Gigaclear Documentation
Underground CDC (Connectorised Closure) Guidance Document

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2. Background

Gigaclear, in the middle of 2017, opted to start using a ducted method of installation to connect customers. This was not a smoothly managed introduction, and numerous issues arose as part of the introduction.

At the time, some thought was given to the concept of underground “drop closures” to supplement the connectorised drop cabinet in scenarios where a cabinet was inappropriate, either due to the small volume of drops required or the requirement to have a less visible termination point.

However, a solution was not fully developed at the time. A product was initially selected – HellermannTyton’s FDN series closure has a connectorised variant which houses a 12, 24 or 48 way LC patch panel on the back of a tubed closure. This product has some significant practical issues, however, and is unlikely to form part of an ongoing solution.

This document aims to provide interim guidance on mitigating issues with this product by specifying a particular method of installation which will need to be followed by Delivery teams until a replacement product or method statement is developed; broadly this follows the philosophy of converting this closure into a segment of “direct burial” equivalent installation.

3. Interim Guidance

3.1. Known problems with the FDN59CT

The key issues with the FDN59CT range are:

- There is no space inside the closure to manage spare fibre blown into the closure
- There is no label scheme for the ports
- There is no space for the full volume of cables required to coexist within the closure and allow for maintenance, particularly with service loops

Additionally, we have other issues with installations performed into these:

- There is no way to lift the closure out once 24 or 48 ducts have been installed into it
- Installation teams are not presently equipped for lifting chamber lids or working with closures in or outside of chambers
- Installation teams are not trained on chamber access and may not have appropriate PPE, safety equipment (guarding rails, etc) for working in chambers

The objective of these mitigations is to de-risk access by removing the need for installations teams to access the closures; all access should be performed by build teams and tested prior to handover. Installations will be performed as if they were in direct burial areas (i.e. no blown fibre). Where fibre must be blown from property to microclosure, splicing will be required to attach an SC pigtail in the microclosure.

3.2. Immediate in-delivery mitigations

To mitigate these issues the following should be performed by Delivery before the closure should be considered “ready for service”:

1. Either the FDNCT connectorised joint or the FDNTB standard joint may be used. The preference is to use the standard joint and splice all drop cables once blown.
2. The closure should be mounted on a hinged bracket attached to a Mobra frame, so that the ducts can be arranged and managed into the closure without risk when moving the closure into the raised position.
3. Ducts should be brought into the closure on the opposite side to the splice trays (i.e. at the back of the stack)
4. No more than 24 ducts should be brought into the closure; use a second closure, chamber, and jump cable if more than 24 drops are called for by the design. Where a second chamber cannot be sited, a FW6 should be used.
5. All ducts must be installed into the closure and fibre blown from the pot to the closure for all pots served by the closure.
6. Ducts must be labelled with the pot number, deburred, and fitted with a gas blocker such as the Filoform 823558.x or Emtelle microduct gas blocker.
7. Duct entry into the closure shall be made with the HT recommended process and seals (R70 Cablelok – *note the R50 Cablelok supplied cannot be easily fit over the 8mm duct*)
8. All ports provisioned in the closure must be tested prior to connection of customer drops to the standard OTDR/iOLM pass/fail specification for customer drop cabinet ports.
   Alternatively, a standard spliced closure can be used and drops spliced onto incoming fibres; testing must then be conducted from the pot for all pots served from the closure, as with a standard direct burial install.

9. Within the pot, the duct must terminate into a HT CCP microclosure, and the SC connector terminated into a coupler ready for “direct burial equivalent” installation. If the quantity of slack exceeds the capacity of the microclosure, the cable must be cut, stripped, and spliced to an SC pigtail, leaving a modest amount of slack for maintenance. Slack kept at the main closure shall be minimal, to reduce congestion.
10. Within the closure, each pot’s cable must be connected into the patching frame at the back of the closure.
11. If a mid-span cut is to be made in the splice schedule this should be performed, with the slack stored in a basket within the closure; a non-standard closure type will be required.
12. Splicing should be done as normal, but transport tubes should use the top side entry port on the closure to avoid conflict with connectors.

In addition to these mechanical and process changes, it is crucial that Design records are accurate and reflect the situation, so that Salesforce can be updated to inform Installations that the closure is a buried drop.

3.2.1. Additional Parts Required

You may need one or more of the following parts to build a closure according to this specification:

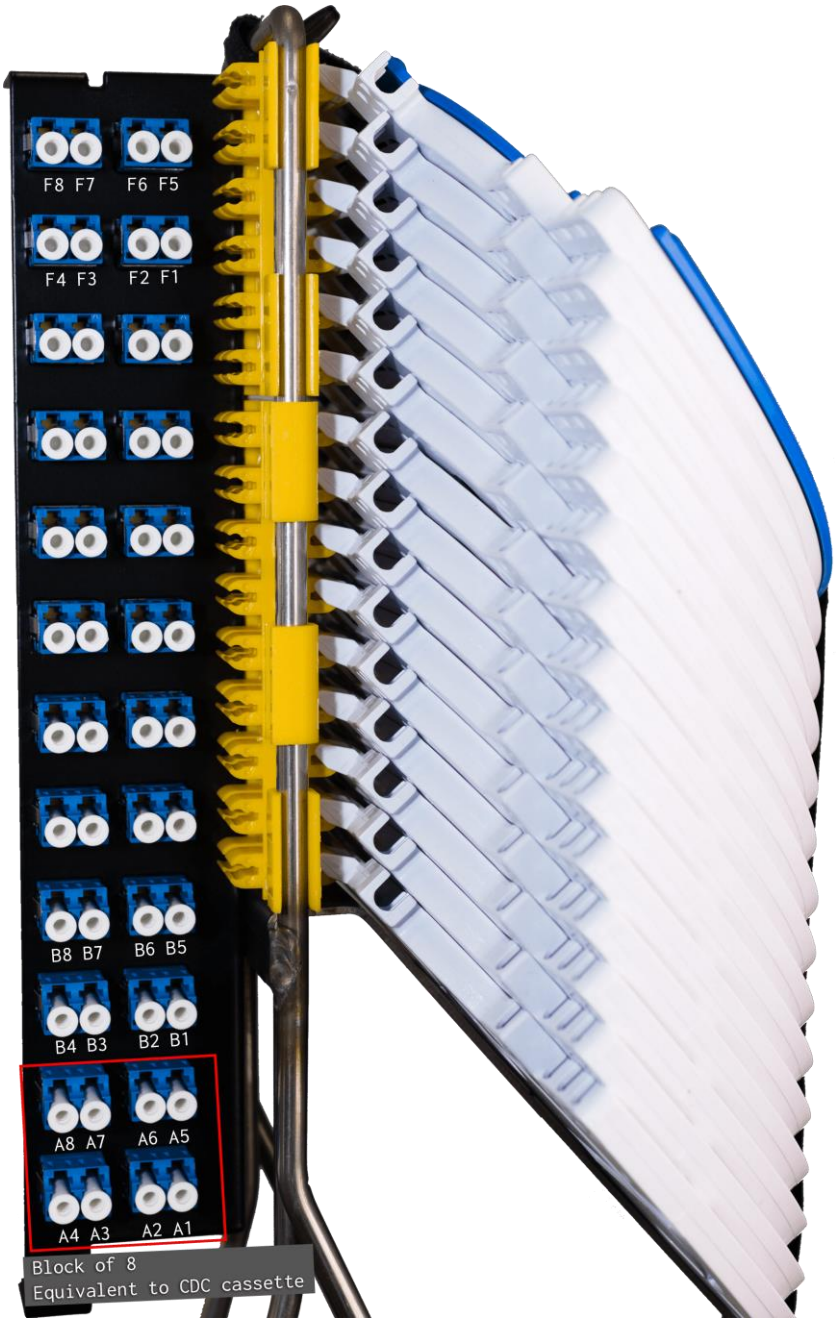
1. R70 Cableloks (CABLELOK-R70-10 for pack of 10)
2. FDN59 connectorised closure with basket (FDNCT-AXBCDW1-LF)
3. FDN pole/wall mounting kit (ACC4145)

Non-connectorised closures (FDNTB- and variants) should be used in place of the FDNCT closure if drop cables are to be spliced.

3.3. Port labels

Ports in connectorised joints shall be labelled according to the following photo, which shows the 48-port version; 24-port versions will be smaller but follow the same rule. The general rules are:

1. Customers shall be attached on the left of the closure, facing the splice trays
2. The first port shall be the closest to the splice trays and the lowest. This will be port A1, following the CDC nomenclature
3. Ports shall be followed along and then up, meaning the port directly above A1 is A5, the back of the A row is port A4, and so on, up to F8



3.4. Design mitigations

For future designs, when switching a CDC for an underground closure, the following Design rules should be followed:

1. No more than 24 drops should be connected to a single closure; the closure should be split if more drops are required, and further splitting down to 12 drops per closure should be used where commercially practicable (e.g. where existing FW4 chambers could be reused)
2. In the case of deploying multiple drop closures in the same location it is highly preferable to also install a “Network” closure alongside the drop closure and take any main cables through this closure with a short jump cable to connect the drop closures. This helps protect the main network routes against closure re-entry.
3. A minimum FW4 chamber should be used, and a second FW4 or FW6 should be used if a second closure is needed.
4. The underground CDC should be placed such that the incoming duct route is on only one side of the chamber, rather than taking ducts in both directions from the chamber. If an underground CDC is required at a midpoint, two underground CDCs should be used.
5. The 24-port version of the underground CDC should be used (HellermannTyton part FDNCT-AXXCDW1-LF). If a mid-span is required, a basket is also required (HellermannTyton part FDNCT-AXBCDW1-LF). The 48-port and 12-port versions should not be used.