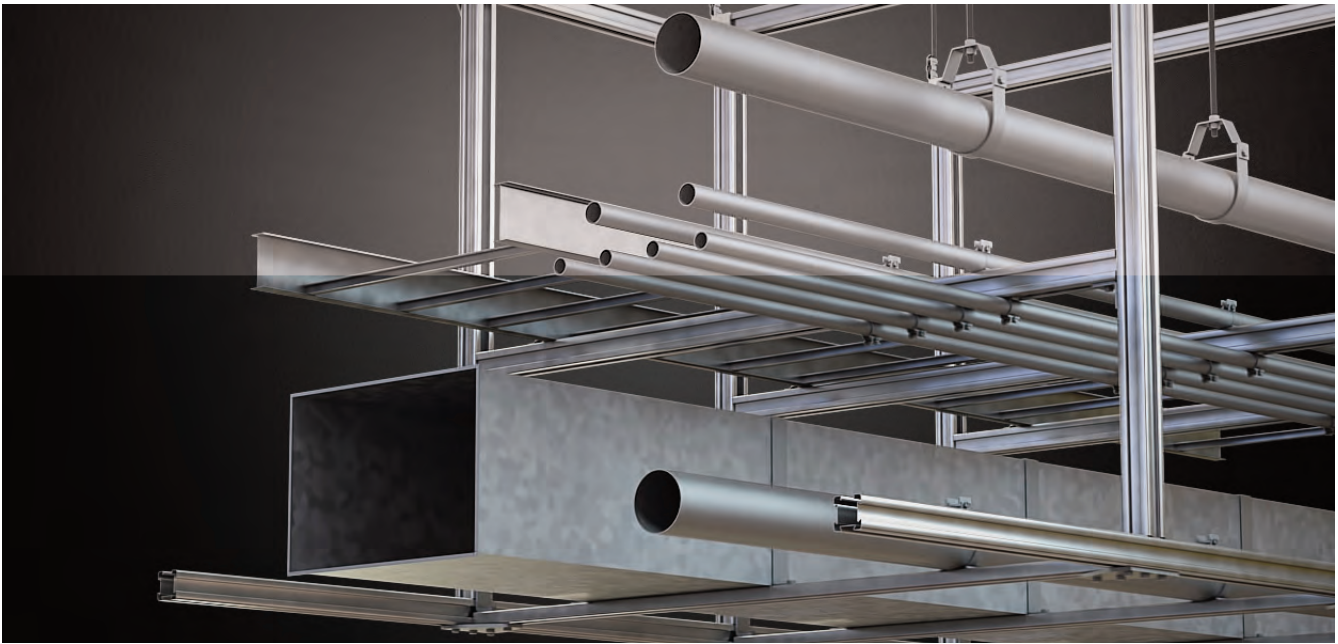


4Dimension™ Channels



Channel

4Dimension channel is cold formed on our modern rolling mills from 18 Ga. (1.2mm) low carbon steel. A continuous slot with inturned lips and up to three dovetail designed sides provide the ability to make attachments at any point on any side.

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.

Dove-tail Sides

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.

Materials & Finishes (Unless otherwise noted)

Steel: Plain & Pre-galvanized

18 Ga. (1.2)

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

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. This allowable stress results in a safety factor of 1.68.

Metric

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

Selection Chart for Channels, Materials and Hole Patterns

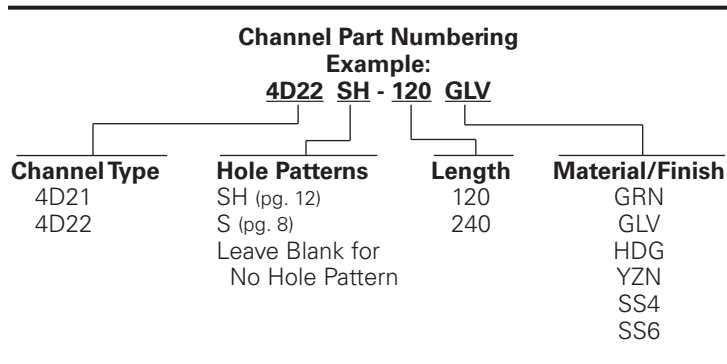
Channel Type	Channel Dimensions		Material & Thickness *			Channel Hole Pattern **	
	Height	Width	Stainless Steel			SH $\frac{5}{8}$ " x $1\frac{1}{4}$ " slots on 2" centers	S $\frac{13}{32}$ " x 3" slots
			Steel	Type 304	Type 316		
			1	3	4		
4D21	1 $\frac{1}{16}$ " (27.0)	2 $\frac{1}{8}$ " (54.0)	18 Ga.	18 Ga.	18 Ga.	<u>1</u> <u>2</u> <u>3</u>	<u>1</u> <u>2</u> <u>3</u>
4D22	2 $\frac{1}{8}$ " (54.0)	2 $\frac{1}{8}$ " (54.0)	18 Ga.	18 Ga.	18 Ga.	<u>1</u> <u>2</u> <u>3</u>	<u>1</u> <u>2</u> <u>3</u>

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 3. Some stainless steel channels with hole patterns are available on special order only.

*Metric equivalent for thicknesses shown in chart.
18 Ga. = 1.2 mm

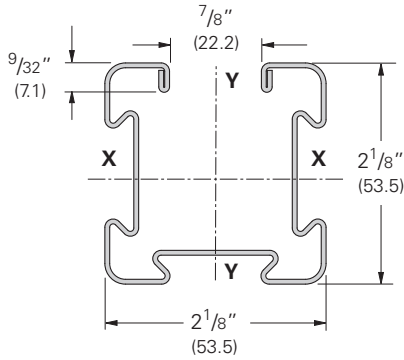
Properties may vary due to commercial tolerances of the material.

** 1 Steel
2 Type 304 Stainless Steel
3 Type 316 Stainless Steel



4Dimension™ Channel

4D22 Channel - 2¹/₈" (53.5mm) x 2¹/₈" (53.5mm)



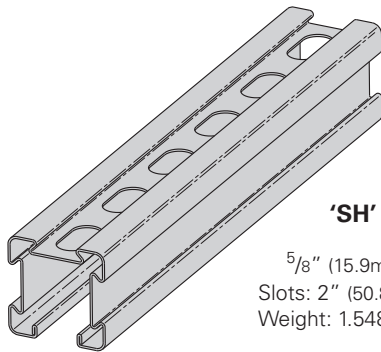
- Thickness: 18 Gauge (1.2mm)
- Standard Lengths:
10' (3.05m) & 20' (6.09m)
- Finish: Plain, DURA GREEN™, Pre-Galvanized, HDG, SS4, SS6
- Bundle Size: 320 ft. (97.6m)
- Bundle Dimensions:
10ft - 11" (279.4mm) x 10¹¹/₁₆" (271.5mm)
20ft - 11" (279.4mm) x 6³/₈" (161.9mm)
- Patent Pending



4D22 Section Properties

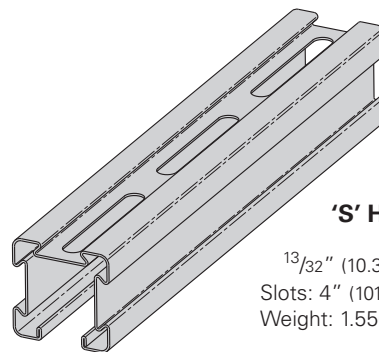
Channel	Areas of Weight lbs./ft. kg/m	Moment of Section in. ² cm ²	X - X Axis			Y - Y Axis		
			Section Inertia (I) in. ⁴ cm ⁴	Radius of Modulus (S) in. ³ cm ³	Moment of Gyration (r) in. cm	Section Inertia (I) in. ⁴ cm ⁴	Radius of Modulus (S) in. ³ cm ³	Gyration (r) in. cm
4D22	1.603 (2.39)	0.470 (3.03)	0.262 (10.91)	0.236 (3.87)	0.747 (1.90)	0.280 (11.65)	0.266 (4.36)	0.772 (1.96)
4D22A	3.206 (4.78)	0.940 (6.06)	1.453 (60.47)	0.690 (11.31)	1.243 (3.16)	0.560 (23.30)	0.532 (8.72)	0.772 (1.96)

Calculations of section properties are based on metal thicknesses as determined by the AISI Cold-Formed Steel Design Manual.



'SH' Hole Pattern

5/8" (15.9mm) x 1¹/₄" (31.8mm)
Slots: 2" (50.8mm) centers
Weight: 1.548 lbs./ft. (2.30kg/m)

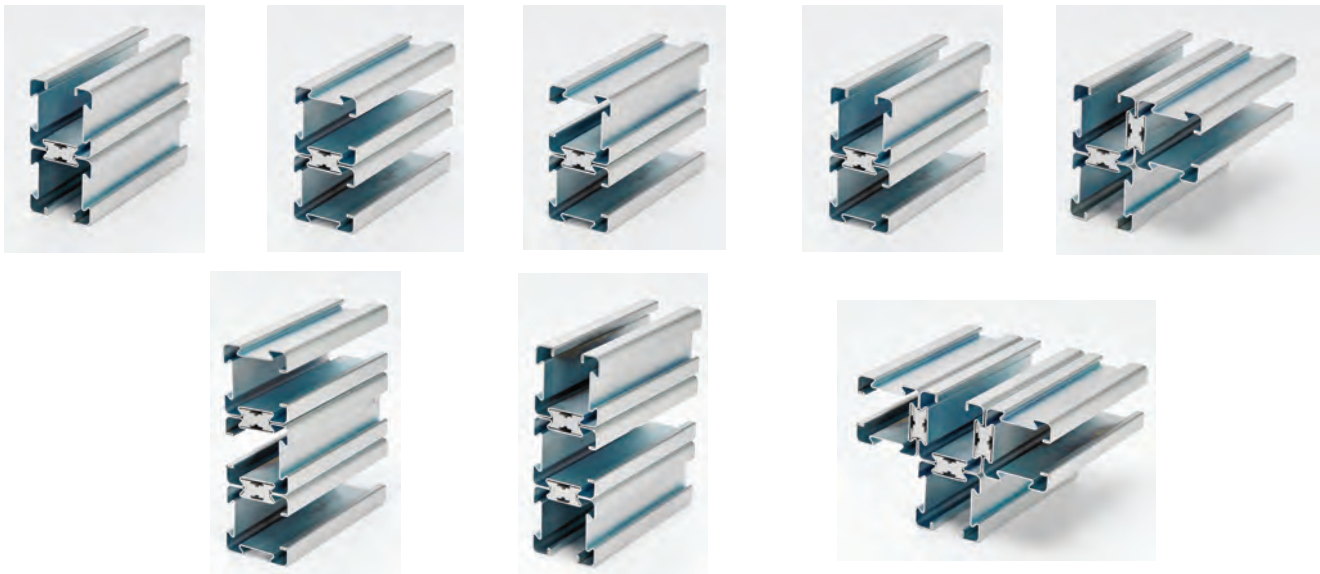


'S' Hole Pattern

1³/₃₂" (10.3mm) x 3" (76.2mm)
Slots: 4" (101.6mm) centers
Weight: 1.556 lbs./ft. (2.32kg/m)

Sample Combinations

Various combinations, as shown below, can be assembled in the field by using the 4DB (dovetail bar) or the 4D5101 (snap-on clamp).



Beam Load Data

4D22 Channel - 2¹/₈" (53.5mm) x 2¹/₈" (53.5mm) Load Data

4D22 Beam Span		Uniform Load		Deflection		Uniform Load @ Deflection =		1/240 Span		1/360 Span	
In.	mm	Lbs.	kN	In.	mm	Lbs.	kN	Lbs.	kN	Lbs.	kN
12	(305)	2871	(12.77)	0.05	(1.27)	3723	(16.56)	2523	(11.22)		
24	(609)	1872	(8.33)	0.10	(2.54)	2428	(10.80)	1645	(7.31)		
36	(914)	1249	(5.55)	0.17	(4.32)	1424	(6.33)	866	(3.85)		
48	(1219)	936	(4.16)	0.22	(5.59)	1068	(4.75)	649	(2.88)		
60	(1524)	749	(3.33)	0.43	(10.92)	480	(2.13)	244	(1.08)		
72	(1829)	624	(2.77)	0.52	(13.21)	400	(1.78)	203	(0.90)		
84	(2133)	535	(2.38)	0.70	(17.78)	309	(1.37)	184	(0.82)		
96	(2438)	468	(2.08)	0.80	(20.32)	270	(1.20)	161	(0.71)		
108	(2743)	416	(1.85)	1.00	(25.40)	230	(1.02)	148	(0.66)		
120	(3048)	374	(1.66)	1.12	(28.45)	207	(0.92)	133	(0.59)		

Dimensions are in inches unless otherwise noted. Metric dimensions are in parentheses and are in millimeters unless otherwise noted.

4Dimension™ Channel

Back-To-Back - 4D22 Channel - 2¹/₈" (53.5mm) x 4¹/₄" (107.0mm) Load Data

Beam Load Data

4D22 Beam Span In. mm	Assembly Style	Uniform Load		Deflection		Uniform Load @ 1/240 Span		Uniform Load @ 1/360 Span	
		Lbs.	kN	In.	mm	Lbs.	kN	Lbs.	kN
12 (305)	4DB3	2610	(11.61)	0.07	(1.78)	2490	(11.07)	1282	(5.70)
	4DDN	2610	(11.61)	0.06	(1.52)	2975	(13.23)	2004	(8.91)
	4D5101	2088	(9.29)	0.07	(1.78)	2505	(11.14)	1549	(6.89)
24 (609)	4DB3	2610	(11.61)	0.13	(3.30)	2490	(11.07)	1282	(5.70)
	4DDN	2610	(11.61)	0.11	(2.79)	2975	(13.23)	2004	(8.91)
	4D5101	2088	(9.29)	0.14	(3.55)	2505	(11.14)	1549	(6.89)
36 (914)	4DB3	2610	(11.61)	0.26	(6.60)	1771	(7.88)	957	(4.25)
	4DDN	2610	(11.61)	0.23	(5.84)	2142	(9.53)	1414	(6.29)
	4D5101	2088	(9.29)	0.20	(5.08)	1998	(8.89)	1279	(5.69)
48 (1219)	4DB3	2405	(10.70)	0.35	(8.89)	1632	(7.26)	882	(3.92)
	4DDN	2405	(10.70)	0.31	(7.87)	1974	(8.78)	1303	(5.79)
	4D5101	1924	(8.56)	0.26	(6.60)	1841	(8.19)	1179	(5.24)
60 (1524)	4DB3	1924	(8.56)	0.49	(12.44)	1191	(5.30)	763	(3.39)
	4DDN	1924	(8.56)	0.50	(12.70)	1234	(5.89)	828	(3.68)
	4D5101	1539	(6.84)	0.40	(10.16)	1198	(5.33)	796	(3.54)
72 (1829)	4DB3	1602	(7.12)	0.59	(14.98)	992	(4.41)	636	(2.83)
	4DDN	1603	(7.13)	0.60	(15.24)	1028	(4.57)	690	(3.07)
	4D5101	1282	(5.70)	0.48	(12.19)	998	(4.44)	663	(2.95)
84 (2133)	4DDN	1374	(6.11)	0.87	(22.10)	810	(3.60)	549	(2.44)
	4D5101	1099	(4.89)	0.71	(18.03)	771	(3.43)	513	(2.28)
96 (2438)	4DDN	1202	(5.34)	0.99	(25.14)	620	(2.31)	420	(1.87)
	4D5101	962	(4.28)	0.81	(20.57)	590	(2.62)	393	(1.75)
108 (2743)	4DDN	1069	(4.75)	1.35	(34.29)	511	(2.27)	342	(1.52)
	4D5101	855	(3.80)	1.10	(27.94)	490	(2.18)	325	(1.44)
120 (3048)	4DDN	962	(4.28)	1.50	(38.10)	414	(1.84)	277	(1.23)
	4D5101	770	(3.42)	1.22	(30.99)	397	(1.76)	263	(1.17)



4DB3 Assembly
(see page 16 for
product information)



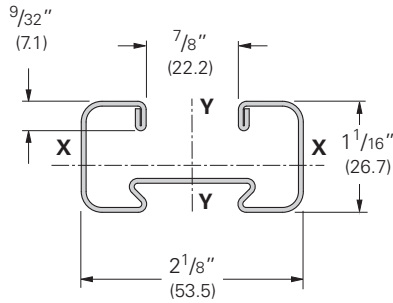
4DDN Assembly
(see page 17 for
product information)



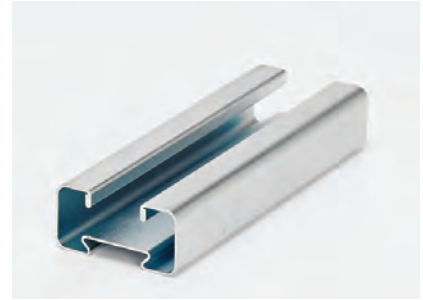
4D5101 Assembly
(see page 17 for
product information)

4Dimension™ Channel

4D21 Channel - 2¹/₈" (53.5mm) x 1¹/₁₆" (26.7mm)



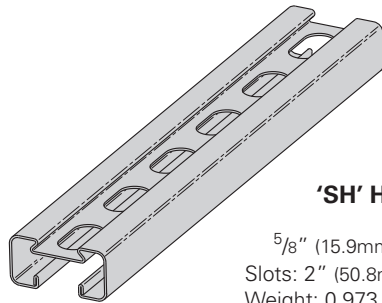
- Thickness: 18 Gauge (1.2mm)
- Standard Lengths:
10' (3.05m) & 20' (6.09m)
- Finish: Plain, DURA GREEN™, Pre-Galvanized, HDG, SS4, SS6
- Bundle Size: 320 ft. (97.6m)
- Bundle Dimensions:
10ft - 11" (279.4mm) x 6¹/₂" (165.1mm)
20ft - 11" (279.4mm) x 4⁵/₁₆" (109.5mm)
- Patent Pending



4D21 Section Properties

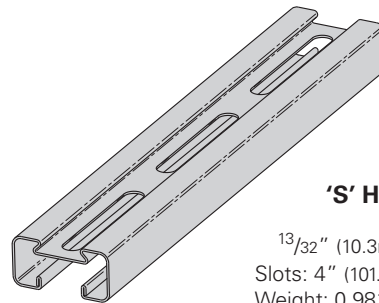
Channel	Areas of Weight lbs./ft. kg/m	Moment of Section in. ² cm ²	X - X Axis				Y - Y Axis			
			Section Inertia (I) in. ⁴ cm ⁴	Radius of Modulus (S) in. ³ cm ³	Moment of Gyration (r) in. cm		Section Inertia (I) in. ⁴ cm ⁴	Radius of Modulus (S) in. ³ cm ³	Gyration (r) in. cm	
4D21	1.032 (1.54)	0.302 (1.95)	0.042 (1.76)	0.077 (1.26)	0.374 (0.95)	0.167 (6.97)	0.159 (2.60)	0.744 (1.89)		
4D21A	2.064 (3.08)	0.605 (3.90)	0.238 (9.89)	0.226 (3.70)	0.627 (1.59)	0.335 (13.95)	0.318 (5.21)	0.744 (1.89)		

Calculations of section properties are based on metal thicknesses as determined by the AISI Cold-Formed Steel Design Manual.



'SH' Hole Pattern

⁵/₈" (15.9mm) x 1¹/₄" (31.8mm)
Slots: 2" (50.8mm) centers
Weight: 0.973 lbs./ft. (1.45kg/m)



'S' Hole Pattern

¹³/₃₂" (10.3mm) x 3" (76.2mm)
Slots: 4" (101.6mm) centers
Weight: 0.981 lbs./ft. (1.46kg/m)

Sample Combinations

Various combinations, as shown below, can be assembled in the field by using the 4DB (dovetail bar).



Beam Load Data

4D21 Channel - 2¹/₈" (53.5mm) x 1¹/₁₆" (26.7mm) Load Data

4D21 Beam Span		Uniform Load		Deflection		Uniform Load @ Deflection =			
In.	mm	Lbs.	kN	In.	mm	1/240 Span		1/360 Span	
						Lbs.	kN	Lbs.	kN
12	(305)	1187	(5.28)	0.09	(2.22)	749	(3.33)	414	(1.84)
24	(609)	593	(2.64)	0.18	(4.45)	374	(1.66)	207	(0.92)
36	(914)	396	(1.76)	0.30	(7.66)	237	(1.05)	145	(0.64)
48	(1219)	297	(1.32)	0.40	(10.21)	178	(0.79)	109	(0.48)
60	(1524)	238	(1.06)	0.68	(17.25)	108	(0.48)	70	(0.31)
72	(1829)	198	(0.88)	0.82	(20.70)	90	(0.40)	58	(0.26)
84	(2133)	169	(0.75)	1.32	(33.49)	49	(0.21)	29	(0.13)
96	(2438)	149	(0.66)	1.51	(38.28)	43	(0.19)	26	(0.11)
108	(2743)	132	(0.59)	2.01	(51.07)	37	(0.16)	24	(0.10)
120	(3048)	119	(0.53)	2.23	(56.74)	33	(0.14)	22	(0.09)

4Dimension™ Channel

Back-To-Back - 4D21 Channel - 2¹/₈" (53.5mm) x 2¹/₈" (153.5mm) Load Data

Beam Load Data

4D21 Beam Span In. mm	Assembly Style	Uniform Load		Deflection		Uniform Load @ 1/240 Span		Uniform Load @ 1/360 Span	
		Lbs.	kN	In.	mm	Lbs.	kN	Lbs.	kN
12 (305)	4DB3	1270	(5.65)	0.11	(2.79)	572	(2.54)	328	(1.46)
	4DDN	1270	(5.65)	0.10	(2.54)	752	(3.34)	454	(2.02)
24 (609)	4DB3	1270	(5.65)	0.22	(5.59)	572	(2.54)	328	(1.46)
	4DDN	1270	(5.65)	0.19	(4.82)	752	(3.34)	454	(2.02)
36 (914)	4DB3	1013	(4.50)	0.41	(10.41)	422	(1.88)	262	(1.16)
	4DDN	1013	(4.50)	0.41	(10.41)	424	(1.88)	256	(1.14)
48 (1219)	4DB3	759	(3.37)	0.55	(13.97)	316	(1.40)	196	(0.87)
	4DDN	759	(3.37)	0.55	(13.87)	318	(1.41)	192	(0.85)
60 (1524)	4DB3	608	(2.70)	0.88	(22.35)	199	(0.88)	127	(0.56)
	4DDN	608	(2.70)	0.84	(21.33)	242	(1.07)	168	(0.75)
72 (1829)	4DB3	506	(2.25)	1.06	(26.92)	166	(0.74)	106	(0.47)
	4DDN	506	(2.25)	1.01	(25.65)	201	(0.89)	140	(0.62)
84 (2133)	4DDN	434	(1.93)	1.53	(38.86)	165	(0.73)	112	(0.50)
96 (2438)	4DDN	380	(1.69)	1.75	(44.45)	126	(0.56)	86	(0.38)
108 (2743)	4DDN	338	(1.50)	2.47	(62.74)	101	(0.45)	69	(0.30)
120 (3048)	4DDN	304	(1.35)	2.74	(69.59)	82	(0.36)	56	(0.25)



4DB3 Assembly
(see page 16 for
product information)



4DDN Assembly
(see page 17 for
product information)

4Dimension™ Back-To-Back Accessories

4DB - Dove-Tail Bar (Exclusively for 4Dimension Strut - Dove-Tail Sides)



- For horizontal applications only
- Recommend $\frac{3}{8}$ "-16 x $\frac{1}{2}$ " (12.7mm) long cone point set screw
- Bar thickness - $\frac{1}{2}$ " (12.7mm)
- $\frac{1}{4}$ "-20 or $\frac{3}{8}$ "-16 threaded hole; $\frac{17}{32}$ " (13.5mm) clearance hole
- Spring that locks into slot on 4Dimension channels
- Aluminum
- Patent Pending

Part No.	Thread Size	Pull-Out Strength		Trapeze Loading		Wt./C	
		Lbs.	kN	Lbs.	kN	Lbs.	kg
4DB3-1/4	$\frac{1}{4}$ "-20	690	(3.07)	465	(2.07)	11	(4.99)
4DB3-3/8	$\frac{3}{8}$ "-16	690	(3.07)	465	(2.07)	11	(4.99)
4DB5-1/4	$\frac{1}{4}$ "-20	490	(2.18)	500	(2.22)	19	(8.62)
4DB5-3/8	$\frac{3}{8}$ "-16	490	(2.18)	500	(2.22)	19	(8.62)
4DB7-1/4	$\frac{1}{4}$ "-20	460	(2.04)	435	(1.93)	27	(12.25)
4DB7-3/8	$\frac{3}{8}$ "-16	460	(2.04)	435	(1.93)	27	(12.25)

Safety Factor of 2.5
Loading based on 24" (609mm) span

Back-To-Back Installation



Wall Mount Installation



4Dimension™ Back-To-Back Accessories

4DDN - Dual Dove-Tail Nut (Exclusively for 4Dimension Strut - Dove Tail Sides)



- One 4Dimension channel must have 'SH' slot pattern
- Torque to 19 ft./lbs. (26Nm)
- Electro-galvanized steel nut with zinc plated hardware
- Hex head wrench size - 9/16"
- Patent Pending

Part No.	Pull-Out Strength		Slip Strength		Wt./C	
	Lbs.	kN	Lbs.	kN	Lbs.	kg
4DDN228	490	(2.18)	55	(0.24)	11.4	(5.17)

Safety Factor of 2.5
Loading based on 24" (609mm) span

Installation



4D5101 - Back-To-Back Snap On Clamp (Exclusively for 4Dimension Strut)



- Works with 4D22 strut only
- Can be adjusted/removed with a flat head screwdriver
- Length - 2" (50.8mm)
- Recommended use in pairs
- Zinc plated steel
- Patent Pending

Part No.	Pull-Out Strength		Wt./C	
	Lbs.	kN	Lbs.	kg
4D5101	400	(1.78)	2.9	(1.31)

Safety Factor of 2.5 - 60% beam load rating
Loading based on 24" (609mm) span

Dove-Tail Sides Installation



Dimensions are in inches unless otherwise noted. Metric dimensions are in parentheses and are in millimeters unless otherwise noted.

4Dimension™ Accessories

4D5000 - Flip Clip™ Trapeze Hanger

(Exclusive to 4Dimension Strut)

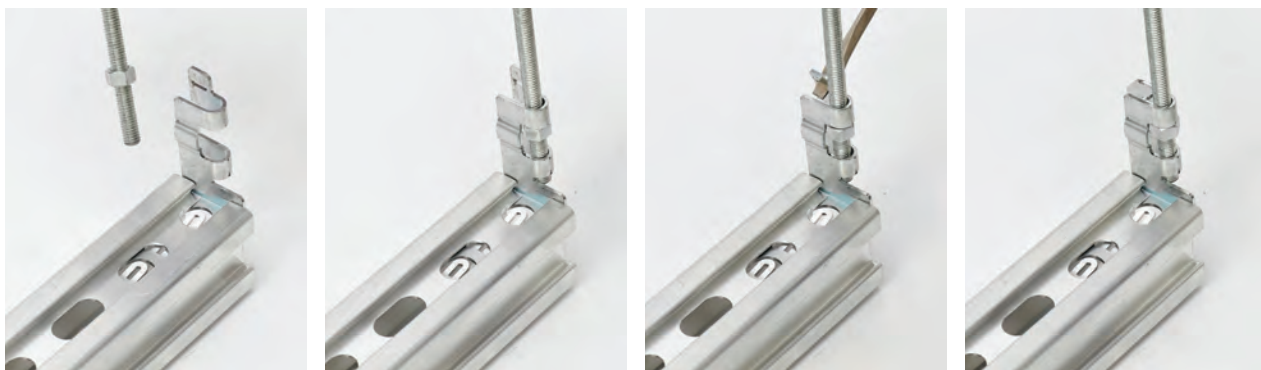
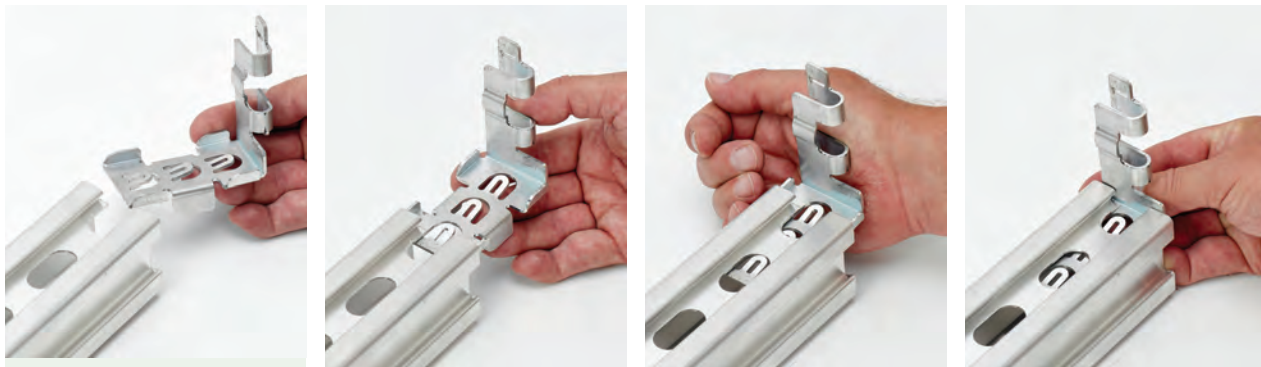


- Mechanically locks in place when used with 4Dimension SH hole pattern channel
- Recommend a self-tapping set screw when used in 4Dimension solid channel or S hole pattern channel
- Requires hex nut for location placement on ATR
- Provides more usable area for trapeze application
- Sold in pieces (when used as trapeze hangers, two pieces are required)
- Loading Safety Factor: 2.5
- Zinc plated steel or Stainless Steel Type 316 (add SS6 to part number)
- Patent Pending

Part No.	Rod Size	Design Load		Wt./C	
		Lbs.	kN	Lbs.	kg
4D5000-3/8	3/8"-16	770	(3.42)	23.8	(10.79)
4D5000-1/2	1/2"-13	880	(3.56)	25.3	(11.47)

Design load when used in pairs as a trapeze solution.
Consult beam loading charts for channel loading.

Installation (shown in the upright position)



Ensure both top and bottom lock tabs are bent to secure All Threaded Rod.
Ensure the tab on the horizontal side is bent to engage in the SH slot.

4D5001 - 2-Piece Turn & Lock Trapeze Hanger (Exclusive to 4Dimension Strut)

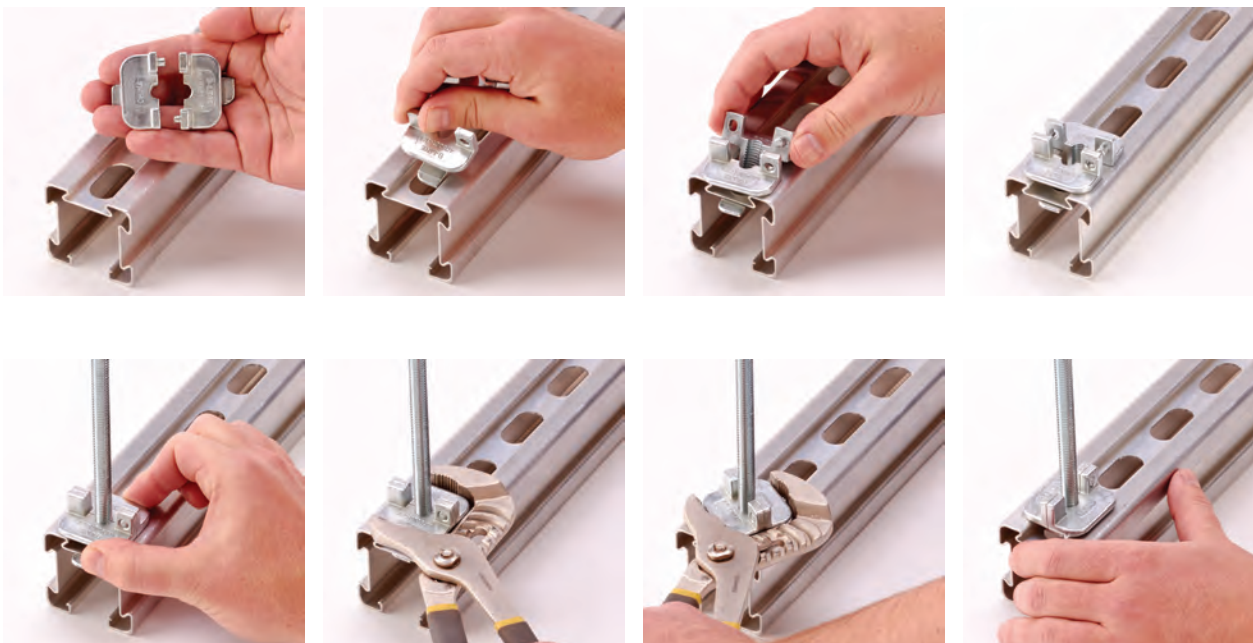
- Can be installed in any desired position on the ATR, eliminating the need to thread hex nuts up along ATR
- No additional hardware required
- Used in 'SH' slot with open face of channel facing up or down
- Interlocking/alignment tabs on top of part for easy assembly, installation, and adjustment
- Sold in pieces (when used as trapeze hangers, two pieces are required)
- Loading Safety Factor: 2.5
- Finish: Zinc plated and HDG
- Patent Pending



Part No.	Thread Size	Loading		Wt./C	
		Lbs.	kN	Lbs.	kg
4D5001	3/8"-16	1155	(5.14)	24.8	(11.25)

Design load when used in pairs as a trapeze solution.
Consult beam loading charts for channel loading.

Installation



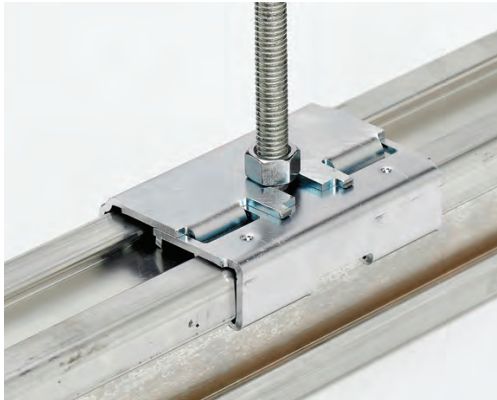
4Dimension™ Accessories

4D5100 - 2 Piece Strengthening Clamp

(Exclusive to 4Dimension Strut)



- For use on 4D22 channel only
- Shipped as one piece that can be snapped apart for installation
- Also designed to be used as a rod hanger
- Loading Safety Factor: 2.5
- Finish: Zinc plated and SS6
- Patent Pending



Part No.	Thread Size	Wt./C	
		Lbs.	kg
4D5100-3/8	3/8"-16	44.1	(20.00)
4D5100-1/2	1/2"-13	43.9	(19.91)

Part No.	Loading	
	Lbs.	kN
4D5100-3/8	785	(3.49)
4D5100-1/2	935	(4.16)

Design load when used individually.
Consult beam loading charts for channel loading.

Installation

