Scope of Application Assessment for:

Meter box enclosures, Meter box enclosure repair units and Fire seal units

Report No. Chilt/A13016

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Prepared for:

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Contents

1 Introduction

This document constitutes a scope of application relating to meter box enclosures, meter box enclosure repair units and Fire Seal Units manufactured by Ritherdon and Company Limited.

The assessment is to be written for national application within the UK; at the time of testing there was no standard test specifically for the evaluation of systems to reinstate the fire resistance of walls or floors which have been provided with apertures to accommodate these types of building services.

For this reason the fire resistance will be considered with respect to BS EN 1366-3: 2009 which specifically relates to the principles of fire resistance testing of penetration sealing systems. Additional guidelines are also given in BSEN1363-1: 2012 which describes the general conditions of test for all structural elements that require fire resistance.

The methodology adopted herein is for UK national application and other territories which recognise UK standards and assessment rules and should not be considered for European classification or CE marking purposes or for claiming compliance with regulations outside the aforementioned areas of jurisdiction.

2 Proposal

This field of application report has been prepared on behalf of Ritherdon and Company Ltd to extend the scope of application of Meter box enclosures, Meter box enclosure repair units and Fire Seal Units.

It is proposed to extend the scope of application of the Ritherdon and Company Limited Ltd meter box enclosures, meter box enclosure repair units and Fire Seal Units by determining the limits for the designs based on the tested constructions and performances achieved. This document will discuss the fire resistance of the units in a variety of supporting constructions and configurations.

The scope of application is to be discussed in terms of fire resistance when considered against the general principles of BS EN 1366-3: 2009 and BSEN1363-1: 2012 which describes the general conditions of test for all structural elements that require fire resistance. These standards describe the general conditions of test for elements of construction that require fire resistance.

3 Performance Data

The test evidence cited in support of this assessment is summarized below.

3.1 Tested Specimens

Specimen reference and product reference	Enclosure material	Mounting position – direction of opening	Unit size (mm)	Aperture size (mm)	Lock type
A1 (R17 large)	1.2mm thick stainless steel (powder coated)	Exposed face - opening into the furnace	568 wide x 795 high x 68 deep	475 wide x 700 high	2No. Tri-key cam lock
A2 (R17 large)		Unexposed face - opening away from the furnace			
B1 (R5 large)	Door – 1.2mm thick zinc plated steel Frame – 1.0mm thick zinc plated steel	Exposed face - opening into the furnace	555 wide x 732 high x 180 deep	500 wide x 680 high	Tri-key cam lock
B2 (R5 large)	Door – 1.2mm thick zinc plated steel Frame – 1.0mm thick zinc plated steel	Unexposed face - opening away from the furnace	555 wide x 732 high x 180 deep	500 wide x 680 high	Tri-key cam lock
C1 (R18 Gas)	1.2mm thick stainless steel (powder coated)	Exposed face - opening into the furnace	414 wide x 600 high x 70 deep	365 wide x 535 high	Tri-key cam lock
C2 (R18 Gas)		Unexposed face - opening away from the furnace			
D1 (R5 small)	Door – 1.2mm thick zinc plated steel Frame – 1.0mm thick zinc plated steel	Exposed face - opening into the furnace	415 wide x 582 high x 180 deep	360 wide x 530 high	Tri-key cam lock
D2 (R5 small)	Door – 1.2mm thick zinc plated steel Frame – 1.0mm thick zinc plated steel	Unexposed face - opening away from the furnace	415 wide x 582 high x 180 deep	360 wide x 530 high	Tri-key cam lock
E1 (Fire Seal Unit - large)	1.2 thick stainless steel (powder coated)	Unexposed face - opening away from the furnace	450 wide x 925 high x 52 deep	399 wide x 792 high	2No. Tri key cam locks
E2 (Fire Seal Unit - large)		Exposed face - opening into the furnace			
F1 (Fire Seal Unit – small)		Unexposed face - opening away from the furnace	201 wide x 283 high x 52 deep	150 wide x 150 high	Tri key cam locks

Specimen reference and product reference	Enclosure material	Mounting position – direction of opening	Unit size (mm)	Aperture size (mm)	Lock type
F2 (Fire Seal Unit – small)	1.2 thick stainless steel (powder coated)	Exposed face - opening into the furnace	201 wide x 283 high x 52 deep	150 wide x 150 high	Tri key cam locks
G1 (Fire Seal Unit – medium)	1.2 thick stainless steel (powder coated)	Exposed face - opening into the furnace	371 wide x 798 high	320 wide x 665 high	Tri key cam locks
G2 (Fire Seal Unit – medium)		Unexposed face - opening away from the furnace			

3.2 Tested Fire Sealing Details

3.2.1 Meter box enclosure fire sealing details (Specimens B1/B2 & D1/D2)

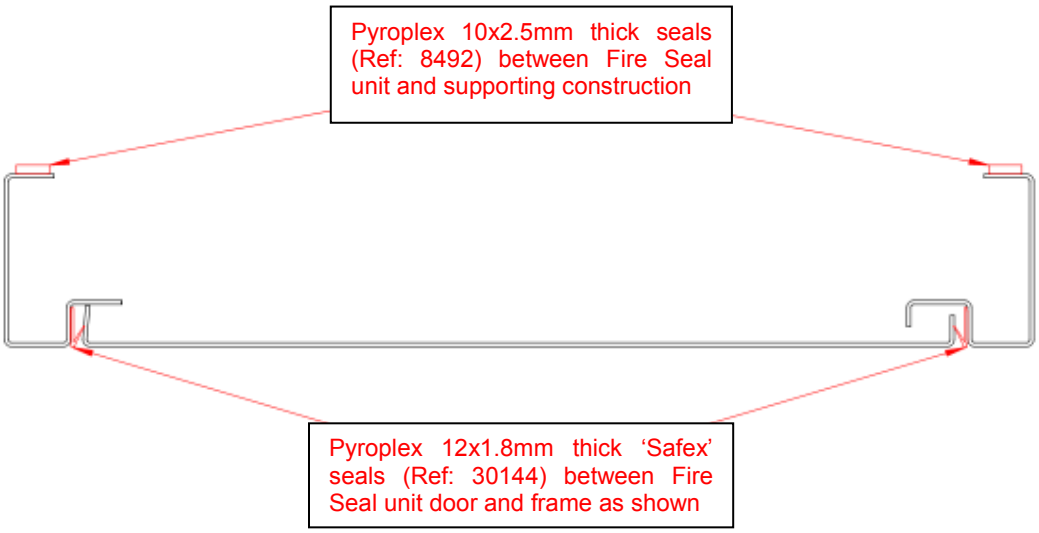
No additional seals were fitted to the meter box enclosure units.

3.2.2 Meter box enclosure repair unit fire sealing details (Specimens C1 & C2)

No seals were fitted to the meter box enclosure repair units.

3.2.3 Fire Seal Unit sealing details (Specimens E - G)

Pyroplex seals were fitted as shown below.



4 Analysis

4.1 General

In order to support assessment in the increase of the scope of application of the various Ritherdon units in the full range of orientation and construction scenarios, the direct field of application guidelines given within BSEN 1366-3: 2009 and extended field of application rules given within BS EN 15269-1: 2010 have been used as a basis for extending the scope of application from that which was tested. The following sections set out the combinations of Ritherdon meter box enclosures, meter box enclosure repair units and Fire Seal Units, supporting materials and orientation by which a required integrity period may be achieved.

4.1.1 Cotton Pad Failures in test RF12153

If it were classified following the principles of BSEN 13501: 2007+A1: 2009, this value of integrity failure will be disregarded, since the specimen was deemed not to have achieved insulation performance at the time of integrity failure.

4.2 Meter box enclosures (Specimens B1/B2 & D1/D2)

The cited test evidence directly demonstrates that the Meter Box Enclosure is capable of maintaining integrity performance when installed opening either away from or towards the fire risk side and within a timber stud partition type, for a minimum of 60 minutes when tested following the principles of BSEN 1366-3: 2009 and BSEN 1363-1: 2012 between the sizes tested.

4.3 Meter box enclosure repair unit (Specimens C1 & C2)

The cited test evidence directly demonstrates that the Meter Box Enclosure repair unit is capable of maintaining integrity performance when installed opening either away from or towards the fire risk side and within a timber stud partition type, for a minimum of 60 minutes when tested following the principles of BSEN 1366-3: 2009 and BSEN 1363-1: 2012 between the sizes tested.

4.4 Fire Seal Units (Specimens E - G)

The cited test evidence directly demonstrates that the Fire Seal Unit is capable of maintaining integrity performance when installed opening either away from or towards the fire risk side and within a timber stud partition type, for a minimum of 60 minutes when tested following the principles of BSEN 1366-3: 2009 and BSEN 1363-1: 2012 between the sizes tested.

4.5 Leaf Sizes

Approval for increased leaf dimensions is based on the cited test data and takes into account the margin of performance above 60 minutes integrity and the characteristics exhibited during test.

Size increase is permitted up to 15% in height and 15% in width but not amounting to more than a 20% increase in total (Meter Box Enclosure, Meter Box Enclosure Repair Unit or Fire Seal Unit) surface area. A table showing the maximum permitted leaf size for each unit type is given below.

4.5.1 Performance Table

Product reference	**Maximum Unit size** (mm)		**Opening Direction**	**Maximum Integrity** (mins)
	Overall Dimensions	**Height x Width**		
Meter box enclosure repair unit	From:	690 x 432	Units may open toward or away from the fire risk side of the supporting construction	60
	To:	626 x 476		
Meter box enclosure	From:	841 x 579		60
	To:	764 X 638		
Fire Seal Unit	From:	1063 x 470		60
	To:	966 x 517		

Uninsulated units with smaller dimensions than those assessed above are deemed to be less onerous and are therefore automatically covered, subject to the following.

All units must contain at least one lock of the Tri key cam lock type tested; minimum unit size will therefore be dictated by manufacturing constraints around installing the locks.

4.6 Summary

By using an amalgamation of the preceding analysis and test evidence we are able to assess that the proposed Ritherdon and Company Ltd Meter box enclosures, Meter box enclosure repair units and Fire Seal Units would be capable of providing in excess of 60 minutes integrity, subject to the table in section 4.5.1.

5 Installation

5.1 General

Installation for the individual units must remain as detailed in the cited test evidence.

5.2 Structural Opening

The supporting construction must provide the required level of fire resistance designated for the unit design and be a suitable medium to permit adequate fixity.

5.2.1 Timber Stud

The Ritherdon units may be installed within timber stud, plasterboard clad partitions as tested.

5.2.2 Steel Stud

Steel stud partitions are acceptable only if there is suitable fire resistance test evidence to BS476: Part 22: 1987 or BSEN 1634-1:2000 or 2008 to support the partition construction used at the required integrity level whilst containing steel based elements. Lengths of steel stud and plasterboard (studs must be of the same construction as the partition studs and plasterboard must be of the same type required to face the specified partition) must be used to form the edges of the aperture and provide suitable fixity for the installed unit.

5.2.3 Masonry

The Ritherdon units as tested may also be used in the following high density rigid construction structural opening types, as defined in BSEN 1363-1: 1999:

- Concrete blockwork (density in excess of 1000kg/m³);
- High density aerated concrete (density in excess of 1600kg/m³);
- Cast concrete (density in excess of 1600kg/m³);
- Brickwork.

5.3 Fixings

Fixings frequency must remain as tested; fixings to the structural surround must be manufactured from steel or stainless steel and must be must be a suitable type for the structural opening medium and of sufficient length to penetrate the main structure by a minimum of 50mm.

6 Conclusion

It is our opinion that, if the Ritherdon and Company Ltd - Meter Box Enclosures, Meter Box Enclosure Repair Units and Fire Seal Units - as discussed in this assessment were to be tested following the general requirements of BS EN 1366-3: 2009 and BSEN1363-1: 2012, they would achieve 30 or 60 minutes integrity, (subject to the provisos within this document) as required.

7 Declaration by the Applicant

1) We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No 82: 2001.

2) We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.

3) We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

4) We are not aware of any information that could adversely affect the conclusions of this assessment.

5) If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.

Signed:

Name: B Ritherdon

For and on behalf of Ritherdon and Company Ltd

8 Limitations

The following limitations apply to this assessment:

1) This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.

2) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, CIF reserves the right to withdraw the assessment unconditionally but not retrospectively.

3) This assessment has been carried out in accordance with Fire Test Study Group Resolution No 82: 2001.

4) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

5) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

9 Validity

1) The assessment is valid initially for a period of five years after which time it must be submitted to Chiltern International Fire Ltd for technical review.

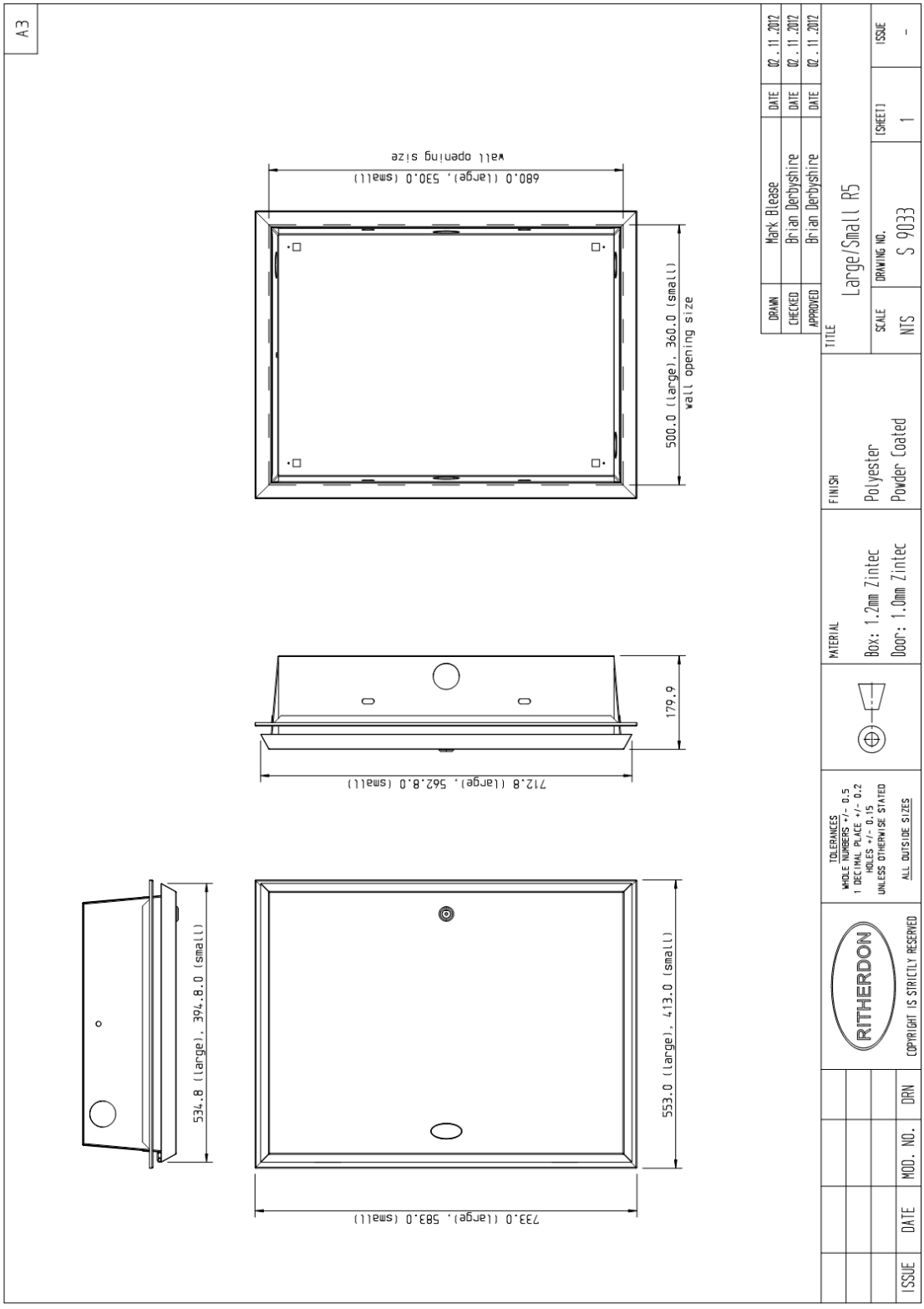
2) This assessment report is not valid unless it incorporates the declaration given in Section 7 duly signed by the applicant.

Signature:		
Name:	**A M Winning**	**R A Newman**
Title:	Product Assessor	Principal Test Engineer

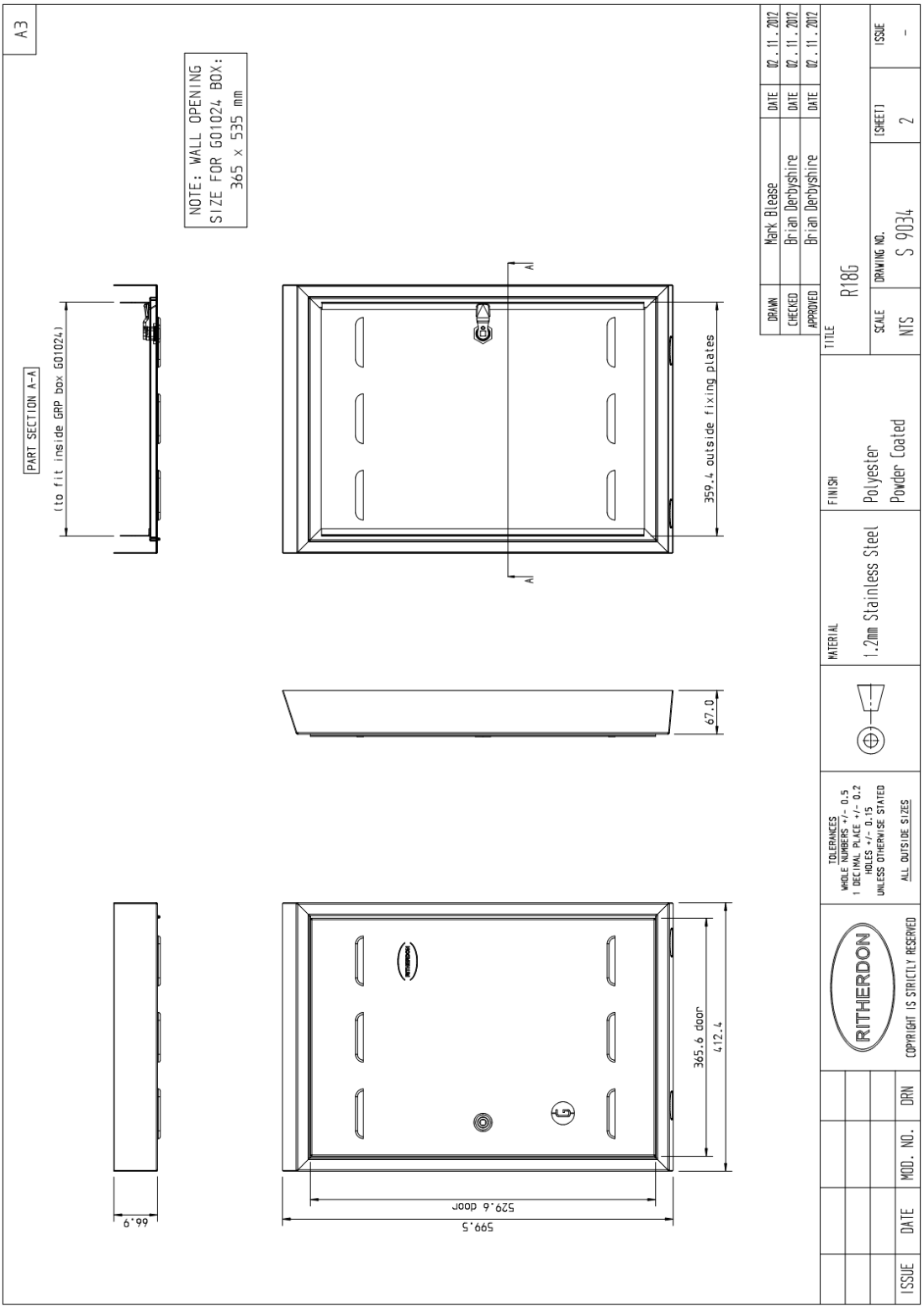
Appendix A

Customer Drawings

Meter Box Enclosure



Meter Box Enclosure Repair Unit



Fire Seal Unit