

MQS-FEH



IMPULSE RESISTANT QUICK COUPLING



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



MQS-FEH – HIGH FREQUENCY IMPULSE RESISTANCE

Designed to withstand extreme levels of high frequency impulses at very high pressures, the new MQS-FEH 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:

- Hydraulic hammers
- Stone crushers and screeners
- Demolition equipment
- Vibratory compactors and road rollers
- Asphalt milling equipment
- Pile driving equipment
- Hard rocks drilling equipment
- General off-highway equipment subject to high levels of vibrations

MQS-FEH

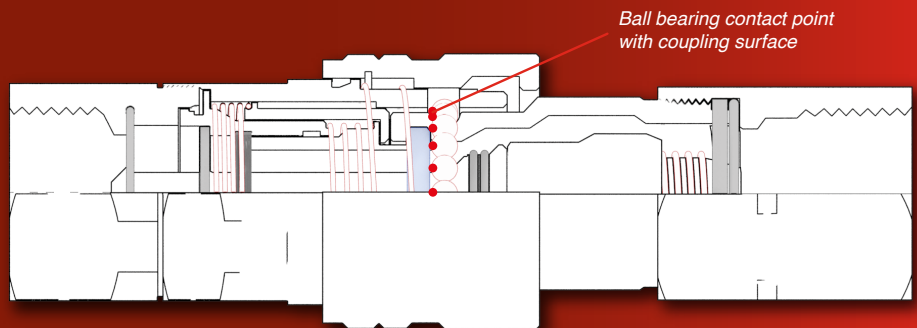


... IS NOW

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.

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.



Traditional Ball Locking Mechanism

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.

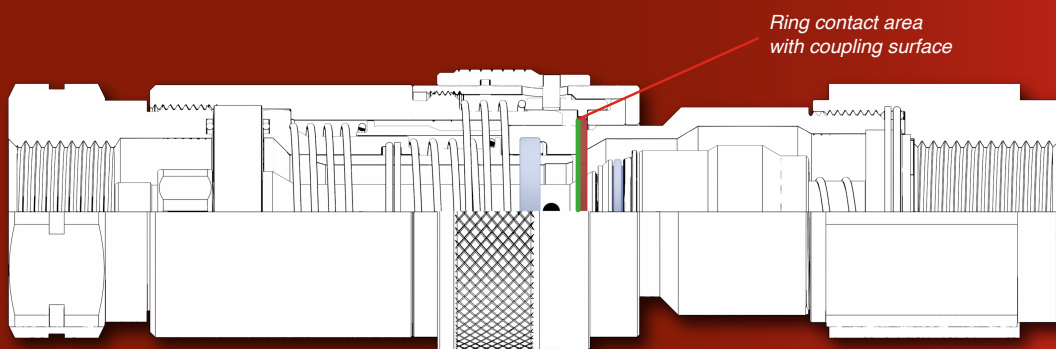
MQS-FEH on the other hand, has a unique ring locking mechanism (*pat. pending*) instead of ball bearings. This ring locks the two coupling parts together in exactly the same way as the ball bearings, however the contact surface area is far greater allowing it to spread the load out more and minimise the damage to the coupling surface.



Brinelling on the male coupling

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
- Improved operator safety due to the protected disconnection system
- Reduced environmental impact vs. traditional couplings due to prevention of leakage of hydraulic fluid



Manuli Ring Locking Mechanism (pat. pending)

DON'T JUST TAKE OUR WORD FOR IT...

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.



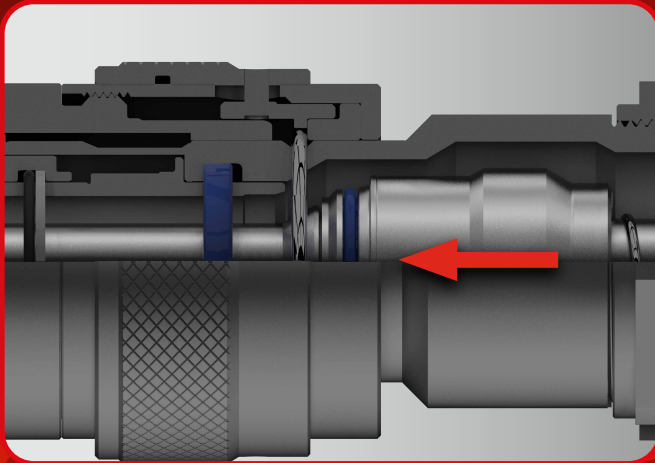
ENHANCED DISCONNECTION PREVENTION IN HIGH VIBRATION APPLICATIONS

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.

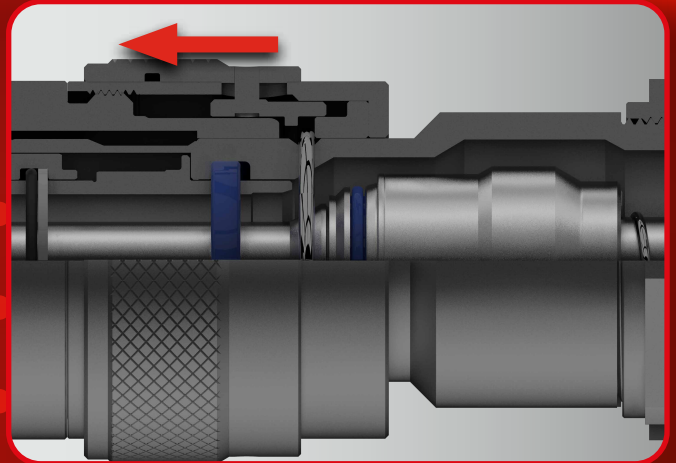
To combat this, whilst the MQS-FEH quick coupling is connected with a simple push like many other traditional quick couplings, it also has an enhanced double-action safety system which prevents accidental disconnection in even the most severe vibration conditions.

Disconnection Procedure

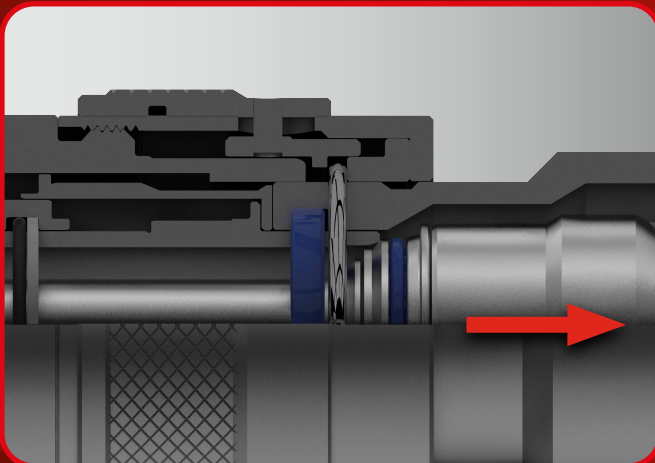
Note: Ensure the system is not pressurised before disconnecting the couplings.



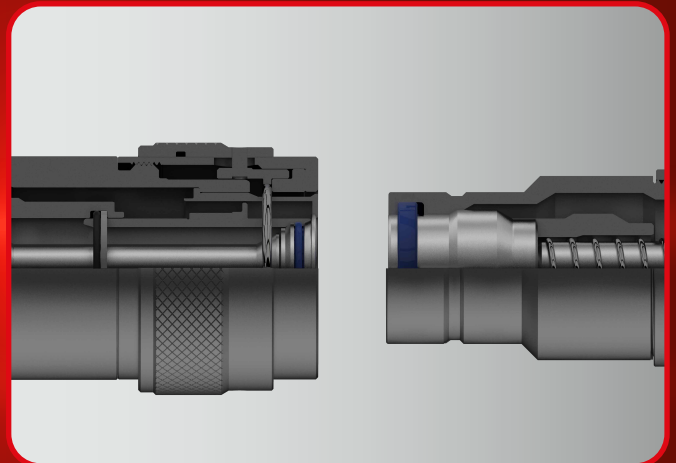
1. Having ensured that the system is not under pressure, push the male coupling inwards until it stops



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



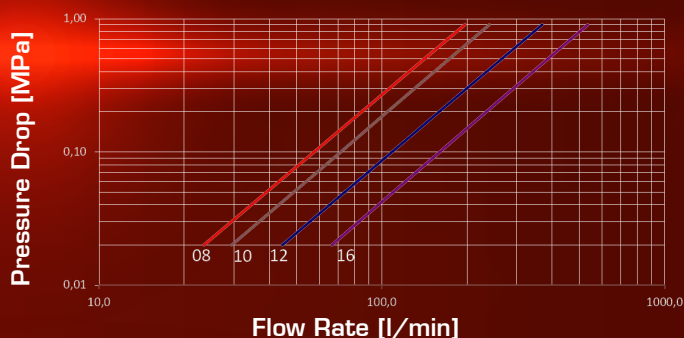
4. Once the male coupling is fully removed, the slider on the female coupling can be released

Contact your local Manuli Hydraulics sales representative to find out more about how this, and other Manuli products, can improve the efficiency of your hydraulic systems

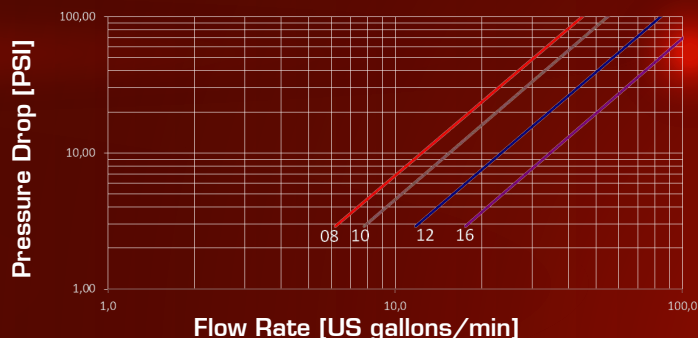


MQS-FEH FLAT FACE EXTRA HEAVY DUTY








Pressure Drop



Pressure Drop



TECHNICAL DATA

																				
SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)	
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	Male		Female		M & F			
													MPa	PSI	MPa	PSI	MPa	PSI		
12.5	1/2"	08	35	5,075	35	5,075	85	22.5	180	40.5	0.008	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	27.7	200	45.0	0.008	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	0.009	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	0.02	0.0012	160	23,200	180	26,100	170	24,650	Allowed up to 2 MPa	

Connection with Male under pressure not allowed; Disconnection under pressure not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- MQS-FEH is the flat-face line for extra heavy-duty 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

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 PRESSURES

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

TEST SPECIFICATIONS

ISO 18869



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