




Flameproof Motor Repairs



Job No:43943	Date:27/9/22	
Customer: [REDACTED]	Customer ref no: [REDACTED]	

Machine details:

Manufacturer: Cemp	Serial no: N1606846001Y16	Year of certification: 2014
Type:TEFC	Frame:90S	IP code: 55
kW/hp:0.75	Volts:400	Mounting:B5
r/min:910	Amps:2.2	Hz: Poles:
Rating:	Ins. Class:	Temp. rise: °C Ex BS/EN/IEC standards used :

Certification Details:

Exd IIB T4 Gb 14ATEX065X

"As received" test report:

IR to earth:	IR / ph:
Winding Resistance	
Ancillaries to earth:	
No-load test:	
Speed r/min:	
Vibration test (mm/sec - Velocity Peak):	

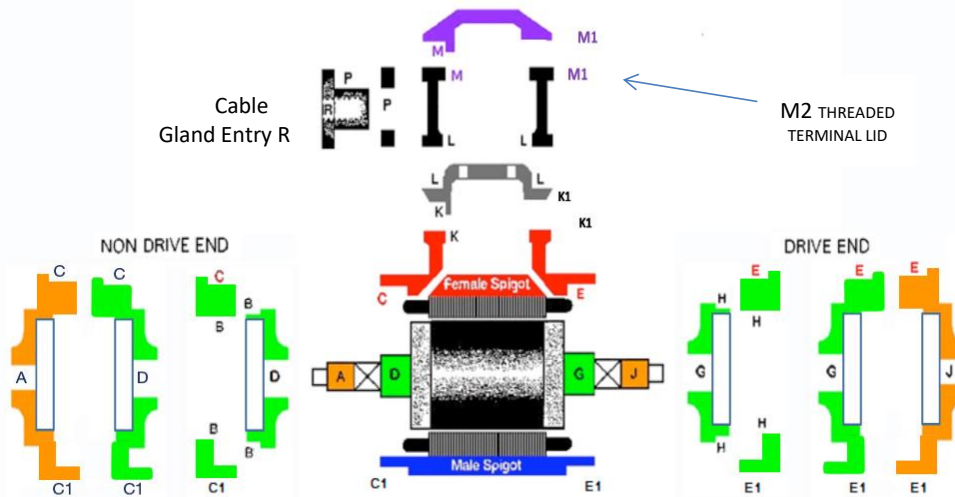
Other tests: See separate report.

Operator Signature:	Date:	Responsible Person Signature	Date
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Repairer's job no:43943	Date:27/9/22
Customer: [REDACTED]	Customer ref no: [REDACTED]
Serial no:N1606846001Y16	Frame:90S



Inspection record of Gap Dimensions & Fits Ex d as received:



Motor Group:	II	Gas group	B
Internal free volume cm3 (see sheet 6c): Motor Frame (Motor frame plus lead connection volume or Motor frame only)			
500 < V <= 2000:			
Internal free volume cm3 (see sheet 6c): Terminal box (main box plus auxiliary box or main box only)			
500			
Standard used: BS/EN/IEC: 60079			

Flamepath dimension checks:

Position	Chamber Volume, cm3 from 8	Flamepath length, mm	Maximum permissible gap, mm	Logically larger diameter as received, mm	Logically smaller diameter as received, mm	Gap = Larger Di - Smaller Di, mm	Pass or Fail
A	500-2000	22	0.3	25.01	24.98	0.03	PASS
B							
C	500-2000	22	0.2	135.34	135.44	-0.01	PASS
C1							
D							
E	500-2000	22	0.2	135.34	135.46	-0.12	PASS
E1							
G							
H							
J	500-2000	22	0.3	25.08	25.01	0.07	PASS
K	500-2000	15	0.2	89.9	89.96	-0.06	PASS
L							
M	500-2000	11	0.08	114.82	114.98	-0.16	PASS
P							

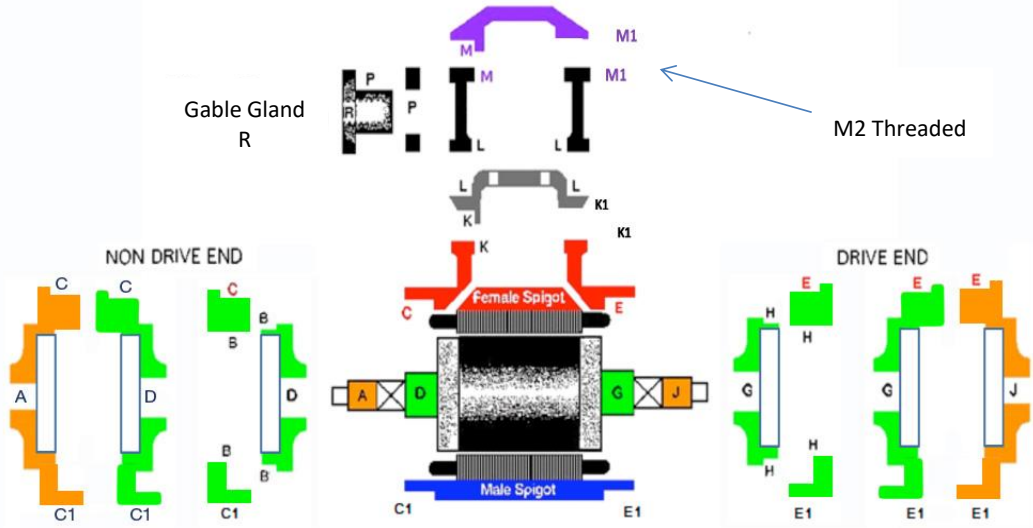
Flat Surfaces Check: Terminal box lid damaged.

Threaded Holes Check: ALL PASS

Operator Signature:	Date:	Responsible Person Signature	Date:
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Repairer's job no:43943	Date:27/9/22	
Customer: [REDACTED]	Customer ref no: [REDACTED]	
Serial no:N1606846001Y16	Frame: 90S	

Inspection record of Gap Dimensions & Fits Ex d after reclamation:



Motor Group:	II	Gas group	B
Internal free volume cm3 (see sheet 6c): Motor frame (Motor frame plus lead connection volume or Motor frame only)			
V<=100:		500<V<=2000:	
Internal free volume cm3 (see sheet 6c): Terminal box (main box plus auxiliary box or main box only)			
		500	
Standard used: BS/IEC60079			

Flamepath dimension checks:

Position	Chamber Volume cm3 from 8	Flamepath length	80% of Standard gap	Logically larger diameter after reclamation	Logically smaller diameter after reclamation	Gap = Larger Di - Smaller Di	Acceptable to Standard after reclamation: yes/no
A							N/A
B							N/A
C							N/A
C1							N/A
D							N/A
E							N/A
E1							N/A
G							N/A
H							N/A
J							N/A
K							N/A
L							N/A
M							N/A
P							N/A

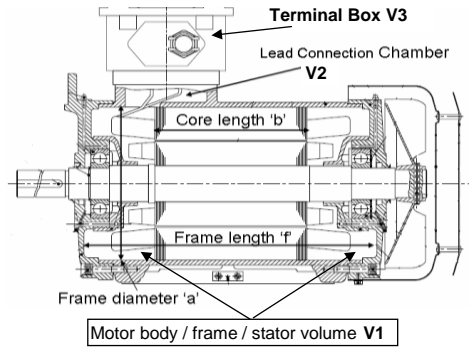
M1 Flange surfaces and flatness checked and acceptable PASS

Operator Signature:	Date:	Responsible Person Signature	Date:
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Standards used BS/IEC: 60079

Free Volume Calculations:

FRAME



Motor body / Frame / Stator :	
Motor frame inner diameter 'a' cm	13.5 cm.
Motor core length 'b' cm	8.5 cm.
Motor frame length 'f' cm between endshields	26.3 cm.
b over f	0.323
Reduction factor R to be obtained from page 6d)	0.500
Frame free volume V1 = 0.785axa[f - b]xR. cm3	1273 cm³

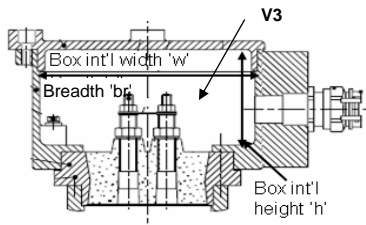
Lead Connection Chamber:	
Width	8.9 cm.
Breadth	8.9 cm.
Height	2.7 cm.
V2	213.867 cm³
Total stator free volume = (V1 + V2) cm3	1487 cm³

Drawings used by permission of Leroy Somer

Confirm volume column used for stator from the standards on report form

V<=100: 100<V<=500: 500<V<=2000: V>2000:

TERMINAL BOX (volume calculation not required for EEEx de)



Rectangular box	
Terminal box internal width 'w' cm	0 cm.
Terminal box internal breadth 'br' cm	0 cm.
Terminal box internal height 'h' cm	0 cm.
Rectangular terminal box free volume V3 = (wxbxh) cm3	0 cm ³

Circular box	
Circular box width	11.4 cm.
Circular box depth	5 cm.
or Circular terminal box free volume V4 = 0.785wxbxh cm3	510.093 cm³

Confirm volume column used for terminal box from the standards on report form

V<=100: 100<V<=500: 500<V<=2000: V>2000:

Auxiliary box: (volume calculation not required for EEEx de)

Sketch if needed.

Rectangular box	
Terminal box internal width 'w' cm	0 cm.
Terminal box internal breadth 'br' cm	0 cm.
Terminal box internal height 'h' cm	0 cm.
Rectangular terminal box free volume V5 = (wxbxh) cm3	0 cm ³

Circular box	
Circular box width	0 cm.
Circular box depth	0 cm.
or Circular terminal box free volume V6 = 0.785wxbxh cm3	0 cm ³

Confirm volume column used for auxiliary box from the standards on report form

V<=100: 100<V<=500: 500<V<=2000: V>2000:

TERMINAL BOX and Auxiliary box if applicable. Combine terminal box chamber volumes if same free gas volume: **Total volume =** 0 cm³.


Confirm volume column used for terminal box from the standards on report form

V<=100: 100<V<=500: 500<V<=2000: V>2000:

Review if volumes are sensible: 0 Review No of chambers: 0

Operator's signature: XXXXXXXXXX Date: XXXX/XX/XX

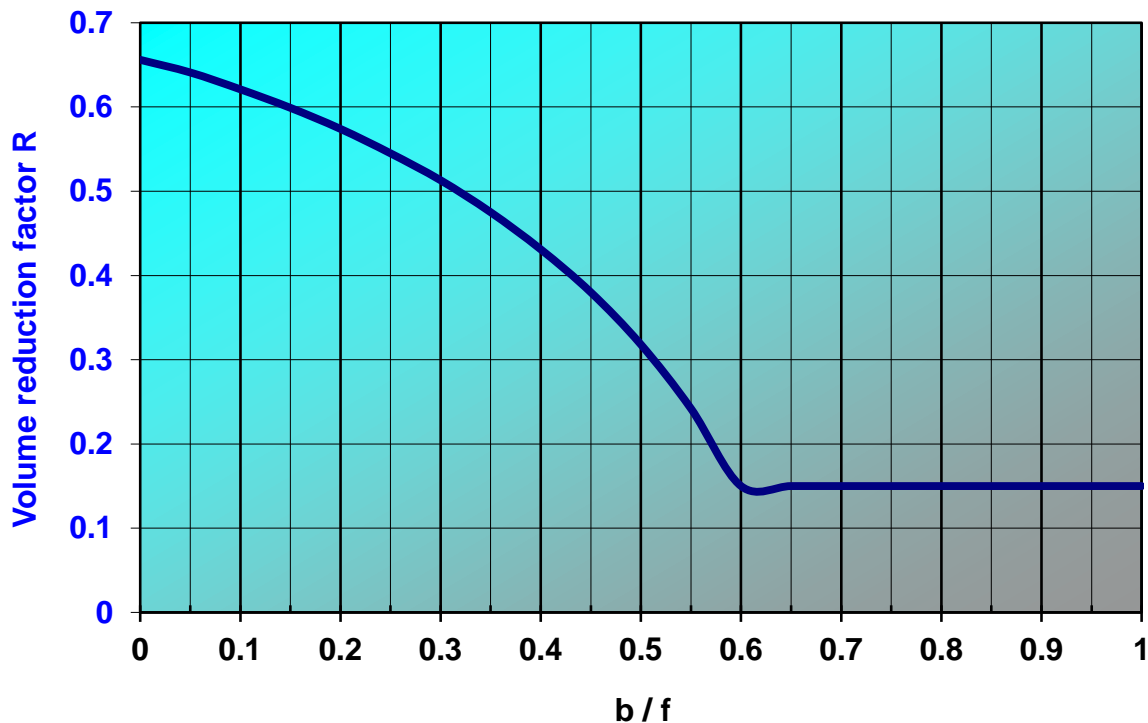
Responsible person's signature: XXXXXXXXXX Date: XXXX/XX/XX

Job No:	Date:	
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Standards:

Typical Ex d Frame Free Volume Reduction Factor 'R'

(based on data from sample machine)



Typical example:

Measure a, f and b.

a=8.7cm, f=16.4cm, b=8.4cm

Calculate b / f

b / f = 0.512

Read off graph percent factor 'R'


0.299

Calculated gas volume within motor body is then

$0.785 \cdot a \cdot a \cdot (f-b) \cdot 0.299$

$0.785 \cdot 8.7 \cdot 8.7 \cdot 8 \cdot 0.299$
 $=142.0\text{cm}^3$

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Customer: [REDACTED]	Customer Ref: [REDACTED]	
Serial no: N1606846001Y16	Frame:90S	

Electrical Test report:

IR to earth:		IR / ph:	
Wdg res:		Amb. Temp:	

Ancillaries to earth:

HV test (rewinds only) :

Following electrical test only required for rewinds but recommended for all .

No-load test V:	400	NL test amps:	1.3
Locked rotor test V:		Amps:	

No load Speed r/min: 908

Bearing temps after test run on.....amps:	Hours running:
D.E. °C NDE °C	

Mechanical Tests:

Vibration test: ALL PASS

Horizontal	
Vertical	
Axial	

Other tests:

Detailed record of work carried out:

Parts replaced: 2 x 6205 2Z C3. 2 x 25x35x4. New fan cowl.

Parts reclaimed: Terminal box surface

Other work done:

We confirm that all flamepaths*, machined surfaces & mating joints have been cleaned re-inspected prior to assembly for abrasions, pitting, rusting. We confirm that we have made no changes to this Ex apparatus during the repair which would invalidate compliance with the standard to which it was certified. flaws & other surface damage which might invalidate the original certification (* delete as appropriate for type of machine repaired). No alterations affecting the original protection code have been made. Only authorised replacement parts have been used. All recovery work which has been identified in this report has been carried out and subjected to the necessary tests and inspections in accordance with IEC BS EN 60079-19 2011.

Operators signature:	Date:	Responsible Person Signature:	Date:
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