



Ex d Ring Enclosure

Ex e Terminal Boxes

Hollow Shaft Option

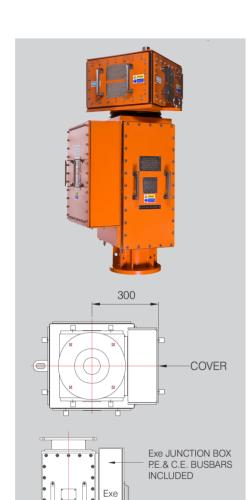
OPERATING SPECIFICATION

Ambient	-20°C to +45°C
Temperature Range	(increased range available)
Maximum Speed	20 rpm (higher on request)
Maximum Voltage	770V ac
Maximum	1166 Amps
Throughput Current	
Protection	IP66
Mounting	In any plane

TECHNICAL DETAILS

Housing Material	Carbon Steel
Shaft	Carbon Steel 080M40
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Fasteners	Stainless Steel Metric

Certification	ATEX	Baseefa 14ATEX0240
		T _{amb} -20°C to +45°C
		Ex tb IIIC T100°C Db
	IECEx	IECEx BAS 14.0109
		Ex d e IIB T5 Gb
		T _{amb} -20°C to +45°C
		Ex tb IIIC T100°C Db
		· · · · · · · · · · · · · · · · · · ·



Exe JUNCTION BOX P.E. & C.E. BUSBARS INCLUDED
300 ROTOR Exe
GLAND ENTRY PLATE OR COVER AS REQUIRED
460 SLOT CENTRES DRIVE SLOTS 400 SQUARE

Exd SLIP RING ENCLOSURE

ROTATIONAL INTERFACE Explosion Protected Group IIB Zone 1

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Hollow Shaft Option

OPERATING SPECIFICATION

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Maximum Speed	20 rpm (higher on request)
Maximum Voltage	770V ac
Maximum	1166 Amps
Throughput Current	
Protection	IP66
Mounting	In any plane

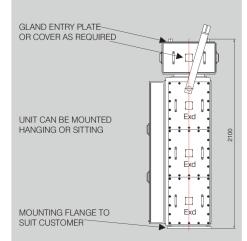
TECHNICAL DETAILS

Housing Material	Carbon Steel
Shaft	Carbon Steel 080M40
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal
	plated for signals)
Brushes	Minimum of 2 per ring (Copper
	Graphite for power, Silver Graphite
	for signals)
Fasteners	Stainless Steel Metric

Certification	ATEX	Baseefa 14ATEX0240 ☐ II 2 GD Ex d e IIB T5 T _{amb} -40°C to +45°C Ex tb IIIC T100°C Db
	IECEx	IECEx BAS 14.0109 Ex d e IIB T5 Gb T _{amb} -40°C to +45°C Ex tb IIIC T100°C Db







Ex d Ring Enclosure

Ex e Terminal Boxes

OPTIONS

- Mounting flange / brackets to Customer's requirements
- Anti-condensation heater (self regulating)
- Hollow shaft
- Stainless Steel construction
- Internal or External slew limit switch
- Internal or External azimuth encoder
- Factory fitted flying leads
- Special features to handle I.S. circuits
- Fibre Optic Rotary Joint

OPERATING SPECIFICATION

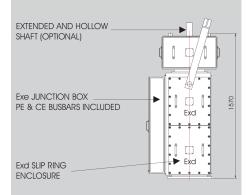
Ambient Temperature Range	-20°C to +45°C (increased range available)
Maximum Speed	40 rpm (higher on request)
Maximum Voltage	up to 6.3kV (standard 700V ac)
Maximum Throughput Current	3000 Amps excluding earths and neutrals
Protection	IP66
Mounting	In any plane

TECHNICAL DETAILS

Housing Material	Mild Steel grade 43A
Shaft	Carbon Steel 080M40
Bearings	Sealed for life, ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Fasteners	Stainless Steel Metric

Certification - ATEX	Baseefa 02ATEX0060X/13 ☑ II 2 GD Ex d e IIB T5 Gb T _{amb} -20°C to +45°C Ex tb IIIC T100°C Db	
Certification - ATEX (utilising FORJ)	Baseefa 02ATEX0060X/13 ☑ II 2 GD Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db	
Certification - IECEx	IECEx BAS 09.0099X Ex d e IIB T5 Gb T _{amb} -20°C to +45°C Ex tb IIIC T100°C Db	
Certification - IECEx (utilising FORJ)	IECEx BAS 09.0099X Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db	





Ex d Ring Enclosure

Ex e Terminal Boxes

OPTIONS

- Mounting flange / brackets to Customer's requirements
- Anti-condensation heater (self regulating)
- Hollow shaft
- Stainless Steel construction
- Internal or External slew limit switch
- Internal or External azimuth encoder
- Factory fitted flying leads
- Special features to handle I.S. circuits
- Fibre Optic Rotary Joint

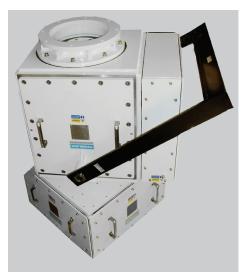
OPERATING SPECIFICATION

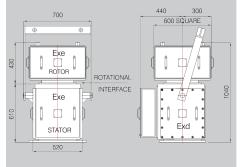
Ambient Temperature Range	-20°C to +45°C
Maximum Speed	40 rpm (higher on request)
Maximum Voltage	up to 6.3kV (standard 700V ac)
Maximum Throughput Current	3000 Amps excluding earths and neutrals
Protection	IP66
Mounting	In any plane

TECHNICAL DETAILS

Mild Steel (see options)
Carbon Steel 080M40
Sealed for life, ball journal
Phosphor bronze (precious metal plated for signals)
Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Stainless Steel Metric

Certification - ATEX	Baseefa 02ATEX0060X/13 ②II 2 GD Ex d e IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C
Certification - ATEX (utilising FORJ)	Baseefa 02ATEX0060X/13 ☐ II 2 GD Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C
Certification - IECEx	IECEX BAS 09.0099X Ex d e IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db
Certification - IECEx (utilising FORJ)	IECEx BAS 09.0099X Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db





Ex d Ring Enclosure

Ex e Terminal Boxes

OPTIONS

- Mounting flange / brackets to Customer's requirements
- Anti-condensation heater (self regulating)
- Hollow shaft
- Stainless Steel construction
- Internal or External slew limit switch
- Internal or External azimuth encoder
- Factory fitted flying leads
- Special features to handle I.S. circuits
- Fibre Optic Rotary Joint

OPERATING SPECIFICATION

Ambient Temperature Range	-20°C to +50°C	
Maximum Speed	40 rpm (higher on request)	
Maximum Voltage	up to 6.3kV (standard 700V ac)	
Maximum Throughput Current	1800 Amps excluding earths and neutrals	
Protection	IP66	
Mounting	In any plane	

TECHNICAL DETAILS

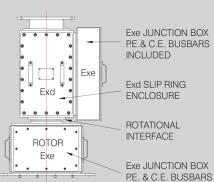
Mild Steel (see options)
Carbon Steel 080M40
Sealed for life, ball journal
Phosphor bronze (precious metal plated for signals)
Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Stainless Steel Metric

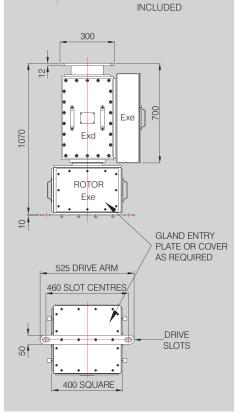
Certification - ATEX	Baseefa 02ATEX0060X/13 ☐ II 2 GD Ex d e IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C
Certification - ATEX (utilising FORJ)	Baseefa 02ATEX0060X/13 ☐ II 2 GD Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C
Certification - IECEx	IECEx BAS 09.0099X Ex d e IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db
Certification - IECEx (utilising FORJ)	IECEx BAS 09.0099X Ex d e op is IIB T4 Gb T _{amb} -20°C to +45°C Ex tb IIIC T135°C Db





COVER





Explosion Protected Group IIB Zone 1

Ex d Ring Enclosure

Ex e Terminal Boxes

Hollow Shaft Option

OPERATING SPECIFICATION

Ambient	-20°C to +45°C
Temperature Range	(increased range available)
Maximum Speed	20 rpm (higher on request)
Maximum Voltage	770V ac
Maximum	1166 Amps
Throughput Current	
Protection	IP66
Mounting	In any plane

TECHNICAL DETAILS

Housing Material	Carbon Steel
Shaft	Carbon Steel 080M40
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Fasteners	Stainless Steel Metric

Certification	ATEX	Baseefa 14ATEX0240 □ II 2 GD Ex d e IIB T5 T _{amb} -20°C to +45°C Ex tb IIIC T100°C Db
	IECEx	IECEx BAS 14.0109 Ex d e IIB T5 Gb T _{amb} -20°C to +45°C Ex tb IIIC T100°C Db





Ex d IP66 - Stainless Steel Enclosure

Fibre Optic Rotary Joint Option

Applications include Cranes, Cable Reels and Winches

OPTIONS

- Multi-pass Fibre Optic Rotary Joint
- Trolex Gas / Fluid Swivel
- Anti-condensation heater

CABLE ENTRY OPTIONS

The unit is supplied with factory fitted leads - the following options are available:

- Flying leads through a compound filled stopper box threaded to receive a suitable conduit
- Multi-core cable with appropriate cable gland
- Trolex Ex d multi-pin connector
- Trolex Ex d or Ex e junction box

OPERATING SPECIFICATION

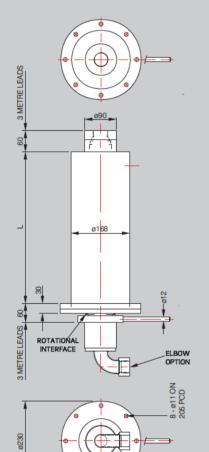
Ambient Temperature Range	-20°C to +40°C (other temperature ranges available)
Maximum Speed	50 rpm (higher on request)
Maximum Voltage	4500 V ac
Current Ratings	Max. 60 Amps per ring (may be used in parallel). Up to 136 rings subject to total throughput of 400 Amps excluding earths, screens and neutrals

TECHNICAL DETAILS

External Material	316 Stainless Steel
Bearings	Sealed for life, ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2/ring (copper graphite for power, silver graphite for signals)
Fasteners	Stainless Steel Metric

APPROVAL

/II T TO V/ L		
Certification	ATEX - Standard	Baseefa 14ATEX0049X ⟨♠⟩ II 2 GD Ex d IIB T5 Gb T _{amb} -40°C to +40°C Ex tb IIIC T100°C Db IP66
	ATEX - Utilising the FORJ	Baseefa 14ATEX0049X ☐ II 2 GD Ex d op is IIB T5 Gb T _{amb} -40°C to +40°C Ex tb IIIC T100°C Db IP66
	IECEx - Standard	IECEX BAS13.0055X EX d IIB T5 Gb T _{amb} -40°C to +40°C EX tb IIIC T100°C Db IP66
	IECEx - Utilising the FORJ	IECEx BAS13.0055X Ex d op is IIB T5 Gb T _{amb} -40°C to +40°C Ex tb IIIC T100°C Db IP66



Dimension L is determined by the size and number of rings and is detailed on our quotation



EXTENDED AND HOLLOW SHAFT (OPTIONAL) GLAND ENTRY PLATE OR COVER AS REQUIRED ROTATIONAL INTERFACE FLANGE MOUNTED (HANGING OR SITTING)

Dimensions L1 & L2 are variable and to be advised when number, size and voltage requirements of slip rings are known

Weather Protected IP67

Hollow Shaft Option

Mounting in any plane to Customer's requirements

OPTIONS

- Mounting flange / brackets to Customer's requirements
- Anti-condensation heater (self regulating)
- Hollow shaft
- Stainless Steel Construction
- Internal or external slew limit switch
- Internal or external azimuth encoder
- Factory fitted flying leads

OPERATING SPECIFICATION

Ambient Temperature Range	-20°C to +45°C (higher on request)
Maximum Speed	40 rpm (higher on request)
Maximum Voltage	4.2kV
Maximum Throughput Current	5000 Amps excluding earths and neutrals
Protection	IP67
Mounting	In any plane

TECHNICAL DETAILS

Housing Material	Mild Steel grade 43A
Shaft	Carbon Steel 080M40
Bearings	Sealed for life, ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Fasteners	Stainless Steel Metric





Dimension L is dependent on slip ring requirements and advised on request



Stainless Steel Slip Ring Unit for Special Purpose Machines, Cable Reels and Offshore Winches

Deck-Watertight IP66

150 Amp Power Rings

Precious Metal Plated Signal Rings

OPTIONS

- Rotating housing fixed shaft
- Rotating shaft fixed housing
- Drive and support details to customer's requirements
- Purged
- Oil filled pressure compensated
- Cable nipples and covers
- With hydraulic swivel
- With fibre optic rotary joint

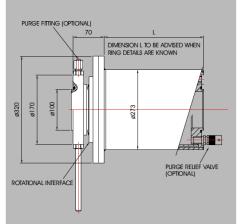
OPERATING SPECIFICATION

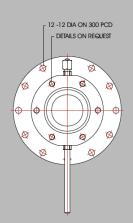
-20°C to +40°C
40 rpm (higher on request)
3000V ac (dependent on current)
150 Amps/Ring (may be used in parallel, please refer to Trolex Technical Department)
Up to 120 (dependent on current)

TECHNICAL DETAILS

Connections	Factory fitted flying leads or cost option plug and socket connectors
Flying Leads	3m long as standard
External Materials	316L stainless steel
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Copper graphite for power, silver graphite for signals
Fasteners	Stainless steel metric







Detailed drawing provided upon placing order

For Surface and Subsea Umbilical Winches Stainless Steel IP66 Housing Gas Purge Option 300 Amp 3300 Volt Rings

OPTIONS

- Drive and mounting arrangement to suit Customer's requirements
- Gas purged
- Oil filled pressure compensated
- Cable hose adaptors
- Junction box
- Gas / Fluid Swivel (inert gases only)
- Fibre Optic Rotary Joint

OPERATING SPECIFICATION

Ambient Temperature	-20°C to +40°C standard
Range	(alternative range on request)
Maximum Speed	40 rpm (higher on request)
Maximum Voltage	6kV ac (dependent on current)
Maximum Current	300 Amps/Ring (higher on request)
Number of Rings	Up to 120 (dependent on current)

TECHNICAL DETAILS

Connections	Factory fitted flying leads or cost option plug and socket connectors
Flying Leads	Non PVC Insulated 3m long as standard
External Materials	Stainless Steel
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Copper graphite for power, silver graphite for signals
Fasteners	Stainless steel metric
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Ex d IP66 Enclosure

Compact Robust Housing

For Cable Winches, Cranes, Rotating Bridges, Swivel Stacks and Material Handling Equipment

OPTIONS

- Bronze housing
- Drive and mounting arrangements to suit Customer's requirements
- Trolex multi-pin Ex d connectors
- Flange mounting housing
- Factory fitted flying leads
- Integral encoder or multi-turn potentiometer
- Increased ambient temperature -40°C to +60°C

OPERATING SPECIFICATION

<u> </u>		
Ambient Temperature Range	-20°C to +40°C (see options)	
Maximum Speed	100 rpm (higher on request)	
Maximum Voltage	1500V ac/1800V dc (limited to 240V ac by some TX3700 and TX3701 Ex Connectors)	
Current Ratings	TX4701 - 3 x 6 Amp rings TX4702 - 8 x 6 Amp rings TX4703 - 16 x 6 Amp rings TX4704 - 24 x 6 Amp rings Other ring capacities and combinations available subject to maximum equivalents shown above	

TX4702



TX4703



TX4704



TECHNICAL DETAILS

TEOTIMO (E DET/MEO	
Housing Material	Cast Aluminium, grade LM25TF sulphuric anodised and coated with polyester powder stoved coating
Shaft	316 Stainless Steel
Bearings	Sealed for life, ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Fasteners	Stainless Steel Metric

7111107712		
Certification - ATEX	CML 15ATEX1013X	
Certification - IECEx	IECEx CML 15.0005X Ex d IIB T6 Gb T _{amb} -20°C to +40°C Ex tb IIIC T85°C Db	



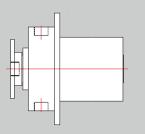


TX4705.00.10 31 47.5 60 4 - 6.5 ON 90 PCD EX GLAND ENTRIES OPTIONAL

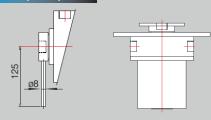
TX4705.00.11



TX4705.00.12



TX4705.00.20 TX4705.00.13 /.21 /.22 /.23



Dimension L: dependent on number of Slip Rings

Explosion Protected Group IIB Zone 1

Ex d IP66 Enclosure | 316 Stainless Steel

For Cable Winches, Cranes, Rotating Bridges, Swivel Stacks and Material Handling Equipment

OPTIONS

- Drive and mounting arrangements to suit Customer's requirements
- Fibre Optic Rotary Joint
- Combined with fluid/gas swivel (inert gases only)
- Special features to handle I.S. circuits
- Increased ambient temperature range -40°C to +60°C (T135°C)

OPERATING SPECIFICATION

Ambient Temperature	-20°C to +40°C (see options)
Range	
Maximum Speed	100 rpm (higher on request)
Maximum Voltage	2000V ac
Ring Ratings	5 to 32 Amps

TECHNICAL DETAILS

Material	316 Stainless Steel
	(External Components)
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal
	plated for signals)
Brushes	Copper Graphite (silver graphite for
	signals)
Fasteners	Stainless Steel Metric

CABLING

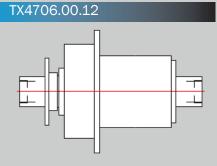
Entries	Shaft 1-M16, M20, M25 or M32 Housing 1 or 2 M16, M20, M25 or M32
Glands	Ex d IIB or IIC
Termination	By customer (subject to ring rating or Trolex fitted flying leads)

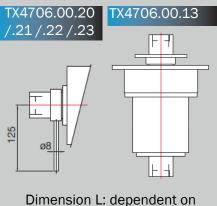
Certification	ATEX	CML 15ATEX1013X ☐ II 2 GD Ex d IIB T6 Ex tb IIIC T85°C Db T _{amb} -20°C to +40°C
	IECEx	IECEx CML 15.0005X Ex d IIB T6 T _{amb} -20°C to +40°C Ex tb IIIC T85°C Db





TX4706.00.11 4 - M6 ON 135 PCD 4 - 6.5 ON 90 PCD





number of Slip Rings

Explosion Protected Group IIB Zone 1

Ex d IP66 Enclosure | 316 Stainless Steel

For Cable Winches, Cranes, Rotating Bridges, Swivel Stacks and Material Handling Equipment

OPTIONS

- Drive and mounting arrangements to suit Customer's requirements
- Fibre Optic Rotary Joint
- Combined with fluid/gas swivel (inert gases only)
- Special features to handle I.S. circuits
- Increased ambient temperature range -40°C to +60°C (T135°C)

OPERATING SPECIFICATION

Ambient Temperature Range	-20°C to +40°C (see options)
Maximum Speed	100 rpm (higher on request)
Maximum Voltage	2000V ac
Ring Ratings	5 to 32 Amps

TECHNICAL DETAILS

Material	316 Stainless Steel (External Components)
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Copper Graphite (silver graphite for signals)
Fasteners	Stainless Steel Metric

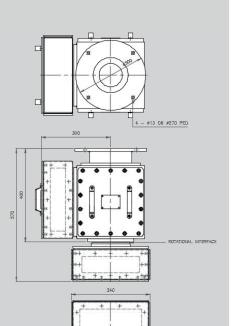
CABLING

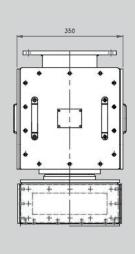
Entries	Trolex fitted cable or flying leads
	through a compound filled conduit
	barrier gland, as appropriate
Termination	Trolex fitted cable or flying leads

Certification	ATEX	CML 15ATEX1013X © II 2 GD Ex d IIB T6
		Ex tb IIIC T85°C Db T _{amb} -20°C to +40°C
	IECEx	IECEx CML 15.0005X Ex d IIB T6 T _{amb} -20°C to +40°C
		E II III TOTA amb
		Ex tb IIIC T85°C Db









Ex d Ring Enclosure

Ex e Terminal Boxes

Hollow Shaft Option

OPTIONS

- Mounting flange/brackets to customer's requirements
- Anti-condensation heater (self-regulating)
- Hollow shaft
- Stainless Steel construction
- Internal or external slew limit switch
- Internal or external azimuth encoder
- Factory fitted flying leads
- Special features to handle I.S. circuits

OPERATING SPECIFICATION

Ambient Temperature Range	-20°C to +45°C (increased range available -40°C to +55°C)
Maximum Speed	40 rpm (higher on request)
Maximum Voltage	690V ac
Maximum Throughput Current	400 Amps
Protection	IP66
Mounting	In any plane

TECHNICAL DETAILS

Housing Material	Carbon Steel
Shaft	Carbon Steel 080M40
Bearings	Sealed for life ball journal
Slip Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Minimum of 2 per ring (Copper Graphite for power, Silver Graphite for signals)
Fasteners	Stainless Steel Metric

Certification	ATEX	CML 15ATEX1133 \textcircled{R} II 2 GD Ex db eb IIB T6 Gb T_{amb} -20°C to +45°C (As option - T_{amb} -40°C to +55°C) Ex tb IIIC T85°C Db
	IECEx	IECEx CML 15.0066 II 2 GD Ex db eb IIB T6 Gb T _{amb} -20°C to +45°C (As option - T _{amb} -40°C to +55°C) Ex tb IIIC T85°C Db





Compact IP65 Stainless Steel Housing Up to 26 7.5 Amp 1200 Volt Circuits Precious metal plated rings for low loss signal Cable entry options

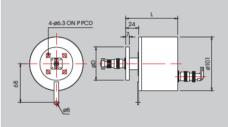
OPERATING SPECIFICATION

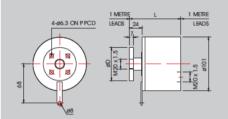
Temperature Limits	-20°C to +125°C
Ring Current	7.5 Amperes continuous
Maximum Voltage	1200 AC or DC (limited to 700V by some connectors)
Maximum Speed	500 rpm (higher on request)
Cable Entry	M20 tapped entry and 1 metre leads at each end or cost option of plug and socket connector
Enclosure	IP66

TECHNICAL DETAILS

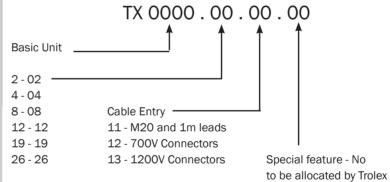
External Material	316 Stainless Steel (exc. connector)
Rings	Precious metal plated phosphor bronze
Brushes	Silver graphite
Bearings	Sealed for life, ball journal
Flying Leads	Type 44 22 a.w.g.
Connectors	To BS 9522 F0017 (pattern 105). US spec. Mil C 26482 Series 1 solder or equivalent.

TX4845

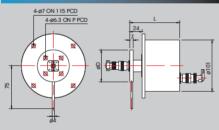


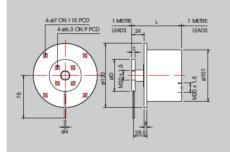


ORDER REFERENCE



TX4846





DIMENSIONS

- S2	1	Lm Leads	5	Co			Conne	ector			
. Rings		1200V			70	OOV			12	00V	
No.	D	Р	L	D	Р	L	Insert	D	Р	L	Insert
2	50	39.7	86	50	39.7	86	8-2	50	39.7	86	10-5
4	50	39.7	99	50	39.7	99	8-4	50	39.7	99	14-5
8	100	90.5	125	100	90.5	125	12-8	100	90.5	125	16-8
12	100	90.5	151	100	90.5	151	14-12			· / A	
19	100	90.5	196	100	90.5	196	14-19		IN	/A	
26	100	90.5	242	100	90.5	242	16-26				







Compact IP66 Stainless Steel Housing

Up to 50 circuits

Precious metal plated rings for low loss signal

Cable entry options

OPTIONS

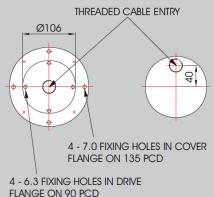
- Drive and mounting arrangements to suit Customer's requirements
- Gas purged
- Oil filled pressure compensated
- Cable hose nipples
- Junction box
- Trolex Gas / Fluid Swivel
- Fibre Optic Rotary Joint

3 METRE PIGTAIL EACH END 15 Ø

Dimension L is dependent on slip ring requirements and advised on request

OPERATING SPECIFICATION

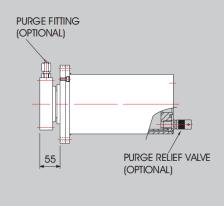
Temperature Limits	-20°C to +125°C
Ring Current	5, 8, 16 or 32 Amperes
Voltage	2000 AC or DC (higher on request)
Maximum Speed	200 rpm (higher on request)
Cable Entry	Tapped entry (with or without 3-metre leads at each end) or cost option of plug and socket connector
Enclosure	IP66



FLANGE ON 90 PCD

TECHNICAL DETAILS

External Material	316 Stainless Steel (Exc. connector)
Rings	Phosphor bronze (precious metal plated for signals)
Brushes	Silver graphite for signals
Bearings	Sealed for life ball journal



ORDER REFERENCE

