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The logo for Mega Hertz, featuring the letters 'MHz' in a stylized, outlined font above the words 'MEGA HERTZ' in a smaller, solid font.

# OSP Playbook

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# 01

PART ONE

## Fiber Distribution Hub



SA-FDH series  
**Fiber Distribution Hub**

Modular FDH  
 Pole/Pad Mount  
 Enclosure

Usage For  
 PON  
 FTTX  
 MDU

Part Number	SA-FDH-144F	SA-FDH-288F	SA-FDH-432F
FDH Cabinet	144 Cores	288 Cores	432 Cores
Dimensions	1350×450×430mm	1350×450×430mm	1320×550×450mm
Weight	54kg	57kg	58kg
Port Density	144	288	432
Feeder/Express Ports	48	48	48
Cable Entrances	6	6	6
Mounting Options	Vault mount	Vault mount	Vault mount
Splitter Slots	9	9	14
Cassette Types Supported	12 cores Splice Cassette	12 cores Splice Cassette	12 cores Splice Cassette
Connector Types	SC/UPC, SC/APC, LC/UPC, LC/APC		
Cable Types	Indoor/Outdoor, Outdoor (Riser/Non-Rated), Outdoor Armored (Riser/Non-Rated)		
Splice Capacity	12 splices in each Splice Cassette		
Ground Locate Box	Yes - Optional		
Material	Galvanized steel plate with powder coating		

KEY PRODUCT BENEFITS

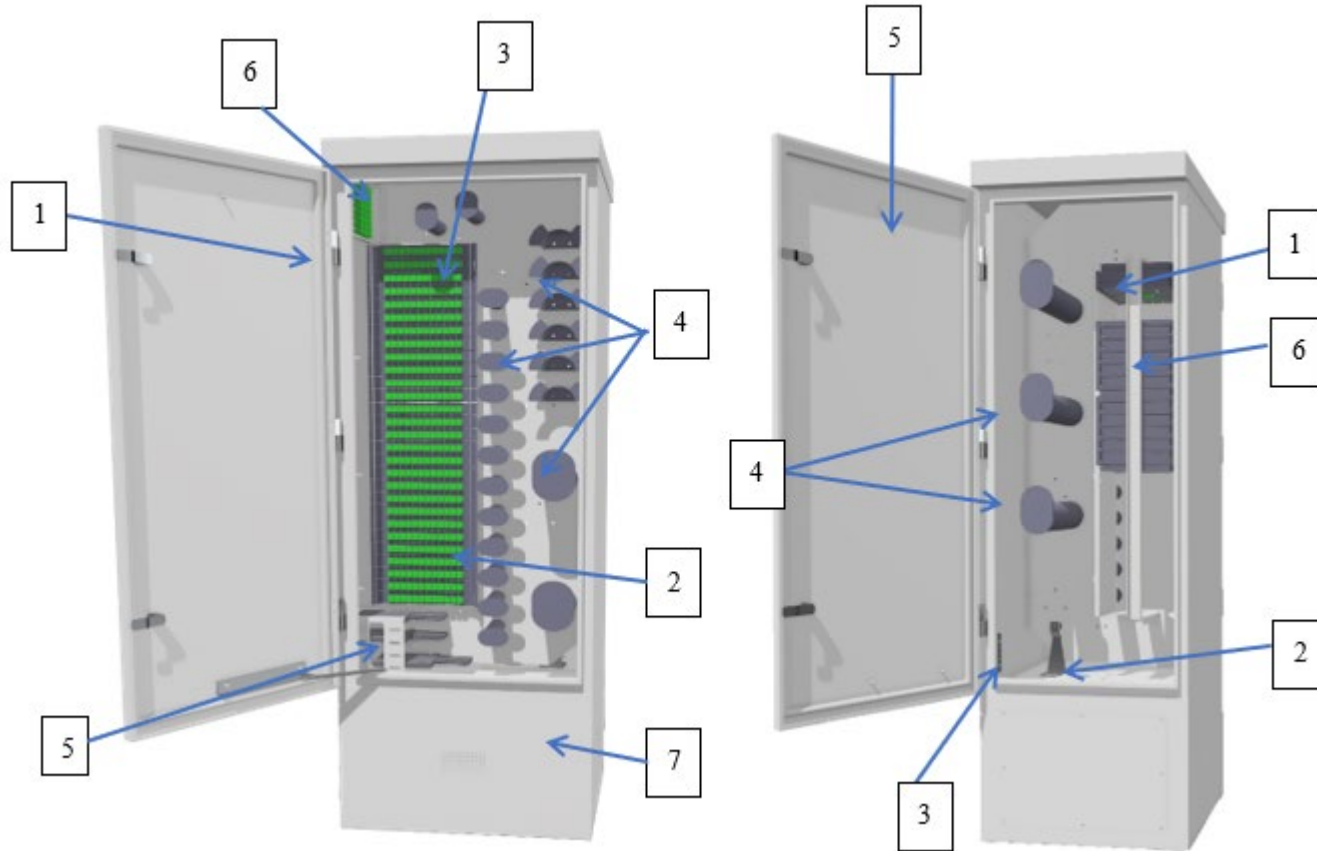
- 432 fiber distribution and PON splitting
- Modular patch & splice cassettes for added flexibility
- Available with feeder and distribution factory stubs
- Additional splicing capacity for express cables
- Side door distribution access
- Removable doors with padlock hasp
- Pole, wall and pad mount options
- Pad skirt options for extra slack storage

INDUSTRY STANDARDS COMPLIANCE

GR-3125, GR-1209, GR-1221, GR-326, GR-20

- Mount FDH to Canyon 30x48 Vault. Dual lid provides mounting and access to fiber
  - Use p/n: CYV-3048

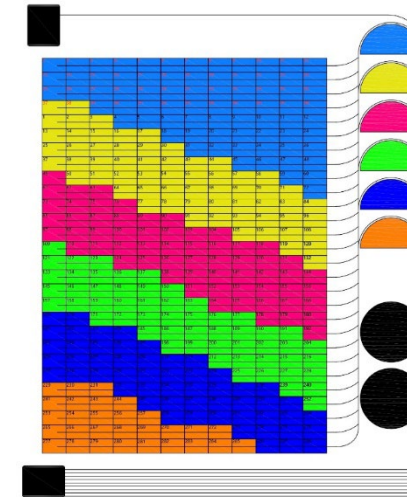
# 144/288 core FDH with full mount splice tray



1. Fiber Route Label
2. Distribution Cassettes
3. Feeder Cassettes
4. Fiber Management Rods and Spools
5. Fiber Splitter Storage
6. Connector Parking Plate
7. Riser

1. Distribution and Feeder Cassettes
2. Distribution and Feeder Cable Ports
3. Grounding wire
4. Fiber Management Rods and Spools
5. Tools storage pocket
6. Splice Cassettes magnetic fixing bar

## Fiber route for SA-FDH-144/288F

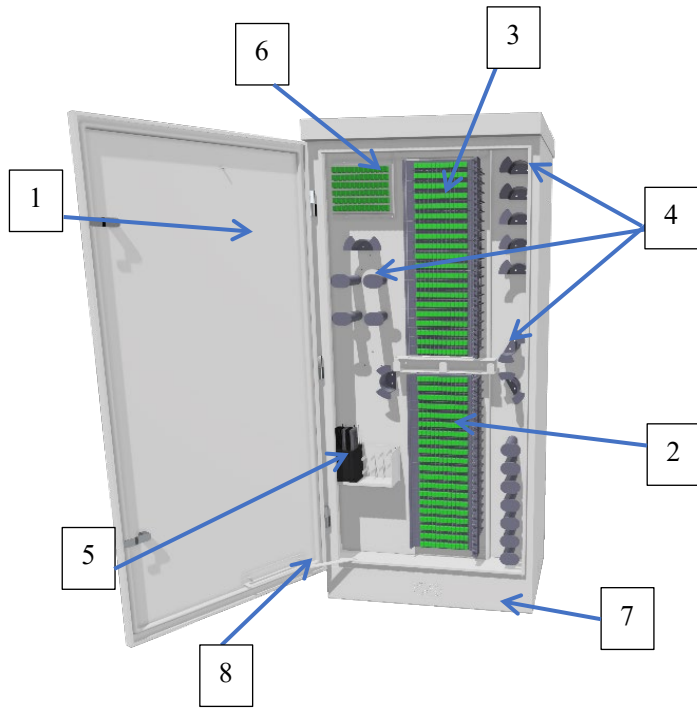


### KEY PRODUCT BENEFITS

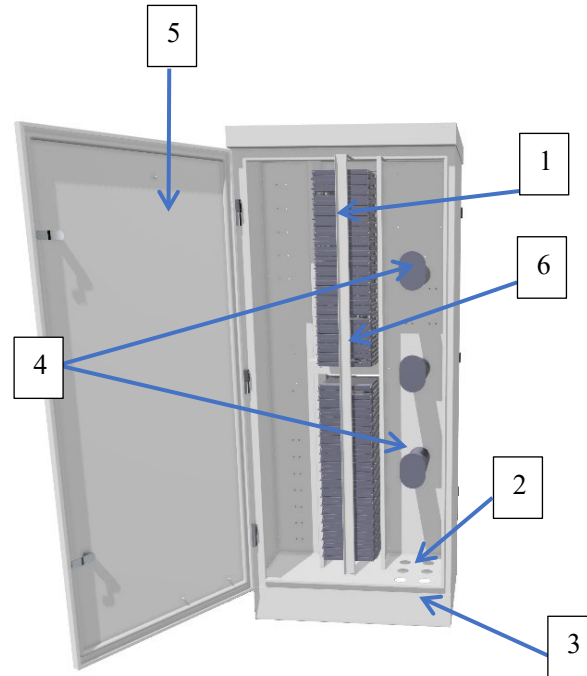
- 432 fiber distribution and PON splitting
- Modular patch & splice cassettes for added flexibility
- Available with feeder and distribution factory stubs
- Additional splicing capacity for express cables
- Side door distribution access
- Removable doors with padlock hasp
- Pole, wall and pad mount options
- Pad skirt options for extra slack storage



# 432 core FDH with full mount splice tray

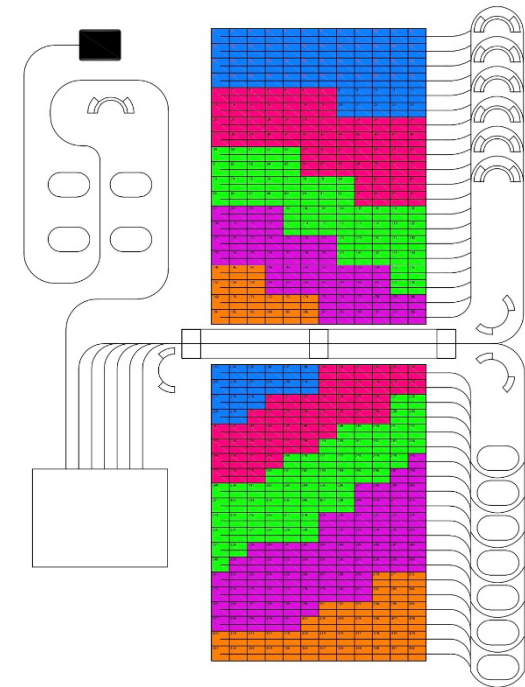


1. Fiber Route Label
2. Distribution Cassettes
3. Feeder Cassettes
4. Fiber Management Rods and Spools
5. Fiber Splitter Storage
6. Connector Parking Plate
7. Riser
8. Grounding wire



1. Distribution and Feeder Cassettes
2. Distribution and Feeder Cable Ports
3. Riser
4. Fiber Management Rods and Spools
5. Tools storage pocket
6. Splice Cassettes magnetic fixing bar

## Fiber route for SA-FDH-432F



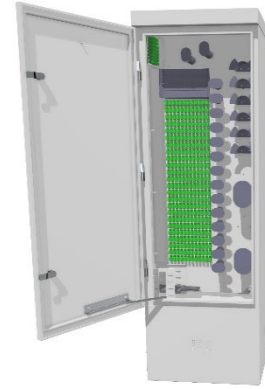
# FDH with 30m drop fiber cable



144f with drop cable front view



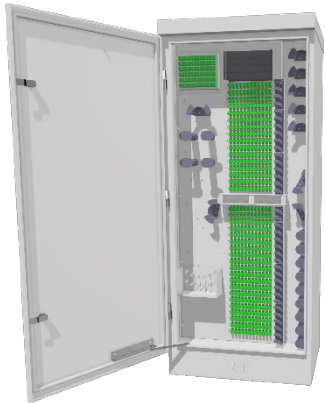
144f with drop cable back view



288f with drop cable front view



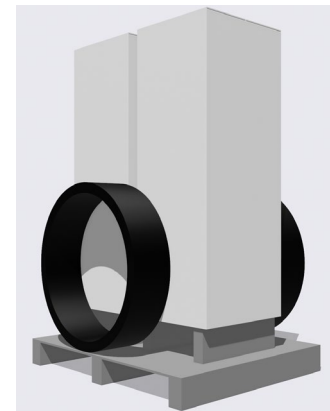
288f with drop cable back view



432f with drop cable front view



432f with drop cable back view





FDH with 30m drop cable packing method

# FDH Standard Ordering Information

P/N	Product Description
SA-FDH-144F	1 set 144 cores FDH load with 144 pcs SC/APC 1m 0.9mm LSZH G657A1 pigtails and 144 pcs SC/APC simplex adapters
SA-FDH-288F	1 set 288 cores FDH load with 288 pcs SC/APC 1m 0.9mm LSZH G657A1 pigtails and 288 pcs SC/APC simplex adapters
SA-FDH-432F	1 set 432 cores FDH load with 432 pcs SC/APC 1m 0.9mm LSZH G657A1 pigtails and 432 pcs SC/APC simplex adapters
SA-FDH-144F-D30m	1 set 144 cores FDH load with 144 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXY, Gel-free Single Jacket Central Tube Optic Ribbon Fiber Cable.
SA-FDH-288F-D30m	1 set 288 cores FDH load with 288 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXY, Gel-free Single Jacket Central Tube Optic Ribbon Fiber Cable.
SA-FDH-432F-D30m	1 set 432 cores FDH load with 432 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXY, Gel-free Single Jacket Central Tube Optic Ribbon Fiber Cable.
SA-FDH-144F-D30mA	1 set 144 cores FDH load with 144 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXW, Gel-free Single Jacket Single Armor Central Tube Optic Ribbon Fiber Cable
SA-FDH-288F-D30mA	1 set 288 cores FDH load with 288 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXW, Gel-free Single Jacket Single Armor Central Tube Optic Ribbon Fiber Cable
SA-FDH-432F-D30mA	1 set 432 cores FDH load with 432 pcs SC/APC adaptor with 30m drop cable spliced ready. Cable is SA-OFC-GYDXW, Gel-free Single Jacket Single Armor Central Tube Optic Ribbon Fiber Cable

# Accessories: 12 Fiber Splice Tray

Technity P/N	Photos	Description
SA-CST-12F		<p>SC/APC 12 Fiber On Pigtail G657A1 PVC 0.9mm 1.5M</p> <p>14 trays in 144 core FDH            28 trays in 288 core FDH            40 trays in 432 core FDH</p> <p><b>Standard number of splice trays shown per cabinet</b></p> <p><b>Additional splice trays can be ordered</b></p>
SA-CST-12FR		<p>SC/APC 12 Fiber Splice On Ribbon Fanout Pigtail 1.5M</p> <p>14 trays in 144 core FDH            28 trays in 288 core FDH            40 trays in 432 core FDH</p> <p><b>Standard number of splice trays shown per cabinet</b></p> <p><b>Additional splice trays can be ordered</b></p>

- **Splice tray can be customized based on need**



## Technical details

Box PLC Specification											
Wavelength(nm)	1260-1650										
Fiber Type	Single mode (G657.A2)										
Optical Fiber Length	1500mm, can be customized										
Jacket O.D.	2.0mm, can be customized										
Splitter Ratio	1×4	1×8	1×16	1×32	1×64	2×4	2×8	2×16	2×32	2×64	
Insertion Loss ( with connector ) (dB)	≤7.4	≤10.5	≤13.8	≤17.1	≤20.4	≤7.5	≤10.8	≤14.1	≤17.4	≤21	
Uniformity (dB)	≤0.8	≤0.8	≤1.0	≤1.3	≤2.0	≤1.0	≤1.0	≤1.5	≤2.0	≤2.5	
<u>PDL</u> (dB)	≤0.2	≤0.2	≤0.19	≤0.18	≤0.17	≤0.2	≤0.18	≤0.17	≤0.16	≤0.19	
Size(H×W×L)(mm)	10×80×100		18×80×120		18×115×141		10×80×100		18×80×120		18×115×141
Return Loss(dB)	UPC≥50 APC≥55										
Directivity(dB)	≥55										
Temperature Range(°C)	-40~+85										
Storage Temperature(°C)	-40~+85										

Order splitters separately

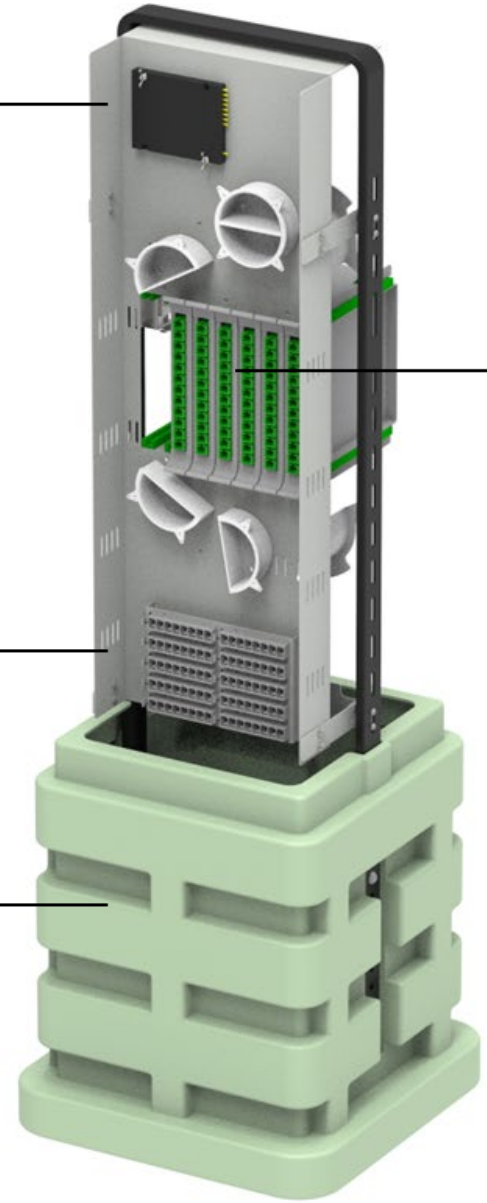
P/N	Description	
SA-BPLC- <b>XXX</b> - <b>YYY</b>	Box type PLC, with selection of different connector type and splitter ratio. Cable O.D. is 2.0mm. Input and output length can be customized, default are 1.5 meter.	
	<b>XXX</b>	<b>connector type</b> SCA - SC/APC SCU - SC/UPC LCA - LC/APC LCU - LC/UPC
	<b>YYY</b>	<b>splitter ratio</b> 104 - 1:4 type 108 - 1:8 type 116 - 1:16 type 132 - 1:32 type 164 - 1:64 type 204 - 2:4 type 208 - 2:8 type 216 - 2:16 type 232 - 2:32 type 264 - 2:64 type

# NEW SureAlign Mini FDH Pedestal

1:32 box type splitter  
1:8, 1:12, 1:16 options

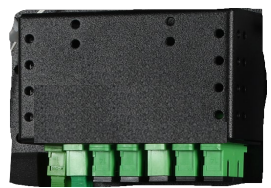
Parking Lot  
80 spots

SA-PD-141446  
Pedestal



One-Piece Fiber Splice Tray,  
7 trays, 12 ports

**Available with Optional Fiber Taps  
In Distributed Tap Architecture**



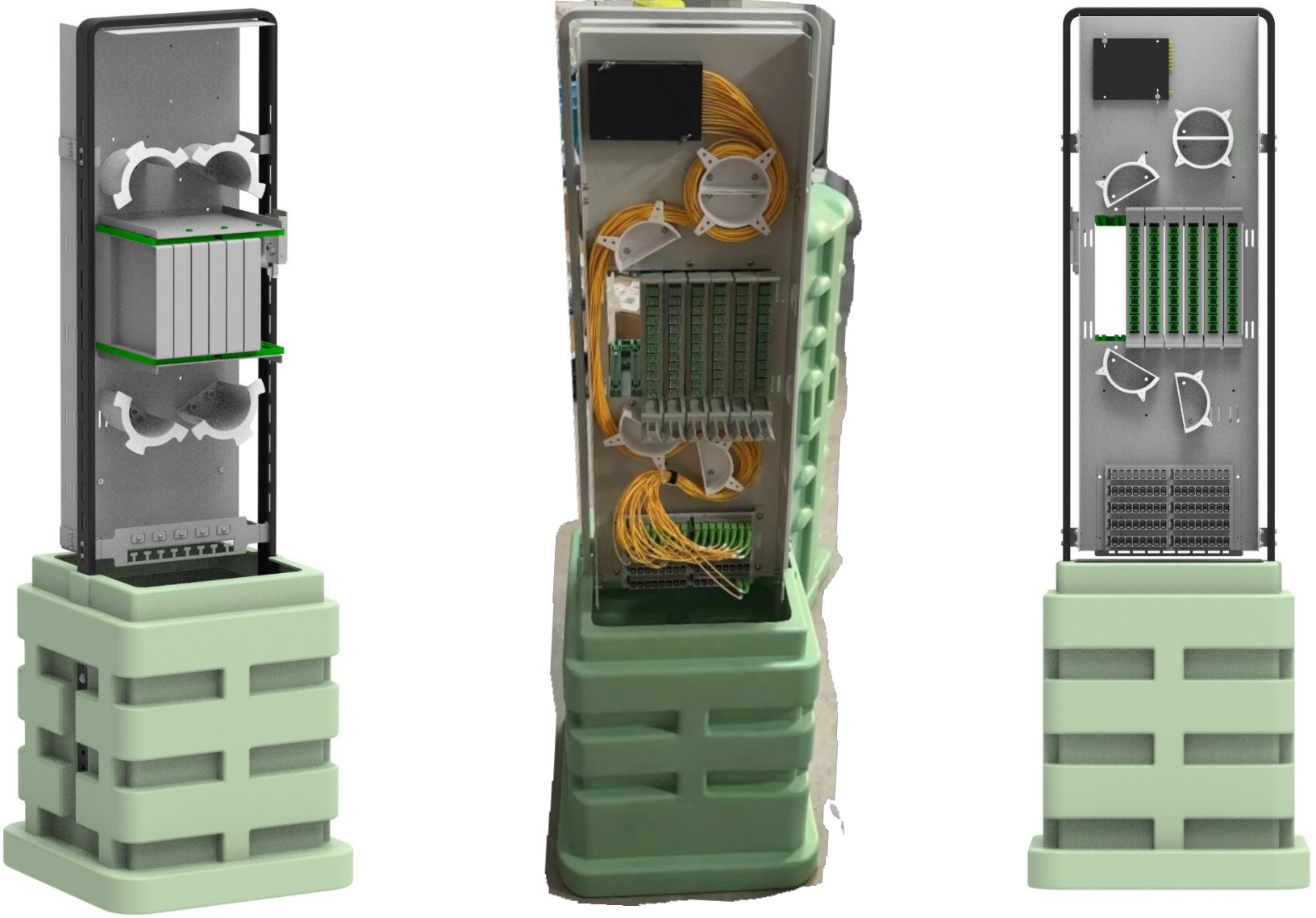
Box Type



FSIC Type



# SureAlign Mini FDH in Pedestal Proposal



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# 02

PART TWO

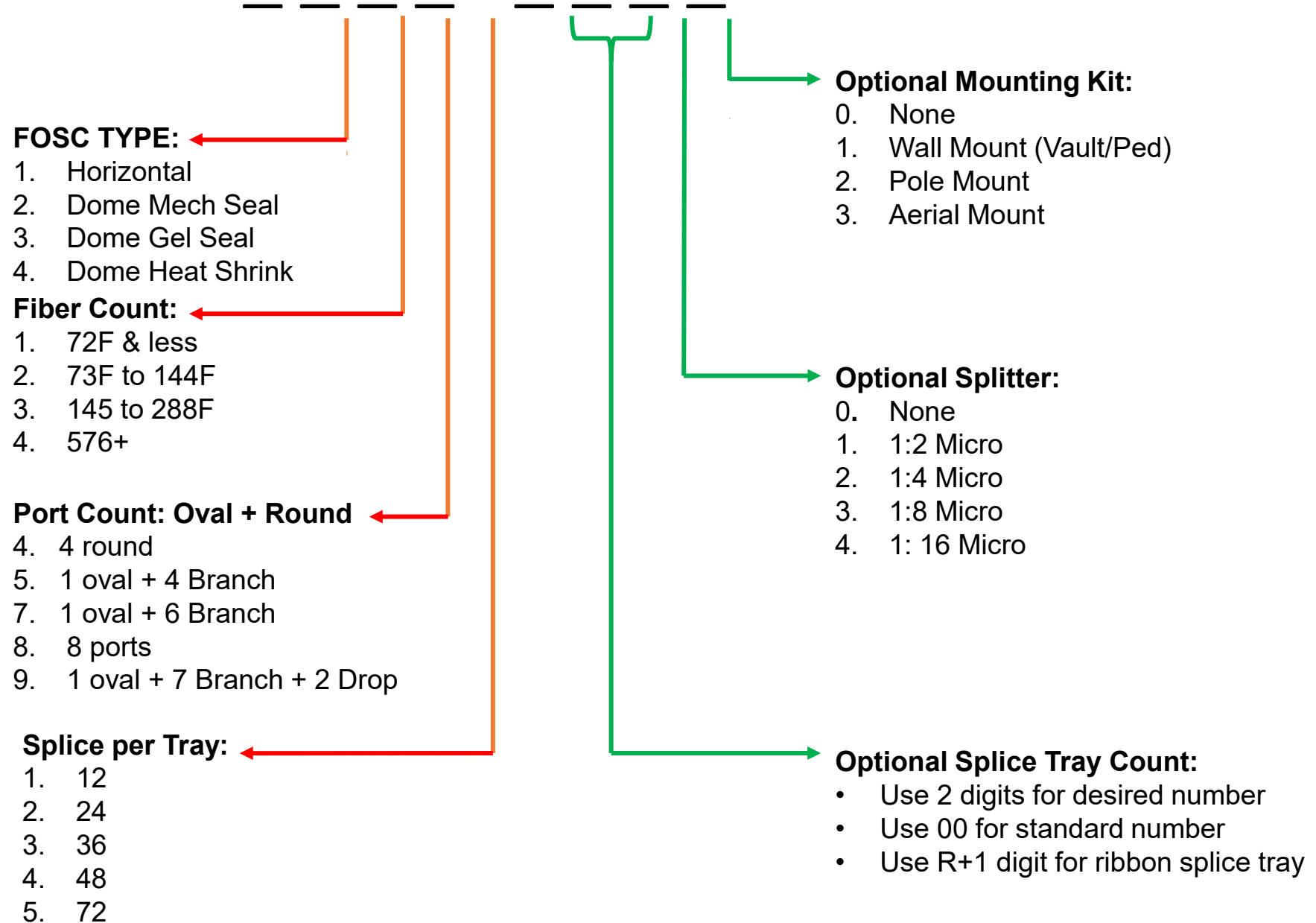
## FOSC: Fiber Optic Splice Closure Domed & Suitcase Style



# FOSC Fiber Optic Splice Closures Series

- Sealing: Mechanical (Available now) & Gel Seal (Available Q-1,2024)
- Fiber Handling: Number of Splices or Fibers
- Type: Dome, Suitcase
- Mounting: Aerial, Vault, Pole, Wall... IP68 and IP65 options
- Applications: Distribution, Feeder

# SA-FOSC-



Use Config tool to understand what the products are. The summary table slides and the product detail slides show what the existing products capability.

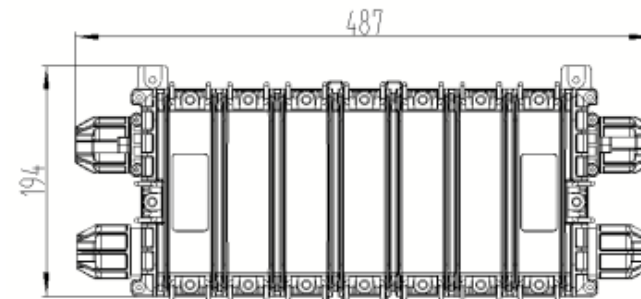
# SureAlign: Horizontal FOSC Product Summary

Model	Max splice capacity	Cable port	No. of splice trays/type	Max splice capacity
<a href="#">SA-FOSC-1142</a>	72F	4 round ports for 10-18mm cable 2x2 Inline ports	3 pcs @ 24 ea.	72F
<a href="#">SA-FOSC-1343</a>	288F	4 round ports for 10-18mm cable	6 pcs @ 48 ea.	288F

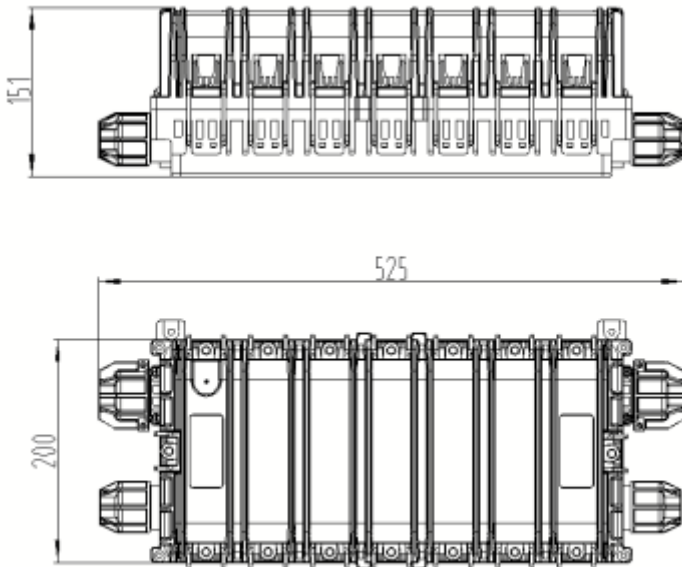
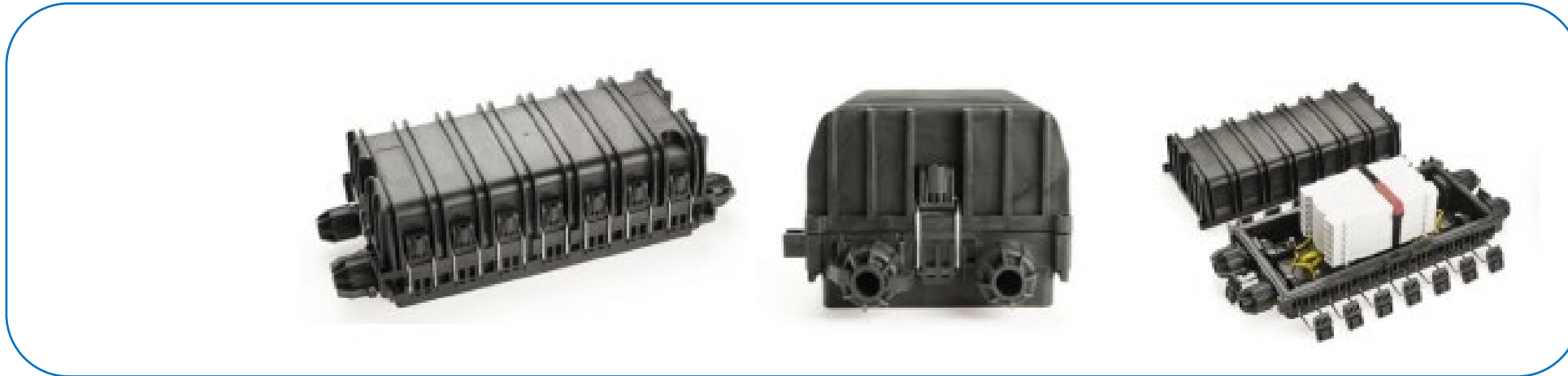
# SureAlign: SA-FOSC-1142 Details



Model No.	SA-FOSC-1142
Style	In-line/ Horizontal
Dimensions	487(L)×194(W)×118(H) mm
Weight (kg)	3.5 - 4.0
Material	PP+GF
Sealing Type	Mechanical Seal
Protection Grade	IP68
Cable ports	4
Cable diameter	Φ 10-18 mm
Fiber Splice Capacity	72
Tray Capacity	24
Tray Count	3
Application	Aerial mounting, Manhole mounting, Wall mounting and underground



# SureAlign: SA-FOSC-1343 Details










Model No.	SA-FOSC-1343
Style	In-line/ Horizontal
Dimensions	525(L)×200(W)×151(H) mm
Weight (kg)	3.5 - 4.0
Material	PP+GF
Sealing Type	Mechanical Seal
Protection Grade	IP68
Cable ports	4
Cable diameter	Φ 10-18 mm
Fiber Splice Capacity	288
Tray Capacity	48
Tray Count	6
Application	Aerial mounting, Manhole mounting, Wall mounting and underground

# SureAlign Horizontal FOSC Ordering Info

Ordering P/N	Description	Info
SA-FOSC-1142-0000	Fiber Optic Splice Closure, IP68 grade, 2 in 2 out for 10-18mm cable, 72 Fiber splice capacity, 3 Trays @ 24 Splice	MP. 6 per carton
SA-FOSC-1142-0002	Fiber Optic Splice Closure, IP68 grade, 2 in 2 out for 10-18mm cable, 72 Fiber splice capacity, 3 Trays @ 24 Splice, Aerial Mounting	
SA-FOSC-1343-0000	Fiber Optic Splice Closure, IP68 grade, 2 in 2 out for 10-18mm cable, 288 Fiber splice capacity, 6 Trays @ 48 Splice	MP. 6 per carton, 72/pallet, 1440/HQC
SA-FOSC-1343-0002	Fiber Optic Splice Closure, IP68 grade, 2 in 2 out for 10-18mm cable, 288 Fiber splice capacity, 6 Trays @ 48 Splice, Aerial Mounting	

## Standard accessories (Picture only for refer)

Item	Description	Qty	Picture
1	Insulation tap	1 roll	
2	Splicing protective tube	1 bag	
3	Nylon cable tie	1 bag	
4	Choke plug	2 pcs	
5	Installation manual	1 set	
6	EVA tube	1 roll	
7	Ground lead	1 set	

Status: Mass Production  
 MOQ: 1 Pallet  
 6 pcs/carton  
 72 pcs/pallet  
 720pcs/20' Container  
 1440pcs./40'HQ Container

# SureAlign: Domed FOSC Splice Closures Summary

Closure size	Base Model	Max splice capacity	Cable port	# Tray & Splice/Tray
A	<a href="#">SA-FOSC-2141</a>	48F	4 round ports for 8-16mm cable	4 pcs @ 12 ea.
	<a href="#">SA-FOSC-2151</a>	72F	1 oval port for 8-18mm cable 4 branch port for 8-18mm cable	6 pcs @ 12 ea.
	<a href="#">SA-FOSC-2252</a>	144F	1 oval port for 8-18mm cable 4 branch port for 8-18mm cable	6 pcs @ 24 ea.
B	<a href="#">SA-FOSC-2372</a>	288F	1 oval port for 10-22mm cable 6 branch port for 8-18mm cable	12 pcs @ 24 ea.
D	<a href="#">SA-FOSC-2491</a>	648F	1 oval port for 10-22mm cable 7 branch port for 8-18mm cable, 2 drop port for 2*3mm drop cable	54 pcs @ 12 ea.
	SA-FOSC-3382	288F	8 round ports for 3-28mm cable	12 pcs @ 24

# SA-FOSC-2141, 48 Fiber, Mechanical Seal



Key Specification			
Dimension	342×Φ183	Weight	1.5Kg
Material	PP+GF	Protection level	IP68
No of entry cable	4*Round port	Splice tray	12F
Cable diameter	Round port : Φ8mm ~ 16mm	Max splicing capacity	48F
Sealing mode	Mechanical	Installation mode	Pole/Aerial/Wall/Manhole





# SA-FOSC-2252, 144 Fiber, Mechanical Seal



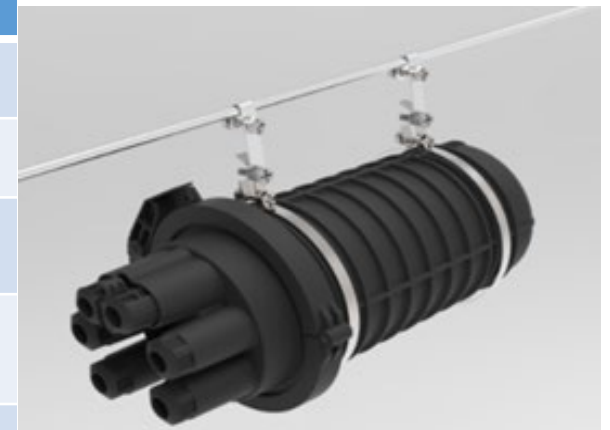
## Key Specification

Dimension	460×Φ225	Weight	3.5 ~ 4.5Kg
Material	PP+GF	Protection level	IP68
No of entry cable	1*Oval+4*Round	Installation mode	Wall/Pole/Aerial/Manhole
Cable diameter	1*Oval port: Φ8mm ~ 18mm 4*Round port : Φ8mm ~ 18mm	Single tray/Ribbon tray	24F(Single) ; 72F/96F for 6f/12f (Ribbon)
		Max capacity	144F(Single) ; 432F/576F(Ribbon)

# SA-FOSC-2151, 72 Fiber, Mechanical Seal



Key Specification			
Dimension	395×Φ225	Weight	3.0Kg
Material	PP+GF	Protection level	IP68
No of entry cable	5 Round ports	Splice tray	12F
Cable diameter	Oval port: Φ8mm ~ 18mm Branch port : Φ8mm ~ 18mm	Max splicing capacity	72F
Sealing mode	Mechanical	Installation mode	Pole/Aerial/Manhole

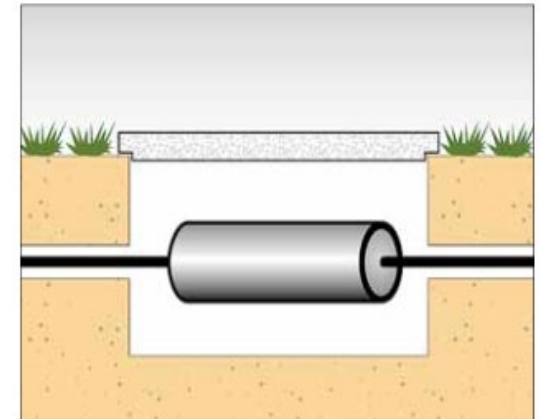


# SA-FOSC-2372, 288 Fiber, Mechanical Seal



## Key Specification

Dimension	610×Φ260	Weight	4 ~ 4.5Kg
Material	PP+GF	Protection level	IP68
No of entry cable	1*Oval+6*Round	Installation mode	Pole/Aerial/Manhole
Cable diameter	Oval port: Φ10mm ~ 22mm Round port : Φ8mm ~ 18mm	Single tray	24F
		Max capacity	288F

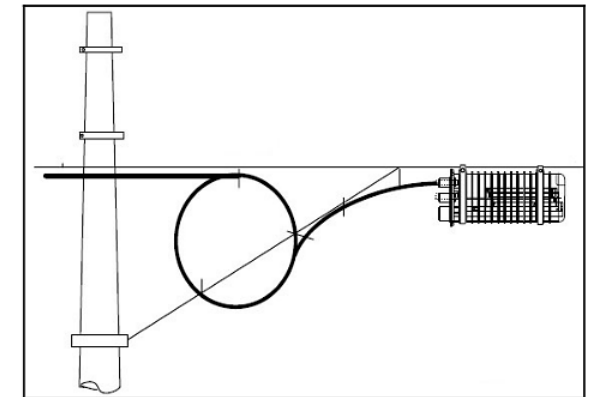


# SA-FOSC-2492, 648 Fiber, Mechanical Seal



## Key Specification

Dimension	660×265mm	Weight	7.5 ~ 8.0Kg
Material	PP+GF	Protection level	IP68
No of entry cable	1*Oval+7*Round +2*drop port	Installation mode	Pole/Aerial/Wall
Cable diameter	1*Oval port: $\Phi$ 10mm ~ 22mm	Splice tray	24F/12F/6F
	7*Round port : $\Phi$ 8mm ~ 18mm 2*Drop port : $\Phi$ 2*3mm	Max capacity	648F



[Aerial Installation]



# SA-FOSC-3382, 288 Splices, Gel Seal

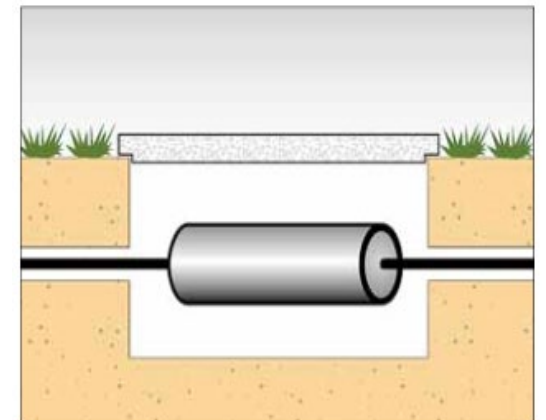


**Available Q1-2024**



## Key Specification

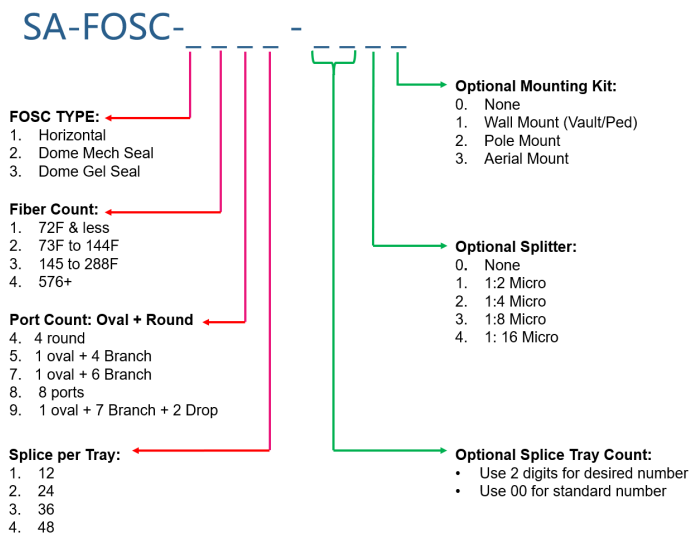
Dimension	610×Φ260	Weight	4 ~ 4.5Kg
Material	PP+GF	Protection level	IP68
No of entry cable	1*Oval+6*Round	Installation mode	Pole/Aerial/Manhole
Cable diameter	Oval port: Φ10mm ~ 22mm Round port : Φ8mm ~ 18mm	Single tray	24F
		Max capacity	288F



# SureAlign Dome FOSC Ordering Info



Ordering P/N	Description	Info
SA-FOSC-2141-0003	Dome Type Fiber Optic Splice Closure, IP68 grade, 4 round port for 8-18mm cable, Mechanical Seal, Maximum 48 fiber splice capacity, Aerial mounting	
SA-FOSC-2151-0003	Dome Type Fiber Optic Splice Closure, IP68 grade, 1-oval & 4 round port for 8-18mm cable, Mechanical Seal, Maximum 72 fiber splice capacity, Aerial mounting	
SA-FOSC-2252-0003	Dome Type Fiber Optic Splice Closure, IP68 grade, 4 round port + 1 oval port for 8-18mm cable, Maximum 144 fiber splice capacity, Aerial mounting	
SA-FOSC-2372-0003	Dome Type Fiber Optic Splice Closure, IP68 grade, 6 round port + 1 oval port for 8-18mm cable, Maximum 288 fiber splice capacity, Aerial mounting	
SA-FOSC-2492-0003	Dome Type Fiber Optic Splice Closure, IP68 grade, 7 round port + 1 oval port + 2 drop ports for 8-18mm cable(round), 10-22mm(oval), 2*3mm(drop port), Maximum 648 fiber splice capacity, Aerial mounting	



Status: Mass Production  
 MOQ:  
 xx pcs/carton  
 xx pcs/pallet  
 xxxpcs/20' Container  
 xxxxpcs./40'HQ Container

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# 03

PART THREE

## FSIC: Fiber Splice Closure with Internal Connector

# SA-FSIC -

## FSIC TYPE:

- 4. Hard Conn.
- 5. Internal Connector

## Fiber Splice Count:

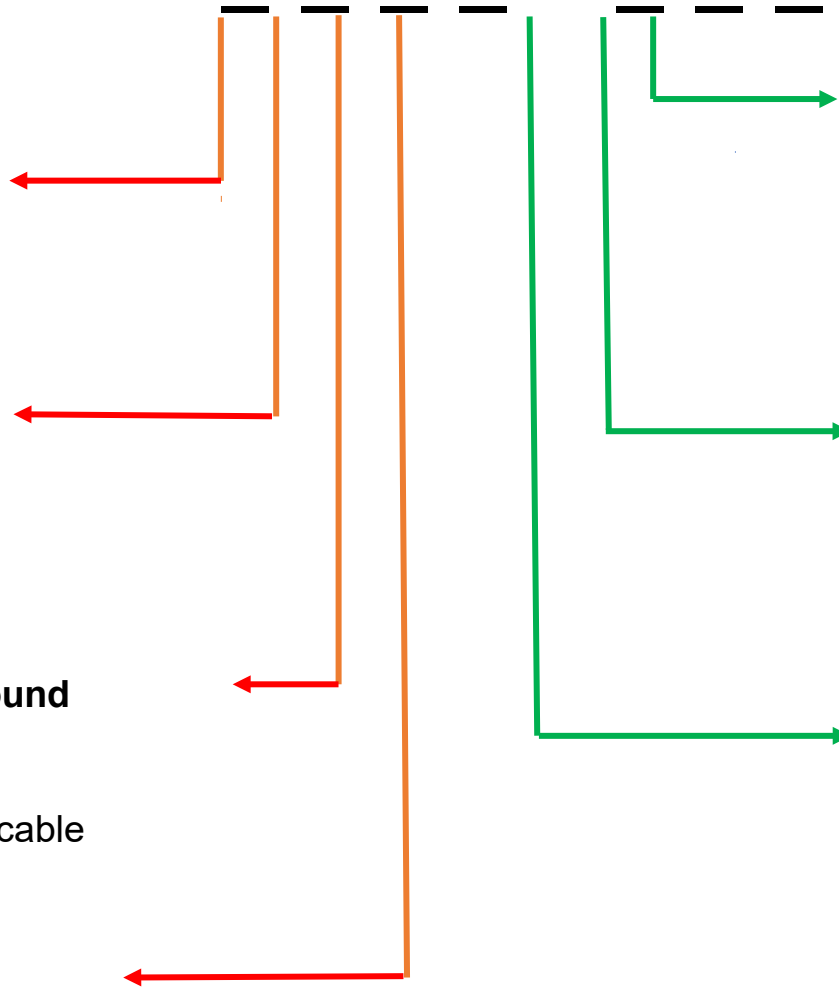
- 3. 12 Fiber
- 4. 24 Fiber
- 5. 72 Fiber
- 6. 96 Fiber

## Port Count: Oval + Round

- 1. 1 Oval
- 2. 1 Oval + 2 Branch
- 3. 3 in + 3 out 15mm cable

## Drop Ports:

- 1. 4
- 2. 8
- 3. 12
- 4. 16



## Optional Splice Tray Count:

- 0. Standard
- Use 1 digit for desired number

## Optional Mounting Kit:

- 0. None
- 1. Wall Mount (Vault/Ped)
- 2. Pole Mount
- 3. Aerial Mount

## Optional Splitter:

- 0. None/Direct
- 1. 1:2 Micro
- 2. 1:4 Micro
- 3. 1:8 Micro
- 4. 1:16 Micro

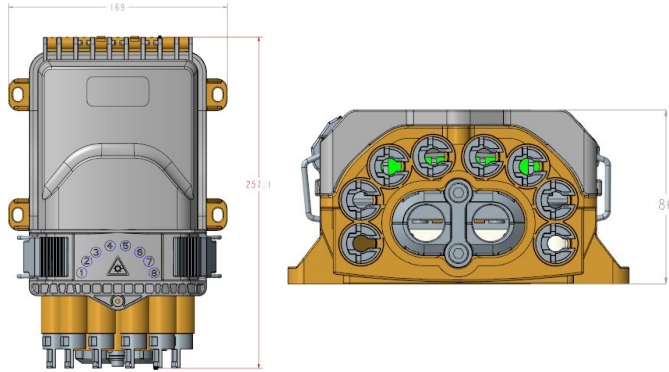




# SureAlign Fiber Splice Internal Connector Summary

Application	Model	IP Grade	Cable port	Trays x Splices	Max splice capacity	Installation
Hybrid Feeder & Drop Network	SA-FSIC-5412	IP68	1 Oval port 8 Drop ports	2T x 12S	24F	Aerial, Vault, Pole, Ped
Hybrid Feeder & Drop Network	SA-FSIC-5624	IP68	1 oval port for 10-17.5mm cable 2 Branch ports for 10-17.5mm 16 drop ports	4T x 24S	96F	Aerial, Vault, Pole, Ped

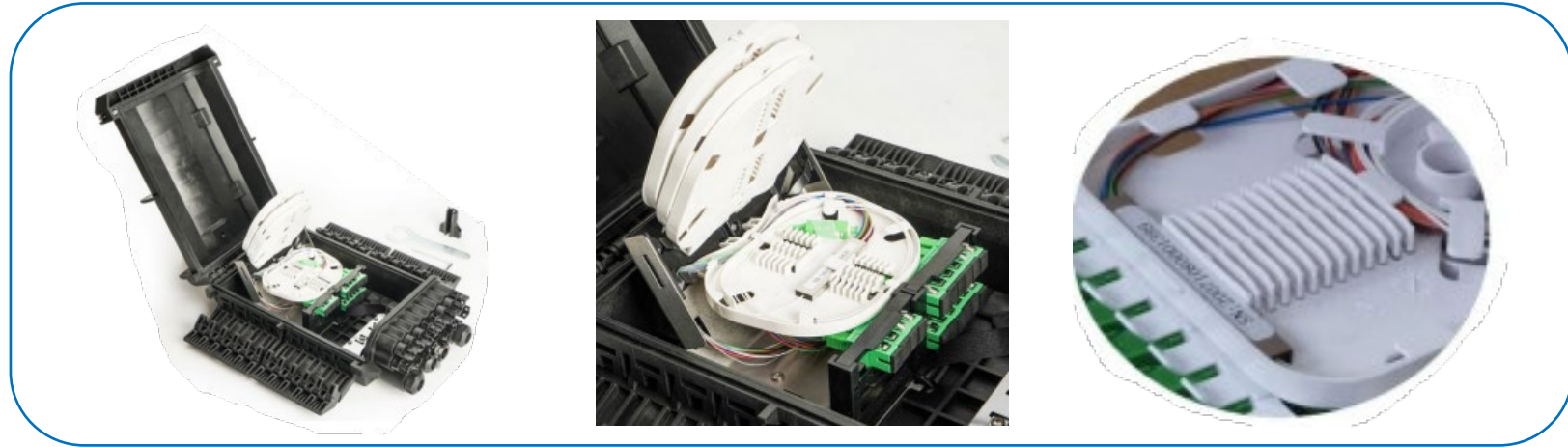
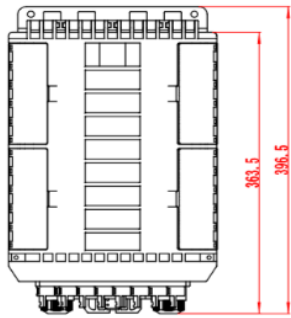
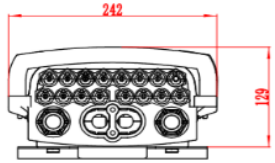
# SureAlign: SA-FSIC-5412 Standard Details



SA-FSIC-5412 is used as a termination point for the feeder cable to connect with drop cable in FTTH network system. It is designed to seal without screws. The compact size and flip-over cover bring easy operation as well as multi-purpose application. It could be installed in aerial, wall, pole, vault and ped mounted environments.

Model No.	SA-FSIC-5412
Size(mm)	L 256 * W 169 * H 86
Gross Weight(kg)	1.4
No of Cable Entry	1 oval port, $\Phi 10\text{mm} \sim 17.5\text{mm}$
No of Drop Cable	8 pcs drop cable, $\Phi 4*7\text{mm}$ flat drop or $\Phi 3-8\text{mm}$ round cable
Adapter	8 pcs SC/APC
Splitter	1:8 Micro splitter
Splice Tray	24F
Max Capacity	24F
Waterproof level	IP68
Installation Method	Pole/Wall/ Aerial mounted
Operation temperature	$- 45^{\circ}\text{C} \sim 85^{\circ}\text{C}$

# SureAlign: SA-FSIC-5624 Details



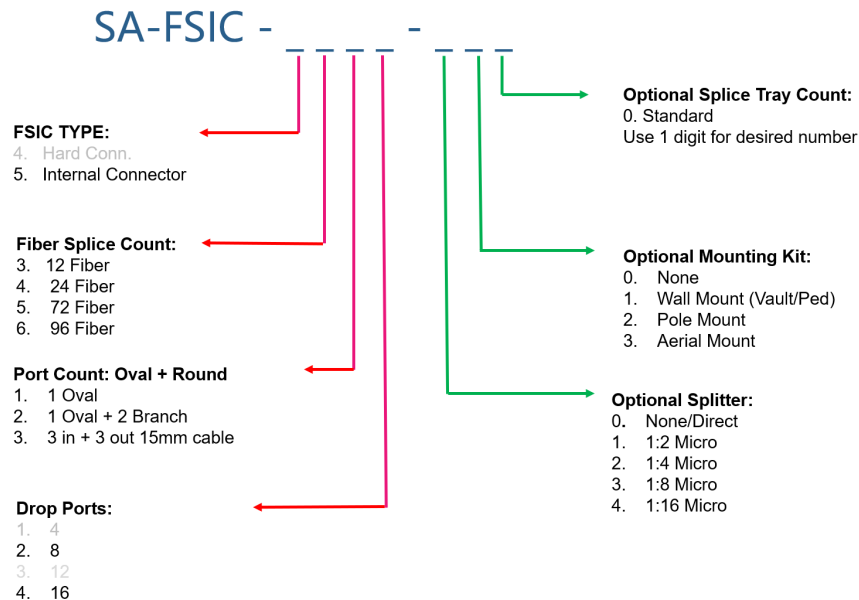
SA-FSIC-5624 is used as a termination point for the feeder cable to connect with drop cable in FTTH network system. It is designed to seal without screws. The compact size and flip-over cover bring easy operation as well as multi-purpose application. It could be installed in aerial, wall, pole, vault and ped environments.

Model No.	SA-FSIC-5624			
Style	In-line/ Horizontal			
Dimensions	380(L)×245(W)×130(H) mm			
Weight (kg)	3.0 - 4.0			
Material	PP+GF			
Sealing Type	Mechanical Seal			
Protection Grade	IP68			
Cable ports	1 oval port(Φ 10-17.5 mm); 2 branch ports(Φ 10-17.5 mm) 16 drop cable ports(2x3mm, 4x7mm, 4x8mm flat drop cable, 3-8mm round cable)			
Fiber Splice Capacity	96F			
Tray Capacity	24F			
Tray Count	4 PCS			
Component	Splitter	Maximum 4* 1x8 PLC splitter, or 1:2/1:4/1:16 splitter	Adapt or	16pcs SC
Application	Pedestal/Wall /Pole Mounting			

# SureAlign Fiber Splice Internal Drop Ordering Info



Ordering P/N	Description	Info
SA-FSIC-5412-330	Hybrid Type Fiber Optic Splice Closure with 8 Internal Drop Connectors, IP68 grade, 1 oval port ( 2-round prts,7.5-15mm cable), Mechanical Seal, Maximum 12 fiber splice capacity, 1:8 PLC Micro Splitter, Aerial mounting	
SA-FISC-5624-430	Hybrid Type Fiber Optic Splice Closure with 16 Internal Drop Connectors, IP68 grade, 1 oval port ( 2-round prts,7.5-15mm cable) and 2 Round Ports, Mechanical Seal, Maximum 96 fiber splice capacity, 1:16 PLC Micro Splitter, Aerial mounting	



Status: Mass Production  
 MOQ:  
 xx pcs/carton  
 xx pcs/pallet  
 xxxpcs/20' Container  
 xxxxpcs./40'HQ Container

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# FSHC: Fiber Splice Closure with Hardened Connector

# SA-FSHC -

## FOSC TYPE:

- 4. Hard Conn.
- 5. Internal Connector

## Fiber Splice Count:

- 3. 12 Fiber
- 4. 24 Fiber
- 5. 72 Fiber
- 6. 96 Fiber
- 7. 48 Fiber

## Port Count: Oval + Round

- 1. 1 Oval
- 2. 1 Oval + 2 Branch + 08 Drops
- 3. 1 Oval + 2 Branch + 16 drops
- 4. 3 in + 3 out 16mm cable

## Drop Count: Hardened Connector

- 1. 08 ports SureAlign
- 2. 16 ports SureAlign
- 3. 08 Mini IP - Opti
- 4. 16 Mini IP - Opti
- 7. 12 Mini IP - Opti

## Optional Hardened Connector Installed:

- 0. Standard
- Use 1 digit for desired number

## Optional Splice Tray Count:

- 0. Standard
- Use 1 digit for desired number

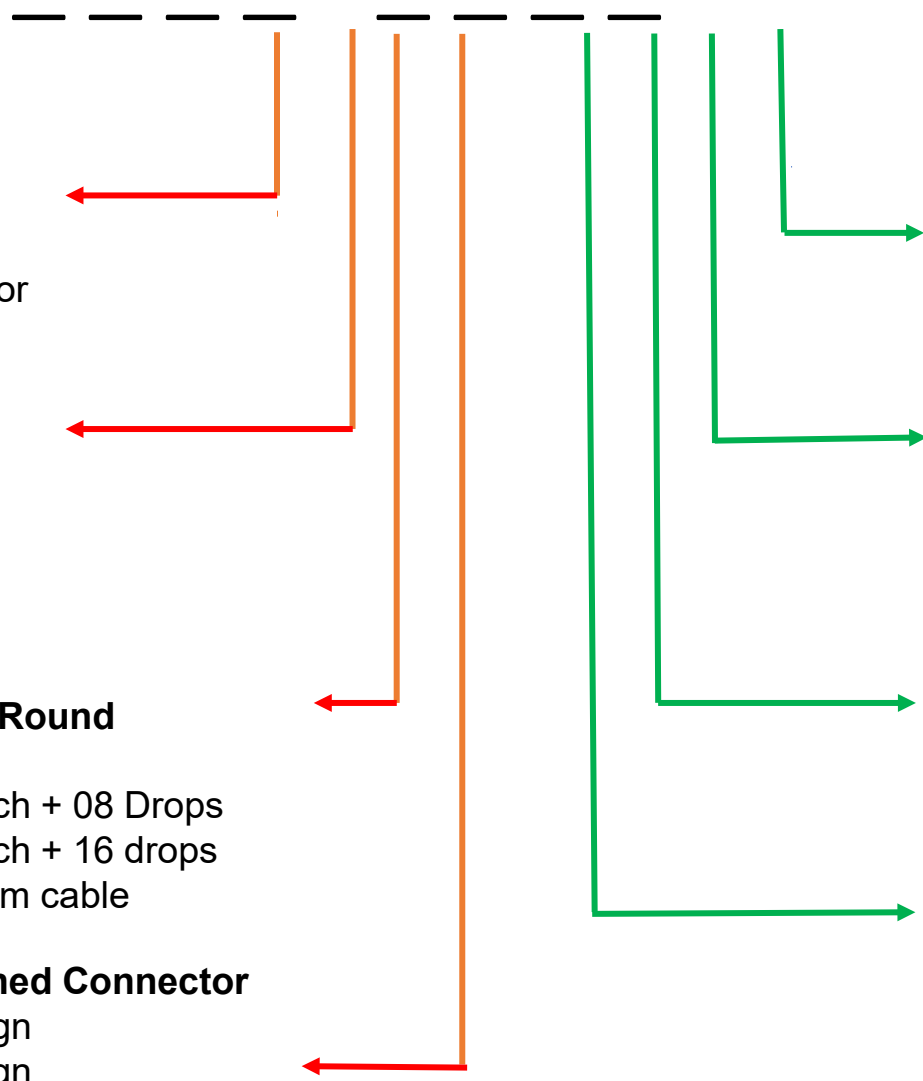
## Optional Mounting Kit:

- 0. None
- 1. Wall Mount (Vault & Ped)
- 2. Pole Mount
- 3. Aerial Mount

## Optional Splitter: **Splitter type and qty to match number hardened ports.**

**Optional example: 16ports + 2x 1:8**

- 0. None/Direct
- 1. 1:2 Micro
- 2. 1:4 Micro
- 3. 1:8 Micro
- 4. 1:16 Micro



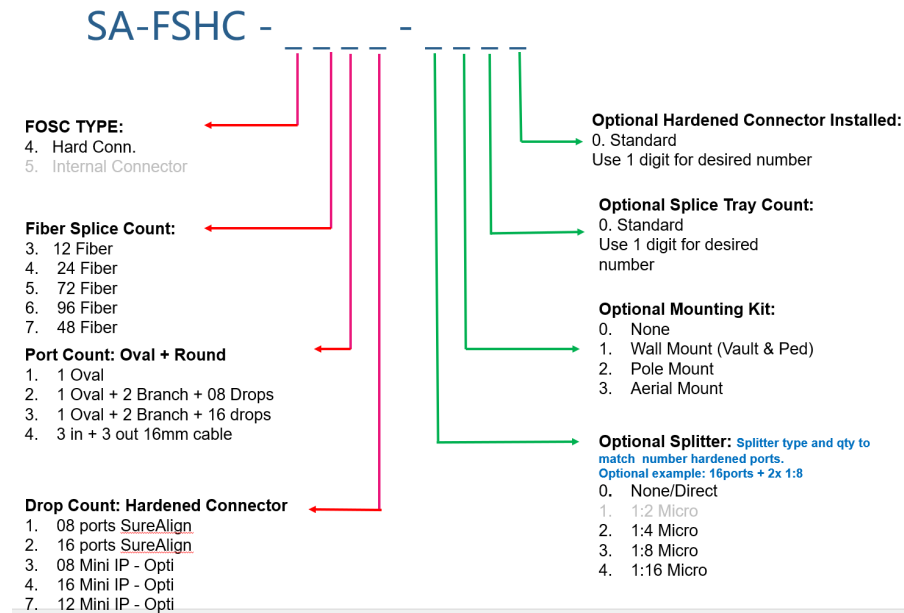
# FSHC: Fiber Splice w/ Hardened Drops Summary



Application	Model	Cable port	Trays x Splices	Max splice capacity	Installation
Hybrid Feeder & Drop Network	SA-FSHC-4611	1 oval port for 7.5-15mm cable 8 SA-hardened drop ports mechanical seal	4T x 24S	96F	Aerial, Vault, Pole, Ped
Hybrid Feeder & Drop Network	SA-FSHC-4621	1 oval port for 10-17.5mm cable 2 Branch ports for 10-17.5mm 8 SA-hardened drop ports mechanical seal	4T x 24S	96F	Aerial, Vault, Pole, Ped
Hybrid Feeder & Drop Network	SA-FSHC-4623 <i>Tooling for Opti Future</i>	1 oval port for 10-17.5mm cable 2 Branch ports for 10-17.5mm 8 Opti-hardened drop ports mechanical seal	4T x 24S	96F	Aerial, Vault, Pole, Ped
Hybrid Feeder & Drop Network	SA-FSHC-4632	1 oval port for 10-17.5mm cable 2 Branch ports for 10-17.5mm 16 SA-hardened drop ports mechanical seal	4T x 24S	96F	Aerial, Vault, Pole, Ped
Hybrid Feeder & Drop Network	SA-FSHC-4634 <i>Tooling for Opti Future</i>	1 oval port for 10-17.5mm cable 2 Branch ports for 10-17.5mm 16 Opti-hardened drop ports mechanical seal	4T x 24S	96F	Aerial, Vault, Pole, Ped

# FSHC: Fiber Splice w/ Hardened Drops

Application	Model	Cable port	Trays x Splices	Max splice capacity	Installation
Hybrid Feeder & Drop Network	SA-FSHC-4544	3 in/out round port 3-16mm cable 16 Opti-hardened drop ports mechanical seal	3T x 24S	72F	Aerial, Vault, Pole, Ped

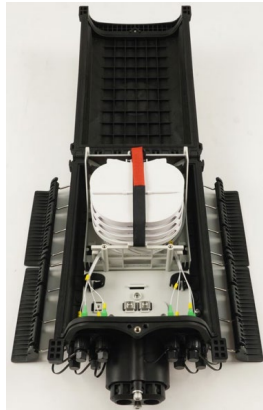


Can add up to two 1:8 or one 1:16 splitter





# SureAlign: SA-FSHC-4611/4621 Details



4611

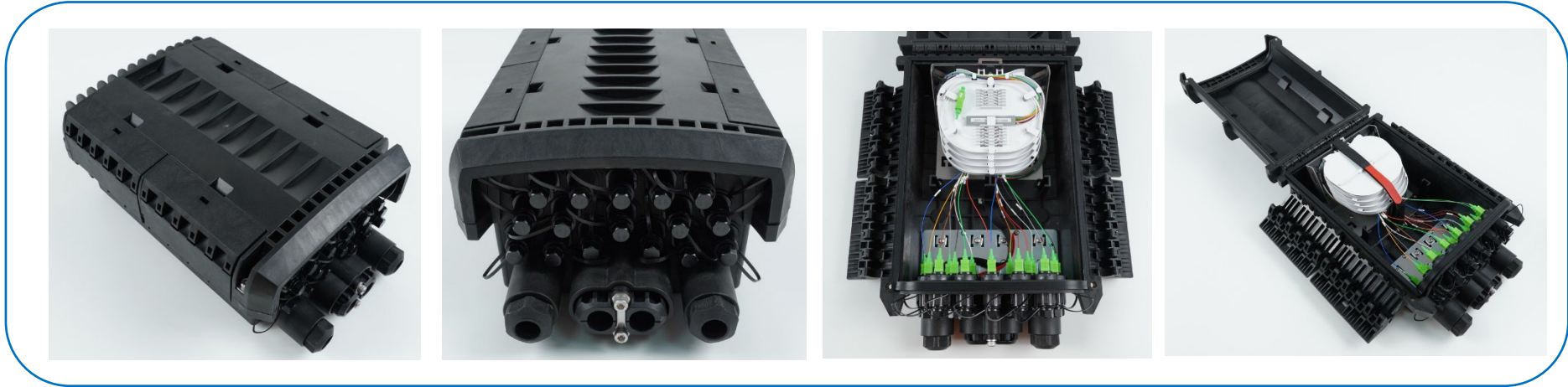


4621

SA-FSHC-4611& 4621 are 8-port terminal boxes providing harden adaptor to connect with end user in FTTH network system. It is designed to seal without screws. The compact size and flip-up cover is easy to use in multiple applications. Install in aerial, wall, pole and underground environments

Model No.	SA-FSHC-4611/4621
Model Name	SA-FSHC-4611/4621
Size(mm)	370(L)*210(W)*124(H)mm
Gross Weight(kg)	3.3
No of Cable Entry	1 oval port: $\Phi$ 8mm ~ 18mm; (both 4611 & 4621) 2 branch port: $\Phi$ 8mm ~ 18mm (only 4621)
Adapter	8 pcs hardened SC/APC adaptors
Splitter	1:8 mini splitter
Splice Tray	24F
Max Capacity	96F
Waterproof level	IP68
Installation Method	Wall/ Aerial /Pedestal mounted
Operation temperature	- 45°C ~ 85°C

# SureAlign: SA-FSHC-4632 Details



## Features

- Structure: Easy open hinge structure, IP68-watertight and user friendly
- Capacity: maximum 96F.
- 1 oval port, 2 branch ports
- Suitable for  $\Phi 8$ -18mm cables.
- Sealing: the closure sealed by buckles, meet or exceeds IP68.
- 16 SureAlign hardened connectors

Technical Specification	
Style	Hinge
Dimensions(mm)	380(L)*245(W)*130(H)mm
Weight (kg)	.35
Material	PP+GF
Sealing Type	Mechanical Seal
Protection Grade	IP68
Cable ports	1 oval port 2 branch ports
Cable diameter	$\Phi 8$ -18mm
Fiber Splice Capacity	96F
Tray Capacity	24F
Max Tray Qty	4 pcs
Splitter (optional, not equipped by default)	1:8 mini splitter
Hardened Adaptors	16 pcs
Application	Aerial, wall or pole mount

# SureAlign: SA-FSHC-4544 Details



## Features

- Structure: Easy open hinge structure, IP68-watertight and user friendly
- Capacity: maximum 72F.
- 3 ports on each side, suitable for
- $\Phi 3-7\text{mm}$ ,  $\Phi 8-12\text{mm}$ ,  $\Phi 12-16\text{mm}$  cables.
- Sealing: the closure sealed by buckles, meet or exceeds IP68.
- Compatible with different hardened adapters by changing insert

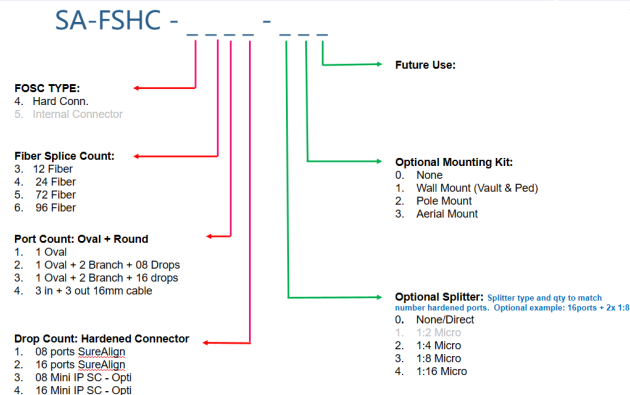
Technical Specification	
Style	Hinge
Dimensions(mm)	360(L) $\times$ 200(W) $\times$ 145(H) mm
Weight (kg)	.0-3.5
Material	PP+G
Sealing Type	Mechanical Seal
Protection Grade	IP68
Cable ports	Inlet: 3 ports; Outlet: 3 ports
Cable diameter	$\Phi 3-7\text{mm}$ , $\Phi 8-12\text{mm}$ , $\Phi 12-16\text{mm}$
Fiber Splice Capacity	72F
Tray Capacity	24F
Max Tray Qty	3 pcs
Splitter (optional, not equipped by default)	Support 2pc 1:8 splitters or 1pc 1:16 splitter
Hardened Adaptors	16 pcs
Application	Aerial, wall or pole mount

- **Mini IP-C Opti Port Only**



# SureAlign Fiber Splice Hardened Drop Ordering Info

Ordering P/N	Description	Info
SA-FSHC-4611-33x	Fiber Optic Splice Closure with 8-SA Hardened Drop Connectors, IP68 grade, 1 oval port, Mechanical Seal, Maximum 96 fiber splice capacity, 4-24 Splice Trays, 1:8 PLS Micro Splitter, Aerial mounting	
SA-FSHC-4621-33x	Fiber Optic Splice Closure with 8-SA Hardened Drop Connectors, IP68 grade, 1 Oval Port and 2 Round Ports, Mechanical Seal, Maximum 96 fiber splice capacity, 4-24 Splice Trays, 1:8 PLS Micro Splitter, Aerial mounting	
SA-FSHC-4632-43x	Fiber Optic Splice Closure with 16-SA Hardened Drop Connectors, IP68 grade, 1 oval port ( 2-round prts, 7.5-15mm cable) and 2 Round Ports, Mechanical Seal, Maximum 96 fiber splice capacity, 4-24 Splice Trays, 1:16 PLS Micro Splitter, Aerial mounting	
SA-FSHC-4544-43x	Fiber Optic Splice Closure with <b>16-Opti Hardened Drop Connectors</b> , IP68 grade, 3 Round Ports, Mechanical Seal, Maximum 72 fiber splice capacity, 3-24 Splice Trays, 1:16 PLS Micro Splitter, Aerial mounting <b>(Only available with Opti Connector)</b>	



Status: Mass Production

MOQ:

xx pcs/carton

xx pcs/pallet

xxxpcs/20' Container

xxxxpcs./40'HQ Container

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# 05

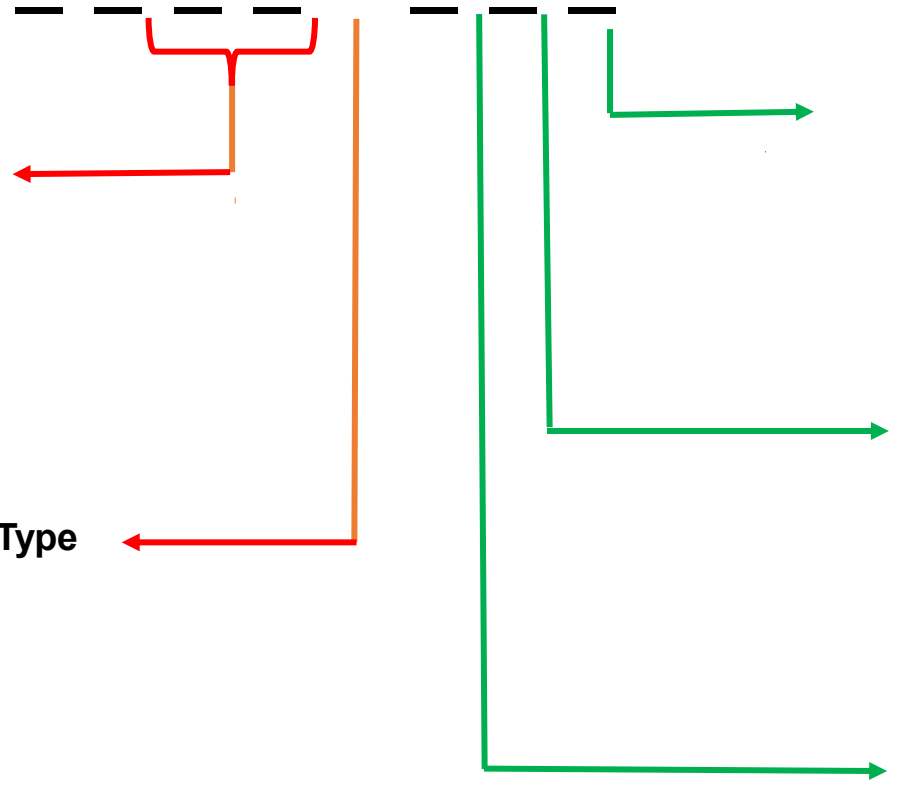
PART FIVE

## Drop Network... Fast Access Terminal (FAT)

# SA-FAT -

- FAT TYPE:**
- 108: 9 ports
  - 109: 10 ports
  - 116: 17 ports
  - 117: 18 ports

- Hardened Connector Type**
- M. Mini-SC
  - S. SureAlign



**Number of Drop ports used:**

- 0. Standard
- 2. 2 drops
- 4. 4 drops
- 6. 6 drops
- 8. 12 drops

**Optional Mounting Kit:**

- 0. None
- 1. Wall Mount (Vault & Ped)
- 2. Pole Mount
- 3. Aerial Mount

**Splitter:**

- 1. 1:2 Micro balanced (special)
- 2. 1:4 Micro balanced (special)
- 3. 1:6 Micro balanced (special)
- 4. 1:8 Micro balanced (FAT 108)
- 5. 1:9 Micro, 70/30 split (FAT 109)
- 6. 1:12 Micro balanced (special)
- 7. 1:16 Micro balanced (FAT116)
- 8. 1:2 + 1:16 Micro (FAT 117)

Note: Ports & Drops are Mini-SC only

# SureAlign-Fast Access Terminal (SA-FAT)

- Pre-configured small form factor... saves space and mounts anywhere, IP-68 @ 8"x8"x3"
- Cost effective for product and construction
- KISS... keep it simple with colorized connectors... red for input and blue for pass through
- Flexible Applications:
  - SA-FAT-108: 1 Red input + 8 Drops... has 1:8 micro splitter
  - SA-FAT-109: 1 Red input + 8 Drops + 1 Blue throughput... has 1:9 micro splitter (70% Blue/30% Black)
  - SA-FAT-116: 1 Red input + 16 Drops... has 1x16 micro splitter
  - SA-FAT-117: 1 Red input + 16 Drops + 1 Blue throughput... has balanced 1:2 and 1:16 micro splitters
  - Unbalanced splitters available, standard is 1:9 & 1:17 with splits of 70% on 1 fiber, 30% on rest of fibers
  - Customizable 8 port can be a 4 port per configuration tool (a 16 port can be a 12)
- Drop connectors are Mini-SC or SureAlign
- Drop Fiber configurations...
  - Mini-SC + Ballistic with push/pull bullet over a factory installed SC-APC connector (round fiber only)
  - Mini-SC + Non-connector-ized drop fiber and install a SA-FC mechanical fiber connector
  - Mini-SC Dual hardened connector both ends



# SA-FAT 9/10/17/18 Total Ports Details

Red = Input, Blue = Output

FAT-108 can remove ports for a FAT-104

Item	SA-FAT-108/109 (9/10 ports)
Size	8(L)x8(W)x3(H) inches 209(L)x205.4(W)x80(H) mm
Weight(kg)	2.6 – 3 lbs. 1.2-1.4 kg
Material	PP+GF
Sealing Type	Mechanical sealing
IP degree	IP68
Splitter	1:8 micro splitter / 1:9 micro splitter
Installation	Wall/Pole/Aerial mounting

Item	SA-FAT-116/117 (17/18 ports)
Size	8(L)x8(W)x3(H) inches 209(L)x205.4(W)x80(H) mm
Weight(kg)	2.6 – 3 lbs. 1.2-1.4 kg
Material	PP+GF
Sealing Type	Mechanical sealing
IP degree	IP68
Splitter	1:16 micro splitter / 1:2+1:16 micro splitter
Installation	Wall/Pole/Aerial mounting

SA-FAT-108



SA-FAT-109



SA-FAT-116



SA-FAT-117





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# Drop Network, Multi-Port Terminal (MPT)

# Multi-Port Terminals MPT's (MST)



## Key Points:

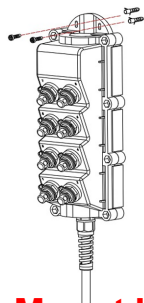
- Slim design so can drop in Pedestal, Handhole or wall applications. 4,6,8,12 ports available
- Mount anywhere due to IP-68 environment rating... Wall, Aerial, Pole, Vault will not leak
- Fiber Inputs:
  - Ribbon or bundle fiber to provide homerun or direct connect for each port (CY-DCT)
  - Single Drop Fiber to connect to an internal 1:4, 1:6, 1:8, 1:12 PLC Splitter (CY-SPT)
- Drops:
  - Mini-IP Hardened Connector, OptiTap compatible or SureAlign
  - Mini-IP to: Bullet push/pull w/ SC-APC armored round or Flatdrop with SA-FC or fusion splice

# Specifications

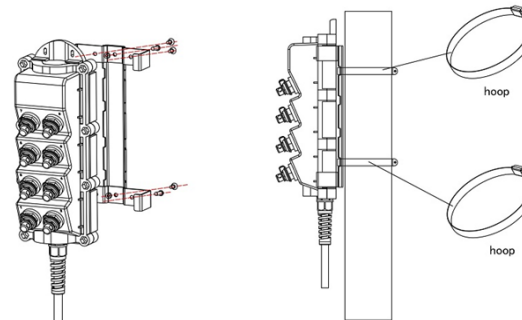
<b>Dimensions(LxWxH)</b>	<b>225x120x85mm</b>	<b>305x120x85mm</b>	<b>416x120x85mm</b>
<b>Materials</b>	PC		
<b>Waterproof Grade</b>	IP68 (3M,72hour).		
<b>Temperature Range</b>	-40 ~ +80°C		
<b>Cable Strength Member</b>	Armored or Non-armoured		
<b>Cable Type</b>	Hybrid or non-hybrid		
<b>Round Cable OD</b>	6.0mm to 12.0mm		
<b>Flat Cable Dimension</b>	4.0x7.0mm,4.0x8.0mm		
<b>Cable Jacket Material</b>	LSZH,PE or TPU		
<b>Bending Radius</b>	20D		
<b>Cable Crush Resistance</b>	500N/cm long term		
<b>Tensile Strength</b>	1200N long term		
<b>UV Resistance</b>	ISO 4892-3		
<b>Fire Protection Rating</b>	UL94-V0		
<b>Number of PLC</b>	1pc (SC 1*4 PLC)	1pc (SC 1*8 PLC)	1pc (SC 1*12 PLC)
	1pc (LC 1*8 PLC)	1pc (LC 1*16 PLC)	1pc (LC 1*24 PLC)
<b>Number of Fusion Protection Tube</b>	≤ 24 pcs		



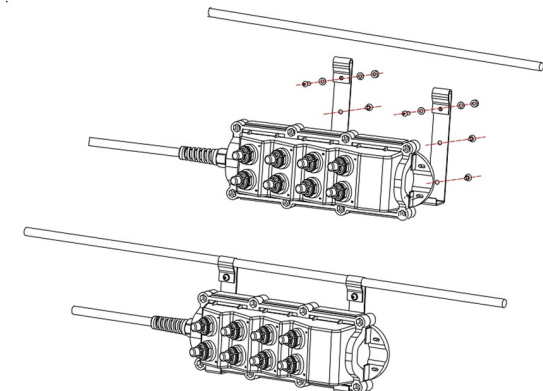
**Special Aerial Installation Kits for Resistance to wind, snow and freezing**



**Wall-Mount Installation**



**Pole Mount Installation**



**Aerial Installation**

# Multi-Port Terminal Ordering Information

## FTTx Terminal Box with PLC splitter:

Input and output are all Hardened connectors; (Mini-IP, OptiTap compatible)

No.	P/N	Product Description
1	CY-SPT-104-TAPCSCA	1x4 Splitter terminal with external MINI IP <u>Optitap</u> compatible ports, input port with <u>Optitap</u> compatible ports too, load with 5 PCS MINI IP SC <u>Adapter</u> , inside is PLC Splitter with SC/APC connector
2	CY-SPT-106-TAPCSCA	1x6 Splitter terminal with external MINI IP <u>Optitap</u> compatible ports, input port with <u>Optitap</u> compatible ports too, load with 7 PCS MINI IP SC <u>Adapter</u> , inside is PLC Splitter with SC/APC connector
3	CY-SPT-108-TAPCSCA	1x8 Splitter terminal with external MINI IP <u>Optitap</u> compatible ports, input port with <u>Optitap</u> compatible ports too, load with 9 PCS MINI IP SC <u>Adapter</u> , inside is PLC Splitter with SC/APC connector
4	CY-SPT-112-TAPCSCA	1x12 Splitter terminal with external MINI IP <u>Optitap</u> compatible ports, input port with <u>Optitap</u> compatible ports too, load with 12 PCS MINI IP SC <u>Adapter</u> , inside is PLC Splitter with SC/APC connector

# Multi-Port Terminal Ordering Information

FTTx Terminal Box with 4~12 Ct drop cable input and 4~12 connector as output:\

No.	P/N	Product Description
1	CY-DCT-104-TAPP100DF4C	Fiber Direct Connection Terminal with 1000 feet dielectric flat drop tail 250um fiber gel tube input drop cable and output are 4 Ports with MINI IP SC/APC Adapter
2	CY-DCT-106-TAPP100DF6C	Fiber Direct Connection Terminal with 1000 feet dielectric flat drop tail 250um fiber gel tube input drop cable and output are 6 Ports with MINI IP SC/APC Adapter
3	CY-DCT-108-TAPP100DF8C	Fiber Direct Connection Terminal with 1000 feet dielectric flat drop tail 250um fiber gel tube input drop cable and output are 8 Ports with MINI IP SC/APC Adapter
4	CY-DCT-112-TAPP100DF12C	Fiber Direct Connection Terminal with 1000 feet dielectric flat drop tail 250um fiber gel tube input drop cable and output are 12 Ports with MINI IP SC/APC Adapter
5	CY-DCT-104-TAPP100TF4C	Fiber Direct Connection Terminal with 1000 feet 4ct tunable flat drop cable stub and output are 4 Ports with MINI IP SC/APC Adapter
6	CY-DCT-106-TAPP100TF6C	Fiber Direct Connection Terminal with 1000 feet 4ct tunable flat drop cable stub and output are 6 Ports with MINI IP SC/APC Adapter
7	CY-DCT-108-TAPP100TF8C	Fiber Direct Connection Terminal with 1000 feet 4ct tunable flat drop cable stub and output are 8 Ports with MINI IP SC/APC Adapter
8	CY-DCT-112-TAPP100TF12C	Fiber Direct Connection Terminal with 1000 feet 4ct tunable flat drop cable stub and output are 12 Ports with MINI IP SC/APC Adapter

# Multi-Port Terminal Ordering Information

## Installation Kits:

No.	P/N	Product Description
1	CY-MST- <del>XIK</del> -24	2/4 Ports Terminal Box Generic Installation Kits used for Aerial installation, Holding Pole or Wall-Mounting <u>Installation</u> , <u>X</u> can be <b>A</b> , <b>P</b> or <b>W</b> for <b>Aerial</b> installation, Holding <b>Pole</b> or <b>Wall-Mounting</b> Installation
2	CY-MST- <del>XIK</del> -68	6/8 Ports Terminal Box Generic Installation Kits used for Aerial installation, Holding Pole or Wall-Mounting <u>Installation</u> , <u>X</u> can be <b>A</b> , <b>P</b> or <b>W</b> for <b>Aerial</b> installation, Holding <b>Pole</b> or <b>Wall-Mounting</b> Installation
3	CY-MST- <del>XIK</del> -12	12 Ports Terminal Box Generic Installation Kits used for Aerial installation, Holding Pole or Wall-Mounting <u>Installation</u> , <u>X</u> can be <b>A</b> , <b>P</b> or <b>W</b> for <b>Aerial</b> installation, Holding <b>Pole</b> or <b>Wall-Mounting</b> Installation

.) Special Aerial Installation Kits for Resistance to wind, snow and freezing:

No.	P/N	Product Description
1	CY-MST-SAIK-24	2/4 Ports Terminal Box Special Heavy Duty Aerial Installation Kits for Resistance to wind, snow and freezing
2	CY-MST-SAIK-68	6/8 Ports Terminal Box Special Heavy Duty Aerial Installation Kits for Resistance to wind, snow and freezing
3	CY-MST-SAIK-12	12 Ports Terminal Box Special Heavy Duty Aerial Installation Kits for Resistance to wind, snow and freezing

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# 07

PART SEVEN

## Fiber Drop Solutions

- Fiber Drop Cable
- Fiber Drop Connectors
- Field Installable
- Pigtail & Patch Cord
- Fiber Tools

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# Fiber Drop Cable Solutions



OFC (Optical Fiber Cable, normally outdoor, with no connector on end)

SA - OFC - - - - F - - - - -

Optical Fiber Cable  
(with no connectors  
on each end)

**Ordered Length**  
xxxxM : xxxx meter  
xxxxFT : xxxx feet

**Optional Special Element**  
T. With tone-able tracing wire  
B. Black color

**Outsheath Material**  
LSZH : Low-Smoke Zero-Halogen  
HDPE : High Density Poly Ethylene  
PVC: Polyvinyl Chloride

**Fiber Diameter**  
30 : 3.0mm round  
42 : 4.2mm round  
50 : 5.0mm round  
4070 : 4.0\*7.0mm flat  
4376 : 4.3\*7.6mm flat  
Etc..

**Type of Fiber**  
G657A1  
G657A2  
G657B3  
G652D etc..

**Fiber core quantity**  
1F, 2F, 12F etc..

ROFNRC : Riser OFNR compact  
ROFNRR : Riser OFNR ruggedized  
POFNPC : Plenum OFNP compact  
POFNPR : Plenum OFNP ruggedized

Many options are available, ask for details

# Outdoor Drop Cable Solution –Round Type Air Blow Armored 3.2 / 4.8mm

## Specification

Item	3.2mm
Outer sheath material	LSZH
Tight buffer material	LSZH
Tight buffer diameter	900µm±50µm
Fiber core	G.657A2
Outer cable diameter(mm)	3.2±0.2 (4.8mm optional)
Cable weight (kg/km)	16

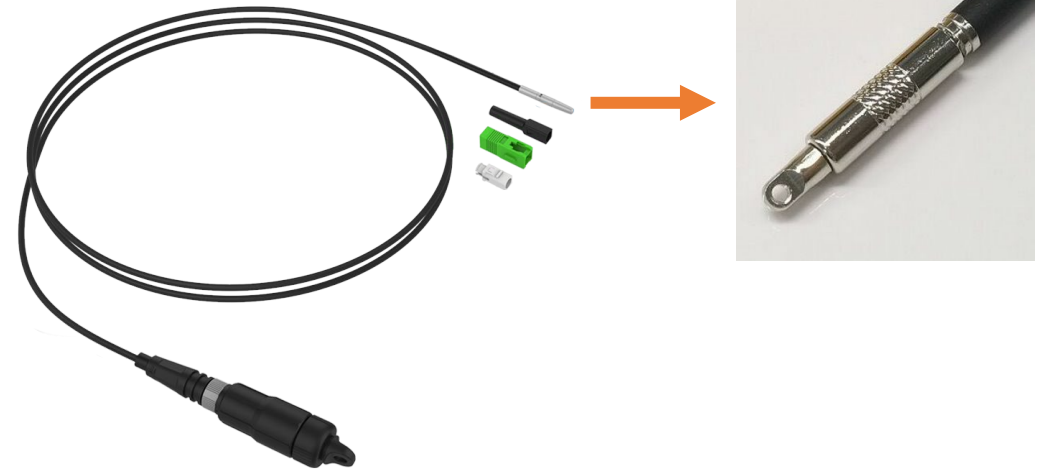
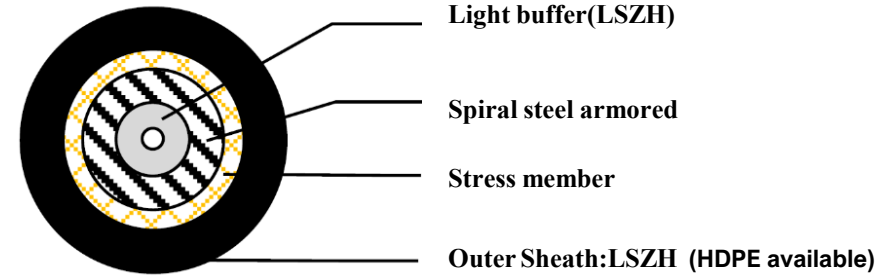
## Application

Item	3.2mm	
Tensile performance(N)	Short term	200
	Long term	100
Crush(N/10cm)	Short term	3000
	Long term	1000
Operation temperature(°C)	-40 ~ +70	
Installation temperature(°C)	-10 ~ +50	
Storage/shipping temperature(°C)	-40 ~ +70	
Static bending radius(mm)	35	
Dynamic bending radius(mm)	70	

### Available Connectors for Round Drop Cable:

- ISCA: Mini-IP, IP68, compatible with Optitap
- MSCA: Mini-SC, IP68, compatible with Huawei
- BSCA: Ballistic end, <4.2mm for air blow
- SSCA: Standard SCA

## Cable Structure



## Outdoor Drop Cable Solution – Round Type Armored 6mm

- Enhanced strength for push/pull wall-through application

### Specification

Item	Contents	Unit	Value
Fiber count	Number	/	1
Fiber type	/	/	G.657A2
Fibers per tube	Count	/	1
Fibers color	/	/	Blue
Loose tube	Material	/	PBT
	Nominal Diameter	mm	2.0
	Color	/	Nature
Strength member	Material	/	Phosphating Steel wire
	Diameter	mm	0.8*2
Water blocking	Material	/	Water blocking compound
Peripheral strength member	Material	/	Steel tape
Attenuation (After cable)	1310nm	dB/km	≤0.36
	1550nm	dB/km	≤0.22
Outer sheath	material	/	HDPE
	Color	/	Black
Cable diameter	± 0.5	mm	6.0
Cable weight	± 5%	kg/km	46

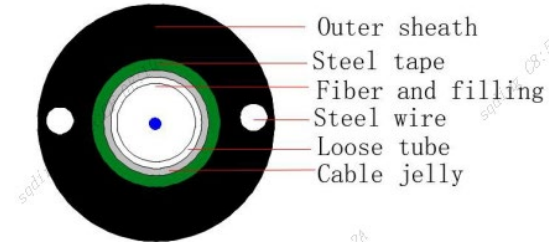
### Application

Item	Contents	Value
Max. tensile load	Short term	1500 N fiber strain ≤0.6%
	Long term	600 N
Max. crush resistance	Short term	1000 N/100mm
	Long term	300 N/100mm
Min. bending radius	Installation	20 x cable diameter
	Operation	10 x cable diameter
Temperature range	Operation	-40°C ~ +70°C
	Installation	-20°C ~ +60°C
	Storage/transportation	-40°C ~ +70°C

### Available Connector for Drop Cable:

- ISCA: Mini-IP, IP68, compatible with Optitap
- MSCA: Mini-SC, IP68, compatible with Huawei
- BSCA: Ballistic end
- SSCA: Standard SCA

### Cable Structure



### BSCA Ballistic end connector



# Outdoor Drop Cable Solution – Flat Type

## Cable Structure



- Strength member
- Inner jacket
- Tight buffer
- Fiber
- Water blocking yarn
- HDPE outer sheath



- Strength member
- Inner jacket
- Tight buffer
- Fiber
- Water blocking yarn
- HDPE outer sheath
- Tracing wire

## Specification

Item	Contents	Value	
Tight buffer	Number	1	
	Outer diameter	0.9±0.05mm	
	Material	LSZH	
Fiber	G.657A1	1	
Inner jacket	Material	FT4 rated flame-retardant material	
	Outer diameter	3.0±0.1mm	
Strength member	Material	GFRP	
	Number	2	
Water Blocking Material	Material	Water blocking yarn	
Sheath	Material	HDPE	
	Color	Black	
Copper wire diameter (mm)		-	AWG 24/26
Cable diameter(mm) Approx. (±0.4)		4.5*8.5	4.5*10.0
Cable weight(kg/km) Approx. (±5)		35	37

## Available Connector for Flat Drop Cable:

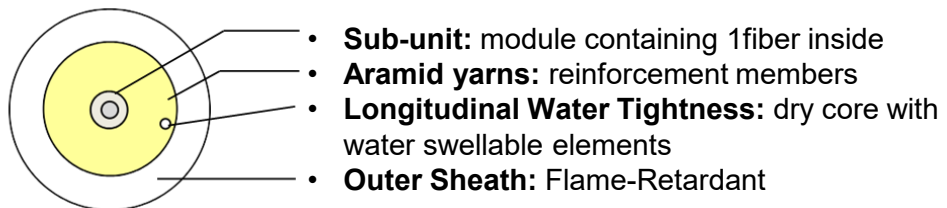
- ISCA: Mini-IP, IP68, compatible with Optitap
- MSCA: Mini-SC, IP68, compatible with Huawei
- BSCA: Ballistic end
- SSCA: Standard SCA

## Application

Serial No.	Item	Requisites
1	Maximum tension	1200N
2	Crush resistance	500N/10cm
3	Operating temperature	-40°C ~ +70°C
5	Application	Aerial / Duct

## Indoor Drop Cable Solution – CSA FT-4 FT-6 Rated Cable – 3.0/4.8 mm

### Cable Structure



### Specification

Type of cable	Riser Compact	Riser Ruggedized	Riser Ruggedized	Plenum Compact	Plenum Ruggedized	Plenum Ruggedized
Application scenarios	Indoor		Outdoor	Indoor		Outdoor
Number of fiber	1			1		
Tight buffer Diameter (µm)	900±50			900±50		
Nominal Cable Diameter (mm)	3.0	4.8	4.8	3.0	4.8	4.8
Cable Weight (kg/km)	10.0±1.0	28.1±2.0	28.1±2.0	10.0±3.0	28.1±5.0	28.1±5.0
Tension MAX (N)	220	450	450	220	450	450
Crush resistance (N/cm)	35	100	100	35	100	100
Color of jacket	Ivory, White, Yellow, Black		Black	Ivory, White, Yellow, Black		Black

### Application

Temperature Range	Indoor rated	Outdoor rated
Operation	-20°C~ +70°C	-40°C~ +70°C
Installation	0°C~ +60°C	-30°C~ +60°C
Storage/Shipping	-40°C~ +70°C	-40°C~ +70°C

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# Fiber Drop Connectors & Field Installable Fiber Connector Solutions

SA – FCD - - - - - F - - - - -

**Ordered Length**  
 xxxxM : xxxx meter  
 xxxxFT : xxxx feet

**Optional Special Element**  
 T : With tone-able tracing wire  
 B : Black color

**Outsheath Material**  
 LSZH : Low-Smoke Zero-Halogen  
 HDPE : High Density Poly Ethylene  
 PVC: Polyvinyl Chloride

**Fiber Diameter**  
 30 : 3.0mm round  
 42 : 4.2mm round  
 50 : 5.0mm round  
 4070 : 4.0\*7.0mm flat  
 4376 : 4.3\*7.6mm flat  
 Etc..

**Type of Fiber**  
 G657A1  
 G657A2  
 G657B3  
 G652D etc..



**Fast Connect Drop cable**  
 (with any connector on any end)

**Connector type, write one if the other end is open. Write both if have connectors on both ends.**  
 HSCA : SureAlign Hardened SC/APC  
 ISCA : Mini-IP SC/APC (Optitap compatible)  
 MSCA : Mini-SC SC/APC(Huawei compatible)  
 BSCA : Ballistic SC/APC  
 SCA: normal SC/APC  
 SSCA : Standard SC/APC

**Cable type**  
 Follow China's standard or vendor code

**Fiber core quantity**  
 For drop cable normally is 1F  
 so can remove this



## Connector Options for Drop Cable - Pre-Connectorized Hardened Connectors (MSCA/ISCA/SSCA series)

### Connector Solutions

The outdoor connectors are critical products of outdoor pre-connectorized solution. The connector is pre-installed to outdoor cable in factory, so the link loss can be lower than traditional deployment way. It enhances the stability and reliability of optical link and reduces the implementation time and cost, provides better solution for outdoor cable.



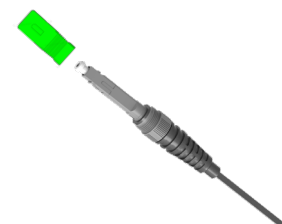
Under the conditions of authorization, we can provide connector solutions matching the mainstream adapters in the market

### Features

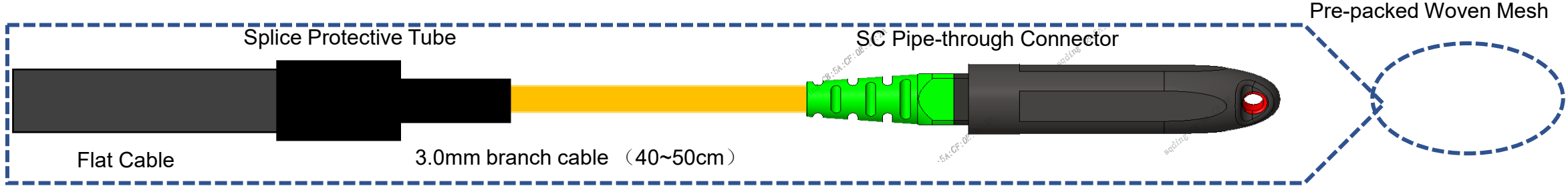
- Convenient operation, quick installation.
- Protection lever : IP68.
- Excellent anti UV, anti-corrosion performance.
- Support aerial and underground installation.
- Excellent mechanical properties, meet the tensile strength of 300N

### Specifications

Item	Specifications
Insertion loss (dB)	≤ 0.3
Return loss (dB)	APC≥60
Connector	V3
Working temperature (°C)	-40~+65
Protection lever	IP68
Tensile strength (N)	300
Application	Aerial, Underground

MSCA: Mini-SC	
ISCA: Mini-IP	
SSCA: Standard SC	

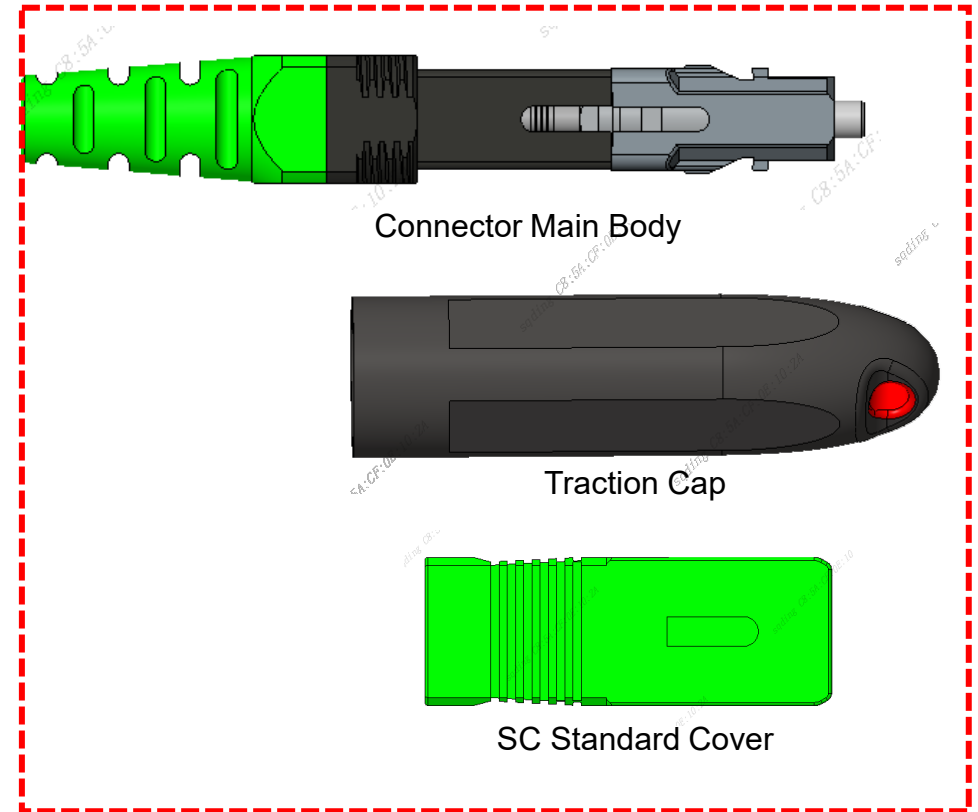
# Connector Options for Drop Cable – Pushable Ballistic End (BCSA series)



Reusable Woven Mesh

- 1) Hold the tail cover of the main body of the connector with the left hand, and put the net cover
- 2) The left hand is still pinched, and the right hand continues to push the sleeve forward to expand the net
- 3) Keep the right hand tight and release the left hand. At this time, the elasticity of the local expansion of the
- 4) Repeat the above action until the network sleeve is about 40cm into the optical cable. The right hand
- 5) At this time, the net sleeve can be used as the traction carrier to pass the pipe connector through the wall
- 6) After the end of the tube, when you need to take out the mesh sleeve, just follow the above reverse

Once the net sleeve is pulled, it immediately shrinks and tightly packages the cable, producing strong friction.



※The tensile force of SC end with woven mesh can reach 100N

# Connector Options for Drop Cable - Mini-SC / Mini-IP Field Fast Connector (MSCA/ISCA series)

## Features:

- Fast deployment, plug and play
- Lower insertion loss SC technology
- Flat cable support aerial self-supporting and ground duct application
- Fast locked connector design

## Mini-SC Fast Connector



## Specifications

Item	Parameter
Insertion loss	Max.0.4dB , Min 0.25 dB
Return loss	SM: UPC≥45dB, APC≥60 dB
Repeatably	≤0.2dB
Interchangeability	≤0.2dB
Tighten Strength of Bare Fibe	1 ~ 4N
On-line Tensile Strength test (60N)	ΔIL≤0.3dB, ΔRL≤5dB
Durability	200 cycles
Operating Temperature	-5 °C ~ +60 °C
Storage Temperature	-40 °C ~ +85 °C
Installation Temperature	-5 °C ~ +60 °C
Waterproofing grade	IP67
Cable diameter range	2x3mm Butterfly ; 2x5mm Butterfly ; Ø3.0mm ; Ø5.0mm
Housing material	Plastic: Reinforced PEI

## Mini-IP Fast Connector (OptiPort)



## Specifications

Waterproof Rate	IP68.(1M ,1hour)	
Applicable optical cable	2.0x3.0mm,3.0mm ,5.0mm	
Insertion loss	≤0.50dB	
Return loss	≥55dB	
End face performance	Conform to YD T 2341.1-2011	
Mechanical durability	1000 times	
Cable tension	2.0x3.0mm (Ttap Fast Connector)	≥30N; 2Minute
	2.0mm,3.0mm (Ttap Connector)	≥30N; 2Minute
	5.0mm (Ttap Connector)	≥70N; 2Minute
Torsion of optical cable	≥15N	
Drop performance	Allow 10 drops under 1.5m height without abnormal performance	
Operation temperature	5.0mm	-40°C~+80°C
Hot and humid working environment	Long term operation under 90% relative humidity ,70 °C	

# Connector Options for Drop Cable – Field Fast Connector (SA-FC/FCL series)



SA-FC series, for 250/900µm fiber

SA-FCL series, for 2.0/3.0mm fiber

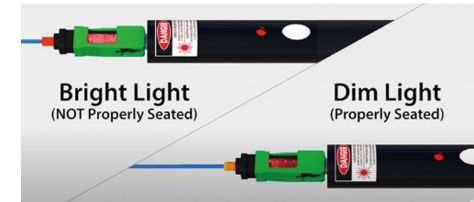
## Features

- SureAlign V-Groove ensures reliable and repeatable fiber seating to ferrule
- SureAlign site window provides visual confirmation of fiber seating when light dims
- New design increasing tensile strength to hold fiber in place
- New external ribbing design to ensure usability even when wearing gloves
- Low insertion loss < 0.3 dBm
- Repeat seating of fiber up to 5 times
- Meets regulations IEC 61754-4 and RoHS
- Standard or Precision tool backpack available for fiber techs
- Training videos available via QR Code on packaging

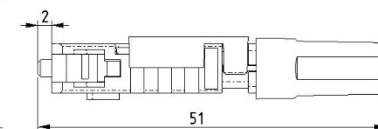
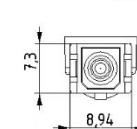
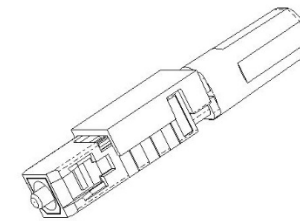
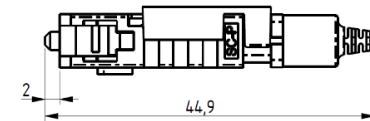
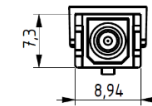
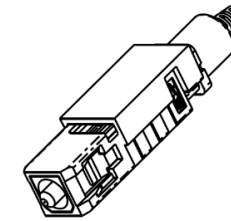
## Optical Performance

Characteristics	Condition	Unit	Value		
			Min	Mean	Max
Insertion Loss	UPC	dB		0.25	0.30
	APC	dB		0.25	0.30
Return Loss	UPC	dB	50.0	51.0	
	APC	dB	55.0	57.0	

## Key Feature



## Visual Check Feature



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# Pigtail & Patch Cord Solutions

SA – FPC - - - - F - - - -

**Ordered Length**  
 xxxxM : xxxx meter  
 xxxxFT : xxxx feet

**Optional Special Element**  
 Y : Yellow  
 B : Black

**Outsheath Material**  
 LSZH : Low-Smoke Zero-Halogen  
 PVC: Polyvinyl Chloride

**Fiber Diameter**

- 09: Φ0.9mm
- 14: Φ1.4mm
- 16: Φ1.6mm
- 19: Φ1.9mm
- 20: Φ2.0mm
- 24: Φ2.4mm
- 30: Φ3.0mm
- 42: Φ4.2mm
- 48: Φ4.8mm
- Etc..

**Type of Fiber**  
 G657A1  
 G657A2  
 G657B3  
 G652D  
 OM3  
 OM4 etc..



**Fiber Patch Cord**

**Connector type, write one if the other end is open (pigtail). Write both if have connectors on both ends.**  
 BSCA : Ballistic SC/APC  
 SCA: normal SC/APC

**Cable type**  
 Follow China's standard or vendor code, if any  
 GJFJH: LSZH single fiber cable  
 GJFJBV: PVC duplex fiber cable  
 GJFJBH: LSZH duplex fiber cable  
 JV1: tight buffer fiber  
 JL1: hytrel tight buffer fiber  
 JH1: LSZH tight buffer fiber  
 ROFNR: Riser OFNR / FT4  
 POFNP: Plenum OFNP / FT6

**Fiber core quantity**  
 For Patch Cord normally is 1F so this can omit

## Pigtail and Patch-cord

Pigtail and patch-cord are single fiber cable or duplex fiber cable used in the connection of different equipment. Varies of connectors such as FC, SC and LC are available. Strict manufacturing process ensures the reliable quality of the pre-connectorized connectors. All connectors have good environmental and mechanical performance.

### Features

- Ultra-polished (UPC) and Angle-polished (APC) connectors with good performance
- Simplex and duplex are optional
- G.657A1/A2/B3 single-mode fiber are optional
- OM3/OM4 multi-mode fiber are optional
- Flame retardant grade FT4/FT6
- 2mm, 3mm, 4.8mm round drop cable and figure-8 drop cable are available
- Fiber lengths are in the range of 1~999 meters
- Various colors of cable sheath



### Connector type

#### • Single-mode connector

Connector type	Insertion loss	Return loss	Repeatability (500 matings, additional IL)	Exchangeability (additional IL)
SC/UPC	≤ 0.3dB	≥ 50dB	≤ 0.2dB	≤ 0.2dB
SC/APC	≤ 0.3dB	≥ 60dB	≤ 0.2dB	≤ 0.2dB
FC/UPC	≤ 0.3dB	≥ 50dB	≤ 0.2dB	≤ 0.2dB
FC/APC	≤ 0.3dB	≥ 60dB	≤ 0.2dB	≤ 0.2dB
LC/UPC	≤ 0.3dB	≥ 50dB	≤ 0.2dB	≤ 0.2dB
LC/APC	≤ 0.3dB	≥ 60dB	≤ 0.2dB	≤ 0.2dB

#### • Multi-mode connector

Connector type	Insertion loss (50/125µm and 62.5/125µm)	Repeatability (500 matings, additional IL)	Exchangeability (additional IL)
SC/UPC	≤ 0.3dB	≤ 0.2dB	≤ 0.2dB
FC/UPC	≤ 0.3dB	≤ 0.2dB	≤ 0.2dB
LC/UPC	≤ 0.3dB	≤ 0.2dB	≤ 0.2dB

Multi-mode loss: 850nm wavelength

1. When the length is less than or equal to 50m, IL≤0.3dB;
2. When the length is greater than 50m, IL= 0.3dB+L×3.5dB/1000m



**Single fiber cable**

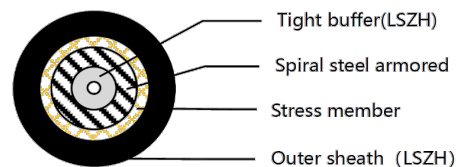
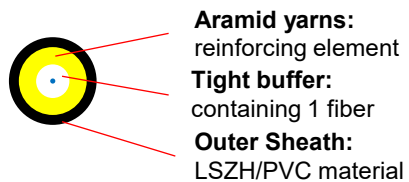
• **Cable specification**

Item	2mm		3mm		4.8mm	
Outer sheath material	LSZH	PVC	LSZH	PVC	LSZH	PVC
Tight buffer material	LSZH	PVC	LSZH	PVC	LSZH	PVC
Flame retardant grade	FT4	FT6	FT4	FT6	FT4	FT6
Tight buffer diameter	900µm ± 50µm					
Reinforcing element	Aramid yarn					
Fiber core	G.657A1/A2/B3, OM3/OM4					
Outer cable diameter	2.0±0.2mm		3.0±0.3mm		4.8±0.3mm	
Cable weight	5.0±1.5 kg/km		8.0±2.0 kg/km		20±5kg/km	

• **Cable operating parameters**

Item	2mm	3mm	4.8mm
Tensile performance	100N	200N	350N
Crush	50N/10cm	100N/10cm	150N/10cm
Operation temperature	-40°C ~ +70°C		
Installation temperature	-30°C ~ +60°C		
Storage/shipping temperature	-40°C ~ +70°C		
Static bending radius	10D (D is the outer diameter of cable)		
Dynamic bending radius	20D (D is the outer diameter of cable)		

• **Cable structure**



When the cable diameter is 2mm,3mm and 3.2mm, SC, FC and LC connectors can be used. When the cable diameter is 4.8mm, SC connectors can be used. The example shown above is the cable with SC/APC connectors.

## Pigtail and Patch-cord

### Duplex fiber cable

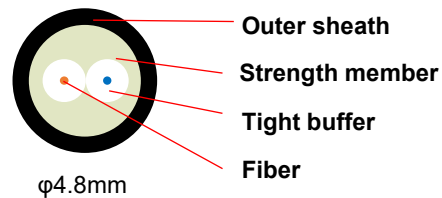
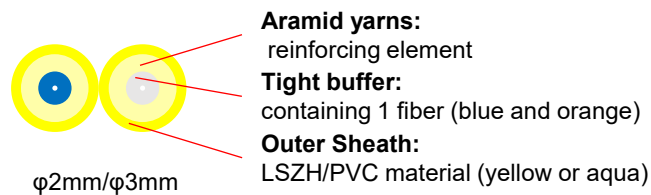
• Cable Specification

Item	2mm		3mm		4.8mm
Outer sheath material	LSZH	PVC	LSZH	PVC	LSZH
Tight buffer material	LSZH	PVC	LSZH	PVC	Nylon
Flame retardant grade	FT4	FT6	FT4	FT6	FT4
Tight buffer diameter	900µm±50µm				
Reinforcing element	Aramid yarn				Water blocking glass yarn
Fiber core	G.657A1/A2/B3, OM3/OM4				
Outer cable diameter	(4.0×2.0) ±0.3mm		(6.0×3.0) ±0.3mm		4.8±0.2mm
Cable weight	10.0±3.0 kg/km		17.0±3.0 kg/km		27.4±5kg/km

• Cable operating parameters

Item	2mm	3mm	4.8mm
Tensile performance	100N	400N	450N
Crush	50N/10cm	200N/10cm	2000N/10cm
Operation temperature	-40°C ~ +70°C		
Installation temperature	-30°C ~ +60°C		
Storage/shipping temperature	-40°C ~ +70°C		
Static bending radius	10D (D is the outer diameter of cable)		
Dynamic bending radius	20D (D is the outer diameter of cable)		

• Cable structure



When the cable diameter is 2mm and 3mm, SC, FC and LC connectors can be used. When the cable diameter is 4.8mm, LC connectors can be used. The example shown above is the cable with LC/UPC connectors.

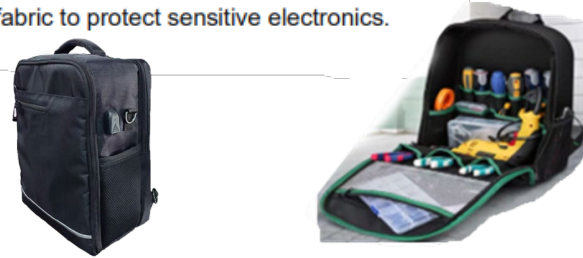
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# Fiber Tech Go Kit

## Fiber Tech Go-Kit

### Feature

- The *SureAlign Go-Kit* has a capacity of 21L, with 15.5L in the tool layer and 5.5L in the laptop layer, which can easily fit in a 17-inch laptop as well as additional tools.
- Switchable double shoulder carry and single shoulder crossbody carry ensuring Tech safety.
- Heavy duty wear-resistant, padding, and waterproof fabric to protect sensitive electronics.



### Order information

	Standard configuration	Reference picture	Premium configuration	Reference picture	P/N
1	3 Hole Fiber Optic Stripper		3 Hole Fiber Optic Stripper		TS-STR
2	Cable Slit		Cable Slit		TS-CAS
3	Kevlar scissors		Kevlar scissors		TS-KSC
4	420 SUS Scissors		420 SUS Scissors		TS-SCI
5	Pen-type fiber cleaner 2.5mm		Pen-type fiber cleaner 2.5mm		TS-FOCP-25-BE
6	Fiber Optic Flat Drop Cable Slitter		Fiber Optic Flat Drop Cable Slitter		TS-SLI

7a	FB-1688C Cleaver				TS-FB-1688C
7b			Fujikura CT08 Cleaver		TS-FU-CT08
8a	Visual Fault Locator (1mW)				TS-VFL301-01
8b			Visual Fault Locator (10mW)		TS-VFL301-10
9	Fiber Wipes		Fiber Wipes		TS-WIP
10	Fiber peeling tool		Fiber peeling tool		TS-FPT
11	Fiber Tweezers		Fiber Tweezers		TS-TWE
12			Optical power meter		TS-OPM101

Technity P/N	Description
TS-MFK-STD	Fiber optic tool backpack, USB port, double shoulder and cross shoulder belt switchable, standard tools package. Check table above list for detail tools.
TS-MFK-PRE	Fiber optic tool backpack, USB port, double shoulder and cross shoulder belt switchable, premium tools package. Check table above list for detail tools.

Fiber Tech Go-Kit Addition

Optional tester and tools selections – basic version:

Technity P/N	Product Catalog	Description
TS-FLHA-01	Adaptor	Optional <a href="#">accessory</a> , FC-LC Hybrid adaptor from 2.5mm FC to 1.25mm LC. Use with Power Meter/Light Source
TS-OLS201-35-LD9-FOA22	Light Source	Optic Light Source 1310/1550nm, SM LD 9/125um, FC and SC/APC connector
TS-VFL301-50	VFL	Visual Fault Locator, metal body design with Rubber protection on connector part, ESD protection design; Re-changeable ceramic tube; Up to 50mw Power
TS-VFL301N-01	VFL	Mini Visual Fault Locator, Both CW and Pulse(2Hz) available; up to 40 hours with AAA batteries; 1mw Power
TS-VFL301N-10	VFL	Mini Visual Fault Locator, Both CW and Pulse(2Hz) available; up to 25 hours with AAA batteries; 10mw Power
TS-FC101A	Cleaner	Fiber Connector Cleaner Cassette (dual-core cleaning), Cleaning Times Over 500 times per reel (dual-core); Replaceable cleaning tape;
TS-FOCP-25-BE	Cleaner	Pen-type Fiber Cleaner for 2.5mm SC/FC/ST, designed to clean both the male connector ends and female bulkhead adapters, 500+ times; Effectively clean all kinds of dust, <u>oil</u> and debris;
TS-FOCP-125-BE	Cleaner	Pen-type Fiber Cleaner for 1.25mm LC/MU, designed to clean both the male connector ends and female bulkhead adapters, 500+ times; Effectively clean all kinds of dust, <u>oil</u> and debris;



## Fiber Tech Go-Kit Addition

Optional tester and tools selections – premium version:

TS-OLS201-8335-LED50-FOA11	Light Source	Optic Light Source 850/1300/1310/1550nm, SM LD 9/125um, MM LED 50/125um, FC and SC/APC connector
TS-PON106AP-FOA22	XGS PON Power Meter	10Gb PON Power Meter(XGS-PON), Auto detected EPON,GPON mixed with new generation 10G-EPON or XGS-PON; Supports tests in GPON, EPON, and XGS-PON/10G-EPON networks with RF Overlay feature, SC/APC FC/APC(UPC optional), Alkaline Battery(3 AA 1.5V batteries),with FC/SC APC connector
TS-iOPM101A-L+ TS-iOLS201A	Premium Power Meter	Intelligent Optical Loss Test Kit, 1310/1490/1550/1625nm±20nm optic source, 850,1300,1310,1490,1550,1625nm Auto Detected Power meter; Support other wavelength customization. Optic Power Meter with measure range from -70dBm to +6dBm
TS-OMT105-85-LED50-H-OP10-FOA11	Light Source	Optical Multi Tester, 850/1300nm light source, MM LED 50/125um, VFL=10mW, FC/UPC and SC/UPC Connector, Power Meter range -50~+26dBm
TS-OFI401	OFI	Optical Fiber Identifier, Identified Wavelength Range 800-1700 nm, Identified Signal Type CW, 270Hz±5%, 1kHz±5%, 2kHz±5%; Alkaline Battery(2 AA 1.5V batteries)
TS-OTDR801HN-356-FOA22	OTDR	Portable Modalized OTDR with 10mw Power VFL and optional OPM module, Wavelength 1310/1550nm/1625nm wavelength; Dynamic Range 35/33/32dB; with default SC/APC connector and replaceable FC/APC Connector
TS-OTDR801ACB	OTDR Accessories	OTDR Launch Cable Box only
TS-OTDRC-500	OTDR Accessories	OTDR Launch Drop Cable, 500Meter SM Fiber, G.652.D
TS-OTDRC-1000	OTDR Accessories	OTDR Launch Drop Cable, 1000Meter SM Fiber, G.652.D

TS-FM4021P+	Connector Inspection Microscope	Intelligent WIFI Inspection Microscope, with WI-FI or USB connection support software install on PC or App install on smart phone; with UPC tool kits
TS-FM4021P+-001	Microscope Accessories	2.5MM/APC-M TIP
TS-FM4021P+-002	Microscope Accessories	1.25MM/APC-M TIP
TS-FM4021P+-003	Microscope Accessories	FC/APC-F TIP
TS-FM4021P+-004	Microscope Accessories	SC/APC-F TIP
TS-FM4021P+-005	Microscope Accessories	LC/APC-F TIP



XGS-PON Power Meter



Intelligent OTDR



Optical Fiber Identifier TS-OFI401

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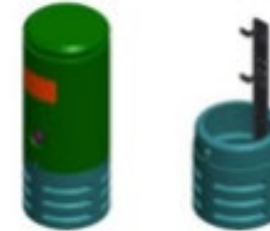


# Pedestals



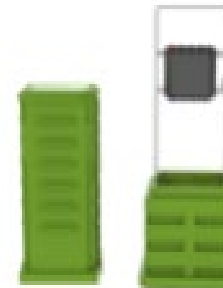
# Fiber Pedestals Ordering PN

- **SA-PD-925** 9" diameter, 25" height, good for pop ups
  - 40ft Container: 768
  - 20ft Container: 384
  - Pallet Qty: 24
  
- **SA-PD-1236** 12\*12\*36 internal, HDPE, "I" Type bracket stake
  - 40ft Container:
  - 20ft Container:
  - Pallet Qty:
  
- **SA-PD-131126** 13\*11\*26 internal, HDPE, "H" Type bracket stake
  - 40ft Container:
  - 20ft Container:
  - Pallet Qty:



# Fiber Pedestals

- **SA-PD-141446** 14.56" x 14.56" x 46.85" Pedestal, empty, with metal bracket only.
  - 40ft Container: 768
  - 20ft Container: 384
  - Pallet Qty: 24
- **SA-PD-141446-A** 14.56" x 14.56" x 46.85" Pedestal, hex lock, with six splice trays for max 144f splice capacity. Splice trays can be customized.
  - 40ft Container:
  - 20ft Container:
  - Pallet Qty:
- **SA-PD-141446-B** 14.56" x 14.56" x 46.85" Pedestal, hex lock, with Technicity SA-FAT series pre-installed
  - 40ft Container:
  - 20ft Container:
  - Pallet Qty:



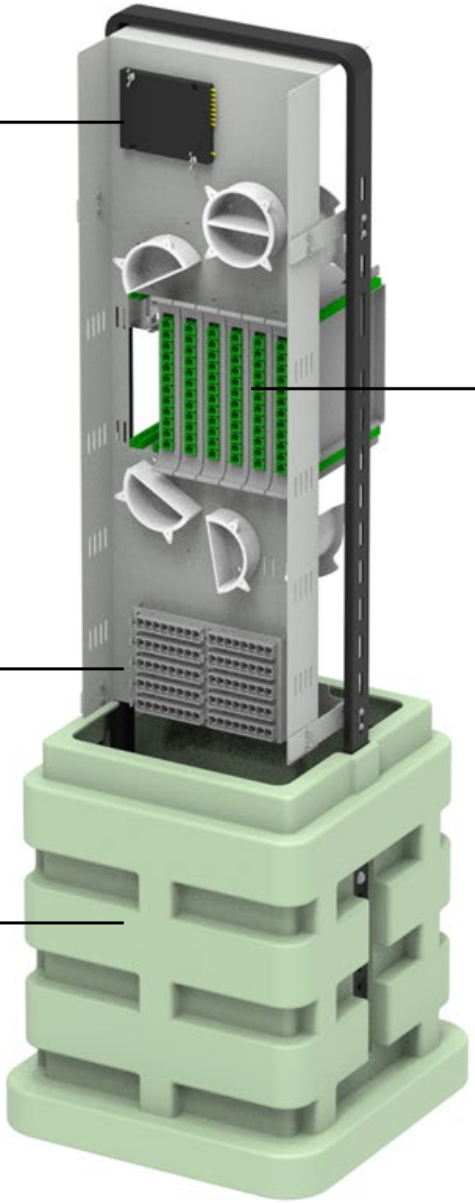
# NEW SureAlign Mini FDH Pedestal

1:32 box type splitter  
1:8, 1:12, 1:16 options

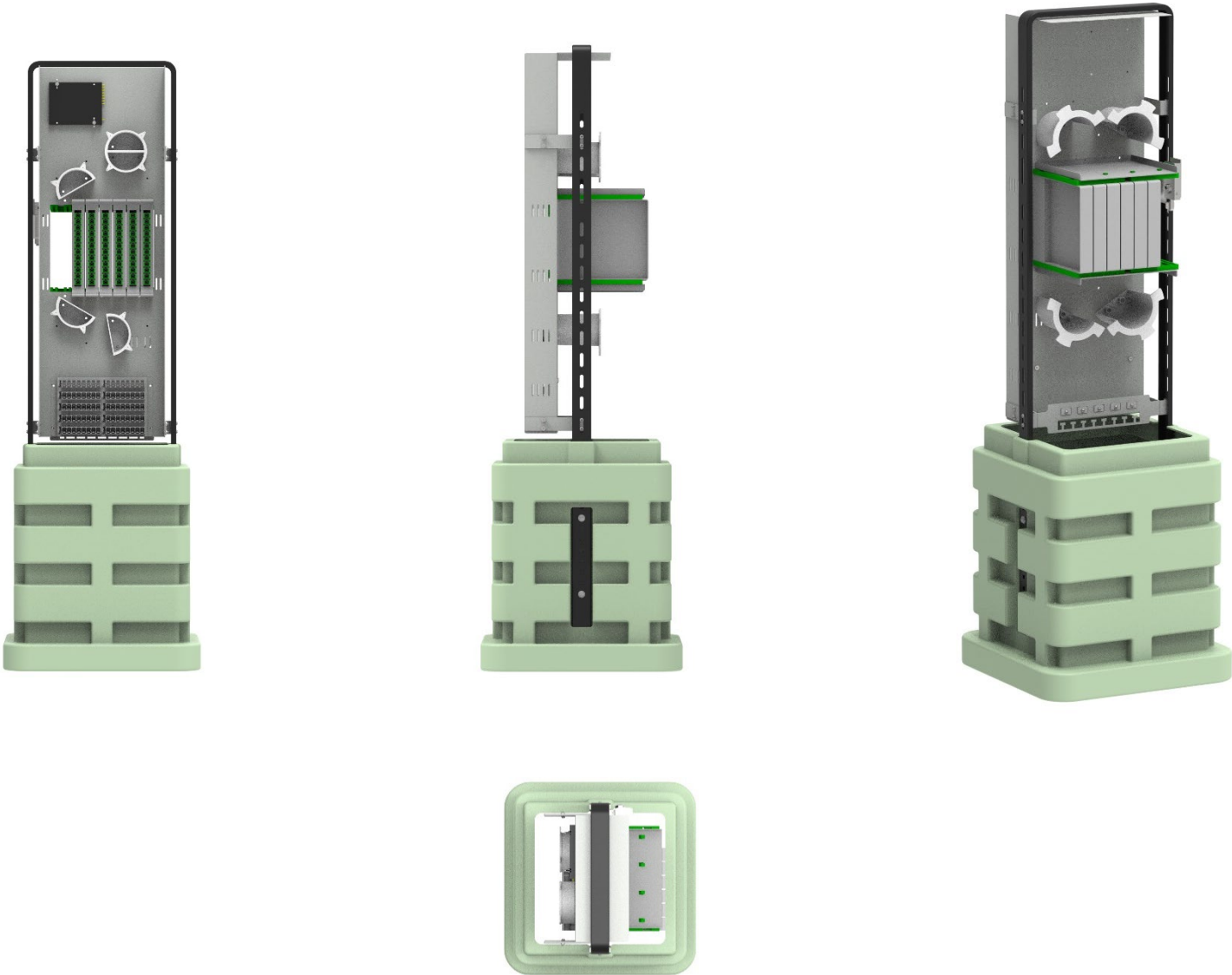
One-Piece Fiber Splice Tray,  
7 trays, 12 ports

Parking Lot  
80 spots

SA-PD-141446  
Pedestal

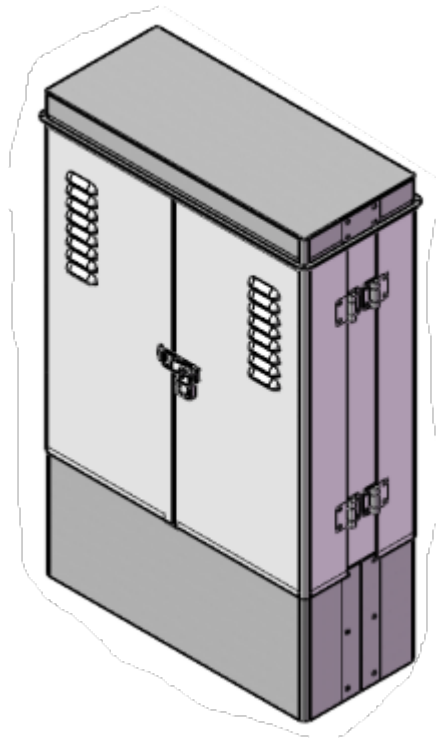
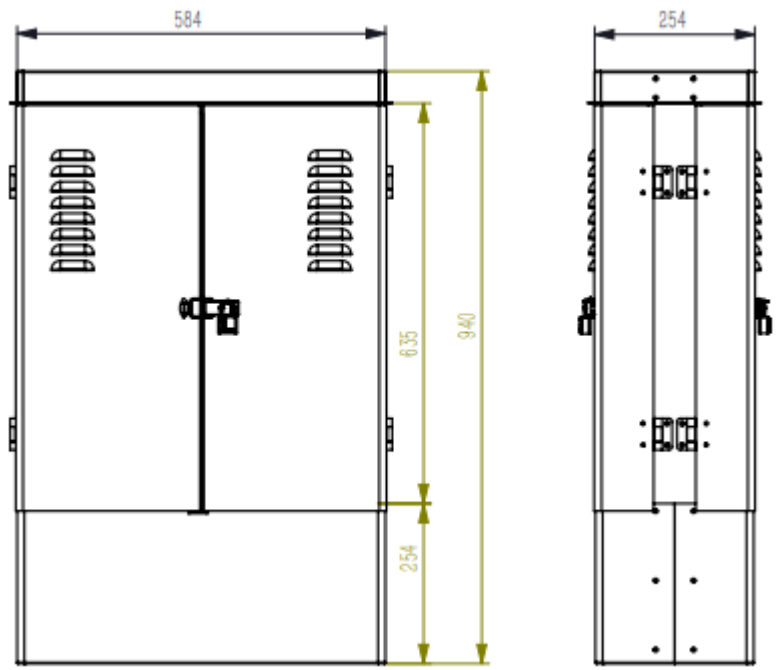
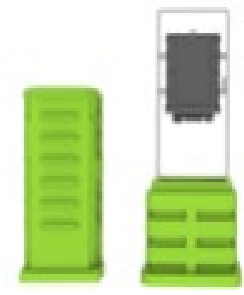


# SureAlign Mini FDH in Pedestal Proposal



# Fiber Pedestals

- **SA-PD-141446-C** 14.56" x 14.56" x 46.85" Pedestal, hex lock, with Technity FOSC pre-installed
  - 40ft Container:
  - 20ft Container:
  - Pallet Qty:



Need something new?  
Determine opportunity  
Provide docs or data sheet

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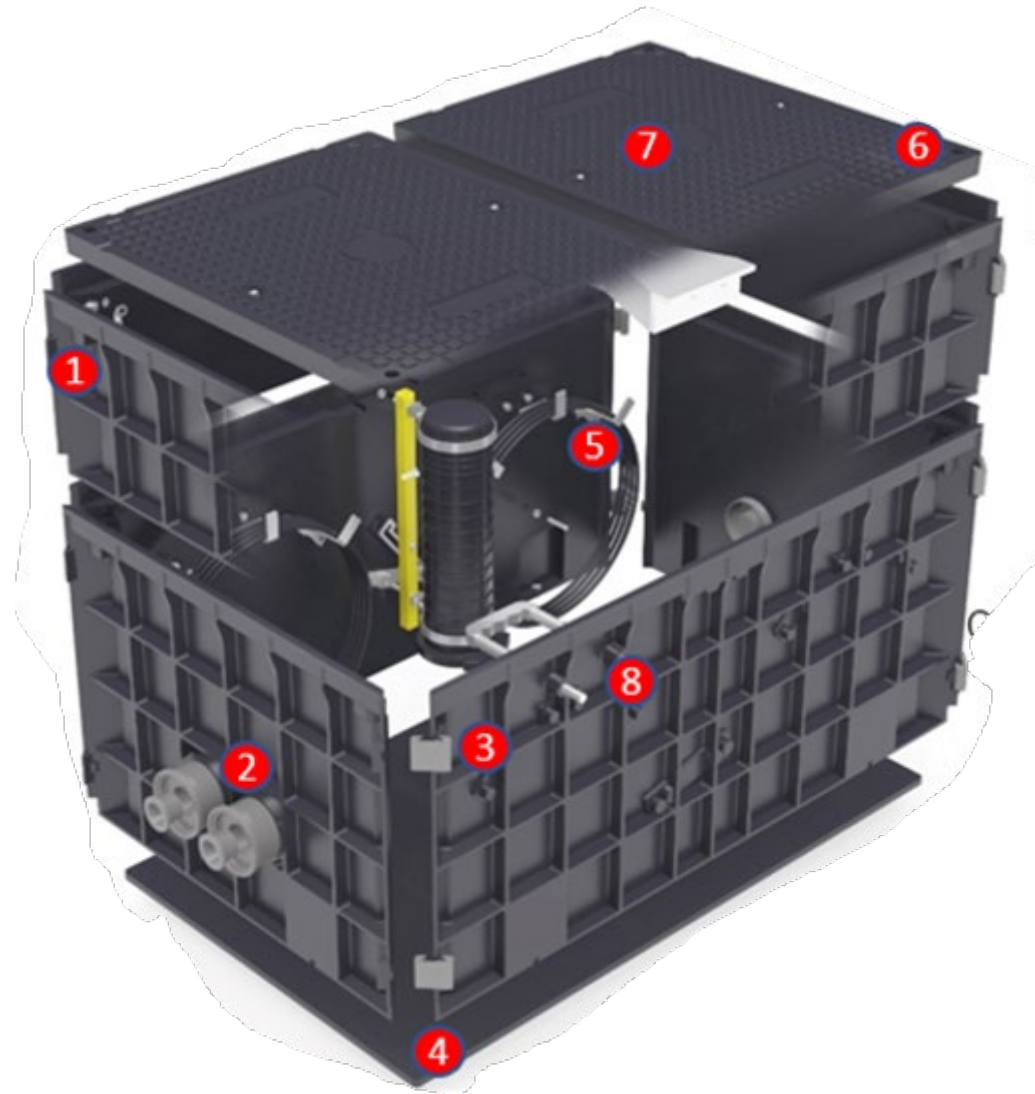
A large, white, stylized graphic of the number '09' on a dark background. The '0' and '9' are formed by thick, rounded lines. The text 'PART NINE' is centered within the '0'.

PART NINE

# Handholes & Vaults

# Canyon Modular Vaults Tech Feature

- 1 **Modular**  
Panels in 12" & 24" height  
Stack to increase height  
Field replaceable
- 2 **Optional sealed entry**  
Fast knock out  
Mechanical reducer/seal
- 3 **Quick Clip**  
No bolts, nuts, or tools  
Installs in less than half the time
- 4 **Optional Floor**  
Clean environment  
Prevents vegetation  
Anti-slip



- 5 **Storage & Mounting Options**  
Clean access & max storage  
Application customizable
- 6 **Covers**  
Stainless hex bolt or custom locking  
Cabinet mountable
- 7 **Customer Logo**  
Customer logo on metal plate  
Easy install and customization
- 8 **Knock Down = ships flat on pallet**  
Low transport cost.  
70% faster install vs. concrete

**Customizable, Space Saving, Light, Strong, *Grab-n-Go Modular Solution***



# SCTE 77 Vault Ratings = Use Case

APPLICATION	LOADING REQUIREMENTS			
Light Duty Pedestrian Traffic Only	Vertical	Test Load	13.3kN	3000 pounds
TIER 5 Sidewalk applications with a safety factor for occasional non-deliberate vehicular traffic	Vertical	Design Load	22.2 kN	5000 pounds
	Lateral	Test Load	33.3 kN	7500 pounds
Lateral		Design Load	28.7 kPa	600 pounds/sq.ft.
	Lateral	Test Load	43.1 kPa	900 pounds/sq.ft. (1800/2700 pounds/ lateral load plate)
TIER 8 Sidewalk applications with a safety factor for non-deliberate vehicular traffic		Vertical	Design Load	35.6 kN
	Lateral	Test Load	53.4 kN	12000 pounds
Lateral		Design Load	28.7 kPa	600 pounds/sq.ft.
	Lateral	Test Load	43.1 kPa	900 pounds/sq.ft. (1800/2700 pounds/ lateral load plate)
TIER 15 Driveway, parking lot, and off-roadway applications subject to occasional non-deliberate heavy vehicular traffic		Vertical	Design Load	66.7 kN
	Lateral	Test Load	100.1 kN	22500 pounds
Lateral		Design Load	38.3 kPa	800 pounds/sq.ft.
	Lateral	Test Load	57.5 kPa	1200 pounds/sq.ft. (2400/3600 pounds/ lateral load plate)
TIER 22 Driveway, parking lot, and off-roadway applications subject to occasional non-deliberate heavy vehicular traffic		Vertical	Design Load	100.1 kN
	Lateral	Test Load	150.1 kN	33750 pounds
Lateral		Design Load	38.3 kPa	800 pounds/sq.ft.
	Lateral	Test Load	57.5 kPa	1200 pounds/sq.ft. (2400/3600 pounds/ lateral load plate)
AASHTO H-20 Deliberate vehicular traffic applications.		Certified precast concrete, cast iron, or AASHTO-recognized materials.		

**Table 1 – Design / Test Loads**

## Light Duty: Flowerpot & Handholes

- **10x14x10 Flowerpot**
- 12x12x12 Handhole
- **12x16x12 Handhole**
- Modular vaults available in 90 days

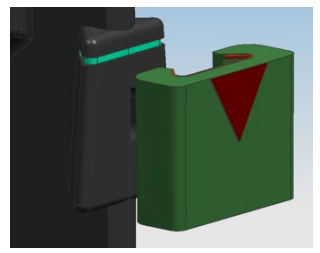
## Tier 5: Need Opportunity

- Modular vaults available in 90 days
- Pads are Tier 5 for handling ease

## Tier 15 & Tier 22 Modular Vaults

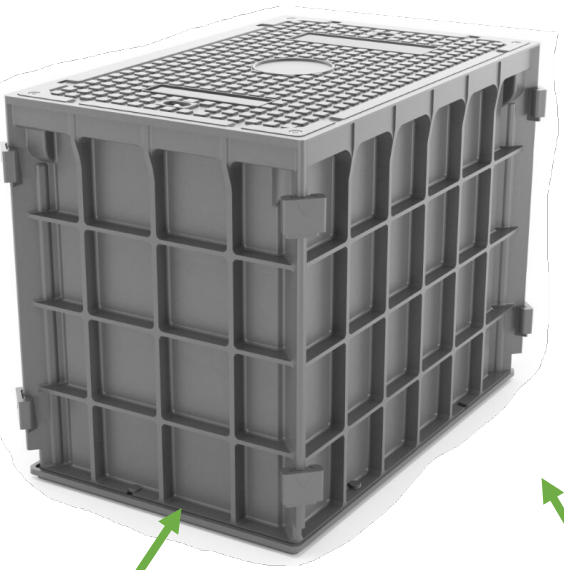
- **Available now & in stock**
- **12x12x12**
- **12x18x18**
- **17x30x24**
- **24x36x24**
- **30x48x36**

# 17x30 Modular Vault Anatomy



Quick Clip Fastener

**Base Height: 24"**

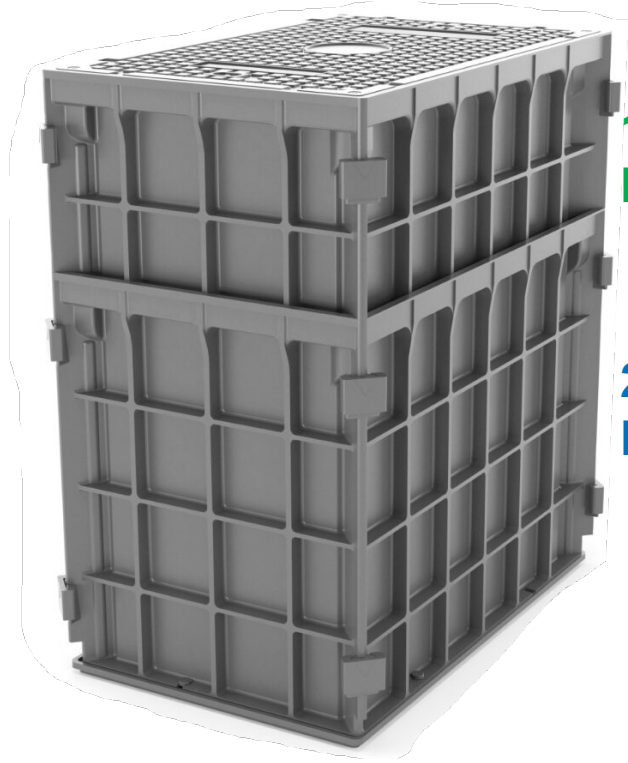


**24"  
Base**

S: Short Side Wall

L: Long Side Wall

**High Rise: 36"**



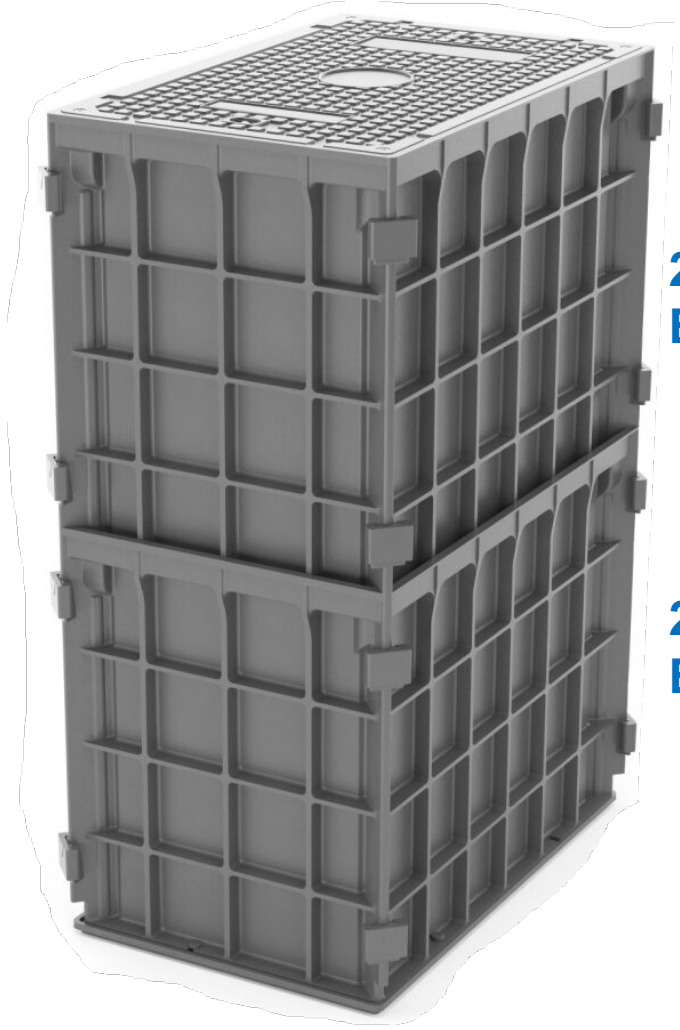
**12"  
Riser**

**24"  
Base**

RS: Riser Short Side Wall

RL: Riser Long Side Wall

**Ultra High Rise: 48"**



**24"  
Base**

**24"  
Base**

# Vault Accessories

## Name Plate

- Included per Lid



## Cover Hook

- 2x Included



## Fiber Hooks

- Included



## Smart Ball ID Marker

- Read/Write @ 2'
- 360 Sense @ 5'
- 50yr. life
- Application colors



## Smart Coin ID Marker

- Read/Write @ 1.5'
- 360 Sense @ 2'
- 50yr. life
- Application colors



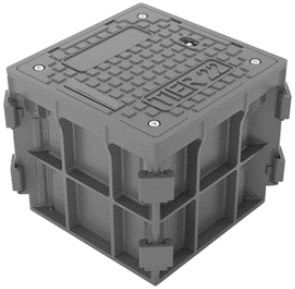
## Grounding Plate

- Galvanized Steel
- With Connector

# Handholes and Vaults

- **\* Standard sizes**
- **Optional colors available**

## Modular Handholes



**12x12x12\***



**12x18x18\***

**Modular Vaults & Handholes Rated Tier 15 & 22**

## Light Duty Handholes



**12x16x12\***



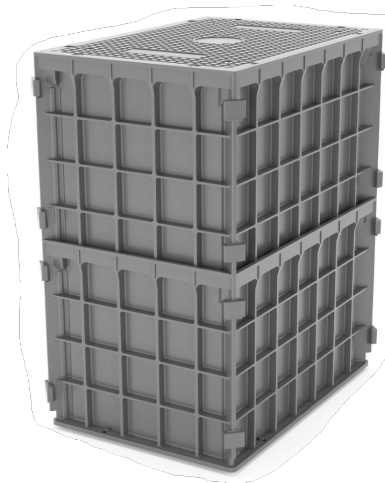
**6x9x9  
10x14x10\***

## Small Modular Vault



**17x30x24\***  
17x30x36  
17x30x48

## Medium Modular Vault



**24x36x24\***  
24x36x36  
24x36x48

## Large Vault



**30x48x36\***

# Advantage of SureAlign Vault Solution

***Lightweight & stronger than steel:*** Maintains shape in all environments

***Easy, Fast Install:*** No crane, no Tools, easy to use

***Environmental resistant:*** Doesn't degrade, deteriorate or break if dropped

***Modularity:*** Stack to add depth, ships flat, field replaceable parts

***Easy transport and low logistics cost:*** 20 vaults per pallet, easy to lift

***Radio Friendly:*** Allows location radio signals to be read



# SureAlign Vault-1730 Series Tier 22 Ordering Info

## Order Assembly Part #

- Includes: Vault + Accessories

- S = short side
- L = long side
- C = cover
- RS = Riser short side
- RL = Riser long side

- Includes Accessories:

- Clips for corner connections
- SS Bolts and Nuts for cover
- 4x Fiber J brackets w/ mount
- ID Marker bracket w/ mount
- 2x Cover lifting hooks

	SA-HDV-1730A	SA-HDV-1730B	SA-HDV-1730C
<b>MOQ: 20 pcs.</b> <b>Ships: 3 pallets</b> <ul style="list-style-type: none"> <li>40 Short Side</li> <li>40 Long Side</li> <li>20 Covers</li> </ul>			
Internal Size (inch) WxLxH	17x30x24	17x30x36	17x30x48
External Size (inch) WxLxH	21x33x24	21x33x36	21x33x48
Weight (lbs)	109.25	147.17	170.53
Side Wall parts included			
SA-HDVP-1730S	2	2	4
SA-HDVP-1730L	2	2	4
SA-HDVP-1730C	1	1	1
SA-HDVP-1730RS	0	2	0
SA-HDVP-1730RL	0	2	0

## Order Spare Part #

- Ala-carte ordering of individual vault walls
- See accessories page for ordering information

Side Wall Parts	Description	Size (inch)	Weight (lbs)
SA-HDVP-1730S	Short Side Wall for SA-HDV-1730A/B/C	22x24	13.36
SA-HDVP-1730L	Long Side Wall for SA-HDV-1730A/B/C	34x24	17.28
SA-HDVP-1730C	Cover for SA-HDV-1730A/B/C	21x32	47.97
SA-HDVP-1730RS	Riser-Short Side Wall for SA-HDV-1730B	22x12	8.16
SA-HDVP-1730RL	Riser-Long Side Wall for SA-HDV-1730B	34x12	10.8

# SureAlign Vault-2436 Series Tier 22 Ordering Info

## Order Assembly Part #

- Includes: Vault + Accessories
  - S = short side
  - L = long side
  - C = cover
  - RS = Riser short side
  - RL = Riser long side
- Includes Accessories:
  - Clips for corner connections
  - SS Bolts and Nuts for cover
  - 4x Fiber J brackets w/ mount
  - ID Marker bracket w/ mount
  - 2x Cover lifting hooks

	SA-HDV-2436A	SA-HDV-2436B	SA-HDV-2436C
<b>MOQ:20 pcs.</b> <b>Ships: 3 pallets</b> <ul style="list-style-type: none"> <li>40 Short Side</li> <li>40 Long Side</li> <li>20 Covers</li> </ul>			
Internal Size (inch) WxLxH	24x36x24	24x36x36	24x36x48
External Size (inch) WxLxH	27x39x24	27x39x36	27x39x48
Weight (lbs)	158.15	204.89	244.65
Side Wall parts included			
SA-HDVP-2436S	2	2	4
SA-HDVP-2436L	2	2	4
SA-HDVP-2436C	1	1	1
SA-HDVP-2436RS	0	2	0
SA-HDVP-2436RL	0	2	0

## Order Spare Part #

- Ala-carte ordering of individual vault walls
- See accessories page for ordering information

Side Wall Parts	Description	Size (inch)	Weight (lbs)
SA-HDVP-2436S	Short Side Wall for SA-HDV-2436A/B/C	26x24	19.97
SA-HDVP-2436L	Long Side Wall for SA-HDV-2436A/B/C	39x24	23.28
SA-HDVP-2436C	Cover for SA-HDV-2436A/B/C	26x39	71.65
SA-HDVP-2436RS	Short-Short Side Wall for SA-HDV-2436B	26x12	9.7
SA-HDVP-2436RL	Short-Long Side Wall for SA-HDV-2436B	39x12	13.67

# SureAlign Vault-3048 Series Tier 22 Ordering Info

## Order Assembly Part #

- **Includes: Vault + Accessories**
  - S = short side
  - L = long side
  - C = cover
  - RS = Riser short side
  - RL = Riser long side
  
- **Includes Accessories:**
  - SS Assembly hardware
  - SS Bolts and Nuts for cover
  - 4x Fiber J brackets w/ mount
  - ID Marker bracket w/ mount
  - 2x Cover lifting hooks

SA-HDV-3048	
<p><b>MOQ: 10 pcs.</b>                      Ships: 3 pallets</p> <ul style="list-style-type: none"> <li>• 20 Short Side</li> <li>• 20 Long Side</li> <li>• 20 Covers</li> </ul>	
Internal Size (inch) WxLxH	30x48x36
External Size (inch) WxLxH	32x50x36
Weight (lbs)	326.98
<b>Side Wall parts included</b>	
SA-HDVP-2436S	2
SA-HDVP-2436L	2
SA-HDVP-2436C	2

## Order Spare Part #

- Ala-carte ordering of individual vault walls
- See accessories page for ordering information











Side Wall Parts	Description	Size (inch)	Weight (lbs)
SA-HDVP-3048S	Short Side Wall for SA-HDV-3048	33x36	34.96
SA-HDVP-3048L	Long Side Wall for SA-HDV-3048	51x36	61.33
SA-HDVP-3048C	Cover for SA-HDV-3048	26x39, 2 Lids	67.2
















# SureAlign Vault Accessory Spares

**30x48**

**17x30 & 24x36**

Assemble P/N	Specifications	QTY	Description	Reference Picture
SA-HDV-ACC-CL652	Clip, Dimension 63x50x22 mm	8	Connect Side walls	
SA-HDV-ACC-SHSM1270	Socket Head Screw, M12X70 mm	4	Fasten lid onto walls	
SA-HDV-ACC-NUTM12	Nut, M12	4	Buried into Side wall, work with screw	
SA-HDV-ACC-SHSM1216	Socket Head Screw, M12X16	1	Fasten and unfasten the screw	
SA-HDV-ACC-BKT822	J-Bracket, Dimension 80x25x25 mm	4	Holding FOSC or loop cable	
SA-HDV-ACC-STSM419	Self-tapping Screw, M4X19 mm	8	Fasten J-Bracket onto walls	
SA-HDV-ACC-MC75	Marker Case, Diameter 75 mm	1	Holding marker in, at lid back	
SA-HDV-ACC-SHSM1016	Socket Head Screw, M10X16	1	Screw Marker Case at lid back	
SA-HDV-ACC-WasherM10	Washer, 11X20mm (inner and outer diameter)	1	Fasten on Marker Case	
SA-HDV-ACC-HK30	Hook, S.S 30mm Long	2	Per 2 vault equip 1 pair of hook	

Assemble Parts	Specifications	QTY	Description	Reference Picture
SA-HDV-ACC-HHSM12100	Hex Head Screw, M12X100mm	4	Fasten lid onto walls	
SA-HDV-ACC-SNUTM12	Square Nut, M12, Customized	4	Buried into walls, work with lid screw	
SA-HDV-ACC-SNC3020	Square Nut Case, 31X20mm	4	Load square nut into walls	
SA-HDV-ACC-FHSM610	Flat Head Screw, Cross pattern, Flat Head	8	Fasten nut case onto walls	
SA-HDV-ACC-HSDM12	HEX Screw Driver for HEX Head M12	1	Fasten and unfasten the screw	
SA-HDV-ACC-BKT822-1	J-Bracket1, Dimension 80x25x25mm, big hole	4	Holding FOSC or loop cable	
SA-HDV-ACC-HHSM820	Hex Head Screw, M8X20mm	8	Fasten J-Bracket onto walls	
SA-HDV-ACC-HHSM860	Hex Head Screw, M8X60mm	12	Fasten 2 walls	
SA-HDV-ACC-NUTM8	M8 Nut	20	For J-Bracket and wall connecting bolt	
SA-HDV-ACC-MC75	Marker Case, Diameter 75mm	1	Holding marker in, at lid back	
SA-HDV-ACC-SHSM1016	Socket Head Screw, M10X16	1	Screw Marker Case at lid back	
SA-HDV-ACC-WasherM10	Washer, 11X20mm (in and out diameter)	21	Fasten on Marker Case, J-Bracket, and Wall connect Bolt	
SA-HDV-ACC-HK30	Hook, S.S 30mm Long	2	Per 2 vault equip 1 pair of hook	

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# 10

PART TEN

## *SureAlign* Drop In Place Pads

# Current Market Solutions

- Pour in Place or Precast Cement Composite:
  - Long install/cure time, Long lead times, Requires lift, & Limited life



# Market Needs... A Drop-In Solution



Is there a single pad that fits multiple vendor cabinets?

Why can't a pad ship with the cabinet?

I need better shipping cost per unit!

I need a customizable pad!

I need to save space and install faster!

I need a strong yet light weight pad that will last a lifetime!

!



# New “Drop-In” Solution...

## Available

- Green & mass produced
- On-Hand availability

## Strong

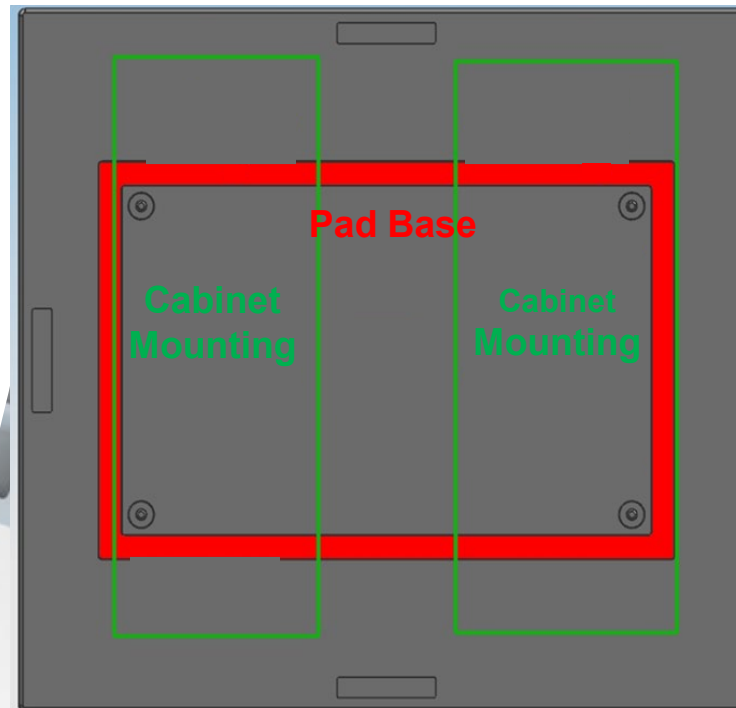
- Stronger than metal, last 50+ yrs.
- Will not degrade or deform

## Light Weight

- Less shipping, space & weight
- Lower install cost, 1 person only

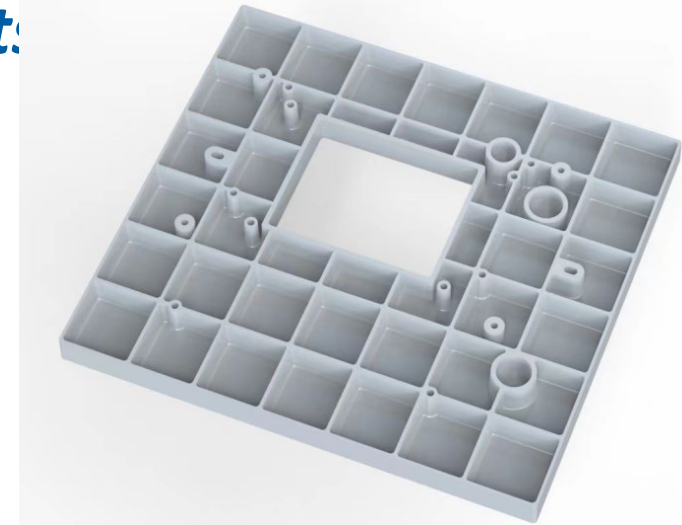
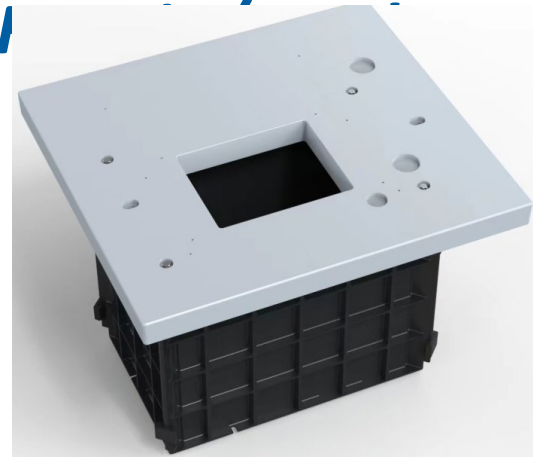
## Customizable

- Tool specific or post-production
- Local contractor



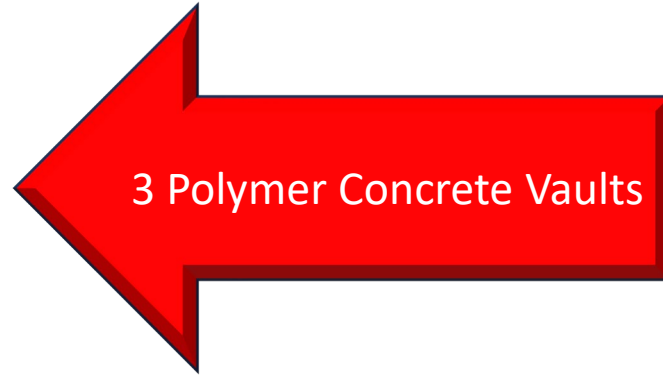
# SureAlign Drop-In Place Pads with Base

- Off the shelf... *no waiting for cure time, no erosion issues*
- Light & Robust... *No lift, No eyelet grinding, One person install*
- Environmental resistant... *will not degrade or crack, 50+ yr. life*
- Protect your power investment... *lock your cabinet down & store cable*
- Modularity approach... *parts flat*

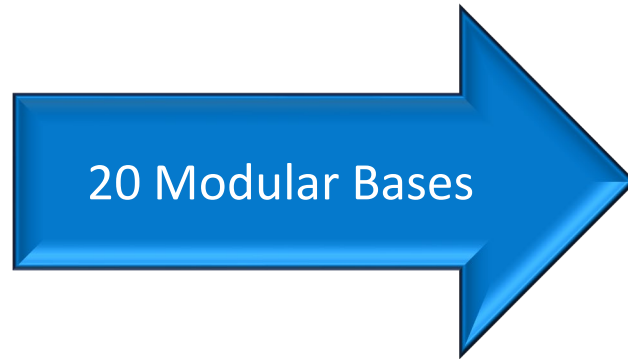


Vault modularity & Drop-In Pads = *Low Cost, Low Touch, Long Life*

# SureAlign Modular Handhole



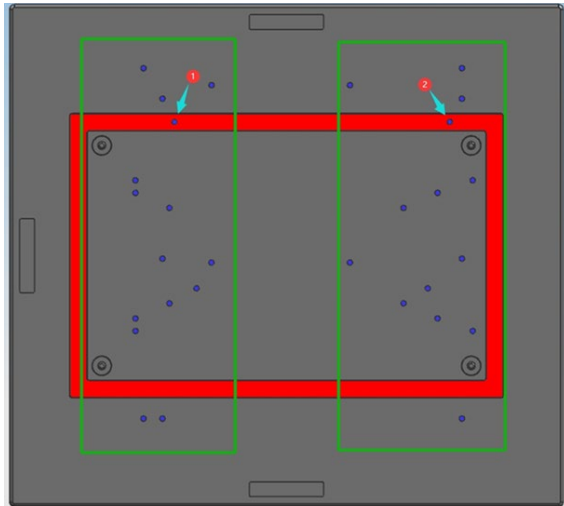
VS.





# Easy to install a cabinet on this generic Pad

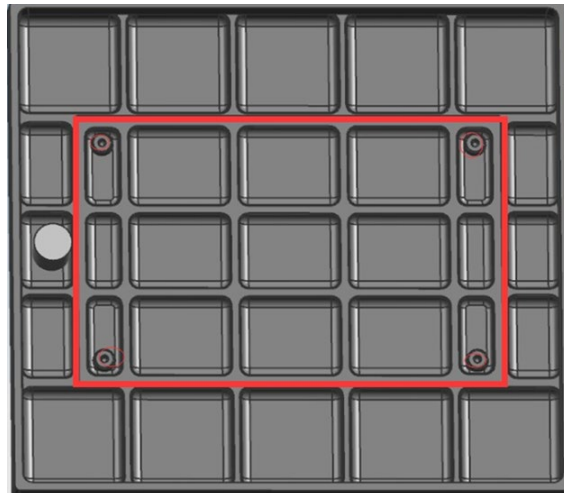
- Drill pilot holes for cabinet mounting
- Use hole saw for conduit access inside the vault pattern
- Use hole saw for power access if needed outside the vault



## Top view of Pad

Red outline is the vault pattern.

Small circles are template locations of multiple vendor power cabinets



## Bottom view of Pad

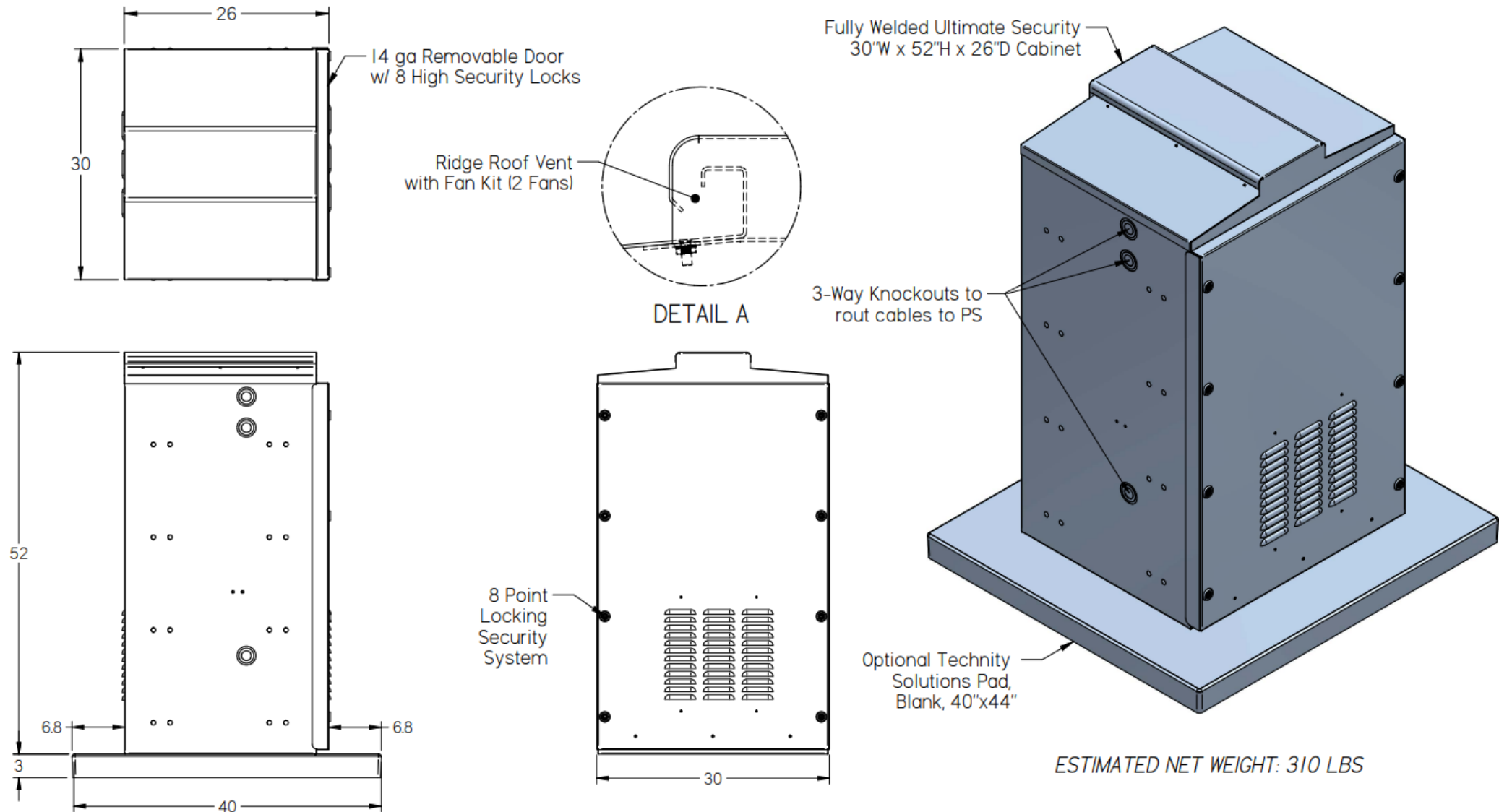
Red outline is the vault pattern.

Note 3" power hole between vault and pad edge.

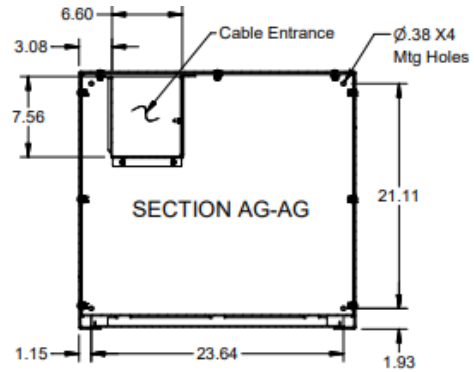




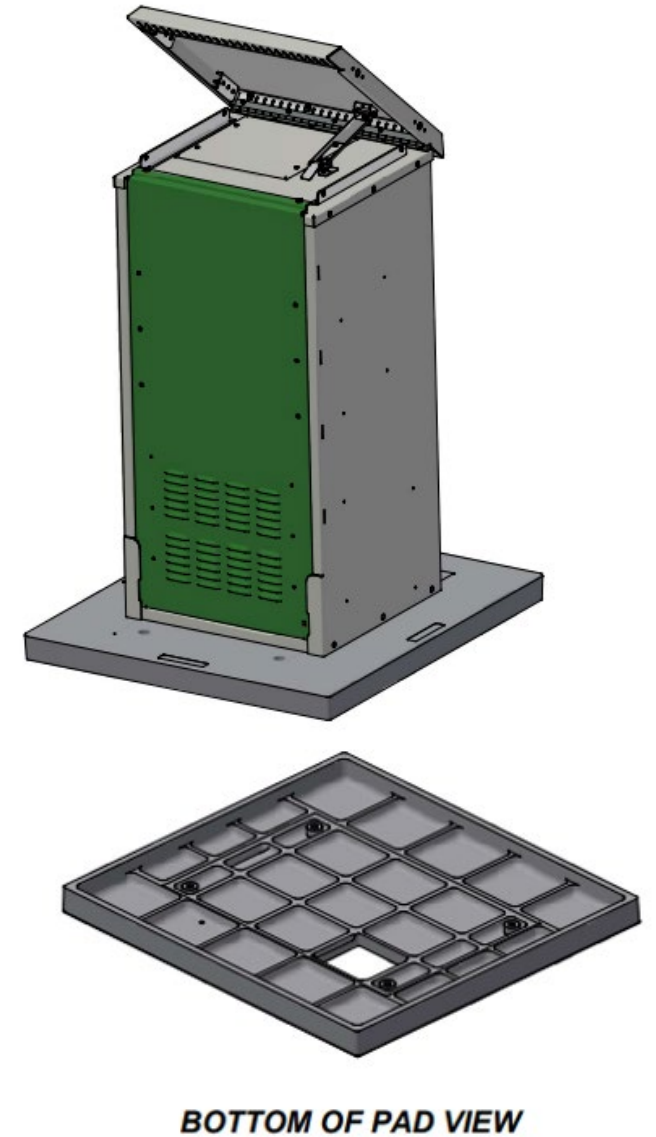
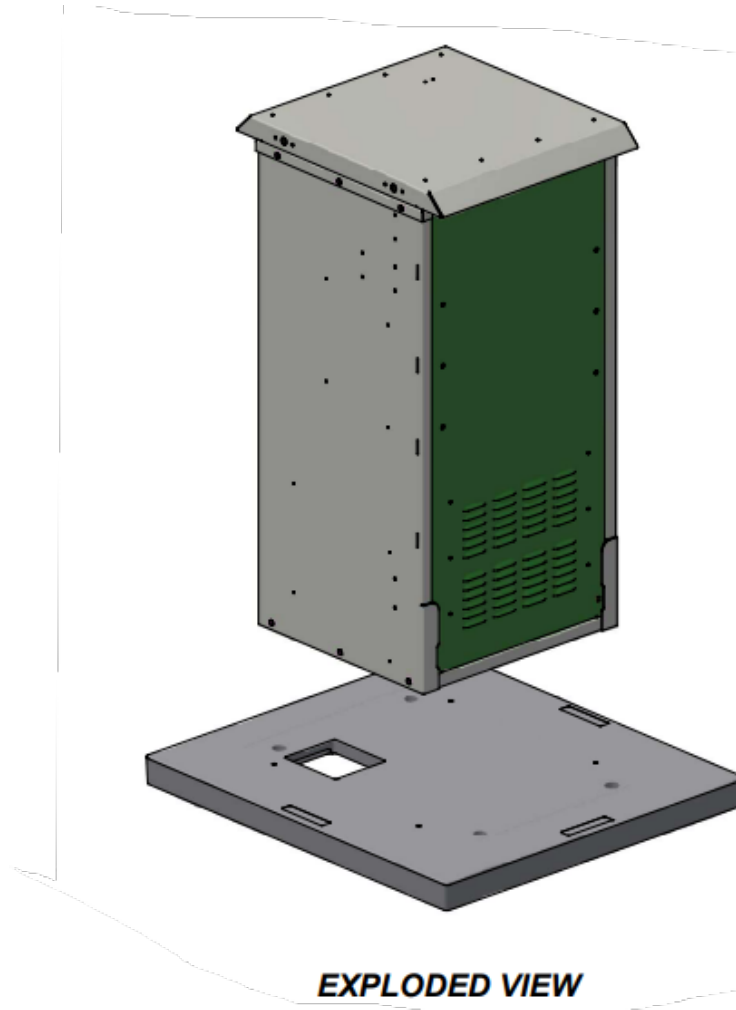
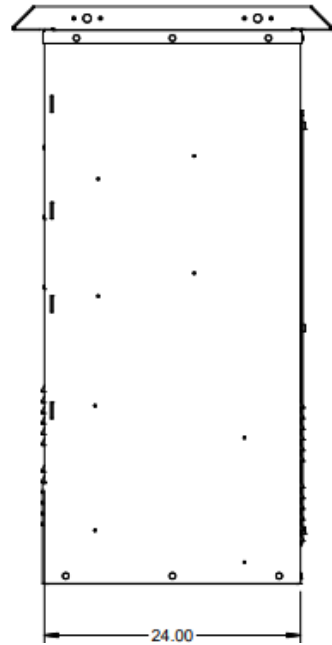
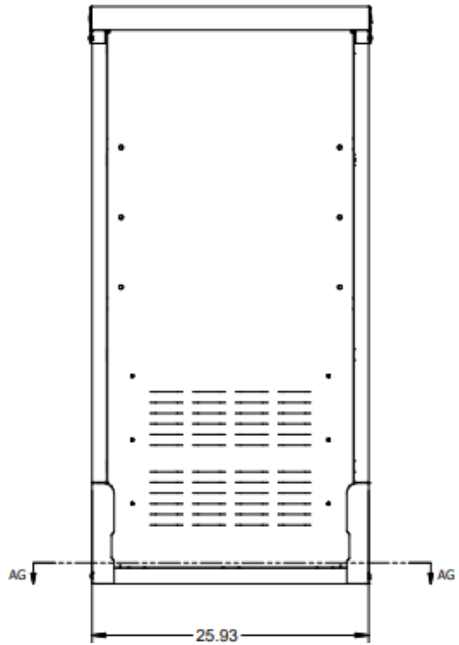
# Moore CP Battery Cabinet-Pad



# American Products Power & Pad



**AM-522624-HSPN**  
**Pad Layout**

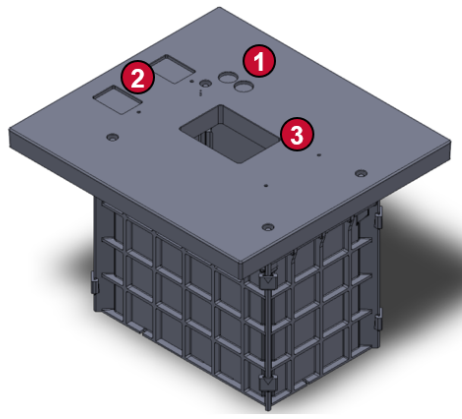


# Generic Pad-Base or Custom Tools for Alpha

## SKU 1

COMPATIBLE WITH UPE-3/6 AND UPE-4/8

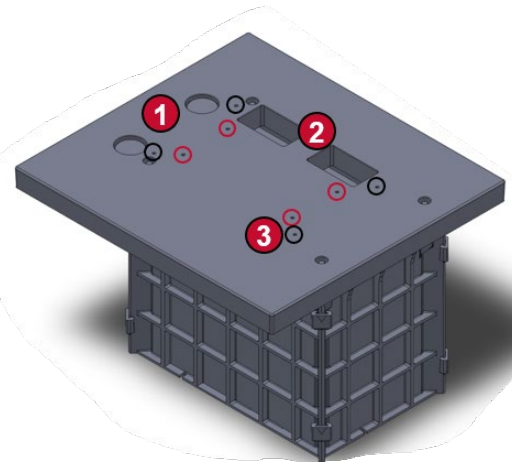
- 1 Conduit knockouts for rear coax raceway
- 2 Knockouts for meter assembly and service entrance
- 3 8" x 11.5" cutout



## SKU 2

COMPATIBLE WITH PN-3/4 AND UPE-M3/6

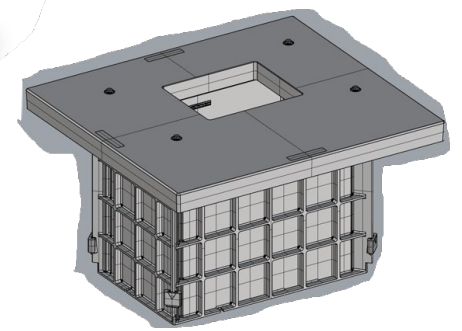
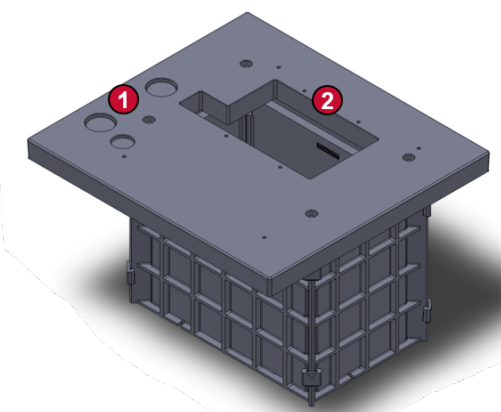
- 1 Knockouts for meter assembly and service entrance
- 2 (2) 8" x 4.5" for PN series access and rear UPE-M access
- 3 Mounting provisions for PN and UPE-M series



## SKU 3

COMPATIBLE WITH FPE

- 1 Knockouts for meter assembly and service entrance
- 2 Cutout for access



## SKU 4

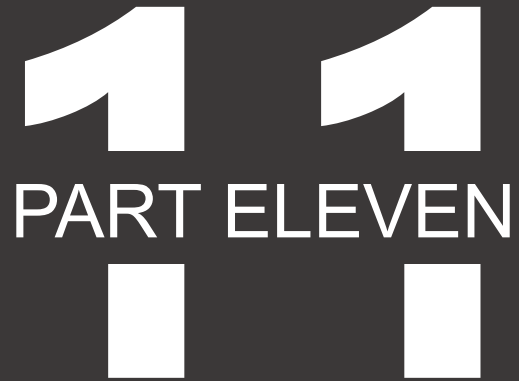
COMPATIBLE WITH FBE, FAE, AND RMB. BLANK PAD FOR FIELD PREP.

- 1 Blank pad on top of 17x30 base vault
- 2 40x44" Pad, 8.5" x 11" cutout or blank

# SureAlign Drop-In Pad Details

- Base: **Released** Generic Pad: **Tool production ready May 20<sup>th</sup>**
- MOQ Pad/Base: **20 units on 3 pallets, 340 units per 40ft. container**
- Accessories: **Pad/Base Bolts, Cabinet Lag Bolts, Base Chips, Template**
- Standard Leadtime: **8-10 weeks**, expedite available.
- Additional tools can be provided in **45 days**.
- Cabinet specific tools can be provided for high volume apps.
- Additional Vault with Lid solutions available

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Micro Duct

# MDB (Micro Duct Bundle)



## SA - MDB



**Number of Micro Duct tubes**

- 1: 1 way
- 2: 2 ways
- 3: 3 ways
- 4: 4 ways
- 5: 5 ways
- 6: 6 ways
- 7: 7 ways
- 12: 12 ways
- 19: 19 ways

**Micro Duct OD/ID**

- 0735: 7/3.5mm
- 8506: 8.5/6mm
- 1208: 12/8mm
- 1410: 14/10mm
- 1612: 16/12mm
- 2016: 20/16mm
- 2521: 25/21mm
- 3226: 32/26mm

**Tracing Wire and Rip Cords option**  
 T. With tracing wire AWG20  
 R. With 2 rip cords  
 TR. With both tracing wire and rip cords

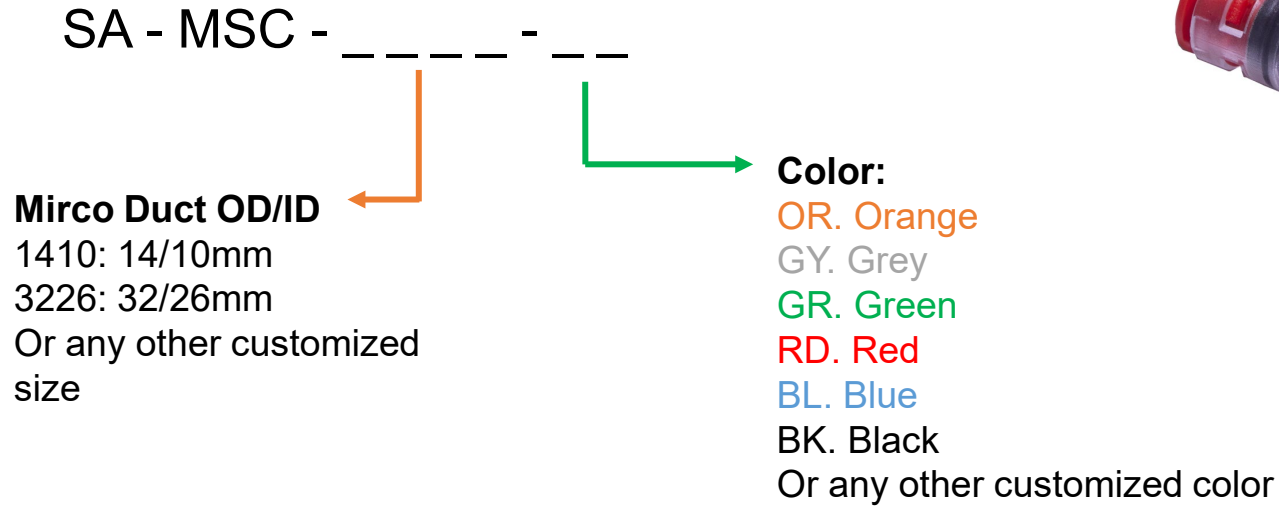
**Oversheath Color:**

- OR. Orange
- GY. Anti-UV Grey
- GR. Green
- RD. Red
- BL. Blue
- Or any other customized color

**Oversheath thickness:**

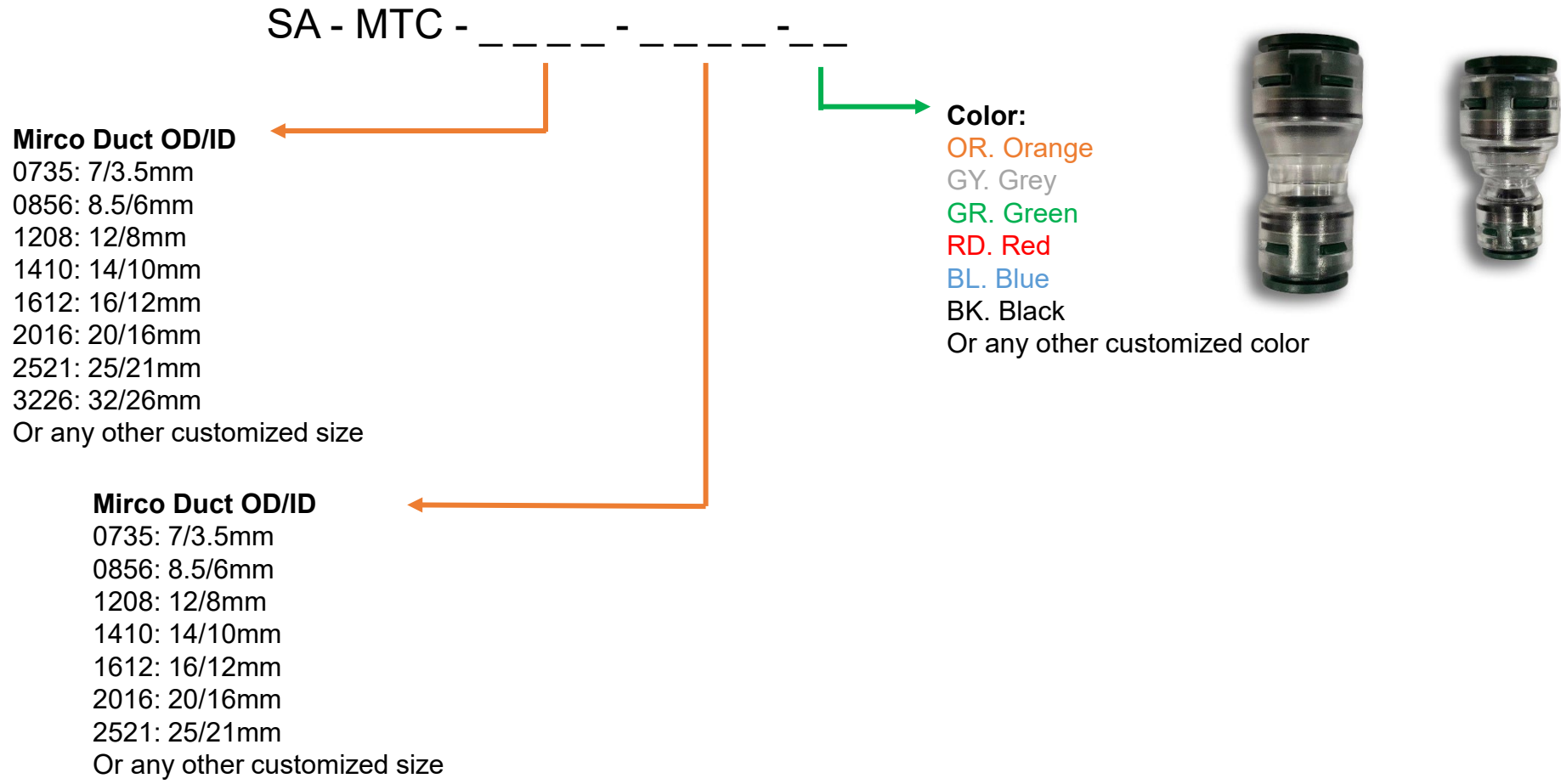
- 1: 1mm
- 12: 1.2mm
- 15: 1.5mm
- 17: 1.7mm

# MSC (Microduct Straight Coupler)



E.g. SA-MSC-1410-OR

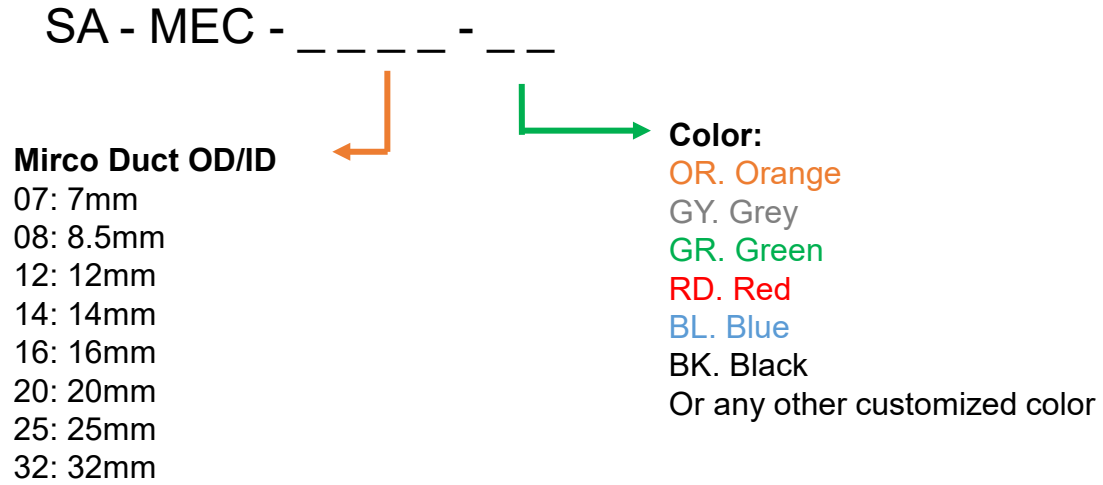
# MTC (Microduct Transition Coupler)



E.g. SA-MTC-1410-0856-OR



# MEC (Microduct End Cap)



E.g. SA-MEC-14-GR

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# 12

PART TWELVE

# 12

Network Interface Device: House Box

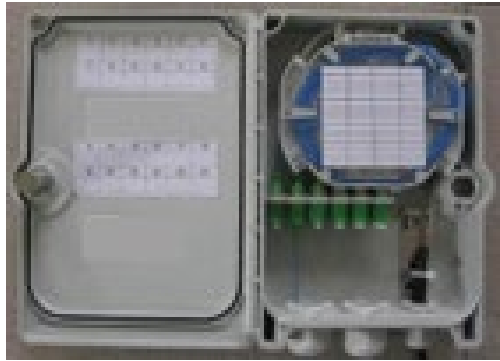
# NID House Box Options Examples



SA-NID-240



SA-NID-520



SA-NID-240



SA-NID-840

# Thank You!

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