

Heavy-Duty Inserts .....	141
Standard-Duty Inserts.....	142, 144
Light-Duty Inserts .....	143
Spot Inserts .....	144
Deck Inserts .....	145
Components .....	145
Technical Data .....	146

## MATERIAL

Cold-formed inserts are manufactured from standard 12 gauge (2.7 mm) Unistrut channel sections conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33, unless otherwise noted.

To inhibit concrete seepage, all inserts (except spot inserts) are provided with closure strips and end caps or foam filler, unless otherwise requested.

Most concrete inserts are available in stainless steel on special order. Consult factory for ordering information.

## APPLICATION

A wide range of heavy-duty to light-duty "continuous" and "spot" concrete inserts are available for use in pre-cast, pre-stressed or poured-in-place concrete floors, walls or ceilings.

## FINISHES

Cold-formed, standard-duty, light-duty and spot concrete inserts are available in:

Hot dipped galvanized (HG), conforming to ASTM A123 or A153;

Pre-galvanized (PG), conforming to ASTM A653 GR 33

Plain (PL)

## DESIGN LOAD

Design loads, where shown, are based on 3,000 PSI concrete, unless noted.

## STANDARD LENGTHS

Insert lengths range from 3 inches (76.2 mm) to 20 feet (6.10m) with a tolerance of  $\pm 1/4$ -inch (6.4mm).

## DIMENSIONS

Imperial dimensions are illustrated in inches. Metric dimensions are shown in parentheses or as noted. Unless noted, all metric dimensions are in millimeters and rounded to one decimal place.

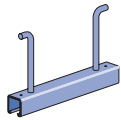
Custom-designed inserts are available on special order. Consult factory for ordering information.



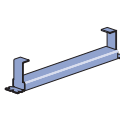
### Heavy Duty

### Light Duty

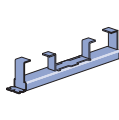
### Standard Duty



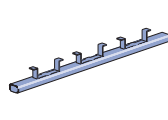
P3754-Pg 141



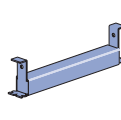
P3349-Pg 143



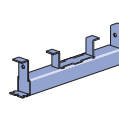
P3352-Pg 143



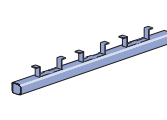
P3354-Pg 143



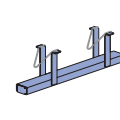
P3249-Pg 142



P3253-Pg 142



P3254-Pg 142



P3165-Pg 144



P2865-Pg 144

### Spot Inserts and Components



P3245-Pg 144



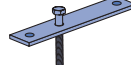
P3245N4-Pg 144



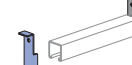
M24-Pg 144



M2506-Pg 144



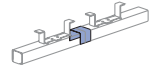
P3700-Pg 145



P1703-Pg 145

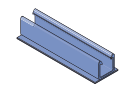


P2407-Pg 145

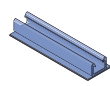


P3663-Pg 145

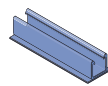
### Fiberglass Concrete Inserts



Heavy Duty-Pg 193



Light Duty-Pg 194



Heavy Duty - Standard Profile-Pg 195

### Closure Strips



P1184P  
Pg 60



P3184  
Pg 60



P3184P  
Pg 60



P3184F  
Pg 60



P3712P  
Pg 60

### Channel Nuts



Heavy Duty-Pg 73



Heavy Duty-Pg 73



Standard Duty-Pg 73



Standard Duty-Pg 73



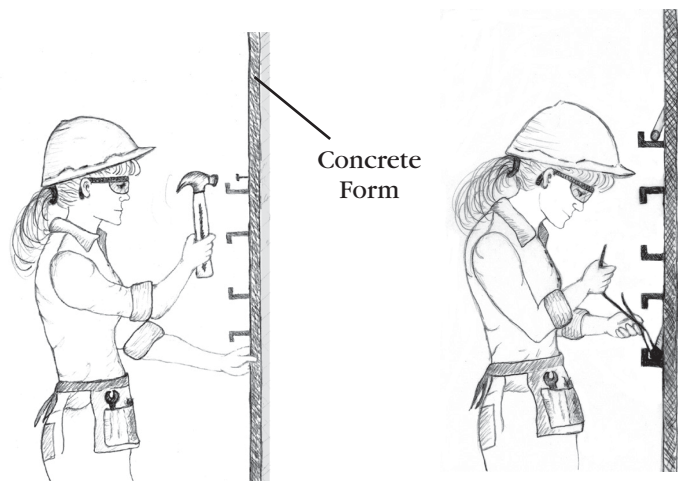
Light Duty-Pg 73



Light Duty-Pg 73

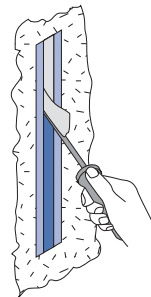
### INSTALLING CONCRETE INSERTS

1. Nail insert to concrete form using prepunched nail holes
2. Attach rebars to flanges on insert

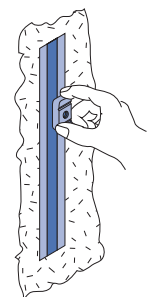


Concrete Form

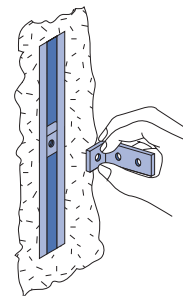
### USING INSTALLED CONCRETE INSERT



1. Scrape out filler



2. Insert channel nut.

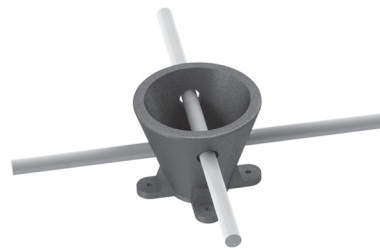


3. Attach fitting

The Unistrut concrete insert is firmly fixed to the concrete side of the form before pouring. When the forms are removed, the insert is ready for use. Brackets and other components can be attached at any point of the continuous entry channel.

## P3246

- Up to 5,700 lbs. tension capacity in 3,000 psi concrete
- Sizes available to accept threaded rod from ¾" to 1-½"
- Fiberglass rods to interface with the rebar or reinforcing rods, reducing the potential for a galvanic interaction
- 316 Stainless steel body with fiberglass rods to prevent corrosion
- Meets several industry and federal specifications, including: A-A-1192A (Type 18), WW-H-171-E (Type 18), ANSI/MSS SP-69 and MSS SP-58 (Type 18)



P3246 Installed

Part Number	Threaded Hole Size <sup>a</sup>	Maximum Allowable Load (lbs.)		
		Vertical	Shear <sup>b</sup>	45° Pull
P3246-75 ST	¾" - 10	3,230 <sup>a</sup>	1,930	2,740
P3246-87 ST	7/8" - 9	4,480 <sup>a</sup>	2,680	3,800
P3246-1 ST	1" - 8	5,700	3,540	5,000
P3246-125 ST	1¼" - 7	5,700	5,700	6,000
P3246-150 ST	1½" - 6	5,700	8,280	6,000

Safety Factor of 5 in 3,000 psi concrete

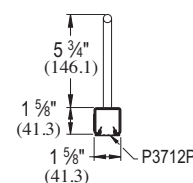
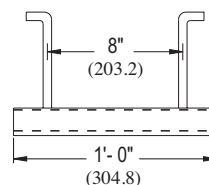
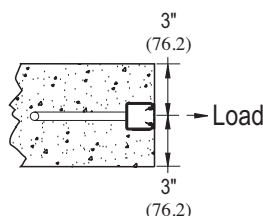
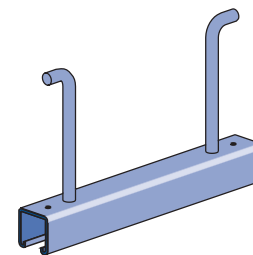
<sup>a</sup> Limited by Threaded Rod Safe Load in accordance with MSS-SP-58

<sup>b</sup> Limited by MSS-SP-58 Tension Safe Load multiplied by 0.6

## P3754

## 1½" x 1½" CHANNEL

- Closure strip P3712 P and a styrene bead end cap that fits inside the channel to inhibit concrete seepage are included.
- The recommended design load when used for curtain wall anchorage is 5,000 pounds and is based on use in average, good concrete. The design load includes ⅓ increase in load as permitted by AISI Specifications and Uniform Building Code when stresses are produced by wind or earthquake and other loads.
- The recommended design load is based on using two P1010 nuts at no less than 3" O.C. and no closer than 2" to either end of the insert. The distance between the insert centerline and the concrete edge must be a minimum of 3".
- All nuts and fittings for P3200 series concrete inserts will fit.
- Material: Cold formed from 12 Ga. (2.7mm) steel conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33 A.
- Finish: Choice of hot-dipped galvanized (HG) conforming to ASTM A123 or A153, or pre-galvanized (PG) conforming to ASTM A653-G90.



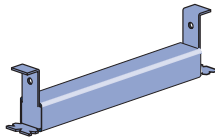
Part Number	Insert Length ±¼" (6.4mm) In (mm)	Wt/100 pcs Lbs (kg)	Max. Anchor Spacing In (mm)	Max. Allowable Point Load Lbs (kN)	Spacing of Point Loads In (mm)	Max. Allowable Uniform Load Lbs (kN)
P3754	12 304.8	210 95.3	8 203.2	2,500 11.12	3 76.2	5,000 22.24

Safety factor 3

### P3200 SERIES

1½" x 1¾" CHANNEL PG HG

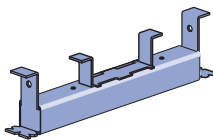
#### P3249 thru P3252



"NC" Suffix – No Closure Strip, With End Caps

"WC" Suffix – With Closure Strip & End Caps

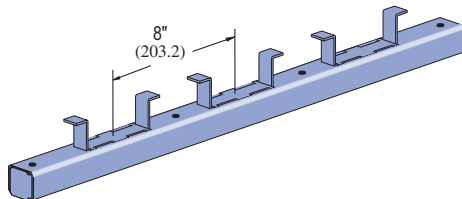
#### P3253



"NC" Suffix – No Closure Strip, With End Caps & Back Plates

"WC" Suffix – With Closure Strip, End Caps & Back Plates

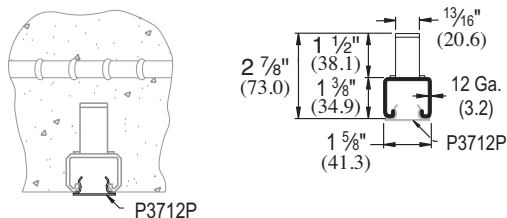
#### P3254 thru P3270



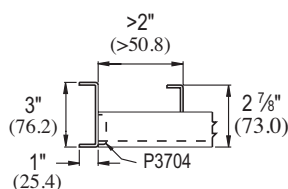
"NC" Suffix – No Closure Strip, W/End Caps & Back Plates

"WC" Suffix – W/Closure Strip, End Caps & Back Plates

"X" – No Closure Strip, No End Caps, W/Back Plates



P3712P



P3704

- Includes closure and end caps unless otherwise requested.
- P3280 end cap used when distance to first anchor is up to 2" (51 mm).
- P3704 end cap is used when end distance to first anchor is over 2" (51 mm).
- Nail or anchor inserts to forms every 16" (406.4 mm) to 24" (609.6 mm).
- Anchors are 8" (203.2 mm) on center.
- Material: Cold formed from 12 Ga. (3) steel conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33. A. Stainless steel available on special order.
- Finish: Choice of hot-dipped galvanized (HG) conforming to ASTM A123 or A153, or pre-galvanized (PG) conforming to ASTM A653-G90.

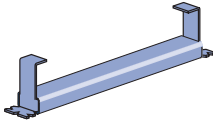
Part Number	Insert Length In/Ft (mm)	Wt/100 pcs Lbs (kg)	Max. Allowable Point Load Lbs (kN)	Min. Spacing of Pt. Loads In (mm)	Max. Allowable Uniform Load Lbs (kN)
P3249	3" 76.2	85 39	500 2.22	—	500 2.22
P3250	4" 101.6	100 45	800 3.56	—	800 3.56
P3251	6" 152.4	130 59	1,000 4.45	—	1,000 4.45
P3252	8" 203.2	159 72	1,200 5.34	—	1,200 5.34
P3253	12" 304.8	227 103	2,000 8.90	—	2,000 8.90
P3254	16" 406.4	270 122	2,000 8.90	12 304.8	4,000 17.79
P3255	20" 508.0	357 162	2,000 8.90	12 304.8	4,000 17.79
P3256	24" 609.6	399 181	2,000 8.90	12 304.8	4,000 17.79
P3257	32" 812.8	527 239	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3257A	36" 914.4	616 279	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3258	40" 1,016.0	661 300	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3259	4' 1,219.2	786 357	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3260	5' 1,524.0	1,003 455	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3261	6' 1,828.8	1,173 532	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3262	7' 2,133.6	1,390 630	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3263	8' 2,438.4	1,560 708	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3264	9' 2,743.2	1,741 790	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3265	10' 3,048.0	1,947 883	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3266	12' 3,657.6	2,334 1,059	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3267	14' 4,267.2	2,717 1,232	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3268	16' 4,876.8	3,116 1,413	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3269	18' 5,486.4	3,530 1,601	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)
P3270	20' 6,096.0	3,882 1,761	2,000 8.90	12 304.8	2,000 2,976.3 Lbs./Ft. (kg/m)

Safety factor 3.

## P3300 SERIES

1 5/8" x 7/8" CHANNEL PG HG

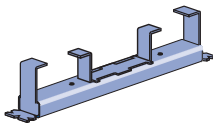
## P3349 thru P3351



"NC" Suffix – No Closure Strip, With End Caps

"WC" Suffix – With Closure Strip &amp; End Caps

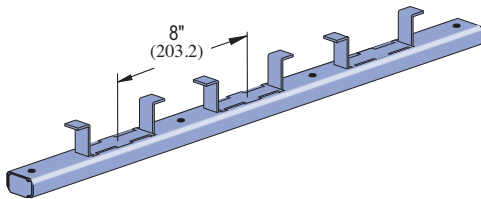
## P3352 thru P3353



"NC" Suffix – No Closure Strip, With End Caps &amp; Back Plates

"WC" Suffix – With Closure Strip, End Caps &amp; Back Plates

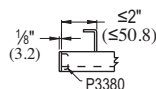
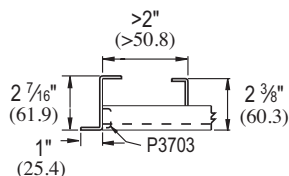
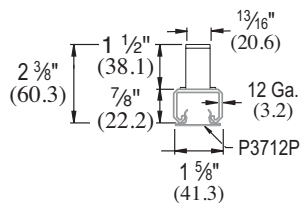
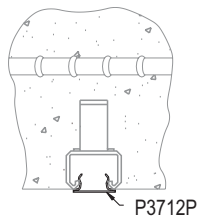
## P3354 thru P3370



"NC" Suffix – No Closure Strip, W/End Caps &amp; Back Plates

"WC" Suffix – W/Closure Strip, End Caps &amp; Back Plates

"X" – No Closure Strip, No End Caps, W/Back Plates



- Includes closure and end caps unless otherwise requested.
- P3380 end cap used when distance to first anchor is up to 2" (51 mm).
- P3703 end cap is used when end distance to first anchor is over 2" (51 mm).
- Nail or anchor inserts to forms every 16" (406.4 mm) to 24" (609.6 mm).
- Anchors are 8" (203.2 mm) on center.
- Material: Cold formed from 12 Ga. (3 mm) steel conforming to ASTM A1011 SS GR. 33 or A653 GR 33. A. Stainless steel available on special order.
- Finish: Choice of hot-dipped galvanized (HG) conforming to ASTM A123 or A153, or pre-galvanized (PG) conforming to ASTM A653-G90.

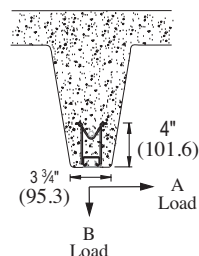
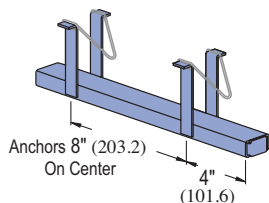
Part Number	Insert Length In/Ft. (mm)	Wt/100 pcs Lbs (kg)	Max. Allowable Point Load Lbs (kN)	Min. Spacing of Pt. Loads In (mm)	Max. Allowable Uniform Load Lbs (kN)
P3349	3" 76.2	68 31	400 1.78	—	400 1.78
P3350	4" 101.6	81 37	500 2.22	—	500 2.22
P3351	6" 152.4	102 46	750 3.34	—	750 3.34
P3352	8" 203.2	122 55	1,000 4.45	—	1,000 4.45
P3353	12" 304.8	174 79	1,500 6.67	—	1,500 6.67
P3354	16" 406.4	185.0 84	1,500 6.67	12 304.8	3,000 13.34
P3355	20" 508.0	231 105	1,500 6.67	12 304.8	3,000 13.34
P3356	24" 609.6	277 126	1,500 6.67	12 304.8	3,000 13.34
P3357	32" 812.8	370 168	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3357A	36" 914.4	416 189	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3358	40" 1,016.0	463 210	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3359	4' 1,219.2	555 252	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3360	5' 1,524.0	694 315	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3361	6' 1,828.8	832 377	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3362	7' 2,133.6	971 440	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3363	8' 2,438.4	1,110 503	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3364	9' 2,743.2	1,249 567	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3365	10' 3,048.0	1,387 629	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3366	12' 3,657.6	1,665.0 755	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3367	14' 4,267.2	1,942 881	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3368	16' 4,876.8	2,220 1,007	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3369	18' 5,486.4	2,497 1,133	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)
P3370	20' 6,096.0	2,775 1,259	1,500 6.67	12 304.8	1,500 Lbs./Ft. 2,232.2 (kg/m)

Safety factor 3.



### P3165 SERIES

### 1 5/8" x 7/8" CHANNEL



"X" Suffix – No Closure Strip, No End Caps  
 "WC" Suffix – With Closure Strip & End Caps

#### Maximum allowable load/ft.

Part No.	Length Ft (M)	Wt/100 pcs Lbs (kg)
P3165	10 3.05	1,650 748.4
P3170	20 6.10	3,280 1,487.8

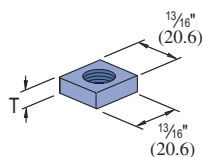
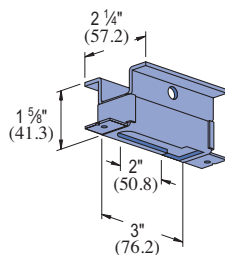
Concrete	A Lbs (kN)	B Lbs (kN)
Light Wt	425 1.89	800 3.56
Normal Wt	500 2.22	1,000 4.45

Safety factor 3.

Safety factor 3.

- Designed for use in prestressed concrete.
- Anchors 8" (203.2 mm) on center; first anchor 4" (101.6 mm) from end.
- Includes closure and end caps unless otherwise requested.
- Material: Cold formed from 12 Ga. (2.7 mm) steel conforming to ASTM A1011 SS GR 33 or ASTM A653 GR 33. A. Stainless steel available on special order.
- Finish: Choice of pre-galvanized (PG) conforming to ASTM A653-G90, or plain (PL).

### P3245



#### Square Nut for P3245 Insert

Part Number	Wt/100 pcs Lbs (kg)	Max. Allowable Pt. Load Lbs (kN)
P3245	54 24.5	1,000 4.45

Part Number	Size/Thread In	T In (mm)	Wt/100 pcs Lbs (kg)
P3245-N4	1/4" — 20	5/16" 7.9	6 2.7
P3245-N6	3/8" — 16	5/16" 7.9	5 2.3
HSQN050	1/2" — 13	7/16" 11.1	6 2.7

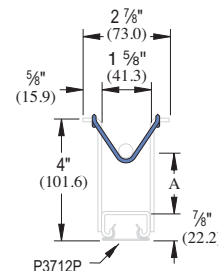
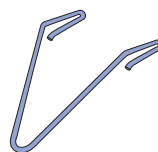
Finish: Pre-galvanized

Safety factor of 3

- For 1/4", 3/8", or 1/2" size attachment or hanger rod.
- Insert nuts to be ordered separately.

### P2865-10, -15, -20

### HOLD-DOWN SPRINGS

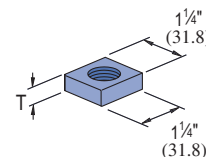
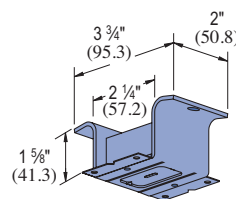


Finish: Plain

Part Number	A In (mm)	Wt/100 pcs Lbs (kg)
P2865-10	1 25.4	2 0.9
P2865-15	1 1/2 38.1	2 0.9
P2865-20	2 50.8	2 0.9

### M24

### SPOT INSERT



#### Square Nut for M24

Part Number	Wt/100 pcs Lbs (kg)	Max. Allowable Pt. Load Lbs (kN)
M24	52 23.6	800 3.56

Part Number	Size/Thread In	T In (mm)	Wt/100 pcs Lbs (kg)
M2506	1/4" — 20	1/4" 6.4	13 5.9
M2508	3/8" — 16	3/8" 9.5	14 6.4
M2510	1/2" — 13	1/2" 12.7	14 6.4
M2512	5/8" — 11	1/2" 12.7	12 5.4
M2523	3/4" — 10	1/2" 12.7	11 5.0
M2524	7/8" — 9	1/2" 12.7	10 4.5

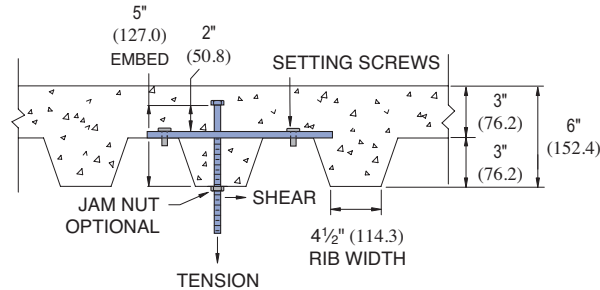
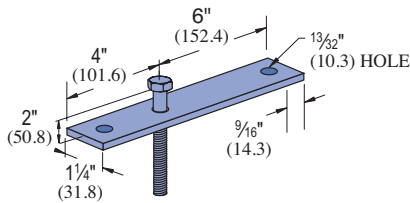
Finish: Electro-galvanized

Safety factor of 5

- Ribs along sides of slot give extra strength to case.
- Insert nuts M2506 thru M2524 to be ordered separately.

## P3700 SERIES

## DECK INSERT



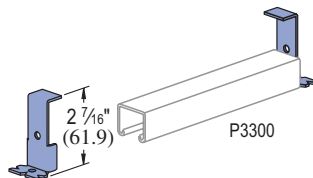
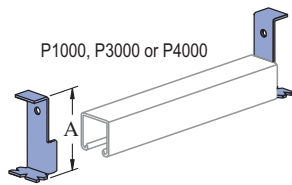
Part Number	Rod Dia. In	Tension Load Lbs (kN)	Shear Load Lbs (kN)	Wt/100 pcs Lbs (kg)
P3700-37	3/8	850 3.78	600 2.67	89 40.4
P3700-50	1/2	1,380 6.14	1000 4.45	111 50.3
P3700-62	5/8	1920 8.54	1760 7.83	141 64.0

## Notes:

1. Allowable loads have been determined by the manufacturer's testing, analysis, and technical specification.
2. Values are based on a safety factor of 5.
3. 20 Gauge Metal Deck

## P1703, P1704, P3703, P3704, P4703

## END CAP ANCHORS PG HG



Part Number	Channel	"A" In (mm)	Wt/100 pcs Lbs (kg)
P1703	P1000	2 13/32 61.1	30 13.6
P1704	P1000	3 17/32 89.7	37 16.8
P3703	P3300	2 7/16 61.9	17 7.7
P3704	P3000	3 76.2	20 9.1
P4703	P4000	2 3/8 60.3	27 12.2

Note: End cap anchor for use with 1 1/8" wide standard Unistrut inserts only.

## P2407, P3280, P3380

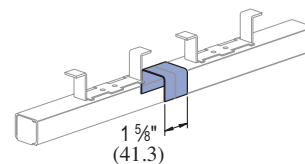
## END CAPS EG



Part Number	Fits Channel	Wt/100 pcs Lbs (kg)
P2407	P1000	10 4.5
P3280	P3000	8 3.6
P3380	P3300	5 2.3

## P3663, P4663

## JOINT COVERS



Part Number	Use With Insert Series	Wt/100 pcs Lbs (kg)
P3663	P3270	10 4.5
P4663	P3370	6 2.7

NOTE: Joint cover for use with 1 1/8" wide standard Unistrut inserts only.





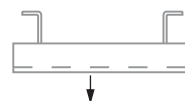
### LOAD CHART BY LENGTH

Part Number	Insert Length In (mm)	Wt/100 ft Lbs (kg)	Anchor Spacing In (mm)	Max. Allowable Point Load Lbs (kN)	Min. Spacing Between Pt. Loads In (mm)	Max. Allowable Uniform Load Lbs (kN)
P3249	3	85	3	500	—	500
		38.6	76.2	2.22	—	2.22
P3349	76.2	68	3	400	—	400
		30.8	76.2	1.78	—	1.78
P3250	4	100	4	800	—	800
		45.4	101.6	3.56	—	3.56
P3350	101.6	81	4	500	—	500
		36.7	101.6	2.22	—	2.22
P3251	6	130	6	1,000	—	1,000
		59.0	152.4	4.45	—	4.45
P3351	152.4	102	6	750	—	750
		46.3	152.4	3.34	—	3.34
P3252	8	159	8	1,200	—	1,200
		72.1	203.2	5.34	—	5.34
P3352	203.2	122	8	1,000	—	1,000
		55.3	203.2	4.45	—	4.45
P3754	12	210	8	2,500	3	5,000
		95.3	203.2	11.12	76.2	22.24
P3253	304.8	227	4	2,000	—	2,000
		103.0	101.6	8.90	—	8.90
P3353		174	4	1,500	—	1,500
		78.9	101.6	6.67	—	6.67
P3254	16	270	4	2,000	12	4,000
		122.5	101.6	8.90	304.8	17.79
P3354	406.4	185	4	1,500	12	3,000
		83.9	101.6	6.67	304.8	13.34
P3255	20	357	4	2,000	12	4,000
		161.9	101.6	8.90	304.8	17.79
P3355	508.0	231	4	1,500	12	3,000
		104.8	101.6	6.67	304.8	13.34
P3256	24	399	4	2,000	12	4,000
		181.0	101.6	8.90	304.8	17.79
P3356	609.6	277	4	1,500	12	3,000
		125.6	101.6	6.67	304.8	13.34

### SPOT INSERT LOAD CHART

Part Number	Wt/100 pcs Lbs (kg)	Anchor Spacing In (mm)	Max. Allowable Point Load Lbs (kN)
P3246	414	—	5,700
	187.8	—	25.35
M26/M2812	54	—	1,500
	24.5	—	6.67
M3245	52	—	1,000
	23.6	—	4.45
M24/M2512	52	—	800
	23.6	—	3.56

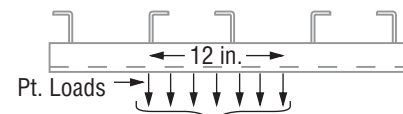
### MAXIMUM ALLOWABLE POINT LOAD



Max. Allowable Point Load

The maximum allowable point load may be placed anywhere along the insert. All loads placed less than 2" from the end of an insert must be reduced by 50%.

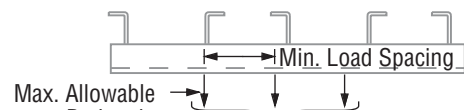
### MAXIMUM ALLOWABLE UNIFORM LOAD



Max. Allowable Uniform Load

The maximum allowable uniform load must be placed as a series of point loads.

### SPACING OF MULTIPLE POINT LOADS



Max. Allowable Pt. Loads

Max. Allowable Uniform Load

### CONTINUOUS CONCRETE INSERT LOAD CHART

#### UP TO 20 Ft. (6.10M)

Part Number	Wt/100 ft Lbs (kg)	Anchor Spacing In (mm)	Max. Allowable Point Load Lbs (kN)	Min. Spacing Between Pt. Loads In (mm)	Max. Allowable Uniform Load Lbs/Ft (kg/m)
P3270	194	4	2,000	12	2,000
	88.0	101.6	8.90	304.8	2,976.3
P3370	139	4	1,500	12	1,500
	63.0	101.6	6.67	304.8	2,232.2
P3170*	165	8	1,000	12	1,000
	74.8	203.2	4.45	304.8	1,488.2

\*When used in prestressed concrete "T" Beam.

Load data is based on use of 3000 PSI concrete.

### PULL-OUT LOAD

Minimum Edge Distance to Achieve Rated Pull-Out Capacity

1⅞" (47.6mm); P3170  
A = 3" (76.2mm); all others

