

Metal Framing Channels

Channel

Metal framing channel is cold formed on our modern rolling mills from 12 Ga. (2.6mm), 14 Ga. (1.9mm), and 16 Ga. (1.5mm) low carbon steel strips. A continuous slot with turned lips provides the ability to make attachments at any point.

Lengths & Tolerances

All channels excluding 'SH' style
 $\pm 1/8"$ (3.2mm) on 10' (3.05m) and
 $\pm 3/16"$ (4.76mm) on 20' (6.09m)

All 'SH' channels only
 $\pm 1/4"$ (6.35mm) on 10' (3.05m) and
 $\pm 1/2"$ (12.70mm) on 20' (6.09m)

Custom lengths are available upon request.

Slots

Slotted series of channels offer full flexibility. A variety of pre-punched slot patterns eliminate the need for precise field measuring for hole locations. Slots offer wide adjustments in the alignment and bolt sizing.

Holes

A variety of pre-punched $9/16"$ (14.3 mm) diameter hole patterns are available in our channels. These hole patterns provide an economical alternative to costly field drilling required for many applications.

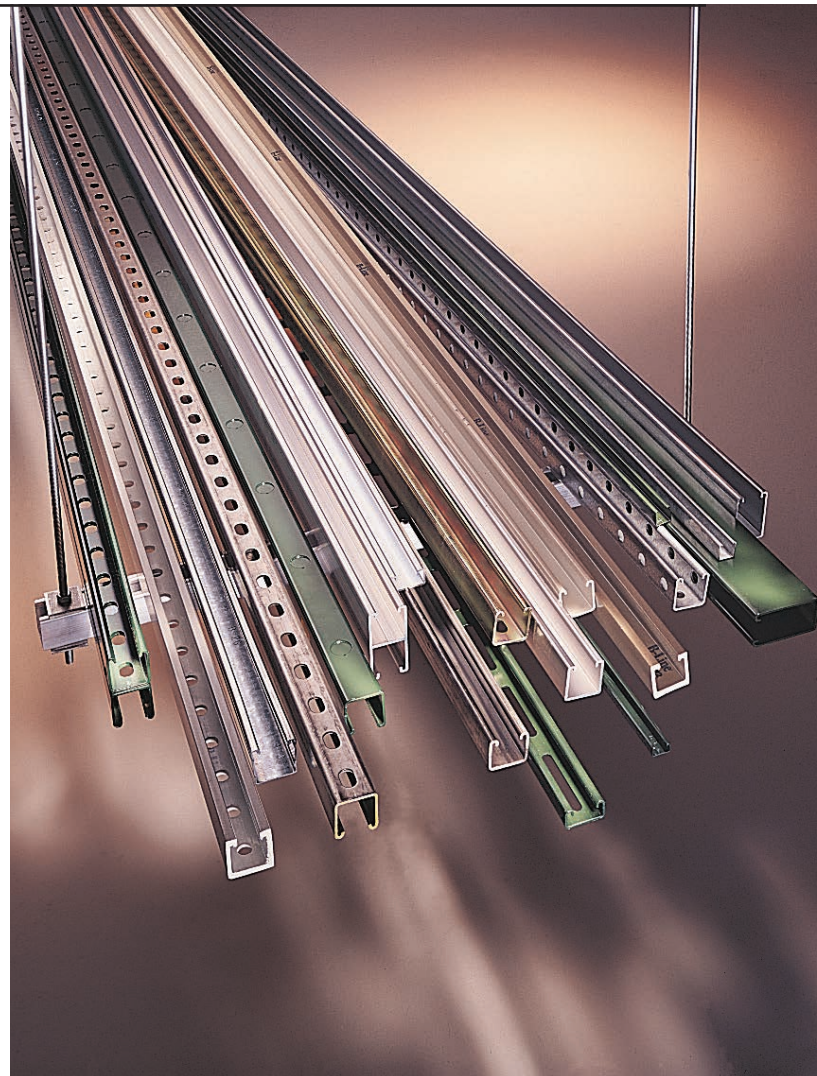
Knockouts

When used with series B217-20 Closure Strips, knockout channels can be used to provide an economical U.L. listed surface raceway. Channels are furnished with $7/8"$ (22.2 mm) knockouts on 6" (152 mm) centers, allowing for perfect fixture alignment on spans up to 20' (6.09 m).

Materials & Finishes (Unless otherwise noted)

Steel: Plain & Pre-galvanized

12 Ga. (2.6), 14 Ga. (1.9) and 16 Ga. (1.5)



Channel & Combinations

Finish Code	Finish	Specification
PLN	Plain	ASTM A1011, 33,000 PSI min. yield
GRN	DURA-GREEN™	
GLV	Pre-Galvanized	ASTM A653 33,000 PSI min. yield
HDG	Hot-Dipped Galvanized	ASTM A123
YZN	Yellow Zinc Chromate	ASTM B633 SC3 Type II
SS4	Stainless Steel Type 304	ASTM A240
SS6	Stainless Steel Type 316	ASTM A240
AL	Aluminum	Aluminum 6063-T6

Note: A minimum order may apply on special material and finishes.

Design Load (Steel & Stainless Steel)

The design loads given for strut beam loads are based on a simple beam condition using an allowable stress of 25,000 psi. This allowable stress results in a safety factor of 1.68. This is based upon virgin steel minimum yield strength of 33,000 psi cold worked during rolling to an average yield stress of 42,000 psi. For aluminum channel loading multiply steel loading by a factor of 0.38.

Welding

Weld spacing is maintained between 2 $1/2$ inches (63.5 mm) and 4 inches (101.6 mm) on center. Through high quality control testing of welded channels and continuous monitoring of welding equipment, B-Line provides the most consistent combination channels available today.

Metric

Metric dimensions are shown in parentheses. Unless noted, all metric dimensions are in millimeters.

SELECTION CHART

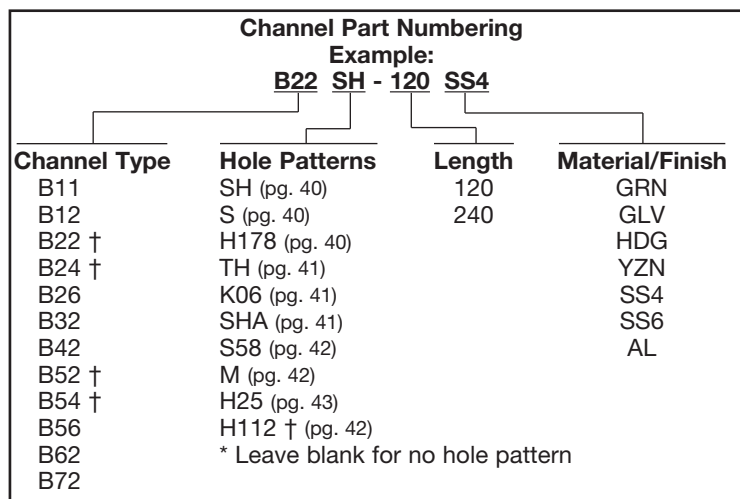
for Channels, Materials and Hole Patterns

Channel Type	Channel Dimensions				Material & Thickness *				Channel Hole Pattern **				
	Height		Width		Steel	Alum.	Stainless Steel		SH 9/16" x 1 1/8" slots on 2" centers	S 13/32" x 3" slots	H17/8 9/16" diameter holes	TH 9/16" diameter on 1 7/8" centers	KO6 7/8" diameter knockouts
	1	2	3	4									
B11	3 1/4"	(82.5)	1 5/8"	(41.3)	12 Ga.	.105	-	-	1	1	1	-	1
B12	2 7/16"	(61.9)	1 5/8"	(41.3)	12 Ga.	.105	-	-	1 2	1	1 2	-	1 2
B22	1 5/8"	(41.3)	1 5/8"	(41.3)	12 Ga.	.105	12 Ga.	12 Ga.	1 2 3 4	1 3	1 2 3	1	1 2
B24	1 5/8"	(41.3)	1 5/8"	(41.3)	14 Ga.	.080	14 Ga.	14 Ga.	1 2 3 4	1	1 2 3	-	1 2
B26	1 5/8"	(41.3)	1 5/8"	(41.3)	16 Ga.	-	-	-	1	1	1	-	1
B32	1 3/8"	(34.9)	1 5/8"	(41.3)	12 Ga.	-	12 Ga.	-	1 3	1	1 3	-	1
B42	1"	(25.4)	1 5/8"	(41.3)	12 Ga.	-	12 Ga.	-	1 3	1	1 3	-	1
B52	1 3/16"	(20.6)	1 5/8"	(41.3)	12 Ga.	-	12 Ga.	12 Ga.	1 3 4	1	1	-	1
B54	1 3/16"	(20.6)	1 5/8"	(41.3)	14 Ga.	.080	14 Ga.	14 Ga.	1 2 3 4	1	1 2 3 4	-	1 2
B56	1 3/16"	(20.6)	1 5/8"	(41.3)	16 Ga.	-	-	-	1	1	1	-	1
B62	1 3/16"	(20.6)	1 3/16"	(20.6)	18 Ga.	-	-	-	-	-	-	-	-
B72	1 3/32"	(10.3)	1 3/16"	(20.6)	18 Ga.	-	-	-	-	-	-	-	-

The selection has been prepared to provide a reference for available channel, materials and hole patterns. Material types available for various hole patterns are defined by numbers 1 thru 4. Some stainless steel channels with hole patterns are available on special order only.

*Metric equivalent for thicknesses shown in chart. **1 - Steel
 12 Ga. = 2.6 mm 18 Ga. = 1.2 mm 2 - Aluminum
 14 Ga. = 1.9 mm .105 = 2.6 mm 3 - Type 304 Stainless Steel
 16 Ga. = 1.5 mm .080 = 2.0 mm 4 - Type 316 Stainless Steel

Properties may vary due to commercial tolerances of the material.

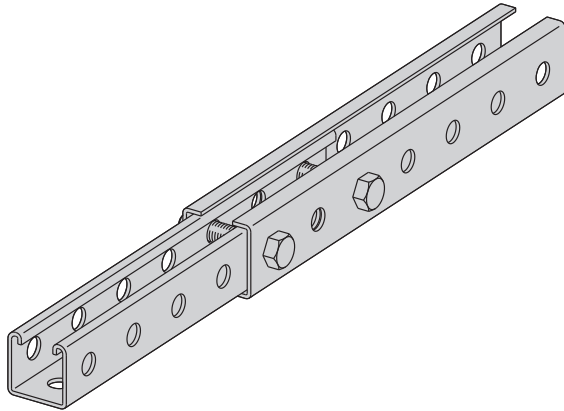


Reference page 14 for general fitting and standard finish specifications.

Telescoping Channel

BTS22TH

- Can be secured at any point of system
- Order BTS22TH & B22TH separately
- Thickness: 12 Gauge (1.5 mm)
- Standard lengths: 10' (3.05 m)
- Standard finishes: DURA-GREEN™, Yellow Zinc Dichromate, Hot-Dipped Galvanized



Slip Load Data

Resistance to slip*
700 lbs.

1/4" thick 2-hole fitting with (2) 1/2" bolts & channel nuts. Typical of many standard fittings.

Resistance to slip*
3600 lbs.

1/2" bolt & nut

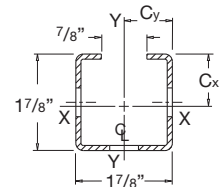
*With a safety factor of 3

BTS22TH TELESCOPING STRUT

Fits over all 15/8" x 15/8" channels 9/16" holes on 17/8" centers 12 gauge material thickness

Section Properties			X-X Axis				Y-Y Axis			
Channel	Weight lbs./ft.	Area In ²	C _x In	I _x In ⁴	S _x In ³	r _x In	C _y In	I _y In ⁴	S _y In ³	r _y In
BTS22TH	1.934	0.4578	1.0009	0.2525	0.2523	0.7426	0.9375	0.2757	0.2941	0.7761

Section properties are based on nominal metal thickness, and overall dimensions.

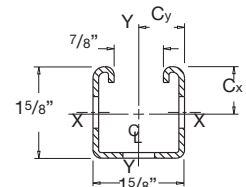


B22TH THREE HOLE STRUT

9/16" holes on 17/8" centers 12 gauge material thickness

Section Properties			X-X Axis				Y-Y Axis			
Channel	Weight lbs./ft.	Area In ²	C _x In	I _x In ⁴	S _x In ³	r _x In	C _y In	I _y In ⁴	S _y In ³	r _y In
B22TH	1.760	0.3863	0.8245	0.1596	0.1936	0.6400	0.8125	0.1719	0.2116	0.6642

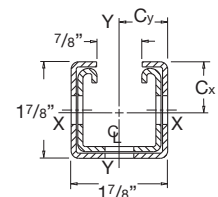
Section properties are based on nominal metal thickness, and overall dimensions.



COMBINATION OF BTS22TH & B22TH

Section Properties			X-X Axis				Y-Y Axis			
Channel Combination	Weight lbs./ft.	Area In ²	C _x In	I _x In ⁴	S _x In ³	r _x In	C _y In	I _y In ⁴	S _y In ³	r _y In
BTS22TH/B22TH	3.597	0.8474	0.9773	0.4126	0.4222	0.6978	0.9375	0.4476	0.4774	0.7268

Section properties are based on nominal metal thickness, and overall dimensions.



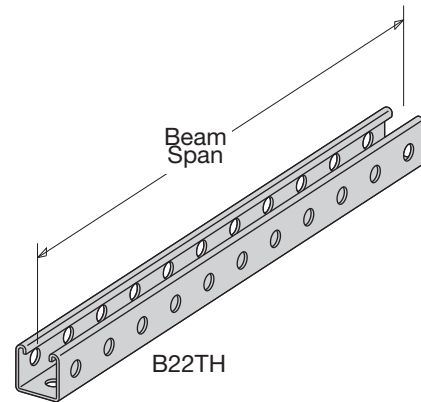
Reference page 14 for general fitting and standard finish specifications.

Telescoping Channel

BEAM LOADING DATA

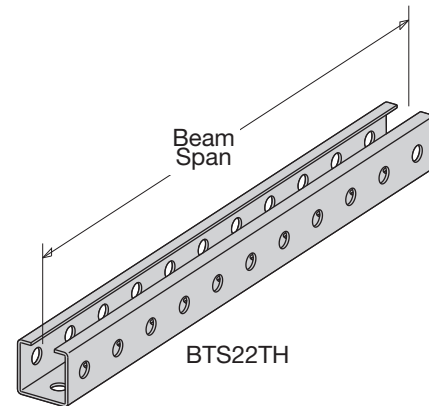
B22TH

Beam Span in	Beam Load Data x-x Axis			
	Allowable Load lbs*	Resulting Deflection in	Allowable Load @ Deflection=1/240 Span	
			Lbs.	kN
12	2225	0.015	3225	(14.34)
24	1610	0.061	1610	(7.16)
36	1071	0.136	1071	(4.76)
48	800	0.243	658	(2.92)
60	637	0.379	417	(1.85)
72	528	0.546	286	(1.27)
84	449	0.743	206	(0.91)
96	390	0.970	153	(0.68)
108	344	1.228	116	(0.51)
120	306	1.516	90	(0.40)



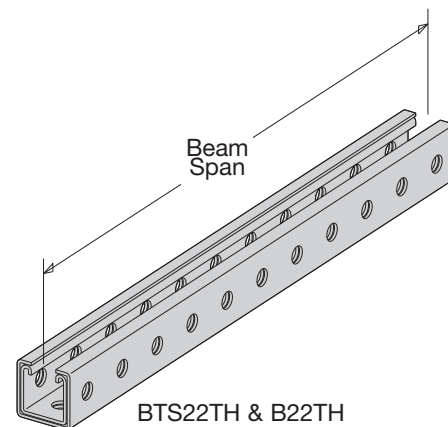
BTS22TH

Beam Span in	Beam Load Data x-x Axis			
	Allowable Load lbs*	Resulting Deflection in	Allowable Load @ Deflection=1/240 Span	
			Lbs.	kN
12	4203	0.012	4203	(18.69)
24	2099	0.050	2099	(9.33)
36	1396	0.112	1396	(6.21)
48	1044	0.200	1044	(4.64)
60	831	0.312	664	(2.95)
72	689	0.450	456	(2.03)
84	587	0.612	330	(1.48)
96	510	0.799	248	(1.10)
108	450	1.012	190	(0.84)
120	401	1.249	149	(0.66)



BTS22TH & B22TH TELESCOPING MEMBERS OF EQUAL LENGTH

Beam Span in	Beam Load Data x-x Axis			
	Allowable Load lbs*	Resulting Deflection in	Allowable Load @ Deflection=1/240 Span	
			Lbs.	kN
12	7033	0.013	7033	(31.28)
24	3511	0.051	3511	(15.62)
36	2335	0.115	2335	(10.38)
48	1745	0.205	1705	(7.58)
60	1389	0.320	1082	(4.81)
72	1151	0.460	742	(3.30)
84	980	0.627	536	(2.38)
96	851	0.819	401	(1.78)
108	749	1.036	307	(1.36)
120	668	1.279	239	(1.06)



*Based on simple beam condition using an allowable design stress of 25,000 psi (172 MPa) with adequate lateral bracing (see page 11 for further explanation). To determine concentrated load capacity at mid span, multiply uniform load by 0.5 and corresponding deflection by 0.8.

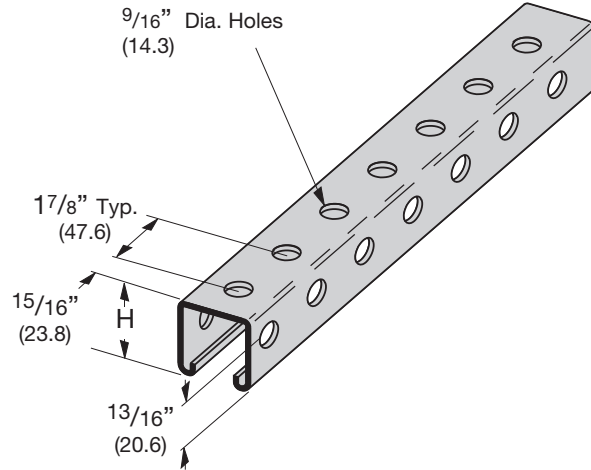
Reference page 14 for general fitting and standard finish specifications.

Channel Hole Patterns

B22TH (TH TYPE CHANNEL)

• For beam loads use 90% of Channel Loading Chart

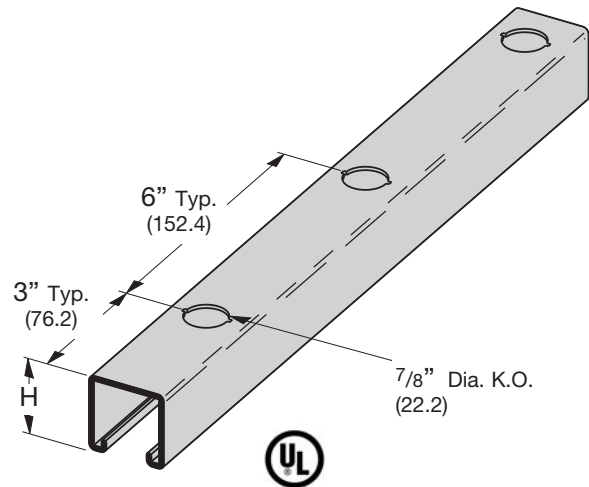
Part No.	Thickness		Height H		Weight	
	In.	mm	In.	mm	Lbs./Ft.	kg/m
B22TH	12 Ga.	(2.6)	1 ⁵ / ₈ "	(41.3)	1.76	(2.62)



B11KO6 THRU B56KO6 (KO6 TYPE KNOCKOUT CHANNEL)

• For beam loads use 90% of Channel Loading Chart

Part No.	Thickness		Height H		Weight	
	In.	mm	In.	mm	Lbs./Ft.	kg/m
B11KO6	12 Ga.	(2.6)	3 ¹ / ₄ "	(82.5)	3.05	(4.54)
B12KO6	12 Ga.	(2.6)	2 ⁷ / ₁₆ "	(61.9)	2.47	(3.67)
B22KO6	12 Ga.	(2.6)	1 ⁵ / ₈ "	(41.3)	1.90	(2.83)
B24KO6	14 Ga.	(1.9)	1 ⁵ / ₈ "	(41.3)	1.40	(2.08)
B26KO6	16 Ga.	(1.5)	1 ⁵ / ₈ "	(41.3)	1.12	(1.66)
B32KO6	12 Ga.	(2.6)	1 ³ / ₈ "	(34.9)	1.70	(2.53)
B42KO6	12 Ga.	(2.6)	1"	(25.4)	1.44	(2.14)
B52KO6	12 Ga.	(2.6)	1 ³ / ₁₆ "	(20.6)	1.27	(1.89)
B54KO6	14 Ga.	(1.9)	1 ³ / ₁₆ "	(20.6)	.97	(1.44)
B56KO6	16 Ga.	(1.5)	1 ³ / ₁₆ "	(20.6)	.85	(1.26)

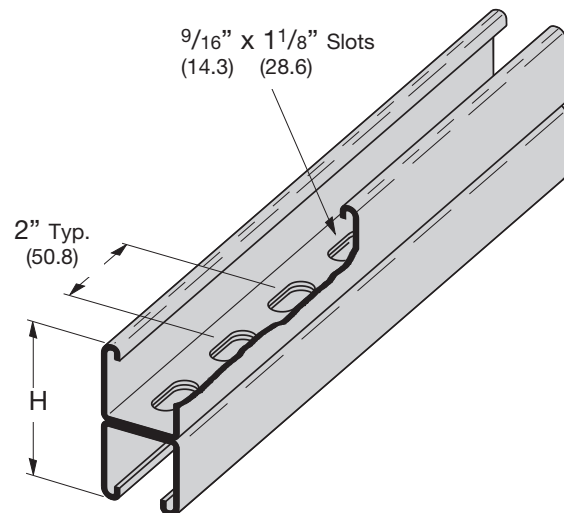


Channel & Combinations

B22SHA (BACK TO BACK SH TYPE CHANNEL)

• For beam loads use 90% of Channel Loading Chart

Part No.	Thickness		Height H		Weight	
	In.	mm	In.	mm	Lbs./Ft.	kg/m
B22SHA	12 Ga.	(2.6)	3 ¹ / ₄ "	(82.5)	3.64	(5.42)
B52SHA	12 Ga.	(2.6)	1 ⁵ / ₈ "	(41.3)	2.38	(1.77)
B54SHA	14 Ga.	(1.9)	1 ⁵ / ₈ "	(41.3)	1.82	(1.35)



Reference page 14 for general fitting and standard finish specifications.

General Notes for Strut-Type Channel Raceway

UL Category RIUU - B-Line, Inc., Highland, IL 62249 December 11, 1998 (C)
 FLUORESCENT AND INCANDESCENT LIGHTING



Suitable for not more than the number of wires of the sizes and types indicated in the following tables. Intended to enclose circuits operating at potentials not exceeding 600 volts between conductors. In all cases, the B217-20 or B217P snap-in cover is required to complete raceway closure. When using B217-24 snap-in cover, the number of wires is limited to 7 or fewer conductors no larger than #12 AWG.

B-Line's strut-type channel raceways and fittings are manufactured and tested to comply with the UL Standard for Safety for Strut-Type Channel Raceways and Fittings (UL 5B) in accordance with Article 384 of the 2002 National Electrical Code, NFPA 70.

1. Support spans for strut-type channel raceway shall not exceed 10 foot intervals.
2. No conductor larger than that for which the raceway is listed shall be installed in strut-type channel raceways. No wires under 14AWG or over 6AWG are allowed in any of B-Line's strut-type channel raceway. See tables 1, 2 and 3 below for a listing of the approved conductors for B-Line's strut-type channel raceways.
3. The number of conductors permitted in strut-type channel raceway shall not exceed the percentage fill using Table 384-22 and the applicable outside diameter of specific types and sizes of wire given in the tables in chapter 9 of the National Electrical Code. Table 384-22 lists two different percent fill areas depending on the use of internal or external joiners. Use 40% area fill with external joiners and 25% area fill for internal joiners.
4. Items in the electrical section of the B-Line Strut Systems Catalog identified by the UL symbol provide for electrical continuity. Other items require the use of a separate grounding wire.
5. If strut-type channel raceway is connected to another wiring system, the raceway must be field-tapped adjacent to the wire entry point to accept a #10-32 or larger grounding screw. A plated or stainless steel screw may be used. A sheet metal screw is not acceptable. Drill and tap the grounding wire hole before installing wires in raceway or move installed wires out of the way to avoid damage. After drilling and tapping, remove metal chips and burrs before installing screw.

TABLE 1: MAXIMUM NUMBER OF WIRES (Adjusted per NEC Table 384.22 for 40% fill)

Use this table to determine the type and number of conductors for use with B-Line's strut-type channel raceway using external joiners. This table applies for all installations except for the support and supply of electric discharge type lighting fixtures. See table 2 and 3 for further information.

Insulation Type	Wire Size AWG.	B11 B11K06	B12 B12K06	B22 B22K06	B24 B24K06	B26 B26K06	B32 B32K06	B56 B56K06
FEP, FEPB	14	172	127	81	81	81	67	36
	12	126	92	59	59	59	49	26
	10	90	66	42	42	42	35	19
	8	51	38	24	24	24	20	11
	6	24	17	11	12	12	9	5
RH, RHH, RHW	14	52	38	24	26	27	20	12
	12	45	33	21	22	23	17	10
	10	37	27	17	18	19	14	8
	8	20	14	9	10	10	7	4
	6	14	10	6	7	7	5	3
T, TW	14	124	91	58	58	58	48	26
	12	95	70	45	45	45	37	20
	10	69	51	33	33	33	27	14
	8	36	26	17	18	19	14	8
	6	21	15	9	10	11	8	5
THHN, THWN	14	178	131	84	84	84	69	37
	12	130	95	61	61	61	50	27
	10	82	60	38	38	38	32	17
	8	46	34	21	22	22	17	10
	6	33	24	15	16	16	12	7
THW	14	82	61	39	39	39	32	17
	12	66	49	31	31	31	26	14
	10	52	38	24	24	24	20	11
	8	29	21	13	14	15	11	6
	6	21	15	10	10	11	8	5
XHHW	14	124	91	58	58	58	48	26
	12	95	70	45	45	45	37	20
	10	71	52	33	33	33	28	15
	8	37	27	17	19	19	14	8
	6	27	20	13	14	14	10	6