

TUFFLOCK™



The faster + safer alternative

Address the critical issues of tooth change out and rotation with CQMS Razer's advanced Tufflock™ Hammerless Retention System. Representing the latest in ground engaging tool (GET) design and construction, Tufflock™ is delivering key industry benefits in mine productivity, safety and reliability.

IMAGE. Tufflock™ in use on the world's largest operating Dragline (Australia).



TUFFLOCK™ IS A UNIQUE SYSTEM THAT:

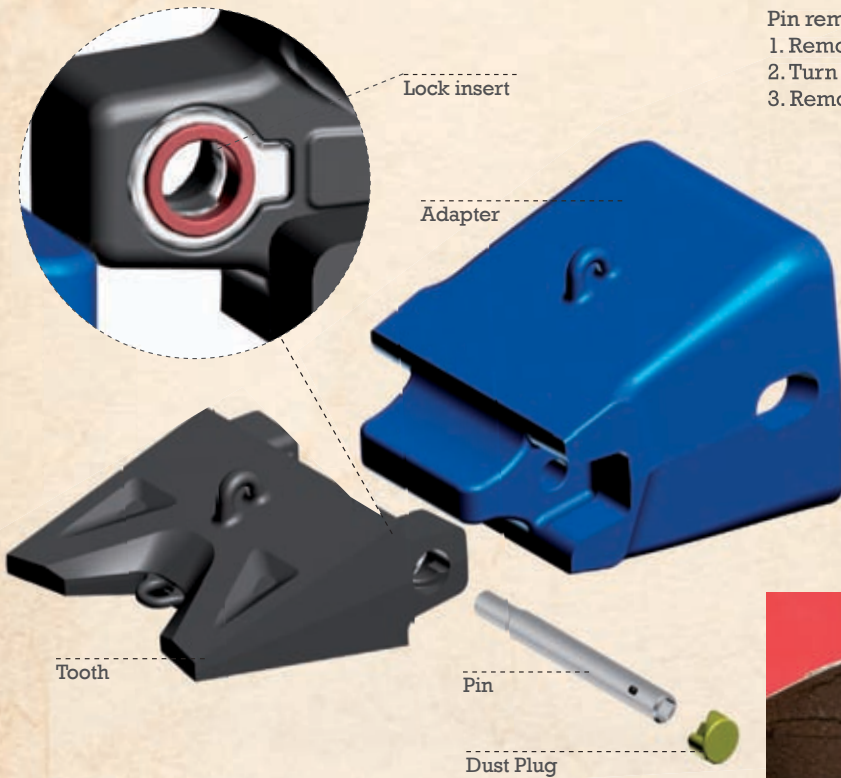
- Eliminates the need for heavy hammering
- Speeds and simplifies tooth changeover and rotation
- Distributes stress more smoothly to reduce breakage
- Delivers a safer, more controlled environment to remove and replace teeth
- Is suitable for a wide range of hard and soft applications.

IMPROVED FIT FOR SAFER, FASTER REMOVAL + INSTALLATION

Advancing industry

Designed for use in demanding dragline, excavator and electric shovel applications, Tufflock™ responds to the needs of industry by improving safety, reliability and productivity.

Each of its key components have been designed and engineered for maximum performance and life.



Incorporated into the tooth, Tufflock™ can be installed and removed with a few simple steps.

Installation

1. Insert pin
2. When threads engage, turn pin 180° clockwise with a ¼" drive ratchet
3. Insert dust plug to minimise fines build up.

Removal

Pin removal is the reverse of installation:

1. Remove dust plug
2. Turn pin 180° counter clockwise with a ¼" drive ratchet
3. Remove pin.

Safe, simple and
secure changeout

Completed
installation



SAFE + HAMMERLESS

Eliminate risk + injury

Get rid of heavy hammering risks and injuries for good with CQMS Razer's Tufflock™. A ¼ inch drive socket and ratchet is all that's needed to unlock and lock the pin fastener. Our unique, hammerless design allows maintenance personnel to simply insert or remove the pin in a safe, controlled environment for tooth removal and installation.

Extend life + reduce downtime

Tufflock's™ unique shape delivers a smoother distribution of force from the tooth to the adapter. This reduces stress concentration on the adapter to minimise the chance of breakage or failure. The system's geometric design also optimises wear versus throw away material, enabling you to maximise the use of materials and improve productivity.

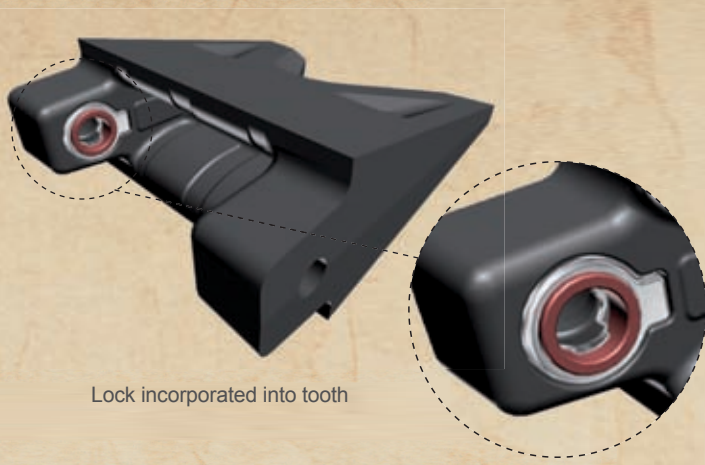


One-tool locking with Tufflock™

Design + engineering excellence

Tufflock™ is the result of CQMS Razer's ongoing commitment to industry research, product innovation and problem solving. Every day, our dedicated product design and engineering team work on real solutions to meet the real needs and challenges of industry, combining the latest technologies with an in-depth knowledge and understanding of the mining environments and processes.

Once our products are installed in the field, CQMS Razer's continual monitoring system closes the feedback loop resulting in appropriate and innovative improvements to future products.



Lock incorporated into tooth

REDUCE DOWNTIME + MAINTENANCE

Tufflock's™ dramatically improved fit delivers a more controlled environment for tooth removal.

This eliminates the chance of 'hang up' caused when tooth and nose become locked by their mating faces.

Tufflock's™ convex shape and geometric design also reduces the time it takes to remove the tooth.

CQMS RAZER TEETH + ADAPTERS

We offer a full range of teeth and adapters to accompany the CQMS Razer Tufflock™ system. Suitable for various mining applications and environmental conditions - in multiple combinations - our tooth and adapter systems can be tailored to meet your exact requirements.

Designed in-house by our engineering team, our range is manufactured with advanced casting technology at our steel foundries in Australia and the USA.

Engineered for less wear and more life

CQMS Razer teeth and adapter systems offer:

- High tolerance to operational stresses
- Intense resistance to wear and breakage
- Optimised diggability and reliability
- Faster, easier and safer replacement
- Fully customised options for multiple machines and bucket sizes
- High value and return on investment
- Strong, precise cast metal moulding
- Self sharpening teeth for greater penetration
- The perfect fit between tooth and adapter - everytime.
- Higher material use versus throw away material.



Tufflock™ in use on the world's largest face shovel / iron ore application. Tufflock™ is suitable for both dragline and hydraulic excavator applications.

Range + Size

From the smallest excavators to the largest draglines, CQMS Razer's cast teeth and adapter range offers a full selection of designs for multiple applications. Suitable for CQMS Razer's Wedglock and Wedgetail nose-to-adapter locking systems, our range delivers outstanding performance, reliability and value for money.

Multiple sizes available - from 250 series through to our larger 750 series.

Image	Type	Series
	Panel Point	500 750
	Below Centreline Panel Point	250 500 750
	Tiger Point	250 500 750
	Shovel Tiger Point	500 750
	Twin Tiger Point	500 750
	Heavy Duty Twin Tiger Point	500 750
	High Penetration	500 750

Image	Type	Series
	Standard	250 500 750
	Shovel Application	500 750

We deliver reliable, high quality ground engaging tools backed up by the CQMS Razer service + support promise. It's what stands us apart.

We're here to help.

To find out more about our extensive range talk to one of our site reps today or contact your nearest CQMS Razer office (see over).

i3R™

Getting to know you, your staff and your operations is important to us. We check your equipment on a regular basis in line with our unique i3R monitoring and maintenance support philosophy. Delivered with CQMS Razer's proprietary software system Trophe, i3R is a unique, four phase program (Inspect, Record, Report and Recommend) that provides clients with detailed product data, reports and recommendations to improve the lifecycle management of all parts in use.

Our dedicated on-site field service and support team members are technical experts. They carry out a range of services for clients on a weekly basis including:

- Rigging, chain and bucket inspections
- Downtime recording
- Parts cost tracking
- Productivity recording
- Carry angle checks
- Wear rate testing
- On-site inventory control.

CQMS Razer's MINING EXTRACTION team designs and manufactures a full suite of dragline products. From the smallest of dragline GET to the largest buckets and chain, our products are built to perform in the toughest of mining environments.

As surface mining specialists, we work with mining leaders and original equipment manufacturers around the world to deliver key improvements in mine and machine performance.

Founded in 1979 as Central Queensland Mining Supplies in Mackay, Queensland, CQMS Razer has been helping mining and materials handling organisations build stronger, more efficient operations for more than 30 years. Operating throughout Australia, Europe and America, our growing team of more than 560 staff provide the technical expertise and a down-to-earth service needed to extend the lifecycle of your most critical assets and wear parts – from dragline chain, buckets, GET and excavator lip systems, through to plate, block and wear, stone duster systems, polyurethane and conveyor products.



www.cqmsrazer.com
sales@cqmsrazer.com.au

AUSTRALIA

Mackay	36 Enterprise Street, Mackay QLD 4740	T +61 7 4963 9800	F +61 7 4952 4446
Maryborough	Gate 1 Zante Street, Maryborough QLD 4650	T +61 7 4121 8800	F +61 7 4121 7466
Brisbane	11/58 Metroplex Ave, Murarrie QLD 4172	T +61 7 3902 3800	F +61 7 3902 3891
Newcastle	1 Laverick Ave, Tomago NSW 2322	T +61 2 4985 9000	F +61 2 4985 9001
Adelaide	123 Hayward Ave, Torrensville SA 5031	T +61 8 8352 4833	F +61 8 8354 0953
Perth	97A Dowd Street, Welshpool WA 6106	T +61 8 9358 5005	F +61 8 9358 5007

USA

Mansfield	816 Jenkins Street, Mansfield, LA 71052	T + 1 318-872-1660	F + 1 318-872-1508
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CQMS Razer is committed to safety, quality and the environment. We embrace sustainable manufacturing processes and materials to minimise emissions, reduce waste and improve the safety of our people and clients. We work to ISO 9001 quality assurance standards across all of our operations and actively support regional and remote communities with local programs and initiatives such as local sponsorships, community events and our regular fundraising event Dig Deep for Charity.