

## 1. <u>SCHEDULE OF PRICES:</u>

All prices **exclude Vat** and additional items listed (with prices) shall be clearly labelled as <u>optional</u> or <u>essential</u>.

Item	Qty	Price per item	Price
<ul> <li>Replace two air cooled condensers(1/2Cu36-3-10-2100) (18) Condenser Coil-ACC015</li> <li>two air cooled packaged condenser, condenser coil:1/2 CU 36-3-10-2100(18),</li> </ul>	2		
<ul> <li>The air-cooled packaged condenser supplied with 3 x 500mm diameter condenser fan fitted on each unit, Fan capacity to be 0,55Kw, 380 volts, 1330/1030rpm, IP54, 50 HZ, VDK 4I.6S,03105331.</li> <li>The dimension of each air-cooled packaged Condenser unit shall be Size (1000x1203x2160)</li> <li>Air cooled packaged condenser similar or equivalent to the above specification will be acceptable.</li> </ul>			
2. Replace two Air cooled packaged condensers (½ CU 36-4-10-236018), Condenser coil ACC025	2		
<ul> <li>Replace two air cooled packaged condenser, Condenser coil: ½ CU 36-4-10-2360(18),</li> <li>The air-cooled packaged condenser with 4 x 500mm diameter condenser fan fitted on each unit, Fan capacity to be 0,55Kw, 380 volts, 1330/1030rpm, IP54, 50 HZ VDK 4I.6S,03105331.</li> <li>The dimension of each air-cooled packaged Condenser unit shall be Size (1000x2420x1203)</li> <li>Air cooled packaged condenser similar or equivalent to the above specification will be acceptable.</li> </ul>			



3.Refrigeration gas system			
Flush the existing old gas and re-gas.	1		
Detect the system gas leak and repair all leaks.	1		
Connection of refrigeration gas pipeline to all	1		
new system including air-cooled condensers,			
compressors, switches and valves.			
4.Compressors			
Supply and install 8 air conditioning hermetic	8		
reciprocating compressors with the following			
operating parameters			
operating parameters			
• Gross weight: 71.5 kg			
• Volume: 107.333liters			
Operating technique: Reciprocating			
compressor			
• Capacitor control: Fixed speed			
<ul> <li>Compressor power supply: 380 -400 V 50HZ</li> </ul>			
<ul> <li>Connection type: Roto lock</li> </ul>			
<ul> <li>Cylinder:4</li> </ul>			
• Diameter:352mm			
• Discharge:125mm			
• Discharge connection pipe:3/4in / 20 mm.			
• Discharge connection size :11/4 in / 70			
<ul><li>mm.</li><li>Factory Hp(bar):25bar</li></ul>			
<ul> <li>Factory LP (bar):25bar</li> </ul>			
• Frequency:50 HZ			
• Glass Torque (Nm):50Nm			
• GP LP torque (Nm):15Nm			
• High side TS Max150degrees C			
• High side Volume:1,2L			
• High value of nominal voltage at 50HZ:400V			
• IP Protection class: IP54 (With cable			
gland)			
Compressors similar to the existing Maneurop			
MT144HV4VE hermetic reciprocation compressor			
or equivalent will be acceptable.			
5.Switches and Valves			
• Supply and replace four HP/LP switch	4		
hermetic filter drier –			
MWP500PSIG/35BAR,7/8" Temperature			
Range: -40 to +160degreesF OR -40 TO			
+70 degrees C.			
similar or equivalent will be acceptable.			
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Supply and replace four low ambient     pressure controlles - (Ambient temp 80     "C(176 °F for max 120 min, Ambient     temp range(max) 65 °C, Max working     pressure 510psig, ambient temperature     arangetmin) -40 °C, Contact ratings 10A at     400V, Differential (Aray 3bar, Differential     (psi):43psi, Regulation     range(max):32bar, Regulation     range(max):42bar, Asset in the     supply and replace four PLS valve 7/8 sweab,     similar or equivalent will be acceptable.     Supply and replace four H/S valve 7/8 sweab,     simply and replace four H/S valve 7/8 sweab,     simplar or equivalent will be acceptable.     Supply and replace four the arity pressure     4     switches compatible with the existing DPS     200, similar or equivalent will be acceptable.     Supply and replace the two existing motors, -     1440RPM 5.5 KW, 4 Pole 380V and replace 2     x pillow bearing 3/8in 1D,3X V-belt on the     perimeter zone. Far speed 610 pm, the     repairs must chable the system to meet the specified supply air     quantity requirements of 62, 6mi/s     Repair and balance two blower fans in the     perimeter zone. Far speed 610 pm, the     repairs must chable the system to meet the air     quantity requirements of 62, 6mi/s     Repair and balance two blower fans in the     perimeter zone. Far speed 610 pm, the     repairs must chable the system to meet the air     quantity requirements of 62, 6mi/s     Repair and balance two blower fans in the     perimeter zone. Far speed 610 pm, the     repairs must chable the system to meet the air     quantity requirements of 62, 6mi/s     Repair and balance two blower fans in the     perimeter zone. Far spe	r		
*C/176 *F for max 120 min, Ambient         temp range(max) 65 °C, Max working         pressure 510psig, ambient temperature         range(min) 40 °C, Contact ratings 104 at         400V, Diffeential(dawi):3bar, Differential         (psi):43psi, Regulation         range(bar)(max):32bar, Differential         (psi):43psi, Regulation         range(bar)(max):32bar, Regulation         range(bar)(max):32bar, Barding         voltage:4kv, Shot circuit prot., fuse:16A.         Supply and replace four expansion valves -         (10PL, VIF6A) Alco TER-26), Similar or         equivalent will be acceptable.         Supply and replace four H/S valve 7/8 sweab,         similar or equivalent will be acceptable.         Supply and replace four H/S valve 7/8 sweab,         switches compatible with the existing DPS         200, similar or equivalent will be acceptable.         Supply and replace four there air pressure         Supply and replace four the air pressure		4	
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pressure 510psig, ambient temperature range(min) -40 °C. Contact ratings 10A at 400V. Differential(bar):3bar, Differential (psi):43psi, Regulation range(bar)(ma):32bar, Regulation range(bar)(min):8bar, Insulation:400V, Pollution degree:3, Rated impulse voltage:4kv, Short circuit prot., fuse:16A.			
range(min) -40 °C, Contact raings 10A at 400V, Differential(bar):3bar, Differential (psi):43psi. Regulation range(bar)(max):3bar, Regulation (UFT, VIF6A) Alco TER-26), similar or equivalent will be acceptable. Supply and replace four H/S valve 7/8 sweab, 4 switches compatible with the existing DPS 200, similar or equivalent will be acceptable. Supply and replace four filter air pressure 4 switches compatible with the existing DPS 200, similar or equivalent will be acceptable. 5Upply Air Blower fans system and Electrical heating elements Supply and replace the two existing motors, - 1440RPM 5,5 KW, 4 Pole 380V and replace 2 x pillow bearing 3/8in ID.3, V-belt on the perimeter zone. The replacement motors must be compatible to meet the specified supply air quantity requirements of 62.6m./s Repair and balance two blower fans in the perimeter zone. Fan speed 610 rpm, the repairs must enable the system to meet the air quantity requirements of 62.6m./s Repair Drive details, Motor pulley:2 off SPA- 106-2gr, motor bush:38mm, Fan pulley:2 off SPA-250-20GR, Fan bush:35mm, Belts:4Xspa-1250, Bearings:4 off UCP-207 similar or equivalent will be acceptable. Repair motorized dampers to meet the 2 requirement of the supply air Ax working pressure: 17 bar/245 psig 35 bar/510 psig Repair all electrical heating elements on the supply air ducting 7.Electrical Panel Supply and replace circuit breaker with capacity iculoka at400v,2.5A:4A X66			
400V, Differential(bar):3bar, Differential       (psi):43psi, Regulation         range(bar)(max):32bar, Regulation       range(bar)(min):8bar, Insulation:400V,         Pollution degrees:3, Rated impulse       4         voltage:4kv, Short circuit prot., fuse:16A.       4         Supply and replace four expansion valves –       4         (10Ft, VIF6A) Alco TER-26), similar or       4         equivalent will be acceptable.       5         Supply and replace four H/S valve 7/8 sweab,       4         similar or equivalent will be acceptable.       4         Supply and replace four filter air pressure       4         Supply and replace four expansion motors, -       2         Electrical heating elements       5         Supply and replace the two existing motors, -       2         1400RPM S, 5K W, 4 Pole 380V and replace 2       2         x pillow bearing 3/8in ID,3x V-belt on the       5         perimeter zone. The replacement motors must       5         be compatible to meet the specified supply air       2         quantity requirements of 62,6m3/s       2         Repair Drive teatils, Motor pulley:2 off SPA-       2         106-2gr, motor bush:38mm, Fan pulley:2 off       2         106-2gr, motor bush:38mm, Fan pulley:2 off       2         Pelits:4Xspa-1250, Beari			
(psi)-33psi. Regulation       range(bar)(max):32bar. Regulation         range(bar)(mix):3bar. Insulation:400V,       Pollution degree:3. Rated impulse         voltage:4kv, Short circuit prot., fuse:16A.       4         Supply and replace four expansion valves –       4         (10Ft, VIF6A) Alco TER-20, similar or       4         equivalent will be acceptable.       4         Supply and replace four H/S valve 7/8 sweab,       4         similar or equivalent will be acceptable.       4         Supply and replace four filter air pressure       4         switches compatible with the existing DPS       200, similar or equivalent will be acceptable.         6.Supply Air Blower fans system and       Electrical heating elements         Supply and replace the two existing motors, -       2         1440RPM 5,5 KW, 4 Pole 380V and replace 2       x         y pillow bearing 3/8in D,3X V-belt on the       2         perimeter zone. The replacement motors must       2         be compatible to meet the specified supply air       2         quantity requirements of 62,6m/s       2         Repair and balance two blower fans in the       2         perimeter zone. Fan speed 610 rpm, the       2         repairs must enable the system to meet the air       2         106-2gr, motor bush:38mm, Fan pulley:2 off SPA- <td></td> <td></td> <td></td>			
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Supply and replace circuit breaker with capacity icu100ka at400v,2.5A-4A X66			
capacity icu100ka at400v,2.5A-4A X6			
		6	
Icu:100Ka.	1 0		
	Icu:100Ka.		



Supply and replace triple single breaker 16	5	
Amps MN116Z 444702 0,230 vac X5		
Supply and Replace Input 400Vac, Output	1	
110Vac,50/60Hz stepdown transformer.		
Supply and Replace 80Amps, 3phase	6	
contactor,2NO,2NC with auxiliaries with		
230vac coil voltage x6.		
Supply and Replace step down transformer	1	
input voltage 0-230V ac output 0-24Vac		
rating100VA		
Supply and Replace relay 10A,250Vac,24vac	25	
coil voltage, coil current :53mA, coil	_	
resistance 1900hmsX25.		
Supply and Replace	6	
contactor:3pole,4kw,9A,24Vcoil X6	Ũ	
Supply and Replace contactor - 3P (3 NO) -	6	
AC-3 - $\leq$ 440 V 32 A - 24 V AC coil X6.	Ū	
Supply and Replace contactor	5	
400vac,32Amps,220coilvoltage with1n/o and	5	
1n/c X5.		
8.PLC Control System and drive		
Supply, install and program drive,18,5kw	1	
which control the speed of the extractor fan	1	
motor with the same or compatible drive and		
wiring.		
Supply, install and program PLC control	1	
	1	
system for the complete operation of the spray booth, including all application modes for		
spray painting mode, pre- heating mode, and		
baking mode		
9.Cooling Coil perimeter blower unit		
	1	
Repair and flush Air on coil evaporator: $1/2$	1	
CX 6-3-8-3850(2x27) similar or equivalent		
will be acceptable.	1	
Repair and flush Air off coil evaporator: 1/2	1	
CX 6-4-10-3850(2x36) similar or equivalent		
will be acceptable.	1	
Restoration of Saturated suction temperature	1	
:8 degrees C	1	
Restoration of Saturated condensing	1	
temperature :50 degrees C		
Clean any residues of melted coil insulation	4	
from other parts of the device or replace such		
parts.		
Check for cracks, breaks or deep erosion. Arc	1	
hoods and chutes should be repaired or		
replaced if damaged or deeply eroded.		



		[	
10.Filters perimeter			
Supply and replace $12 \times 600 \times 600 \times 50(x2)$	2		
filters			
Supply and replace 61cmx61cmx18 filters in	1		
the perimeter zone.			
11.Extractor Fan			
Supply, replace and repair motor rated	1		
output:18,5kw, speed:1470r/min,			
supply:380/3/50, frame size:180M, Enclosure:			
IP55, REARING:6311-C3, NDE			
Bearing:6211-Z-C3 the replacement motor			
must be compatible to meet the exhaust air			
quantity of 57m3/s			
Repair and balance fan, series BC90, size	1		
800C/1.0, impeller diameter:800mm, Fan			
speed:1177r/min, cass:2, op. temp:20degrees			
C, Max temp:40degrees C, de bearing			
SNL22210, NDE Bearing SNL C2210, the			
repairs must enable the system to meet the			
exhaust air quantity of 57m3/s			
Belt drive Fan pulley: diameter200-4SPA	1		
Bore:45mm, Motor Pulley diameter160-4SPA			
Bore48mm, Vee-belts:13N (2800) qty per			
set4, Tension Force 35N, Belt			
deflection:18mm			
12 Test and commission			
Provision to be made for all required	1		
documentation under 18.1			
Issue a COC for the Electrical work that was	1		
done.			
Test, commission and hand over to production.	1		
The electrical installation and issuing of	1		
certificate of compliance shall bein accordance			
with SANS 10142-1.			
• Make and supply 2 sets of hardcopy	1		
drawings and 1 set of pdfdrawings in			
a USB memory stick.			
• The drawing shall have the components			
symbols recognized inelectrical and			
<ul><li>mechanical engineering.</li><li>The drawing shall have the legends and</li></ul>			
<ul> <li>The drawing shan have the regends and notes.</li> </ul>			
The drawing shall show the component's			
rating, sizes, capacity, e.gamperage, voltage,			
capacitance, etc.			
Test and commission.	1		
The entire air-condition system shall be fully	1		
functional on handover.	1		
	1		



13.Training		
Training must be provided on the operation	1	
and maintenance of the entire air		
conditioning unit		
Sub-Total (excl. VAT)		R

## Vat (15%)

R

## Grand -Total (incl. VAT) R

 Name:
 Khethu Nzuza
 Designation:
 Engineering Technician
 Signature and date:
 12/06/2024

 Name:
 Max Dladla Designation:
 Engineering Technician
 Signature and date:
 12/06/2024

 Name:
 Mhlonipheni Nxumalo
 Designation:
 Executive Manager
 Signature and date:
 12/06/2024