9
26KCS4	26	1206	8500	16.5	536	12
26KCS5	26	1576	9200	20.5	691	12
28KCS2	28	626	6900	10.5	320	6
28KCS3	28	846	8000	12.5	414	9
28KCS4	28	1303	8500	16.5	626	12
28KCS5	28	1704	9200	20.5	808	12
30KCS3	30	908	8000	13.0	478	9
30KCS4	30	1400	8500	16.5	722	12
30KCS5	30	1833	9200	21.0	934	12

\*MAXIMUM UNIFORMLY DISTRIBUTED LOAD CAPACITY IS 550 PLF AND SINGLE CONCENTRATED LOAD CANNOT EXCEED SHEAR CAPACITY

\*\*DOES NOT INCLUDE ACCESSORIES



# LRFD

**METRIC LOAD TABLE FOR KCS OPEN WEB STEEL JOISTS**  
Based on a 345 MPa Maximum Yield Strength

JOIST DESIGNATION	DEPTH (mm)	MOMENT CAPACITY (kN-m)	SHEAR CAPACITY* (kN)	APPROXIMATE WEIGHT**		GROSS MOMENT OF INERTIA (cm <sup>4</sup> )	BRIDGING TABLE SECTION NUMBER
				(kN/m)	(kg/m)		
10KCS1	254	29.1	13.3	0.09	8.9	1200	1
10KCS2	254	38.1	16.6	0.11	11.2	1540	1
10KCS3	254	50.1	20.0	0.15	14.9	1950	1
12KCS1	305	35.4	16.0	0.09	8.9	1780	3
12KCS2	305	46.4	20.0	0.12	11.9	2280	5
12KCS3	305	61.3	23.3	0.15	14.9	2950	5
14KCS1	356	41.8	19.3	0.09	9.7	2450	4
14KCS2	356	54.9	22.6	0.12	11.9	3200	6
14KCS3	356	72.5	26.0	0.15	14.9	4120	6
16KCS2	406	59.1	26.6	0.12	12.6	4120	6
16KCS3	406	79.6	32.0	0.15	15.6	5320	9
16KCS4	406	122.0	35.3	0.21	21.6	7990	9
16KCS5	406	158.2	38.6	0.26	26.8	10190	9
18KCS2	457	66.9	31.3	0.13	13.4	5280	6
18KCS3	457	90.1	34.6	0.16	16.4	6820	9
18KCS4	457	138.4	38.0	0.22	22.3	10280	10
18KCS5	457	179.9	41.3	0.27	27.5	13150	10
20KCS2	508	74.9	34.6	0.14	14.1	6610	6
20KCS3	508	100.8	40.0	0.17	17.1	8530	9
20KCS4	508	154.9	52.7	0.24	24.6	12810	10
20KCS5	508	201.8	56.0	0.29	29.8	16480	10
22KCS2	559	82.7	39.3	0.15	14.9	8070	6
22KCS3	559	111.5	44.0	0.18	18.6	10440	9
22KCS4	559	171.5	52.7	0.24	24.6	15690	11
22KCS5	559	223.5	57.3	0.30	30.5	20180	11
24KCS2	610	90.5	42.0	0.15	14.9	9650	6
24KCS3	610	122.0	48.0	0.18	18.6	12520	9
24KCS4	610	187.7	56.0	0.24	24.6	18850	12
24KCS5	610	245.4	59.3	0.30	30.5	24300	12
26KCS2	660	98.2	44.0	0.15	14.9	11400	6
26KCS3	660	132.7	52.0	0.18	18.6	14770	9
26KCS4	660	204.3	56.7	0.24	24.6	22310	12
26KCS5	660	267.0	61.3	0.30	30.5	28760	12
28KCS2	711	106.0	46.0	0.15	15.6	13310	6
28KCS3	711	143.3	53.3	0.18	18.6	17230	9
28KCS4	711	220.8	56.7	0.24	24.6	26050	12
28KCS5	711	288.7	61.3	0.30	30.5	33630	12
30KCS3	762	153.8	53.3	0.19	19.3	19890	9
30KCS4	762	237.2	56.7	0.24	24.6	30050	12
30KCS5	762	310.6	61.3	0.31	31.3	38870	12

\*MAXIMUM UNIFORMLY DISTRIBUTED LOAD CAPACITY IS 12030 NEWTONS/METER AND SINGLE CONCENTRATED LOAD CANNOT EXCEED SHEAR CAPACITY

\*\*DOES NOT INCLUDE ACCESSORIES



**METRIC LOAD TABLE FOR KCS OPEN WEB STEEL JOISTS**  
Based on a 345 MPa Maximum Yield Strength

JOIST DESIGNATION	DEPTH (mm)	MOMENT CAPACITY* (kN-m)	SHEAR CAPACITY* (kN)	APPROX. WEIGHT**		GROSS MOMENT OF INERTIA (cm <sup>4</sup> )	BRIDGING TABLE SECTION NUMBER
				(kN/m)	(kg/m)		
10KCS1	254	19.4	8.8	0.09	8.9	1200	1
10KCS2	254	25.4	11.1	0.11	11.2	1540	1
10KCS3	254	33.4	13.3	0.15	14.9	1950	1
12KCS1	305	23.6	10.6	0.09	8.9	1780	3
12KCS2	305	31.0	13.3	0.12	11.9	2280	5
12KCS3	305	40.9	15.5	0.15	14.9	2950	5
14KCS1	356	27.9	12.8	0.09	9.7	2450	4
14KCS2	356	36.6	15.1	0.12	11.9	3200	6
14KCS3	356	48.4	17.3	0.15	14.9	4120	6
16KCS2	406	39.4	17.7	0.12	12.6	4120	6
16KCS3	406	53.1	21.3	0.15	15.6	5320	9
16KCS4	406	81.3	23.5	0.21	21.6	7990	9
16KCS5	406	105.5	25.7	0.26	26.8	10190	9
18KCS2	457	44.6	20.9	0.13	13.4	5280	6
18KCS3	457	60.1	23.1	0.16	16.4	6820	9
18KCS4	457	92.3	25.3	0.22	22.3	10280	10
18KCS5	457	120.0	27.5	0.27	27.5	13150	10
20KCS2	508	49.9	23.1	0.14	14.1	6610	6
20KCS3	508	67.2	26.6	0.17	17.1	8530	9
20KCS4	508	103.3	35.1	0.24	24.6	12810	10
20KCS5	508	134.6	37.3	0.29	29.8	16480	10
22KCS2	559	55.1	26.2	0.15	14.9	8070	6
22KCS3	559	74.3	29.3	0.18	18.6	10440	9
22KCS4	559	114.3	35.1	0.24	24.6	15690	11
22KCS5	559	149.0	38.2	0.30	30.5	20180	11
24KCS2	610	60.3	28.0	0.15	14.9	9650	6
24KCS3	610	81.3	32.0	0.18	18.6	12520	9
24KCS4	610	125.2	37.3	0.24	24.6	18850	12
24KCS5	610	163.6	39.5	0.30	30.5	24300	12
26KCS2	660	65.5	29.3	0.15	14.9	11400	6
26KCS3	660	88.5	34.6	0.18	18.6	14770	9
26KCS4	660	136.3	37.8	0.24	24.6	22310	12
26KCS5	660	178.1	40.9	0.30	30.5	28760	12
28KCS2	711	70.7	30.6	0.15	15.6	13310	6
28KCS3	711	95.6	35.5	0.18	18.6	17230	9
28KCS4	711	147.2	37.8	0.24	24.6	26050	12
28KCS5	711	192.5	40.9	0.30	30.5	33630	12
30KCS3	762	102.6	35.5	0.19	19.3	19890	9
30KCS4	762	158.2	37.8	0.24	24.6	30050	12
30KCS5	762	207.1	40.9	0.31	31.3	38870	12

\*MAXIMUM UNIFORMLY DISTRIBUTED LOAD CAPACITY IS 8020 NEWTONS/METER AND SINGLE CONCENTRATED LOAD CANNOT EXCEED SHEAR CAPACITY

\*\*DOES NOT INCLUDE ACCESSORIES



