

400V Supplies for Major Tunneling Project

Since the start of 2021 the Blakley team has been busy designing and manufacturing bespoke distribution equipment for a series of sites on one of the UK's major tunnelling projects. The equipment is to supply power for site offices and welfare facilities above ground and to provide 400V for large access shafts and tunnel services.

Each set-up comprises of a 2500A CT chamber with RCD housed in a large GRP site intake cabinet (image on page 2). The CT Chamber / RCD is supplied from a dedicated 1500kVA transformer and feeds a 2500A Mains Distribution Assembly (MDA) with Form 4 segregation. The Form 4 MDA is fitted with 3 no. 800A outgoing MCCB/RCDs, which can be connected or disconnected without the need to isolate the overall panel, thanks to the segregated construction. A fourth compartment is supplied unequipped, which can be populated with an MCCB/RCD rated up to 800A. Each outgoing way incorporates a multi-function meter, to record kWhr and display volts, amps, etc. Two of the 800A outgoing ways supply our standard site MDAs above ground and the third feeds a dedicated Tunnel MDA, which will supply the shaft and, in due course, sub-MDAs supplying tunnel services.

The Tunnel MDA is rated at 800A and has a mains and a generator incomer, which are mechanically interlocked to prevent simultaneous closure. The mains incomer is provided with surge protection and both incomers incorporate test sockets enabling a range of tests to be carried out without the need to remove any shield plates.

The tunnel MDA is fitted with a series of outgoing MCCBs each with variable RCD, in ratings from 100A to 400A. The MCCBs incorporate electronic trips enabling on-site adjustment down to 40% of their nominal rating. A set of test sockets is provided for each outgoing way, enabling the RCDs to be tested with a test instrument but without the need to remove shield plates.

The tunnel MDA also incorporates a 400A MCCB to feed a 200kVAR power factor correction assembly fitted with detuned capacitors (image on page 2). The PFC supply MCCB is interlocked so that it can only be closed when the mains supply is connected i.e. it cannot operate when the Tunnel MDA is fed from a generator.

Smaller tunnel MDAs, rated at 160A and 250A, are also included in the package. These incorporate MCB and CBR distribution. Incoming and outgoing test sockets are also incorporated.

If you would like to discuss a scheme for a site installation, large or small, please contact the Blakley team.



MDA, 2500A, Form 4, Part no. A7191820



Tunnel Supplies Mains Distribution Assembly, 800A, with dual incomers, PFC supply and SPD. Part no. A7191820



Tunnel MDA, 250A with incoming CBR and outgoing CBRs and MCBs, c/w test sockets. Part no. A7085175.



2500A CT chamber with (SSE incoming termination arrangement) combined with an all-insulated RCD to be housed within an ISIA series GRP enclosure (part no. A7085261 covers both parts)



Mains Distribution Assembly rated at 2500A with Form 4 segregation, to be mounted on an extended stand once on site. Fitted with 3 no. outgoing 800A MCCB/RCDs and 1 no. spare compartment for future use. To provide supplies for above and below ground. Part no. A7191820.



MDAs, 160A & 250A, part nos. A7085175 & A7085176

Mains Distribution Assemblies rated at 800A, 250A and 160A, and Power Factor Correction assembly rated at 200kVAr, to provide 400V for tunnel services. 800A MDA to be mounted on extended stand.



Tunnel MDA, 800A, part no. A7085174



PFC Assembly, 200kVAr,
part no. A7191818