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|  | <b>Scope Of Work</b> | <b>Generation</b> |
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Title: **Supply and Delivery of Dust Handling Plant Spares & SO3 Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years**

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Area of Applicability: **Engineering/  
Maintenance**

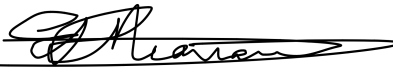
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Disclosure Classification: **CONTROLLED  
DISCLOSURE**

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| .....                                                                               | .....                                                                               | .....                                                                                 |
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| .....                                                                               | .....                                                                               | .....                                                                                 |

## CONTENTS

|                                                     | Page      |
|-----------------------------------------------------|-----------|
| <b>1. INTRODUCTION .....</b>                        | <b>3</b>  |
| <b>2. SUPPORTING CLAUSES .....</b>                  | <b>4</b>  |
| 2.1 SCOPE .....                                     | 4         |
| 2.1.1 Purpose .....                                 | 4         |
| 2.1.2 Applicability .....                           | 12        |
| 2.2 NORMATIVE/INFORMATIVE REFERENCES .....          | 12        |
| 2.2.1 Normative .....                               | 12        |
| 2.3 GENERAL ARRANGEMENT AND LOCATION DRAWINGS ..... | 13        |
| Not applicable .....                                | 13        |
| 2.3.1 informative .....                             | 13        |
| 2.4 DEFINITIONS .....                               | 13        |
| 2.4.1 Disclosure Classification .....               | 13        |
| 2.5 ABBREVIATIONS .....                             | 13        |
| 2.6 ROLES AND RESPONSIBILITIES .....                | 14        |
| 2.7 PROCESS FOR MONITORING .....                    | 14        |
| <b>3. THE WORKS .....</b>                           | <b>15</b> |
| 3.1 BACKGROUND .....                                | 15        |
| 3.2 DESCRIPTION OF THE WORKS .....                  | 15        |
| 3.2.1 Scope of work .....                           | 15        |
| 3.2.2 Design Life .....                             | 29        |
| Documentation Submission And Recording .....        | 29        |
| 3.2.3 Plant Codification .....                      | 29        |
| 3.3 STANDARDS, SPECIFICATIONS AND PROCEDURES .....  | 30        |
| <b>4. AUTHORISATION .....</b>                       | <b>31</b> |
| <b>5. REVISIONS .....</b>                           | <b>31</b> |
| <b>6. DEVELOPMENT TEAM .....</b>                    | <b>31</b> |
| <b>7. ACKNOWLEDGEMENT .....</b>                     | <b>31</b> |
| <b>8. APPENDIX A .....</b>                          | <b>33</b> |

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## **1. INTRODUCTION**

The current Atmospheric Emission License (AEL 17/4/AEL/MP312/11/9) issued on the 31 March 2019 for Kriel Power Station requires that the station should comply with a limit of 125mg/Nm<sup>3</sup> on continuous basis. New licence conditions will be imposed as from 2020 where Kriel Power station is expected to comply with a new limit of 50mg/Nm<sup>3</sup>. It is required then for licence holder to ensure that these conditions are always adhered to through a continuous focus on the operating, optimization and maintenance of the plant

This document therefore specifies the scope of work that will be an input for the open tender contract between Eskom – Kriel power Station and service provider for Supply and Delivery of Dust Handling Plant Spares & SO<sub>3</sub> Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years

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## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

This document specifies the scope of work that will be an input for the s open tender contract between Eskom – Kriel power Station and service provide for the Supply and Delivery of Dust Handling Plant Spares & SO3 Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years.

The purpose of the document is to provide technical governance in terms of a scope of work for Supply and Delivery of Dust Handling Plant Spares & SO3 Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years at Kriel Power Station in the Units 1-6 for Kriel Power Station. This document is intended to be the input to the NEC Part 3:

#### **Scope of Work.**

| <b>NO.</b> | <b>COMPONENT DESCRIPTION</b>          | <b>COMPONENT / MATERIAL SPECIFICATION</b>                                         | <b>UO M</b> | <b>QT Y</b> |
|------------|---------------------------------------|-----------------------------------------------------------------------------------|-------------|-------------|
|            | <b>DHP Supply Spares</b>              |                                                                                   |             |             |
| 1          | EXPANSION BELLOWS                     | 300X130MM ELEFLEX BAND COMPENSATOR                                                | EA          | 180         |
| 2          | MASTER VESSEL VENT VALVE (BALL VALVE) | 2 WAY BALL VALVE 40 MM (GLEN)                                                     | EA          | 288         |
| 3          | NRV: 100 MM                           | 100MM NRV DISC TYPE. / VALVE CHK EUROPA 4:4 IN 25BAR BSP BRS                      | EA          | 144         |
| 4          | NRV: 50 MM                            | BRASS BODY & DISC DESIGN PRESSURE, EUROPA BRAND                                   | EA          | 288         |
| 5          | NRV: 15 MM                            | BRASS BODY & DISC DESIGN PRESSURE, EUROPA BRAND                                   | EA          | 48          |
| 6          | INJECTION LINE NRV 25MM               | 25MM DIAPHRAGM NORVAL VALVES                                                      | EA          | 60          |
| 7          | POPPET VALVES: 100MM                  | FLANGED, STEEL BODY, 2 WAYS, TRIM STEEL, SHAFT & SPRING, SPRING AND AIR OPERATED. | EA          | 12          |
| 8          | POPPET VALVES: 100MM                  | 100MM POPPET VALVE SERVICE KIT / POPPET VALVE KIT V/V RPR SC3291/0233/91          | EA          | 144         |
| 9          | POPPET VALVES 50MM:                   | FLANGED, STEEL BODY, 2 WAY, TRIM STEEL, SHAFT & SPRING, SPRING AND AIR OPERATED.  | EA          | 36          |
| 10         | POPPET VALVES: 50MM, STEEL SPRING     | KIT VLV RPR:SC3291/0233/91 [50MM POPPET VALVE SERVICE KIT]                        | EA          | 216         |

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|    |                                          |                                                                                                                    |    |     |
|----|------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----|-----|
| 11 | 300MM INLET DOME VALVE (COMPLETE VALVES) | COMPLETE ASSEMBLY                                                                                                  | EA | 40  |
| 12 | 300MM DOME VALVE                         | 300MM INLET DOME VALVE SERVICE KIT: BEARING KIT, SEALS, GASKETS, O- RING ETC. /KIT VLV RPR, M1298 300MM DOME VALVE | EA | 204 |
| 13 | 300 MM DOME VALVE                        | Casting DOME ONLY                                                                                                  | EA | 204 |
| 14 | 300 MM DOME VALVE                        | RING, INSERT 300MM DOME V/V P1825C-00                                                                              | EA | 102 |
| 15 | 300 MM DOME VALVE                        | RING, SPIGOT 300 MM DOME V/V P1824 B-00                                                                            | EA | 102 |
| 16 | 300MM DOME VALVE                         | SEAL INSERTS 315MM X OD 405 X TH 44MM                                                                              | EA | 408 |
| 17 | 300MM DOME VALVE                         | PLATE TOP. 300MM DOME VALVE                                                                                        | EA | 102 |
| 18 | 300MM DOME VALVE                         | O-RING, DOME V/V 300MM M1382C                                                                                      | EA | 300 |
| 19 | 200MM DOME VALVE                         | VALVE ASSEMBLY DOME P16613A 200MM                                                                                  | EA | 12  |
| 20 | 200MM DOME VALVE                         | 200MM INLINE DOME VALVE SERVICE KIT: BEARING KIT, SEALS, GASKETS, O- RING ETC.                                     | EA | 72  |
| 21 | 200MM DOME VALVE                         | RING, INSERT 200MM DOME V/V P1643 A-A                                                                              | EA | 72  |
| 22 | 200MM DOME VALVE                         | RING, SPIGOT 200 MM DOME V/V P1643 A-B                                                                             | EA | 72  |
| 23 | 200MM DOME VALVE                         | 200MM DOME VALVE DOME ONLY                                                                                         | EA | 72  |
| 24 | 200MM DOME VALVE                         | 235MMX17480D 275XTH 32MM                                                                                           | EA | 72  |
| 25 | 200MM DOME VALVE                         | O-RING 200 MM DOME VALVE                                                                                           | EA | 72  |
| 26 | 200MM DOME VALVE                         | TOP PLATE 200MM DOME VALVE                                                                                         | EA | 72  |
| 27 | 150MM DOME VALVE                         | 150MM INLINE DOME VALVE (COMPLETE)                                                                                 | EA | 72  |
| 28 | 150MM DOME VALVE                         | 150MM DOME VALVE DOME ONLY                                                                                         | EA | 72  |
| 29 | 150MM DOME VALVE                         | RING, INSERT 150MM DOME V/V P4674 A-B                                                                              | EA | 72  |
| 30 | 150MM DOME VALVE                         | RING, SPIGOT 150MM DOME V/V P4674 A-C                                                                              | EA | 72  |
| 31 | 150MM DOME VALVE                         | 150MM SEAL INSERTS / SEAL RING D/VLV 150MM                                                                         | EA | 72  |
| 32 | 150MM DOME VALVE                         | 150MM INLINE DOME VALVE SERVICE KIT: BEARING KIT, SEALS, GASKETS, O- RING ETC.                                     | EA | 72  |

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| 33 | 150MM DOME VALVE                                     | O-RING, M2085, 150 MM DOME V/V                                                         | EA | 72  |
| 34 | 100MM DOME VALVE                                     | 100MM INLINE DOME VALVE<br>SERVICE KIT: BEARING KIT, SEALS,<br>GASKETS, O- RING ETC.   | EA | 144 |
| 35 | 100MM DOME VALVE                                     | 100MM INLINE DOME VALVE<br>(COMPLETE)                                                  | EA | 144 |
| 36 | 100MM DOME VALVE                                     | 112MMXOD175XTH32MM                                                                     | EA | 144 |
| 37 | 100MM DOME VALVE                                     | 100MM INLINE DOME VALVE -<br>DOMES ONLY                                                | EA | 144 |
| 38 | 100MM DOME VALVE                                     | O-RING, M1242, 100 MM DOME V/V                                                         | EA | 36  |
| 39 | VESSEL: ASH P/NO 16570 A<br>(MEDIUM)                 | BLOW POT COMPLETE CASTING<br>(MEDIUM)                                                  | EA | 48  |
| 40 | VESSEL, ASH P/NO P16569 A<br>(LARGE)                 | BLOW POT COMPLETE CASTING<br>(LARGE)                                                   | EA | 24  |
| 41 | VESSEL, ASH P/NO P16571 A<br>(SMALL)                 | BLOW POT COMPLETE CASTING<br>(SMALL)                                                   | EA | 24  |
| 42 | 100MM KINETROL ACTUATOR                              | -                                                                                      | EA | 27  |
|    | 100MM KINETROL ACTUATOR                              | <i>Kinetrol model 09: actuator repair kits</i>                                         |    | 12  |
| 43 | 200MM KINETROL ACTUATOR                              | -                                                                                      | EA | 27  |
|    | 200MM KINETROL ACTUATOR                              | <i>Kinetrol model 12: actuator repair kits</i>                                         |    | 12  |
|    | Actuactor Kits                                       | Repair KITS FOR 300 MM                                                                 | EA | 120 |
|    | 300 MM VALVE                                         | 300 MM KINETROL                                                                        | EA | 60  |
| 44 | MARTIN AIR SWITCH                                    | VALVE:CHANGE OVER MARTONAIR<br>(COMPLETE)                                              | EA | 204 |
| 45 | LUBRICATORS & MIST FILTERS:<br>CARTRIDGE             | INSPECT AND REPLACE DEFECTIVE.                                                         | EA | 384 |
| 46 | WATER TRAPS: PNEUMATIC<br>ACTUATED WATER TRAP ON     | REPLACE WATER TRAPS                                                                    | EA | 48  |
| 47 | LUBRICATORS & MIST FILTERS:<br>FILTER ELEMENT        | FILTERS / FILTER ELEMENT BRS<br>50MIC [FILTER,ELEMENT:BRS;50 UM]                       | EA | 216 |
| 48 | LUBRICATORS & MIST FILTERS:<br>NORGREN, L64CAND B64G | LUBRICATOR AIR SERVICE UNIT<br>NORGREN TYPE [LUBRICATOR:AIR<br>FILTER IN LINE;THD;STL] | EA | 384 |
| 49 | GASKETS                                              | ID430XODX560XTHK1.5MM                                                                  | EA | 408 |
| 50 | GASKETS                                              | ID430XODX560XTHK0.8MM                                                                  | EA | 408 |
| 51 | GASKETS                                              | ID430XODX560XTHK0.4MM                                                                  | EA | 408 |
| 52 | CONVEYING LINES DRAINS<br>STRAINERS                  | STRAINERS (SPIRAX SARCO 16 PN,<br>Y STRAINER)                                          | EA | 48  |

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| 53 | DV200 COUPLER SHAFTS                                    | -                                                                                             | EA | 72  |
| 54 | DV300 COUPLER SHAFTS                                    | -                                                                                             | EA | 204 |
| 55 | TRANSFER SILO FILTER BAGS                               | 123MMX3M(DIAXL)                                                                               | EA | 972 |
| 56 | FLUIDIZING AIR DISC                                     | FLUIDIZING AIR DISC DISC BOTTOM FLUIDISING, DIA 1245MM STL /DISC BOTTOM FLUIDIZING DIA 1245MM | EA | 36  |
| 57 | AIR INLET COMPENSATOR (80 MM)                           | 80MM AIR INLET COMPENSATOR / JOINT EXPSN BELLOWS 17MM LG 18MM EPDM                            | EA | 24  |
| 58 | DUST INLET COMPENSATOR                                  | 300MM DUST INLET COMPENSATOR / COMPENSATOR 307-221 AXIAL                                      | EA | 12  |
| 59 | DUST OUTLET COMPENSATOR                                 | 200MM DUST OUTLET COMPENSATOR                                                                 | EA | 12  |
| 60 | RENZI NRV 80MM DIAPHRAGM                                | 80MM RENZI NRV DIAPHRAGM / DIAPHRAGM RIENZI 516 - 80MM NRV                                    | EA | 24  |
| 61 | RENZI NRV 50MM DIAPHRAGM                                | 50MM RENZI NRV DIAPHRAGM / DIAPHRAGM RIENZI 516 - 50MM NRV                                    | EA | 12  |
| 62 | VENTURI                                                 | VENTURI / NOZZLE, REDUCER 500MM FLANGE                                                        | EA | 36  |
| 63 | TRANSFER SILO FAN, COMPLETE ASSEMBLY                    | -                                                                                             | EA | 6   |
| 64 | TRANSFER SILO FAN BEARING                               | -                                                                                             | EA | 12  |
| 65 | TRANSFER SILO DE DUSTING FAN V-BELT                     | BELT DRIVE IC 1.6M; 1.75 / BELT V DRIVE [BELT V:DRIVE;1.6 M;1.75 M;13 MM]                     | EA | 12  |
| 66 | TRANSFER SILO DESICCANT DRIER                           | OMEGA                                                                                         | EA | 6   |
| 67 | TRANSFER SILO DESICCANT DRIER PRE- FILTER (0.01 MICRON) | OMEGA                                                                                         | EA | 12  |
| 68 | TRANSFER SILO DESICCANT DRIER PRE- FILTER (1 MICRON)    | OMEGA                                                                                         | EA | 12  |
| 69 | AUTO DRAIN                                              | TRANSFER SILO DESICCANT DRIER PRE- AND AFTER FILTER SOLENOID DRAIN VALVES                     | EA | 24  |
| 70 | TRANSFER SILO TOP: 200MM,150MM, 100MM PIPES & BENDS     | 200NB PIPE BENDS [BEND PIPE:OD 200 MM;FLANGE;CS;45 DEG]                                       | EA | 15  |
| 71 | TRANSFER SILO TOP: 200MM,150MM, 100MM PIPES & BENDS     | 150NB PIPE BENDS 45 DEG [BEND PIPE:OD 150 MM;FLANGE;CS;45 DEG]                                | EA | 15  |

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| 72 | TRANSFER SILO TOP: 200MM,150MM, 100MM PIPES & BENDS | 100NB PIPE BENDS / BEND PIPE 100MM FLANGE CS 45DEG                                                                                              | EA   | 15  |
| 73 | BUTTERFLY 150 MM ACTUATED                           | 150MM ACTUATED BUTTERFLY VALVE / VALVE B/FLY WAFER 150MM 1MPA CLAMP. B/TANK VENT VALVE TO SILO: 150NB, BUTTERFLY VALVE, PNEUMATICALLY ACTUATED. | EA   | 216 |
| 74 | FILTER BOX REVERSE PULSE VALVES:                    | SOLENOID VALVE (COMPLETE)                                                                                                                       | EA   | 72  |
| 75 | FILTER BOX CONTROLLER                               | CONTROLLER (COMPLETE)                                                                                                                           | EA   | 2   |
| 76 | ACTUATOR KINETROL 140- 100 (DUST INLET V/V)         | DUST INLET VALVE ACTUATOR (COMPLETE)                                                                                                            | EA   | 6   |
| 77 | TRANSFER SILO AERATION MEMBRANE                     | MEMBRANE FLUITEX AERATION [MEMBRANE:FLUITEX AERATION;POLYESTER]                                                                                 | SQ M | 300 |
| 78 | BUTTERFLY VALVE 100MM                               | 100MM AIR INLET BUTTERFLY VALVE / VALVE BTFLY DUCTILE 100MM 16 PN WAFER                                                                         | EA   | 16  |
| 79 | BUTTERFLY VALVE 80MM                                | 80MM AIR INLET BUTTERFLY VALVE / VALVE B/FLY WAFER 80MM 980KPA CI                                                                               | EA   | 16  |
| 80 | BUTTERFLY VALVE 50 MM                               | 50MM AIR INLET BUTTERFLY VALVE / VALVE B/FLY WAFER 50MM 0.98KPA FLANGE                                                                          | EA   | 16  |
| 81 | 300MM BUTTERFLY VALVE ACTUATOR                      | ACTUATOR/300MM BUTTERFLY VALVE -SILO OUTLET                                                                                                     | EA   | 48  |
| 82 | BUTTERFLY VALVE 300 MM                              | 300MM HAND ISOLATING BUTTERFLY VALVE / 300MM ACTUATED BUTTERFLY VALVES ONLY [VALVE BTRFLY:WAFER;300 MM;980 KPA]                                 | EA   | 16  |
| 83 | BLOW TANK PRESSURE RELIEF VALVE 4.8 BAR             | BLOW TANK PRV 480KPA [VALVE RELF:50 MM;4.8 BAR;232 DEG C;BRZ]                                                                                   | EA   | 12  |
| 84 | BLOW TANK PRESSURE RELIEF VALVE 5.0 BAR             | BLOW TANK PRV 500KPA [VALVE RELF:50 MM;5 BAR;232 DEG C;BRZ]                                                                                     | EA   | 12  |
| 85 | BALL DIVERTER GATE VALVE                            | VALVE GATE KNIFE 200MM [VALVE,GATE:LDCCINWR;KNIFE;200 MM;CI]                                                                                    | EA   | 6   |
| 86 | SILO TOP VENT FLAP                                  | TRANSFER SILO VENT FLAP COMPLETE (BULKTECHNIC)                                                                                                  | EA   | 6   |
| 87 | TRANSFER SILO TOP: TERMINAL BOX & CATCHMENT BASKETS | 200MM DEFLECTOR PLATE                                                                                                                           | EA   | 12  |

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| 88  | TRANSFER SILO TOP: TERMINAL BOX & CATCHMENT BASKETS | 100MM DEFLECTOR PLATE                                                                          | EA | 12  |
| 89  | BALL DIVERTER BALL                                  | DIVERTER:AA241;DRY DUST;BRANCH BALL:                                                           | EA | 36  |
| 90  | RUBBER BUNG CONDITIONERS                            | STOPPER:WW11G506;RUBBER;BUNG; FOR KRIEL                                                        | EA | 24  |
| 91  | SPRAY NOZZLES                                       | SPRAY NOZZLES / NOZZLE WW115501 FINE SPRAY 15MM FPT SS                                         | EA | 48  |
| 92  | S/S PIPE FOR BUNG (COND/NOZZLES)                    | PIPE ASSY:BSPT;DIA 3/8 IN X LG 90 MM;SS                                                        | EA | 24  |
| 93  | LOCATING RINGS TS34                                 | LOCATING RINGS TS34                                                                            | EA | 48  |
| 94  | CONDITIONER BEARING SLEEVES                         | CONDITIONERS BEARING SLEEVES [SLEEVE ADPTR:H3134;BEARING;150 MM;STL]                           | EA | 48  |
| 95  | CONDITIONER COLLAR SEAL                             | COLLAR SEAL (LABYRINTH) / CLLR TS 34 ID 241 X OD 251 X TH 10MM                                 | EA | 96  |
| 96  | CONDITIONER GEAR COMPARTMENT OIL                    | OIL INDUSTRIAL GENGear 320 DRUM 210L /OIL INDUST ENGINE GENGear 320: DRUM 210L                 | EA | 6   |
| 97  | CONDITIONER COUPLING RUBBER                         | RING:S260PBS;FLEXIBLE;ID 135 MM;RUBBER                                                         | EA | 24  |
| 98  | CONDITIONER PADDLES, TIVAR CERAM P                  | -                                                                                              | EA | 144 |
| 99  | CORK SHEET 3MM                                      | SHEET GSKT:GR53;THK 3 MM;LG 1 M;WD 1 M                                                         | EA | 216 |
| 100 | CORK SHEET 6.3MM                                    | SHEET GSKT:THK 6.5 MM;LG 1.27 M                                                                | EA | 108 |
| 101 | VALVE BALL 25MM                                     | VALVE BALL:1 IN;BSP;SS;316                                                                     | EA | 12  |
| 102 | MAIN SILO DE DUSTING FAN:                           | BEARINGS: BRG RLR, 22211CCK: ID 55MM, OD 100MM [BRG RLR:22211 CCK;ID 55 MM;OD 100 MM]          | EA | 72  |
| 103 | MAIN SILO DE DUSTING FAN:                           | SHAFT, FAN IMPELLER: SHAFT IMPELLER LG 720MM                                                   | EA | 24  |
| 104 | MAIN SILO DE DUSTING FAN:                           | SLEEVE; H311, BEARING ADAPTOR 50MM ID X 57MM OD X 4 [SLEEVE ADPTR:H311;BEARING;50 MM;LG 45 MM] | EA | 24  |
| 105 | MAIN SILO DE DUSTING FAN:                           | PILLOW BLOCK: HOUSING BRG UNIT: 511-609 PILLOW: C1 [HOUSING BRG UNIT:SNL511-609;PILLOW;CI]     | EA | 24  |

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| 106 | BUTTERFLY VALVE ACTUATED: 300 NB SILO DISCHARGE CONTROL VALVES (2 OFF)                | 300NB BUTTERFLY VALVE [VALVE BTRFLY:WAFER;300 MM;980 KPA] | EA   | 6   |
| 107 | CONDITIONER GEARBOX                                                                   | CONDITIONER GEARBOX                                       | EA   | 2   |
| 108 | CONDITIONER COUPLING RUBBER 422                                                       | CONDITIONER COUPLING RUBBER 422                           | EA   | 12  |
| 109 | ACTUATOR/300MM BUTTERFLY VALVE -SILO OUTLET                                           | ACTUATOR/300MM BUTTERFLY VALVE -SILO OUTLET               | EA   | 6   |
| 110 | MAIN SILO SLIDE GATE VALVE-400MM                                                      | MAIN SILO SLIDE GATE VALVE-400MM                          | EA   | 4   |
| 111 | COOPER SPLIT BEARING (COND) CARTRIDGE                                                 | COOPER SPLIT BEARING (COND) CARTRIDGE                     | EA   | 12  |
| 112 | PEDESTAL COOPER BEARING                                                               | PEDESTAL COOPER BEARING                                   | EA   | 12  |
| 113 | COOPER BEARING                                                                        | COOPER BEARING                                            | EA   | 12  |
| 114 | SHAFT SEALS                                                                           | SEAL BRG ISOL:BEARING;ID 168 MM;STL                       | EA   | 12  |
| 115 | MATERIAL GASKET 1200 X 1200, 4MM RUBBER                                               | SHEET GSKT:THK 6.4 MM;LG 1.2 M;WD 1.2 M                   | EA   | 24  |
| 116 | GREASE NIPPLE: FITTING LUB:1/4 IN-BSP;LG 19 MM;GMS                                    | FITTING LUB:1/4 IN-BSP;LG 19 MM;GMS                       | EA   | 12  |
| 117 | CONDITIONER COUPLING (230 SPIDER COUPLING) / FLEXIBLE RING, SC-07--230- 0000, ID115MM | RING:SC-07-230-0000;FLEXIBLE;ID 115 MM                    | EA   | 12  |
| 118 | MAIN SILO PSV AND TRANSFER SILO                                                       | -                                                         | EA   | 24  |
| 119 | GASKET PC: ID 430 X OD 560 X 1,5MM THICK                                              | GASKET PC:ID 430 X OD 560 X THK 1.5 MM                    | EA   | 24  |
| 120 | MAIN SILO AERATION PAD                                                                | MEMBRANE:FLUITEX AERATION 270X4.5X27 METER                | SQ M | 400 |
| 121 | MAIN SILO DISTRIBUTOR                                                                 | DISTRIBUTOR:285249;ROTARY AIR;4 PART;                     | EA   | 3   |
| 122 | V-BELT DE-DUSTING FAN                                                                 | V-BELT, 17X2200-DE-DUSTING FAN                            | EA   | 24  |
| 123 | FILTER BOX FILTER BAGS                                                                | FILTER BAGS [FILTER BAG:STYLE Y6-558;FELT SEAL OPEN]      | EA   | 400 |
| 124 | FILTER BOX REVERSE JET VALVES (MAIN SILO)                                             | SOLENOID:SCG3553A044;HIGH PRESSURE;DUST                   | EA   | 120 |
| 125 | B/T SOLENOID V/V BIG                                                                  | VALVE SLND:1/2 IN;5 WAY;220 V;2-10 BAR                    | EA   | 30  |

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| 126  | B/T SOLENOID V/V SMALL            | VALVE SLND:1/4 IN;5 WAY;48 VAC;1.8-8 BAR | EA | 30  |
| 127  | SOLENOID D/D BIG                  | SOLENOID ELECT:VALVE;24 V                | EA | 30  |
| 128  | SOLENOID D/D SMALL                | SOLENOID ELECT:MI01510HN;VALVE;24 V      | EA | 30  |
| 129  | DIFF PRESS GAUGE                  | GAUGE,PRESS 0- 600KPA 100 S/ST W/SW      | EA | 30  |
| 130  | PRESS TX 0-4 BAR                  | MODULE:6GK1502-4AB10;PROFIBUS;24 VDC     | EA | 30  |
| 131  | PRESS TX 0-10 BAR                 | TRANSMITTER,PRESS:0-10 BAR,4-20 MA       | EA | 30  |
| 132  | PRESS TX 0-100 BAR                | TRANSMITTER,PRESS:0-100 BAR,4-20 MA      | EA | 30  |
| 133  | PRESS SWITCH 450k PA              | SWITCH PRESS:SDE5-D10-FP-Q6-P-M8;SPST    | EA | 30  |
| 134  | PRESS SWITCH 35k PA               | SWITCH PRESS:SDE5-D2-C-Q6E-P-K;0-400 KPA | EA | 30  |
| 135  | GASKET, PRE CUT                   | ID186 XOD250XTHK0.4MM                    | EA | 120 |
| 136  | GASKET, PRE CUT                   | ID186 XOD250XTHK0.8MM                    | EA | 120 |
| 137  | GASKET, PRE CUT                   | ID186 XOD250XTHK1.5MM                    | EA | 120 |
| 138  | GASKET, PRE CUT                   | ID320 XOD250XTHK0.4MM                    | EA | 120 |
| 139  | GASKET, PRE CUT                   | ID320 XOD250XTHK0.8MM                    | EA | 120 |
| 140  | GASKET, PRE CUT                   | ID 320 XOD250XTHK1.5MM                   | EA | 120 |
| 141  | GASKET, PRE CUT                   | ID 430 XOD 410XTHK0.8MM                  | EA | 120 |
| 142  | GASKET, PRE CUT                   | ID 430XOD410XTHK1.5MM                    | EA | 120 |
| 143  | PSV Main silo                     | Valve Relief 250mm                       | EA | 36  |
| 144  | DISCHARGE VALVE                   | DISCHARGE VALVE                          | EA | 24  |
| 145  | VALVE RELIVE                      | VALVE RELIVE                             | EA | 36  |
| SO 3 | <b>SO3 Supply Spares</b>          |                                          |    |     |
| 147  | Flexible hose gaskets (lytherm)   | ID 91mm x OD 183mm x 6mm                 | EA | 120 |
| 148  | GASKET,PC:ID 330 X OD 370 MM;5 MM | PC:ID 330 X OD 370 MM;5 MM               | EA | 80  |
| 149  | SKF Grease cartridge              | SKF Grease cartridge                     | EA | 60  |
| 151  | FILTER,ELEMENT;CARTRIDGE,PAPE R   | FILTER,ELEMENT;CARTRIDGE,PAPE R          | EA | 40  |
| 152  | HEATER,SO3 AIR 427KW COMPLETE     | HEATER,SO3 AIR 427KW COMPLETE            | EA | 12  |

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|     |                                                                                                                                                     |                                                                                |    |     |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----|-----|
| 153 | DOOR, HATCH: TYPE: PRECIP/SO3 INSPECTION; MATERIAL: AL GR LM4 ALLOY;                                                                                | DOOR, HATCH: TYPE: PRECIP/SO3 INSPECTION; MATERIAL: AL GR LM4 ALLOY;           |    | 50  |
| 154 | VALVE,GATE:WEDGE;1/2 IN;800 LB;THD                                                                                                                  | VALVE,GATE:WEDGE;1/2 IN;800 LB;THD                                             | EA | 34  |
| 155 | RAP, STEAM: CONNECTION: BW 25 MM; PRESSURE RATING: 110 BAR; MATERIAL: 13CRMO44                                                                      | RAP, STEAM: CONNECTION: BW 25 MM; PRESSURE RATING: 110 BAR; MATERIAL: 13CRMO44 | EA | 40  |
|     | <b>SO3 Refurbishment Spares</b>                                                                                                                     |                                                                                |    |     |
| 1   | PUMP: TYPE: ASPHALT; REFERENCE NO: Q34, UNK; WITH SEW GEARBOX RX81 MOUNT ON PEDESTAL WITHOUT MOTOR                                                  | Complete overhaul                                                              | EA | 6   |
| 2   | Dosing Pump Diaphragm metering Lewa LDB1/M5z/25mm) sulphur metering pump. Lewa. Type LDB1. Element gear ratio. Hydraulicfluid pump head SAE 10W/40. | Complete overhaul                                                              | EA | 20  |
| 3   | GEARBOX: TYPE: MOTOR; RATIO: 3800:1; SPEED: 0.36 RPM; POWER: 0.37-51 KW;                                                                            | Complete overhaul                                                              | EA | 120 |
| 4   | GEARBOX: TYPE: RAPPER; POWER: 0.18 KW;                                                                                                              | Complete overhaul                                                              | EA | 120 |

### 2.1.1 APPLICABILITY

This document is applicable to Kriel Power Station and services provide to Supply and Delivery of Dust Handling Plant Spares & SO3 Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years

### NORMATIVE/INFORMATIVE REFERENCES

#### 2.1.2 NORMATIVE

- [1] ISO 9000: Quality Management Systems.
- [2] Occupational Health and Safety Act (Osh Act; Act 85 of 93)

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## **2.2 General arrangement and location drawings**

NOT APPLICABLE

### **2.2.1 INFORMATIVE**

Not applicable.

## **2.3 DEFINITIONS**

### **2.3.1 DISCLOSURE CLASSIFICATION**

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

## **2.4 ABBREVIATIONS**

| <b>Abbreviations</b> | <b>Description</b>                 |
|----------------------|------------------------------------|
| AKZ                  | Anlagen Kenn Zeichnungs            |
| BOQ                  | Bill of Quantities                 |
| C&I                  | Control and Instrumentation        |
| CAD                  | Computer Aided Design              |
| ESP                  | Electro static precipitator        |
| EMD                  | Electrical Maintenance Department  |
| HAZOP                | Hazard and Operability Analysis    |
| NDT                  | Non-Destructive Testing            |
| OHSA                 | Occupational Health and Safety Act |
| PEI                  | Production Engineering Integration |
| PPE                  | Personal Protective Equipment      |
| PTW                  | Permit To Work                     |
| QA                   | Quality Assurance                  |
| QC                   | Quality Control                    |

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|             |                                                         |
|-------------|---------------------------------------------------------|
| QCP         | Quality control program/plan/procedure                  |
| SO3         | Sulphur Tri-Oxide                                       |
| RO          | Reverse Osmosis                                         |
| SHE         | Safety, Health & Environmental                          |
| SHEQ        | Occupational Safety, Health, Environmental, and Quality |
| SOW         | Scope of Work                                           |
| <b>Unit</b> | <b>Description</b>                                      |
| AVR         | Automatic Voltage Regulator                             |
| AC          | Alternative Current                                     |
| Kv          | Kilovolts                                               |
| MV          | Medium Voltage                                          |

## **2.5 ROLES AND RESPONSIBILITIES**

Roles and responsibilities are as follows:

End User/ System Engineers to provide technical specification on DCF system.

System Technical Advisor – Compile contract strategy and scope for the contract.

Maintenance and Material Management to manage the Spare Contract.

## **2.6 PROCESS FOR MONITORING**

The QCPs on incoming product and services rendered by the supplier will be done and all materials are to be signed off by the system engineer and hold/witness points should be marked to ensure the quality of the supplied goods is according to standard.

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### **3. THE WORKS**

The *works* is the Supply and Delivery of Dust Handling Plant Spares & SO3 Refurbished Spares on As and When Required basis at Kriel Power Station for a period of Five years. "as and when required at Kriel Power Station in the Units 1-6 and common plant for Kriel Power Station.

#### **3.1 BACKGROUND**

#### **3.2 DESCRIPTION OF THE WORKS**

##### **3.2.1 SCOPE OF WORK**

The scope of work highlighted below is applicable to but not limited to the list of critical components in appendix A.

##### **3.2.1 SCOPE OF WORK**

| Items Description                       | Full Technical Description                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KEY:PUSH/PULL OUTER                     | KEY: TYPE: PUSH/PULL OUTER; DRAWING NO: 242(AO)40115 REV 1; REFERENCE NO: M242(AO)40030/16; FOR USE WITH HIGH PRESSURE AND INTERMEDIATE PRESSURE CYLINDERS                                                                                                                                                             |
| V BELT SET:3;13 MM;1.9 M                | V BELT SET: NUMBER OF BELTS: 3; TOP WIDTH: 13 MM; OUTSIDE CIRCUMFERENCE: 1.9 M; SUPPL P/N: SPA13NX1900; TO BE BUNDLED AND MARKED, THICKNESS: 10MM, MATCHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                 |
| V BELT SET:3                            | V BELT SET: NUMBER OF BELTS: 3; SUPPL P/N: VB17X11X2200; TO BE BUNDLED AND MARKED AS A SET, MATCHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                        |
| SHAFT:IMPELLER;LG 720 MM                | SHAFT: TYPE: IMPELLER; LENGTH: 720 MM; MATERIAL HBC315-1 CLASS 1V, FOR USE WITH FAN TYPE ACE, 2100 RPM, AIR VOLUME 100 M3/MIN, 3500 KPA MAX STATIC PRESSURE, 5.9KW ABSORBED POWER AT 20 DEG C, NOTE: SIZE 50MM OD, ONLY ONE KEY WAY REQUIRE ON SHAFT, KEY WAY SIZE 14MM WD X 9MM THK X 100MM LG, TO BE SUPPLY WITH KEY |
| SLEEVE ADPTR:BEARING;50 MM;LG 45 MM;STL | SLEEVE, ADAPTOR: TYPE: BEARING; SHAFT SIZE: 50 MM; LENGTH: 45 MM; MATERIAL: STL; SUPPL P/N: H311; SUPPLIER NOTE - THE ITEM MUST BE ORIGINAL PROTECTIVE PACKED AND MARKED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                   |
| BRG RLR:SELF ALIGNING; SPHERICAL;ID 55  | BEARING, ROLLER: TYPE: SELF ALIGNING; SPHERICAL; INSIDE DIAMETER: 55 MM; OUTSIDE DIAMETER: 100 MM; WIDTH: 25 MM; ROW: DOUBLE; MODEL NO: 22211 CCK; NOTE - ITEM MUST BE ORIGINAL PACKED                                                                                                                                 |

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|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SLEEVE ADPTR:BEARING;150 MM;LG 122 MM    | SLEEVE, ADAPTOR: TYPE: BEARING; SHAFT SIZE: 150 MM; LENGTH: 122 MM; MATERIAL: STL; SUPPL P/N: H3134; SUPPLIER NOTE - THE ITEM MUST BE ORIGINAL PACKED AND MARKED; SIZE 220MM OD; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).    |
| RING RETNG:ID 241 X OD 251 X THK 5 MM;AL | RING, RETAINING: DIMENSIONS: ID 241 X OD 251 X THK 5 MM; TYPE: INTERNAL; MATERIAL: AL; REFERENCE NO: FRB10-290; LOCATING                                                                                                                                                                                       |
| HOUSING BRG UNIT:PILLOW;ID 67 MM;CI      | HOUSING, BEARING UNIT: TYPE: PILLOW; BORE: ID 67 MM; MATERIAL: CI; SUPPL P/N: SNL511-609; SUPPLIER NOTE: THE ITEM MUST BE COMPLETE WITH A GREASE NIPPLE INSTALLED AND SHAFT SEALS.; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE). |
| CLLR:ID 241 X OD 251 X THK 10 MM;AL      | COLLAR: DIMENSIONS: ID 241 X OD 251 X THK 10 MM; MATERIAL: AL; TYPE: SEALING; SUPPL P/N: TS 34                                                                                                                                                                                                                 |
| DEFLECTOR:PLATE;WD 185 X LG 270 X HT 175 | DEFLECTOR: TYPE: PLATE; DIMENSIONS: WD 185 X LG 270 X HT 175 MM; MATERIAL: CI; SUPPL P/N: P2183A; REFERENCE NO: 3291/0233/96; SIZE 100MM; FOR NEW DRY DUST PLANT; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                   |
| DEFLECTOR:PLATE;WD 300 X LG 590 X HT 335 | DEFLECTOR: TYPE: PLATE; DIMENSIONS: WD 300 X LG 590 X HT 335 MM; MATERIAL: CI; APPLICATION: DOME VALVE 200 MM; SUPPL P/N: P16633A; REFERENCE NO: SC3291/0233/94; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                    |
| DISC:BOTTOM FLUIDIZING;DIA 1.245 M;STL   | DISC: TYPE: BOTTOM FLUIDIZING; DIMENSIONS: DIA 1.245 M; MATERIAL: STL; DRAWING NO: 190384 REV 1; 190384 REV C REV 1; FOR DRY DUST PNEUMATIC PLANT, TO ESKOM                                                                                                                                                    |
| CONTAINER:ASH;12/12;STL                  | CONTAINER: TYPE: ASH; DIMENSIONS: 12/12; MATERIAL: STL; REFERENCE NO: 3291/0233/78; P16569A; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                        |
| VESSEL:ASH;STL                           | VESSEL: TYPE: ASH; MATERIAL: STL; SUPPL P/N: P16570A; REFERENCE NO: 3291/0233/79; TYPE SIMON CARVES; SIZE: 7/12; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                    |
| VESSEL:ASH;STL;3291/0233/80              | VESSEL: TYPE: ASH; MATERIAL: STL; REFERENCE NO: P16571A; 3291/0233/80; SIZE 1-5/12; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                 |
| MEMBRANE:FLUITEX AERATION;POLYESTER      | MEMBRANE: TYPE: FLUITEX AERATION; MATERIAL: POLYESTER; (AIRSLIDES); SIZE: 350 MM WD X 4.5 MM LG X 580 MM THK                                                                                                                                                                                                   |
| PAD:AERATION;WD 270 X LG 800 X THK 4.5   | PAD: TYPE: AERATION; DIMENSIONS: WD 270 X LG 800 X THK 4.5 MM; REFERENCE NO: E300; FLUITEX MEMBRANE CLOTH; 27 METRE LONG IN ROLL                                                                                                                                                                               |
| STOPPER:RUBBER;WW11G506                  | STOPPER: MATERIAL: RUBBER; CAT NO: STEINMULLER 86-6709; REFERENCE NO: WW11G506; WW-11-G-506; BUNG; FOR KRIEL DRY DUST PLANT; VENDORS ARE RESPONSIBLE FOR                                                                                                                                                       |

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|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                      |
| FILTER ELMNT:ID 100 X OD 105 X LG 130 MM | FILTER, ELEMENT: DIMENSIONS: ID 100 X OD 105 X LG 130 MM; MATERIAL: BRS; FILTERING RETENTION: 50 UM; MODEL NO: 15-80; REFERENCE NO: F18-A3; FOR USE ON MACAWBER DRY DUST PLANT                                                                                                                      |
| JOINT EXPSN:300 MM;LG 130 MM;FLANGE FF   | JOINT, EXPANSION: SIZE: 300 MM; LENGTH: 130 MM; CONNECTION: FLANGE FF; MATERIAL: RUBBER; SUPPL P/N: 10-16; DUST HANDLING PLANT; ELEFLEX RED BAND COMPENSATOR; COMPLETE WITH FLOATING MS FLANGES TO BS4504 TABLE 10/3; HOLES TO BE TAP M20; MOVEMENT FLEXIBLE                                        |
| COMPENSATOR:AXIAL;307-221                | COMPENSATOR: TYPE: AXIAL; REFERENCE NO: 307-221; NB 200; ND 16; LG 400MM; COMPRISING CONVOLUTION 11.212; INTERNAL SLEEVE MATERIAL SS 321; PIPE ENDS AND FLANGES TO BS 4504 TABLE 10/3 MS                                                                                                            |
| PIPE ASSY:BSPT;DIA 3/8 IN X LG 90 MM;SS  | PIPE, ASSEMBLY: CONNECTION: BSPT; DIMENSIONS: DIA 3/8 IN X LG 90 MM; MATERIAL: SS; SPECIFICATION: GR 316; APPLICATION: DRY DUST CONDITIONER; TYPE: BUNGS; STRUCTURE SEAMLESS; WITH HX NUTS; THREAD LENGTH 30MM EACH SIDE                                                                            |
| NOZZLE:FINE SPRAY;15 MM;FPT;SS;WW11G501  | NOZZLE: TYPE: FINE SPRAY; SIZE: 15 MM; CONNECTION: FPT; MATERIAL: SS; REFERENCE NO: WW11G501; FOR DRY DUST CONDITIONER                                                                                                                                                                              |
| FITTING LUB:1/4 IN-BSP;LG 19 MM;GMS      | FITTING, LUBRICATION: SIZE: 1/4 IN-BSP; LENGTH: 19 MM; MATERIAL: GMS; HEAD TYPE: BUTTON; ANGLE 19 MM                                                                                                                                                                                                |
| ELBOW PIPE:2 IN;SW;CS ASTM A105;90 DEG   | ELBOW, PIPE: SIZE: 2 IN; CONNECTION: SW; MATERIAL: CS ASTM A105; DEGREE: 90 DEG; RATING: 6000 PSI                                                                                                                                                                                                   |
| NOZZLE:REDUCER;500 MM;FLANGE;STL         | NOZZLE: TYPE: REDUCER; SIZE: 500 MM; CONNECTION: FLANGE; MATERIAL: STL; DRAWING NO: WS0001 REV 1; BLOW TANK VENT PIPE, ROTOK                                                                                                                                                                        |
| BEND, PIPE:OD 100 MM;FLANGE;CS;45 DEG    | BEND, PIPE: OUTSIDE DIAMETER: 100 MM; CONNECTION: FLANGE; MATERIAL: CS; DEGREE: 45 DEG; REFERENCE NO: P16768C; S.C.NO:-3291/0233/87 FOR NEW DRY DUST PLANT                                                                                                                                          |
| BEND, PIPE:OD 150 MM;FLANGE;CS;45 DEG    | BEND, PIPE: OUTSIDE DIAMETER: 150 MM; CONNECTION: FLANGE; MATERIAL: CS; DEGREE: 45 DEG; REFERENCE NO: P16768C; SC NO:- 3291/0233/86 FOR NEW DRY DUST PLANT                                                                                                                                          |
| BEND, PIPE:OD 200 MM;FLANGE;CS;45 DEG    | BEND, PIPE: OUTSIDE DIAMETER: 200 MM; CONNECTION: FLANGE; MATERIAL: CS; DEGREE: 45 DEG; SUPPL P/N: P16568C; SC NUMBER 3291/0233/85; FOR NEW DRY DUST PLANT                                                                                                                                          |
| VALVE SLND:1/2 IN;5 WAY;220 V;2-10 BAR   | VALVE, SOLENOID: PIPE SIZE: 1/2 IN; STYLE: 5 WAY; POTENTIAL: 220 V; DESIGN RATING: 2-10 BAR; CONNECTION: NPT; BODY MATERIAL: CI; OPERATED: NC; ENCLOSURE RATING: IP65; MEDIUM: AIR; APPLICATION: DRY DUST BLOW TANK; DRAWING NO: 1-01-00 REV 1; GENERAL PURPOSE ENCLOSURE; PNEUMATIC SPARES         |
| VALVE SLND:1/4 IN;5 WAY;48 VAC;1.8-8 BAR | VALVE, SOLENOID: PIPE SIZE: 1/4 IN; STYLE: 5 WAY; POTENTIAL: 48 VAC; DESIGN RATING: 1.8-8 BAR; CONNECTION: NPT; BODY MATERIAL: CI; OPERATED: NC; ENCLOSURE RATING: PLASTIC; MEDIUM: AIR; APPLICATION: DRY DUST BLOW TANK; SUPPL P/N: MFH-5-1-4; DRAWING NO: 1-01-00 REV 1; REFERENCE NO: J702; 50HZ |

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|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VALVE:500 MM;GEARBOX<br>MOTORIZED              | VALVE: VALVE SIZE: 500 MM; OPERATED: GEARBOX<br>MOTORIZED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| FILTER BAG:500 MM X LG 1.5<br>M                | FILTER, BAG: DIMENSIONS: 500 MM X LG 1.5 M; SUPPL P/N:<br>IP22115568; FELT SEAL OPEN END, CLOSED FLAT OTHER END,<br>ONE SET IS 40 EACH, FOR USE ON THE TRANSFER AND MAIN<br>SILO, THE ITEM MUST BE PROTECTIVE PACKED AND CLEARLY<br>MARKED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VALVE BTRFLY:WAFER;300<br>MM;980 KPA;0-120     | VALVE, BUTTERFLY: TYPE: WAFER; VALVE SIZE: 300 MM;<br>DESIGN RATING: 980 KPA; TEMPERATURE RATING: 0-120 DEG<br>C; CONNECTION: FLANGE; OPERATED: HANDWHEEL,<br>GEARBOX; TRIM: SCS13; DISC SS; SEAT EPDM; GRADE: FC250;<br>MODEL NO: 615X; REFERENCE NO: 300615XGO4S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| VALVE GATE:200<br>MM;KNIFE;WAFER<br>FLANGELESS | VALVE, GATE: VALVE SIZE: 200 MM; TYPE: KNIFE;<br>CONNECTION: WAFER FLANGELESS; FACE TO FACE LENGTH:<br>68 MM; BODY MATERIAL: CI; TRIM: BLADE SS GR 316L;<br>OPERATED: CYLINDER PNEUMATIC, DOUBLE ACTING;<br>SOFTGOODS: VITON; STEM DESIGN: RISING SPINDLE; STYLE:<br>PILLAR; TEMPERATURE RATING: 95 DEG C; DESIGN RATING:<br>600 KPA; SUPPL P/N: LDCCINWR; REFERENCE NO: LDC-CI-<br>NWR; STAINLESS STEEL 304L; TRIM NI-HARD WEAR RING;<br>WITH 4 HOLES ON BOTH SIDE OF FLANGE TO BE TAPPED SIZE<br>20MM; RUBBER LINED BORE; VITON MOULDED BODY SEAL;<br>COMBINATION STUFFINGBOX AND TRANVERSE SEAL<br>ARRANGEMENT; MOUTNING BETWEEN FLANGES TO<br>BS450T10/3; PNEUMATIC; CYLINDER BARREL OF FIBER GLASS<br>WITH END PLATES; TIE RODS; ADJUSTABLE CLEVIS OF<br>4PILLAR CONSTRUCTION OF MILD STEEL ELECTRO<br>GALVANIZED; CYLINDER PROTECTION COVER OF PVC;<br>CYLINDER SEAL OF NITRILE RUBBER; COMPLETE WITH 2<br>MOUNTING BRACKETS; WITH STRIKER ARM FOR PROXIMITY<br>SWITCHES |
| VALVE BTRFLY:WAFER;50<br>MM;980 PA;FLANGE      | VALVE, BUTTERFLY: TYPE: WAFER; VALVE SIZE: 50 MM;<br>DESIGN RATING: 980 PA; TEMPERATURE RATING: -10 TO 80<br>DEG C; CONNECTION: FLANGE; BODY MATERIAL: CI;<br>OPERATED: HANDWHEEL; TRIM: DISC CR GR 45 HF; SEAT SS<br>GR 403 NBR LINED; STEM SS; FIG NO: TOMOE 700K;<br>REFERENCE NO: 700K; LEVER OPERATED; 12MM SQUARE<br>DRIVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ACTUATOR PNEUM:7 BAR                           | ACTUATOR, PNEUMATIC: PRESSURE RATING: 7 BAR;<br>COMPLETE WITH LIMIT SWITCH ASSEMBLY; FOR DUST INLET<br>VALVE; TYPE KINETROL 140-100; VENDORS ARE RESPONSIBLE<br>FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE<br>CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| VALVE BTRFLY:WAFER;80<br>MM;980 KPA;CI         | VALVE, BUTTERFLY: TYPE: WAFER; VALVE SIZE: 80 MM;<br>DESIGN RATING: 980 KPA; TEMPERATURE RATING: -10 TO 80<br>DEG C; BODY MATERIAL: CI; OPERATED: HANDWHEEL; TRIM:<br>DISC SS; SEAT NBR; SUPPL P/N: 700KNBR; NOTE TOMOE<br>BRAND ONLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DIAPHRAGM VLV:EPDM;80 MM                       | DIAPHRAGM, VALVE: MATERIAL: EPDM; VALVE SIZE: 80 MM; FIG<br>NO: 516; FOR RIENZI NON RETURN VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DIAPHRAGM VLV:EPDM;50 MM                       | DIAPHRAGM, VALVE: MATERIAL: EPDM; VALVE SIZE: 50 MM; FIG<br>NO: 516; FOR RIENZI NON RETURN VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| KIT ACTTR<br>REPR:SC3291/0233/119              | KIT, ACTUATOR REPAIR: REFERENCE NO: SC3291/0233/119;<br>M960/00; 200MM DOME VALVE, NOTE - EACH COMPLETE KIT<br>MUST BE SEALED IN A PLASTIC BAG AND MARKED WITH THE<br>MATERIAL NUMBER 0069362                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| DOME:VALVE;DIA 300 MM;STL                | DOME: TYPE: VALVE; DIMENSIONS: DIA 300 MM; MATERIAL: STL; REFERENCE NO: P2401A00; TO BE POLISHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                               |
| CASTING:DOME VALVE;250 MM;CI             | CASTING: TYPE: DOME VALVE; DIMENSIONS: 250 MM; MATERIAL: CI; REFERENCE NO: P1158B-00; 3291/0233/115; FOR 200 MM VALVE; NOTE: TO BE POLISHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).    |
| CASTING:DOME;DIA 200 MM;STL              | CASTING: TYPE: DOME; DIMENSIONS: DIA 200 MM; MATERIAL: STL; REFERENCE NO: P4677B-00; FOR 150MM VALVE, NOTE TO BE POLISHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                      |
| CASTING:DIA 155 MM;STL;P1165C            | CASTING: DIMENSIONS: DIA 155 MM; MATERIAL: STL; REFERENCE NO: P1165C; FOR 100MM DOME VALVE, NOTE DOME TO BE POLISHED; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                           |
| ACTUATOR PNEUM:7 BAR                     | ACTUATOR, PNEUMATIC: PRESSURE RATING: 7 BAR; SUPPL P/N: 6-5341; FOR USE ON THE NEW DRY DUST PLANT; CLYDE BERGEMANN; 100MM DOME VALVE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).           |
| KIT ACTTR REPR:A 1020                    | KIT, ACTUATOR REPAIR: REFERENCE NO: A 1020; 120; NOTE - EACH COMPLETE KIT MUST BE SEALED IN A PLASTIC BAG AND MARKED WITH THE MATERIAL NUMBER 0069373                                                                                                                      |
| CASTING:DOME;DIA 200 X HT 130 MM;CI      | CASTING: TYPE: DOME; DIMENSIONS: DIA 200 X HT 130 MM; MATERIAL: CI; SUPPL P/N: P16793B; INLINE WITHOUT SEAL; FOR VALVE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                         |
| VALVE:DOME;100 MM;400 KPA;0-250 DEG C;CI | VALVE: TYPE: DOME; VALVE SIZE: 100 MM; DESIGN RATING: 400 KPA; TEMPERATURE RATING: 0-250 DEG C; CONNECTION: FLANGE; OPERATED: ACTUATOR; BODY MATERIAL: CI; STYLE: SPLIT BODY; TRIM: BONNET CI; DOME STL; REFERENCE NO: SC3291/0233/84; P16615A; ASSEMBLY                   |
| VALVE:DOME;150 MM;400 KPA;0-250 DEG C;CI | VALVE: TYPE: DOME; VALVE SIZE: 150 MM; DESIGN RATING: 400 KPA; TEMPERATURE RATING: 0-250 DEG C; CONNECTION: FLANGE; OPERATED: ACTUATOR; BODY MATERIAL: CI; STYLE: SPLIT BODY; REFERENCE NO: P16614A; SC3291/0233/83; ASSEMBLY; SIMON CARVES                                |
| VALVE:DOME;200 MM;400 KPA;0-250 DEG C;CI | VALVE: TYPE: DOME; VALVE SIZE: 200 MM; DESIGN RATING: 400 KPA; TEMPERATURE RATING: 0-250 DEG C; CONNECTION: FLANGE; OPERATED: ACTUATOR; BODY MATERIAL: CI; STYLE: SPLIT BODY; TRIM: DOME SS; SUPPL P/N: P16613A; REFERENCE NO: SC3291/0233/82; ASSEMBLY; TYPE SIMON CARVES |
| VALVE:DOME;300 MM;400 KPA;0-250 DEG C;CI | VALVE: TYPE: DOME; VALVE SIZE: 300 MM; DESIGN RATING: 400 KPA; TEMPERATURE RATING: 0-250 DEG C; CONNECTION: FLANGE; OPERATED: ACTUATOR; BODY MATERIAL: CI; STYLE: SPLIT BODY; SUPPL P/N: P16612A; REFERENCE NO: SC3291-                                                    |

**CONTROLLED DISCLOSURE**

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|                                         | 0233-81; OPERATED: ACTUATOR KINETROL COMPLETED WITH BRACKED                                                                                                                                                                                                                                                                                                                                                                                   |
| VALVE:BLOW;2 IN;FLANGE;SPRING;STL       | VALVE: TYPE: BLOW; VALVE SIZE: 2 IN; CONNECTION: FLANGE; OPERATED: SPRING; BODY MATERIAL: STL; STYLE: CAP BOLTED; TRIM: DISC BRS; SPINDLE SS; SUPPL P/N: P4348B; REFERENCE NO: P4239A-2; X789; FOR MACAWBER PLANT; FLANGE DIA 155MM; 4 X 20MM HOLES DRILLED; 115MM PCD                                                                                                                                                                        |
| KIT VLV RPR:SC3291/0233/91              | KIT, VALVE REPAIR: REFERENCE NO: SC3291/0233/91; P4348B; 2 INCH BLOW, CONSIST OF: 1 X O RING 93MM OD X 3.4MM THICK, 1 X O RING 80MM OD X 3.5MM THICK, 1 X O RING 70MM X OD 6.0MM THICK, 1 X O RING 54.5MM X 5.2MM THICK, 2 X SHAFT SEALS 33MM OD X 25MM ID X 5.7MM WIDE, 1 X COMPRESSION SPRING 26.6MM OD X 166MM HIGH X 2.6MM WIRE DIAMETER, 1 X COMPRESSION SPRING 10MM OD X 162.5MM HIGH X 1.7MM WIRE DIAMETER                             |
| KIT VLV RPR:P16581P                     | KIT, VALVE REPAIR: REFERENCE NO: P16581P; FOR BLOW SIZE 4 INCH, TYPE SC3291/0233/89, CONSIST OF: 2 X ALUMINIUM SEALING RINGS 138MM OD X 5.5MM WIDE X 0.3MM THICK; 1 X O RING 107MM OD X 10MM THICK; 1 X O RING 128MM OD X 3.5MM THICK; 1 X CILINDER SEAL SQUARE 127MM OD X 113MM ID X 7MM WIDE; 2 X SHAFT SEALS 40MM OD X 30MM ID X 5MM WIDE; 5 X NYLOC NUTS M16 X 2MM PITCH; 1 X COMPRESSION SPRING 95MM OD X 150MM HIGH X 9MM WIRE DIAMETER |
| VALVE CHECK:2 IN;25 BAR;110 DEG C;BSP   | VALVE, CHECK: VALVE SIZE: 2 IN; DESIGN RATING: 25 BAR; TEMPERATURE RATING: 110 DEG C; CONNECTION: BSP; BODY MATERIAL: BRS; FACE TO FACE LENGTH: 100 MM; OPERATED: SPRING; TRIM: DISC BRS; SPRING SS; SOFTGOODS: SEAT RUBBER; SUPPL P/N: EUROPA2; ITAP; FOR DRY DUST PLANT                                                                                                                                                                     |
| VALVE CHECK:4 IN;25 BAR;BSP;BRS;160 MM  | VALVE, CHECK: VALVE SIZE: 4 IN; DESIGN RATING: 25 BAR; TEMPERATURE RATING: 12 BAR AT 110 DEG C; CONNECTION: BSP; BODY MATERIAL: BRS; FACE TO FACE LENGTH: 160 MM; OPERATED: SPRING; TRIM: DISC BRS; SEAT RUBBER; SPRING SS; SUPPL P/N: EUROPA4; TYPE ITAP; FOR DRY DUST PLANT                                                                                                                                                                 |
| VALVE DIAPH:25 MM;16 BAR;THD;BRZ;EPDM   | VALVE, DIAPHRAGM: VALVE SIZE: 25 MM; DESIGN RATING: 16 BAR; TEMPERATURE RATING: 225 LB AT 80 DEG F; CONNECTION: THD; BODY MATERIAL: BRZ; DIAPHRAGM MATERIAL: EPDM; NON RETURN; NORVAL; STAINLESS STEEL CONE                                                                                                                                                                                                                                   |
| VALVE CHECK:15 MM;THD;BRS;SPRING LOADED | VALVE, CHECK: VALVE SIZE: 15 MM; CONNECTION: THD; BODY MATERIAL: BRS; OPERATED: SPRING LOADED; STYLE: STRAIGHT THROUGH; TRIM: SPINDLE PTFE; NON-RETURN                                                                                                                                                                                                                                                                                        |
| PLATE:TOP;ID 295 X OD 555 X THK 60 MM   | PLATE: TYPE: TOP; DIMENSIONS: ID 295 X OD 555 X THK 60 MM; MATERIAL: STL; REFERENCE NO: P1823B; FOR 300MM DOME VALVE                                                                                                                                                                                                                                                                                                                          |
| VALVE BTRFLY:WAFER;150 MM;1 MPA;CLAMP   | VALVE, BUTTERFLY: TYPE: WAFER; VALVE SIZE: 150 MM; DESIGN RATING: 1 MPA; TEMPERATURE RATING: -10 TO 100 DEG C; CONNECTION: CLAMP; BODY MATERIAL: FCD450; OPERATED: LEVER; TRIM: DISC SS GR 316; SOFTGOODS: EPDM; MODEL NO: 615X; REFERENCE NO: 150615X6S                                                                                                                                                                                      |
| VALVE:CHANGE OVER;0.7-10 BAR;5-75 DEG C | VALVE: TYPE: CHANGE OVER; DESIGN RATING: 0.7-10 BAR; TEMPERATURE RATING: 5-75 DEG C; CONNECTION: 1/4 IN-FBSP; OPERATED: AIR; BODY MATERIAL: BRS; STYLE: 3 PORT; 2 POSITION; SUPPL P/N: S/1340/14                                                                                                                                                                                                                                              |

**CONTROLLED DISCLOSURE**

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| SHEET GSKT:THK 3 MM;LG 1 M;WD 1 M;GR53  | SHEET, GASKET: THICKNESS: 3 MM; LENGTH: 1 M; WIDTH: 1 M; MATERIAL: CORK/NEOPRENE; REFERENCE NO: GR53; IMPREGNATED; NEOLONGITE GRADE 53 COMPOSITION                                                                                                                                                                |
| SHEET GSKT:THK 6.5 MM;LG 1.27 M;WD 660  | SHEET, GASKET: THICKNESS: 6.5 MM; LENGTH: 1.27 M; WIDTH: 660 MM; MATERIAL: CORK NEOPRENE IMPREGNATED; GRADE: 53                                                                                                                                                                                                   |
| SHEET GSKT:THK 6.4 MM;LG 1.2 M;WD 1.2 M | SHEET, GASKET: THICKNESS: 6.4 MM; LENGTH: 1.2 M; WIDTH: 1.2 M; MATERIAL: RUBBER; SMOOTH; BLACK; DATE OF MANUFACTURE, SHELF LIFE AND STORAGE METHOD REQUIRED WITH DELIVERY                                                                                                                                         |
| KIT ACTTR<br>REPR:SOFTGOODS;LIP SEAL    | KIT, ACTUATOR REPAIR: TYPE: SOFTGOODS; APPLICATION: ACTUATOR PNEUMATIC; COMPRISING: LIP SEAL; MODEL NO: 140-104                                                                                                                                                                                                   |
| KIT VLV<br>RPR:M1171M1008P8011D         | KIT, VALVE REPAIR: REFERENCE NO: M1171M1008P8011D; 200MM DOME CONSISTING OF: 2 BEARINGS PART NUMBER P8011D; 4 VARI SEALS PART NUMBER M1171; 2 O RINGS PART NUMBER M1162; 2 V SEALS PART NUMBER M1008; 4 SEAL RETAINING RINGS PART NUMBER P2147C; NOTE - MUST BE PACKED AND SEALED                                 |
| SEAL:INSERT;ID 315 X OD 405 X THK 44 MM | SEAL: TYPE: INSERT; DIMENSIONS: ID 315 X OD 405 X THK 44 MM; MATERIAL: RUBBER; SUPPL P/N: 1826C-2; REFERENCE NO: 3291/0233/103; FOR 300MM DOME VALVE, FOR NEW DRY DUST PLANT                                                                                                                                      |
| O RING CRD:RUBBER;THK 3.53 MM;M1382C    | O RING, CORD: MATERIAL: RUBBER; THICKNESS: 3.53 MM; REFERENCE NO: SC 3291/0233/104; M1382C; FOR 300MM DOME VALVE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                      |
| O RING:ID 53.34 MM;WD 5.33 MM;RUBBER    | O RING: INSIDE DIAMETER: 53.34 MM; WIDTH: 5.33 MM; MATERIAL: RUBBER; INDUSTRY STANDARD: 2-330; REFERENCE NO: M1162; FOR 200MM DOME VALVE; SC NO:- 3291/0233/114; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                       |
| O RING:ID 40.64 MM;WD 5.33 MM;RUBBER    | O RING: INSIDE DIAMETER: 40.64 MM; WIDTH: 5.33 MM; MATERIAL: RUBBER; INDUSTRY STANDARD: 2-326; REFERENCE NO: M2085; SC NO:- 3291/0233/124; FOR 150MM DOME VALVE ON NEW DRY DUST PLANT; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE). |
| O RING:ID 28.17 MM;WD 3.53 MM;RUBBER    | O RING: INSIDE DIAMETER: 28.17 MM; WIDTH: 3.53 MM; MATERIAL: RUBBER; INDUSTRY STANDARD: 2-216; REFERENCE NO: 3291/0233/134; SC 3291/0233/134; M1242; FOR 100 MM DOME VALVE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).            |
| SEAL:INSERT;ID 235 X OD 275 X THK 32 MM | SEAL: TYPE: INSERT; DIMENSIONS: ID 235 X OD 275 X THK 32 MM; MATERIAL: RUBBER; SUPPL P/N: P5524C-01; REFERENCE NO: 3291/0233/112; FOR 200MM DOME VALVE, FOR NEW DRY DUST PLANT                                                                                                                                    |
| SEAL RNG:DOME VALVE INSERT;ID 150 MM    | SEAL, RING: TYPE: DOME VALVE INSERT; INSIDE DIAMETER: 150 MM; OUTSIDE DIAMETER: 225 MM; THICKNESS: 30 MM; MATERIAL: RUBBER; SUPPL P/N: P4665B; REFERENCE NO: SC 3291/0233/122; FOR 150MM DOME VALVE, NEW DRY DUST PLANT                                                                                           |

**CONTROLLED DISCLOSURE**

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| SEAL:INSERT;ID 112 X OD 175 X THK 32 MM  | SEAL: TYPE: INSERT; DIMENSIONS: ID 112 X OD 175 X THK 32 MM; MATERIAL: RUBBER; SUPPL P/N: P1586C-01; FOR 100MM DOME VALVE, SIMON CARVE                                                                                                                                               |
| KIT VLV RPR                              | KIT, VALVE REPAIR: SUPPL P/N: M1298; REFERENCE NO: M1202; M1299; P3721C; P8013D; 300MM DOME CONSISTING OF: 2 BEARINGS; 4 VARI SEALS; 2 O RINGS; 2 V SEALS; 4 SEAL RETAINING RINGS; NOTE - MUST BE PACKED AND SEALED PER KIT                                                          |
| KIT VLV<br>RPR:M1365M1346P4673E          | KIT, VALVE REPAIR: REFERENCE NO: M1365M1346P4673E; 150MM DOME CONSISTING OF: 2 BEARINGS PART NUMBER P8010D; 4 VARI SEALS PART NUMBER M1365; 2 O RINGS PART NUMBER M2085; 2 V SEALS PART NUMBER M1346; 4 SEAL RETAINING RINGS PART NUMBER P5406D-02; NOTE - MUST BE PACKED AND SEALED |
| KIT VLV<br>RPR:M1243M1006P3884E          | KIT, VALVE REPAIR: REFERENCE NO: M1243M1006P3884E; 100MM DOME, CONSISTING OF: 2 BEARINGS PART NUMBER P3884E, 4 VARI SEALS PART NUMBER M1243, 2 O RINGS PART NUMBER M1242, 2 V SEAL PART NUMBER M1006, 4 SEAL RETAINING RINGS PART NUMBER P2728C, NOTE - MUST BE PACKED AND SEAL      |
| GASKET PC:ID 186 X OD 250 X THK 0.4 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 186 X OD 250 X THK 0.4 MM; MATERIAL: VELLUMOID; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 221 MM; HOLES: (4) DIA 15 MM; WORKING TEMP 0-90 DEG C, MATERIAL; KLINGER SIL C-4400, FOR 100MM INLET DOME VALVE                                              |
| GASKET PC:ID 186 X OD 250 X THK 0.8 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 186 X OD 250 X THK 0.8 MM; MATERIAL: VELLUMOID; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 221 MM; HOLES: (4) DIA 15 MM; WORKING TEMP 0-90 DEG C, MATERIAL; KLINGER SIL C-4400, FOR 100MM INLET DOME VALVE                                              |
| GASKET PC:ID 186 X OD 250 X THK 1.5 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 186 X OD 250 X THK 1.5 MM; MATERIAL: VELLUMOID; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 221 MM; HOLES: (4) DIA 15 MM; WORKING TEMP 0-90 DEG C, MATERIAL; KLINGER SIL C-4400, FOR 100MM INLET DOME VALVE                                              |
| GASKET PC:ID 242 X OD 325 X THK 0.4 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 242 X OD 325 X THK 0.4 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 284 MM; HOLES: (6) DIA 18 MM; WORKING TEMP 0-90 DEG C, FOR 150MM INLINE DOME VALVE                                                                |
| GASKET PC:ID 242 X OD 325 X THK 0.8 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 242 X OD 325 X THK 0.8 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 284 MM; HOLES: (6) DIA 18 MM; WORKING TEMP 0-90 DEG C, FOR 150MM INLINE DOME VALVE                                                                |
| GASKET PC:ID 242 X OD 325 X THK 1.5 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 242 X OD 325 X THK 1.5 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 284 MM; HOLES: (6) DIA 18 MM; WORKING TEMP 0-90 DEG C, FOR 150MM INLINE DOME VALVE                                                                |
| GASKET PC:ID 320 X OD 410 X THK 0.4 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 320 X OD 410 X THK 0.4 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 360 MM; HOLES: (8) DIA 21 MM; WORKING TEMP 0-90 DEG C, FOR 200MM INLET DOME VALVE                                                                 |
| GASKET PC:ID 317 X OD 440 X THK 1.5 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 317 X OD 440 X THK 1.5 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 360 MM; HOLES: (8) DIA 21 MM; WORKING TEMP 0-90 DEG C, FOR 200MM DOME VALVE                                                                       |

**CONTROLLED DISCLOSURE**

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| GASKET PC:ID 430 X OD 560 X THK 0.4 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 430 X OD 560 X THK 0.4 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 510 MM; HOLES: (12) DIA 22 MM; WORKING TEMP 0-90 DEG C, FOR 300MM INLINE DOME VALVE                                                                                 |
| GASKET PC:ID 430 X OD 560 X THK 0.8 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 430 X OD 560 X THK 0.8 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; TEMPERATURE RATING: 0-90 DEG C; PCD: 510 MM; HOLES: (12) DIA 22 MM; PRESSURE, FOR 300 MM INLINE DOME VALVE                                                               |
| GASKET PC:ID 430 X OD 560 X THK 1.5 MM;5 | GASKET, PRE CUT: DIMENSIONS: ID 430 X OD 560 X THK 1.5 MM; MATERIAL: KLINGERITE SIL C4400; SHAPE: RD; PRESSURE RATING: 5 BAR; PCD: 510 MM; HOLES: (12) DIA 22 MM; WORKING TEMP 0-90 DEG C, FOR 300MM DOME VALVE                                                                                        |
| RING:FLEXIBLE;ID 135 MM;OD 250 MM;RUBBER | RING: TYPE: FLEXIBLE; INSIDE DIAMETER: 135 MM; OUTSIDE DIAMETER: 250 MM; MATERIAL: RUBBER; REFERENCE NO: S260PBS; FOR VOITH TURBO COUPLING 487 AND CONNECTING COUPLING SV26C                                                                                                                           |
| RING:FLEXIBLE;ID 115 MM;OD 202.6 MM      | RING: TYPE: FLEXIBLE; INSIDE DIAMETER: 115 MM; OUTSIDE DIAMETER: 202.6 MM; MATERIAL: RUBBER; SUPPL P/N: SC-07-230-0000; REFERENCE NO: SV230; FOR VOITH TURBO COUPLING                                                                                                                                  |
| RING:INSERT;ID 178 MM;OD 208 MM;WD 15.5  | RING: TYPE: INSERT; INSIDE DIAMETER: 178 MM; OUTSIDE DIAMETER: 208 MM; WIDTH: 15.5 MM; MATERIAL: STL; REFERENCE NO: P4676AB; FOR 150MM DOME VALVE                                                                                                                                                      |
| RING:VALVE INSERT;ID 226 MM;OD 258 MM    | RING: TYPE: VALVE INSERT; INSIDE DIAMETER: 226 MM; OUTSIDE DIAMETER: 258 MM; WIDTH: 15 MM; MATERIAL: STL; REFERENCE NO: P1643AA; FOR 200MM DOME VALVE, SIMON CARVES                                                                                                                                    |
| RING:SPIGOT;ID 363 MM;OD 440 MM;WD 30 MM | RING: TYPE: SPIGOT; INSIDE DIAMETER: 363 MM; OUTSIDE DIAMETER: 440 MM; WIDTH: 30 MM; MATERIAL: STL; REFERENCE NO: P1824B-00; FOR 300MM DOME VALVE SIMON CARVES                                                                                                                                         |
| RING:SPIGOT;ID 198 MM;OD 255.8 MM;WD 21  | RING: TYPE: SPIGOT; INSIDE DIAMETER: 198 MM; OUTSIDE DIAMETER: 255.8 MM; WIDTH: 21 MM; MATERIAL: STL; REFERENCE NO: P4676A-C; FOR 150MM DOME VALVE, TYPE SIMON CARVES                                                                                                                                  |
| RING:SPIGOT;ID 248 MM;OD 330 MM;WD 21 MM | RING: TYPE: SPIGOT; INSIDE DIAMETER: 248 MM; OUTSIDE DIAMETER: 330 MM; WIDTH: 21 MM; MATERIAL: STL; SUPPL P/N: P1643A-B; FOR 200MM DOME VALVE                                                                                                                                                          |
| RING:INSERT;ID 335 MM;OD 378 MM;WD 20 MM | RING: TYPE: INSERT; INSIDE DIAMETER: 335 MM; OUTSIDE DIAMETER: 378 MM; WIDTH: 20 MM; MATERIAL: STL; REFERENCE NO: P1825C-00; FOR 300MM DOME VALVE; TYPE SIMON CARVES                                                                                                                                   |
| SOLENOID ELECT:VALVE;24 V                | SOLENOID, ELECTRICAL: DUTY TYPE: VALVE; COIL VOLTAGE: 24 V; SUPPL P/N: MI02510HN; AIRTEC BRAND ONLY, FOR NEW DRY DUST PLANT, NOTE: THE ITEM MUST BE PROTECTIVE PACKED AND CLEARLY MARKED                                                                                                               |
| SOLENOID ELECT:VALVE;24 V                | SOLENOID, ELECTRICAL: DUTY TYPE: VALVE; COIL VOLTAGE: 24 V; SUPPL P/N: MI01510HN; AIRTEC BRAND ONLY, FOR DRY DUST PLANT UNDERNEATH PRECIPITATORS                                                                                                                                                       |
| GAUGE PRESS:0-600 KPA;100 MM;SS          | GAUGE, PRESSURE: RANGE: 0-600 KPA; DIAL SIZE: 100 MM; CASE MATERIAL: SS; REFERENCE NO: WO 233100Q0600 KJ; NON FILLED; BUILT IN CONTACTS: 2 NO; FITTED TO COMACO SEAL COMPLETE WITH MALE STUD; FITTED TO 990-19-500 WITH NW 50 LOOSE OIL NUT AND MALE WELD IN PIECE WITH INDUCTIVE TYPE 831.11 CONTACTS |

**CONTROLLED DISCLOSURE**

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| OIL INDSTRL:DRUM 210 L;232 DEG C;GEAR    | OIL, INDUSTRIAL: CONTAINER: DRUM 210 L; FLASH POINT: 232 DEG C; TYPE: GEAR; TRADE NAME: GENGEAR 320; VISCOSITY RATING: 305 AT 40 DEG C; GRADE: ISO VG320; SUPPL P/N: GENGEAR 320; ESKOM SPECIFICATION GGSS 0862; LUBE CODE OGI-320; GENGEAR 320                                                                                                                                                                                                                                         |
| GEARBOX:BEW GEAR;40:1;1440 RPM;55 KW     | GEARBOX: TYPE: BEW GEAR; RATIO: 40:1; SPEED: 1440 RPM; POWER: 55 KW; MODEL NO: 320-147; FOR USE WITH ASH CONDITIONERS; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                       |
| DISTRIBUTOR:ROTARY AIR                   | DISTRIBUTOR: TYPE: ROTARY AIR; SUPPL P/N: 285249; 4 PART; TYPE MA; 10 VOLT; ITEM 26; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                                                         |
| VALVE BALL:1 IN;BSP;SS;316               | VALVE, BALL: VALVE SIZE: 1 IN; CONNECTION: BSP; BODY MATERIAL: SS; GRADE: 316; TYPE: DLM ONE PIECE BAR STOCK                                                                                                                                                                                                                                                                                                                                                                            |
| TRANSMITTER PRESS:0-10 BAR;O/P 4-20 MA   | TRANSMITTER, PRESSURE: RANGE: 0-10 BAR; OUTPUT: 4-20 MA; SUPPLY: 24 VDC; CONNECTION: 1/2 IN-BSP; MODEL NO: S-10 (891.13.500); THE ITEM MUST BE PROTECTIVE PACKED AND CLEARLY MARKED                                                                                                                                                                                                                                                                                                     |
| TRANSMITTER PRESS:0-100 BAR;O/P 4-20 MA  | TRANSMITTER, PRESSURE: RANGE: 0-100 BAR; OUTPUT: 4-20 MA; SUPPLY: 24 VDC; CONNECTION: 1/2 IN-BSP; MODEL NO: S-10 (891.13.500); THE ITEM MUST BE PROTECTIVE PACKED AND CLEARLY MARKED                                                                                                                                                                                                                                                                                                    |
| ACTUATOR PNEUM:1-10 BAR;1/4 TURN;C 60 DA | ACTUATOR, PNEUMATIC: PRESSURE RATING: 1-10 BAR; TRAVEL: 1/4 TURN; MODEL NO: C 60 DA; FOR DRY DUST PLANT AT TRANSFER SILO OUTLET VALVE; SIZE 300MM OKUMURA BUTTERFLY VALVE; SUPPLY MOUNTING KIDS STAINLESS STEEL TO FIT ON VALVE; TYPE: DOUBLE ACTING; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                        |
| VALVE GATE:400 MM;KNIFE/SLIDE;FLANGE;400 | VALVE, GATE: VALVE SIZE: 400 MM; TYPE: KNIFE/SLIDE; CONNECTION: FLANGE; FACE TO FACE LENGTH: 400 MM; BODY MATERIAL: MS; TRIM: SLIDE SS GR 304; SPINDLE EN 19; OPERATED: CHAIN, HANDWHEEL; SOFTGOODS: RUBBER; STEM DESIGN: NON RISING; STYLE: 2 WAY; TEMPERATURE RATING: 120 DEG C; DESIGN RATING: 600 KPA; SUPPL P/N: DL400B; SIZES PCD OF 480MM; 535MM SQUARE X 120MM THK; KNIFE MATERIAL STAINLESS STEEL GRADE 304; NUT BRASS; FOR THE USE OF ISOLATION OF FLY ASH AT MAIN SILO PLANT |
| VALVE RELF:50 MM;5 BAR;232 DEG C;BRZ;BRZ | VALVE, RELIEF: VALVE SIZE: 50 MM; SET PRESSURE: 5 BAR; TEMPERATURE RATING: 232 DEG C; CONNECTION: BSP X FBSP; BODY MATERIAL: BRZ; TRIM: BRZ; OPERATED: AIR PRESSURE; DESIGN RATING: 24 BAR; PRESSURE RANGE: 0-5 BAR; REFERENCE NO: RA 2583; DLM-BAILEY BURKET POP TYPE SAFETY; COMPLETE WITH LIFTING LEVER; TO BE USED AT DRY DUST BLOW TANK UNIT 1 TO 6                                                                                                                                |
| VALVE RELF:50 MM;4.8 BAR;232 DEG C;BRZ   | VALVE, RELIEF: VALVE SIZE: 50 MM; SET PRESSURE: 4.8 BAR; TEMPERATURE RATING: 232 DEG C; CONNECTION: BSP X FBSP; BODY MATERIAL: BRZ; TRIM: BRZ; OPERATED: AIR PRESSURE; DESIGN RATING: 24 BAR; PRESSURE RANGE: 0-4.8 BAR; REFERENCE NO: RA 2585; DLM-BAILEY BURKET POP TYPE SAFETY VALVE, COMPLETE WITH LIFTING LEVER, TO BE USED AT DRY DUST BLOW TANK UNIT 1 TO 6                                                                                                                      |

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| LUBRICATOR: AIR FILTER IN LINE; THD; 37; STL | LUBRICATOR: TYPE: AIR FILTER IN LINE; CONNECTION: THD; CAPACITY: 37; MATERIAL: STL; PRESSURE RATING: 17 BAR; TYPE 64 SERIES SET WITH A BL64-408 BOX SET WHICH INCLUDE DOUBLE YOKE, AUTO DRAIN METAL BOWL, MICRO FOG, BRACKET KIT AND SHUT OFF VALVE, OPERATIONAL TEMPERATURE -20 TO 80 DEG C AND MAXIMUM FLOW AT 10BAR, TO BE USED AT DRY DUST PRECIPITATORS                                                           |
| BRG: SPLIT; ID 150 MM; DOUBLE SHIELD; SS     | BEARING: TYPE: SPLIT; INSIDE DIAMETER: 150 MM; STYLE: DOUBLE SHIELD; MATERIAL: SS; SUPPL P/N: 150-01-B; A SERIES 01, TYPE COOPER, MUST BE SUITABLE FOR CONDITIONERS, WITH SHAFT                                                                                                                                                                                                                                        |
| HOUSING BRG UNIT: PEDESTAL; STL              | HOUSING, BEARING UNIT: TYPE: PEDESTAL; MATERIAL: STL; SIZE 181MM HT, P10 TYPE AND SERIES 01, SUITABLE FOR ASH CONDITIONERS, WITH 150MM SHAFT SIZE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                          |
| CARTRIDGE: COOPER BEARING MAINTENANCE; STL   | CARTRIDGE: TYPE: COOPER BEARING MAINTENANCE; MATERIAL: STL; DIMENSIONS: 150 MM; APPLICATION: ASH CONDITIONER; REFERENCE NO: 01 C 150; SERIES 01; WITH 150MM SHAFT SIZE; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                     |
| SWITCH PRESS: 0-400 KPA; 15-30 VDC; 100 MA   | SWITCH, PRESSURE: RANGE: 0-400 KPA; POTENTIAL: 15-30 VDC; CURRENT: 100 MA; ACTION: SPST; CONTACT ARRANGEMENT: 1NC; APPLICATION: DRY DUST PLANT; SUPPL P/N: SDE5-D2-C-Q6E-P-K; PNT OUTPUT, 3 CORE CABLE 2.5M                                                                                                                                                                                                            |
| SWITCH PRESS: 542899; SENSOR; 0-1000 KPA     | SWITCH, PRESSURE: TYPE: SENSOR; RANGE: 0-1000 KPA; POTENTIAL: 15-30 VDC; CURRENT: 100 MA; ACTION: SPST; CONNECTION: 3 WIRE IN; CONTACT ARRANGEMENT: 1NO; APPLICATION: DRY DUST PLANT; OEM P/N: 542899; OUTPUT PNT, M8 3 PIN PLUG ELECTRICAL CONNECTION, SDE5-D10-FP-Q6-P-K                                                                                                                                             |
| DIVERTER: DRY DUST; AA241                    | DIVERTER: TYPE: DRY DUST; DRAWING NO: AA241 REV 0; BRANCH BALL: 200MM; 8BAR; FLANGE BS 4504; TABLE 10; 8INCH; 270 DEGREE CELCIUS; MATERIAL: ALLOY STEEL; BS 3100-BW2; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                       |
| SEAL BRG ISOL: BEARING; ID 168 MM; OD 270    | SEAL, BEARING ISOLATOR: TYPE: BEARING; INSIDE DIAMETER: 168 MM; OUTSIDE DIAMETER: 270 MM; WIDTH: 61 MM; MATERIAL: STL; DRAWING NO: 0-45/54963 REV 0; ASH CONDITIONER; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                       |
| PADDLE: ASH CONDITIONER; TIVAR CERAM P       | PADDLE: TYPE: ASH CONDITIONER; DIMENSIONS: WD 550 X LG 410 X THK 28 MM; MATERIAL: TIVAR CERAM P; DRAWING NO: 28-45/55240 REV 0; APPLICATION: ASH PLANT; HOLE: 4; HOLE DIA: 20MM; PADDLE CUT AND DRILLED IN ACCORDANCE TO KRIEL DRAWING NUMBER AND SHOULD BE CLEARLY MARKED ON THE MATERIAL; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE). |
| JOINT EXPN: BELLOWS; 17 MM; LG 18 MM; EPDM   | JOINT, EXPANSION: TYPE: BELLOWS; SIZE: 17 MM; LENGTH: 18 MM; CONNECTION: FLANGE; MATERIAL: EPDM; DESIGN RATING: 10 BAR; APPLICATION: DUST HANDLING PLANT; FACE                                                                                                                                                                                                                                                         |

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|                                         | TO FACE LENGTH: 130MM; PCD: 160MM; HOLE: 8; HOLE DIA: M12; FLANGE MATERIAL: MS                                                                                                                                                                                                                                                                                                                                                                                                                             |
| VALVE RELF:200 MM;16 BAR;-20 TO 100;CI  | VALVE, RELIEF: VALVE SIZE: 200 MM; SET PRESSURE: 16 BAR; TEMPERATURE RATING: -20 TO 100 DEG C; CONNECTION: FLANGE; BODY MATERIAL: CI; TRIM: BODY-CI; SEALS- NEOPRENE; FACE TO FACE LENGTH: 206 MM; OPERATED: PNEUMATIC ACTUATOR; SPECIFICATION: DV200; APPLICATION: DRY DUST BLOW TANK; GRADE: BS4504; TABLE 6; SOFTGOODS: NEOPRENE SEAL; DESIGN RATING: 60 MPA; PRESSURE RANGE: 30-400 BAR; MANUF P/N: 001.9112; MODEL NO: TOCO; TYPE: DOME ASSEMBLY; MEDIUM: AIR; COMPLETE WITH ACTUATOR AND TOP ADAPTOR |
| DRAIN:PNEUMATIC;WD 217 X HT 127 MM      | DRAIN: TYPE: PNEUMATIC; DIMENSIONS: WD 217 X HT 127 MM; MATERIAL: ALUMINIUM; HANDLES 130 M3/MIN (FAD) OF AIR AT 7 BAR; INLET 0.75 INCH NPT; OUTLET 0.5 INCH NPT; VALVE ORIFICE 7 MM; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                            |
| FILTER BAG:SLEEVE;DIA 123 MM X LG 3 M;1 | FILTER, BAG: TYPE: SLEEVE; DIMENSIONS: DIA 123 MM X LG 3 M; MATERIAL: MEMBRANE PTFE; PPS NEEDLE FELT; MICRON: 1; APPLICATION: TRANSFER SILO FILTER BOX; SHAPE: CYLINDRICAL; OPEN END WITH FELT SEAL; FLAT END WITH TRIPLE SEAM; STAINLESS STEEL ANTI STATIC STRIP STICHED TO FILTER BAGS; BAGS TO BE SUPPLIED IN CLEARLY MARKED PACKING                                                                                                                                                                    |
| ADAPTOR:TOP;CI;DOME VALVE 200           | ADAPTOR: TYPE: TOP; MATERIAL: CI; APPLICATION: DOME VALVE 200; SIZE: SQ 520 X HT 180 MM; SUPPL P/N: ST 1396-00-005; REFERENCE NO: 001/0089; BS EN 1563 GJS 450/10                                                                                                                                                                                                                                                                                                                                          |
| DRAIN:AUTOMATIC TIMED                   | DRAIN: TYPE: AUTOMATIC TIMED; DIMENSIONS: WD 50 X LG 80 X HT 40 MM; AUTOMATIC ELECTRIC TIMED DRAIN; INTERNAL PILOT; CONNECTION SIZE 1/2" INCH; OFFICIAL SIZE 16MM; WORKING PRESSURE 1-10 BAR; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                   |
| SHAFT:MAIN;LG 202 MM;STL;DUST HANDLING  | SHAFT: TYPE: MAIN; LENGTH: 202 MM; MATERIAL: STL; APPLICATION: DUST HANDLING; SPECIFICATION: BS 970; END 1 SIZE: H7 43.8 MM; END 2 SIZE: H7 43.8 MM; MANUF P/N: ST 1396-00-010; DRAWING NO: 001.0070 REV 0; MATERIAL 431529                                                                                                                                                                                                                                                                                |
| FAN:REVERSED;120 M3/MIN;14313           | FAN: TYPE: REVERSED; DIMENSIONS: WD 980 MM X LG 1.125 M X HT 960 MM; VOLUME RATING: 120 M3/MIN; REFERENCE NO: 14313; TOTAL PRESSURE 2.1 PA; ABSORBED POWER 6.15KW; EFFICIENCY 73%; BOLTED INSPECTION DOOR; BASE IN CARBON STEEL SECTION BARS WITH VIBRATORS                                                                                                                                                                                                                                                |
| DRYER:COMPRESSED                        | DRYER: TYPE: COMPRESSED; MANUF P/N: A-DRY-60; HEATLESS ADSORPTION COMPRESSED AIR DRYER; FOR USE ON THE TRANSFER SILO; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                                           |
| MANIFOLD VLV:2 WAY;1/1 IN;8 BAR;AL      | MANIFOLD, VALVE: STYLE: 2 WAY; SIZE: 1/1 IN; DESIGN RATING: 8 BAR; TEMPERATURE RATING: -40 TO 100 DEG C; BODY MATERIAL: AL; CONNECTION: DIRECT MOUNT; ITEM TO BE DELIVERED WITH SANS 3.1 CERTIFICATE TO FIT AUTEL 6IN HEADER TANK VALVE; WORKING PRESSURE: 1.5-8BAR; WEIGHT: 1.2-1.4KG; VENDORS ARE RESPONSIBLE FOR                                                                                                                                                                                        |

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|                                            | ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VALVE BALL:40 MM;5 BAR;10-80 DEG C;CI      | VALVE, BALL: VALVE SIZE: 40 MM; DESIGN RATING: 5 BAR; TEMPERATURE RATING: 10-80 DEG C; CONNECTION: 1-1/2 IN-NPT; BODY MATERIAL: CI; FACE TO FACE LENGTH: 164 MM; OPERATED: MANUAL; APPLICATION: BLOWPOTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| PANEL ELECT<br>PWR:ECONOMIZER;220 VAC;4-20 | PANEL, ELECTRICAL POWER: TYPE: ECONOMIZER; DIMENSIONS: WD 76.7 X LG 189 X HT 103 MM; POTENTIAL: 220 VAC; CURRENT: 4-20 MA; CLASSIFICATION: IP65; POWER: 40 W; SUPPL P/N: ECOSERIAL-P; APPLICATION: DUST COLLECTORS; WITH BUILT-IN DIFFERENTIAL PRESSURE GAUGE; ABLE TO CONTROL UP TO 30 REMOTE PILOT BOX MODULES; MECHANICAL FASTENERS; DISPLAY TYPE: LCD; RESOLUTION: 128X64; DATA SHEET ND OPERATING MANUAL TO BE PROVIDED IN EVERY DELIVERY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| STRAINER PIPNG:Y;DIA 51 X LG 70 MM;12      | STRAINER, PIPING: TYPE: Y; DIMENSIONS: DIA 51 X LG 70 MM; PRESSURE RATING: 12 BAR; MATERIAL: SS GR 316; CONNECTION: NPT 1/4 IN; MICRON: 800; MESH: 100 MM; SPECIFICATION: BS 4504; SUPPL P/N: 16HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| VALVE RELF:250 MM;-33 TO 33 MBAR;100;CS    | VALVE, RELIEF: VALVE SIZE: 250 MM; SET PRESSURE: -33 TO 33 MBAR; TEMPERATURE RATING: 100 DEG C; CONNECTION: FLANGE; BODY MATERIAL: CS; FACE TO FACE LENGTH: FLAP; OPERATED: PRESSURE SWING; ORIFICE SIZE: 10 MM; SPECIFICATION: PROTEGO VD/SV-250; DESIGN RATING: 33 MBAR; PRESSURE RANGE: -33 TO 33 MBAR; FLOW CAPACITY AT DESIGN PRESSURE: 800M3/H; ALL FLOW RATES EXPRESSED IN 20DEG C AIR; SUPPLY WITH 3.1 CERTIFICATE AND WITH CALIBRATION CERTIFICATE; DIN EN 1092-1; PN10 FORM B1; TRIM: HOUSING MODULE: 1.0619; SEAT: 316 SS/1.4571; COVER: 1.0425; GASKET: PTFE; WEATHER HOOD: SS; PROTECTIVE SCREEN: SS; BOLTS/NUTS: A4; THREADED PIN: A4; VALVE PALLET HOOD: 316 SS/1.4571; VALVE PALLET: 316 SS/1.4571; PIPE GUIDE: 316 SS/1.4571; PIN: 316 SS/1.4571; HEXAGON NUT: A4; SPINDLE GUIDE: 316 SS/1.4571; TRIM: HOUSING MODULE: 1.0619; SEAT: 316 SS/1.4571; COVER: 1.0425; GASKET: PTFE; WEATHER HOOD: SS; PROTECTIVE SCREEN: SS; BOLTS/NUTS: A4; THREADED PIN: A4; VALVE PALLET HOOD: 316 SS/1.4571; VALVE PALLET: 316 SS/1.4571; PIPE GUIDE: 316 SS/1.4571; PIN: 316 SS/1.4571; HEXAGON NUT: A4; SPINDLE GUIDE: 316 SS/1.4571; TRIM: HOUSING MODULE: 1.0619; SEAT: 316 SS/1.4571; COVER: 1.0425; GASKET: PTFE; WEATHER HOOD: SS; PROTECTIVE SCREEN: SS; BOLTS/NUTS: A4; THREADED PIN: A4; VALVE PALLET HOOD: 316 SS/1.4571; VALVE PALLET: 316 SS/1.4571; PIPE GUIDE: 316 SS/1.4571; PIN: 316 SS/1.4571; HEXAGON NUT: A4; SPINDLE GUIDE: 316 SS/1.4571 |
| BRG RLR:SPHERICAL;ID 35 MM;OD 72 MM;OPEN   | BEARING, ROLLER: TYPE: SPHERICAL; INSIDE DIAMETER: 35 MM; OUTSIDE DIAMETER: 72 MM; WIDTH: 23 MM; ROW: DOUBLE; BORE SHAPE: TAPER 1:12; STYLE: OPEN; CAGE MATERIAL: STL; ROLLING ELEMENT: ROLLERS; SUPPL P/N: 22207EK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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| SOLENOID:HIGH PRESSURE;220 VAC;DUST      | SOLENOID: TYPE: HIGH PRESSURE; COIL VOLTAGE: 220 VAC; CLASSIFICATION: DUST; SUPPL P/N: SCG3553A044; APPLICATION: DRY DUST COMMON PLANT                                                                                                                                                                                                                                                                                  |
| DIVERTER:DRY DUST;AA241                  | DIVERTER: TYPE: DRY DUST; DRAWING NO: AA241 REV 0; BRANCH BALL: 200MM; 8BAR; FLANGE BS 4504; TABLE 10; 8INCH; 270 DEGREE CELCIUS; MATERIAL: ALLOY STEEL; BS 3100-BW2; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                        |
| FILTER ELMNT: CARTRIDGE;PAPER            | FILTER, ELEMENT: TYPE: CARTRIDGE; DIMENSIONS: ID 210 X OD 325 X LG 660 MM; MATERIAL: PAPER; MANUF P/N: P 14 - 5891; REFERENCE NO: 8PP19215/01; NOTE - MATERIAL MUST BE PROTECTIVE PACKED                                                                                                                                                                                                                                |
| HEATER IMRSN:DIA 550 MM X LG 2.62 M;380  | HEATER, IMMERSION: DIMENSIONS: DIA 550 MM X LG 2.62 M; POTENTIAL: 380 VAC; POWER: 427 KW; REFERENCE NO: SR 64895; PVN 400-6/198; COMPLETE WITHOUT MAIN CASING; AND ESKOM ORDER OPO 11960; SO3 AIR                                                                                                                                                                                                                       |
| TRAP STEAM:BW 25 MM;110 BAR;13CRMO44     | TRAP, STEAM: CONNECTION: BW 25 MM; PRESSURE RATING: 110 BAR; MATERIAL: 13CRMO44; SUPPLIER NOTE: THE ITEM MUST BE PROTECTIVE PACKED AND CLEARLY MARKED, BSV116/BK29/PN160; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                    |
| VALVE GATE:1/2 IN;WEDGE;THD;80 MM;MANUAL | VALVE, GATE: VALVE SIZE: 1/2 IN; TYPE: WEDGE; CONNECTION: THD; FACE TO FACE LENGTH: 80 MM; BODY MATERIAL: FST ASTM A105; TRIM: DISC/SEAT F6-HF; STEM F6; OPERATED: MANUAL; STEM DESIGN: RISING SPINDLE; STYLE: BOLTED BONNET; TEMPERATURE RATING: 0-850 DEG F; DESIGN RATING: 800 LB; CAT NO: L813; OMB; FOR ASH HOPPERS                                                                                                |
| GREASE INDSTRL:BEARING;55 DEG C;125/WA2  | GREASE, INDUSTRIAL: TYPE: BEARING; TEMPERATURE RATING: 55 DEG C; VISCOSITY RATING: 125/WA2; COLOR: GREEN; CONTAINER: 125 ML; SUPPL P/N: LAGD125/WA2; FOR USE ON MILL SEAL AIR AND SO3 FAN BEARINGS, TO BE SUPPLY IN CANISTERS WIT GAS ADJUSTER ON TOP                                                                                                                                                                   |
| GASKET PC:ID 330 X OD 370 MM;THK 5 MM    | GASKET, PRE CUT: DIMENSIONS: ID 330 X OD 370 MM; THICKNESS: 5 MM; TYPE: ISOLATION; MATERIAL: CERAMIC FIBER; SHAPE: ROUND; TEMPERATURE RATING: 0-1100 DEG C; ISOPLAN 1100; LYTHERM; BURNER OUTLET FLANGE NO: 2; DATA SHEET REQUIRED FOR QUALITY AND CERTIFICATION PURPOSES                                                                                                                                               |
| DOOR HTCH:PRECIP INSPECTION;PRECIPS      | DOOR, HATCH: TYPE: PRECIP INSPECTION; MATERIAL: AL GR LM4 ALLOY; DIMENSIONS: DIA 570 X THK 17 MM; APPLICATION: PRECIPS; DRAWING NO: 0.45/57035 REV 0; ITEM TO BE MANUFACTURED AS PER ESKOM REQUIREMENT STANDARD; HANDLES INCLUDED; MATERIAL CERTIFICATE REQUIRED WITH EACH ITEM ON DELIVERY; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE). |
| <b>Refurbishment</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                         |
| GEARBOX:RAPPER;0.18 KW;R73R40DT63N4      | GEARBOX: TYPE: RAPPER; POWER: 0.18 KW; REFERENCE NO: R73R40DT63N4; PRECIP WIRE; VENDORS ARE RESPONSIBLE                                                                                                                                                                                                                                                                                                                 |

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|                                          | FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                                                                                                                                                                                                                           |
| DOSING PUMP DIAPHRAM METERING            | DOSING PUMP DIAPHRAM METERING LEWA LDB1/M5Z/25MM) SULPHUR METERING PUMP. LEWA. TYPE LDB1. ELEMENT GEAR RATIO. HYDRAULICFLUID PUMP HEAD SAE 10W/40. PERFORMANCE PRESSURE UP TO 700 BAR FLOW RATE UP TO 800 L/H PER PUMP HEAD TEMPERATURE UP TO 400° C, PUMP HEAD TYPES: PLUNGER- AND DIAPHRAGM PUMP HEADS CAN BE MOUNTED DRIVE: AC AND DC MOTORS, FREQUENCY INVERTER POSSIBLE |
| PUMP:ASPHALT;Q34                         | PUMP: TYPE: ASPHALT; REFERENCE NO: Q34; WITH SEW GEARBOX RX81 MOUNT ON PEDESTAL WITHOUT MOTOR                                                                                                                                                                                                                                                                                |
| GEARBOX:MOTOR;3800:1;0.36 RPM;0.37-51 KW | GEARBOX: TYPE: MOTOR; RATIO: 3800:1; SPEED: 0.36 RPM; POWER: 0.37-51 KW; SUPPL P/N: 583-6-0-01; NEW PRECIP'S, FOR THE COLLECTOR AND DISCHARGE RAPPERS, FOR UNIT 1,2,3 AND 4; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER (IF APPLICABLE).                                                                      |

### 3.2.2 DESIGN LIFE

The design life of the plant is till end of Kriel Power Station life 2038.

### DOCUMENTATION SUBMISSION AND RECORDING

The supplier is to provide the following documentation.

- Type test results certificates
- Quality Control Process files (for quality assurance)
- Installation and Commissioning Manuals

### 3.2.3 PLANT CODIFICATION

Kriel Power Station uses the AKZ numbering system.

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### **3.3 STANDARDS, SPECIFICATIONS AND PROCEDURES**

All material and equipment shall be new and of the standard and quality specified. The design and manufacture of equipment and the complete installation shall be carried out and tested in accordance with the latest issue or amendments of the following Standards and Regulations, as applicable:

**Table 1: Relevant Standards and Codes**

| <b>Document Number</b>   | <b>Title</b>                                                       |
|--------------------------|--------------------------------------------------------------------|
| <b>Eskom Standards</b>   |                                                                    |
| 240-28463367             | SHE Organization                                                   |
| 240-30008949             | Safety, Health and Environmental Specifications for Contractors    |
| 240-49230111             | Hazard and Operability Analysis (HAZOP) Guideline (Rev 1)          |
| 240-55944466             | Supplier Contract Quality Requirement's Specification              |
| 240-56364545             | Structural Design and Engineering Standards                        |
| 32-421                   | Cardinal Rules                                                     |
| 36-681                   | Generation Plant Safety Regulations                                |
| OPS 0158                 | AKZ Power Plant Classification System                              |
| QM 58                    | Supplier Contract Quality Requirements                             |
| <b>General Standards</b> |                                                                    |
| 7.1/ST/02                | Quality Requirements for Engineering and Construction work         |
| ISO 9001                 | Quality Management Systems.                                        |
| OSH Act 85 of 1993       | Occupational Health and Safety Act and Regulations Act 85 of 1993. |
| SANS 10064               | The Preparation of Steel Surfaces for Coatings                     |
| SANS 10108 (2005)        | Classification of Hazardous Location (Electrical Plant)            |
| SANS 10142               | The Code of Practice for the Wiring of Premises                    |

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#### 4. AUTHORISATION

This document has been seen and accepted by:

| Member Name       | Designation                                 |
|-------------------|---------------------------------------------|
| 1. Thulani Ndlovu | Engineer, Kriel Auxiliary Plant Engineering |
| 2. Spha Biyela    | Advisor, Kriel Senior Advisor Technical     |
| 3. Tivane Feyane  | Engineer, Kriel Boiler Plant Engineering    |
| 4. Njabulo Ndlovu | Technician, Technical Support               |

#### 5. REVISIONS

| Date       | Rev. | Compiler | Remarks        |
|------------|------|----------|----------------|
| April 2023 | 1    | S Biyela | First revision |

#### 6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- Thulani Ndlovu
- Spha Biyela
- Amos Dludlu
- Danial Mahlangu
- Bheki Mkhabela
- Tivane Feyane
- Njabulo Ndlovu

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## **7. ACKNOWLEDGEMENT**

- Thabile Ngwenya
- Mulatedzi Mugwena

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## **8. APPENDIX A**

NOT APPLICABLE

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