MQS-FEH

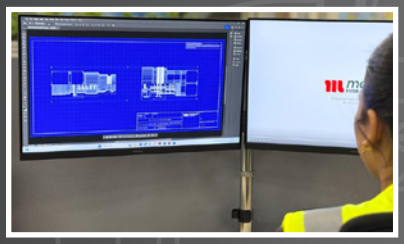




Impulse Resistant Quick Couplings

manuli® HYDRAULICS

"Manuli Hydraulics is focused on achieving excellence in the design, manufacture, and supply of fluid conveyance solutions, components and associated equipment for high pressure hydraulics, industrial material conveyance, refrigeration and cooling applications."



Our experienced Research & Development team take 2D drawings to 3D models to real life products.



Our world-class hoses, fittings and assembly equipment are manufactured in-house to the highest standards.



We test and validate our products to meet and exceed technical industry standards.

DESIGN → **MANUFACTURE** → **TEST**

SUPPLY ← **INTEGRATED SYSTEMS**



We provide the complete solution: hoses, fittings, crimping parameters and assembly equipment for a fully integrated system.



We supply fluid conveyance solutions directly to our customers whenever and wherever they are.

From design to manufacture, and assembly, Manuli Hydraulics' continual commitment to this unified philosophy makes us a global leader in providing integrated solutions for fluid and material transfer connector applications including hydraulics, refrigeration & air conditioning, oil & gas, water and industrial low-pressure.

Manuli Hydraulics offer a complete range of hoses, fittings and assembly equipment which are purposely designed to work seamlessly together. This harmonized approach allows us to guarantee the quality and performance of our hose assemblies.

Every metre of hose and every single fitting is backed by industry knowledge and experience, made available to you through our dedicated team of application engineers.

From advice on component selection and configuration, our technical expertise allows us to support and work directly with our customers whenever and wherever they are based.

Disclaimer: We reserve the right to modify our products and/or related services and/or discontinue the manufacture and/or supply of any of the products and/or related services, without notice. This document supersedes all previous versions and previously issued documentation. The only official source of technical crimping parameters regarding our products is our Digital Crimp Tools. Printed copies are uncontrolled therefore, please be sure to use the latest versions of our Manuli Crimp App or Crimp Web Tool. Do not mix and match: always use Manuli original hoses and fittings. For more information, see our 'Safety Guide'.

DON'T MIX & MATCH

THE FUTURE OF QUICK COUPLINGS

Manuli Hydraulics has long been established as one of the global leaders in the design and manufacture of premium quality quick couplings. The Q.Safe range of quick couplings is widely considered to represent the gold standard in both performance and resilience, but even the best can be made better.

All Q.Safe products are designed to meet and exceed customer expectations and Manuli Hydraulics' focus on robustness and longevity, coupled with our decades of experience producing some of the best performing quick couplings available today, means that the Q.Safe range of products are at the pinnacle of what can be achieved.

THE GOLD STANDARD FOR FLAT FACE COUPLINGS

Manuli flat-face quick couplings are renowned in the hydraulics industry for providing the highest level of performance on the market today. The expertly designed inner profile of the couplings offers the lowest rate of pressure drop of any comparable quick coupling currently available, making them the most efficient choice for your hydraulic systems.

Most Manuli flat-face quick couplings also offer market-leading corrosion resistance with our proprietary E-Coat 1000 plating, which provides up to 1,000 hours of corrosion resistance in standard ISO 9227 salt spray tests.

In addition, all Manuli quick couplings are guaranteed leak-free and subject to our stringent quality controls which include:

- 100% Visual Check
- 100% Functional Test
- 100% Air sealing Test

MOS-FEH HIGH FREQUENCY IMPULSE RESISTANCE

Designed to withstand extreme levels of high frequency impulses at very high pressures, the new MQSFEH extra heavy-duty quick coupling uses a new and unique (pat. pending) locking system. This system ensures that in even the most severe high-frequency impulse conditions, the MQS-FEH coupling will provide a long lasting, secure and leak-free seal. This is made possible by the innovative and unique design of the couplings, where potential failure modes previously accepted as inevitable, have been addressed, solved and eradicated. MQS-FEH is therefore ideal for a variety of demanding equipment, tools and applications such as:

FEATURES & BENEFITS:

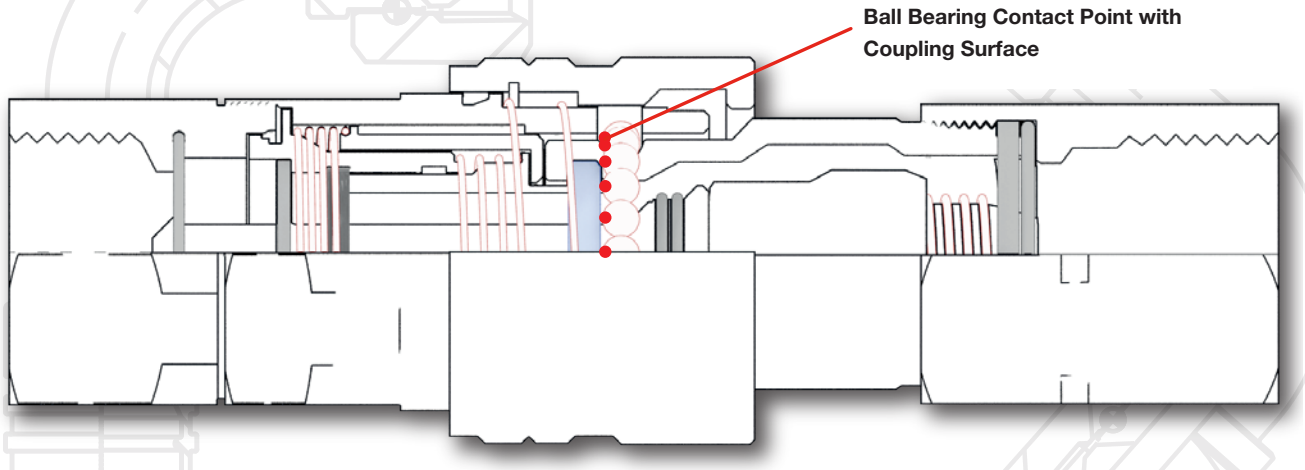
- Hydraulic Hammers
- Stone Crushers & Screener's
- Demolition Equipment
- Vibratory Compactors & Road Rollers
- Asphalt Milling Equipment
- Pile Driving Equipment
- Hard Rocks Drilling Equipment
- General Off-Highway Equipment

NOTE: Subject to high levels of vibrations



WHAT MAKES MQS-FEH IDEAL FOR HIGH FREQUENCY IMPULSE APPLICATIONS

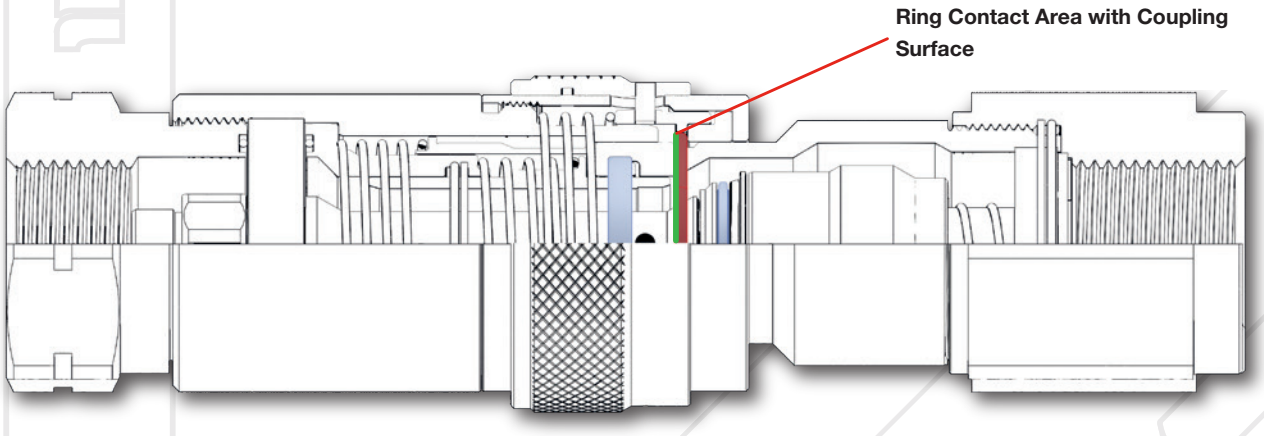
The locking mechanism on a traditional quick coupling uses an arrangement of hardened steel ball bearings which locate in a groove on the male coupling, and which are held in position by a retaining ring on the female coupling. When the hydraulic system impulses the male and female parts of the coupling try to pull themselves apart, the ball-bearings prevent this from happening. Each time the system impulses the hardened ball bearings are forced into the softer metal of the coupling, where they leave a tiny impression in the surface. As the contact surface area of the ball bearings with the coupling is tiny the force exerted on that point of contact is enormous.



Traditional Ball Locking Mechansim

In high-frequency impulse applications the couplings will attempt to separate dozens, maybe even hundreds of times per minute. So over a period of prolonged use the ball bearings are impacting the coupling surface thousands of times, and each time leaving a mark. These marks quickly accumulate and become noticeable and mechanically damaging to the functionality of the coupling.

This process is known as Brinelling and is one of the most common causes of failure in quick couplings when used in high-frequency impulse applications. In fact, the average working life of traditional quick couplings in these applications is just 40 hours. Ball bearing contact point with coupling surface Ring contact area with coupling surface MQS-FEH on the other hand, has a unique ring locking mechanism (pat. pending) instead of ball bearings. This ring locks the two coupling parts together in exactly the same way as the ball bearings, however the contact surface area is far greater allowing it to spread the load out more and minimise the damage to the coupling surface.



Manuli Ring Locking Mechanism (Pat. Pending)

DON'T JUST TAKE OUR WORD FOR IT

In both laboratory testing and actual real world usage MQS-FEH typically lasts more than 400 hours in high-frequency impulse applications - over 10 times longer than the average service life of couplings with traditional ball locking mechanisms. The result is:

- Reduced downtime for maintenance.
- Reduced cost of replacement components.
- Improved machine performance when using the attachment Ball bearing contact point with coupling surface.
- Improved operator safety due to the protected disconnection system Traditional Ball Locking Mechanism.
- Reduced environmental impact vs. traditional couplings due to prevention of leakage of hydraulic fluid.

MQS-FEH in service on an 80L hydraulic hammer - as of this writing the coupling had been in service for over 300 hours with no discernible signs of damage or wear caused by this high-frequency impulse application.



Brinelling on the Male Coupling



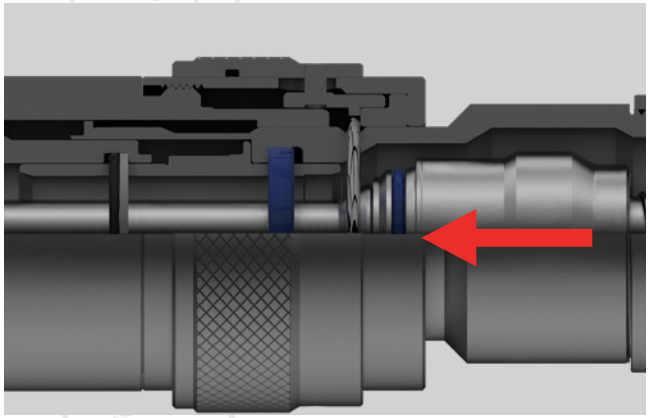
ENHANCED DISCONNECTION PREVENTION IN HIGH VIBRATION APPLICATIONS

With any quick coupling it is important to be certain that it will not disengage itself accidentally, especially during operation when it can often come into contact with external surfaces which could conceivably cause it to de-couple. The risk that a coupling could accidentally disconnect is even greater in high-frequency impulse applications where it is possible for the coupling to be literally shaken loose.

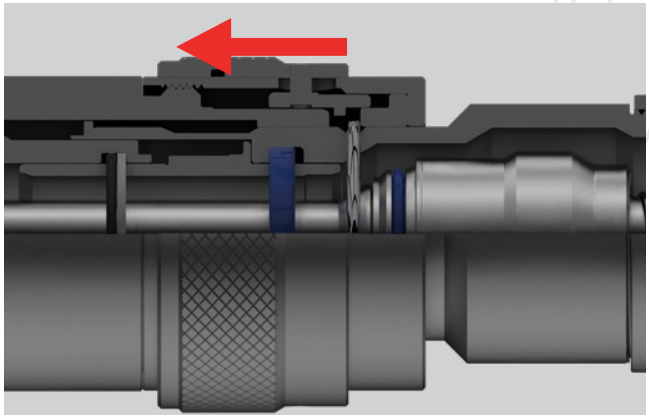
To combat this, whilst the MQS-FEH quick coupling is connected with a simple push like many other traditional quick couplings, it also has an enhanced double-action safety system which prevents accidental disconnection in even the most severe vibration conditions.

DISCONNECTION PROCEDURE

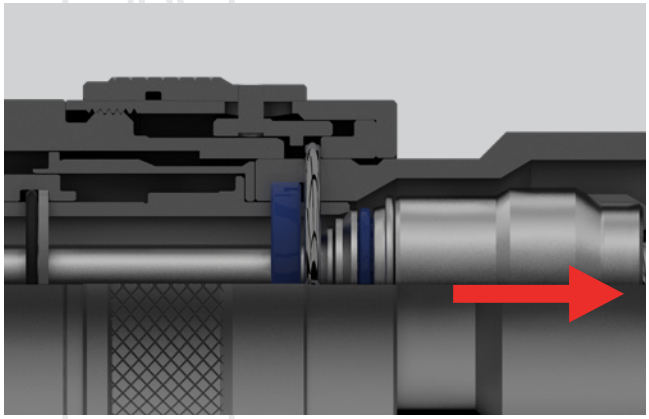
NOTE: Ensure the system is not pressurised before disconnecting the couplings.



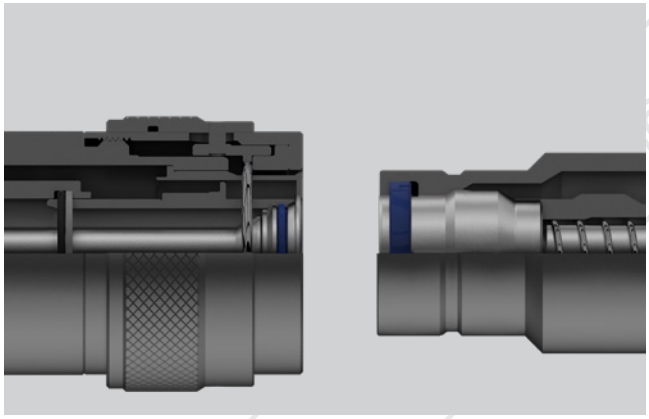
1. Having ensured that the system is not under pressure, push the male coupling inwards until it stops.



2. While keeping the male pushed inwards, pull the slider on the female backwards.



3. Keeping the female slider pulled back, firmly pull the male outwards.



4. Once the male coupling is fully removed, the slider on the female coupling can be released.

MQS-FEH

FLAT FACE EXTRA HEAVY DUTY



FEATURES & BENEFITS:

- MQS-FEH is the flat-face line for extra heavyduty and high vibration applications.
- 35MPa of working pressure in connected and disconnected conditions.
- Push connection (a click proves correct connection)
- Double-action disconnection process to prevent accidental disconnection - push male and pull back sleeve on female.
- 1 Million impulse cycles qualified.
- E-Coat 1000 plating.

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)
													Male		Female		M &F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	DN
12.5	1/2”	8	35	5,075	35	5,075	85	22.5	180	40.5	840	0.0005	170	24,650	150	21,750	180	26,100	Allowed up to 4 MPa
16	5/8”	10	35	5,075	35	5,075	105	27.5	200	45.0	840	0.0005	170	24,650	150	21,750	180	26,100	Allowed up to 3 MPa
19	3/4”	-12	35	5,075	35	5,075	160	42.3	240	54.0	840	0.0005	170	24,650	140	20,300	170	24,650	Allowed up to 2 MPa
25	1	-16	35	5,075	35	5,075	235	62.1	270	60.7	840	0.0012	160	23,200	180	26,100	170	24,650	Allowed up to 2 MPa

Refer to the latest Manuli Digital Crimp Tools for crimping parameters.

TECHNICAL SPECIFICATIONS:

MATERIAL

Female & male couplings in high grade carbon steel with hardened areas in correspondence to the most stressed points. Male vs. female Sealing system in new Polyurethane compound; other seals in NBR with back-up in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

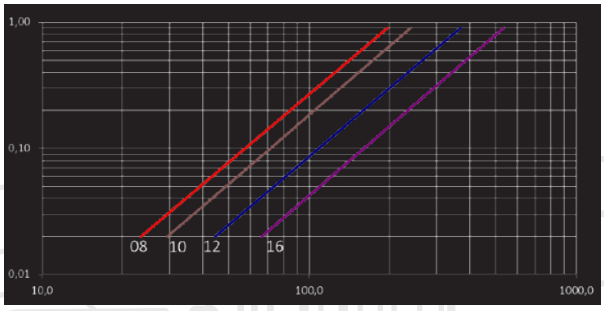
IMPULSE PRESSURE

1,000,000 cycles at 120% of rated one (freq. 1Hz)

TEST SPECIFICATIONS

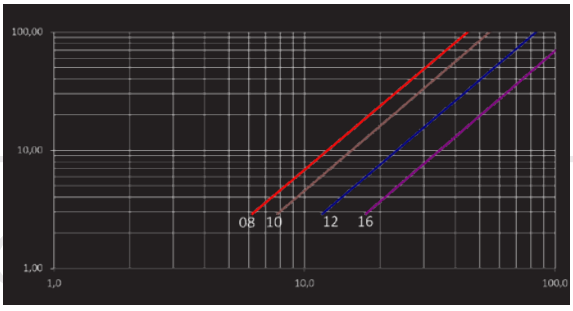
ISO 18869

PRESSURE DROP MPA



FLOW RATE [US GALLONS/MIN]

PRESSURE DROP PSI



FLOW RATE [US GALLONS/MIN]

manuli® HYDRAULICS

www.manuli-hydraulics.com

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