

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.



NEC3 Term Service Contract (TSC3)

Between **ESKOM HOLDINGS SOC Ltd**
(Reg No. 2002/015527/30)

and [Insert at award stage]
(Reg No. _____)

for The collection, Dismantle, Assessment, Repair,
Rewind, Overhaul, Replace, Test, Paint and delivery
of LV electric motors at Duvha Power Station as and
when required.

Contents:	No of pages
Part C1 Agreements & Contract Data	[•]
Part C2 Pricing Data	[•]
Part C3 Scope of Work	[•]

CONTRACT No. [Insert at award stage]

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

PART C1: AGREEMENTS & CONTRACT DATA

Contents:	No of pages
C1.1 Form of Offer and Acceptance	[•]
[to be inserted from Returnable Documents at award stage]	
C1.2a Contract Data provided by the <i>Employer</i>	[•]
C1.2b Contract Data provided by the <i>Contractor</i>	[•]
[to be inserted from Returnable Documents at award stage]	
C1.3 Proforma Guarantees	[•]

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C1.1 Form of Offer & Acceptance

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

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The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

Options A	The offered total of the Prices exclusive of VAT is	R [•]
	Sub total	R [•]
	Value Added Tax @ 15% is	R [•]
	The offered total of the amount due inclusive of VAT is ¹	R [•]
	(in words) [•]	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s) _____

Capacity _____

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number:

¹ This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

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Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Service Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed and signed original copy of this document, including the Schedule of Deviations (if any).

Signature(s)

Name(s)

Capacity

**for the
Employer**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

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Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	[•]	[•]
2	[•]	[•]
3	[•]	[•]
4	[•]	[•]
5	[•]	[•]
6	[•]	[•]
7	[•]	[•]

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the tenderer:

For the Employer

Signature

Name

Capacity

On behalf
of

(Insert name and address of organisation)

(Insert name and address of organisation)

Name &
signature
of witness

Date

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C1.2 TSC3 Contract Data

Part one - Data provided by the *Employer*

Completion of this data in full, according to the Options chosen, is essential to create a complete contract.

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option:	
		A: Priced contract with price list
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X1: Price adjustment for inflation
		X2 Changes in the law
		X17: Low service damages
		X19: Task Order
		Z: Additional conditions of contract
	of the NEC3 Term Service Contract April 2013 ² (TSC3)	
10.1	The <i>Employer</i> is (name):	Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
	Tel No.	[•]
	Fax No.	[•]
10.1	The <i>Service Manager</i> is (name):	
	Address	337JS SPEEKFONTEIN Old Bethal Road Mpumalanga 1035
	Tel	0826773203

² Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 www.ecs.co.za

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Fax **N/A**

e-mail

11.2(2)	The Affected Property is	DUVHA POWER STATION
11.2(13)	The <i>service</i> is	The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station
11.2(14)	The following matters will be included in the Risk Register	Road closure Matters notified as early warning
11.2(15)	The Service Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	3 working days for general correspondence, 24 Hours for emergency
2	The Contractor's main responsibilities	The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station
21.1	The <i>Contractor</i> submits a first plan for acceptance within	2 weeks of the Contract Date
3	Time	
30.1	The <i>starting date</i> is.	01 June 2027
30.1	The <i>service period</i> is	5 Years
4	Testing and defects	Testing and defect on supplier's site before delivered to Duvha Power Station. Final quality inspection will be done at main stores at Duvha Power Station for exception of goods and services. If a test or inspection shows that any work has a defect, the supplier corrects the defect, and test or inspection is repeated
42.1	Notifying and correction of defects	The Contractor corrects a Defect whether or not the Service Manager notifies him of it.
42.2	Defects correction period is	Defect Correction Period is 52 weeks after the respective Task Order Completion Date
42.3	Access to site to correct defects	The Service Manager arranges for the Employer to allow the Contractor access if it is needed for correcting a Defect
5	Payment	

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50.1	The <i>assessment interval</i> is	between the 25th day of each successive month.
51.1	The <i>currency of this contract</i> is the	South African Rand
51.2	The period within which payments are made is	Thirty (30) Calendar days after the signed assessment by both Parties and a valid Tax Invoice. ATTENTION: Eskom's standard policy on payment term for all contracts valued above R50 000 0000 (Fifty Million Rand), including VAT, is 60 days. Bidders are requested to bear this payment term in mind when submitting bids and concluding contracts
51.4	The <i>interest rate</i> is	The publicly quoted prime rate of interest (calculated on a 365 day year) charged by from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and
6	Compensation events	All Compensation Events are to be managed as per core clause 6 of the NEC3 TSC this Contract Data
7	Use of Equipment Plant and Materials	To be managed as per core clause 7 of the NEC3 TSC
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	N/A
9	Termination	To be managed as per core clause 7 of the NEC3 TSC
10	Data for main Option clause	
A	Priced contract with price list	
20.5	The <i>Contractor</i> prepares forecasts of the final total of the Prices for the whole of the <i>service</i> at intervals no longer than	4 weeks.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i>	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the

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		Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).																					
	Address	[•]																					
	Tel No.	[•]																					
	Fax No.	[•]																					
	e-mail	[•]																					
W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London) (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the ICE-SA Division.																					
W1.4(2)	The <i>tribunal</i> is:	arbitration																					
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.																					
	The place where arbitration is to be held is	Johannesburg South Africa																					
	The person or organisation who will choose an arbitrator																						
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee																					
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.																					
12	Data for secondary Option clauses																						
X1	Price adjustment for inflation	CPA will be applied 16 months after base date maturity																					
X1.1	The <i>base date</i> for indices is	Base date (One month after ITT/RFQ closing or to be agreed upon)																					
	The proportions used to calculate the Price Adjustment Factor are:	<table> <tr> <th>Proportion</th><th>linked to index for</th><th>Index prepared by</th></tr> <tr> <td>0.</td><td>[•]</td><td>[•]</td></tr> <tr> <td>0.</td><td>[•]</td><td>[•]</td></tr> <tr> <td>0.</td><td>[•]</td><td>[•]</td></tr> <tr> <td>0.</td><td>[•]</td><td>[•]</td></tr> <tr> <td>0.</td><td>[•]</td><td>[•]</td></tr> <tr> <td>0.15</td><td colspan="2">non-adjustable</td></tr> </table>	Proportion	linked to index for	Index prepared by	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.	[•]	[•]	0.15	non-adjustable	
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0.15	non-adjustable																						

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X2	Changes in the law	Becomes a Compensation Event only if the changes in the Law of the Republic of South Africa took place after the Contract Date.
X17	Low service damages	
X17.1	The <i>service level table</i> is in	Annexure A
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to	R0.0 (zero Rand)
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to	the amount of the deductibles relevant to the event
X18.3	The <i>Contractor's</i> liability for Defects due to his design of an item of Equipment is limited to	The greater of • the total of the Prices at the Contract Date and • the amounts excluded and unrecoverable from the <i>Employer's</i> insurance (other than the resulting physical damage to the <i>Employer's</i> property which is not excluded) plus the applicable deductibles
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> , for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	the total of the Prices other than for the additional excluded matters. The <i>Contractor's</i> total liability for the additional excluded matters is not limited. The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for • Defects due to his design, plan and specification, • Defects due to manufacture and fabrication outside the Affected Property, • loss of or damage to property (other than the <i>Employer's</i> property, Plant and Materials), • death of or injury to a person and • infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	18 months after the end of the <i>service period</i>.
X19	Task Order	
X19.3	Delay Damages are	Five percent (5%) of the Task Order Value per day from the day of delayed completion until the actual completion of the services, to be capped at the maximum of Fifteen percent (15%) of the Total

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	Task Order Values
X19.5	The <i>Contractor</i> submits a Task Order programme to the <i>Service Manager</i> within 3 days of receiving the Task Order
Z	The <i>additional conditions of contract</i> are Z1 to Z16 always apply.

Z1 Cession delegation and assignment

- Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.
- Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

Z2 Joint ventures

- Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.
- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Service Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Service.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P4 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with

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this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.

Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Service Manager*.

Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*.

Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Service Manager* or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z6 Health, safety and the environment: Add to core clause 27.4

Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor*:

- accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Affected Property;
- warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of the *service*; and
- undertakes, in and about the execution of the *service*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z6.2 The *Contractor*, in and about the execution of the *service*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

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Z7 Provision of a Tax Invoice and interest. Add to core clause 51

- Z7.1 Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Service Information, showing the amount due for payment equal to that stated in the payment certificate.
- Z7.2 If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

- Z8.1 Delete the last paragraph of core clause 61.3 and replace with:

If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

Z9 Employer's limitation of liability

- Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z9.2 The *Contractor's* entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the *Employer's* liability under the indemnity is limited to compensation as provided for in core clause 63 and X19.11 if Option X19 Task Order applies to this contract.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

- Z10.1 or had a business rescue order granted against it.

Z11 Ethics

For the purposes of this Z-clause, the following definitions apply:

Affected Party means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,

Coercive Action means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,

Collusive Action means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,

Committing Party means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's

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employees,

- Corrupt Action** means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,
- Fraudulent Action** means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,
- Obstructive Action** means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and
- Prohibited Action** means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

- Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z11.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.
- Z11.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.
- Z11.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z12 Insurance

Z 12 .1 Replace core clause 83 with the following:

Insurance cover 83

- 83.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.
- 83.2 The *Contractor* provides the insurances stated in the Insurance Table A from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage caused by the <i>Contractor</i> to the <i>Employer's</i> property	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.

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Loss of or damage to Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
Loss of or damage to Equipment	The replacement cost where not covered by the <i>Employer's</i> insurance. The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
The <i>Contractor's</i> liability for loss of or damage to property (except the <i>Employer's</i> property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising from or in connection with the <i>Contractor's</i> Providing the Service	<u>Loss of or damage to property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 12.2 Replace core clause 86 with the following:

**Insurance
by the
*Employer***

86

86.1 The *Employer* provides the insurances stated in the Insurance Table B

INSURANCE TABLE B

Insurance against or name of policy	Minimum amount of cover or minimum limit of indemnity
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document

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Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

Z13 Nuclear Liability

- Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.
- Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z14 Asbestos

For the purposes of this Z-clause, the following definitions apply:

AAIA	means approved asbestos inspection authority.
ACM	means asbestos containing materials.
AL	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
Ambient Air	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
Compliance Monitoring	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and

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asbestos containing material, equipment and articles.

OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
Standard	means the <i>Employer's</i> Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

- Z14.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.
- Z14.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z14.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z14.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.
- Z14.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.
- Z14.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

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These clauses are not only, but are especially, applicable for accessing critical infrastructure in terms of the Critical Infrastructure Protection Act, 2019 (previously referred to as National Key Points), but may include other sites, and/or where persons are rendering a service or have given notice of intention to render a service to an organ of state, which service may (1) give him or her access to classified information and intelligence in the possession of the organ of state; or (2) give him or her access to or information concerning areas designated as critical infrastructure.

- Z15.1 The **Contractor** and its subcontractors implement risk and security management processes and measures to mitigate any threats against any premises, installations or sites, systems, or information of the **Employer** with only persons with criminal verification record security clearance certificates being given access after verification of these and identifying documents by the **Employer's** security system.
- Z15.2 The **Contractor** provides, at the **Contractor's** cost, to the **Employer**, criminal verification record security clearance certificates for each person the **Contractor** or its subcontractors requires to access any premises, installations or sites, systems, or information of the **Employer**, with copies of their identifying documents, such as passports, before allowed such access by the **Employer**. The **Employer's** refusal to allow access to premises, installations or site/s, systems or information is at the **Employer's** sole discretion and is not a compensation event.
- Z15.3 The criminal verification record security clearance certificates provided are to have been issued by a service provider which is to be a reputable screening company accredited by the South African Police Services, are to be no older than four weeks since issue and valid for as long as each person is required to access premises, installations or sites, systems or information. The **Employer** may require updated certificates and identifying documents every 26 to 52 weeks, subject to safety and security concerns and the risk rating of the works or services undertaken and/or premises, installations or sites, systems or information.
- Z15.4 If any such criminal verification record security clearance certificates is cancelled, withdrawn, invalidated, amended, or expires, or a criminal conviction is noted against any person requiring access, even if an appeal against the criminal conviction has been noted, the **Service Manager** may instruct the **Contractor** to ensure that such person leaves the premises, installations or site/s and is blocked from systems and information and the giving of this instruction is not a compensation event.

Z16 Protection of Personal Information Act Compliance

- Z16.1 For the purposes of this clause, the terms "Data Subject", "Personal Information", "Processing" and "Regulator" and "Responsible Party" have the meanings given to them in the Protection of Personal Information Act, 2013 ("POPIA").
- Z16.2 Each Party acknowledges that it is an independent Responsible Party in relation to the Personal Information processed in terms of this contract ("Shared Personal

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Information”) and that it determines the purposes for which and the manner in which the Shared Personal Information is, or is to be, processed.

- Z16.3 Each Party shall always comply with POPIA when performing its obligations under this contract and shall not perform any of their respective obligations under this contract in such a way as to cause the other Party to breach any of that other Party's obligations under POPIA.
- Z16.4 Each Party shall ensure that, in respect of all Shared Personal Information provided to the other Party and in respect of the use of that Shared Personal Information under this contract:-
- Z16.4.1 all necessary fair Processing notices have been provided to and consents obtained from Data Subjects by that Party, where required, in terms of POPIA, including to specify that the other Party is also a Responsible Party in respect of the Data Subject's Personal Information and to provide a link (for example, <https://www.eskom.co.za/about-eskom/website-terms-and-conditions/>) to the other Party's Privacy Statement or to include a statement that the other Party's Privacy Statement can be found on the other Party's corporate website; and
- Z16.4.2 all necessary steps have been taken to ensure that Shared Personal Information has been collected and processed in accordance with the principles set out in POPIA, including in particular those relating to:
- lawful, fair and transparent Processing;
 - specified, legitimate and explicit purposes of Processing; and
 - adequate, relevant and not excessive Processing.
- Z16.5 If either Party receives any complaint, notice or communication from the Regulator which relates directly to:
- Z16.5.1 the other Party's Processing of the Shared Personal Data; or
- Z16.5.2 a potential failure by the other Party to comply with POPIA in respect of the activities of the Parties under or in connection with this contract,
- it shall, to the extent permitted by law, promptly notify the other Party and provide such information as it shall reasonably request in that regard.
- Z16.6 If a Data Subject makes a written request to either Party to exercise any of their rights under POPIA, the receiving Party shall respond to that request in accordance with POPIA. To the extent the request concerns Processing of Shared Personal Information undertaken by the other Party, the receiving Party shall:
- Z16.6.1 promptly and without undue delay forward the request to the other Party; and
- Z16.6.2 cooperate and provide reasonable assistance in relation to that request to enable the other Party to respond in accordance with POPIA.
- Z16.7 Each Party acknowledges that the other Party may disclose Shared Personal Information to any

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Regulator or law enforcement authority with jurisdiction to request access to the Shared Personal Information.

- Z16.8 Neither Party discloses or otherwise makes available the Personal Information to any third party (including sub-contractors, but excluding its authorised employees who require access to such Personal Information strictly in order for the Parties to carry out their obligations pursuant to this contract), unless a Party has provided, to a requesting Party, its prior written consent to do so, and the requesting Party has submitted to the other Party (consenting Party), to its satisfaction, a copy of a written contract or undertaking that the requesting Party has entered into with a third party for the protection of Personal Information of the Data Subjects or unless there is an applicable exemption in terms of the law to process or further process the personal information.
- Z16.9 The requesting Party indemnifies and holds harmless the consenting Party and its staff, successors, cessionaries, delegates, and assigns, from any and all losses, costs, expenses and damage, as well as penalties and fines arising from the requesting Party's non-compliance with the provision of any relevant legislation applicable to Personal Information or data protection, as well as damage to the consenting Party's reputation and costs of compliance as directed by the Regulator, including but not limited to publication of the data breach.

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Annexure A
Low Services Damages

Item	Low Service Damage Description	Value of Low Service Damage	Limit of Low Service Damage
1	Failure to collect, assess, strip, inspect and submit a detailed condition assessment report and quotation to the Service Manager within the agreed timeframe after receipt of a Task Order.	2% of Task Order value per day	Limited to 10% of the Task Order value
2	Failure to obtain Service Manager approval prior to commencement of repair work or replacement of defective components.	2% of Task Order value per day	Limited to 30% of the Task Order value
3	Failure to identify, report, and recommend repair of defective components, resulting in defects being discovered during testing, commissioning, or operation.	5% of Task Order value per day	Limited to 10% of the Task Order value
4	Failure to mobilise suitably qualified personnel, certified technicians, specialist resources, tools, lifting equipment, testing equipment, or workshop facilities required to execute motor repair and overhaul activities.	3% of Task Order value per day	Limited to 20% of the Task Order value
5	Failure to complete refurbishment, testing, and delivery of the motor within the maximum period of three (3) weeks from collection, unless otherwise approved by the Service Manager.	5% of Task Order value per day	Limited to 20% of the Task Order value
6	Rework required due to poor workmanship during dismantling, repair, machining, assembly, lubrication, alignment, balancing, or refurbishment activities.	5% of Task Order value per day	Limited to 30% of the Task Order value

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7	Failure to perform or successfully complete required inspections, bench tests, vibration tests, or other specified acceptance tests in the presence of Eskom representatives where required.	3% of Task Order value per day	Limited to 10% of the Task Order value
8	Failure to submit complete and acceptable quality documentation, including test certificates, calibration certificates, inspection records, guarantees, QCPs, and completion certificates.	2% of Task Order value per day	Limited to 20% of the Task Order value
9	Failure to ensure that only new approved replacement parts are utilised where required, or fitting unapproved/non-conforming parts without Service Manager acceptance.	5% of Task Order value per day	Limited to 30% of the Task Order value
10	Failure to provide technical support during installation, commissioning, initial unit start-up, or the required 24-hour post-start-up support period where requested by Eskom.	3% of Task Order value per day	Limited to 10% of the Task Order value
11	Failure to conduct joint inspections with Eskom representatives and quality personnel in accordance with the approved Quality Control Plan (QCP) and agreed checklists.	2% of Task Order value per day	Limited to 15% of the Task Order value
12	Allowing personnel without valid qualifications, certifications, authorisations, or competency approvals to perform work on LV motors.	5% of Task Order value per occurrence	Limited to 20% of the Task Order value
13	Failure to transfer skills and provide technical knowledge sharing to Eskom personnel during motor overhaul, testing, and commissioning activities as	2% of Task Order value per day	Limited to 15% of the Task Order value

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	required by the contract.		
14	Failure to protect, preserve, transport, or store motors and components properly, resulting in damage, contamination, loss of parts, or deterioration of equipment condition.	5% of Task Order value per occurrence	Limited to 10% of the Task Order value

C1.2 Contract Data

Part two - Data provided by the *Contractor*

[Instructions to the contract compiler: (delete this notes before issue to tenderers with an enquiry)

Whenever a cell is shaded in the left hand column it denotes this data is optional and would be required in relation to the option selected. In the event that the option is not required select and delete the whole row.]

Notes to a tendering contractor:

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)³ in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [] appears, data is required to be inserted relevant to the option selected. Click on the form field **once** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is	10%
	The <i>subcontracted fee percentage</i> is	10%
11.2(14)	The following matters will be included in the Risk Register	
11.2(15)	The Service Information for the <i>Contractor's</i> plan is in:	
21.1	The plan identified in the Contract Data is contained in:	
24.1	The key people are:	
	1 Name:	
	Job:	
	Responsibilities:	
	Qualifications:	
	Experience:	
	2 Name:	

³ Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or www.ecs.co.za

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Job

Responsibilities:

Qualifications:

Experience:

CV's (and further key person's data including CVs) are in _____.

A	Priced contract with price list
11.2(12)	The <i>price list</i> is in
11.2(19)	The tendered total of the Prices is R
C	Target contract with price list
11.2(12)	The <i>price list</i> is in
11.2(20)	The tendered total of the Prices is R
E	Cost reimbursable contract
11.2(12)	The <i>price list</i> is in

C1.3 Forms of Securities

Pro formas for Bonds & Guarantees

For use with the NEC3 Term Service Contract (TSC3)

[Note to contract compiler:

Once it has been decided which securities are required for this contract delete from this file the ones not required, revise the notes below accordingly and delete this note.]

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Options:

Option X4: Parent company guarantee

Option X13: Performance Bond

Each of these secondary Options requires a bond or guarantee “in the form set out in the Service Information”. Pro forma documents for these bonds and guarantees are provided here for convenience but are to be treated as part of the Service Information.

The *Contractor* shall guarantee his ASGI-SA Obligations by providing the *Employer* with an ASGI-SA Guarantee in the form provided here.

[Note to contract compiler: If there are no ASGI-SA Obligations in this contract, delete the above statement and the ASGI_SA bond]

The organisation providing the bond / guarantee does so by copying the pro forma document onto his letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

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PART 2: PRICING DATA

TSC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The <i>price list</i>	[•]

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C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

Identified and defined terms	11	
	11.2	(12) The Price List is the <i>price list</i> unless later changed in accordance with this contract.
		(17) The Price for Services Provided to Date is the total of
		- the Price for each lump sum item in the Price List which the <i>Contractor</i> has completed and - where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the <i>Contractor</i> has completed by the rate.
		(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

Function of the Price List

Clause 54.1 in Option A states: "Information in the Price List is not Service Information". This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Service in accordance with the Service Information". Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

Link to the *Contractor's* plan

Clause 21.4 states "The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance". Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the *service* to be provided. Alternatively the *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in the *price list* to be prepared and priced by him.

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It is assumed that in preparing or finalising the *price list* the *Contractor*:

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.
- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Expected Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Expected Quantity to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Expected Quantity column.

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C2.2 the *price list*

C2.2 (a) Stock numbers

0141532	MOTOR ELEC:0.037 KW;850 RPM;0.28 A;380;B
0141530	MOTOR ELEC:0.045 KW;460 RPM;0.85 A;380;F
0141652	MOTOR ELEC:0.06 KW;1320 RPM;KL13;220/380
0140909	MOTOR ELEC:0.09 KW;1320 RPM;IE56;220/380
0141630	MOTOR ELEC:0.09 KW;1360 RPM;D564;0.32 A
0141843	MOTOR ELEC:0.18 KW;1320 RPM;1.06-0.61 A
0214516	MOTOR ELEC:0.18 KW;1400 RPM;63;0.62 A;F
0141668	MOTOR ELEC:0.18 KW;1425 RPM;0.83 A;380;B
0660921	MOTOR ELEC:0.18 KW;1485 RPM;63;230/380 V
0141623	MOTOR ELEC:0.18 KW;2740 RPM;0.54 A;380;F
0178915	MOTOR ELEC:0.18 KW;680-770 RPM;M163LT;1
0140425	MOTOR ELEC:0.22 KW;2850 RPM;MD9040;1.2 A
0141396	MOTOR ELEC:0.25 KW;1345 RPM;1.35-0.78 A
0141629	MOTOR ELEC:0.25 KW;2840 RPM;D63/2;0.7 A
0141655	MOTOR ELEC:0.25/0.29 KW;1345 RPM;FOOT;B
0141572	MOTOR ELEC:0.37 KW;1360-1375 RPM;220/380
0141622	MOTOR ELEC:0.37 KW;1370 RPM;1.2 A;380;F
0567582	MOTOR ELEC:0.37 KW;1370 RPM;71;1.2 A;380
0140158	MOTOR ELEC:0.37 KW;1375 RPM;1.12 A;380;F
0140157	MOTOR ELEC:0.37 KW;1375 RPM;71;1.12 A;4
0250670	MOTOR ELEC:0.37 KW;1380 RPM;R27DT71D4;10
0141547	MOTOR ELEC:0.37 KW;1400 RPM;2.3-1.3 A;B
0140561	MOTOR ELEC:0.37 KW;1405 RPM;KDY71DB;FOOT
0140549	MOTOR ELEC:0.37 KW;1405 RPM;KDY71DB4;F;3
0141544	MOTOR ELEC:0.37 KW;1420 RPM;804;1.2 A;B
0140168	MOTOR ELEC:0.37 KW;2800 RPM;MD56-2-60;3
0593747	MOTOR ELEC:0.37 KW;3600 RPM;56C;0.8 A;F
0141601	MOTOR ELEC:0.37 KW;700 RPM;D90S;1.2 A;F
0141567	MOTOR ELEC:0.5 KW;1425-1426 RPM;F56C;1.4
0560683	MOTOR ELEC:0.5 KW;327 RPM;2BH1300;1.5 A
0141541	MOTOR ELEC:0.5 KW;590 RPM;4.6 A;105/130
0140132	MOTOR ELEC:0.55 KW;1400 RPM;1.47 A;380;B
0141839	MOTOR ELEC:0.55 KW;2800 RPM;2.5-1.45 A;F
0140165	MOTOR ELEC:0.55 KW;2800 RPM;MD71-2-60;F
0141513	MOTOR ELEC:0.55/0.66 KW;2800-3395 RPM;B
0141654	MOTOR ELEC:0.62 KW;2780 RPM;2.8-1.6 A;F
0141669	MOTOR ELEC:0.75 KW;1400 RPM;80B4;2.15 A
0140133	MOTOR ELEC:0.75 KW;1400 RPM;IEC 80;IP55
0141507	MOTOR ELEC:0.75 KW;1430 RPM;D380;2 A;380
0599776	MOTOR ELEC:0.75 KW;2740 RPM;AL80;220/380

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

0141625 MOTOR ELEC:0.75 KW;2790 RPM;D802;3.1-1.8
 0141646 MOTOR ELEC:0.75 KW;2850 RPM;1.83 A;380;B
 0141645 MOTOR ELEC:0.75 KW;950 RPM;D90S;2.3 A;F
 0141651 MOTOR ELEC:0.8 KW;2800 RPM;2.3 A;380 VAC
 0141842 MOTOR ELEC:0.8 KW;3000 RPM;GNRFZ1082;4.4
 0141565 MOTOR ELEC:1 HP;1745 RPM;143T;5.6-1.8 A
 0141609 MOTOR ELEC:1 KW;1410 RPM;D90L;3.2 A;380
 0141553 MOTOR ELEC:1.1 KW;1390 RPM;90S-4;2.8 A;B
 0528099 MOTOR ELEC:1.1 KW;1400 RPM;BN90S;2.7 A;4
 0141361 MOTOR ELEC:1.1 KW;1400 RPM;D90LD;380 VAC
 0141608 MOTOR ELEC:1.1 KW;1400 RPM;KY90S;2.8 A;F
 0141666 MOTOR ELEC:1.1 KW;1410 RPM;D90SD;2.6 A;F
 0141673 MOTOR ELEC:1.1 KW;1410 RPM;DZ90S;2.86 A
 0139976 MOTOR ELEC:1.1 KW;2800 RPM;MD71-2-80;F;3
 0141568 MOTOR ELEC:1.1 KW;2850 RPM;P60;380 VAC;3
 0141635 MOTOR ELEC:1.1 KW;2850 RPM;P60;4.8-2.5 A
 0141644 MOTOR ELEC:1.1 KW;900-905 RPM;D90L;FOOT
 0141627 MOTOR ELEC:1.5 KW;1400-1405 RPM;6.4-3.7
 0139947 MOTOR ELEC:1.5 KW;1400-1420 RPM;MT90L24
 0141591 MOTOR ELEC:1.5 KW;1410 RPM;DZ90L;3.9 A;B
 0141640 MOTOR ELEC:1.5 KW;1425 RPM;D90L;3.7 A;F
 0141600 MOTOR ELEC:1.5 KW;2820 RPM;D90S;3.4 A;F
 0141538 MOTOR ELEC:1.5 KW;685 RPM;D112MD;4.5 A;B
 0140093 MOTOR ELEC:1.75 KW;1400 RPM;3.46-2 A;B;3
 0141503 MOTOR ELEC:11 KW;1460 RPM;160M;23 A;380
 0558614 MOTOR ELEC:11 KW;2930 RPM;160M;21.2 A;2
 0141504 MOTOR ELEC:11 KW;2940 RPM;160M;22.5 A;F
 0140177 MOTOR ELEC:11 KW;2940 RPM;D160M;22.5 A;F
 0179000 MOTOR ELEC:11 KW;480 RPM;D225M;38 A;380
 0141520 MOTOR ELEC:132 KW;1485 RPM;D315S;242 A;F
 0158359 MOTOR ELEC:1440-1740 RPM;0.96-0.83 A;100
 0141642 MOTOR ELEC:15 KW;1448 RPM;D160LD;26.2 A
 0141579 MOTOR ELEC:15 KW;1460 RPM;D180MD;30.5 A
 0724218 MOTOR ELEC:15 KW;1460 RPM;D250;75 A;220
 0235429 MOTOR ELEC:15 KW;2900 RPM;D160M;30.1 A;F
 0141539 MOTOR ELEC:15 KW;2910 RPM;AM160MV2;30 A
 0141598 MOTOR ELEC:15 KW;2915 RPM;AM160MV2;29.5
 0141554 MOTOR ELEC:15 KW;2940 RPM;D160M;31 A;380
 0141637 MOTOR ELEC:15 KW;970 RPM;D1801D;31 A;380
 0141587 MOTOR ELEC:15/20 KW;1455 RPM;DCP160L;32
 0597390 MOTOR ELEC:150 KW;1485 RPM;280S/M;268 A
 0140181 MOTOR ELEC:18 KW;1455-1460 RPM;180L;37.5
 0661776 MOTOR ELEC:18 KW;1460 RPM;D180MD;37 A;4
 0141582 MOTOR ELEC:18 KW;2880 RPM;C160LD;37.2 A
 0140099 MOTOR ELEC:18.5 KW;1460 RPM;D180M;36 A;F
 0141594 MOTOR ELEC:18.5 KW;1460 RPM;D180MD;37 A

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

0665375 MOTOR ELEC:18.5 KW;1460 RPM;D180MD;37 A
0214956 MOTOR ELEC:18.5 KW;1465 RPM;IEC180 M/L48
0555103 MOTOR ELEC:18.5 KW;1470 RPM;180M;400-690
0724401 MOTOR ELEC:18.5 KW;1500 RPM;DY280MD;95 A
0558728 MOTOR ELEC:18.5 KW;2930 RPM;160L;33 A;2
0141562 MOTOR ELEC:18.5;2940 RPM;160L;36 A;380;F
0179120 MOTOR ELEC:180 KW;985 RPM;335 A;380 VAC
0179116 MOTOR ELEC:185 KW;1485 RPM;D315MX;316 A
0141551 MOTOR ELEC:2 HP;1750 RPM;7.2-0.33 A;240
0214303 MOTOR ELEC:2.2 KW;1415 RPM;100L;4.8 A;4
0141663 MOTOR ELEC:2.2 KW;1415 RPM;D100L;5.2 A;F
0141632 MOTOR ELEC:2.2 KW;1415 RPM;IEC 100L;5.2
0141649 MOTOR ELEC:2.2 KW;1435 RPM;100L;9-5.2 A
0141570 MOTOR ELEC:2.2 KW;1435 RPM;DZ100L;3.8 A
0140094 MOTOR ELEC:2.2 KW;1435 RPM;DZ100LA;5 A;F
0140092 MOTOR ELEC:2.2 KW;1435 RPM;LS100L1;5.25
0141605 MOTOR ELEC:2.2 KW;1440 RPM;D100L;8.3/4.8
0141667 MOTOR ELEC:2.2 KW;1440 RPM;D100LD;5.4 A
0140166 MOTOR ELEC:2.2 KW;2800 RPM;MD90-2-75;6.6
0141602 MOTOR ELEC:2.2 KW;2820 RPM;D90LD;FLANGE
0141634 MOTOR ELEC:2.2 KW;2860 RPM;4.8 A;380 VAC
0242491 MOTOR ELEC:2.2 KW;2980 RPM;90L;6.4 A;380
0141643 MOTOR ELEC:2.2 KW;920 RPM;D112MA;6.2 A;F
0141662 MOTOR ELEC:2.2 KW;925 RPM;DZ112;5.6 A;B
0141534 MOTOR ELEC:2.46 KW;3110 RPM;MD132200M;F
0141586 MOTOR ELEC:22 KW;1450 RPM;D180M;47.7 A;F
0139656 MOTOR ELEC:22 KW;1460 RPM;D180L;47.2 A;B
0141596 MOTOR ELEC:22 KW;2910 RPM;DY180M;42.5 A
0140156 MOTOR ELEC:22 KW;2935 RPM;D180M;39.5 A;F
0141583 MOTOR ELEC:22 KW;2950 RPM;180M;39 A;400
0140098 MOTOR ELEC:22 KW;2980 RPM;180M;42 A;380
0140160 MOTOR ELEC:24 RPM;380 VAC;3
0754978 MOTOR ELEC:250 KW;1485 RPM;D315MX;430 A
0140314 MOTOR ELEC:3 KW;1420 RPM;9.4-5.4 A;3
0558726 MOTOR ELEC:3 KW;1420 RPM;D100;5.5 A;380
0140712 MOTOR ELEC:3 KW;1420 RPM;D100LBH;6.9 A;F
0140095 MOTOR ELEC:3 KW;1430 RPM;100L;7.5 A;380
0141665 MOTOR ELEC:3 KW;1440 RPM;DX100L;6.4 A;F
0661777 MOTOR ELEC:3 KW;1447 RPM;100L;380 V;IP55
0218804 MOTOR ELEC:3 KW;1500 RPM;100L;6.22 A;380
0141628 MOTOR ELEC:3 KW;2815-2830 RPM;DX100LD;6
0141502 MOTOR ELEC:3 KW;2825 RPM;DZ112M;8.2 A;F
0570409 MOTOR ELEC:30 KW;1465 RPM;200L;54.5 A;4
0141616 MOTOR ELEC:30 KW;1465-1470 RPM;200L;58 A
0141536 MOTOR ELEC:30 KW;1465-1475 RPM;S200LXD;4
0141536 MOTOR ELEC:30 KW;1465-1475 RPM;S200LXD;4

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

0141529 MOTOR ELEC:30 KW;1470 RPM;200L;58 A;380
 0141631 MOTOR ELEC:30 KW;2930 RPM;D200L;58 A;F;3
 0211660 MOTOR ELEC:30 KW;2940 RPM;200L;54 A;380
 0141533 MOTOR ELEC:30 KW;982 RPM;D250S;59 A;380
 0256292 MOTOR ELEC:37 KW;1470 RPM;225 S/M;IP66;4
 0141548 MOTOR ELEC:37 KW;1475 RPM;D225SD;73 A;F
 0141537 MOTOR ELEC:4 KW;1420 RPM;DZ132S;11.7 A;3
 0599775 MOTOR ELEC:4 KW;1430 RPM;112M;8.5 A;380
 0141650 MOTOR ELEC:4 KW;1435 RPM;9.2 A;380 VAC;F
 0597391 MOTOR ELEC:4 KW;1485 RPM;112M;8.35-4.81
 0141626 MOTOR ELEC:4 KW;2850 RPM;DX112M;8.2 A;F
 0597389 MOTOR ELEC:4 KW;2860 RPM;112M;8.08-4.65
 0141656 MOTOR ELEC:4 KW;2895 RPM;8.1 A;380 VAC;F
 0141545 MOTOR ELEC:4 KW;720 RPM;D160MD;12.2 A;8
 0141593 MOTOR ELEC:4 KW;725 RPM;160MD;10.2 A;380
 0141546 MOTOR ELEC:4 KW;950 RPM;D132MD;9.5 A;380
 0141641 MOTOR ELEC:4 KW;955 RPM;380 VAC;3
 0141499 MOTOR ELEC:45 KW;1470 RPM;225M;85 A;380
 0140164 MOTOR ELEC:45 KW;1470 RPM;225M;88 A;380
 0141639 MOTOR ELEC:45 KW;1470-1477 RPM;D225M;84
 0640805 MOTOR ELEC:45 KW;2900 RPM;250Q;224 A;220
 0141611 MOTOR ELEC:48 KW;1475 RPM;S250SD;90 A;F
 0141664 MOTOR ELEC:5 HP;1460 RPM;184L;16-9.5 A;B
 0140713 MOTOR ELEC:5 KW;1740 RPM;184TC;6.8 A;380
 0140005 MOTOR ELEC:5.5 KW;1430 RPM;132S4;12.1 A
 0141620 MOTOR ELEC:5.5 KW;1430 RPM;DZ132S;11.7 A
 0141590 MOTOR ELEC:5.5 KW;1430-1435 RPM;D132SD;F
 0140532 MOTOR ELEC:5.5 KW;1450 RPM;20.2-11.7 A;F
 0140552 MOTOR ELEC:5.5 KW;2860 RPM;DX132SD;11.6
 0141659 MOTOR ELEC:5.5 KW;2925 RPM;11.2 A;380;B
 0141549 MOTOR ELEC:5.5 KW;705 RPM;M160M;13.6 A;F
 0141506 MOTOR ELEC:5.5 KW;955 RPM;DZ132M;13.2 A
 0679690 MOTOR ELEC:5.5 KW;960 RPM;B3B5;12.3 A;38
 0141619 MOTOR ELEC:50 KW;1465 RPM;D250M;100 A;F
 0141500 MOTOR ELEC:55 KW;1475 RPM;250M;102 A;380
 0256018 MOTOR ELEC:55 KW;1475 RPM;D250S;98 A;380
 0179056 MOTOR ELEC:55 KW;1475 RPM;DG250S;103.8 A
 0179117 MOTOR ELEC:55 KW;1476 RPM;D250SD;106 A;F
 0141519 MOTOR ELEC:55 KW;1485 RPM;D250;105 A;380
 0141581 MOTOR ELEC:55 KW;2960 RPM;250S/M;111 A;3
 0141362 MOTOR ELEC:6.9 KW;2740 RPM;GK1304;34.9 A
 0140527 MOTOR ELEC:7.2 KW;1445 RPM;D160MD;15.6 A
 0141633 MOTOR ELEC:7.5 KW;1425 RPM;K132WHC;17 A
 0141588 MOTOR ELEC:7.5 KW;1435-1440 RPM;DZ132MD
 0141636 MOTOR ELEC:7.5 KW;1440 RPM;FBKW;15.2 A;F
 0218880 MOTOR ELEC:7.5 KW;1450 RPM;132M;14.8 A;H

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

0140194 MOTOR ELEC:7.5 KW;1450 RPM;15.6 A;380;B
 0140235 MOTOR ELEC:7.5 KW;1450 RPM;16 A;380 VAC
 0141658 MOTOR ELEC:7.5 KW;1450 RPM;IEC 132M;15.6
 0141675 MOTOR ELEC:7.5 KW;1450 RPM;S213T8;11.5 A
 0139967 MOTOR ELEC:7.5 KW;1450-1455 RPM;220/380
 0141613 MOTOR ELEC:7.5 KW;1455 RPM;132M;15.9 A;F
 0660626 MOTOR ELEC:7.5 KW;2845 RPM;132S;15.6 A;2
 0141592 MOTOR ELEC:7.5 KW;2875 RPM;D132SD;15.2 A
 0141595 MOTOR ELEC:7.5 KW;955 RPM;D160;17.3 A;F
 0141660 MOTOR ELEC:7.5 KW;965 RPM;160M;18.1 A;F
 0140163 MOTOR ELEC:75 KW;1470 RPM;250M;142 A;380
 0528205 MOTOR ELEC:75 KW;1470 RPM;250M;142 A;380
 0256015 MOTOR ELEC:75 KW;1475 RPM;D250M;134 A;60
 0141606 MOTOR ELEC:75 KW;1475 RPM;DPD250S;140 A
 0732961 MOTOR ELEC:75 KW;2965 RPM;280S;145 A;380
 0179119 MOTOR ELEC:75 KW;2965-2970 RPM;280S;145
 0141603 MOTOR ELEC:75 KW;2970 RPM;D250M;134 A;F
 0141618 MOTOR ELEC:75 KW;2980 RPM;D280S2;136 A;F
 0559074 MOTOR ELEC:75/37 KW;1485 RPM;D250M;380 V
 0141841 MOTOR ELEC:8 KW;1500 RPM;LAK160LA;40.9 A
 0140176 MOTOR ELEC:9 KW;1440 RPM;LS132M2;18.5 A
 0141578 MOTOR ELEC:9 KW;1460 RPM;DXX160M;21 A;4
 0186952 MOTOR ELEC:9 W;1300 RPM;0.37 A;200-240;1
 0593202 MOTOR ELEC:90 KW;2965-2970 RPM;280S;165
 0179033 MOTOR ELEC:90 KW;2970 RPM;D280S;168 A;2

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

C2.2 (b) BOQ

Frame size / description: KDX 71							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							
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The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: KDX 80							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D90 S.L. 1.5kW, 2.2 kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Determine efficiency as repaired:							
Separate losses and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under Reports listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: DX 100 L 3kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: DX 112 M 4kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: Unelec 8 kW Frame LFA160M							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: DX 180 M,L 15 - 22 kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D 200 L 30 KW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D 225 S,M; 45kW; 11 KW 12 pole extended shaft 600mm Ash crusher motor;							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D 315 S,M 55KW, 75 KW;							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D 280 S 90kW, 110kW and 75 KW seal air fan motor with double impellers							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: D 315 S,M,MX,MXB,MXL 132kW; 150kW; 160kW; 185 KW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: Maudsley ltd. 3 kW DC 220/340 volt. Frame 160Q194							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size description: Siemens. 25 kW. DC 220 volt. 126 amps. Type 1HA3253-6ZZ24-Z							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: Bosch DC 24 volt. Frame EHP24							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Frame size / description: Maudsley Ltd. DC shunt. 45 kW 220 volt 224 amps							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station as and when required.

Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: D280, 250 kW 380 volt							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station.

Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station.

Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station.

Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the							

Contract Conditions.							
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Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's</i> Service Information	
C3.2	<i>Contractor's</i> Service Information	
	Total number of pages	

The collection, Dismantle, Assessment, Repair, Rewind, Overhaul, Replace, Test, Paint and delivery of LV electric motors at Duvha Power Station.

C3.1: EMPLOYER'S SERVICE INFORMATION

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1. INTRODUCTION

Duvha Power Station is needed of maintenance service of all LV Motors both for Units and Outside plant Auxiliary plant. The provision of spares and off-site refurbishment, repairs and overhaul of all these motors at Duvha Power Station on an “as and when required basis” for a five (5) year period.

This will benefit Duvha by;

- Plant reliability, efficiency and available according to design.
- Shorten response time on emergencies
- Reduce UCLF caused by plant failure
- Improved skills for the onsite workforce in the station

2. SUPPORTING CLAUSES

2.1 SCOPE

Duvha Power Station is need of maintenance service for LV Motors. The provision of spares and off-site refurbishment, repairs and overhaul of all LV motors at Duvha Power Station on an “as and when required basis” for a five (5) year period.

2.1.1 PURPOSE

The purpose of the document is to provide a scope of work framework stated under section 2.1 intended to be the input to the NEC Part 3: Scope of Work.

2.1.2 APPLICABILITY

This document is applicable to Duvha Power Station Electrical Engineering, TSS, Electrical Maintenance (EMD), Outage and Materials Management Department.

2.2 NORMATIVE/INFORMATIVE REFERENCES

2.2.1 NORMATIVE

- [1] ISO 9000: Quality Management Systems
- [2] 240-55944466 Supplier Contract Quality Requirement’s Specification
- [3] QM 58 Supplier Contract Quality Requirements.
- [4] Occupational Health and Safety Act

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2.2.2 INFORMATIVE

Not applicable.

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2.3 DEFINITIONS

Definitions	Description
Spare	is the item required by Eskom and intended to be retained by Duvha at their main store as a backup component to the one in use at the plant
Specification	Is the technical description given by Eskom to describe the stock item required by the business
LV Motors	Motors operation at >1000 Volts

2.3.1 DISCLOSURE CLASSIFICATION

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary)

2.4 ABBREVIATIONS

Abbreviations	Description
NEC	New Engineering Contract
OEM	Original Equipment Manufacture
QC	Quality Control
QCP	Quality Control Plan
SOW	Scope Of Work

2.5 ROLES AND RESPONSIBILITIES

Roles and responsibilities are as follows:

End User/Service Manager

- Responsible in ensuring that the quality checking of the supplied spare is correct and useable prior to the item being binned, including the works by the service provider.
- Must ensure that the supplier is managed in line with this scope and the subsequent NEC document to be developed.
- Must ensure that the quality of maintenance and repairs are as per Eskom's standard

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Maintenance Manager

- Must ensure plant availability and reliability through his/her oversight duties over the End User/Service Manager

2.6 PROCESS FOR MONITORING

Quality control on incoming product will be done, and all material is to be signed off by the appointed QC personnel/Engineer/End user to ensure the quality of the supplied goods is according to Eskom standard. Furthermore, the End User/Service Manager will manage the delivery of the services in line with the NEC contract clauses and contract management principle.

3. THE WORKS

3.1 DESCRIPTION OF THE WORKS

Duvha Power Station needs maintenance service of LV Motors by a qualified repair company (Armature Winders). The provision of spares and off-site refurbishment, repairs and overhaul of all Motors at Duvha Power Station on an "as and when required basis" for a five (5) year period including issuing test certificates, supporting documents and applicable software's attached or associated as part of the package of the spare being bought or serviced at the time. Provide onsite technical support by availing at least one OEM Representative technician to site.

3.1.1 GENERAL REQUIREMENTS OF THE WORKS:

Outage Works Information:

Remove from site and repair LV Motors as per work scope developed by Duvha Power Station for a period of five years.

Process to be followed, unless superseded by any other Eskom process during outage maintenance work:

1. Remove LV from site.
2. Clean externally.
3. Dismantle Motor.
4. Clean internally.
5. Inspect Stator, Rotor, Bearings, Seals and all other internal components.

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-
6. To be visually verified, assessed to determine final scope of each LV Motor by Eskom delegated representatives including Technical support services Personnel, that are also custodians of quality control
 7. Submit report and quote for repairs to *Service Manager*.
 8. Replace defective components as per Eskom instructions.
 9. Re-assemble motors.
 10. Fill with clean oil and/or grease where required.
 11. Bench test and submit results for each for each motor in the presence of Eskom representatives and vibration specialist.
 12. Transport to site.
 13. Assist with final checking and commissioning (Where Required).
 14. Technical assistance required for the initial start of the unit – up for approximately 24 hours (Where Required).

Points of note and will apply to both normal and outage maintenance situations:

- Upon the issue of a Task Order by the *Service Manager*, the *Contractor* must collect the specified LV Motor from the site, transport it to the *Contractor's* workshop, strip the motor and assess the condition. The *Contractor* must then compile a list of all the items that are not in good condition together with the work that will be necessary to repair the motor (with reference to the activity schedule prices). This list must immediately be submitted to the *Service Manager* for his assessment. Only after the *Service Manager's* go-ahead can the *Contractor* proceed with required repair work.
- The *Contractor* must only fit new parts/spares to the motors in bad condition; any deviation from this must be discussed with the *Service Manager* for acceptance.
- The refurbished motor is delivered to site following the successful test run and acceptance of all test certificates, QCP's and guarantees.
- Work on a motor will be covered by one Task Order. The sum-total of time to perform the work, or the sum-total of time for delays and the sum of costs of all the Task Orders associated with a motor will form the basis for determining delay damages.
- The total time between collecting a motor and delivery of the same motor shall not be more than 3 weeks.
- Any machining that is required on the motor shaft or rotor in terms of new evolving situation or condition and installation plates should be manufactured and machined by the *Contractor*. The *Contractor* will provide a quote to the client for the works and the client shall approve accordingly.

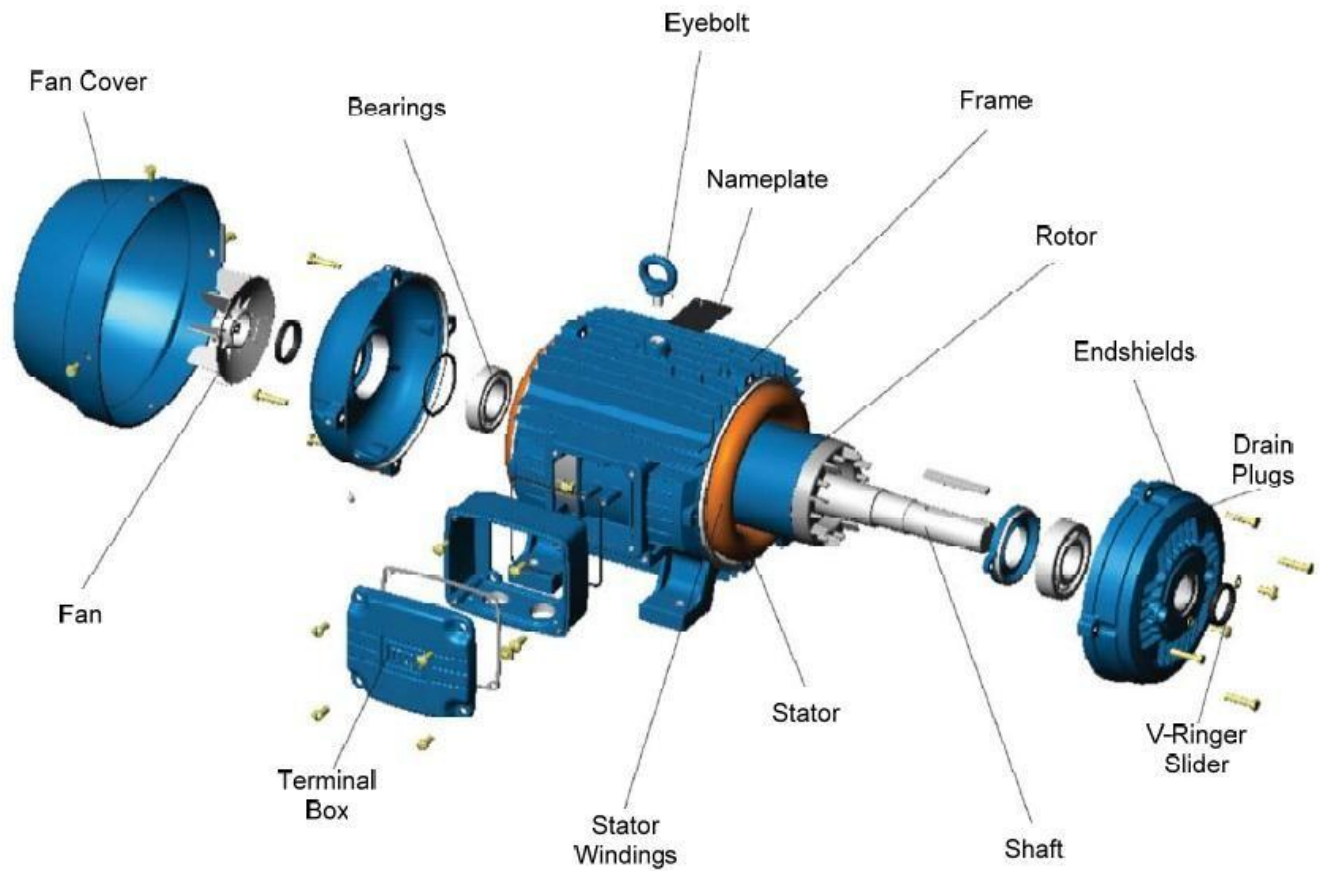
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- The completion date of a motor overhauled will only be considered as met if the following documentation is available to and has been accepted by the *Service Manager*:
 1. *Test certificates of all tests done*
 2. *Calibration certificates of all the instruments used*
 3. *A statement on guarantees applicable to the motor new actual capabilities*
 4. *Inspection and completion certificate.*
 5. *Joint inspection to be carried out by the Contractor and Service Manager by means of an agreed check list (QCP)*
 6. *All Technicians to have valid certification and authorized to work on the respected equipment.*
 7. *No person to exceed his or her authorized competencies.*
 8. *Eskom quality representative to certify that the Contractor renders the correct levels of service and quality.*
 9. *Service Manager to certify technician authorisation on the respected equipment.*

3.1.2 GENERAL LV MOTOR EXPLODED DIAGRAM FOR INTERNAL SPARES LIST

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A typical 3-phase induction motor [Courtesy of Electromotors WEG SA, Brazil]

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Generic SOW for Each Type

Frame size / description: KDX 71							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

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Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

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Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							

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Compile and supply report as per the requirements under Reports listed in the Contract Conditions.							
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Frame size / description: KDX 80							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							

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Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							

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Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							

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Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: D90 S.L. 1.5kW, 2.2 kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							

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Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							

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Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired:							

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Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: DX 100 L 3kW							
Description	Normal repair time	% Increase in Price for a Break down	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and							

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compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							

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Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							

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Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: DX 112 M 4kW

Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							

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Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							

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Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							

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Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							

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Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: Unelec 8 kW Frame LFA160M							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							

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Sandblast motor							
Repair and file stator core							

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Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							

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Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Supply and fit new brushes							
Remove old commutator							
Supply new commutator							
Fit new commutator							
Repair brush gear to standard							
Slot stator feet							
NDT rotor test							
Rewind Stator							
Manufacture new brush gear , box , springs , column clamps and rocket ring							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							

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Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: DX 180 M,L 15 - 22 kW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended							

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repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							

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Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							

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Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

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Frame size / description: D 200 L 30 KW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

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Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							

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Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute							

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equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: D 225 S,M; 45kW; 11 KW 12 pole extended shaft 600mm Ash crusher motor;

Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 12 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							

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Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							

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Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							

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Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

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Frame size / description: D 250 S,M 55KW, 75 KW							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

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Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							

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Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							

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Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: D 280 S 90kW, 110kW and 75 KW seal air fan motor with double impellers

Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							

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Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							

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Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							

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Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: D 315 S,M,MX,MXB,MXL 2 5 0 k w ; 132kW; 150kW; 160kW; 185 KW

Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							

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Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no- load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							

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Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							

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Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Supply new gears							
Supply , fit pinion and lock nut							
Supply and fit new brake							
Supply and fit new PT 100							
Slot stator feet							
Supply and fit new ant condensation heaters							
NDT Rotor							
Supply and fit new shaft							
Supply and fit new feet							
Manufacture new screen covers							
Replacement of motor name plate							
Supply and fit new wave washers							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							

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Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							
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Frame size / description: Maudsley Ltd. 3 kW DC 220/340 volt. Frame 160Q194							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							

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Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							

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Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Supply and fit new brushes							
Remove old commutator							
Supply new commutator							
Fit new commutator							
Repair brush gear to standard							
Slot stator feet							
NDT rotor test							
Rewind Stator							
Manufacture new brush gear , box , springs , column clamps and rocket ring							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							

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Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							
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Frame size description: Siemens. 25 kW. DC 220 volt. 126 amps. Type 1HA3253-6ZZ24-Z

Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							

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Repair and file stator core							
Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							

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Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Supply and fit new brushes							
Remove old commutator							
Supply new commutator							
Fit new commutator							
Repair brush gear to standard							
Slot stator feet							
NDT rotor test							
Rewind Stator							
Manufacture new brush gear , box , springs , column clamps and rocket ring							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							

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Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses, and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

Frame size / description: Bosch DC 24 volt. Frame EHP24							
Description	Normal repair time	% Increase in Price for a Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							

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Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							

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Clean stator core and prep for assembly							
Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							

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Repair rotor journal (each)							
Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor (high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Supply and fit new brushes							
Remove old commutator							
Supply new commutator							
Fit new commutator							
Repair brush gear to standard							
Slot stator feet							
NDT rotor test							
Rewind Stator							
Manufacture new brush gear , box , springs , column clamps and rocket ring							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							

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Test motor as repaired. Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as repaired: Separate losses and determine efficiency.							
Test stator core as repaired.							
Test rotor bar continuity and core condition as repaired.							
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.							

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Frame size / description: Maudsley ltd. DC shunt. 45 kW 220 volt 224 amps							
Description	Normal repair time	% Increase in Price for Breakdown	Time period to return a motor on a Breakdown (Emergency)	Price per 2 pole	Price per 4 pole	Price per 6 pole	Price per 8 pole
Assessment scope of work							
Transport cost							
Test motor as received: Measure insulation resistance and determine polarization index result.							
Test motor as received: Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as received: Perform no-load test, and record no-load current, no-load power factor.							
Determine efficiency as received:							
Separate losses, and determine efficiency.							
Test stator core as received.							
Test rotor bar continuity and core condition as received.							
Collection, dismantling, assessment and compile recommended repair scope of work and failure report.							
Repair scope of work							
Overhaul motor (wash, clean and dry)							
Dynamic balancing of the rotor							
Sandblast motor							
Repair and file stator core							
Clean stator core and prep for assembly							

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Re-tap all stator mounting holes							
Polish rotor core and check ovality							
Polish all stator spigots and landings							
Polish all journals and seal landings							
Re-sleeve DE endshield							
Re-sleeve NDE endshield							
Weld and machine shaft extension and cut keyway							
Replace / fit new bearings (DE & NDE)							
Supply and fit new circlip (each)							
Supply and fit new oil seals (each)							
Supply and fit new gaskets							
Rewinding of stator							
Supply and fit motor DE end shield							
Supply and fit motor NDE end shield							
Supply and fit motor flange shield							
Supply and fit motor DE grease cap and grease nipple							
Supply and fit motor NDE grease cap and grease nipple							
Supply and fit motor terminal box							
Supply and fit motor terminal box cover							
Supply and fit motor terminal block							
Supply and fit motor cooling fan							
Supply and fit motor fan cowl							
Supply and fit motor dust cover seal							
Supply and fit bearing oil seals (each)							
Supply and fit motor feet							
Skim motor feet							
Repair rotor journal (each)							

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Supply and fit new rotor shaft							
Replace complete rotor							
Re-stack stator core							
Rewind armature, VPI, bake and replace binders							
Skim, undercut and bevel armature							
Recondition brush-gear							
Perform a full concentricity on the motor(high no-load vibration)							
Re-assembly of motor							
Spray painting motor							
Replacement of motor name plate							
Supply and fit new brushes							
Remove old commutator							
Supply new commutator							
Fit new commutator							
Repair brush gear to standard							
Slot stator feet							
NDT rotor test							
Rewind Stator							
Manufacture new brush gear , box , springs , column clamps and rocket ring							
Test motor as repaired: Measure insulation resistance and determine polarization index result.							
Test motor as repaired. Perform locked rotor test, and record starting current, power factor, starting torque, impedance, and compute equivalent copper resistance.							
Test motor as repaired. Perform no-load test, and record no-load current, no-load							

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power factor.								
Determine efficiency as repaired: Separate losses, and determine efficiency.								
Test stator core as repaired.								
Test rotor bar continuity and core condition as repaired.								
Compile and supply report as per the requirements under <i>Reports</i> listed in the Contract Conditions.								

3.2 STANDARDS, SPECIFICATIONS AND PROCEDURES

4. AUTHORISATION

This document has been seen and accepted by:

5. REVISIONS

6. Technical Evaluation

382-171761 Technical Performance Indicators

N/A

7. DEVELOPMENT TEAM

