



**COLLAR
KEEPER®**

PRODUCT APPLICATION GUIDE

Collar Keeper® (patent pending) is a uniquely designed blasthole protection system for the global mining industry.

Collar Keeper is a simple, easy to use solution for stabilising blasthole cuttings, collars and the preconditioned column after drilling. The product significantly limits the potential of back-fill, collar collapses and unnecessary cost and time for remediation.

Manufactured from a high-density polyethylene (HDPE) composite with anti-static properties and robustness to resist the harshest mining environment. HDPE is classified recycling number 2, making it highly recyclable.

Re-drills or rework of collapsed holes cause operations significant harm in scheduling, quality management and cost in the total mining cycle. Retaining drilled hole depth is also critical in maintaining consistent sub-drill for mine bench profiles. The final drilled metre is also the most expensive for the drill cycle and needs to be protected at all costs.

Increased fragmentation remains a critical success factor in hard rock mining and processing. Collar Keeper's unique ability to protect the extended pre-conditioned zone is highly advantageous for customers to move towards a program for downstream benefits.

Additionally, the Collar Keeper provides excellent retention of critical presplit holes for final wall control blasting.



FEATURES

- » *Light-weight composite (max 4kg – 351mm)*
- » *Smooth edges*
- » *Unique colour coded panel sizes*
- » *Anti - static properties*
- » *Easily stowed*
- » *Robust & durable*
- » *Protects initiation leads*
- » *Stemming aid*



BENEFITS

- » *Minimises drill collar fall back*
- » *Retains drilled depth*
- » *Reusable device*
- » *Compatible with explosives use*
- » *Easily visible*
- » *Protects explosives hoses during loading*
- » *Enables increased preconditioning zone*
- » *Reduced likelihood of lead damage*
- » *Reduces requirement for 'one use' gas bags*

PRODUCT USE

Collar Keeper comes in a simple lay-flat panel with grab handles for deployment and retrieval slots for re-use. The design allows the user to form the product into a cylindrical shape, using the handles, and slide into the collar and neck of the blasthole. As the Collar Keeper is inserted, it levels out to form a natural cylindrical shape applying significant resistance to the blasthole wall.



251mm (9 7/8")



165mm (6 1/2")



270mm (10 5/8")



89-127mm



200mm (7 7/8")



351mm (13 3/4")

After the desired insertion depth is achieved, the Collar Keeper creates a central void for ease of lining (if selected), priming and loading. It can also be pulled up into a funnel shape as an aid to protect the initiation lead during the stemming process.

Once retrieved, the Collar Keeper is re-stowed for continued rotational use. The product can be stored on either the drilling rig or on a Collar Keeper trailer for autonomous operations.

Our product has exceeded over 40 rotational uses with a smooth hygiene process. This robustness in use, positions the Collar Keeper at exceptional value for our clients.

WHAT'S IN A QUALITY HOLE?

Retaining drill hole depth is paramount after designed depth is achieved. Any impact on collar quality and hole depth can seriously compromise expectations on blast outcomes and downstream efficiency. There are many contributors to drill hole damage in the Drill and Blast cycle. These include, vehicle / rig damage, adjacent blast events, weather and human movement to list a few. Deployed into the hole directly after drilling, the Collar Keeper dramatically reduces the likelihood of any of these contributors impacting the hole quality through the entire duration of Drill to Fill™.

Explosives loading is a vital step in attaining expected blast results. The Collar Keeper provides the necessary hole protection during dry and wet loading enabling improved accuracy in final stem heights. During wet hole loading, the displaced water acts as a lubricant and can erode the collar material. This can interfere in the final column quality and quantity, impacting on the holes' performance in the blast.

The Collar Keeper provides the ideal protection for all blast hole conditions.



STORED ON A DRILLING RIG



STORED ON A TRAILER

COLLAR KEEPER PROTECTION

Without Collar Keeper
- UNPROTECTED



COLLAPSED HOLE



HOLE DELINEATION



COLLAR EROSION

With Collar Keeper
- PROTECTED



PROTECTION - RAINSTORM



PROTECTION - VEHICLE



PROTECTION - FALLBACK

LOADING PROCEDURE



STEP 1
Roll one side of the Collar Keeper over to meet the other.



STEP 2
Join the central and lower handles and grasp.



STEP 3
Position yourself over the blasthole for insertion.

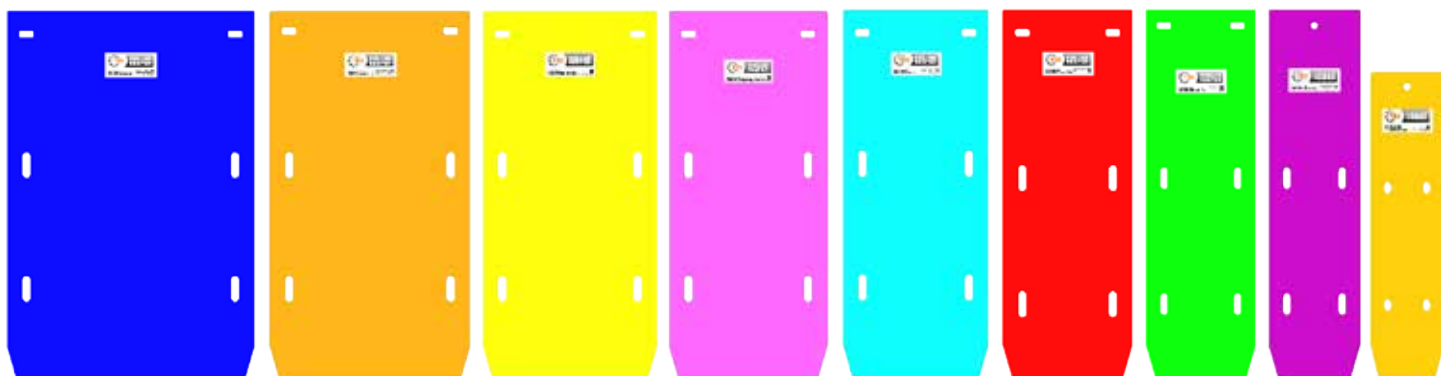


STEP 4
Maintain grip and slide into the open hole retaining the central grasp.



STEP 5
Maintain central grasp and guide the Collar Keeper into desired location.

DESIGN & COLOUR RANGE



351mm
13 3/4"

311mm
12 1/4"

270mm
10 5/8"

251mm
9 7/8"

229mm
9"

200mm
7 7/8"

165mm
6 1/2"

140mm
5 1/2"

89-127
mm

RISK ASSESSMENT

KEY STEPS	HAZARDS IDENTIFIED	INITIAL RISK RATING	MITIGATION MEASURES	FINAL RISK RATING
Remove Collar Keeper (CK) from Drill Rig or CK Trailer	Proximity to active machinery / equipment	4 / 3	Ensure Drill is not operational Ensure Driller has visual contact	2 / 3
Place CK on the ground and commence scrolling	Rough / uneven surfaces Bending back to reach CK	3 / 2	Survey ground for correct path Bending knees to reduce load on back	2 / 2
Scroll CK using grab Handles	Pinch points on grab handles CK springing back to flat shape	3 / 2	Gloves PPE	2 / 2
Place CK into the blasthole	Walking over rough ground Losing balance on ground with CK in hand Back strain when loading into blasthole	3 / 2	Keep eyes on pathway / select path Ensure adequate feet stance for balance Bend knees for reduced risk	2 / 2
Release handles	Pinch points when releasing handles	2 / 2	Keep eyes on hands and release carefully	2 / 2
Remove CK from hole after loading and re-stow	Back strain when lifting CK	3 / 2	Maintain straight back Bend knees and move carefully	2 / 2

RISK LEVEL ASSESSMENT

LIKELIHOOD	CONSEQUENCE				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CRITICAL
ALMOST CERTAIN	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME
LIKELY	LOW	MEDIUM	HIGH	HIGH	EXTREME
POSSIBLE	LOW	MEDIUM	HIGH	HIGH	HIGH
UNLIKELY	LOW	LOW	MEDIUM	MEDIUM	HIGH
RARE	LOW	LOW	LOW	LOW	MEDIUM

CONSEQUENCES	DESCRIPTION OF CONSEQUENCES	LIKELIHOOD	DESCRIPTION OF LIKELIHOOD
1. INSIGNIFICANT	No treatment required.	1. RARE	Will only occur in exceptional circumstances.
2. MINOR	Minor injury requiring First Aid Treatment (e.g. minor cuts, bruises, bumps).	2. UNLIKELY	Not likely to occur within the foreseeable future, or within the project life cycle.
3. MODERATE	Injury requiring medical treatment or lost time.	3. POSSIBLE	May occur within the foreseeable future, or within the project life cycle.
4. MAJOR	Serious injury (injuries) requiring specialist medical treatment or hospitalisation.	4. LIKELY	Likely to occur within the foreseeable future, or within the project life cycle.
5. CRITICAL	Loss of life, permanent disability or multiple serious injuries.	5. ALMOST CERTAIN	Almost certain to occur within the foreseeable future or within the project life cycle.

ASSESSED RISK LEVEL	DESCRIPTION OF RISK LEVEL	ACTIONS
<input type="checkbox"/> LOW	If an incident were to occur, there would be little likelihood that an injury would result.	Undertake the activity with the existing controls in place.
<input type="checkbox"/> MEDIUM	If an incident were to occur, there would be some chance that an injury requiring First Aid would result.	Additional controls may be needed.
<input type="checkbox"/> HIGH	If an incident were to occur, it would be likely that an injury requiring medical treatment would result.	Controls will need to be in place before activity is undertaken.
<input type="checkbox"/> EXTREME	If an incident were to occur, it would be likely that a permanent, debilitating injury or death would result.	Consider alternatives to doing the activity. Significant control measures will need to be implemented to ensure safety.