



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:  issue No.:

Status:

Date of Issue: **2014-11-27** Page 1 of 3

Applicant: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Newby Road  
Hazel Grove  
Stockport  
Cheshire  
SK7 5DA  
United Kingdom

**UNCONTROLLED DOCUMENT**  
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SUBJECT TO AMENDMENTS  
T.E.L. ENGINEERING LIMITED

Electrical Apparatus: **Type TX4715, TX4716 and TX4717 Slip Ring Units**  
Optional accessory:

Type of Protection: **Flameproof, Increased safety, Protection by enclosure**

Marking: **Ex d e IIB T\* Gb (T<sub>amb</sub> -\*\*°C to +\*\*°C) (See description)**  
**Ex tb IIIC T\*°C Db**

Approved for issue on behalf of the IECEx Certification Body: **R S Sinclair**

Position: **General Manager**

Signature: *(for printed version)*

  
\_\_\_\_\_  
**27/11/14**

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:  
**SGS Baseefa Limited**  
Rockhead Business Park  
Staden Lane  
Buxton  
Derbyshire  
SK17 9RZ  
United Kingdom





# IECEX Certificate of Conformity

Certificate No.: IECEx BAS 14.0109

Date of Issue: 2014-11-27

Issue No.: 0

Page 2 of 3

Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Newby Road  
Hazel Grove  
Stockport  
Cheshire  
SK7 5DA  
**United Kingdom**

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**T.E.L. ENGINEERING LIMITED**

Additional Manufacturing location  
(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2007-04</b> Edition: 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-31 : 2008</b> Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
<b>IEC 60079-7 : 2006-07</b> Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

GB/BAS/ExTR14.0212/00

#### Quality Assessment Report:

GB/BAS/QAR08.0003/04



# IECEX Certificate of Conformity

Certificate No.: IECEx BAS 14.0109

Date of Issue: 2014-11-27

Issue No.: 0

Page 3 of 3

## Schedule

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**T.E.L. ENGINEERING LIMITED**

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Type TX4715, TX4716 and TX 4717 Slip Ring Units comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath.

The optional variants of the TX4715 are as the table below:

Unit Type	*Temperature Classification		**Ambient Temperature	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	810A
TX47154	T5	T100°C	-40°C to +55°C	928A
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

For further details see the Annex.

### CONDITIONS OF CERTIFICATION: NO

Empty box for conditions of certification.

The **Type TX4715, TX4716 and TX 4717 Slip Ring Units** comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath. The TX4715 also uses thinner materials for the flameproof enclosure, with the minimum thickness being 22mm as opposed to the 25mm of the TX4716 and TX4717 enclosure.

TX4715

The Type TX4715 Slip Ring Unit's flameproof enclosure has a length of 465mm, incorporating a maximum of 55 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 22mm.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 928A.

There are several optional variants of the TX4715, including:

- An anti-condensation heater and alternative bearing arrangements (TX47151Units).
- Alternative larger increased safety terminal enclosures (TX47152 Units).
- A combination of both of the above (TX47153 Units).

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**T.E.L. ENGINEERING LIMITED**

Unit Type	*		**	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	810A
TX47154	T5	T100°C	-40°C to +55°C	928A

TX4716

The Type TX4716 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 655mm, incorporating a maximum of 80 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4716 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4717.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There is an optional variant of the TX4716 which features an increased ambient temperature range, with a change in the temperature classification to T4.

Unit Type	*		**	Max Current
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A

### TX4717

The Type TX4717 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 835mm, incorporating a maximum of 107 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4717 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4716.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There are several optional variants of the TX4717, including:

- A reduced maximum total throughput of 420A with an increased ambient temperature range.
- A unit with an increased number of fasteners, with an associated IP rating of IPX7.

Unit Type	*		**	Max Current
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx BAS 14.0109 issue No.:1

Status: **Current**

Certificate history:  
Issue No. 1 (2016-6-14)  
Issue No. 0 (2014-11-27)

Date of Issue: 2016-06-14 Page 1 of 4

Applicant: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Newby Road  
Hazel Grove  
Stockport  
Cheshire  
SK7 5DA  
United Kingdom

Equipment: Type TX4715, TX4716 and TX4717 Slip Ring Units  
*Optional accessory:*

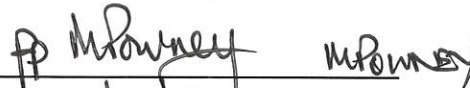
Type of Protection: Flameproof, Increased safety, Protection by enclosure

Marking: Ex d e IIB T\* Gb (T<sub>amb</sub> -\*\*°C to +\*\*°C) (See description)  
Ex tb IIIC T°C Db

Approved for issue on behalf of the IECEx Certification Body: R S Sinclair

Position: Technical Manager

Signature:  
(for printed version)

  
\_\_\_\_\_  
15/6/16

Date:

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T.E.L. ENGINEERING LIMITED

Certificate issued by:

SGS Baseefa Limited  
Rockhead Business Park  
Staden Lane  
Buxton  
Derbyshire  
SK17 9RZ  
United Kingdom



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3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).



# IECEX Certificate of Conformity

Certificate No.: IECEx BAS 14.0109

Date of Issue: 2016-06-14

Issue No.: 1

Page 2 of 4

Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Newby Road  
Hazel Grove  
Stockport  
Cheshire  
SK7 5DA  
**United Kingdom**

Additional Manufacturing location  
(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2007-04</b> Edition: 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-31 : 2008</b> Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
<b>IEC 60079-7 : 2006-07</b> Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

GB/BAS/ExTR14.0212/00

GB/BAS/ExTR16.0125/00

#### Quality Assessment Report:

GB/BAS/QAR08.0003/05

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# IECEx Certificate of Conformity

Certificate No.: IECEx BAS 14.0109

Date of Issue: 2016-06-14

Issue No.: 1

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Type TX4715, TX4716 and TX 4717 Slip Ring Units comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath.

The optional variants of the TX4715 are as the table below:

Unit Type	*Temperature Classification		**Ambient Temperature	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	810A
TX47154	T5	T100°C	-40°C to +55°C	928A
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

For further details see the Annex.

### CONDITIONS OF CERTIFICATION: NO

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# IECEX Certificate of Conformity

Certificate No.: IECEx BAS 14.0109

Date of Issue: 2016-06-14

Issue No.: 1

Page 4 of 4

## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Variation 1.1

To permit the addition of a new model, Type TX4716.14509, to the range.

ExTR: GB/BAS/ExTR16.0125.00

File Reference: 16/0224

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx BAS 14.0109

Issue No: 2

Certificate history:

Status: **Current**

[Issue No. 2 \(2019-06-28\)](#)

[Issue No. 1 \(2016-06-14\)](#)

Date of Issue: **2019-06-28**

Page 1 of 4

[Issue No. 0 \(2014-11-27\)](#)

Applicant: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Unit 2 Levens Road  
Newby Road Industrial Estate  
Hazel Grove  
Stockport  
Cheshire  
SK7 5DL  
**United Kingdom**

Equipment: **Type TX4715, TX4716 and TX4717 Slip Ring Units**

Optional accessory:

Type of Protection: **Flameproof, Increased safety, Protection by enclosure**

Marking: **Ex d e IIB T\* Gb (T<sub>amb</sub> -\*\*\*C to +\*\*\*C) (See description)**  
**Ex tb III C T\*\*C Db**

Approved for issue on behalf of the IECEx  
Certification Body:

R S Sinclair


D BREARLEY  
Certification  
Manager

Position:

Technical Manager

Signature:  
(for printed version)

Date:

  
28/6/19

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**United Kingdom**



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**T.E.L. ENGINEERING LIMITED**



# IECEX Certificate of Conformity

Certificate No: IECEX BAS 14.0109 Issue No: 2

Date of Issue: **2019-06-28** Page 2 of 4

Manufacturer: **T.E.L. Engineering Limited (Trading as Trolex Engineering)**  
Unit 2 Levens Road  
Newby Road Industrial Estate  
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**United Kingdom**

Additional Manufacturing location(s):

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The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

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<b>IEC 60079-1 : 2007-04</b> Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-31 : 2008</b> Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
<b>IEC 60079-7 : 2006-07</b> Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

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[GB/BAS/ExTR14.0212/00](#)      [GB/BAS/ExTR16.0125/00](#)

#### Quality Assessment Report:

[GB/BAS/QAR08.0003/07](#)

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# IECEx Certificate of Conformity

Certificate No: IECEx BAS 14.0109

Issue No: 2

Date of Issue: 2019-06-28

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Type TX4715, TX4716 and TX 4717 Slip Ring Units comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath.

The optional variants of the TX4715 are as the table below:

Unit Type	*Temperature Classification		**Ambient Temperature	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	810A
TX47154	T5	T100°C	-40°C to +55°C	928A
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A
TX4717	T5	T100°C	-40°C to +45°C	1166A
TX4717BW	T4	T135°C	-40°C to +55°C	1166A
TX47174	T5	T100°C	-40°C to +50°C	420A

For further details see the Annex.

**SPECIFIC CONDITIONS OF USE: NO**

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# IECEX Certificate of Conformity

Certificate No: IECEx BAS 14.0109

Issue No: 2

Date of Issue: 2019-06-28

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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Variation 2.1

This document permits existing information (for example on Schedule Drawings) to be replaced by the revised certificate holders address. No other changes may be made to the certified design.

File Reference: 19/0369

### Annex:

[IECEX BAS 14.0109 Annex.pdf](#)

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The **Type TX4715, TX4716 and TX 4717 Slip Ring Units** comprise a fabricated mild steel or stainless steel flameproof enclosure, incorporating slip rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The internal slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits.

The TX4715, TX4716 and TX4717 are of similar construction and differ in the length of the flameproof enclosure, which allows a corresponding increase in the number of slip rings in the latter two variants.

The TX4715 also has a smaller end bearing than the TX4716 and TX4717, with a reduction in diameter of the respective diametral flamepath. The TX4715 also uses thinner materials for the flameproof enclosure, with the minimum thickness being 22mm as opposed to the 25mm of the TX4716 and TX4717 enclosure.

TX4715

The Type TX4715 Slip Ring Unit's flameproof enclosure has a length of 465mm, incorporating a maximum of 55 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 22mm.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 928A.

There are several optional variants of the TX4715, including:

- An anti-condensation heater and alternative bearing arrangements (TX47151Units).
- Alternative larger increased safety terminal enclosures (TX47152 Units).
- A combination of both of the above (TX47153 Units).

Unit Type	*		**	Max Current
TX4715	T5	T100°C	-40°C to +55°C	928A
TX47151,47152 & 47153	T5	T100°C	-40°C to +40°C	810A
TX47154	T5	T100°C	-40°C to +55°C	928A

TX4716

The Type TX4716 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 655mm, incorporating a maximum of 80 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4716 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4717.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There is an optional variant of the TX4716 which features an increased ambient temperature range, with a change in the temperature classification to T4.

Unit Type	*		**	Max Current
TX4716	T5	T100°C	-40°C to +45°C	1166A
TX4716	T4	T135°C	-40°C to +50°C	810A

TX4717

The Type TX4717 Slip Ring Unit comprises a fabricated mild steel or stainless steel flameproof enclosure of length 835mm, incorporating a maximum of 107 signal rings and associated brush gear. The enclosure has a flange or foot at one end and a rotating end cover with rolling element bearing at the other. The materials forming the enclosure have a minimum thickness of 25mm. The TX4717 features an enlarged main bearing and an increase in diameter of the respective diametral flamepath over the TX4715, which are the same as the TX4716.

Two increased safety junction boxes are attached to the main flameproof enclosure, housing increased safety terminals for external connections. One increased safety junction box is attached to the fixed flameproof enclosure; the other is attached to the revolving end cover.

The slip rings are individually rated up to 770V, 100A and may be used for power, signal and intrinsically safe circuits, with a maximum total throughput of 1166A.

There are several optional variants of the TX4717, including:

- A reduced maximum total throughput of 420A with an increased ambient temperature range.
- A unit with an increased number of fasteners, with an associated IP rating of IPX7.

Unit Type	*	**	Max Current
TX4717	T5	T100°C	1166A
TX4717BW	T4	T135°C	1166A
TX47174	T5	T100°C	420A