Choosing the right access cover

Choosing the right access cover for the given application is essential to prevent problems and product failures in the future. The key factors to consider are listed below and covered in more detail on pages 9-11.

ACO can also offer additional advice and assistance in choosing the right access cover.

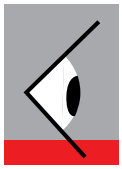
1 Load Class

Choose the right cover and frame to withstand the anticipated type and frequency of traffic. ACO covers are designed for AS 3996 loadings. See details on page 9 for full information.

2 Size

Access cover sizes are quoted in terms of clear opening.
ACO offer a range of sizes & formats; Single parts, two-part, Three-part, Trench runs and Multi-parts.

3 Aesthetics



Recessed covers allow matching infill.
Decorative brass or stainless steel edging can be added to rectangular & square covers.

4 Security

Certain covers are bolted as standard, others can have bolts added as an option.

Security Barri bolts are also available.

5 Gas & water tight

All covers are gas and water tight under normal atmospheric pressure.
Hold down bolts are available to assist with back pressure applications.

6 Cover orientation

In fast moving traffic, covers should be positioned with the drawcut facing traffic flow to prevent the cover from accidentally lifting.
Covers should be positioned to avoid obstacles that may prevent easy cover removal.

7 Handling

Smaller individual covers can be combined to create the required opening if there are manual handling restrictions.
ACO also offers a range of thermoplastic covers and a range of assisted lift covers for easier lifting.

1 Load Class

AS 3996 – Clause 1.1 Scope

"This standard specifies requirements for access covers and grates for use in vehicular and pedestrian areas. It applies to access covers & grates having a clear opening of up to 1300mm..."

NATA Certification

As part of ACO's continuous product development and commitment to quality, ACO has NATA certified testing equipment (Licence no. 15193), operated by fully trained and certified technicians

In practice, there are a number of key factors affecting a cover's resistance to load:

i) **Type of traffic** - pedestrians, cars, trucks, forklifts etc. crossing the cover. For trolleys and forklifts particularly consider the weight of loads being carried.

ii) **Frequency of traffic** - more frequent traffic may require a heavier load class.

iii) **Speed of traffic** - fast moving traffic can intensify the load effect on the cover.

iv) **Position of cover** - if the cover is positioned where traffic will be turning, braking or if the cover is installed at the bottom of a ramp, it will be subjected to extreme forces. Selecting the right cover and frame is essential.

v) **Wheel type** - solid tyres exert loads through smaller contact areas than pneumatic tyres. A heavier duty cover may be required.

AS 3996 table of load classification







	Load Class A	Load Class B	Load Class C	Load Class D	Load Class E	Load Class F	Load Class G
	10kN Extra light duty	80kN Light duty	150kN Medium duty	210kN Heavy duty	400kN Extra heavy duty	600kN Extra heavy duty	900kN Extra heavy duty
Typical uses	Footways and areas accessible only to pedestrians & pedal cyclists	Footways that can be mounted by vehicle or livestock, and light tractor paths	Malls and pedestrian areas open to slow moving commercial vehicles	Carriageways of roads and areas open to commercial vehicles	General docks and aircraft pavements	Docks and aircraft pavements subject to high wheel loads	Docks and aircraft pavements subject to very high wheel loads
Approximate wheel load	330kg	2,670kg	5,000kg	8,000kg	13,700kg	20,000kg	30,000kg

EN124 table of load classification

Class A 15kN | Class B 125kN | Class C 250kN | Class D 400kN | Class E 600kN | Class F 900kN

Rhinocast® - Ductile Iron Covers

- Circular covers - p14
- Square/rectangular covers [1] - p16

Urbanfil® - Galvanised Steel Covers

- Standard covers - p28
- Pavermate® cover [1] - p32
- Special sizes made to order - contact ACO for details

Saku - Thermoplastic Covers

- Circular solid covers - p36

Servokat - Assisted Lift Covers [2]

- Square/rectangular covers - p39

Notes:

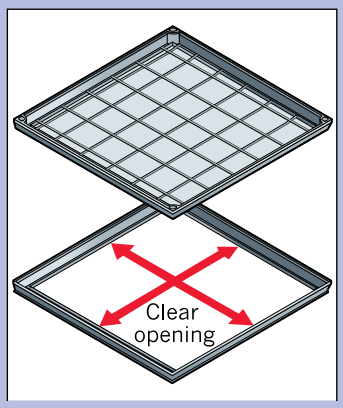
[1] In block paver areas, pavers can decrease the stated loading of the access cover.

[2] Not certified to AS 3996 but have been tested to stated loads under different loading standards (EN 124). The industry standard is for covers to be tested in the single cover format.

2 Size

Clear opening
The unobstructed opening inside the frame. Dimensions are given as width (W) by length (L).

Ductile iron covers are specified with the width parallel to the lifting ends and undercut. Length is parallel to the direction of cover removal.



Single cover
An access cover where a single cover is used.

Two-part
An access cover where two covers are seated lengthways on a single frame.

Three-part
An access cover where three covers are seated lengthways an a single frame.

Trench Run
An access cover where multiple covers are seated lengthways on a single frame.

Multi-part
An access cover where multiple covers are seated both lengthways and widthways on a single frame. Beams are required to support the covers but are removable to provide full access.

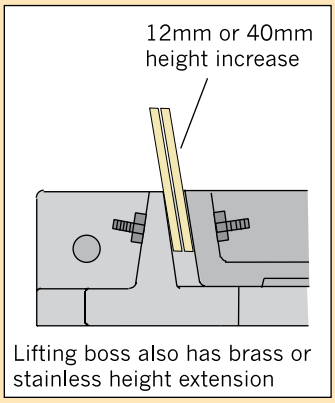
3 Aesthetics

Infill materials
Recessed covers offer the ability to fill the cover with material to match or complement the surrounding pavement.

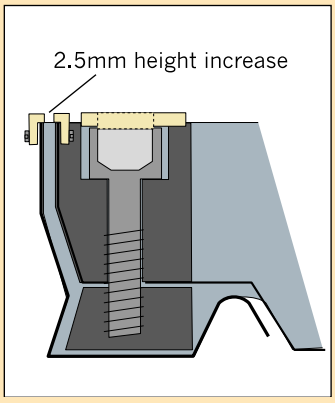
A maximum tile depth of 25mm and maximum paver depth of 40mm is recommended.

Tiles or pavers must be fully restrained and bonded to the concrete bed to prevent damage to the cover. An epoxy mortar is recommended.

Decorative edging
A strip of stainless steel or brass can be fixed to the edge of the cover and frame for an attractive finish.



Ductile iron covers
Height increase : 12 or 40mm
Width/Length increase : 6mm



Galvanised steel covers
Height increase : 2.5mm
Width/Length increase : 2.5mm

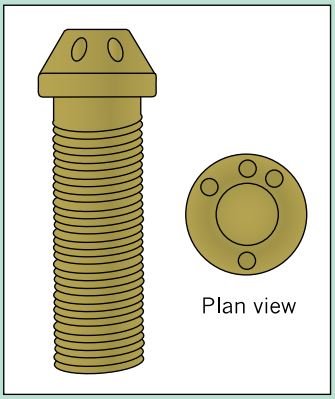
4 Security

Locking
For additional security or for back pressure applications, locking bolts can be added to the cover. Locking bosses are fitted to the cover. The cover and frame is drilled and tapped to accept the locking bolt.

Note: the following covers are locked as standard;

- Ductile iron solid top circular covers
- All Urbanfil® galvanised steel covers
- Saku covers
- Servokat covers

Barri Bolt
A tamper resistant locking bolt for security applications. Special tools are required to remove the bolt.

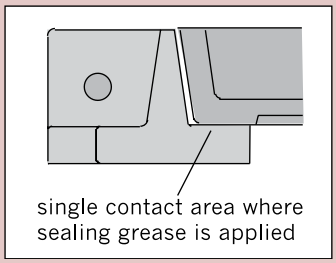


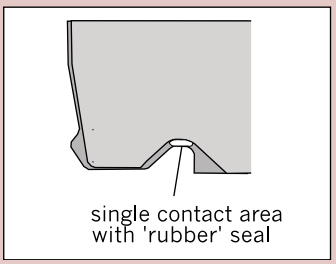
5 Gas and Water seal

All standard covers are gas and water sealed as standard, to normal atmospheric pressure (up to 1kPa). This type of seal also offers a seal against odours.

Pressure tight
For applications where back pressure is over 1kPa, the addition of locking bolts prevents the ingress of gas or water.

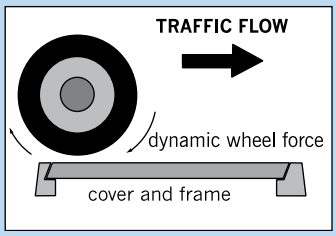
Single Seal
There is one point of contact between the frame and cover where the seal is achieved. The seal can be achieved with grease (Rhinocast®) or a 'rubber' gasket (Urbanfil®, Saku & Servokat).





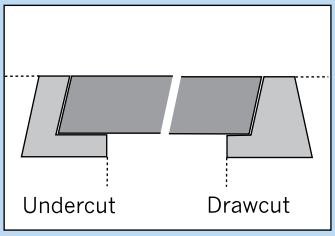
6 Traffic Flow

Traffic Flow
For Rhinocast® covers, the drawcut edge should face the orientation traffic flow to prevent cover lifting.



Drawcut
Top of cover is set back from bottom.

Undercut
Top of cover overhangs the bottom.



7 Handling

Work Cover Lifting Guidelines
Work Cover National Code of Practice for Manual Handling recommends a maximum unassisted lifting weight of 55kg. Weights above this require the use of mechanical lifters. All Saku covers comply with this code.

Note: Certain states/companies may have different maximum lifting requirements.

Assisted lift
A gas strut is fitted to the frame and cover to enable the cover to be easily lifted.
Refer to Servokat covers (pg 39).

Lifting Keys
Ductile iron, galvanised steel and thermoplastic covers can be lifted using standard Australian lifting keys. A selection of short handle, long handle and mechanical lifters are available - see pg 42 - 44.

Other Commonly Used Terms

Anti-slip surface
A textured finish on solid top covers to reduce the risk of slipping.

Concrete ties
Profile that holds the frame into the concrete bed and prevents the frame being lifted out of its surround.

Keyhole cap
A cover above the keyhole to prevent dirt and debris ingress.

Lead seal
Lead is used to seal the joint between cast iron frames. Lead provides a flexible seal that does not deteriorate in extreme temperatures.

Lifting boss
The recess where the lifting key is inserted and turned to enable the cover to be lifted. ACO's ductile iron and galvanised steel covers use standard lifting keys to AS 3996.

Recessed cover
A cover that requires a concrete infill material added on site. Also allows infill paving materials to compliment or match surrounding area.

Reo-bar
Steel bars used for reinforcing galvanised steel covers. These are integral to the covers' strength.

Seating
The frame has an angle at the bottom upon which the cover sits and seals.