

Factors Affecting

Pit Selection and Installation

Relevant Standards Affecting Pit and Cover Selection

AS3084

Australian Standard

Telecommunications installation.

AS3000

Australian Standard

SAA wiring rules.

AS1939

Australian Standard

Degrees of protection provided by enclosure for electrical equipment.

AS3996

Australian Standard

Metal access covers, road grates and frames.

AS4198

Australian Standard

Precast concrete access chambers for sewerage applications.

ACA TS008

Australian Communications Authority Technical Standard 008

Requirements for authorised cabling products.

TS009

Austel Technical Standard 009

Installation requirements for customer cabling.

Pit Security

Where electrical pits require authorised access only, ACO provides a choice of three lockable covers:

Steel chequer plate covers can be locked by either a central cap head screw which locates into a removable locking bay, which connects to the pit body.

Alternatively, the 'military style' steel chequer plate is locked to the pit by means of a key type padlock which locks to a removable locking bar, which connects to the pit body. The padlock is protected from damage by sitting in a flush lidded pocket on the top surface of the cover.

ACO ACCESS recessed steel covers are locked into their frame by means of four cap head screws per cover corner. For areas where extreme security, such as prisons etc, is required two (2) of the locking bolts for the cover can be replaced with Bari security bolts which require a special key.

Pit Cover Lifting Keys

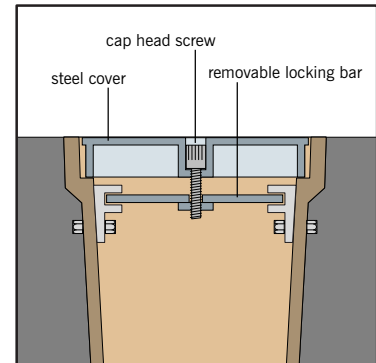
All ACO CABLEMATE pit covers can be removed by means of standard Australian lifting keys as outlined in AS3996. Locked recessed steel access covers and steel chequer plate covers are locked in place by means of an M16 socket cap head screw. To remove these screws, a 14mm across flat Allen key is required.

ACO supplies a lifting key and Allen key with each recessed steel access cover. Additional lifting keys and Allen keys are available from ACO.

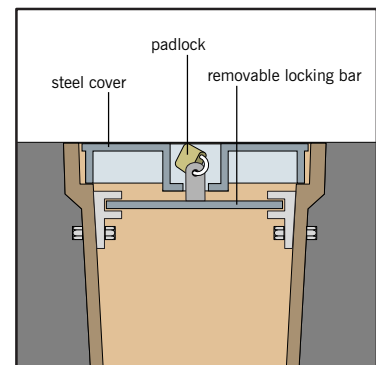
Cover Lifting Key Part No. 76684

14mm AF Allen Key Part No. 76691

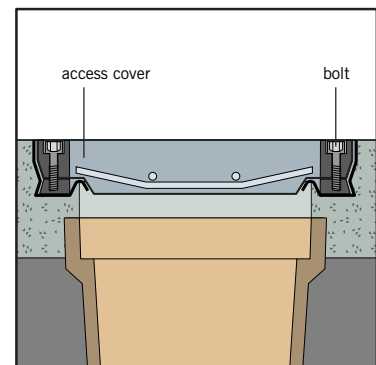
Standard cover security



'Military style' cover security



Access cover security

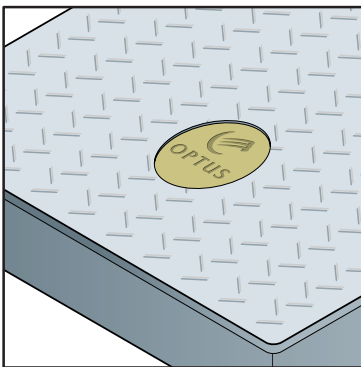


Pit Marking

The contents of an electrical pit are normally marked on the pit cover. ACO's concrete and Polymer Concrete covers have either 'Electricity' or 'Communications' cast into the cover top surface or alternatively, covers are available with no marking. Solid steel cover markings are available by means of an engraved brass plate, riveted to the top of the cover. Brass plates are engraved with either 'Electricity' or 'Communications'.

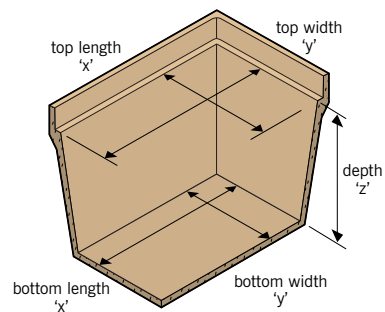
Please contact your nearest ACO office for part numbers of ACO CABLEMATE steel covers with brass identification plate attached. In installations where a discreet recessed steel ACO ACCESS cover is used, ACO can supply engraved brass plates which are set into the infill material of the cover.

For information on special cover markings, or insertion of company logos, contact ACO's sales offices.



Clear working area of Pits

Dimensions shown on the product pages of the ACO CABLEMATE catalogue refer to overall pit sizes. On occasions installers need to know the clear working area within the pit, this is the free space inside the pit with no obstruction. Most pits have tapered walls, the table below gives the maximum width and length (normally immediately below the cover rebate) and the minimum width and length (usually at the base of the pit).



Pit Type	length 'x' mm		width 'y' mm		depth 'z' mm rebate to base
	top	bottom	top	bottom	
Type 52	435	380	155	125	395
Type 63	580	510	240	180	695
Type 95	890	845	435	385	520
Type 96	900	855	600	560	545
Type 8	1260	1120	460	320	840
Type 66H	590	535	590	535	850
Type 33	280	240	280	240	400
Type 45	435	385	435	385	535
Type 66	590	535	590	535	550
Type 99	875	825	875	825	510
Type 53	470	335	220	165	425
Type 3	440	395	240	210	465
Type 4	605	545	315	240	750
Type 5	600	560	350	310	580
Type 7	890	820	430	360	1070
Type 43	435	300	435	300	550
Type 55	450	400	450	400	450
Type 77	600	560	600	560	600

Pit Wearing Edges

In areas where pits are subject to high loads, such as industrial units, military bases etc. a wearing edge may be required to protect the pit edge.

This can be achieved by either (a) fitting a completely separate, appropriately sized, load bearing access cover or (b) by means of a steel protecting edge which fits onto the top of the polymer concrete pit allowing the complete range of ACO CABLEMATE covers to be used.

For further information on wearing edges and their use please contact ACO's technical department.

Effect of Fire on Pits

Polymer Concrete is a self extinguishing material which does not give off toxic or any other dangerous fumes. HDPE is a combustible material which will burn and disintegrate when subject to high temperature. In areas which have been subjected to fire, particular care should be taken in respect to pit covers. Cement concrete and Polymer Concrete will lose their structural integrity and should not have any loads applied to them. Steel covers will keep their strength but the seating for the covers in the pits may be damaged and subject to collapse.

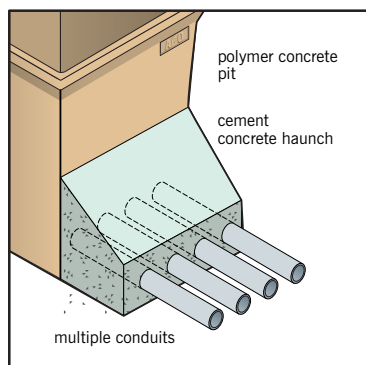
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Multiple Conduit Entry

There is no restriction on the amount of conduits that can be connected to a pit. However, care must be taken that the pit's structural integrity is not compromised by removing excessive pit wall area.

Care must be taken with multiple entry conduits in trafficable areas. To spread loads transmitted through the pit structure ACO recommends concrete haunching around conduits to prevent pit collapse.



Multiple conduit entry points to the pit should be via correctly sized holes to minimise the amount of pit wall removed.

Earthing of Pits

On occasions the pit should be connected to the earthing structure of a building or construction. In these instances a hole should be drilled through the pit and the earthing strap 'eye' connected by means of a bolt.

Cable Bending Radii

The bending radii of cables being used in relation to the electrical pit is critical. Incorrect sizing of the pit relative to the cable size can lead to damage to the cable by bending it tighter than the manufacturer's recommendation.

The table below gives examples of typical bending radii of common sizes and types of cable.

Cable Type	Bending Radius
Aluminium sheathed cable less than 15mm diameter	8 x O/D
Aluminium sheathed cable more than 50mm diameter	18 x O/D
2 fibre optic breakout cable	10 x O/D
24 fibre optic breakout cable	10 x O/D
Heavy duty interbuilding truck cable	20 x O/D

For further information relating to bending radii, the appropriate cable manufacturer should be contacted.

Depth and Separation of Cables

ACO CABLEMATE pits are manufactured in a variety of depths and sizes.

The table below gives an indication of depths and separation distances for cables.

	Min Depth mm	Min Sep. mm
Low voltage electricity	300	100
High voltage electricity	500	300
Communications	300	100
Communications, trafficable	500	100

For further information on cable separation and depths please refer to the relevant standard.

Cable and Joint Hangers

On occasions a bar(s) is/are required to hang a joint or fuse inside an electrical pit. ACO's plastic pits have moulded sockets in the walls to hang either a 40mm diameter plastic or metal tube across the pit.

Where hangers are required on a Polymer Concrete pit, ACO manufactures a bracket (part no. 76509) which can be attached to the walls of the pit in the appropriate positions to carry the 40mm diameter bar. When hangers are required in plastic pits other than those positions moulded into the body, the ACO CABLEMATE pit bracket may be used.

