

# ARMADILLO<sup>™</sup> THE HARD HAT FOR YOUR IRONWORK

CIVIL ENGINEERING INNOVATION

# INSTALL ONCE AND PROTECT, NOT TWICE AND REGRET

Ironwork intended for vehicles with pneumatic tyres being damaged by construction plant is a common issue. Working with customers across the country, Wrekin have developed a cost effective and easy to use solution to this age old problem.

It's common practice for manhole covers and gully grates to be installed in the early stages of construction projects. During the construction phase ironwork is exposed to extreme loads from heavy plant, including: tracked vehicles, forklift prongs, digger buckets and more.

Covers installed in these situations were never designed to accommodate such scenarios. This can result in premature failure and additional costs in materials and labour to put them right before handover.

In addition, gully grates can often become clogged with silt and debris which can cause severe issues for the drainage system and the water course. This can result in high cleaning and maintenance costs, residual issues from long-term debris ingress and potentially significant fines.





Ironwork after being exposed to typical construction site traffic.



### WHAT IF WE COULD... SOLVE THESE ISSUES AND MORE



#### GET THE RIGHT PROTECTION AT THE RIGHT TIME

Manhole covers and gully gratings are one of the first materials installed on a construction site, usually selected to suit the final traffic environment (Group 4 D400, pneumatic tyres). However, during the construction phase, they can be regularly exposed to much greater forces from tracked plant and machinery. This is a common cause of premature failure.



#### REMOVE THE NEED TO REPLACE DAMAGED IRONWORK

Jet washing or sucking out gully pots can be costly, but failed ironwork can cost thousands of pounds to completely replace.

However, the costs don't just stop with the materials and labour. There are many other costs related to the issues of failed ironwork including health and safety, environmental, project delays and disruption to residents.



#### SAVE TIME AND REALLOCATE RESOURCES

The task of replacing failed ironwork can be time consuming. But the overall time is just one small aspect of it.

The inconvenience can include having to reallocate resources, plus the additional time required to allow for bedding mortar to cure or set before the ironwork can be trafficked.



# INTRODUCING ARMADILLO

# THE HARD HAT FOR YOUR IRONWORK



Armadillo is a complete range of protector shells, designed to be placed over manhole covers and gully grates to provide enhanced protection during the construction phase.

Armadillo provides protection from construction site traffic, including tracked vehicles, and can be easily removed when the final surfacing is completed. This ensures manhole covers and gully grates can start their service life in 'as new' condition to optimise longevity.

#### MEET THE RANGE

- Armadillo manhole cover protector shell is a reusable shell that is compatible with both Wrekin Highway and TriStar manhole covers.
- Armadillo gully grate protector shell is compatible with Wrekin TriStar gullies when installed proud of the binder.





Armadillo manhole cover protector shell designed to protect Wrekin Highway and TriStar manhole covers.

### RAPID FRAME RAISING ARMADILLO AND CLICKLIFT

Armadillo and ClickLift combine to make the ultimate ironwork protection system. Allowing ironwork to be fully protected during installation and elevated rapidly when raising roads to the final surface level.

ClickLift is a simple frame raising system which simply 'clicks' into Wrekin Highway and TriStar manhole frames (600 x 600mm and 675 x 675mm in both 100mm and 150mm depths). ClickLift removes time, effort, inconvenience and costs from this process, allowing whole estates to have their manhole covers raised in less than a day.

Find out more on page 14 and at: wrekinproducts.com/clicklift





# ARMADILLO IS TOUGH REALLY TOUGH

Manhole covers and gully grates are specified for the final traffic environment, which means covers and gratings can be exposed to situations they weren't designed for during the construction phase.

Armadillo solves this issue by providing protection from loads up to 60 tonnes\*. That's more than enough protection from on-site construction machinery. Ensuring that your ironwork will remain intact and ready for handover, without any need for remedial work or replacement.

Additionally, Armadillo is designed to be a reusable item, so you can gain the benefit of this protection again and again. Equally, Armadillo is designed to be sacrificial and can be completely recycled.

\* Excluding Armadillo Gully Grate Protector Shell.



Armadillo Gully Grate Shell after being used to protect a TriStar Gully Grate on a new build construction site.

## SAFE AND SECURE FIXING MECHANISM MANHOLE COVER FIXING

We understand that the forces exerted on ironwork on construction sites can be extreme. That's why the Armadillo Manhole Cover Protector Shell has been designed to fasten securely into the existing safety keyways of our Highway and TriStar manhole covers, providing a solid fixing, increasing the overall strength and protection provided.

Fixing using the existing safety keyways means it's incredibly easy to fit, re-fit and adjust the Armadillo Protector Shell in case of replacement or access requirements.



Armadillo Manhole Cover Protector Shell fixing mechanism

### SAFE AND SECURE FIXING MECHANISM GULLY GRATE FIXING

The Armadillo Gully Protector Shell is designed to be simply placed over gully grates. Spikes in the bottom of the shell will grip the surroundings as traffic passes over, allowing the cover to move and flex with the traffic.

If the cover should move from the gully grate, it is easy for a site operative to move gully protector shell back into place.

#### OPTIONAL GULLY GRATE LOCK AND LIFT CLAMPS

Optional lock and lift clamps are available for the Armadillo Gully Grate Protector Shell. These clamps prevent dislodgement from any passing vehicles or equipment.



To install, simply insert the clamps through the shell and grating, and tighten into place.



# BENEFITS FOR EVERYONE

Armadillo offers benefits for everyone that bring cost, time and effort savings. In fact, all involved in the process of specifying, procuring, installing and maintaining ironwork and drainage systems will find benefits.

#### **NO JET WASHING**

Save time and money by eliminating the need to jet wash.

#### NO CRACKED IRONWORK

Significantly reduces the risk of cracking to ironwork which can lead to rejection by adopting authorities.

#### NO UNIDENTIFIED IRONWORK

The bold yellow coated shell and grille plates make it easier for operatives to identify and avoid ironwork.

#### **NO SILT OR CHEMICALS**

Helps to stop debris from entering the chamber and drainage system at the source.

#### **NO NEED FOR SPECIALIST TEAMS**

Removes the need for specialist teams and specialist equipment saving time, resources and money.

#### **NO EXCAVATION**

When used with ClickLift, ironwork can be fitted right first time, removing the need to excavate to raise or reinstall.



#### **MANHOLE COVER PROTECTION**

## ARMADILLO MANHOLE COVER PROTECTOR SHELL

#### **ASSET OWNER**

Ironwork is protected from traffic and related defects, including cracking. This ensures ironwork can start its service life as new. Armadillo can also remove the potential for debris in the drainage system.

#### GROUNDWORKER

Fully compatible with ClickLift, allowing manhole covers to be installed flush with the road surface and raised at a later date saving time and money.

#### **HOUSE BUILDER / DEVELOPER**

Armadillo can prevent debris from entering the chamber and drainage system at the manhole cover.

Environmental, sustainability and Health and Safety benefits due to reduced remedial works, damaged products and the prevention of silt and pollutants in the drainage system.

#### **USERS AND GENERAL PUBLIC**

Armadillo prevents damage from being caused to residents cars and in combination with ClickLift minimises the inconvenience of road closures



#### **GULLY GRATE PROTECTION**

## ARMADILLO GULLY GRATE PROTECTOR SHELL

#### **ASSET OWNER**

Allows ironwork to be installed proud of the road surface, as is commonly done, yet remain fully protected from side impacts and construction site traffic. Armadillo can also reduce the potential for debris in the drainage system.

#### GROUNDWORKER

Takes only seconds for an unskilled operative to fit, and is just as quick to remove. The Armadillo Gully Grate Protector Shell is designed to be reused and is easy to transfer around a project as the phases develop.

#### **HOUSE BUILDER / DEVELOPER**

Acts as a coarse debris barrier for gully gratings, ensuring that the drainage system remains in a good working order. Only smooth faces are presented to traffic reducing the risk of damage to site or residents' vehicles.

#### **USERS AND GENERAL PUBLIC**

Removes the need to close roads to replace damaged ironwork and the associated inconveniences caused to residents.

# CHOOSING THE RIGHT SYSTEM

Whether you are looking for manhole cover protection with ClickLift functionality, or Armadillo Gully Grate Protector Shell, we have a solution for you.

This selection chart will help you to identify which products will be in the ground at the different stages of installation.

However, if you are unsure, we have more selection information available online at **wrekinproducts.com**, and are happy to help you if you call us on 01543 440440.



# **CLICKLIFT**<sup>™</sup>

ClickLift enables manhole covers and gully grates to be installed flush first time and raised at a later date providing housing developers and groundworkers with huge savings in terms of time, money and hassle.

Find out more online at **wrekinproducts.com/** clicklift (and page 14).







# **ARMADILLO MANHOLE COVER PROTECTOR SHELL**





Protects Highway and TriStar manhole covers during the initial construction phase of new build developments. The Armadillo manhole cover protector shell allows covers to be left raised and still withstand extreme loads.

- Provides protection up to 60 tonnes.
- Secure vertical anchors prevent lateral movement and fit into existing keyways.
- Anti-debris guard and seal prevents unwanted sediment and spills from entering the drainage system.
- Easy one person installation and removal.
- Designed to be reusable and 100% recyclable.

Options: Enhanced anti-slip coating, Alternative badging, Customised colour scheme.

Notes: See compatibility list on page 13. Secured in place with M16 Allen bolts.

COMPATIBLE WITH: COVER (mm)	OVERALL SIZE (A x B mm)	INNER SIZE (M x N mm)	HEIGHT (E mm)	STOCK CODE
600 x 600	615 x 615	600 x 600	55	ARMMSHELL/6060
675 x 675	690 x 690	675 x 675	55	ARMMSHELL/6767

# **ARMADILLO GULLY GRATE PROTECTOR SHELL**





Protects raised TriStar gully grates from extreme loads during the initial construction phase of new build developments. The Armadillo gully grate protector shell completely enshrouds TriStar gully grates, allowing gratings to be left raised and withstand extreme loads.

- For use in Group 3 applications.
- Simple installation by placing over raised gully grates, can be secured in place with optional quarter turn spring loaded locking clamps.
- Anti-debris guard prevents unwanted waste from entering the drainage system.
- Accommodates up to 50mm of Frame protrusion above the surrounding road surface
- Options: Lock and lift clamps, Enhanced anti-slip coating, Alternative badging, Customised colour scheme.

Notes: See compatibility list on page 13.

COMPATIBLE WITH: RANGE	COMPATIBLE WITH: CLEAR OPENING (mm)	OVERALL SIZE (A x B mm)	HEIGHT (E mm)	STOCK CODE
TriStar Gully Grates	430 x 370	645 x 490	75	ARMGSHELL/4337
TriStar Gully Grates	450 x 450	645 x 550	75	ARMGSHELL/4545

DESCRIPTION	STOCK CODE
Pair of lock and lift clamps for securing a Armadillo Gully Grate Protector Shell to a TriStar Gully Grate	ARMGSHELL/CLAMPS/1

# **ARMADILLO MANHOLE COVER PROTECTOR SHELLS COMPATIBILITY**

STOCK CODE	COMPATIBLE PRODUCT	SIZE (mm)	DESCRIPTION	INCLUDED ACCESSORIES
ARMMSHELL/6060	DMT0D4/6060/KT	600 x 600 x 100	TriStar D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6060	DMT0D6/6060/KT	600 x 600 x 150	TriStar D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6767	DMT0D4/6767/KT	675 x 675 x 100	TriStar D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6767	DMT0D6/6767/KT	675 x 675 x 150	TriStar D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6060	DMT0D4/6060/KH	600 x 600 x 100	Highway D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6060	DMT0D6/6060/KH	600 x 600 x 150	Highway D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6767	DMT0D4/6767/KH	675 x 675 x 100	Highway D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)
ARMMSHELL/6767	DMT0D6/6767/KH	675 x 675 x 150	Highway D400 manhole cover	Neoprene (x4), bolt (x2), nut (x2), washer (x2)

\*Armadillo manhole cover protector shells are not compatible with the Highway HaloHinge range of manhole covers.

# ARMADILLO GULLY GRATE PROTECTOR SHELLS COMPATIBILITY

STOCK CODE	COMPATIBLE PRODUCT	SIZE (mm)	DESCRIPTION	OPTIONAL ACCESSORIES
ARMGSHELL/4337	DGH0D4/4337/KT	430 x 370	TriStar D400 gully grate	Lock and lift clamp (x2)
ARMGSHELL/4337	DGH0D6/4337/KT	430 x 370	TriStar D400 gully grate	Lock and lift clamp (x2)
ARMGSHELL/4545	DGH0D4/4545/KT	450 x 450	TriStar D400 gully grate	Lock and lift clamp (x2)
ARMGSHELL/4545	DGH0D6/4545/KT	450 x 450	TriStar D400 gully grate	Lock and lift clamp (x2)

# **BESPOKE ARMADILLO**

Armadillo manhole covers and gully grate shells can be customised to meet individual customer requirements, including custom colour schemes, bespoke chequer patterns, enhanced anti-slip coating, and alternative badging.



# INNOVATION RAPID SOLUTIONS TO COMMON PROBLEMS



### **CLICKLIFT**<sup>™</sup> MANHOLE COVER AND GULLY GRATE FRAME RAISING SYSTEM

ClickLift enables manhole covers and gully grates to be installed flush first time and raised at a later date, providing housing developers and groundworkers with huge savings in terms of time, money and hassle. Whole estates can have their ironwork raised to the final surfacing level, in as little as a few hours.

ClickLift is a proven and adopted system used by Local Authorities and Water Utilities throughout the UK.

Thanks to the combination of ClickLift and Armadillo, the potential for damaging manhole covers and gully grates can be completely removed during the construction phase, as well as any potential for residents claims or complaints. **C** We initially ordered 20 ClickLift frames but, as soon as we realised how good they were to use, we increased our order to 50. The system has worked extremely well for us and we were impressed with how much it reduced costs and saved time.

Everyone thought it was a good product. We even had four or five different people involved in construction who came to see it and all were impressed.

Robin Guild, Operations Director, Guild Homes



# **GRITBLOCKER**<sup>™</sup>

Manhole cover keyway pockets are often filled with debris which prevents the insertion of lifting key equipment, this wastes time. GritBlocker is an antiblockage keyway insert that prevents debris from collecting and allows the insertion and rotation of a lifting key.



#### **UNIPAK™** IRONWORK INSTALLATION SYSTEM

#### RAPID CURING HIGH PERFORMANCE POLYESTER RESIN MORTAR

The UniPak rapid curing ironwork installation system is designed to prevent bedding failure – one of the main factors contributing to the current poor performance of chamber tops (reference: Highways England's CD 534).

WRc and Nottingham University research observes that up to 89% of ironwork failures have suffered foundation issues and that in 44% of cases, foundation issues are the sole cause of failure.

With UniPak, manhole frames can be bedded and trafficked within one hour, thanks to its rapid curing properties.

UniPak has been designed and manufactured to exceed the requirements of 'The Code' (Sewers for Adoption) and Highways England's CD 534 (which replaces the HA 104/09) and recommends that frames of manhole covers should be bedded using a polyester resin bedding mortar.



#### THE UNIPAK SYSTEM REMOVES THE ISSUES SURROUNDING:

- Poor performing cementitious based mortars which break down under traffic loads and adverse weather conditions.
- Roads re-opening prematurely, before a cementitious bedding mortar has reached full strength which leads to early failure and replacement.
- High notch sensitivity of conventional bedding materials.
- Use of inappropriate or poor-performance packing materials.



# BENEFITS

- Rapid curing allows roads to reopen quickly and gives peace of mind that the installation is secure.
- UniPak is easy to mix and apply and is installed with standard installation methods and tools.
- Consistent performance everytime.
- Ideal for all BS EN 124 highway applications (groups 1 to 4).
- Exceeds CD 534 (replaces HA104/09) and WRc requirements.







 Tel.
 01543 440 440

 Fax.
 01543 440 444

 Email.
 sales@wrekinproducts.com

wrekinproducts.com

Wrekin Products Limited. Unit 1a, Europa Way Britannia Enterprise Park Lichfield, Staffordshire WS14 9TZ

