

**MINISTRY OF OIL
MIDLAND REFINERIES CO. (G.CO.)
(DAURA REFINERY)**

ADVERTISEMENT

MIDLAND REFINERIES CO. ANNOUNCES FOR PURCHASING THE MATERIALS AS STATED BELLOW:-

REQ.NO.	DESCRIPTION	QTY.	PRICE/ ID DINAR	عدد مرات الاعلان مرة اولى
3600/2011	AIR PLANT UNIT THREE CENTRIFUGAL TURBO TYPE AIR COMPRESSORS WITH EXTERNAL COOLERS	3 NOS	150 000	

NOTE:

1. THE REQ. TO BE SOLD IN IRAQI DINAR, UN RETURNABLE.
2. WE PREFER PRICES IN US DOLLAR AND CIP BAGHDAD (DAURA REFINERY) AND NOT ACCEPTABLE BY LOCAL CURRENCY FOR FOREIGN REQ.
3. CLOSED (TECHNICAL & COMMERCIAL) OFFERS TO BE SUBMITTED SEPARATELY BY (DHL) & ALL THE OFFERS THAT SEND BY E-MAIL WILL BE REFUSED.
- ALL PAGES OF TECHNICAL & COMMERCIAL OFFER SHOULD NUMBERED WITH ATTACHMENT
4. ALL DOCUMENTS (PROFILE) AND SIMILAR CONTRACTS WHICH THEY ACHIEVED ISSUED BY GOVERNMENTAL CONTRACTS MUST BE SUBMITTED BEFORE PURCHASING THE REQ. OR THE OFFERS OTHERWISE THE OFFER WILL BE REFUSED
5. TERMS OF PAYMENT IS BY IRREVOCABLE & UN CONFIRMED LETTER OF CREDIT TO BE PAID 100% AFTER THE RECEIPT OF GOODS IN BAGHDAD COMPLETE AND AS ORDER.
6. AN UNCONDITIONAL PERFORMANCE BOND OF 5% OF TOTAL AMOUNT OF THE L/C TO BE SUBMITTED WITHIN TWO WEEKS FROM THE DATE OF THIS ORDER IN FAVOUR OF (MIDLAND REFINERIES CO.) TO BE RELEASED AFTER THE RECEIPT OF GOODS COMPLETE AND AS ORDERED.
7. THE TOTAL VALUE DELAY PENALTY SHOULD BE APPLIED AND NOT EXCEED 10%
8. THE BID BOND SHOULD BE SUBMITTED 1% FROM THE TOTAL VALUE OF YOUR OFFER (COMMERCIAL OFFER) AS (LETTER OF GUARANTEE OR CERTIFIED CHEQUE OR BANK GUARANTEE) **ORIGINAL COPY** ISSUED FROM (TRADE BANK OF IRAQ, DAR ESSALAAM INVESTMENT , ALA ATIMAN , BYBLOS, ISLAMIC BILAD , MIDDLE EAST ASHUR INTERNATIONAL BANK FOR INVESTMENT) RELEASED IMMEDIATELY IN CASE THE REQUEST IS NOT AWARDED TO THE COMPANY.
- THE CHEQUE & THE BANK GUARANTEE THAT ISSUED FROM AL WARKA BANK ARE NOT ACCEPTABLE
9. THE COMPANY MUST SUBMIT ACOVENANT ENCLOSED WITH THE TECHNICAL OFFER THAT THEY HAVE SUBMITTED ABID BOND (**ORIGINAL COPY**) WITH COMMERCIAL OFFER AND (WITHOUT STATING THE AMOUNT OF THE BID BOND) OTHERWISE THE OFFER SHOULD BE NEGLECTED
10. 3% OF TOTAL VALUE OF THE PURCHASE ORDER FOR IRAQI COMPANIES ALSO IN CASE THE PAYMENT OF PAYABLE IN IRAQI DINAR TO BE DEDUCTED AS TAXES AND RETURN THROUGH TAXES OFFICE
11. 0.002 STAMP DUTY SHOULD BE DEDUCTED .
12. ORIGIN CERTIFICATE & COMMERCIAL INVOICES SHOULD BE APPROVED BY IRAQI EMBASSY/ COMMERCIAL ATTACHED IN COUNTRY OF ORIGIN
13. ALL OFFERS AND CORRESPONDENCES SHOULD BE CLEARLY SIGNED BY GENERAL MANAGER OR WHOM ARE OFFICIALLY EMPOWERED VIA A POWER OF ATTORNEY OTHERWISE THE OFFERS SHOULD BE NEGLECTED
14. **CLOSING DATE IS- 12/7/2011 TILL (1) O, CLOCK (AFTER NOON)**

NOTE:- YOU CANFIND THE CONDITIONS OF SUBMITTING OFFER ON

WEBSITE : www.oil.gov.iq OR www.dauramrc.com

**SAAD NOORI MOHAMMED
G. MANAGER**

شركة مصافي الوسط

M.R.C

شروط تقديم عروض الطلبات الاسترادية

CONDITIONS FOR PRESENT IMPORT REQUISITIONS TENDERS

1. PAYMENT : BY IRREVOCABLE UNCONFIRMED AND UNTRANSFERABLE LETTER OF CREDIT (L/C) TO BE PAID 100% AFTER RECEIPT OF MATERIAL COMPLETE AND AS ORDERED , THE ABOVE PERCENTAGE CAN BE CHANGED AGAINST BANK GUARANTEE , CONFIRMATION CHARGES TO BE BORNE BY SUPPLIER (SECOND PARTY) IF REQUESTED - WE CAN PAY IN IRAQI DINAR AND EQUAL THE VALUE OF THE PURCHASE ORDER FOR IRAQI COMPANIES ALSO IN CASE OF THE COMPANY (SECOND PARTY) REQUEST THAT INSTEAD OF L/C AND HAS (ACCOUNT NUMBER) INSIDE IRAQ.	١- شروط الدفع المعتمدة لدينا / اعتماد مستندي غير قابل للنقض او التحويل وغير مثبت وتطلق المستحقات ١٠٠% بعد استلام المواد كاملة ومطابقة ويمكن الاتفاق على نسب اخرى مقابل ضمانات ويتحمل المجهز مصاريف تثبيت الاعتماد في حالة طلبه ان يكون الاعتماد مثبت - يمكن دفع المبالغ بما يعادل مبلغ امر الشراء بالدينار العراقي للشركات العراقية او الشركات التي ترغب بذلك وبدون فتح اعتماد في حالة توفر حساب مصرفي داخل العراق .
2. SUPPLIER (SECOND PARTY) MUST SUBMIT A BID BOND 1% OF TOTAL VALUE OF HIS OFFER (BANK GUARANTEE , LETTER OF GUARANTEE OR APPROVED CHECK) (ORIGINAL COPY) WITH THE COMMERCIAL OFFER THE BID BOND SHOULD BE RELEASED IN CASE OF NOT AWARDING THE REQUISITION AND TO BE CONFISCATED IF SUPPLIER (SECOND PARTY) NOT BE BOND REGARDING HIS OFFER AFTER INFORMING THE AWARDING AND TO BE NEGLECT THE OFFER IF SUPPLIER NOT BE SUBMITTED THE BID BAND	٢- يقدم المجهز تامينات اولية مقدارها (١%) من قيمة العطاء (خطاب ضمان او صك مصدق او كفالة مصرفية) (نسخة اصلية) ويوضع في العرض التجاري ويتم اطلاق هذه التامينات في حالة عدم الاحالة عليه وتصدر في حالة عدم التزامه بالعرض بعد تبليغه بالاحالة ويهمل العرض في حالة عدم تقديم التامينات الاولى
3. DELIVERY PERIOD SHOULD BE EXACTLY SHOWN.	٣- يتم تحديد فترة التجهيز ولا تقبل عبارة (من - الى)
4. WE PREFER PRICES IN US DOLLAR AND CIP BAGHDAD (MIDLAND REFINERY COMPANY)	٤- يفضل تقديم العروض بعمللة الدولار واصل بغداد (شركة مصافي الوسط)
5. IN CASE OF PARTIAL SHIPMENT , NUMBER OF SHIPMENTS AND QTY TO BE MENTIONED IN THE OFFER AND TO BE SUPPLIED WITHIN DELIVERY PERIOD , PAYMENT WILL BE EFFECTED AFTER RECEIPT OF EACH SHIPMENT COMPLETE AND AS ORDERED .	٥- في حالة تجزئة الشحن يثبت ذلك في العرض مع تحديد عدد الشحنات وكمياتها ضمن فترة التجهيز وتدفق قيمة كل شحنة بعد استلامها كاملة ومطابقة
6. SUPPLIER (SECOND PARTY) BEAR THE RESPONSIBILITY OF THE INSURANCE OF THE MATERIAL TILL RECEIPT AT BUYER S SITE (FIRST PARTY) . UNLESS THERE IS ANOTHER AGREEMENT MENTIONED IN THE CONTRACT	٦- يتحمل البائع مسؤولية التأمين على البضاعة لحين وصولها الى المشتري الا اذا كان هناك اتفاق اخر يثبت في العقد
7. TWO OFFERS TECHNICAL & COMMERCIAL IN SEPARATED ENVELOPES SHOULD BE SUBMITTED, - REQ NO. , NAME OF SUPPLIER, CLOSING DATE SHOULD BE STATED, - IF THE TWO OFFERS ABOVE PUT IN ONE ENVELOPE BOTH OF THEM WILL BE REJECTED. ALSO OPEN OFFERS ARE REJECTED, TECHNICAL - SPECIFICATIONS SHOULD BE STATED CLEARLY.	٧- يقدم عرضان منفصلان / تجاري وفني يثبت على غلاف كلامهما رقم الطلبية / اسم المجهز / تاريخ الغلق وتكون المواصفات الفنية مفصلة وموقعة من قبل المجهز ويهمل العرض في حالة وضع التجاري والفني في ظرف واحد ولا تقبل العروض المكشوفة

8. THE NOT AS ORDERED OFFERS SHOULD BE DISREGARDED	٨- تهمل العروض الغير مطابقة للمواصفات
9. TECHNICAL INQUIRIES SHOULD BE EXECUTED BEFORE THE CLOSING DATE	٩- يمكن للمجهزين ان يرسلو استفساراتهم الفنية قبل تاريخ الغلق
10. OFFERS CANNOT BE ACCEPTED AFTER THE CLOSING DATE, CLOSED OFFERS TO SENT BY POST OR BY D.H.L ARE ACCEPTED AND SHOULD BE PUT TOGETHER WITH THOSE WHICH WERE BROUGHT BY HAND IN THE FOREIGN OFFERS BOX IN RECEPTION SECTION WITHIN THE CLOSING DATE PERIOD.	١٠- تهمل العروض التي ترد بعد تاريخ الغلق وتقبل العروض التي ترسل مغلقة بالبريد او D.H.L وتوضع مع العروض التي ترد باليد في صندوق استعلامات الشركة
11. OFFERS FOR MORE THAN ONE REQ. IN ONE ENVELOPE WILL BE REJECTED	١١- لايجوز وضع عروض لأكتر من طلبية في ظرف واحد حيث سيتم اهلها
12. PRICES TO BE FINAL NOT NEGOTIABLE AND OUR COMPANY IS NOT OBLIGED TO ACCEPT THE LOWEST PRICES .	١٢- الاسعار نهائية وغير قابلة للتفاوض وشركتنا غير ملزمة بقبول اوطا العروض
13. THE AWARD SHOULD BE IN FAVOR OF THE COMPANY WHICH SENT THE OFFER . BENEFICIARIES NAME CANNOT BE CHANGED	١٣- الاحالة تكون باسم الشركة التي قدمت العرض ولايجوز تغيير اسم المستفيد
14. SAMPLES IF REQUESTED SHOULD BE SENT AND RECEIVED WITHIN THE CLOSING DATE PERIOD	١٤- في حالة طلب النماذج فتقدم خلال فترة الغلق
15. OUR COMPANY HAS THE RIGHT OF ASSIGNING WHOLE OR PARTIAL TO MORE THAN ONE SUPPLIER	١٥- يمكن لشركتنا الاحالة على اكتر من مجهز
16. REQUISITION SHOULD BE BOUGHT WITHIN CLOSING DATE PERIOD . THE RECEIPT SHOULD BE PUT IN THE TECHNICAL OFFER . COMPANIES WHICH ARE REQUESTED DIRECTLY BY US ARE EXEMPTED BUYING THE REQUISITION	١٦- يتم شراء الطلبية خلال فترة الغلق ويوضع وصل الشراء مع العرض الفني / وتغفى الشركات التي تتم مفاتحتها من قبلنا من هذا الشرط
17. THE COMPANY MUST PRESENT AUTHORIZATION FROM THE MANUFACTURER AND TO BE APPROVED BY THE IRAQ EMBASSY IN THE MANUFACTURER COUNTRY TO SUPPLY THE REQUESTED MATERIAL	١٧- تقدم الشركة ما يؤيد بانها مخولة من قبل المصنع بتجهيز المواد ويكون التحويل مصدقا من السفارة العراقية في بلد المصنع
18. ALL OFFERS AND CORRESPONDENCES SHOULD BE CLEARLY SIGNED BY GENERAL MANAGER OR WHOM ARE OFFICIALLY EMPOWERED VIA A POWER OF ATTORNEY	١٨- يقوم المجهز بتثبيت اسم المدير العام للشركة او من يخولهم في العروض والمراسلات وبشكل واضح ورسمي
19. OFFERS AND OTHERS CORRESPONDENCES TO BE IN OFFICIAL PAPERS OF THE MANUFACTURER COMPANYS	١٩- تقدم العروض والمراسلات على اوراق الشركات المصنعة

20. COMPANIES WHICH ARE NOT REGISTERED IN OUR VENDERS LISTS MUST SEND ALL THE NECESSARY DOCUMENTS FOR REGISTRATION PURPOSES BEFORE PURCHASING THE REQUISITION WITH ANEW QUITTANCE ISSUED FROM GENERAL ASSEMBLY OF TAXES OR ENCLOSE WITH THE TECHNICAL OFFER OTHERWISE THE OFFER WILL BE REFUSED	٢٠- ترسل الشركات الغير مسجلة لدينا / كافة المستمسكات المطلوبة لغرض تدقيقها واعتمادها قبل شراء الطلبية مع براءة ذمة حديثة صادرة من الهيئة العامة للضرائب قسم الشركات او ترفق المستمسكات مع العرض الفني المقدم في حالة عدم تقديمها سابقا وبخلافه تهمل العروض *
21 SUPPLIER (SECOND PARTY) SUBMIT A PERFORMANCE BOND 5% OF TOTAL VALUE OF THE CONTRACT AS SOON AS THE ACCEPTED COPY OF THE CONTRACT IS SIGNED TO MAKE THE L/C OPERATIVE VALID ONE MONTH AFTER THE DELIVERY PERIOD AND NOT RETURN UNLESS ACCEPTANCE FROM BUYER S (FIRST PARTY) - THE PERFORMANCE BOND SHOULD BE CONFISCATED IN CASE OF NOT SUPPLYING THE ORDER .	٢١- يقدم المجهز كفالة حسن اداء بنسبة ٥% من الكلفة الكلية للعقد حال توقيع امر الشراء كشرط لتفعيل الاعتماد وتبقى الكفالة نافذة لمدة شهر بعد فترة التجهيز ولايجوز سحبها الا بموافقة المشتري ويتم مصادرتها في حالة عدم الالتزام بتنفيذ العقد
22 . THE COMPANY'S ADDRESS (COUNTRY, CITY, STREET, NO. E-MAIL, TEL-NO.) SHOULD BE CLEARLY SHOWN. ALSO NAME AND ADDRESS OF THE BANK WHICH SUPPLIERS DEALING WITH (CORRESPONDENCE BANK) SWIFT CODE, ACCOUNT NO. AND E-MAIL. NO.	٢٢- على مقدم العرض بيان عنوانه الكامل (الدولة ، المدينة، الشارع، البناية ، العنوان البريدي ، الهاتف) وكذلك اسم وعنوان المصرف الذي يتعامل معه (المصرف المراسل) مع SWIFT CODE ورقم الحساب وعنوان البريدي
23 COUNTRY OF ORIGIN SHOULD BE ACCURATELY MENTIONED . STATING COUNTRY OF ORIGIN SUCH AS (ASIAN OR EUROPEAN) IS NOT ACCEPTABLE, - AFTER CONTRACTING ANY CHANGE OF COUNTRY OF ORIGIN ARE NOT ALLOWED - THE ROUTE OF SHIPMENT, PORT OF SHIPMENT , ENTRY POINT SHOULD BE MENTIONED , IN ORDER TO GET CUSTOMS EXEMPTION LETTER	٢٣- تحدد بلد منشأ البضاعة بشكل محدد (لايجوز ذكر المنشأ اوروبي او اسيوي فقط) وعند اصدار العقد لايجوز التغيير على منشأ البضاعة ويتم الالتزام بالمنشأ والمصنع عند التجهيز مع تحديد طريقة وميناء الشحن ونقطة الدخول لغرض الحصول على كتاب الاعفاء الكمركي
24 OFFERS SHOULD BE VALID 120 DAYS FROM THE CLOSING DATE AND CAN BE EXTENDED BY THE ACCEPTANCE OF BOTH PARTIES.	٢٤- يفضل ان تكون العروض نافذة لمدة ١٢٠ يوم من تاريخ غلق المناقصة / ويمكن تمديدها باتفاق المشتري والبائع
25 A FINE (DELAY PENALTY) SHOULD APPLIED AGAINST THE SUPPLIER (SECOND PARTY) NOT MORE THAN 10% OF TOTAL VALUE IN CASE OF NOT SUPPLYING THE REQUESTED MATERIAL WITHIN DELIVERY DATE STATED IN THE CONTRACT . ACCORDING TO THE FACTOR BELLOW PEMALTY PER DAY = <u>TOTAL VALUE OF THE PURCHASE ORDER</u> / <u>DELIVERY PERIOD (DAYS)</u>	٢٥- تفرض غرامة تأخيرية على المجهز لايتجاوز حدها الاعلى نسبة ١٠% من مبلغ عقد في حالة عدم تجهيز المواد بفترة التجهيز المثبتة في العقد ووفقا للمعادلة الاتية الغرامات لليوم الواحد = $\text{مبلغ العقد} \times 10\%$ مدة العقد (يوم)
26 SUPPLIER (SECOND PARTY) BEAR ADMINISTRATIVE CHARGES OF 20% OF TOTAL VALUE OF THE CONTRACT OR FROM THE UN EXECUTED PART VALUE IF HE FAILS	٢٦- يتحمل البائع (المجهز) التحويلات الادارية في حالة قيام المشتري بتنفيذ العقد بسبب عدم التزام البائع بتنفيذه (او جزء منه) وبنسبة ٢٠% من قيمة العقد او قيمة الجزء الغير منفذ

TO FULFILL HIS CONTRACTUAL OBLIGATION FULLY OR PARTIALLY	
27 IRAQI LAWS SHOULD BE APPLIED IF THERE WILL BE A DISPUTE BETWEEN THE BOTH PARTIES AND THE DISPUT TO BE UNDER THE IRAQI JUDGEEMENT	٢٧- تطبق القوانين والتعليمات المعمول بها في العراق في حالة وقوع منازعات او في كل مالم يرد به نص ويكون النزاع خاضعا "لولاية القضاء العراقي
28 3% FROM TOTAL VALUE OF L/C TO BE DEDUCTED AS TAXES AND RETURN THROUGH TAXES OFFICE FOR IRAQI COMPANIES OR IN CASE THE PAYMENT PAYABLE BY IRAQI DINAR ALSO FOR FOREIGN COMPANIES THAT YOU HAVE REGISTERED IN IRAQ OR HAVE BUREAU FOR FOLLOW UP	٢٨- تستقطع نسبة ٣% كامانات ضريبية وتعاد من خلال الهيئة العامة للضرائب بعد تقديم ما يثبت سلامة موقفهم بالنسبة للشركات العراقية او في حالة الدفع بالدينار العراقي كذلك بالنسبة للشركات الاجنبية المسجلة في العراق او وجود مكتب لمتابعة الاعمال
29 0.002 FROM TOTAL VALUE TO BE DEDUCTED AS STAMPS CHARGES	٢٩- ٠,٠٠٢ من الكلفة الكلية تستقطع كرسوم طابع
30 THE ACT 56 .1977 (DEBTS COLLECTION GOVERNMENTAL) SHOULD BE APPLIED REGARDING THE FINANCAIL DESERING SECOND PARTY .	٣٠- يطبق قانون تحصيل الديون الحكومية رقم ٥٦ لسنة ١٩٧٧ بأن المستحقات المالية تترتب لشركتنا بذمة الطرف الاخر
31 THE ORIGIN CERTIFICATE TO BE SUBMITTED FROM THE MANUFACTURER AND APPROVED BY (IRAQI EMBASSY IN THE COUNTRY OF ORIGIN) IN CASE OF REQUESTED BY US	٣١- تقدم شهادة منشأ من الشركة المصنعة للمواد وتكون مصدقة من قبل السفارة العراقية في بلد المنشأ في حالة طلب تقديمها من قبلنا
32 THE PAGES OF THE TECHNICAL AND COMMERCIAL OFFERS SHOULD BE NUMBERED WITH ATTACHMENT	٣٢- يتم ترقيم صفحات العطاء (الفني والتجاري) وكذلك المرفقات ان وجدت

REQ. NO. 3600/2011

MINISTRY OF OIL

MIDLAND REFINERIES CO .(G.CO.)

(DAURA REFINERY)

MRC

Air Plant Unit

**THREE CENTRIFUGAL TURBO TYPE AIR
COMPRESSOR WITH EXTERNAL COOLERS**

INTRODUCTION

Midland refinery CO. intend to buy three turbo air compressor each compressor capacity 3500 NM3/HR and one of them driven by steam turbine others should be driven by electric motor.

The compressor should be supplied as attached specifications.

The bidders requested to offer a break down prices for the scope of:

- Engineering.**
- Procurement and supply of equipment and material.**
- Pre- commissioning and active training of DAURA refinery personals.**
- Supervision for construction (except civil).**
- Equipment included in the scope of supply to be quoted on the basis of unit price for main equipment.**

- The bidder shall submit. Three copies of the technical offer and one copy of commercial offer.**
- all equipment should be (CIP Baghdad – daura refinery site).**

ARTICLE -1-

1-1PROCESS INFORMATION

DAURA REFINERY intends to buy three centrifugal air compressor turbo type at 8 bar g as an instrument air and plant air.

1-2 SCOP:-

1-2-1 The plant air unit should be designed to produce 10500m³/hr at 8 bar g by:

Three compressor should be installed in different places as following:

- multistage centrifugal compressor (turbo compressor) complete with electric motor prime mover and base plate with capacity 3500 m³/hr at(8 bar g)pressure (QTY – 2)**
- multistage centrifugal compressor (turbo compressor) complete with steam turbine prime mover and base plate ,the capacity of compressor should be 3500 m³/hr at 8 bar g (QTY – 1)**
- Air dryer with a capacity of 3500m³/hr for each dryer (QTY – 3)**

The proposal must have all accessories and auxiliaries necessary for satisfactory operation.

1-2-3 BASIC DATA

The process should be designed with the following ambient conditions:-

Atmospheric pressure	1.033 kg/cm²a
Air temperatures	-5 to 55c^o
Relative humidity	(12-90) %

1.3. Utility

1.3.1 Electricity

Electric power conditions are as follows:

50 HZ	3 phase	3300V	AC
50 HZ	3 phase	380V	AC
50 HZ	1 phase	220V	AC
50 HZ	1 phase	110V	AC

Voltage and freq. Regulation should not exceed $\pm 5\%$

1.3.2 Instrument air:

Pressure kg/cm² G 5-6

Dew point C° <-10

1.3.3 Plant air:

Pressure kg/cm² G 6

Temp. C° Ambient

1.3.4: Cooling water:-

Inlet cooling water

Temp. C° 35

Pressure kg/cm² G 2.2

Outlet cooling water

Temp. C° 45

Pressure kg/cm² G 1.1

1.3.5 .Steam:

Medium pressure 18.6 kg/cm² G

Super heated temp 260C°
Low pressure 1.31bar a

1-4 SITE CONDITION

1-4.1 wind

Wind velocity km/hr 160
Prevailing wind direction north west

1-4.2 Rain fall

Rain fall mm 15(max/hr), 62.5 (max/24hr)

1-4.3

Ambient temp. Under shade C° -8(min), 55(max)
Exposed metal temp for piping flexibility design e.t.c 82C°

1-4.4

Relative humidity (12-90) %

1-4.5 Earth quick

The site is not in earth quick zone

1-4.6

The site elevation above sea level is about (33m)

ARTICLE -2-

Scope of supply:

2-1 Codes and standards

The following codes and standards will be applicable

2-1.1 Machinery

API-610 centrifugal pump latest Edition
API-675 positive displacement (controlled volume)
API -611 Steam Turbine
API-672 Integrally geared centrifugal air compressor

2-1.2 Electrical:
IEC

2-1.3 Piping:
ANSI B 31-3, ASME sec-1

2-1.4 Heat exchangers:
TEMA class R and ASME code section VIII
API 650, API-640, API-661
ASME section VIII division-1

2-1.5 Instrument:
UL
ANSI B 2,1,16. 5
NEC

2-1.6 Safety;
API 520, API 521, ASME code section I & section VIII
Safety and fire protection requirements should be according to
NEPA code.
Pollution shall be relevant to U.S.A standard (EPA)
Noise shall be according to OSHA or relevant U.S.A standards

ARTICLE -3-

3- General specification

Compressor shall be complete with all accessories and auxiliaries necessary for satisfactory operation with prime mover and base plate compressor shall be absolute dry product air and oil manufactured accordingly with API 672 free horizontal split type (oil free.)

Out door under roof installation.

Inlet air specification as follow:-

Pressure (kg/cm²) abs: 1.033

Temp c°: -5 to 55

Relative humidity: 12-90 %

Molecular weight (m):29

Cp/CV: 1.4

Compressibility: 1

Out let air product shall be at rated 40 c°

3-1 Driver :

The driver should be foot mounted type so flange mounted driver not accepted

3-2 BASE PLATE:

The compressors and drivers should mounted on a common welded structural steel base plate by having a common base plate equipment alignment and assembly should simplified in the field.

3-3 INLET AIR FILTER:

Inlet air filters should be designed to remove 99% of all particles larger than 0.3 micron. The filters should be removable and cleanable

.

3-4 COOLERS:

Compressor must be furnished with external coolers for each stage (not built-in coolers) it should be easily maintained.

3-5 CONTROL SYSTEM:

The control system will include all devices for starting, stopping, controlling system pressure, and assuring safe operation with respect to lubrication, vibration, and temp. Compressor should be furnished with:

3-5-1 Complete automatic anti surge system.

3-5-2 Suitable unloading automatic blow off system with blow off valve and silencer.

3-5-3 Auto start system and automatic emergency stop.

3-6 SUCTION & DISCHARGE LINES:

3-6-1 Suction line should be furnished with silencer.

3-6-2 Discharge line should be furnished with check valve, silencer, separator and dryer.

3-7 OIL SYSTEM:-

3-7-1 Main & auxiliary oil pump with complete safety and control system shall be according to tender and API (614).

3-7-2 Twin oil filter with change over valve, filtration range (10 micron) with differential pressure indicator.

3-7-3 The oil filter should be cleanable.

3-7-4 Check valve at each line of oil pumps.

3-7-5 Electric oil heater with temp. Limitation.

3-7-6 All pipes filter shall be of stainless steel.

3-7-7 Over flow control valve between the discharge and suction line.

3-7-8 Two separate oil cooler handle type stainless steel internal with oil tube side.

3-7-9 Oil system shall be furnished with suitable- accumulator.

3-7-10 Oil system shall be furnished with main check valve

3-7-11 The auxiliary oil pump must be operated at least (15 min) after the compressor shutdown.

3-8 GENERAL

3-8-1 Piping flange and connection shall be in compliance with (ANSI) STD (B-31-3).

3-8-2 Speed reducer or increase r shall comply with AGMA STD (420-421).

3-8-3 Gear pump shall comply with (API 675).

3-8-4 Compressor shall be designed for continuous full load Operation - it shall be suitable to operate at differential pressure resulting from no load or partial load.

3-8-5 High speed balancing at the operating speed.

3-8-6 Sound level limit shall be according with API (615).

3-8-7 Shaft end for coupling fit shall comply with API (671).

3-8-8 Renewable shaft sleeve shall be furnished at inter stage. Close clearance point under all carbon ring packing and at shaft seal.

3-8-9 Replaceable thrust collars shall be furnished when they are required renewable labyrinths shall be provided at all internal close clearance points. It shall be stationary and easily replaceable.

3-8-10 Materials shall be in comply with ASTM standard.

3-8-11 Special tools.

3-9 BEARING

3-9-1 Radial bearing shall be sleeve bearing babitted and shall be split for ease of assembly.

3-9-2 Thrust bearing shall be of tilting pads (kings burry or Equal).

3-9-3 Bearing removal shall not require removal of the coupling hub to permit replacement of the bearing liners.

3-9-4 Bearing housing shall be separable from the casing axially split equipped with replaceable labyrinth type seals and deflectors.

3-9-5 Each shaft contain one impeller. (For turbo compressor only)

3-10 SEALS

3-10-1 Shaft seal –shaft sleeve shall be accessible for inspection and replacement with out removing the top halves of the casing or the head.

3-10-2 Sealing system shall be or restrictive carbon ring.

3-10-3 Separate lube and seal oil system.

3-10-4 Pressurized oil system shall be conform to the requirement of API standard (614).

3-11 COUPLING

3-11-1 Connection between the compressor driver and gear unit shall be gear type coupling with spacer. The coupling and spacer shall be dynamically balanced independently from the rotating assemblies to a tolerance suitable for the max allowable spaced.

3-11-2 Bolting shall be weight watched to permit random interchanges without alternate the balance.

3-11-3 Coupling hubs shall be provided with suitable puller holes

3-11-4 Guard shall be heavy and rigid enough to prevent contact with coupling or shaft as a result of badly contact

3-12 PROPOSALS

All proposal shall provide complete description information which are available at this stage regarding.

3-12-1 All completed data sheet required by the inquiry.

3-12-2 Details for the driver if it is furnished by the compressor manufacturer.

3-12-3 Successful bidder shall provide spare parts list for commissioning and two years operation.

ARTICLE -4-

4-1 STEAM TURBINE FOR COMPRESSOR

4-1-1 Turbine shall be manufactured according to API (611) with out any deviation.

4-1-2 Casing shall be fully horizontally split and with center line. Support (upper half casing can be removed with out disconnecting inlet or exhaust piping).

4-1-3 Rotor shall be of alloy steel shaft with removable thrust collar.

4-1-4 Turbine shall be of sleeve type radial babitted bearing.

4-1-5 Titling pad type thrust bearing (kings bury or equal).

4-1-6 Labyrinth type inter stage glands –easily removable.

4-1-7 Carbon ring type and gland easily removable, with leak off ring.

4-1-8 Turbine shall be forced lubricated with auxiliary electrical oil pump with reliable pickup system.

4-1-9 Bearing shall be water cooled (with water under 2.2 bar - 32C°).

4-1-10 Lubricating system shall be furnished with the following:
A-Oil cooler suitable material.

b- Duplex oil filter of (15) micron mesh with change over lever with differential gauges.

c- Suitable relief valve –check valves shall be furnished with the oil system.

d- Piping down stream the filter shall be of stainless steel & piping Up stream the filter shall be of carbon steel.

4-1-11 Turbine shall be of a power 20% more than the power of the comp. at rated condition.

4-1-12 Turbine rotor must furnished with lifting cam for rotor axial displacement.

4-1-13 Turbine shall be furnished with hand turning device for rotating check.

-10-

4-1-14 Turbine shall be furnished with (2 two) inlet and outlet gate valves and one full flow relief valve at outlet line with cantonal warning valve at the casing of the turbine.

4-1-15 Turbine trip system shall be consisting of:

A-Emergency shutdown.

B-Local manual trip.

c- Electrical and mechanical over speed system.

4-1-16 Turbine shall be furnished with (electrical +mechanical) tachometer.

4-1-17 Turbine shall be furnished with complete emergency (Interlock):

a- Oil pressure (alarm-shutdown).

B-Oil temp (alarm-shutdown).

4-1-18 Stop and throttle valve shall be furnished with positioner to get the actual position during the operating position.

4-1-19 Material code for the main items (casing-nozzle-shaft....) shall be super imposed.

4-1-20 Casing and rotor must be subjected to surface and sub surface:

A-Surface examination (by ultra sonic method –magnetic particle for blades and shaft).

B-X ray and hydrostatic test for casing.

C-X ray for 5% of welding joint for rotor-nozzles).

d- Hydrostatic test-dynamic rotor balancing test.

4-1-21 Steam consumption –condensate outlet condition shall be stated with the turbine specification.

4-1-22 Limit switch for shut down alarm (explosion proof).

4-1-23 Turbine shall be furnished with removable strainer of stainless steel material separately from the trip valve.

4-2 Turbine for extraction pump

4-2-1 Turbine shall be of (in between two bearing) design.

4-2-2 Turbine shall be back pressure design.

4-2-3 Turbine radial bearing shall be sleeve bailed type and anti friction ball bearing for thrust.

4-2-4 Bearing shall be ring lubricated type water cooled with water specification (2. 2 bar-32C°).

4-2-5

(TG) governor. Turbine shall be furnished with

4-2-6 Turbine shall be manufactured completely according to API (611)

4-2-7 Carbon ring floating sealing ring for both side.

4-2-8 Turbine shall be furnished with tachometers (Mech. +Elec.).

4-2-9 Turbine shall be furnished with Thermometer for both bearing.

4-2-10 Adequate cooler if necessary.

4-3 Centrifugal pumps:

Centrifugal pump complete with motor.

4-3-1 Pump shall be manufactured according to API (610) ten edition.

4-3-2 Pump shall be furnished with (John crane –Borgman – Mechanical seal.

4-3-3 Pump shall be furnished with flexible Meta stream coupling.

4-3-4 Mechanical seal shall be furnished according with API -682.

4-3-5 Coupling shall be balanced to class ISO (6.3).

4-3-6 Shaft end for coupling fits shall conform to API standard (671).

4-3-7 Dynamic balancing according to ISO (1).

4-3-8 Meterail code shall be API (C6-or-A8).

4-3-9 Motor shall be of 380 V -3 phase -50 HZ.

4-3-10 Mechanical degree of protection:

Eexd IIBT3 IP55 motor shall of a power 20% more than the rated power of the pump.

4-3-11 For centrifugal cantilever pump shall be labyrinth sealing type for bearing housing.

ARTICLE-5-

INSTRUMENTATION AND CONTROL FOR AIR COMPRESSOR

SCOPE OF SUPPLY

The scope of work shall include the supply and installation of the complete – control and instrumentation system. With all accessories of the compressor according to international standard. It shall include but not limited to the instruments and for the protection of the compressor the inter connection between the instruments boxes and local control panel.

Details of automation and control:

- Compressor and its auxiliaries shall be equipped with field and control panel mounted instruments required for the soft and correct operation.

The design, selection and installation of instruments shall be in accordance with the above codes and standards.

- Supplier shall define and supply the interconnection cable and termination requirements between the field items and local panel supplier shall clearly specify the power requirement.

- All the field mounted instruments and accessories shall be explosion proof.

- All switches are explosion proof.
- Pressure gauges shall be Bourbon type 150 mm Diameter 1/2 inches Npt connection.
- Dial thermometers shall be bimetallic type 150 mm Dial &1/2 inch Npt connection. With thermowell 3/4 inches Npt connection S.S 304.

-UPS System housed in metal clad free standing, floor mounting, IP31, ambient temperature 0-55⁰C with 100% redundancy and one NI-CD battery set for two autonomy. To ensure continuity of operation for control and start up the electrical oil pump at power failure for each compressors.

CONTROL PANEL

- The control panel shall be free standing enclosure according to area

Classification and conform to the following requirements

- 1- Interlock system for compressor must be furnished with two PLC (1st running, 2nd is stand by)
[Vibration monotor alarm and shutdown].
 - 2- Individual alarm indicator for each condition.
 - 3- Shutdown indicator.
 - 4- Running indicator.
 - 5- Emergency shutdown.
 - 6- Start –stop indicator.
 - 7- (PC) personal computer with software in each compressor.
- All the equipment on the control panel shall be identified with appropriate Tags-relevant all the equipment on the front panel including signal lamps push Buttons. Change over switches e.t.c shall indicate.
 - Local control panel complete with indicators and alarms shall be

Installed under A shade according to area Classification include but not limited to the following protection and indication devices & protection devices.

SHUTDOWN	ALARM	DESCRIPTION
*	*	Discharge temp. air
*	*	Low lube oil pressure
	*	High lube oil temp.
	*	High lube oil filter differential
	*	High lube oil cooler differential
*	*	Lube oil stand by pump
*	*	High vibration
	*	High temperature cooling water
	*	Low flow cooling water
*	*	Motor winding temperature.
	*	Bearing temperature for motor
*	*	Vibration monitor

INDICATING DEVICES:-

- 1- Discharge temp.**
- 2- Cooling water temp.**
- 3- Lube oil temp.**
- 4- Dis.press.**
- 5- Lube oil press.**
- 6- Diff. Press. For filter**
- 7- Diff. Press. For cooler**
- 8- Flow glass “sight glass “for lube**
- 9- Flow glass “sight glass “for cooling water**

Air Dryer:-

Type: heated desiccant Dryer

Gas to be drier Ed: air

Capacity: 3500 m³/hr

Pressure: 7 kg/cm²

Temp. : 50 C°

Drying cycle: 8 hours

Regeneration: electric heater

Electric supply: 380 /3/50 HZ

Drying Dew point: -20°

Working condition: Automatic

Accessories

1- Inlet oil filter

2- Outlet dust filter

3- Moisture meter

4- Two years recommended spare parts

ARTICLE -6-

6-1 ELECTRICAL EQUIPMENT

The contractor shall design and supply the electrical equipment to meet the following:-

a- Safety to persons.

b- Reliability efficient and smooth performance.

c- Easy maintenance and replacement.

d- Performance according to the last issue of I.E.C standard.

6-2

Codes and standards.

a- Recommendation and standards issued by I.E.C regulation.

B-Standards of the origin country when no I.E.C standards exists and in this case vender shall state in English to compare it with I.E.C

6-3

Documents to be prepared for approval shall include the following at least:-

a- Single line diagram (s) for power circuit.

b- Single line diagram (s) with metering, relays, inter locks and indications.

c- Motor lay out.

6-4

The contractor shall supply all the equipments and materials given below to the stated specifications which cover all the installation requirements:-

a- Suitable current transformers for metering and protection (core type).

b- Protection relays for over current and earth fault and motor Protection relay.

6-5

Motors:-

a- Electrical motors should be squirrel cage induction T.E.F.C. IP 55, weather protected, class F insulation B temperature rise, and 55 C° ambient temp. , 0.9 power factor, T4

B-Motor rated power shall be 120 % of the driven load rated power.

C-Power shall be supplied to motors as follows:-

0-99 KW 380V, 3 phase, 50 HZ

100 KW and above 3.3 KV, 3phase, 50HZ

d- M.V. motors should be complete with 220V, 50HZ space heater and Temp. Gauge for bearing and sensors RTD'S for winding .D.O.L.

E-Motors should be according to I.E.C. standards.

f-For each motor the following documents shall be supply:-

-Test certificate including no- load current.

-Instruction and maintenance manual, data sheet dimension drawing

, stator winding drawing.

-Each motor shall be provided with local start-stop push –buttons station. This push button station shall be equipped with ampere meter for motors of 3 KW and more.

ARTICLE -7-

TRAINING

The training to be provided by the contractor's shall concern the following classes of personal.

7-1 Basic Engineering Approval (40) man days in contractor's offices.

7-2 Training Condition:

Operation and maintenance

The envisaged having should take place under the following condition.

The total duration of the training shall be (40) man days in contractors offices and for operating compressors training shall take place in working session for the design and operating aspects in contractor's offices. The training will be contacted by specialists who are expert in their appropriate field.

ARTICLE -8-

VENDOR LISTS:-

8-1 COMPRESSOR:-

- 1- Ingersoll-Rand**
- 2- GE Oil & Gas**
- 3- Sulzer**
- 4- FS Elliott**
- 5- Cameron**

8-2 TURBINE:-

- 1- Dresser Rand**
- 2- Peter Brother hood**
- 3- Coppus**
- 4- Elliot**

8-3 PUMPS:-

- 1- (Flow serve)**
- 2- K.S.B**
- 3- Union**
- 4- Sulzer**
- 5- Gould**
- 6- Nouvo Pignone**
- 7- RUHR PUMPEN**

8-4 Instrument air dryer

Air dryer: Rimer –ALCO limited –England

PLC : simens with program

Solenoid valves: burkert, asco

Pressure gauges: Tc, wika, nuova fima

Other valves: Norgren martonair
Temp. Controllers: Eurotherm
Temp. Indicator: Eurotherm
Control valves: fisher, keystone, masoneilan

8-5 INSTRUMENT –AIR COMPRESSORE

PLC –smatic -7 :semens or alen bradly
Vibration monitor : Bently Nevada model =3500
Transmitteres : Fisher –Rosemount –Foxboro
Pressure switches : delta ,UE
Temp. Switches : delta ,UE
Pressure gauges :TC ,wika
Dial thermometer :TC,wika
Solenoid valves :ASCO ,burkert
Control valves :fisher ,keystone ,masoneilan
Fittings :Parker
Flanged products : Parker
Hand valves : Parker
Manifolds : Parker
Glands : Parker

8-6 ELECTRICAL VENDOR LIST

MV and L.V motors :--
ACEC :BELGUIM
BROOK :Germany
SIEMENS :Germany
SCHORCH :Germany
- PROTECTION RELAYS :-
P and B :England
SIEMENS :GERMANY
SEG :GERMANY

NOTE :- protection relays should be provided with catalogues for installation and settings (English language).

TO :

1-CAMERON Compression Systems

**ADDRESS : 3101 Broadway – P.O. Box 209
Buffalo , New York 14225 – 0209 / Usa
E – Mail : patrickhirsch@c-a-m.com**

2-G.E. OIL & GAS

**Amir Nashif – Global Services
Sales Manager / IRAQ & The Levant
ADDRESS : NUOVO PIGNONE SPA
VIA FELICE MATTUCCI, 2
50127 FIRENZE – ITALY
E – Mail : amir.nashif@ge.com**

3-FS – ELLIOTT CO. , LLC

**ADDRESS : 5710 MELLON ROAD
EXPORT, PA 15632 – 8948 / USA
E – Mail : info@fs-elliott.com**