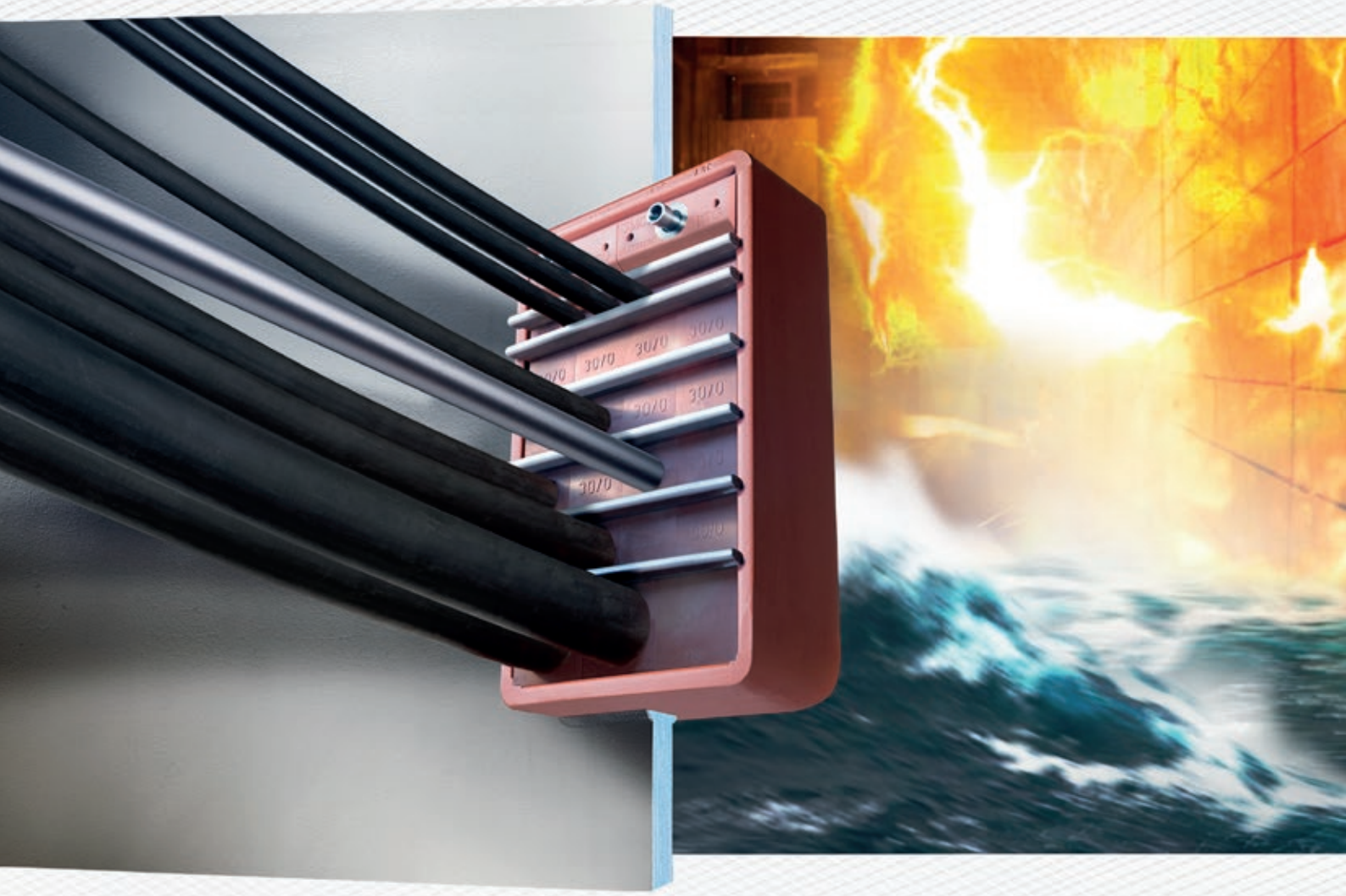
MCT Brattberg Product Catalog

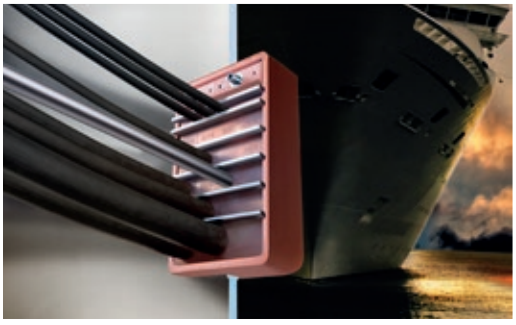
Putting Safety First



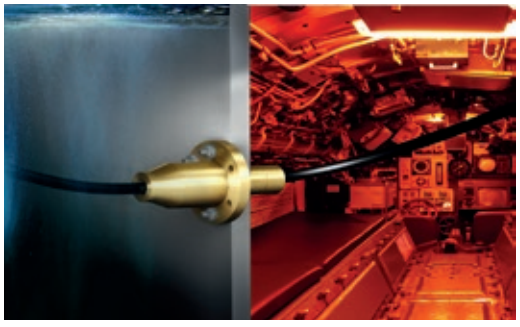
Putting safety first

MCT BRATTBERG

Product Program Overview



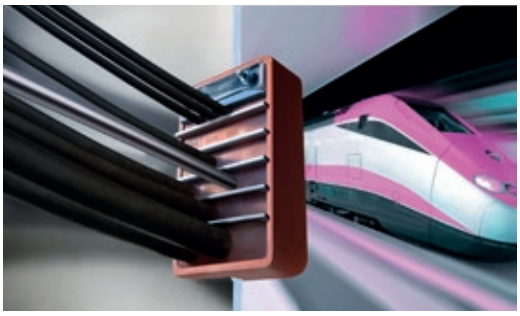
Maritime and offshore.
Cable and pipe transits are primarily used for applications in hazardous maritime and offshore environments.



Custom designed pressure sealings up to 100 bar water pressure.

Transits for high risk land-based applications protecting people, environment and vital industries.

Product Program Overview



Putting safety on rolling stock.

The E-series has built-in protection against EMI, EMP and ESD. Protection against lightning strikes, grounding and bonding of communication, instruments, power, braid, wire armored (AC and TECK 90) cables and copper pipes.

Atex concerns all products to be used in places where explosive atmospheres may arise.

364 - 388174v1 056390/000001

Our History

MCT Brattberg´s origins reach back to 1759, a time when Lyckeåborg, just outside in southern Sweden, was designated the site for the construction of a copper hammer. The Lyckeby River waterfall was the ideal location for powering the hammer. The company´s modern history started after World War II. The mechanical workshop made a variety of product´s, among them the wellknown cut nail. The 1950s saw the manufacture of a new product, the MCT Brattberg cable and pipe transit, named after inventor Nils Brattberg.

The original cable transit is constantly evolving

Mister Nils Brattberg invented a simple but clever idea of a frame with insert blocks and an end seal. The MCT Brattberg system was patented worldwide. In the 1950s the oil rigs and nuclear power stations demanded cable and pipe installations with proven safety records. The MCT Brattberg system quickly became a worldwide solution, because of its high performance and safety features. And we´ve been improving it ever since.

Some examples are: In the 1970s, the round RGP frame was introduced. At first it was designed for core-drilled holes in concrete. Today it is even installed in the decks and bulkheads of ships. In 1986, we introduced the Lycron rubber for our insert blocks. The same year saw the launch of the composite compression plate with integrated compression bolt. In 1994, came the Pre-lubricated blocks and saves a great deal of time during installation. 1997, we introduced AddBlock, the universal block with increased flexibility in the packing. 1999, came the U-blocks and Plugs. Together with the AddBlocks the packing became even mor flexible. 2018, was the HandiBlock a new blocksystem designed to minimize errors and wastage.

MCT Brattberg has an extensive global dealer network, which ensures the product's availability in most markets. Exports from Sweden constitute roughly 95% of sales.

Comprehensive documentation shows that our products and systems resistance to fire, water, gas and pressure meets the latest safety requirements.


IMCT
PTG
20/0
30/0
40/0
MCT

Putting safety first

It's the core of our business concept. Our transits protects people from harm of fire, pressure, gas and keeping the environment safe from dangerous chemicals.

MCT Brattberg´s concept for cable and pipe transits has led the market for over half a century by putting safety first.
Together with independent test institutes, we have developed testing methods and specifications that will guarantee seals that can withstand the most extreme conditions on land and at sea. Ever since receiving our first patent in 1952 we have led development and continually launch new products. We now have a flexible range of products suitable for a variety of situations, tested and approved by various test institutes worldwide.

A ship´s structure is subject to constant and varying motions due to wave action and propulsion. Furthermore, it may expand and contract when subject to temperature variation. In turn, these actions expose transit frames to extremely powerful forces, conditions rarely occur with land-based applications involving static walls. This plays crucial roles for the safety of choice of design, materials, and assembly.

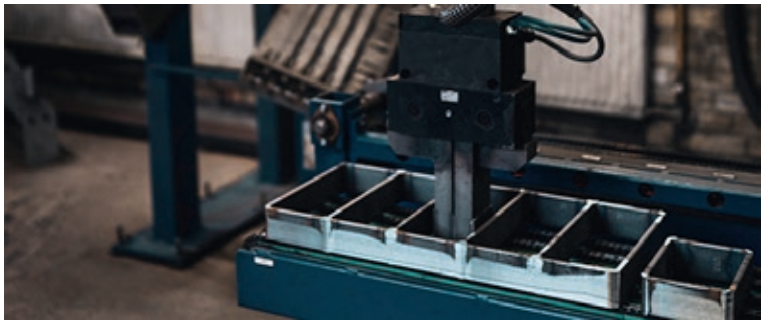
The safety of a system depends on the highest standard of design and fabrication along the total production chain. We use a hard-tipped circular metal saw as this produces a smooth even cut at the ends of each bar at a 90 angle to the sides. This allows a flush joint to be achieved when forming the rectangular frame ready for welding.
Our robot welding is critical to producing transit frames with the highest safety standard, not only welding technique but also the weld joint design.

MCT Brattberg´s concept for cable and pipe transits has led the market for over half a century by putting safety first.
Together with independent test institutes, we have developed testing methods and specifications that will guarantee seals that can withstand the most extreme conditions on land and at sea. Ever since receiving our first patent in 1952 we have led development and continually launch new products. We have a flexible range of products suitable for a variety of situations, tested and approved by various test institutes worldwide.
The structure of this product catalogue is designed to facilitate finding individual products and giving detailed specifications on them.

If you require any additional information about our products or their installation. Please contact us at one of the addresses provided at the end of this catalogue or on our website **rgplan.mctbrattberg.com**

Frames

The design, materials, construction and finish of frames play decisive roles in determining the safety of frames in withstanding constant stress in maritime and land-based environments.



Cable management

Before working with insert blocks, cable management has to be carried out. Basically, this means that all cables passing through frames must have enough movement to allow them to be positioned correctly to facilitate fitting the insert blocks.

Professional installation

No matter how many safety features are built into the components of cable and pipe transits, they can only be realized through correct installation. This means that transits must be complemented with training to maximize the safety awareness in all stakeholders.

Testing and inspection

Testing for certification purposes is carried out in independent laboratories throughout the world. The Fire Test Procedure (FTP Codes) Standards, however, apply equally to all laboratories, no matter their location.

Welded RGS transit

Casting into concrete RGB transit

Comprehensive benefits

MCT Brattberg cable and pipe transits are designed and manufactured to provide maximum benefits to all concerned as shown below.

System concept

- The system is comprehensive, i.e. contains a complete range of frames, blocks, insulation, collars and products.
- Long-term reliability of all components for example, frames and insert blocks continue to provide an effective seal over the long term even when continually exposed to averse conditions.
- A warranty period that support long-term reliability and gives confidence in products and supplier.
- The system provides the application flexibility needed to quickly configure and install all types of cable and pipe transit.
- The design and features of each type of components, e.g. insert blocks with clear identification, tight tolerances and self-lubrication, make them easy to install.
- Costs are reduced and assembly facilitated by no special tools required to install transits.
- Packing guides are available to show how best to configure insert blocks and cable within frames.
- Transit design planning software is available for engineers/designers to save time and effort involved with configuring transits.
- To ensure consistent quality of all system components, their production is governed by an accepted and independent QA/QC system like ISO 9001.
- Transit components are durable and stable enough to allow later disassembly.

Bolted RGG transit

RGB transit placed in a drilled hole.
No compression plate or final seal Is required

Transit frames

- The frames are strong enough to withstand extreme conditions, e.g. shock and vibration of ship bulkheads and decks.
- Each corner is multiple-welded (at least two welds) to meet the requirements of a destruction test.
- Robotic welding is used to maintain uniform and consistent high-quality welds.
- Tight dimensional tolerances to maintain the defined functionality of insert blocks and other components.
- The inner surfaces are smooth and free from residual weld spatter to facilitate insert block packing.

Insert blocks

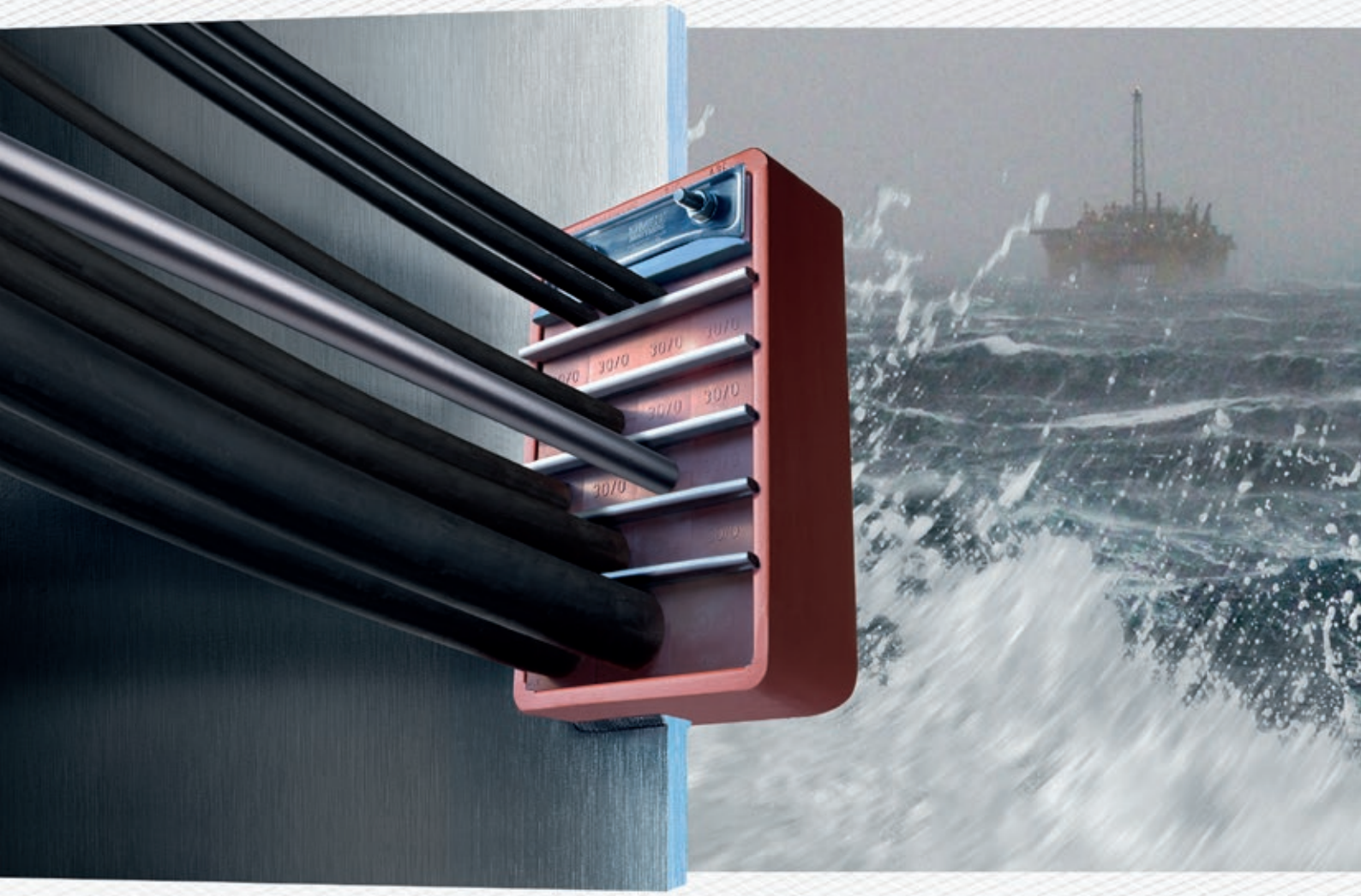
- The cable/pipe diameter can be clearly identified on each insert block.
- The blocks are made of a self-extinguishing material.
- The blocks are self-lubricated to facilitate installation.
- The block retain their shape over the long term to maintain correct functionality.
- The blocks do not crack, melt, harden or become brittle under normal environmental conditions.
- The blocks do not release corrosive gases such as fluorine, chlorine, bromine and iodine when subject to fire.
- The blocks do not deteriorate when under attack by rodents, insects or microorganisms.
- The blocks are moulded to tight tolerances to ensure uniform and accurate sizing.
- Block design prevents displacement after installation.
- The blocks result in minimal waste during installation.

At Sea

Putting safety first

MCT BRATTBERG

Safety above all



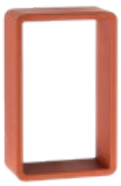
DISCLAIMER

The author and publisher of this catalogue intend that this catalogue contain only general discussions and information; it is not intended to be comprehensive or to address all the possible contexts and situations involving the products and processes described herein. This catalogue is designed for generic study or research use only and is not a substitute for specific training or experience when utilizing the products and processes discussed herein. Nor is this catalogue intended to serve as a substitute for any proper training and/or certification needed for operation of the products and processes described herein. Accordingly, this catalogue is meant to be advisory and is not intended for specific application. Each application of the products and/or processes described herein may differ and the specifics involved must be addressed separately and individually depending on your situation.

MCT Brattberg (the "Company") assumes no liability for any use of or reliance upon any material contained or referenced in this catalogue; the use of this catalogue is at your own risk. THE COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AS TO MERCHANTABILITY, AS TO THE FITNESS OF THE CATALOGUE OR ITS CONTENTS FOR ANY PARTICULAR USE OR PURPOSE, NON-INFRINGEMENT, OR AS TO THE ACCURACY, APPLICABILITY, OR COMPLETENESS OF THE CONTENTS OF THE CATALOGUE, AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF SUCH CATALOGUE OR FOR CONSEQUENTIAL DAMAGES. In no event shall Company be liable for: (a) punitive, incidental or consequential damages arising out of the use of the information from this catalogue, including, but not limited to, damage to persons or property, loss of use, loss of time, inconvenience, equipment rental, loss of earnings or profits, loss of business opportunities, or any other commercial loss, or (b) any losses, claims, damages, expenses, liabilities or costs (including legal fees) resulting directly or indirectly from use of the material in this CATALOGUE, WHICH IS PROVIDED "AS IS," AND WITHOUT WARRANTIES. The conditions in this paragraph apply to any acts, omissions and negligence of Company that would give rise to a course of legal action. The reader hereby agrees to indemnify and hold harmless Company its officers, directors, shareholders, employees, agents, subsidiaries, affiliates, parent companies and successors in interest against all claims and expenses (including attorney fees) arising from the use of any information in the catalogue. Further, Company is not responsible for any warranties of any nature made by any representative or agent that have not also been agreed to in writing by an officer of the Company.

364 - 388174v1 056390/000001

Product program



RGS

RGSF

RGSC

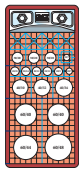
RGSK and RGSbtb

RGSR

Multiple

RGP-round holes

Components / Accessories



Planning RGPlan

Standard Block

AddBlock

Plug

HandiBlock

U-Block

MSR cable glands

SR cable and pipe seals

Deck and Bulkhead

X-series

Alf-Cabinet seal

RFCS-Cabinet seal

The MCT Brattberg

Putting Safety First

MCT Brattberg has taken a new step to ensure the correct standard of assembled MCT transits. We have done this through a partnership with Consilium Marine & Safety.

We now offer:

INSPECTION

- Ensuring MCT´s meet relevant standards.
- Ensure that MCT´s were installed to manufacturer´s instructions.

TESTING

Pressure testing transit to customer requitements.

TROUBLE SHOOTING

Assist and Consult on installation of difficult installations.

TRAINING

Conduct onshore and offshore training classes to ensure that MCT´s will be installed to code and to manufacturer´s instruction.

Tested, approved and

certified

Since the early 1950s, when we first started specializing in fireproof and pressure-sealed transits, quality testing and classification has been essential.


Lloyd's Register

CERTIFICATE OF FIRE APPROVAL

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer: MCT Brattberg AB

Address: SE-371 82 Karlskrona Sweden

Type: CABLE PENETRATION (STANDARD FIRE TEST)

Description: MCT Brattberg Type "RGS Cable Penetration seals" installed in Single/Multiple rectangular MCT Brattberg Mild, Stainless Steel or Aluminium Frames

Specified Standard: IMO Res. MSC.61 (67)–(FTP Code) Annex 1 Part 3
IMO MSC./Circ. 1120
IMO Res. MSC.307 (88)–(2010 FTP Code) Section 8
IMO Res. MSC.307(88) – (2010 FTP Code), Annex 1, Part 3

The attached Design Appraisal Document forms part of this certificate.
This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Date of issue: 15 August 2018 — Expiry date:

Certificate No.: SAS/F60551/M2 — Signed:

Sheet No: 1 of 5 — Name:

Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

Note:

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid Certificate.


ABS

CERTIFICATE OF

Product Design Assessment

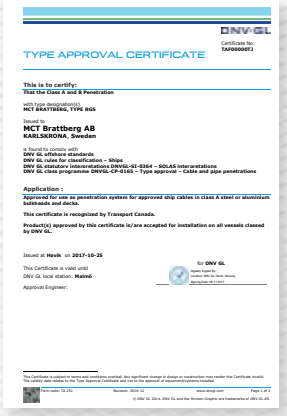
MCT BRATTBERG AB


中国船级社
CHINA CLASSIFICATION SOCIETY
型式认可证书
CERTIFICATE OF TYPE APPROVAL

MCT Brattberg AB


SGS

EC - TYPE EXAMINATION CERTIFICATE


DNV·GL

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Class A and B Penetration

with type designation(s)
MCT BRATTBERG, TYPE RGS

Issued to
MCT Brattberg AB
KARLSKRONA, Sweden

is found to comply with
DNV GL offshore standards
DNV GL rules for classification – Ships
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL class programme DNVGL-CP-0101 – Type approval – Cable and pipe penetrations

Application :
Approval for use as penetration system for approved ship cables in class A steel or aluminium bulkheads and decks.

This certificate is recognized by Transport Canada.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at Høvik on 2017-10-25

This Certificate is valid until
DNV GL local station: Malmö

Approval Engineer:

for DNV GL

In 1986 our sealing method and quality system was adapted to meet the rigid requirements of the offshore industry and have been coutinuously to current requirements.
Today MCT Brattberg is assessed and certified by DNV, in accordance with the Quality and Environment Management system standard EN ISO 9001 and 14001, for the design, manufacture and supply of fire barrier and sealed transit systems associated with cable and pipe routes in building and marine environments. As a direct result of this achievement, quality and environmental assessments are carried out by DNV twice annually.

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

ABS, American Bureau of Shipping - Canadian Coast Guard - Bureau Veritas China Classification Society - Australian Maritime Safety Authority - DNV-GL, 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 of Shipping)

Please consult MCT Brattberg for latest updated certificates and approvals.

The original cable transit

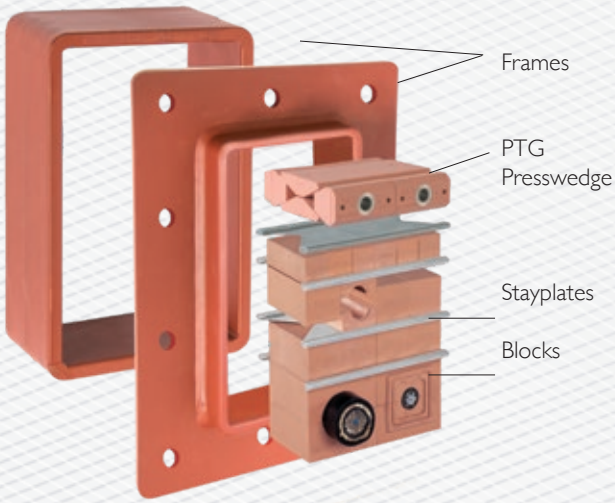
Based on the simple but clever idea of a frame with Insert Blocks and an end seal, the MCT Brattberg is the original transit system.
The MCT Brattberg system was patented in the early 1950s. When oil rigs and nuclear power stations demanded cable and pipe installations with proven safety records, the MCT Brattberg system became a worldwide solution, we´ve been improving it ever since. Comprehensive documentation shows that its resistance to fire, water, gas and pressure meets the latest safety requirements.

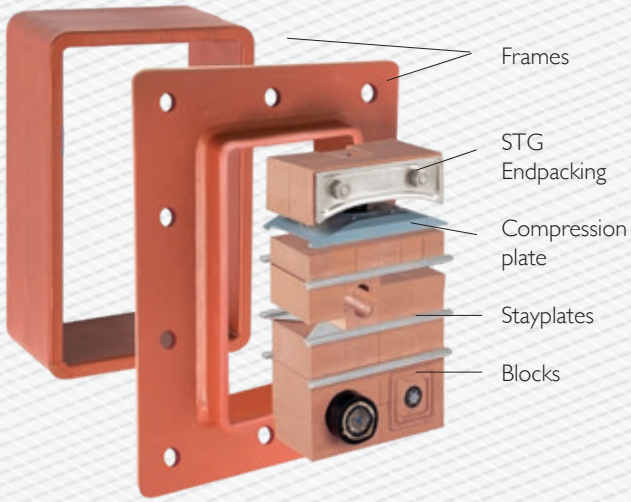
The industry standard

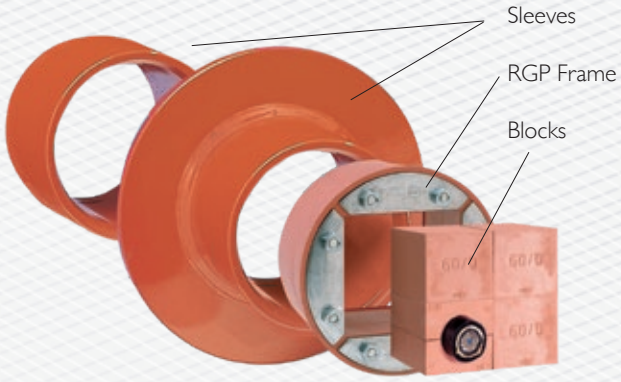
Our own experience has shown that for a standard frame used for maritime applications, an internal width of 120.5 mm (4.74") a depth of 60 mm (2.36") and wall thickness of 10 mm (0.39") are optimal window sizes for maintaining structural strength and for fitting insert blocks. The welded corners are rounded for added strength. Both single and multiple transits frames are available.
The dimensions of the various frames have become the industry standard simply because these types of frames were the first to be introduced and have proved successful over time.

Built in flexibility

The comprehensive range of frames, standard Blocks and other components of our transits provides remarkable application flexibility.
In addition, our product range covers insulation collars and special solutions for EMC transits, SR cable and pipe seals, deck/bulkhead glands.







Special products for specific uses

MCT Brattberg manufactures a number of special products. High pressure secure cable transits, transits for wave guides and blocks with built-in protection against electromagnetic pulse due to lightning or nuclear blast.

High pressure seals

is an example of our special products. Several types of high pressure seals are available. Often these have been designed in collaboration with a customer. They are used, for example, in the supporting legs of oil rigs or in submarines. An example is the RGPH seal, which is certified up to 66.7 bar.

The E-series

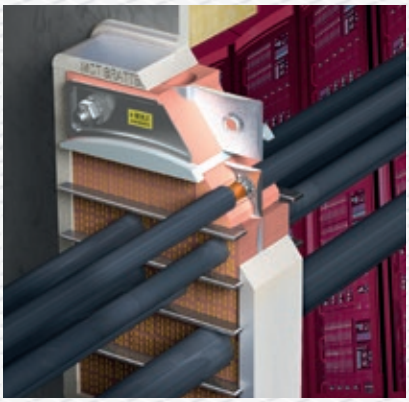
and components provide the same protection as the standard MCT Brattberg system but with added, built-in protection against electromagnetic pulses caused by lightning or nuclear blast.
They also give protection against interference, electronic sabotage and static electricity.
All dimensions are exactly the same as for the other MCT Brattberg components.
The E-series are aproved for Grounding and Bonding.

ATEX and IECEx certified transits

In explosion hazardous environments, it´s important to have Ex equipment. MCT Brattberg has a specific program for this areas with products that are tested and certified according to the ATEX directive and the international IECEx. All dimensions are exactly the same as for the other MCT Brattberg components.

For special products please consult MCT Brattberg.

RGPH is certified up to 66,7 bar



EMC products for grounding and bonding.

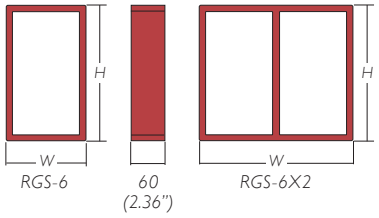
Products to protect against explosions.

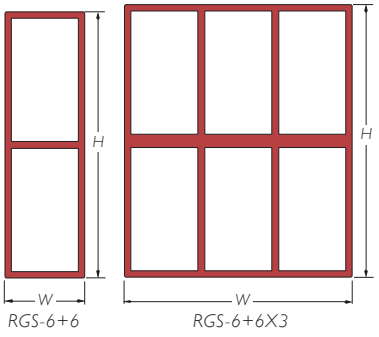
RGS

RGSO WITH REMOVABLE END

RGS is MCT Brattberg's standard transit frame for marine applications. It has a standard internal width of 120 mm (4.72") and is 60 mm (2.36") deep. There are four sizes of RGS, denoted by 2,4, 6 and 8 depending on their height. They may be used in both vertical and/or horizontal multiple frames.
The RGS is welded into an accurately pre-cut hole in the deck or bulkhead.
As with all our frames, RGS is produced in steel, stainless steel, or aluminium.
For installations where cables are already in place, specify RGSO, which has a removable end. RGS weight charts can be found on the next page.

	Size in mm								Size in inches							
		W (width) Multiple Frames								W (width) Multiple Frames						
Frame size	H	x 1	x 2	x 3	x 4	x 5	x 6	x n	H	x 1	x 2	x 3	x 4	x 5	x 6	x n
RGS-2	121	140,5	271	401,5	532	662,5	793	W = 10 + 130,5 x n	4.76	5.53	10.67	15.81	20.94	26.08	31.2	W = 0.40 + 5.14 x n
RGS-4	179,5	- " -	- " -	- " -	- „ -	- " -	- " -		7.07	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-6	238	- " -	- " -	- " -	- „ -	- " -	- " -		9.37	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-8	296,5	- " -	- " -	- " -	- „ -	- " -	- " -		11.67	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-2+2	242		- " -	- " -	- „ -	- " -	- " -		9.53		- " -	- " -	- " -	- " -	- " -	
RGS-2+4	300,5		- " -	- " -	- „ -	- " -	- " -		11.83		- " -	- " -	- " -	- " -	- " -	
RGS-2+6	359		- " -	- " -	- „ -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGS-2+8	417,5		- " -	- " -	- „ -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGS-4+4	359		- " -	- " -	- „ -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGS-4+6	417,5		- " -	- " -	- „ -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGS-4+8	476		- " -	- " -	- „ -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGS-6+6	476		- " -	- " -	- „ -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGS-6+8	534,5		- " -	- " -	- „ -	- " -	- " -		21.04		- " -	- " -	- " -	- " -	- " -	
RGS-8+8	593		- " -	- " -	- „ -	- " -	- " -		23.35		- " -	- " -	- " -	- " -	- " -	
RGS-2+2	232	140,5	n = number of frames wide. Tolerance single frame: Height ± 1 mm Width ± 0,8 mm Material thickness is 10 mm						9.13	5.53	n = number of frames wide. Tolerance single frame: Height ± 0.04", Width ± 0.03". Material thickness is 0.39".					
RGS-2+4	290,5	- " -							11.44	- " -						
RGS-2+6	349	- " -							13.74	- " -						
RGS-2+8	407,5	- " -							16.04	- " -						
RGS-4+4	349	- " -							13.74	- " -						
RGS-4+6	407,5	- " -							16.04	- " -						
RGS-4+8	466	- " -							18.35	- " -						
RGS-6+6	466	- " -							18.35	- " -						
RGS-6+8	524,5	- " -							20.65	- " -						
RGS-8+8	583	- " -							22.95	- " -						



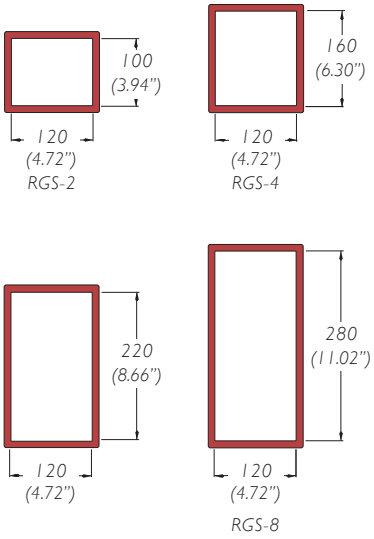


RGS

WEIGHT CHART

Material	Frame size	Weight in kilograms — W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds — W (width) MultipleFrames x1	x2	x3	x4	x5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGS-2	2,2	3,9	5,7	7,4	9,2	10,9	4.9	8.6	12.6	32.6	20.3	24.0
	RGS-4	2,7	4,6	6,5	8,4	10,3	12,2	6.0	10.1	1.43	37.3	22.7	26.9
	RGS-6	3,2	5,4	7,6	9,8	12,0	14,2	7.1	11.9	16.8	41.0	26.5	31.3
	RGS-8	3,8	6,3	8,9	11,4	14,0	16,5	8.4	13.9	19.6	44.8	30.9	36.4
	RGS-2+2	3,6	8,1	11,9	15,7	19,5	23,3	7.9	17.9	26.2	52.9	43.0	51.4
	RGS-2+4	4,2	8,8	12,8	16,7	20,7	24,6	9.3	19.4	28.2	56.7	45.6	54.2
	RGS-2+6	4,8	9,5	13,6	17,8	21,9	26,0	10.6	20.9	30.0	60.0	48.3	57.3
	RGS-2+8	5,5	10,3	14,7	19,1	23,5	27,9	12.1	22.7	32.4	64.4	51.8	61.5
	RGS-4+4	4,8	9,5	13,6	17,8	21,9	26,0	10.6	20.9	30.0	60.0	48.3	57.3
	RGS-4+6	5,5	10,3	14,7	19,1	23,5	27,9	12.1	22.7	32.4	64.4	51.8	61.5
	RGS-4+8	5,9	11,1	15,8	20,5	25,1	29,8	13.0	24.5	34.8	68.3	55.3	65.7
	RGS-6+6	5,9	11,1	15,8	20,5	25,1	29,8	13.0	24.5	34.8	68.3	55.3	65.7
	RGS-6+8	6,5	12,0	17,0	22,1	27,1	32,1	14.3	26.5	37.5	73.0	59.7	70.8
	RGS-8+8	7,2	12,9	18,3	23,7	29,1	34,5	15.9	28.4	40.3	78.0	64.2	76.1
STAINLESS STEEL 1.4404 AISI 316L	RGS-2	2,2	4,0	5,8	7,6	9,4	11,2	4.9	8.8	12.8	33.5	20.7	24.7
	RGS-4	2,8	4,7	6,7	8,6	10,6	12,6	6.2	10.4	14.8	38.1	23.4	27.8
	RGS-6	3,3	5,5	7,8	10,0	12,3	14,5	7.3	12.1	17.2	41.9	27.1	31.7
	RGS-8	3,9	6,5	9,1	11,7	14,3	16,9	8.6	14.3	20.1	45.9	31.5	37.3
	RGS-2+2	3,7	8,3	12,2	16,1	20,0	23,9	8.2	18.3	26.9	54.5	44.1	52.7
	RGS-2+4	4,3	9,0	13,1	17,1	21,2	25,2	9.5	19.8	28.9	58.2	46.7	55.6
	RGS-2+6	4,9	9,7	14,0	18,2	22,5	26,7	10.8	21.4	30.9	61.5	49.6	58.9
	RGS-2+8	5,6	10,6	15,1	19,6	24,1	28,6	12.3	23.4	33.3	65.9	53.1	63.1
	RGS-4+4	4,9	9,7	14,0	18,2	22,5	26,7	10.8	21.4	30.9	61.5	49.6	58.9
	RGS-4+6	5,6	10,6	15,1	19,6	24,1	28,6	12.3	23.4	33.3	65.9	53.1	63.1
	RGS-4+8	6,0	11,4	16,2	21,0	25,8	30,6	13.2	25.1	35.7	70.1	56.9	67.5
	RGS-6+6	6,0	11,4	16,2	21,0	25,8	30,6	13.2	25.1	35.7	70.1	56.9	67.5
	RGS-6+8	6,7	12,3	17,5	22,6	27,8	32,9	14.8	27.1	38.6	74.7	61.3	72.5
	RGS-8+8	7,4	13,2	18,8	24,3	29,9	35,4	16.3	29.1	41.4	80.0	65.9	78.0
ALUMINIUM EN AW-6082 EN AW-5086	RGS-2	0,8	1,4	2,0	2,6	3,2	3,8	1.8	3.1	4.4	11.5	7.1	8.4
	RGS-4	1,0	1,6	2,3	3,0	3,6	4,3	2.2	3.5	5.1	13.0	7.9	9.5
	RGS-6	1,1	1,9	2,7	3,4	4,2	5,0	2.4	4.2	6.0	14.3	9.3	11.0
	RGS-8	1,3	2,2	3,1	4,0	4,9	5,8	2.9	4.9	6.8	15.7	10.8	12.8
	RGS-2+2	1,3	2,8	4,2	5,5	6,9	8,2	2.9	6.2	9.3	18.5	15.2	18.1
	RGS-2+4	1,5	3,1	4,5	5,9	7,2	8,6	3.3	6.8	9.9	20.1	15.9	19.0
	RGS-2+6	1,7	3,3	4,8	6,2	7,7	9,1	3.7	7.3	10.6	21.2	17.0	20.1
	RGS-2+8	1,9	3,6	5,2	6,7	8,3	9,8	4.2	7.9	11.5	22.5	18.3	21.6
	RGS-4+4	1,7	3,3	4,8	6,2	7,7	9,1	3.7	7.3	10.6	21.2	17.0	20.1
	RGS-4+6	1,9	3,6	5,2	6,7	8,3	9,8	4.2	7.9	11.5	22.5	18.3	21.6
	RGS-4+8	2,1	3,9	5,5	7,2	8,8	10,4	4.6	8.6	12.1	24.0	19.4	22.9
	RGS-6+6	2,1	3,9	5,5	7,2	8,8	10,4	4.6	8.6	12.1	24.0	19.4	22.9
	RGS-6+8	2,3	4,2	6,0	7,7	9,5	11,2	5.1	9.3	13.2	25.6	20.9	24.7
	RGS-8+8	2,5	4,5	6,4	8,3	10,2	12,1	5.5	9.9	14.1	27.3	22.5	26.7

Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width. Height differences are shown below. The material is 10 mm (0.39") thick

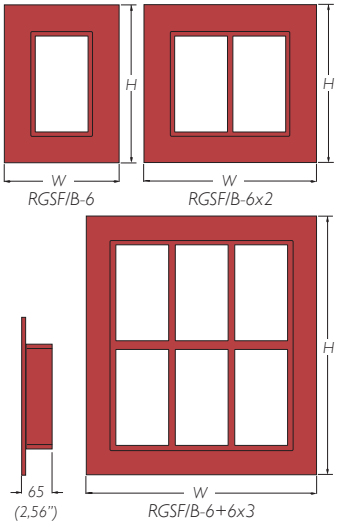


RGSF and RGSFB

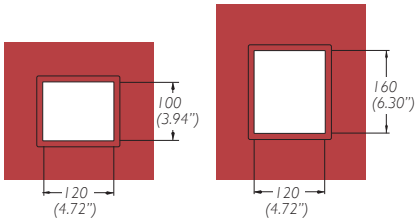
RGSF is a standard RGS transit frame with a flange that allows the frame to be welded into a hole which is slightly larger than the frame.
RGSF comes in the four standard sizes, 2, 4, 6 and 8, and has the standard measurements of the RGS, but with the added width of the flange: 60 mm (2.36") wide and 10 mm (0.39") thick.
RGSF can also be installed in multiple frames, se page 27.
For installations where cables are already in place, specify RGSFO which has a removable end.

The **RGSFB** transit frame is similar to RGSF except that it is bolted to the deck or bulkhead. The bolted frames can be used in areas where hot working is prohibited, or when the stress level induced by welding is unacceptable.
RGSFB frames are supplied in kit form, complete with drilled holes, bolts, nuts, washers and a gasket or sealing compound. The standard sizes and weights are the same as for RGSF.
For installations where cables are already in place, specify RGSFBO which has a bolted removable end.

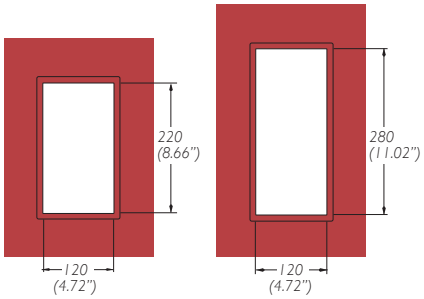
	Size in mm								Size in inches							
	W (width) Multiple Frames								W (width) Multiple Frames							
Frame size	**H**	**x 1**	**x 2**	**x 3**	**x 4**	**x 5**	**x 6**	**x n**	**H**	**x 1**	**x 2**	**x 3**	**x 4**	**x 5**	**x 6**	**x n**
RGSF/B-2	241	60,5	391	521.5	652	782.5	913	W = 130+ 130,5 x n	9.49	10.26	15.39	20.53	25.67	30.81	35.94	W = 5.12 + 5.14 x n
RGSF/B-4	299,5	- " -	- " -	- " -	- " -	- " -	- " -		11.79	- " -	- " -	- " -	- " -	- " -	- " -	
RGSF/B-6	358	- " -	- " -	- " -	- " -	- " -	- " -		14.09	- " -	- " -	- " -	- " -	- " -	- " -	
RGSF/B-8	416,5	- " -	- " -	- " -	- " -	- " -	- " -		16.40	- " -	- " -	- " -	- " -	- " -	- " -	
RGSF/B-2+2	362		- " -	- " -	- " -	- " -	- " -		14.25		- " -	- " -	- " -	- " -	- " -	
RGSF/B-2+4	420,5		- " -	- " -	- " -	- " -	- " -		16.56		- " -	- " -	- " -	- " -	- " -	
RGSF/B-2+6	479		- " -	- " -	- " -	- " -	- " -		18.86		- " -	- " -	- " -	- " -	- " -	
RGSF/B-2+8	537,5		- " -	- " -	- " -	- " -	- " -		21.16		- " -	- " -	- " -	- " -	- " -	
RGSF/B-4+4	479		- " -	- " -	- " -	- " -	- " -		18.86		- " -	- " -	- " -	- " -	- " -	
RGSF/B-4+6	537,5		- " -	- " -	- " -	- " -	- " -		21.16		- " -	- " -	- " -	- " -	- " -	
RGSF/B-4+8	596		- " -	- " -	- " -	- " -	- " -		23.46		- " -	- " -	- " -	- " -	- " -	
RGSF/B-6+6	596		- " -	- " -	- " -	- " -	- " -		23.46		- " -	- " -	- " -	- " -	- " -	
RGSF/B-6+8	654,5		- " -	- " -	- " -	- " -	- " -		25.77		- " -	- " -	- " -	- " -	- " -	
RGSF/B-8+8	713		- " -	- " -	- " -	- " -	- " -		28.07		- " -	- " -	- " -	- " -	- " -	
RGSF/B-2+2	352	260,5	n = number of frames wide. Tolerance single frame: Height ± 1 mm Width ± 0,8 mm Material thickness is 10 mm **RGSF-frames are normally supplied with straight corners but are also available with round corners with a radius of 63 mm**						13.86	10,26	n = number of frames wide. Tolerance single frame: Height ± 0.04", Width ± 0.03". Material thickness is 0.39". **RGSF-frames are normally supplied with straight corners but are also available with round corners with a radius of 2.48".**						
RGSF/B-2+4	410,5	- " -							16.16	- " -						
RGSF/B-2+6	469	- " -							18.46	- " -						
RGSF/B-2+8	527,5	- " -							20.77	- " -						
RGSF/B-4+4	469	- " -							18.46	- " -						
RGSF/B-4+6	527,5	- " -							20.77	- " -						
RGSF/B-4+8	586	- " -							23.07	- " -						
RGSF/B-6+6	586	- " -							23.07	- " -						
RGSF/B-6+8	644,5	- " -							25.37	- " -						
RGSF/B-8+8	703	- " -							27.68	- " -						



Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width.
Height differences are shown below. The material is 10 mm (0.39") thick.



RGSF/B-2 RGSF/B-4



RGSF/B-6 RGSF/B-8

Material	Frame size	Weight in kilograms W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds W (width) Multiple Frames x1	x2	x3	x4	x5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGSF/B-2	5,9	8,9	11,8	14,8	17,8	20,7	13.0	19.6	26.0	32.6	39.2	45.6
	RGSF/B-4	7,0	10,3	13,6	16,9	20,2	23,4	15.4	22.7	30.0	37.3	44.5	51.6
	RGSF/B-6	8,0	11,5	15,1	18,6	22,1	25,6	17.6	25.4	33.3	41.0	48.7	56.4
	RGSF/B-8	9,0	12,8	16,5	20,3	24,0	27,8	19.8	28.2	36.4	44.8	52.9	61.3
	RGSF/B-2+2	8,4	13,9	19,0	24,0	29,1	34,1	18.5	30.6	41.9	52.9	64.2	75.2
	RGSF/B-2+4	9,5	15,3	20,5	25,7	30,9	36,1	20.9	33.7	45.2	56.7	68.1	79.6
	RGSF/B-2+6	10,6	16,5	21,9	27,2	32,6	37,9	23.4	36.4	48.3	60.0	71.9	83.6
	RGSF/B-2+8	11,7	17,9	23,5	29,2	34,8	40,4	25.8	39.5	51.8	64.4	76.7	89.1
	RGSF/B-4+4	10,6	16,5	21,9	27,2	32,6	37,9	23.4	36.4	48.3	60.0	71.9	83.6
	RGSF/B-4+6	11,7	17,9	23,5	29,2	34,8	40,4	25.8	39.5	51.8	64.4	76.7	89.1
	RGSF/B-4+8	12,8	19,2	25,1	31,0	36,9	42,8	28.2	42.3	55.3	68.3	81.4	94.4
	RGSF/B-6+6	12,8	19,2	25,1	31,0	36,9	42,8	28.2	42.3	55.3	68.3	81.4	94.4
	RGSF/B-6+8	13,9	20,6	26,9	33,1	39,4	45,6	30.6	45.4	59.3	73.0	86.9	100.5
	RGSF/B-8+8	15,0	22,1	28,7	35,4	42,0	48,6	33.1	48.7	63.3	78.0	92.6	107.1
STAINLESS STEEL 1.4404 AISI 316L	RGSF/B-2	6,1	9,1	12,1	15,2	18,2	21,2	13.4	20.1	26.7	33.5	40.1	46.7
	RGSF/B-4	7,2	10,6	13,9	17,3	20,7	24,0	15.9	23.4	30.6	38.1	45.6	52.9
	RGSF/B-6	8,2	11,8	15,4	19,0	22,7	26,3	18.1	26.0	34.0	41.9	50.0	58.0
	RGSF/B-8	9,2	13,1	16,9	20,8	24,6	28,5	20.3	28.9	37.3	45.9	54.2	62.8
	RGSF/B-2+2	8,6	14,3	19,5	24,7	29,8	35,0	19.0	31.5	43.0	54.5	65.7	77.2
	RGSF/B-2+4	9,7	15,7	21,0	26,4	31,7	37,0	21.4	34.6	46.3	58.2	69.9	81.6
	RGSF/B-2+6	10,9	16,9	22,4	27,9	33,4	38,9	24.0	37.3	49.4	61.5	73.6	85.8
	RGSF/B-2+8	12,0	18,4	24,2	29,9	35,7	41,4	26.5	40.6	53.4	65.9	78.7	91.3
	RGSF/B-4+4	10,9	16,9	22,4	27,9	33,4	38,9	24.0	37.3	49.4	61.5	73.6	85.8
	RGSF/B-4+6	12,0	18,4	24,2	29,9	35,7	41,4	26.5	40.6	53.4	65.9	78.7	91.3
	RGSF/B-4+8	13,1	19,7	25,8	31,8	37,9	43,9	28.9	43.4	56.9	70.1	81.4	96.8
	RGSF/B-6+6	13,1	19,7	25,8	31,8	37,9	43,9	28.9	43.4	56.9	70.1	83.6	96.8
	RGSF/B-6+8	14,3	21,1	27,5	33,9	40,3	46,7	31.5	46.5	60.6	74.7	88.8	103.0
	RGSF/B-8+8	15,4	22,7	29,5	36,3	43,0	49,8	34.0	50.0	65.0	80.0	94.8	109.8
ALUMINIUM EN AW-6082 EN AW-5086	RGSF/B-2	2,1	3,1	4,1	5,2	6,2	7,3	4.6	6.8	9.0	11.5	13.7	16.1
	RGSF/B-4	2,5	3,6	4,8	5,9	7,1	8,2	5.5	7.9	10.6	13.0	15.7	18.1
	RGSF/B-6	2,8	4,0	5,3	6,5	7,7	9,0	6.2	8.8	11.7	14.3	17.0	19.8
	RGSF/B-8	3,2	4,5	5,8	7,1	8,4	9,7	7.1	9.9	12.8	15.7	18.5	21.4
	RGSF/B-2+2	2,9	4,9	6,7	8,4	10,2	11,9	6.4	10.8	14.8	18.5	22.5	26.2
	RGSF/B-2+4	3,3	5,4	7,2	9,1	10,9	12,7	7.3	11.9	15.9	20.1	24.0	28.0
	RGSF/B-2+6	3,7	5,8	7,7	9,6	11,4	13,3	8.2	12.8	17.0	21.2	25.1	29.3
	RGSF/B-2+8	4,1	6,3	8,3	10,2	12,2	14,1	9.0	13.9	18.3	22.5	26.9	31.1
	RGSF/B-4+4	3,7	5,8	7,7	9,6	11,4	13,3	8.2	12.8	17.0	21.2	25.1	29.3
	RGSF/B-4+6	4,1	6,3	8,3	10,2	12,2	14,1	9.0	13.9	18.3	22.5	26.9	31.1
	RGSF/B-4+8	4,5	6,7	8,8	10,9	12,9	15,0	9.9	14.8	19.4	24.0	28.4	33.1
	RGSF/B-6+6	4,5	6,7	8,8	10,9	12,9	15,0	9.9	14.8	19.4	24.0	28.4	33.1
	RGSF/B-6+8	4,9	7,2	9,4	11,6	13,7	15,9	10.8	15.9	20.7	25.6	30.2	35.1
	RGSF/B-8+8	5,3	7,7	10,0	12,4	14,7	17,0	11.7	17.0	22.0	27.3	32.4	37.5

RGSC

RGSC is used in decks and bulkheads which are subjected to higher degrees of stress and heavier loading. The additional, rounded ends help prevent stress cracking. Similar to the RGS frame, it is available in sizes 2, 4, 6 and 8.
RGSC can also be supplied as multiple frames. Available in mild steel, stainless steel and aluminium. Special cornerblocks and STG-endpackings with rounded corners are available.

Endpacking, centre

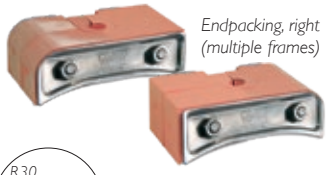
	Size in mm								Size in inches							
		W (width) Multiple Frames								W (width) Multiple Frames						
Frame size	**H**	**x 1**	**x 2**	**x 3**	**x 4**	**x 5**	**x 6**	**x n**	**H**	**x 1**	**x 2**	**x 3**	**x 4**	**x 5**	**x 6**	**x n**
RGSC-2	121	140,5	271	401,5	532	662,5	793	W = 130+ 130,5 x n	4.76	5.53	10.67	15.81	20.94	26.08	31.22	W = 0.40 + 5.14 x n
RGSC-4	179,5	- " -	- " -	- " -	- " -	- " -	- " -		7.07	- " -	- " -	- " -	- " -	- " -	- " -	
RGSC-6	238	- " -	- " -	- " -	- " -	- " -	- " -		9.37	- " -	- " -	- " -	- " -	- " -	- " -	
RGSC-8	296,5	- " -	- " -	- " -	- " -	- " -	- " -		11.67	- " -	- " -	- " -	- " -	- " -	- " -	
RGSC-2+2	242		- " -	- " -	- " -	- " -	- " -		9.53		- " -	- " -	- " -	- " -	- " -	
RGSC-2+4	300,5		- " -	- " -	- " -	- " -	- " -		11.83		- " -	- " -	- " -	- " -	- " -	
RGSC-2+6	359		- " -	- " -	- " -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGSC-2+8	417,5		- " -	- " -	- " -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGSC-4+4	359		- " -	- " -	- " -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGSC-4+6	417,5		- " -	- " -	- " -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGSC-4+8	476		- " -	- " -	- " -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGSC-6+6	476		- " -	- " -	- " -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGSC-6+8	534,5		- " -	- " -	- " -	- " -	- " -		21.04		- " -	- " -	- " -	- " -	- " -	
RGSC-8+8	593		- " -	- " -	- " -	- " -	- " -		23.35		- " -	- " -	- " -	- " -	- " -	
RGSC-2+2	232	140,5							9.13	5.53						
RGSC-2+4	290,5	- " -							11.44	- " -						
RGSC-2+6	349	- " -							13.74	- " -						
RGSC-2+8	407,5	- " -							16.04	- " -						
RGSC-4+4	349	- " -							13.74	- " -						
RGSC-4+6	407,5	- " -							16.04	- " -						
RGSC-4+8	466	- " -							18.35	- " -						
RGSC-6+6	466	- " -							18.35	- " -						
RGSC-6+8	524,5	- " -							20.65	- " -						
RGSC-8+8	583	- " -							22.95	- " -						

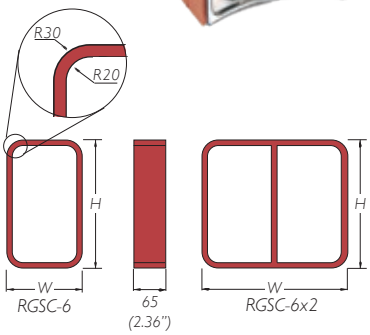
n = number of frames wide.
Tolerance single frame:
Height ± 1 mm
Width ± 0.8 mm
Material thickness is 10 mm

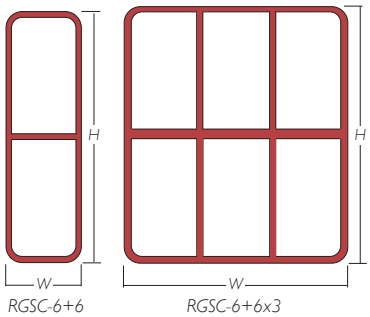
n = number of frames wide.
Tolerance single frame:
Height ± 0.04",
Width ± 0.03"
Material thickness is 0.39".


Cornerblocks

Endpacking, left (multiple frames)


Endpacking, right (multiple frames)



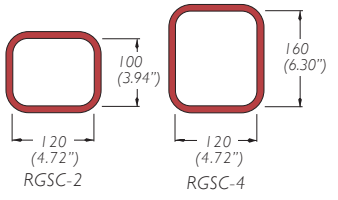


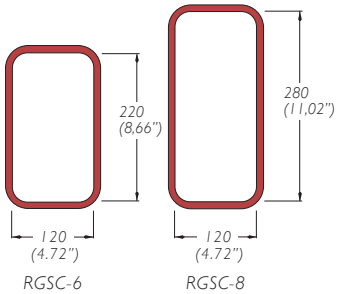
RGSC

WEIGHT CHART

Material	Frame size	Weight in kilograms W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds W (width) Multiple Frames x1	x2	x3	x4	x5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGSC-2	2,2	3,9	5,7	7,4	9,2	10,9	4.9	8.6	12.6	16.3	20.3	24.0
	RGSC-4	2,7	4,6	6,5	8,4	10,3	12,2	6.0	10.1	14.3	18.5	22.7	26.9
	RGSC-6	3,2	5,4	7,6	9,8	12,0	14,2	7.1	11.9	16.8	21.6	26.5	31.3
	RGSC-8	3,8	6,3	8,9	11,4	14,0	16,5	8.4	13.9	19.6	25.1	30.9	36.4
	RGSC-2+2	3,6	8,1	11,9	15,7	19,5	23,3	7.9	17.9	26.2	34.6	43.0	51.4
	RGSC-2+4	4,2	8,8	12,8	16,7	20,7	24,6	9.3	19.4	28.2	36.8	45.6	54.2
	RGSC-2+6	4,8	9,5	13,6	17,8	21,9	26,0	10.6	20.9	30.0	39.2	48.3	57.3
	RGSC-2+8	5,5	10,3	14,7	19,1	23,5	27,9	12.1	22.7	32.4	42.1	51.8	61.5
	RGSC-4+4	4,8	9,5	13,6	17,8	21,9	26,0	10.6	20.9	30.0	39.2	48.3	57.3
	RGSC-4+6	5,5	10,3	14,7	19,1	23,5	27,9	12.1	22.7	32.4	42.1	51.8	61.5
	RGSC-4+8	5,9	11,1	15,8	20,5	25,1	29,8	13.0	24.5	34.8	45.2	55.3	65.7
	RGSC-6+6	5,9	11,1	15,8	20,5	25,1	29,8	13.0	24.5	34.8	45.2	55.3	65.7
	RGSC-6+8	6,5	12,0	17,0	22,1	27,1	32,1	14.3	26.5	37.5	48.7	59.7	70.8
	RGSC-8+8	7,2	12,9	18,3	23,7	29,1	34,5	15.9	28.4	40.3	52.2	64.2	76.1
STAINLESS STEEL 1.4404 AISI 316L	RGSC-2	2,2	4,0	5,8	7,6	9,4	11,2	4.9	8.8	12.8	16.8	20.7	24.7
	RGSC-4	2,8	4,7	6,7	8,6	10,6	12,6	6.2	10.4	14.8	19.0	23.4	27.8
	RGSC-6	3,3	5,5	7,8	10,0	12,3	14,5	7.3	12.1	17.2	22.0	27.1	32.0
	RGSC-8	3,9	6,5	9,1	11,7	14,3	16,9	8.6	14.3	20.1	25.8	31.5	37.3
	RGSC-2+2	3,7	8,3	12,2	16,1	20,0	23,9	8.2	18.3	26.9	35.5	44.1	52.7
	RGSC-2+4	4,3	9,0	13,1	17,1	21,2	25,2	9.5	19.8	28.9	37.7	46.7	55.6
	RGSC-2+6	4,9	9,7	14,0	18,2	22,5	26,7	10.8	21.4	30.9	40.1	49.6	58.9
	RGSC-2+8	5,6	10,6	15,1	19,6	24,1	28,6	12.3	23.4	33.3	43.2	53.1	63.1
	RGSC-4+4	4,9	9,7	14,0	18,2	22,5	26,7	10.8	21.4	30.9	40.1	49.6	58.9
	RGSC-4+6	5,6	10,6	15,1	19,6	24,1	28,6	12.3	23.4	33.3	43.2	53.1	63.1
	RGSC-4+8	6,0	11,4	16,2	21,0	25,8	30,6	13.2	25.1	35.7	46.3	56.9	67.5
	RGSC-6+6	6,0	11,4	16,2	21,0	25,8	30,6	13.2	25.1	35.7	46.3	56.9	67.5
	RGSC-6+8	6,7	12,3	17,5	22,6	27,8	32,9	14.8	27.1	38.6	49.8	61.3	72.5
	RGSC-8+8	7,4	13,2	18,8	24,3	29,9	35,4	16.3	29.1	41.4	53.6	65.9	78.0
ALUMINIUM EN AW-6082 EN AW-5086	RGSC-2	0,8	1,4	2,0	2,6	3,2	3,8	1.8	3.1	4.4	5.7	7.1	8.4
	RGSC-4	1,0	1,6	2,3	3,0	3,6	4,3	2.2	3.5	5.1	6.6	7.9	9.5
	RGSC-6	1,1	1,9	2,7	3,4	4,2	5,0	2.4	4.2	6.0	7.5	9.3	11.0
	RGSC-8	1,3	2,2	3,1	4,0	4,9	5,8	2.9	4.9	6.8	8.8	10.8	12.8
	RGSC-2+2	1,3	2,8	4,2	5,5	6,9	8,2	2.9	6.2	9.3	12.1	15.2	18.1
	RGSC-2+4	1,5	3,1	4,5	5,9	7,2	8,6	3.3	6.8	9.9	13.0	15.9	19.0
	RGSC-2+6	1,7	3,3	4,8	6,2	7,7	9,1	3.7	7.3	10.6	13.7	17.0	20.1
	RGSC-2+8	1,9	3,6	5,2	6,7	8,3	9,8	4.2	7.9	11.5	14.8	18.3	21.6
	RGSC-4+4	1,7	3,3	4,8	6,2	7,7	9,1	3.7	7.3	10.6	13.7	17.0	20.1
	RGSC-4+6	1,9	3,6	5,2	6,7	8,3	9,8	4.2	7.9	11.5	14.8	18.3	21.6
	RGSC-4+8	2,1	3,9	5,5	7,2	8,8	10,4	4.6	8.6	12.1	15.9	19.4	22.9
	RGSC-6+6	2,1	3,9	5,5	7,2	8,8	10,4	4.6	8.6	12.1	15.9	19.4	22.9
	RGSC-6+8	2,3	4,2	6,0	7,7	9,5	11,2	5.1	9.3	13.2	17.0	20.9	24.7
	RGSC-8+8	2,5	4,5	6,4	8,3	10,2	12,1	5.5	9.9	14.1	18.3	22.5	26.7

Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width. Height differences are shown below.
The material is 10 mm (0.39") thick.





RGSK and RGSbtb

RGSK is an extended, standard RGS transit frame, with machined grooves for stayplates and compression plates. The material is 10 mm (0.39") thick on the ends and 12 mm (0.47") thick on the sides. RGSK is available in the four standard sizes: 2, 4, 6 and 8.
RGSK frames are recommended if pooling of water on the transit face makes it necessary to install packing blocks at a certain distance from the deck or bulkhead.
The frame is 120 mm (4.72") deep (as opposed to 60 mm (2.36") on a RGS) and of standard internal width 120 mm (4.72")
It may be used in multiple frames, see page 27.

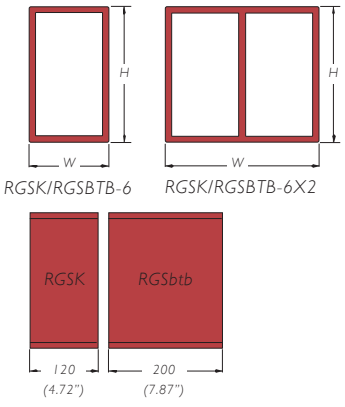
RGSbtb is a double transit which is packed from both sides, enabling on site pressure testing of the penetration. Installations with this transit can be pressure tested from the space between the pack block units. This also conform the jet-fire rating.
An RGSbtb frame can be used to protect cables from water penetration, combined with EMC protection. One side of the packing takes care of water penetration and the other side gives
EMC protection.

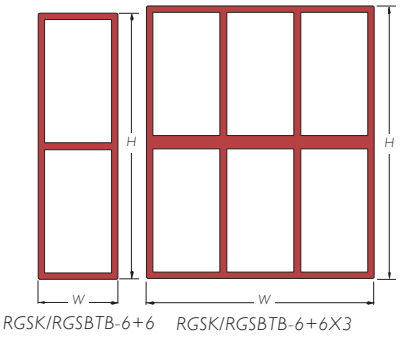
The frame is 10 mm (0.39")thick on the ends and 12 mm (0.47") thick on the sides. It is 200 mm (7.87") deep. Other dimensions are the same as for the standard RGS.
RGSbtb is available in the four standard sizes: 2, 4, 6, and 8. They may be used in multiple frames.

	Size in mm							Size in inches						
	W (width) Multiple Frames							W (widht) Muliple Frames						
Frame size	H	x 1	x 2	x 3	x 4	x 5	x n	H	x 1	x 2	x 3	x 4	x 5	x n
RGSK/RGSbtb-2	121	144,5	275	405,5	536	666,5	W =14 + 130,5 x n	4.76	5.69	10.83	15.96	21.10	26.24	W = 0,55" + 5.14 x n
RGSK/RGSbtb-4	179,5	- " -	- " -	- " -	- " -	- " -		7.07	- " -	- " -	- " -	- " -	- " -	
RGSK/RGSbtb-6	238	- " -	- " -	- " -	- " -	- " -		9.37	- " -	- " -	- " -	- " -	- " -	
RGSK/RGSbtb-8	296,5	- " -	- " -	- " -	- " -	- " -		11.67	- " -	- " -	- " -	- " -	- " -	
RGSK/RGSbtb-2+2	232		- " -	- " -	- " -	- " -		9.13		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-2+4	290,5		- " -	- " -	- " -	- " -		11.44		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-2+6	349		- " -	- " -	- " -	- " -		13.74		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-2+8	407,5		- " -	- " -	- " -	- " -		16.04		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-4+4	349		- " -	- " -	- " -	- " -		13.74		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-4+6	407,5		- " -	- " -	- " -	- " -		16.04		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-4+8	466		- " -	- " -	- " -	- " -		18.35		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-6+6	466		- " -	- " -	- " -	- " -		18.35		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-6+8	524,5		- " -	- " -	- " -	- " -		20.65		- " -	- " -	- " -	- " -	
RGSK/RGSbtb-8+8	583		- " -	- " -	- " -	- " -		22.95		- " -	- " -	- " -	- " -	

Tolerance single frame:
Height ± 1 mm, Width ± 0.8 mm.
Material thickness is 10 mm.

Tolerance single frame:
Height ± 0.04", Width ± 0.03"
Material thickness is 0.39".



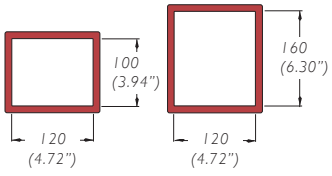


RGSK

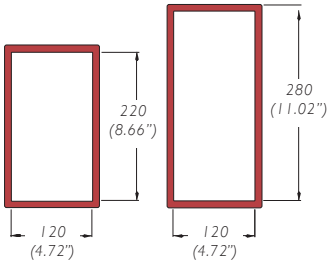
WEIGHT CHART

Material	Frame size	Weight in kilograms W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds W (widht) Muliple Frames x1	x2	x3	x 4	x 5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGSK-2	4,7	7,7	10,7	13,7	16,7	19,7	10.4	17.0	23.6	30.2	36.8	43.4
	RGSK-4	6,0	9,3	12,6	15,9	19,2	22,5	13.2	20.5	27.8	35.1	42.3	49.6
	RGSK-6	7,3	10,9	14,5	18,2	21,8	25,4	16.1	24.0	32.0	40.1	48.1	56.0
	RGSK-8	8,7	12,5	16,4	20,4	24,3	28,2	19.2	27.6	36.2	45.0	53.6	62.2
	RGSK-2+2	7,8	11,9	16,1	20,4	24,6	28,8	17.2	26.2	35.5	45.0	54.2	63.5
	RGSK-2+4	9,2	13,6	18,1	22,6	27,1	31,6	20.3	30.0	39.9	49.8	59.7	69.7
	RGSK-2+6	10,6	15,2	20,0	24,8	29,5	34,3	23.4	33.5	44.1	54.7	65.0	75.6
	RGSK-2+8	11,9	16,9	22,0	27,0	32,1	37,1	26.2	37.3	48.5	59.5	70.8	81.8
	RGSK-4+4	10,6	15,2	20,0	24,8	29,5	34,3	23.4	33.5	44.1	54.7	65.0	75.6
	RGSK-4+6	11,9	16,9	22,0	27,0	32,1	37,1	26.2	37.3	48.5	59.5	70.8	81.8
	RGSK-4+8	13,2	18,4	23,7	29,1	34,4	39,7	29.1	40.6	52.2	64.2	75.8	87.5
	RGSK-6+6	13,2	18,4	23,7	29,1	34,4	39,7	29.1	40.6	52.2	64.2	75.8	87.5
	RGSK-6+8	14,5	20,0	25,5	31,0	36,5	42,5	32.0	44.1	56.2	68.3	80.5	93.7
	RGSK-8+8	15,9	21,6	27,4	33,2	38,9	45,2	35.1	47.6	60.4	73.2	85.8	99.6
STAINLESS STEEL 1.4404 AISI 316L	RGSK-2	4,8	7,9	11,0	14,1	17,1	20,2	10.6	17.4	24.3	31.1	37.7	44.5
	RGSK-4	6,2	9,5	12,9	16,3	19,7	23,1	13.7	20.9	28.4	35.9	43.4	50.9
	RGSK-6	7,5	11,2	14,9	18,6	22,3	26,0	16.5	24.7	32.8	41.0	49.2	57.3
	RGSK-8	8,9	12,8	16,8	20,9	24,9	28,9	19.6	28.2	37.0	46.1	54.9	63.7
	RGSK-2+2	8,0	12,2	16,5	20,9	25,2	29,5	17.6	26.9	36.4	46.1	55.6	65.0
	RGSK-2+4	9,4	13,9	18,5	23,2	27,8	32,4	20.7	30.6	40.8	51.1	61.3	71.4
	RGSK-2+6	10,9	15,6	20,5	25,4	30,3	35,2	24.0	34.4	45.2	56.0	66.8	77.6
	RGSK-2+8	12,2	17,3	22,5	27,7	32,8	38,0	26.9	38.1	49.6	61.1	72.3	83.8
	RGSK-4+4	10,9	15,6	20,5	25,4	30,3	35,2	24.0	34.4	45.2	56.0	66.8	77.6
	RGSK-4+6	12,2	17,3	22,5	27,7	32,8	38,0	26.9	38.1	49.6	61.1	72.3	83.8
	RGSK-4+8	13,5	18,9	24,4	29,8	35,3	40,7	29.8	41.7	53.8	65.7	77.8	89.7
	RGSK-6+6	13,5	18,9	24,4	29,8	35,3	40,7	29.8	41.7	53.8	65.7	77.8	89.7
	RGSK-6+8	14,9	20,5	26,3	32,1	37,8	43,6	32.8	45.2	58.0	70.8	83.3	96.1
	RGSK-8+8	16,3	22,1	28,2	34,2	40,3	46,3	35.9	48.7	62.2	75.4	88.8	102.1
ALUMINIUM EN AW-6082 EN AW-5086	RGSK-2	1,7	2,7	3,7	4,8	5,8	6,8	3.7	6.0	8.2	10.6	12.8	15.0
	RGSK-4	2,1	3,3	4,5	5,6	6,8	7,9	4.6	7.3	9.9	12.3	15.0	17.4
	RGSK-6	2,6	3,8	5,1	6,4	7,6	8,9	5.7	8.4	11.2	14.1	16.8	19.6
	RGSK-8	3,1	4,4	5,8	7,2	8,5	9,9	6.8	9.7	12.8	15.9	18.7	21.8
	RGSK-2+2	2,7	4,2	5,7	7,2	8,6	10,1	6.0	9.3	12.6	15.9	19.0	22.3
	RGSK-2+4	3,2	4,8	6,4	8,0	9,5	11,1	7.1	10.6	14.1	17.6	20.9	24.5
	RGSK-2+6	3,7	5,3	7,0	8,7	10,3	12,0	8.2	11.7	15.4	19.2	22.7	26.5
	RGSK-2+8	4,2	5,9	7,7	9,5	11,2	13,0	9.3	13.0	17.0	20.9	24.7	28.7
	RGSK-4+4	3,7	5,3	7,0	8,7	10,3	12,0	8.2	11.7	15.4	19.2	22.7	26.5
	RGSK-4+6	4,2	5,9	7,7	9,5	11,2	13,0	9.3	13.0	17.0	20.9	24.7	28.7
	RGSK-4+8	4,6	6,4	8,3	10,2	12,0	13,9	10.1	14.1	18.3	22.5	26.5	30.6
	RGSK-6+6	4,6	6,4	8,3	10,2	12,0	13,9	10.1	14.1	18.3	22.5	26.5	30.6
	RGSK-6+8	5,1	7,0	9,0	11,0	12,9	14,9	11.2	15.4	19.8	24.3	28.4	32.8
	RGSK-8+8	5,6	7,6	9,7	11,7	13,8	15,8	12.3	16,8	21.4	25.8	30.4	34.8

Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width. Height differences are shown below.



RGSK/RGSBTB-2 RGSK/RGSBTB-4



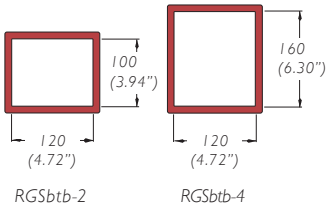
RGSK/RGSBTB-6 RGSK/RGSbtb-8

RGSbtb

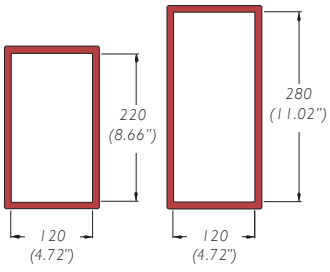
WEIGHT CHART

Material	Frame size	Weight in kilograms W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds W (width) Multiple Frames x1	x2	x3	x4	x5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGSbtb-2	7,9	13,0	18,4	7,4	29,1	34,4	17.4	28.7	16.3	52.2	64.2	75.8
	RGSbtb-4	10,1	15,8	21,7	8,4	33,5	39,4	22.3	34.8	18.5	60.8	73.9	86.9
	RGSbtb-6	12,4	18,6	25,1	9,8	38,0	44,4	27.3	41.0	21.6	69.4	83.8	97.9
	RGSbtb-8	14,5	21,2	28,2	11,4	42,2	49,2	32.0	46.7	25.1	77.6	93.0	108.5
	RGSbtb-2+2	13,5	20,9	28,5	15,7	43,7	51,3	29.8	46.1	34.6	79.6	96.3	113.1
	RGSbtb-2+4	15,3	23,3	31,5	16,7	47,8	56,0	33.7	51.4	36.8	87.5	105.4	123.5
	RGSbtb-2+6	17,8	26,3	35,0	17,8	52,4	61,1	39.2	58.0	39.2	96.3	115.5	134.7
	RGSbtb-2+8	20,0	29,1	38,4	19,1	56,9	66,2	44.1	64.2	42.1	105.2	125.4	145.9
	RGSbtb-4+4	17,8	26,3	35,0	17,8	52,4	61,1	39.2	58.0	39.2	96.3	115.5	134.7
	RGSbtb-4+6	20,0	29,1	38,4	19,1	56,9	66,2	44.1	64.2	42.1	105.2	125.4	145.9
	RGSbtb-4+8	22,3	31,9	41,7	20,5	61,3	71,1	49.2	70.3	45.2	113.5	135.1	156.7
	RGSbtb-6+6	22,3	31,9	41,7	20,5	61,3	71,1	49.2	70.3	45.2	113.5	135.1	156.7
	RGSbtb-6+8	24,5	34,7	45,1	22,1	65,8	76,2	54.0	76.5	48.7	122.4	145.1	168.0
	RGSbtb-8+8	26,6	37,3	48,2	23,7	70,1	81,0	58.6	82.2	52.2	130.5	154.5	178.6
STAINLESS STEEL 1.4404 AISI 316L	RGSbtb-2	8,1	13,3	18,8	7,6	29,8	35,3	17.9	29.3	16.8	53.6	65.7	77.8
	RGSbtb-4	10,4	16,2	22,3	8,6	34,4	40,4	22.9	35.7	19.0	62.4	75.8	89.1
	RGSbtb-6	12,7	19,1	25,7	10,0	38,9	45,5	28.0	42.1	22.0	71.2	85.8	100.3
	RGSbtb-8	14,9	21,7	28,9	11,7	43,2	50,4	32.8	47.8	25.8	79.6	95.2	111.1
	RGSbtb-2+2	13,8	21,4	29,2	16,1	44,8	52,6	30.4	47.2	35.5	81.6	98.8	116.0
	RGSbtb-2+4	15,7	23,9	32,3	17,1	49,0	57,4	34.6	52.7	37.7	89.7	108.0	126.5
	RGSbtb-2+6	18,3	27,0	35,9	18,2	53,7	62,6	40.3	59.5	40.1	98.8	118.4	138.0
	RGSbtb-2+8	20,5	29,8	39,3	19,6	58,4	67,9	45.2	65.7	43.2	107.8	128.7	149.7
	RGSbtb-4+4	18,3	27,0	35,9	18,2	53,7	62,6	40.3	59.5	40.1	98.8	118.4	138.0
	RGSbtb-4+6	20,5	29,8	39,3	19,6	58,4	67,9	45.2	65.7	43.2	107.8	128.7	149.7
	RGSbtb-4+8	22,9	32,7	42,8	21,0	62,9	72,9	50.5	72.1	46.3	116.4	138.7	160.7
	RGSbtb-6+6	22,9	32,7	42,8	21,0	62,9	72,9	50.5	72.1	46.3	116.4	138.7	160.7
	RGSbtb-6+8	25,1	35,6	46,1	22,6	67,5	78,1	55.3	78.5	49.8	125.4	148.8	172.2
	RGSbtb-8+8	27,3	38,2	49,4	24,3	71,8	83,0	60.2	84.2	53.6	133.6	158.3	183.0
ALUMINIUM EN AW-6082 EN-AW-5086	RGSbtb-2	2,8	4,6	6,5	2,6	10,2	12,0	6.2	10.1	5.7	18.3	22.5	26.5
	RGSbtb-4	3,5	5,5	7,6	3,0	11,7	13,8	7.7	12.1	6.6	21.4	25.8	30.4
	RGSbtb-6	4,3	6,5	8,8	3,4	13,3	15,5	9.5	14.3	7.5	24.3	29.3	34.2
	RGSbtb-8	5,1	7,4	9,9	4,0	14,8	17,2	11.2	16.3	8.8	27.1	32.6	37.9
	RGSbtb-2+2	4,7	7,3	10,0	5,5	15,3	18,0	10.4	16.1	12.1	28.0	33.7	39.7
	RGSbtb-2+4	5,4	8,2	11,1	5,9	16,8	19,6	11.9	18.1	13.0	30.6	37.0	43.2
	RGSbtb-2+6	6,2	9,2	12,3	6,2	18,4	21,4	13.7	20.3	13.7	33.7	40.6	47.2
	RGSbtb-2+8	7,0	10,2	13,5	6,7	20,0	23,2	15.4	22.5	14.8	36.8	44.1	51.1
	RGSbtb-4+4	6,2	9,2	12,3	6,2	18,4	21,4	13.7	20.3	13.7	33.7	40.6	47.2
	RGSbtb-4+6	7,0	10,2	13,5	6,7	20,0	23,2	15.4	22.5	14.8	36.8	44.1	51.1
	RGSbtb-4+8	7,8	11,2	14,6	7,2	21,5	24,9	17.2	24.7	15.9	39.9	47.4	54.9
	RGSbtb-6+6	7,8	11,2	14,6	7,2	21,5	24,9	17.2	24.7	15.9	39.9	47.4	54.9
	RGSbtb-6+8	8,6	12,2	15,8	7,7	23,1	26,7	19.0	26.9	17.0	43.0	50.9	58.9
	RGSbtb-8+8	9,3	13,1	16,9	8,3	24,6	28,4	20.5	28.9	18.3	45.9	54.2	62.6

Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width. Height differences are shown below.



RGSbtb-2 RGSbtb-4



RGSbtb-6 RGSbtb-8

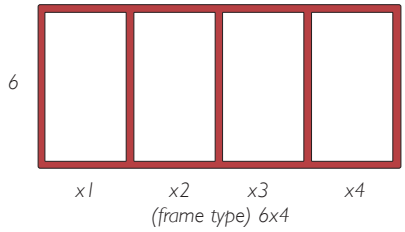
RGSR

RGSR is used in decks and bulkheads which are subjected to higher degrees of stress and heavier loading. The additional, rounded ends help prevent stress cracking. The radius of the ends is 70 mm *(2.76")* on otherwise standard 2, 4, 6 and 8 model RGS frames. RGSR can be used in multiple frames. For weight charts and installation details, singularly or in multiple frames, contact MCT Brattberg.

Multiple Frames

HORIZONTAL MULTIPLE FRAMES

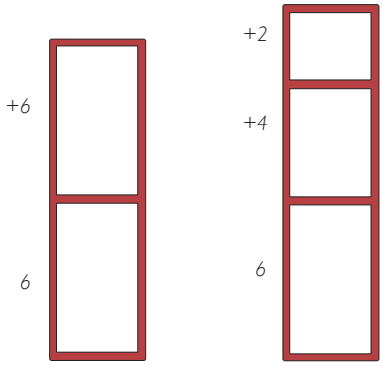
Horizontal multiple frames are described by listing the frame type and size *x* the desired number of horizontal openings.



Designation:
(frame type) 6x4

VERTICAL MULTIPLE FRAMES

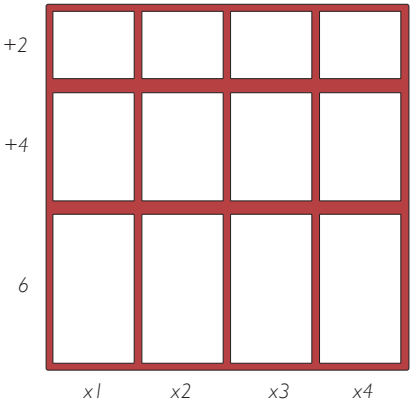
Vertical multiple frames are described by listing the bottom frame type and size + the next frame type and size.



Designation (starting at bottom):
(frame type) 6+ 6
(frame type) 6+4+2

VERTICAL AND HORIZONTAL MULTIPLE FRAMES

List the entire vertical frames *x* the desired number of horizontal repetitions.



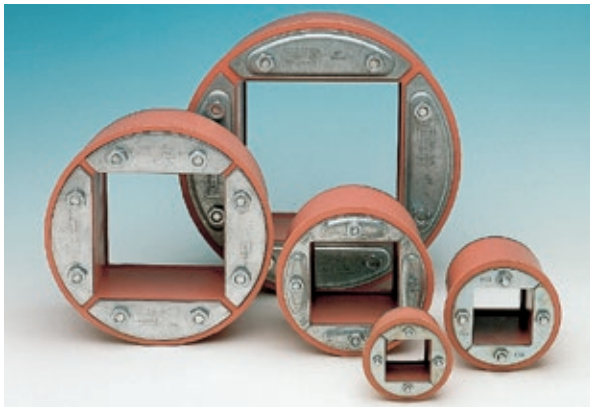
Designation (starting at bottom):
(frame type) 6+4+2x4

NOTE: All multiple frame designations must be preceded by the frame type.

RGP-round holes

RGP is a Lycron transit frame for assembly in drilled holes, pipes or in MCT Brattberg sleeves (See Installation Guide, page 129 for dimensions of pipes and drilled holes). It is available in eigt sizes (see table) and is packed with insert blocks. The metal parts are galvanized or stainless steel.

RGPO is a Lycron frame with open sides intended for installation in holes where cables have already been installed. This is also available in seven sizes.

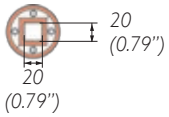
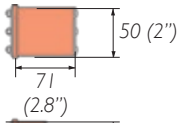
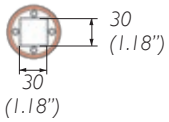
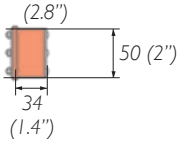
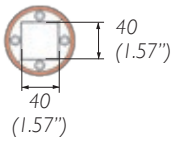
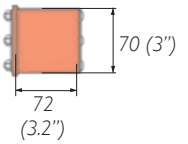
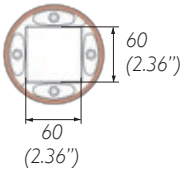
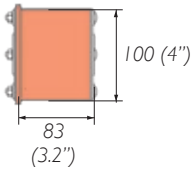
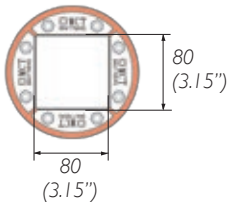
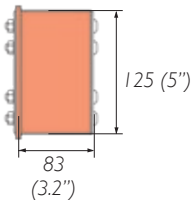
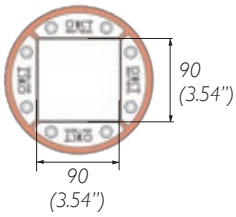
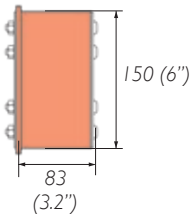
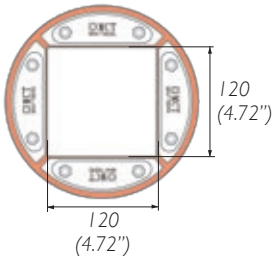
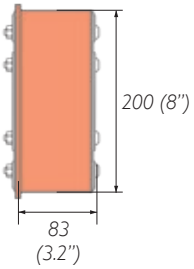
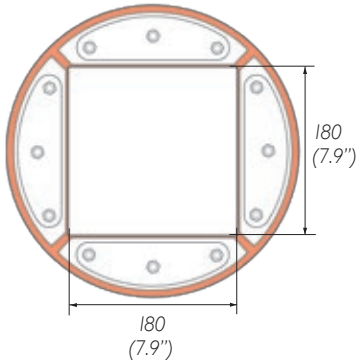
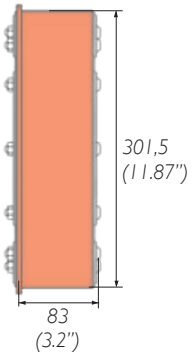


RGP is a circular seal for holes or pipes.

RGPO is an openable RGP frame.

Weight in kilograms		Weight in pounds	
RGP 50/L60	0,25	RGP 2"/L 2.36	0.6
RGP 50/L30	0,11	RGP 2"/L 1.18	0.2
RGP 70	0,4	RGP 3"	0.9
RGP 100	0,7	RGP 4"	1.5
RGP 125	1,0	RGP 5"	2.2
RGP 150	1,8	RGP 6"	4.0
RGP 200	3,0	RGP 8"	6.6
RGP 300	7,5	RGP 11.8"	16.5

Dimensions in mm (inches)

FRAME SIZE	PACKING AREA	DEPTH AND DIAMETER
RGP 50/L60 *(2"/L2.36)*		
RGP 50/L30 *(2"/L1.18)*		
RGP 70 *(3")*		
RGP 100 *(4")*		
RGP 125 *(5")*		
RGP 150 *(6")*		
RGP 200 *(8")*		
RGP 300 *(11.8")*		

Sleeves for RGP and RGPO Frames

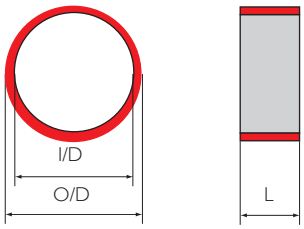
MCT Brattberg standard sleeves are available in seven sizes, for welding or bolting to the structure.
The standard materials are mild steel, stainless steel and aluminium.
SFRB is also available in an open version (SFRBO).

SFR/SFRB are supplied in kits, complete with drilled holes, bolts, nuts washers and a gasket or sealing compound.

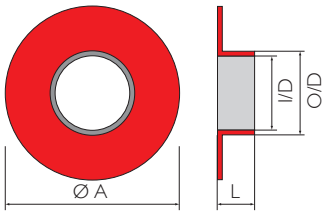
SFRBO

SFR SFRB S

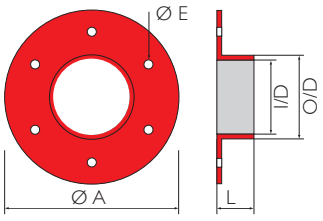
TYPE S WITHOUT FLANGE



TYPE SFR WITH ROUND FLANGE



TYPE SFRB WITH ROUND FLANGE AND PRE DRILLED HOLES



Type S without flange							
Type/Dimension	O/D mm	L mm	Weight kg	Type/Dimension	O/D inch	L inch	Weight lbs
S 50/L30	63	35	0,3	32"/L 1.18	2.5	1.2	0.7
S 50/L60	63	70	0,6	32"/L 2.36	2.5	2.8	1.3
S 70	83	70	0,8	S-3	3.52	3.2	1.8
S 100	114	82	1,3	S-4	4.55	3.2	1.8
S 125	139	82	1,6	S-5	5.55	3.2	1.8
S 150	164	82	1,9	S-6	6.55	3.2	1.8
S 200	214	82	2,6	S-8	8.55	3.2	1.8
S 300	316	85	4,5	S-11.8	12.44	3.4	9.9

Dimensions for pipes and drilled holes.
See Installation Guide, page 127.

Dimensions for pipes and drilled holes.
See Installation Guide, page 127.

Sleeves can also be supplied to US Standard Diameters.

Type SFR and SFRB with round flange													
Type/Dimension	O/D mm	L mm	A mm	E mm	Weight kg	Qty of holes	Type/Dimension	O/D inch	L inch	A inch	E inch	Weight lbs	Qty of holes
SFR/SFRB 50/L30	63	38	145	9	0,9	4	SFR/SFRB 2"/L 1.18	2.48	1.5	6	0.35	2.0	4
SFR/SFRB 50/L60	63	73	145	9	1,2	4	SFR/SFRB 2"/L 2.36	2.48	2.9	6	0.35	2.6	4
SFR/SFRB 70	83	74	185	9	2,1	4	SFR/SFRB 3"	3.27	2.9	7.5	0.35	4.6	4
SFR/SFRB 100	114	86	215	9	2,9	4	SFR/SFRB 4"	4.49	3.4	8.5	0.35	6.4	4
SFR/SFRB 125	140	86	240	9	3,7	4	SFR/SFRB 5"	5.51	3.4	9.5	0.35	8.2	4
SFR/SFRB 150	164	86	264	11	4,2	6	SFR/SFRB 6"	6.46	3.4	10.5	0.43	9.3	6
SFR/SFRB 200	214	86	315	11	5,1	6	SFR/SFRB 8"	8.43	3.4	12.5	0.43	11.2	6
SFR/SFRB 300	316	89	398	11	8,5	10	SFR/SFRB 11.8"	12.44	3.5	15.7	0.43	18.7	10

Dimensions for pipes and drilled holes.
See Installation Guide, page 127.

Dimensions for pipes and drilled holes.
See Installation Guide, page 127.

Components

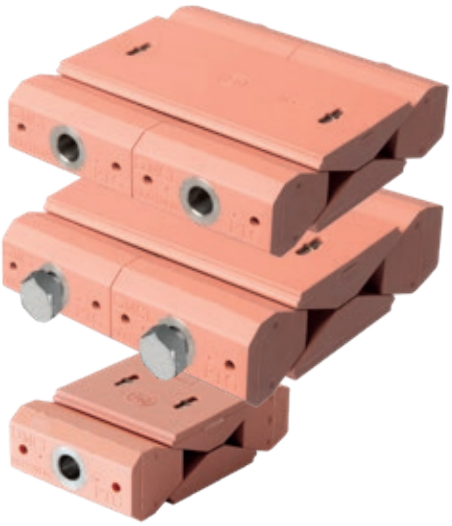
PTG-PRESSWEDGE

Can be used as an alternative to compression plate and STG. Can also be placed anywhere in the frame. Made of Lycron, with stainless steel fittings.
Must always be installed in combination with a stayplate.

PTG Allen

PTG Hex

PTG Allen 60



STAYPLATE

To be placed between each row of blocks. Stayplates simplyfies installation, increases stability and anchores blocks within the frame.
Plates come in galvanized or stainless steel and aluminium.

Stayplate

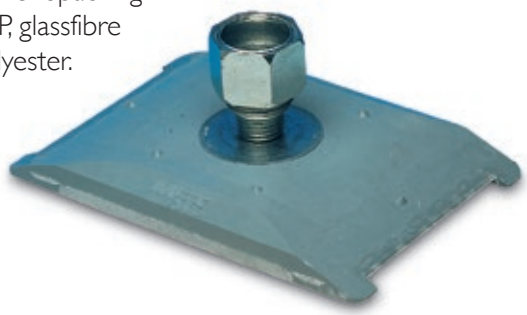
Stayplate 60

STG-ENDPACKING

Installed between compression plate and the top of the frame, completing the seal. Made of Lycron with galvanized or stainless steel fittings.

COMPRESSION PLATE

Usually assembled above top row of blocks. The plate bolt is tightened to compress blocks around cables, while providing room for STG endpacking.
Comes in GRP, glassfibre reinforced polyester.



LUBRICANT 30 g / 25 ml (0.07 pound / 0.85 oz)

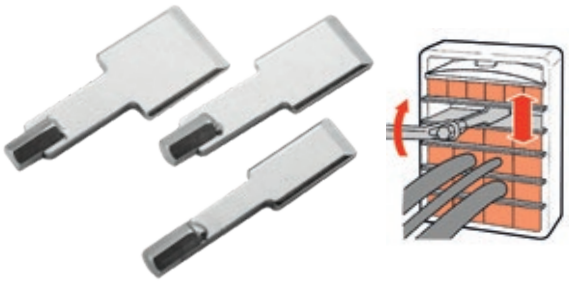
For easier insallation and must be used with pressure-tight installation,

Component	Weight in kilograms	Weight in pounds
Compression Plate	0.24	0.53
STG	0.6	1.32
PTG 120 Hex and Allen	0.83	1.81
PTG 60 Hex and Allen	0.41	0.9
Stayplate	0.13	0.29
Stayplate 60	0.02	0.04

Accessories

SPACER TOOL

Simplifies insertion of last row of blocks.
20, 30, 40 mm (0.79", 1.18", 1.57")



PACKING TOOL

Compresses insert block to hold cable/pipes during partial installations.

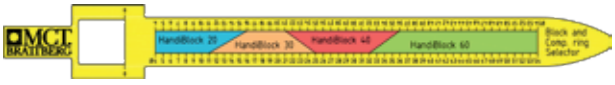
BLOCK SELECTOR

For cable/pipe measurement.

STD insert

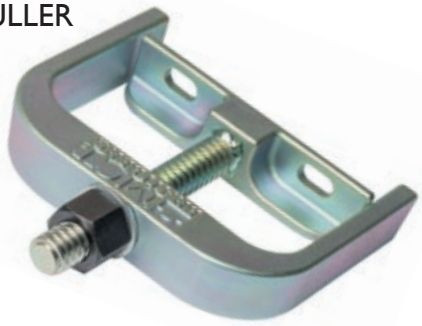
AddBlock

HandiBlock



END PACKER PULLER

For re-entry into system.



QUICK RELEASE SPANNER

For Compression Plate Installation.

RING SPANNER.

For end packer & RGP installation.

CABLE SEPARATOR

Support cables during installation.

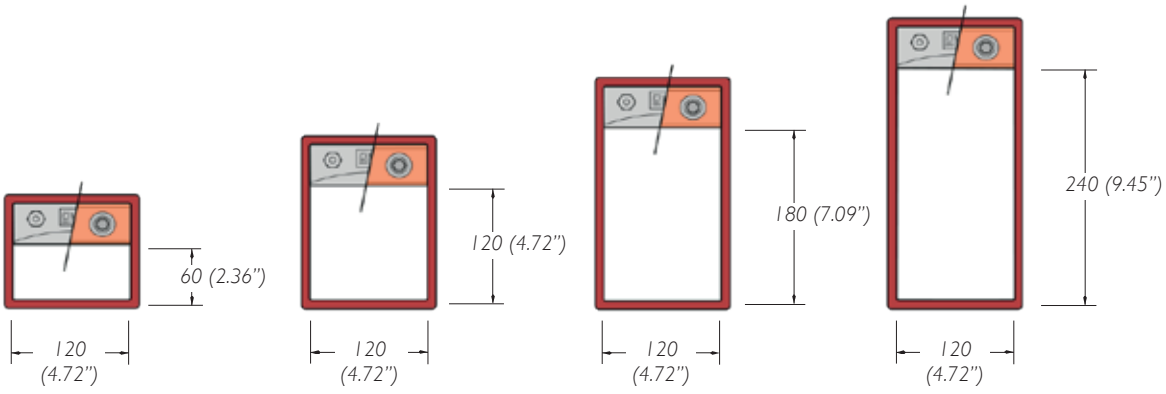
BLANKING PLATE

Seals frame prior to block installation.

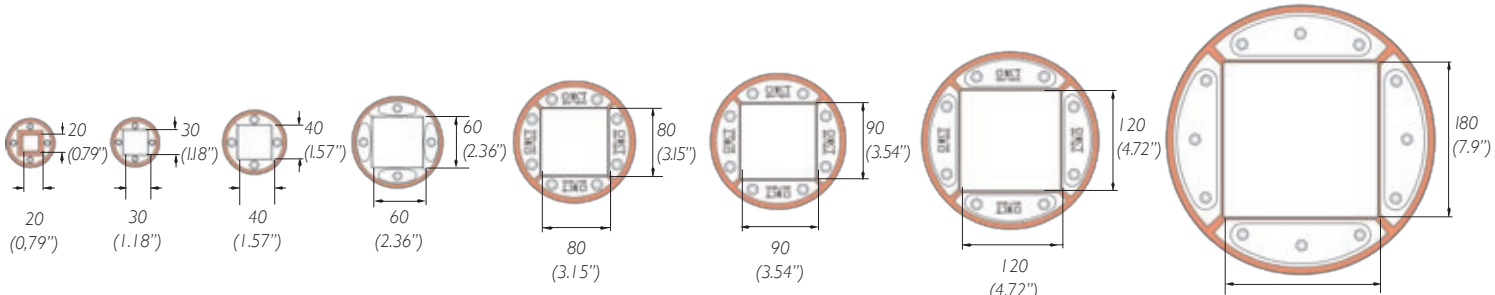
Ingress protection IP65/66

Planning the Packing Space

The space in a frame, which can be used exclusively for holding Insert Blocks, is called the packing space. In the RGS-type frames the compression system always occupies 40 mm (1.57") of each frame.
In the RGP frames no compression system or stayplates are necessary. Therefore the packing space consists of the entire interior area of the frame.
Tables to help you determine which Insert Block to use are on pages 36-37 (Standard Blocks), 38-39,(AddBlocks) and 40-41 (HandiBlocks)



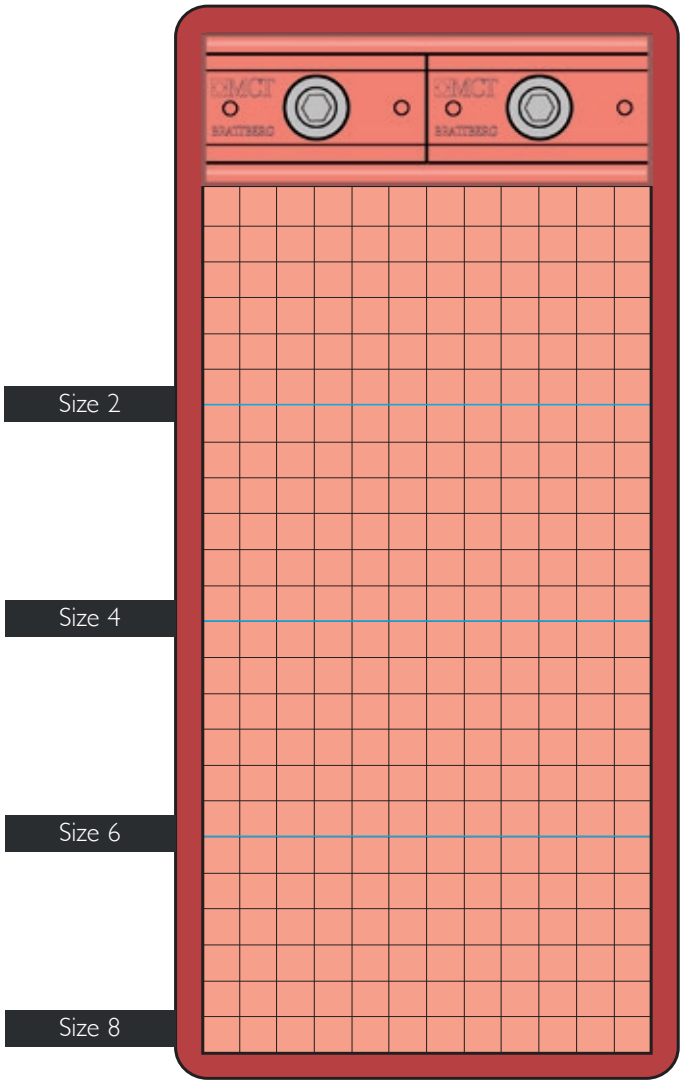
RGS 2 RGS 4 RGS 6 RGS 8



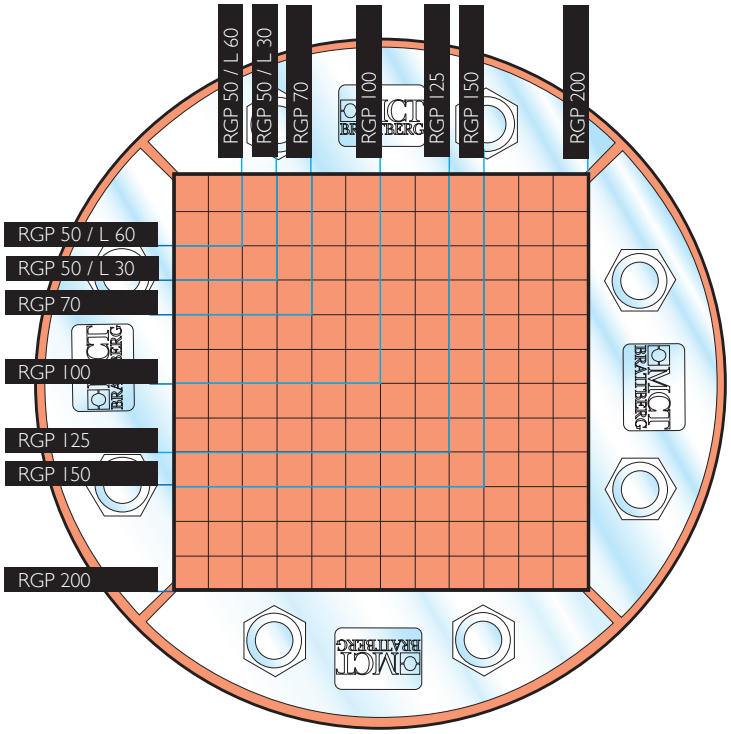
RGP 50/L60 (2"/L2.36) RGP 50/L30 (2"/L1.18) RGP 70 (3") RGP 100 (4") RGP 125 (5") RGP 150 (6") RGP 200 (8") RGP 300 (11.8")

RGS maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGS 2	32	18	8	3	2	-	-
RGS 4	64	36	16	9	4	1	1
RGS 6	96	54	24	12	6	2	1
RGS 8	128	72	32	18	8	2	2

RGP maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGP 50/L30 RGP (2"/L2.36)	4	1	1	-	-	-	-
RGP 50/L60 RGP(2"/L1.18)	1	1	-	-	-	-	-
RGP 70 RGP (3")	4	4	1	1	-	-	-
RGP 100 RGP (4")	16	9	4	1	1	-	-
RGP 125 RGP (5")	25	16	4	1	1	-	-
RGP 150 RGP (6")	36	16	9	4	1	1	-
RGP 200 RGP (8")	64	36	16	9	4	1	1



A couple of examples of pack plans
are shown here above. RGS to the left and RGP to the right.
The largest cables are placed at the bottom.



Combination frame width compared with width of cable tray						
Cable type	Frame size	Cable tray width in mm/inches				
		150/6"	200/8"	300/12"	400/16"	600/24"
Signal		6	6x2	6x3	6x4	6x5
Power		4	4x2	4x3	4x4	4x5
Combination		6	6x2	6x3	6x4	6x5

Packing Plan

RGS, RGSF, RGSK, RGSR and RGSbtb

The correct frame size can be determined by using this plan.
The notes to the right side of the plan represent the available packing space for frame size 2, 4, 6 and 8.

It is not necessary to show stay plates, compression plates or endpackings since sufficient space for these is already reserved in the tables.

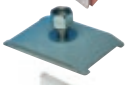
The notes to the left side of the plan represent the available packing space for the different RGP frames.

Dimensions of Standard Insert Blocks, AddBlocks, Plugs, HandiBlock and U-blocks, see pages 36-41.

PTG Allen

PTG Hex

STG

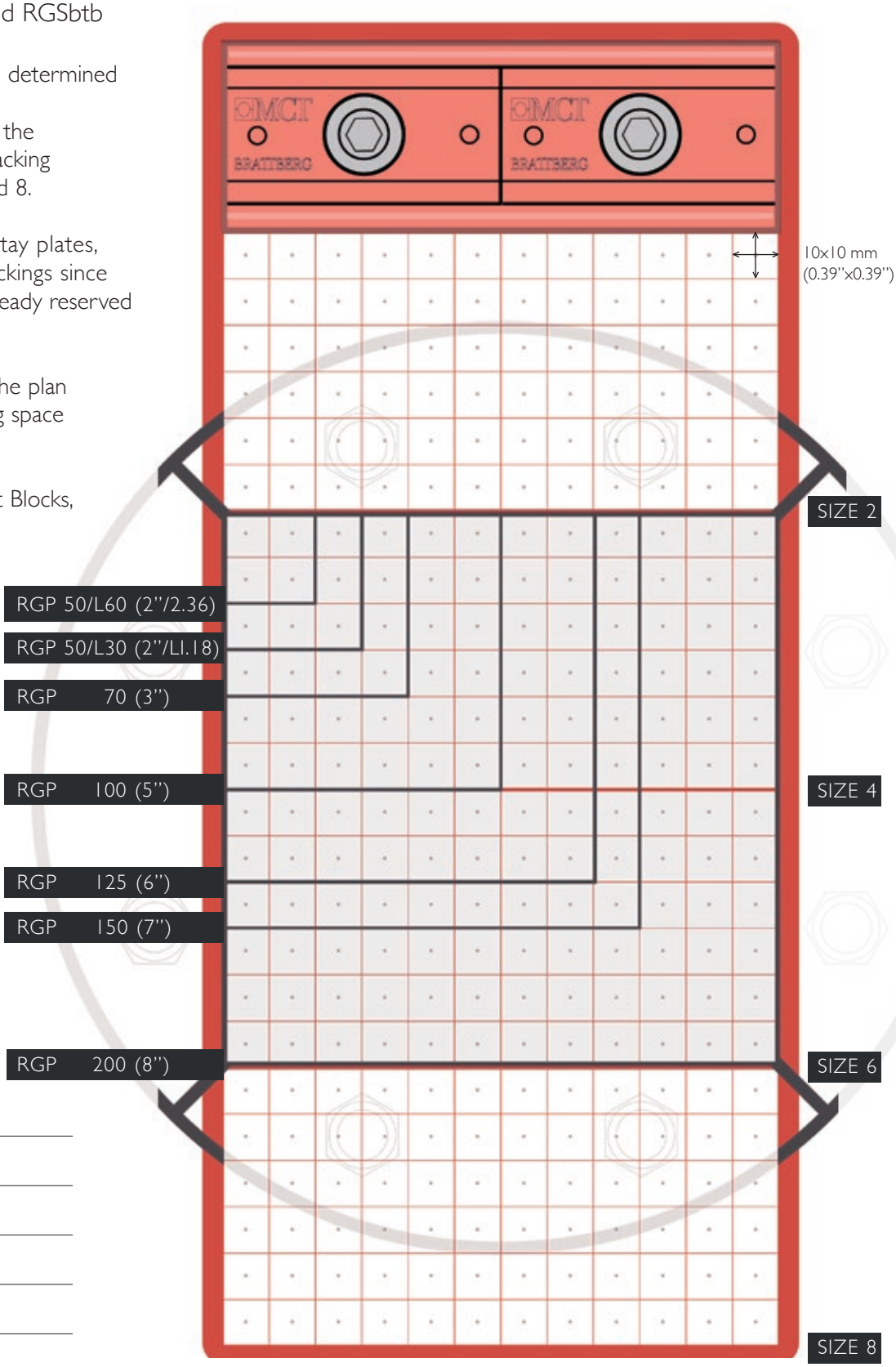


Compression plate

Stayplate

Lubricant

Blocks



RGPlan

WEB-BASED DESIGN SOFTWARE

Configure cable/pipe penetrations quickly and easily with our Web-based design software. Its faster and simpler than time-consuming manual methods. It´s perfect solution for busy engineers/designers.

It´s free and completely web based. Log in to access your projects anywhere. You can share projects with team members to allow them to edit and configure the transits. Bult with smart functions, to help reduce your transit planning time. Simply input the transit requirements and RGPlan automatically configures the seal, along with all necessary components, Insert Blocks, stayplates and compression systems – at the touch of a button. The program now offers many unique editing features, multiple transit calculation and a simple format to deliver well designed MCT Brattberg transits.

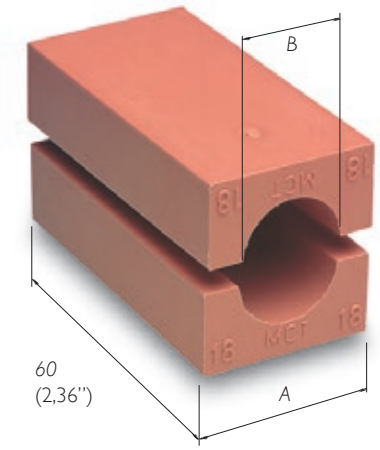
Web-based design software
gives a lot of opportunities, including following:

- Create a favorite list of your most used cables for easy access.
- Import new cables from Excel buy using a cable list template.
- Categorize and highlight placed cables for easy overview, for example to separate high voltage cables and sensitive data cables.
- Add team members to a project to allow them to edit and configure the transits within the project.
- Every progress you make is autosaved in realtime.
- Download project reports, Bom:s and drawings at any time.

Web-based design software
The service is free of charge and no download is required.
rgplan.mctbrattberg.com

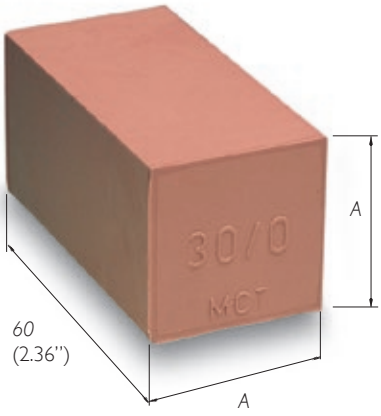
Standard Blocks

Our range of blocks accomodates cables beween 3,5 - 101,5 mm (0.14-4.0") in diameter. It is important that the insert block is the right size, with respect to the cable, to ensure a proper seal.
Measure the cable diameters carefully and choose insert blocks accordingly. With the sizing chart on next page you can choose the correct size of insert blocks.
Blocks are referred to by their width (A) and hole diameter (B). Thus a block with a width of 15 mm (0.59") and a hole diameter of 4 mm (0.16") is referred to as 15/4. This designation is moulded into the block.
Certain markets denote Insert Bocks in pairs. Please consult MCT Brattberg for this information.



SpareBlocks

Spare room in each frame is filled out with solid insert blocks. Called spares, they bear the designation A/0.
Blocks are referred to by their width (A), followed by the designation /0 (indicating solid). Thus a block with a width and height of 15 mm (0.59") is referred to as 15/0.
The length of insert blocks is always 60 mm (2.36")



Block size in mm Width (A) = Height (A)	Size in inches	BLOCK DESIGNATION
5 x 5 Only in strips of 24 pcs	0.20" x 0.20" Only in strips of 24 pcs	24x5/0
10 x 10 Only in strips of 12 pcs	0.39" x 0.39" Only in strips of 12 pcs	12x10/0
15 x 15	0.59" x 0.59"	15/0
20 x 20	0.79" x 0.79"	20/0
30 x 30	1.18" x 1.18"	30/0
40 x 40	1.58" x 1.58"	40/0
60 x 60	2.36" x 2.36"	60/0
90 x 30	3.54" x 1.18	90x30/0

CABLE DIAM.	A (mm)				B
	15	20	30	40	
3.5-4.5	15/4	20/4			4
4.5-5.5	15/5	20/5			5
5.5-6.5	15/6	20/6			6
6.5-7.5	15/7	20/7			7
7.5-8.5	15/8	20/8			8
8.5-9.5	15/9	20/9			9
9.5-10.5		20/10			10
10.5-11.5		20/11			11
11.5-12.5		20/12	30/12		12
12.5-13.5		20/13	30/13		13
13.5-14.5		20/14	30/14		14
14.5-15.5			30/15		15
15.5-16.5			30/16		16
16.5-17.5			30/17		17
17.5-18.5			30/18		18
18.5-19.5			30/19		19
19.5-20.5			30/20		20
20.5-21.5			30/21		21
21.5-22.5			30/22	40/22	22
22.5-23.5			30/23	40/22	23
23.5-24.5			30/24	40/24	24
24.5-25.5				40/24	24

CABLE DIAM.	A (mm)			B
	40	60	90	
25.5-27.5	40/26			26
27.5-29.5	40/28			28
29.5-31.5	40/30			30
31.5-33.5	40/32	60/32		32
33.5-35.5	40/34	60/34		34
35.5-37.5		60/36		36
37.5-39.5		60/38		38
39.5-41.5		60/40		40
41.5-43.5		60/42		42
43.5-45.5		60/44		44
45.5-47.5		60/46		46
47.5-49.5		60/48		48
49.5-51.5		60/50	90/50	50
51.5-53.5		60/52	90/52	52
53.5-55.5		60/54	90/54	54

CABLE DIAM.	A (mm)		B
	90	120	
55.5-57.5	90/56		56
57.5-59.5	90/58		58
59.5-61.5	90/60		60
61.5-63.5	90/62		62
63.5-65.5	90/64		64
65.5-67.5	90/66		66
67.5-69.5	90/68		68
69.5-71.5	90/70		70
71.5-73.5		120/72	72
73.5-75.5		120/74	74
75.5-77.5		120/76	76
77.5-79.5		120/78	78
79.5-81.5		120/80	80
81.5-83.5		120/82	82
83.5-85.5		120/84	84
85.5-87.5		120/86	86
87.5-89.5		120/88	88
89.5-91.5		120/90	90
91.5-93.5		120/92	92
93.5-95.5		120/94	94
95.5-97.5		120/96	96
97.5-99.5		120/98	98
99.5-101.5		120/100	100

Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 15 mm and a hole diameter of 4 mm is referred to as 15/4.

CABLE DIAM.	A (inches)				B
	0.59	0.79	1.18	1.58	
0.14–0.18	15/4	20/4			0.16
0.18–0.22	15/5	20/5			0.20
0.22–0.26	15/6	20/6			0.24
0.26–0.30	15/7	20/7			0.28
0.30–0.33	15/8	20/8			0.31
0.33–0.37	15/9	20/9			0.35
0.37–0.41		20/10			0.39
0.41–0.45		20/11			0.43
0.45–0.49		20/12	30/12		0.47
0.49–0.53		20/13	30/13		0.51
0.53–0.57		20/14	30/14		0.55
0.57–0.61			30/15		0.59
0.61–0.65			30/16		0.63
0.65–0.69			30/17		0.67
0.69–0.73			30/18		0.71
0.73–0.77			30/19		0.75
0.77–0.81			30/20		0.79
0.81–0.85			30/21		0.83
0.85–0.89			30/22	40/22	0.87
0.89–0.93			30/23	40/22	0.91
0.93–1.00			30/24	40/24	0.95
				40/24	

CABLE DIAM.	A (inches)			B
	1.58	2.36	3.55	
1.00-1.10	40/26			1.02
1.10-1.16	40/28			1.10
1.16-1.24	40/30			1.18
1.24-1.32	40/32	60/32		1.26
1.32-1.40	40/34	60/34		1.34
1.40-1.48		60/36		1.42
1.48-1.55		60/38		1.50
1.55-1.63		60/40		1.58
1.63-1.71		60/42		1.65
1.71-1.79		60/44		1.73
1.79-1.87		60/46		1.81
1.87-1.95		60/48		1.89
1.95-2.03		60/50	90/50	1.97
2.03-2.11		60/52	90/52	2.05
2.11-2.18		60/54	90/54	2.13

CABLE DIAM.	A (inches)		B
	3.55	4.73	
2.18–2.26	90/56		2.21
2.26–2.34	90/58		2.29
2.34–2.42	90/60		2.36
2.42–2.50	90/62		2.44
2.50–2.58	90/64		2.52
2.58–2.66	90/66		2.60
2.66–2.74	90/68		2.68
2.74–2.81	90/70		2.76
2.81–2.89		120/72	2.84
2.89–2.97		120/74	2.92
2.97–3.05		120/76	2.99
3.05–3.13		120/78	3.07
3.13–3.21		120/80	3.15
3.21–3.29		120/82	3.23
3.29–3.36		120/84	3.31
3.36–3.44		120/86	3.39
3.44–3.52		120/88	3.47
3.52–3.60		120/90	3.55
3.60–3.68		120/92	3.62
3.68–3.76		120/94	3.70
3.76–3.84		120/96	3.78
3.84–3.92		120/98	3.86
3.92–3.99		120/100	3.94

Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 0.59" and a hole diameter of 0.16" is referred to as 15/4.

Weight in grams per half

BLOCK	W
24 x 5/0	58
12 x 10/0	113
15/0	20
20/0	38
30/0	84
40/0	150
60/0	338
90x30/0	279
15/4	10
15/5	10
15/6	10
15/7	10
15/8	9
15/9	8
20/4	18
20/5	18
20/6	17
20/7	17
20/8	16
20/9	15
20/10	14

BLOCK	W
20/11	13
20/12	13
20/13	12
20/14	11
30/12	36
30/13	36
30/14	35
30/15	34
30/16	33
30/17	31
30/18	30
30/19	28
30/20	27
30/21	25
30/22	24
30/23	22
30/24	21
40/22	57
40/24	54
40/26	50
40/28	47

BLOCK	W
40/30	42
40/32	37
40/34	32
60/32	131
60/34	127
60/36	122
60/38	116
60/40	110
60/42	104
60/44	98
60/46	91
60/48	84
60/50	77
60/52	59
60/54	61
90/50	287
90/52	279
90/54	273
90/56	262
90/58	255
90/60	243

BLOCK	W
90/62	239
90/64	229
90/66	220
90/68	211
90/70	204
120/72	494
120/74	485
120/76	472
120/78	462
120/80	448
120/82	437
120/84	425
120/86	415
120/88	403
120/90	385
120/92	368
120/94	360
120/96	351
120/98	332
120/100	313
120/108	243

Weight in oz per half

BLOCK	W
24 x 5/0	2.0
12 x 10/0	4.0
15/0	0.7
20/0	1.3
30/0	3.0
40/0	5.3
60/0	11.9
90x30/0	9.8
15/4	0.4
15/5	0.4
15/6	0.4
15/7	0.4
15/8	0.3
15/9	0.3
20/4	0.6
20/5	0.6
20/6	0.6
20/7	0.6
20/8	0.6
20/9	0.5
20/10	0.5

BLOCK	W
20/11	0.5
20/12	0.5
20/13	0.4
20/14	0.4
30/12	1.3
30/13	1.3
30/14	1.2
30/15	1.2
30/16	1.2
30/17	1.1
30/18	1.0
30/19	1.0
30/20	1.0
30/21	0.9
30/22	0.8
30/23	0.8
30/24	0.7
40/22	2.0
40/24	1.9
40/26	1.8
40/28	1.7

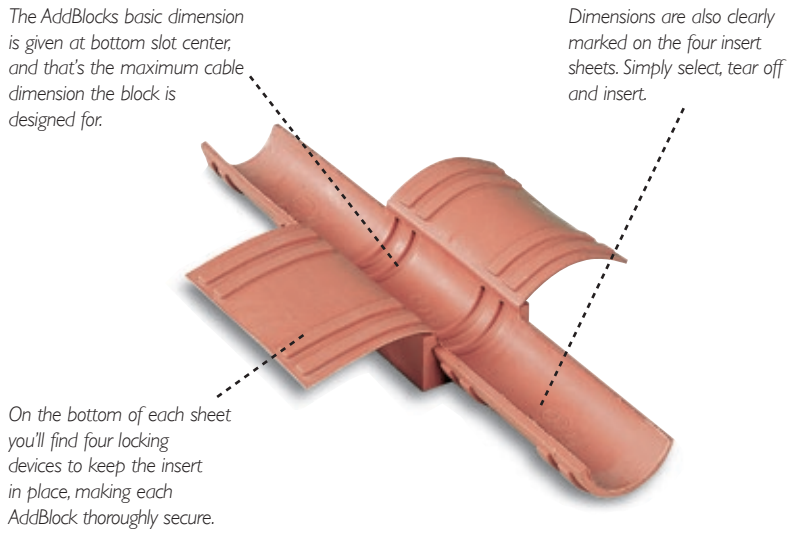
BLOCK	W
40/30	1.5
40/32	1.3
40/34	1.1
60/32	4.7
60/34	4.5
60/36	4.3
60/38	4.1
60/40	3.9
60/42	3.7
60/44	3.5
60/46	3.2
60/48	3.0
60/50	2.7
60/52	2.4
60/54	2.2
90/50	10.1
90/52	9.8
90/54	9.6
90/56	9.2
90/58	9.0
90/60	8.6

BLOCK	W
90/62	8.4
90/64	8.1
90/66	7.7
90/68	7.4
90/70	7.2
120/72	17.4
120/74	17.1
120/76	16.6
120/78	16.3
120/80	15.8
120/82	15.4
120/84	15.0
120/86	14.6
120/88	14.2
120/90	13.6
120/92	13.0
120/94	12.7
120/96	12.3
120/98	11.7
120/100	11.0
120/108	8.6

AddBlock

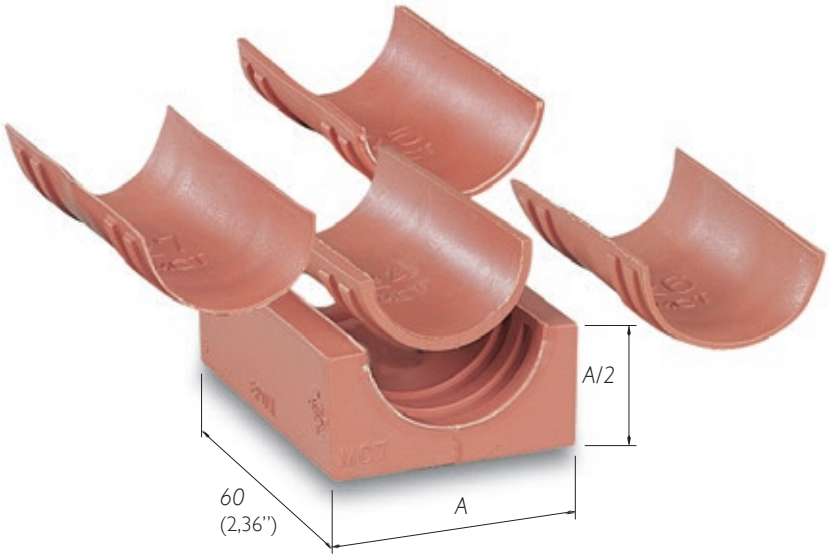
There are eleven different sizes of AddBlock. By tearing off the wing-like inserts, which are of varying thickness, and inserting them in the main block it is possible to accommodate 66 different cable and pipe dimensions, from 3.5 mm (0.14") to 69.5 mm (2.74"). The inserts are fitted with a locating ridge that fits exactly into furrows in the main block. These stop the block from "telescoping".

A seal using AddBlocks is as secure and tight as one using standard blocks. Both types can be combined in a transit, which makes the MCT Brattberg seal system very flexible.



Eleven blocks and 66 dimensions

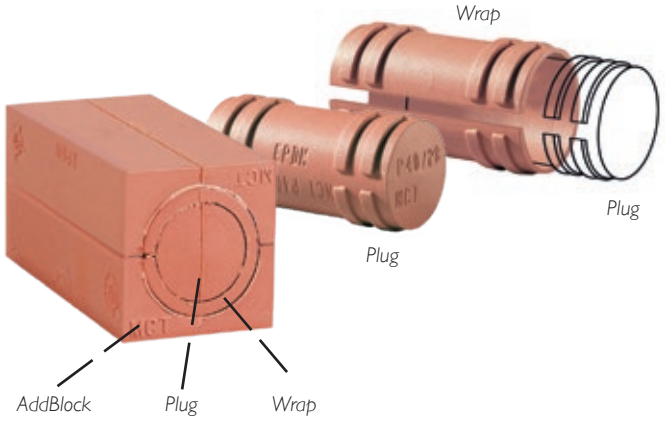
AddBlocks are all the same length as standard Blocks, 60 mm (2.36"). The width of standard Blocks (A measurement, see table) are 20, 30, 40, 60 or 90 mm, (0.79"), (1.18"), (1.57"), (2.36") or (3.54")



ADDBLOCK DIMENSION	CABLE OR PIPE DIMENSION (mm)	WEIGHT PER HALF (G)	CABLE OR PIPE DIMENSION(inches)	WEIGHT PER HALF (oz)
20/4 - 8	3,5 - 8.,5	23	0.14 - 0.33	0.8
20/9 - 13	8.,5 - 13,5	23	0.33 - 0.53	0.8
30/14 - 18	13.,5 - 18,5	45	0.53 - 0.72	1.6
30/19 - 23	18,5 - 23,5	43	0.72 - 0.93	1.5
40/24 - 28	23,5 - 28,5	71	0.93 - 1.12	2.5
40/29 - 33	28,5 - 33,5	62	1.12 - 1.32	2.2
60/34 - 38	33,5 - 38,5	150	1.32 - 1.52	5.3
60/39 - 43	38,5 - 43,5	136	1.52 - 1.71	4.8
60/44 - 48	43,5 - 49,5	128	1.71 - 1.95	4.5
90/50 - 58	49.,5 - 59,5	348	1.95 - 2.34	12.3
90/60 - 68	59,5 - 69,5	318	2.34 - 2.74	11.2

Plugs and Wraps

The plug's main purpose is to prepare coming installations by creating a spare block together with an AddBlock. Once the cable penetration is to be done, the plug is removed and the AddBlock is reused.



In the table you see which plug, or combination of plug and wrap-around casing, to use when turning an AddBlock into a spare block.

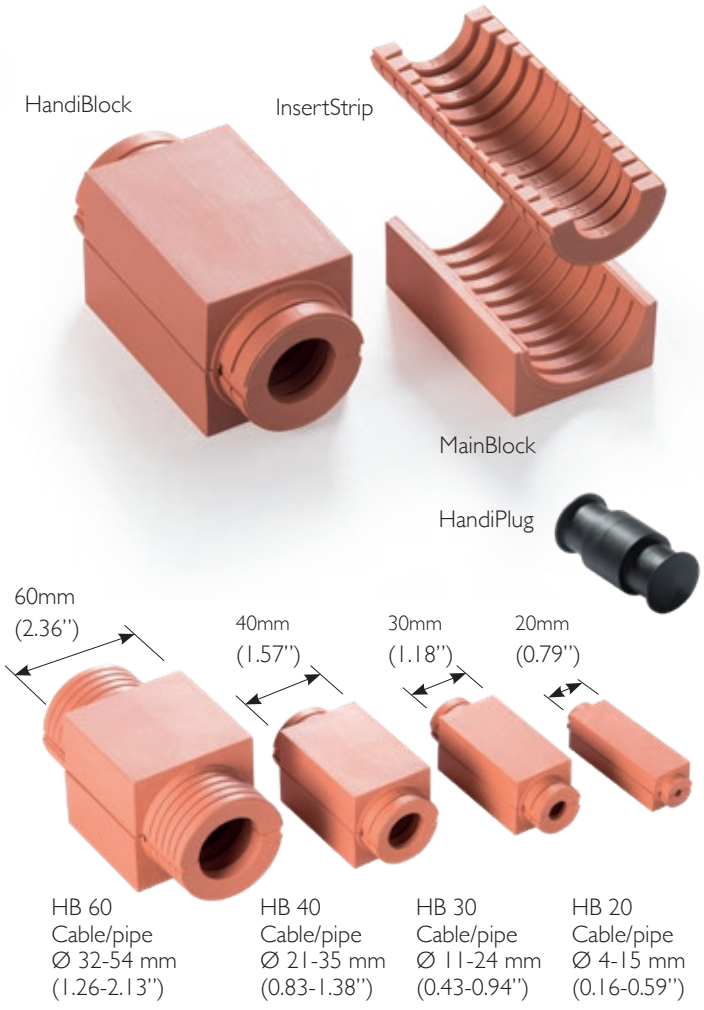
ADDBLOCK	PLUG	WRAP
20/4 - 8	P20/8	
20/9 - 13	P20/8 +	W20/8-13
30/14 - 18	P30/18	
30/19 - 23	P30/18 +	W30/18-23
40/24 - 28	P40-28	
40/29 - 33	P40-28 +	W40/28-33
60/34 - 38	P60/38	
60/39 - 43	P60/38 +	W60/38-43
60/44 - 48	P60/38 +	W60/38-43 and W60/43-48

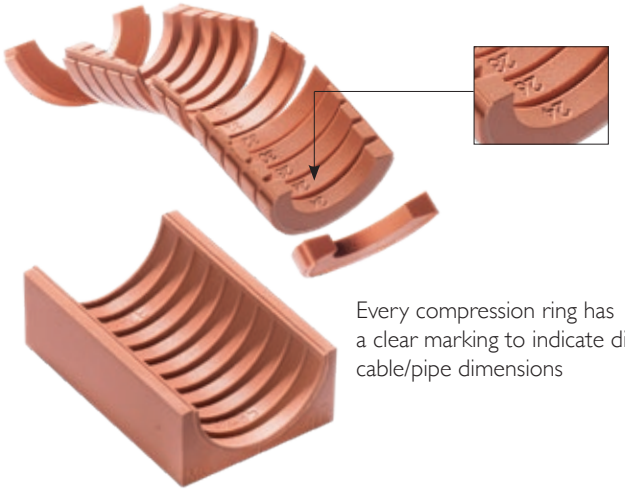
HandiBlock

The HandiBlock is designed to facilitate installation and minimize errors, allowing correction of errors and consequently minimization of wastage.

With HandiBlock the transit can always be pre-packed. If a cable or pipe is missing during assembly, the block is quickly rebuilt with a HandiPlug to a closed block and the transit can be completed at a later time.

HandiBlock is available in four sizes to fit cables and pipes or tubing from Ø 4 to 54 mm (Ø 1.58" to 2.13"). A HandiBlock consists of two compact MainBlocks with grooves on the inside and two inserts consisting of many compressed rings in different sizes. Each ring has clear markings for different cable sizes. It helps the technican to quickly and safely choose the right size of block, insert and ring. HandiBlock's design creates a seal as in compression do not deform the parts of the block. This means that all parts can be reused when repacking.





Every compression ring has a clear marking to indicate different cable/pipe dimensions

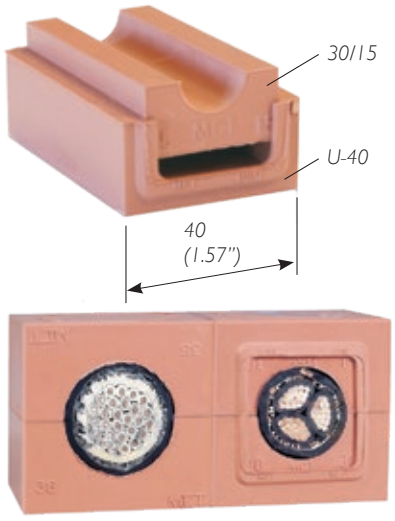
Extra fire protection! The part of the InsertStrip that protrudes from the MainBlock, acts as a small but effective heat shield.

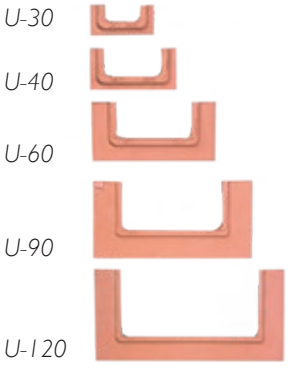
Size		HandiBlock complete with Plug		HandiBlock without Plug		Plug		Mainblock		Insert Strip	
mm	(inches)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)
20	0.79	37	1.31	32	1.13	5	0.18	22	0.78	10	0.35
30	1.18	90	3.17	73	2.57	17	0.60	46	1.62	27	0.95
40	1.57	150	5.29	117	4.13	33	1.16	72	2.54	44	1.55
60	2.36	382	13.58	300	10.58	85	3.00	155	5.47	144	5.08

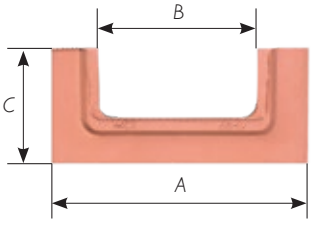
U-Blocks

The U-Block is used to convert the external dimensions of InsertBlocks, AddBlocks and HandiBlocks to the next modular size.

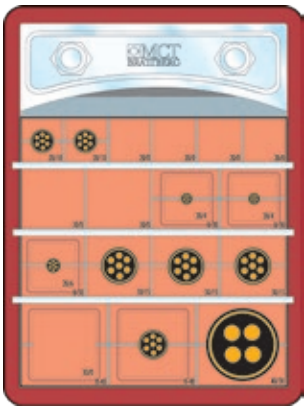
For example a 30/15 InsertBlock can be enlarged by placing it into a U40, giving the new size of 40/15.



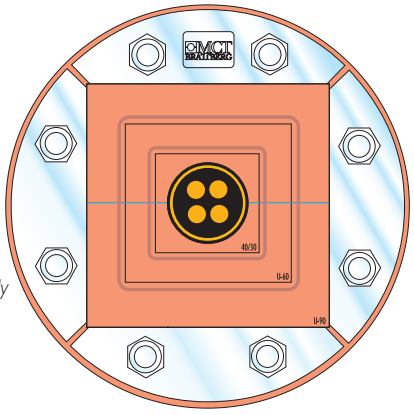




Dimensions U-BLOCK	A		B		C	
	mm	(inches)	mm	(inches)	mm	(inches)
U-30	30	1.18	20	0.79	15	0.59
U-40	40	1.57	30	1.18	20	0.79
U-60	60	2.36	40	1.57	30	1.18
U-90	90	3.54	60	2.36	45	1.77
U-120	120	4.72	90	3.54	45	1.77



Regardless of cable diameter, you can retain the outer measurement of the block in any row.



With U-Blocks, you can easily center the cable or pipe in your RGP installation.

MSR cable glands

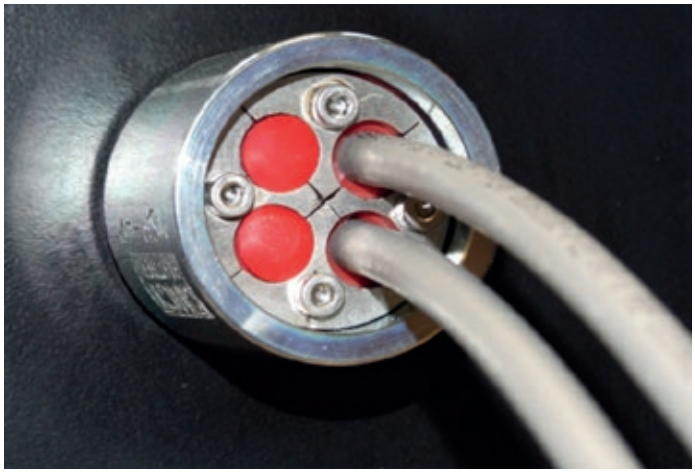
The MSR glands are designed to seal up to 8 cables between 4 and 32 mm (0.16" and 1.26") diameter.

The seal is easy to install. Just remove the center core and minimize the number of rings to enable cables to pass through. When all cables are inserted into the gland simply tighten the four Hex Screws equally. Once complete the seal will provide an effective barrier against fire, water, dust, vermin etc. No welding is required

- A 60 Lloyds certified
- Pressure tested upto 5 bar
- MED Modular B approved for use in cruise liners & passenger vessels
- Each gland accommodates a range of cable diameters
- No additional parts or on site machining required
- Gland manufactured from stainless steel
- Housing/body manufactured in electroplated mild steel

Description	Hole size rqd diameter		Minimum cable diam.		Maximum cable		No of cables	Weight incl. sleeve	
	mm	inches	mm	inches	mm	inches		Kg	(Oz)
MSR 20 Type 1	21	0.83	4	0.16	12	0.47	1	0.29	10.23
MSR 40 Type 1	41	1.61	11	0.43	24	0.94	1	0.47	16.58
MSR 40 Type 2	41	1.61	6	0.24	15	0.59	2	0.49	17.28
MSR 40 Type 3	41	1.61	6	0.24	12	0.47	4	0.47	16.58
MSR 50 Type 1	51	2.01	5	0.20	10	0.39	5	0.79	27.87
MSR 50 Type 2	51	2.01	4	0.16	16	0.63	3	0.78	27.51
MSR 50 Type 3	51	2.01	20	0.79	32	1.26	1	0.75	26.46
MSR 63 Type 1	64	2.52	4	0.16	16	0.63	4	1.0	35.27
MSR 63 Type 2	64	2.52	5	0.20	10	0.39	8	1.0	35.27

Dimensions in millimeter and inches. Weights in kilograms and Oz. Alternative cable configurations can be manufactured to suit specific customer requirements.



SR cable and pipe seals

The SR glands are designed to seal cables or pipes between 4 and 100 mm (0.16 and 3.94") diameter.
The seal can be supplied cut to allow pre terminated cable to be installed. It is supplied with a center core providing a seal prior to cable installation. When the cable is inserted into the gland. simply tighten the compression bolts equally until cable is secure. Once complete the seal will provide an effective barrier against fire, water, dust, vermin, etc.

- Lloyds certified
- Pressure tested to 5 bar
- Gland is manufactured from stainless steel 316L and rubber
- Sleeves are supplied in electroplated mild steel

Ref	No of cables	Cable diameter min		Cable diameter max		Sleeve O/D		Weight inlc. sleeve	
		mm	(inches)	mm	(inches)	mm	(inches)	Kg	(Oz)
SR 25	1	4	0.16	12	0.47	33	1.31	0.21	7.41
SR 38-1	1	11	0.43	24	0.94	48	1.90	0.33	11.64
SR 38-2	2	6	0.24	15	0.59	48	1.90	0.35	12.35
SR 38-3	4	6	0.24	12	0.47	48	1.90	0.33	11.64
SR 49	1	20	0.79	32	1.26	60	2.37	0.56	19.75
SR 62	1	30	1.18	42	1.65	73	2.87	0.88	31.04
SR 77	1	42	1.65	52	2.05	89	3.50	1.30	45.86
SR 102	1	52	2.05	70	2.76	114	4.50	2.30	81.13
SR 125	1	70	2.76	85	3.47	140	5.51	3.41	120.28
SR 150	1	85	3.35	100	3.94	168	6.63	4.11	144.98

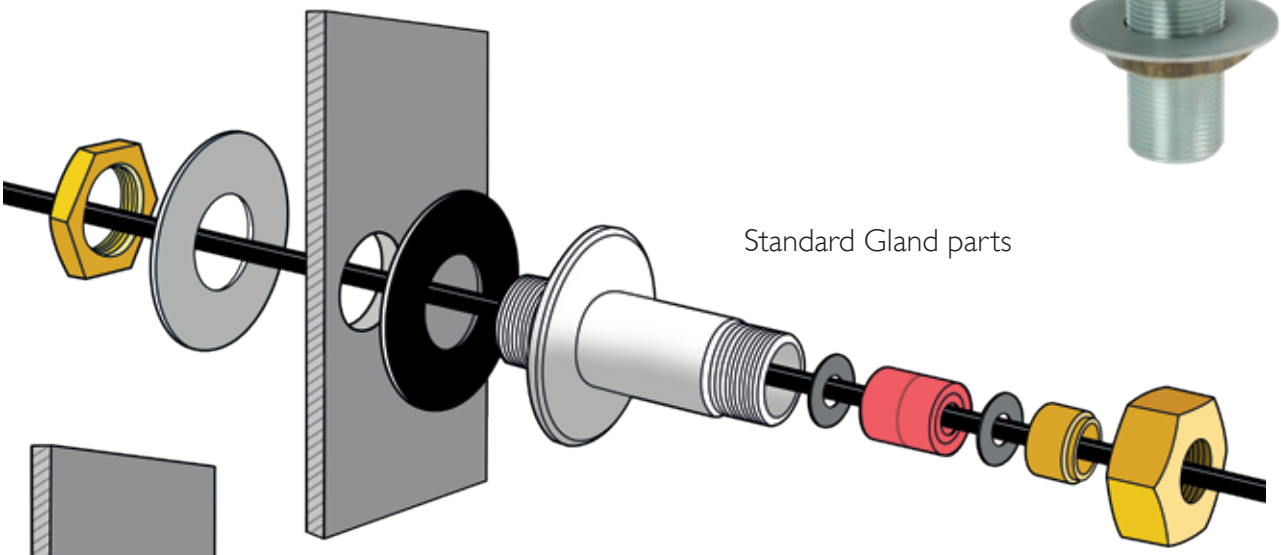
Dimensions in millimeter and inches. Weights in kilograms and Oz.
Alternative cable configurations can be manufactured to suit specific customer requirements

Deck and bulkhead penetration glands

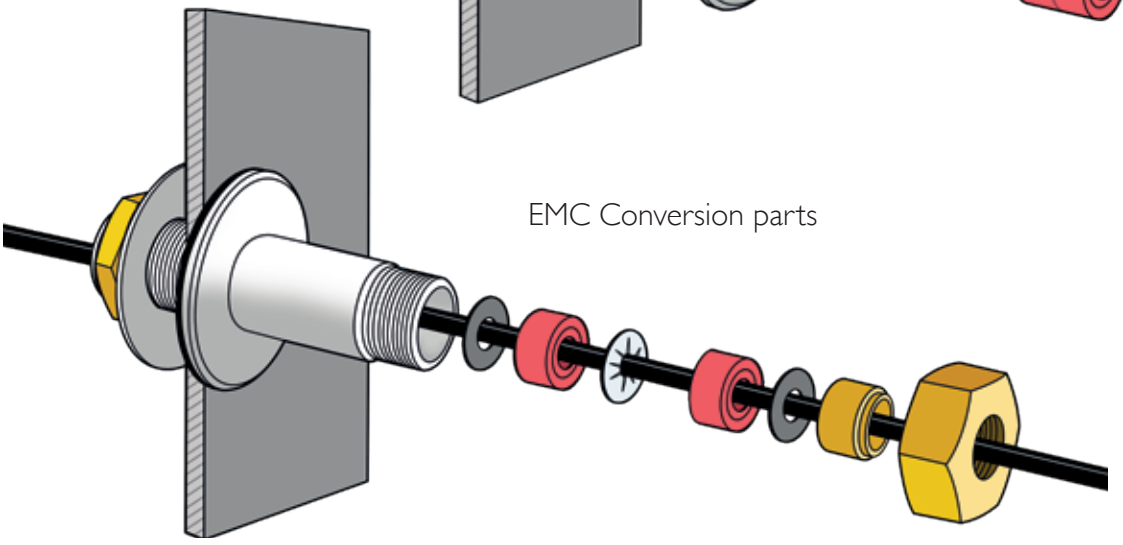
A flexible penetration for single cabels. No additional parts or on site machining required.
Glands supplied in electro plated mild steel with brass nuts.
Ability to fix to Metric threaded Conduit. Available with EMC/EMI protection.

This penetrations were in the beginning specifically developed for the British Royal Navy, but are now sold worldwide to various maritime applications, ships, oil platforms, gas carriers, cruise liners and more.

- Lloyds certified Pressure tested to 5 bar
- Certified to DEF STAN 02-510
- NATO stock coded
- Lloyds certified to A 60 Approval (metal housing)



Standard Gland parts



EMC Conversion parts

Ref	Cable range max		Cable range max		Metric thread	Flange diameter		Nut A/F		Weight	
	mm	in	mm	in		mm	in	mm	in	kg	lb
150 mm (5.90 “) gland assembly with 30 mm (1.18”) long thread											
D&B 16-150-30	4	0.16	16	0.63	M33x2	70	2.76	46	1.81	1.45	3.20
D&B 25-150-30	13	0.51	25	0.98	M50x2	80	3.25	65	2.56	2.62	5.77
D&B 35-150-30	23	0.91	35	1.31	M60x2	100	3.94	80	3.15	3.51	7.74
D&B 50-150-30	32	1.26	50	1.97	M75x2	120	4.72	100	3.94	5.05	11.13
D&B 60-150-30	48	1.89	60	2.36	M90x2	150	5.98	120	4.72	7.42	16.36
150 mm (5.90 “) gland assembly with 70 mm (2.76”) long thread											
D&B 16-150-70	4	0.16	16	0.63	M33x2	70	2.76	46	1.81	1.63	3.59
D&B 25-150-70	13	0.51	25	0.98	M50x2	80	3.25	65	2.56	3.03	6.68
D&B 35-150-70	23	0.91	35	1.31	M60x2	100	3.94	80	3.15	4.14	9.13
D&B 50-150-70	32	1.26	50	1.97	M75x2	120	4.72	100	3.94	5,71	12.59
D&B 60-150-70	48	1.89	60	2.36	M90x2	150	5.98	120	4.72	8.08	17.81
75 mm (2.95 “) gland assembly with 30 mm (1.18”) long thread											
D&B 16-75-30	4	0.16	16	0.63	M33x2	70	2.76	46	1.81	1.02	2.25
D&B 25-75-30	13	0.51	25	0.98	M50x2	80	3.25	65	2.56	1.81	3.99
D&B 35-75-30	23	0.91	35	1.31	M60x2	100	3.94	80	3.15	2.48	5.47
D&B 50-75-30	32	1.26	50	1.97	M75x2	120	4.72	100	3.94	3.55	7.83
D&B 60-75-30	48	1.89	60	2.36	M90x2	150	5.98	120	4.72	6.20	13.67
75 mm (2.95 “) gland assembly with 70 mm (1.18”) long thread											
D&B 16-75-70	4	0.16	16	0.63	M33x2	70	2.76	46	1.81	1.19	2.62
D&B 25-75-70	13	0.51	25	0.98	M50x2	80	3.25	65	2.56	2.11	4.65
D&B 35-75-70	23	0.91	35	1.31	M60x2	100	3.94	80	3.15	2.94	6.48
D&B 50-75-70	32	1.26	50	1.97	M75x2	120	4.72	100	3.94	4.20	9.26
D&B 60-75-70	48	1.89	60	2.36	M90x2	150	5.98	120	4.72	6.95	15.32

X-series cable transit

The MCT Brattberg X-series is a truly unique cable transit system which features an instant SNAP-FIT cable seal designed to accommodate any cable diameter from 2,5mm (0.1") right up to 34,5mm (1.36"), with the flexibility for future expansion of systems within existing frames.

Incorporating a simple staybar securing mechanism, no special tools are required to assemble this ultra-lightweight unit. Because until installation, seales are not subject to any compression, they are sure to stay perfectly shaped and will not suffer from deformation. The unit is sealed prior to cabling, requires no painting and maintenance is kept to an absolute minimum.

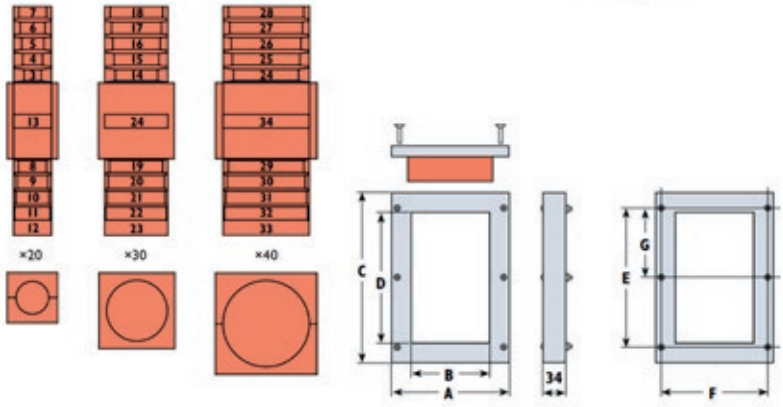
Frames

Specification

- Polyester glass filled compression moulding
- UV stabilised material with low smoke
- Ultra low weight
- High strength

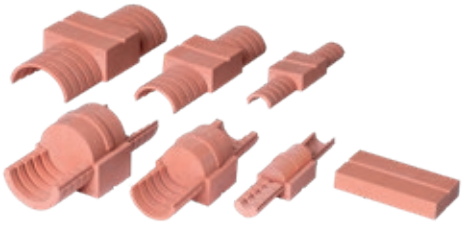
Frames supplied with:

- Compression screws (M6 countersunk head)
- Compression system
- Gasket
- Optional extras include adaptor flange, Blanking plate, Allen key. Details on request



34 mm
(1,34")

Staybars
Stainless steel 3 mm (0.12") diameter available in 2 sizes.



Type 1 120 mm (4.72") long ref SB 120

Type 2 60 mm (2.36") long ref SB 60

Sizes

Type	A	B	C	D	A	B	C	D
	mm				Inches			
X1	178	120	260	200	7.01	4.72	10.24	7.87
X2	118	60	210	150	4.65	2.36	8.27	5.91

N.B multiple frames are available.
Details on request.

Block sizes	E	F	G	E	F	G
	mm			Inches		
X20/3-13	20	10	2,5-13,5	0.79	0.39	0.1 - 0.53
X30/14-24	30	15	13,5-24,5	1.18	0.59	0.53-0.96
X40/24-34	40	20	23,5-34,5	1.57	0.79	093 -1.36

N.B sold as complete modules (2 halfs & Plug)

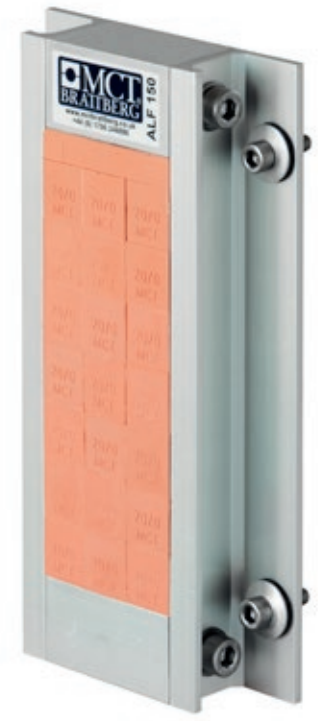
Fixing Hole Dimensions

Type	E	F	G	E	F	G
	mm			Inches		
X1	215	160	107,5	8.46	6.3	4.23
X2	118	60	210	5.12	3.46	8.27

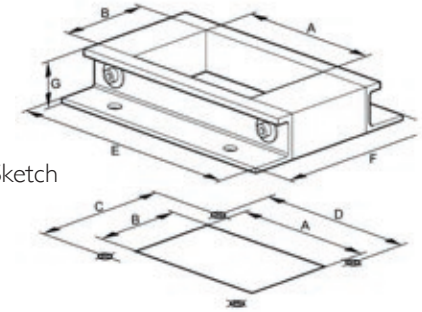
N.B sold as complete modules (2 halfs & Plug)

ALF-Cabinet seal

ALF cabinet seal is a cable penetration for applications where dust- and water tightness are demanded. A lot of cables can be installed in a small area and the big opening even allows connectors and joints toe pass through.
The cables are individual sealed off with 30 mm (1.18") insert blocks which comes in the same sizes as MCT Brattberg Standard Blocks, AddBlocks and HandiBlocks. ALF is compressed with two bolts and a standard allen key. The seal is easy to open up for changing or completion of cables.



The frames are available in several different sizes



Sketch

Advantages

- All cables through one opening (also with connector)
- Available as EMC
- Many cables in a limited area
- Specfications of cable sizes are no problem
- Easy changing/adding cables afterwards
- Dust- and waterproof (IP67)
- Assembly without special tools
- For cables with diameters from 3- 54 mm (0.12 – 2.13")
- Supplied complete with gasket, bolts and nuts
- Tested and approved

Performances

- Aluminum (standard) or stainless steel
- Standard dimensions or custom
- Supplied complete with gaskets, nuts and bolts
  Available certifications
- IP 67 according to IEC / EN 60529
- UL 50 test certificate
- UL94 test certificate (approved for Class V0)
- NEMA, Type 3R and 4X & 12

completion of cables.
ALF is available in aluminium or stainless steel and is always supplied in kit form with gasket, bolts and nuts.

Classified according to:
UL 94 VO UL50 NEMA 3R & 4X & 12
EnclosureIP 66 / IP 67

Table

Size (mm)	A	B	C	D	E	F	G	Hole Ø
ALF 60	60	60	96	60	120	120	30	9
ALF 90	90	60	96	90	150	120	30	9
ALF 120	120	60	96	120	180	120	30	9
ALF 150	150	60	96	150	210	120	30	9

Size (Inches)	A	B	C	D	E	F	G	Hole Ø
ALF 60	2.36	2.36	3.78	2.36	4.72	4.72	1.18	0.35
ALF 90	3.54	2.36	3.78	3.54	5.91	4.72	1.18	0.35
ALF 120	4.72	2.36	3.78	4.72	7.09	4.72	1.18	0.35
ALF 150	5.91	2.36	3.78	5.91	8.27	4.72	1.18	0.35

Also custom sizes available!

RFCS-Cabinet seal

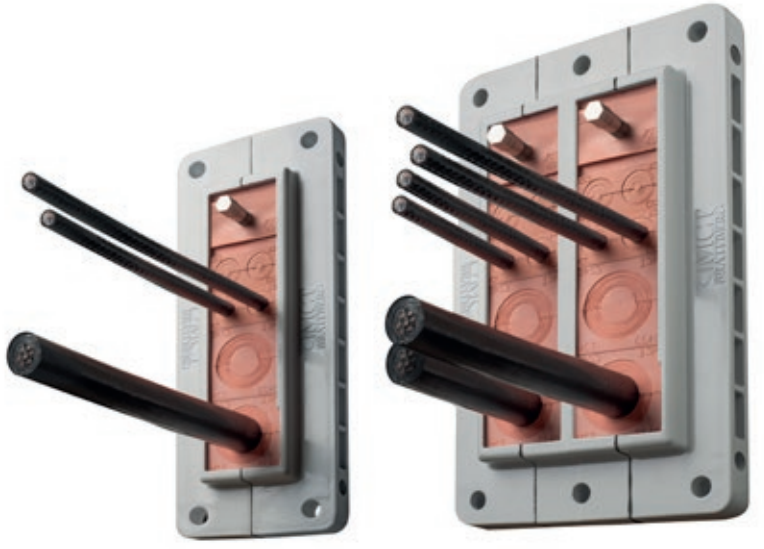
The unique MCT Brattberg RFCS is available in three basic sizes of 10, 12 & 16 with an extension provision to size 20, 24 & 32 respectively. Is an innovative openable/retrofit alternative to heavy duty plug in connectors and cable glands plates in the cabinets.

MCT Brattberg RFCS frame provides:

Space saving frames compare to conventional plug in connectors & cable glands.
Unique MCT Brattberg compression wedge PTG40 that can be inserted from both sides of the frame.
Easy installation and availability with ready made packed kits including the sealing module as per customer requirements.
Classifications: IP65, IP67 and NEMA 250 type 4x (hose down)

MCT Brattberg RFCS Kit contains:

- Openable frame.
- RFCS modules marked with cable diameter.
- Compression wedge.
- Gasket for sealing frame to cabinet.
- Mounting Hardware.
- Installation Manual.
  Lubricant.



Data
Modules: EPDM

Aluminium:
Grade ADC-12

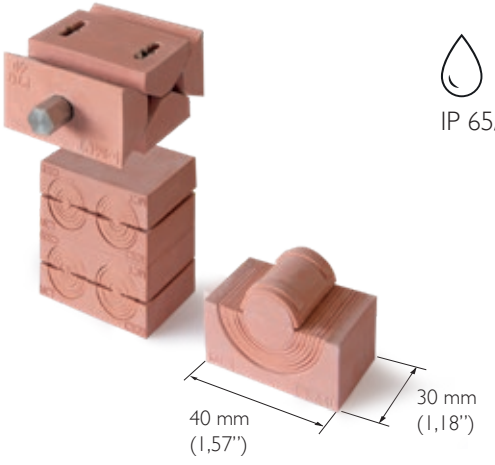
Gasket between frame and cabinet:
EPDM

Gasket between frame halves:
EPDM

Plastic gasket washer:
LDPE

Mounting hardware:
SS-304

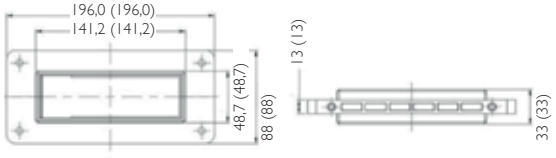
EPDM is Halogen Free and Low smoke.



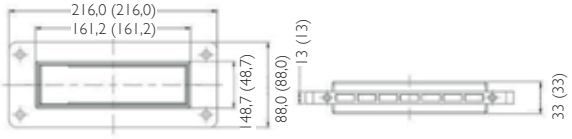
IP 65/67 Type 4x

	Diameter range		Required cut out mm	Packing space mm	Diameter range		Required cut ou inches	Packing space inches
	2,5-16,0 mm	14,5-33.0 mm			0.1-0.63 inches	0.57-1.3 inches		
RFCS 10	Number of cables				Number of cables			
RFCS 10/4	2	2	55x145	100x40	2	2	2.17x5.71	3.94x1.57
RFCS 10/7	6	1	55x145	100x40	6	1	2.17x5.71	3.94x1.57
RFCS 10/10	10	0	55x145	100x40	6	1	2.17x5.71	3.94x1.57
RFCS 12	Number of cables				Number of cables			
RFCS 12/3	0	3	55x165	120x40	0	3	2.17x6.5	4.72x1.57
RFCS 12/6	4	2	55x165	120x40	4	2	2.17x6.5	4.72x1.57
RFCS 12/9	8	1	55x165	120x40	8	1	2.17x6.5	4.72x1.57
RFCS 12/12	12	0	55x165	120x40	12	0	2.17x6.5	4.72x1.57
RFCS 16	Number of cables				Number of cables			
RFCS 16/4	0	4	55x205	160x40	0	4	2.17x8.07	6.3x1.57
RFCS 16/7	4	3	55x205	160x40	4	3	2.17x8.07	6.3x1.57
RFCS 16/10	8	2	55x205	160x40	8	2	2.17x8.07	6.3x1.57
RFCS 16/13	12	1	55x205	160x40	12	1	2.17x8.07	6.3x1.57
RFCS 16/16	16	0	55x205	160x40	16	0	2.17x8.07	6.3x1.57
RFCS 20	Number of cables				Number of cables			
RFCS 20/8	4	4	100x145	200x40	4	4	3.94x5.71	7.87x1.57
RFCS 20/14	12	2	100x145	200x40	12	2	3.94x5.71	7.87x1.57
RFCS 20/20	20	0	100x145	160x40	20	0	3.94x5.71	7.87x1.57
RFCS 24	Number of cables				Number of cables			
RFCS 24/6	0	4	55x205	160x40	0	4	2.17x8.07	6.3x1.57
RFCS 24/12	4	3	55x205	160x40	4	3	2.17x8.07	6.3x1.57
RFCS 24/18	8	2	55x205	160x40	8	2	2.17x8.07	6.3x1.57
RFCS 24/24	12	1	55x205	160x40	12	1	2.17x8.07	6.3x1.57
RFCS 32	Number of cables				Number of cables			
RFCS 32/8	0	8	100x205	320x40	0	8	3.94x8.07	12.6x1.57
RFCS 32/14	8	6	100x205	320x40	8	6	3.94x8.07	12.6x1.57
RFCS 32/20	16	4	100x205	320x40	16	4	3.94x8.07	12.6x1.57
RFCS 32/26	24	2	100x205	320x40	24	2	3.94x8.07	12.6x1.57
RFCS 32/32	32	0	100x205	320x40	32	0	3.94x8.07	12.6x1.57

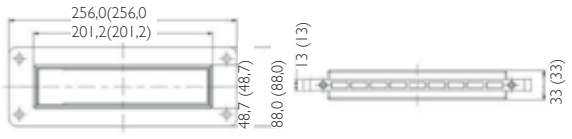
RFCS 10



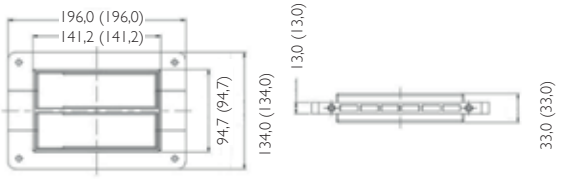
RFCS 12



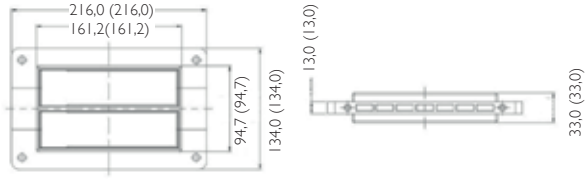
RFCS 16



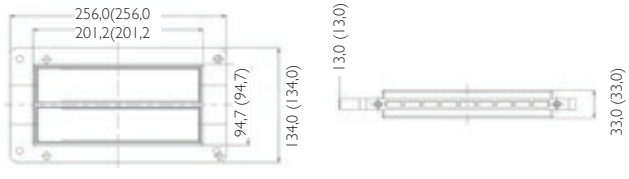
RFCS 20



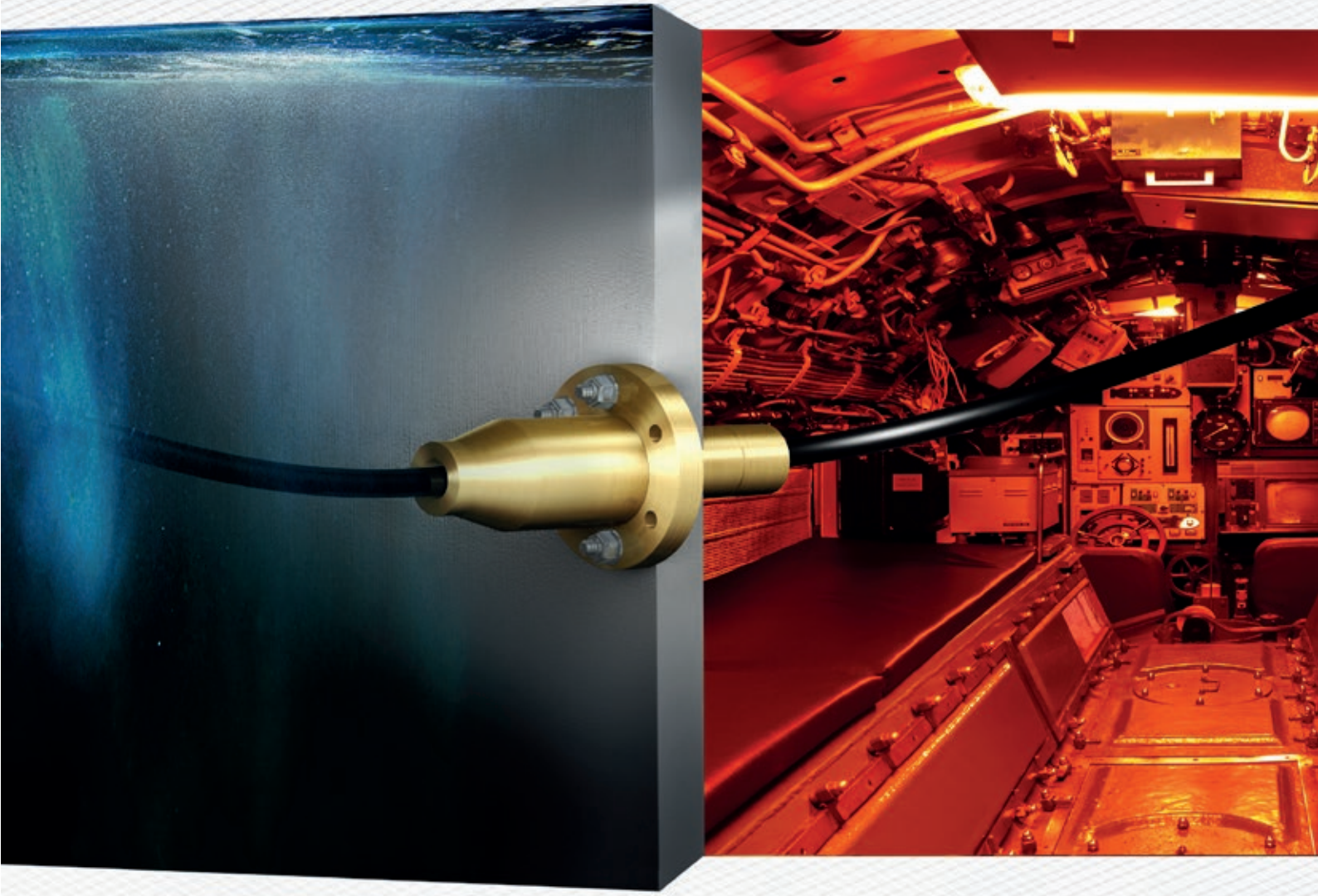
RFCS 24



RFCS 32



Under Pressure



Custom designed pressure sealings
up to 100 bar water pressure

Putting safety first

MCT BRATTBERG

Special products for

special uses

MCT Brattberg manufactures a number of special products. High pressure secure cable and pipe penetration, penetrations for wave guides and blocks with built-in protection against electromagnetic pulse due to lightning or nuclear blast.

High pressure seals
are an example of our special products.
Several types of high pressure seals are available.
Often these have been designed in collaboration with a customer. They are used, for example,
in the supporting legs of oil rigs or in submarines.
An example is the RGPH seal, which is type approved to 40 bar water pressure.

PHP Pressure Hull Penetration

- **Custom designed**
- **Pressure tested up to 100 bar**
- **Tested and inspected acc. to specification**
- **EMP-version available**

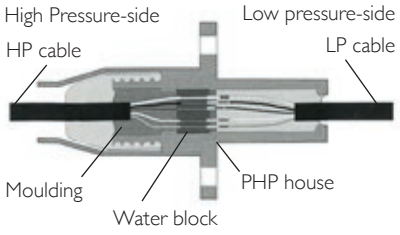
The PHP longitudinal cable penetration is used as protection against incoming over pressure media/water through the pressure hull, vessels or barriers via the cables which have been damaged or cut. Application dimensions and cable types for the PHP are decided by the customer. Generally the PHP provides the same requirements as the cable. PHP penetrations are currently used in both submarines and oil platforms.
Metal parts can be supplied in different materials according to customers requirement.

Two types of PHP are available:

LVT Longitudinal sealed (The basic type of PHP)
When a cable on the high pressure side (HP) is cut off, PHP stops incoming water and protects the low pressure side (LP) from over pressure and water.
The LVT protection is intact even when the whole moulding on the HP side has been cut off.

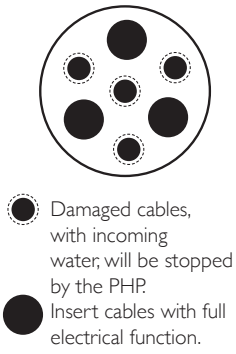
LVTT Longitudinal and cross sealed
If one or more of the cables on the HP side are damaged or cut off, these cables will be blocked, while the un-damaged cables are still intact.

Both types (LVT and LVTT) can be supplied with built-in protection against EMP
(electromagnetic pulse due to lighting and nuclear blast).



Typical technical data (acc. to customer demands)

Hydrostatic pressure:	Test pressure: 9 MPa (90bar) or acc. to specification.
Shock:	Mechanical: 2000 g acc. to IEC 60068-2-27 Hydrostatic: 213 bar/6 ms
Work temp. range:	Min. -40°C , Max. +70°C
EMP:	Peak 1 kA, raise and fall time 30 ns
Longitudinal seal:	Min. 10^{-6} cc/s air with 1 bar diff.



Following testing and inspections are available upon request

- Dimension and visual inspection
- Radiographic examination of moulding
- Leak detection test
- Hydrostatic pressure test
- High voltage test
- Insulation resistance test
- Conductor continuity and function test
- Result verification and inspection report/certificate
- Or other tests specified by the customer

LSJ Longitudinal sealing joint

- **Custom designed**
- **Pressure tested up to 100 bar**
- **Tested and inspected acc. to specification**
- **EMP-version available**

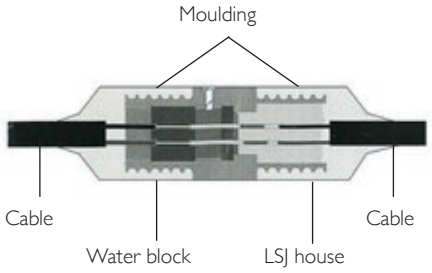
The LSJ longitudinal cable joint is used as protection against incoming over pressure media/water through the pressure hull, vessels or barriers via the cables which have been damaged or cut. Application dimensions and cable types for the LSJ are decided by the customer. Generally the LSJ provides the same requirements as the cable.
LSJ penetration are currently used in both submarines and oil platforms.
Metal parts can be supplied in different materials according to customers requirement.

Two types of LSJ are available:

LVT Longitudinal sealed (The basic type of LSJ).
When a cable on the high pressure side (HP) is cut off, LSJ stops incoming water and protects the low pressure side (LP) from over pressure and water.

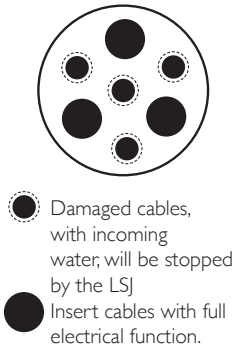
LVTT Longitudinal and cross sealed
If one or more of the cables on the HP side are damaged or cut off, these cables will be blocked, while the undamaged cables are still intact.

Both types (LVT and LVTT) can be supplied with built-in protection against EMP (electromagnetic pulse due to lighting and nuclear blast).



Typical technical data (acc. to customer demands)

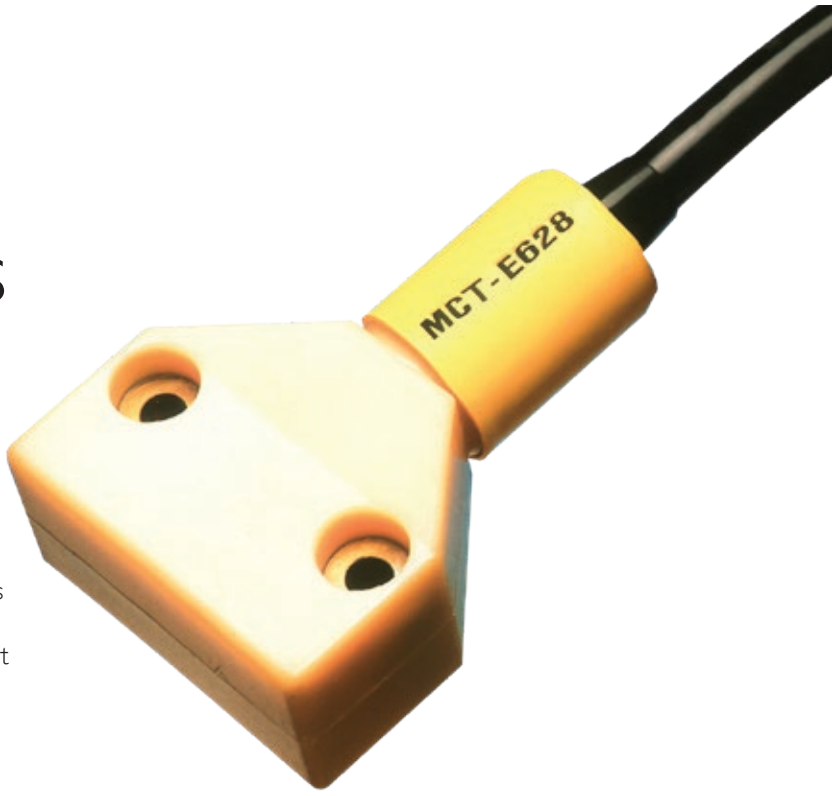
Hydrostatic pressure:	Test pressure: 9 MPa (90bar) or acc. to specification.
Shock:	Mechanical: 2000 g acc. to IEC 60068-2-27
Work temp. range:	Min. -40°C , Max. +70°C
EMP:	Peak 1 kA, raise and fall time 30 ns
Longitudinal seal:	Min. 10^{-6} cc/s air with 1 bar diff.



Following testing and inspections are available upon request

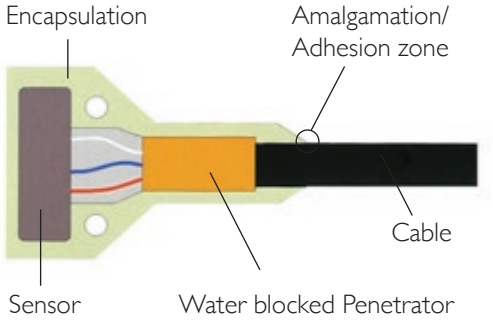
- Dimension and visual inspection
- Radiographic examination of moulding
- Leak detection test
- Hydrostatic pressure test
- High voltage test
- Insulation resistance test
- Conductor continuity and function test
- Result verification and inspection report/certificate
- Or other tests specified by the customer

Encapsulation of Sensors and Connectors



- **Custom designed**
- **Tested and inspected acc. to specification**

The encapsulation of sensors and connectors are used to ensure a watertight seal. Application dimensions and types of sensors and connectors are decided by the customer. The sensors and connectors are currently used in different types of submarines.



Typical technical data (acc. to customer demands)

Hydrostatic pressure:	Test pressure: 5MPa (50 bar) or acc. to specification.
Shock:	Mechanical: 2000 g acc. to IEC 60068-2-27
	Hydrostatic: 213 bar/6 ms
Temp. range:	Min. -40°C , Max. +70°C
EMP:	Peak 1 kA, raise and fall time 30 ns
Longitudinal seal:	Min. 10^{-6} cc/s air with 1 bar diff. pressure

Following testing and inspections are available upon request

- Dimension and visual inspection
- Radiographic examination of moulding
- Leak detection test
- Hydrostatic pressure test
- High voltage test
- Insulation resistance test
- Conductor continuity and function test
- Result verification and inspection report/certificate
- Or other tests specified by the customer

RGPM Pressure Sealing
for cables and pipes

- Custom designed
- Type approved to 15 bar water pressure
- DNV-GL and ABS approved

Description
The RGPM pressure seal is used when running cables and pipes through a section under or close to water, and to form a water-sealed unit with the section of almost unlimited designations of numbers and dimensions of cables and pipes. Approved for a continuous pressure up to 15 bar.

The design of a RGPM is made according to customers specification. The diameter could vary from 50 to 200 mm (1.97 to 7.87") and it could be designed for one single cable or pipe as well as for several cables/pipes. The outer diameter of the RGPM pressure seal is designed to match the inner diameter of the pipe or hole into which the unit is to be fitted.

The seals are normally made from Nitril rubber but other material can be used. Fittings are either stainless steel, hot galvanized or in other materials according to customers requirements.

The RGPM can also be installed and blind packed for installation of cables or pipes at a later stage.

In installation where the pressure could vary, a self-sealing version of RGPM can be used. The seal adjust itself according to the pressure.

Inspections and tests:
Dimensional and visual inspected before delivery. Additional tests can be performed to clients specification.

Certificates and reports:
- Factory Inspection and Test Report Certificate (optional)
- Material Test Certificate
- Type Approved by DNV-GL and ABS for pressure up to 15 bar

Instruction:
A detailed instruction manual is supplied with the RGPM.

Capacity:
Working pressure: 0-15 bar (water)

RGPH
High Pressure Sealing
for cables and pipes

- Custom designed
- Type approved to 40 bar water pressure
- DNV-GL and ABS approved

Description
The RGPH High Pressure Seal is for use in areas where extreme pressure tightness is required, i.e. the legs of offshore oil and gas platforms, subsea tie backs or between compartments in submarines. Our range of RGPH's are approved for up to 40 bar installations. They can also be on site tested after installation via test ports on the housing and a semipermeable membrane (optional) within the seal.

The RGPH has a high grade tubular steel housing and the cables are individually sealed by insert blocks. The pressure seal is achieved by steel fittings and bolts.

The RGPH can be designed to let any amount of cables though. As it is built on a modular system the number of cables through the penetration can easily be increased or decreased.

Each RGPH is designed specially to the customers need. The RGPH high pressure seal is available with flange for bolting or without flange for welding.

The RGPH is frequently used in offshore installations and in different types of submarines.

The RGPH system is available in six sizes designated based on the seal diameter RGPH-50, 70, 100, 125, 150 and 200 mm (1.97, 2.76, 3.94, 4.92, 5.91 and 7.87").

Inspections and tests:
Dimensional and visual inspected before delivery. Additional tests can be performed to clients specification. It can be equipped with a tightness test function (semipermeable layer), which allows on site tightness testing after installation.

Certificates and reports:
- Factory Inspection and Test Report Certificate (optional)
- Material Test Certificate
- Type Approved by DNV-GL and ABS for pressure up to 40 bar

Instruction:
A detailed instruction manual is supplied with the RGPH.

Capacity:
Working pressure: 0-40 bar (water)

On Land

Putting safety first

MCT BRATTBERG

Safety above all

DISCLAIMER

The author and publisher of this catalogue intend that this catalogue contain only general discussions and information; it is not intended to be comprehensive or to address all the possible contexts and situations involving the products and processes described herein. This catalogue is designed for generic study or research use only and is not a substitute for specific training or experience when utilizing the products and processes discussed herein. Nor is this catalogue intended to serve as a substitute for any proper training and/or certification needed for operation of the products and processes described herein. Accordingly, this catalogue is meant to be advisory and is not intended for specific application. Each application of the products and/or processes described herein may differ and the specifics involved must be addressed separately and individually depending on your situation.

MCT Brattberg (the "Company") assumes no liability for any use of or reliance upon any material contained or referenced in this catalogue; the use of this catalogue is at your own risk. THE COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AS TO MERCHANTABILITY, AS TO THE FITNESS OF THE CATALOGUE OR ITS CONTENTS FOR ANY PARTICULAR USE OR PURPOSE, NON-INFRINGEMENT, OR AS TO THE ACCURACY, APPLICABILITY, OR COMPLETENESS OF THE CONTENTS OF THE CATALOGUE, AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF SUCH CATALOGUE OR FOR CONSEQUENTIAL DAMAGES. In no event shall Company be liable for: (a) punitive, incidental or consequential damages arising out of the use of the information from this catalogue, including, but not limited to, damage to persons or property, loss of use, loss of time, inconvenience, equipment rental, loss of earnings or profits, loss of business opportunities, or any other commercial loss, or (b) any losses, claims, damages, expenses, liabilities or costs (including legal fees) resulting directly or indirectly from use of the material in this CATALOGUE, WHICH IS PROVIDED "AS IS," AND WITHOUT WARRANTIES. The conditions in this paragraph apply to any acts, omissions and negligence of Company that would give rise to a course of legal action. The reader hereby agrees to indemnify and hold harmless Company its officers, directors, shareholders, employees, agents, subsidiaries, affiliates, parent companies and successors in interest against all claims and expenses (including attorney fees) arising from the use of any information in the catalogue. Further, Company is not responsible for any warranties of any nature made by any representative or agent that have not also been agreed to in writing by an officer of the Company.

364 - 388174v1 056390/000001

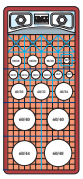
Product program

RGB and RGG

Multiple Frames

RGP

Components / Accessories



Planning

RGPlan

Standard Blocks

AddBlocks

Plugs

Handiblock

U-Blocks

X-series

Alf-Cabinet seal

RFCS-Cabinet seal

Cable transit for rolling stock

The MCT Brattberg

Putting Safety First

MCT Brattberg has taken a new step to ensure the correct standard of assembled MCT transits. We have done this through a partnership with Consilium Marine & Safety.

We now offer:

INSPECTION

- Ensuring MCT´s meet relevant standards.
- Ensure that MCT´s were installed to manufacturer´s instructions.

TESTING

Pressure testing transit to customer requitements.

TROUBLE SHOOTING

- Assist and Consult on installation of difficult installations.

TRAINING

Conduct onshore and offshore training classes to ensure that MCT´s will be installed to code and to manufacturer´s instruction.

Tested, approved and certified

Since the early 1950s, when we first started specializing in fireproof and pressure-sealed transits, quality testing and classification has been essential.

Tested by:

Aero Naval Lab. Inc. USA - Airo United Kingdom - AISH & Co United Kingdom Central Building Res. Institute United Kingdom - Central Building Res. Institute India Dantest Denmark - Dayton Brown USA - EMTECH Sweden - IBMB Germany International Research & Development United Kingdom - LCIE FranceLab. National Dessais France - Loss Prevention Council United KingdomNational Defence Research Institute Sweden - RAPRA United Kingdom Saab Avionics Sweden - SINTEF Norway - Southwest Research USA Swedish National Testing Institute Sweden - Swiss Testing Service Switzerland TNO Netherlands - ULC Canada - Warrington United Kingdom

Certified by:

Bundesamt für Zivilschutz Germany
ETA Danmark A/S Denmark - Institut für Bautechnik Germany
SINTEF Norway - SP Sweden - Swedish Rescue Services Agency Sweden

Please consult MCT Brattberg for latest updated certificates and approvals.

In 1986 our sealing method and quality system was adapted to meet the rigid requirements of the offshore and nuclear industry, and have been continuously updated to current requirements.

Today MCT Brattberg is assessed and certified by DNV, in accordance with the Quality and Environment Management system standard EN ISO 9001 and 14001, for the design, manufacture and supply of fire barrier and sealed transit systems associated with cable and pipe routes in building and marine environments.

As a direct result of this achievement, quality and environmental assessments are carried out by DNV twice annually.

MCT Brattberg also holds quality certificates and approvals from a wide variety of classification institutions and customers.

The original cable transit

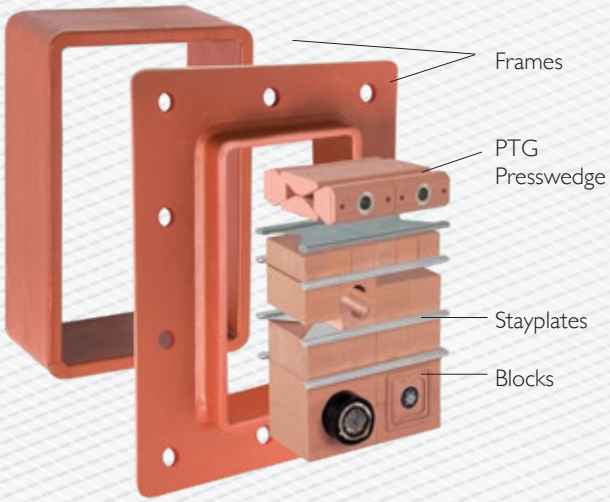
Based on the simple but clever idea of a frame with Insert Blocks and an end seal, the MCT Brattberg is the original transit system.
The MCT Brattberg system was patented in the early 1950s. When oil rigs and nuclear power stations demanded cable and pipe installations with proven safety records, the MCT Brattberg system became a worldwide solution, we´ve been improving it ever since. Comprehensive documentation shows that its resistance to fire, water, gas and pressure meets the latest safety requirements.

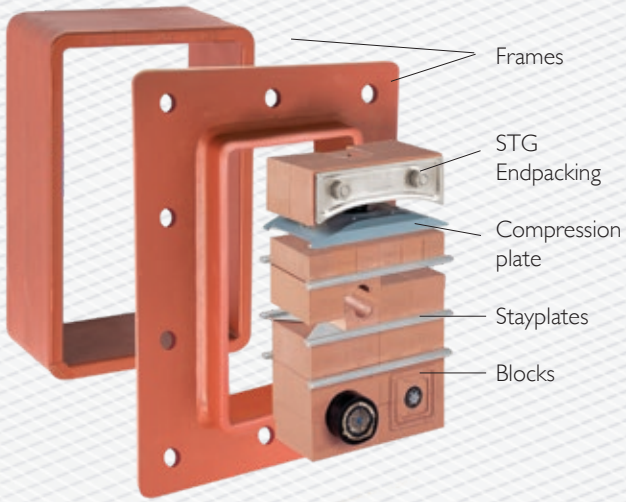
The industry standard

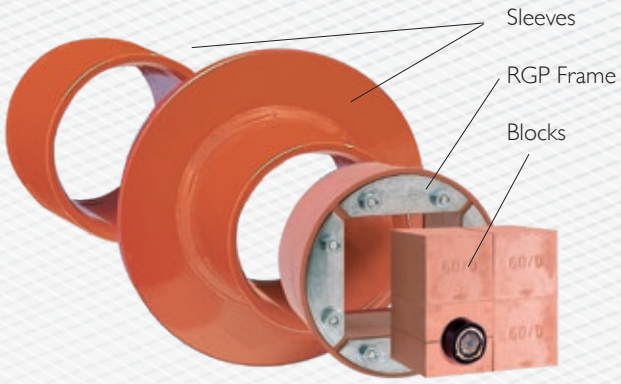
Our own experience has shown that for a standard frame used for maritime applications, an internal width of 120.5 mm (4.74") a depth of 60 mm (2.36") and wall thickness of 10 mm (0.39") are optimal window sizes for maintaining structural strength and for fitting insert blocks. The welded corners are rounded for added strength. Both single and multiple transits frames are available.
The dimensions of the various frames have become the industry standard simply because these types of frames were the first to be introduced and have proved successful over time.

Built in flexibility

The comprehensive range of frames, standard Blocks and other components of our transits provides remarkable application flexibility.
In addition, our product range covers insulation collars and special solutions for EMC transits, SR cable and pipe seals, deck/bulkhead glands.







Special products for specific uses

MCT Brattberg manufactures a number of special products. High pressure secure cable transits, transits for wave guides and blocks with built-in protection against electromagnetic pulse due to lightning or nuclear blast.

High pressure seals

is an example of our special products. Several types of high pressure seals are available. Often these have been designed in collaboration with a customer. They are used, for example, in the supporting legs of oil rigs or in submarines. An example is the RGPH seal, which is certified up to 66.7 bar.

The E-series

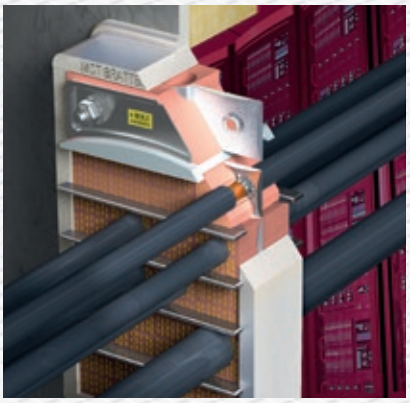
and components provide the same protection as the standard MCT Brattberg system but with added, built-in protection against electromagnetic pulses caused by lightning or nuclear blast.
They also give protection against interference, electronic sabotage and static electricity.
All dimensions are exactly the same as for the other MCT Brattberg components.
The E-series are aproved for Grounding and Bonding.

ATEX and IECEx certified transits

In explosion hazardous environments, it´s important to have Ex equipment. MCT Brattberg has a specific program for this areas with products that are tested and certified according to the ATEX directive and the international IECEx. All dimensions are exactly the same as for the other MCT Brattberg components.

For special products please consult MCT Brattberg.

RGPH is certified up to 66,7 bar



EMC products for grounding and bonding.

Products to protect against explosions.

RGB and RGG

RGBO AND RGGO WITH REMOVABLE END

RGB is MCT Brattbergs standard frame for casting into concrete. RGB comes in four different sizes, in varying height and designates RGB-2, RGB-4, RGB-6 and RGB-8. The width dimension is always the same, 120 mm (4.72") as, well as the depth 60 mm (2.36"). The frame profiles width are 60 mm (2.36") and the thickness of the material is 6 mm (0.24").

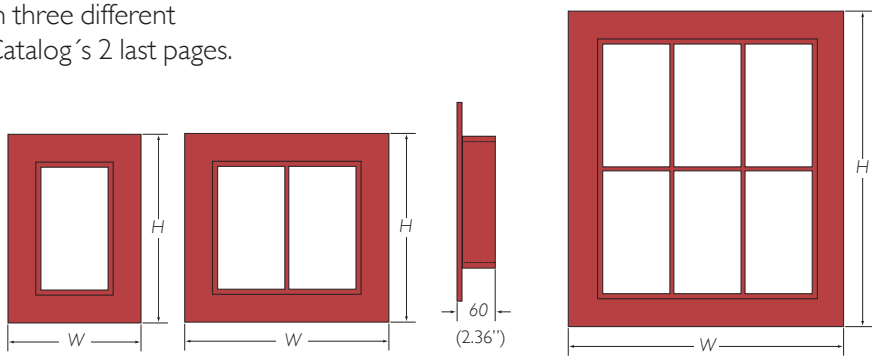
RGB

RGBO

The RGG frame has a standard size flange and pre-drilled holes. The frame is screwed. When mounting through thick walls or floors, the RGG frame can be used together with a pre-drill counterstos to protect edges and keep any insulation in place. RGG has the same dimensions as RGB. The counterstos is available in three different depths to suit different wall thicknesses, see the Catalog´s 2 last pages.

For installations where cable and / or pipes are already drawn, RGGO is used with openable end.

Information about combination frames can be found on page 69.



RGB/RGG-6 *RGB/RGG-6x2* *RGB/RGG-6+6x3*

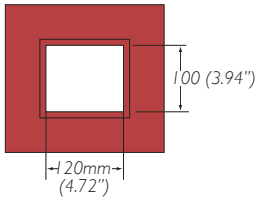
Size in mm (Size in inches)															
H W (width) Combination frames															
FRAME SIZE	(height)	x 1	x 2	x 3	x 4	x 5	x 6		(height)	x 1	x 2	x 3	x 4	x 5	x 6	x n
RGB/RGG-2	221	240.5	371	501.5	632	762.5	893	W = 110+	8.7	9.47	10.67	19.74	24.88	30.2	35.16	W+4.33+
RGB/RGG-4	279.5	- " -	- " -	- " -	- " -	- " -	- „ -	130.5 x n	11.0	- " -	- " -	- " -	- " -	- " -	- " -	5.14 x n
RGB/RGG-6	338	- " -	- " -	- " -	- " -	- " -	- „ -		13.31	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-8	396.5	- " -	- " -	- " -	- " -	- " -	- „ -		15.61	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+2	332	- " -	- " -	- " -	- " -	- " -	- " -		13.07	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+4	390.5	- " -	- " -	- " -	- " -	- " -	- " -		15.37	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+6	449	- " -	- " -	- " -	- " -	- " -	- " -		17.68	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+8	507.5	- " -	- " -	- " -	- " -	- " -	- " -		19.98	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+4	449	- " -	- " -	- " -	- " -	- " -	- " -		17.68	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+6	507.5	- " -	- " -	- " -	- " -	- " -	- " -		19.98	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+8	566								22.28							
RGB/RGG-4+6	566	- " -	- " -	- " -	- " -	- " -	- " -		22.28	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-6+8	624.5	- " -	- " -	- " -	- " -	- " -	- " -		24.59	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+8	683	- " -	- " -	- " -	- " -	- " -	- " -		26.89	- " -	- " -	- " -	- " -	- " -	- " -	

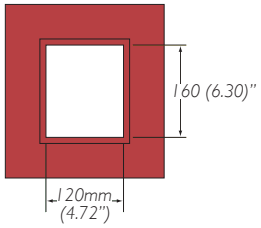
n = number of frames in width. Tolerances single frame: 3.5 mm (0.14").
Thickness of material 6 mm (0.24") except for internal horizontal and vertical walls in combination frames such as 10 mm (0.39").

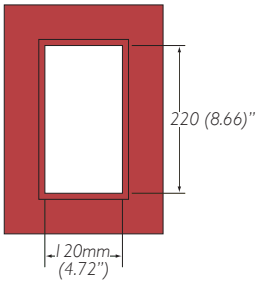
RGG

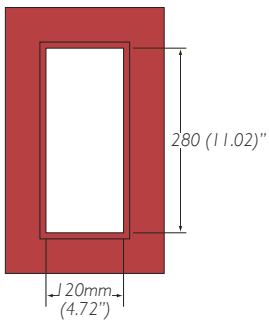
RGGO

Standard frames in four different sizes: 2, 4, 6 and 8 which mark different heights. All have the same width. See below.





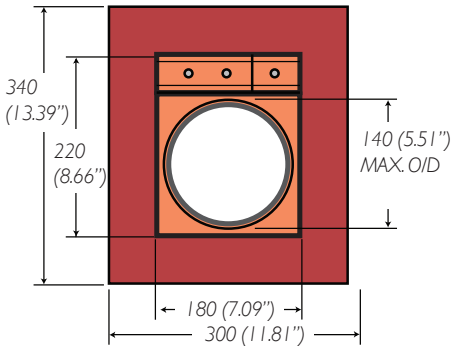




		Weight in kilograms						Weight in pounds					
		W (width) Combination frames											
MATERIAL	FRAME SIZE	x 1	x 2	x 3	x 4	x 5	x 6	x 1	x 2	x 3	x 4	x 5	x 6
STEEL	RGB/RGG-2	3.1	5.0	6.9	8.8	10.7	12.6	6.8	11.0	15.2	19.4	23.5	27.7
	RGB/RGG-4	3.8	5.9	8.1	10.2	12.4	14.6	8.3	13.0	17.8	22.4	27.5	32.1
	RGB/RGG-6	4.4	6.8	9.2	11.5	13.8	16.3	9.7	14.9	20.2	25.3	30.4	35.9
	RGB/RGG-8	5.0	7.7	10.4	13.1	15.8	18.5	11.0	16.9	22.9	28.8	34.8	40.7
SS EN 10025-S235JRG2	RGB/RGG-2+2	5.0	7.9	10.9	13.9	16.8	19.8	11.0	17.4	24.0	30.6	37.0	43.6
DIN RST 37-2	RGB/RGG-2+4	5.6	9.0	12.4	15.7	19.1	22.4	12.3	19.8	27.3	34.6	42.1	49.3
BS 4360 gr: 40	RGB/RGG-2+6	6.2	9.9	13.6	17.3	21.0	24.7	13.6	21.8	29.9	38.1	46.2	54.4
NS 17100	RGB/RGG-2+8	6.9	11.0	15.1	19.2	23.3	27.4	15.2	24.2	33.2	42.3	51.3	60.4
	RGB/RGG-4+4	6.2	9.9	13.6	17.3	21.,0	24.7	13.6	21.8	29.9	38.1	46.2	54.4
	RGB/RGG-4+6	6.9	11.0	15.1	19.2	23.3	27.4	15.2	24.2	33.2	42.3	51.3	60.4
	RGB/RGG-4+8	7.4	11.8	16.2	20.6	25.0	29.4	16.3	26.0	35.7	45.4	55.1	64.8
	RGB/RGG-6+6	7.4	11.8	16.2	20.6	25.0	29.4	16.3	26.0	35.7	45.4	55.1	64.8
	RGB/RGG-6+8	8.1	13.0	17.9	22.7	27.6	32.4	17.8	28.6	39.4	50.0	60.8	71.4
	RGB/RGG-8+8	8.9	14.2	19.5	24.9	30.2	35.5	19.6	31.3	42.9	54.8	66.5	78.2
STAINLESS STEEL	RGB/RGG-2	3.2	5.1	7.1	9.0	11.0	12.9	7.0	11.2	15.6	19.8	24.2	28.4
	RGB/RGG-4	3.9	6.1	8.3	10.5	12.7	14.9	8.5	13.4	18.2	23.1	27.9	32.8
	RGB/RGG-6	4.5	6.9	9.4	11.8	14.2	16.7	9.9	15.2	20.7	26.0	31.3	36.8
	RGB/RGG-8	5.2	7.9	10.7	13.5	16.2	19.0	11.4	17.4	23.5	29.7	35.7	41.8
DIN 1,4404	RGB/RGG-2+2	5.1	8.1	11.2	14.2	17.2	20.3	11.2	17.8	24.5	31.3	37.9	44.7
ASTM/316 L	RGB/RGG-2+4	5.8	9.2	12.7	16.1	19.6	23.0	12.7	20.2	27.9	35.4	43.2	50.7
AiSi 316 L	RGB/RGG-2+6	6.3	10.1	13.9	17.8	21.6	25.4	13.8	22.2	30.6	39.2	47.6	55.9
BS 970 gr: 316 S11	RGB/RGG-2+8	7.1	11.3	15.5	19.7	23.9	28.1	15.6	24.9	34.1	42.4	52.6	61.9
NS 14450	RGB/RGG-4+4	6.3	10.1	13.9	17.8	21.6	25.4	13.8	22.2	30.6	39.2	47.6	55.9
	RGB/RGG-4+6	7.1	11.3	15.5	19.7	23.9	28.1	15.6	24.9	34.1	43.4	52.6	61.9
	RGB/RGG-4+8	7.6	12.1	16.6	21.1	25.6	30.1	16.7	26.6	36.5	46.5	56.4	66.3
	RGB/RGG-6+6	7.6	12.1	16.6	21.1	25.6	30.1	16.7	26.6	36.5	46.5	56.4	66.3
	RGB/RGG-6+8	8.4	13.3	18.3	23.3	28.3	33.3	18.5	29.3	40.3	51.3	62.3	73.4
	RGB/RGG-8+8	9.1	14.6	20.0	25.5	31.0	36.4	20.0	32.1	44.0	56.2	68.3	80.2
ALUMINIUM	RGB/RGG-2	1.1	1.8	2.5	3.1	3.8	4.4	2.4	3.9	5.5	6.8	8.3	9.7
	RGB/RGG-4	1.4	2.1	2.9	3.6	4.4	5.1	3.0	4.6	6.3	7.9	9.7	11.2
	RGB/RGG-6	1.6	2.4	3.2	4.1	4.9	5.7	3.5	5.2	7.0	9.0	10.8	12.5
	RGB/RGG-8	1.8	2.7	3.7	4.6	5.6	6.5	3.9	5.9	8.1	10.1	12.3	14.3
EN AW6082	RGB/RGG-2+2	1.8	2.8	3.9	4.9	5.9	7.0	3.9	6.1	8.5	10.8	13.0	15.4
DIN ALMG SI	RGB/RGG-2+4	2.0	3.2	4.4	5.5	6.7	7,9	4.4	7.0	9.7	12.1	14.7	17.4
1 A 6082	RGB/RGG-2+6	2.2	3.5	4.8	6.1	7.4	8.7	4.8	7.7	10.5	13.4	16.3	19.1
BS H30/6082	RGB/RGG-2+8	2.4	3.9	5.3	6.7	8.2	9.6	5.2	8.5	11.6	14.7	18.0	21.1
TFNS 17305	RGB/RGG-4+4	2.2	3.5	4.8	6.1	7.4	8.7	4.8	7.7	10.5	13.4	16.3	19.1
	RGB/RGG-4+6	2.4	3.9	5.3	6.7	8.2	9.6	5.2	8.5	11.6	14.7	18.0	21.1
	RGB/RGG-4+8	2.6	4.2	5.7	7.2	8.8	10.3	5.7	9.2	12.5	15.8	19.4	22.7
	RGB/RGG-6+6	2.6	4.2	5.7	7.2	8.8	10.3	5.7	9.2	12.5	15.8	19.4	22.7
	RGB/RGG-6+8	2.9	4.6	6.3	8.0	9.7	11.4	6.3	10.1	13.8	17.6	21.3	25.1
	RGB/RGG-8+8	3.2	5.0	6.9	8.7		12.5	7.0	11.0	15.2	19.1	23.3	27.5

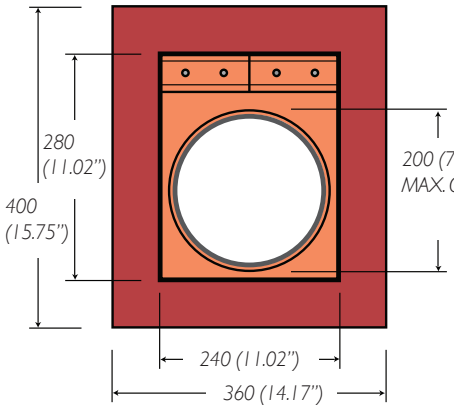
RGB and RGBO, RGG and RGGO

PIPE TRANSITS



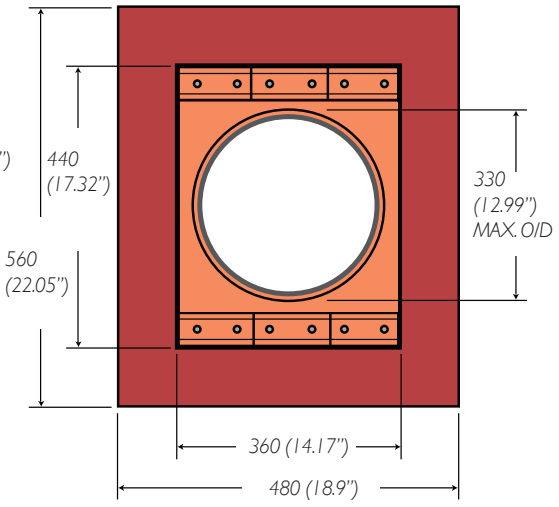
Transit
RGB/RGG-180
RGBO/RGGO-180

Compression
PTG 60 + 120



Transit
RGB/RGG-240
RGBO/RGGO-240

Compression
2 x PTG - 120

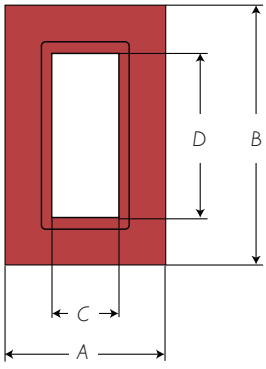


Transit
RGB/RGG-360
RGBO/RGGO-360

Compression
6 x PTG - 120

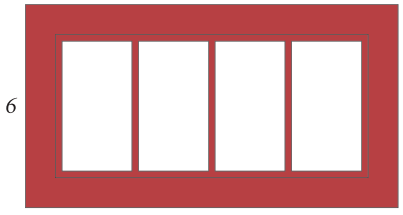
RGB and RGG-1, 3, 5 & 7

EXTRA SMALL WIDTH

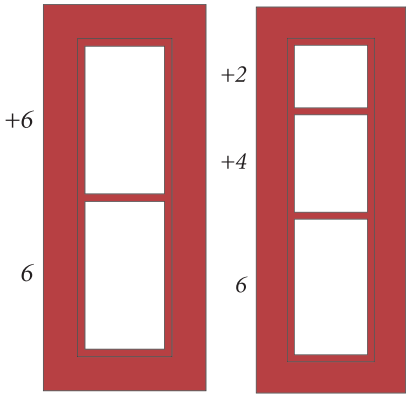


Frames size	Dimensions mm				Dimensions inches			
	A	B	C	D	A	B	C	D
RGB/RGG-1	180	221	60	100	7.09	8.7	2.36	3.94
RGB/RGG-3	180	279,5	60	160	7.09	11.0	2.36	6.30
RGB/RGG-5	180	338	60	220	7.09	13.3	2.36	8.66
RGB/RGG-7	180	396,5	60	280	7.09	15.6	2.36	11.02

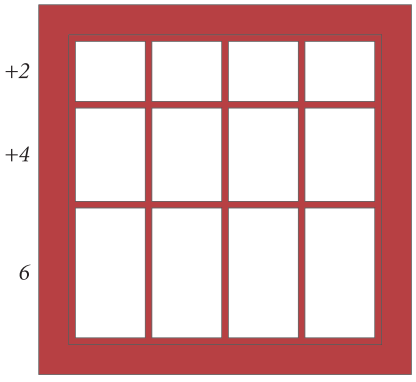
Multiple Frames



Designation: (frame type) 6x4



(frame type) 6+6
(frame type) 6+4+2
Designation (starting at bottom):



(frame type) 6+4+2x4
Designation (starting at bottom):
NOTE: All multiple frame designations must be preceded by the frame type

HORIZONTAL MULTIPLE FRAMES

Horizontal multiple frames are described by listing the frame type and size *x* the desired number of horizontal openings.

VERTICAL MULTIPLE FRAMES

Vertical multiple frames are described by listing the bottom frame type and size + the next frame type and size.

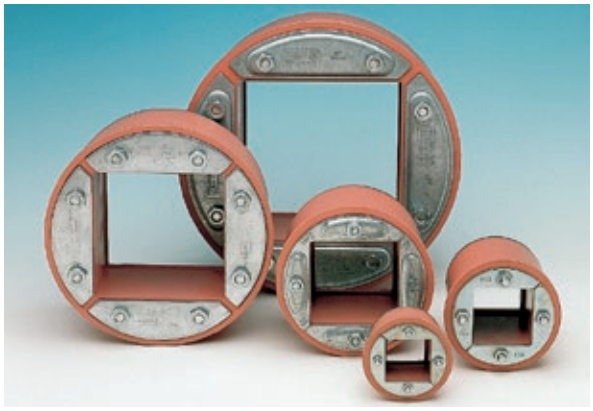
VERTICAL AND HORIZONTAL MULTIPLE FRAMES

List the entire vertical frames *x* the desired number of horizontal repetitions.

RGP-round holes

RGP is a Lycron transit frame for assembly in drilled holes, pipes or in MCT Brattberg sleeves (See Installation Guide, page 127 for dimensions of pipes and drilled holes). It is available in eigt sizes (see table) and is packed with insert blocks. The metal parts are galvanized or stainless steel.

RGPO is a Lycron frame with open sides intended for installation in holes where cables have already been installed. This is also available in seven sizes.

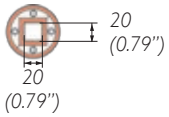
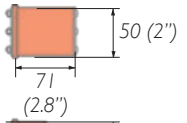
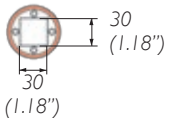
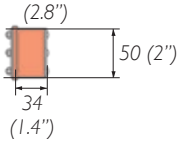
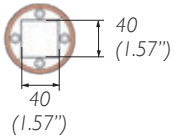
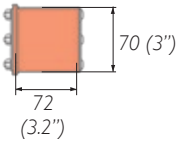
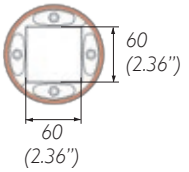
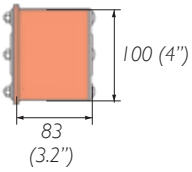
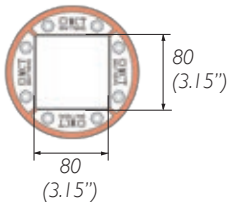
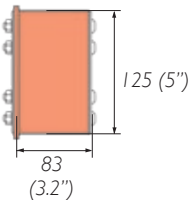
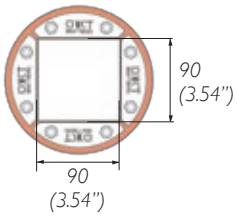
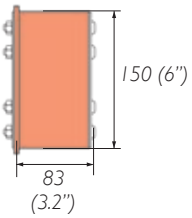
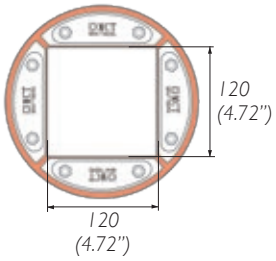
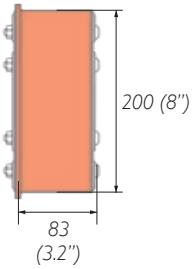
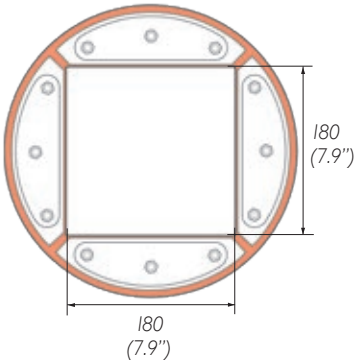
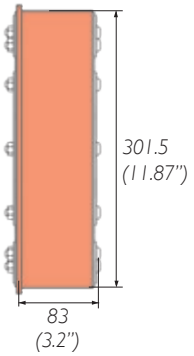


RGP is a circular seal for holes or pipes.

RGPO is an openable RGP frame.

Weight in kilograms		Weight in pounds	
RGP 50/L60	0,25	RGP 2"/L 2.36	0.6
RGP 50/L30	0,11	RGP 2"/L 1.18	0.2
RGP 70	0,4	RGP 3"	0.9
RGP 100	0,7	RGP 4"	1.5
RGP 125	1,0	RGP 5"	2.2
RGP 150	1,8	RGP 6"	4.0
RGP 200	3,0	RGP 8"	6.6
RGP 300	7,5	RGP 11.8"	16.5

Dimensions in mm (inches)

FRAME SIZE	PACKING AREA	DEPTH AND DIAMETER
RGP 50/L60 *(2"/L2.36)*		
RGP 50/L30 *(2"/L1.18)*		
RGP 70 *(3")*		
RGP 100 *(4")*		
RGP 125 *(5")*		
RGP 150 *(6")*		
RGP 200 *(8")*		
RGP 300 *(11.8")*		

Sleeves for RGP and RGPO Frame

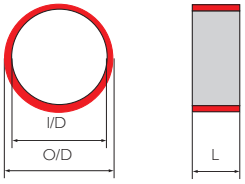
MCT Brattberg standard sleeves are available in seven sizes, for welding or bolting to the structure.

The standard materials are mild steel, stainless steel and aluminium. SFRB is also available in an open version (SFRBO).

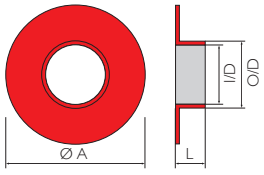
SFRBO

SFR SFRB S

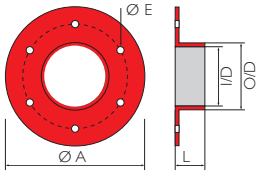
TYPE S WITHOUT FLANGE



TYPE SFR WITH ROUND FLANGE



TYPE SFRB WITH ROUND FLANGE AND PRE DRILLED HOLES



Type S without flange							
Type/Dimension	O/D mm	L mm	Weight kg	Type/Dimension	O/D inch	L inch	Weight lbs
S 50/L30	63	35	0,3	32"/L 1.18	2.5	1.2	0.7
S 50/L60	63	70	0,6	32"/L 2.36	2.5	2.8	1.3
S 70	83	70	0,8	S-3	3.52	3.2	1.8
S 100	114	82	1,3	S-4	4.55	3.2	1.8
S 125	139	82	1,6	S-5	5.55	3.2	1.8
S 150	164	82	1,9	S-6	6.55	3.2	1.8
S 200	214	82	2,6	S-8	8.55	3.2	1.8
S 300	316	85	4,5	S-11.8	12.44	3.4	9.9

Dimensions for pipes and drilled holes see page 127

Dimensions for pipes and drilled holes see page 127

Sleeves can also be supplied to US Standard Diameters.

Type SFR and SFRB with round flange													
Type/Dimension	O/D mm	L mm	A mm	E mm	Weight kg	Qty of holes	Type/Dimension	O/D inch	L inch	A inch	E inch	Weight lbs	Qty of holes
SFR/SFRB 50/L30	63	38	145	9	0,9	4	SFR/SFRB 2"/L 1.18	2.48	1.5	6	0.35	2.0	4
SFR/SFRB 50/L60	63	73	145	9	1,2	4	SFR/SFRB 2"/L 2.36	2.48	2.9	6	0.35	2.6	4
SFR/SFRB 70	83	74	185	9	2,1	4	SFR/SFRB 3"	3.27	2.9	7.5	0.35	4.6	4
SFR/SFRB 100	114	86	215	9	2,9	4	SFR/SFRB 4"	4.49	3.4	8.5	0.35	6.4	4
SFR/SFRB 125	140	86	240	9	3,7	4	SFR/SFRB 5"	5.51	3.4	9.5	0.35	8.2	4
SFR/SFRB 150	164	86	264	11	4,2	6	SFR/SFRB 6"	6.46	3.4	10.5	0.43	9.3	6
SFR/SFRB 200	214	86	315	11	5,1	6	SFR/SFRB 8"	8.43	3.4	12.5	0.43	11.2	6
SFR/SFRB 300	316	89	398	11	8,5	10	SFR/SFRB 11.8"	12.44	3.5	15.7	0.43	18.7	10

Dimensions for pipes and drilled holes see page 127

Dimensions for pipes and drilled holes see page 127

Components

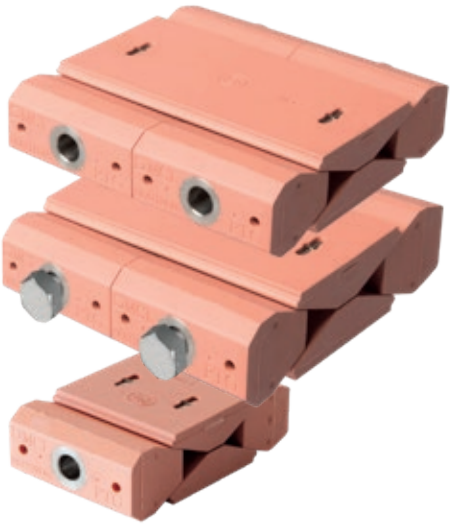
PTG-PRESSWEDGE

Can be used as an alternative to compression plate and STG. Can also be placed anywhere in the frame. Made of Lycron, with stainless steel fittings.
Must always be installed in combination with a stayplate.

PTG Allen

PTG Hex

PTG Allen 60



STAYPLATE

To be placed between each row of blocks. Stayplates simplyfies installation, increases stability and anchores blocks within the frame.
Plates come in galvanized or stainless steel and aluminium.

Stayplate

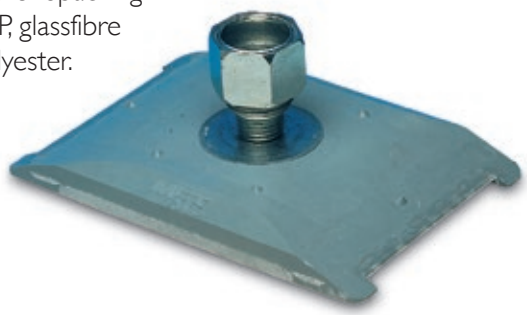
Stayplate 60

STG-ENDPACKING

Installed between compression plate and the top of the frame, completing the seal. Made of Lycron with galvanized or stainless steel fittings.

COMPRESSION PLATE

Usually assembled above top row of blocks. The plate bolt is tightened to compress blocks around cables, while providing room for STG endpacking.
Comes in GRP, glassfibre reinforced polyester.



LUBRICANT 30 g / 25 ml (0.07 pound / 0.85 oz)

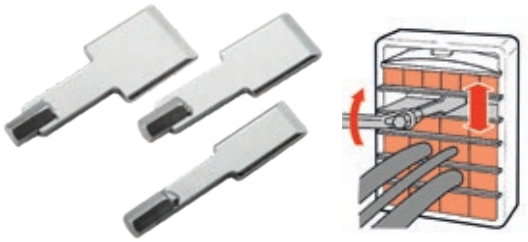
For easier insallation and must be used with pressure-tight installation,

Component	Weight in kilograms	Weight in pounds
Compression Plate	0.24	0.53
STG	0.6	1.32
PTG 120 Hex and Allen	0.83	1.81
PTG 60 Hex and Allen	0.41	0.9
Stayplate	0.13	0.29
Stayplate 60	0.02	0.04

Accessories

SPACER TOOL

Simplifies insertion of last row of blocks.
20, 30, 40 mm (0.79", 1.18", 1.57")



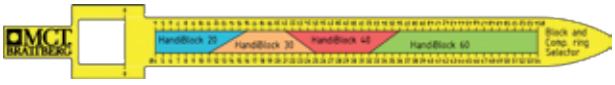
BLOCK SELECTOR

For cable/pipe measurement.

STD insert

AddBlock

HandiBlock



RING SPANNER.

For end packer & RGP installation.

CABLE SEPARATOR

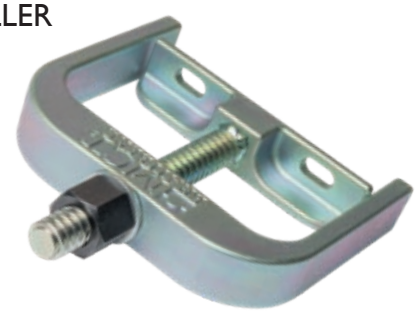
Support cables during installation.

PACKING TOOL

Compresses insert block to hold cable/pipes during partial installations.

END PACKER PULLER

For re-entry into system.



QUICK RELEASE SPANNER

For Compression Plate Installation.

BLANKING PLATE

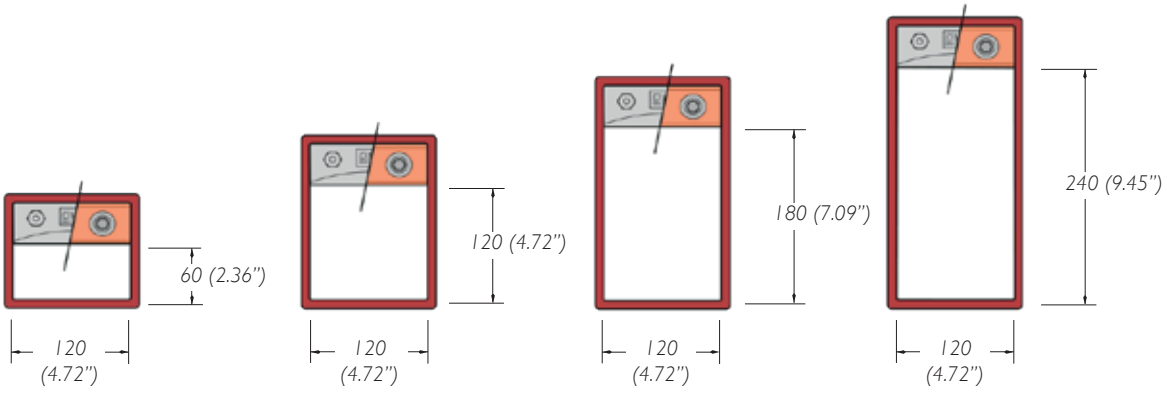
Seals frame prior to block installation.

Ingress protection IP65/66

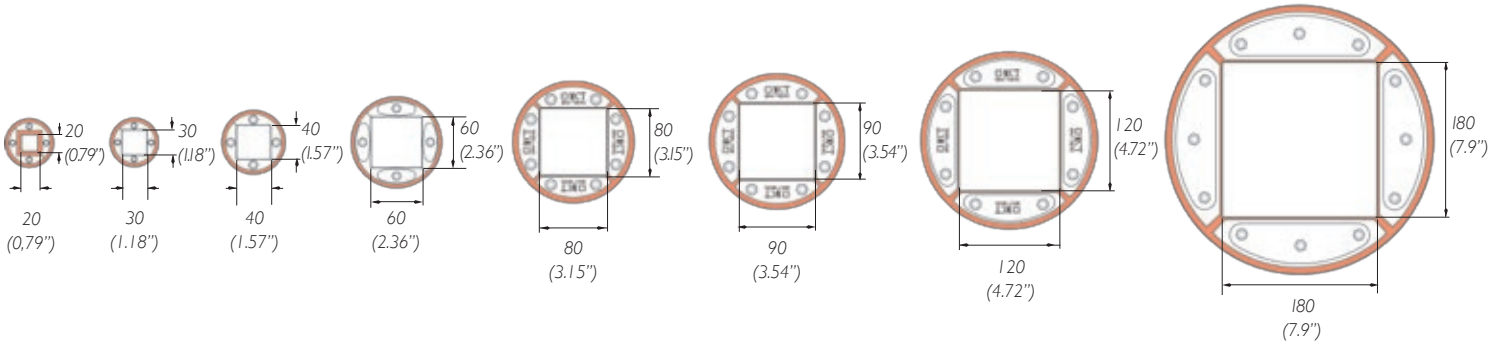
More information about our tools, see our website, mctbrattberg.com

Planning the Packing Space

The space in a frame, which can be used exclusively for holding Insert Blocks, is called the packing space. In the RGS-type frames the compression system always occupies 40 mm (1.57") of each frame.
In the RGP frames no compression system or stayplates are necessary. Therefore the packing space consists of the entire interior area of the frame.
Tables to help you determine which Insert Block to use are on pages 78-79 (Standard Blocks), 80-81 (AddBlocks) and 82-83 (HandiBlocks)

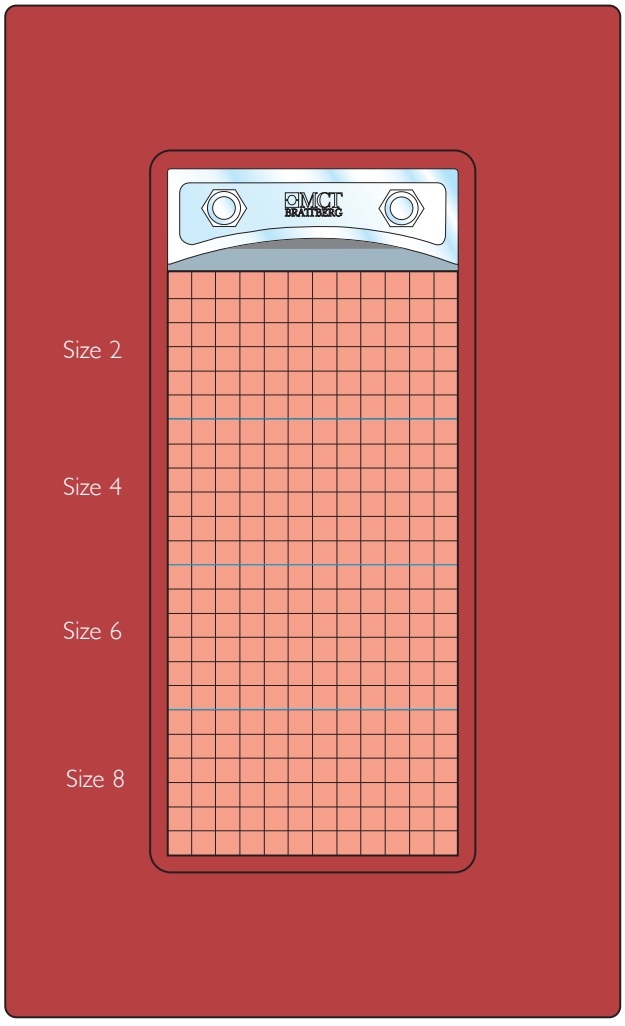


RGS 2 RGS 4 RGS 6 RGS 8



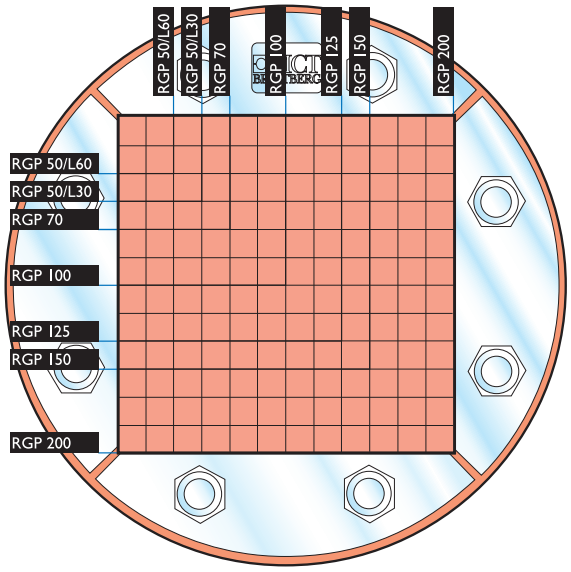
RGP 50/L60 (2"/L2.36) RGP 50/L30 (2"/L1.18) RGP 70 (3") RGP 100 (4") RGP 125 (5") RGP 150 (6") RGP 200 (8") RGP 300 (11.8")

RGB maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGB/RGG-2	32	18	8	3	2	-	-
RGB/RGG-4	64	36	16	9	4	1	1
RGB/RGG-6	96	54	24	12	6	2	1
RGB/RGG-8	128	72	32	18	8	2	2



RGP maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGP 50/L30 RGP (2"/L2.36)	4	1	1	-	-	-	-
RGP 50/L60 RGP(2"/L1.18)	1	1	-	-	-	-	-
RGP 70 RGP (3")	4	4	1	1	-	-	-
RGP 100 RGP (4")	16	9	4	1	1	-	-
RGP 125 RGP (5")	25	16	4	1	1	-	-
RGP 150 RGP (6")	36	16	9	4	1	1	-
RGP 200 RGP (8")	64	36	16	9	4	1	1
RGP 300 RGP (11,8")	0	0	0	0	0	0	0

A couple of examples of pack plans (RG Plan) are shown here. RGB to the left and RGP below. The largest cables are placed at the bottom.



Combination frame width compared with width of cable tray						
Cable type		Cable tray width in mm /inches				
		150 /5.91	200/7.87	300/11.81	400/15.75	600/23.63
Signal	Frame size	6	6x2	6x3	6x4	6x5
Power		4	4x2	4x3	4x4	4x5
Combination		6	6x2	6x3	6x4	6x5

Packing Plan

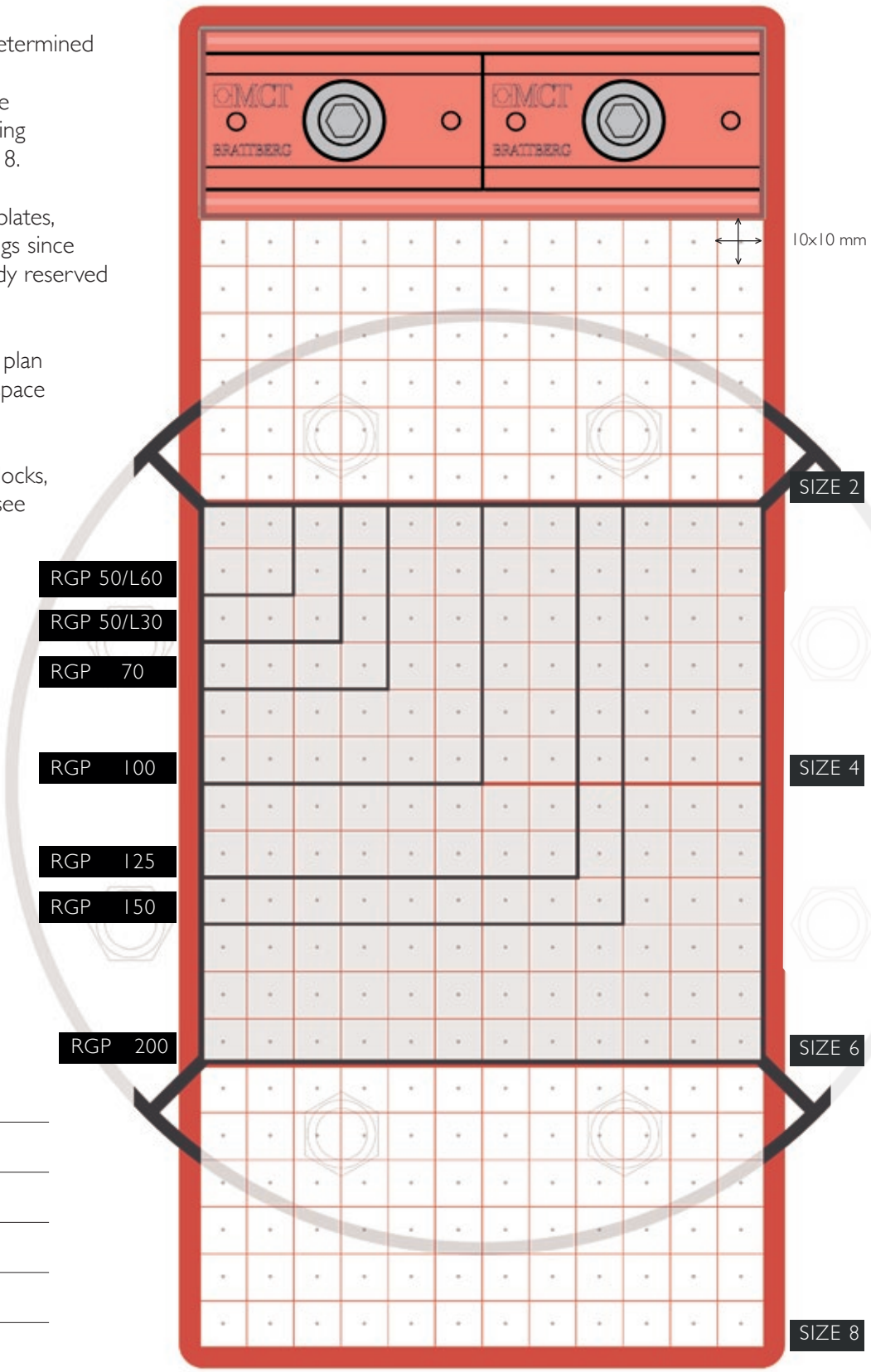
RGB, RGG and RGP

The correct frame size can be determined by using this plan.
The notes to the right side of the plan represent the available packing space for Frame sizes 2, 4. 6 and 8.

It is not necessary to show stay plates, compression plates or endpackings since sufficient space for these is already reserved in the tables.

The notes to the left side of the plan Represent the available packing space for the different RGP frames.

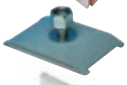
Dimensions of Standard insert blocks, Add-blocks, Plugs and U-blocks, see pages 78-83



PTG Allen

PTG Hex

STG



Compression plate

Stayplate

Blocks

RGPlan

WEB-BASED DESIGN SOFTWARE

Configure cable/pipe penetrations quickly and easily with our Web-based design software. Its faster and simpler than time-consuming manual methods. It´s perfect solution for busy engineers/designers.

It´s free and completely web based. Log in to access your projects anywhere. You can share projects with team members to allow them to edit and configure the transits. Bult with smart functions, to help reduce your transit planning time. Simply input the transit requirements and RGPlan automatically configures the seal, along with all necessary components, Insert Blocks, stayplates and compression systems – at the touch of a button. The program now offers many unique editing features, multiple transit calculation and a simple format to deliver well designed MCT Brattberg transits.

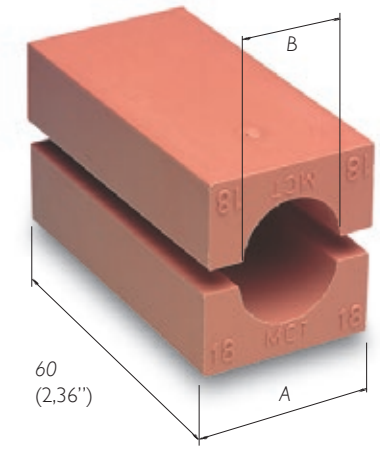
Web-based design software
gives a lot of opportunities, including following:

- Create a favorite list of your most used cables for easy access.
- Import new cables from Excel buy using a cable list template.
- Categorize and highlight placed cables for easy overview, for example to separate high voltage cables and sensitive data cables.
- Add team members to a project to allow them to edit and configure the transits within the project.
- Every progress you make is autosaved in realtime.
- Download project reports, Bom:s and drawings at any time.

Web-based design software
The service is free of charge and no download is required.
rgplan.mctbrattberg.com

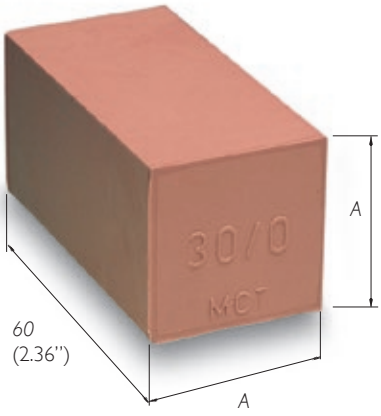
Standard Blocks

Our range of blocks accomodates cables beween 3,5 - 101,5 mm (0.14-4.0") in diameter. It is important that the insert block is the right size, with respect to the cable, to ensure a proper seal.
Measure the cable diameters carefully and choose insert blocks accordingly. With the sizing chart on next page you can choose the correct size of insert blocks.
Blocks are referred to by their width (A) and hole diameter (B). Thus a block with a width of 15 mm (0.59") and a hole diameter of 4 mm (0.16") is referred to as 15/4. This designation is moulded into the block.
Certain markets denote Insert Bocks in pairs. Please consult MCT Brattberg for this information.



SpareBlocks

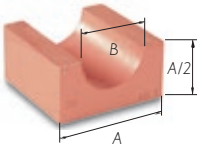
Spare room in each frame is filled out with solid insert blocks. Called spares, they bear the designation A/0.
Blocks are referred to by their width (A), followed by the designation /0 (indicating solid). Thus a block with a width and height of 15 mm (0.59") is referred to as 15/0.
The length of insert blocks is always 60 mm (2.36")



Block size in mm Width (A) = Height (A)	Size in inches	BLOCK DESIGNATION
5 x 5 Only in strips of 24 pcs	0.20" x 0.20" Only in strips of 24 pcs	24x5/0
10 x 10 Only in strips of 12 pcs	0.39" x 0.39" Only in strips of 12 pcs	12x10/0
15 x 15	0.59" x 0.59"	15/0
20 x 20	0.79" x 0.79"	20/0
30 x 30	1.18" x 1.18"	30/0
40 x 40	1.58" x 1.58"	40/0
60 x 60	2.36" x 2.36"	60/0
90 x 30	3.54" x 1.18	90x30/0

CABLE DIAM.	A (mm)				B
	15	20	30	40	
3.5-4.5	15/4	20/4			4
4.5-5.5	15/5	20/5			5
5.5-6.5	15/6	20/6			6
6.5-7.5	15/7	20/7			7
7.5-8.5	15/8	20/8			8
8.5-9.5	15/9	20/9			9
9.5-10.5		20/10			10
10.5-11.5		20/11			11
11.5-12.5		20/12	30/12		12
12.5-13.5		20/13	30/13		13
13.5-14.5		20/14	30/14		14
14.5-15.5			30/15		15
15.5-16.5			30/16		16
16.5-17.5			30/17		17
17.5-18.5			30/18		18
18.5-19.5			30/19		19
19.5-20.5			30/20		20
20.5-21.5			30/21		21
21.5-22.5			30/22	40/22	22
22.5-23.5			30/23	40/22	23
23.5-24.5			30/24	40/24	24
24.5-25.5				40/24	24

CABLE DIAM.	A (mm)			B
	40	60	90	
25.5-27.5	40/26			26
27.5-29.5	40/28			28
29.5-31.5	40/30			30
31.5-33.5	40/32	60/32		32
33.5-35.5	40/34	60/34		34
35.5-37.5		60/36		36
37.5-39.5		60/38		38
39.5-41.5		60/40		40
41.5-43.5		60/42		42
43.5-45.5		60/44		44
45.5-47.5		60/46		46
47.5-49.5		60/48		48
49.5-51.5		60/50	90/50	50
51.5-53.5		60/52	90/52	52
53.5-55.5		60/54	90/54	54

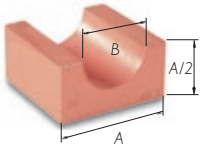


Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 15 mm and a hole diameter of 4 mm is referred to as 15/4.

CABLE DIAM.	A (mm)		B
	90	120	
55.5-57.5	90/56		56
57.5-59.5	90/58		58
59.5-61.5	90/60		60
61.5-63.5	90/62		62
63.5-65.5	90/64		64
65.5-67.5	90/66		66
67.5-69.5	90/68		68
69.5-71.5	90/70		70
71.5-73.5		120/72	72
73.5-75.5		120/74	74
75.5-77.5		120/76	76
77.5-79.5		120/78	78
79.5-81.5		120/80	80
81.5-83.5		120/82	82
83.5-85.5		120/84	84
85.5-87.5		120/86	86
87.5-89.5		120/88	88
89.5-91.5		120/90	90
91.5-93.5		120/92	92
93.5-95.5		120/94	94
95.5-97.5		120/96	96
97.5-99.5		120/98	98
99.5-101.5		120/100	100

CABLE DIAM.	A (inches)				B
	0.59	0.79	1.18	1.58	
0.14–0.18	15/4	20/4			0.16
0.18–0.22	15/5	20/5			0.20
0.22–0.26	15/6	20/6			0.24
0.26–0.30	15/7	20/7			0.28
0.30–0.33	15/8	20/8			0.31
0.33–0.37	15/9	20/9			0.35
0.37–0.41		20/10			0.39
0.41–0.45		20/11			0.43
0.45–0.49		20/12	30/12		0.47
0.49–0.53		20/13	30/13		0.51
0.53–0.57		20/14	30/14		0.55
0.57–0.61			30/15		0.59
0.61–0.65			30/16		0.63
0.65–0.69			30/17		0.67
0.69–0.73			30/18		0.71
0.73–0.77			30/19		0.75
0.77–0.81			30/20		0.79
0.81–0.85			30/21		0.83
0.85–0.89			30/22	40/22	0.87
0.89–0.93			30/23	40/22	0.91
0.93–1.00			30/24	40/24	0.95
				40/24	

CABLE DIAM.	A (inches)			B
	1.58	2.36	3.55	
1.00-1.10	40/26			1.02
1.10-1.16	40/28			1.10
1.16-1.24	40/30			1.18
1.24-1.32	40/32	60/32		1.26
1.32-1.40	40/34	60/34		1.34
1.40-1.48		60/36		1.42
1.48-1.55		60/38		1.50
1.55-1.63		60/40		1.58
1.63-1.71		60/42		1.65
1.71-1.79		60/44		1.73
1.79-1.87		60/46		1.81
1.87-1.95		60/48		1.89
1.95-2.03		60/50	90/50	1.97
2.03-2.11		60/52	90/52	2.05
2.11-2.18		60/54	90/54	2.13



Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 0.59" and a hole diameter of 0.16" is referred to as 15/4.

CABLE DIAM.	A (inches)		B
	3.55	4.73	
2.18–2.26	90/56		2.21
2.26–2.34	90/58		2.29
2.34–2.42	90/60		2.36
2.42–2.50	90/62		2.44
2.50–2.58	90/64		2.52
2.58–2.66	90/66		2.60
2.66–2.74	90/68		2.68
2.74–2.81	90/70		2.76
2.81–2.89		120/72	2.84
2.89–2.97		120/74	2.92
2.97–3.05		120/76	2.99
3.05–3.13		120/78	3.07
3.13–3.21		120/80	3.15
3.21–3.29		120/82	3.23
3.29–3.36		120/84	3.31
3.36–3.44		120/86	3.39
3.44–3.52		120/88	3.47
3.52–3.60		120/90	3.55
3.60–3.68		120/92	3.62
3.68–3.76		120/94	3.70
3.76–3.84		120/96	3.78
3.84–3.92		120/98	3.86
3.92–3.99		120/100	3.94

Weight in grams per half

BLOCK	W
24 x 5/0	58
12 x 10/0	113
15/0	20
20/0	38
30/0	84
40/0	150
60/0	338
90x30/0	279
15/4	10
15/5	10
15/6	10
15/7	10
15/8	9
15/9	8
20/4	18
20/5	18
20/6	17
20/7	17
20/8	16
20/9	15
20/10	14

BLOCK	W
20/11	13
20/12	13
20/13	12
20/14	11
30/12	36
30/13	36
30/14	35
30/15	34
30/16	33
30/17	31
30/18	30
30/19	28
30/20	27
30/21	25
30/22	24
30/23	22
30/24	21
40/22	57
40/24	54
40/26	50
40/28	47

BLOCK	W
40/30	42
40/32	37
40/34	32
60/32	131
60/34	127
60/36	122
60/38	116
60/40	110
60/42	104
60/44	98
60/46	91
60/48	84
60/50	77
60/52	59
60/54	61
90/50	287
90/52	279
90/54	273
90/56	262
90/58	255
90/60	243

BLOCK	W
90/62	239
90/64	229
90/66	220
90/68	211
90/70	204
120/72	494
120/74	485
120/76	472
120/78	462
120/80	448
120/82	437
120/84	425
120/86	415
120/88	403
120/90	385
120/92	368
120/94	360
120/96	351
120/98	332
120/100	313
120/108	243

Weight in oz per half

BLOCK	W
24 x 5/0	2.0
12 x 10/0	4.0
15/0	0.7
20/0	1.3
30/0	3.0
40/0	5.3
60/0	11.9
90x30/0	9.8
15/4	0.4
15/5	0.4
15/6	0.4
15/7	0.4
15/8	0.3
15/9	0.3
20/4	0.6
20/5	0.6
20/6	0.6
20/7	0.6
20/8	0.6
20/9	0.5
20/10	0.5

BLOCK	W
20/11	0.5
20/12	0.5
20/13	0.4
20/14	0.4
30/12	1.3
30/13	1.3
30/14	1.2
30/15	1.2
30/16	1.2
30/17	1.1
30/18	1.0
30/19	1.0
30/20	1.0
30/21	0.9
30/22	0.8
30/23	0.8
30/24	0.7
40/22	2.0
40/24	1.9
40/26	1.8
40/28	1.7

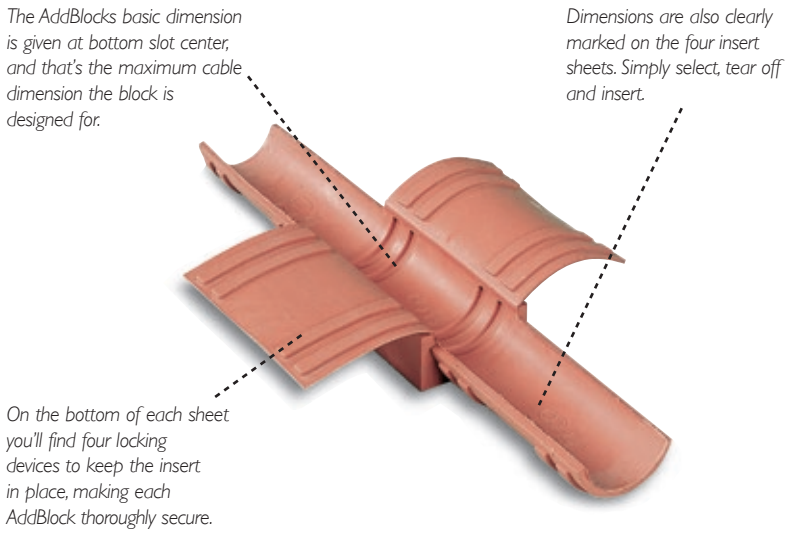
BLOCK	W
40/30	1.5
40/32	1.3
40/34	1.1
60/32	4.7
60/34	4.5
60/36	4.3
60/38	4.1
60/40	3.9
60/42	3.7
60/44	3.5
60/46	3.2
60/48	3.0
60/50	2.7
60/52	2.4
60/54	2.2
90/50	10.1
90/52	9.8
90/54	9.6
90/56	9.2
90/58	9.0
90/60	8.6

BLOCK	W
90/62	8.4
90/64	8.1
90/66	7.7
90/68	7.4
90/70	7.2
120/72	17.4
120/74	17.1
120/76	16.6
120/78	16.3
120/80	15.8
120/82	15.4
120/84	15.0
120/86	14.6
120/88	14.2
120/90	13.6
120/92	13.0
120/94	12.7
120/96	12.3
120/98	11.7
120/100	11.0
120/108	8.6

AddBlock

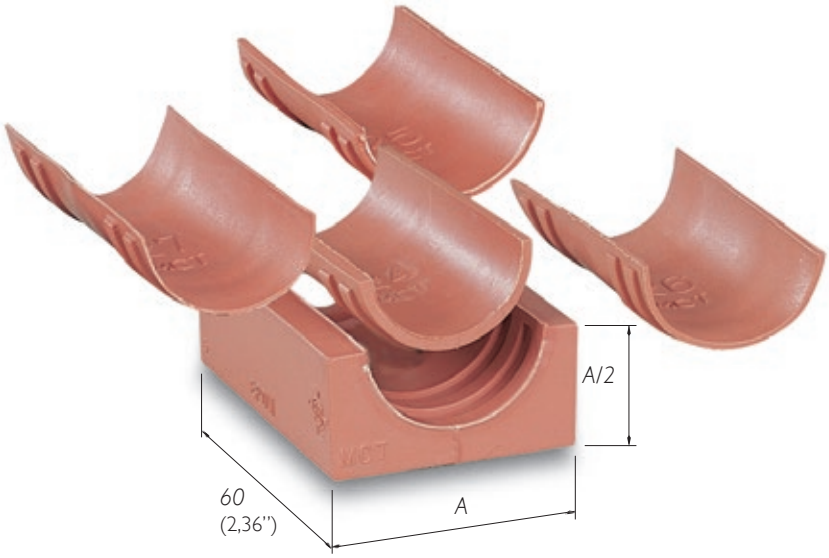
There are eleven different sizes of AddBlock. By tearing off the wing-like inserts, which are of varying thickness, and inserting them in the main block it is possible to accommodate 66 different cable and pipe dimensions, from 3.5 mm (0.14") to 69.5 mm (2.74"). The inserts are fitted with a locating ridge that fits exactly into furrows in the main block. These stop the block from "telescoping".

A seal using AddBlocks is as secure and tight as one using standard blocks. Both types can be combined in a transit, which makes the MCT Brattberg seal system very flexible.



Eleven blocks and 66 dimensions

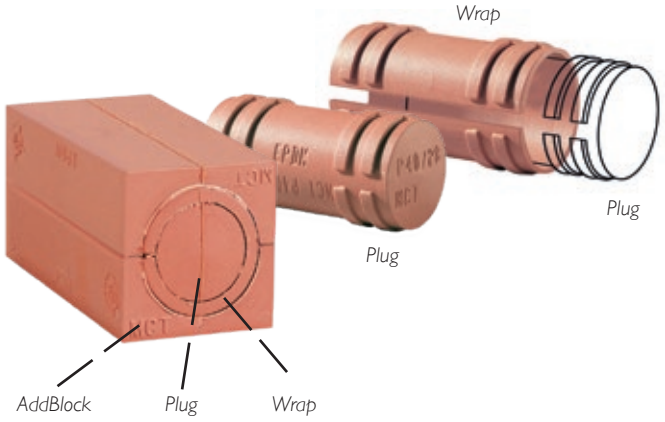
AddBlocks are all the same length as standard Blocks, 60 mm (2.36"). The width of standard Blocks (A measurement, see table) are 20, 30, 40, 60 or 90 mm, (0.79"), (1.18"), (1.57"), (2.36") or (3.54")



ADDBLOCK DIMENSION	CABLE OR PIPE DIMENSION (mm)	WEIGHT PER HALF (G)	CABLE OR PIPE DIMENSION(inches)	WEIGHT PER HALF (oz)
20/4 - 8	3,5 - 8.,5	23	0.14 - 0.33	0.8
20/9 - 13	8.,5 - 13,5	23	0.33 - 0.53	0.8
30/14 - 18	13.,5 - 18,5	45	0.53 - 0.72	1.6
30/19 - 23	18,5 - 23,5	43	0.72 - 0.93	1.5
40/24 - 28	23,5 - 28,5	71	0.93 - 1.12	2.5
40/29 - 33	28,5 - 33,5	62	1.12 - 1.32	2.2
60/34 - 38	33,5 - 38,5	150	1.32 - 1.52	5.3
60/39 - 43	38,5 - 43,5	136	1.52 - 1.71	4.8
60/44 - 48	43,5 - 49,5	128	1.71 - 1.95	4.5
90/50 - 58	49.,5 - 59,5	348	1.95 - 2.34	12.3
90/60 - 68	59,5 - 69,5	318	2.34 - 2.74	11.2

Plugs and Wraps

The plug's main purpose is to prepare coming installations by creating a spare block together with an AddBlock. Once the cable penetration is to be done, the plug is removed and the AddBlock is reused.



In the table you see which plug, or combination of plug and wrap-around casing, to use when turning an AddBlock into a spare block.

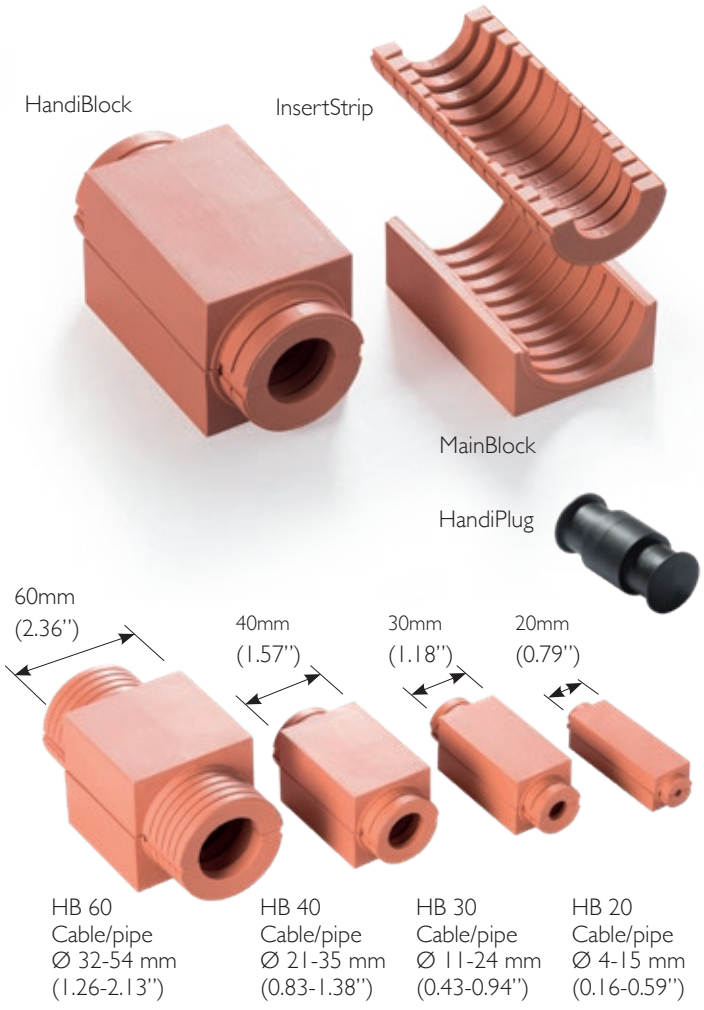
ADDBLOCK	PLUG	WRAP
20/4 - 8	P20/8	
20/9 - 13	P20/8 +	W20/8-13
30/14 - 18	P30/18	
30/19 - 23	P30/18 +	W30/18-23
40/24 - 28	P40-28	
40/29 - 33	P40-28 +	W40/28-33
60/34 - 38	P60/38	
60/39 - 43	P60/38 +	W60/38-43
60/44 - 48	P60/38 +	W60/38-43 and W60/43-48

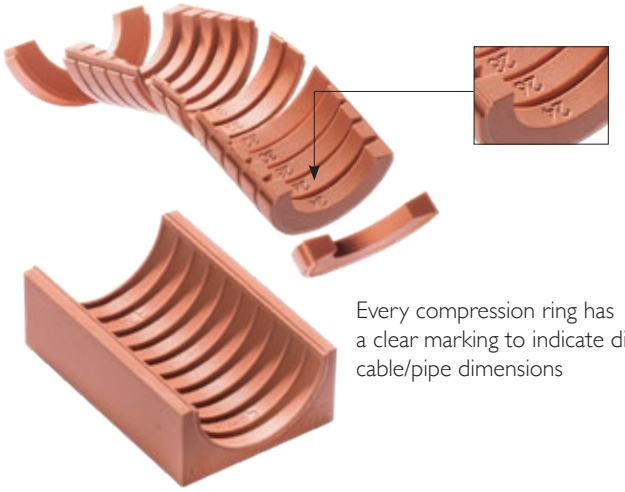
HandiBlock

The HandiBlock is designed to facilitate installation and minimize errors, allowing correction of errors and consequently minimization of wastage.

With HandiBlock the transit can always be pre-packed. If a cable or pipe is missing during assembly, the block is quickly rebuilt with a HandiPlug to a closed block and the transit can be completed at a later time.

HandiBlock is available in four sizes to fit cables and pipes or tubing from Ø 4 to 54 mm (Ø 1.58" to 2.13"). A HandiBlock consists of two compact MainBlocks with grooves on the inside and two inserts consisting of many compressed rings in different sizes. Each ring has clear markings for different cable sizes. It helps the technican to quickly and safely choose the right size of block, insert and ring. HandiBlock's design creates a seal as in compression do not deform the parts of the block. This means that all parts can be reused when repacking.





Every compression ring has a clear marking to indicate different cable/pipe dimensions

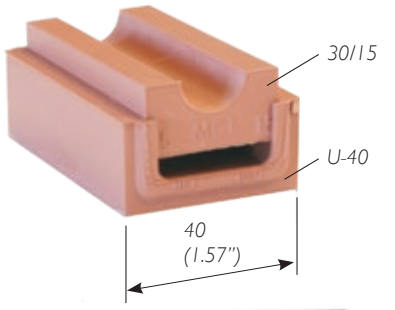
Extra fire protection! The part of the InsertStrip that protrudes from the MainBlock, acts as a small but effective heat shield.

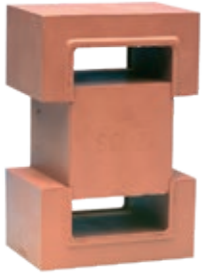
Size		HandiBlock complete with Plug		HandiBlock without Plug		Plug		Mainblock		Insert Strip	
mm	(inches)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)	gram	(Oz)
20	0.79	37	1.31	32	1.13	5	0.18	22	0.78	10	0.35
30	1.18	90	3.17	73	2.57	17	0.60	46	1.62	27	0.95
40	1.57	150	5.29	117	4.13	33	1.16	72	2.54	44	1.55
60	2.36	382	13.58	300	10.58	85	3.00	155	5.47	144	5.08

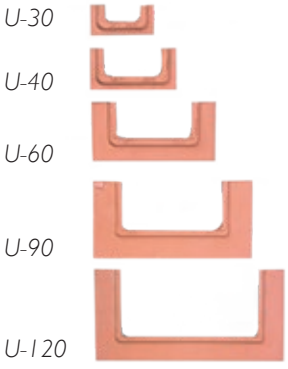
U-Blocks

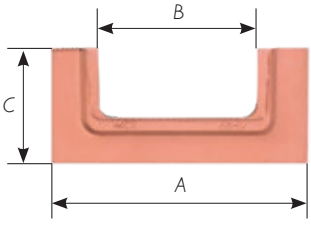
The U-Block is used to convert the external dimensions of InsertBlocks, AddBlocks and HandiBlocks to the next modular size.

For example a 30/15 InsertBlock can be enlarged by placing it into a U40, giving the new size of 40/15.

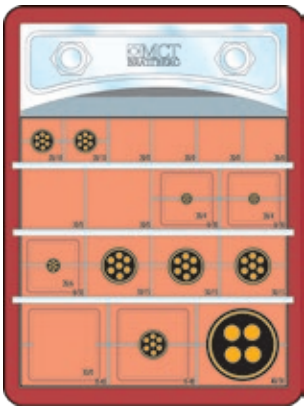




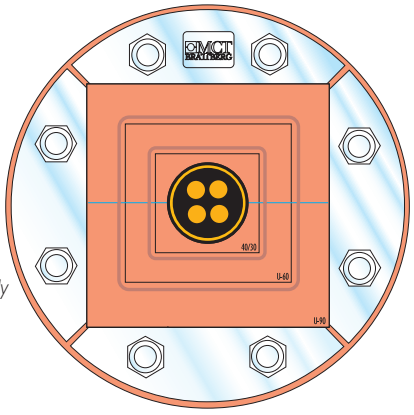




Dimensions U-BLOCK	A		B		C	
	mm	(inches)	mm	(inches)	mm	(inches)
U-30	30	1.18	20	0.79	15	0.59
U-40	40	1.57	30	1.18	20	0.79
U-60	60	2.36	40	1.57	30	1.18
U-90	90	3.54	60	2.36	45	1.77
U-120	120	4.72	90	3.54	45	1.77



Regardless of cable diameter, you can retain the outer measurement of the block in any row.



With U-Blocks, you can easily center the cable or pipe in your RGP installation.

X-series cable transit

The MCT Brattberg X-series is a truly unique cable transit system which features an instant SNAP-FIT cable seal designed to accommodate any cable diameter from 2,5mm (0.1") right up to 34,5mm (1.36"), with the flexibility for future expansion of systems within existing frames.

Incorporating a simple staybar securing mechanism, no special tools are required to assemble this ultra-lightweight unit. Because until installation, seales are not subject to any compression, they are sure to stay perfectly shaped and will not suffer from deformation. The unit is sealed prior to cabling, requires no painting and maintenance is kept to an absolute minimum.

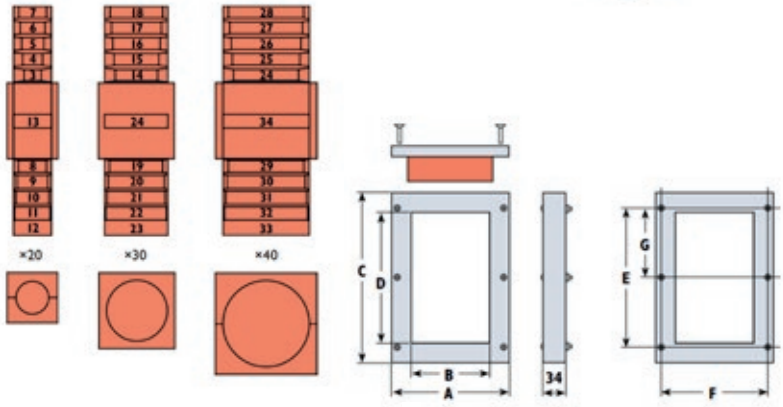
Frames

Specification

- Polyester glass filled compression moulding
- UV stabilised material with low smoke
- Ultra low weight
- High strength

Frames supplied with:

- Compression screws (M6 countersunk head)
- Compression system
- Gasket
- Optional extras include adaptor flange, Blanking plate, Allen key. Details on request

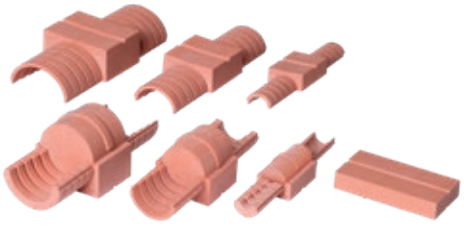


34 mm
(1,34")

Staybars
Stainless steel 3 mm (0.12") diameter available in 2 sizes.

Type 1 120 mm (4.72") long ref SB 120

Type 2 60 mm (2.36") long ref SB 60



Sizes

Type	A	B	C	D	A	B	C	D
	mm				Inches			
X1	178	120	260	200	7.01	4.72	10.24	7.87
X2	118	60	210	150	4.65	2.36	8.27	5.91

N.B multiple frames are available.
Details on request.

Block sizes	E	F	G	E	F	G
	mm			Inches		
X20/3-13	20	10	2,5-13,5	0.79	0.39	0.1 - 0.53
X30/14-24	30	15	13,5-24,5	1.18	0.59	0.53-0.96
X40/24-34	40	20	23,5-34,5	1.57	0.79	093 -1.36

N.B sold as complete modules (2 halfs & Plug)

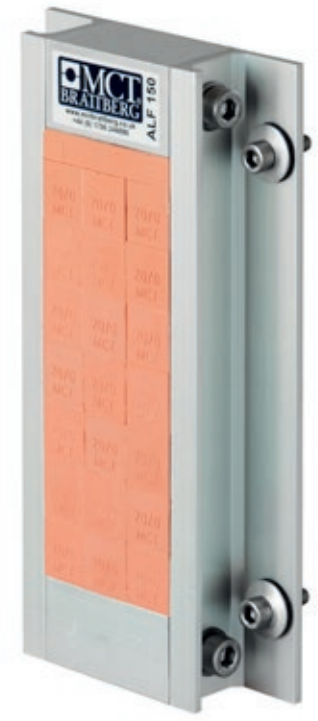
Fixing Hole Dimensions

Type	E	F	G	E	F	G
	mm			Inches		
X1	215	160	107,5	8.46	6.3	4.23
X2	118	60	210	5.12	3.46	8.27

N.B sold as complete modules (2 halfs & Plug)

ALF-Cabinet seal

ALF cabinet seal is a cable penetration for applications where dust- and water tightness are demanded. A lot of cables can be installed in a small area and the big opening even allows connectors and joints toe pass through.
The cables are individual sealed off with 30 mm (1.18") insert blocks which comes in the same sizes as MCT Brattberg Standard Blocks, AddBlocks and HandiBlocks. ALF is compressed with two bolts and a standard allen key. The seal is easy to open up for changing or completion of cables.

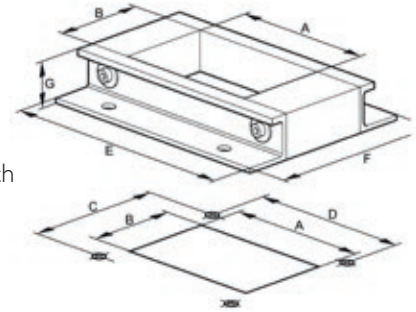


Advantages

- All cables through one opening (also with connector)
- Available as EMC
- Many cables in a limited area
- Specfications of cable sizes are no problem
- Easy changing/adding cables afterwards
- Dust- and waterproof (IP67)
- Assembly without special tools
- For cables with diameters from 3- 54 mm (0.12 – 2.13")
- Supplied complete with gasket, bolts and nuts
- Tested and approved

The frames are available in several different sizes

Sketch



Performances

- Aluminum (standard) or stainless steel
- Standard dimensions or custom
- Supplied complete with gaskets, nuts and bolts
  Available certifications
- IP 67 according to IEC / EN 60529
- UL 50 test certificate
- UL94 test certificate (approved for Class V0)
- NEMA, Type 3R and 4X & 12

completion of cables.
ALF is available in aluminium or stainless steel and is always supplied in kit form with gasket, bolts and nuts.

Classifi ed according to:
UL 94 VO UL50 NEMA 3R & 4X & 12
EnclosureIP 66 / IP 67

Table

Size (mm)	A	B	C	D	E	F	G	Hole Ø
ALF 60	60	60	96	60	120	120	30	9
ALF 90	90	60	96	90	150	120	30	9
ALF 120	120	60	96	120	180	120	30	9
ALF 150	150	60	96	150	210	120	30	9

Size (Inches)	A	B	C	D	E	F	G	Hole Ø
ALF 60	2.36	2.36	3.78	2.36	4.72	4.72	1.18	0.35
ALF 90	3.54	2.36	3.78	3.54	5.91	4.72	1.18	0.35
ALF 120	4.72	2.36	3.78	4.72	7.09	4.72	1.18	0.35
ALF 150	5.91	2.36	3.78	5.91	8.27	4.72	1.18	0.35

Also custom sizes available!

RFCS-Cabinet seal

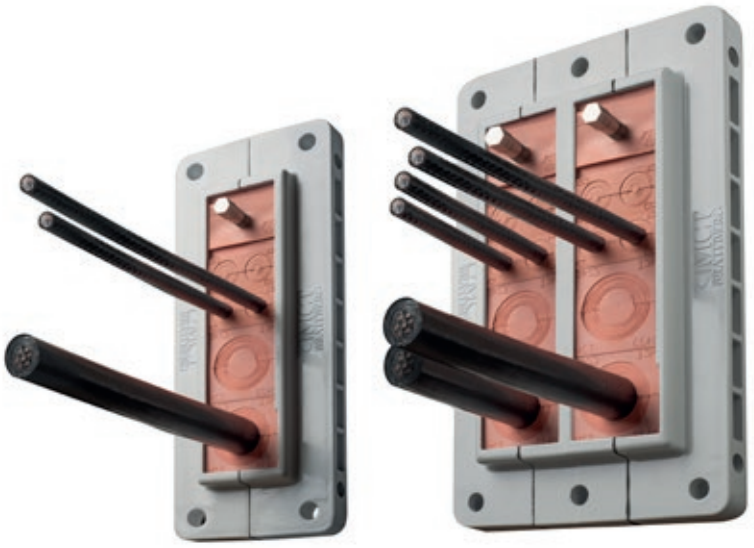
The unique MCT Brattberg RFCS is available in three basic sizes of 10, 12 & 16 with an extension provision to size 20, 24 & 32 respectively. Is an innovative openable/retrofit alternative to heavy duty plug in connectors and cable glands plates in the cabinets.

MCT Brattberg RFCS frame provides:

Space saving frames compare to conventional plug in connectors & cable glands.
Unique MCT Brattberg compression wedge PTG40 that can be inserted from both sides of the frame.
Easy installation and availability with ready made packed kits including the sealing module as per customer requirements.
Classifications: IP65, IP67 and NEMA 250 type 4x (hose down)

MCT Brattberg RFCS Kit contains:

- Openable frame.
- RFCS modules marked with cable diameter.
- Compression wedge.
- Gasket for sealing frame to cabinet.
- Mounting Hardware.
- Installation Manual.
  Lubricant.



Data
Modules: EPDM

Aluminium:
Grade ADC-12

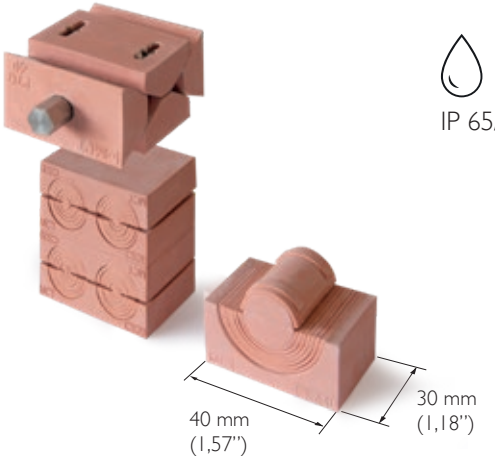
Gasket between frame and cabinet:
EPDM

Gasket between frame halves:
EPDM

Plastic gasket washer:
LDPE

Mounting hardware:
SS-304

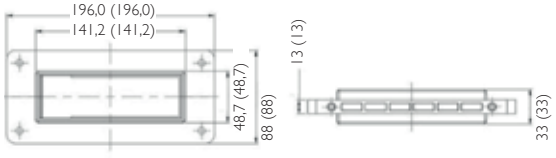
EPDM is Halogen Free and Low smoke.



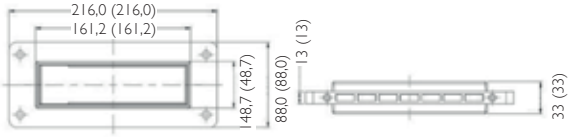
IP 65/67 Type 4x

	Diameter range		Required cut out	Packing space	Diameter range		Required cut ou	Packing space
	2,5-16,0 mm	14,5-33.0 mm	mm	mm	0.1-0.63 inches	0.57-1.3 inches	inches	inches
RFCS 10	Number of cables				Number of cables			
RFCS 10/4	2	2	55x145	100x40	2	2	2.17x5.71	3.94x1.57
RFCS 10/7	6	1	55x145	100x40	6	1	2.17x5.71	3.94x1.57
RFCS 10/10	10	0	55x145	100x40	6	1	2.17x5.71	3.94x1.57
RFCS 12	Number of cables				Number of cables			
RFCS 12/3	0	3	55x165	120x40	0	3	2.17x6.5	4.72x1.57
RFCS 12/6	4	2	55x165	120x40	4	2	2.17x6.5	4.72x1.57
RFCS 12/9	8	1	55x165	120x40	8	1	2.17x6.5	4.72x1.57
RFCS 12/12	12	0	55x165	120x40	12	0	2.17x6.5	4.72x1.57
RFCS 16	Number of cables				Number of cables			
RFCS 16/4	0	4	55x205	160x40	0	4	2.17x8.07	6.3x1.57
RFCS 16/7	4	3	55x205	160x40	4	3	2.17x8.07	6.3x1.57
RFCS 16/10	8	2	55x205	160x40	8	2	2.17x8.07	6.3x1.57
RFCS 16/13	12	1	55x205	160x40	12	1	2.17x8.07	6.3x1.57
RFCS 16/16	16	0	55x205	160x40	16	0	2.17x8.07	6.3x1.57
RFCS 20	Number of cables				Number of cables			
RFCS 20/8	4	4	100x145	200x40	4	4	3.94x5.71	7.87x1.57
RFCS 20/14	12	2	100x145	200x40	12	2	3.94x5.71	7.87x1.57
RFCS 20/20	20	0	100x145	160x40	20	0	3.94x5.71	7.87x1.57
RFCS 24	Number of cables				Number of cables			
RFCS 24/6	0	4	55x205	160x40	0	4	2.17x8.07	6.3x1.57
RFCS 24/12	4	3	55x205	160x40	4	3	2.17x8.07	6.3x1.57
RFCS 24/18	8	2	55x205	160x40	8	2	2.17x8.07	6.3x1.57
RFCS 24/24	12	1	55x205	160x40	12	1	2.17x8.07	6.3x1.57
RFCS 32	Number of cables				Number of cables			
RFCS 32/8	0	8	100x205	320x40	0	8	3.94x8.07	12.6x1.57
RFCS 32/14	8	6	100x205	320x40	8	6	3.94x8.07	12.6x1.57
RFCS 32/20	16	4	100x205	320x40	16	4	3.94x8.07	12.6x1.57
RFCS 32/26	24	2	100x205	320x40	24	2	3.94x8.07	12.6x1.57
RFCS 32/32	32	0	100x205	320x40	32	0	3.94x8.07	12.6x1.57

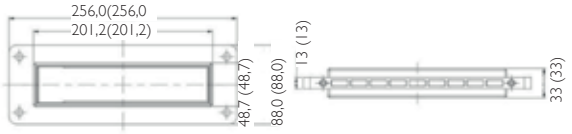
RFCS 10



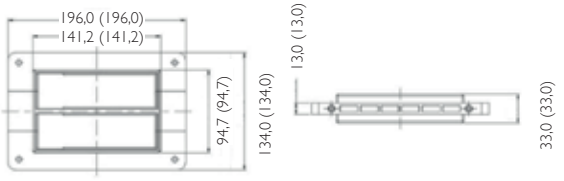
RFCS 12



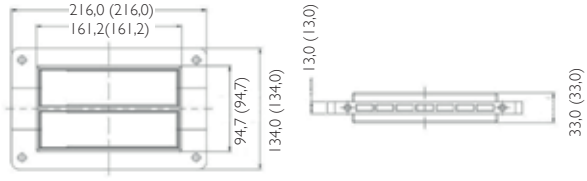
RFCS 16



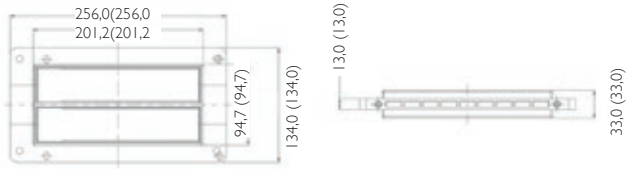
RFCS 20



RFCS 24



RFCS 32



Cable transit
For rolling stock

Putting safety first

MCT BRATTBERG

The MCT Brattberg transits putting safety on board

Since the early 1950s, when we first started specializing in fireproof and pressure-sealed transits, quality testing and classification has been essential. The MCT Brattberg is a complete sealing system for cable and pipe transits designed to allow penetration with a high level of security.

The MCT Brattberg transits are designed to protect passengers and keeping equipment safe from harm.

Tested by: EN-45545, HL 1, HL 2, HL 3

Fire
C.S.T.B. France, Fire barrier 2 hours - 4 hours
C.T.I.C.M. France, Partitions fire barrier
1/2 hour TGV Eurostar

Tightness
L.N.E. France, Fire/Smoke Index Ranking M1/F1

Cold Resistance to external agent
Chemicals and Testing Inst. Japan, Mechanical
Hold-up - 55°c

Thermic cycle Resistance to U.V. rays
Lockheed Electronics Co, U.S. A. T.N.O. Hollande - Rapra GB, 40 years

Resistance to pressure
Lockheed electronics Co, U.S. A.
- Aero Naval U.S.A.
- International Research, G.B.

Schocks - Vibrations
Rapra, G.B.

Acoustic insultaion
Instituto DEX, Spain Rapra, G.B. T.N.O. Holland, 53 dB (100-3150 Hz) - Airo, G.B.

References:

On Train
Examples of MCT Transit systems in Undergrounds:
In London (England), Rossy (France), San Fransisco (USA), Lausanne (Schweiz), Caracas (Venezuela), Nanjung (China), Paris (France) Taipe (Taiwan), Cicago (USA),
Turin (Italy) Chech republic., Caracas, Nanjing, Shanghai

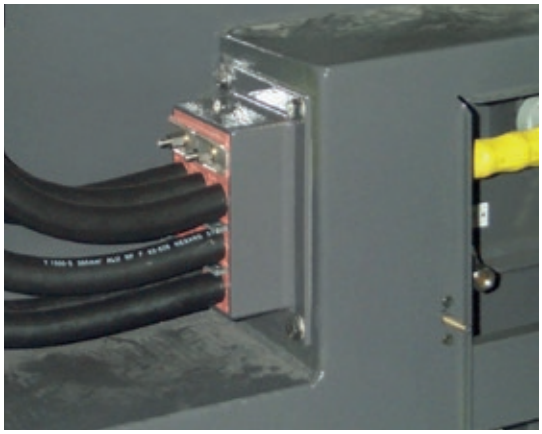
Examples of MCT Transit systems in Motor Coatches:
IDF coaches, TGV Duplex coaches, Prima 6000 coaches,
BB 36000 coaches, TGV PBA & PBKA coaches,
TGV Eurostar

Examples of MCT Transit systems in High-speed Trains (TGV):
France Duplex TGV, Korea KTX TGV, PBA & PBKA Thalys TGV, Eurostar transmanche TGV, TGV network

Examples of MCT Brattberg Transit systems in Regional Express Trains:
AGC, TER 2N New Generation, A-TER x-40, Z-TER, A-TER, ALR Bordline, ALR-CFL, M12N

Examples of MCT Brattberg Transit systems in Trams:
Strasbourg (France), Mestre-Venise (Italy), Trams Clermont-Ferrand (France),

Custom and tailor made transits
to your application.



E-Series

For EMC, Lightning, Grounding and Bonding

Putting safety first

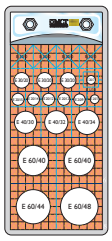
MCT BRATTBERG


MCT
PTC
MCT
PTC
SWEDEN
20/0
30/0
40/0
MCT

Product programme

RGS — RGB — Multiple Frames

E-RGP for Round Penetrations — Sleeves



Components / Accessories — Planning packing space

E-Blocks — E-Spare Blocks — E-AddBlocks

E-Series for Grounding and Bonding Equipment

MCT Brattberg seals cable and pipe penetrations in potentially

Hazardous environments

Cable and Pipe Penetrations exist whenever services are routed through walls, floor, decks or bulkheads. In an emergency situation these penetrations could allow the passage of hazardous such as fire, water and gas.

The unique MCT Brattberg System has been approved by all leading Marine and Civil Authorities as a certified method of sealing such penetrations.

The MCT Brattberg system is a Multipurpose seal designed to allow penetration without compromising the security of the construction. Each and every cable and pipe is lead through a frame by its own pair of halogen free module blocks which are then sealed by the use of a compression system.

The E-MCT seal system in addition to all benefits of the MCT system the specific E-MCT seal system provide protection against electromagnetic pulses, electronic sabotage and static electricity.

Necessity for protection

With the growing dependence on computers, communication and control equipment the problem of sensitivity to interference becomes more apparent, given the vulnerability of modern electronic equipment. The vulnerability can lead to expensive interruptions in production, communication and process control. Consequently, it is essential that two of the most important concerns with modern electronics must be to create a safe and secure environment and to eliminate the risk of interference.

The E-MCT Brattberg

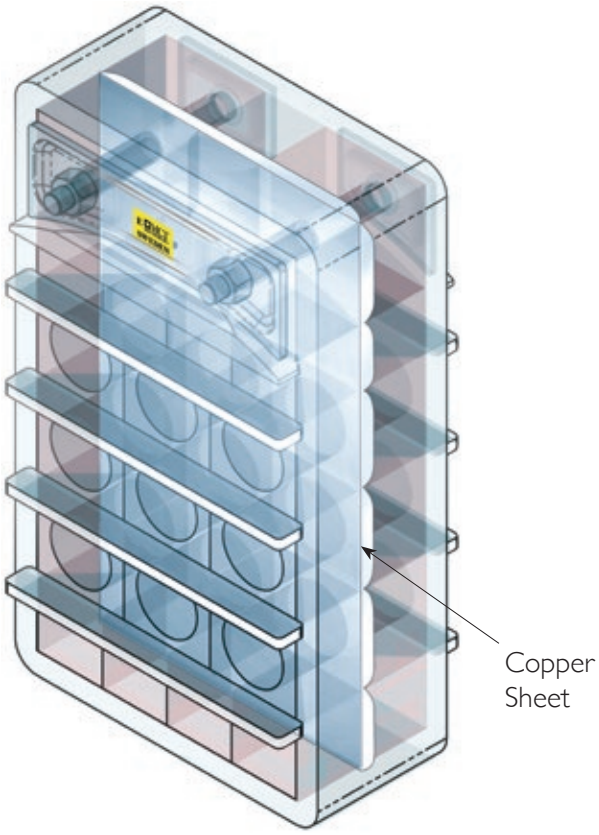
E-Series

Historically, protection of buildings, personnel and equipment from lightning was achieved by the use of lightning conductors. These measures, however, are inadequate as they provide protection from fire and personal injury only; to eliminate the Electromagnetic Interference (EMI), sometimes known as electronic smog, protection must be more specific. The protection is achieved by a means known as Electromagnetic Compability (EMC) giving both external and internal interference protection. The MCT Brattberg system is available in a specific E-verision which include both the EMI and EMC- verision. Around and in close proximity to every electrical conductor exist a magnetic field. This magnetic field generates/interferes with the current flow, known as induction.

Such induction fields can easily cause important information to be destroyed and, in extreme cases, affect the electronic equipment.

The ability of any cable to intercept such energy depends on how and where it is installed, on its connection to other units and on its construction. The cables screening properties, therefore depend closely on the cable shielding. The cable screen is able to dissipate and absorb magnetic interference fields, therefore protecting its core conductor. These electromagnetic interference pulses can be discharged from screen to earth.

The MCT E-Series contains a sprung copper sheet which prevents transfer of interference in the cable. Consequently, every MCT E-Transit also works as an extended wall screen.

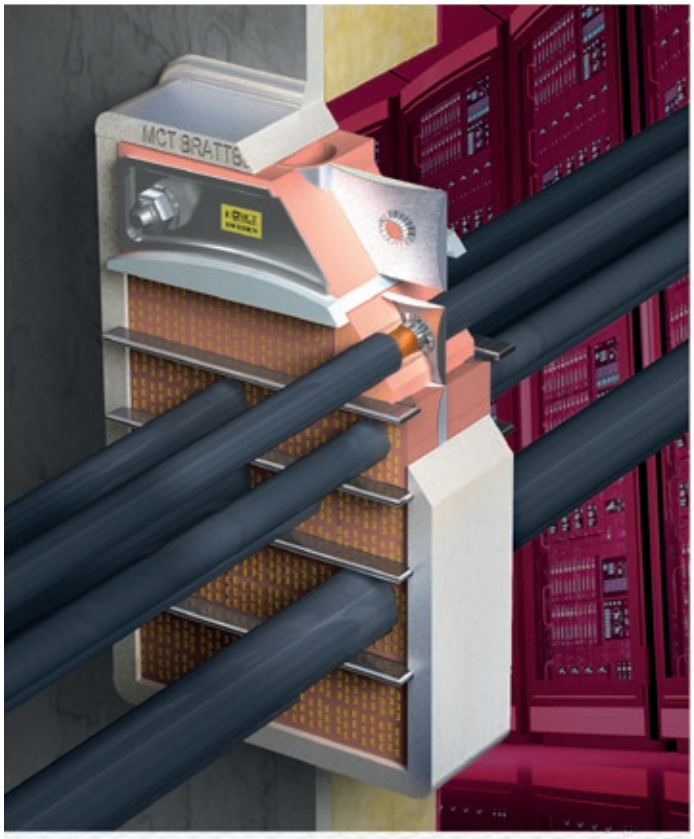


Benefits of MCT Brattberg E-systems

- Pre-lubricated insert blocks for faster installation with assured continuity.
- Protects against electrical and magnetic interference (EMI), "bugging", electronic sabotage (SEMP) and static electricity (ESD).
- Assists cable management.
- Integral earthing between cables and wall screen.
- Also seals the penetration against the passage of fire, water, gas, sound and environ mental hazards.
- Special E-Series for Grounding and Bounding (cables up to max. 1AWG)

Design

As with all MCT Brattberg products, the MCT Brattberg E-system comprises of a modular sealing system installed in a frame and sealed by compression system. Uniquely, however, the MCT E-system contains features which ensure earth continuity and screening through the penetration. Frames are welded into the wall structure to give earth bonding. For round penetrations a steel sleeve is welded to the structure prior to the installation of the RGP transit. (see page 105).
MCT E-Blocks have the facility to screen and earth cables and pipes when installed in such frames.
Stayplates are used to key blocks into frames and aid continuity between module blocks.
The compression plate and E-STG endpacker whilst compressing the system, give the facility to allow full screen and earthing bond. (Alternatively compression is with the E-PTG Presswedge, see page106).

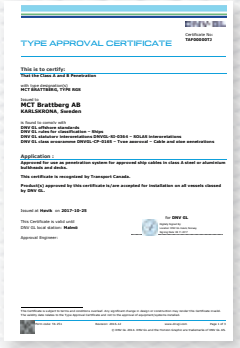


The E-MCT blocks consists of 2 different materials:
– The special developed rubber material Lycron is halogen free, prelubricated and gives the advantages of fire resistance, low smoke emission, heat insulation an excellent chemical resistance.
- The integral copper sheet allows the discharging and shielding protection between the cable and the system.
In order to achieve continuity approximately 10 mm (0.39") of the outer cable insulation must be removed (see photo). The exposed braiding must be placed in the centre of the insert block.

364 - 388174v1 056390/000001

Tested, approved and certified

Since the early 1950s, when we first started specializing in fireproof and pressure-sealed transits, quality testing and classification has been essential.



EMC tested by
FFV (Research Institute for the Swedish National Defence), Sweden Karlskrona Shipyard, Sweden
Saab Avionics AB, Sweden
IRD Aish & Co Ltd, UK
LPC H120 Firetest, UK
Siemens AG Research Centre, Germany

In 1986 our sealing method and quality system was adapted to meet the rigid requirements of the offshore industry. and have been coutinuously to current requirements.
Today MCT Brattberg is assessed and certified by DNV, in accordance with the Quality and Environment Management system standard EN ISO 9001 and 14001, for the design, manufacture and supply of fire barrier and sealed transit systems associated with cable and pipe routes in building and marine environments. As a direct result of this achievement, quality and environmental assessments are carried out by DNV twice annually.

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

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 of Shipping)

Please consult MCT Brattberg for latest updated certificates and approvals.

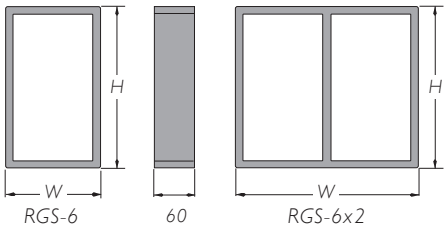
RGS

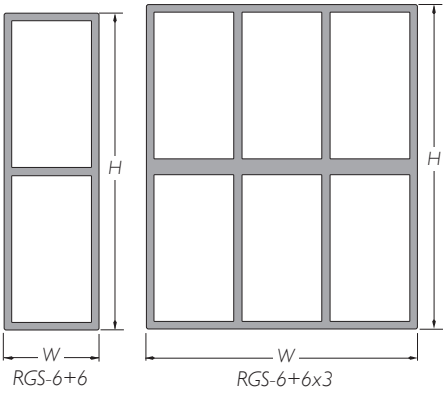
RGSO WITH REMOVABLE END

RGS is MCT Brattberg's standard frame for marine applications. It has a standard internal width of 120 mm (4.72") and is 60 mm (2.36") deep. There are four sizes of RGS, denoted by 2, 4, 6 and 8 depending on their height. They may be used in both vertical and/or horizontal multiple frames (see page 104).

The RGS is welded into an accurately pre-cut hole in the deck or bulkhead. As with all our frames, RGS is produced in steel, stainless steel or aluminium. For installations where cables are already in place, specify RGSO, which has a removable end. RGS weight charts can be found on the next page.

	Size in mm								Size in inches							
		W (width) Multiple Frames								W (width) Multiple Frames						
Frame size	H	x 1	x 2	x 3	x 4	x 5	x 6	x n	H	x 1	x 2	x 3	x 4	x 5	x 6	x n
RGS-2	121	140,5	271	401,5	532	662,5	793	W = 10 + 130,5 x n	4.76	5.53	10.67	15.81	20.94	26.08	31.2	W = 0.40+ 5.14 x n
RGS-4	179,5	- " -	- " -	- " -	- „ -	- " -	- " -		7.07	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-6	238	- " -	- " -	- " -	- „ -	- " -	- " -		9.37	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-8	296,5	- " -	- " -	- " -	- „ -	- " -	- " -		11.67	- " -	- " -	- " -	- " -	- " -	- " -	
RGS-2+2	242		- " -	- " -	- „ -	- " -	- " -		9.53		- " -	- " -	- " -	- " -	- " -	
RGS-2+4	300,5		- " -	- " -	- „ -	- " -	- " -		11.83		- " -	- " -	- " -	- " -	- " -	
RGS-2+6	359		- " -	- " -	- „ -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGS-2+8	417,5		- " -	- " -	- „ -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGS-4+4	359		- " -	- " -	- „ -	- " -	- " -		14.13		- " -	- " -	- " -	- " -	- " -	
RGS-4+6	417,5		- " -	- " -	- „ -	- " -	- " -		16.44		- " -	- " -	- " -	- " -	- " -	
RGS-4+8	476		- " -	- " -	- „ -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGS-6+6	476		- " -	- " -	- „ -	- " -	- " -		18.74		- " -	- " -	- " -	- " -	- " -	
RGS-6+8	534,5		- " -	- " -	- „ -	- " -	- " -		21.04		- " -	- " -	- " -	- " -	- " -	
RGS-8+8	593		- " -	- " -	- „ -	- " -	- " -		23.35		- " -	- " -	- " -	- " -	- " -	
RGS-2+2	232	140,5	n = number of frames wide. Tolerance single frame: Height ± 1 mm Width ± 0,8 mm Material thickness is 10 mm						9.13	5.53	n = number of frames wide. Tolerance single frame: Height ± 0.04", Width ± 0.03". Material thickness is 0.39".					
RGS-2+4	290,5	- " -							11.44	- " -						
RGS-2+6	349	- " -							13.74	- " -						
RGS-2+8	407,5	- " -							16.04	- " -						
RGS-4+4	349	- " -							13.74	- " -						
RGS-4+6	407,5	- " -							16.04	- " -						
RGS-4+8	466	- " -							18.35	- " -						
RGS-6+6	466	- " -							18.35	- " -						
RGS-6+8	524,5	- " -							20.65	- " -						
RGS-8+8	583	- " -							22.95	- " -						



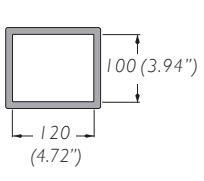


RGS

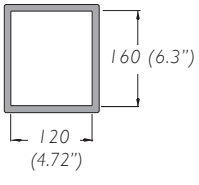
WEIGHT CHART

Material	Frame size	Weight in kilograms W (width) Multiple Frames x1	x2	x3	x4	x5	x6	Weight in pounds W (width) MultipleFrames x1	x2	x3	x4	x5	x6
MILD STEEL S355JR S355J2 S355K2 A36 AH36 DH36 EH36	RGS-2	2,2	3,9	5.7	7,4	9,2	10,9	4.9	8.6	12.6	32.6	20.3	24.0
	RGS-4	2,7	4,6	6.5	8,4	10,3	12,2	6.0	10.1	14.3	37.3	22.7	26.9
	RGS-6	3,2	5,4	7.6	9,8	12,0	14,2	7.1	11.9	16.8	41.0	26.5	31.3
	RGS-8	3,8	6,3	8.9	11,4	14,0	16,5	8.4	13.9	19.6	44.8	30.9	36.4
	RGS-2+2	3,6	8,1	11.9	15,7	19,5	23,3	7.9	17.9	26.2	52.9	43.0	51.4
	RGS-2+4	4,2	8,8	12.8	16,7	20,7	24,6	9.3	19.4	28.2	56.7	45.6	54.2
	RGS-2+6	4,8	9,5	13.6	17,8	21,9	26,0	10.6	20.9	30.0	60.0	48.3	57.3
	RGS-2+8	5,5	10,3	14.7	19,1	23,5	27,9	12.1	22.7	32.4	64.4	51.8	61.5
	RGS-4+4	4,8	9,5	13.6	17,8	21,9	26,0	10.6	20.9	30.0	60.0	48.3	57.3
	RGS-4+6	5,5	10,3	14.7	19,1	23,5	27,9	12.1	22.7	32.4	64.4	51.8	61.5
	RGS-4+8	5,9	11,1	15.8	20,5	25,1	29,8	13.0	24.5	34.8	68.3	55.3	65.7
	RGS-6+6	5,9	11,1	15.8	20,5	25,1	29,8	13.0	24.5	34.8	68.3	55.3	65.7
	RGS-6+8	6,5	12,0	17.0	22,1	27,1	32,1	14.3	26.5	37.5	73.0	59.7	70.8
	RGS-8+8	7,2	12,9	18.3	23,7	29,1	34,5	15.9	28.4	40.3	78.0	64.2	76.1
STAINLESS STEEL 1.4404 AISI 316L	RGS-2	2,2	4,0	12,1	7,6	9,4	11,2	4.9	8.8	12.8	33.5	20.7	24.7
	RGS-4	2,8	4,7	13,9	8,6	10,6	12,6	6.2	10.4	14.8	38.1	23.4	27.8
	RGS-6	3,3	5,5	15,4	10,0	12,3	14,5	7.3	12.1	17.2	41.9	27.1	31.7
	RGS-8	3,9	6,5	16,9	11,7	14,3	16,9	8.6	14.3	20.1	45.9	31.5	37.3
	RGS-2+2	3,7	8,3	19,5	16,1	20,0	23,9	8.2	18.3	26.9	54.5	44.1	52.7
	RGS-2+4	4,3	9,0	21,0	17,1	21,2	25,2	9.5	19.8	28.9	58.2	46.7	55.6
	RGS-2+6	4,9	9,7	22,4	18,2	22,5	26,7	10.8	21.4	30.9	61.5	49.6	58.9
	RGS-2+8	5,6	10,6	24,2	19,6	24,1	28,6	12.3	23.4	33.3	65.9	53.1	63.1
	RGS-4+4	4,9	9,7	22,4	18,2	22,5	26,7	10.8	21.4	30.9	61.5	49.6	58.9
	RGS-4+6	5,6	10,6	24,2	19,6	24,1	28,6	12.3	23.4	33.3	65.9	53.1	63.1
	RGS-4+8	6,0	11,4	25,8	21,0	25,8	30,6	13.2	25.1	35.7	70.1	56.9	67.5
	RGS-6+6	6,0	11,4	25,8	21,0	25,8	30,6	13.2	25.1	35.7	70.1	56.9	67.5
	RGS-6+8	6,7	12,3	27,5	22,6	27,8	32,9	14.8	27.1	38.6	74.7	61.3	72.5
	RGS-8+8	7,4	13,2	29,5	24,3	29,9	35,4	16.3	29.1	41.4	80.0	65.9	78.0
ALUMINIUM EN AW-6082 EN AW-5086	RGS-2	0,8	1,4	4,1	2,6	3,2	3,8	1.8	3.1	4.4	11.5	7.1	8.4
	RGS-4	1,0	1,6	4,8	3,0	3,6	4,3	2.2	3.5	5.1	13.0	7.9	9.5
	RGS-6	1,1	1,9	5,3	3,4	4,2	5,0	2.4	4.2	6.0	14.3	9.3	11.0
	RGS-8	1,3	2,2	5,8	4,0	4,9	5,8	2.9	4.9	6.8	15.7	10.8	12.8
	RGS-2+2	1,3	2,8	6,7	5,5	6,9	8,2	2.9	6.2	9.3	18.5	15.2	18.1
	RGS-2+4	1,5	3,1	7,2	5,9	7,2	8,6	3.3	6.8	9.9	20.1	15.9	19.0
	RGS-2+6	1,7	3,3	7,7	6,2	7,7	9,1	3.7	7.3	10.6	21.2	17.0	20.1
	RGS-2+8	1,9	3,6	8,3	6,7	8,3	9,8	4.2	7.9	11.5	22.5	18.3	21.6
	RGS-4+4	1,7	3,3	7,7	6,2	7,7	9,1	3.7	7.3	10.6	21.2	17.0	20.1
	RGS-4+6	1,9	3,6	8,3	6,7	8,3	9,8	4.2	7.9	11.5	22.5	18.3	21.6
	RGS-4+8	2,1	3,9	8,8	7,2	8,8	10,4	4.6	8.6	12.1	24.0	19.4	22.9
	RGS-6+6	2,1	3,9	8,8	7,2	8,8	10,4	4.6	8.6	12.1	24.0	19.4	22.9
	RGS-6+8	2,3	4,2	9,4	7,7	9,5	11,2	5.1	9.3	13.2	25.6	20.9	24.7
	RGS-8+8	2,5	4,5	10,0	8,3	10,2	12,1	5.5	9.9	14.1	27.3	22.5	26.7

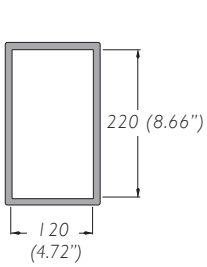
Standard frames come in four sizes: 2, 4, 6 and 8. They are all the same width. Height differences are shown below. The material is 10 mm (0.39") thick.

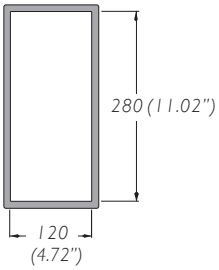


RGS-2



RGS-4





RGS-8

RGB

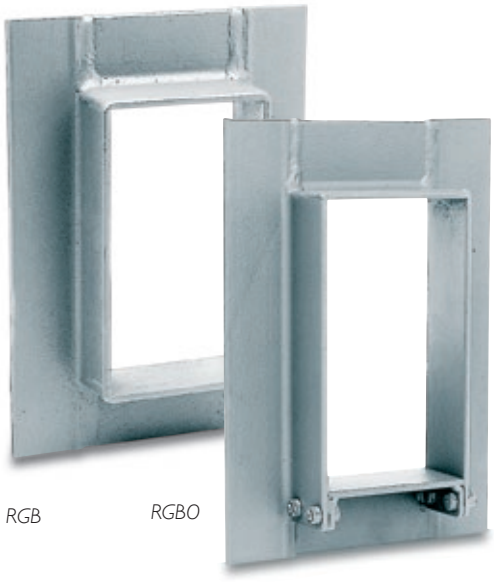
RGBO WITH REMOVABLE END

RGB is MCT Brattbergs standard frame for embedment or built-in. For EMC protection the frame shall be welded into the wall structure or to a facing place to get erth bounding.

RGB comes in four different sizes, in varying height and designates RGB-2, RGB-4, RGB-6 and RGB-8. The width dimension is always the same, 120 mm (4,72"), as well as the depth 60 mm (2,36").

The frame profiles width are 60 mm (2,36") and the thickness of the material is 6 mm (0,24").

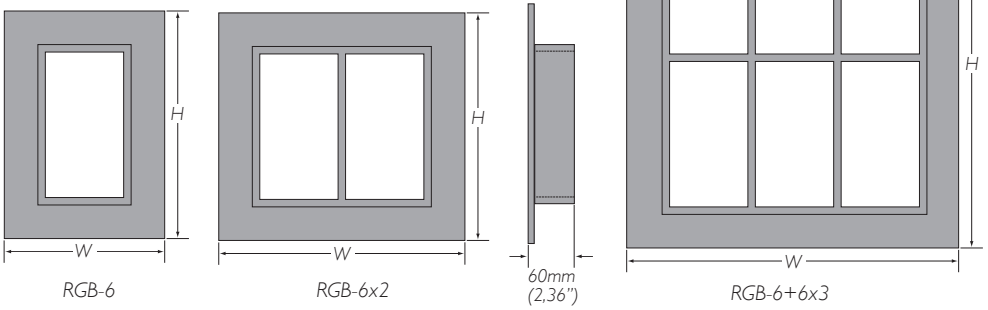
For installations where cables already are in place the RGBO frame with openable gable is used. More information about combination frames can be found on page 104.



RGB *RGBO*

Size in mm (Size in inches)															
H W (width) Combination frames															
FRAME SIZE		x 1	x 2	x 3	x 4	x 5	x 6		(height)	x 1	x 2	x 3	x 4	x 5	x 6	x n
RGB/RGG-2	221	240.5	371	501.5	632	762.5	893	W =110+	8.7	9.47	10.67	19.74	24.88	30.2	35.16	W+4.33
RGB/RGG-4	279.5	- " -	- " -	- " -	- " -	- " -	- „ -	130.5 x n	11.0	- " -	- " -	- " -	- " -	- " -	- " -	+5.14
RGB/RGG-6	338	- " -	- " -	- " -	- " -	- " -	- „ -		13.31	- " -	- " -	- " -	- " -	- " -	- " -	x n
RGB/RGG-8	396.5	- " -	- " -	- " -	- " -	- " -	- „ -		15.61	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+2	332	- " -	- " -	- " -	- " -	- " -	- " -		13.07	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+4	390.5	- " -	- " -	- " -	- " -	- " -	- " -		15.37	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+6	449	- " -	- " -	- " -	- " -	- " -	- " -		17.68	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-2+8	507.5	- " -	- " -	- " -	- " -	- " -	- " -		19.98	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+4	449	- " -	- " -	- " -	- " -	- " -	- " -		17.68	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+6	507.5	- " -	- " -	- " -	- " -	- " -	- " -		19.98	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+8	566								22.28							
RGB/RGG-4+6	566	- " -	- " -	- " -	- " -	- " -	- " -		22.28	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-6+8	624.5	- " -	- " -	- " -	- " -	- " -	- " -		24.59	- " -	- " -	- " -	- " -	- " -	- " -	
RGB/RGG-4+8	683	- " -	- " -	- " -	- " -	- " -	- " -		26.89	- " -	- " -	- " -	- " -	- " -	- " -	

n = number of frames in width.
Tolerances single frame:
3.5 mm (0,14").
Thickness of material 6 mm (0,24") except for internal horizontal and vertical walls in combination frames such as 10 mm (0,39").

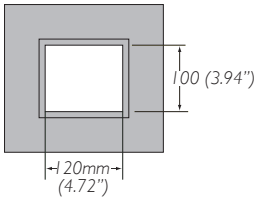


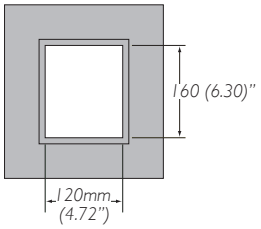
RGB-6 *RGB-6x2* *RGB-6+6x3*

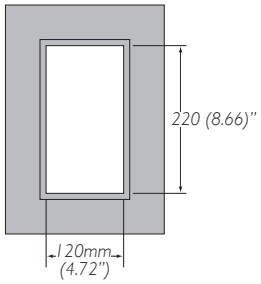
RGB

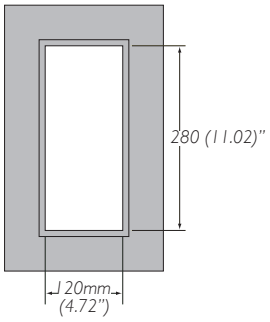
WEIGHT CHART

Standard frames in four different sizes: 2, 4, 6 and 8 which mark different heights. All have the same width. See below.









		Weight in kilograms						Weight in pounds					
		W (width) Combination frames											
MATERIAL	FRAME SIZE	x 1	x 2	x 3	x 4	x 5	x 6	x 1	x 2	x 3	x 4	x 5	x 6
STEEL SS EN 10025-S235JRG2 DIN RST 37-2 BS 4360 gr. 40 NS 17100	RGB/RGG-2	3.1	5.0	6.9	8.8	10.7	12.6	6.8	11.0	15.2	19.4	23.5	27.7
	RGB/RGG-4	3.8	5.9	8.1	10.2	12.4	14.6	8.3	13.0	17.8	22.4	27.5	32.1
	RGB/RGG-6	4.4	6.8	9.2	11.5	13.8	16.3	9.7	14.9	20.2	25.3	30.4	35.9
	RGB/RGG-8	5.0	7.7	10.4	13.1	15.8	18.5	11.0	16.9	22.9	28.8	34.8	40.7
	RGB/RGG-2+2	5.0	7.9	10.9	13.9	16.8	19.8	11.0	17.4	24.0	30.6	37.0	43.6
	RGB/RGG-2+4	5.6	9.0	12.4	15.7	19.1	22.4	12.3	19.8	27.3	34.6	42.1	49.3
	RGB/RGG-2+6	6.2	9.9	13.6	17.3	21.0	24.7	13.6	21.8	29.9	38.1	46.2	54.4
	RGB/RGG-2+8	6.9	11.0	15.1	19.2	23.3	27.4	15.2	24.2	33.2	42.3	51.3	60.4
	RGB/RGG-4+4	6.2	9.9	13.6	17.3	21.,0	24.7	13.6	21.8	29.9	38.1	46.2	54.4
	RGB/RGG-4+6	6.9	11.0	15.1	19.2	23.3	27.4	15.2	24.2	33.2	42.3	51.3	60.4
	RGB/RGG-4+8	7.4	11.8	16.2	20.6	25.0	29.4	16.3	26.0	35.7	45.4	55.1	64.8
	RGB/RGG-6+6	7.4	11.8	16.2	20.6	25.0	29.4	16.3	26.0	35.7	45.4	55.1	64.8
	RGB/RGG-6+8	8.1	13.0	17.9	22.7	27.6	32.4	17.8	28.6	39.4	50.0	60.8	71.4
	RGB/RGG-8+8	8.9	14.2	19.5	24.9	30.2	35.5	19.6	31.3	42.9	54.8	66.5	78.2
STAINLESS STEEL DIN 1,4404 ASTM/316 L AiSi 316 L BS 970 gr. 316 S11 NS 14450	RGB/RGG-2	3.2	5.1	7.1	9.0	11.0	12.9	7.0	11.2	15.6	19.8	24.2	28.4
	RGB/RGG-4	3.9	6.1	8.3	10.5	12.7	14.9	8.5	13.4	18.2	23.1	27.9	32.8
	RGB/RGG-6	4.5	6.9	9.4	11.8	14.2	16.7	9.9	15.2	20.7	26.0	31.3	36.8
	RGB/RGG-8	5.2	7.9	10.7	13.5	16.2	19.0	11.4	17.4	23.5	29.7	35.7	41.8
	RGB/RGG-2+2	5.1	8.1	11.2	14.2	17.2	20.3	11.2	17.8	24.5	31.3	37.9	44.7
	RGB/RGG-2+4	5.8	9.2	12.7	16.1	19.6	23.0	12.7	20.2	27.9	35.4	43.2	50.7
	RGB/RGG-2+6	6.3	10.1	13.9	17.8	21.6	25.4	13.8	22.2	30.6	39.2	47.6	55.9
	RGB/RGG-2+8	7.1	11.3	15.5	19.7	23.9	28.1	15.6	24.9	34.1	42.4	52.6	61.9
	RGB/RGG-4+4	6.3	10.1	13.9	17.8	21.6	25.4	13.8	22.2	30.6	39.2	47.6	55.9
	RGB/RGG-4+6	7.1	11.3	15.5	19.7	23.9	28.1	15.6	24.9	34.1	43.4	52.6	61.9
	RGB/RGG-4+8	7.6	12.1	16.6	21.1	25.6	30.1	16.7	26.6	36.5	46.5	56.4	66.3
	RGB/RGG-6+6	7.6	12.1	16.6	21.1	25.6	30.1	16.7	26.6	36.5	46.5	56.4	66.3
	RGB/RGG-6+8	8.4	13.3	18.3	23.3	28.3	33.3	18.5	29.3	40.3	51.3	62.3	73.4
	RGB/RGG-8+8	9.1	14.6	20.0	25.5	31.0	36.4	20.0	32.1	44.0	56.2	68.3	80.2
ALUMINIUM EN AW6082 DIN ALMG SI 1 A 6082 BS H30/6082 TF NS 17305	RGB/RGG-2	1.1	1.8	2.5	3.1	3.8	4.4	2.4	3.9	5.5	6.8	8.3	9.7
	RGB/RGG-4	1.4	2.1	2.9	3.6	4.4	5.1	3.0	4.6	6.3	7.9	9.7	11.2
	RGB/RGG-6	1.6	2.4	3.2	4.1	4.9	5.7	3.5	5.2	7.0	9.0	10.8	12.5
	RGB/RGG-8	1.8	2.7	3.7	4.6	5.6	6.5	3.9	5.9	8.1	10.1	12.3	14.3
	RGB/RGG-2+2	1.8	2.8	3.9	4.9	5.9	7.0	3.9	6.1	8.5	10.8	13.0	15.4
	RGB/RGG-2+4	2.0	3.2	4.4	5.5	6.7	7,9	4.4	7.0	9.7	12.1	14.7	17.4
	RGB/RGG-2+6	2.2	3.5	4.8	6.1	7.4	8.7	4.8	7.7	10.5	13.4	16.3	19.1
	RGB/RGG-2+8	2.4	3.9	5.3	6.7	8.2	9.6	5.2	8.5	11.6	14.7	18.0	21.1
	RGB/RGG-4+4	2.2	3.5	4.8	6.1	7.4	8.7	4.8	7.7	10.5	13.4	16.3	19.1
	RGB/RGG-4+6	2.4	3.9	5.3	6.7	8.2	9.6	5.2	8.5	11.6	14.7	18.0	21.1
	RGB/RGG-4+8	2.6	4.2	5.7	7.2	8.8	10.3	5.7	9.2	12.5	15.8	19.4	22.7
	RGB/RGG-6+6	2.6	4.2	5.7	7.2	8.8	10.3	5.7	9.2	12.5	15.8	19.4	22.7
	RGB/RGG-6+8	2.9	4.6	6.3	8.0	9.7	11.4	6.3	10.1	13.8	17.6	21.3	25.1
	RGB/RGG-8+8	3.2	5.0	6.9	8.7		12.5	7.0	11.0	15.2	19.1	23.3	27.5

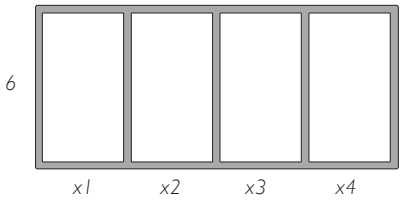
Multiple Frames

RGS frame

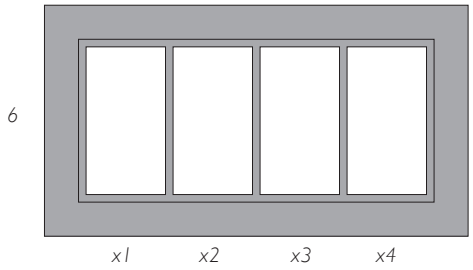
RGB frame

HORIZONTAL MULTIPLE FRAMES

Horizontal multiple frames are described by listing the frame type and size x the desired number of horizontal openings.



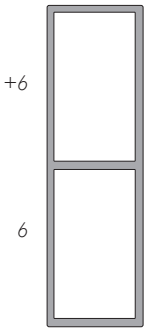
Designation: *RGS 6x4*

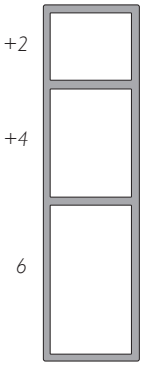


RGB 6x4

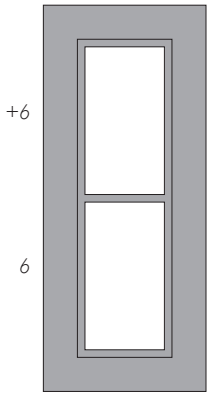
VERTICAL MULTIPLE FRAMES

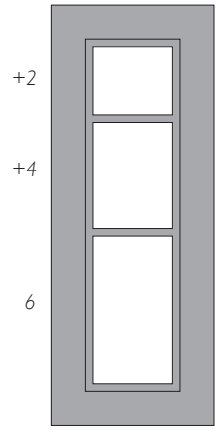
Vertical multiple frames are described by listing the bottom frame type and size + the next frame type and size.





Designation (starting at bottom): *RGS 6+6* *RGS 6+4+2*

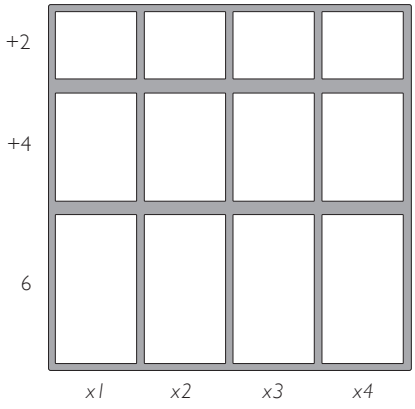




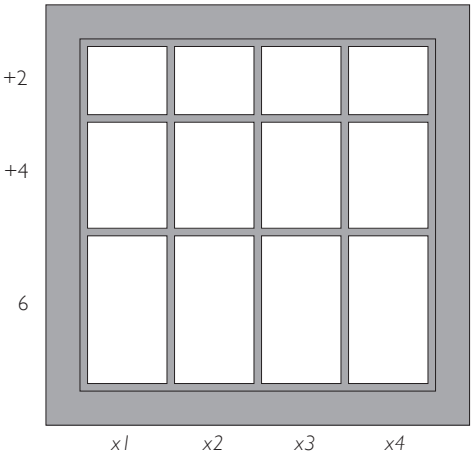
RGB 6+6 *RGB 6+4+2*

VERTICAL AND HORIZONTAL MULTIPLE FRAMES

List the entire vertical frames x the desired number of horizontal repetitions.



Designation starting at bottom: *RGS 6+4+2x4*



RGB 6+4+2x4

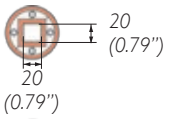
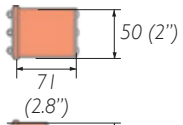
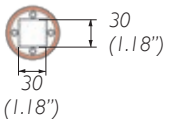
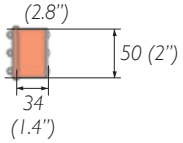
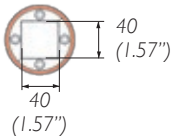
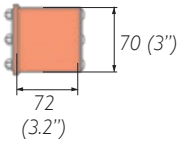
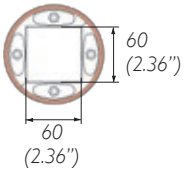
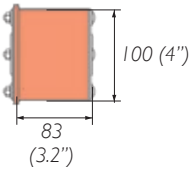
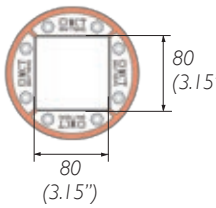
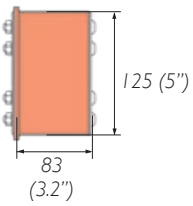
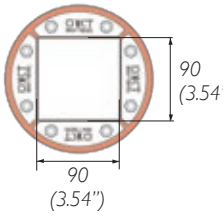
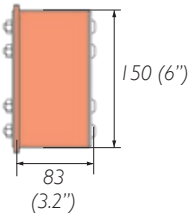
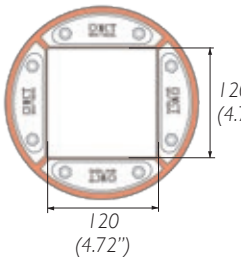
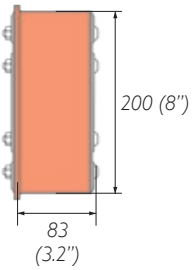
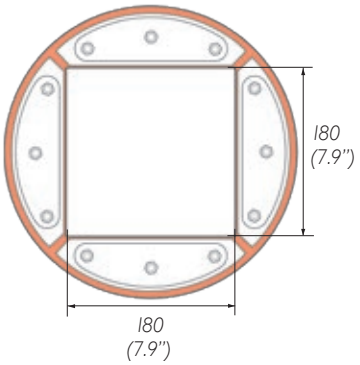
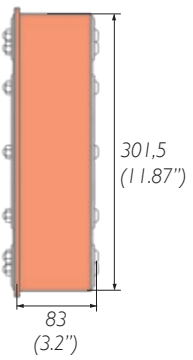
NOTE: All multiple frame designations must be preceded by the frame type.

E-RGP-round holes

The E-RGP is a round Lycron frame for assembly in pipes. A copper sheet forms the contact between insert block and pipe housing. The seal is available in 6 sizes with the designations E-RGP -50/L60, -70 , -100, -125, -150 and -200.

E-RGP is a circular seal for holes or pipes.

Weight in kilograms (pounds)			
E-RGP 50/L60	**E-RGP 70**	**E-RGP 100**	
0,25 kg (55 lb)	0,4 kg (0.88 lb)	0,7 kg (1.54 lb)	
E-RGP 125	**E-RGP 150**	**E-RGP 200**	**E-RGP 300**
1,0 kg (2.20 lb)	1,8 kg (3.96 lb	3,0 kg (6.61 lb)	7,5kg (16.5lb)

Dimensions in mm (inches)		
FRAME SIZE	PACKING AREA	DEPTH AND DIAMETER
RGP 50/L60 *(2"/L2.36)*		
RGP 50/L30 *(2"/L1.18)*		
RGP 70 *(3")*		
RGP 100 *(4")*		
RGP 125 *(5")*		
RGP 150 *(6")*		
RGP 200 *(8")*		
RGP 300 *(11.8")*		

Sleeves

The round sleeve is used to house the E-RGP seal. The sleeve is available in six different sizes. There are several types to choose from, with and without flanges, for welding and for bolting, plus an open version.
For more information, contact MCT Brattberg.
Dimensions for pipes and drilled holes see page 129

Components

E-PTG PRESSWEDGE

The PTG Presswedge is available in two versions, Allen and Hex. Both can be placed anywhere in the frame. Made of Lycron, stainless steel fittings. The copper sheet forms a contact between the frame and the stayplate. Must always be installed in combination with a stayplate.

E-STG ENDPACKING

Installed between Compression Plate and the top of the frame, completing the seal. Made of Lycron with galvanized or stainless steel fittings. The copper sheet forms a contact between the frame and compression plate.

TWEEZERS

Can be used to fit E-insert or spare blocks. Grips the metal sheet and assists installation of the last row of blocks.

LUBRICANT 30g /25ml (0.07 pound / 0.85 oz)

For easier insallation and must be used with pressure-tight installation,

STAYPLATE

To be placed between each row of blocks. Stayplates simplyfies installation, increases stability and anchores blocks within the frame. Plates come in stainless steel.

COMPRESSION PLATE

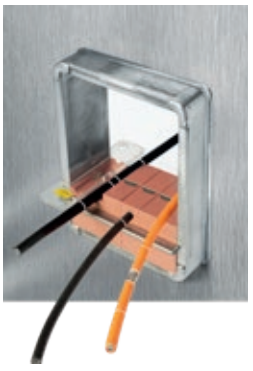
Usually assembled above top row of blocks. The plate bolt is tightened to compress blocks around cables, while providing room for E-STG endpacking. Material: Cast iron hot galvanized.

END PACKER PULLER

For re-entry into system.

THE EMC MARKING TEMPLATE

Ensures that the cables are placed with the exposed screen of the cable over the metal sheet in Insert Blocks.



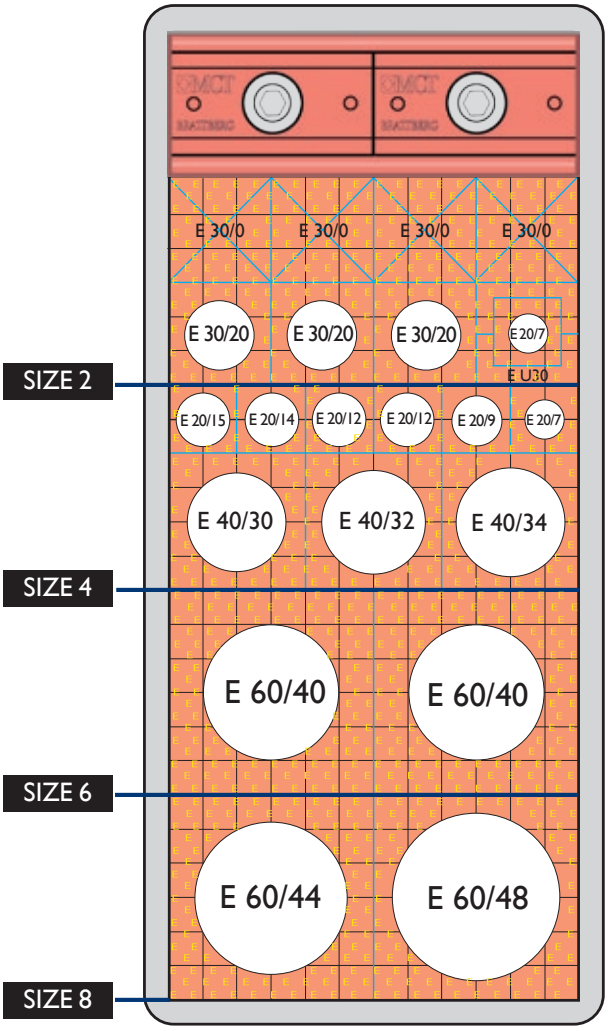
Weight in Kg/LB			
E-STG	E-PTG	COMPRESSION PLATE	STAYPLATE
0.6 KG/1.32 LB	0.82 KG/1.80 LB	0.63 KG/1.38 LB	0.13KG/0.28 LB

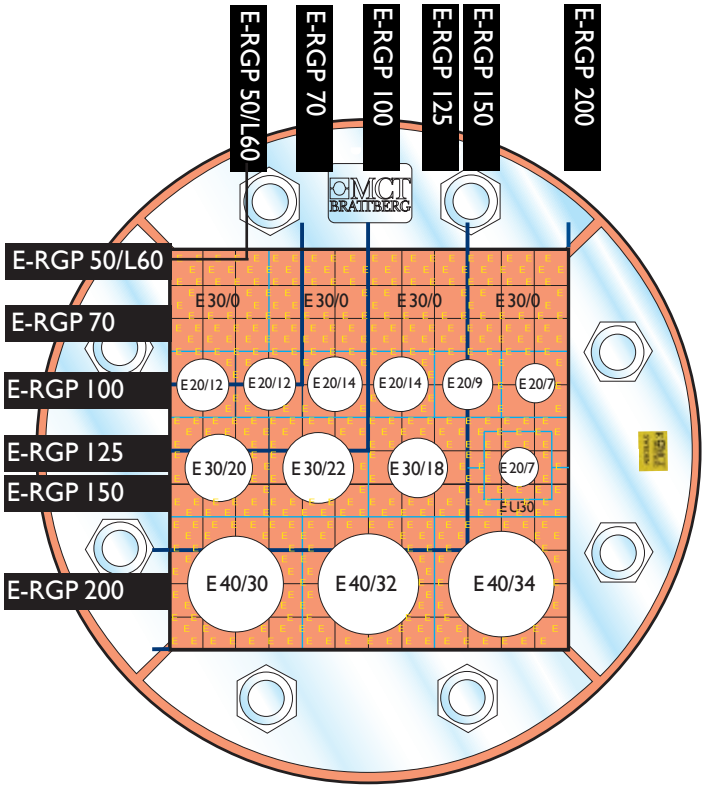
Packing Space

RGS maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGS 2	32	18	8	3	2	-	-
RGS 4	64	36	16	9	4	1	1
RGS 6	96	54	24	12	6	2	1
RGS 8	128	72	32	18	8	2	2

RGP maximum number of cables and pipes							
	Block sizes						
	15	20	30	40	60	90	120
Frame sizes	Maximum number of cables and pipes						
RGP 50/L30 RGP (2"/L2.36)	4	1	1	-	-	-	-
RGP 50/L60 RGP(2"/L1.18)	1	1	-	-	-	-	-
RGP 70 RGP (3")	4	4	1	1	-	-	-
RGP 100 RGP (4")	16	9	4	1	1	-	-
RGP 125 RGP (5")	25	16	4	1	1	-	-
RGP 150 RGP (6")	36	16	9	4	1	1	-
RGP 200 RGP (8")	64	36	16	9	4	1	1

A couple of examples of pack plans (RG Plan) are shown here. RGS to the left and RGP below. The largest cables are placed at the bottom.

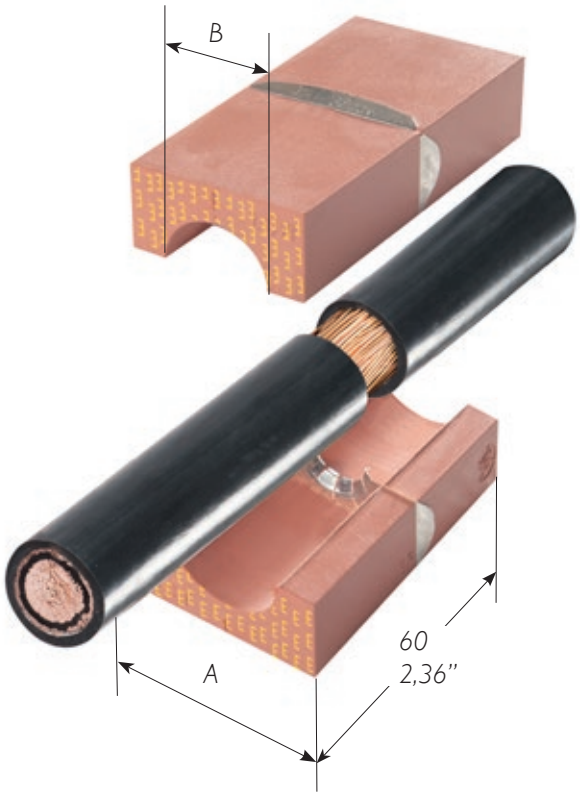




Combination frame width compared with width of cable tray						
Cable type		Cable tray width in mm /inches				
		150 /5.91	200/7.87	300/11.81	400/15.75	600/23.63
Signal	Frame size	6	6x2	6x3	6x4	6x5
Power		4	4x2	4x3	4x4	4x5
Combination		6	6x2	6x3	6x4	6x5

Choosing the correct

E-Blocks



Our standard range of E-Blocks accomodates cables beween 4 and 54 mm (0.2" and 13") in diameter. It is important that the E-Block is the right size, with respect to the cable, to ensure a proper seal.

Measure the cable diameters carefully and choose E-Blocks accordingly. With the sizing chart on next page you can choose the correct size of E-Blocks.

E-Blocks are referred to by their width (A) and hole diameter (B).

Thus a E-Block with a width of 15 mm (0.59") and a hole diameter of 4 mm (0.2") is referred to as 15/4. This designation is moulded into the E-Block.

The E-Block has an integral copper sheet as discharging and shielding protection between the cable and the system.

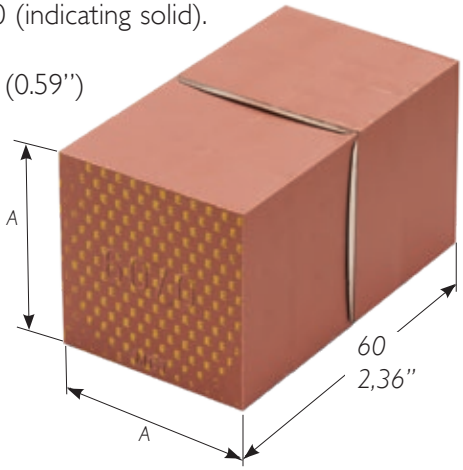
There are 2 different designs of copper sheets, one for outer cable diameters up to 10 mm (0.39") and one for outer cable diameters over 10 mm (0.39").

The design guarantees good contact without damaging the cable braid. In order to correctly install the E-Blocks modules they are marked with a yellow E on one of the short ends. The marking also indicates that it is an E-MCT Brattberg System.

E-Spare Blocks

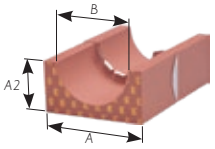
Surplus room in each frame is filled out with solid E-Blocks. Called spares, they bear the designation A/0. The copper sheet forms contact between surrounding blocks and the frame.

E-Blocks are referred to by their width (A), followed by the designation /0 (indicating solid). Thus a E-Block with a width and height of 15 mm (0.59") is referred to as 15/0. The length of E-Blocks is always 60 mm (2.36").



CABLE DIAM.	A (mm)				B
	15	20	30	40	
3.5-4.5	15/4	20/4			4
4.5-5.5	15/5	20/5			5
5.5-6.5	15/6	20/6			6
6.5-7.5	15/7	20/7			7
7.5-8.5	15/8	20/8			8
8.5-9.5	15/9	20/9			9
9.5-10.5		20/10			10
10.5-11.5		20/11			11
11.5-12.5		20/12	30/12		12
12.5-13.5		20/13	30/13		13
13.5-14.5		20/14	30/14		14
14.5-15.5			30/15		15
15.5-16.5			30/16		16
16.5-17.5			30/17		17
17.5-18.5			30/18		18
18.5-19.5			30/19		19
19.5-20.5			30/20		20
20.5-21.5			30/21		21
21.5-22.5			30/22	40/22	22
22.5-23.5			30/23	40/22	23
23.5-24.5			30/24	40/24	24
24.5-25.5				40/24	24

CABLE DIAM.	A (mm)			B
	40	60	90	
25.5-27.5	40/26			26
27.5-29.5	40/28			28
29.5-31.5	40/30			30
31.5-33.5	40/32	60/32		32
33.5-35.5	40/34	60/34		34
35.5-37.5		60/36		36
37.5-39.5		60/38		38
39.5-41.5		60/40		40
41.5-43.5		60/42		42
43.5-45.5		60/44		44
45.5-47.5		60/46		46
47.5-49.5		60/48		48
49.5-51.5		60/50	90/50	50
51.5-53.5		60/52	90/52	52
53.5-55.5		60/54	90/54	54

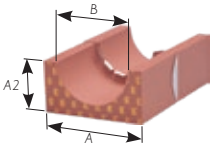


Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 15 mm and a hole diameter of 4 mm is referred to as 15/4.

CABLE DIAM.	A (mm)		B
	90	120	
55.5-57.5	90/56		56
57.5-59.5	90/58		58
59.5-61.5	90/60		60
61.5-63.5	90/62		62
63.5-65.5	90/64		64
65.5-67.5	90/66		66
67.5-69.5	90/68		68
69.5-71.5	90/70		70
71.5-73.5		120/72	72
73.5-75.5		120/74	74
75.5-77.5		120/76	76
77.5-79.5		120/78	78
79.5-81.5		120/80	80
81.5-83.5		120/82	82
83.5-85.5		120/84	84
85.5-87.5		120/86	86
87.5-89.5		120/88	88
89.5-91.5		120/90	90
91.5-93.5		120/92	92
93.5-95.5		120/94	94
95.5-97.5		120/96	96
97.5-99.5		120/98	98
99.5-101.5		120/100	100

CABLE DIAM.	A (inches)				B
	0.59	0.79	1.18	1.58	
0.14–0.18	15/4	20/4			0.16
0.18–0.22	15/5	20/5			0.20
0.22–0.26	15/6	20/6			0.24
0.26–0.30	15/7	20/7			0.28
0.30–0.33	15/8	20/8			0.31
0.33–0.37	15/9	20/9			0.35
0.37–0.41		20/10			0.39
0.41–0.45		20/11			0.43
0.45–0.49		20/12	30/12		0.47
0.49–0.53		20/13	30/13		0.51
0.53–0.57		20/14	30/14		0.55
0.57–0.61			30/15		0.59
0.61–0.65			30/16		0.63
0.65–0.69			30/17		0.67
0.69–0.73			30/18		0.71
0.73–0.77			30/19		0.75
0.77–0.81			30/20		0.79
0.81–0.85			30/21		0.83
0.85–0.89			30/22	40/22	0.87
0.89–0.93			30/23	40/22	0.91
0.93–1.00			30/24	40/24	0.95
				40/24	

CABLE DIAM.	A (inches)			B
	1.58	2.36	3.55	
1.00-1.10	40/26			1.02
1.10-1.16	40/28			1.10
1.16-1.24	40/30			1.18
1.24-1.32	40/32	60/32		1.26
1.32-1.40	40/34	60/34		1.34
1.40-1.48		60/36		1.42
1.48-1.55		60/38		1.50
1.55-1.63		60/40		1.58
1.63-1.71		60/42		1.65
1.71-1.79		60/44		1.73
1.79-1.87		60/46		1.81
1.87-1.95		60/48		1.89
1.95-2.03		60/50	90/50	1.97
2.03-2.11		60/52	90/52	2.05
2.11-2.18		60/54	90/54	2.13



Blocks are referred to by their width (A) and hole diameter (B). Thus a module with a width of 0.59" and a hole diameter of 0.16" is referred to as 15/4.

CABLE DIAM.	A (inches)		B
	3.55	4.73	
2.18–2.26	90/56		2.21
2.26–2.34	90/58		2.29
2.34–2.42	90/60		2.36
2.42–2.50	90/62		2.44
2.50–2.58	90/64		2.52
2.58–2.66	90/66		2.60
2.66–2.74	90/68		2.68
2.74–2.81	90/70		2.76
2.81–2.89		120/72	2.84
2.89–2.97		120/74	2.92
2.97–3.05		120/76	2.99
3.05–3.13		120/78	3.07
3.13–3.21		120/80	3.15
3.21–3.29		120/82	3.23
3.29–3.36		120/84	3.31
3.36–3.44		120/86	3.39
3.44–3.52		120/88	3.47
3.52–3.60		120/90	3.55
3.60–3.68		120/92	3.62
3.68–3.76		120/94	3.70
3.76–3.84		120/96	3.78
3.84–3.92		120/98	3.86
3.92–3.99		120/100	3.94

Weight in grams per half

BLOCK	W
24 x 5/0	58
12 x 10/0	113
15/0	20
20/0	38
30/0	84
40/0	150
60/0	338
90x30/0	279
15/4	10
15/5	10
15/6	10
15/7	10
15/8	9
15/9	8
20/4	18
20/5	18
20/6	17
20/7	17
20/8	16
20/9	15
20/10	14

BLOCK	W
20/11	13
20/12	13
20/13	12
20/14	11
30/12	36
30/13	36
30/14	35
30/15	34
30/16	33
30/17	31
30/18	30
30/19	28
30/20	27
30/21	25
30/22	24
30/23	22
30/24	21
40/22	57
40/24	54
40/26	50
40/28	47

BLOCK	W
40/30	42
40/32	37
40/34	32
60/32	131
60/34	127
60/36	122
60/38	116
60/40	110
60/42	104
60/44	98
60/46	91
60/48	84
60/50	77
60/52	59
60/54	61
90/50	287
90/52	279
90/54	273
90/56	262
90/58	255
90/60	243

BLOCK	W
90/62	239
90/64	229
90/66	220
90/68	211
90/70	204
120/72	494
120/74	485
120/76	472
120/78	462
120/80	448
120/82	437
120/84	425
120/86	415
120/88	403
120/90	385
120/92	368
120/94	360
120/96	351
120/98	332
120/100	313
120/108	243

Weight in oz per half

BLOCK	W
24 x 5/0	2.0
12 x 10/0	4.0
15/0	0.7
20/0	1.3
30/0	3.0
40/0	5.3
60/0	11.9
90x30/0	9.8
15/4	0.4
15/5	0.4
15/6	0.4
15/7	0.4
15/8	0.3
15/9	0.3
20/4	0.6
20/5	0.6
20/6	0.6
20/7	0.6
20/8	0.6
20/9	0.5
20/10	0.5

BLOCK	W
20/11	0.5
20/12	0.5
20/13	0.4
20/14	0.4
30/12	1.3
30/13	1.3
30/14	1.2
30/15	1.2
30/16	1.2
30/17	1.1
30/18	1.0
30/19	1.0
30/20	1.0
30/21	0.9
30/22	0.8
30/23	0.8
30/24	0.7
40/22	2.0
40/24	1.9
40/26	1.8
40/28	1.7

BLOCK	W
40/30	1.5
40/32	1.3
40/34	1.1
60/32	4.7
60/34	4.5
60/36	4.3
60/38	4.1
60/40	3.9
60/42	3.7
60/44	3.5
60/46	3.2
60/48	3.0
60/50	2.7
60/52	2.4
60/54	2.2
90/50	10.1
90/52	9.8
90/54	9.6
90/56	9.2
90/58	9.0
90/60	8.6

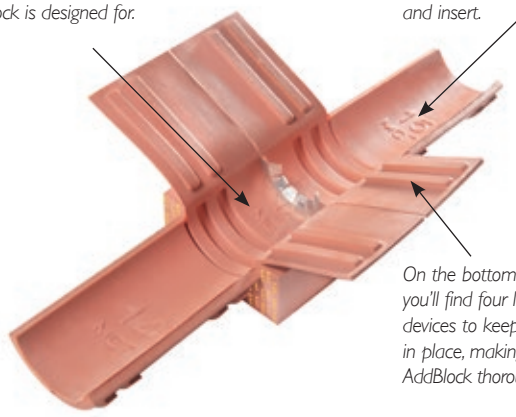
BLOCK	W
90/62	8.4
90/64	8.1
90/66	7.7
90/68	7.4
90/70	7.2
120/72	17.4
120/74	17.1
120/76	16.6
120/78	16.3
120/80	15.8
120/82	15.4
120/84	15.0
120/86	14.6
120/88	14.2
120/90	13.6
120/92	13.0
120/94	12.7
120/96	12.3
120/98	11.7
120/100	11.0
120/108	8.6

E-AddBlock

Eleven blocks and 66 dimensions

The E-AddBlocks basic dimension is given at bottom slot center, and that's the maximum cable dimension the block is designed for.

Dimensions are also clearly marked on the four insert sheets. Simply select, tear off and insert.



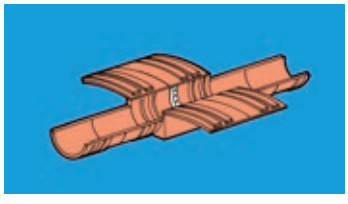
On the bottom of each sheet you'll find four locking devices to keep the insert in place, making each AddBlock thoroughly secure.

There are eleven different sizes of E-AddBlock. By tearing off the wing-like inserts, which are of varying thickness, and inserting them in the main block it is possible to accommodate 66 different cable and pipe dimensions, from 3.5 mm (0.14") to 69.5 mm (2.74"). The inserts are fitted with a locating ridge that fits exactly into furrows in the main block. These stop the block from "telescoping".

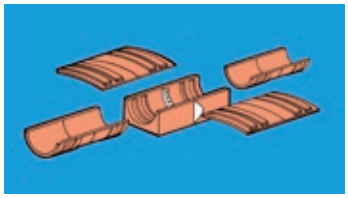
A seal using E-AddBlocks is as secure and tight as one using standard blocks. Both types can be combined in a transit, which makes the MCT Brattberg seal system very flexible. E-AddBlocks are all the same length as standard blocks, 60 mm (2.36"). The width of standard blocks (A measurement, see table) are 20, 30, 40, 60 or 90 mm (0.79", 1.18", 1.57", 2.36" or 3.5").

ADDBLOCK DIMENSION	CABLE OR PIPE DIMENSION (mm)	WEIGHT PER HALF (G)	CABLE OR PIPE DIMENSION(inches)	WEIGHT PER HALF (oz)
20/4 - 8	3,5 - 8.,5	23	0.14 - 0.33	0.8
20/9 -13	8.,5 - 13,5	23	0.33 - 0.53	0.8
30/14	13.,5 - 18,5	45	0.53 - 0.72	1.6
30/19	18,5 - 23,5	43	0.72 - 0.93	1.5
40/24	23,5 - 28,5	71	0.93 - 1.12	2.5
40/29	28,5 - 33,5	62	1.12 - 1.32	2.2
60/34	33,5 - 38,5	150	1.32 - 1.52	5.3
60/39	38,5 - 43,5	136	1.52 - 1.71	4.8
60/44	43,5 - 49,5	128	1.71 - 1.95	4.5
90/50	49.,5 - 59,5	348	1.95 - 2.34	12.3
90/60	59,5 - 69,5	318	2.34 - 2.74	11.2

1. The E-AddBlock comes complete with 4 inserts to give 5 different block sizes.

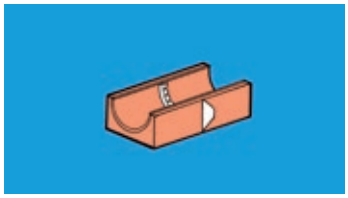


2. Remove all inserts.



3. Select the insert with the required diameter and tear along the perforations.

4. Attach the two inserts into the locating ridges.



Grounding and Bonding

For Series RGS, RGB, RGG, and E-RGP

These products are primarily intended for grounding and bonding of communication, instrument, power, braid or wire armored cables and copper pipes.

It is sufficient to use standard STG-Endpacking and Composite Compression Plate or PTG Presswedge instead of the E- version of these components.

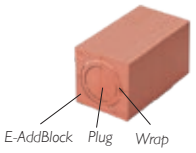
Standards:

CSA Std. C22.2 No. 4.1	- Grounding and Bonding Equipment
CSA Std. C22.2 No. 18.3	- Conduit, Tubing and Cable Fittings
CSA Std. C22.2 No. 182.3	- Special use attachment plugs, receptacles and connectors (as a guide)
UL Std. 467	- Grounding and Bonding Equipment
UL Std. 514B	- Conduit, Tubing and Cable Fittings
UL Std. 1977	- Component Connectors for use i Data, Signal, Control and Power applications

E- Block size	Copper sheet cross section mm2	Cable/pipe OD (mm)	Max conductor/braid size (cable/pipe)		Copper sheet cross section (inches2)	Cable/pipe OD (inch")	Max conductor/braid size (cable/pipe)	
			AWG	Area mm2			AWG	Area (inches2)
20	4-8	3.5-9.5	11	4	0.16 - 0.32	0.14 - 0.37	11	0.08
20	6-12	9.5-16.5	9	4	0.24 - 0.52	0.37 - 0.65	9	0.12
30	13-21	11.5-24.5	6	13	0.52 - 0.86	0.45 – 0.96	6	0.52
40	21-31	21.5-35.5	4	21	0.82 - 1.26	0.85 - 1.40	4	0.41
60	42-45	31.5-55.5	1	42	1.66 - 1.96	1.24 - 2.19	1	8.83
90	50-65	49.5-71.5	1	42	1.95 - 2.56	1.95 - 2.81	1	8.83
120	75-94	71.5-101.5	1	42	2.96 - 3.70	2.81 - 4.00	1	8.83

E- Block size	Copper sheet cross section mm2	Cable/pipe OD (mm)	Max conductor/braid size (cable/pipe)		Copper sheet cross section (inches2)	Cable/pipe OD (mm)	Max conductor/braid size (cable/pipe)	
			AWG	Area mm2			AWG	Area (inches2)
20	4-8	3.5-8.5	11	4	0.16- 0.32	0.14 - 0.33	11	0.08
20	6-13	8.5-13.5	9	4	0.24 - 0.48	0.33 - 0.53	9	0.12
30	13-22	13.5-23.5	6	13	0.52 - 0.82	0.53 - 0.93	6	0.26
40	21-32	23.5-33.5	4	21	0.82 - 1.22	0.93 - 1.32	4	0.41
60	42-50	33.5-49.5	1	42	1.66 - 1.78	1.32 - 1.95	1	0.83
90	50-65	49.5-69.5	1	42	2.12 - 2.32	1.95 - 2.74	1	0.83

E-Spare Block size
24x5/0
12x10/0
15x0
20x0
30x0
40x0
60x0



E-ADDBLOCK	PLUG	WRAP
E-20/4 - 8	P20/8	
E-20/9 - 13	P20/8 +	W20/8-13
E-30/14 - 18	P30/18	
E-30/19 - 23	P30/18 +	W30/18-23
E-40/24 - 28	P40-28	
E-40/29 - 33	P40-28 +	W40/28-33
E-60/34 - 38	P60/38	
E-60/39 - 43	P60/38 +	W60/38-43
E-60/44 - 48	P60/38 +	W60/38-43 and W60/43-48

Pluggs and Wraps are only for use in Grounding and Bonding aplications, not EMC

Packing Plan

The correct frame size can be determined by using this plan.

The numbers 2, 4, 6 and 8 in the margin represent the packing space available in frames size 2, 4, 6 and 8 respectively.

It is not neccessary to show stayplates and compression components as the required space has already been allowed for. RG-Packing Plans will be supplied free of charge upon request.

E-PTG Allen

E-PTG Hex

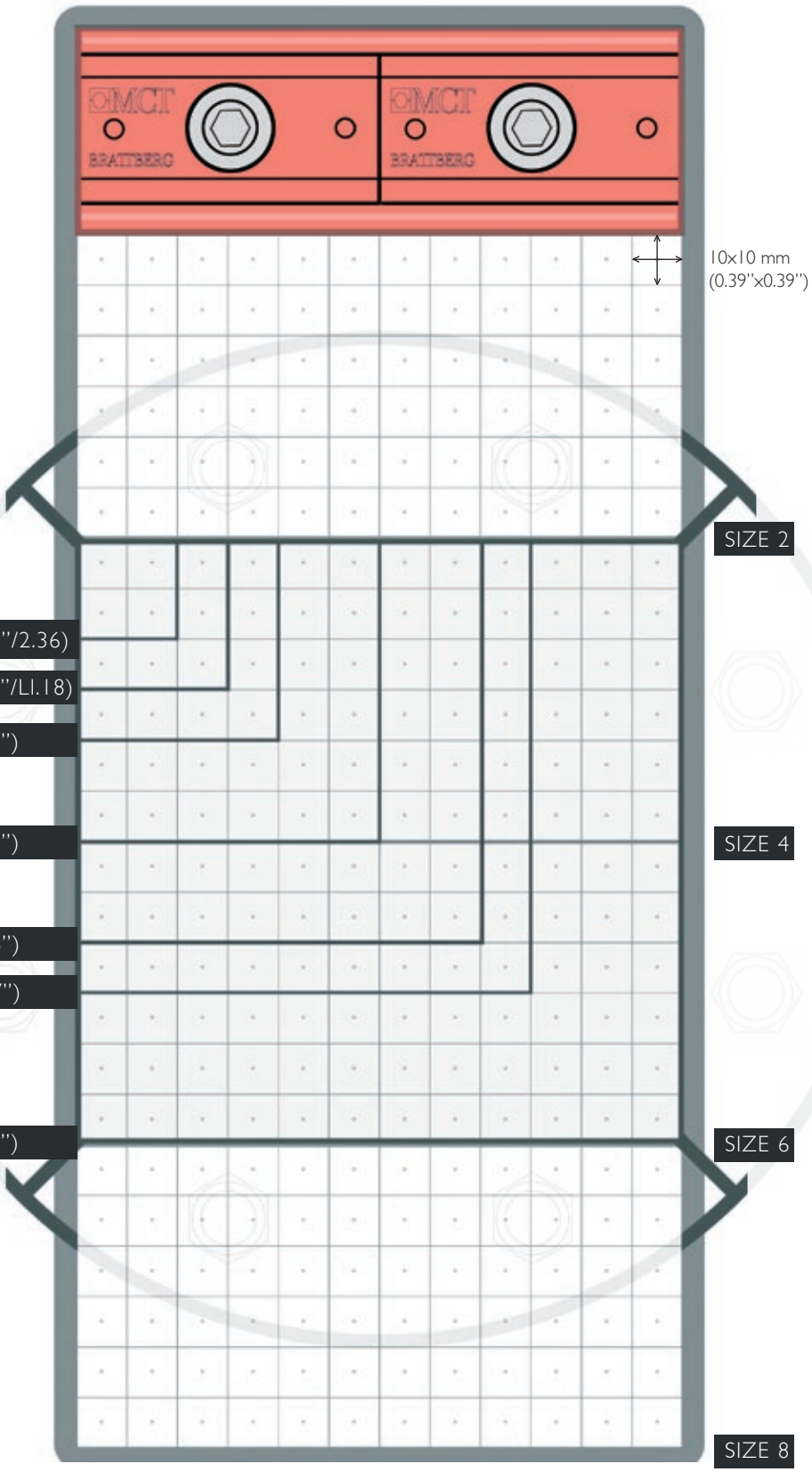
E-STG

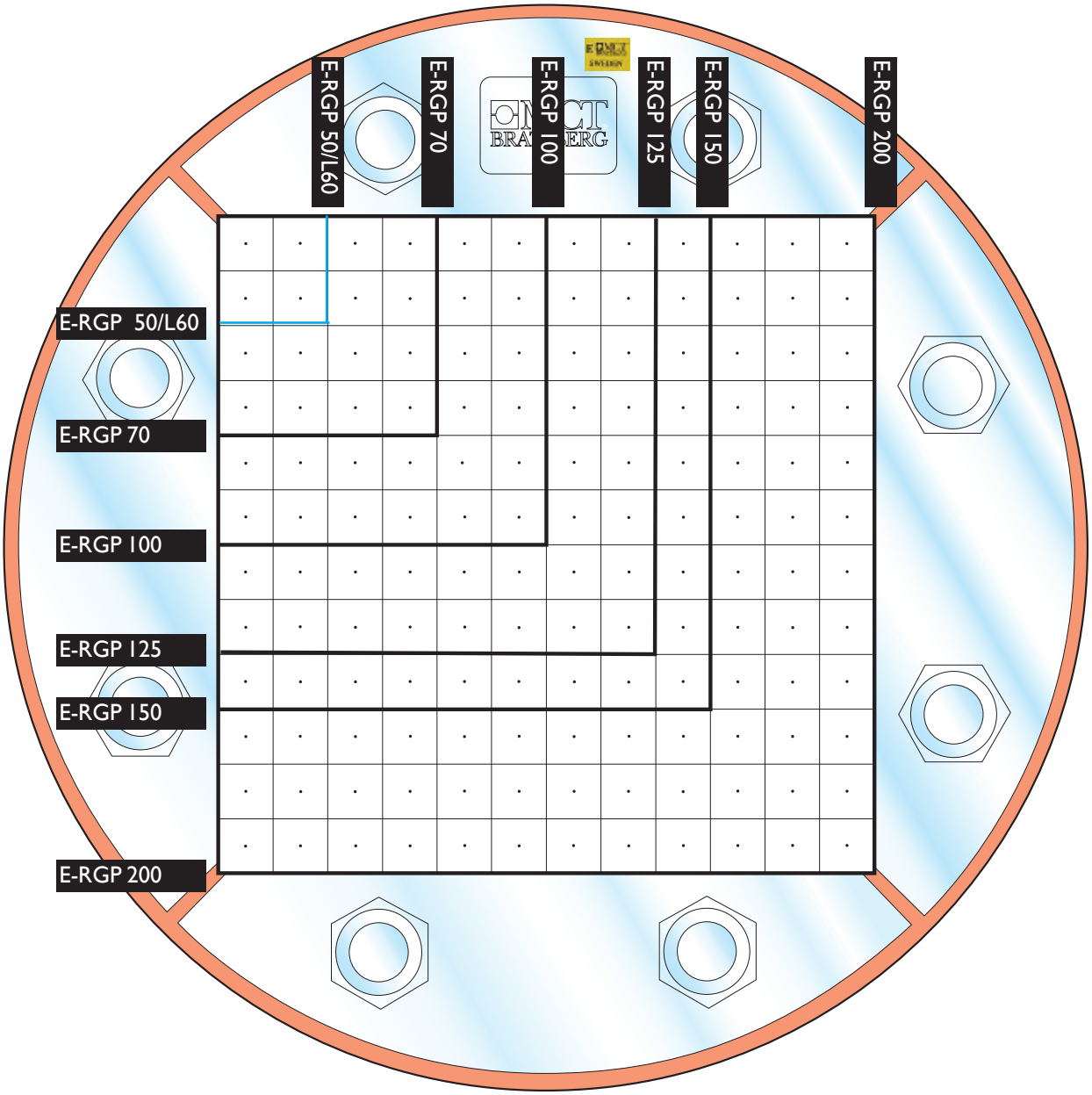
Compression plate

Stayplate

Lubricant

E-Blocks




E-RGP 50/L60
E-RGP 70
E-RGP 100
E-RGP 125
E-RGP 150
E-RGP 200
E-RGP 50/L60
E-RGP 70
E-RGP 100
E-RGP 125
E-RGP 150
E-RGP 200

IECEx / ATEX

Putting safety first

MCT BRATTBERG

Products for a safer and more secure work environment

MCT Brattberg's concept for modular cable and pipe transits has been market leading for more than half a century. Our flexible system seals cables and pipes through the framework of the building without compromising safety. MCT Brattberg cable and pipe transits are tested and approved by the leading certification authorities and laboratories worldwide.

According to EU regulations and IECEx standards all working environments where explosive materials are present the ATEX Directive must be applied. This applies to areas with fuel production and storage, handling of chemicals and the build up of hazardous dust. MCT Brattberg has developed and tested an Ex-approved range of cable and pipe transits to protect adjacent locations in such areas.

Tested and approved

When it comes to safety we lean on our long experience and independent tests.
In the most hazardous environments around the world, people and companies can rely on our cable and pipe transits. It is a tough job where valuable assets are at risk. We are proud to say that our transits have been tested against explosion, fire, water, gas, chemicals, vibrations and corrosion, met the maximum requirements and thus been certified by the approval authority.

MCT Brattberg products are approved by DNV-GL and meet the Quality and Environmental standard requirements of ISO 9001, 14001 and OHSAS 18001, we also conform to the ATEX Directive 2014/34/EC and the IECEx requirements.

Where valuable assets are at risk

MCT Brattberg's concept for modular cable and pipe transits has been market leading for more than half a century. Our flexible system seals cables and pipes through the framework of the building without compromising safety. MCT Brattberg cable and pipe transits are tested and approved by the leading certification authorities and laboratories worldwide.

According to EU regulations and IECEx standards all working environments where explosive materials are present the ATEX Directive must be applied. This applies to areas with fuel production and storage, handling of chemicals and the build up of hazardous dust. MCT Brattberg has developed and tested an Ex-approved range of cable and pipe transits to protect adjacent locations in such areas.

In high-risk environments, such as explosive hazardous areas, "Putting Safety First" is our number one priority. This is the reason why MCT Brattberg´s products are installed globally.

Tested and approved

When it comes to safety we lean on our long experience and independent tests.
In the most hazardous environments around the world, people and companies can rely on our cable and pipe transits. It is a tough job where valuable assets are at risk. We are proud to say that our transits have been tested against explosion, fire, water, gas, chemicals, vibrations and corrosion, met the maximum requirements and thus been certified by the approval authority.
MCT Brattberg products are approved by DNV-GL and meet the Quality and Environmental standard requirements of ISO 9001, 14001 and OHSAS 18001, we also conform to the ATEX Directive 2014/34/EC and the IECEx requirements.
We follow in engineer Brattberg footsteps when keeping our system flexible and safe. The system is based on standard units of Lycron through which cables and pipes are installed. Our products are made of the same high quality. To avoid any mix-up the Ex blocks are marked in both ends.

The system can adapt to any application and is easy to install. Safety lies in the simplicity. The system is intuitive, easy to understand and modify, which reduces the risk of installation error.

System Flexibility

An explosion-proof transit is a matter of the whole system. There must not be any weak points. All modules complement and strengthen each other, from the smallest detail to the larger framework. Each component is constructed to sustain the impact of an explosion. Regardless different cable and pipe diameters an MCT Brattberg transit meets the demands for offshore and onshore. The frames are cut, welded, grinded, painted and stamped with logo and date.

The Lycron in the inserts is a synthetic halogen free polymer developed especially to withstand fire, explosions, temperature variation, ageing, vibration, radiation and pests. The inserts are injection moulded for accuracy. The dimensions have become the industry standard and have proved sustainable over time.

IECEx & ATEX
Some important notes

User environment

IECEx & ATEX concerns all products to be used in places where explosive atmospheres may arise. Places where there can occur mixtures of air and flammable materials such as gases, vapours, mists and dusts.

Products IECEx & ATEX

Ex does not only concern electrical equipment, but all equipment and protection system for use in potentially explosive atmospheres. In all premises within the worlds, where there is explosion risk, the equipment and protective systems must carry an Ex or ATEX Certificate.
IECEx stands for the certification by the International Electrotechnical Commission for Explosive Atmospheres. To be IECEx certified, all products must go through a monitored process by the International Electrotechnical Commission to ensure that they meet the minimum safety requirements. This process will determine if the products can be used in hazardous or potentially explosive locations.

Scope

IECEx & ATEX conformity of products is compulsory.
It also covers explosive dust/air mixtures as well as gases.

Classification of equipment

The IECEx & ATEX contains classification into groups and categories which are defined by the marking on the equipment.

Area Classification

Process plants are divided into Zones (European and IEC method) or Divisions (North American method) according to the likelihood of a potentially explosive atmosphere being present.
An area in which an explosive mixture is continuously present or present for long periods has the following

Classification:

Gases: Zone O Class I Division 1
Dusts: Zone 20 Class II Division 1

An area in which an explosive mixture is likely to occur in normal operation has the following Classification:
Gases:,Zone 1 Class I Division 1
Dusts: Zone 21 Class II Division 1

An area in which an explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time has the following Classification:
Gases: Zone 2 Class I Division 2
Dusts: Zone 22 Class II Division 2

Marking
The ATEX directive requires the product to be marked with the CE mark, the EX mark and the equipment coding.

MCT Brattberg coding:

II2GD Ex eb IIC Gb Ex tb IIIC Db T -60.c to +70.c

II =	Surface and mining
2 =	Zone 1/21 (1=Gas 21=Dust)
GD =	Gas & Dust
Ex eb =	Increased safety, b=zone 1,2
IIC =	All gases approved
Gb =	Gas zone 1 (Zone 1 is also approved in zone 2. NOT ZONE 0)
Ex tb =	Dust enclosure 6 (IP)
IIIC =	Conductive dust, also approved for A and B. A=Combustible flyings, B=none-conductive dust.
Db =	Zone 21, dust also zone 22
	-60.c to +70.c = Ex working temp min/max

Do not hesitate to contact us.
When it comes to safety, no questions are too small or large.

Ex / ATEX

In high-risk environments, such as explosive hazardous areas, "Putting Safety First" is our number one priority. This is the reason why MCT Brattberg's products are installed globally.

Ex for high risk ATEX environments.

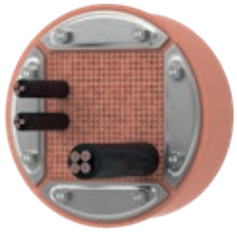
All Blocks in the IECEx & ATEX system
is marked.

RGS EX System
Multi cable & pipe transits for offshore applications, Ex hazardous marine and land-based structures.

RGB & RGG Ex
Ex rated multi cable & pipe transits for buildings and land-based structures.

RGS Ex System

The system consists of a frame, rubber blocks and a compression unit.
The frame is welded or bolted to a Ex hazardous marine structure and packed with rubber blocks suited for each cable and pipe dimension.
The compression unit is inserted to compress the rubber blocks against cables and pipes to establish a tight seal.



RGP EX System
Circular Ex rated multi cable & pipe transits for assembly in sleeves.

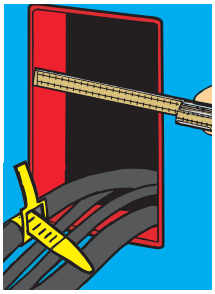
Benefits of MCT Brattberg Ex systems

- Ex rated transit for hazardous environments
- Assists cable management
- Seals the penetration against the passage of fire, water, gas, sound and environmental hazards
- Can be combined with special EMC modules and for Grounding and Bounding
- Unlike other brands our system can be dismantled and re-used
- Marked blocks for increased safety
- No adaptation of standard blocks needed

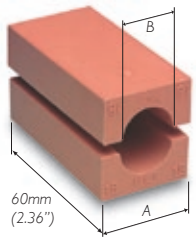
You will find more information about our Ex Products on our website **www.mctbrattberg.com**

Installation Guide

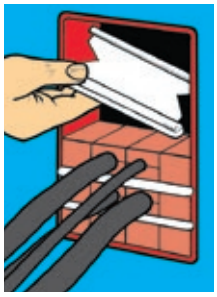
Installation Guide



1 *Measure the opening and check that the measurement is within the tolerance range 120.5 mm +/- 0.5 mm (4.74"+/-0.02"). Check that the frame is clean and pull through the cables. Measure the diameter of the cables and choose suitable blocks. Lubricate the inner faces of the frame.*



2 *Insert Block. The blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0.71") is marked 30/18. This marking is cast into the block.*

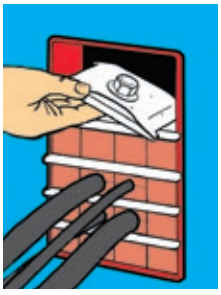


3 *Pack the frame. Place stayplates between each row of blocks*

Pressure-tight installation

Check that the frame is clean and that the inside is well lubricated. All Lycron parts must be lubricated carefully with MCT Brattberg lubricant.
Place the compression plate in the centre so that the Lycron rubber is pushed upwards between the compression plate and the frame. The seal must not be subjected to pressure for at least 48 hours after installation. This is to allow the pressure to equalise throughout the penetration.
It will take more time for the pressure to equalise at temperatures below 20°C.

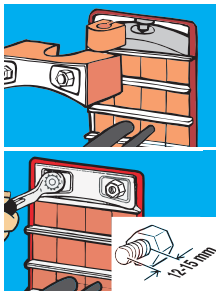
STG ENDPACKING



4 *Pack the frame. Place stayplates between each row of blocks.*

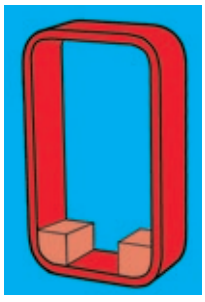
5 *Insert the top row of blocks.*

6 *Tighten the bolt in the compression plate anticlockwise until there is a gap of 32-33 mm (1.26-1.30") between the top of the plate and the inside of the frame.*



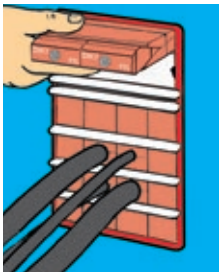
7 *Insert the STG end-packing with the tongue around the compression bolt. Tighten the nuts in the endpacking until 12-15 mm (0.47-0.59") of thread is visible.*

RGSC WITH STG ENDPACKING

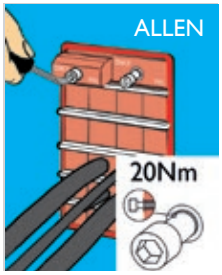


Begin packing with the special corner blocks. Proceed as shown in image 3 and then see STG Endpacking image 4-6. Insert endpacking C-STG (with special corner blocks). Tighten the nuts on the endpacking to compress and complete the seal. About 12 mm (0.47") of the thread should protrude on each bolt.

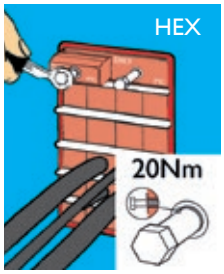
PTG PRESSWEDGE, ALLEN AND HEX



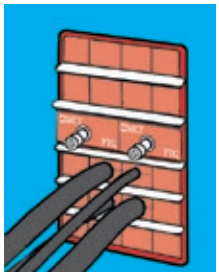
4 *Place the last two stayplates in the frame before the last row of blocks. Then fit the PTG presswedge over the stayplates.*



5 *Insert the final row of blocks. Tighten the nuts in the PTG to the end or 20 Nm.*

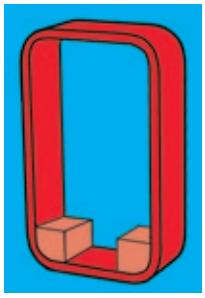


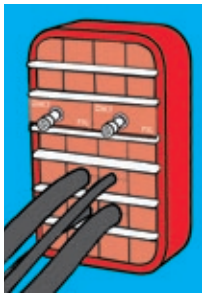
6 *Insert the final row of blocks. Tighten the nuts in the PTG to the end or 20 Nm.*



7 *The PTG presswedge may be placed anywhere in the frame.*

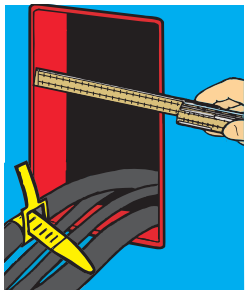
RGSC WITH PRESSWEDGE





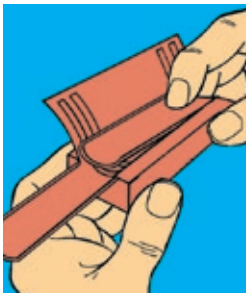
Begin packing with the special corner blocks. Proceed as shown in image 3 and then see PTG Presswedge. The PTG presswedge can be placed anywhere except at the top or bottom. At the top row insert the special corner blocks and then the last row of blocks. Tighten the nuts in the PTG to the end or 20 Nm.

AddBlock

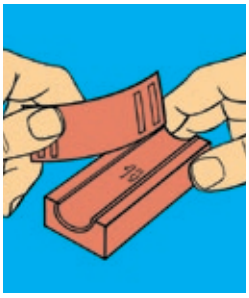


Measure the opening and check that the measurement is within the tolerance range 120.5 mm +/- 0.5 mm (4.74"+/-0.02"). Check that the frame is clean and pull through the cables.
Measure the diameter of the cables and choose suitable blocks. Lubricate the inner faces of the frame.

Tear off attached sheet to fit the dimension selected.



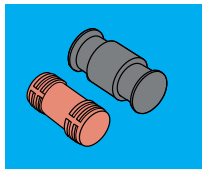
Place sheet into centre slot and affix it with the unique locking device.



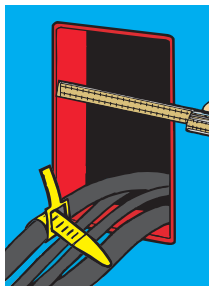
Tear off superfluous sheets.

Pack the frame. Place stayplates between each row of blocks

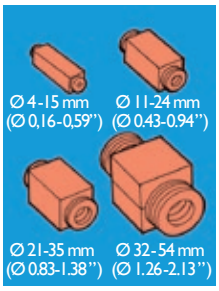
Plugs for AddBlock and HandiBlock se page 81-82.



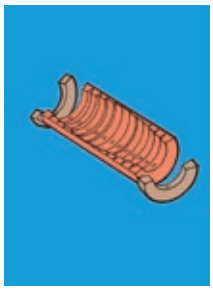
HANDIBLOCK



Measure the opening and check that the measurement is within the tolerance range 120.5 mm +/- 0.5 mm (4.74"+/-0.02"). Check that the frame is clean and pull through the cables. Measure the diameter of the cables and choose suitable blocks. Lubricate the inner faces

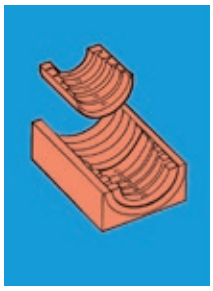


Select the HandiBlock that fits the cable / tube.

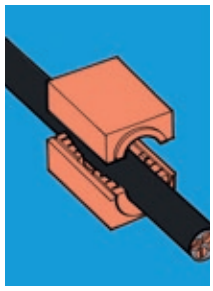


Select the two compression rings closest to the cable diameter. Remove all compression rings smaller than the selected.

If the insert gets longer than the block, remove the current rings in the middle.

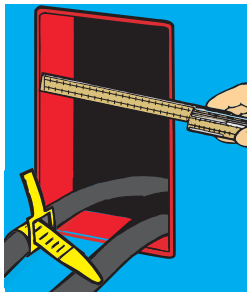


Place the two inserts in the main block so that the outermost rings are at the outer edge of the main block.

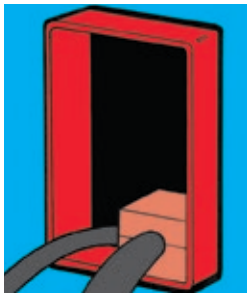


Build the second block half the same way. Insert the cable / tube and lay over the block half. Continue packing as shown in figure 4 on the left side.

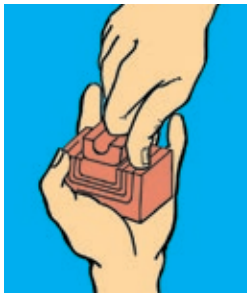
U-Block



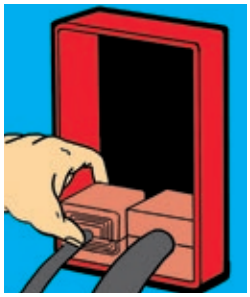
Measure the opening and check that the measurement is within the tolerance range 120.5 mm +/- 0.5 mm (4.74"+/-0.02"). Check that the frame is clean and pull through the cables. Measure the diameter of the cables and choose suitable blocks. Lubricate the inner faces of the frame.



Select a suitable block for the largest cable in the row.



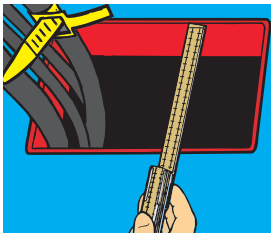
Select a suitable InsertBlock or AddBlock for the small cable. Then create a base using U-Blocks.
The external measurements should be the same as the previous block.



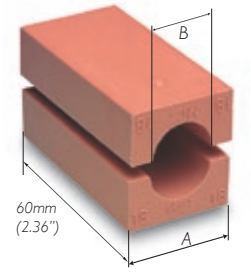
Start packing the frame.

Insert stayplates between each row of insert blocks.

Horizontal Installation Guide



1 *Measure the opening and check that the measurement is within the tolerance range 120.5 mm +/- 0.5 mm (4.74"+/-0.02"). Check that the frame is clean and pull through the cables. Measure the diameter of the cables and choose suitable blocks. Lubricate the inner faces of the frame.*

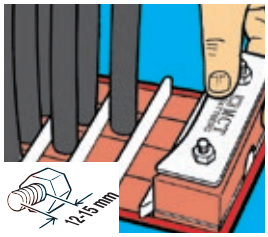


2 *The blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0,71") is marked 30/18. This marking is cast into the block.*

3 *To prevent the blocks from falling through during horizontal installation, fit all the stayplates and the compression plate first. Check the RG plan to make sure the cables are positioned correctly.*

4 *Insert the outer blocks first (A, B, C, etc). Then insert the rest of the blocks. Note: block A must be rotated 90°, see diagram.*

5 *Pack the frame. Tighten the bolt in the compression plate anticlockwise until there is a gap of 32-33 mm (1.26"-1.30") between the top of the plate and the inside of the frame.*

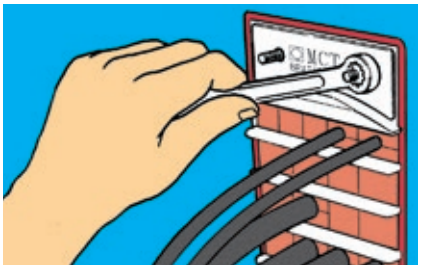


6 *Insert the STG endpacking with the tongue around the compression bolt. Tighten the nuts in the endpacking until 12-15 mm (0.47"-0.54") of thread is visible.*

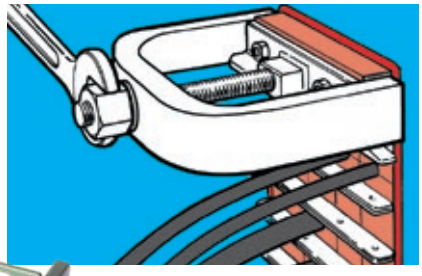
Disassembly Guide

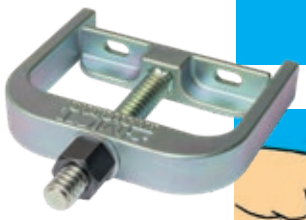
STG

1 *Remove the nuts and the hardware from the face of the endpacking.*

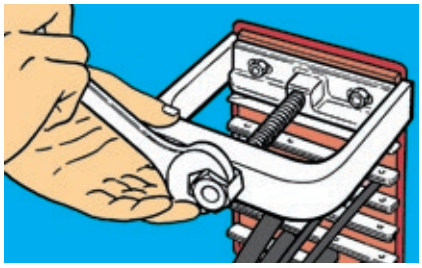


2 *Attach the endpacking puller to the bolts with the nuts from the endpacking.*

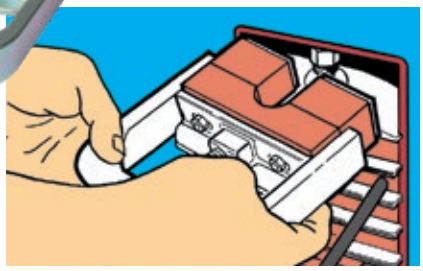




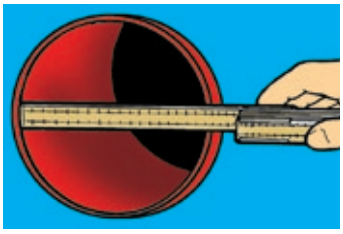
3 *Tighten the bolt on the puller and the endpacking slides out.*



4 *Remove the endpacking.*

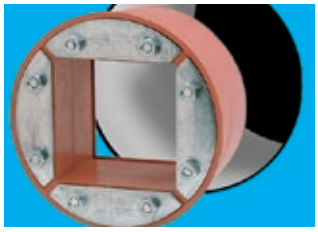


RGP Installation



1

Measure the pipe/drilled hole to ensure that the size conforms to tolerance standards.

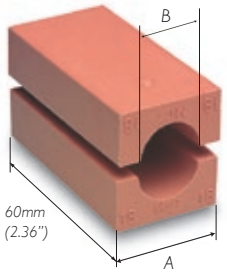


2

Insert the RGP frame in the opening. No lubricant should be applied to the hole or to the outside of the frame.

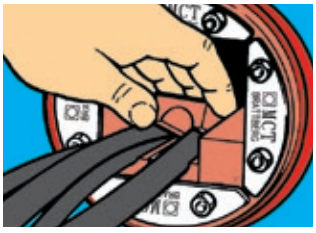
3

Place the frame in correct position in the hole. Check that the frame is clean and pull through the cables. Place the largest cables at the bottom of the frame. Measure the diameter of the cables and choose suitable blocks.



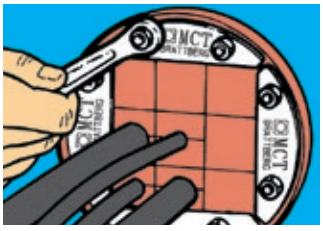
4

InsertBlock. The blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0,71") is marked 30/18. This marking is cast into the block.



5

Begin packing.



6

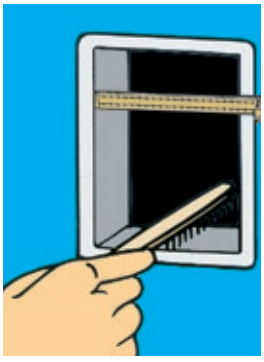
Tighten the nuts in diagonal order until 10-12 mm (0,39"-0,47") of thread is visible.

Dimensions for pipes and drilled holes			
RGP type	RGP ID mm	RGP type	RGP ID Inches
RGP 50	50-51	RGP 2"	1.97-2.01"
RGP 70	70-71	RGP3"	3-3.04"
RGP 100	100-102	RGP 4"	4-4.08"
RGP 125	125-127	RGP 5"	5-5.08"
RGP 150	150-152	RGP 6"	6-6.08"
RGP 200	200-202	RGP 8"	8-8.08"
RGP 300	301.5-304	RGP *11.8"*	*11.87"-11.96"*

PRESSURE-TIGHT INSTALLATION RGP

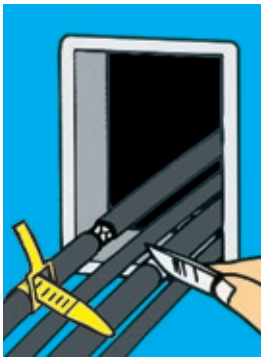
All contact surfaces between the pipe and the RGP plug must be cleaned carefully prior to installation. Do not use any lubricant on these surfaces. All blocks must be lubricated carefully with MCT Brattberg lubricant. The penetration must not be subjected to pressure for at least 48 hours after installation. This is to allow the pressure to equalise throughout the penetration.
It will take more time for the pressure to equalise at temperatures below 20°C.

Installation E-RGS, E-RGB



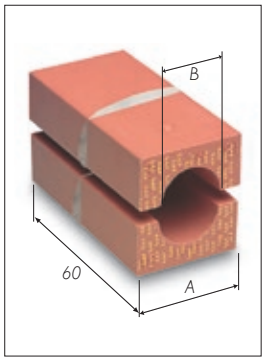
1

Clean the inside of the frame carefully to ensure good electrical contact between the metal sheet and the frame.



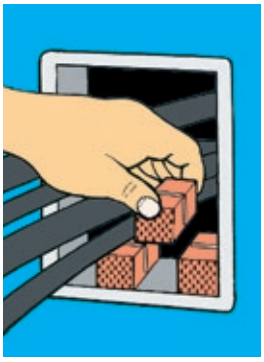
2

Pull cables to final position. Mark cable 30 mm (1.18") from front edge of frame. Remove cable sheat 5 mm (0.2") on either side of the line.



3

The E-Blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0.71") is marked 30/18. This marking is cast into the block.



4

When packing the transit, ensure all the insert blocks have "E" marking facing the installet.

5

Position the stayplates betweean each layer of insert blocks.

E-STG ENDPACKING

6

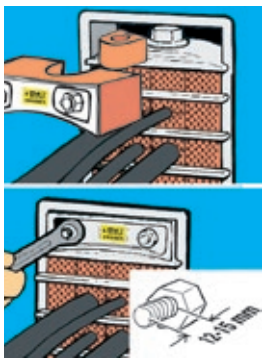
Before the final row of E-blocks, the compression plate is installed. Alternatively, the E-PTG Presswedge can be fitted.

7

Tweezers can be used, if required to aid installation of the last row of E-blocks.

8

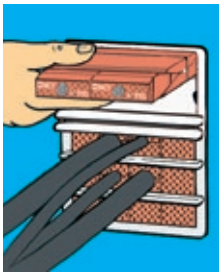
Tighten the bolt in the compression plate anticlockwise until there is a gap of 32-33 mm (1.26, 1.30 ") between the top of the plate and the inside of the frame.



9

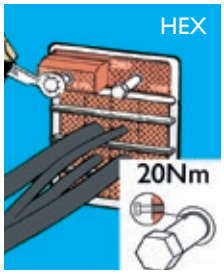
Insert the E-STG endpacking with the tongue around the compression bolt. Tighten the nuts in the endpacking until 12-15 mm (0.47-0.59") of thread is visible.

E-PTG PRESSWEDGE, ALLEN AND HEX

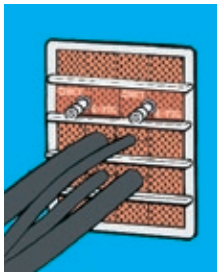


6 *Place the last two stayplates in the frame before the last row of blocks. Then fit the E-PTG presswedge over the stayplates.*

7 *Insert the final row of E-blocks. Tighten the nuts in the E-PTG to the end or 20 Nm.*



8 *Insert the final row of E-blocks. Tighten the nuts in the E-PTG to the end or 20 Nm.*



9 *The E-PTG presswedge can be placed anywhere in the frame.*

PRESSURE APPLICATIONS RGS, RGSC, RGSF, RGSK, RGSR AND RGSbtb

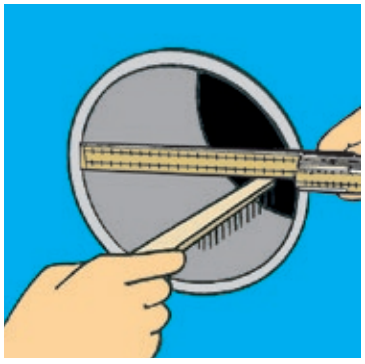
Make sure the frame is clean and lubricate the inside of the frame thoroughly. Lubricate all Lycron parts carefully with the MCT Brattberg lubricant.

Place the compression plate in the center so that the rubber can come up between the compression plate and the frame on both sides of the plate.

The seal may not be pressurized within 48 hours of installation. This allows for the settlement of the system (based on a 20°C ambient temperature). NOTE. The lower the temperature, the longer the needed settlement time.

NOTE. For pressurized applications, all components must be replaced with new material after removal and refitting.

Installation E-RGP

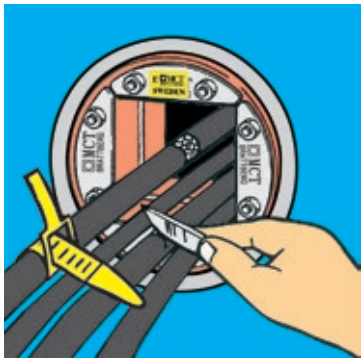


1

Thorougly clean the inside of the frame. Check that frame dimensions agree with stated tolerances.

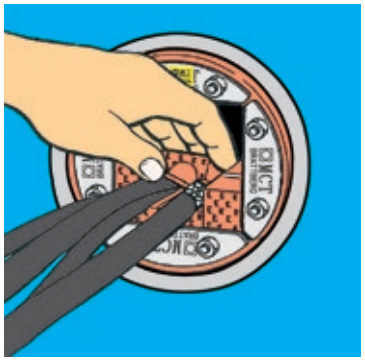
2

Place the E-RGP in the correct position in the opening.



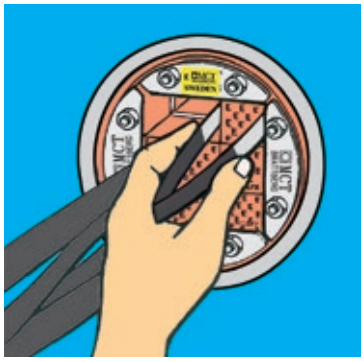
3

Pull the cables to final position. Mark cable 30 mm (1.18") from front edge of frame. Remove cable sheat 5 mm (0.2") on either side of the line.



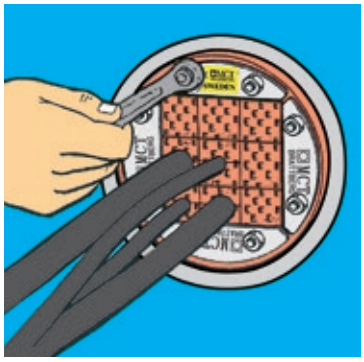
4

When packing the transit, ensure all the insert blocks have "E" markings thread is visible.



5

Tweezers can be used, if required, to aid installation of last row of blocks.



6

Tighten the nuts so that 10-12 mm (0.39-0.47") of the protruding thread is visible.

Tolerances for pipes and drilled holes		
Pipes	Inner mm	Inner Inces
E-RGP 50	50-51	1.97-2.08
E-RGP 70	70-71	2.76-2.80
E-RGP 100	100-102	3.94-4.02
E-RGP 125	125-127	4.98-5.0
E-RGP 150	150-152	5.91-5.98
E-RGP 200	200-202	7.87-7.95

PRESSURE APPLICATIONS E-RGP

Clean the inside of the pipe and the outside of the E-RGP prior to installtion, but apply no lubricant to either surface.

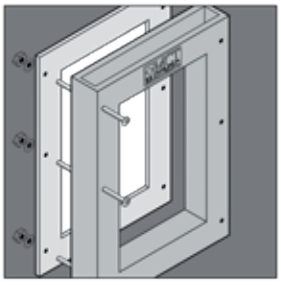
Lubricate all the Lycron parts carefully with the MCT Brattberg lubricant.

The E-RGP seal may not be pressurized within 48 hours of installation - this allows for the settlement of the system (based on a 20°C ambient temperature). NOTE. The lower the temperature, the longer the needed settlement time.

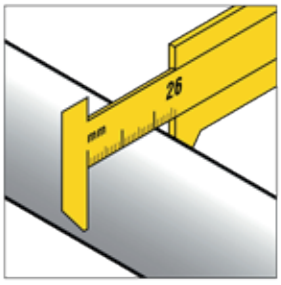
Test pressure 4.5 bar. In the case of higher pressure, please contact MCT Brattberg.

NOTE. For pressurized applications, all components must be replaced after removal and refitting.

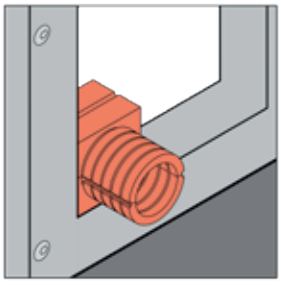
X-Series



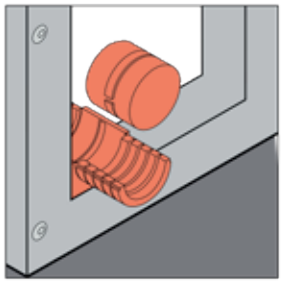
1. Fix frame to opening using gasket and M6 screws supplied.



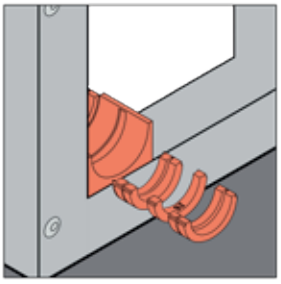
2. Measure cable. In this example cable has a diameter of 26 mm (1.02").



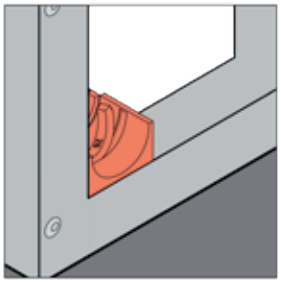
3. Once cable is sized, select appropriate block.



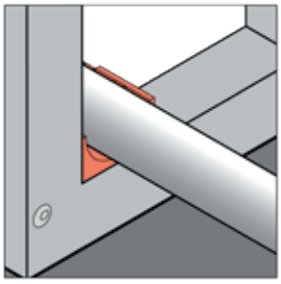
4. Remove top half of block and plug.



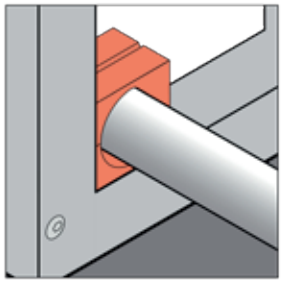
5. Detach sealing rings from main block and retain ring corresponding to measured cable size. In this example 26 mm (1.02")



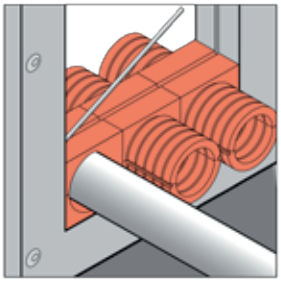
6. Place the 26 mm (1.02") sealing ring in centre groove of block.



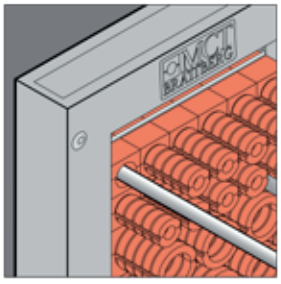
7. Place cable on block.



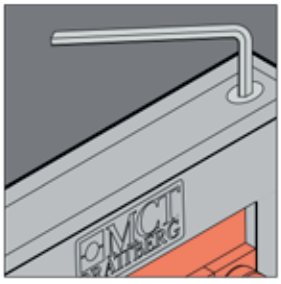
8. Replace top of block to encase cable.



9. If more cables are required repeat the sequence. If not insert blanks to complete row and insert staybar to secure.

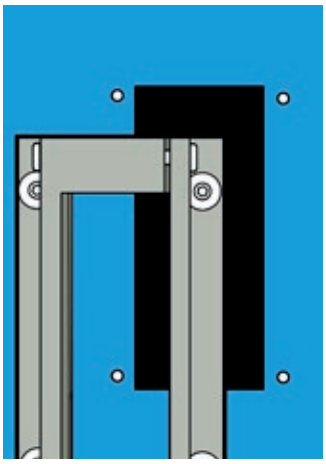


10. Build up the frame and repeat the process described in steps 2-9. In this example 2 more cables have been added using other block sizes.

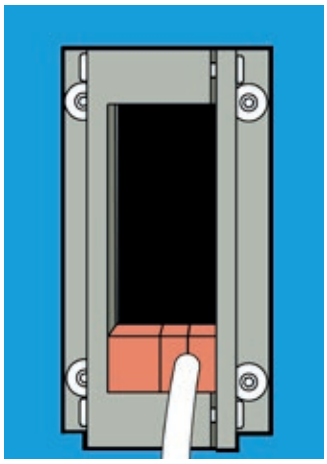


11. Insert compression system and tighten, using allen key.

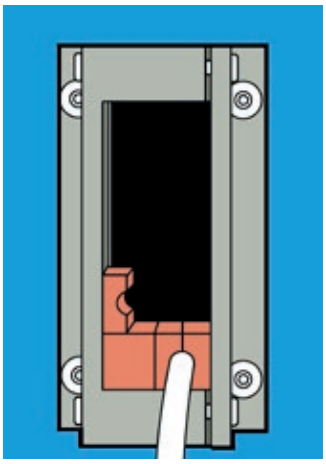
Installation ALF-Cabinet



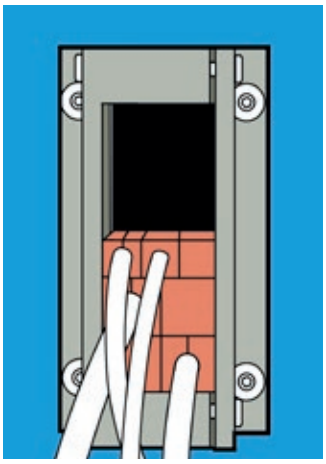
1. Drill hole pattern and cut out for the frame according to table and sketch.



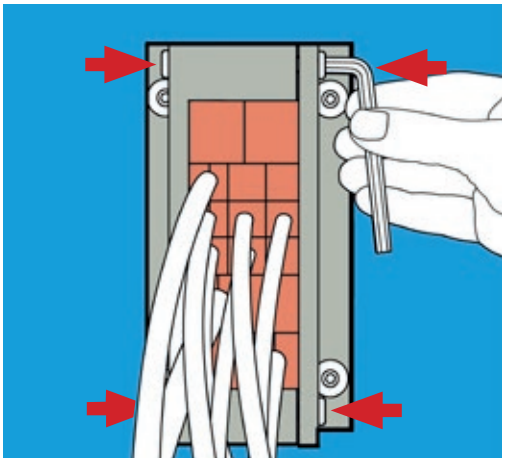
2. Mount the Alf frame to your cabinet with the supplied bolts and with the gasket in between the flange and the cabinet.



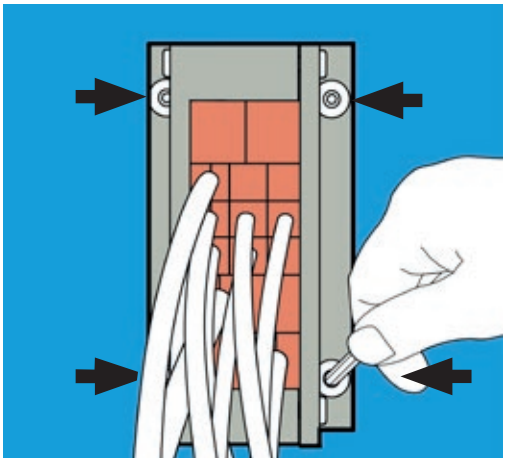
3 Do not tighten the mounting bolts too much, the frame / flange should still be able to slide underneath the bolt head.



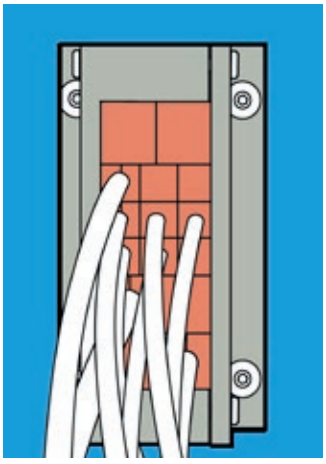
4. Fill up the frame with cables, insert blocks and spare blocks.



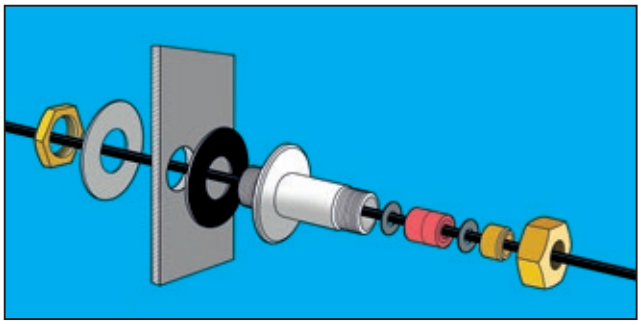
5. Tighten the two compression bolts until the cables are not movable



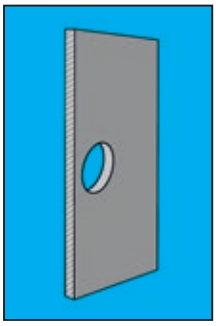
6. Finally tighten the four mounting bolts against the cabinet.



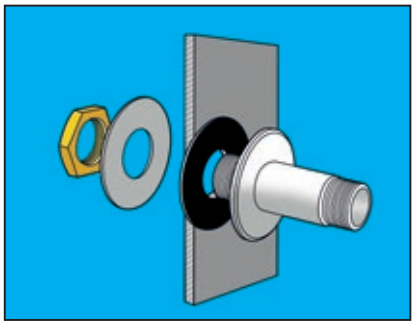
Deck and bulkhead Installation Guide



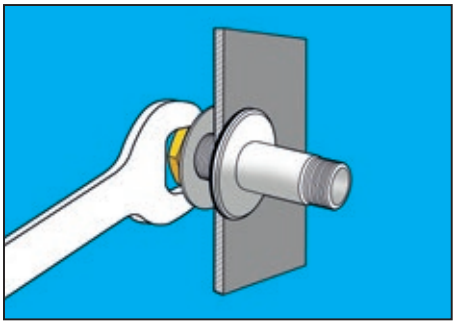
Standard Gland parts.



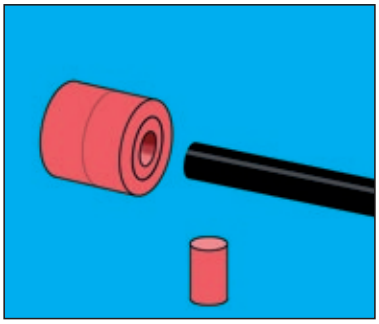
1 Clearance hole =Thread diameter + 2 mm max.



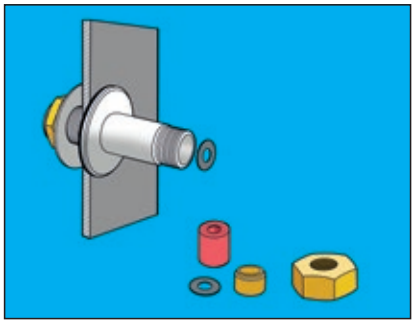
2 Fit the gasket and washer.



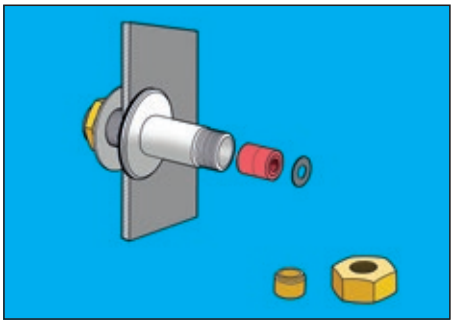
3 Tighten the lock nut.



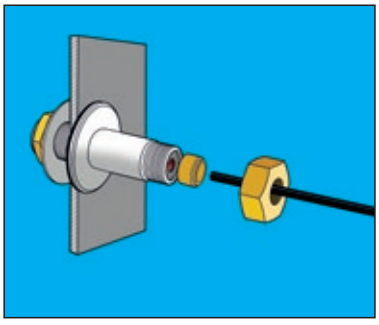
4 Remove the minimum number of rings to allow cable to pass though the seal.



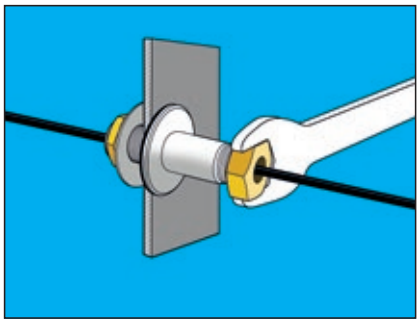
5 Size the first washers to cable and insert it if required.



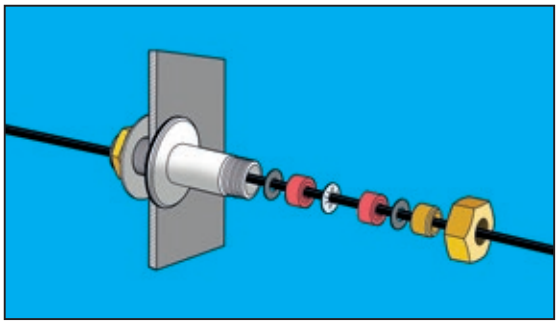
6 Push seal into place.



7 Size the second washer to the cable and insert it to the cable if required

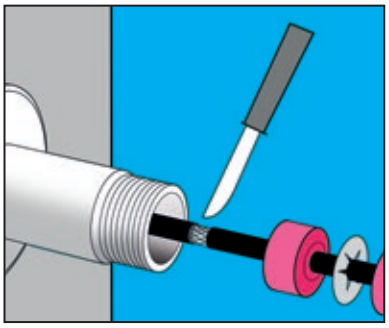


8 Push cable trough assembled gland and tighten nut.

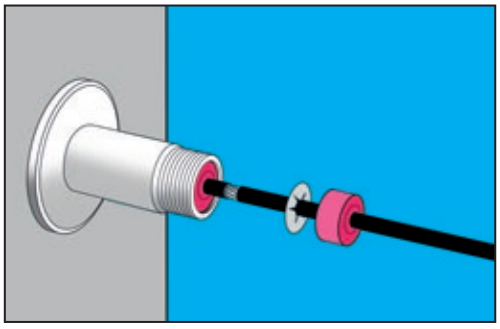


EMC Conversion parts.

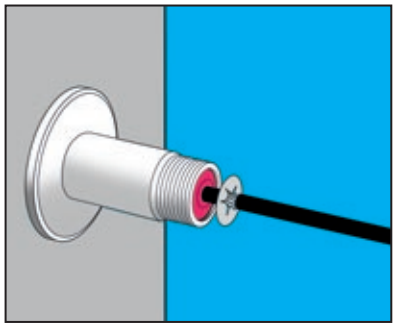
See figures 1-3 on the left page and continue on the right page figures 4-11.



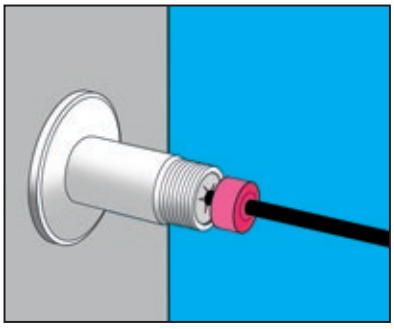
4 Pull cable though gland and carefully trim 5 mm of outer sheath.



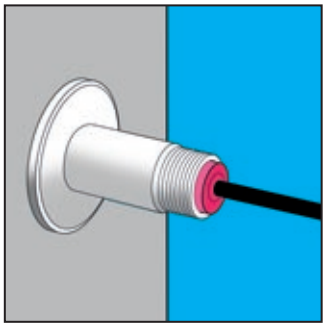
5 Push first piece of seal into place.



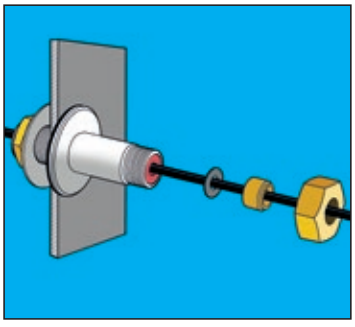
6 Slide EMC piece over cable until contacts with cable braid.



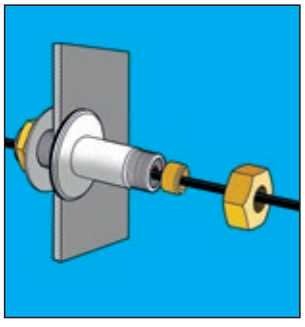
7 Slice 2nd piece of seal over cable.



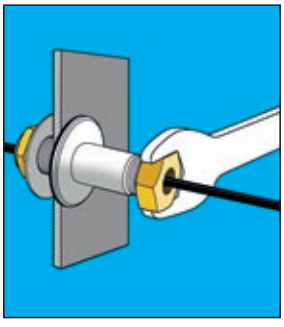
8 Carefully push complete seal and cable back into gland maintaining EMC contact.



9 Carefully push complete seal and cable back into gland maintaning EMC contact.

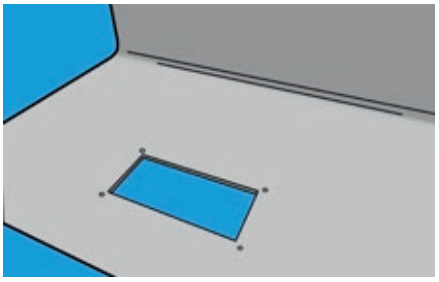


10 Size the second washer to the cable and insert it to the cable if required

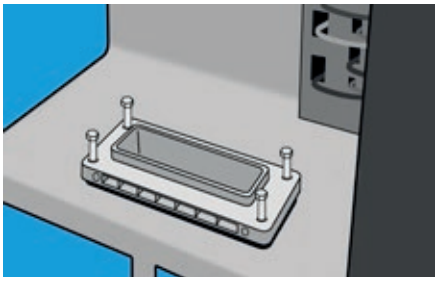


11 Push cable trough assembled gland and tighten nut.

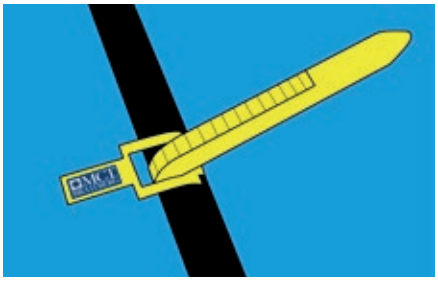
Installation RFCS-Cabinet Seal



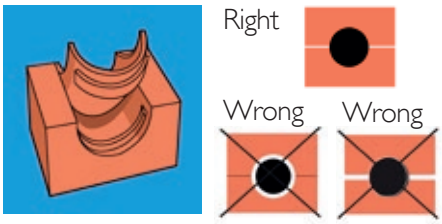
1. Start the installation by ensuring that the cutout made in cabinet correspond to the cutout pattern in the installation manual.



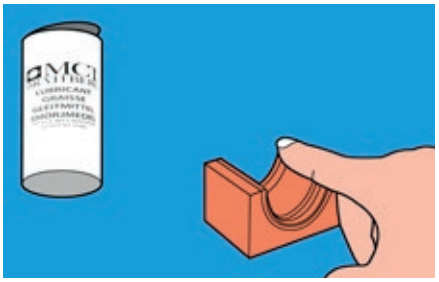
2. Install the frame and gasket directly on the cabinet cutout before installing the cables.



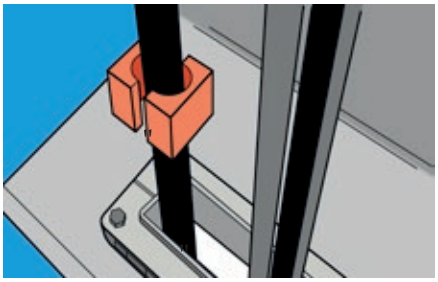
3. Use the cable selector to find the exact diameter of cable by wrapping around the circumference of cable.



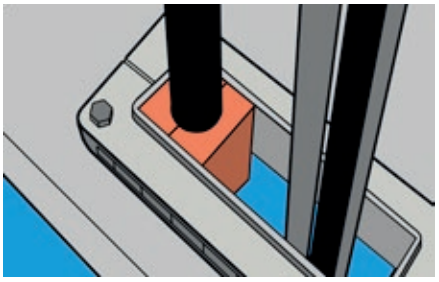
4. Peel of layer from RFCS module until correct cable diameter range is readable on each module half, If required, peel off an extra layer on one of the module half to get a perfect fit against the cable, see "right and wrong" images above.



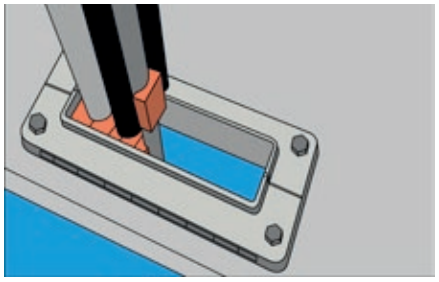
5. Lubricate carefully the inner and outer edges of the prepared RFCS module together with PTG 40 wedge and inner edge of the frame.



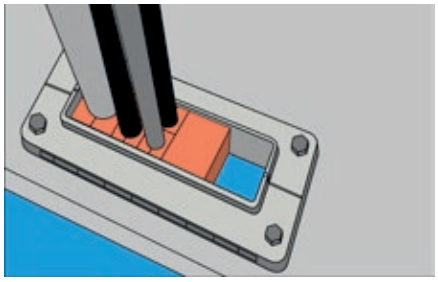
6. Install the cable within the prepared halves of RFCS module.



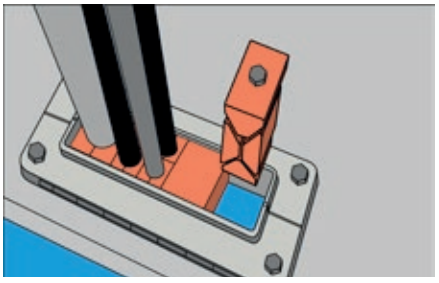
7. Install the RFCS module together with cable from the front until the module rests against the back wall of the frame



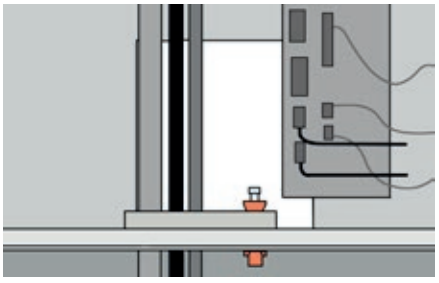
8. Repeat procedure with remaining cables.

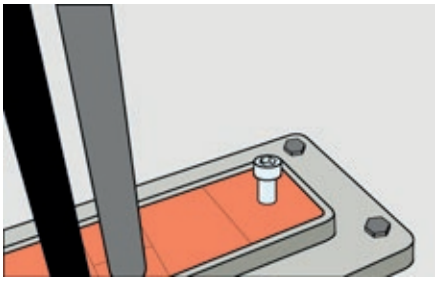


9. Fill remaining space with unprepared modules.



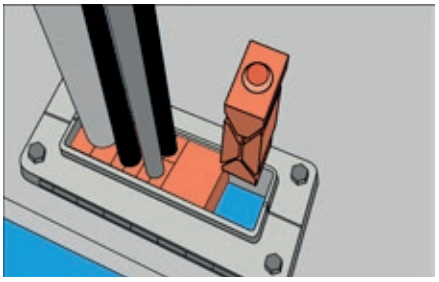
10. Finally insert the PTG 40 wedge.



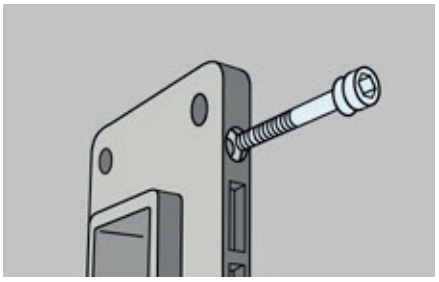


11-12. Tighten the PTG 40 wedge until it is almost even with the frame surface to obtain IP 65/67 rating.

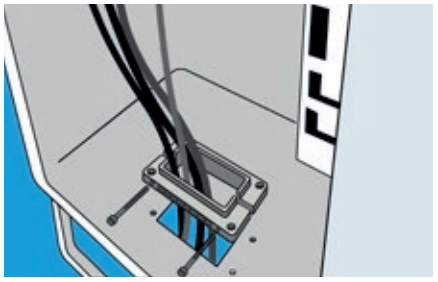
Preterminated cables



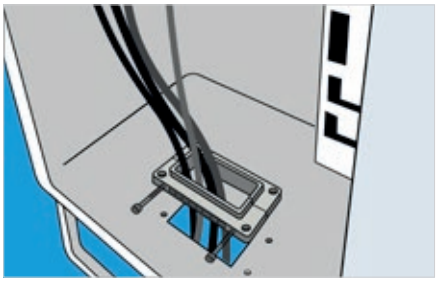
13. PTG 40 wedge can be inserted from both sides of the frame depending on access or client specification.



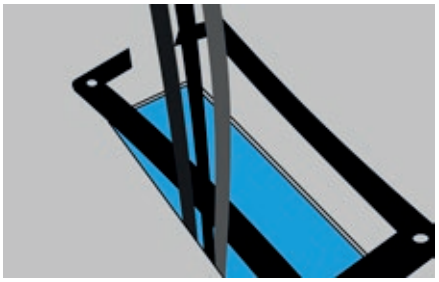
14. In case of preterminated cables open the RFCS frame in two halves by unscrewing the bolts from the sides.



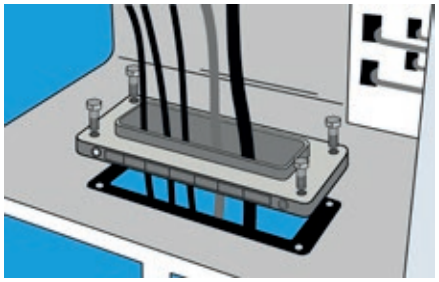
15. Install the preterminated cables between the two halves of RFCS frame.



16. Screw together the two halves with middle gasket fixed on one half of the RFCS frame.



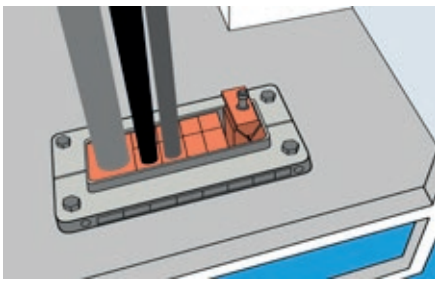
17. Install all preterminated cables after making an angular cut in the gasket and secure the gasket on cabinet cut out.



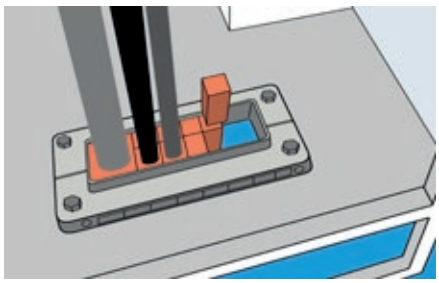
18. Fix the RFCS frame together with back gasket on the cabinet cutout by tightening with mounting hardware.

Complete the installation shown from picture 3.

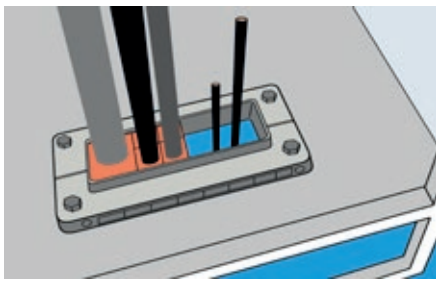
Re-installation



19. For reinstallation remove the PTG 40 wedge.



20. Remove all the unprepared CS modules from the frame.



21. Install the new cables and complete the installation as shown from picture 3

Welding Instruction and Bult-in Instruction

Welding sequence of a two-pass fillet shall be performed in the following steps with minimize heat input.

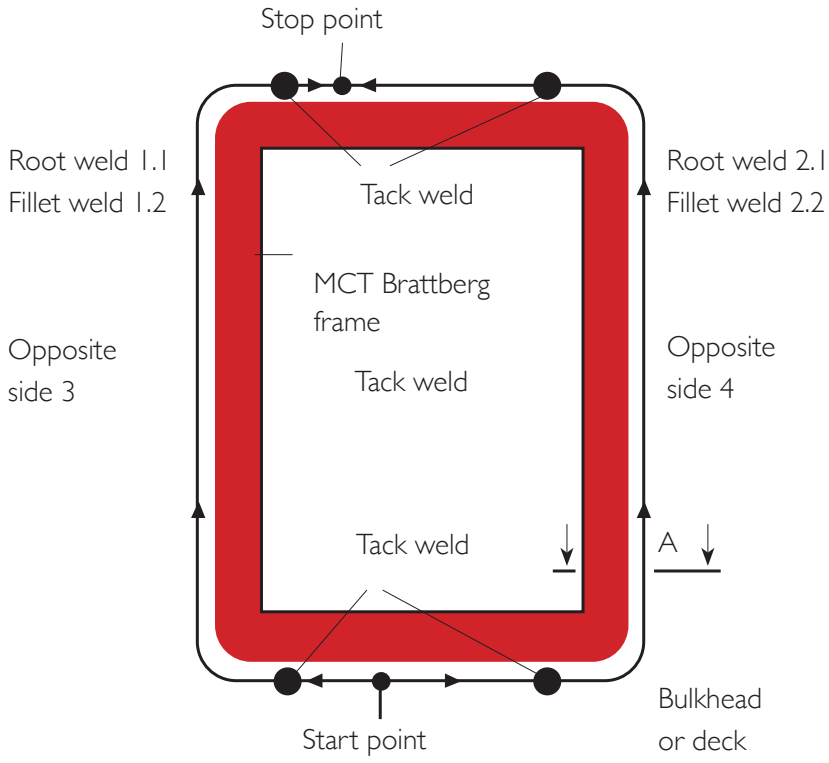
1 – Fix with tack weld points, maximum 150 mm (5.90") between.

2 – Root weld 1.1 and 2.1

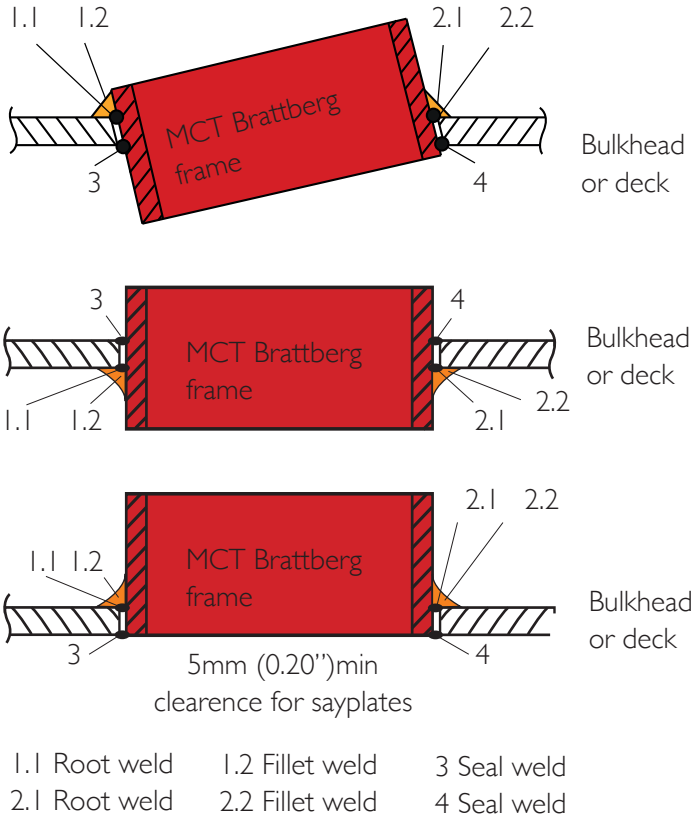
3 – Fillet weld 1.2 and 2.2

4 – Seal weld 3 and 4

Weld pass 4 is not to be started until weld 2 and 3 are completed!



Three different welding sequences

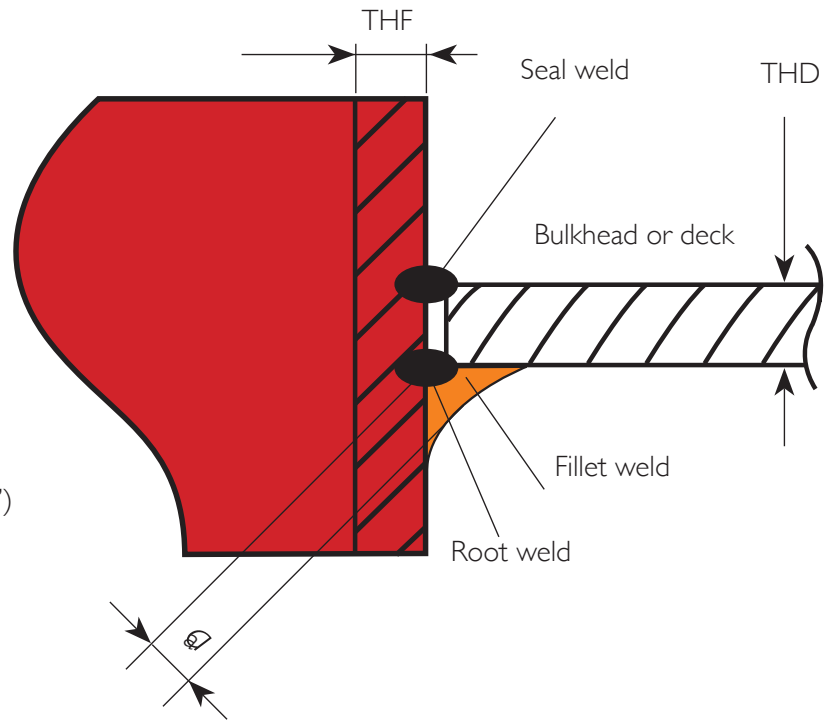


1.1 Root weld 1.2 Fillet weld 3 Seal weld
2.1 Root weld 2.2 Fillet weld 4 Seal weld

Fillet weld size for a centre-placed frame

Fillet weld size (throat thickness) is to be 0.5 x plate thickness of the bulkhead or deck plate (THD). However fillet weld size is not to be greater than 0.7 x frame plate thickness (THF).

a = Fillet size (throat thickness) Note!
THD = Thickness deck plate
THF = Thickness frame plate
Multi-pass welding is required if a ≥ 5 mm (0.20")



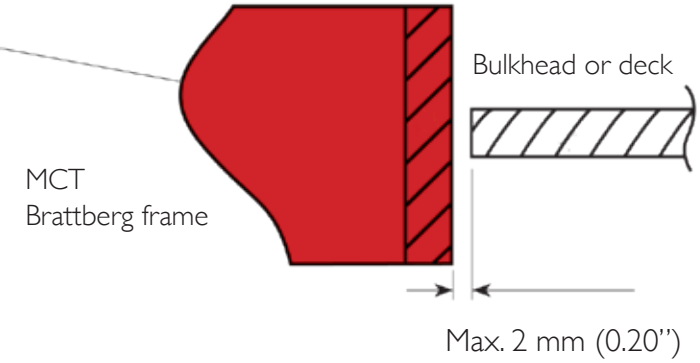
Maximum allowable root gap for fillet joint

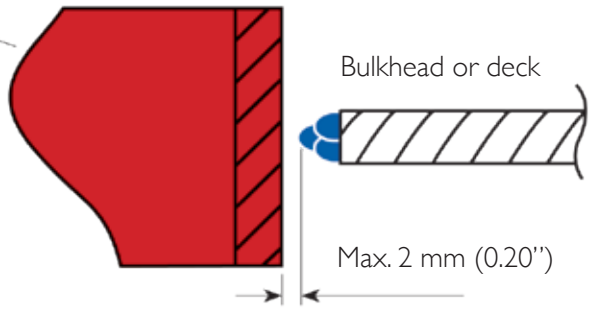
Figure 1

If root gap is too wide the deck plate or bulkhead may be built up with weld to achieve a proper gap (see Figure 2).

Build-up of fillet joint

Figure 2





Note! Weld build up on the frame is not recommended as it may cause deformation of the frame.

Built-in

RGB frames can be cast directly into concrete walls or floors (figures 1 and 2). Alternatively the frames can be cast into a loose section that is built in later. When the demands for fire safety are extremely high, frames can be mounted back-to-back (fig. 3). Such an installation can also be pressure tested.

For there to be sufficient space for the stay plate and compression plate there must be 5 mm (0.2") of clearance between the frame's inside and the cast hole (fig. 4). MCT Brattberg's expanded polystyrene casting form simplifies fixing when casting and provides the necessary clearance (fig. 5).

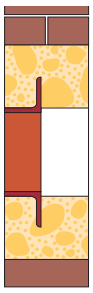


Fig. 1

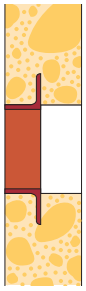


Fig. 2

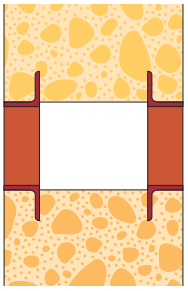


Fig. 3

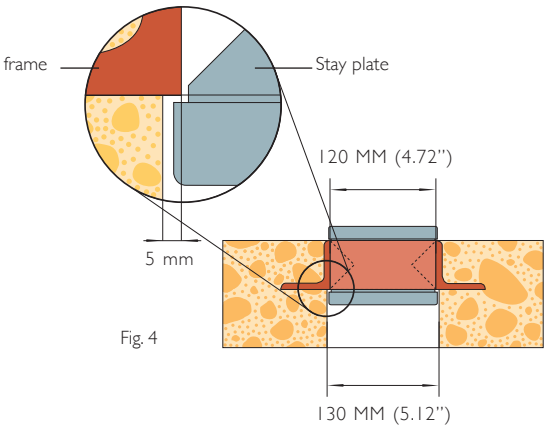
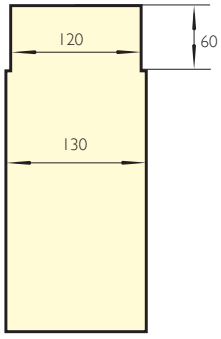


Fig. 4



Polystyrene casting form

Fig. 5

MCT Brattberg's expanded polystyrene casting form.

RGG frames and the flanges of the **Counter frame** are screwed into the wall (fig. 6). A Lycron sealing strip should be used between the wall and the flange to provide a gas tight seal. The galvanised counter frame is available with three different standard depths, which are suitable for the most common wall thicknesses, see below.

RGG and **RGGO** frames can also be bolted in place with the aid of, for example, expansion bolts. A Lycron sealing strip or sealant is used between the frame and the wall to provide a gas tight seal. There are two ways of bolting the frames in position, (figs. 7 and 8). Where practically possible, fig. 7 should always be employed.

Counter frame

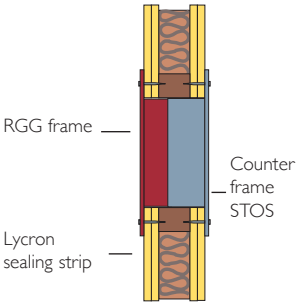


Fig.6

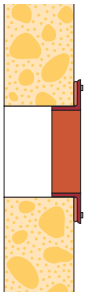


Fig. 7

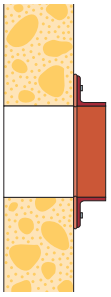
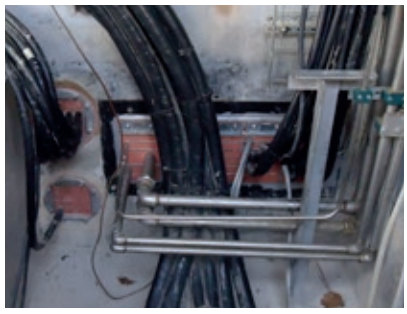


Fig. 8

Wall thickness mm(inches)		
Counter frame/type	Min	Max
1	80 (3,15")	110 (4.33")
2	110 (4.33")	150 (5,91")
3	150 (5.91")	190 (7.48")



RGP and **RGPO** frames are installed on one side of the wall when normal demands are made for fire safety, (see fig. 9.) When the satety demands are particularly high two RGP frames are installed back-to-back (fig. 10).
RGP can be installed in drilled or cast holes, or in a pipe that is cast in or bolted. Casting is made easier if MCT Brattberg casting forms are used, see picture.

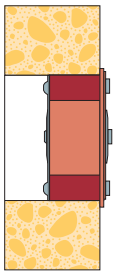


Fig. 9

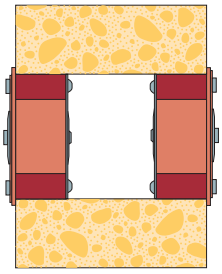


Fig. 10

MCT Brattberg's casting form.

www.mctbrattberg.com

MCT Brattberg AB
SE-371 92 Karlskrona
Sweden
Phone: +46-455 37 52 00
Fax: +46-455 37 52 90
E-mail: info@mctbrattberg.se
Website: www.mctbrattberg.se

MCT Brattberg Ltd
Commerce Street
Carrs Industrial Estate Haslingden
Lancashire BB4 5JT
England
Tel: +44 - 170 624 4890
Fax: +44 - 170 624 4891
E-mail: info@mctbrattberg.co.uk

MCT BRATTBERG/CMUS
Houston
3332 Spring Stuebner Rd.
Suite G, Spring, TX 77379
USA
Phone +1-281 355 8191
E-mail: cclarke@brattberginc.com

MCT/CMUS Florida
Consilium Marine US Inc
4370 Oakes Road 721
Fort Lauderdale
FL 33314
USA
Phone +1 954 453 1286
E-mail: info.us@consiliumsafety.com

We have representatives in:

Austria - Australia - Bulgaria - Brazil - Canada - China - Croatia - Denmark - Egypt - Finland - France - Germany - Greece - Hong Kong - Hungary - Iceland - India Indonesia - Ireland - Israel - Italy - Japan - Korea - Malaysia - Netherlands - New Zealand - Norway - Oman - Philippine Islands - Poland - Portugal - Qatar Romania - Russia - Saudi Arabia - Singapore - Spain - South Africa - Switzerland - Taiwan - Turkey - Thailand - UAE - Ukraine - United Kingdom - USA

Visit our website or contact MCT Brattberg for details of your nearest distributor.

2021
www.boggi.se