



CONCAST

Fibercrete®

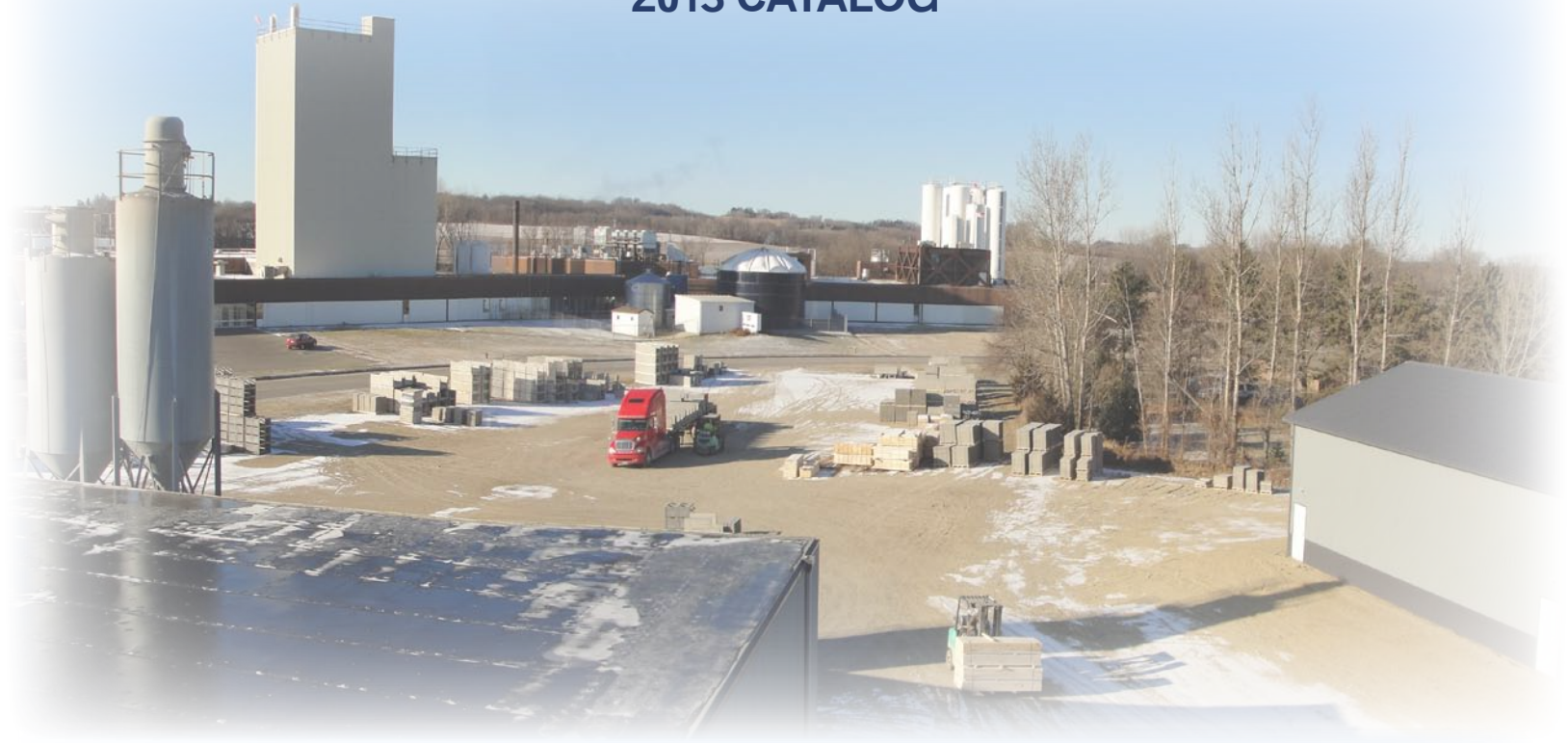
PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



**Precast Products for the Electrical,
Industrial, & Renewable Energy Industries**

PRODUCT CATALOG

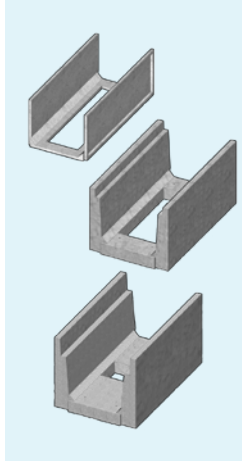
2013 CATALOG



About Concast, Inc. iv

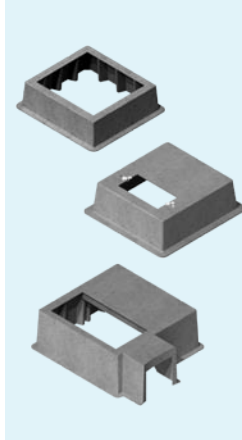
	Contact Information..... v
	About Fibercrete®..... vi

Trench Systems 1

	Trench Overview..... 2
	Pedestrian Rated Channels..... 4
	Ped. Universals & End Plates..... 5
	Ped. Transition Channels (RT)..... 6
	Pedestrian Trench Covers..... 7
	LT H-10 Trench Systems..... 8
	HT H-20 Trench Systems..... 10
	HT H-40 Trench Systems..... 11
	HTSG H-20 Trench Systems..... 12
	Trench Layout Options..... 14
	Control House Interface..... 15
	Trench Accessories..... 16
	Trench Maintenance..... 18
Trench Accessories..... 19	
Trench Specifications..... 22	

Replacement Covers 27

Box Pads 29

	Box Pad Overview..... 30
	Box Pad Options..... 32
	Split & Stacking Box Pads..... 33
	Standard Box Pad Sizes..... 34
	Transformer Box Pads..... 36
	Windfarm & Sectionalizer Pads..... 39
	Switchgear Box Pads..... 40
	S & C Cross Reference..... 41
	Federal Pacific Cross Reference..... 46
	Cooper Cross Reference..... 50
	Other Elec. Equip. Mfgs..... 51
	Box Pad Covers..... 52
	Box Pad Accessories..... 53
	Box Pad Specifications..... 57

Flat Pads 61

	Flat Pad Overview..... 62
	Standard Flat Pads..... 64
	Custom Flat Pads..... 66
	Flat Pad Markup Drawing..... 67
	Transformer Flat Pads..... 68
	Split Pads & Applications..... 69
	Modular Flat Pads..... 70
	Flat Pad Accessories..... 71
	Flat Pad Specifications..... 73

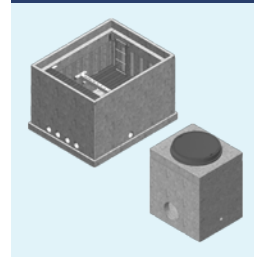
Modular Ground Sleeves 77

	MGS Overview..... 78
	MGS Sizing & Ordering..... 80
	MGS Sectionalizers..... 81
	MGS Switchgear..... 81
	MGS Hand Holes & Covers..... 82
	MGS Options..... 83
	MGS Accessories..... 84
	MGS Installation Guidelines..... 85
	MGS Specifications..... 86

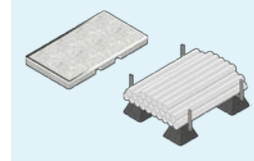
Handhole Units 89

	Handhole Unit Overview..... 90
	Ped. Rated FH Handholes..... 92
	Traffic Rated Handholes..... 93
	Traffic Rated FHR List..... 94
	Traffic Rated FHRSL List..... 95
	Traffic Rated FHRSLP List..... 96
	Handhole Accessories..... 97
	Handhole Specifications..... 99

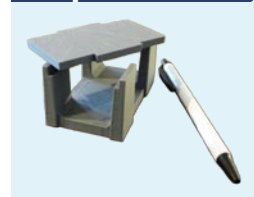
Pull Boxes & Vaults 103

	Vaults/Boxes Overview..... 104
	Standard Small Pull Boxes..... 106
	Standard Large Pull Boxes..... 114
	URD Equipment/Vista Vaults..... 122
	Vault/Box Options..... 124
	Vault/Box Accessories..... 125
	Vault/Box Specifications..... 127

Weights & Poleyard Bunkers 131



Rapid Prototyping Services 132



About Concast, Inc.

Our Mission:

We are continually working to find new product solutions that will supply our clients with the best line of precast concrete products in a timely manner, while upholding our high quality standards.

Our Service:

We offer the best advice and service because our engineering, manufacturing, and sales forces are passionate about our products. We will do everything in our power to get you the perfect prefabricated part at the right value for your project. And, we will always strive to stay abreast of the latest precast industry technology.

Our Products:

We have specialized in precast concrete products for the electrical industry since 1969. Our products are fundamental to the windfarm, utility, and general construction industries. Our trench systems, pull boxes, and handhole units are utilized for below-ground substation control, communication and power cables, waste water recovery systems, and industrial piping distribution.

Concast's box pads, flat pads, MGS units, and URD Vaults are an ideal underground solution for routing cables to padmount, padmersible and submersible apparatus such as transformers, switchgear, and sectionalizing equipment.

We are active members of the National Precast Concrete Association (NPCA), American Wind Energy Association (AWEA), Solar Electric Power Association (SEPA), and the American Concrete Institute (ACI). To ensure that we are continually supplying quality products, our plant is certified by the NPCA annually.



About Fibercrete®

Quality Assurance & Research

Quality control is very important to Concast. All of their products are thoroughly tested to meet industry specifications. The company molds and cures these products under precise controls. Research continues at Concast to develop and test new and improved products for the electrical, windfarm, and building industries. Concast plants are annually certified for QC compliance by the NPCA.

Fibercrete® Trademark:

Drawing from more than 43 years of research and experience, we have developed Fibercrete®, which is a proprietary blend of high strength concrete reinforced with special fibers. Fibercrete makes possible the production of light weight, thin-walled, pre-cast concrete parts. These cutting edge products can replace more massive units built from ordinary, steel-reinforced concrete.

Concast designs Fibercrete® products for specific applications; then tests them for performance under various stress situations. We mold and cure these products under precise controls at our Zumbrota and Wanamingo, MN facilities. Research continues at Concast, Inc. to develop and test new and improved products for the electrical, building, windfarm, and solar industries.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN



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CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



TRENCH SYSTEMS

Trench System Overview

IDEAL USES FOR TRENCH SYSTEMS



SUBSTATIONS



INDUSTRIAL PIPING

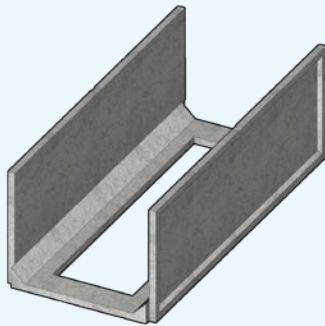


TRANSPORTATION

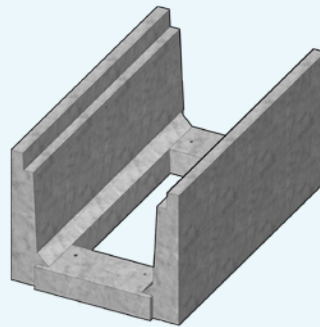


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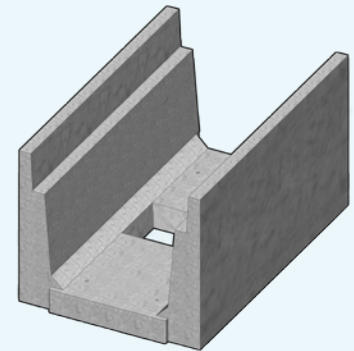
Concast Trench Systems



**Fibercrete®
Pedestrian Rated
Trench Systems**



**Light Traffic
H-10 Rated
Trench Systems**



**Heavy Traffic
H-20 & H-40 Rated
Trench Systems**

- Inside depths of 12 inches and 16 inches are available in all trench styles.
- Many traffic rated channels are available as 24 inch deep.
- Standard channel lengths are 4' or 8' long. Other custom lengths available.
- Inside channel widths of 10", 20", 24", 30", 40", and 50" are standard.

Guide Specifications

Trench shall be constructed with Concast Fibercrete® or approved equal. It shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Layout Drawings Provided

Concast will provide large "D" size drawings for engineering approval, and to assist the construction crew with trench installation. This drawing will show the locations of all trench components and will list a complete bill of materials (BOM). Please refer to Concast Fibercrete® Trench Installation Guidelines No. 0347.45 for more information. See www.concastinc.com/ref/installation_g/trench_Install_Guide.pdf

REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE[®] PEDESTRIAN TRENCH SYSTEMS

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** Our pedestrian channels are lighter than conventional concrete. One or two men can install most channels without using hoist equipment.
- **3 TIMES THE STRENGTH OF CONCRETE;** with superior crack resistance and long-term durability.
- **NON-SKID WALKWAY.** Fibercrete covers provide a skid-proof surface.
- **INSTALLATION IS SIMPLE.** The concast trench system has fewer parts to manage. No special hardware are required at the corners or tees. One universal channel will form a tee, ell, or cross. Interlocking male/female ends eliminate the need for special tools or hardware.
- **LESS EXCAVATION REQUIRED.** Fibercrete[®] trench is a compact system. It's outside dimensions are much smaller than that of other trench systems. As a result, less clearance is needed around control houses, tower footings, and foundations.
- **SUBSTATION EXPANSION.** Manual installation removes the need for cranes in stations where overhead towers and power lines exist. Fibercrete[®] trench is ideal for expansion since it can adapt to existing trench installations. A universal channel can be strategically placed in trench runs with end plates temporarily closing off the side-walls to allow for future expansion. This results in significant potential labor savings during future modifications to the substation.
- **IMMEDIATE USE.** Installation of precast sections of H-20 rated, heavy traffic channels in conjunction with pedestrian trench facilitates immediate road crossing traffic.



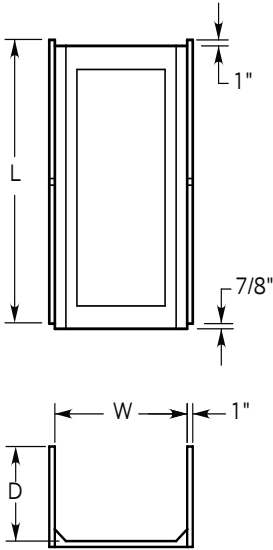
Features:

- **3 TIMES THE STRENGTH OF CONCRETE.** Has superior crack resistance and long-term durability.
- **OPEN BOTTOM DESIGN.** The Fibercrete[®] pedestrian rated trench system is designed with an open bottom for drainage and to allow conduit routing.
- **ABOVE OR BELOW GRADE.** Fibercrete[®] trench can be installed either above or below grade. No special hardware is required.

Fibercrete[®] Trench System

Pedestrian Rated Trench Channels

PEDESTRIAN FIBERCRETE® CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH	INSIDE DEPTH	WEIGHT L = 4 ft.	WEIGHT L = 8 ft.
8010	8810	10"	12"	87 LBS.	174 LBS.
8020	8820	20"	12"	98 LBS.	193 LBS.
8024	8824	24"	12"	100 LBS.	198 LBS.
8030	8830	30"	12"	103 LBS.	205 LBS.
8040	8840	40"	12"	118 LBS.	241 LBS.
8050	8850	50"	12"	174 LBS.	356 LBS.
801016	881016	10"	16"	102 LBS.	204 LBS.
802016	882016	20"	16"	112 LBS.	224 LBS.
802416	882416	24"	16"	115 LBS.	230 LBS.
803016	883016	30"	16"	118 LBS.	236 LBS.
804016	884016	40"	16"	133 LBS.	271 LBS.
805016	885016	50"	16"	189 LBS.	385 LBS.

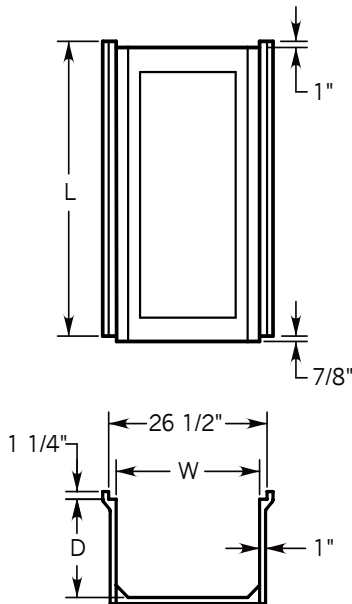
Pedestrian Channels are rated for 200 lbs./ft²

See website for more details; including drawings of pedestrian rated Fibercrete® channel in both PDF and AutoCAD format.

Channel Options Page 14

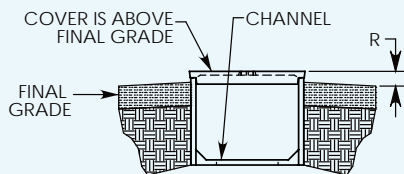
- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

FLUSH PEDESTRIAN CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH	INSIDE DEPTH	WEIGHT L = 4 ft.	WEIGHT L = 8 ft.
8010F	8810F	10"	12"	135 LBS.	269 LBS.
8020F	8820F	20"	12"	145 LBS.	289 LBS.
8024F	8824F	24"	12"	147 LBS.	294 LBS.
8030F	8830F	30"	12"	150 LBS.	301 LBS.
8040F	8840F	40"	12"	166 LBS.	331 LBS.
8050F	8850F	50"	12"	222 LBS.	443 LBS.
801016F	881016F	10"	16"	163 LBS.	325 LBS.
802016F	882016F	20"	16"	173 LBS.	345 LBS.
802416F	882416F	24"	16"	175 LBS.	350 LBS.
803016F	883016F	30"	16"	178 LBS.	357 LBS.
804016F	884016F	40"	16"	194 LBS.	387 LBS.
805016F	885016F	50"	16"	250 LBS.	499 LBS.

SIDE BY SIDE CHANNEL COMPARISON

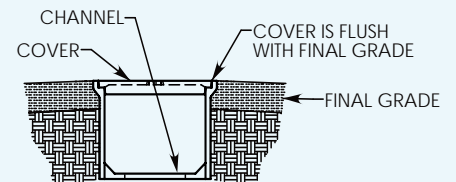


STANDARD CHANNEL

Our standard channel will work for all pedestrian rated applications that do not require the covers to be flush with the grade.

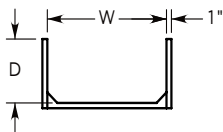
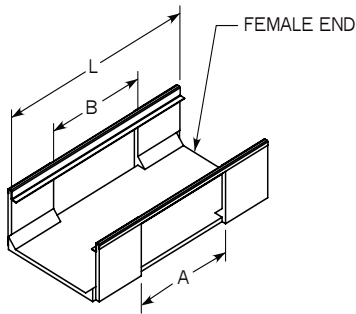
R=2-1/4": minimum clearance recommended by Concast

VS.



FLUSH CHANNEL

Used where the surrounding rock, asphalt, or concrete needs to be flush with the covers. It can be purchased with solid and/or grated covers for drainage trench.



Universal channels are shipped with removable aluminum cover supports mounted to the top ledges.

Openings are centered on the sides, but can be offset if necessary.

PEDESTRIAN RATED FIBERCRETE® UNIVERSAL CHANNELS

STANDARD UNIVERSAL	FLUSH UNIVERSAL	INSIDE WIDTH	INSIDE DEPTH	LENGTH "L"	OPENING "A"	OPENING "B"
8012 (10X10)	8012F (10X10)	10"	12"	48"	10"	10"
8022 (20X20)	8022F (20X20)	20"	12"	48"	20"	20"
8026 (24X24)	8026F (24X24)	24"	12"	48"	24"	24"
8032 (30X30)	8032F (30X30)	30"	12"	48"	30"	30"
8042 (40X40)	8042F (40X40)	40"	12"	48"	40"	40"
8852 (50X50)	8852F (50X50)	50"	12"	96"	50"	50"
801216 (10X10)	801216F (10X10)	10"	16"	48"	10"	10"
802216 (20X20)	802216F (20X20)	20"	16"	48"	20"	20"
802616 (24X24)	802616F (24X24)	24"	16"	48"	24"	24"
803216 (30X30)	803216F (30X30)	30"	16"	48"	30"	30"
804216 (40X40)	804216F (40X40)	40"	16"	48"	40"	40"
885216 (50X50)	885216F (50X50)	50"	16"	96"	50"	50"

EXAMPLES OF NON-STANDARD UNIVERSAL CHANNELS

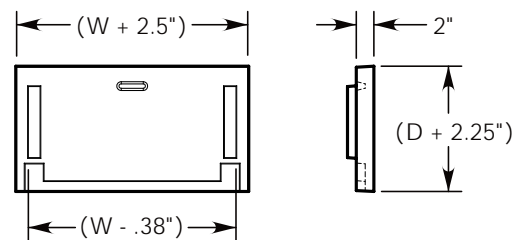
8022 (20X40)	8022F (20X40)	20"	12"	48"	20"	40"
803216 (0X40)	803216F (0X40)	30"	16"	48"	None	40"

Universal channels can be used to make tees, ells, or crosses. They can also be used to form a smooth transition from one width trench to another. The channel has a solid bottom for additional strength. There is such a large number of universal channel configurations, that only a few are depicted in the tables. To obtain the correct part number, refer to the diagram and apply the appropriate numbers. More information is available on the Concast website.

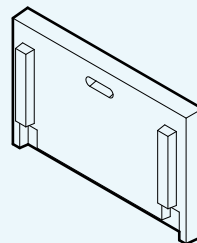
PEDESTRIAN TRENCH END PLATES

PEDESTRIAN END PLATE	PED. CHANNEL INSIDE WIDTH "W"	PED. CHANNEL INSIDE DEPTH "D"
8013	10"	12"
8023	20"	12"
8027	24"	12"
8033	30"	12"
8043	40"	12"
8053	50"	12"
801316	10"	16"
802316	20"	16"
802716	24"	16"
803316	30"	16"
804316	40"	16"
805316	50"	16"

Pedestrian End Plates are rated for 200 lbs./ft²



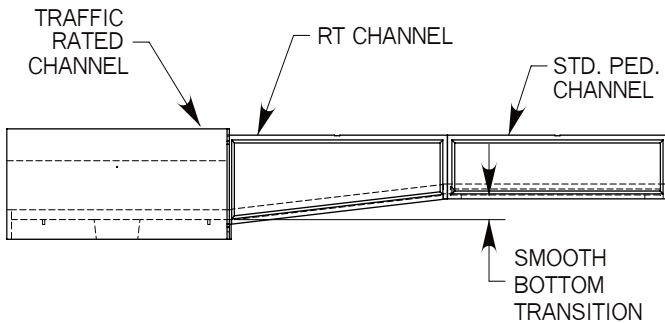
PEDESTRIAN END PLATES



End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's pedestrian rated Fibercrete® channels; and are available in all standard channel widths.

Ped. Rated Transition Channels (RT)

TYPICAL RT ELEVATION DETAIL



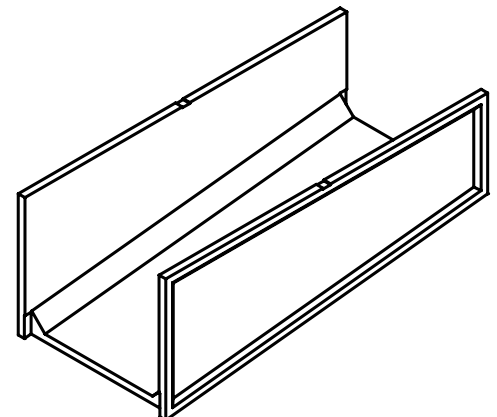
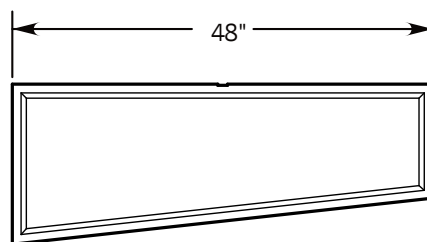
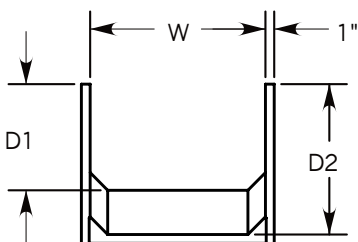
RT solid-bottom channels have "female" stops on both ends of the channel to accommodate various assembly locking configurations. These channels are utilized to create a smooth bottom transition in all layouts that have both pedestrian and traffic rated channel. Also can be used at the control house if a deeper inlet is required. These channels all have a solid bottom design.

TRANSITION TO HT OR HT40 CHANNEL

TRANSITION CHANNEL	FLUSH RT CHANNEL	INSIDE WIDTH "W"	INSIDE DEPTH "D1"	INSIDE DEPTH "D2"
8010SRT	8010FSRT	10"	12"	17.25"
8020SRT	8020FSRT	20"	12"	17.25"
8024SRT	8024FSRT	24"	12"	17.25"
8030SRT	8030FSRT	30"	12"	17.25"
8040SRT	8040FSRT	40"	12"	17.25"
8050SRT	8050FSRT	50"	12"	17.25"
801016DRT	801016FDRT	10"	16"	21.25"
802016DRT	802016FDRT	20"	16"	21.25"
802416DRT	802416FDRT	24"	16"	21.25"
803016DRT	803016FDRT	30"	16"	21.25"
804016DRT	804016FDRT	40"	16"	21.25"

TRANSITION TO LT OR HTSG CHANNEL

TRANSITION CHANNEL	FLUSH RT CHANNEL	INSIDE WIDTH "W"	INSIDE DEPTH "D1"	INSIDE DEPTH "D2"
8010RT	8010FRT	10"	12"	13.75"
8020RT	8020FRT	20"	12"	13.75"
8024RT	8024FRT	24"	12"	13.75"
8030RT	8030FRT	30"	12"	13.75"
8040RT	8040FRT	40"	12"	13.75"
801016RT	801016FRT	10"	16"	17.75"
802016RT	802016FRT	20"	16"	17.75"
802416RT	802416FRT	24"	16"	17.75"
803016RT	803016FRT	30"	16"	17.75"



See Concast's website for drawings of transition channel in both PDF & AutoCAD format.

FIBERCRETE[®] PED. TRENCH COVERS

COVER	RIB WIDTH*	WIDTH	LENGTH	WEIGHT
8011	10"	12.50"	24"	32 LBS.
8021	20"	22.50"	24"	46 LBS.
8025	24"	26.50"	24"	51 LBS.
8031	30"	32.50"	24"	66 LBS.
8041	40"	42.50"	24"	86 LBS.
8051	50"	52.50"	16"	79 LBS.

EXAMPLES OF SPECIAL LENGTH COVERS

8011 20"	10"	12.50"	20"	27 LBS.
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Fibercrete[®] covers are fiber and wire reinforced; they have lifting slots cast into them for easy removal.

Polymer concrete covers are available upon request. Their part numbers have a letter "P" suffix.

*Rib Width is 1/8" under corresponding channel width.

Covers can be customized via the addition of notches, special holes, or they can have bolt-down hardware added.

ALUMINUM OR GALVANIZED STEEL PEDESTRIAN RATED TRENCH COVERS

COVER END VIEWS	ALUM. COVER	GALV. STL. COVER	RIB WIDTH*	COVER WIDTH	COVER	COVER HEIGHT "H"	ALUM. COVER WEIGHT	GALV. STL. COVER WEIGHT
"A" or "SG" Use these covers in standard pedestrian trench runs with no fibercrete covers.	8011A	8011SG	10"	12"	48"	0.25"	12 LBS.	36 LBS.
	8021A	8021SG	20"	22"	48"	0.25"	22 LBS.	67 LBS.
	8025A	8025SG	24"	26"	24"	0.25"	14 LBS.	43 LBS.
	8031A	8031SG	30"	32"	24"	0.25"	22 LBS.	68 LBS.
	8041A	8041SG	40"	42"	24"	0.25"	29 LBS.	89 LBS.
	8051A	8051SG	50"	52"	16"	0.25"	26 LBS.	78 LBS.
"AT" or "SGT" These covers can be interchanged with a std. Fibercrete cover, and can be used in any flush channel run.	8011AT	8011SGT	10"	12"	48"	1.25"	16 LBS.	50 LBS.
	8021AT	8021SGT	10"	22"	48"	1.25"	27 LBS.	82 LBS.
	8025AT	8025SGT	24"	26"	24"	1.25"	17 LBS.	52 LBS.
	8031AT	8031SGT	30"	32"	24"	1.25"	26 LBS.	78 LBS.
	8041AT	8041SGT	40"	42"	24"	1.25"	33 LBS.	101 LBS.
	8051AT	8051SGT	50"	52"	16"	1.25"	30 LBS.	90 LBS.

VENTILATED STEEL PED. TRENCH COVERS

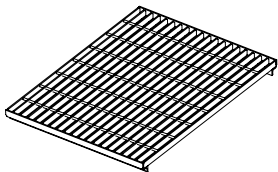


VENT. COVER	RIB WIDTH*	COVER WIDTH	COVER LENGTH	COVER HEIGHT "H"	COVER WEIGHT
8011V	10"	12"	48"	1.25"	34 LBS.
8021V	20"	22"	48"	1.25"	50 LBS.
8025V	24"	26"	24"	1.25"	28 LBS.
8031V	30"	32"	24"	1.25"	33 LBS.
8041V	40"	42"	24"	1.25"	66 LBS.

Concast's galvanized steel ventilated covers are perfect for special trench runs requiring a free air rating.

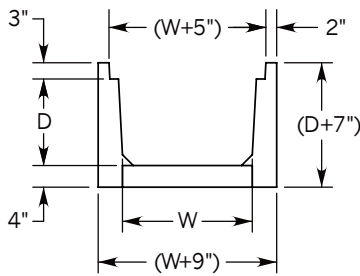
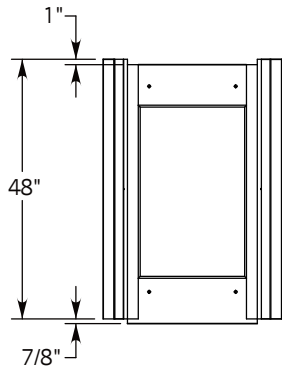
*Rib Width is 1/8" under corresponding channel width.

Covers are rated for 200 lbs./ft²

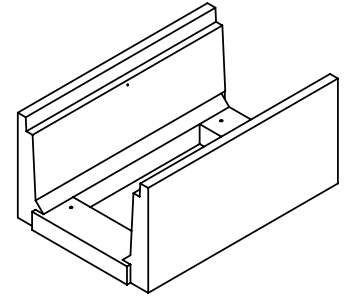


Light Traffic H-10 (LT)

LIGHT TRAFFIC RATED (LT) CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010LT	8810LT	10"	12"
8020LT	8820LT	20"	12"
8024LT	8824LT	24"	12"
8030LT	8830LT	30"	12"
8040LT	8840LT	40"	12"
801016LT	881016LT	10"	16"
802016LT	882016LT	20"	16"
802416LT	882416LT	24"	16"
803016LT	883016LT	30"	16"
804016LT	884016LT	40"	16"
801024LT	881024LT	10"	24"
802024LT	882024LT	20"	24"
802424LT	882424LT	24"	24"
803024LT	883024LT	30"	24"
804024LT	884024LT	40"	24"

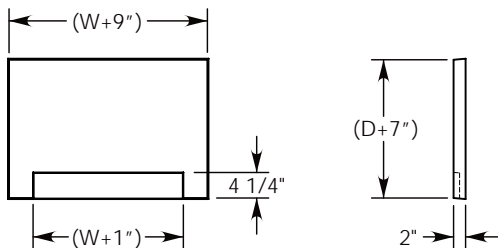


Channel Options Page 14

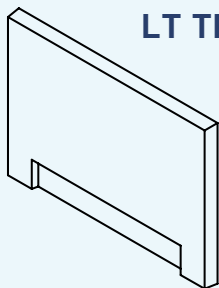
- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

- LT Channels are steel reinforced to meet AASHTO-H-10 light Equipment requirement of 16,000 Lbs. per axle load.
- An LT universal channel is generally used wherever an ell, tee, or cross is needed in a trench run. Two special angled channels can be used for any degree angle change in the run. An example of an LT universal P/N is 8022LT (0X20).
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting. It is recommended to use these in conjunction with a swivel hoist ring (Concast P/N: 9002) and 4-Way lifting chain (Concast P/N: 9003).

LT TRENCH END PLATES

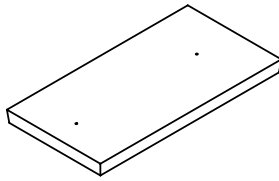


LT TRENCH END PLATES

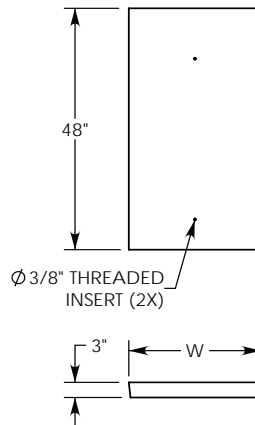


End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's light traffic rated LT channels; and are available in all standard channel widths.

LT END PLATE	LT CHANNEL INSIDE WIDTH "W"	LT CHANNEL INSIDE DEPTH "D"
8013LT	10"	12"
8023LT	20"	12"
8027LT	24"	12"
8033LT	30"	12"
8043LT	40"	12"
801316LT	10"	16"
802316LT	20"	16"
802716LT	24"	16"
803316LT	30"	16"
804316LT	40"	16"
801324LT	10"	24"
802324LT	20"	24"
802724LT	24"	24"
803324LT	30"	24"
804324LT	40"	24"



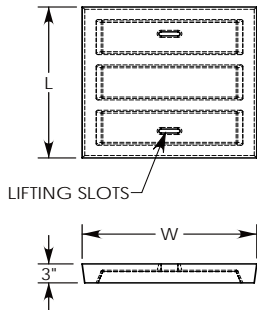
- All Light Traffic covers are H-10 rated at 16,000 lbs./axle load.
- These concrete covers are steel reinforced.
- The concrete covers come standard with LT trench.



CONCRETE LT COVERS

CONCRETE COVER	WIDTH	LENGTH	WEIGHT
8011LT	14.75"	48"	169 LBS.
8021LT	24.75"	48"	286 LBS.
8025LT	28.75"	48"	332 LBS.
8031LT	34.75"	48"	402 LBS.
8041LT	44.75"	48"	725 LBS.
EXAMPLES OF SPECIAL LENGTH COVERS			
8011LT 30"	14.75"	30"	105 LBS.
8031LT 24"	34.75"	24"	199 LBS.

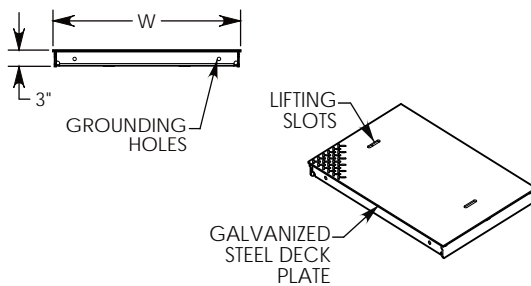
FIBERCRETE® LTF COVERS



COVER	WIDTH	LENGTH	WEIGHT
8011LTF	14.75"	24"	57 LBS.
8021LTF	24.75"	24"	89 LBS.
8025LTF	28.75"	16"	74 LBS.
8031LTF	34.75"	16"	93 LBS.

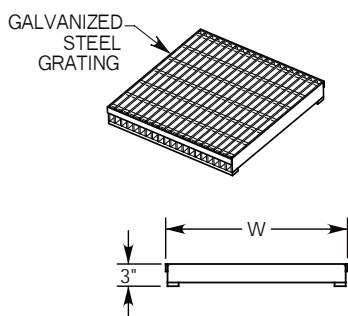
- Concast's lightweight LTF Fibercrete® covers are fiber and wire reinforced.
- Covers have lifting slots for easy removal.
- The 3 inch cover height dimension does not include the rib thickness.
- Fibercrete® LTF covers are not available in special lengths.

GALVANIZED STEEL LIGHT TRAFFIC LTSG TRENCH COVERS



GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011LTSG	14.75"	48"	91 LBS.
8021LTSG	24.75"	24"	72 LBS.
8025LTSG	28.75"	24"	82 LBS.
8031LTSG	34.74"	24"	99 LBS.
8041LTSG	44.75"	24"	125 LBS.

VENTILATED STEEL LTV TRENCH COVERS



COVER	WIDTH	LENGTH	WEIGHT
8011LTV	14.75"	48"	97 LBS.
8021LTV	24.75"	24"	109 LBS.
8025LTV	28.75"	24"	120 LBS.
8031LTV	34.75"	24"	157 LBS.
8041LTV	44.75"	24"	201 LBS.

See website for more details; including drawings of Light Traffic H-10 rated precast trench system components such as uni-versal channel & covers in both PDF and AutoCAD format.

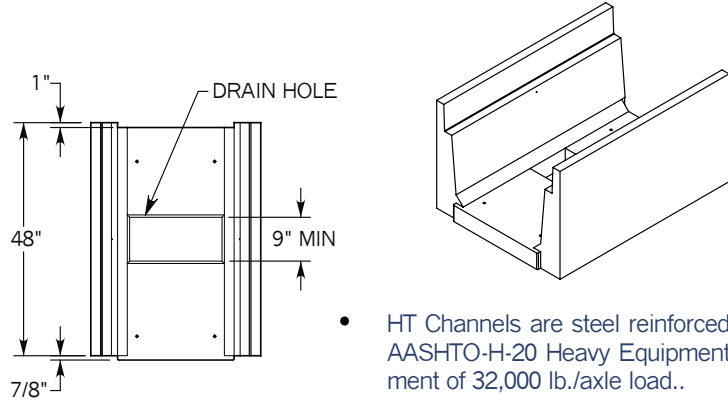
Concast's galvanized steel ventilated covers are perfect for Light Traffic trench runs requiring a free air rating.

Fibercrete® Trench System

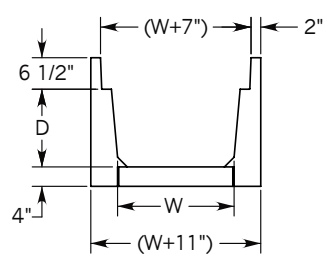
Heavy Traffic H-20 (HT)

HEAVY TRAFFIC (HT) CHANNEL

CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010HT	8810HT	10"	12"
8020HT	8820HT	20"	12"
8024HT	8824HT	24"	12"
8030HT	8830HT	30"	12"
8040HT	8840HT	40"	12"
8050HT	8850HT	50"	12"
801016HT	881016HT	10"	16"
802016HT	882016HT	20"	16"
802416HT	882416HT	24"	16"
803016HT	883016HT	30"	16"
804016HT	884016HT	40"	16"
805016HT	885016HT	50"	16"
801024HT	881024HT	10"	24"
802024HT	882024HT	20"	24"
802424HT	882424HT	24"	24"
803024HT	883024HT	30"	24"
804024HT	884024HT	40"	24"
805024HT	885024HT	50"	24"



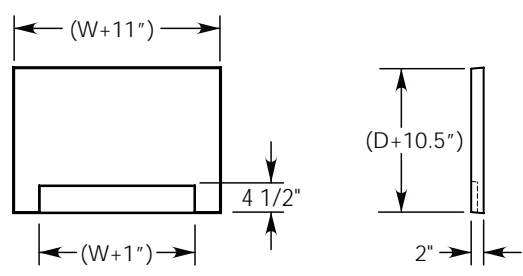
- HT Channels are steel reinforced to meet AASHTO-H-20 Heavy Equipment requirement of 32,000 lb./axle load..
- An HT universal channel is generally used wherever an ell, tee, or cross is needed in an HT trench run. Two special angled channels can be used for any degree angle change in the run.
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting.



Channel Options
Page 14

Solid Bottom Channel
Special Length Channel
Elevation Changes
Angled Channel
Complex Intersections

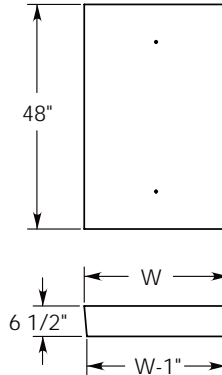
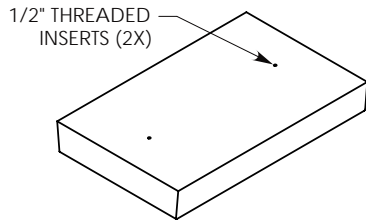
HT END PLATE	HT CHANNEL INSIDE WIDTH "W"	HT CHANNEL INSIDE DEPTH "D"
8013HT	10"	12"
8023HT	20"	12"
8027HT	24"	12"
8033HT	30"	12"
8043HT	40"	12"
8053HT	50"	12"
801316HT	10"	16"
802316HT	20"	16"
802716HT	24"	16"
803316HT	30"	16"
804316HT	40"	16"
805316HT	50"	16"
801324HT	10"	24"
802324HT	20"	24"
802724HT	24"	24"
803324HT	30"	24"
804324HT	40"	24"
805324HT	50"	24"



HT TRENCH END PLATES

End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's heavy traffic rated HT/HT40 channels; and are available in all standard channel widths.

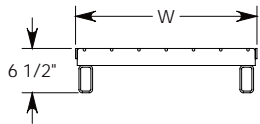
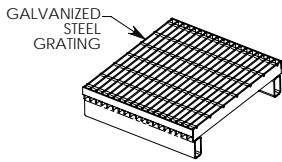
See website for more details; including drawings of HT Heavy Traffic rated precast trench system components such as universal channel & covers in both PDF and AutoCAD format.



CONCRETE HT COVERS

CONCRETE COVER	WIDTH	LENGTH	WEIGHT
8011HT	16.63"	48"	409 LBS.
8021HT	26.63"	48"	664 LBS.
8025HT	30.63"	48"	766 LBS.
8031HT	36.63"	48"	919 LBS.
8041HT	46.63"	48"	1174 LBS.
8051HT	56.63"	48"	1429 LBS.

VENTILATED GALV. STEEL HTV TRENCH COVERS

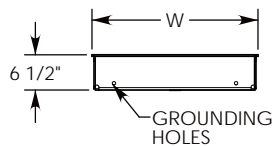
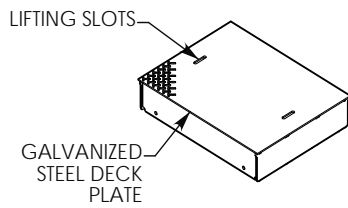


VENT. COVER	WIDTH	LENGTH	WEIGHT
8011HTV	16.63"	24"	99 LBS.
8021HTV	26.63"	24"	138 LBS.
8025HTV	30.63"	24"	152 LBS.
8031HTV	36.63"	24"	215 LBS.
8041HTV	46.63"	24"	266 LBS.
8051HTV	56.63"	24"	354 LBS.

HT & HTV COVER FACTS

- All HT & HTV Heavy Traffic covers are H-20 rated at 32,000 lb./axle load.
- The concrete HT covers are standard for Concast H-20 rated trench runs.
- Concrete covers have two 1/2" diameter threaded inserts cast into the top surface for mechanical lifting.
- Galv. steel ventilated HTV covers are great for H-20 rated trench runs requiring a free air rating.

GALVANIZED STEEL HEAVY TRAFFIC HTSG40 TRENCH COVERS



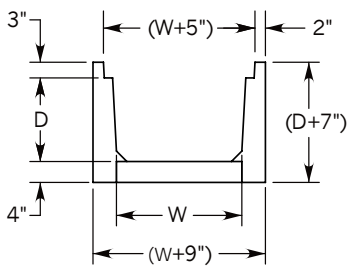
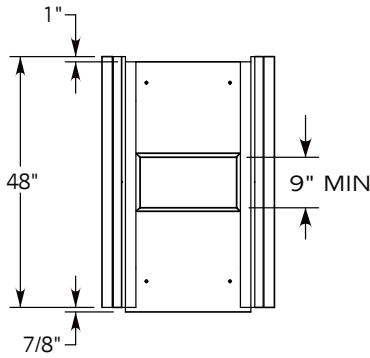
GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011HTSG40	16.63"	48"	143 LBS.
8021HTSG40	26.63"	24"	112 LBS.
8025HTSG40	30.63"	24"	127 LBS.
8031HTSG40	36.63"	24"	149 LBS.
8041HTSG40	46.63"	24"	185 LBS.
8051HTSG40	56.63"	24"	250 LBS.

HTSG40 covers are rated for 64,000 lbs./axle load

HTSG40 COVER FACTS

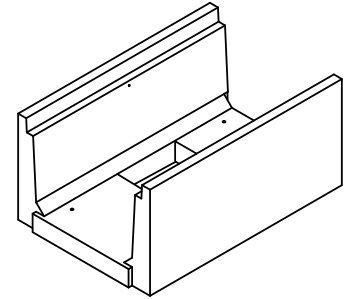
- All HTSG40 Heavy Traffic covers are H-40 rated at 64,000 lbs./axle load.
- HTSG40 steel covers convert standard H-20 rated HT channel into H-40 rated channel.
- The galvanized steel HTSG40 covers are the only Concast covers with an H-40 rating.
- HT-40 rated trench system uses standard HT end plates.
- These covers can be maneuvered with Concast's heavy lifting tool (P/N: 8000L).

Heavy Traffic H-20 (HTSG)



H-20 HEAVY TRAFFIC (HTSG) CHANNEL

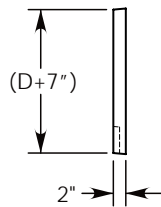
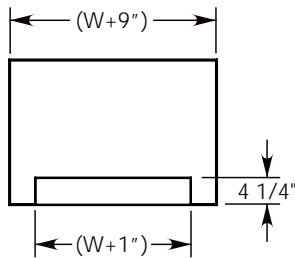
CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010HTSG	8810HTSG	10"	12"
8020HTSG	8820HTSG	20"	12"
8024HTSG	8824HTSG	24"	12"
8030HTSG	8830HTSG	30"	12"
8040HTSG	8840HTSG	40"	12"
801016HTSG	881016HTSG	10"	16"
802016HTSG	882016HTSG	20"	16"
802416HTSG	882416HTSG	24"	16"
803016HTSG	883016HTSG	30"	16"
804016HTSG	884016HTSG	40"	16"
801024HTSG	881024HTSG	10"	24"
802024HTSG	882024HTSG	20"	24"
802424HTSG	882424HTSG	24"	24"
803024HTSG	883024HTSG	30"	24"
804024HTSG	884024HTSG	40"	24"



Channel Options Page 14

- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

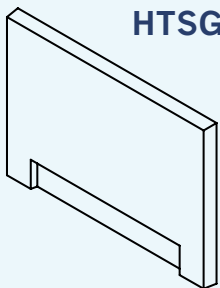
- HTSG Channels are steel & fiber reinforced to meet AASHTO-H-20 Heavy Equipment requirement of 32,000 lb./axle load.
- An HTSG universal channel is generally used wherever an ell, tee, or cross is needed in an HTSG trench run. Two special angled channels can be used for any degree angle change in the run. An example of an HTSG universal P/N is 8022HTSG (0X20).
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting. It is recommended to use these in conjunction with a swivel hoist ring (Concast P/N: 9002) and 4-Way lifting chain (Concast P/N: 9003).



HTSG TRENCH END PLATES

HTSG END PLATE	HTSG CHANNEL INSIDE WIDTH "W"	HTSG CHANNEL INSIDE DEPTH "D"
8013HTSG	10"	12"
8023HTSG	20"	12"
8027HTSG	24"	12"
8033HTSG	30"	12"
8043HTSG	40"	12"
801316HTSG	10"	16"
802316HTSG	20"	16"
802716HTSG	24"	16"
803316HTSG	30"	16"
804316HTSG	40"	16"
801324HTSG	10"	24"
802324HTSG	20"	24"
802724HTSG	24"	24"
803324HTSG	30"	24"
804324HTSG	40"	24"

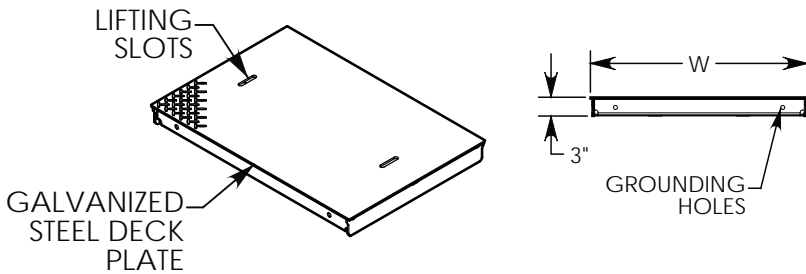
HTSG TRENCH END PLATES



End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's heavy traffic rated HTSG channels; and are available in all standard channel widths.

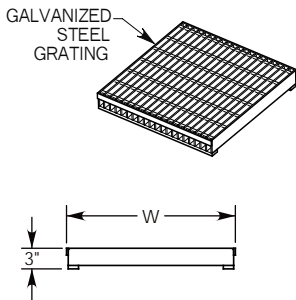
HTSG & Specialty Pedestrian Covers

GALVANIZED STEEL HEAVY TRAFFIC HTSG TRENCH COVERS



GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011HTSG	14.75"	48"	97 LBS.
8021HTSG	24.75"	24"	77 LBS.
8025HTSG	28.75"	24"	88 LBS.
8031HTSG	34.75"	24"	107 LBS.
8041HTSG	44.75"	24"	135 LBS.

VENTILATED STEEL HTSGV TRENCH COVERS



VENT. COVER	WIDTH	LENGTH	WEIGHT
8011HTSGV	14.75"	48"	98 LBS.
8021HTSGV	24.75"	24"	109 LBS.
8025HTSGV	28.75"	24"	121 LBS.
8031HTSGV	34.75"	24"	158 LBS.
8041HTSGV	44.75"	24"	202 LBS.

Concast's galvanized steel ventilated covers are perfect for HTSG Heavy Traffic trench runs requiring a free air rating.

HTSG & HTSGV COVER FACTS

- All HTSG & HTSGV Heavy Traffic covers are H-20 rated at 32,000 lb./axle load.
- The HTSG covers are a lightweight alternative to the standard 6 1/2 inch thick HT covers.
- They only fit onto HTSG channel.
- The galvanized steel HTSG covers come standard with HTSG trench.
- These covers can be maneuvered with Concast's manual lifting tools.

BOLT-DOWN PEDESTRIAN COVERS

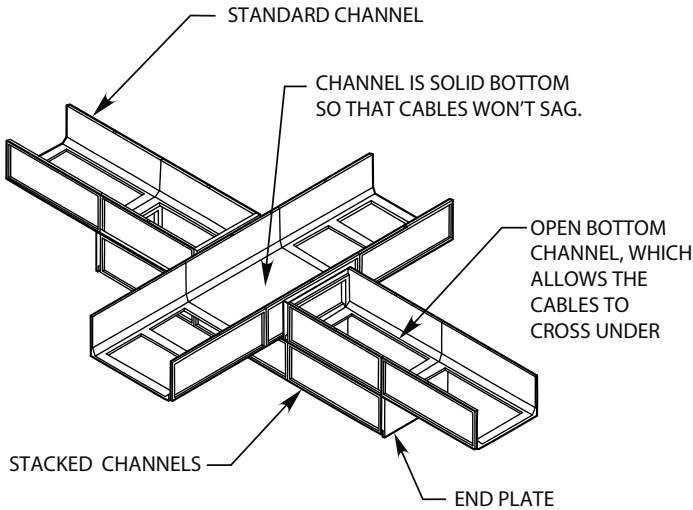
Concast's standard Fibercrete covers can be produced with a bolt-down option for added security. Covers have recessed holes in them for 3/8" diameter pentahead bolts that interface with special bracketing attached to the inside walls of the channel.



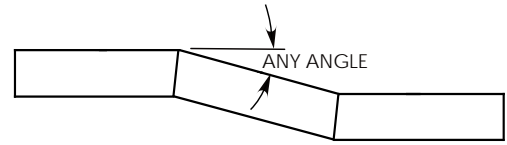
Trench Layout Options

CROSS-OVERS & CROSS-UNDERS

When trench runs meet, a cross-over or cross-under can be used to keep cables separated if needed.



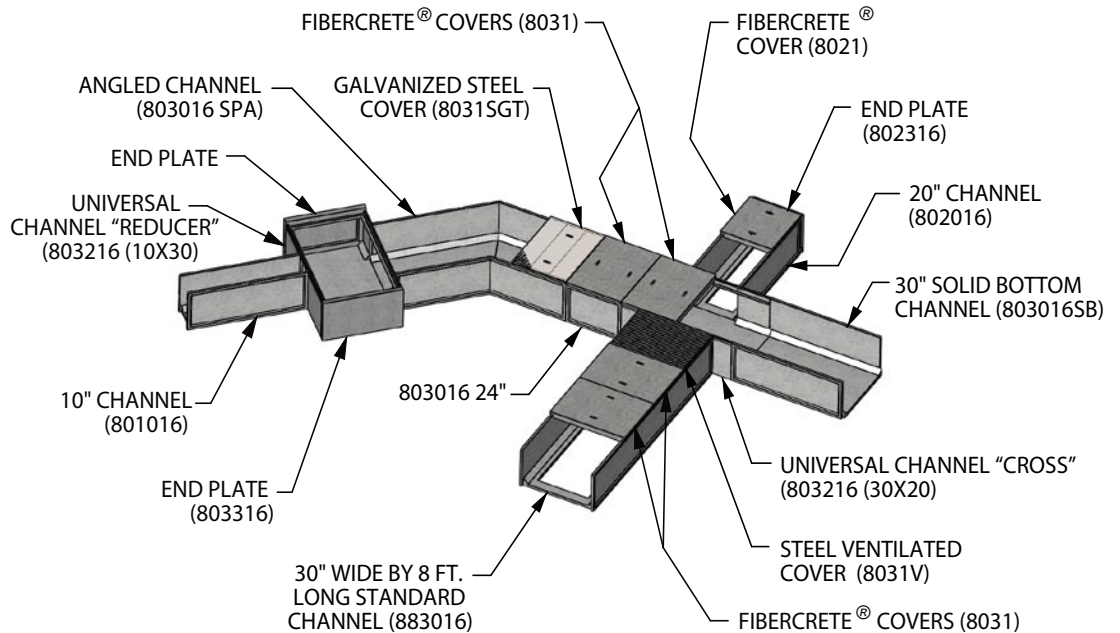
CUSTOM ELEVATION CHANGE CHANNELS



Each special channel is named (SP), marked, and the layout drawings show exactly where each channel is located in relation to each other. Note that custom covers are usually supplied to match each special (SP) channel.

Concast pedestrian rated channels can be stacked with the help of trench support frames. Special cover supports are also available for instances where part of the channel needs to remain open etc.

TRENCH SYSTEM OPTIONS ILLUSTRATION

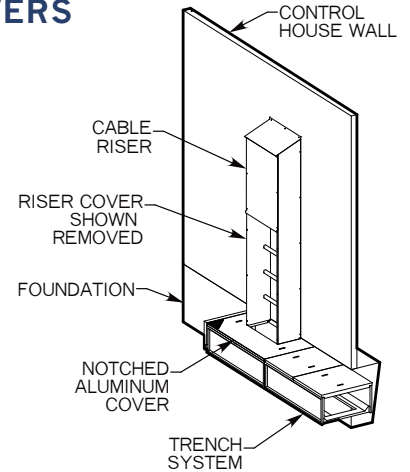
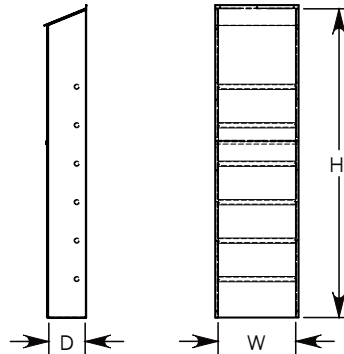


- Solid bottom channel is part numbered with an "SB" suffix. IE:8020LT SB is a Light Traffic channel with a solid bottom. Solid bottom channels have no openings in the base of the unit.
- Special length channels are under 8 feet long. The length designation is appended to the standard part number. IE:803016 24" is a pedestrian channel that is 24 inches long. Special length channels often have a solid bottom.
- Angled channels can be provided for trench runs with horizontal or vertical deviations. These channels and their angled covers are usually named by Concast per job.
- Universal channels are often used for any sort of 90 degree trench run change. They can also be used as channel reducers.

ALUMINUM CABLE RISERS & NOTCHED COVERS

CABLE RISER PART NUMBERS

CABLE RISER	INSIDE WIDTH "W"	INSIDE DEPTH "D"	RISER HEIGHT "H"
CR-10-8-96	10"	8"	96"
CR-10-8-120	10"	8"	120"
CR-10-12-96	10"	12"	96"
CR-10-12-120	10"	12"	120"
CR-10-18-120	10"	18"	120"
CR-20-12-96	20"	12"	96"
CR-20-12-120	20"	12"	120"
CR-20-18-120	20"	18"	120"
CR-24-12-96	24"	12"	96"
CR-24-12-120	24"	12"	120"
CR-24-18-120	24"	18"	120"
CR-30-12-96	30"	12"	96"
CR-30-12-120	30"	12"	120"
CR-30-18-120	30"	18"	120"
CR-40-12-96	40"	12"	96"
CR-40-12-120	40"	12"	120"
CR-40-18-120	40"	18"	120"
CR-50-12-96	50"	12"	96"
CR-50-12-120	50"	12"	120"
CR-50-18-120	50"	18"	120"



Cable risers are generally used to facilitate vertical cabling from Concast channel or a pull box to an elevated point in a control building. This usually requires an opening in the channel cover. Concast recommends using their light-weight, aluminum bases in conjunction with a section of pedestrian rated Concast trench for optimum post-installation field accessibility. The charts list only a few of the available sizes; many other sizes of risers and covers are available upon request. They may also be constructed from galvanized steel if desired.

Examples of Riser Notched Ped. Cover Part Numbers

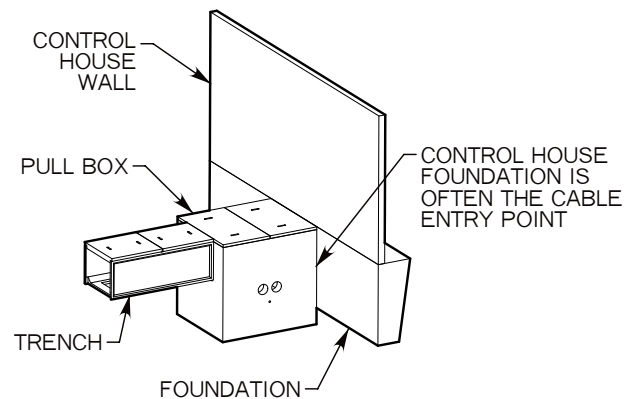
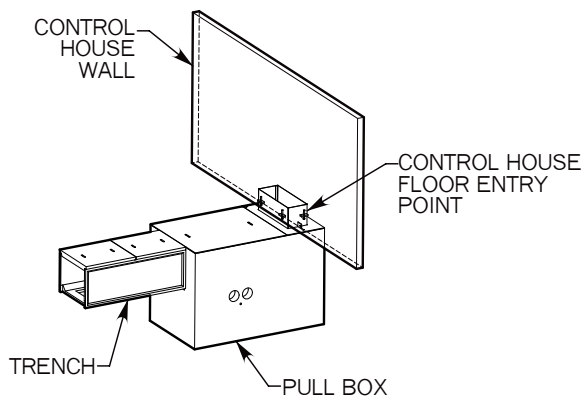
ALUM. NOTCHED COVER/BASE	RIB WIDTH*	COVER LENGTH	NOTCH DIMS	CORRESPONDING CABLE RISER**
8021ATN (22X12)	20"	48"	22" x 12"	CR-20-12-XX
8025ATN (22X18)	24"	48"	22" x 18"	CR-20-18-XX
8031ATN (32X18)	30"	48"	32" x 18"	CR-30-18-XX
8031ATN (42X12)	30"	48"	42" x 12"	CR-40-12-XX
8041ATN (42X18)	40"	48"	42" x 18"	CR-40-18-XX

*Rib width corresponds to channel inside width.

**Covers are designed to fit around designated risers.

Concast offers pull boxes for use with their trench system. Pull boxes can be used for grade changes, cross-overs, cross-unders, and next to control buildings with or without cable risers. They can stand alone in other substation applications too. See the pull box section of this catalog and www.concastinc.com for more detail.

PULL BOX TO CONTROL HOUSE INTERFACE OPTIONS



Trench Accessories

ALUMINUM TRENCH SUPPORT



Used for stacking Fibercrete® pedestrian channels vertically. Stacking typically occurs where the cabling must be routed to different elevations.

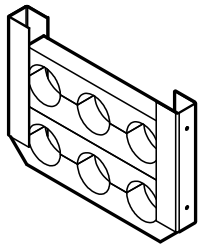
Concast will work with you to identify the correct trench support for your project. See website for size and part number chart.

*Span width corresponds to the inside width of a Concast pedestrian rated channel. IE: 8020TS fits on an 8020 channel.



TRENCH SUPPORT	SPAN WIDTH*	FRAME LENGTH
8010TS	10"	48"
8020TS	20"	48"
8024TS	24"	48"
8030TS	30"	48"
8040TS	40"	48"
8050TS	50"	48"
8810TS	10"	96"
8820TS	20"	96"
8824TS	24"	96"
8830TS	30"	96"
8840TS	40"	96"
8850TS	50"	96"

CABLE SUPPORT BLOCKS

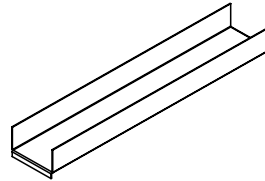


These block assemblies are used to separate, stabilize, and support cables in a precast concrete trench system. Two aluminum sleeves on the ends of the HDPE block layers are

screwed into the sidewalls of the trench for a secure fit. Concast, Inc. will work with you to produce a custom support block assembly that will satisfy the requirements of your project. Many hole sizes and configurations are available.



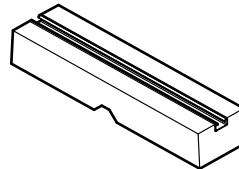
ALUMINUM GUTTERS



These lightweight aluminum gutters help to prevent the formation of water dams in high runoff areas. They are designed to fit into Concast's special notched pedestrian channel. Notched channels can be specified by adding a "GN" suffix to a standard pedestrian part number. For example, a 20 inch wide notched channel would be called "8020GN".



PIPE SUPPORT BLOCKS



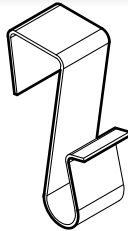
Pipe support blocks are used to separate, stabilize, and support heavy pipe in a precast concrete trench system. They are freestanding and constructed from concrete, with cast-in Unistrut to facilitate strapping the pipes to the support. Concast, Inc. will work with you to produce a support block assembly that will satisfy the requirements of your application.

CABLE CLIPS

All of Concast's channel are designed to use stainless steel cable clips. These clips are used to hold grounding wires on trench walls.

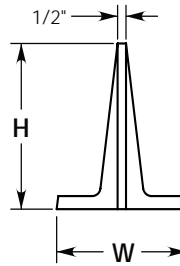


CABLE CLIP	CONCAST CHANNEL
8002	Std. Pedestrian
8002F	Flush Pedestrian
8002R	Traffic Rated



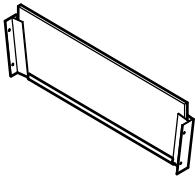
PARTITION BOARDS

Partition boards provide physical separation of cables. A wide base prevents the boards from tipping over in the channel. The 8001-6B has a smaller base designed for 10 inch inside width channels. Standard length is 47-7/8", but shorter lengths can be produced if needed.



PARTITION BOARD	HEIGHT "H"	LENGTH "L"	WIDTH BASE "W"
8001	9.5"	48"	7.75"
8001-6B	9.5"	48"	6"
800116	14"	48"	9"
800124	22"	48"	9"
880116	14"	96"	9"
880124	22"	96"	9"

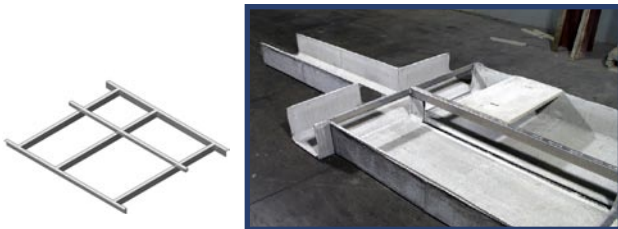
CHANNEL FIRESTOP



Concast firestops are comprised of a 1/2 inch thick Fibercrete sheet that is mounted in the channel via 2 aluminum sleeves and Tapcon screws. The channel will need to be drilled at the desired locations for installation of the screws. The sheet height can be cut to fit after the cables are installed.

ALUMINUM COVER SUPPORTS

Custom aluminum braces used in trench runs to give extra support to covers that must span openings in pedestrian channel. They are standard in all pedestrian rated universal channels. These aluminum frames can be custom fit for each application.



GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your pre-cast Concrete products by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.



Accessories & Maintenance

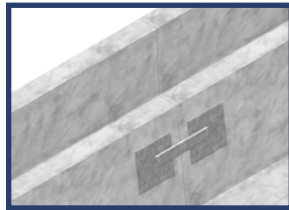
WELD PLATES

Weld plates can be cast into channels where needed for securing support members, trays, or piping.



TIE STRAPS OR WELD STRAPS

Tie straps and weld straps are optional metal accessories that are used to attach channels to one another, and to prevent them from moving independently. They are usually attached via weld plate or threaded inserts.



PATCH KITS

PK-1 Patch Kit:

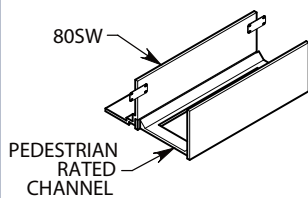
- Used for cosmetic repairs.
- Kit is complete with everything you need for small concrete repairs, including patching compound, bucket, and a trowel.

PK-2 Patch Kit:

- Ideal for patching holes in non-structural concrete sections.
- Kit consists of a large Fibercrete® patch sheet (1/2" thick by 12" sq.) which is cut to size, and then a construction adhesive or Tapcon screws are used to attach the patch over the hole.



REPLACEMENT SIDEWALL CHANNEL



Accidentally drive over a pedestrian rated section of trench? Concast offers a pedestrian rated L-shaped sidewall that can be spliced into an existing trench run that has been broken. The channel is designed to work with either 12 inch deep or 16 inch deep Concast pedestrian trench.

- Sidewall channel part number is 80SW.
- Additional brackets are part number 80SW-BP.

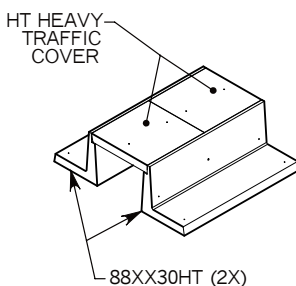
SEALANTS



Vulkem polyurethane sealant is colored concrete gray and can be ordered under Concast P/N: 8004. It is delivered in tubes and is designed for use on poured and precast concrete surfaces. Vulkem 116 has demonstrated superior primerless adhesion to porous substrates for over 30 years and is the sealant of choice for commercial industrial expansion joints.

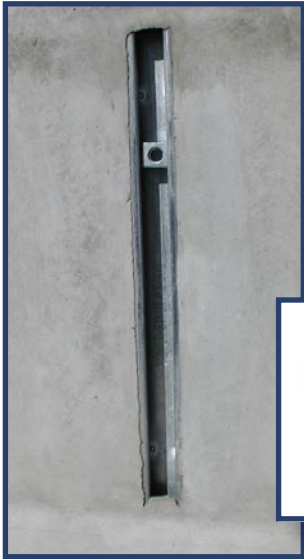
Concast also offers C-56 Butyl Mastic Joint Sealant made by NPC Bidco, and it can be purchased under P/N: 8004B. This sealant comes in a coil of rope with paper backing & it remains flexible and forms a permanent bond to concrete. It is designed not to shrink, oxidize or harden and has excellent resistance to temperature extremes, acid and alkaline environments.

HEAVY TRAFFIC H-20 RATED RETROFIT "L" CHANNEL



- Shore up damaged trench walls and protect them from further damage.
- House and protect existing pedestrian trench from drive-over damage if you need to add a road crossing.
- Installed retrofit channel around existing cabling; thus eliminating the need to excavate & move a cable system that needs additional protection.
- Part number is 88XX30HT.

UNISTRUT

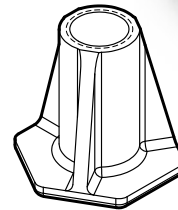


Unistrut is a great way to create an adjustable mounting mechanism. Unistrut is often supplied with a threaded spring nut (pictured). It is available in several materials including stainless steel, galvanized steel, and fiberglass. These channels can be either cast into or screwed onto Concast trench walls and/or base.



THREADED INSERTS

Threaded inserts can be cast into the floor of a trench section for lifting purposes. Insert sizes range from 1/4" to 1" diameter.



INSERT PLUGS

To keep threaded inserts from filling with debris and water, Concast offers a line of insert plugs. Available in both plastic and stainless steel.



INSERT PLUG	PLUG FIT DIAMETER	PLUG MATERIAL
IPB.375	3/8-16 UNC	Stainless Steel
IPB.5	1/2-13 UNC	Stainless Steel
IPB.375	3/8"	Plastic
IPB.5	1/2"	Plastic



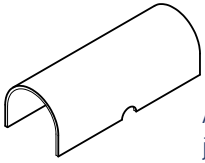
HOLES & KNOCKOUTS



When conduit/cables cannot be routed deeply enough to enter the bottom of the trench run floor, holes or knockouts can be built into the system's side walls, covers, or end plates to allow access. Concast can predrill or void out any required holes or knockouts (KO). Fibercrete® can also be drilled with any masonry tools onsite.



Trench Accessories

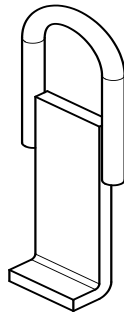


Cable Protector

P/N: 8003

After cables have been placed, just set our Fibercrete® protector over the top and backfill.

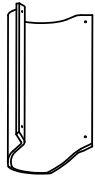
Dig without fear of hitting cables, as you will hit the protector first. P/N 8003 can also be used above grade to protect temporary cables from UV rays and accidental contact.



HEAVY LIFT TOOL

P/N: 8000L

This tool is designed to be an alternative to the standard 8000 lifting tool. The heavy lift tool will engage the slots built into steel Concast covers. This tool offers the option of handling these covers with rigging equipment. Chain (Part number 9003) is sold separately.



Corner Protector

P/N: 8006

Concast's corner protectors are made from black HDPE plastic, and they serve the function of preventing chafing on the cables when they need to round a corner within the trench run. Generally used in conjunction with universal channel. Four Tapcon screws are provided to permanently attach the protector to the channel.



LIFTING EYE BOLT



EYE BOLT	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9000	1/2-13 UNC	1.5 inch	6000 Lbs.
9001	3/8-16 UNC	1.25 inch	3000 Lbs.

TOGGLE NUTS



Threaded toggle nuts are yet another way to mount your electrical equipment onto Concast's precast box pads. These nuts are installed onsite; allowing greater mounting flexibility and accuracy. They utilize a simple stabilizing technique similar to drywall anchors.

Installation video at www.concastinc.com/Multimedia/Videos/toggle_nut_install_video

TOGGLE NUT PART NO.	NUT THREAD DIAMETER
TN.25	1/4-20 UNC
TN.375	3/8-16 UNC
TN.5	1/2-13 UNC



LIFT DOLLY *P/N: CRD1*

The lift dolly is an ideal tool for easily removing heavier covers. The included lifting chain system can remove covers with both slots and threaded inserts. The dolly also features maintenance free, easy rolling, solid pneumatic wheels; and it is collapsible for easy storage.



LIFT TOOL

P/N: 8000



Lifting tools are provided with all orders for light-weight pre-cast parts built by Concast, Inc. The galvanized steel tool is designed to engage the lifting slots built into items such as the fibercrete pedestrian trench covers to ensure an easy manual lift.



SWIVEL HOIST RING

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. We recommend using our 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



HOIST RING	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	2 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.



4-WAY LIFT CHAIN



- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees

See website for drawings in PDF format.

Fibercrete® Trench System

Concast Trench System Specifications

GENERAL SPECIFICATIONS FOR CABLE TRENCH

1. TECHNICAL SCOPE

- 1-A.** These specifications cover any precast Fibercrete® (G.F.R.C.) and/or concrete cable trench system manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The trench system shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the trench for truck shipment. Shipping and delivery responsibilities shall be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval and field installation. Final drawings will include individual details, the layout, a complete BOM (Bill of Materials), and installation guidelines. Electronic individual component drawings in PDF format are available upon request. Standard part drawings shall be available online.
- 2-B.** The tolerances of the dimensions of each trench component shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".
- 2-D.** Provisions, such as cast-in threaded inserts, must be offered for lifting traffic rated trench channels. Mounting holes must be adequately reinforced to avoid damaging the channel, and to provide an ultimate strength of at least 5 times the part weight when the unit is lifted in accordance with the manufacturer's instructions.

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-D. LAY-UP GFRC - FIBERCRETE®**
 - 3-D.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and deformed high tensile welded wire. It is fabricated via the Concast spray lay-up method which incorporates a minimum of 4 percent volume A.R. glass fibers.
 - 3-D.2** Conforms to AIA Masterspec Section 03491 for Glass Fiber Reinforced Concrete and quality control procedures per PCI# MNL-130-91.

3-E. PREMIX GFRC - FIBERCRETE®

3-E.1 Composed of cement mortar reinforced by alkali resistant glass fiber, and a deformed prefabricated high tensile welded steel wire. It is fabricated via casting into steel forms.

3-E.2 A.R. Glass is required to prevent glass deterioration if in contact with any poured cement or grout foundation.

3-E.3 Shall obtain a minimum compressive strength of 6000 PSI at 28 days of age.

3-F. MICRO-CONCRETE

3-F.1 Precast concrete trench components shall be cast into steel forms using Type I/II Portland Cement.

3-F.2 Concrete shall contain 6% entrained air (plus or minus 1%)

3-F.3 Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.

3-G. REINFORCEMENT

3-G.1 Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".

3-G.2 Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".

3-G.3 Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".

3-H. With equipment installed; the trench system shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/ C666M-03.

3-I. When required, site-specific, PE stamped, seismic calculations shall be provided.

3-J. Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

3-K. METAL COMPONENT PERFORMANCE

3-K.1 All galvanized steel covers, hardware, and embedments shall meet the following requirements:

- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
- Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
- Galvanized Hardware - ASTM 153

3-K.2 All stainless steel hardware and embedments shall meet the following requirements:

- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

Concast Trench System Specifications

3-K.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

4. ALL CONCAST TRENCH SYSTEMS

- 4-A.** Trench systems shall consist of precast reinforced concrete channel sections with removable cover sections and end plates assembled to form a completely enclosed trench.
- 4-B.** Trench channels shall have an inside depth of 12", 16", or 24" which excludes the cover and floor thickness.
- 4-C.** Trench channels have an interior minimum width of 10, 20, 24, 30, 40, or 50 inches. All channels shall be available with open or solid bottom configurations.
- 4-D.** The channel design is such that it is self-supporting and can be set above grade level if required.
- 4-E.** All channels to be of one-piece design and shall be furnished in standard 4 or 8 foot lengths. Special lengths under 8' long must be made available when needed in a trench run layout. Channel sections must be designed to interlock via male/female end joints.
- 4-F.** A universal channel shall be provided for ells, tees, crosses, and reducers. Special angled channels are used for turns in the trench run, for elevation changes, or transitions from pedestrian rated to traffic rated channel.

5. PEDESTRIAN RATED TRENCH SYSTEMS

- 5-A.** All Pedestrian trench systems are designed to support at least 200 PSF live load. Not intended for vehicle traffic.
- 5-B.** Pedestrian channels are to be constructed with spray up Fibercrete® and the standard covers are cast Fibercrete®.
- 5-C.** Pedestrian channel covers must be made available in aluminum, Fibercrete®, galvanized steel, ventilated galvanized steel; they are sized to permit manual removal by a single person using the Concast, Inc. lifting tool to engage the lifting slots in the cover.

6. TRAFFIC RATED TRENCH SYSTEMS

- 6-A.** All Light Traffic trench systems shall meet AASHTO H-10 light equipment requirement of supporting 16,000 lb./axle load.
- 6-B.** All Heavy Traffic trench systems shall meet AASHTO H-20 heavy equipment requirement of supporting 32,000 lb./axle load.
- 6-C.** All HTSG40 trench systems shall meet AASHTO H-40 heavy equipment requirement of supporting 64,000 lb./axle load.
- 6-D.** All traffic rated channel shall be produced using 7500 PSI steel reinforced concrete.
- 6-E.** Covers for traffic rated trench shall be constructed of either precast steel reinforced concrete or fabricated hot-dipped galvanized steel. They are all designed to meet their corresponding channel's AASHTO requirements. Lightweight Fibercrete® covers shall be available for LT channels.

- 6-F.** Provisions, such as cast-in threaded inserts, must be offered for lifting traffic rated channel. Mounting holes must be adequately reinforced to avoid damaging the part and to provide an ultimate strength of at least 5 times the channel weight when it is lifted in accordance with the manufacturer's instructions.

4. INSTALLATION REQUIREMENTS

- 4-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-C.** All trench excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-D.** All backfill material shall be a granular material as required by the soils engineer. Trench shall be designed to have no limitations of backfill height.
- 4-E.** Installation guidelines shall be made available online.





Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN

CONCAST

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CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



TRENCH SYSTEM

Trench System Overview

IDEAL USES FOR TRENCH SYSTEMS



SUBSTATIONS



INDUSTRIAL PIPING



TRANSPORTATION

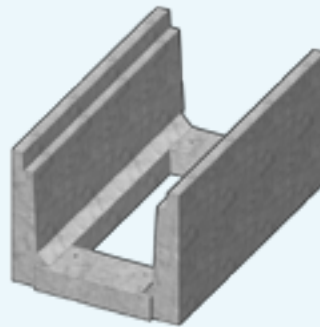


MISCELLANEOUS

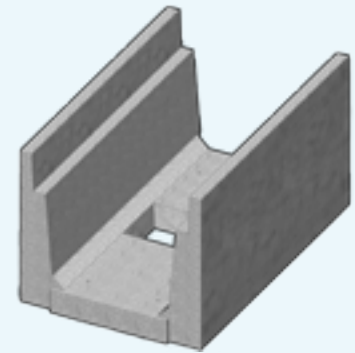
Concast Trench Systems



**Fibercrete®
Pedestrian Rated
Trench Systems**



**Light Traffic
H-10 Rated
Trench Systems**



**Heavy Traffic
H-20 & H-40 Rated
Trench Systems**

- Inside depths of 12 inches and 16 inches are available in all trench styles.
- Many traffic rated channels are available as 24 inch deep.
- Standard channel lengths are 4' or 8' long. Other custom lengths available.
- Inside channel widths of 10", 20", 24", 30", 40", and 50" are standard.

Guide Specifications

Trench shall be constructed with Concast Fibercrete® or approved equal. It shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Layout Drawings Provided

Concast will provide large "D" size drawings for engineering approval, and to assist the construction crew with trench installation. This drawing will show the locations of all trench components and will list a complete bill of materials (BOM). Please refer to Concast Fibercrete® Trench Installation Guidelines No. 0347.45 for more information. See www.concastinc.com/ref/installation_g/trench_Install_Guide.pdf

REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE® PEDESTRIAN TRENCH SYSTEMS

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** Our pedestrian channels are lighter than conventional concrete. One or two men can install most channels without using hoist equipment.
- **3 TIMES THE STRENGTH OF CONCRETE;** with superior crack resistance and long-term durability.
- **NON-SKID WALKWAY.** Fibercrete covers provide a skid-proof surface.
- **INSTALLATION IS SIMPLE.** The concast trench system has fewer parts to manage. No special hardware are required at the corners or tees. One universal channel will form a tee, ell, or cross. Interlocking male/female ends eliminate the need for special tools or hardware.
- **LESS EXCAVATION REQUIRED.** Fibercrete® trench is a compact system. It's outside dimensions are much smaller than that of other trench systems. As a result, less clearance is needed around control houses, tower footings, and foundations.
- **SUBSTATION EXPANSION.** Manual installation removes the need for cranes in stations where overhead towers and power lines exist. Fibercrete® trench is ideal for expansion since it can adapt to existing trench installations. A universal channel can be strategically placed in trench runs with end plates temporarily closing off the side-walls to allow for future expansion. This results in significant potential labor savings during future modifications to the substation.
- **IMMEDIATE USE.** Installation of precast sections of H-20 rated, heavy traffic channels in conjunction with pedestrian trench facilitates immediate road crossing traffic.



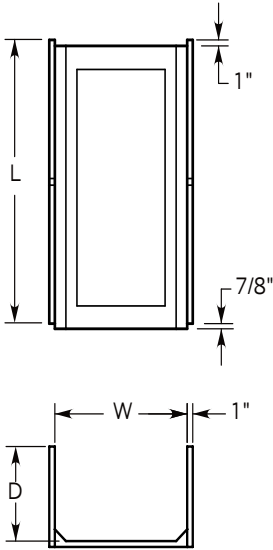
Features:

- **3 TIMES THE STRENGTH OF CONCRETE.** Has superior crack resistance and long-term durability.
- **OPEN BOTTOM DESIGN.** The Fibercrete® pedestrian rated trench system is designed with an open bottom for drainage and to allow conduit routing.
- **ABOVE OR BELOW GRADE.** Fibercrete® trench can be installed either above or below grade. No special hardware is required.

Fibercrete® Trench System

Pedestrian Rated Trench Channels

PEDESTRIAN FIBERCRETE® CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH	INSIDE DEPTH	WEIGHT L = 4 ft.	WEIGHT L = 8 ft.
8010	8810	10"	12"	87 LBS.	174 LBS.
8020	8820	20"	12"	98 LBS.	193 LBS.
8024	8824	24"	12"	100 LBS.	198 LBS.
8030	8830	30"	12"	103 LBS.	205 LBS.
8040	8840	40"	12"	118 LBS.	241 LBS.
8050	8850	50"	12"	174 LBS.	356 LBS.
801016	881016	10"	16"	102 LBS.	204 LBS.
802016	882016	20"	16"	112 LBS.	224 LBS.
802416	882416	24"	16"	115 LBS.	230 LBS.
803016	883016	30"	16"	118 LBS.	236 LBS.
804016	884016	40"	16"	133 LBS.	271 LBS.
805016	885016	50"	16"	189 LBS.	385 LBS.

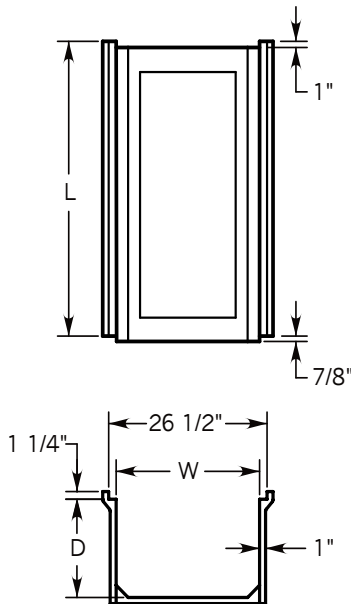
Pedestrian Channels are rated for 200 lbs./ft²

See website for more details; including drawings of pedestrian rated Fibercrete® channel in both PDF and AutoCAD format.

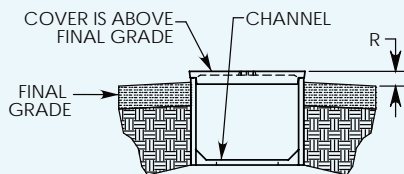
Channel Options Page 14

- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

FLUSH PEDESTRIAN CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH	INSIDE DEPTH	WEIGHT L = 4 ft.	WEIGHT L = 8 ft.
8010F	8810F	10"	12"	135 LBS.	269 LBS.
8020F	8820F	20"	12"	145 LBS.	289 LBS.
8024F	8824F	24"	12"	147 LBS.	294 LBS.
8030F	8830F	30"	12"	150 LBS.	301 LBS.
8040F	8840F	40"	12"	166 LBS.	331 LBS.
8050F	8850F	50"	12"	222 LBS.	443 LBS.
801016F	881016F	10"	16"	163 LBS.	325 LBS.
802016F	882016F	20"	16"	173 LBS.	345 LBS.
802416F	882416F	24"	16"	175 LBS.	350 LBS.
803016F	883016F	30"	16"	178 LBS.	357 LBS.
804016F	884016F	40"	16"	194 LBS.	387 LBS.
805016F	885016F	50"	16"	250 LBS.	499 LBS.



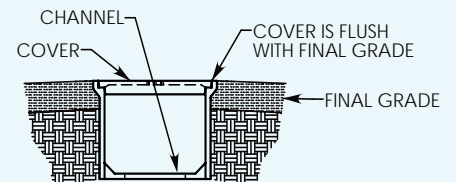
STANDARD CHANNEL

Our standard channel will work for all pedestrian rated applications that do not require the covers to be flush with the grade.

R=2-1/4": minimum clearance recommended by Concast

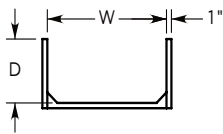
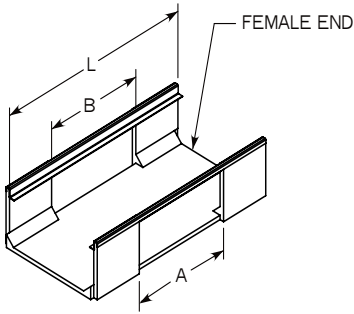
SIDE BY SIDE CHANNEL COMPARISON

VS.



FLUSH CHANNEL

Used where the surrounding rock, asphalt, or concrete needs to be flush with the covers. It can be purchased with solid and/or grated covers for drainage trench.



Universal channels are shipped with removable aluminum cover supports mounted to the top ledges.

Openings are centered on the sides, but can be offset if necessary.

PEDESTRIAN RATED FIBERCRETE® UNIVERSAL CHANNELS

STANDARD UNIVERSAL	FLUSH UNIVERSAL	INSIDE WIDTH	INSIDE DEPTH	LENGTH "L"	OPENING "A"	OPENING "B"
8012 (10X10)	8012F (10X10)	10"	12"	48"	10"	10"
8022 (20X20)	8022F (20X20)	20"	12"	48"	20"	20"
8026 (24X24)	8026F (24X24)	24"	12"	48"	24"	24"
8032 (30X30)	8032F (30X30)	30"	12"	48"	30"	30"
8042 (40X40)	8042F (40X40)	40"	12"	48"	40"	40"
8852 (50X50)	8852F (50X50)	50"	12"	96"	50"	50"
801216 (10X10)	801216F (10X10)	10"	16"	48"	10"	10"
802216 (20X20)	802216F (20X20)	20"	16"	48"	20"	20"
802616 (24X24)	802616F (24X24)	24"	16"	48"	24"	24"
803216 (30X30)	803216F (30X30)	30"	16"	48"	30"	30"
804216 (40X40)	804216F (40X40)	40"	16"	48"	40"	40"
885216 (50X50)	885216F (50X50)	50"	16"	96"	50"	50"

EXAMPLES OF NON-STANDARD UNIVERSAL CHANNELS

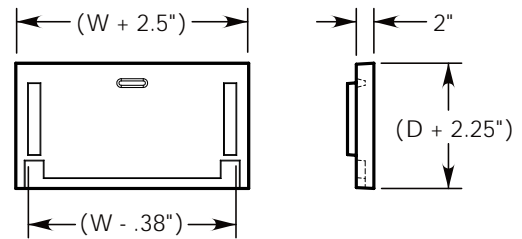
8022 (20X40)	8022F (20X40)	20"	12"	48"	20"	40"
803216 (0X40)	803216F (0X40)	30"	16"	48"	None	40"

Universal channels can be used to make tees, ells, or crosses. They can also be used to form a smooth transition from one width trench to another. The channel has a solid bottom for additional strength. There is such a large number of universal channel configurations, that only a few are depicted in the tables. To obtain the correct part number, refer to the diagram and apply the appropriate numbers. More information is available on the Concast website.

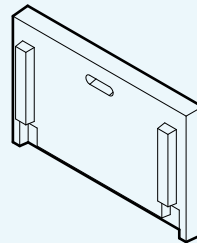
PEDESTRIAN TRENCH END PLATES

PEDESTRIAN END PLATE	PED. CHANNEL INSIDE WIDTH "W"	PED. CHANNEL INSIDE DEPTH "D"
8013	10"	12"
8023	20"	12"
8027	24"	12"
8033	30"	12"
8043	40"	12"
8053	50"	12"
801316	10"	16"
802316	20"	16"
802716	24"	16"
803316	30"	16"
804316	40"	16"
805316	50"	16"

Pedestrian End Plates are rated for 200 lbs./ft²



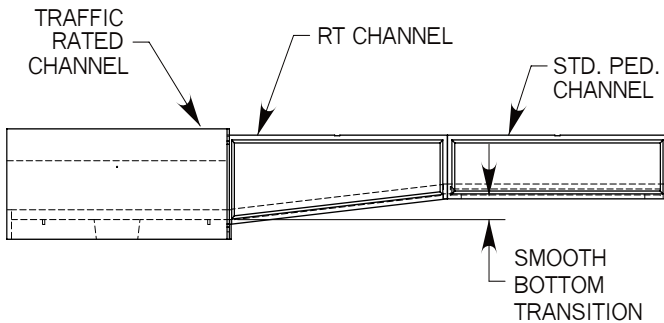
PEDESTRIAN END PLATES



End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's pedestrian rated Fibercrete® channels; and are available in all standard channel widths.

Ped. Rated Transition Channels (RT)

TYPICAL RT ELEVATION DETAIL



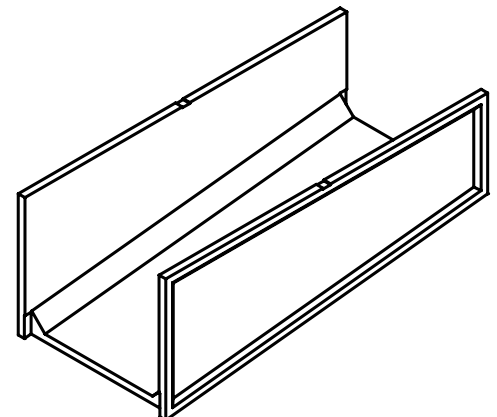
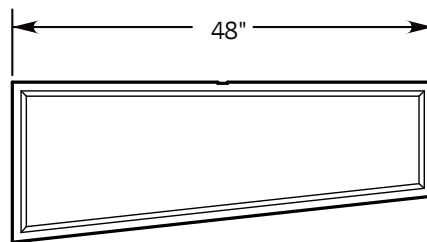
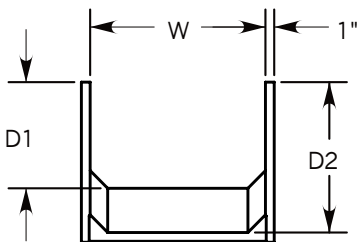
RT solid-bottom channels have "female" stops on both ends of the channel to accommodate various assembly locking configurations. These channels are utilized to create a smooth bottom transition in all layouts that have both pedestrian and traffic rated channel. Also can be used at the control house if a deeper inlet is required. These channels all have a solid bottom design.

TRANSITION TO HT OR HT40 CHANNEL

TRANSITION CHANNEL	FLUSH RT CHANNEL	INSIDE WIDTH "W"	INSIDE DEPTH "D1"	INSIDE DEPTH "D2"
8010SRT	8010FSRT	10"	12"	17.25"
8020SRT	8020FSRT	20"	12"	17.25"
8024SRT	8024FSRT	24"	12"	17.25"
8030SRT	8030FSRT	30"	12"	17.25"
8040SRT	8040FSRT	40"	12"	17.25"
8050SRT	8050FSRT	50"	12"	17.25"
801016DRT	801016FDRT	10"	16"	21.25"
802016DRT	802016FDRT	20"	16"	21.25"
802416DRT	802416FDRT	24"	16"	21.25"
803016DRT	803016FDRT	30"	16"	21.25"
804016DRT	804016FDRT	40"	16"	21.25"
805016DRT	805016FDRT	50"	16"	21.25"

TRANSITION TO LT OR HTSG CHANNEL

TRANSITION CHANNEL	FLUSH RT CHANNEL	INSIDE WIDTH "W"	INSIDE DEPTH "D1"	INSIDE DEPTH "D2"
8010RT	8010FRT	10"	12"	13.75"
8020RT	8020FRT	20"	12"	13.75"
8024RT	8024FRT	24"	12"	13.75"
8030RT	8030FRT	30"	12"	13.75"
8040RT	8040FRT	40"	12"	13.75"
801016RT	801016FRT	10"	16"	17.75"
802016RT	802016FRT	20"	16"	17.75"
802416RT	802416FRT	24"	16"	17.75"
803016RT	803016FRT	30"	16"	17.75"
804016RT	804016FRT	40"	16"	17.75"



See Concast's website for drawings of transition channel in both PDF & AutoCAD format.

FIBERCRETE® PED. TRENCH COVERS

COVER	RIB WIDTH*	WIDTH	LENGTH	WEIGHT
8011	10"	12.50"	24"	32 LBS.
8021	20"	22.50"	24"	46 LBS.
8025	24"	26.50"	24"	51 LBS.
8031	30"	32.50"	24"	66 LBS.
8041	40"	42.50"	24"	86 LBS.
8051	50"	52.50"	16"	79 LBS.

EXAMPLES OF SPECIAL LENGTH COVERS				
8011 20"	10"	12.50"	20"	27 LBS.
8031 16"	30"	32.50"	16"	45 LBS.

Fibercrete® covers are fiber and wire reinforced; they have lifting slots cast into them for easy removal.

Polymer concrete covers are available upon request. Their part numbers have a letter "P" suffix.

*Rib Width is 1/8" under corresponding channel width.

Covers can be customized via the addition of notches, special holes, or they can have bolt-down hardware added.

ALUMINUM OR GALVANIZED STEEL PEDESTRIAN RATED TRENCH COVERS

COVER END VIEWS	ALUM. COVER	GALV. STL. COVER	RIB WIDTH*	WIDTH	LENGTH	HEIGHT	ALUM. COVER WEIGHT	GALV. STL. COVER WEIGHT
"A" or "SG" Use these covers in standard pedestrian trench runs with no fibercrete covers.	8011A	8011SG	10"	12"	48"	0.25"	12 LBS.	36 LBS.
	8021A	8021SG	20"	22"	48"	0.25"	22 LBS.	67 LBS.
	8025A	8025SG	24"	26"	24"	0.25"	14 LBS.	43 LBS.
	8031A	8031SG	30"	32"	24"	0.25"	22 LBS.	68 LBS.
	8041A	8041SG	40"	42"	24"	0.25"	29 LBS.	89 LBS.
	8051A	8051SG	50"	52"	16"	0.25"	26 LBS.	78 LBS.
"AT" or "SGT" These covers can be interchanged with a std. Fibercrete cover, and can be used in any flush channel run.	8011AT	8011SGT	10"	12"	48"	1.25"	16 LBS.	50 LBS.
	8021AT	8021SGT	10"	22"	48"	1.25"	27 LBS.	82 LBS.
	8025AT	8025SGT	24"	26"	24"	1.25"	17 LBS.	52 LBS.
	8031AT	8031SGT	30"	32"	24"	1.25"	26 LBS.	78 LBS.
	8041AT	8041SGT	40"	42"	24"	1.25"	33 LBS.	101 LBS.
	8051AT	8051SGT	50"	52"	16"	1.25"	30 LBS.	89 LBS.

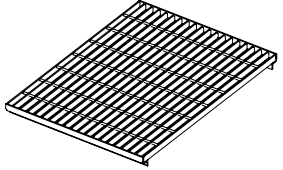
VENTILATED STEEL PED. TRENCH COVERS

VENT. COVER	RIB WIDTH*	WIDTH	LENGTH	HEIGHT	WEIGHT
8011V	10"	12"	48"	1.25"	34 LBS.
8021V	20"	22"	48"	1.25"	50 LBS.
8025V	24"	26"	24"	1.25"	28 LBS.
8031V	30"	32"	24"	1.25"	33 LBS.
8041V	40"	42"	24"	1.25"	66 LBS.
8051V	50"	52"	16"	1.25"	56 LBS.

Concast's galvanized steel ventilated covers are perfect for special trench runs requiring a free air rating.

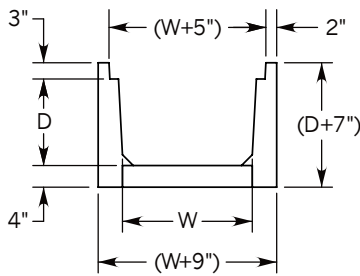
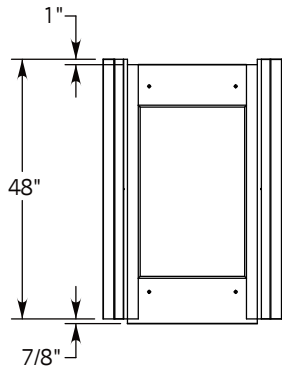
*Rib Width is 1/8" under corresponding channel width.

Covers are rated for 200 lbs./ft²

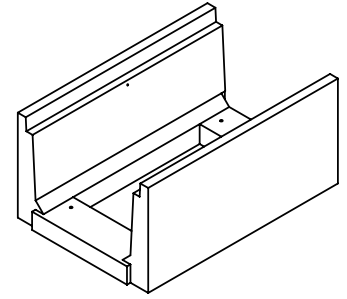


Light Traffic H-10 (LT)

LIGHT TRAFFIC RATED (LT) CHANNEL



CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010LT	8810LT	10"	12"
8020LT	8820LT	20"	12"
8024LT	8824LT	24"	12"
8030LT	8830LT	30"	12"
8040LT	8840LT	40"	12"
801016LT	881016LT	10"	16"
802016LT	882016LT	20"	16"
802416LT	882416LT	24"	16"
803016LT	883016LT	30"	16"
804016LT	884016LT	40"	16"
801024LT	881024LT	10"	24"
802024LT	882024LT	20"	24"
802424LT	882424LT	24"	24"
803024LT	883024LT	30"	24"
804024LT	884024LT	40"	24"

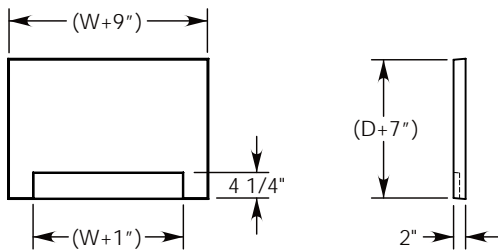


Channel Options Page 14

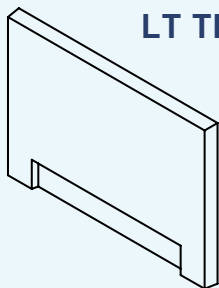
- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

- LT Channels are steel reinforced to meet AASHTO-H-10 light Equipment requirement of 16,000 Lbs. per axle load.
- An LT universal channel is generally used wherever an ell, tee, or cross is needed in a trench run. Two special angled channels can be used for any degree angle change in the run. An example of an LT universal P/N is 8022LT (0X20).
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting. It is recommended to use these in conjunction with a swivel hoist ring (Concast P/N: 9002) and 4-Way lifting chain (Concast P/N: 9003).

LT TRENCH END PLATES

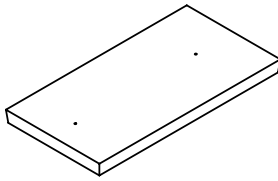


LT TRENCH END PLATES

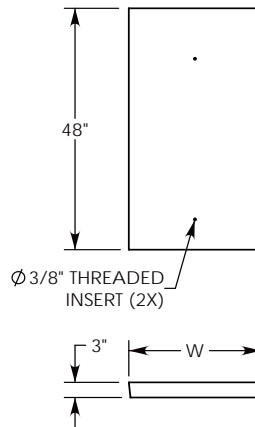


End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's light traffic rated LT channels; and are available in all standard channel widths.

LT END PLATE	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8013LT	10"	12"
8023LT	20"	12"
8027LT	24"	12"
8033LT	30"	12"
8043LT	40"	12"
801316LT	10"	16"
802316LT	20"	16"
802716LT	24"	16"
803316LT	30"	16"
804316LT	40"	16"
801324LT	10"	24"
802324LT	20"	24"
802724LT	24"	24"
803324LT	30"	24"
804324LT	40"	24"

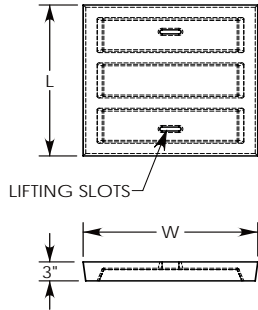


- All Light Traffic covers are H-10 rated at 16,000 lbs./axle load.
- These concrete covers are steel reinforced.
- The concrete covers come standard with LT trench.



CONCRETE LT COVERS

CONCRETE COVER	WIDTH	LENGTH	WEIGHT
8011LT	14.75"	48"	169 LBS.
8021LT	24.75"	48"	286 LBS.
8025LT	28.75"	48"	332 LBS.
8031LT	34.75"	48"	402 LBS.
8041LT	44.75"	48"	725 LBS.
EXAMPLES OF SPECIAL LENGTH COVERS			
8011LT 30"	14.75"	30"	105 LBS.
8031LT 24"	34.75"	24"	199 LBS.

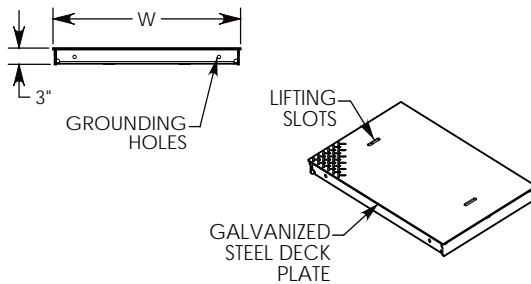


FIBERCRETE® LTF COVERS

COVER	WIDTH	LENGTH	WEIGHT
8011LTF	14.75"	24"	57 LBS.
8021LTF	24.75"	24"	89 LBS.
8025LTF	28.75"	16"	74 LBS.
8031LTF	34.75"	16"	93 LBS.

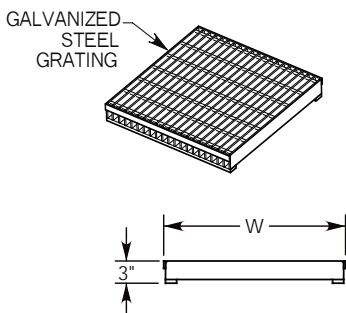
- Concast's lightweight LTF Fibercrete® covers are fiber and wire reinforced.
- Covers have lifting slots for easy removal.
- The 3 inch cover height dimension does not include the rib thickness.
- Fibercrete® LTF covers are not available in special lengths.

GALVANIZED STEEL LIGHT TRAFFIC LTSG TRENCH COVERS



GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011LTSG	14.75"	48"	91 LBS.
8021LTSG	24.75"	24"	72 LBS.
8025LTSG	28.75"	24"	82 LBS.
8031LTSG	34.75"	24"	99 LBS.
8041LTSG	44.75"	24"	125 LBS.

VENTILATED STEEL LTV TRENCH COVERS



VENT. COVER	WIDTH	LENGTH	WEIGHT
8011LTV	14.75"	48"	97 LBS.
8021LTV	24.75"	24"	109 LBS.
8025LTV	28.75"	24"	120 LBS.
8031LTV	34.75"	24"	157 LBS.
8041LTV	44.75"	24"	201 LBS.

See website for more details; including drawings of Light Traffic H-10 rated precast trench system components such as universal channel & covers in both PDF and AutoCAD format.

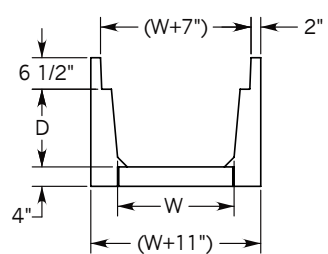
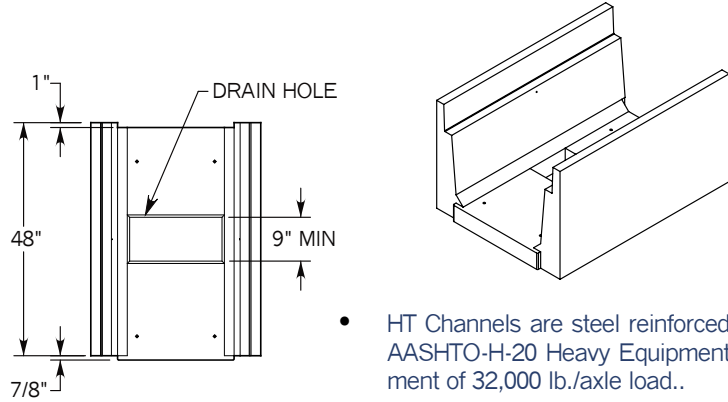
Concast's galvanized steel ventilated covers are perfect for Light Traffic trench runs requiring a free air rating.

Fibercrete® Trench System

Heavy Traffic H-20 (HT)

HEAVY TRAFFIC (HT) CHANNEL

CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010HT	8810HT	10"	12"
8020HT	8820HT	20"	12"
8024HT	8824HT	24"	12"
8030HT	8830HT	30"	12"
8040HT	8840HT	40"	12"
8050HT	8850HT	50"	12"
801016HT	881016HT	10"	16"
802016HT	882016HT	20"	16"
802416HT	882416HT	24"	16"
803016HT	883016HT	30"	16"
804016HT	884016HT	40"	16"
805016HT	885016HT	50"	16"
801024HT	881024HT	10"	24"
802024HT	882024HT	20"	24"
802424HT	882424HT	24"	24"
803024HT	883024HT	30"	24"
804024HT	884024HT	40"	24"
805024HT	885024HT	50"	24"

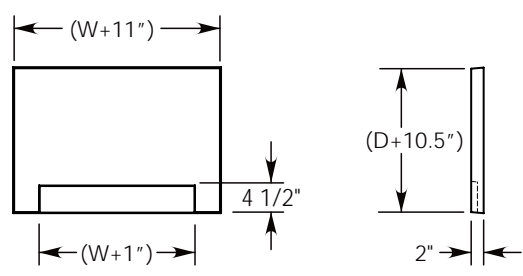


- HT Channels are steel reinforced to meet AASHTO-H-20 Heavy Equipment requirement of 32,000 lb./axle load..
- An HT universal channel is generally used wherever an ell, tee, or cross is needed in an HT trench run. Two special angled channels can be used for any degree angle change in the run.
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting.

Channel Options
Page 14

Solid Bottom Channel
Special Length Channel
Elevation Changes
Angled Channel
Complex Intersections

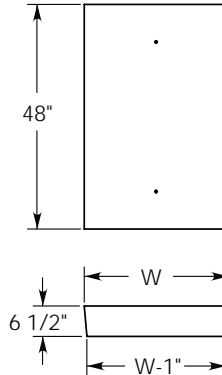
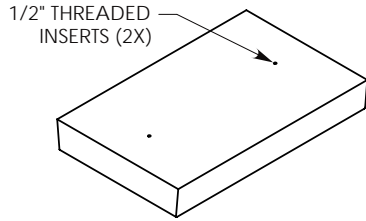
HT END PLATE	HT CHANNEL INSIDE WIDTH "W"	HT CHANNEL INSIDE DEPTH "D"
8013HT	10"	12"
8023HT	20"	12"
8027HT	24"	12"
8033HT	30"	12"
8043HT	40"	12"
8053HT	50"	12"
801316HT	10"	16"
802316HT	20"	16"
802716HT	24"	16"
803316HT	30"	16"
804316HT	40"	16"
805316HT	50"	16"
801324HT	10"	24"
802324HT	20"	24"
802724HT	24"	24"
803324HT	30"	24"
804324HT	40"	24"
805324HT	50"	24"



HT TRENCH END PLATES

End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's heavy traffic rated HT/HT40 channels; and are available in all standard channel widths.

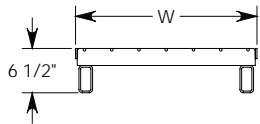
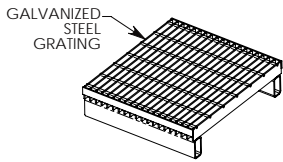
See website for more details; including drawings of HT Heavy Traffic rated precast trench system components such as universal channel & covers in both PDF and AutoCAD format.



CONCRETE HT COVERS

CONCRETE COVER	WIDTH	LENGTH	WEIGHT
8011HT	16.63"	48"	409 LBS.
8021HT	26.63"	48"	664 LBS.
8025HT	30.63"	48"	766 LBS.
8031HT	36.63"	48"	919 LBS.
8041HT	46.63"	48"	1174 LBS.
8051HT	56.63"	48"	1429 LBS.

VENTILATED GALV. STEEL HTV TRENCH COVERS

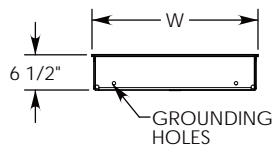
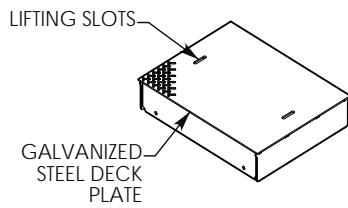


VENT. COVER	WIDTH	LENGTH	WEIGHT
8011HTV	16.63"	24"	99 LBS.
8021HTV	26.63"	24"	138 LBS.
8025HTV	30.63"	24"	152 LBS.
8031HTV	36.63"	24"	215 LBS.
8041HTV	46.63"	24"	266 LBS.
8051HTV	56.63"	24"	354 LBS.

HT & HTV COVER FACTS

- All HT & HTV Heavy Traffic covers are H-20 rated at 32,000 lb./axle load.
- The concrete HT covers are standard for Concast H-20 rated trench runs.
- Concrete covers have two 1/2" diameter threaded inserts cast into the top surface for mechanical lifting.
- Galv. steel ventilated HTV covers are great for H-20 rated trench runs requiring a free air rating.

GALVANIZED STEEL HEAVY TRAFFIC HTSG40 TRENCH COVERS



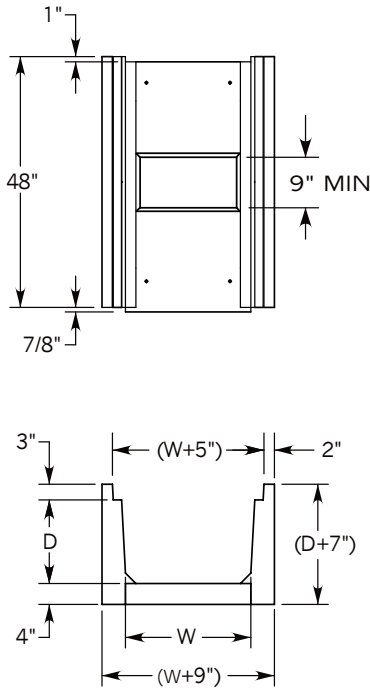
GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011HTSG40	16.63"	48"	143 LBS.
8021HTSG40	26.63"	24"	112 LBS.
8025HTSG40	30.63"	24"	127 LBS.
8031HTSG40	36.63"	24"	149 LBS.
8041HTSG40	46.63"	24"	185 LBS.
8051HTSG40	56.63"	24"	250 LBS.

HTSG40 covers are rated for 64,000 lbs./axle load

HTSG40 COVER FACTS

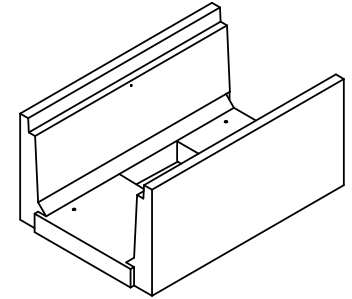
- All HTSG40 Heavy Traffic covers are H-40 rated at 64,000 lbs./axle load.
- HTSG40 steel covers convert standard H-20 rated HT channel into H-40 rated channel.
- The galvanized steel HTSG40 covers are the only Concast covers with an H-40 rating.
- HT-40 rated trench system uses standard HT end plates.
- These covers can be maneuvered with Concast's heavy lifting tool (P/N: 8000L).

Heavy Traffic H-20 (HTSG)



H-20 HEAVY TRAFFIC (HTSG) CHANNEL

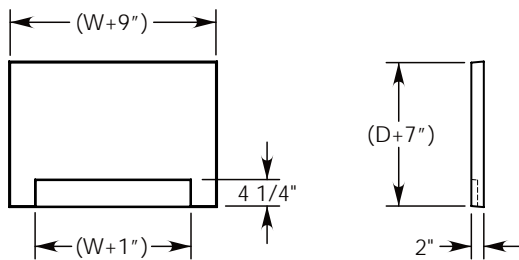
CHANNEL L = 4 ft.	CHANNEL L = 8 ft.	INSIDE WIDTH "W"	INSIDE DEPTH "D"
8010HTSG	8810HTSG	10"	12"
8020HTSG	8820HTSG	20"	12"
8024HTSG	8824HTSG	24"	12"
8030HTSG	8830HTSG	30"	12"
8040HTSG	8840HTSG	40"	12"
801016HTSG	881016HTSG	10"	16"
802016HTSG	882016HTSG	20"	16"
802416HTSG	882416HTSG	24"	16"
803016HTSG	883016HTSG	30"	16"
804016HTSG	884016HTSG	40"	16"
801024HTSG	881024HTSG	10"	24"
802024HTSG	882024HTSG	20"	24"
802424HTSG	882424HTSG	24"	24"
803024HTSG	883024HTSG	30"	24"
804024HTSG	884024HTSG	40"	24"



Channel Options Page 14

- Solid Bottom Channel
- Special Length Channel
- Elevation Changes
- Angled Channel
- Complex Intersections

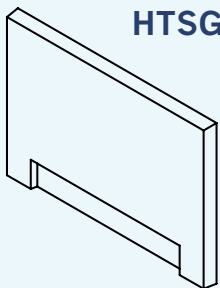
- HTSG Channels are steel & fiber reinforced to meet AASHTO-H-20 Heavy Equipment requirement of 32,000 lb./axle load.
- An HTSG universal channel is generally used wherever an ell, tee, or cross is needed in an HTSG trench run. Two special angled channels can be used for any degree angle change in the run. An example of an HTSG universal P/N is 8022HTSG (0X20).
- Four 1/2" dia. threaded inserts are cast into the floor of the channel for lifting. It is recommended to use these in conjunction with a swivel hoist ring (Concast P/N: 9002) and 4-Way lifting chain (Concast P/N: 9003).



HTSG TRENCH END PLATES

HTSG END PLATE	HTSG CHANNEL INSIDE WIDTH "W"	HTSG CHANNEL INSIDE DEPTH "D"
8013HTSG	10"	12"
8023HTSG	20"	12"
8027HTSG	24"	12"
8033HTSG	30"	12"
8043HTSG	40"	12"
801316HTSG	10"	16"
802316HTSG	20"	16"
802716HTSG	24"	16"
803316HTSG	30"	16"
804316HTSG	40"	16"
801324HTSG	10"	24"
802324HTSG	20"	24"
802724HTSG	24"	24"
803324HTSG	30"	24"
804324HTSG	40"	24"

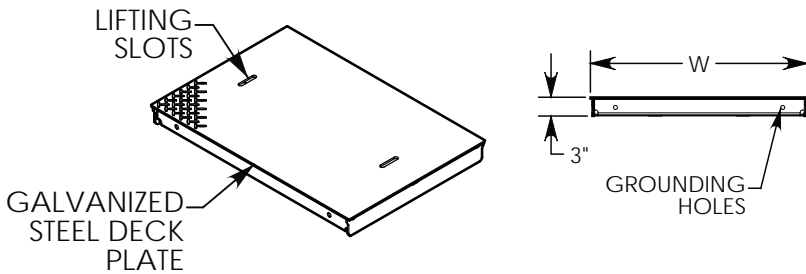
HTSG TRENCH END PLATES



End plates are used to close up unused universal channel openings, and also to terminate trench runs. These end plates are designed to fit Concast's heavy traffic rated HTSG channels; and are available in all standard channel widths.

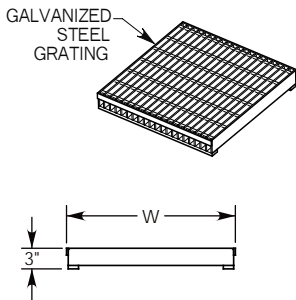
HTSG & Specialty Pedestrian Covers

GALVANIZED STEEL HEAVY TRAFFIC HTSG TRENCH COVERS



GALV. STEEL COVER	WIDTH	LENGTH	WEIGHT
8011HTSG	14.75"	48"	97 LBS.
8021HTSG	24.75"	24"	77 LBS.
8025HTSG	28.75"	24"	88 LBS.
8031HTSG	34.75"	24"	107 LBS.
8041HTSG	44.75"	24"	135 LBS.

VENTILATED STEEL HTSGV TRENCH COVERS



VENT. COVER	WIDTH	LENGTH	WEIGHT
8011HTSGV	14.75"	48"	98 LBS.
8021HTSGV	24.75"	24"	109 LBS.
8025HTSGV	28.75"	24"	121 LBS.
8031HTSGV	34.75"	24"	158 LBS.
8041HTSGV	44.75"	24"	202 LBS.

Concast's galvanized steel ventilated covers are perfect for HTSG Heavy Traffic trench runs requiring a free air rating.

HTSG & HTSGV COVER FACTS

- All HTSG & HTSGV Heavy Traffic covers are H-20 rated at 32,000 lb./axle load.
- The HTSG covers are a lightweight alternative to the standard 6 1/2 inch thick HT covers.
- They only fit onto HTSG channel.
- The galvanized steel HTSG covers come standard with HTSG trench.
- These covers can be maneuvered with Concast's manual lifting tools.

BOLT-DOWN PEDESTRIAN COVERS

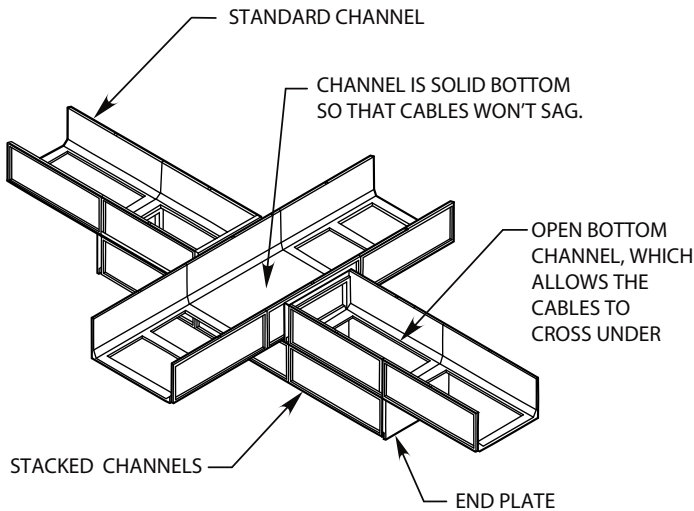
Concast's standard Fibercrete covers can be produced with a bolt-down option for added security. Covers have recessed holes in them for 3/8" diameter pentahead bolts that interface with special bracketing attached to the inside walls of the channel.



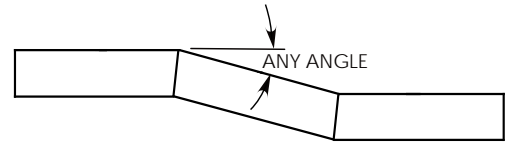
Trench Layout Options

CROSS-OVERS & CROSS-UNDERS

When trench runs meet, a cross-over or cross-under can be used to keep cables separated if needed.



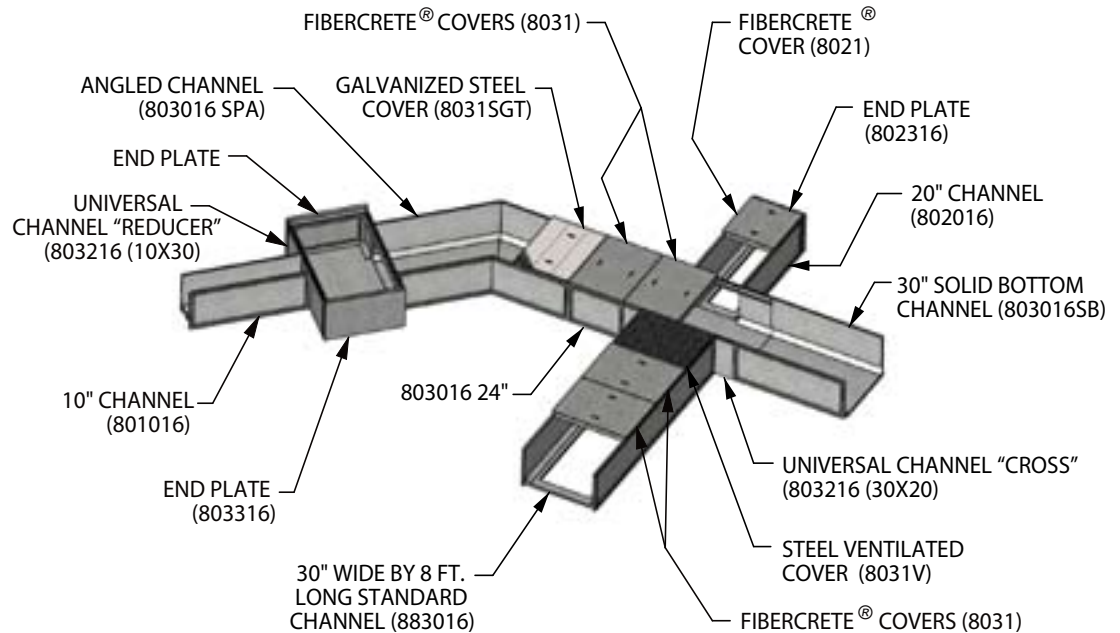
CUSTOM ELEVATION CHANGE CHANNELS



Each special channel is named (SP), marked, and the layout drawings show exactly where each channel is located in relation to each other. Note that custom covers are usually supplied to match each special (SP) channel.

Concast pedestrian rated channels can be stacked with the help of trench support frames. Special cover supports are also available for instances where part of the channel needs to remain open etc.

TRENCH SYSTEM OPTIONS ILLUSTRATION

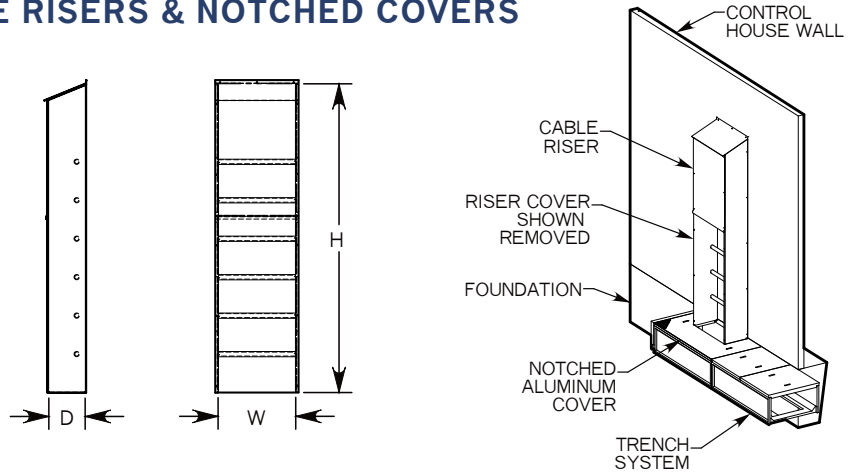


- Solid bottom channel is part numbered with an "SB" suffix. IE:8020LT SB is a Light Traffic channel with a solid bottom. Solid bottom channels have no openings in the base of the unit.
- Special length channels are under 8 feet long. The length designation is appended to the standard part number. IE:803016 24" is a pedestrian channel that is 24 inches long. Special length channels often have a solid bottom.
- Angled channels can be provided for trench runs with horizontal or vertical deviations. These channels and their angled covers are usually named by Concast per job.
- Universal channels are often used for any sort of 90 degree trench run change. They can also be used as channel reducers.

ALUMINUM CABLE RISERS & NOTCHED COVERS

CABLE RISER PART NUMBERS

CABLE RISER	INSIDE WIDTH "W"	INSIDE DEPTH "D"	RISER HEIGHT "H"
CR-10-8-96	10"	8"	96"
CR-10-8-120	10"	8"	120"
CR-10-12-96	10"	12"	96"
CR-10-12-120	10"	12"	120"
CR-10-18-120	10"	18"	120"
CR-20-12-96	20"	12"	96"
CR-20-12-120	20"	12"	120"
CR-20-18-120	20"	18"	120"
CR-24-12-96	24"	12"	96"
CR-24-12-120	24"	12"	120"
CR-24-18-120	24"	18"	120"
CR-30-12-96	30"	12"	96"
CR-30-12-120	30"	12"	120"
CR-30-18-120	30"	18"	120"
CR-40-12-96	40"	12"	96"
CR-40-12-120	40"	12"	120"
CR-40-18-120	40"	18"	120"
CR-50-12-96	50"	12"	96"
CR-50-12-120	50"	12"	120"
CR-50-18-120	50"	18"	120"



Cable risers are generally used to facilitate vertical cabling from Concast channel or a pull box to an elevated point in a control building. This usually requires an opening in the channel cover. Concast recommends using their light-weight, aluminum bases in conjunction with a section of pedestrian rated Concast trench for optimum post-installation field accessibility. The charts list only a few of the available sizes; many other sizes of risers and covers are available upon request. They may also be constructed from galvanized steel if desired.

Examples of Riser Notched Ped. Cover Part Numbers

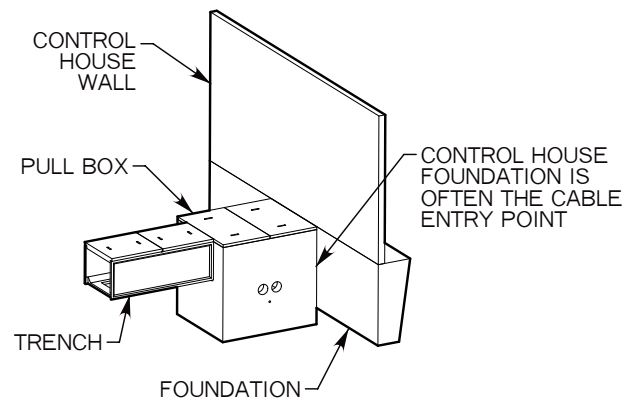
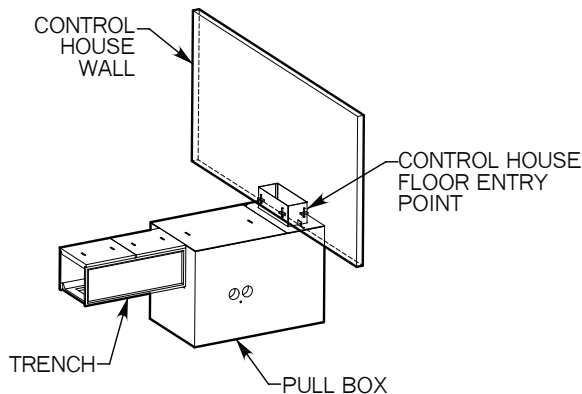
ALUM. NOTCHED COVER/BASE	RIB WIDTH*	COVER LENGTH	NOTCH DIMS	CORRESPONDING CABLE RISER**
8021ATN (22X12)	20"	48"	22" x 12"	CR-20-12-XX
8025ATN (22X18)	24	48"	22" X 18"	CR-20-18-XX
8031ATN (32X18)	30"	48"	32" x 18"	CR-30-18-XX
8031ATN (42X12)	30"	48"	42" x 12"	CR-40-12-XX
8041ATN (42X18)	40"	48"	42" x 18"	CR-40-18-XX

*Rib width corresponds to channel inside width.

**Covers are designed to fit around designated risers.

Concast offers pull boxes for use with their trench system. Pull boxes can be used for grade changes, cross-overs, cross-unders, and next to control buildings with or without cable risers. They can stand alone in other substation applications too. See the pull box section of this catalog and www.concastinc.com for more detail.

PULL BOX TO CONTROL HOUSE INTERFACE OPTIONS



Trench Accessories

ALUMINUM TRENCH SUPPORT



Used for stacking Fibercrete® pedestrian channels vertically. Stacking typically occurs where the cabling must be routed to different elevations.

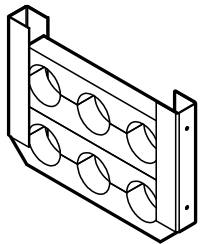
Concast will work with you to identify the correct trench support for your project. See website for size and part number chart.

*Span width corresponds to the inside width of a Concast pedestrian rated channel. IE: 8020TS fits on an 8020 channel.



TRENCH SUPPORT	SPAN WIDTH*	FRAME LENGTH
8010TS	10"	48"
8020TS	20"	48"
8024TS	24"	48"
8030TS	30"	48"
8040TS	40"	48"
8050TS	50"	48"
8810TS	10"	96"
8820TS	20"	96"
8824TS	24"	96"
8830TS	30"	96"
8840TS	40"	96"
8850TS	50"	96"

CABLE SUPPORT BLOCKS

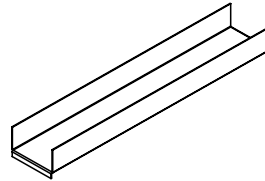


These block assemblies are used to separate, stabilize, and support cables in a precast concrete trench system. Two aluminum sleeves on the ends of the HDPE block layers are

screwed into the sidewalls of the trench for a secure fit. Concast, Inc. will work with you to produce a custom support block assembly that will satisfy the requirements of your project. Many hole sizes and configurations are available.



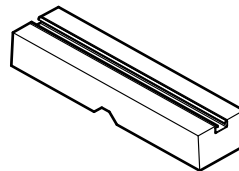
ALUMINUM GUTTERS



These lightweight aluminum gutters help to prevent the formation of water dams in high runoff areas. They are designed to fit into Concast's special notched pedestrian channel. Notched channels can be specified by adding a "GN" suffix to a standard pedestrian part number. For example, a 20 inch wide notched channel would be called "8020GN".



PIPE SUPPORT BLOCKS



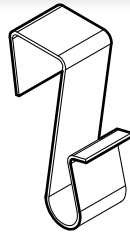
Pipe support blocks are used to separate, stabilize, and support heavy pipe in a precast concrete trench system. They are freestanding and constructed from concrete, with cast-in Unistrut to facilitate strapping the pipes to the support. Concast, Inc. will work with you to produce a support block assembly that will satisfy the requirements of your application.

CABLE CLIPS

All of Concast's channel are designed to use stainless steel cable clips. These clips are used to hold grounding wires on trench walls.

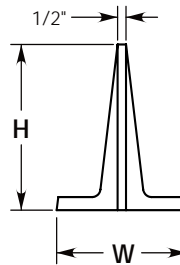


CABLE CLIP	CONCAST CHANNEL
8002	Std. Pedestrian
8002F	Flush Pedestrian
8002R	Traffic Rated



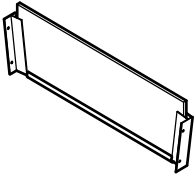
PARTITION BOARDS

Partition boards provide physical separation of cables. A wide base prevents the boards from tipping over in the channel. The 8001-6B has a smaller base designed for 10 inch inside width channels. Standard length is 47-7/8", but shorter lengths can be produced if needed.



PARTITION BOARD	HEIGHT "H"	LENGTH "L"	WIDTH BASE "W"
8001	9.5"	48"	7.75"
8001-6B	9.5"	48"	6"
800116	14"	48"	9"
800124	22"	48"	9"
880116	14"	96"	9"
880124	22"	96"	9"

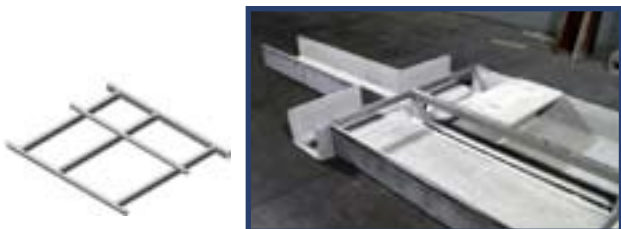
CHANNEL FIRESTOP



Concast firestops are comprised of a 1/2 inch thick Fibercrete sheet that is mounted in the channel via 2 aluminum sleeves and Tapcon screws. The channel will need to be drilled at the desired locations for installation of the screws. The sheet height can be cut to fit after the cables are installed.

ALUMINUM COVER SUPPORTS

Custom aluminum braces used in trench runs to give extra support to covers that must span openings in pedestrian channel. They are standard in all pedestrian rated universal channels. These aluminum frames can be custom fit for each application.



GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your pre-cast Concrete products by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.



Accessories & Maintenance

WELD PLATES

Weld plates can be cast into channels where needed for securing support members, trays, or piping.



TIE STRAPS OR WELD STRAPS

Tie straps and weld straps are optional metal accessories that are used to attach channels to one another, and to prevent them from moving independently. They are usually attached via weld plate or threaded inserts.



PATCH KITS

PK-1 Patch Kit:

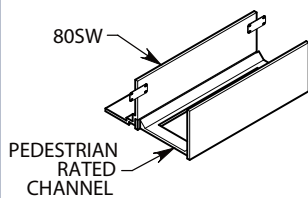
- Used for cosmetic repairs.
- Kit is complete with everything you need for small concrete repairs, including patching compound, bucket, and a trowel.

PK-2 Patch Kit:

- Ideal for patching holes in non-structural concrete sections.
- Kit consists of a large Fibercrete® patch sheet (1/2" thick by 12" sq.) which is cut to size, and then a construction adhesive or Tapcon screws are used to attach the patch over the hole.



REPLACEMENT SIDEWALL CHANNEL



Accidentally drive over a pedestrian rated section of trench? Concast offers a pedestrian rated L-shaped sidewall that can be spliced into an existing trench run that has been broken. The channel is designed to work with either 12 inch deep or 16 inch deep Concast pedestrian trench.

- Sidewall channel part number is 80SW.
- Additional brackets are part number 80SW-BP.

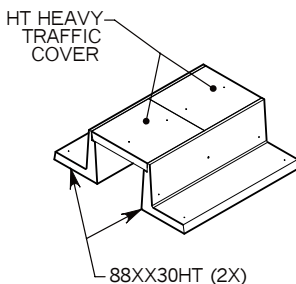
SEALANTS



Vulkem polyurethane sealant is colored concrete gray and can be ordered under Concast P/N: 8004. It is delivered in tubes and is designed for use on poured and precast concrete surfaces. Vulkem 116 has demonstrated superior primerless adhesion to porous substrates for over 30 years and is the sealant of choice for commercial industrial expansion joints.

Concast also offers C-56 Butyl Mastic Joint Sealant made by NPC Bidco, and it can be purchased under P/N: 8004B. This sealant comes in a coil of rope with paper backing & it remains flexible and forms a permanent bond to concrete. It is designed not to shrink, oxidize or harden and has excellent resistance to temperature extremes, acid and alkaline environments.

HEAVY TRAFFIC H-20 RATED RETROFIT "L" CHANNEL



- Shore up damaged trench walls and protect them from further damage.
- House and protect existing pedestrian trench from drive-over damage if you need to add a road crossing.
- Installed retrofit channel around existing cabling; thus eliminating the need to excavate & move a cable system that needs additional protection.
- Part number is 88XX30HT.

UNISTRUT

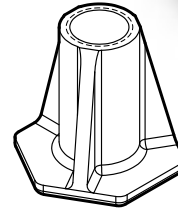


Unistrut is a great way to create an adjustable mounting mechanism. Unistrut is often supplied with a threaded spring nut (pictured). It is available in several materials including stainless steel, galvanized steel, and fiberglass. These channels can be either cast into or screwed onto Concast trench walls and/or base.



THREADED INSERTS

Threaded inserts can be cast into the floor of a trench section for lifting purposes. Insert sizes range from 1/4" to 1" diameter.



INSERT PLUGS

To keep threaded inserts from filling with debris and water, Concast offers a line of insert plugs. Available in both plastic and stainless steel.



INSERT PLUG	PLUG FIT DIAMETER	PLUG MATERIAL
IPB.375	3/8-16 UNC	Stainless Steel
IPB.5	1/2-13 UNC	Stainless Steel
IPB.375	3/8"	Plastic
IPB.5	1/2"	Plastic



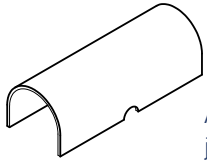
HOLES & KNOCKOUTS



When conduit/cables cannot be routed deeply enough to enter the bottom of the trench run floor, holes or knockouts can be built into the system's side walls, covers, or end plates to allow access. Concast can predrill or void out any required holes or knockouts (KO). Fibercrete® can also be drilled with any masonry tools onsite.



Trench Accessories

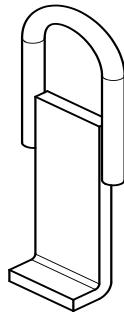


Cable Protector

P/N: 8003

After cables have been placed, just set our Fibercrete® protector over the top and backfill.

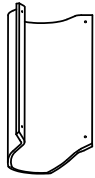
Dig without fear of hitting cables, as you will hit the protector first. P/N 8003 can also be used above grade to protect temporary cables from UV rays and accidental contact.



HEAVY LIFT TOOL

P/N: 8000L

This tool is designed to be an alternative to the standard 8000 lifting tool. The heavy lift tool will engage the slots built into steel Concast covers. This tool offers the option of handling these covers with rigging equipment. Chain (Part number 9003) is sold separately.



Corner Protector

P/N: 8006

Concast's corner protectors are made from black HDPE plastic, and they serve the function of preventing chafing on the cables when they need to round a corner within the trench run. Generally used in conjunction with universal channel. Four Tapcon screws are provided to permanently attach the protector to the channel.



LIFTING EYE BOLT



EYE BOLT	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9000	1/2-13 UNC	1.5 inch	6000 Lbs.
9001	3/8-16 UNC	1.25 inch	3000 Lbs.

TOGGLE NUTS



Threaded toggle nuts are yet another way to mount your electrical equipment onto Concast's precast box pads. These nuts are installed onsite; allowing greater mounting flexibility and accuracy. They utilize a simple stabilizing technique similar to drywall anchors.

Installation video at www.concastinc.com/Multimedia/Videos/toggle_nut_install_video

TOGGLE NUT	NUT THREAD DIAMETER
TN.25	1/4-20 UNC
TN.375	3/8-16 UNC
TN.5	1/2-13 UNC



LIFT DOLLY *P/N: CRD1*

The lift dolly is an ideal tool for easily removing heavier covers. The included lifting chain system can remove covers with both slots and threaded inserts. The dolly also features maintenance free, easy rolling, solid pneumatic wheels; and it is collapsible for easy storage.



LIFT TOOL

P/N: 8000



Lifting tools are provided with all orders for light-weight pre-cast parts built by Concast, Inc. The galvanized steel tool is designed to engage the lifting slots built into items such as the fibercrete pedestrian trench covers to ensure an easy manual lift.



SWIVEL HOIST RING

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. We recommend using our 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



HOIST RING	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	2 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.



4-WAY LIFT CHAIN



- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees

See website for drawings in PDF format.

Fibercrete® Trench System

Concast Trench System Specifications

GENERAL SPECIFICATIONS FOR CABLE TRENCH

1. TECHNICAL SCOPE

- 1-A.** These specifications cover any precast Fibercrete® (G.F.R.C.) and/or concrete cable trench system manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The trench system shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the trench for truck shipment. Shipping and delivery responsibilities shall be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval and field installation. Final drawings will include individual details, the layout, a complete BOM (Bill of Materials), and installation guidelines. Electronic individual component drawings in PDF format are available upon request. Standard part drawings shall be available online.
- 2-B.** The tolerances of the dimensions of each trench component shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".
- 2-D.** Provisions, such as cast-in threaded inserts, must be offered for lifting traffic rated trench channels. Mounting holes must be adequately reinforced to avoid damaging the channel, and to provide an ultimate strength of at least 5 times the part weight when the unit is lifted in accordance with the manufacturer's instructions.

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-D. LAY-UP GFRC - FIBERCRETE®**
 - 3-D.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and deformed high tensile welded wire. It is fabricated via the Concast spray lay-up method which incorporates a minimum of 4 percent volume A.R. glass fibers.
 - 3-D.2** Conforms to AIA Masterspec Section 03491 for Glass Fiber Reinforced Concrete and quality control procedures per PCI# MNL-130-91.

3-E. PREMIX GFRC - FIBERCRETE®

3-E.1 Composed of cement mortar reinforced by alkali resistant glass fiber, and a deformed prefabricated high tensile welded steel wire. It is fabricated via casting into steel forms.

3-E.2 A.R. Glass is required to prevent glass deterioration if in contact with any poured cement or grout foundation.

3-E.3 Shall obtain a minimum compressive strength of 6000 PSI at 28 days of age.

3-F. MICRO-CONCRETE

3-F.1 Precast concrete trench components shall be cast into steel forms using Type I/II Portland Cement.

3-F.2 Concrete shall contain 6% entrained air (plus or minus 1%)

3-F.3 Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.

3-G. REINFORCEMENT

3-G.1 Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".

3-G.2 Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".

3-G.3 Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".

3-H. With equipment installed; the trench system shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/ C666M-03.

3-I. When required, site-specific, PE stamped, seismic calculations shall be provided.

3-J. Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

3-K. METAL COMPONENT PERFORMANCE

3-K.1 All galvanized steel covers, hardware, and embedments shall meet the following requirements:

- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
- Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
- Galvanized Hardware - ASTM 153

3-K.2 All stainless steel hardware and embedments shall meet the following requirements:

- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

Concast Trench System Specifications

3-L.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

4. ALL CONCAST TRENCH SYSTEMS

- 4-A.** Trench systems shall consist of precast reinforced concrete channel sections with removable cover sections and end plates assembled to form a completely enclosed trench.
- 4-B.** Trench channels shall have an inside depth of 12", 16", or 24" which excludes the cover and floor thickness.
- 4-C.** Trench channels have an interior minimum width of 10, 20, 24, 30, 40, or 50 inches. All channels shall be available with open or solid bottom configurations.
- 4-D.** The channel design is such that it is self-supporting and can be set above grade level if required.
- 4-E.** All channels to be of one-piece design and shall be furnished in standard 4 or 8 foot lengths. Special lengths under 8' long must be made available when needed in a trench run layout. Channel sections must be designed to interlock via male/female end joints.
- 4-F.** A universal channel shall be provided for ells, tees, crosses, and reducers. Special angled channels are used for turns in the trench run, for elevation changes, or transitions from pedestrian rated to traffic rated channel.

5. PEDESTRIAN RATED TRENCH SYSTEMS

- 5-A.** All Pedestrian trench systems are designed to support at least 200 PSF live load. Not intended for vehicle traffic.
- 5-B.** Pedestrian channels are to be constructed with spray up Fibercrete® and the standard covers are cast Fibercrete®.
- 5-C.** Pedestrian channel covers must be made available in aluminum, Fibercrete®, galvanized steel, ventilated galvanized steel; they are sized to permit manual removal by a single person using the Concast, Inc. lifting tool to engage the lifting slots in the cover.

6. TRAFFIC RATED TRENCH SYSTEMS

- 6-A.** All Light Traffic trench systems shall meet AASHTO H-10 light equipment requirement of supporting 16,000 lb./axle load.
- 6-B.** All Heavy Traffic trench systems shall meet AASHTO H-20 heavy equipment requirement of supporting 32,000 lb./axle load.
- 6-C.** All HTSG40 trench systems shall meet AASHTO H-40 heavy equipment requirement of supporting 64,000 lb./axle load.
- 6-D.** All traffic rated channel shall be produced using 7500 PSI steel reinforced concrete.
- 6-E.** Covers for traffic rated trench shall be constructed of either precast steel reinforced concrete or fabricated hot-dipped galvanized steel. They are all designed to meet their corresponding channel's AASHTO requirements. Lightweight Fibercrete® covers shall be available for LT channels.

- 6-F. Provisions, such as cast-in threaded inserts, must be offered for lifting traffic rated channel. Mounting holes must be adequately reinforced to avoid damaging the part and to provide an ultimate strength of at least 5 times the channel weight when it is lifted in accordance with the manufacturer's instructions.

4. INSTALLATION REQUIREMENTS

- 4-A. When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-C. All trench excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-D. All backfill material shall be a granular material as required by the soils engineer. Trench shall be designed to have no limitations of backfill height.
- 4-E. Installation guidelines shall be made available online.





Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN

CONCAST

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August 2013





CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE

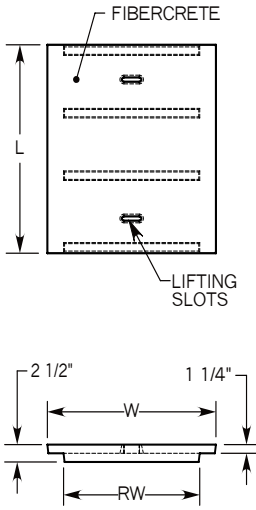


"We've Got You Covered"

- Replacement covers give life to old trench systems
- Many available sizes
- Fibercrete® , Steel, Ventilated, or Aluminum

REPLACEMENT COVERS

FIBERCRETE® REPLACEMENT COVERS



Pedestrian Fibercrete Covers are rated for 200 lbs./ft²

FIBERCRETE® COVER	COVER WIDTH "W"	COVER LENGTH "L"	RIB WIDTH "RW"	RIB WIDTH "RW2"
F2630 (19.5)	26"	30"	19.5"	
F3024 (23.5)	30"	24"	23.5"	
F3030 (23.5)	30"	30"	23.5"	
F3230 (25.5)(19.5)	32"	30"	25.5"	19.5"
F3624 (23.5)	36"	24"	23.5"	
F3624 (29.5)	36"	24"	29.5"	
F3630 (29.5)	36"	30"	29.5"	
F4220 (35.5)(29.5)	42"	20"	35.5"	29.5"
F4224 (35.5)	42"	24"	35.5"	
F4620 (39.5)	46"	20"	39.5"	
F4824 (35.5)	48"	24"	35.5"	
F5220 (45.5)(39.5)	52"	20"	45.5"	39.5"
F5420 (47.5)	54"	20"	47.5"	

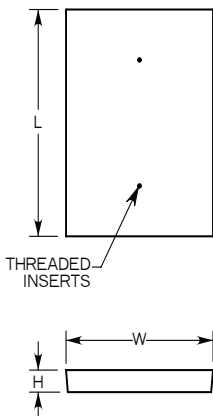
MITERED AND SPECIAL LENGTH COVERS

Due to the complexity of many trench systems, the need for special length or mitered covers is sometimes inevitable. Concast can design these custom covers and ship them to the job site; ready for installation.

Benefits:

- Replacement covers are ideal for pour in place trench systems.
- The charts list some of the common sizes for pedestrian rated covers; but they can also be designed to meet AASHTO H-10, H-20, and H-40 Traffic Ratings for road crossing applications.
- Fibercrete® and Concrete covers can be colored and/or stamped.
- Fibercrete® covers are lightweight, high strength, and can usually be lifted by one person.
- Cover layout drawings are available upon request.
- Concrete covers utilize threaded inserts for machine assisted lifting.

CONCRETE REPLACEMENT COVERS



CONCRETE COVER	COVER WIDTH "W"	COVER LENGTH "L"	COVER HEIGHT "H"
C2436-3	24"	36"	3"
C3636-3	36"	36"	3"
C3648-3	36"	48"	3"
C3672-3	36"	72"	3"
C4848-3	48"	48"	3"
C4872-3	48"	72"	3"
C6060-3	60"	60"	3"

PART NUMBERING CONVENTION: XWL-H(RW)

"X" - Cover Material

- F = Fibercrete®
- C = Concrete
- A = Aluminum
- SG = Galvanized Steel

"W" - Cover Width

"L" - Cover Length

"RW" - Rib Width

Drop the "RW" if no rib is needed.

Drop the "H" for Fibercrete® covers that are 1.25" high.



See www.concastinc.com/custom_covers for more details; including drawings of standard covers in PDF format and cover design worksheets for download.



CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



BOX PADS

Box Pad Overview

IDEAL USES FOR CONCAST BOX PADS



CAPACITOR BANK



SECTIONALIZER BASE



SWITCHGEAR BASE



TRANSFORMER BASE



TELECOMMUNICATIONS



SOLAR & WIND FARMS

- Concast box pads provide stability and additional cable training space for easier installations.
- Box pads are constructed from Fibercrete®, so they have very high strength to weight ratios,. This yields a relatively lightweight, yet extremely tough unit that saves on handling and shipping costs.
- Low in-place cost, plus the proven durability of Fibercrete® add up to a truly economical box pad installation option.

Guide Specifications

Box Pads shall be constructed with Concast Fibercrete® or approved equal. It shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Detail Drawings Provided

Concast will provide detail drawings for engineering approval, and to assist the construction crew with installation. Drawings will show overall box pad size, opening size, weight, and any accessories required.

You can access the installation guidelines online at www.concastinc.com; keyword "guidelines"

REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE® BOX PADS

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** A crew of 2 or 3 can install a small box pad without using hoisting equipment. The lightweight box construction saves on shipping costs.
- **HIGH STRENGTH MATERIAL.** Fibercrete® fabrication results in a thin-walled product with high strength; providing safe, reliable support for electrical apparatus. Flanges along the perimeter of the box prevent the box from sinking while supporting normal equipment loads.
- **LONG LIFE.** Fibercrete® has a long life; plus fire and corrosion resistance. Inert mineral composition resists temperature extremes, rain, and UV degradation.
- **IMPACT RESISTANT.** Fibercrete® has about three times the impact resistance of ordinary concrete. In addition, the bases are designed with smooth rounded corners, which result in superior resistance to damage or abrasion from machinery and vandals.
- **TAMPER PROOF.** A temporary penta-head, bolt-down Fibercrete® cover can be installed while awaiting equipment installation at a later date.
- **LONG TERM STABILITY.** The underground design of Fibercrete® bases provide more stability than a simple pad. The earth anchoring design resists shifting or tilting. Additionally, the base gives room for terminating conductors and for storing extra cable.
- **NATURAL APPEARANCE.** Smooth, stone-like surfaces blend with natural environment.

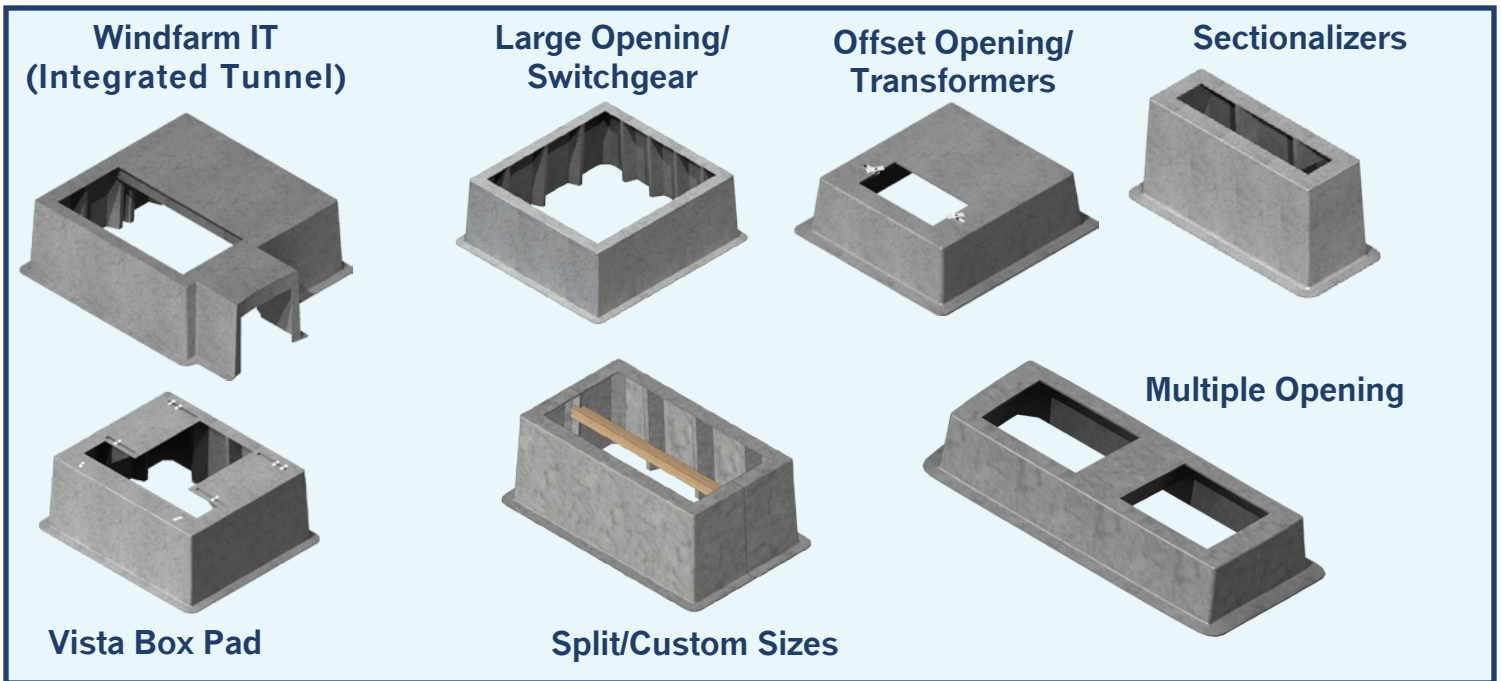


Features:

- **SPLIT BOX DESIGN.** Fibercrete® Box Pads can be made to fit any size enclosure. When a standard box is not available, a split box can be produced to the necessary dimensions. See Page 33.
- **VARIABLE OPENING.** Fibercrete® Box Pads can be produced with a number of openings as needed.
- **STACKING.** Some box pad sizes can be nested together to decrease shipping & storage space.

Fibercrete® Box Pads

Box Pad Options



Windfarm IT
(Integrated Tunnel)

Large Opening/
Switchgear

Offset Opening/
Transformers

Sectionalizers

Multiple Opening

Vista Box Pad

Split/Custom Sizes



- Fibercrete® Box Pads can be used to support any enclosure.
- They provide an immediate basement to any above ground enclosure.
- Concast can often customize box pads to meet your specific needs.
- For any special box pad needs, contact your Concast Manufacturing representative, call the factory direct, or refer to www.concastinc.com

BOX PAD LOADING

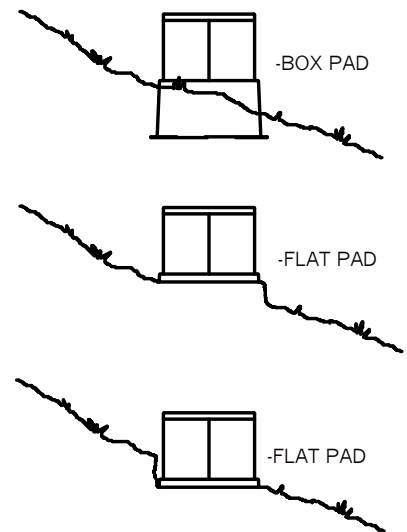
As shown in the drawing to the right, a box pad may be a better option when installing equipment on a slope.

The diagram in the lower right corner of this page illustrates the loading forces to which box pad bases are typically exposed to.

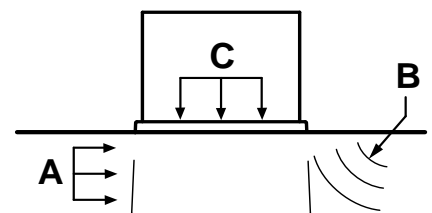
- "A" Side earth pressure
- "B" Cone of influence from adjacent vertical loads such as vehicle traffic
- "C" Weight of mounted equipment.

Bases must withstand additional stresses at "A", "B", & "C" during installation, backfill, and equipment placement. All Fibercrete® bases are designed and tested to resist these loading forces. Technical data and laboratory test reports are available from Concast.

MODERATE SLOPES OR HILLSIDES



**BOX PADS ARE OCCASIONALLY
PREFERABLE TO FLAT PADS**

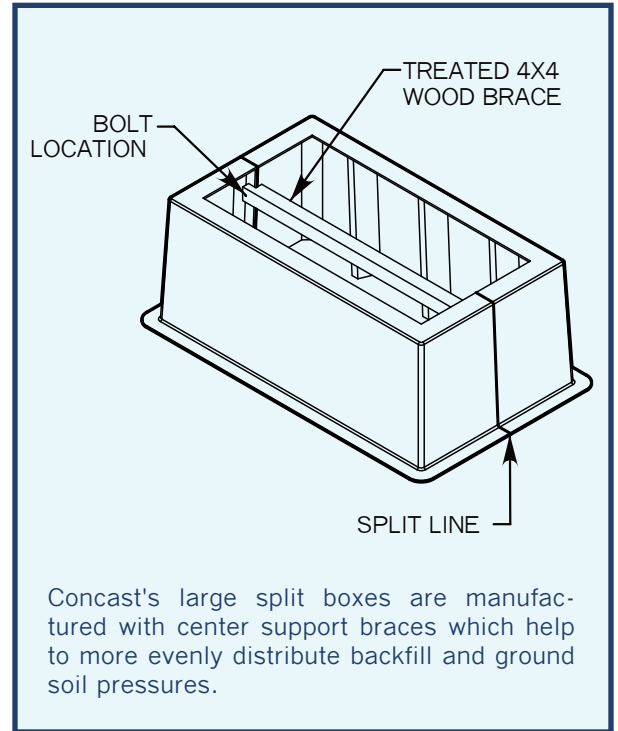


Even with Concast's large and ever-growing mold inventory, there are instances when a special size box pad is needed. Concast has perfected a method for producing these non-standard sizes.

Split boxes are built by creating two halves from an existing mold. The halves are then adhered, sealed, and bolted together at the factory and shipped as one unit. Larger boxes will usually have treated wood braces spanning and reinforcing the seam of the split box.

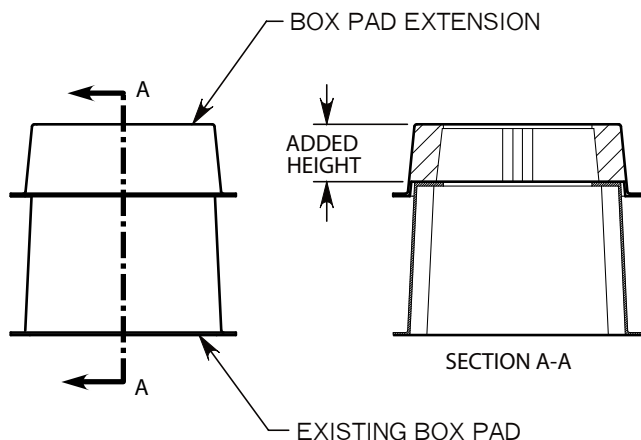
These boxes have the same strength and durability as our standard one piece boxes, plus they are optimally sized to meet your project's special needs.

Two piece box pads can be shipped unassembled for instances where existing equipment foundations need to be replaced. The box pad will come with a kit that includes all of the necessary adhesive and hardware to assemble on site.



IDEAL USES:

- Custom or special size equipment
- Extra large equipment
- One time side requirements
- Reinstallations



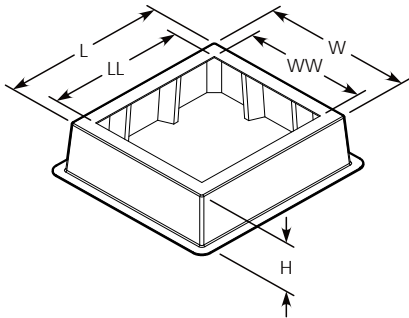
BOX PAD EXTENSIONS

Concast has developed box pad extensions to help with areas where grade changes occur. These extensions can be used to give any box pad added elevation without excavation of existing bases. These extensions fit over existing pads and can be made to accommodate new grade height.

Box pad extension can also be used at initial installation sites to meet extra depth requirements.

Standard Box Pads

STANDARD OPENING BOX PAD

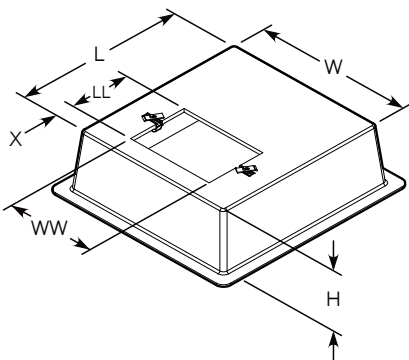


- The listed standard Fibercrete® box pads are shown with the maximum opening.
- More sizes can be built using Concast's split box pad technology.
- PDF drawings can be viewed online at www.concastinc.com/box_pads/Standard_Opening/

BOX PAD CUSTOMIZATION OPTIONS:

- Hold-down clamps
- Threaded inserts
- Unistrut Channel
- Toggle Nuts
- Custom Knockouts
- Custom Holes

OFFSET OPENING BOX PAD



- Offset opening box pads are generally used to support transformers.
- Many opening sizes are available.
- PDF drawings for markup can be viewed online at www.concastinc.com/box_pads/Offset_Opening/
- When ordering offset opening box pads, specify "LL", "WW", and "X".

STANDARD OPENING BOX PAD PART NO.	"L" LENGTH	"W" WIDTH	"H" HEIGHT	STANDRD OPENING SIZE "LL x WW"	OFFSET OPENING OPTION
FC-18-32-12-0522	18"	32"	12"	5 x 22	
FC-18-65-20-0653	18"	65"	20"	6 x 53	
FC-20-33-15-0922	20"	33"	15"	8.5 x 21.5	
FC-20-52-20-1042	20"	52"	20"	10 x 42	
FC-23-31-20-1826	23"	31"	20"	18 x 26	
FC-23-37-32-1832	23"	37"	32"	18 x 32	
FC-23-51-20-1139	23"	51"	20"	11 x 39	
FC-23-67-20-1862	23"	67"	20"	18 x 62	
FC-23-67-32-1862	23"	67"	32"	18 x 62	
FC-23-69-20-1157	23"	69"	20"	11 x 57	
FC-23-69-36-1157	23"	69"	36"	11 x 57	
FC-23-85-32-1880	23"	85"	32"	18 x 80	
FC-28-85-36-1673	28"	85"	36"	16 x 73	
FC-30-30-24-2525	30"	30"	24"	25 x 25	✓
FC-31-37-32-2632	31"	37"	32"	26 x 32	
FC-32-85-32-2780	32"	85"	32"	27 x 80	
FC-33-42-32-2635	33"	42"	32"	26 x 35	
FC-36-52-18-2440	52"	36"	18"	40 x 24	✓
FC-37-40-20-2528	37"	40"	20"	28 x 25	
FC-38-43-15-2631	43"	38"	15"	31 x 26	✓
FC-38-43-32-2631	43"	38"	32"	31 x 26	✓
FC-38-53-20-2641	53"	38"	20"	41 x 26	
FC-39-48-20-2538	48"	39"	20"	38 x 25	
FC-39-75-36-2662	39"	75"	36"	26 x 62	
FC-40-43-15-2831	43"	40"	15"	31 x 28	✓
FC-40-43-18-2831	43"	40"	18"	31 x 28	✓
FC-40-44-24-2832	44"	40"	24"	32 x 28	✓
FC-40-44-32-2832	44"	40"	32"	32 x 28	✓
FC-40-54-36-2943	40"	54"	36"	29 x 43	✓
FC-40-74-15-2862	40"	74"	15"	28 x 62	
FC-42-42-8-3030	42"	42"	8"	30 x 30	✓
FC-42-42-18-3030	42"	42"	18"	30 x 30	✓
FC-42-42-24-3030	42"	42"	24"	30 x 30	✓
FC-42-48-20-3040	48"	42"	20"	40 x 30	✓
FC-42-48-32-3040	48"	42"	32"	40 x 30	✓

STANDARD OPENING BOX PAD PART NO.	"L" LENGTH	"W" WIDTH	"H" HEIGHT	STANDRD OPENING SIZE "LL x WW"	OFFSET OPENING OPTION
FC-42-82-12-3072C	82"	42"	12"	72 x 30	
FC-42-85-32-3578	42"	85"	32"	35 x 78	
FC-42-121-32-35114	42"	121"	32"	35 x 114	
FC-42-132-20-30120	42"	132"	20"	30 x 120	
FC-43-43-15-3131	43"	43"	15"	31 x 31	✓
FC-43-69-20-3157	43"	69"	20"	31 x 57	
FC-44-44-32-3232	44"	44"	32"	32 x 32	
FC-44-48-15-3236	48"	44"	15"	36 x 32	✓
FC-44-84-36-3272	44"	84"	36"	32 x 72	
FC-44-111-36-3299	44"	111"	36"	32 x 99	
FC-45-45-20-3333	45"	45"	20"	33 x 33	
FC-48-48-30-3636	48"	48"	30"	36 x 36	
FC-48-49-20-3637	49"	48"	20"	37 x 36	✓
FC-48-52-20-3640	52"	48"	20"	40 x 36	✓
FC-48-54-20-3642	54"	48"	20"	42 x 36	
FC-49-69-36-3757	49"	69"	36"	57 x 37	
FC-50-52-18-3840	52"	50"	18"	40 x 38	✓
FC-50-69-20-3857	50"	69"	20"	38 x 57	✓
FC-50-69-36-3857	50"	69"	36"	38 x 57	✓
FC-53-80-20-4168	53"	80"	20"	41 x 68	✓
FC-54-69-36-4257	54"	69"	36"	42 x 57	✓
FC-54-74-20-4262	54"	74"	20"	42 x 62	✓
FC-54-80-36-4268	54"	80"	36"	42 x 68	
FC-56-56-20-4444	56"	56"	20"	44 x 44	
FC-63-69-20-5157	69"	63"	20"	57 x 51	
FC-63-69-36-5157	69"	63"	36"	57 x 51	✓
FC-63-69-48-5157	63"	69"	48"	51 x 57	
FC-63-105-36-5193	63"	105"	36"	51 x 93	✓
FC-65-65-20-5353	65"	65"	20"	53 x 53	✓
FC-65-74-20-5362	65"	74"	20"	53 x 62	✓
FC-65-74-36-5362	65"	74"	36"	53 x 62	✓
FC-65-86-20-5374	65"	86"	20"	53 x 74	✓
FC-65-86-36-5374	65"	86"	36"	53 x 74	✓

STANDARD OPENING BOX PAD PART NO.	"L" LENGTH	"W" WIDTH	"H" HEIGHT	STANDRD OPENING SIZE "LL x WW"	OFFSET OPENING OPTION
FC-65-112-36-53100	65"	112"	36"	53 x 100	✓
FC-66-240-20-54228	66"	240"	20"	54 x 228	
FC-69-79-20-5767	69"	79"	20"	57 x 67	
FC-69-79-36-5767	69"	79"	36"	57 x 67	
FC-69-83-36-5771	69"	83"	36"	57 x 71	✓
FC-69-106-36-5794	69"	106"	36"	57 x 94	
FC-69-117-36-57105	69"	117"	36"	57 x 105	✓
FC-70-70-36-5858	70"	70"	36"	58 x 58	✓
FC-70-80-20-5868	70"	80"	20"	58 x 68	✓
FC-72-96-15-6084	96"	72"	15"	84 x 60	✓
FC-73-79-6-6167	73"	79"	6"	61 x 67	✓
FC-74-76-20-5258C	76"	74"	20"	57.5 x 51.5	
FC-74-76-20-6264	76"	74"	20"	62 x 64	
FC-74-76-36-6264	74"	76"	36"	62 x 64	
FC-74-76-48-6264	74"	76"	48"	62 x 64	
FC-74-102-36-6290	74"	102"	36"	62 x 90	
FC-76-76-20-6464	76"	76"	20"	64 x 64	✓
FC-76-86-36-6474	76"	86"	36"	64 x 74	✓
FC-76-88-36-6274	76"	88"	36"	62 x 74	
FC-76-95-36-6477C	76"	95"	36"	64 x 77	
FC-79-79-6-6767	79"	79"	6"	67 x 67	✓
FC-80-86-20-6874	80"	86"	36"	68 x 74	
FC-80-86-36-6874	80"	86"	36"	68 x 74	
FC-83-89-20-7177	89"	83"	20"	77 x 71	✓
FC-85-90-20-7378	85"	90"	20"	73 x 78	
FC-85-90-36-7378	85"	90"	36"	73 x 78	
FC-85-122-20-73110	122"	85"	20"	110 x 73	✓
FC-86-86-36-7474	86"	86"	36"	74 x 74	✓
FC-86-98-20-7486	86"	98"	20"	74 x 86	✓
FC-86-98-36-7486	86"	98"	36"	74 x 86	✓
FC-102-102-8-9090	102"	102"	8"	90 x 90	✓

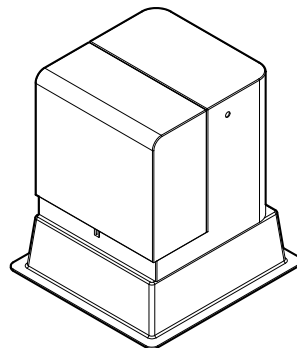
Concast has an online form to help with the selection process at www.concastinc.com/box_pads/By_Box_Dimensions

Transformer Box Pads

TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	OPENING "LL x WW"	OFFSET "X"
FC-30-30-24-1016 (6)	30"	30"	24"	10 x 16	6"
FC-36-52-18-2412 (6)	52"	36"	18"	24 x 12	6"
FC-37-40-20-2528	37"	40"	20"	28 x 25	6"
FC-38-43-15-2020 (5)	43"	38"	15"	20 x 20	5"
FC-38-43-15-2215 (6)	43"	38"	15"	15 x 22	6"
FC-38-43-15-2224 (6)	43"	38"	15"	24 x 22	6"
FC-38-43-15-2623 (6)	43"	38"	15"	23 x 26	6"
FC-38-43-15-2631	43"	38"	15"	31 x 26	6"
FC-38-43-32-2016 (6)	43"	38"	32"	16 x 20	6"
FC-38-43-32-2022 (9)	43"	38"	32"	22 x 20	9"
FC-38-43-32-2215 (7)	43"	38"	32"	15 x 22	7"
FC-38-43-32-2615 (7)	43"	38"	32"	15 x 26	7"
FC-38-43-32-2229C	43"	38"	32"	29 x 22	7"
FC-38-43-32-2631	43"	38"	32"	31 x 26	6"
FC-38-43-32-2815 (7)	43"	38"	32"	15 x 28	7"
FC-40-43-15-2014 (7)	43"	40"	15"	14 x 20	7"
FC-40-43-15-2215 (5)	43"	40"	15"	15 x 22	5"
FC-40-43-15-2412 (5)	43"	40"	15"	12 x 24	5"
FC-40-43-15-2412 (8)	43"	40"	15"	12 x 24	8"
FC-40-43-15-2618 (6)	43"	40"	15"	18 x 26	6"
FC-40-43-18-2215 (7)	40"	43"	18"	15 x 22	7"
FC-40-43-18-2412 (8)	40"	43"	18"	12 x 24	8"
FC-40-43-18-2813 (7)	40"	43"	18"	13 x 28	7"
FC-40-44-24-1815 (7)	40"	40"	24"	15 x 18	7"
FC-40-44-24-2618 (5)	44"	40"	24"	18 x 26	5"
FC-40-44-32-2215 (7)	44"	40"	32"	15 x 22	7"
FC-40-44-32-2618 (6)	44"	40"	32"	18 x 26	6"

TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	OPENING "LL x WW"	OFFSET "X"
FC-40-44-32-2815 (6)	44"	40"	32"	15 x 28	6"
FC-40-54-36-1543 (6)	40"	54"	36"	15 x 43	6"
FC-42-42-8-1124 (7)	42"	42"	8"	11 x 24	7"
FC-42-42-8-1224 (6)	42"	42"	8"	12 x 24	6"
FC-42-42-8-1326 (6)	42"	42"	8"	13 x 26	6"
FC-42-42-8-1528 (7)	42"	42"	8"	15 x 28	7"
FC-42-42-8-2024 (7)	42"	42"	8"	20 x 24	7"
FC-42-42-18-2420 (7)	42"	42"	18"	24 x 20	7"
FC-42-42-18-2222C	42"	42"	18"	22 x 22	10"
FC-42-42-24-1124 (6)	42"	42"	24"	11 x 24	6"
FC-42-42-24-1224 (6)	42"	42"	24"	12 x 24	6"
FC-42-42-24-1326 (6)	42"	42"	24"	13 x 26	6"
FC-42-42-24-1528 (7)	42"	42"	24"	15 x 28	7"
FC-42-48-20-2626 (4)	48"	42"	20"	26 x 26	4"
FC-42-48-32-2626 (4)	48"	42"	32"	26 x 26	4"
FC-43-43-15-2015 (6)	43"	43"	15"	15 x 20	6"
FC-43-43-15-2215 (5)	43"	43"	15"	15 x 22	5"
FC-43-43-15-2224 (6)	43"	43"	15"	24 x 22	6"
FC-43-43-15-2415 (7)	43"	43"	15"	15 x 24	7"
FC-43-43-15-2817 (6)	43"	43"	15"	17 x 28	6"
FC-44-44-32-2525C	44"	44"	32"	25 x 25	9.5"
FC-44-48-15-2615 (6)	48"	44"	15"	15 x 26	6"
FC-44-48-15-2626 (6)	48"	44"	15"	26 x 26	6"
FC-44-48-15-3015 (6)	48"	44"	15"	36 x 32	6"
FC-45-45-20-2525C	45"	45"	20"	25 x 25	11"
FC-48-48-30-3030C	48"	48"	30"	30 x 30	9"
FC-48-49-20-2525C	49"	48"	20"	25 x 25	12"
FC-48-52-20-2615 (8)	52"	48"	20"	15 x 26	8"
FC-48-52-20-3416 (6)	52"	48"	20"	16 x 34	6"
FC-50-52-18-2613 (6)	52"	50"	18"	13 x 26	6"
FC-50-52-18-3615 (6)	52"	50"	18"	15 x 36	6"
FC-50-69-20-1744 (7)	50"	69"	20"	17 x 44	7"
FC-50-69-20-1854 (7)	50"	69"	20"	18 x 54	7"
FC-50-69-36-1854 (7)	50"	69"	36"	18 x 54	7"
FC-50-69-36-1550 (6)	50"	69"	36"	15 x 50	6"

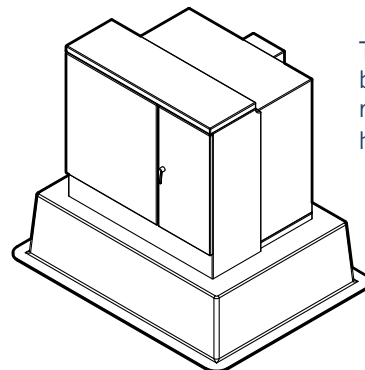
Single phase transformer box pads are light weight and can usually be handled by two people.



Fibercrete® Box Pads

TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	OPENING "LL x WW"	OFFSET "X"
FC-50-69-36-1854 (7)	50"	69"	36"	18 x 54	7"
FC-54-69-36-1550 (6)	54"	69"	36"	15 x 50	6"
FC-54-69-36-1550 (8)	54"	69"	36"	15 x 50	8"
FC-54-69-36-1854 (6)	54"	69"	36"	18 x 54	6"
FC-54-74-20-1550 (6)	54"	74"	20"	15 x 50	6"
FC-54-74-20-1560 (6)	54"	74"	20"	15 x 60	6"
FC-63-105-36-1777 (7)	63"	105"	36"	17 x 77	7"
FC-63-105-36-2386 (7)	63"	105"	36"	23 x 86	7"
FC-65-65-20-1537 (6)	65"	65"	20"	15 x 37	6"
FC-65-65-20-1550 (6)	65"	65"	20"	15 X 50	6"
FC-65-65-20-1850 (6)	65"	65"	20"	18 x 50	6"
FC-65-74-20-1550 (9)	65"	74"	20"	15 x 50	9"
FC-65-74-20-1560 (9)	65"	74"	20"	15 x 60	9"
FC-65-74-20-2060 (6)	65"	74"	20"	20 x 60	6"
FC-65-74-20-2462 (6)	65"	74"	20"	24 x 62	6"
FC-65-74-36-1452 (10)	65"	74"	36"	14 x 52	10"
FC-65-74-36-1550 (9)	65"	74"	36"	15 X 50	9"
FC-65-74-36-1560 (9)	65"	74"	36"	15 X 60	9"
FC-65-74-36-2060 (6)	65"	74"	36"	20 x 60	6"
FC-65-74-36-2462 (6)	65"	74"	36"	24 x 62	6"
FC-65-86-20-1564 (6)	65"	86"	20"	15 x 64	6"
FC-65-86-20-2062 (6)	65"	86"	20"	20 x 62	6"
FC-65-86-20-2472 (6)	65"	86"	20"	24 x 72	6"
FC-65-86-36-1564 (9)	65"	86"	36"	16 x 64	9"
FC-65-86-36-2068 (6)	65"	86"	36"	20 x 68	6"
FC-65-86-36-2472 (6)	65"	86"	36"	24 x 72	6"
FC-65-112-36-1580 (8)	65"	112"	36"	15 x 80	8"
FC-65-112-36-2390 (6)	65"	112"	36"	23 x 90	6"
FC-69-83-36-1868 (6)	69"	83"	36"	18 x 68	6"
FC-69-83-36-1868 (9)	69"	83"	36"	18 x 68	9"
FC-69-83-36-2062 (6)	69"	83"	36"	20 x 62	6"
FC-69-83-36-2071 (6)	69"	83"	36"	20 x 71	6"
FC-69-83-36-2468 (6)	69"	83"	36"	24 x 68	6"
FC-69-106-20-1276 (11)	69"	106"	20"	12 x 76	11"
FC-69-106-20-1576 (8)	69"	106"	20"	15 x 76	8"

TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	OPENING "LL x WW"	OFFSET "X"
FC-69-106-20-2086 (6)	69"	106"	20"	20 x 86	6"
FC-69-117-36-1368 (11)	69"	117"	36"	13 x 68	11"
FC-69-117-36-1580 (8)	69"	117"	36"	15 x 80	8"
FC-69-117-36-2390 (6)	69"	117"	36"	23 x 90	6"
FC-70-70-36-2354 (8)	70"	70"	36"	23 x 54	8"
FC-70-70-36-2458 (6)	70"	70"	36"	24 x 58	6"
FC-70-80-20-1554 (7)	70"	80"	20"	15 x 54	7"
FC-70-80-20-1568 (6)	70"	80"	20"	15 x 68	6"
FC-70-80-20-2068 (6)	70"	80"	20"	20 X 68	6"
FC-70-80-20-1560 (12)	70"	80"	20"	15 x 60	12"
FC-72-96-15-4918 (29)	72"	96"	15"	18 x 49	29"
FC-72-96-15-5016 (31)	72"	96"	15"	16 x 50	31"
FC-72-96-15-6020 (28)	72"	96"	15"	20 x 60	28"
FC-73-79-6-1560 (12)	73"	79"	6"	15 x 60	12"
FC-73-79-6-2062 (6)	73"	79"	6"	20 x 62	6"
FC-76-76-20-1860 (7)	76"	76"	20"	18 x 60	7"
FC-76-76-20-2062 (6)	76"	76"	20"	20 X 62	6"
FC-76-76-20-2564 (6)	76"	76"	20"	25 x 64	6"
FC-76-86-36-1860 (11)	76"	86"	36"	18 x 60	11"
FC-76-86-36-2062 (7)	76"	86"	36"	20 x 62	7"
FC-76-86-36-2068 (8)	76"	86"	36"	20 x 68	8"
FC-76-86-36-2472 (6)	76"	86"	36"	24 x 72	6"



Three phase transformer box pads have internal reinforcing walls to support heavy weights.

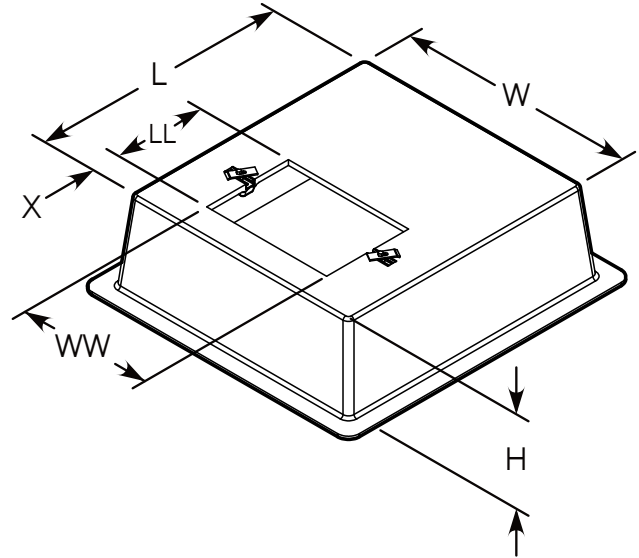
Fibercrete® Box Pads

Transformer Box Pads



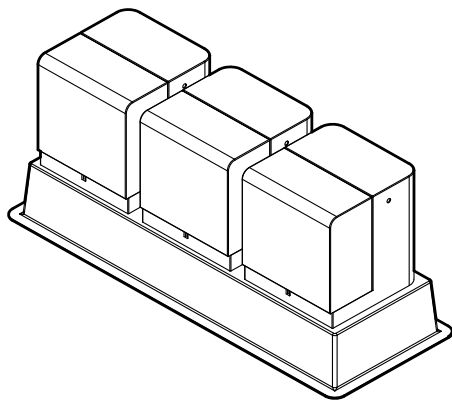
Concast has an online form to help with the selection process at www.concastinc.com/box_pads/By_Box_Dimensions

TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	OPENING "LL x WW"	OFFSET "X"
FC-79-79-6-2054 (14)	79"	79"	6"	20 x 54	14"
FC-79-79-6-2458 (9)	79"	79"	6"	24 x 58	9"
FC-79-79-6-3064 (6)	79"	79"	6"	30 x 64	6"
FC-83-89-20-6220 (7)	83"	89"	20"	20 X 62	7"
FC-83-89-20-6420 (6)	83"	89"	20"	20 x 64	6"
FC-83-89-20-6826 (6)	83"	89"	20"	26 x 68	6"
FC-85-122-20-6220 (7)	122"	85"	20"	20 x 62	7"
FC-85-122-20-6826 (8)	122"	85"	20"	26 x 68	8"
FC-85-122-20-7521 (6)	122"	85"	20"	21 x 75	6"
FC-86-86-36-1860 (12)	86"	86"	36"	18 x 60	12"
FC-86-86-36-2062 (8)	86"	86"	36"	20 X 62	8"
FC-86-86-36-2868 (8)	86"	86"	36"	28 x 68	8"
FC-86-98-20-1864 (14)	86"	98"	20"	18 x 64	14"
FC-86-98-20-2570 (10)	86"	98"	20"	25 X 70	10"
FC-86-98-20-2884 (7)	86"	98"	20"	28 x 84	7"
FC-86-98-20-3480 (6)	86"	98"	20"	34 X 80	6"
FC-86-98-36-1864 (9)	86"	98"	36"	18 x 64	9"
FC-86-98-36-2570 (10)	86"	98"	36"	25 x 70	10"
FC-86-98-36-3480 (6)	86"	98"	36"	34 x 80	6"
FC-102-102-8-1862 (7)	102"	102"	8"	18 x 62	7"
FC-102-102-8-2680 (7)	102"	102"	8"	26 x 80	7"
FC-76-86-36-2472 (6)	76"	86"	36"	24 x 72	6"



Other sizes and custom openings are available upon request.

You can get PDF drawings of all of transformer box pads at www.concastinc.com/box_pads/applications/transformer and also at www.concastinc.com/box_pads/applications/Transformer_Gang



GANG INSTALLATION MULTIPLE OPENING TRANSFORMER BOX PADS

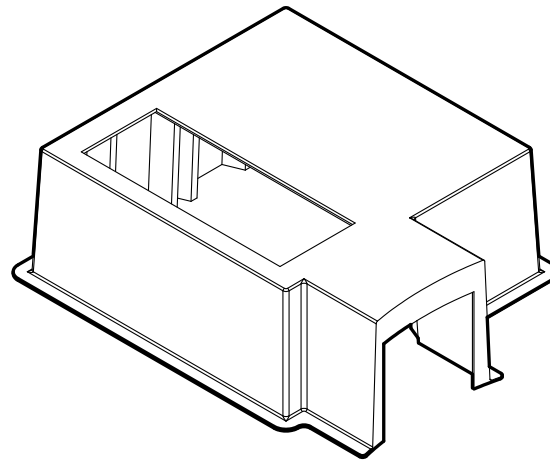
MULTI-OPENING TRANSFORMER BOX PADS	LENGTH "L"	WIDTH "W"	HEIGHT "H"	NO. OPENINGS	OPENING "LL x WW"	OFFSET "X"
FC-40-74-15-2-2824	40"	74"	15"	2	28 x 26	6"
FC-42-82-12-2-3006	82"	42"	12"	2	6 x 30	5"
FC-42-132-20-3-1616	42"	132"	20"	3	16 x 16	6"
FC-44-111-36-3-1122	44"	111"	36"	3	11 x 22	7"

Fibercrete® Box Pads

Wind Farm & Sectionalizer Box Pads

IT (INTEGRATED TUNNEL) BOX PADS

(INTEGRATED TUNNEL) IT BOX PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT
FC-70-88-36-IT-LLWW (X)	70"	88"	36"
FC-82-82-36-IT-LLWW (X)	82"	82"	36"
FC-86-86-36-IT-LLWW (X)	86"	86"	36"
FC-86-98-36-IT-LLWW (X)	86"	98"	36"
FC-86-104-36-IT-LLWW (X)	86"	104"	36"
FC-90-90-36-IT-LLWW (X)	90"	90"	36"
FC-95-95-36-IT-LLWW (X)	95"	95"	36"

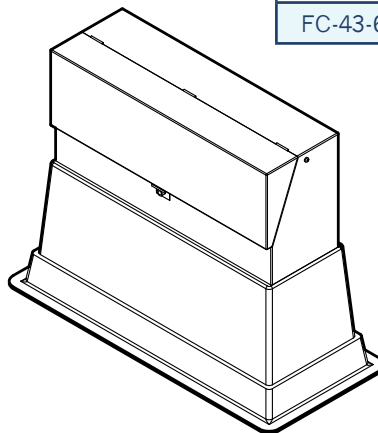


- IT box pads are built for transformer or switchgear installations at wind turbine foundations.
- The tunnel design provides a direct path for below grade cable to transition from the turbine foundation to the transformer.
- Provides ample space in the basement for cable training and termination.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Box pad is suitable for seismic areas. Calculations are available upon request.
- PDF drawing files available online at www.concastinc.com/box_pads/applications/IT_Box_Pads

SECTIONALIZER BOX PADS

SECTIONALIZER BOX PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT	OPENING "LL x WW"
FC-18-32-12-0522	18"	32"	12"	5 x 22
FC-18-65-20-0653	18"	65"	20"	6 x 53
FC-20-33-15-0922	20"	33"	15"	8.5 x 21.5
FC-20-52-20-1042	20"	52"	20"	10 x 42
FC-23-31-20-1826	23"	31"	20"	18 x 26
FC-23-51-20-1139	23"	51"	20"	11 x 39
FC-23-37-32-1832	23"	37"	32"	18 x 32
FC-23-67-20-1862	23"	67"	20"	18 x 62
FC-23-67-32-1862	23"	67"	32"	18 x 62
FC-23-69-20-1157	23"	69"	20"	11 x 57
FC-23-69-36-1157	23"	69"	36"	11 x 57
FC-23-85-32-1880	23"	85"	32"	18 x 80
FC-28-85-36-1673	28"	85"	36"	16 x 73

SECTIONALIZER BOX PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT	OPENING "LL x WW"
FC-31-37-32-2632	31"	37"	32"	26 x 32
FC-32-85-32-2780	32"	85"	32"	27 x 80
FC-42-85-32-3578	42"	85"	32"	35 x 78
FC-42-121-32-35114	42"	121"	32"	35 x 114
FC-43-69-20-3157	43"	69"	20"	31 x 57

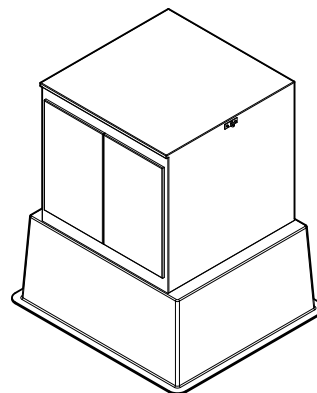


Fibercrete® Box Pads

Switchgear Box Pads

SWITCHGEAR BOX PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT	CENTERED OPENING "LL x WW"
FC-39-75-36-2662	39"	75"	36"	26 x 62
FC-48-48-30-3636	48"	48"	30"	36 x 36
FC-48-49-20-3637	49"	48"	20"	37 x 36
FC-48-52-20-3640	52"	48"	20"	40 x 36
FC-48-54-20-3642	54"	48"	20"	36 x 42
FC-49-69-36-3757	69"	49"	36"	57 x 37
FC-50-52-18-3840	52"	50"	18"	40 x 38
FC-50-69-20-3857	50"	69"	20"	38 x 57
FC-50-69-36-3857	50"	69"	36"	38 x 57
FC-53-80-20-4168	53"	80"	20"	41 X 68
FC-54-69-36-4257	54"	69"	36"	42 x 57
FC-54-74-20-4262	54"	74"	20"	42 x 62
FC-54-80-36-4268	54"	80"	36"	42 x 68
FC-56-56-20-4444	56"	56"	20"	44 x 44
FC-63-69-20-5157	69"	63"	20"	57 x 51
FC-63-69-36-5157	63"	69"	36"	51 x 57
FC-63-69-48-5157	69"	63"	48"	57 x 51
FC-63-105-36-5193	63"	105"	36"	51 X 93
FC-65-65-20-5353	65"	65"	20"	53 x 53
FC-65-74-20-5362	65"	74"	20"	53 x 62
FC-65-74-36-5362	65"	74"	36"	53 x 62
FC-65-86-20-5374	65"	86"	20"	53 x 74
FC-65-86-36-5374	65"	86"	36"	53 x 74
FC-65-112-36-53100	65"	112"	36"	53 x 100
FC-66-240-20-54228	66"	240"	20"	54 x 228
FC-69-79-20-5767	69"	79"	20"	57 x 67
FC-69-79-36-5767	69"	79"	36"	57 x 67
FC-69-83-36-5771	69"	83"	36"	57 x 71
FC-69-106-36-5794	69"	106"	36"	57 x 94
FC-69-117-36-57105	69"	117"	36"	57 x 105
FC-70-70-36-5858	70"	70"	36"	58 x 58
FC-70-80-20-5868	70"	80"	20"	58 x 68

SWITCHGEAR BOX PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT	CENTERED OPENING "LL x WW"
FC-72-96-15-6084	96"	72"	15"	84 x 60
FC-73-79-6-6167	73"	79"	6"	61 x 67
FC-74-76-20-5258C	76"	74"	20"	57.5 x 51.5
FC-74-76-20-6264	76"	74"	20"	64 x 62
FC-74-76-36-5157C	74"	76"	36"	51 x 57
FC-74-76-36-6264	74"	76"	36"	62 x 64
FC-74-76-48-6264	74"	76"	48"	62 x 64
FC-74-102-36-6290	74"	102"	36"	62 x 90
FC-76-76-20-6464	76"	76"	20"	64 x 64
FC-76-86-36-6474	76"	86"	36"	64 x 74
FC-76-88-36-6274	76"	88"	36"	62 x 74
FC-76-95-36-6477C	76"	95"	36"	64 x 77
FC-79-79-6-6767	79"	79"	6"	67 x 67
FC-80-86-20-6874	80"	86"	36"	68 x 74
FC-80-86-36-6874	80"	86"	36"	68 x 74
FC-83-89-20-7177	89"	83"	20"	77 x 71
FC-85-90-20-7378	85"	90"	20"	73 x 78
FC-85-90-36-7378	85"	90"	36"	73 x 78
FC-85-122-20-73110	122"	85"	20"	110 x 73
FC-86-86-36-7474	86"	86"	36"	74 x 74
FC-86-98-20-7486	86"	98"	20"	74 x 86
FC-86-98-36-7486	86"	98"	36"	74 x 86
FC-102-102-8-9090	102"	102"	8"	90 x 90

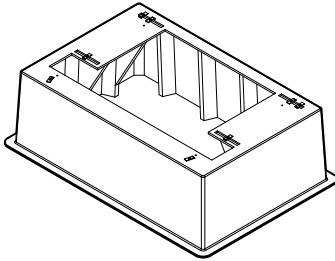


SWITCHGEAR BOX PADS

PDF format drawings for mark-up and reference are available online.
www.concastinc.com/box_pads/applications/switchgear



Vista Manual URD Box Pads



- Typical installations include embedded unistrut and clamp configurations in the top surface for mounting the cabinet.
- Box pads designed for planned equipment upgrades can utilize our V2 boxes. More details are online under part numbers FC-69-106-20-V2 & FC-69-106-36-V2.
- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, Unistrut, and holes.

VISTA MODEL NO.	KA RATING	VISTA SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15.5 KV				
201, 210, 211	12.5 R1	39 X 61	FC-49-69-20-V	FC-49-69-36-V
	12.5 R0	39 X 61	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5 R1	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	12.5 R0	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5 R1	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	12.5 R0	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5 R1	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	12.5 R0	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 102	FC-69-106-20-V	FC-69-106-36-V
624 & 633	12.5 R1	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	12.5 R0	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 102	FC-69-106-20-V	FC-69-106-36-V
29 KV				
201, 210, 211	12.5	39 X 61	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5	65 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5	65 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
624 & 633	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
38 KV				
201, 210, 211	12.5	44 X 65	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5	65 X 79	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5	65 X 79	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
624 & 633	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V

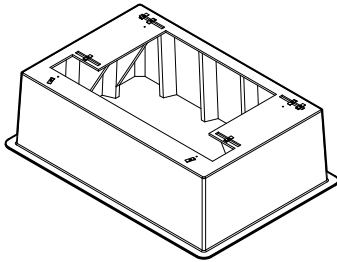
PDF dwgs at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/S&C_Electric/Vista_Manual_URD_Switchgear/

Fibercrete® Box Pads

S&C Remote Vista



Vista Remote Supervisory Box Pads



- Typical installations include embedded Unistrut and clamp configurations in the top surface for mounting the cabinet.
- Box pads designed for planned equipment upgrades can utilize our V2 boxes. More details are online under part numbers FC-69-106-20-V2 & FC-69-106-36-V2.
- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, unistrut, and holes.

VISTA MODEL NO.	KA RATING	VISTA SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15.5 KV				
201, 210, 211	12.5 R1	39 X 61	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5 R1	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 72	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5 R1	61 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 72	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5 R1	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 102	FC-69-106-20-V	FC-69-106-36-V
624 & 633	12.5 R1	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	61 X 102	FC-69-106-20-V	FC-69-106-36-V
29 KV				
201, 210, 211	12.5	39 X 61	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5	65 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5	65 X 72	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
624 & 633	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
38 KV				
201, 210, 211	12.5	44 X 65	FC-49-69-20-V	FC-49-69-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
320, 321, 330	12.5	65 X 79	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
413, 422, 431, 440	12.5	65 X 79	FC-69-83-20-V	FC-69-83-36-V
	25	65 X 79	FC-69-83-20-V	FC-69-83-36-V
514 & 523	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V
624 & 633	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 x 113	FC-69-117-20-V	FC-69-117-36-V

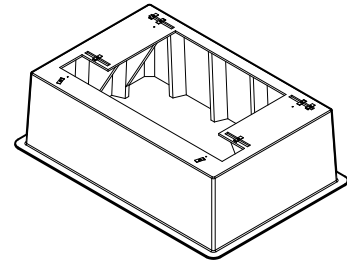
PDF drawings online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/Vista_Remote_URD_Switchgear/

Fibercrete® Box Pads

VISTA MODEL NO.	KA RATING	VISTA SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15.5 KV				
321 & 330	12.5	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 102	FC-69-106-20-V	FC-69-106-36-V
422, 431, 440	12.5	61 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 109	FC-69-106-20-V	FC-69-106-36-V
523 & 550	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 X 113	FC-69-117-20-V	FC-69-117-36-V
532	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	NA	NA	NA
29 KV				
321 & 330	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 113	FC-69-117-20-V	FC-69-117-36-V
422, 431, 440	12.5	65 X 102	FC-69-106-20-V	FC-69-106-36-V
	25	65 X 113	FC-69-117-20-V	FC-69-117-36-V
523 & 550	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	NA	NA	NA
532	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	NA	NA	NA
38KV				
321 & 330	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 X 113	FC-69-117-20-V	FC-69-117-36-V
422, 431, 440	12.5	65 X 113	FC-69-117-20-V	FC-69-117-36-V
	25	65 X 113	FC-69-117-20-V	FC-69-117-36-V



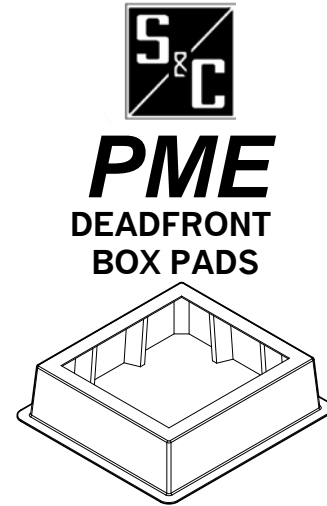
Vista Source-Transfer Box Pads



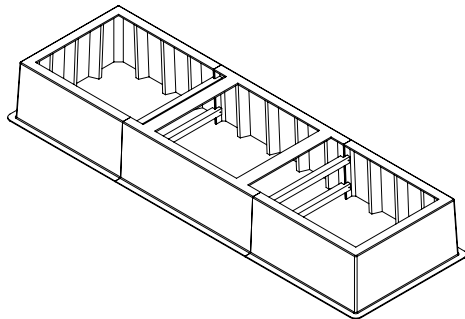
- Typical installations include embedded Unistrut and clamp configurations in the top surface for mounting the cabinet.
- Box pads designed for planned equipment upgrades can utilize our V2 boxes. More details are online under part numbers FC-69-106-20-V2 & FC-69-106-36-V2.
- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, Unistrut, and holes.
- PDF drawing files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/Vista_Source-Transfer_URD_Switchgear/

S&C PME and PMX

S&C PME PART NO.	SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
14.4 KV			
PME-3	41 x 66.75	FC-43-69-20-3157	FC-43-69-36-3157
PME-4	41 x 52.75	FC-48-54-20-3642	FC-48-54-36-3642
PME-5	41 x 66.75	FC-43-69-20-3157	FC-43-69-36-3157
PME-6	66.75 x 75	FC-74-76-20-6264	FC-74-76-36-6264
PME-9	66.75 x 75	FC-74-76-20-6264	FC-74-76-36-6264
PME-10	72.75 x 75	FC-74-76-20-6264	FC-74-76-36-6264
PME-11	72.75 x 75	FC-74-76-20-6264	FC-74-76-36-6264
PME-12	66.75 x 75	FC-74-76-20-6264	FC-74-76-36-6264
25 KV			
PME-4	46 x 62.25	FC-50-69-20-3857	FC-49-69-36-3757
PME-5	46 x 81.75	FC-49-86-20-3774	FC-49-86-36-3774
PME-6	81.75 x 84	FC-85-90-20-7378	FC-85-90-36-7378
PME-9	81.75 x 84	FC-85-90-20-7378	FC-85-90-36-7378
PME-10	84 x 88.25	FC-85-90-20-7378	FC-85-90-36-7378
PME-11	84 x 88.25	FC-85-90-20-7378	FC-85-90-36-7378
PME-12	81.75 x 84	FC-85-90-20-7378	FC-85-90-36-7378



- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Customization options include circular knockouts (KO), clamps, threaded inserts, Unistrut, and holes.
- PDF files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/PME_Pad-Mounted_Gear/



PMX MODULES BOX PADS

- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Each box pad will come with c-clamps for holding down the PMX gear.
- Customization options include circular knockouts (KO), clamps, threaded inserts, Unistrut, and holes.
- PDF drawing files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/PMX_Metal_Enclosed_Switchgear/

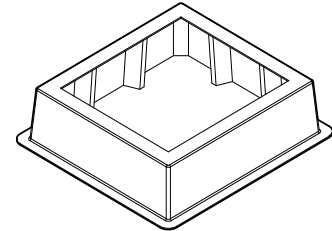
NO. OF MODULES/ OR BAYS	BOX PAD	BOX PAD DIMENSIONS L x W x H
13.8 KV		
1	FC-49-69-36-PMX	69 x 49 x 36
2	FC-74-102-36-PMX	74 x 102 x 36
3	FC-74-131-36-PMX	74 x 131 x 36
4	FC-74-172-36-PMX	74 x 172 x 36
5	FC-74-213-36-PMX	74 x 213 x 36
25 KV		
1	FC-53-86-36-PMX	53 x 86 x 36
2	FC-86-98-36-PMX	86 x 98 x 36
3	FC-86-145-36-PMX	86 x 145 x 36
4	FC-86-191-36-PMX	86 x 191 x 36
5	FC-86-237-36-PMX	86 x 237 x 36

Fibercrete® Box Pads

S&C PMH PART NO.	SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
14.4 KV			
PMH-3	34.88 x 37.75	FC-37-40-20-2528	FC-38-43-32-2631
PMH-4	34.88 x 37.75	FC-37-40-20-2528	FC-38-43-32-2631
PMH-5	34.88 x 51.75	FC-38-53-20-2641	FC-40-54-36-2943
PMH-6	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-7	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-8	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-9	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-10	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-11	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-12	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-13	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PMH-19	60.75 x 67	FC-63-69-20-5157	FC-63-69-36-5157
25 KV			
PMH-3	43 x 56.75	FC-50-69-20-3853C	FC-49-69-36-3747C
PMH-4	43 x 56.75	FC-50-69-20-3853C	FC-49-69-36-3747C
PMH-5	43 x 65.25	FC-50-69-20-3857	FC-49-69-37-3757
PMH-6	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-7	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-8	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-9	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-10	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-11	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-12	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PMH-13	76.75 x 82	FC-80-86-20-6874	FC-80-86-36-6874



PMH LIVEFRONT BOX PADS



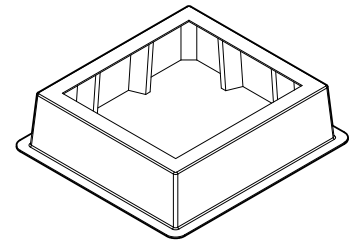
- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, Unistrut, and holes.
- PDF dwg files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/S&C_Electric/PMH_Pad-Mounted_Gear/

Federal Pacific PSE

PSE SWITCHGEAR MODEL NO.	SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15 KV			
PSE-3	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSE-4	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSE-4	35.5 x 58.5	FC-43-69-20-3157	FC-49-69-36-3157C
PSE-5	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSE-6	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-7	67 x 72	FC-69-79-20-5767	FC-69-79-36-5767
PSE-8	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-9	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-10	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-11	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-12	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSE-13	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
25 KV			
PSE-3	43 x 54.5	FC-50-69-20-3852C	FC-49-69-36-3752C
PSE-4	43 x 54.5	FC-50-69-20-3852C	FC-49-69-36-3752C
PSE-5	43 x 74.5	FC-53-80-20-4168	FC-44-84-36-3272
PSE-6	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-7	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-8	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-9	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-10	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-11	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-12	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSE-13	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874



PSE DEADFRONT PADMOUNT SWITCHGEAR BOX PADS

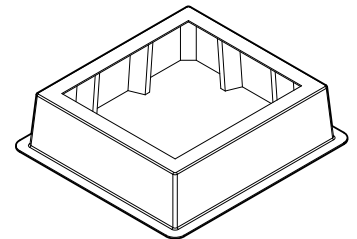


- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, unistrut, and holes.

PDF drawings online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/Federal_Pacific/PSE_Deadfront_Switchgear/

CAPACITOR BANK DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15.5 KV		
64 x 68	FC-65-74-20-5362	FC-65-74-36-5362

FEDERAL PACIFIC CAPACITOR BANK BOX PADS

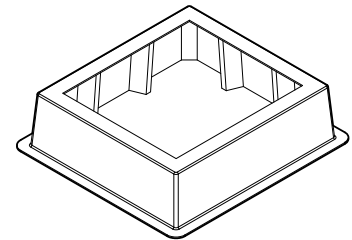


Fibercrete® Box Pads

PSI/II SWITCHGEAR MODEL NO.	SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15 KV			
PSI/II-3	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSI/II-4	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSI/II-4	35.5 x 58.5	FC-43-69-20-3157	FC-49-69-36-3157C
PSI/II-5	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSI/II-6	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-61	35.5 x 44.5	FC-39-48-20-2538	FC-40-54-36-2943
PSI/II-7	67 x 72	FC-69-79-20-5767	FC-69-79-36-5767
PSI/II-8	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-9	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-10	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-11	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-12	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-13	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-131	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-14	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
PSI/II-15	58.5 x 67	FC-63-69-20-5157	FC-63-69-36-5157
25 KV			
PSI/II-3	43 x 54.5	FC-50-69-20-3852C	FC-49-69-36-3752C
PSI/II-4	43 x 54.5	FC-50-69-20-3852C	FC-49-69-36-3752C
PSI/II-5	43 x 74.5	FC-53-80-20-4168	FC-44-84-36-3272
PSI/II-6	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-61	82 x 90	FC-85-90-20-7378	FC-85-90-36-7378
PSI/II-7	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-8	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-9	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-10	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-11	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-12	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-13	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-131	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-14	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874
PSI/II-15	74.5 x 82	FC-80-86-20-6874	FC-80-86-36-6874



PSI/II LIVEFRONT PADMOUNT SWITCHGEAR BOX PADS



- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, unistrut, and holes.

PDF dwgs online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/Federal_Pacific/PSI_and_PSII_Livefront_Switchgear/

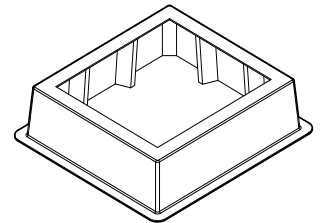
Fibercrete® Box Pads

Federal Pacific PLD & PMDF

PLD MODEL NO.	PLD SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15 KV			
PLD-5	41 x 69.75	FC-44-74-20-3262	FC-44-84-36-3266C
PLD-6	69.75 x 75	FC-74-76-20-6264	FC-74-76-36-6246
PLD-9	69.75 x 75	FC-74-76-20-6264	FC-74-76-36-6246
PLD-11	69.75 x 75	FC-74-76-20-6264	FC-74-76-36-6246



PLD
LIVEFRONT/
DEADFRONT
SWITCHGEAR
BOX PADS

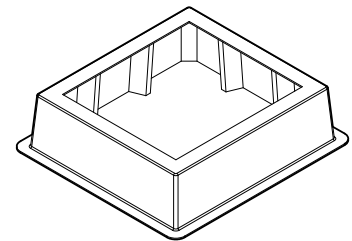


- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, Unistrut, and holes.
- PDF files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/Federal_Pacific/

PMDF MODEL NO.	PMDF SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15 KV			
PMDF-315-R6-200	54 x 54	FC-56-56-20-4444	FC-63-63-36-5151
PMDF-315-L9-200	54 x 54	FC-56-56-20-4444	FC-63-63-36-5151
25 KV			
PMDF-325-R6-200	66 x 66	FC-70-80-20-5858C	FC-70-80-20-5858C
PMDF-325-L9-200	66 x 66	FC-70-80-20-5858C	FC-70-80-20-5858C
35 KV			
PMDF-335-R6-200	66 x 76	FC-69-79-20-5767	FC-69-79-20-5767



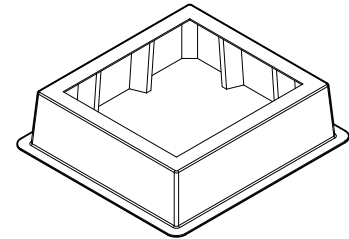
PMDF
PRIMARY METERING
PADMOUNT SWITCHGEAR
BOX PADS



FTDF SWITCHGEAR MODEL NO.	SWITCHGEAR DIMENSIONS	SHALLOW BOX PAD	DEEP BOX PAD
15 KV			
FTDF-115-21CL	30 x 36	FC-38-43-15-2631	FC-38-43-32-2631
FTDF-115-31CL	30 x 36	FC-38-43-15-2631	FC-38-43-32-2631
FTDF-115-32CL	30 x 36	FC-38-43-15-2631	FC-38-43-32-2631
FTDF-115-42CL	30 x 36	FC-38-43-15-2631	FC-38-43-32-2631
FTDF-315-63CL	32 x 36	FC-38-43-15-2631	FC-38-43-32-2631
FTDF-315-93CL	36 x 57	FC-43-69-20-3155C	FC-49-69-36-3152C
FTDF-315-96CL	36 x 57	FC-43-69-20-3155C	FC-49-69-36-3152C
FTDF-315-126CL	36 x 57	FC-43-69-20-3155C	FC-49-69-36-3152C
FTDF-115-21PF	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-115-31PF	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-115-32PF	42 x 42	FC-45-45-20-3333	FC-45-45-32-3333
FTDF-115-42PF	42 x 42	FC-45-45-20-3333	FC-44-44-32-3232
FTDF-315-63PF	42 x 57	FC-43-69-20-3155C	FC-49-69-36-3152C
FTDF-315-93PF	42 x 57	FC-43-69-20-3155C	FC-49-69-36-3152C
FTDF-315-96PF	42 x 78	FC-53-80-20-3966C	FC-44-84-36-3272
FTDF-315-126PF	42 x 78	FC-53-80-20-3966C	FC-44-84-36-3272
25 KV			
FTDF-125-21CL	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-125-31CL	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-125-32CL	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-125-42CL	30 x 42	FC-42-48-20-2640C	FC-42-48-32-2640C
FTDF-325-63CL	42 x 42	FC-45-45-20-3333	FC-44-44-32-3232
FTDF-325-93CL	42 x 72	FC-53-80-20-3966C	FC-44-84-36-3272
FTDF-325-96CL	42 x 72	FC-53-80-20-3966C	FC-44-84-36-3272
FTDF-325-126CL	42 x 72	FC-53-80-20-3966C	FC-44-84-36-3272
FTDF-125-21PF	36 x 50	FC-38-53-20-2641	FC-44-54-36-2943
FTDF-125-31PF	36 x 50	FC-38-53-20-2641	FC-44-54-36-2943
FTDF-125-32PF	48 x 50	FC-56-56-20-4444	FC-54-56-36-4244
FTDF-125-42PF	48 x 50	FC-56-56-20-4444	FC-54-56-36-4244
FTDF-325-63PF	50 x 72	FC-53-80-20-4168	FC-54-80-36-4268
FTDF-325-93PF	50 x 72	FC-53-80-20-4168	FC-54-80-36-4268
FTDF-325-96PF	50 x 84	FC-54-86-20-4274	FC-65-86-36-4774C
FTDF-325-126PF	50 x 84	FC-54-86-20-4274	FC-65-86-36-4774C



FTDF FUSED SECTIONALIZER PADMOUNT SWITCHGEAR BOX PADS



- Due to possible changes in equipment specifications, please verify the outside dimensions of your electrical equipment to be supported prior to ordering.
- Typical installations require field drilling the top surface when mounting the cabinet to the box pad. Toggle nuts from Concast are available to simplify this process.
- Custom conduit knockouts (KO) are available in all Concast box pads.
- Other customization options include clamps, threaded inserts, unistrut, and holes.

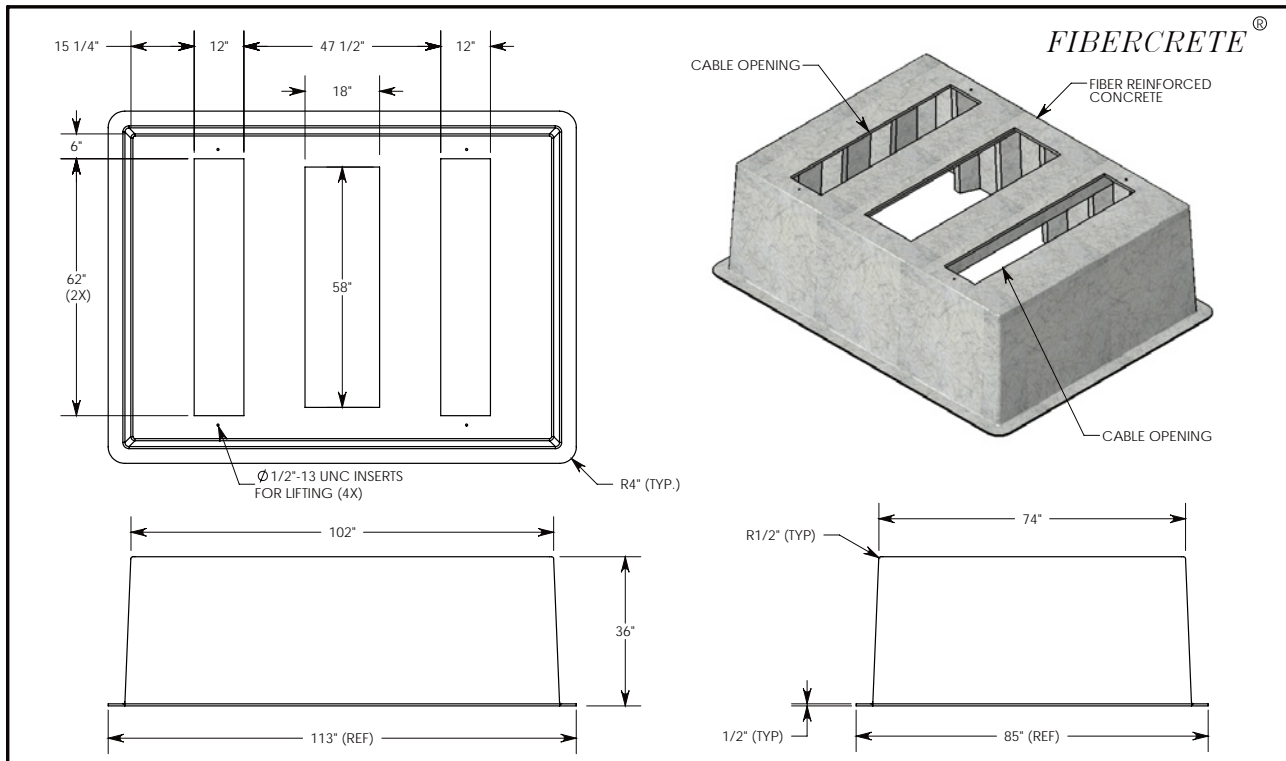
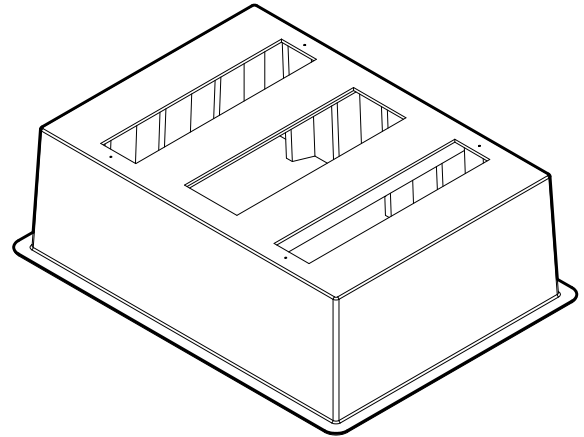
PDF dwgs online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/Federal_Pacific/FTDF_Fused_Switchgear/

Fibercrete® Box Pads




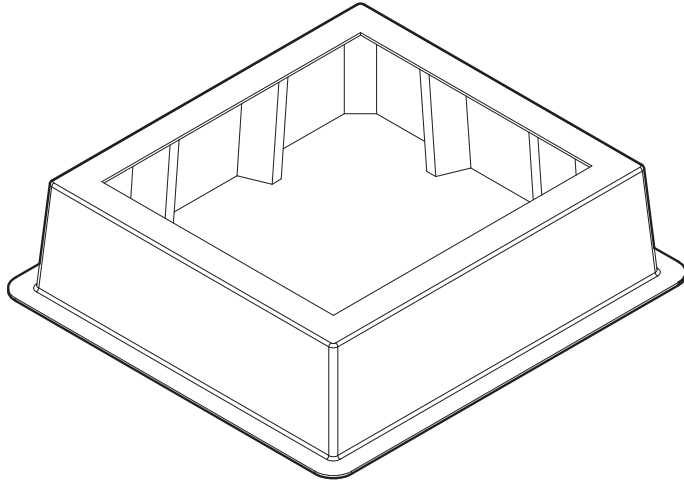
VFI KYLE SWITCHGEAR BOX PADS

When requesting a VFI box pad; besides sending a drawing of the switchgear footprint to Concast, it is extremely helpful if you can designate whether the visible break is a source side only, or if it's on both the source and the tab side. Please provide dimensions for the visible break as well.



OPENING SIZES ABOVE FIT MOST LARGER COOPER VFI SWITCHGEAR. PLEASE CONFIRM PRIOR TO ORDERING THAT THIS BOX WILL FIT YOUR SWITCHGEAR. CONCAST CAN DO THE VERIFICATION FOR YOU IF YOU SEND THE SWITCHGEAR FOOTPRINT ALONG WITH THE VISIBLE BREAK DESIGNATION.

DRAWN BY: ROBIN FLINT		 1010 NORTH STAR DRIVE P.O. BOX 69 ZUMBROTA, MN 55992-0069	DESCRIPTION: GENERIC COOPER BOX PAD		SHEET 1 OF 1
DATE: 5/14/2013	REVISION LEVEL: 0		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± 1/8" ANGULAR: ± 2"	CONTACT INFORMATION: EMAIL: INFO@CONCASTINC.COM PHONE: (507) 732-4095 FAX: (507) 732-4094	
WEIGHT: 1364 LBS.	MATERIAL: FIBERCRETE FC		PART NUMBER: FC-74-102-36-COOPER		




SHALLBETTER

SWITCHGEAR BOX PADS

SHALLBETTER MODEL NO.	SHALLOW BOX PAD	DEEP BOX PAD
15 KV		
SPD 6, 7, 9, 12	FC-69-79-20-5767	FC-69-79-36-5767
SPD 10, 11, 13A	FC-74-76-20-6264	FC-74-76-36-6264
SPL 6-19	FC-63-69-20-5157	FC-63-69-36-5157
25 KV		
SPD 6-13A	FC-85-90-20-7378	FC-85-90-36-7378
SPL 6-14	FC-80-86-20-6874	FC-80-86-36-6874

- Concast will work with you to identify the best box pad for your electrical equipment installation project.
- PDF files available online at www.concastinc.com/box_pads/By_Equipment_Manufacturer/



















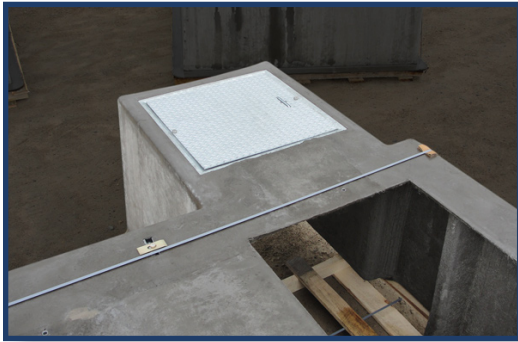




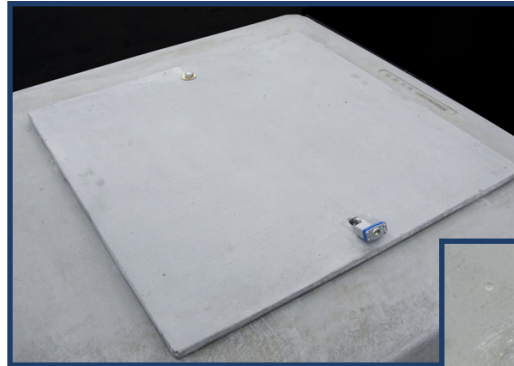
For a list of Concast, Inc. sales representatives in your area, please visit our website at www.concastinc.com/Sales_Reps/

Fibercrete® Box Pads

Box Pad Covers

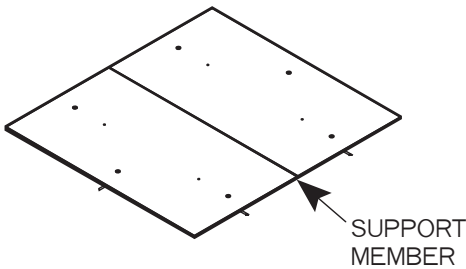


Pictured here is an aluminum cover being used as an access door on top of an Integrated Tunnel box pad.

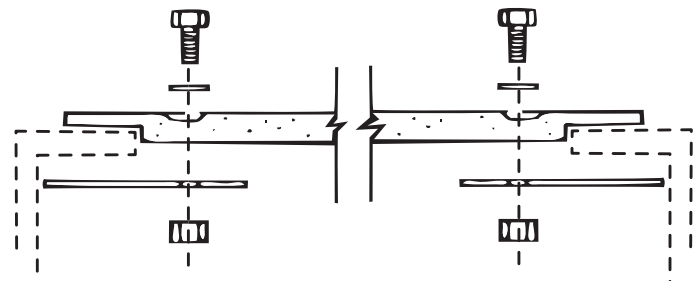


For safety and security reasons, covers are used in delayed equipment installation; where the box pad is installed prior to the electrical equipment.

LARGE 2 PIECE BOX PAD COVER

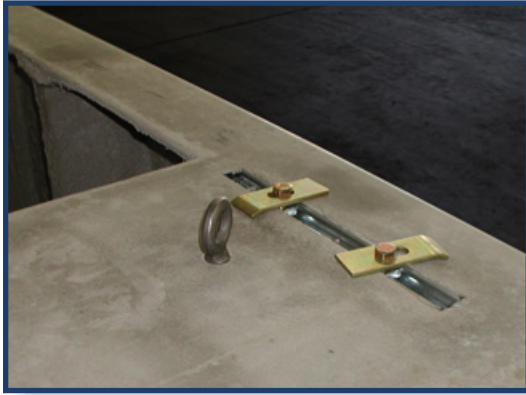


Fibercrete® Box Pad Covers can be used to make any box pad into a hand hole or junction box.



FIBERCRETE® BOX PAD COVER CROSS-SECTION WITH PENTAHEAD BOLTS

TAMPERPROOF ATTACHMENT HARDWARE
FOR DEFERRED INSTALLATIONS



UNISTRUT & CLAMPS



Unistrut is a great way to create an adjustable mounting mechanism. Often supplied with a threaded spring nut (pictured) and hold-down clamp hardware; it is available in several materials including stainless steel, galvanized steel, and fiberglass. These channels can be cast into Concast box pads, and are often standard issue for the smaller box pads.

BOX PAD MOUNTING CLAMPS

Mounting hardware can be supplied with any box pad upon request. All mounting clamp hardware is standard yellow zinc plated but other finishes are also available.

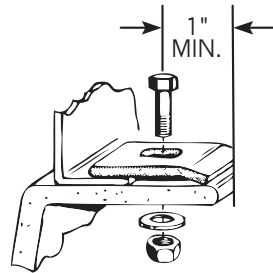
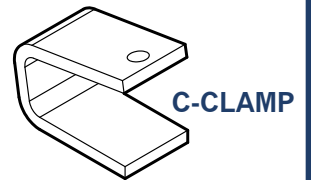
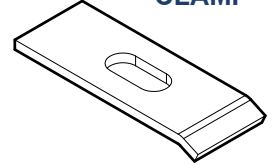
Hold Down Clamp:

- Concast Part Number: HDC-1
- Includes 1/2" dia. bolt.
- Used with a drilled hole or a threaded insert.

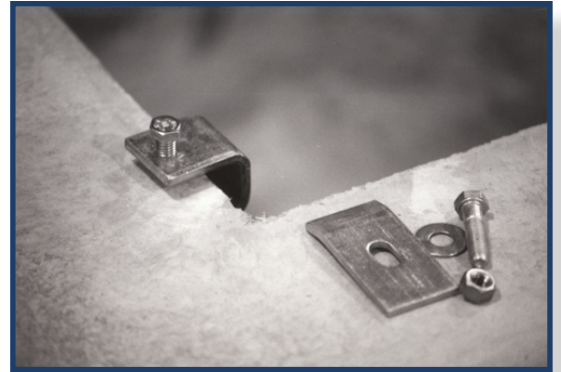
C-Clamp:

- Concast Part Number: C-CLAMP
- Includes 3/8" dia. bolt.
- No holes or threaded inserts are required.

HOLD DOWN CLAMP

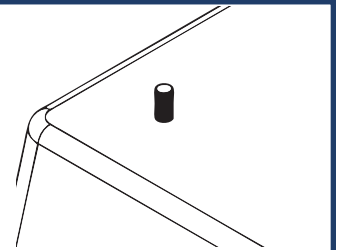


THE HOLE IS
1 INCH MIN.
FROM THE EDGE



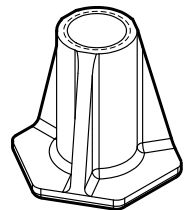
THREADED STUDS

Threaded inserts are similar to inserts in that they are used for mounting equipment. A raised stud is cast into the box pad according to customer requested height and location.



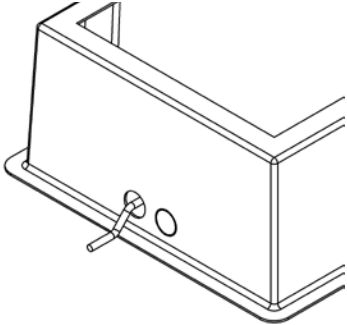
THREADED INSERTS

Threaded inserts can be cast into the top of a box pad for equipment mounting purposes and/or for lifting. Insert sizes range from 1/4" to 1" diameter.



Box Pad Accessories

HOLES & KNOCKOUTS



When conduit/cables cannot be routed deeply enough to enter the bottom of the box pad, holes or knockouts can be built into the box pad side wall to allow access. Fibercrete® can also be drilled with any masonry tools. Concast will predrill or void out any required holes or knockouts (KO) upon request..



GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your pre-cast box pads by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.



PATCH KITS

PK-1 Patch Kit:

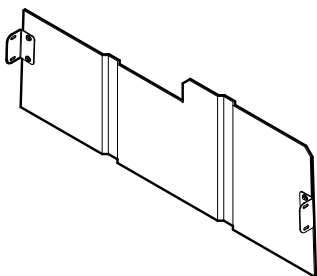
- Used for cosmetic repairs.
- Kit is complete with everything you need for small concrete repairs, including patching compound, bucket, and a trowel.

PK-2 Patch Kit:

- Ideal for patching holes in non-structural concrete sections.
- Kit consists of a large Fibercrete® patch sheet (1/2" thick by 12" sq.) which is cut to size, and then a construction adhesive or Tapcon screws are used to attach the patch over the hole.

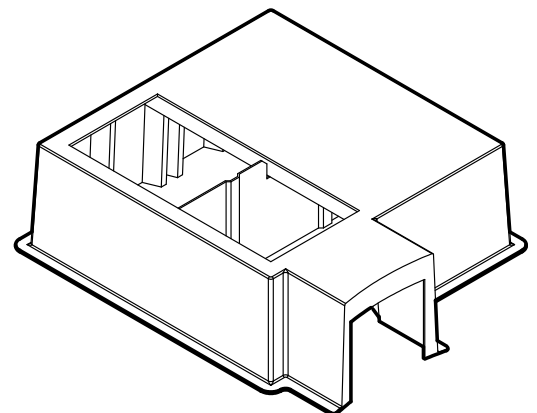


BOX PAD DIVIDERS



These fiber-reinforced panels can be used to divide your Concast box pads high, medium, or low voltage sides. The dividers are available for all box pad sizes. Dividers are custom made to fit each box pad ordered. These come complete with steel hardware for field installation.

When ordering, the part number is assigned according to the box pad that the divider is fitting into. FC-LL-XX-DIV is the basic format with "LL" correlating to the box pad length and "XX" correlating to the box depth.



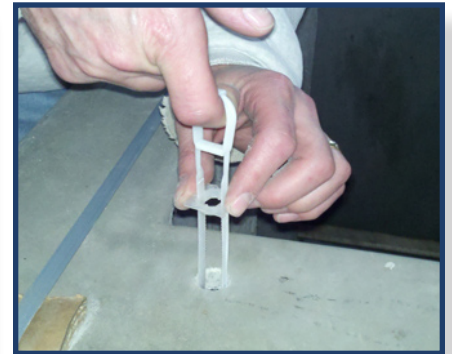


TOGGLE NUTS

Threaded toggle nuts are yet another way to mount your electrical equipment onto Concast's precast box pads. These nuts are installed onsite; allowing greater mounting flexibility and accuracy. They utilize a simple stabilizing technique similar to drywall anchors.

An installation video is available online at www.concastinc.com/Multimedia/Videos/toggle_nut_install_video.php

TOGGLE NUT	NUT THREAD DIAMETER
TN.25	1/4-20 UNC
TN.375	3/8-16 UNC
TN.5	1/2-13 UNC



INSERT PLUGS

Concast casts threaded inserts into many of their heavier box pads that require mechanical assistance to maneuver them. To keep these inserts from filling with debris and water, Concast offers a line of insert plugs. Available in both plastic and in stainless steel.



INSERT PLUG	PLUG FIT DIAMETER	PLUG MATERIAL
IPB.375	3/8-16 UNC	Stainless Steel
IPB.5	1/2-13 UNC	Stainless Steel
IPB.375	3/8"	Plastic
IPB.5	1/2"	Plastic



SEALANTS

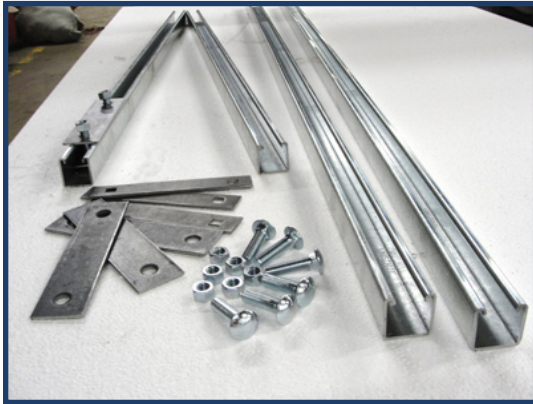
Vulkem polyurethane sealant is colored concrete gray and can be ordered under Concast P/N: 8004. It is delivered in tubes and is designed for use on poured and precast concrete surfaces. Vulkem 116 has demonstrated superior primerless adhesion to porous substrates for over 30 years and is the sealant of choice for commercial industrial expansion joints.



Concast also offers C-56 Butyl Mastic Joint Sealant made by NPC Bidco, and it can be purchased under P/N: 8004B. This sealant comes in a coil of rope with paper backing & it remains flexible and forms a permanent bond to concrete. It is designed not to shrink, oxidize or harden and has excellent resistance to temperature extremes, acid and alkaline environments.

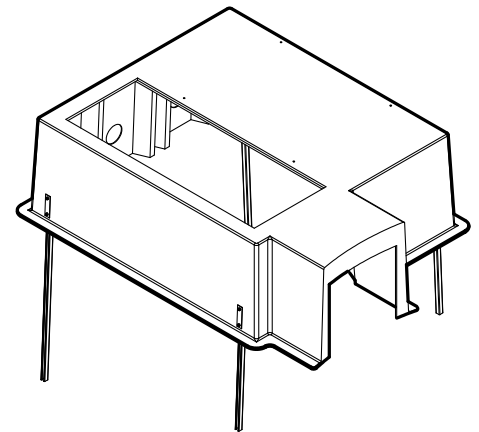
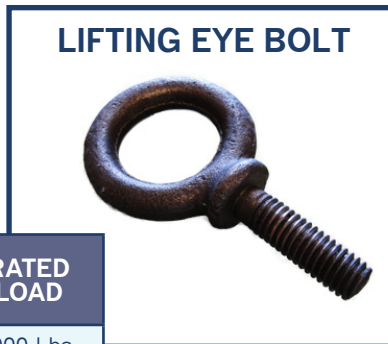
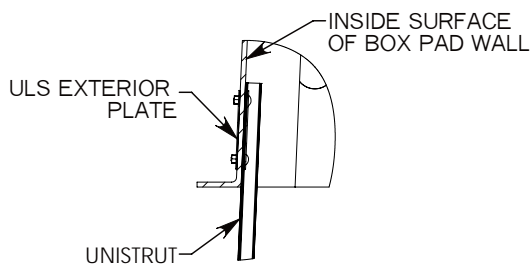
See website for available sizes, part number charts, and drawings of accessories in PDF format.

Box Pad Accessories



UNISTRUT LEVELING SYSTEM (ULS)

- Ideal for windfarm installations.
- This leveling system ties the Integrated Tunnel box pad to the wind turbine foundation resulting in optimal stability.
- Process must include pouring a concrete slurry up and around the bottom flange of the box pad.
- ULS kit is ordered under Concast part number: ULS
- Box is leveled using the following included hardware:
 - Unistrut Channels
 - ULS Interior Plates
 - ULS Exterior Plates
 - 1/2" dia. Carriage Bolts
 - 1/2" dia. Hex Head Nuts



EYE BOLT	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9000	1/2-13 UNC	1.5 inch	6000 Lbs.
9001	3/8-16 UNC	1.25 inch	3000 Lbs.

4-WAY LIFT CHAIN

- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. We recommend using our 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



HOIST RING	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	1.5 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.



See website for available sizes, part number charts, and drawings in PDF format.

GENERAL SPECIFICATIONS FOR BOX PADS

1. TECHNICAL SCOPE

- 1-A.** These specifications cover precast Fibercrete® (G.F.R.C.) box pads manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The box pads shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the pads for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.
- 1-D.** The box pads provided must be RUS approved " List of Materials Acceptable for Use on Systems of RUS Electrification Borrowers".

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B.** The tolerances of the dimensions of each Fibercrete® box pad shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** The manufacturer's design dimensions must be approved by the Purchaser prior to fabrication.
- 2-D.** Box pads shall be made available to fit design requirements and dimensions of the equipment being supported.
- 2-E.** Provisions, such as cast-in threaded inserts, must be offered for lifting any pad. Mounting holes must be adequately reinforced to avoid damaging the pad and to provide an ultimate strength of at least 5 times the pad weight when the part is lifted in accordance with the manufacturer's instructions.
- 2-F.** Standard box pads shall be of one piece; constructed with internal support columns extending the entire depth of the box pad to ensure full support of the upper lip of the box pad. When necessary, internal support columns shall also span the width of the box pad beneath the top surface.
- 2-G.** Covers shall be made available by the manufacturer for all size box pads. They can be used in delayed equipment installations to prevent box damage, unwanted litter, and accidental falls.
- 2-H.** The box pad shall have a rigid, flat, and stable top surface.
- 2-I.** The box pad shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it shall be able to withstand repeated freeze and thaw cycles.
- 2-J.** The box pad color shall be a natural concrete gray unless otherwise required and agreed upon.
- 2-K.** The box pad shall have a top surface lip sized to permit secure fastening of equipment all around.
- 2-L.** If required, a molded-in integrated tunnel must be supplied to bridge the gap between the box pad and turbine foundation. This tunnel shall have a clear cross-section to provide a direct path for below grade cable to travel from the turbine footings to the transformer. The end of the tunnel must have a radiused face to match the turbine foundation which ensures a tight fit.
- 2-M.** The box pad shall be designed to support specific equipment and applications.
- 2-N.** If required, the box pad shall have a center divider to completely separate the high and low voltage sides of the box interior. This divider must be non-flammable, and constructed from Fibercrete® or an approved equal.

Box Pad Specifications

- 2-O.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

3. PERFORMANCE AND MATERIALS

- 3-A.** All box pads shall be composed of cement mortar reinforced by alkali resistant glass fibers; fabricated via the Concast spray lay-up method which incorporates a minimum of 4 percent volume A.R. glass fibers.
- 3-B.** Fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Boxes shall conform to AIA Masterspec Section 03491 for Glass Fiber Reinforced Concrete and quality control procedures per PCI# MNL-130-91.
- 3-D. Mechanical Properties after 28 days of age:**
- 3-D.1** Minimum Compressive Strength of 7500 PSI
- 3-D.2** Flexural Strength of 3200 PSI
- 3-D.3 Shear Strength:** Material shall meet or exceed the following results when tested under ASTM D695-08.
- Peak Load-1,187 lbf
 - Peak Stress-2,125 psi
 - Modulus-391 ksi
- 3-D.4 Strength and Deflection:** Box pads shall meet or exceed the following when tested simulating equipment footprint and show no signs of failure or significant deflection.
- Small Box Pads (sectionalizers, 1 phase transformers) shall withstand 12,000 lbs.
 - Large Box Pads (large switchgear, 3 phase transformers) shall withstand 28,000 lbs
- 3-D.5 Sidewall Loading:** Box Pads shall meet or exceed a sidewall deflection of .037" with 2,000 lbs. applied.
- 3-E. Chemical Resistance:** Material shall show no signs of swelling, crazing, blistering, cracking, deformation, erosion or loss of 25% or more of the initial flexural strength when exposed to the following chemical under normal service conditions.
- 5% Calcium Chloride-CaCl₂
 - 0.1 N Sodium Sulfate-Na₂SO₄
 - 0.1 N Sodium Hydroxide -NaOH
 - 5% Sodium Chloride-NaCl
 - 5% Calcium Hydroxide-Ca(OH)₂
 - Transformer Oil
 - Kerosene
 - HP Cleaning Solution (American Polywater)

- 3-F** With equipment installed; the box pad shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03
- 3-G.** The box pad must not warp, rust, be UV degradable, or sustain combustion.
- 3-H.** When required, site-specific, PE stamped, seismic calculations shall be provided.
- 3-I.** Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.
- 3-J. METAL COMPONENT PERFORMANCE**
- 3-J.1** All galvanized steel covers, hardware, and embedments shall meet the following requirements:
- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
 - Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
 - Galvanized Hardware - ASTM 153
- 3-J.2** All stainless steel hardware and embedments shall meet the following requirements:
- Stainless Steel Angles & Flats Type 304 - ASTM A276
 - Stainless Steel Sheet Type 304 - ASTM A-240
- 3-J.3** All aluminum covers, hardware, and embedments shall meet the following requirements:
- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
 - Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
 - Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

5. INSTALLATION REQUIREMENTS

- 5-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 5-B.** Materials used in the production of the box pad must be alkali resistant in order to be installed into a lean concrete pad. Three to six inches of the pad shall be under the flanges of the box pad. The lean concrete shall have a minimum compressive strength of 3000 psi prior to installation of the transformer.
- 5-C.** All box pad excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 5-D.** All backfill material shall be a granular material as required by the soils engineer. Box pads shall be designed to have no limitations of backfill height.
- 5-E.** Installation guidelines shall be made available online.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN

CONCAST

P.O. Box 69
1010 North Star Drive
Zumbrota, MN 55992-0069
Phone: 507-732-4095
Fax: 507-732-4094
Email: info@concastinc.com
Website: www.concastinc.com



August 2013



CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



FLAT PADS

Flat Pad Overview

IDEAL USES FOR CONCAST FLAT PADS



GENERATOR BASE



**SINGLE PHASE
TRANSFORMER BASE**



**THREE PHASE
TRANSFORMER BASE**



**SPLIT PADS FOR
REPLACEMENT**



**SWITCHGEAR
BASE**



**TELECOMMUNICATION
CABINET BASE**

- Concast flat pads provide a stable and attractive base for any utility pad mount apparatus.
- Fibercrete® flat pads have a very high strength to weight ratio; yielding a relatively lightweight though extremely tough unit that saves on handling and shipping costs.
- Low in-place cost, plus the proven durability of Concrete & Fibercrete® add up to a truly economical flat pad installation option.

Guide Specifications

Flat Pads shall be constructed with Concast Fibercrete®, Concrete, or approved equal. It shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Detail Drawings Provided

Concast will provide detail drawings for engineering approval, and to assist the construction crew with installation. Drawings will show overall flat pad size, opening size (if applicable), weight, and any accessories required.

You can access the installation guidelines online at www.concastinc.com; keyword "guidelines"

REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE® FLAT PADS

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** A crew of 2 or 3 can install a small flat pad without using hoisting equipment. The lightweight pad construction saves on shipping costs.
- **HIGH STRENGTH MATERIAL.** Fibercrete® fabrication results in a thin-walled product with high strength; providing safe, reliable support for electrical apparatus. Bottom rib design supports normal equipment loads without sinking.
- **LONG LIFE.** Concrete construction means long life, plus fire and corrosion resistance. Inert mineral composition resists temperature extremes, rain, and UV degradation.
- **IMPACT RESISTANT.** Fibercrete® has about three times the impact resistance of ordinary concrete. In addition, the bases are designed with smooth rounded corners, which result in superior resistance to damage or abrasion from mowers, snow plows, and vandals.
- **RODENT PROOF.** Tough Fibercrete® and concrete is resistant to gnawing animals.
- **FLAT & RIGID.** Fibercrete® and concrete pads stay rigid and flat. They will not warp, providing a safe and secure installation. The concrete material's rigidity naturally resists the "racking" and door damming that occurs if equipment enclosures do not rest on a level surface.
- **NATURAL APPEARANCE.** Smooth, stone-like surfaces blend with natural environment.

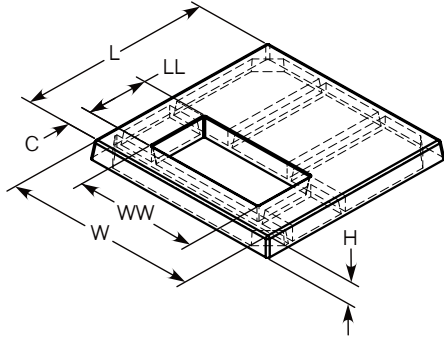


Features:

- **WAFFLE BOTTOM DESIGN.** Fibercrete® lightweight pads' unique waffle bottom design reduces weight, makes handling easier, and permits loose earth to fill bottom voids which will level and stabilize the pad.
- **VARIABLE OPENING.** Fibercrete® and concrete flat pads can be produced with window openings as needed.

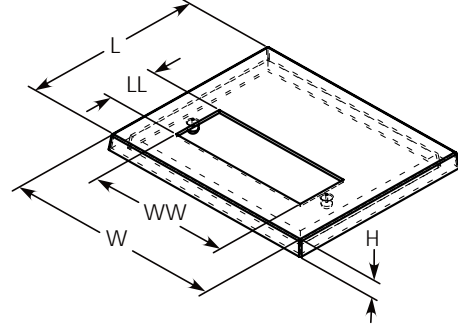
Standard Flat Pads

FP SERIES WAFFLE BOTTOM FLAT PAD



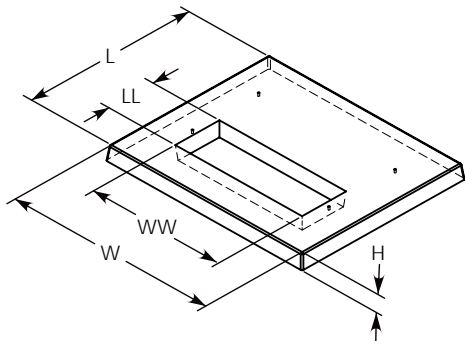
- Fibercrete® Waffle Bottom pads are lighter than solid pads
- These pads are easier to level during installation because of the voids in the bottom of the pad.
- Waffle Bottom flat pads have an FP prefix.

FC SERIES LIGHTWEIGHT FLAT PAD



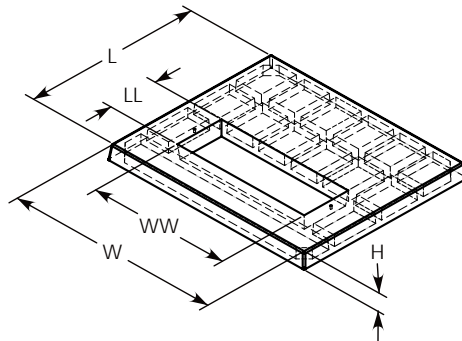
- Fibercrete® Lightweight flat pads are the very lightest pad we manufacture.
- Most sizes can be installed without the aid of mechanical maneuvering equipment.

SOLID FLAT PAD FPS SERIES



- Solid concrete pads are most economical of the Concast flat pad line.
- Will support heavier electrical equipment, and are ideal where pad weight is not an issue.
- Perfect for wet soil condition installations.
- Solid flat pads have an FPS prefix.

SOLID BOTTOM FLAT PAD FPSB SERIES



- Solid bottom flat pads have a foam core.
- FPSB pads are a lighter weight option that offers a solid bottom design.
- Perfect for wet soil condition installations.
- Solid bottom flat pads have an FPSB prefix.

Concast has an online form to help with the selection process at www.concastinc.com/flat_pads/help.php

FLAT PAD CUSTOMIZATION OPTIONS:

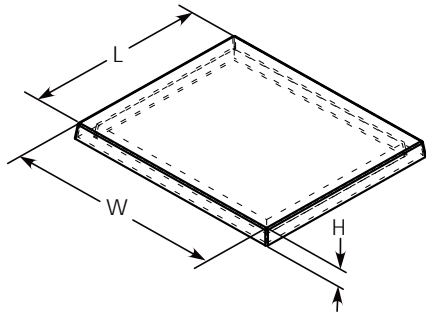
- Hold-down clamps
- Threaded inserts
- Unistrut Channel
- Toggle Nuts
- Custom Holes/Opening

FIBERCRETE® WAFFLE BOTTOM FLAT PADS	FIBERCRETE® LIGHTWEIGHT FLAT PADS	PAD LENGTH "L"	PAD WIDTH "W"	PAD HEIGHT "H"	PAD OPENING "LL x WW"	OFFSET DIST. "C"	SOLID FLAT PAD OPTION (FPS)	SOLID BOTTOM PAD OPTION (FPSB)
FP-26-52-4-1126 (6)	FC-26-52-4-1126 (6)	26"	52"	4"	11 x 25.75	6"	✓	✓
FP-30-30-3-1016 (6)	FC-30-30-3-1016 (6)	30"	30"	3"	10 x 16	6"	✓	✓
FP-38-42-3.25-2012 (8)	FC-38-42-3.25-2012 (8)	38"	42"	3.25"	20 x 12	7.75"	✓	✓
FP-40-40-3.5-1225 (6)	FC-40-40-3.5-1225 (6)	40"	40"	3.5"	12 x 25	6"	✓	✓
FP-42-42-4-1326 (5)	FC-42-42-4-1326 (5)	42"	42"	4"	13 x 25.75	5"	✓	✓
FP-42-45-4-2512 (6)	FC-42-45-4-2512 (6)	42"	45"	4"	25 x 12	6"	✓	✓
FP-42-48-4-2612 (4)	FC-42-48-4-2612 (4)	42"	48"	4"	26 x 12	4"	✓	✓
FP-42-48-4-2626 (4)	FC-42-48-4-2626 (4)	42"	48"	4"	26 x 26	4"	✓	✓
FP-46-46-4-1228 (7)	FC-46-46-4-1228 (7)	46"	46"	4"	12 x 28	7"	✓	✓
FP-48-48-4-1227 (8)	FC-48-48-4-1227 (8)	48"	48"	4"	12 x 27	8"	✓	✓
FP-48-54-4-1225 (6)	FC-48-54-4-1225 (6)	48"	54"	4"	12 x 25	6"	✓	✓
FP-58-70-5-1646 (12)	FC-58-70-5-1646 (12)	58"	70"	5"	16 x 46	12"	✓	✓
FP-60-84-5-1548 (6)	FC-60-84-5-1548 (6)	60"	84"	5"	15 x 48	6"	✓	✓
FP-65-72-4-1649 (6)	FC-65-72-4-1649 (6)	65"	72"	4"	16 x 49	6"	✓	✓
FP-72-84-5-1649 (12)	FC-72-84-5-1649 (12)	72"	84"	5"	16 x 49	12"	✓	✓
FP-72-84-5-2052 (10)	FC-72-84-5-2052 (10)	72"	84"	5"	20 x 52	10"	✓	✓
FP-100-100-8-2068 (10)	FC-100-100-8-2068 (10)	99.5"	99.5"	8"	20 x 68	10"	✓	

- The listed standard Concast, Inc. flat pads are designed to support transformers, switchgear, and other electrical equipment.
- Standard cable openings are listed. If other openings sizes are required, please specify when ordering. For additional available sizes, please contact your local representative.
- Our complete line of flat pads can be ordered as a split pad for easy pad replacement. See page 65 template.
- PDF drawings can be viewed online at www.concastinc.com/flat_pads/Standard_Flat_Pads

Custom Flat Pads

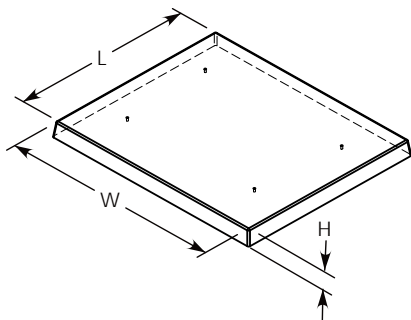
LIGHTWEIGHT CUSTOM FLAT PAD



- Fibercrete® Lightweight flat pads are the very lightest pad we manufacture.
- Most sizes can be installed without the aid of mechanical maneuvering equipment.
- Toggle nuts are often used with these pads for onsite/field equipment installations.

Concast has an online form to help with the selection process at www.concastinc.com/flat_pads/help.php

SOLID CONCRETE CUSTOM FLAT PAD



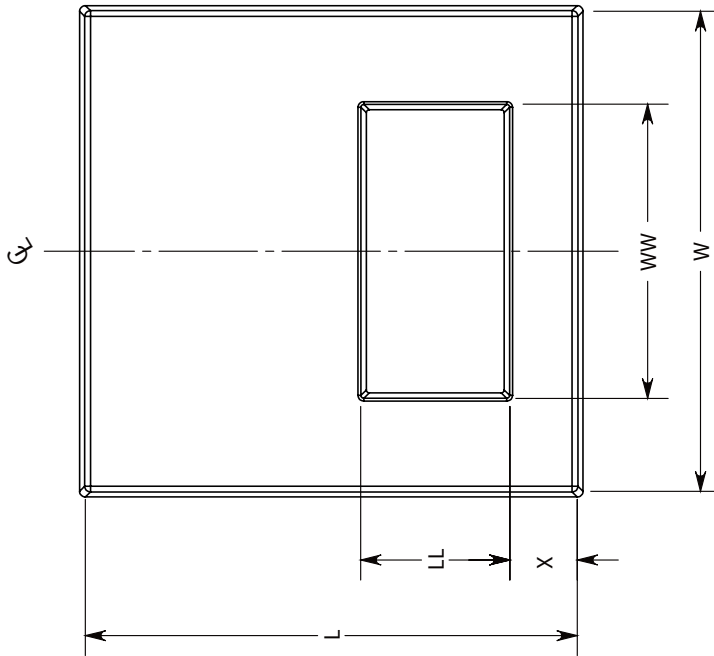
- Solid concrete pads are most economical of the Concast flat pad line.
- Will support heavier electrical equipment, and are ideal where pad weight is not an issue.
- Perfect for wet soil condition installations.
- Solid flat pads have an FPS prefix.
- Wedge anchors are available from Concast for on-site/field equipment installations.

FIBERCRETE® LIGHTWEIGHT CUSTOM FLAT PADS	SOLID CONCRETE CUSTOM FLAT PADS	PAD LENGTH "L"	PAD WIDTH "W"	PAD HEIGHT "H"
FC-12-12-4	FPS-12-12-4	12"	12"	4"
FC-12-24-4	FPS-12-24-4	12"	24"	4"
FC-12-36-4	FPS-12-36-4	12"	36"	4"
FC-24-24-4	FPS-24-24-4	24"	24"	4"
FC-24-36-4	FPS-24-36-4	24"	36"	4"
FC-24-48-4	FPS-24-48-4	24"	48"	4"
FC-36-36-4	FPS-36-36-4	36"	36"	4"
FC-36-48-4	FPS-36-48-4	36"	48"	4"
FC-36-60-4	FPS-36-60-4	36"	60"	4"
FC-36-72-4	FPS-36-72-4	36"	72"	4"
NA	FPS-40-40-5	40"	40"	5"
NA	FPS-44-54-5	44"	54"	5"
FC-48-48-4	FPS-48-48-4	48"	48"	4"
FC-48-60-4	FPS-48-60-4	48"	60"	4"
FC-48-72-4	FPS-48-72-4	48"	72"	4"
FC-48-84-4	FPS-48-84-4	48"	84"	4"
FC-48-96-4	FPS-48-96-4	48"	96"	4"
NA	FPS-60-60-5	60"	60"	5"
NA	FPS-60-62-5	60"	62"	5"
NA	FPS-60-72-5	60"	72"	5"
NA	FPS-60-84-5	60"	84"	5"
NA	FPS-60-96-5	60"	96"	5"
NA	FPS-72-72-5	72"	72"	5"
NA	FPS-72-84-5	72"	84"	5"
NA	FPS-72-96-5	72"	96"	5"
NA	FPS-84-84-5	84"	84"	5"
NA	FPS-84-96-5	84"	96"	5"
NA	FPS-100-100-5	99.5"	99.5"	5"

FLAT PAD CUSTOMIZATION OPTIONS:

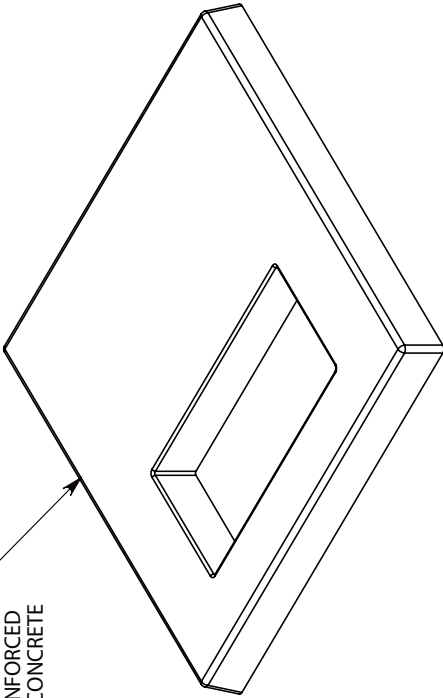
- Hold-down clamps
- Threaded inserts
- Unistrut Channel
- Toggle Nuts
- Custom Holes/Openings
- Wedge Anchors

PRINT AND MARK-UP THIS DRAWING WHEN ORDERING CUSTOM FLAT PADS



FIBER & WIRE
REINFORCED
CONCRETE

FIBERCRETE[®]



PRINT THIS PAGE AND FILL IN THE DIMENSIONS OF THE CUSTOM SIZE FLAT PAD NEEDED

W - ___ L - ___ WW - ___ H - ___ LL - ___ X - ___

PART NUMBERING CONVENTION: FP-W-L-H (WWLL)X
WIDTH & LENGTH ARE INTERCHANGEABLE; THE SMALLEST DIMENSION IS ALWAYS LISTED FIRST.

PLEASE NOTE THAT TYPICALLY THE OPENING OR THROAT IS CENTERED ON THE "W" DIMENSION. IF AN OFFSET OPENING IS REQUIRED, SPECIFY BY ADDING A DIMENSION OFF OF THE EDGE. IF MULTIPLE OPENINGS ARE NEEDED, DRAW IN THEIR LOCATIONS ON THE TOP VIEW OF THE PRINT.

SKETCH IN ANY CAST-IN HARDWARE REQUIRED

___ - CHECK IF SOLID-BOTTOM PAD IS REQUIRED

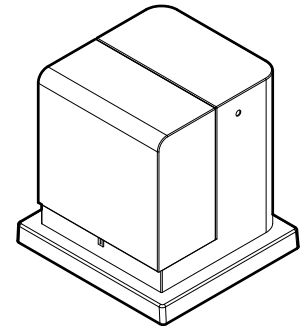
___ - QTY REQUIRED

DRAWN BY: ROBIN FLINT		DESCRIPTION: GENERIC FIBERCRETE FLAT PAD	
DATE: 12/21/2011	REVISION LEVEL: 0	CONTACT INFORMATION: EMAIL: INFO@CONCAST.COM	
WEIGHT: -- LBS.	MATERIAL: FIBERCRETE FC	PHONE: (507) 732-4095	
		FAX: (507) 732-4094	
		PART NUMBER: FP-___-___-___ SHEET 1 OF 1	
		CONCAST 1010 NORTH STAR DRIVE P.O. BOX 69 ZUMBROTA, MN 55992-0069	

Transformer Flat Pads

SINGLE PHASE TRANSFORMER WAFFLE BOTTOM FLAT PADS	SINGLE PHASE TRANSFORMER LIGHTWEIGHT FLAT PADS	PAD LENGTH "L"	PAD WIDTH "W"	PAD HEIGHT "H"	PAD OPENING "LL x WW"	OFFSET DIST. "C"	SOLID FLAT PAD OPTION (FPS)	SOLID BOTTOM PAD OPTION (FPSB)
FP-30-30-3-1016 (6)	FC-30-30-3-1016 (6)	30"	30"	3"	10 x 16	6"	✓	✓
FP-38-42-3.25-2012 (8)	FC-38-42-3.25-2012 (8)	38"	42"	3.25"	20 x 12	7.75"	✓	✓
FP-40-40-3.5-1225 (6)	FC-40-40-3.5-1225 (6)	40"	40"	3.5"	12 x 25	6"	✓	✓
FP-42-42-4-1326 (5)	FC-42-42-4-1326 (5)	42"	42"	4"	13 x 25.75	5"	✓	✓
FP-42-45-4-2512 (6)	FC-42-45-4-2512 (6)	42"	45"	4"	25 x 12	6"	✓	✓
FP-42-48-4-2612 (4)	FC-42-48-4-2612 (4)	42"	48"	4"	26 x 12	4"	✓	✓
FP-42-48-4-2626 (4)	FC-42-48-4-2626 (4)	42"	48"	4"	26 x 26	4"	✓	✓
FP-46-46-4-1228 (7)	FC-46-46-4-1228 (7)	46"	46"	4"	12 x 28	7"	✓	✓
FP-48-48-4-1227 (8)	FC-48-48-4-1227 (8)	48"	48"	4"	12 x 27	8"	✓	✓
FP-48-54-4-1225 (6)	FC-48-54-4-1225 (6)	48"	54"	4"	12 x 25	6"	✓	✓

SINGLE PHASE TRANSFORMER FLAT PADS

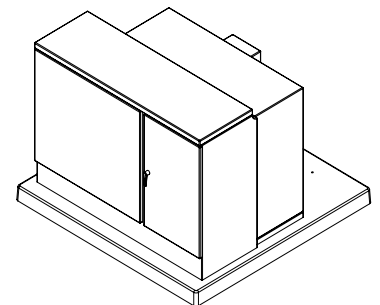


You can access PDF drawings of all of these transformer flat pads at www.concastinc.com/FLAT_pads/applications/transformer and also at www.concastinc.com/flat_pads/applications/Single_Phase_Transformer and at www.concastinc.com/flat_pads/applications/Three_Phase_Transformer. Refer to page 62 for dimension references.

Concast has an online form to help with the selection process at www.concastinc.com/flat_pads/help.php

THREE PHASE TRANSFORMER WAFFLE BOTTOM FLAT PADS	SINGLE PHASE TRANSFORMER LIGHTWEIGHT FLAT PADS	PAD LENGTH "L"	PAD WIDTH "W"	PAD HEIGHT "H"	PAD OPENING "LL x WW"	OFFSET DIST. "C"	SOLID FLAT PAD OPTION (FPS)	SOLID BOTTOM PAD OPTION (FPSB)
FP-58-70-5-1646 (12)	FC-58-70-5-1646 (12)	58"	70"	5"	16 x 46	12"	✓	✓
FP-60-84-5-1548 (6)	FC-60-84-5-1548 (6)	60"	84"	5"	15 x 48	6"	✓	✓
FP-65-72-4-1649 (6)	FC-65-72-4-1649 (6)	65"	72"	4"	16 x 49	6"	✓	✓
FP-72-84-5-1649 (12)	FC-72-84-5-1649 (12)	72"	84"	5"	16 x 49	12"	✓	✓
FP-72-84-5-2052 (10)	FC-72-84-5-2052 (10)	72"	84"	5"	20 x 52	10"	✓	✓
FP-100-100-8-2068 (10)	FC-100-100-8-2068 (10)	99.5"	99.5"	8"	20 x 68	10"	✓	

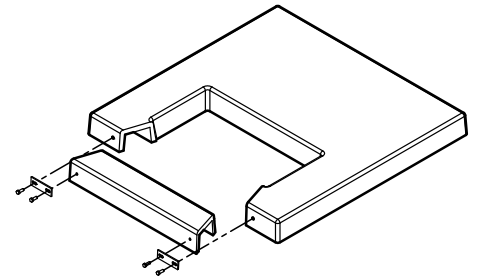
3 PHASE TRANSFORMER FLAT PADS



You can access PDF drawings of all of these flat pads at www.concastinc.com/flat_pads/applications

SPLIT FLAT PADS

Fibercrete® split flat pads are ideal for instances where an existing pad is damaged and needs to be replaced. Concast's split pad design features two pad pieces with connecting hardware as shown. Any size flat pad can be ordered as a split pad. Available mounting options include clamps, cast-in threaded inserts and unistrut.

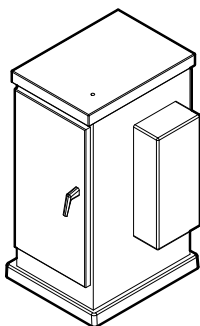


Replacement Procedure:

- Lift equipment from existing pad. It is generally not necessary to disconnect the cables.
- Cut out the existing pad.
- Slide the new Fibercrete® split pad into place, and bolt the two pieces together using the hardware provided.
- Re-attach the equipment to the new flat pad.

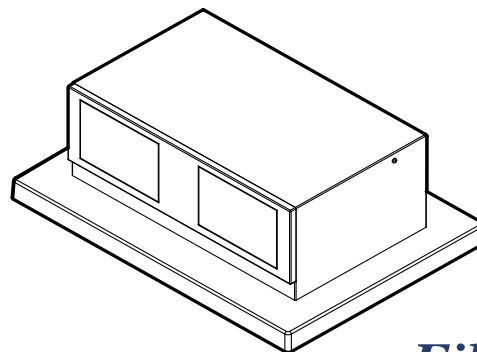
TELECOMMUNICATION INDUSTRY FLAT PADS

TELECOM. LIGHTWEIGHT FLAT PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT
FC-12-12-4	12"	12"	4"
FC-12-24-4	12"	24"	4"
FC-12-36-4	12"	36"	4"
FC-24-24-4	24"	24"	4"
FC-24-36-4	24"	36"	4"
FC-24-48-4	24"	48"	4"
FC-26-52-4	26"	52"	4"
FC-36-36-4	36"	36"	4"
FC-36-36-4-CW	36"	36"	4"
FC-36-48-4	36"	48"	4"
FC-36-60-4	36"	60"	4"
FC-36-72-4	36"	72"	4"
FC-36-72-4-CW	36"	72"	4"



INDUSTRIAL GENERATOR FLAT PADS

GENERATOR LIGHTWEIGHT FLAT PADS	GENERATOR SOLID FLAT PADS	"L" LENGTH	"W" WIDTH	"H" HEIGHT
FC-24-36-4	FPS-24-36-4	24"	36"	4"
FC-24-48-4	FPS-24-48-4	24"	48"	4"
FC-26-52-4	FPS-26-52-4	26"	52"	4"
FC-36-36-4	FPS-36-36-4	36"	36"	4"
FC-36-48-4	FPS-36-48-4	36"	48"	4"
FC-36-60-4	FPS-36-60-4	36"	60"	4"
FC-36-72-4	FPS-36-72-4	36"	72"	4"
FC-48-48-4	FPS-48-48-4	48"	48"	4"
FC-48-60-4	FPS-48-60-4	48"	60"	4"
FC-48-72-4	FPS-48-72-4	48"	72"	4"
FC-48-84-4	FPS-48-84-4	48"	84"	4"
FC-48-96-4	FPS-48-96-4	48"	96"	4"



Four toggle nuts are provided with each pad so that mounting holes can be precisely located and field-drilled for easy installation of the cabinet via it's bolt pattern. Other available mounting options include clamps, cast-in threaded inserts and unistrut.

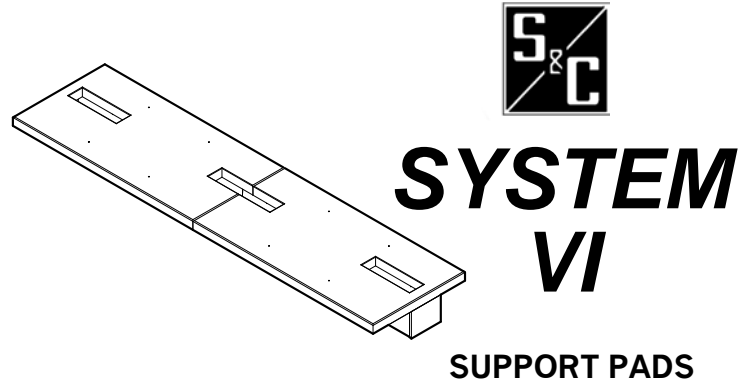
Fibercrete® Flat Pads

Modular Flat Pads

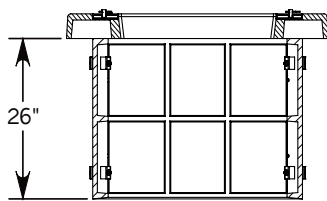
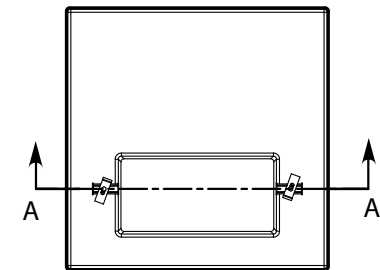
SYSTEM VI FLAT PADS

Concast can build specialty modular flat pad systems to support the S & C Electric Company System VI Metal Enclosed Switchgear. Send the footprint details of the cabinets in your application, and the engineering team at Concast will design a custom pad configuration. We offer many customization options including clamps, threaded inserts, unistrut, knockouts, and holes. If other hardware is needed, please specify when ordering.

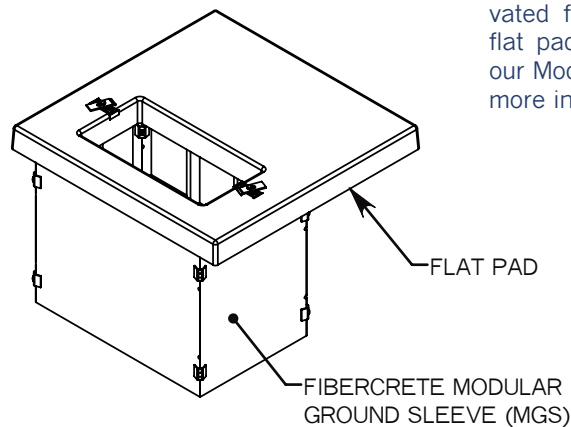
This system allows a continuous raceway below each S&C unit in the System VI line-up. To install the modular flat pad system, backfill against the exterior of the installed trench channels, and place the flat pads over the channels. The cable openings in the pad must be positioned to allow access into channels below.



FLAT PAD SYSTEM WITH FIBERCRETE[®] MODULAR GROUND SLEEVE

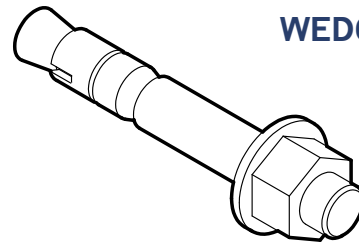


SECTION A-A



For some flat pad installations, a Fibercrete[®] MGS or Modular Ground Sleeve unit can be used to create more cable training space. A small hole is excavated for the ground sleeve and the flat pad is placed on top of it. See our Modular Ground Sleeve catalog for more information.

WEDGE ANCHOR	THREAD DIAMETER	ANCHOR LENGTH	FINISH
WA.38-3.75	3/8"	3-3/4"	ZINC
WA.5-3.75	1/2"	3-3/4"	ZINC
WA.38-3.75-SS	3/8"	3-3/4"	STAINLESS STEEL
WA.5-3.75-SS	1/2"	3-3/4"	STAINLESS STEEL



WEDGE ANCHORS

Concast wedge anchors can be used in the FPS style flat pads. They feature a single piece expansion clip, a threaded stud bolt body, integral cone expander, nut and washer. Anchor bodies are made of zinc plated carbon steel, or stainless steel. Stainless steel anchors will have a "-SS" suffix in the part number.



TOGGLE NUTS

TOGGLE NUT	NUT THREAD DIAMETER
TN.25	1/4-20 UNC
TN.375	3/8-16 UNC
TN.5	1/2-13 UNC

Threaded toggle nuts are an ideal way to mount your electrical equipment onto Concast's FC Series precast flat pads. These nuts are installed onsite; allowing greater mounting flexibility and accuracy.

An installation video is available online at www.concastinc.com/Multimedia/Videos/toggle_nut_install_video.php

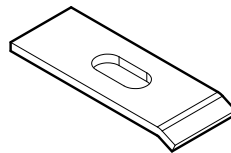


MOUNTING HARDWARE

Mounting hardware can be supplied with any flat pad upon request. All mounting clamp hardware is standard yellow zinc plated but other finishes are also available.

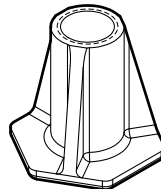
Hold Down Clamp:

- Concast Part Number: HDC-1
- Includes 1/2" dia. bolt.
- Used with a drilled hole or a threaded insert.



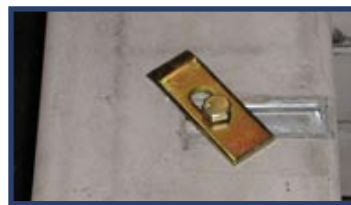
Threaded Insert

- Cast into top of flat pad.
- Available in 1/4" to 1" diameter.
- Used for lifting or equipment mounting.



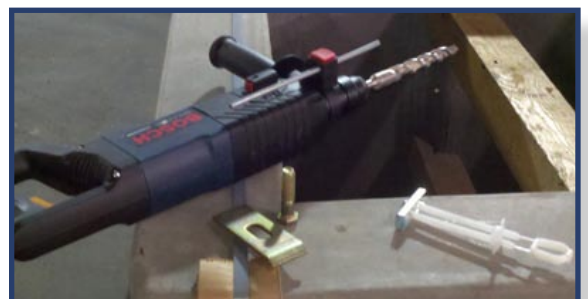
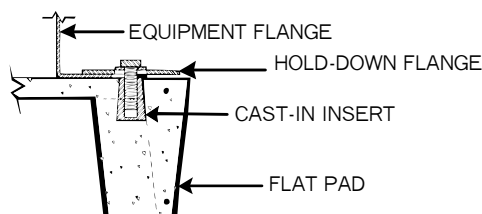
Threaded Studs

- Cast into top of flat pad.
- Used for mounting equipment



Unistrut Channel w/Spring Nut

- Cast into top of flat pad.
- Provides adjustable mounting option.



Flat Pad Accessories

SWIVEL HOIST RING

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. We recommend using our 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



HOIST RING	THREADED ROD DIA.	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	1.5 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.



4-WAY LIFT CHAIN



- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees

LIFTING EYE BOLT

EYE BOLT	THREADED ROD DIAMETER	THREADED ROD LENGTH	RATED LOAD
9000	1/2-13 UNC	1.5 inch	6000 Lbs.
9001	3/8-16 UNC	1.25 inch	3000 Lbs.



See the Concast website for drawings of more accessories in PDF format.

GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your pre-cast flat pads by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.



GENERAL SPECIFICATIONS FOR FLAT PADS

1. TECHNICAL SCOPE

- 1-A. These specifications cover precast Fibercrete® (G.F.R.C.) flat pads manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B. The flat pads shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C. The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the pads for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A. Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B. The tolerances of the dimensions of each flat pad shall not exceed $\pm 1/4"$. These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C. The manufacturer's design dimensions must be approved by the Purchaser prior to fabrication.
- 2-D. Flat pads shall be made available to fit design requirements and dimensions of the equipment being supported.
- 2-E. Provisions, such as cast-in threaded inserts, must be offered for lifting any pad. Mounting holes must be adequately reinforced to avoid damaging the pad and to provide an ultimate strength of at least 5 times the pad weight when the part is lifted in accordance with the manufacturer's instructions.
- 2-F. The flat pad shall have a rigid, flat, and stable top surface.
- 2-G. The flat pad color shall be a natural concrete gray unless otherwise required and agreed upon.
- 2-H. If required, the flat pad shall be manufactured with equipment bolt-down accommodations.
- 2-I. The flat pad shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it will be able to withstand repeated freeze and thaw cycles.
- 2-J. The Concast "Waffle Bottom Flat Pad" and the "Lightweight Flat Pad" is designed to permit loose earth to fill the bottom surface voids which level and stabilize the pad.
- 2-K. The flat pad shall be designed to support specific equipment and applications
- 2-L. The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

Flat Pad Specifications

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-D. LAY-UP GFRC (PART NUMBERS WITH FC PREFIX)**
- 3-D.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and deformed high tensile welded wire. It is fabricated via the Concast spray lay-up method which incorporates a minimum of 4 percent volume A.R. glass fibers.
- 3-D.2** Flat pads shall conform to AIA Masterspec Section 03491 for Glass Fiber Reinforced Concrete and quality control procedures per PCI# MNL-130-91.
- 3-E. PREMIX GFRC (PART NUMBERS WITH FP OR FPSB PREFIX)**
- 3-E.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and a deformed prefabricated high tensile welded wire. It is fabricated via casting into steel forms.
- 3-E.2** A.R. Glass is required to prevent glass deterioration if in contact with any poured cement or grout foundation.
- 3-E.3** Shall obtain a minimum compressive strength of 6000 PSI at 28 days of age.
- 3-F. MICRO-CONCRETE (PART NUMBERS WITH FPS PREFIX)**
- 3-F.1** Precast solid concrete flat pads shall be cast into steel forms using Type I/II Portland Cement.
- 3-F.2** Concrete shall contain 6% entrained air (plus or minus 1%)
- 3-F.3** Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.
- 3-G. REINFORCEMENT**
- 3-G.1** Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".
- 3-G.2** Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".
- 3-G.3** Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".
- 3-H.** The flat pad must not be affected by asphalt, transformer oil, other common chemicals, weather, or other normal service conditions that it might be exposed to.

- 3-I.** The flat pad shall be designed and constructed so that it and any related hardware will not trap or hold water, and so that it will be able to withstand repeated freeze and thaw cycles.
- 3-J.** The flat pad must not warp, rust, be UV degradable, or sustain combustion.
- 3-K.** With equipment installed; the flat pad shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03.
- 3-L.** When required, site-specific, PE stamped, seismic calculations shall be provided.
- 3-M.** Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

3-N. METAL COMPONENT PERFORMANCE

3-N.1 All galvanized steel covers, hardware, and embedments shall meet the following requirements:

- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
- Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
- Galvanized Hardware - ASTM 153

3-N.2 All stainless steel hardware and embedments shall meet the following requirements:

- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

3-N.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

4. INSTALLATION REQUIREMENTS

- 4-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-B.** All flat pad excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-C.** All backfill material shall be a granular material as required by the soils engineer. Flat pads shall be designed to have no limitations of backfill height.
- 4-D.** Installation guidelines shall be made available online.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN

CONCAST

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Website: www.concastinc.com

August 2013





CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



MODULAR GROUND SLEEVES

MGS Overview

IDEAL USES FOR CONCAST MODULAR GROUND SLEEVES



SWITCHGEAR BASE



HANDHOLES



SECTIONALIZER BASE

- Concast modular ground sleeves provide a stable and attractive base for any utility pad mount apparatus.
- Fibercrete® modular ground sleeves have a very high strength to weight ratio; yielding a relatively lightweight though extremely tough unit that saves on handling and shipping costs.
- Low in-place cost, plus the proven durability of Fibercrete® adds up to a truly economical installation option.
- The long list of panel sizes creates a vast array of available box size combinations.
- Light-weight panels can be purchased individually; a hardware kit is included with every set of 4 panels.
- Vertical shifting after install is prevented by the patented interlocking wall design.

Guide Specifications

MGS units shall be constructed with Concast Fibercrete®. They shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Detail Drawings Provided

Concast will provide detail drawings for engineering approval, and to assist the construction crew with installation. Drawings will show overall ground sleeve size, opening size, weight, and any accessories required.

You can access the installation guidelines online at www.concastinc.com; keyword "guidelines"

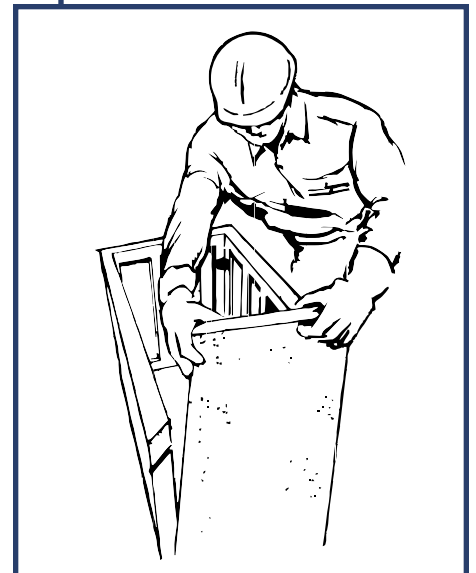
REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE® MODULAR GROUND SLEEVES

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** A crew of 2 or 3 can install a modular ground sleeve without using hoisting equipment. The lightweight panel construction saves on shipping costs.
- **HIGH STRENGTH MATERIAL.** Fibercrete® fabrication makes possible a 3/4" thick wall with high strength; while providing safe, reliable support for electrical apparatus. Waffled rib design supports normal equipment loads without warping.
- **LONG LIFE.** Concrete construction means long life, plus fire and corrosion resistance. Inert mineral composition resists temperature extremes, rain, and UV degradation.
- **IMPACT RESISTANT.** Fibercrete® has about three times the impact resistance of ordinary concrete. In addition, the ground sleeves are designed with a reinforced top flange. The result is superior resistance to damage or abrasion from mowers, snow plows, and vandals.
- **RODENT PROOF.** Tough Fibercrete® is resistant to gnawing animals.
- **FLAT & RIGID.** Modular Ground Sleeves will not warp, providing a safe and secure installation. The rigidity of Fibercrete® resists the "racking" and door jamming that can occur if equipment enclosures do not rest on a level surface.
- **NATURAL APPEARANCE.** Smooth, stone-like surfaces blend with natural environment.



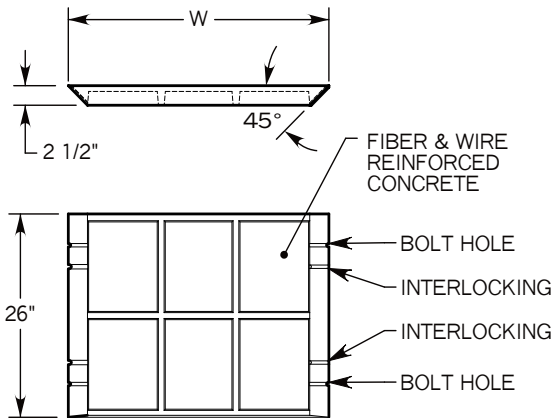
Modular Ground Sleeves are shipped unassembled to reduce shipping costs.

Features:

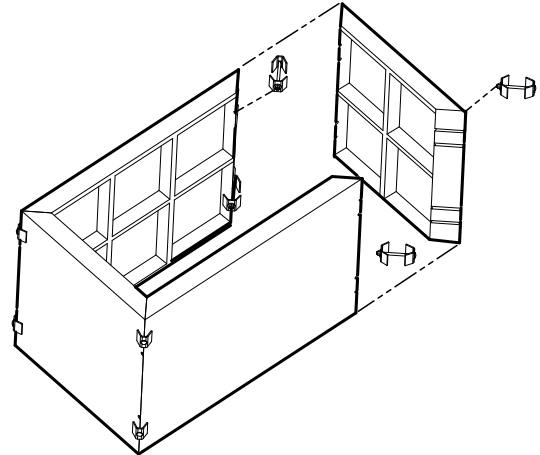
- **WAFFLE PANEL DESIGN.** Fibercrete® MGS' unique waffle panel design reduces weight, makes handling easier, and greatly reduces shipping cost.
- **PATENTED MODULAR DESIGN.** The patented Ground Sleeve offers a wide range of flexibility with its four part interlocking wall.

MGS Sizing & Ordering

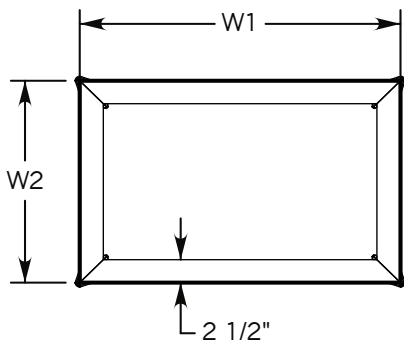
SIDE PANEL DETAIL



MGS EXPLODED VIEW



TOP VIEW ASSEMBLY DETAIL



ORDERING OPTIONS:

Modular Ground Sleeves can be purchased as individual side panels or as an unassembled unit. See examples below:

INDIVIDUAL SIDE PANEL METHOD:

MG-20 (QTY=2)
MG-38 (QTY=2)

UNIT METHOD:

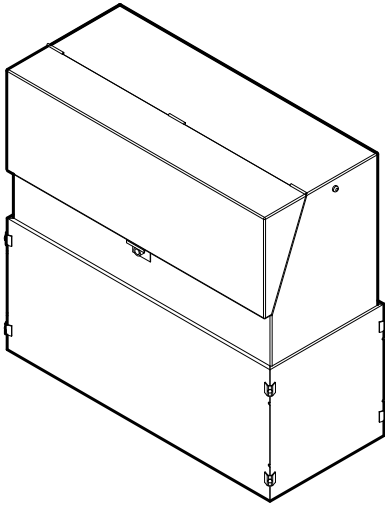
MGS-20-38 (QTY=1)

Hardware is automatically included. When ordering individual panels, 1 hardware kit is supplied for every 4 panels. For more hardware information see www.concastinc.com/Modular_Ground_Sleeves/accessories/hardware

Preassembled MGS units can be purchased.

FIBERCRETE [®] MGS SIDE PANEL	"W" PANEL WIDTH
MG-15	15"
MG-18	18"
MG-20	20"
MG-22	22"
MG-26	26"
MG-30	30"
MG-34	34"
MG-36	36"
MG-38	38"
MG-42	42"
MG-44	44"
MG-48	48"
MG-50	50"
MG-54	54"
MG-56	56"
MG-60	60"
MG-64	64"
MG-67	67"
MG-74	74"
MG-78	78"

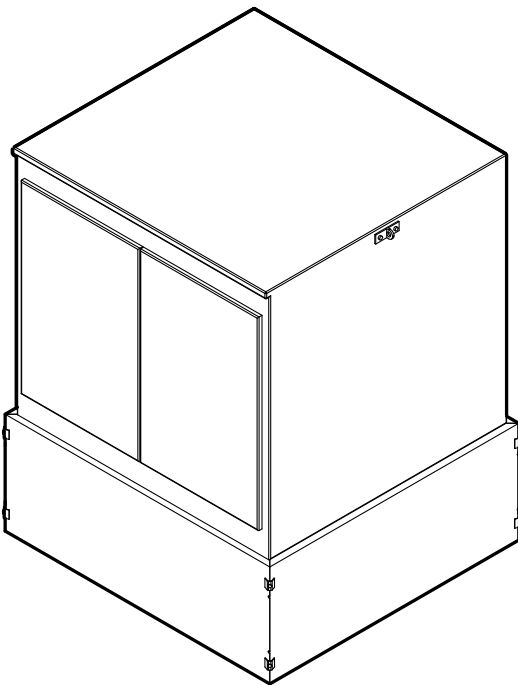
- **PROPER MATING:** All ground sleeve panels are designed with interlocking corner joints to prevent vertical shifting
- **ADDED DEPTH:** The standard depth of all Modular Ground Sleeves is 26 inches. For additional depth, units can be stacked. See pg. 81.
- **VERSATILITY:** Modular Ground Sleeves have many uses such as electrical equipment bases, handholes, junction/splice boxes, and pull boxes.
- **PDF DRAWINGS:** Drawings of each of the listed side panels are available in PDF format online at www.concastinc.com/Modular_Ground_Sleeves/MGS_Panels



- The vertical sidewalls of the Concast, Inc. Modular Ground Sleeves allow minimal excavation.
- Maximum cable opening is achieved via the 2-1/2" top flange making these boxes ideal for sectionalizers.

SECTIONALIZER MGS UNITS

MGS UNIT	MGS OUTSIDE DIMS	MGS OPENING DIMS
MGS-15-26	15 X 26	10 X 21
MGS-15-60	15 X 60	10 X 55
MGS-18-26	18 X 26	13 X 21
MGS-18-30	18 X 30	13 X 25
MGS-18-48	18 X 48	13 X 43
MGS-18-60	18 X 60	13 X 55
MGS-22-30	22 X 30	17 X 25
MGS-22-36	22 X 36	17 X 31
MGS-22-60	22 X 60	17 X 55
MGS-22-66	22 X 66	17 X 61
MGS-22-78	22 X 78	17 X 73



SWITCHGEAR MGS UNITS

MGS UNIT	MGS OUTSIDE DIMS	MGS OPENING DIMS
MGS-36-38	36 x 38	31 x 33
MGS-42-54	42 x 54	37 x 49
MGS-42-68	42 x 68	37 x 63
MGS-44-58	44 x 58	39 x 53
MGS-44-66	44 x 66	39 x 61
MGS-64-68	64 x 68	59 x 63
MGS-68-72	68 x 72	63 x 67
MGS-74-78	74 x 78	69 x 73

Although ground sleeves are traditionally used in conjunction with sectionalizing cabinets, they also make a great and economical basement for switchgear and other larger equipment enclosures.

The part numbers listed on this page are just some of Concast's common Modular Ground Sleeve sizes. For additional sizes, please contact your local Concast Representative. To find your local areal Concast Representative, please visit our website at www.concastinc.com/Sales_Reps

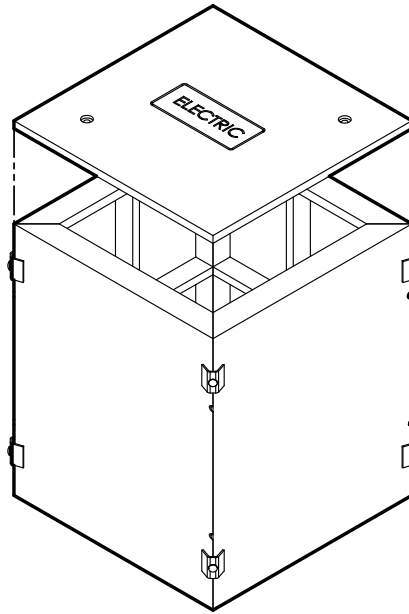
Modular Handholes & Covers

MODULAR HANDHOLES (MHH)

Any Modular Ground Sleeve can be used as a Modular Handhole. All handholes come standard with a Fibercrete® cover, which can be stamped with the client's desired markings.

MHH UNIT	MHH OUTSIDE DIMS	MHH OPENING DIMS
MHH-15-15	15 X 15	10 X 10
MHH-15-30	15 X 30	10 X 25
MHH-18-18	18 X 18	13 X 13
MHH-18-36	18 X 36	13 X 31
MHH-22-22	22 X 22	17 X 17
MHH-22-42	22 X 42	17 X 37
MHH-26-26	26 X 26	21 X 21
MHH-26-48	26 x 48	21 x 43

ANY MGS SIDE PANEL SIZE CAN BE USED FROM THE CHART ON PAGE 78.



COVER OPTIONS

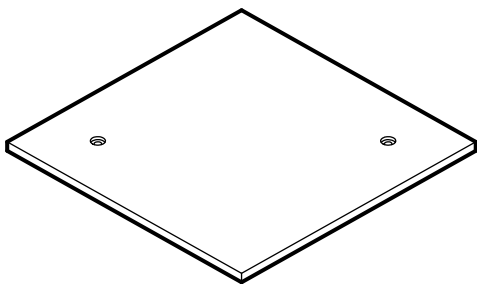
Standard handhole covers are un-stamped by default. To order a specific marking, choose from the list below, and append the appropriate letter to the part number.

IE: Part Number MHH-18-18-E is the complete Modular Handhole unit and includes the word "Electric" cast into the cover.

- C - COMMUNICATION
- E - ELECTRIC
- F - FIBER OPTIC
- G - GAS
- L - LIGHTING
- T - TELEPHONE



FIBERCRETE® MODULAR GROUND SLEEVE COVERS

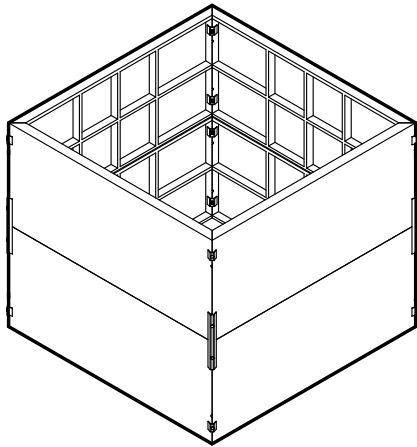


COVER OPTIONS:

- Fibercrete - 42-44-MGC
- Aluminum - IE: A-42-44-MGC
- Galvanized Steel - IE: SG-42-44-MGC

- For safety and security reasons, MGS covers are often used for delayed equipment installations in which a Modular Ground Sleeve unit is installed prior to the equipment.
- Covers are secured with tamper-proof pentahead bolts by default.
- MGS covers can be used for making any ground sleeve into a hand hole or junction box.
- Part number examples above are for a 42" x 44" MGS unit.

MODULAR GROUND SLEEVE STACKING



Standard Modular Ground Sleeves are 26 inches deep. When additional depth is required, ground sleeves can be stacked. Stacking hardware kits can be ordered under part number MGS-SH. These hardware kits are different from the standard corner hardware in that they include a continuous outside corner clamp that is used to tie the stacked sleeves together.

Stacked units are also supplied with industrial adhesive/sealant to seal and to tie the sleeves together at the joint. Additional sealant can be ordered under Concast part number 8004.

PRE-ASSEMBLY: Although units are generally delivered unassembled to save on shipping costs: any MGS unit, whether standard or stacked; can be pre-assembled at the factory and shipped as one rigid unit.

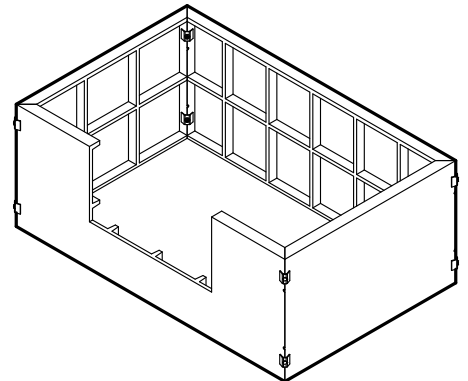


HOLES AND KNOCKOUTS

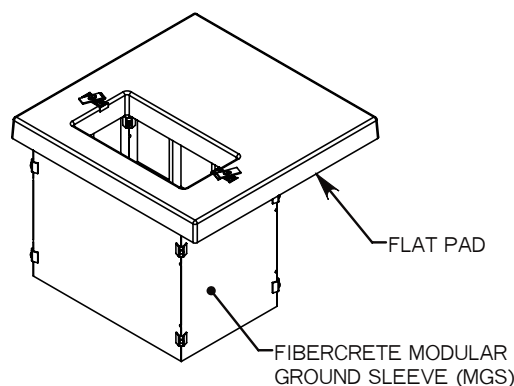
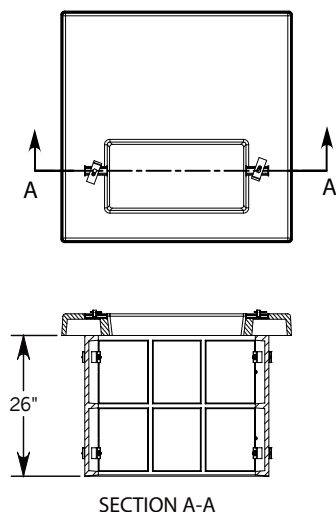
When conduit/cables cannot be routed deep enough to enter the bottom of Modular Ground Sleeve units, holes or knockouts may be provided in the sidewall panel. Also, occasionally trench channel can open into an MGS unit; causing it to perform as a pull box (see image). Fibercrete® can also be drilled with any masonry tools onsite. Concast can predrill or void out any required openings.

Common Situations Requiring MGS Holes and Knockouts:

- When used in conjunction with the Concast trench system
- For duct bank or conduit entry.
- For substation control building applications.



FLAT PAD SYSTEM WITH A MODULAR GROUND SLEEVE



For some flat pad installations, a Fibercrete® MGS or Modular Ground Sleeve unit can be used to create more cable training space. A small hole is excavated for the ground sleeve and the flat pad is placed on top of it. See our Modular Ground Sleeve catalog for more information.

MGS Accessories

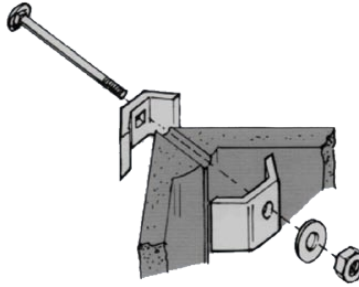
MGS HARDWARE KIT: P/N MGS-H

A hardware kit is included with every Modular Ground Sleeve unit. Corner Clamps are provided for assembling MGS. C-Clamps are provided to attach equipment to the top flange of the modular base. All hardware is Yellow Zinc plated (other finishes are available).

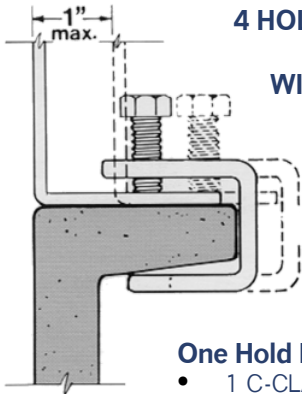
8 CORNER CLAMPS ARE FURNISHED WITH EACH MGS BASE

One Corner Clamp Includes:

- 1 Carriage Bolt (5/16" Dia. x 4-1/2")
- 1 Outside Corner Clamp
- 1 Inside Corner Clamp
- 1 Washer
- 1 Hex. Nut (5/16 inch Dia.)

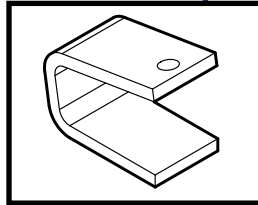


4 HOLD DOWN CLAMPS ARE FURNISHED WITH EACH MGS BASE



One Hold Down Clamp Includes:

- 1 C-CLAMP
- 1 Hex. Bolt (3/8" Dia. x 1")



SEALANT



Vulkem polyurethane sealant is colored concrete gray and can be ordered under Concast P/N: 8004. It is delivered in tubes and is designed for use on poured and precast concrete surfaces. Vulkem 116 has demonstrated superior primerless adhesion to porous substrates for over 30 years and is the sealant of choice for commercial industrial expansion joints.

PATCH KITS

PK-1 Patch Kit:

- Used for cosmetic repairs.
- Kit is complete with everything you need for small concrete repairs, including patching compound, bucket, and a trowel.

PK-2 Patch Kit:

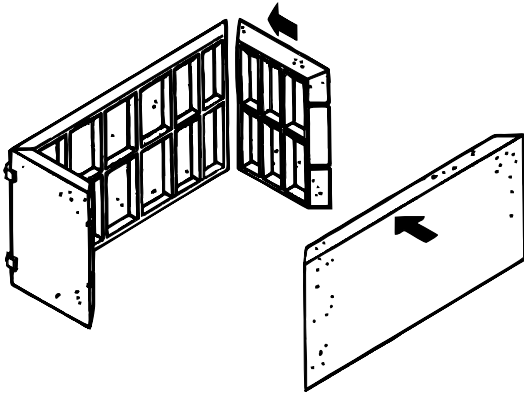
- Ideal for patching holes in non-structural concrete sections.
- Kit consists of a large Fibercrete® patch sheet (1/2" thick by 12" sq.) which is cut to size, and then a construction adhesive or Tapcon screws are used to attach the patch over the hole.



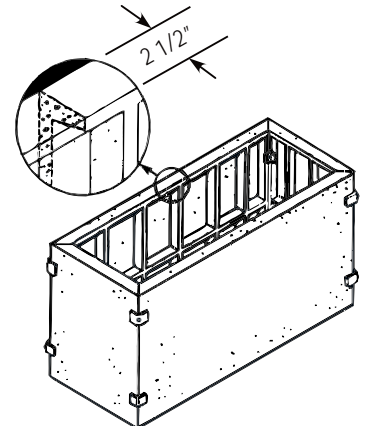
GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your precast box pads by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.





Modular Ground Sleeves have a top and a bottom surface. The top side is flat and the bottom side has a slight draft. An up arrow is located on the inside of each panel to identify the correct orientation. To ensure that the unit is installed correctly, please follow the directions below.



STEP 1



Align two of the side panels in the correct upright position. Ensure that the interlocking corners are properly mated. Bolt the corner together using the provided hardware. Copy this step in all 4 corners.

STEP 2



If the ground sleeve is not assembled in the excavated hole, its placement can be done in one of two ways. Small lightweight units can be placed by hand. Larger units may need hoisting equipment. See www.concastinc.com

STEP 3



Once the ground sleeve is in the desired location, check to ensure that the unit is level, and that the entire bottom flange is supported equally. Then backfill the hole to the desired grade level.

STEP 4



Center the electrical equipment onto the ground sleeve. Using the provided hold-down C-Clamps, attach the equipment to the top flange of the ground sleeve.

Modular Ground Sleeve Specifications

GENERAL SPECIFICATIONS FOR MODULAR GROUND SLEEVES

1. TECHNICAL SCOPE

- 1-A.** These specifications cover precast Fibercrete[®] (G.F.R.C.) modular ground sleeves manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The modular ground sleeves shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the pads for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B.** The tolerances of the dimensions of each Fibercrete[®] component shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** Corners of modular panels shall be designed with interlocking male and female parts to reduce vertical shifting of panels.
- 2-D.** MGS units shall be made available to fit design requirements and dimensions of the equipment being supported.
- 2-E.** Ground sleeve shall be of modular design and easily assembled by two people. It shall be composed of four vertical sidewall panels and a hardware kit.
- 2-F.** The sidewalls shall be constructed with internal ribs/waffles to increase strength and unit integrity, while reducing the overall weight of the unit.
- 2-G.** The ground sleeve shall have a rigid, flat, and stable top surface.
- 2-H.** The ground sleeve shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it will be able to withstand repeated freeze and thaw cycles.
- 2-I.** The flat pad color shall be a natural concrete gray unless otherwise required and agreed upon.
- 2-J.** Each MGS unit shall be equipped with equipment hold-down accommodations.
- 2-K.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".

- 3-D.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-E.** Concrete shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.
- 3-F. PREMIX GFRC - FIBERCRETE®**
 - 3-F.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and a deformed prefabricated high tensile welded steel wire. It is fabricated via casting into steel forms.
- 3-G. REINFORCEMENT**
 - 3-G.1** Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".
 - 3-G.2** Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".
 - 3-G.3** Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".
- 3-H.** The ground sleeve must not be affected by asphalt, transformer oil, other common chemicals, weather, or other normal service conditions that it might be exposed to.
- 3-I** The ground sleeve must not warp, rust, be UV degradable, or sustain combustion.
- 3-J.** With equipment installed; the ground sleeve shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03.
- 3-K.** When required, site-specific, PE stamped, seismic calculations shall be provided.
- 3-L.** Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

4. INSTALLATION REQUIREMENTS

- 4-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed flat pad foundation grade with a thoroughly compacted granular material.
- 4-B.** All backfill material shall be a granular material as required by the soils engineer. MGS units shall be designed to have no limitations of backfill height. Backfill should not be bulldozed or dropped directly on the MGS unit.
- 4-C.** Installation guidelines shall be made available online.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN



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Phone: 507-732-4095
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August 2013





CONCAST

Fibercrete®

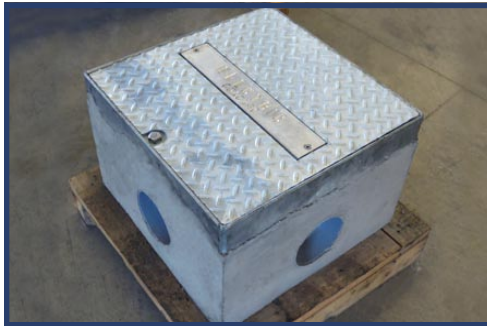
PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



HANDHOLE UNIT

Handhole Overview

TYPES OF CONCAST HANDHOLE UNITS



**TRAFFIC RATED
FHR, FHRSL & FHRSLP SERIES**



**PEDESTRIAN RATED
FH SERIES**

- Fibercrete® FH series handholes have a very high strength to weight ratio; yielding a relatively lightweight though extremely tough unit that saves on handling and shipping costs.
- FH series handholes can be nested together to save on shipping and storage space.
- Fibercrete FH handholes are pedestrian rated.
- Concrete FHR series handholes are designed for heavy traffic applications such as driveways & parking lots.
- Standard FH & FHR covers are bolted down via PentaHead bolts for a tamper-proof unit.
- Optional FHRSL & FHRSLP covers are bolted down with Concast's unique SureLock bolts which can only be removed using the Concast-supplied tool.
- The FHRSLP offers an additional layer of security; a SureLock bolt is used to secure an access cover to a padlock cavity within the box.
- All Concast handhole covers have a textured surface, and are available with identifying lettering, i.e.: "ELECTRIC".

Guide Specifications

Pedestrian Rated Handholes units shall be constructed with Concast Fibercrete®. They shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Detail Drawings Provided

Concast will provide detail drawings for engineering approval, and to assist the construction crew with installation. Drawings will show overall handholes size, opening size, weight, and any accessories required.

You can access the installation guidelines online at www.concastinc.com; keyword "guidelines"

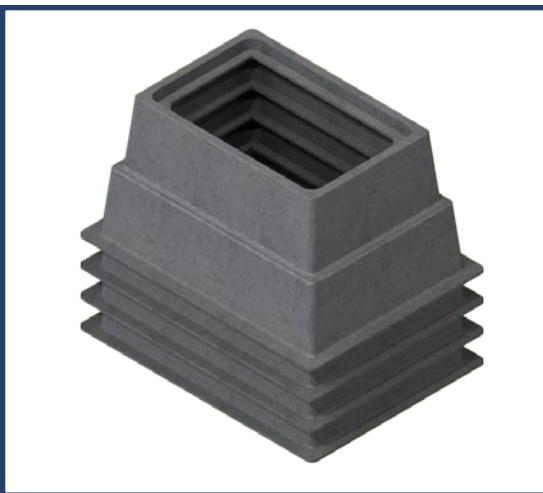
REDUCE INSTALLATION COSTS WITH CONCAST'S FIBERCRETE® OR CONCRETE HANDHOLES

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

- **HANDLING IS EASY.** A crew of 2 or 3 can install a Fibercrete® FH series handhole without using hoisting equipment. The lightweight construction saves on shipping costs.
- **HIGH STRENGTH MATERIAL.** Fibercrete® fabrication makes possible a thin wall with high strength; while providing safe, reliable support for electrical access.
- **LONG LIFE.** Concrete construction means long life, plus fire and corrosion resistance. Inert mineral composition resists temperature extremes, rain, and UV degradation.
- **IMPACT RESISTANT.** Fibercrete® has about three times the impact resistance of ordinary concrete. In addition, the handholes are designed with a reinforced top flange. The result is superior resistance to damage or abrasion from mowers, snow plows, and vandals.
- **RODENT PROOF.** Tough Fibercrete® is resistant to gnawing animals.
- **FLAT & RIGID.** Handholes will not warp, providing a safe and secure installation.
- **NATURAL APPEARANCE.** Smooth, stone-like surfaces blend with natural environment.



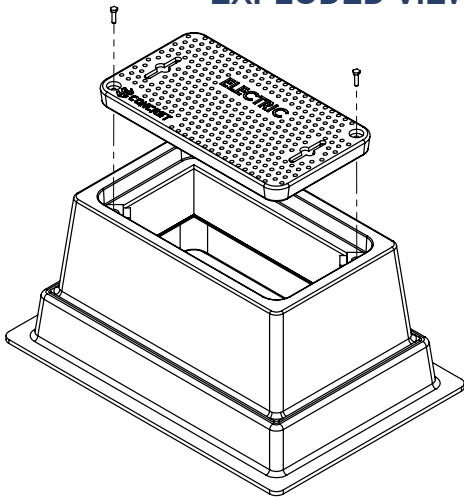
Pedestrian rated FH series handholes can be nested together to reduce shipping and storage costs.

Features:

- **FLUSH DESIGN.** Inset bolt-down hardware and handles allow the handhole unit to be buried up to the top edge of the cover.
- **MANY AVAILABLE SIZES.** All handhole series provide a wide variety of sizes to choose from.

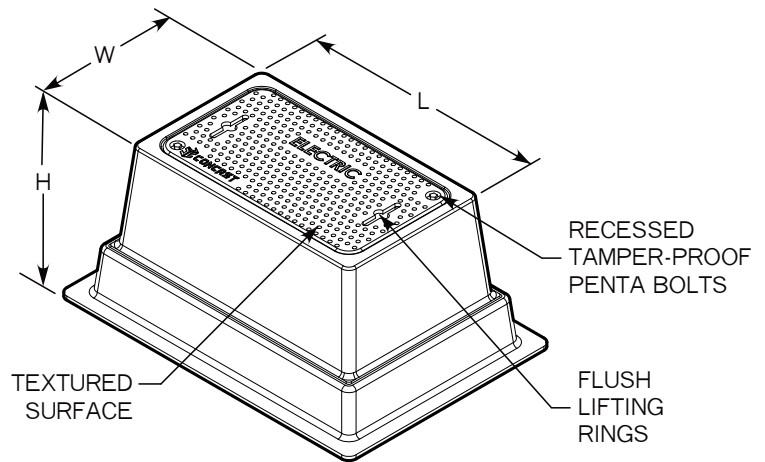
Pedestrian Rated FH Handholes

EXPLODED VIEW



PEDESTRIAN RATED HANDHOLE UNITS

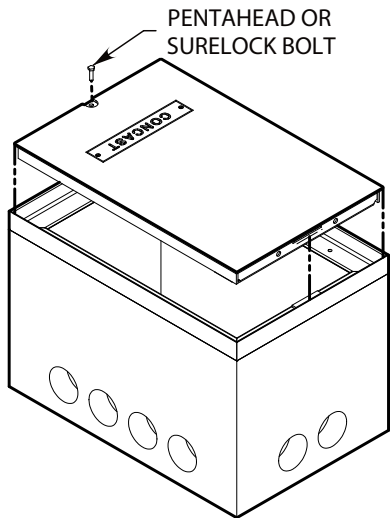
FH SERIES HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FH-18-18-12	18"	18"	12"	12"	12"
FH-18-18-18	18"	18"	18"	12"	12"
FH-18-30-12	18"	30"	12"	12"	24"
FH-18-30-18	18"	30"	18"	12"	24"
FH-18-30-24	18"	30"	24"	12"	24"
FH-24-36-12	24"	36"	12"	18"	30"
FH-24-36-18	24"	36"	18"	18"	30"
FH-24-36-24	24"	36"	24"	18"	30"
FH-24-36-30	24"	36"	30"	18"	30"



- **LIGHTWEIGHT ACCESS BOX:** Concast's line of customizable Fibercrete handhole units are a great alternative when you need a small access box with no bottom.
- **USER-FRIENDLY DESIGN:** All handhole covers come standard with an anti-slip surface & flush lifting handles. Easy change-out silicon bronze bolt-down nut in case of damage.
- **SECURE:** All handhole units incorporate penta-head bolt locking capabilities in the cover to make the units tamper-proof.
- **PDF DRAWINGS:** Drawings of each of the listed handhole units are available in PDF format online at www.concastinc.com/hand_holes/Pedestrian_Rated/index.php
- **CUSTOMIZABLE:** Units can have knockouts and/or holes included in the side-walls. They can also be built with utility identification markings cast into the covers. When ordering, please specify the marking that you want by appending the correct suffix to the part number. IE: FH-24-36-12-E would have "ELECTRIC" on the cover. See chart.

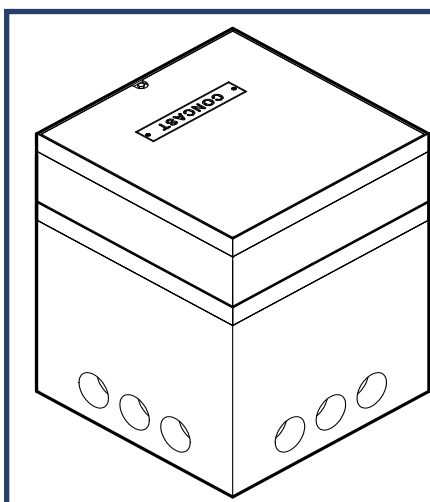
FH PART NO. SUFFIX	COVER MARKING
-C	COMMUNICATION
-E	ELECTRIC
-F	FIBER
-G	GAS
-L	LIGHT
-W	WATER
No Suffix	No Lettering

Traffic Rated FHR, FHRSL, & FHRSLP Handholes



- **TRAFFIC RATED ACCESS BOX:** Concast's line of customizable Fibercrete handhole units are a great alternative when you need a small access box with no bottom, that can stand up to traffic. These boxes meet AASHTO-H-20 heavy equipment of 32,000 LB. axle load when installed properly.
- **USER-FRIENDLY DESIGN:** All handhole covers come standard with an anti-slip galvanized steel surface and an aluminum lettering plate. All bases have 4" diameter Con-Duct terminators cast into the sidewalls for cable entry.
- **SECURE:** All handhole units incorporate either PentaHead or SureLock bolt locking capabilities in the cover to make the units tamper-proof. Each handhole shipment comes with the appropriate bolt tool for easy cover removal.
- **PDF DRAWINGS:** Drawings of each of the listed handhole units are available in PDF format online at www.concastinc.com/hand_holes/Traffic_Rated
- **CUSTOMIZABLE:** Units can have knockouts and/or extra holes included in the sidewalls. Other options include pulling eyes, threaded inserts, and unistrut. They can also be built with utility identification markings built into the covers. When ordering, please specify the marking that you want by appending the correct suffix to the part number. IE: FHR-24-36-12-E would have "ELEC" on the cover. See chart.

FHR PART NO. SUFFIX	COVER MARKING
-C	COMMUNICATION
-E	ELECTRIC
-F	FIBER
-G	GAS
-L	LIGHT
-W	WATER
No Suffix	CONCAST



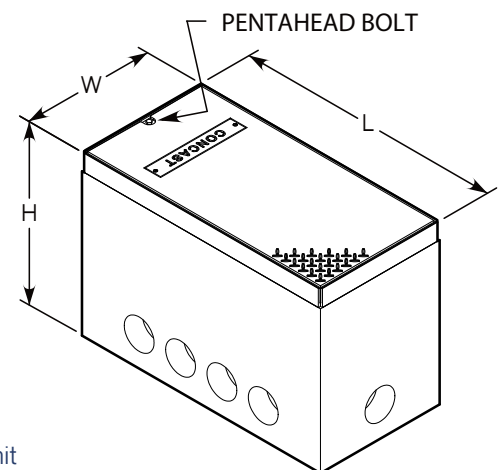
FHR EXTENSION SLEEVES

- **CUSTOM HEIGHTS ARE POSSIBLE:** Concast's traffic rated Handhole units can be made taller than the listed height in the chart via the use of their extension sleeves.
- **PART NUMBERING EXAMPLE:** A 12 inch extension for a 24" x 36" FHR series could be FHREX-24-36-12, FHREXSL-24-36-12 or FHREXSLP-24-36-12.
- **DRAWINGS ARE ONLINE:** PDF drawings of these extended FHR unit options are available online at www.concastinc.com/hand_holes/FHR_Extensions

Traffic Rated FHR Handholes

FHR SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHR-18-18-12	18"	18"	12"	12"	12"
FHR-18-18-18	18"	18"	18"	12"	12"
FHR-18-18-24	18"	18"	24"	12"	12"
FHR-18-18-30	18"	18"	30"	12"	12"
FHR-18-18-36	18"	18"	36"	12"	12"
FHR-18-24-12	18"	24"	12"	12"	18"
FHR-18-24-18	18"	24"	12"	12"	18"
FHR-18-24-24	18"	24"	24"	12"	18"
FHR-18-24-30	18"	24"	30"	12"	18"
FHR-18-24-36	18"	24"	36"	12"	18"
FHR-18-30-12	18"	30"	12"	12"	24"
FHR-18-30-18	18"	30"	18"	12"	24"
FHR-18-30-24	18"	30"	24"	12"	24"
FHR-18-30-30	18"	30"	30"	12"	24"
FHR-18-30-36	18"	30"	36"	12"	24"
FHR-18-36-12	18"	36"	12"	12"	30"
FHR-18-36-18	18"	36"	18"	12"	30"
FHR-18-36-24	18"	36"	24"	12"	30"
FHR-18-36-30	18"	36"	30"	12"	30"
FHR-18-36-36	18"	36"	36"	12"	30"
FHR-24-24-12	24"	24"	12"	18"	18"
FHR-24-24-18	24"	24"	18"	18"	18"
FHR-24-24-24	24"	24"	24"	18"	18"
FHR-24-24-30	24"	24"	30"	18"	18"
FHR-24-24-36	24"	24"	36"	18"	18"
FHR-24-30-12	24"	30"	12"	18"	24"
FHR-24-30-18	24"	30"	18"	18"	24"
FHR-24-30-24	24"	30"	24"	18"	24"
FHR-24-30-30	24"	30"	30"	18"	24"
FHR-24-30-36	24"	30"	36"	18"	24"

FHR SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHR-24-36-12	24"	36"	12"	18"	30"
FHR-24-36-18	24"	36"	18"	18"	30"
FHR-24-36-24	24"	36"	24"	18"	30"
FHR-24-36-30	24"	36"	30"	18"	30"
FHR-24-36-36	24"	36"	36"	18"	30"
FHR-30-30-12	30"	30"	12"	24"	24"
FHR-30-30-18	30"	30"	18"	24"	24"
FHR-30-30-24	30"	30"	24"	24"	24"
FHR-30-30-30	30"	30"	30"	24"	24"
FHR-30-30-36	30"	30"	36"	24"	24"
FHR-30-36-12	30"	36"	12"	24"	30"
FHR-30-36-18	30"	36"	18"	24"	30"
FHR-30-36-24	30"	36"	24"	24"	30"
FHR-30-36-30	30"	36"	30"	24"	30"
FHR-30-36-36	30"	36"	36"	24"	30"
FHR-30-48-12	30"	36"	12"	24"	42"
FHR-30-48-18	30"	36"	18"	24"	42"
FHR-30-48-24	30"	36"	24"	24"	42"
FHR-30-48-30	30"	36"	30"	24"	42"
FHR-30-48-36	30"	36"	36"	24"	42"



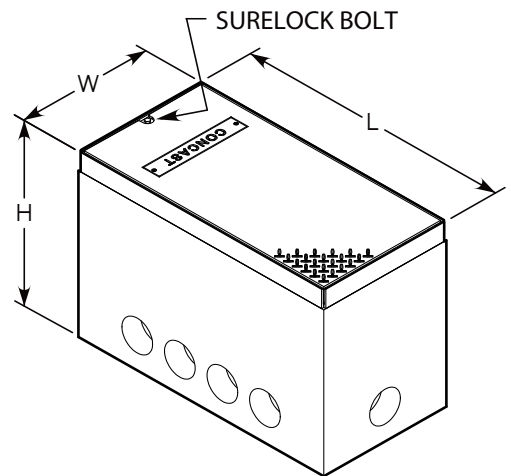
The part numbers listed on this page are some of Concast's common handhole unit sizes. They can all be viewed online at www.concastinc.com/hand_holes/Traffic_Rated

Fibercrete® Handholes

Traffic Rated FHRSL Handholes

FHRSL SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHRSL-18-18-12	18"	18"	12"	12"	12"
FHRSL-18-18-18	18"	18"	18"	12"	12"
FHRSL-18-18-24	18"	18"	24"	12"	12"
FHRSL-18-18-30	18"	18"	30"	12"	12"
FHRSL-18-18-36	18"	18"	36"	12"	12"
FHRSL-18-24-12	18"	24"	12"	12"	18"
FHRSL-18-24-18	18"	24"	12"	12"	18"
FHRSL-18-24-24	18"	24"	24"	12"	18"
FHRSL-18-24-30	18"	24"	30"	12"	18"
FHRSL-18-24-36	18"	24"	36"	12"	18"
FHRSL-18-30-12	18"	30"	12"	12"	24"
FHRSL-18-30-18	18"	30"	18"	12"	24"
FHRSL-18-30-24	18"	30"	24"	12"	24"
FHRSL-18-30-30	18"	30"	30"	12"	24"
FHRSL-18-30-36	18"	30"	36"	12"	24"
FHRSL-18-36-12	18"	36"	12"	12"	30"
FHRSL-18-36-18	18"	36"	18"	12"	30"
FHRSL-18-36-24	18"	36"	24"	12"	30"
FHRSL-18-36-30	18"	36"	30"	12"	30"
FHRSL-18-36-36	18"	36"	36"	12"	30"
FHRSL-24-24-12	24"	24"	12"	18"	18"
FHRSL-24-24-18	24"	24"	18"	18"	18"
FHRSL-24-24-24	24"	24"	24"	18"	18"
FHRSL-24-24-30	24"	24"	30"	18"	18"
FHRSL-24-24-36	24"	24"	36"	18"	18"
FHRSL-24-30-12	24"	30"	12"	18"	24"
FHRSL-24-30-18	24"	30"	18"	18"	24"
FHRSL-24-30-24	24"	30"	24"	18"	24"
FHRSL-24-30-30	24"	30"	30"	18"	24"
FHRSL-24-30-36	24"	30"	36"	18"	24"

FHRSL SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHRSL-24-36-12	24"	36"	12"	18"	30"
FHRSL-24-36-18	24"	36"	18"	18"	30"
FHRSL-24-36-24	24"	36"	24"	18"	30"
FHRSL-24-36-30	24"	36"	30"	18"	30"
FHRSL-24-36-36	24"	36"	36"	18"	30"
FHRSL-30-30-12	30"	30"	12"	24"	24"
FHRSL-30-30-18	30"	30"	18"	24"	24"
FHRSL-30-30-24	30"	30"	24"	24"	24"
FHRSL-30-30-30	30"	30"	30"	24"	24"
FHRSL-30-30-36	30"	30"	36"	24"	24"
FHRSL-30-36-12	30"	36"	12"	24"	30"
FHRSL-30-36-18	30"	36"	18"	24"	30"
FHRSL-30-36-24	30"	36"	24"	24"	30"
FHRSL-30-36-30	30"	36"	30"	24"	30"
FHRSL-30-36-36	30"	36"	36"	24"	30"
FHRSL-30-48-12	30"	36"	12"	24"	42"
FHRSL-30-48-18	30"	36"	18"	24"	42"
FHRSL-30-48-24	30"	36"	24"	24"	42"
FHRSL-30-48-30	30"	36"	30"	24"	42"
FHRSL-30-48-36	30"	36"	36"	24"	42"



The part numbers listed on this page are some of Concast's common handhole unit sizes. They can all be viewed online at www.concastinc.com/hand_holes/Traffic_Rated

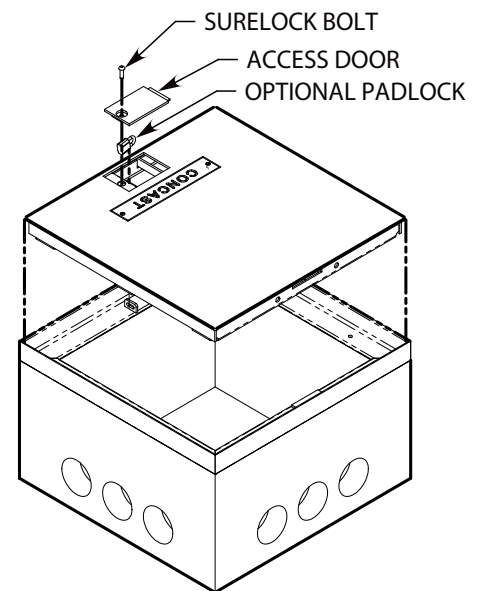
Fibercrete® Handholes

Traffic Rated FHRSLP Handholes

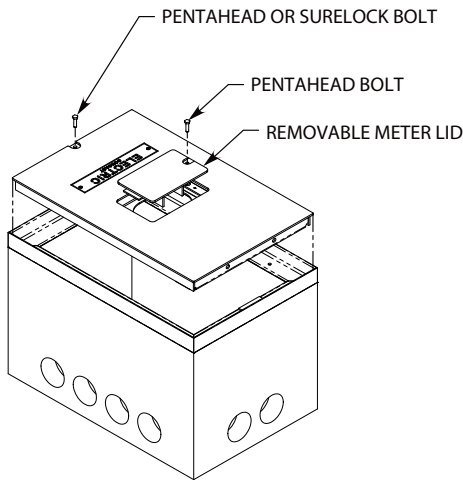
FHRSLP SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHRSLP-18-18-12	18"	18"	12"	12"	12"
FHRSLP-18-18-18	18"	18"	18"	12"	12"
FHRSLP-18-18-24	18"	18"	24"	12"	12"
FHRSLP-18-18-30	18"	18"	30"	12"	12"
FHRSLP-18-18-36	18"	18"	36"	12"	12"
FHRSLP-18-24-12	18"	24"	12"	12"	18"
FHRSLP-18-24-18	18"	24"	12"	12"	18"
FHRSLP-18-24-24	18"	24"	24"	12"	18"
FHRSLP-18-24-30	18"	24"	30"	12"	18"
FHRSLP-18-24-36	18"	24"	36"	12"	18"
FHRSLP-18-30-12	18"	30"	12"	12"	24"
FHRSLP-18-30-18	18"	30"	18"	12"	24"
FHRSLP-18-30-24	18"	30"	24"	12"	24"
FHRSLP-18-30-30	18"	30"	30"	12"	24"
FHRSLP-18-30-36	18"	30"	36"	12"	24"
FHRSLP-18-36-12	18"	36"	12"	12"	30"
FHRSLP-18-36-18	18"	36"	18"	12"	30"
FHRSLP-18-36-24	18"	36"	24"	12"	30"
FHRSLP-18-36-30	18"	36"	30"	12"	30"
FHRSLP-18-36-36	18"	36"	36"	12"	30"
FHRSLP-24-24-12	24"	24"	12"	18"	18"
FHRSLP-24-24-18	24"	24"	18"	18"	18"
FHRSLP-24-24-24	24"	24"	24"	18"	18"
FHRSLP-24-24-30	24"	24"	30"	18"	18"
FHRSLP-24-24-36	24"	24"	36"	18"	18"
FHRSLP-24-30-12	24"	30"	12"	18"	24"
FHRSLP-24-30-18	24"	30"	18"	18"	24"
FHRSLP-24-30-24	24"	30"	24"	18"	24"
FHRSLP-24-30-30	24"	30"	30"	18"	24"
FHRSLP-24-30-36	24"	30"	36"	18"	24"

FHRSLP SERIES H-20 RATED HANDHOLE	OUTSIDE WIDTH "W"	OUTSIDE LENGTH "L"	OVERALL HEIGHT "H"	OPENING WIDTH	OPENING LENGTH
FHRSLP-24-36-12	24"	36"	12"	18"	30"
FHRSLP-24-36-18	24"	36"	18"	18"	30"
FHRSLP-24-36-24	24"	36"	24"	18"	30"
FHRSLP-24-36-30	24"	36"	30"	18"	30"
FHRSLP-24-36-36	24"	36"	36"	18"	30"
FHRSLP-30-30-12	30"	30"	12"	24"	24"
FHRSLP-30-30-18	30"	30"	18"	24"	24"
FHRSLP-30-30-24	30"	30"	24"	24"	24"
FHRSLP-30-30-30	30"	30"	30"	24"	24"
FHRSLP-30-30-36	30"	30"	36"	24"	24"
FHRSLP-30-36-12	30"	36"	12"	24"	30"
FHRSLP-30-36-18	30"	36"	18"	24"	30"
FHRSLP-30-36-24	30"	36"	24"	24"	30"
FHRSLP-30-36-30	30"	36"	30"	24"	30"
FHRSLP-30-36-36	30"	36"	36"	24"	30"
FHRSLP-30-48-12	30"	36"	12"	24"	42"
FHRSLP-30-48-18	30"	36"	18"	24"	42"
FHRSLP-30-48-24	30"	36"	24"	24"	42"
FHRSLP-30-48-30	30"	36"	30"	24"	42"
FHRSLP-30-48-36	30"	36"	36"	24"	42"

The part numbers listed on this page are some of Concast's common handhole unit sizes. They can all be viewed online at www.concastinc.com/hand_holes/Traffic_Rated_SureLock



Fibercrete® Handholes



METER LID OPTION

- A PentaHead bolt secures the removable meter lid.
- Galvanized steel meter lid is approximately 8 pounds, so it is very easy to remove in the field.
- Can be incorporated into most FHR-style covers.
- Handholes with the meter lid options have "ML" in the prefix; ie, FHRML-24-36-18
- Available sizes are 18x24, 18x30, 18x36, 24x24, 24x30, 24x36, 30x30, 30x36 & 30x48
- www.concastinc.com/hand_holes/Traffic_Rated/Meter_Lids

CON-DUCT TERMINATORS



Concast offers plastic cable conduit terminators called Con-Duct. Each piece is cast into the concrete side wall and provides a smooth edge for pulling cables. The center plastic membrane can be knocked out when you are ready to use the opening.

All traffic rated FHR units do come standard with 4" Con-Duct terminators already cast into the sidewalls. They are 6-1/4" apart on center. Other sizes and spacings are available upon request.

For more information, see our website at www.concastinc.com/accessories/Con-Duct or contact your local Concast sale representative. You can find yours at www.concastinc.com/Sales_Reps

REDUCING COUPLERS

- The perfect solution for transitions from multiple sizes of PVC pipe into the standard Con-Duct terminators cast into Concast Handhole units.
- They can be cut to fit the following PVC pipe sizes: 1 inch, 1.5 inch, 2 inch, 2.5 inch, 3 inch, and 3.5 inch.
- Reducing Couplers are to be ordered under part number RC41.



FHR COVER LIFT/LOCK TOOL

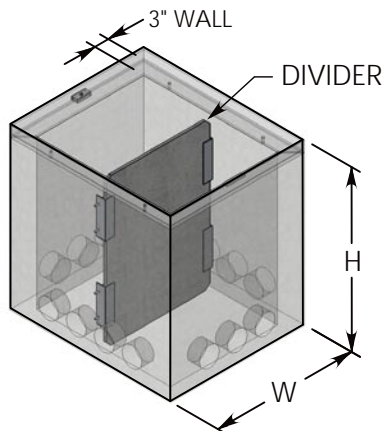


- Lifting tools are available for the traffic rated FHR-style handholes.
- Designed to secure the locking penta head bolts.
- Ensures an easy manual lift via the bolt clearance hole.
- Tool is intended to lift parts under 120 pounds.
- PentaHead Lift/lock tool is part number 8000P.
- SureLock bolt removal tool is part number 8000SL
- www.concastinc.com/accessories/lifting_equipment/FHR_Lift_Tool

Handhole Accessories

FHR DIVIDER PANELS

DIVIDER PANEL	HANDHOLE WIDTH "W"	HANDHOLE HEIGHT "H"
FHR-18-12-DIV	18"	12"
FHR-18-18-DIV	18"	18"
FHR-18-24-DIV	18"	24"
FHR-18-30-DIV	18"	30"
FHR-18-36-DIV	18"	36"
FHR-24-12-DIV	24"	12"
FHR-24-18-DIV	24"	18"
FHR-24-24-DIV	24"	24"
FHR-24-30-DIV	24"	30"
FHR-24-36-DIV	24"	36"
FHR-30-12-DIV	30"	12"
FHR-30-18-DIV	30"	18"
FHR-30-24-DIV	30"	24"
FHR-30-30-DIV	30"	30"
FHR-30-36-DIV	30"	36"
FHR-36-12-DIV	36"	12"
FHR-36-18-DIV	36"	18"
FHR-36-24-DIV	36"	24"
FHR-36-30-DIV	36"	30"
FHR-36-36-DIV	36"	36"
FHR-48-12-DIV	48"	12"
FHR-48-18-DIV	48"	18"
FHR-48-24-DIV	48"	24"
FHR-48-30-DIV	48"	30"
FHR-8-36-DIV	48"	36"



SWIVEL HOIST RING

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. Concast recommends using their 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



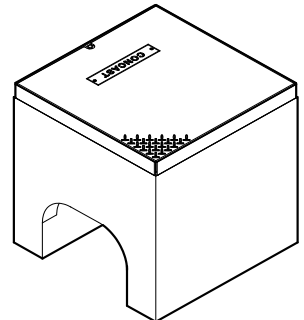
HOIST RING	THREADED ROD DIAMETER	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	1.5 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.

HOLES AND KNOCKOUTS

Conduit/cables are intended to enter the box via the terminators that are cast into the sidewall. When these will not work for your application, then specialty holes or knockouts may be provided by Concast. Handholes can be field-drilled with any masonry tools.

Examples of custom hole or and knockout situations:

- When used in conjunction with the Concast trench system
- For specific duct bank or conduit entry.
- For substation control building applications.
- For placing over existing cable or pipe.



4-WAY LIFT CHAIN

- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees



See the Concast website for available sizes, part number charts, and drawings of more accessories in PDF format.

GENERAL SPECIFICATIONS FOR HANDHOLES

1. TECHNICAL SCOPE

- 1-A.** These specifications cover precast Fibercrete® (G.F.R.C.) & Concrete handholes manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The handholes shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the pads for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B.** The tolerances of the dimensions of each handhole unit shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** Handhole shall be of sleeve design and easily assembled by two people. It shall be composed of a bottomless box, bolt-down accommodations, and a hardware kit. FHR units shall also include a penta-head lifting tool and cast-in Con-Duct terminations.
- 2-D.** The handhole bases shall have a rigid, flat, and stable top surface.
- 2-E.** Pedestrian rated FH cover bolt down assemblies shall have silicon bronze floating nut capable of being easily replaced if damaged.
- 2-F.** Provisions, such as cast-in threaded inserts, must be offered for lifting traffic rated handholes. Mounting holes must be adequately reinforced to avoid damaging the handhole, and to provide an ultimate strength of at least 5 times the part weight when the unit is lifted in accordance with the manufacturer's instructions.
- 2-G.** The handhole color shall be a natural concrete gray unless otherwise required and agreed upon.
- 2-H.** The handhole shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it will be able to withstand repeated freeze and thaw cycles.
- 2-I.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".
- 2-J.** Units must have been tested/evaluated to verify performance under ASTM designation A-16 (AASHTO HS20-44) loads. Testing performed in accordance with ANSI/SCTE 77 using the loads specified in ASTM C857.

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".

Handhole Specifications

- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-D. LAY-UP GFRC - (PART NUMBERS WITH FH PREFIX)**
- 3-D.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and deformed high tensile welded wire. It is fabricated via the Concast spray lay-up method which incorporates a minimum of 4 percent volume A.R. glass fibers.
- 3-D.2** Conforms to AIA Masterspec Section 03491 for Glass Fiber Reinforced Concrete and quality control procedures per PCI# MNL-130-91.
- 3-E. PREMIX GFRC - (PART NUMBERS WITH FH PREFIX)**
- 3-E.1** Composed of cement mortar reinforced by alkali resistant glass fiber, and a deformed prefabricated high tensile welded wire. It is fabricated via casting into steel forms.
- 3-E.2** Shall obtain a minimum compressive strength of 6000 PSI at 28 days of age.
- 3-F. MICRO-CONCRETE (PART NUMBERS WITH FHR PREFIX)**
- 3-F.1** Precast concrete handholes shall be cast into steel forms using Type I/II Portland Cement.
- 3-F.2** Concrete shall contain 6% entrained air (plus or minus 1%)
- 3-F.3** Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.
- 3-G. REINFORCEMENT**
- 3-G.1** Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".
- 3-G.2** Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".
- 3-G.3** Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".
- 3-H.** The handholes must not be affected by asphalt, transformer oil, other common chemicals, weather, or other normal service conditions that it might be exposed to.
- 3-I.** The handholes must not warp, rust, be UV degradable, or sustain combustion.
- 3-J.** With equipment installed; the handholes shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03.
- 3-K.** When required, site-specific, PE stamped, seismic calculations shall be provided.

3-L. Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.

3-M.

3-M.1 All galvanized steel covers, hardware, and embedments shall meet the following requirements:

- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
- Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
- Galvanized Hardware - ASTM 153

3-M.2 All stainless steel hardware and embedments shall meet the following requirements:

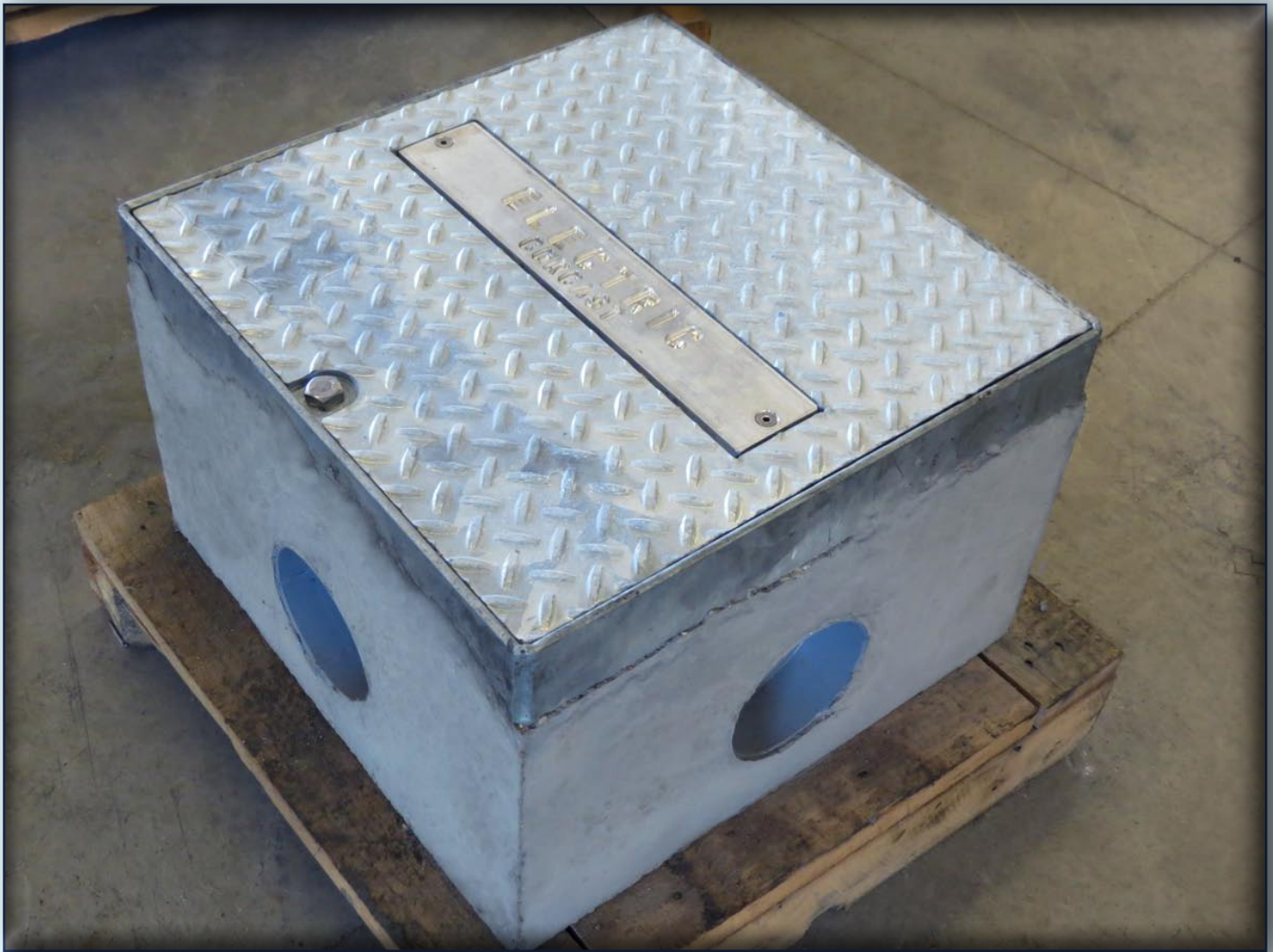
- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

3-M.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

4. INSTALLATION REQUIREMENTS

- 4-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-B.** All handhole excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-C.** All backfill material shall be a granular material as required by the soils engineer. Handhole unit shall be designed to have no limitations of backfill height.
- 4-D.** Installation guidelines shall be made available online.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN



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August 2013





CONCAST

Fibercrete®

PRECISELY ENGINEERED HIGH STRENGTH CONCRETE



URD VAULTS & UTILITY PULL BOXES

Vaults/Boxes Overview

IDEAL USES FOR CONCAST VAULTS & BOXES



VISTA URD EQUIPMENT



PULL BOX



SPECIALTY

- Concast vaults/boxes provide an enclosure for underground electrical equipment and can have a traffic rating ranging from pedestrian to AASHTO H20 heavy traffic rating.
- Concast's line of customizable concrete pull boxes are designed to interface perfectly with the Concast Fibercrete® Trench System next to control buildings for extra cable training room, or they can stand alone to be used for pulling cables.
- Concast is a leader in providing specialty concrete products to meet individual customer requirements and specifications.
- Concast, Inc. was founded in 1969 by Mr. Ben Tilsen, past owner and president. Ben was a concrete technologist known for his work in lightweight aggregates and fiber reinforced concrete.

Guide Specifications

Vaults/Boxes shall be constructed with Concast Fibercrete®. They shall be composed of cement mortar; and reinforced by alkali resistant fiber and deformed high tensile wire or rebar.

Complete recommended specifications can be found in this catalog and online at www.concastinc.com/product_specs/index.php

Detail Drawings Provided

Concast will provide detail drawings for engineering approval, and to assist the construction crew with installation. Drawings will show overall ground sleeve size, opening size, weight, and any accessories required.

You can access the installation guidelines online at www.concastinc.com; keyword "guidelines"

REDUCE INSTALLATION COSTS WITH CONCAST'S URD VAULTS/ UTILITY PULL BOXES

IN-PLACE COST IS LESS than site-cast concrete, conventional precast concrete, plastic mortars, or fiberglass plastics.



Benefits:

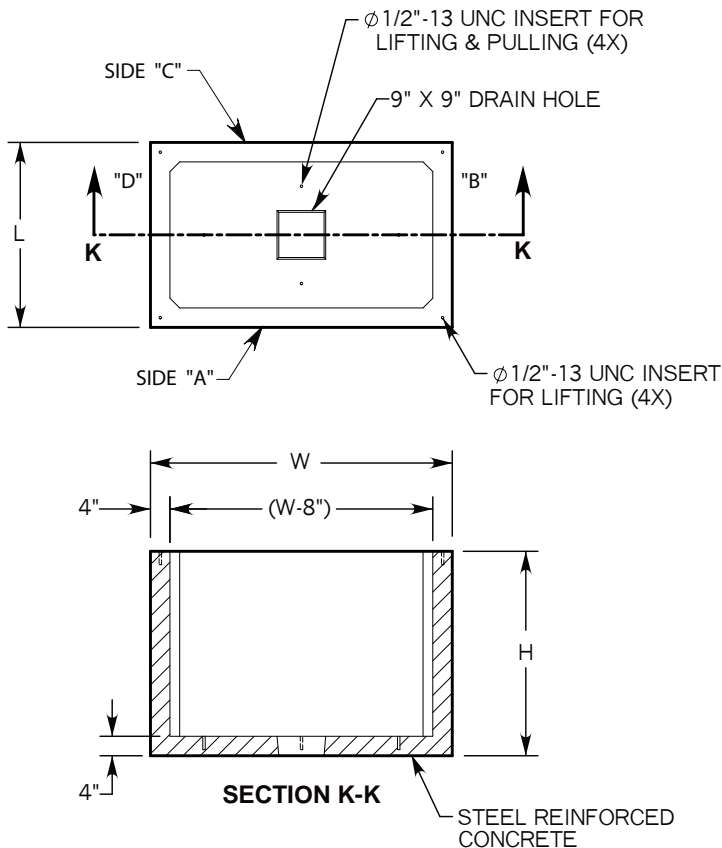
- **HANDLING IS EASY.** All Concast Vaults & Pull Boxes are supplied with cast-in lifting devices which prevent the need for unsafe slinging procedures.
- **HIGH STRENGTH MATERIAL.** A strong and durable mix design permits a thinner wall than poured-in-place concretes. This also provides a safe and reliable electrical enclosure suitable for numerous applications.
- **LONG LIFE.** Concrete construction results in long product life plus fire and corrosion resistance. Inert mineral composition stands up to temperature extremes, rain, and UV degradation.
- **WIDE RANGE OF SIZES.** Concast offers many different box sizes to fit your needs. Everything from small lightweight Modular Handholes to large stackable traffic rated concrete enclosures are available.
- **MANY USES.** Concast has a wide range of sizes and a reputation for meeting customers special requirements. Examples include: Handholes, Splice Boxes, Pull boxes, Manholes, and Vaults.
- **TAMPER PROOF.** Vaults and Utility Pull Boxes can be provided with PentaHead or SureLock bolt-down covers to prevent tampering of equipment or cables. Padlocking vault covers are also available.
- **NATURAL APPEARANCE.** Smooth, stone-like surfaces blend with natural environment.



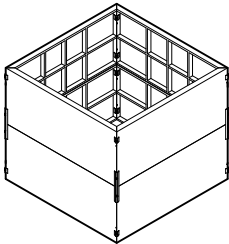
Features:

- **STACKABILITY.** Many Concast boxes can be stacked to meet your desired depth. Interlocking joints and/or steel hardware make stacked boxes very stable.
- **COVERS.** Concast can provide a wide range of cover materials and traffic ratings to fit many job applications.

Standard Small Pull Boxes



MODULAR GROUND SLEEVES

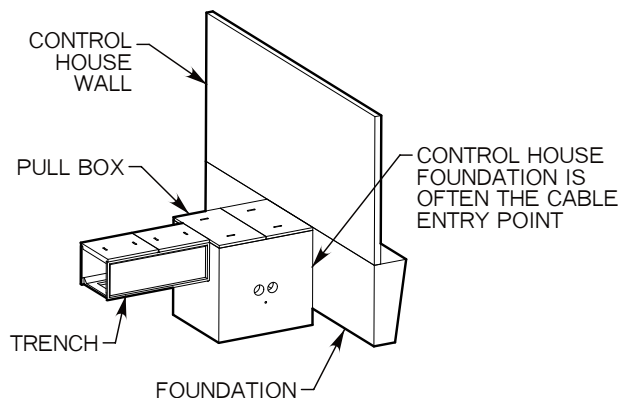
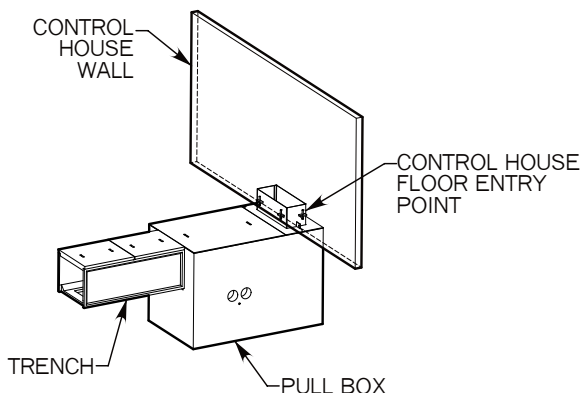


Concast also offers an MGS unit which can function as a light-weight Pull Box. They can be configured to many different sizes. The standard height is 26", but they can be stacked. See the MGS section or online.

- PULL BOXES CAN BE MADE TO ORDER.** If your requirements are not included in the standard pull box charts, please contact Concast or your local Concast sales representative with your design needs.
- GENERIC PDF DRAWINGS ARE ONLINE.** Drawings of each of the listed common pull boxes are available in PDF format online at www.concastinc.com/pull_boxes. These drawings are a great tool for communicating what customizations you require for your project.
- COVERS ARE INCLUDED.** The standard Pull Boxes come with covers and are designated on the chart. Cover options are driven by the pull box size; and they include Fibercrete, Aluminum, Galvanized Steel, Spring-Assisted Galvanized Steel, and Cast Iron. Bolt-down options are available for some steel and aluminum covers; they can use either Penta-Head or SureLock bolts supplied by Concast.
- MANHOLES:** Pull Boxes that utilize the manhole cover option can also utilize manhole rings to raise the height of the manhole opening in relation to the pull box surface. See page 105.
- OTHER AVAILABLE OPTIONS:** Pull Boxes can have knockouts, Con-Duct terminators, and/or extra holes included in the sidewalls. Other options include pulling eyes, threaded inserts, dividers, unistrut, and reducing couplers. These covers can be built with utility identification markings. When ordering, please specify the lettering that you want by appending the correct suffix to the part number, ie: PB-38-44-42-FC-E would have "ELECTRIC" on the cover. Solid bottom and completely open bottom boxes are available as alternate options to the standard 9" square drain hole.

TRENCH SYSTEM APPLICATIONS

Pull Boxes can be used with the Concast Fibercrete Trench System. Typical installations have the Pull box near the control building or at the end of a trench run. Pull Boxes can also stand alone in other substation applications. See illustrations below. For more information, refer to the trench system section of this catalog or to the Concast website.



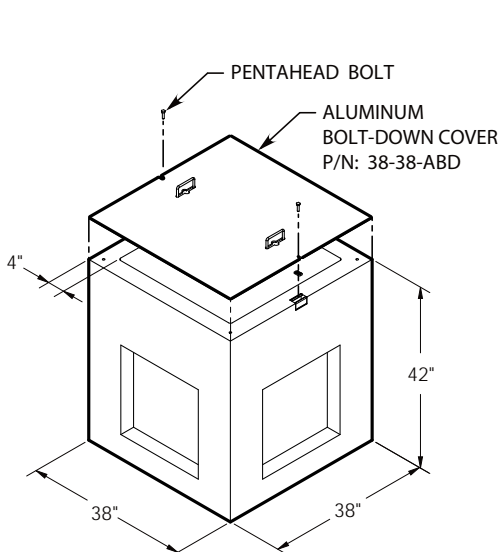
38 x 38 x 42 Concrete Pull Boxes

4" CON-DUCT TERMINATORS ON ALL 4 SIDES

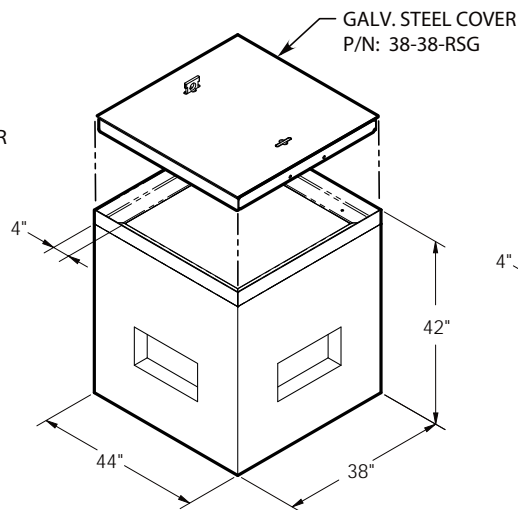
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-38-38-42-A	PB9-38-38-42-A	PB16-38-38-42-A	Pedestrian Rated Aluminum (1X) 38-38-A	Pedestrian Rated Aluminum (1X) 38-38-ABD	Pedestrian Rated Aluminum (1X) 38-38-ABDSL
PB4-38-38-42-FC	PB9-38-38-42-FC	PB16-38-38-42-FC	Pedestrian Rated Fibercrete (1X) 38-38-C	NA	NA
PB4-38-38-42-MH	PB9-38-38-42-MH	PB16-38-38-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-38-MH	NA	NA
PB4-38-38-42-RSG	PB9-38-38-42-RSG	PB16-38-38-42-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSGBDSL

KNOCKOUTS ON ALL 4 SIDES

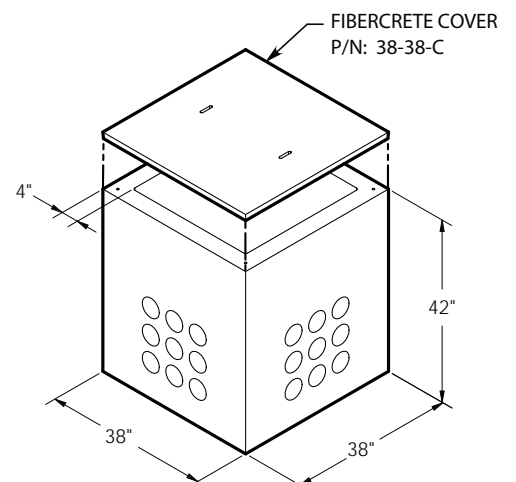
Version 1 20" x 20" KO's	Version 2 8" x 16" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-38-38-42-A	PBKO2-38-38-42-A	Pedestrian Rated Aluminum (1X) 38-38-A	Pedestrian Rated Aluminum (1X) 38-38-ABD	Pedestrian Rated Aluminum (1X) 38-38-ABDSL
PBKO1-38-38-42-FC	PBKO2-38-38-42-FC	Pedestrian Rated Fibercrete (1X) 38-38-C	NA	NA
PBKO1-38-38-42-MH	PBKO2-38-38-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-38-MH	NA	NA
PBKO1-38-38-42-RSG	PBKO2-38-38-42-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-38-RSGBDSL



PBKO1-38-38-42-ABD



PBKO2-38-38-42-RSG



PB9-38-38-42-FC

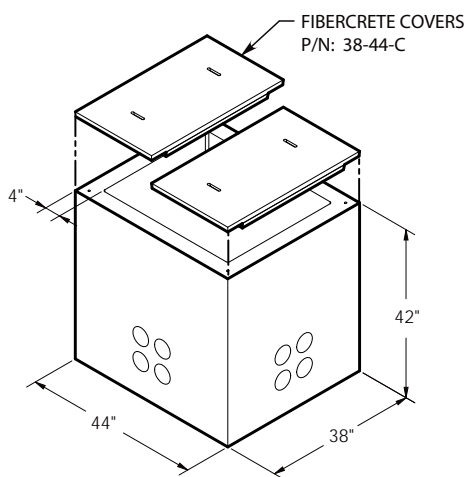
38 x 44 x 42 Pull Boxes

4" CON-DUCT TERMINATORS ON ALL 4 SIDES

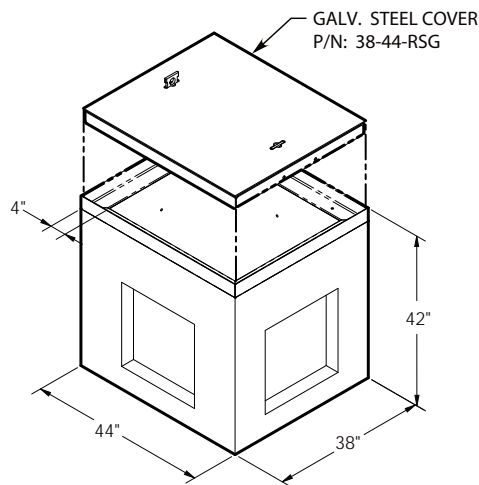
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-38-44-42-A	PB9-38-44-42-A	PB16-38-44-42-A	Pedestrian Rated Aluminum (1X) 38-44-A	Pedestrian Rated Aluminum (1X) 38-44-ABD	Pedestrian Rated Aluminum (1X) 38-44-ABDSL
PB4-38-44-42-FC	PB9-38-44-42-FC	PB16-38-44-42-FC	Pedestrian Rated Fibercrete (2X) 38-44-C	NA	NA
PB4-38-44-42-MH	PB9-38-44-42-MH	PB16-38-44-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-44-MH	NA	NA
PB4-38-44-42-RSG	PB9-38-44-42-RSG	PB16-38-44-42-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBDSL

KNOCKOUTS ON ALL 4 SIDES

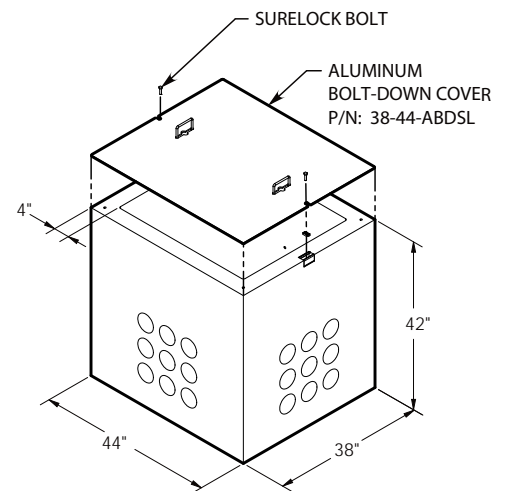
Version 1 20" x 20" KO's	Version 2 8" x 16" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-38-44-42-A	PBKO2-38-44-42-A	Pedestrian Rated Aluminum (1X) 38-44-A	Pedestrian Rated Aluminum (1X) 38-44-ABD	Pedestrian Rated Aluminum (1X) 38-44-ABDSL
PBKO1-38-44-42-FC	PBKO2-38-44-42-FC	Pedestrian Rated Fibercrete (2X) 38-44-C	NA	NA
PBKO1-38-44-42-MH	PBKO2-38-44-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-44-MH	NA	NA
PBKO1-38-44-42-RSG	PBKO2-38-44-42-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBDSL



PB4-38-44-42-FC



PBKO1-38-44-42-RSG



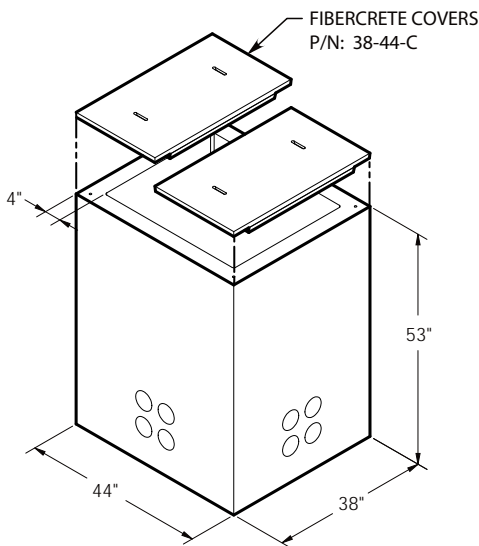
PB16-38-44-42-ABDSL

4" CON-DUCT TERMINATORS ON ALL 4 SIDES

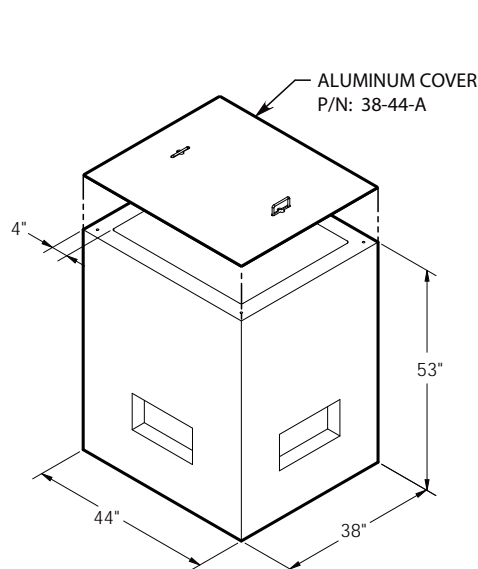
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-38-44-53-A	PB9-38-44-53-A	PB16-38-44-53-A	Pedestrian Rated Aluminum (1X) 38-44-A	Pedestrian Rated Aluminum (1X) 38-44-ABD	Pedestrian Rated Aluminum (1X) 38-44-ABDSL
PB4-38-44-53-FC	PB9-38-44-53-FC	PB16-38-44-53-FC	Pedestrian Rated Fibercrete (2X) 38-44-C	NA	NA
PB4-38-44-53-MH	PB9-38-44-53-MH	PB16-38-44-53-MH	H20 Heavy Traffic Cast Iron & Concrete 38-44-MH	NA	NA
PB4-38-44-53-RSG	PB9-38-44-53-RSG	PB16-38-44-53-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBDSL

KNOCKOUTS ON ALL 4 SIDES

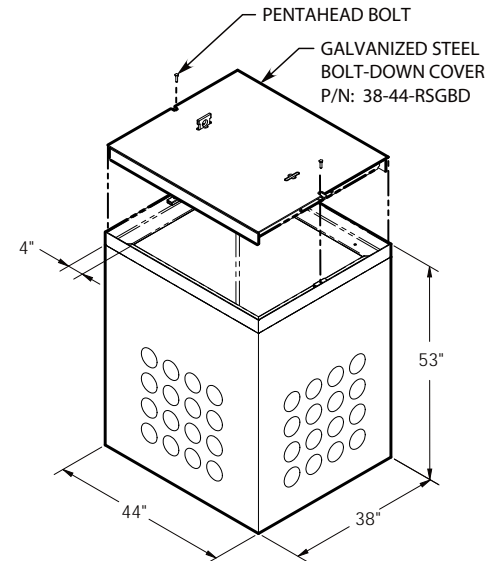
Version 1 20" x 20" KO's	Version 2 8" x 16" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-38-44-53-A	PBKO2-38-44-53-A	Pedestrian Rated Aluminum (1X) 38-44-A	Pedestrian Rated Aluminum (1X) 38-44-ABD	Pedestrian Rated Aluminum (1X) 38-44-ABDSL
PBKO1-38-44-53-FC	PBKO2-38-44-53-FC	Pedestrian Rated Fibercrete (2X) 38-44-C	NA	NA
PBKO1-38-44-53-MH	PBKO2-38-44-53-MH	H20 Heavy Traffic Cast Iron & Concrete 38-44-MH	NA	NA
PBKO1-38-44-53-RSG	PBKO2-38-44-53-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-44-RSGBDSL



PB4-38-44-53-FC



PBKO2-38-44-53-A



PB16-38-44-53-RSGBD

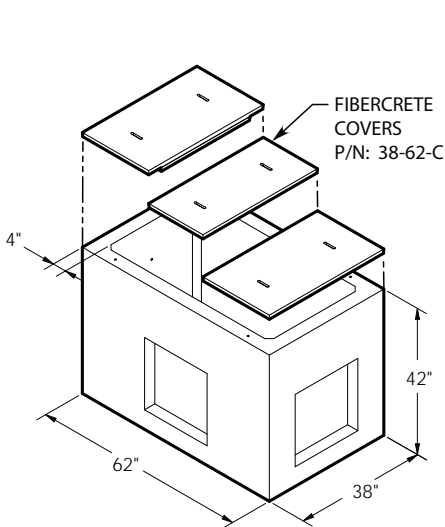
38 x 62 x 42 Pull Boxes

4" CON-DUCT TERMINATORS ON ALL 4 SIDES

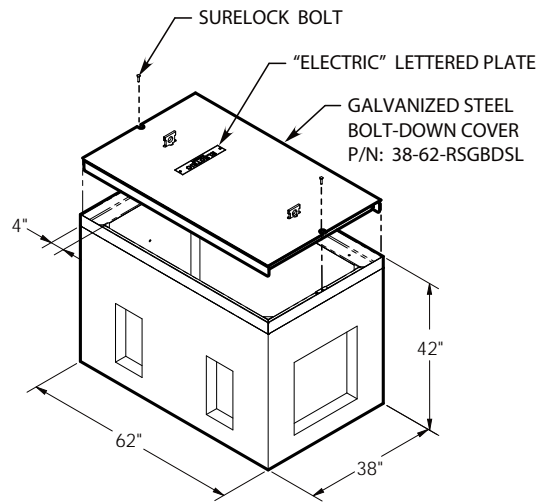
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-38-62-42-A	PB9-38-62-42-A	PB16-38-62-42-A	Pedestrian Rated Aluminum (2X) 38-62-A	Pedestrian Rated Aluminum (2X) 38-62-ABD	Pedestrian Rated Aluminum (2X) 38-62-ABDSL
PB4-38-62-42-FC	PB9-38-62-42-FC	PB16-38-62-42-FC	Pedestrian Rated Fibercrete (3X) 38-62-C	NA	NA
PB4-38-62-42-MH	PB9-38-62-42-MH	PB16-38-62-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-62-MH	NA	NA
PB4-38-62-42-RSG	PB9-38-62-42-RSG	PB16-38-62-42-RSG	H20 Heavy Traffic Galv. Steel (2X) 38-62-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBDSL

KNOCKOUTS ON ALL 4 SIDES

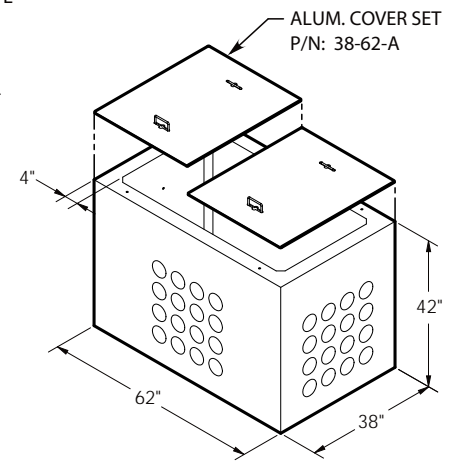
Version 1 20" x 20" KO's	Version 2 8" x 16" x 3" & 20" x 20" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-38-62-42-A	PBKO2-38-62-42-A	Pedestrian Rated Aluminum (2X) 38-62-A	Pedestrian Rated Aluminum (2X) 38-62-ABD	Pedestrian Rated Aluminum (2X) 38-62-ABDSL
PBKO1-38-62-42-FC	PBKO2-38-62-42-FC	Pedestrian Rated Fibercrete (3X) 38-62-C	NA	NA
PBKO1-38-62-42-MH	PBKO2-38-62-42-MH	H20 Heavy Traffic Cast Iron & Concrete 38-62-MH	NA	NA
PBKO1-38-62-42-RSG	PBKO2-38-62-42-RSG	H20 Heavy Traffic Galv. Steel (2X) 38-62-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBDSL



PBKO1-38-62-42-FC



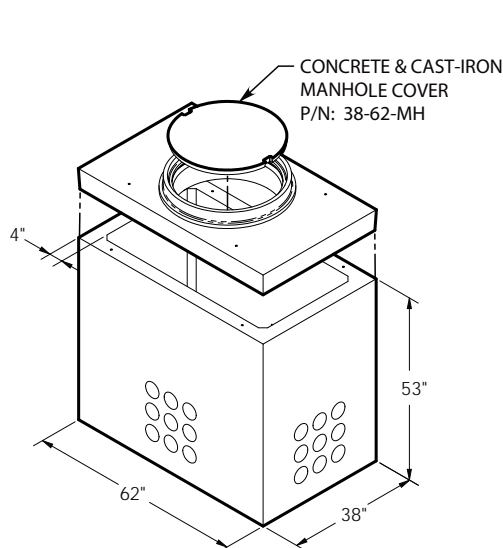
PBKO2-38-62-42-RSGBDSL-E



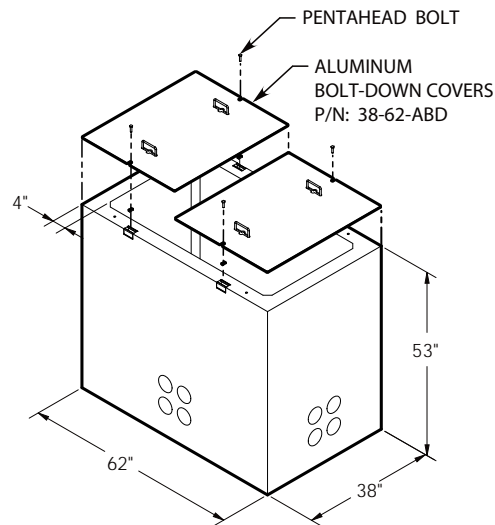
PB16-38-62-42-A

4" CON-DUCT TERMINATORS ON ALL 4 SIDES					
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-38-62-53-A	PB9-38-62-53-A	PB16-38-62-53-A	Pedestrian Rated Aluminum (2X) 38-62-A	Pedestrian Rated Aluminum (2X) 38-62-ABD	Pedestrian Rated Aluminum (2X) 38-62-ABDSL
PB4-38-62-53-FC	PB9-38-62-53-FC	PB16-38-62-53-FC	Pedestrian Rated Fibercrete (3X) 38-62-C	NA	NA
PB4-38-62-53-MH	PB9-38-62-53-MH	PB16-38-62-53-MH	H20 Heavy Traffic Cast Iron & Concrete 38-62-MH	NA	NA
PB4-38-62-53-RSG	PB9-38-62-53-RSG	PB16-38-62-53-RSG	H20 Heavy Traffic Galv. Steel (2X) 38-62-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBDSL

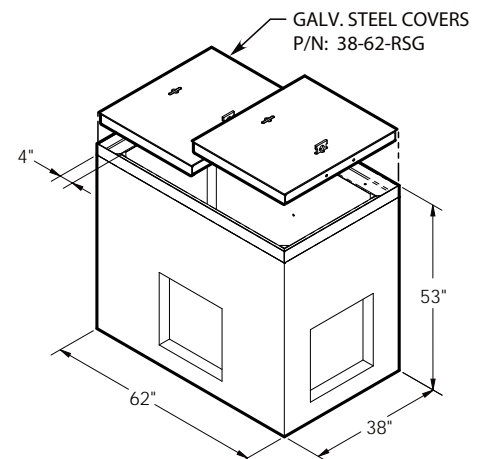
KNOCKOUTS ON ALL 4 SIDES				
Version 1 20" x 20" KO's	Version 2 8" x 16" x 3" & 20" x 20" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-38-62-53-A	PBKO2-38-62-53-A	Pedestrian Rated Aluminum (2X) 38-62-A	Pedestrian Rated Aluminum (2X) 38-62-ABD	Pedestrian Rated Aluminum (2X) 38-62-ABDSL
PBKO1-38-62-53-FC	PBKO2-38-62-53-FC	Pedestrian Rated Fibercrete (3X) 38-62-C	NA	NA
PBKO1-38-62-53-MH	PBKO2-38-62-53-MH	H20 Heavy Traffic Cast Iron & Concrete 38-62-MH	NA	NA
PBKO1-38-62-53-RSG	PBKO2-38-62-53-RSG	H20 Heavy Traffic Galv. Steel (2X) 38-62-RSG	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 38-62-RSGBDSL



PB9-38-62-53-MH



PB4-38-62-53-ABD

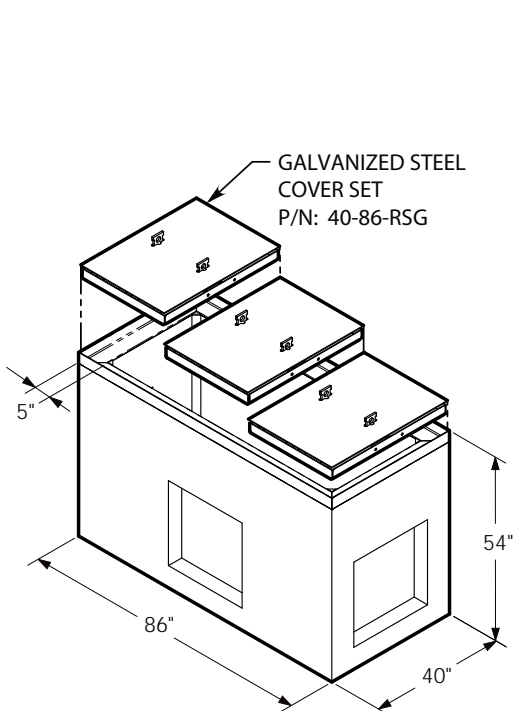


PBKO1-38-62-53-RSG

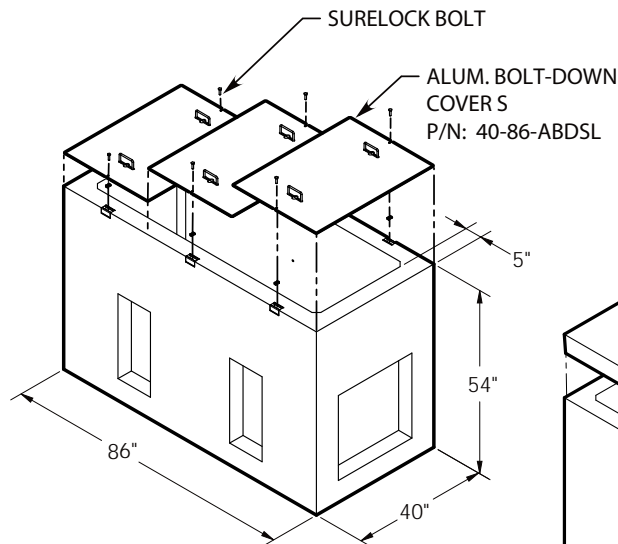
40 x 86 x 54 Pull Boxes

4" CON-DUCT TERMINATORS ON ALL 4 SIDES					
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-40-86-54-A	PB9-40-86-54-A	PB16-40-86-54-A	Pedestrian Rated Aluminum (3X) 40-86-A	Pedestrian Rated Aluminum (3X) 40-86-ABD	Pedestrian Rated Aluminum (3X) 40-86-ABDSL
PB4-40-86-54-MH	PB9-40-86-54-MH	PB16-40-86-54-MH	H20 Heavy Traffic Cast Iron & Concrete 40-86-MH	NA	NA
PB4-40-86-54-RSG	PB9-40-86-54-RSG	PB16-40-86-54-RSG	H20 Heavy Traffic Galv. Steel (3X) 40-86-RSG	H20 Heavy Traffic Galv. Steel (1X) 40-86-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 40-86-RSGBDSL

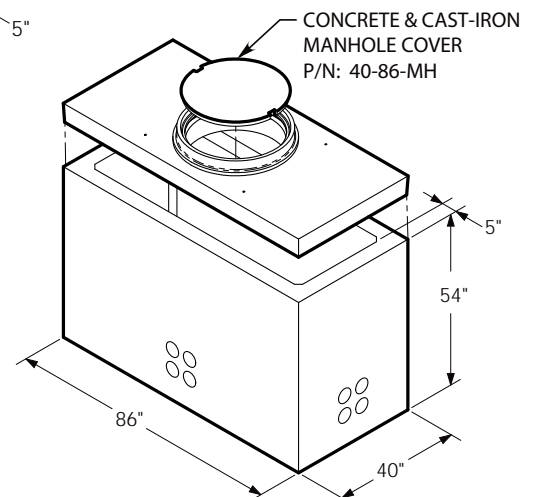
KNOCKOUTS ON ALL 4 SIDES				
Version 1 24" x 24" KO's	Version 2 10" x 24" x 4" & 24" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-40-86-54-A	PBKO2-40-86-54-A	Pedestrian Rated Aluminum (3X) 40-86-A	Pedestrian Rated Aluminum (3X) 40-86-ABD	Pedestrian Rated Aluminum (3X) 40-86-ABDSL
PBKO1-40-86-54-MH	PBKO2-40-86-54-MH	H20 Heavy Traffic Cast Iron & Concrete 40-86-MH	NA	NA
PBKO1-40-86-54-RSG	PBKO2-40-86-54-RSG	H20 Heavy Traffic Galv. Steel (3X) 40-86-RSG	H20 Heavy Traffic Galv. Steel (1X) 40-86-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 40-86-RSGBDSL



PBKO1-40-86-54-RSG



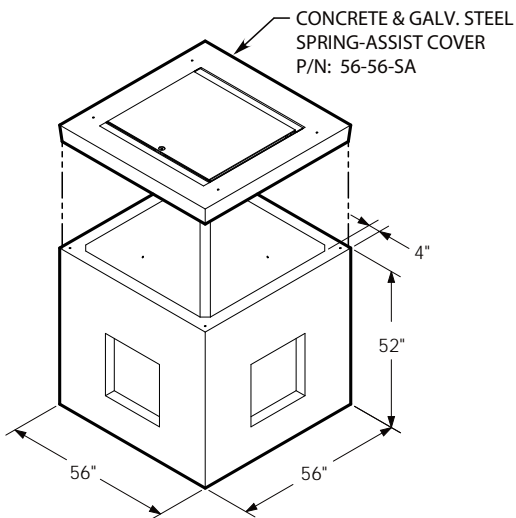
PBKO2-40-86-54-ABDSL



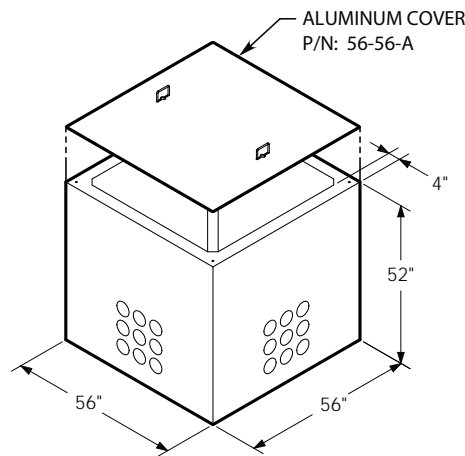
PB4-40-86-54-MH

4" CON-DUCT TERMINATORS ON ALL 4 SIDES					
4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-56-56-52-A	PB9-56-56-52-A	PB16-56-56-52-A	Pedestrian Rated Aluminum (1X) 56-56-A	Pedestrian Rated Aluminum (1X) 56-56-ABD	Pedestrian Rated Aluminum (1X) 56-56-ABDSL
PB4-56-56-52-MH	PB9-56-56-52-MH	PB16-56-56-52-MH	H20 Heavy Traffic Cast Iron & Concrete 56-56-MH	NA	NA
PB4-56-56-52-RSG	PB9-56-56-52-RSG	PB16-56-56-52-RSG	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSG	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSGBDSL
PB4-56-56-52-SA	PB9-56-56-52-SA	PB16-56-56-52-SA	H20 Spring-Assist Steel & Concrete Cover 56-56-SA	NA	NA

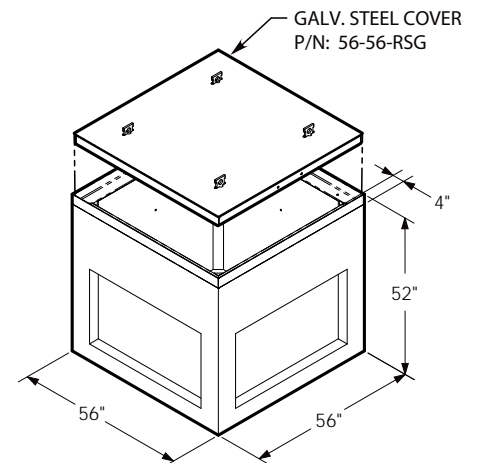
KNOCKOUTS ON ALL 4 SIDES				
Version 1 42" x 24" KO's	Version 2 20" x 20" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-56-56-52-A	PBKO2-56-56-52-A	Pedestrian Rated Aluminum (1X) 56-56-A	Pedestrian Rated Aluminum (1X) 56-56-ABD	Pedestrian Rated Aluminum (1X) 56-56-ABDSL
PBKO1-56-56-52-MH	PBKO2-56-56-52-MH	H20 Heavy Traffic Cast Iron & Concrete 56-56-MH	NA	NA
PBKO1-56-56-52-RSG	PBKO2-56-56-52-RSG	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSG	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSGBD	H20 Heavy Traffic Galv. Steel (1X) 56-56-RSGBDSL
PBKO1-56-56-52-SA	PBKO2-56-56-52-SA	H20 Spring-Assist Steel & Concrete Cover 56-56-SA	NA	NA



PBKO2-56-56-52-SA



PB9-56-56-52-A



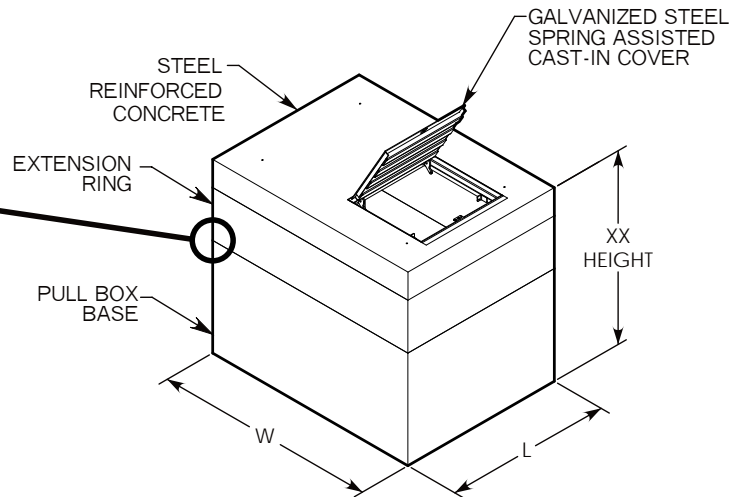
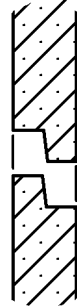
PBKO1-56-56-52-RSG

Standard Large Pull Boxes

GALVANIZED STEEL SPRING-ASSISTED COVER PULL BOXES

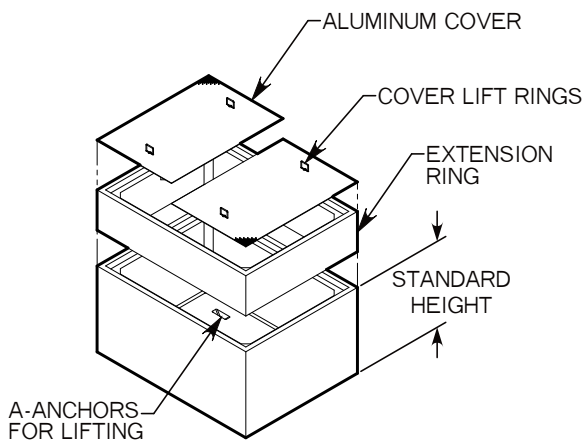
INTERLOCKING JOINTS

Stackable boxes are designed with interlocking joints that can be sealed with adhesive sealant for water-proofing. For more information on sealants supplied by Concast see www.concastinc.com/accessories/Sealants

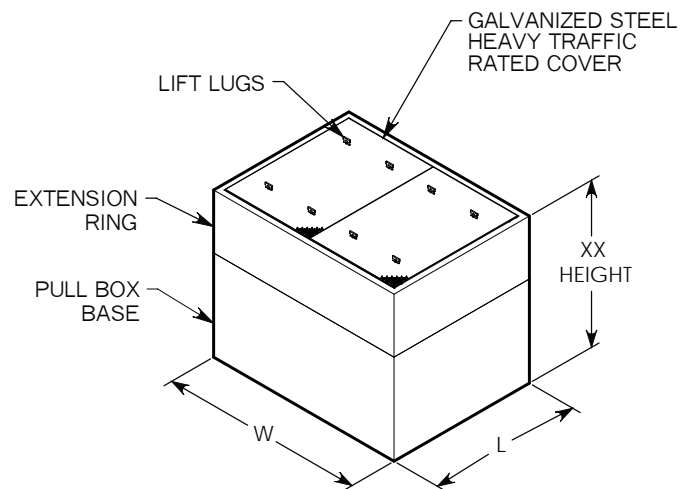


- 6 inch thick steel reinforced box walls made with high strength concrete are extremely rigid and stable.
- Concast pull boxes are produced in rigid steel molds to ensure that tolerances are maintained.
- Boxes greater than the max std height, will have interlocking extension rings to reach the desired (XX) height.
- Standard box bases are generally cast with four recessed lifting points (A-Anchors) and drain holes.
- Stackable box side walls meet AASHTO H20 requirements. The final traffic rating is determined by the traffic rating of the cover. For example, if the box has aluminum covers, then it will have a pedestrian rating.
- Stackable pull boxes can be ordered without the standard floor/base; with or without the standard 9 inch square drain hole in the floor.

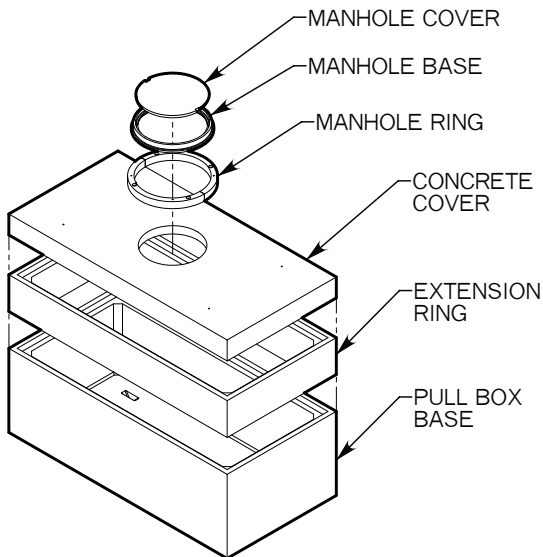
PULL BOXES WITH ALUMINUM COVERS



PULL BOXES W/ GALVANIZED STEEL COVERS



STACKABLE PULL BOX	LENGTH "L"	WIDTH "W"	WALLS	FLOORS	HEIGHT "H"	PULL BOX COVER INFORMATION
PB-72-72-XX-A	72"	72"	6"	5"	varies	2 Aluminum Covers; Pedestrian Rated
PB-72-72-XX-SA	72"	72"	6"	5"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-72-72-XX-RSG	72"	72"	6"	5"	varies	1 Galvanized Steel Cover; Traffic Rated
PB-72-72-XX-MH	72"	72"	6"	5"	varies	1 Cast Iron Manhole Cover; Traffic Rated
PB-72-96-XX-A	72"	96"	6"	5"	varies	2 Aluminum Covers; Pedestrian Rated
PB-72-96-XX-SA	72"	96"	6"	5"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-72-96-XX-RSG	72"	96"	6"	5"	varies	2 Galvanized Steel Covers; Traffic Rated
PB-72-96-XX-MH	72"	72"	6"	5"	varies	1 Cast Iron Manhole Cover; Traffic Rated
PB-54-120-XX-A	54"	120"	6"	6"	varies	3 wAluminum Covers; Pedestrian Rated
PB-54-120-XX-SA	54"	120"	6"	6"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-54-120-XX-RSG	54"	120"	6"	6"	varies	2 Galvanized Steel Cover; Traffic Rated
PB-54-120-XX-MH	54"	120"	6"	6"	varies	1 Cast Iron Manhole Cover; Traffic Rated
PB-72-120-XX-A	72"	120"	6"	5"	varies	3 Aluminum Covers; Pedestrian Rated
PB-72-120-XX-SA	72"	120"	6"	5"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-72-120-XX-RSG	72"	120"	6"	5"	varies	2 Galvanized Steel Covers; Traffic Rated
PB-72-120-XX-MH	72"	120"	6"	5"	varies	1 Cast Iron Manhole Cover; Traffic Rated
PB-84-120-XX-A	84"	120"	6"	6"	varies	3 Aluminum Covers; Pedestrian Rated
PB-84-120-XX-SA	84"	120"	6"	6"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-84-120-XX-RSG	84"	120"	6"	6"	varies	2 Galvanized Steel Cover; Traffic Rated
PB-84-120-XX-MH	84"	120"	6"	6"	varies	1 Cast Iron Manhole Cover; Traffic Rated
PB-72-144-XX-A	72"	144"	6"	5"	varies	3 Aluminum Covers; Pedestrian Rated
PB-72-144-XX-SA	72"	144"	6"	5"	varies	1 Spring Assisted Steel Cover; Traffic Rated
PB-72-144-XX-SG	72"	144"	6"	5"	varies	2 Galvanized Steel Covers; Traffic Rated
PB-72-144-XX-MH	72"	144"	6"	5"	varies	1 Cast Iron Manhole Cover; Traffic Rated



STACKABLE MANHOLE BOXES

- Manholes are part of the stackable line of large pull boxes and are available in any desired depth.
- These pull boxes variations have a solid concrete top with an industry standard human access hole.
- The cast iron rings can be labeled with any utility identification as required by your project.
- Manhole covers are heavy traffic rated and meet AASHTO H20 requirements.

72 x 72 Standard Pull Boxes

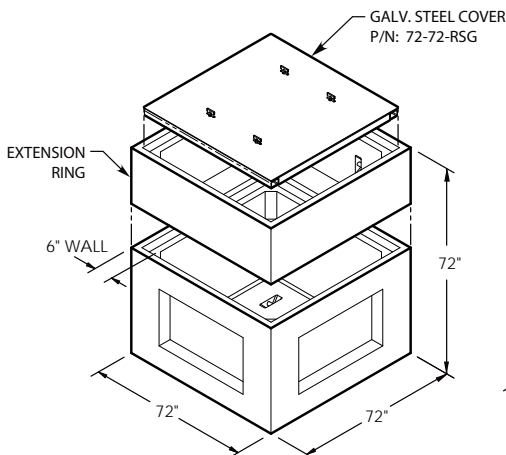
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-72-72-47-A PB4-72-72-72-A PB46-72-72-47-A PB46-72-72-72-A	PB9-72-72-47-A PB9-72-72-72-A PB96-72-72-47-A PB96-72-72-72-A	PB16-72-72-47-A PB16-72-72-72-A PB166-72-72-47-A PB166-72-72-72-A	Pedestrian Rated Aluminum (2X) 72-72-A	Pedestrian Rated Aluminum (2X) 72-72-ABD	Pedestrian Rated Aluminum (2X) 72-72-ABDSL
PB4-72-72-47-MH PB4-72-72-72-MH PB46-72-72-47-MH PB46-72-72-72-MH	PB9-72-72-47-MH PB9-72-72-72-MH PB96-72-72-47-MH PB96-72-72-72-MH	PB16-72-72-47-MH PB16-72-72-72-MH PB166-72-72-47-MH PB166-72-72-72-MH	H20 Heavy Traffic Cast Iron & Concrete 72-72-MH	NA	NA
PB4-72-72-47-RSG PB4-72-72-72-RSG PB46-72-72-47-RSG PB46-72-72-72-RSG	PB9-72-72-47-RSG PB9-72-72-72-RSG PB96-72-72-47-RSG PB96-72-72-72-RSG	PB16-72-72-47-RSG PB16-72-72-72-RSG PB166-72-72-47-RSG PB166-72-72-72-RSG	H20 Heavy Traffic Galv. Steel (1X) 72-72-RSG	NA	NA
PB4-72-72-47-SA PB4-72-72-72-SA PB46-72-72-47-SA PB46-72-72-72-SA	PB9-72-72-47-SA PB9-72-72-72-SA PB96-72-72-47-SA PB96-72-72-72-SA	PB16-72-72-47-SA PB16-72-72-72-SA PB166-72-72-47-SA PB166-72-72-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-72-SA	NA	NA

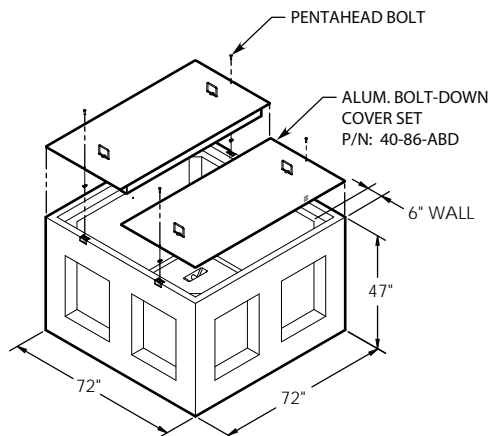
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

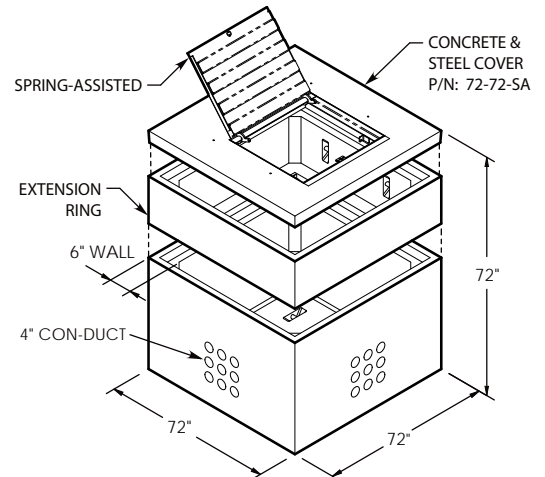
Version 1 42" x 24" KO's	Version 2 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-72-72-47-A PBKO1-72-72-72-A	PBKO2-72-72-47-A PBKO2-72-72-72-A	Pedestrian Rated Aluminum (2X) 72-72-A	Pedestrian Rated Aluminum (2X) 72-72-ABD	Pedestrian Rated Aluminum (2X) 72-72-ABDSL
PBKO1-72-72-47-MH PBKO1-72-72-72-MH	PBKO2-72-72-47-MH PBKO2-72-72-72-MH	H20 Heavy Traffic Cast Iron & Concrete 72-72-MH	NA	NA
PBKO1-72-72-47-RSG PBKO1-72-72-72-RSG	PBKO2-72-72-47-RSG PBKO2-72-72-72-RSG	H20 Heavy Traffic Galv. Steel (1X) 72-72-RSG	NA	NA
PBKO1-72-72-47-SA PBKO1-72-72-72-SA	PBKO2-72-72-47-SA PBKO2-72-72-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-72-SA	NA	NA



PBKO1-72-72-72-RSG



PBKO2-72-72-47-ABD



PB9-72-72-72-SA

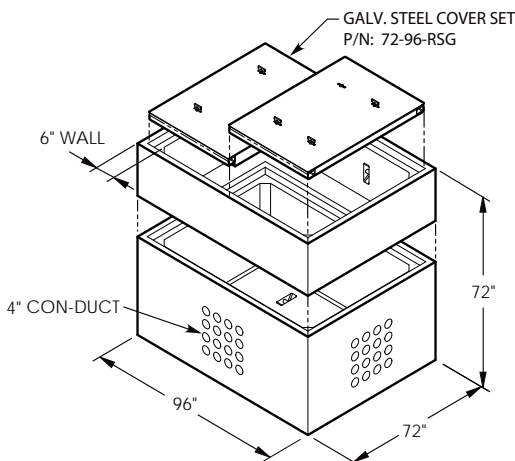
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

4 Con-Ducts	9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB4-72-96-47-A PB4-72-96-72-A PB46-72-96-47-A PB46-72-96-72-A	PB9-72-96-47-A PB9-72-96-72-A PB96-72-96-47-A PB96-72-96-72-A	PB16-72-96-47-A PB16-72-96-72-A PB166-72-96-47-A PB166-72-96-72-A	Pedestrian Rated Aluminum (2X) 72-96-A	Pedestrian Rated Aluminum (2X) 72-96-ABD	Pedestrian Rated Aluminum (2X) 72-96-ABDSL
PB4-72-96-47-MH PB4-72-96-72-MH PB46-72-96-47-MH PB46-72-96-72-MH	PB9-72-96-47-MH PB9-72-96-72-MH PB96-72-96-47-MH PB96-72-96-72-MH	PB16-72-96-47-MH PB16-72-96-72-MH PB166-72-96-47-MH PB166-72-96-72-MH	H20 Heavy Traffic Cast Iron & Concrete 72-96-MH	NA	NA
PB4-72-96-47-RSG PB4-72-96-72-RSG PB46-72-96-47-RSG PB46-72-96-72-RSG	PB9-72-96-47-RSG PB9-72-96-72-RSG PB96-72-96-47-RSG PB96-72-96-72-RSG	PB16-72-96-47-RSG PB16-72-96-72-RSG PB166-72-96-47-RSG PB166-72-96-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-96-RSG	NA	NA
PB4-72-96-47-SA PB4-72-96-72-SA PB46-72-96-47-SA PB46-72-96-72-SA	PB9-72-96-47-SA PB9-72-96-72-SA PB96-72-96-47-SA PB96-72-96-72-SA	PB16-72-96-47-SA PB16-72-96-72-SA PB166-72-96-47-SA PB166-72-96-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-96-SA	NA	NA

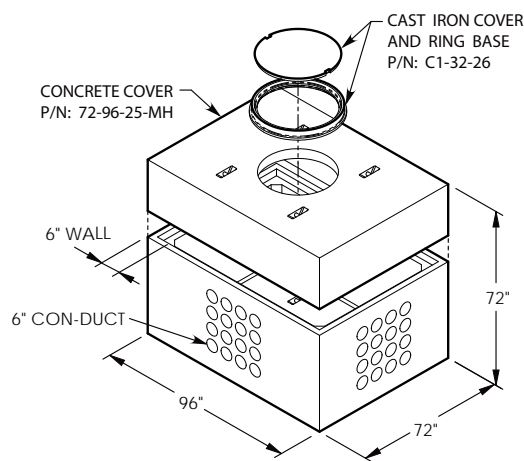
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

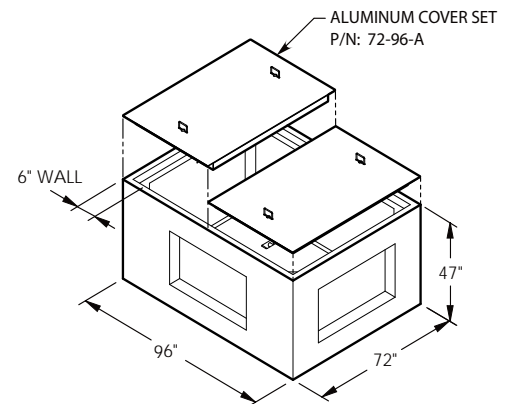
Version 1 42" x 24" KO's	Version 2 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBKO1-72-96-47-A PBKO1-72-96-72-A	PBKO2-72-96-47-A PBKO2-72-96-72-A	Pedestrian Rated Aluminum (2X) 72-96-A	Pedestrian Rated Aluminum (2X) 72-96-ABD	Pedestrian Rated Aluminum (2X) 72-96-ABDSL
PBKO1-72-96-47-MH PBKO1-72-96-72-MH	PBKO2-72-96-47-MH PBKO2-72-96-72-MH	H20 Heavy Traffic Cast Iron & Concrete (1X) 72-96-MH	NA	NA
PBKO1-72-96-47-RSG PBKO1-72-96-72-RSG	PBKO2-72-96-47-RSG PBKO2-72-96-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-96-RSG	NA	NA
PBKO1-72-96-47-SA PBKO1-72-96-72-SA	PBKO2-72-96-47-SA PBKO2-72-96-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-96-SA	NA	NA



PB16-72-96-72-RSG



PB166-72-96-72-MH



PBKO1-72-96-47-A

54 x 120 Standard Pull Boxes

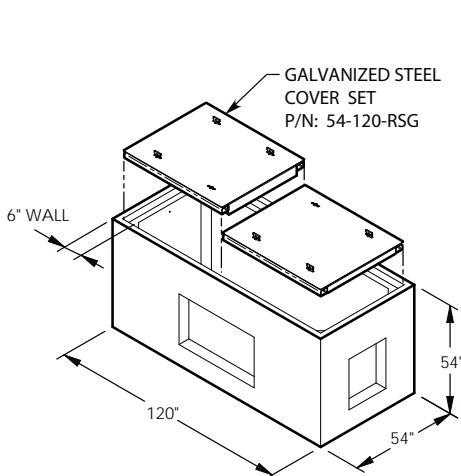
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB9-54-120-54-A PB9-54-120-78-A PB96-54-120-54-A PB96-54-120-78-A	PB16-54-120-54-A PB16-54-120-78-A PB166-54-120-54-A PB166-54-120-78-A	Pedestrian Rated Aluminum (3X) 54-120-A	Pedestrian Rated Aluminum (3X) 54-120-ABD	Pedestrian Rated Aluminum (3X) 54-120-ABDSL
PB9-54-120-54-MH PB9-54-120-78-MH PB96-54-120-54-MH PB96-54-120-78-MH	PB16-54-120-54-MH PB16-54-120-78-MH PB166-54-120-54-MH PB166-54-120-78-MH	H20 Heavy Traffic Cast Iron & Concrete 54-120-MH	NA	NA
PB9-54-120-54-RSG PB9-54-120-78-RSG PB96-54-120-54-RSG PB96-54-120-78-RSG	PB16-54-120-54-RSG PB16-54-120-78-RSG PB166-54-120-54-RSG PB166-54-120-78-RSG	H20 Heavy Traffic Galv. Steel (2X) 54-120-RSG	NA	NA
PB9-54-120-54-SA PB9-54-120-78-SA PB96-54-120-54-SA PB96-54-120-78-SA	PB16-54-120-54-SA PB16-54-120-78-SA PB166-54-120-54-SA PB166-54-120-78-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 54-120-SA	NA	NA

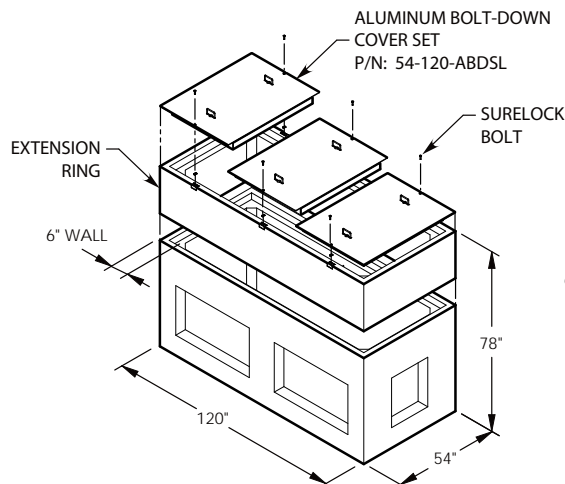
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

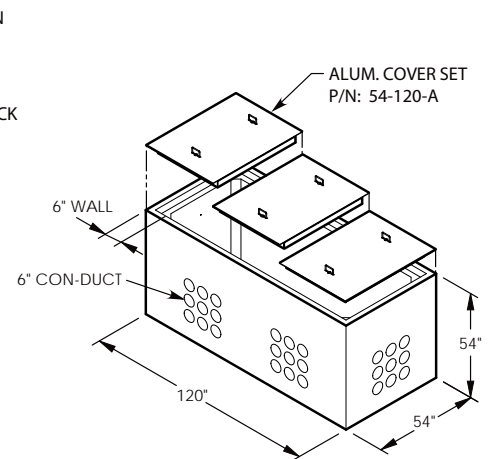
Version 1 42" x 24" & 20" x 24" KO's	Version 2 42" x 24" & 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBK01-54-120-54-A PBK01-54-120-78-A	PBK02-54-120-54-A PBK02-54-120-78-A	Pedestrian Rated Aluminum (3X) 54-120-A	Pedestrian Rated Aluminum (3X) 54-120-ABD	Pedestrian Rated Aluminum (3X) 54-120-ABDSL
PBK01-54-120-54-MH PBK01-54-120-78-MH	PBK02-54-120-54-MH PBK02-54-120-78-MH	H20 Heavy Traffic Cast Iron & Concrete 54-120-MH	NA	NA
PBK01-54-120-54-RSG PBK01-54-120-78-RSG	PBK02-54-120-54-RSG PBK02-54-120-78-RSG	H20 Heavy Traffic Galv. Steel (2X) 54-120-RSG	NA	NA
PBK01-54-120-54-SA PBK01-54-120-78-SA	PBK02-54-120-54-SA PBK02-54-120-78-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 54-120-SA	NA	NA



PBK01-54-120-54-RSG



PBK02-54-120-78-ABDSL



PB96-54-120-54-A

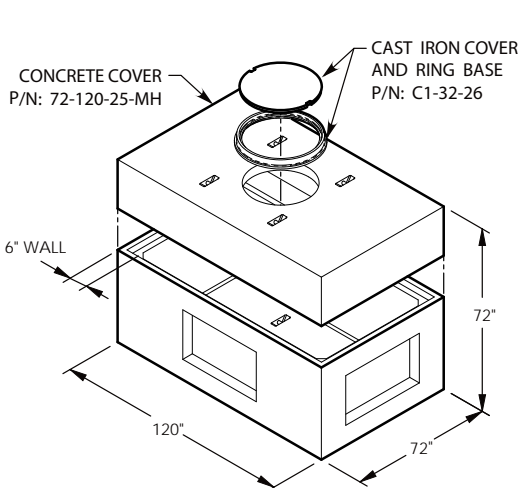
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB9-72-120-47-A PB9-72-120-72-A PB96-72-120-47-A PB96-72-120-72-A	PB16-72-120-47-A PB16-72-120-72-A PB166-72-120-47-A PB166-72-120-72-A	Pedestrian Rated Aluminum (3X) 72-120-A	Pedestrian Rated Aluminum (3X) 72-120-ABD	Pedestrian Rated Aluminum (3X) 72-120-ABDSL
PB9-72-120-47-MH PB9-72-120-72-MH PB96-72-120-47-MH PB96-72-120-72-MH	PB16-72-120-47-MH PB16-72-120-72-MH PB166-72-120-47-MH PB166-72-120-72-MH	H20 Heavy Traffic Cast Iron & Concrete 72-120-MH	NA	NA
PB9-72-120-47-RSG PB9-72-120-72-RSG PB96-72-120-47-RSG PB96-72-120-72-RSG	PB16-72-120-47-RSG PB16-72-120-72-RSG PB166-72-120-47-RSG PB166-72-120-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-120-RSG	NA	NA
PB9-72-120-47-SA PB9-72-120-72-SA PB96-72-120-47-SA PB96-72-120-72-SA	PB16-72-120-47-SA PB16-72-120-72-SA PB166-72-120-47-SA PB166-72-120-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-120-SA	NA	NA

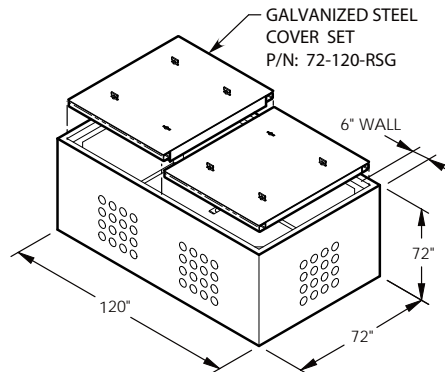
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

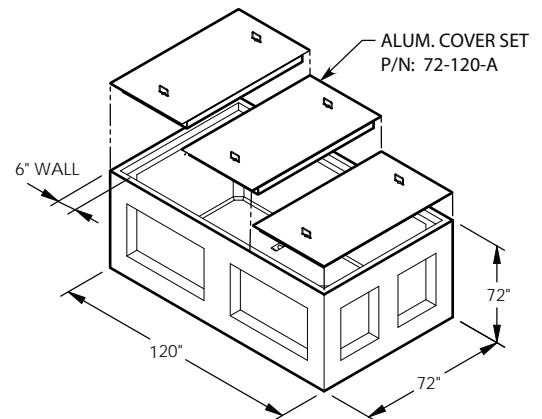
Version 1 42" x 24" KO's	Version 2 42" x 24" & 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBK01-72-120-47-A PBK01-72-120-72-A	PBK02-72-120-47-A PBK02-72-120-72-A	Pedestrian Rated Aluminum (3X) 72-120-A	Pedestrian Rated Aluminum (3X) 72-120-ABD	Pedestrian Rated Aluminum (3X) 72-120-ABDSL
PBK01-72-120-47-MH PBK01-72-120-72-MH	PBK02-72-120-47-MH PBK02-72-120-72-MH	H20 Heavy Traffic Cast Iron & Concrete (1X) 72-120-MH	NA	NA
PBK01-72-120-47-RSG PBK01-72-120-72-RSG	PBK02-72-120-47-RSG PBK02-72-120-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-120-RSG	NA	NA
PBK01-72-120-47-SA PBK01-72-120-72-SA	PBK02-72-120-47-SA PBK02-72-120-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-120-SA	NA	NA



PBK01-72-120-72-MH



PB16-72-120-47-RSG



PBK02-72-120-47-A

84 x 120 Standard Pull Boxes

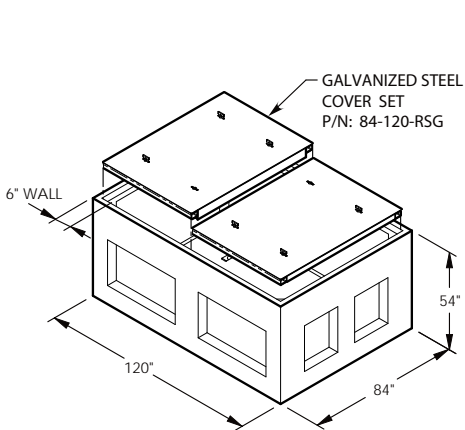
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB9-84-120-54-A PB9-84-120-78-A PB96-84-120-54-A PB96-84-120-78-A	PB16-84-120-54-A PB16-84-120-78-A PB166-84-120-54-A PB166-84-120-78-A	Pedestrian Rated Aluminum (3X) 84-120-A	Pedestrian Rated Aluminum (3X) 84-120-ABD	Pedestrian Rated Aluminum (3X) 84-120-ABDSL
PB9-84-120-54-MH PB9-84-120-78-MH PB96-84-120-54-MH PB96-84-120-78-MH	PB16-84-120-54-MH PB16-84-120-78-MH PB166-84-120-54-MH PB166-84-120-78-MH	H20 Heavy Traffic Cast Iron & Concrete 84-120-MH	NA	NA
PB9-84-120-54-RSG PB9-84-120-78-RSG PB96-84-120-54-RSG PB96-84-120-78-RSG	PB16-84-120-54-RSG PB16-84-120-78-RSG PB166-84-120-54-RSG PB166-84-120-78-RSG	H20 Heavy Traffic Galv. Steel (2X) 84-120-RSG	NA	NA
PB9-84-120-54-SA PB9-84-120-78-SA PB96-84-120-54-SA PB96-84-120-78-SA	PB16-84-120-54-SA PB16-84-120-78-SA PB166-84-120-54-SA PB166-84-120-78-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 84-120-SA	NA	NA

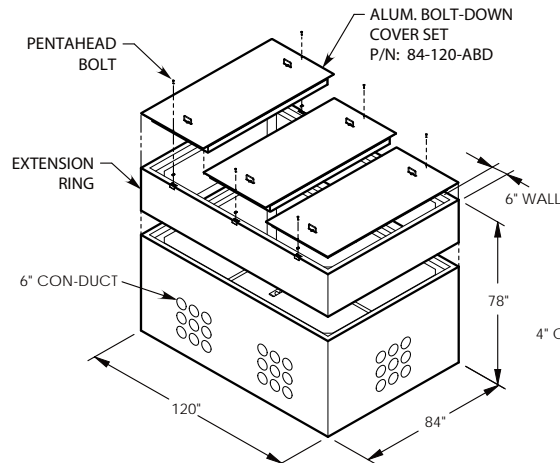
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

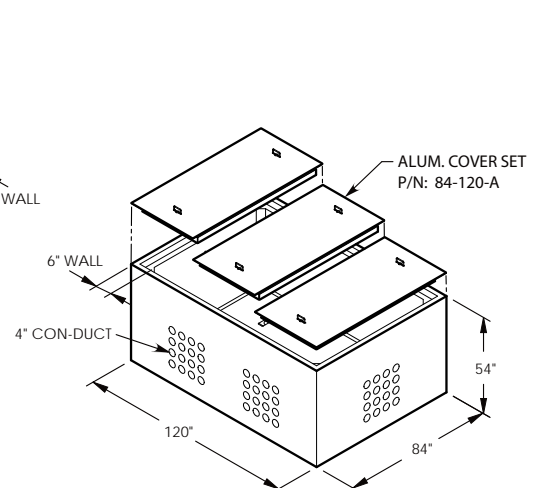
Version 1 42" x 24" and 20" x 24" KO's	Version 2 42" x 24" & 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBK01-84-120-54-A PBK01-84-120-78-A	PBK02-84-120-54-A PBK02-84-120-78-A	Pedestrian Rated Aluminum (3X) 84-120-A	Pedestrian Rated Aluminum (3X) 84-120-ABD	Pedestrian Rated Aluminum (3X) 84-120-ABDSL
PBK01-84-120-54-MH PBK01-84-120-78-MH	PBK02-84-120-54-MH PBK02-84-120-78-MH	H20 Heavy Traffic Cast Iron & Concrete 84-120-MH	NA	NA
PBK01-84-120-54-RSG PBK01-84-120-78-RSG	PBK02-84-120-54-RSG PBK02-84-120-78-RSG	H20 Heavy Traffic Galv. Steel (2X) 84-120-RSG	NA	NA
PBK01-84-120-54-SA PBK01-84-120-78-SA	PBK02-84-120-54-SA PBK02-84-120-78-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 84-120-SA	NA	NA



PBK02-84-120-54-RSG



PB96-84-120-78-ABD



PB16-84-120-54-A

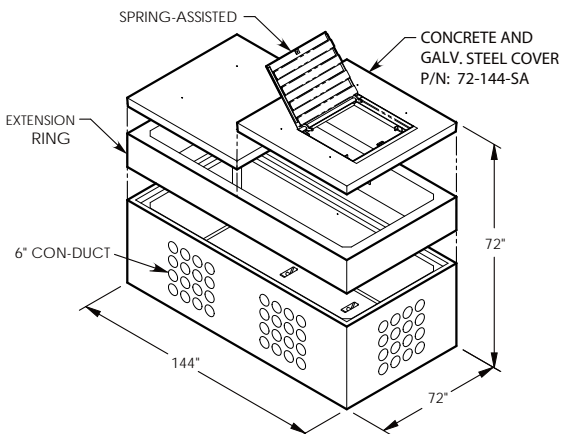
4" or 6" CON-DUCT TERMINATORS ON ALL 4 SIDES

9 Con-Ducts	16 Con-Ducts	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PB9-72-144-47-A PB9-72-144-72-A PB96-72-144-47-A PB96-72-144-72-A	PB16-72-144-47-A PB16-72-144-72-A PB166-72-144-47-A PB166-72-144-72-A	Pedestrian Rated Aluminum (3X) 72-144-A	Pedestrian Rated Aluminum (3X) 72-144-ABD	Pedestrian Rated Aluminum (3X) 72-144-ABDSL
PB9-72-144-47-MH PB9-72-144-72-MH PB96-72-144-47-MH PB96-72-144-72-MH	PB16-72-144-47-MH PB16-72-144-72-MH PB166-72-144-47-MH PB166-72-144-72-MH	H20 Heavy Traffic Cast Iron & Concrete 72-144-MH	NA	NA
PB9-72-144-47-RSG PB9-72-144-72-RSG PB96-72-144-47-RSG PB96-72-144-72-RSG	PB16-72-144-47-RSG PB16-72-144-72-RSG PB166-72-144-47-RSG PB166-72-144-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-144-RSG	NA	NA
PB9-72-144-47-SA PB9-72-144-72-SA PB96-72-144-47-SA PB96-72-144-72-SA	PB16-72-144-47-SA PB16-72-144-72-SA PB166-72-144-47-SA PB166-72-144-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-144-SA	NA	NA

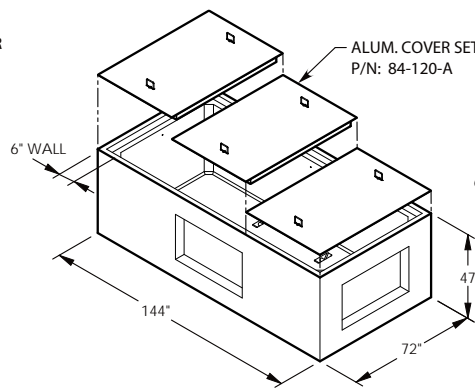
PB46, PB96 & PB116 boxes have 6" Con-Duct; while PB4, PB9 & PB16 have 4" Con-Duct.

KNOCKOUTS ON ALL 4 SIDES

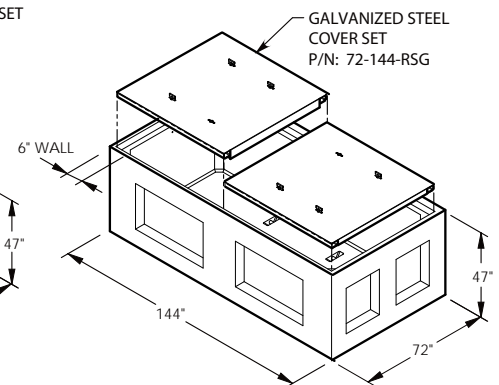
Version 1 42" x 24" KO's	Version 2 42" x 24" & 20" x 24" KO's	Standard Cover (Included)	PentaHead Bolt-Down Cover	SureLock Bolt-Down Cover
PBK01-72-144-47-A PBK01-72-144-72-A	PBK02-72-144-47-A PBK02-72-144-72-A	Pedestrian Rated Aluminum (3X) 72-144-A	Pedestrian Rated Aluminum (3X) 72-144-ABD	Pedestrian Rated Aluminum (3X) 72-144-ABDSL
PBK01-72-144-47-MH PBK01-72-144-72-MH	PBK02-72-144-47-MH PBK02-72-144-72-MH	H20 Heavy Traffic Cast Iron & Concrete (1X) 72-144-MH	NA	NA
PBK01-72-144-47-RSG PBK01-72-144-72-RSG	PBK02-72-144-47-RSG PBK02-72-144-72-RSG	H20 Heavy Traffic Galv. Steel (2X) 72-144-RSG	NA	NA
PBK01-72-144-47-SA PBK01-72-144-72-SA	PBK02-72-144-47-SA PBK02-72-144-72-SA	H20 Spring-Assist (1X) Steel & Concrete Cover 72-144-SA	NA	NA



PB116-72-144-72-SA

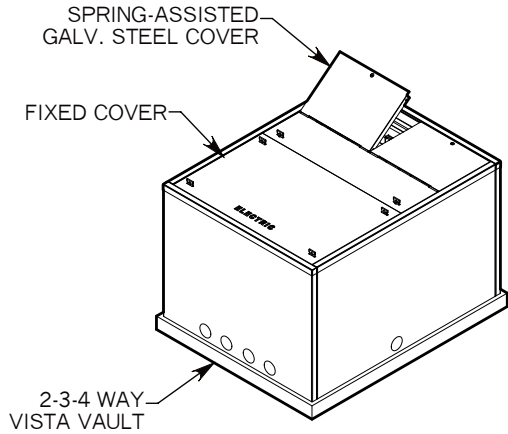


PBK01-72-144-47-A



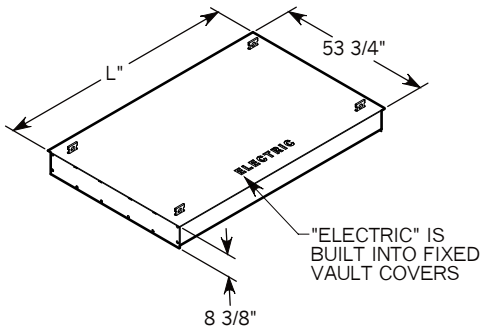
PBK02-72-144-47-RSG

URD Equipment/Vista Vaults

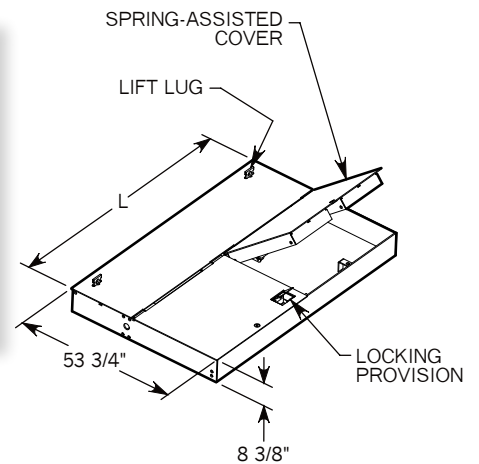


- URD EquipmentVaults are ideal for use with submersible equipment.
- These vaults are also known as Vista Vaults because they are designed for the S&C Vista Switchgear.
- Standard internal galvanized steel hardware can be included and is listed below. Stainless steel internal hardware is also an option.
- A key feature of these vaults is the large flanged base which serves as an anti-floatation bottom.
- Each vault package includes a set of two galvanized steel covers that meet AASHTO-H-20 Heavy Equipment requirement of 32,000 lb./axle load.
- Spring-assisted covers will have stainless steel mechanisms and penta-head bolt-down to make them more secure from vandals.
- Custom openings can be built into vault sidewalls depending on location.

FIXED VAULT COVER



SPRING-ASSISTED VAULT COVER



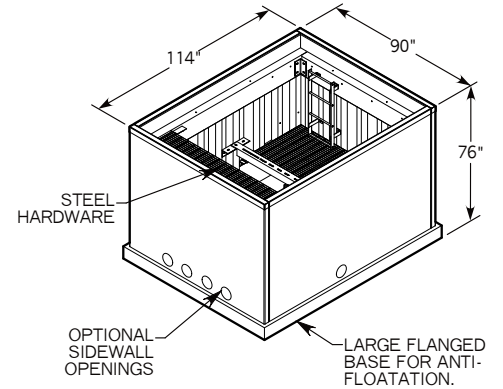
Vault Packages include the following hardware:

- **2 Steel Covers.** For security.
- **Ladder.** For safe access into the vault
- **Switchgear Support.** To support gear.
- **Lower Platform.** For gear installation.
- **Upper Platform.** For gear operation.
- **Pulling Eyes.** For pulling cables.
- **Lifting Provisions.** 4 lifting points are cast into the vault base for onsite maneuvering.
- **Cable Openings.** For routing cable into the vault.
- **Padlock Provisions.** For extra security. Available in specified packages only. See charts on next page.



2-3-4 WAY VISTA VAULT PACKAGE	INTERNAL HARDWARE	INCLUDED GALVANIZED STEEL COVERS	PADLOCK PROVISION OPTION	VAULT WIDTH "W"	VAULT LENGTH "L"	VAULT HEIGHT "H"
FCV-90-114-76-SG1	Galvanized Steel	1 Fixed Cover and 1 Spring-Assisted Cover		90"	114"	76"
FCV-90-114-76-SG2	Galvanized Steel	1 Fixed Cover and 1 Spring-Assisted Cover w/Lock	✓	90"	114"	76"
FCV-90-114-76-SG3	Galvanized Steel	2 Spring-Assisted Covers		90"	114"	76"
FCV-90-114-76-SG4	Galvanized Steel	2 Spring-Assisted Covers with padlock provisions	✓	90"	114"	76"
FCV-90-114-76-SS1	Stainless Steel	1 Fixed Cover and 1 Spring-Assisted Cover		90"	114"	76"
FCV-90-114-76-SS2	Stainless Steel	1 Fixed Cover and 1 Spring-Assisted Cover w/Lock	✓	90"	114"	76"
FCV-90-114-76-SS3	Stainless Steel	2 Spring-Assisted Covers		90"	114"	76"
FCV-90-114-76-SS4	Stainless Steel	2 Spring-Assisted Covers with Padlock Provisions	✓	90"	114"	76"

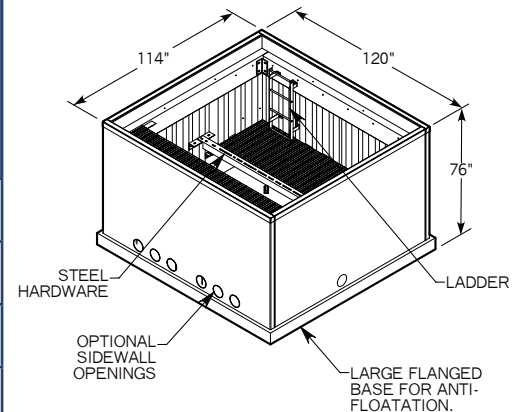
2-3-4 WAY VISTA Vault Packages



- These assembled vaults (without covers) weigh approximately 18,000 lbs.
- PDF format vault and cover drawings are online at www.concastinc.com/vaults/2-3-4-Way_Vista_Vaults

4-5-6 WAY VISTA VAULT PACKAGE	INTERNAL HARDWARE	INCLUDED GALVANIZED STEEL COVERS	PADLOCK PROVISION OPTION	VAULT WIDTH "W"	VAULT LENGTH "L"	VAULT HEIGHT "H"
FCV-120-114-76-SG1	Galvanized Steel	1 Fixed Cover and 1 Spring-Assisted Cover		120"	114"	76"
FCV-120-114-76-SG2	Galvanized Steel	1 Fixed Cover and 1 Spring-Assisted Cover w/Lock	✓	120"	114"	76"
FCV-120-114-76-SG3	Galvanized Steel	2 Spring-Assisted Covers		120"	114"	76"
FCV-120-114-76-SG4	Galvanized Steel	2 Spring-Assisted Covers with padlock provisions	✓	120"	114"	76"
FCV-120-114-76-SS1	Stainless Steel	1 Fixed Cover and 1 Spring-Assisted Cover		120"	114"	76"
FCV-120-114-76-SS2	Stainless Steel	1 Fixed Cover and 1 Spring-Assisted Cover w/Lock	✓	120"	114"	76"
FCV-120-114-76-SS3	Stainless Steel	2 Spring-Assisted Covers		120"	114"	76"
FCV-120-114-76-SS4	Stainless Steel	2 Spring-Assisted Covers with Padlock Provisions	✓	120"	114"	76"

4-5-6 WAY VISTA Vault Packages



- These assembled vaults (without covers) weigh approximately 23,000 lbs.
- PDF format vault and cover drawings are online at www.concastinc.com/vaults/4-5-6-Way_Vista_Vaults

Vault/Box Options

SPECIALTY BOXES

There are many applications when a standard box just won't suffice. That's why Concast will build specialty boxes to fit your job requirements.

One common custom Concast box is our split box option. This allows a box to be placed where conventional solid boxes cannot go. This box is split vertically so that it can be placed around an object and then it is bolted and sealed to form one rigid unit. One example of a situation where such a box would be perfect would be to use it around a light or power pole.



LADDER RUNGS FOR EASY ACCESS



CUSTOMIZED CABLE/CONDUIT ENTRY

DIVIDER FOR CABLE SEPARATION



COVER WITH ADJUSTABLE RISER FOR DROP-IN CONTROL HOUSE



Fibercrete® Vaults & Pull Boxes

CON-DUCT TERMINATORS



Concast offers plastic cable conduit terminators called Con-Duct. Each piece is cast into the concrete side wall and provides a smooth edge for pulling cables. The center plastic membrane can be knocked out when you are ready to use the opening.

Standard Con-Duct terminators are sized for 4 inch PVC, they are 6-1/4" apart on center, and they are Concast part number CD-464. Other sizes and spacings are available upon request.

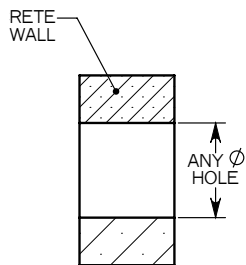
For more information such as sizes and part numbers, see our website at www.concastinc.com/accessories/Con-Duct or contact your local Concast sale representative. You can find yours at www.concastinc.com/Sales_Reps

REDUCING COUPLERS

- The perfect solution for transitions from multiple sizes of PVC pipe into the standard Con-Duct terminators cast into Concast boxes.
- They can be cut to fit the following PVC pipe sizes: 1 inch, 1.5 inch, 2 inch, 2.5 inch, 3 inch, and 3.5 inch.
- Reducing Couplers are to be ordered under part number RC41.

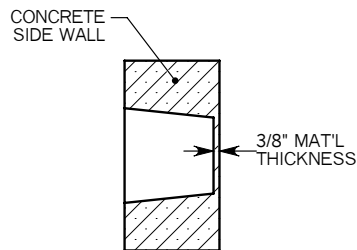


CUSTOM HOLES



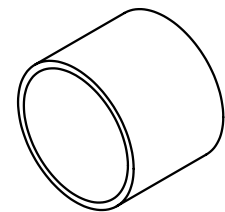
Any URD Vista Vault/Pull Box that Concast offers can be cast with holes at most locations in the unit. Please specify size, quantity, and locations when ordering. It is recommended to use oversize holes to ensure proper fit. Any gaps can later be sealed.

CUSTOM KNOCKOUTS



Knockouts can also be cast in most locations in Concast Pull Boxes or Vaults. They are recommended for openings that will be used at a later date. A concrete shell of approximately 3/8" thick is left in the opening. This can be easily knocked out with a hammer when the opening needs to be used. But, until then, the shell will keep backfill out of your box.

CONDUIT COUPLERS



Conduit Couplers can be cast into the base or walls of boxes and vaults to mate up with underground pvc pipes or duct banks. Located to customer specifications.

Vault/Box Accessories

SWIVEL HOIST RING

The forged swivel hoist ring is designed to thread into the cast-in inserts located in Concast's heavier products. Hoist rings are designed for lifting at any angle because they can swivel 360° and pivot 180°, and they meet or exceed the requirements of ASME B30.26. Each hoist ring is 200% proof-load tested with certification by the manufacturer. A nut and washer combination for non-insert applications is also included with the unit assembly. We recommend using our 4-way lifting chain (or equivalent) in conjunction with the hoist ring.



HOIST RING	THREADED ROD DIAMETER	THREADED ROD LENGTH	RATED LOAD
9002.38	3/8-16 UNC	1 inch	1000 Lbs.
9002	1/2-13 UNC	1.25 inch	2500 Lbs.
9002L	1/2-13 UNC	1.5 inch	2500 Lbs.
9002.75	3/4-10 UNC	1.5 inch	5000 Lbs.

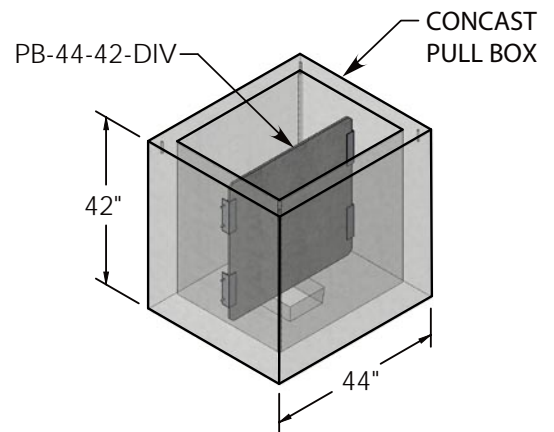
4-WAY LIFT CHAIN



- Concast Part Number: 9003
- Can be used in conjunction with the Swivel Hoist Rings or Threaded Eye Bolts for lifting heavy box pads.
- The 9100 pound maximum rated load is contingent on maintaining a horizontal lift angle that is less than 60 degrees

PULL BOX DIVIDER PANELS

DIVIDER PANEL	PULL BOX WIDTH	PULL BOX HEIGHT	PULL BOX WALL
PB-38-42-DIV	38"	42"	4"
PB-38-53-DIV	38"	53"	4"
PB-44-42-DIV	44"	42"	4"
PB-44-53-DIV	44"	53"	4"
PB-40-54-DIV	40"	54"	5"
PB-56-52-DIV	56"	52"	4"



GUIDE POSTS & SAFETY CHAIN

Guide posts and chain provide protection for your pre-cast Vaults and Boxes by blocking off vehicular traffic or defining a road way. A hard, yellow plastic exterior ensures that the color will withstand years of environmental exposure like UV rays and heat. The posts are available either hollow, or concrete filled with steel rebar reinforcement. A 3/8-16 UNC threaded insert is located at the top of each post for securing optional safety chain. Bolts are provided when chain & posts are ordered together. An alternate option is the 9001G eye bolt.



GENERAL SPECIFICATIONS FOR VAULTS/BOXES

1. TECHNICAL SCOPE

- 1-A.** These specifications cover precast Fibercrete® (G.F.R.C.) Vaults/Boxes manufactured by Concast Incorporated in Zumbrota, Minnesota. The manufacturer must have experience in design and fabrication of these products and also the facilities for fabricating them with the quality specified herein and without delay to the agreed upon schedule.
- 1-B.** The Vault/Box shall be designed and constructed to provide a serviceable life and warranty of 35 years when installed outdoors in full sunlight and without any protection from the weather at any location in the continental United States or Canada.
- 1-C.** The Supplier shall design, construct, perform dimensional and quality control tests, and prepare the Vault/Box for truck shipment. Shipping and delivery responsibilities will be defined in the project specific purchase documents. The Supplier shall provide all necessary documentation as stated in this specification.

2. DIMENSIONS AND DESIGN

- 2-A.** Drawings shall be made available for engineering approval, field installation, and field identification; in PDF, SolidWorks, or AutoCAD format. Standard PDF format component drawings shall also be available online.
- 2-B.** The tolerances of the dimensions of each concrete component shall not exceed +/-1/4". These tolerances apply to the components when ready for shipping, when set on a flat and level surface with no loads applied to it.
- 2-C.** The manufacturer's design dimensions must be approved by the Purchaser prior to fabrication.
- 2-D.** Provisions, such as cast-in threaded inserts, must be offered for lifting any box/vault. Mounting holes must be adequately reinforced to avoid damaging the box and to provide an ultimate strength of at least 5 times the part weight when it is lifted in accordance with the manufacturer's instructions.
- 2-E.** Bases shall have optional holes for adequate drainage or for attaching sump.
- 2-F.** Conduit/Cable entrances shall be supplied per job requirement, and will be made available in many sizes and configurations depending on the application.
- 3-G.** The vault/box shall be designed and constructed so that it and any related hardware will not trap or hold water when required, and so that it will be able to withstand repeated freeze and thaw cycles.
- 2-H.** The vault/box color shall be a natural concrete gray.
- 2-I.** If required, the vault/box shall be manufactured with cover bolt-down accommodations.
- 2-J.** Boxes/Vaults are all built to meet the heavy traffic requirements of AASHTO H-20 which is 32,000 lbs. axle load. Some of the smaller Pull Box covers can be made available with a pedestrian rating of 200 lbs./ft.
- 2-K.** The precast components are designed to conform to requirements stated in ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures, ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

Vault/Box Specifications

3. PERFORMANCE AND MATERIALS

- 3-A.** Cement shall conform to ASTM C150-07 "Specification for Portland Cement".
- 3-B.** Course and fine aggregates shall conform to ASTM C33 "Specification for Concrete Aggregates".
- 3-C.** Preparation of concrete shall conform to ASTM A94 "Specification for Ready-Mix Concrete" & ACI 304 "Guide for Mixing, Transporting and Placing Concrete".
- 3-D. MICRO-CONCRETE**
- 3-D.1** Precast solid concrete Vaults/Boxes shall be cast into steel forms using Type I/II Portland Cement.
- 3-D.2** Concrete shall contain 6% entrained air (plus or minus 1%)
- 3-D.3** Shall obtain a minimum compressive strength of 7500 PSI at 28 days of age.
- 3-E. REINFORCEMENT**
- 3-E.1** Steel reinforcing bars shall conform to ASTM A615 "Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement".
- 3-E.2** Steel reinforcing wires shall conform to ASTM A496 "Specification for Steel Wire, Deformed for Concrete Reinforcement".
- 3-E.3** Steel reinforcing weld wire cages shall conform to ASTM A497 "Specification for Steel Welded Wire Fabric, Deformed for Concrete Reinforcement".
- 3-F.** The vault/box must not be affected by asphalt, road salts, fertilizers, oils, other common chemicals, weather, sunlight, or other normal service conditions that it might be exposed to.
- 3-G.** The vault/box must not warp, rust, be UV degradable, or sustain combustion.
- 3-H.** With equipment installed; the vault/box shall be capable of withstanding temperature variations of -40° Fahrenheit to 149° Fahrenheit without cracking, splitting, or otherwise deforming. Material shall be have been tested and conform to ASTM C666/C666M-03.
- 3-I.** When required, site-specific, PE stamped, seismic calculations shall be provided.
- 3-J.** Concrete properties will vary depending upon the particular formulation of the concrete mix design. Customized properties can be achieved by using nonstandard ingredients, by changing or adding reinforcements, and by tailoring the overall mix design.
- 3-K. METAL COMPONENT PERFORMANCE**
- 3-K.1** All galvanized steel covers, hardware, and embedments shall meet the following requirements:
- Steel Deck Plating - ASTM A786 | Steel Sheet - A1011 HSLAS Gr 50
 - Steel Angles & Flats - ASTM A-36 | Galvanized Covers - ASTM 123
 - Galvanized Hardware - ASTM 153

3-K.2 All stainless steel hardware and embedments shall meet the following requirements:

- Stainless Steel Angles & Flats Type 304 - ASTM A276
- Stainless Steel Sheet Type 304 - ASTM A-240

3-K.3 All aluminum covers, hardware, and embedments shall meet the following requirements:

- Aluminum Flats 6061-T6511 - ASTM B221 | Aluminum Sheet Smooth 5052-H32 - ASTM B209
- Aluminum Deck Plating 3003 - ASTM B209 or 6061 - ASTM B632
- Aluminum Angles 6061-T6 - ASTM B308 | Aluminum Channels 6061-T6 - ASTM B308

4. PULL BOXES

- 4-A.** Pull boxes shall have 4 or 6 inch thick walls, optional interlocking extension rings, and removable cover sections assembled to form a completely enclosed unit.
- 4-B.** For boxes with non-standard heights, extension rings shall be stacked vertically on the base ring to meet the desired depth requirement.

5. URD EQUIPMENT/VISTA VAULT

- 5-A.** All vaults shall include platforms, supports, access ladder, two covers, and other miscellaneous hardware required for operating and maintaining switchgear equipment.
- 5-B.** Vaults shall have a wide flanged base to help prevent floatation.
- 5-C.** Vaults shall be supplied with spring-assist covers upon request. These covers can be operated by one person. Standard covers are fixed.

4. INSTALLATION REQUIREMENTS

- 4-A.** When the bottom of the excavation is soft, or where in the opinion of the soils engineer unsatisfactory foundation conditions exist, the contractor shall over excavate to a depth to ensure a proper foundation as directed by the soils engineer. The excavation can then be brought back up to the prescribed grade with a thoroughly compacted granular material.
- 4-B.** All box/vault excavations shall be backfilled to restore pre-existing conditions or to the final grade as specified by the owner.
- 4-C.** All backfill material shall be a granular material as required by the soils engineer. Boxes/vaults shall be designed to have no limitations of backfill height.
- 4-D.** Installation guidelines shall be made available online.



Production Facilities for Concast, Inc. are in Zumbrota & Wanamingo, MN

CONCAST

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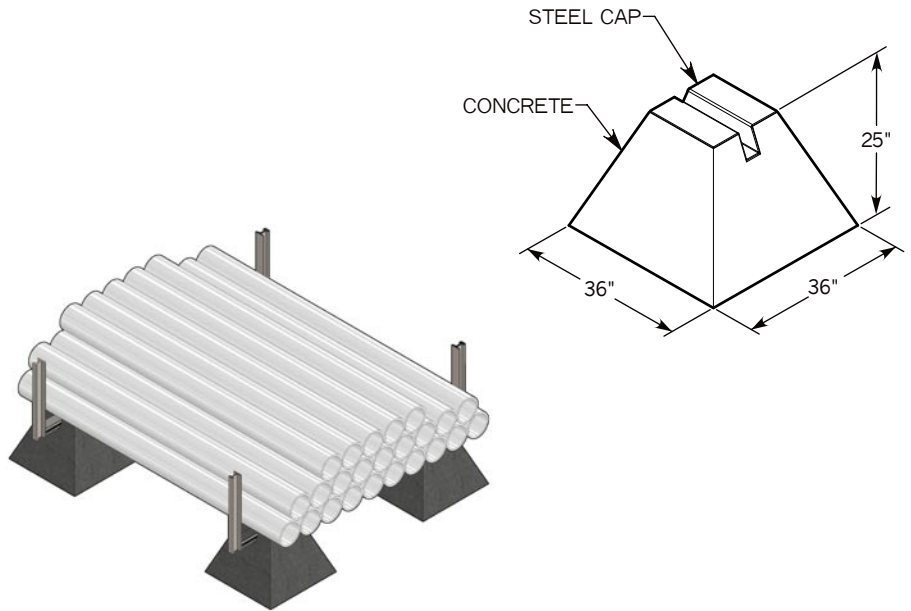
August 2013





Concrete Poleyard Bunkers

These items are used for organizing various items such as electric poles, steel, or PVC pipe in the yard or job site. Quick and easy to set up; this system will help to keep your materials up off the ground and safe. Four pole yard bunkers make up the base; and steel rails (supplied by others) make up the supports. The notch in the bunker is designed to contain an A.S.C.E rail. This bunker and rail system will allow you to use a fork lift or other heavy lifting equipment to manipulate your piping materials. Bunkers are ordered under Concast part number PB-60. A CAD drawing can be viewed online as a PDF file at www.concastinc.com/Other_Products/Pole_Yard_Bunkers.



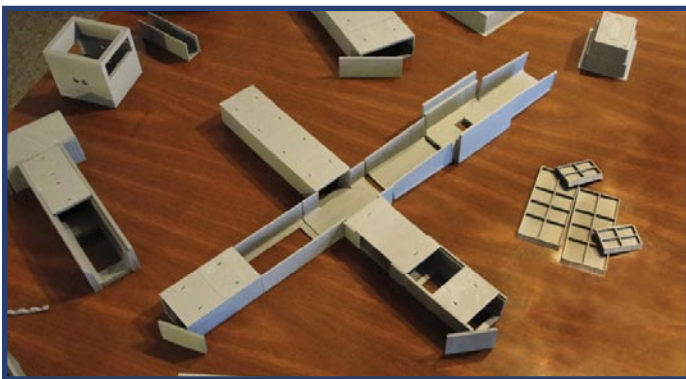
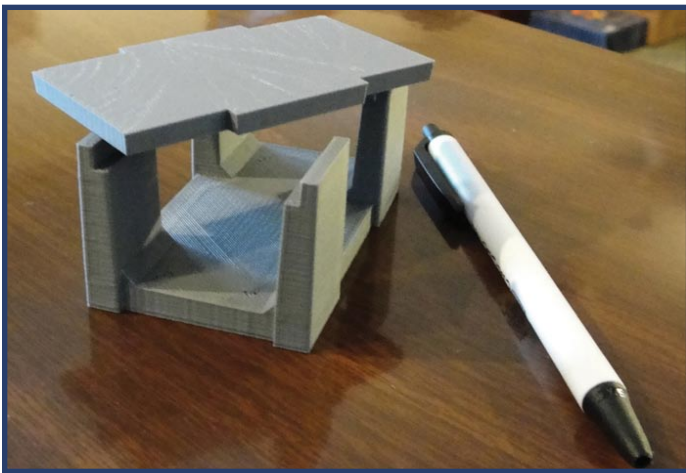
TRAILER WEIGHTS



Features:

- Solid concrete trailer weights are a great way to add traction to your empty rig in the winter time
- These units come standard with fork pockets in the base for easy handling.
- The standard unit weighs about 1900 pounds
- Top edge is protected by cast-in steel angle.
- See www.concastinc.com/Other_Products/Trailer_Weights for a CAD drawing in PDF format.

3-D Printing Services



3-D PRINTING SERVICES:

- Also known in the industry as **Rapid Prototype** or **Additive Manufacturing**.
- 3-D Printing/RP can help you to effectively evaluate, optimize and communicate your prototype design; thus reducing costs and shortening development timelines.
- Concast uses the Stratasys 3D Printing System to produce ABS thermoplastic parts without machining or tooling.
- The RP machine uses a Fused Deposition Modeling (FDM) system to transform 3D CAD files into hard plastic parts.
- Finished parts must be no larger than 8" x 8" x 12".
- Standard parts are printed in steel gray, but white, black, red, blue, green, & yellow are available.
- The preferred 3D file format is .stl or SolidWorks .sldprt files. But Concast can work with many other formats including .prt, .stp, & .cgr.
- Visit www.concastinc.com/Other_Products/Rapid_Prototypes for an online form to upload your project requirements and to get a Concast quote.



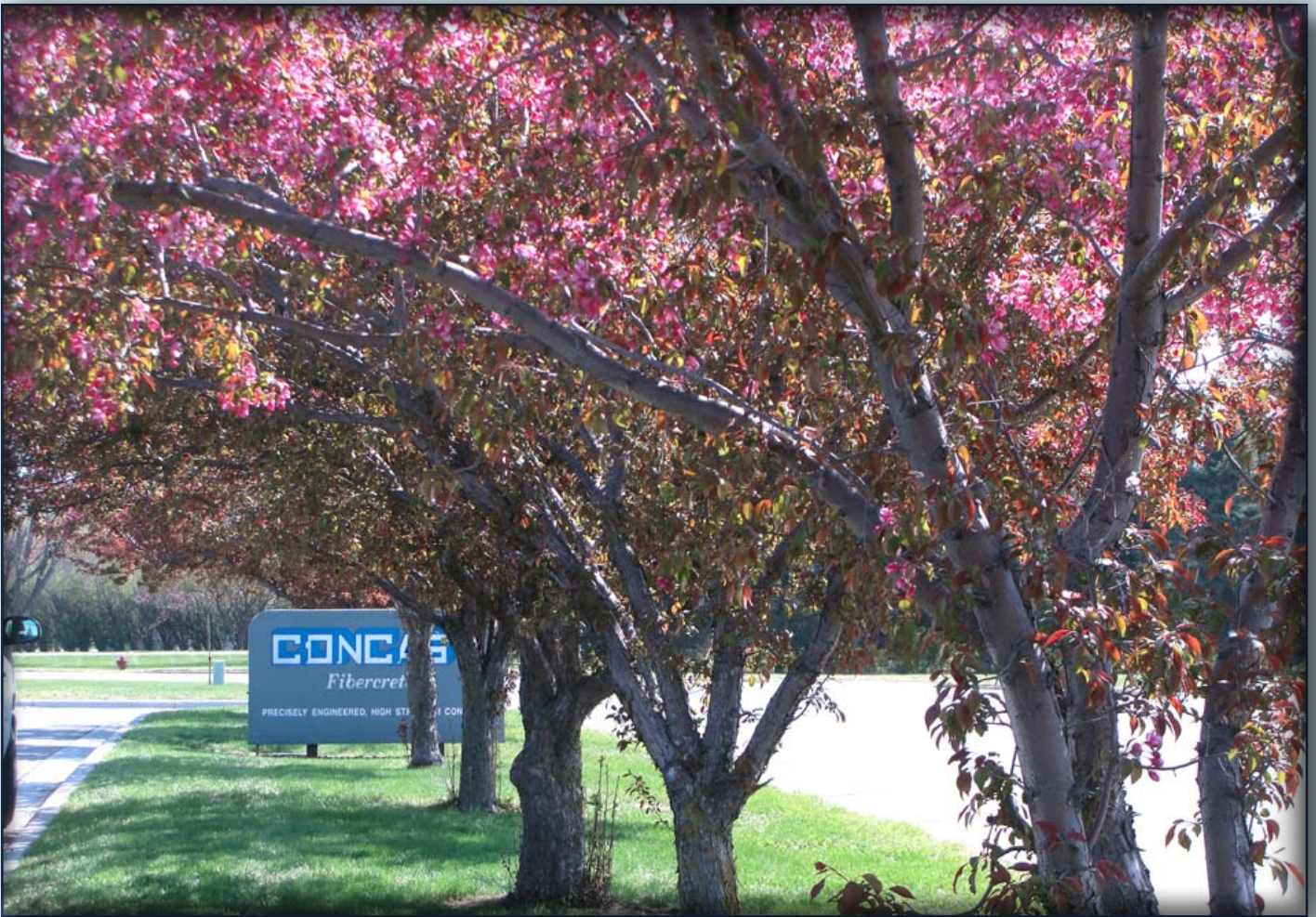
Misc. Concast Products

CONCAST

Fibercrete®

PRECISELY ENGINEERED, HIGH STRENGTH





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