

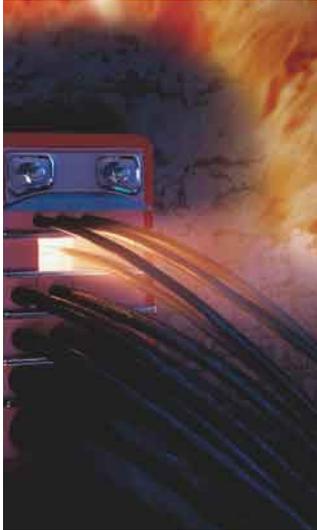
Where
valuable assets
are at risk

Type approvals



Our products are tested
and certified by a long list of
customers, laboratories and
certification organisations.





MCT Brattberg Tested, developed and certified.

It has always been our policy to remain the most reliable source of penetration seals on the market.

It is two decades since our quality systems were brought in line with the strict requirements that apply to the offshore and nuclear industries. We regularly carry out testing for certification by various classification bodies, laboratories and customers. Latest certification details are available on request.

Each certificate is unique

Most "A" Class certificates are based around the test standards invoked by the International

Maritime Organization in their publication of the Fire Test Procedure (or FTP Code).

The section, which relates to cable penetration seals, is referred to as IMO 754 part 18.

Each classification society interprets these rules slightly differently, however, the many certificates we hold from highly renowned certification bodies are proof of the high quality and reliability of our products.



99-GB23036-X
ICT Brattberg 2000 Cable Transit System
RGS, RGSO, RGSR, RGSFB, RGSF, RGSFBO
restrictions in bulkheads and decks of fire Class A-0 t

ansit systems for cables and pipes, installed in bul
Standard, AddBlock, U-block and EMI module
med transit for welding to steel plate; standard fr
7" (60 mm) depth, 0.4" (10mm) frame thickness;
ngly or in multiples vertically and/or horizontally
are already in place. 3) RGSR -RGS transit wit
gh-stress applications. 4) RGSF - RGS transit wit
in the bulkhead or deck is larger than the frame. 5)
already in place. 6) RGSFB -RGSF transit with b
ceed stresses are unacceptable; usage incorporates
O -RGSFB transit with machined grooves for
120 mm) RGS transit with machined grooves for
on transit face requires packing material to be not
ouble depth RGS transit that is packed from wa
side of the transit; used to protect cables from wa
transit with rounded corners of increased radius (

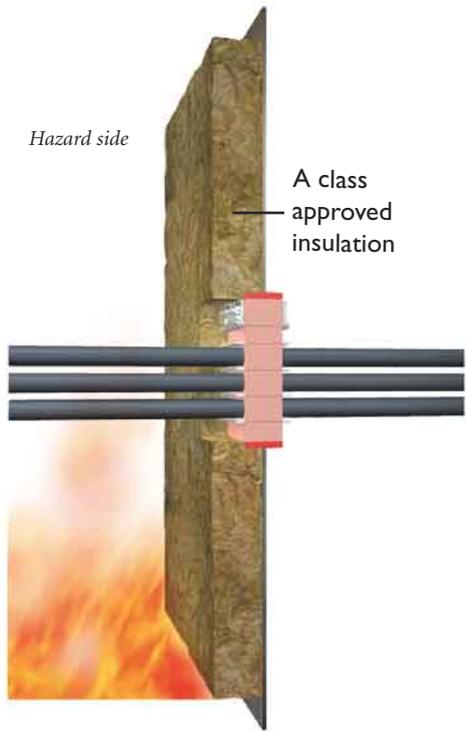
nce - RGS, RGSO, RGSR, RGSF, RGSFO, RGS
-6, -8, singly or in combinations of up to and inc
-30, F-0, F-15, & F-30.
IO, RGSR, RGSF, RGSFO, RGSFB, RGSFBO, R
-mounted) and -6 or -8, singly or in combinations
, A-30, & A-60, B-0, B-15, & B-30, F-0, F-15, &
itness -RGS, RGSO, RGSR, RGSF, RGSFO, RGS
itions - 5 bar (72.5 psi) hydrostatic pressure; all of
htness, Airtightness - meets A-Class requirement
eneral ratings are subject to the restrictions listed
Restrictions:
for use in tank boundaries. 2) Bolted transits are r
right applications where the fram
cross-sec

Each certificate has restrictions

The first page does not tell the whole story. There may be exceptions and special conditions on the validity of the certificate in the appendices and drawings. The restrictions are related to frame size, type of frame, orientation and location of frame, material type, cross-sectional area of cables, the method of insulation and installation.

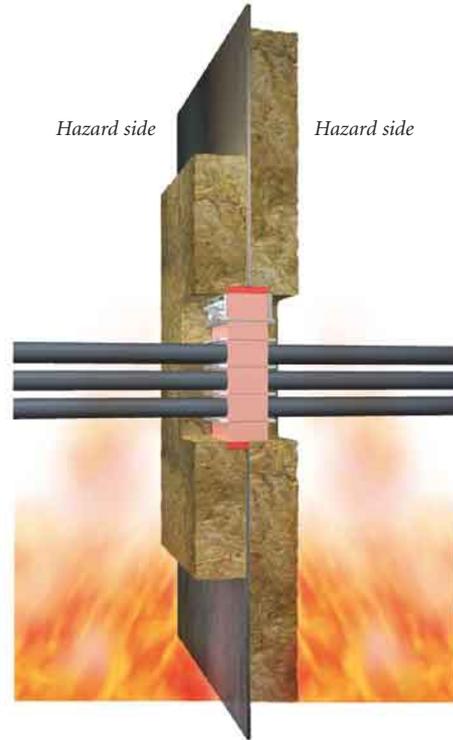
The following drawings are for indicative purposes only. Due to constant improvements in the systems and differences between regulatory authorities, please consult MCT Brattberg for the most current and relevant certified drawings and certificates.

Four approved installations for two different situations, hazard on one side and hazard on both sides



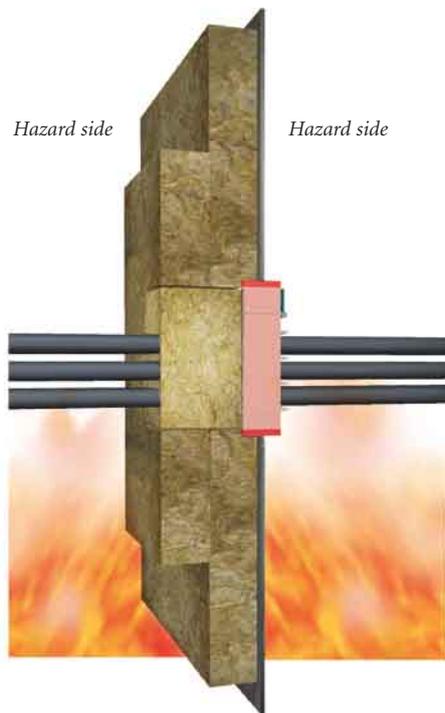
Hazard on one side

No additional insulation is required around the penetration if the frame is centre line welded in the steel bulkhead.



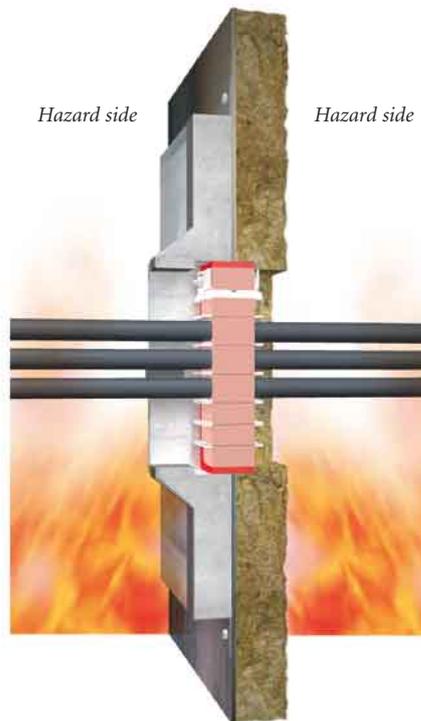
Hazard on both sides

Additional insulation must be installed around the penetration on the opposite side of the insulated bulkhead (200 mm picture frame). There is no requirement for insulation between the cables. This is the most typical internal installation.



Hazard on both sides

Additional insulation is installed on the insulated bulkhead side. Shredded insulation must be fitted between the cables. This method can be used when one side of the bulkhead is outdoors or cannot be insulated.



Hazard on both sides

Additional insulation must be installed around the penetration on the opposite side of the insulated bulkhead. There is no requirement for insulation between the cables. This is MCT's "ultimate" solution for external installation.

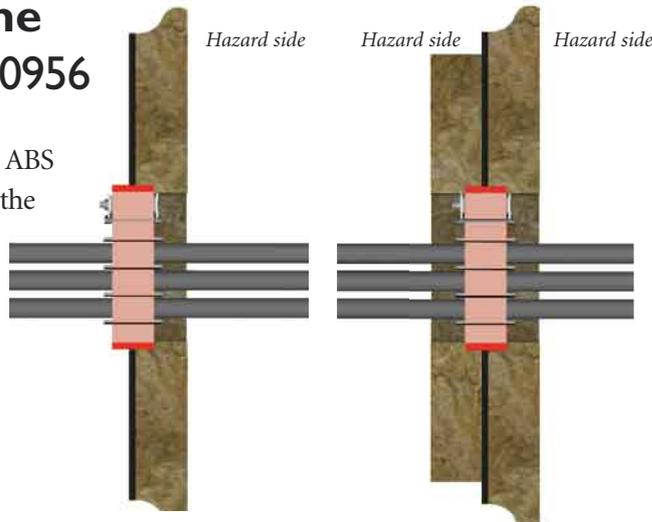
Steel bulkhead A-60

All tests are carried out using the new installation instructions, contained in IMO 754 pt.18. These regulations specify that the test frame must be centred in the bulkhead opening. This means that the installation instructions are now the same regardless of which side is the hazard side.

The penetrations below are certified by Lloyds, DNV, ABS, USCG and most other major classification bodies. Testing and certification is taking place continuously. Contact MCT Brattberg for information on the latest certification.

Welded frame Drawing no. I40956

In line with Lloyds DNV, ABS and USCG certifications the frame, insert blocks and components must be manufactured by MCT Brattberg.



Welded frame Drawing no. I40954

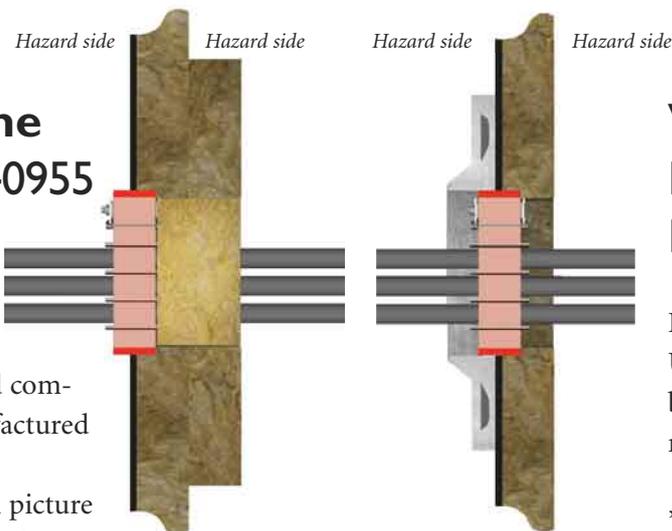
In line with Lloyds, DNV, ABS and USCG certifications the frame, insert blocks and components must be manufactured by MCT Brattberg.

An additional 200mm picture frame of insulation must be installed around the penetration on the uninsulated side of the bulkhead.

Welded frame Drawing no. I40955

In line with Lloyds, DNV, ABS and USCG certifications the frame, insert blocks and components must be manufactured by MCT Brattberg.

An additional 200mm picture frame of insulation must be installed around the penetration on the insulated side of the bulkhead with shredded insulation fitted between the cables.



Welded frame and MCT Ultimate Drawing no. 800 I

In line with Lloyds, DNV, ABS and USCG certifications the frame, insert blocks and components must be manufactured by MCT Brattberg.

MCT Brattberg can supply the "Ultimate" as an alternative additional insulation system on the uninsulated side of the bulkhead.

ABS and USCG specify that transit frames can only be filled with cables to a maximum of 40% of the internal area. Any number of cables can be installed up to a maximum diameter of 96mm Ø and in combinations up to 8+8x7.

Complete information about conditions of certification, see appendix to the type approval.

Aluminium bulkhead A-60

All tests are carried out using the new installation instructions, contained in IMO 754 pt.18. These regulations specify that the test frame must be centred in the bulkhead opening. This means that the installation instructions are now the same regardless of which side is the hazard side.

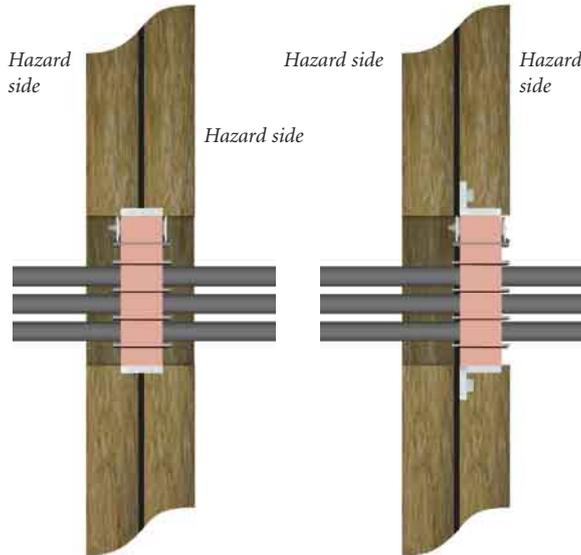
Aluminium bulkheads are insulated on both sides, in order that the core temperature rise will not exceed 200 C°.

The penetrations below are certified by Lloyds, DNV, USCG and most other major classification bodies. Testing and certification is taking place continuously. Contact MCT Brattberg for information on the latest certification.

Welded frame

Drawing no. I40963

Lloyds, USCG and DNV: the frame, insert blocks and components must be manufactured by MCT Brattberg.



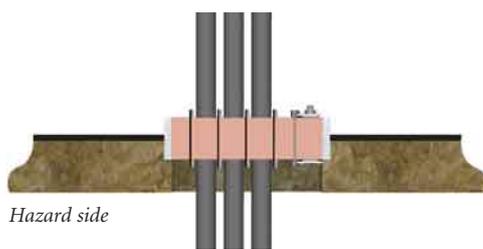
Bolted frame

Drawing no. I40964

Lloyds, USCG and DNV: the frame, insert blocks and components must be manufactured by MCT Brattberg.

DNV specify that additional insulation must be installed on the penetration side using a Class A insulation frame around the penetration.

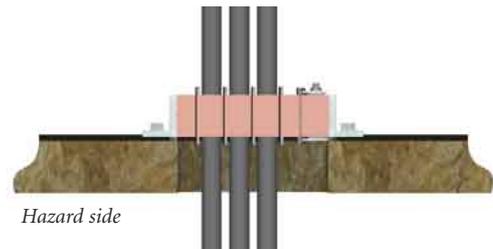
Steel and Aluminium deck Rates A-60



Welded frame

Drawing no. I40961

Lloyds, USCG and DNV: the frame, insert blocks and components must be manufactured by MCT Brattberg.



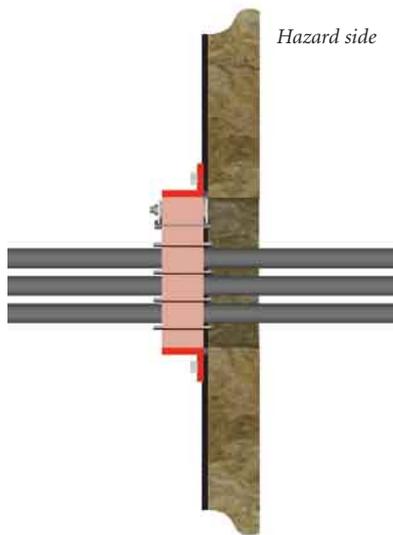
Bolted frame

Drawing no. I40962

Lloyds, USCG and DNV: the frame, insert blocks and components must be manufactured by MCT Brattberg.

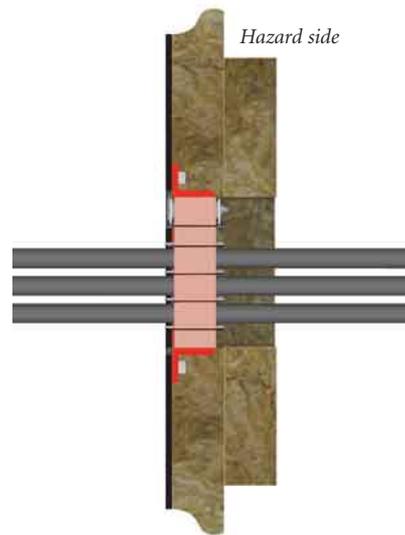
Steel bulkhead A-60

The penetrations below are certified by Lloyds, DNV, USCG, ABS and most other major classification bodies. Testing and certification take place continuously. Contact MCT Brattberg for information on the latest certification.



Bolted frame Drawing no. 140958

Lloyds, DNV, USCG and ABS: the frame, insert blocks and components must be manufactured by MCT Brattberg.



Bolted frame Drawing no. 140959

Lloyds, DNV, USCG and ABS: the frame, insert blocks and components must be manufactured by MCT Brattberg.

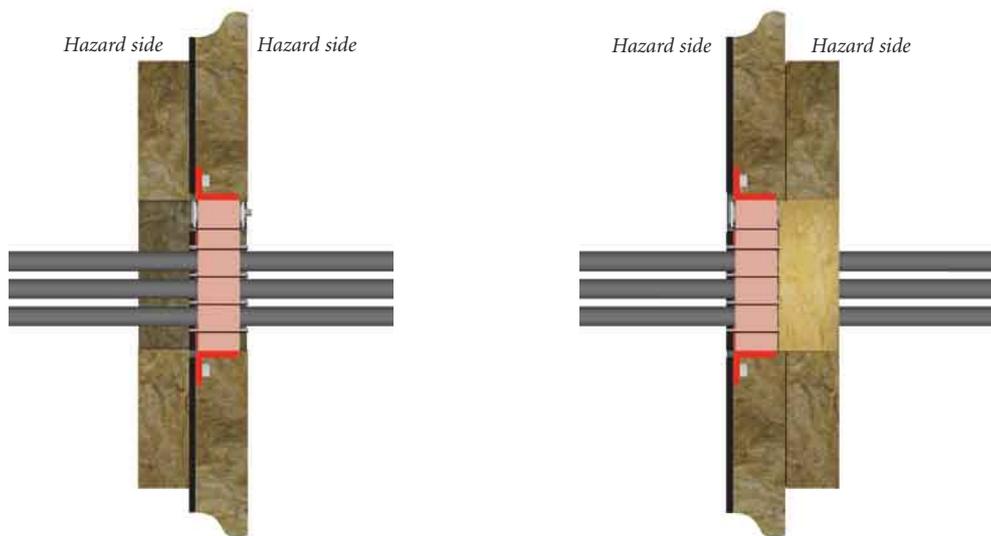
An additional 200 mm picture frame of insulation must be installed around the penetration on the insulated side of the bulkhead.

ABS and USCG specify that transit frames can only be filled with cables to a maximum of 40% of the internal area. Any number of cables can be installed up to a maximum diameter of 96mm Ø and in combinations up to 8+8x7.

Complete information about conditions of certification, see appendix to the type approval.

Steel bulkhead A-60

The penetrations below are certified by Lloyds, DNV, USCG, ABS and most other major classification bodies. Testing and certification take place continuously. Contact MCT Brattberg for information on the latest certification.



Bolted frame

Drawing no. I40960

Lloyds, DNV, USCG and ABS: the frame, insert blocks and components must be manufactured by MCT Brattberg.

An additional 200 mm picture frame of insulation must be installed around the penetration on the uninsulated side of the bulkhead.

Bolted frame

Drawing no. I40957

Lloyds, DNV, USCG and ABS: the frame, insert blocks and components must be manufactured by MCT Brattberg.

An additional 200 mm picture frame of insulation must be installed around the penetration on the insulated side of the bulkhead with shredded insulation fitted between the cables.

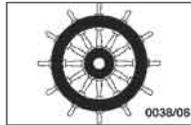
ABS and USCG specify that transit frames can only be filled with cables to a maximum of 40% of the internal area. Any number of cables can be installed up to a maximum diameter of 96mm Ø and in combinations up to 8+8x7.

Complete information about conditions of certification, see appendix to the type approval.

*ABS, American Bureau of Shipping - Canadian Coast Guard
Bureau Veritas - China Classification Society
Australian Maritime Safety Authority - DNV, Det Norske Veritas
Korean Register of Shipping - Lloyds' Register of Shipping
Nippon Kaiji Kyokai - Polski Rejestr Statkow - Germanischer Lloyd
Swedish Adm. of Shipping and Navigation
Croatian Register of Shipping - RINA, Registro Italiano Navale
Russian Maritime Register - US Coast Guard - US Navy
Underwriters Laboratories Inc. Underwriters Laboratories of Canada*

MCT Brattberg is also certified according to MED, Marine Equipment Directive (via Lloyds' Register Verification (LRV))

Please consult MCT Brattberg for latest updated certificates and approvals.



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MCT Brattberg reserve the right to alter product specification without prior notice.