# MATERIAL REQUISITION
# FOR
# COMPLETE DRIVING UNIT INCLUDES
# SHAFT AND BEARING BLOCK

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|---|---|---|---|---|---|
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| 0 | 26.Apr.2023 | Issue for Procurement | A.Shaterpour | M.Jahanshahi | P.Karimizadeh |
| Rev. | Date | Description | Prepared | Checked | Approved |

| Project No.: 17198 | | MATERIAL REQUISITION | AAC |
|---|---|---|---|
| Req. No.: 1425/2 | | | |
| Rev. No.: 0 | | | |
| Preliminary |  | Code No.: QF-TE-02 | ENGINEERING DEPARTMENT |
| | | | ERP : 152842 |
| Final |  | Date & Rev.: 1393/09/10 - 4 | SRD : 20.Jun.2023 |
| | | | PAGE 2 OF 8 |

## TABULATION OF REVISED PAGE

| Page | Revisions | | | | | | | Remarks | Page | Revisions | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | |
| 1 | X | | | | | | | | 35 | | | | | | | | |
| 2 | X | | | | | | | | 36 | | | | | | | | |
| 3 | X | | | | | | | | 37 | | | | | | | | |
| 4 | X | | | | | | | | 38 | | | | | | | | |
| 5 | X | | | | | | | | 39 | | | | | | | | |
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## 1- PURPOSE

The purpose of this document is to define vendor's scope of supply of **Complete Driving unit includes Shaft and Bearing Block** in this requisition.

## 2- DEFINITION

For the purpose of this material requisition, the following definitions shall apply:

Contractor: ABAN AIR COOLER (AAC)

Vendor: (to be defined)

## 3- LIST OF EQUIPMENT INQUIRED

| ITEM NO. | TAG NUMBER | QTY. | DESCRIPTION | LOCATION |
|---|---|---|---|---|
| 1 | **1821E004** | 2 | Air Cooler | |

## 4- APPLICABLE CODES & STANDARD

Not Applicable.

## 5- REQUIRED DOCUMENTAION

Not Applicable.

## 6- SCOPE OF WORK , SUPPLY & SERVICES

| POS | ITEM | DESCRIPTION | MATERIAL | QTY. | REMARKS (Total Weight) |
|---|---|---|---|---|---|
| 1 | **1821E004** | Bearing Block Assembly | - | **2 Set** | **240 Kg** |

## 7- SPARE PARTS

Not Applicable

## 8- DEVIATIONS/EXCEPTION/ALTERNATION FROM MATRIAL REQUISITION'S REQUIREMENTS

If any, shall be mentioned by vendor.

## 9- TECHNCAL NOTES

1- Bearing blocks contains shaft housings, upper and lower bearings and suitable housings.
2- Manufacturer is asked to present enough details for the reliability of the bearing blocks.

**St50-1 K (St50-2)**

1) Steels shall be produced in accordance with DIN 17100 latest edition. The material specification shall conform to specification 1.0050.
2) The required test reports shall be submitted in accordance with code.
3) Heat treatment shall be applied as per code.
4) Relevant marking position shall be done on products.
5) The surface of the product shall be free from oxide inclusion or corrosion damage & defects such as pitting.
6) Required material test certification: DIN 50049-3.1. or/EN 10204-3.1.
7) Language for material test report: ENGLISH

**St52-3**

1) Steels shall be produced in accordance with DIN 17100 latest edition. The material specification shall conform to specification 1.0570.
2) The required test reports shall be submitted in accordance with code.
3) Heat treatment shall be applied as per code.
4) Relevant marking position shall be done on products.
5) The surface of the product shall be free from oxide inclusion or corrosion damage & defects such as pitting.

6) Required material test certification: DIN 50049-3.1. or/EN 10204-3.1.
7) Language for material test report: ENGLISH

**St37-2**

1) Steels shall be produced in accordance with DIN 17100 latest edition. The material specification shall conform to specification 1.0037.
2) The required test reports shall be submitted in accordance with code.
3) Relevant marking position shall be done on products.
4) Negative cutting tolerances will be not accepted.
5) The surface of the product shall be free from oxide inclusion or corrosion damage & defects such as pitting.
6) Required material test certification: DIN 50049-3.1. or/EN 10204-3.1.
7) Language for material test report: ENGLISH

**SA 325 (8.8)**

1-The material certificate including chemical analysis & mechanical properties shall be submitted.
2-For material characteristics refer to ASME Sec. II part A. the latest edition of code shall be used.
3-The scale-free bright finish is required.
4-bolting shall be heat-treated in Electrical Resistance furnace by quenching in a liquid medium and tempering to a temperature of at least 800F.
5-Chemical analysis shall be performed in accordance with test methods A 751.
6-An analysis of each heat of steel shall be made by manufacturer to determine the percentages of the elements specified in section 7 & this analysis shall be made from a test specimen taken during pouring of the heat.
7- The bolts shall conform to the hardness 253-319 HB (25-34 HRC).
8-Bolts shall be furnished with nuts, & nuts shall conform to specification A563/A563M.
9-All bolts shall be threaded in accordance with ANSI B1.1 class 2A fit, with the Unified coarse- thread series.
10-Required material test certification: DIN 50049-3.1. or /EN 10204-3.1.
11-Language for material test report: ENGLISH.

**S.S 304**

1. For material characteristics refer to ASME Sec. II part A, latest edition.
2. The steel shall conform to applicable requirements of the specification **A480/480M**.
3. The steel shall be made by one of the following process: **electric-arc**, **electric-induction**.
4. Steel producer shall make an analysis of each heat. The steel shall not contain unspecified elements.
5. Finish for plates: hot–rolled or cold rolled, annealed and pickled.
6. **Heat treatment**: the steels shall be **solution–annealed** consists of heating the material to a temperature of 1900˚F (**1040 ˚C**) **minimum** for an appropriate time followed by **water quenching** or rapidly cools by other means & shall be capable of meeting the requirements for resistance to inter granular corrosion.
7. Plate shall be marked in two places near the ends or may be continuously.
8. Maximum hardness shall be **201 HB** or **92 HRB.**
9. Packing and loading shall be in accordance with the procedures recommended by practices A700 by considering all specific requirement of A480/A480M.
10. Required material test certification: **DIN 50049-3.1** or **EN 10204-3.1**.
11. Language for material test report: **ENGLISH**

**CK 45**

1) Steels shall be produced in accordance with DIN standard, latest edition. The material specification shall conform to specification 1.1191.
2) The required test reports shall be submitted in accordance with code.
3) Heat treatment shall be applied as per code.
4) Ultrasonic test shall be applied as per SA435.
5) Relevant marking position shall be done on products.
6) Negative cutting tolerances will be not accepted.
7) The surface of the product shall be free from oxide inclusion or corrosion damage & defects such as pitting.
8) Required material test certification: DIN 50049-3.1. or/EN 10204-3.1.
9) Language for material test report: ENGLISH

**10- ATTACHMENTS**

Please, Find Attached PDF File

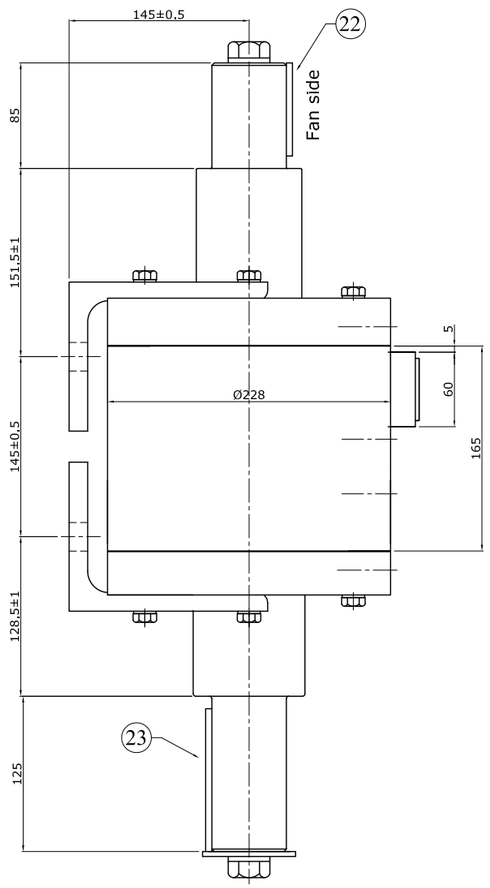
| No. | DESCRIPTION | DOC/DWG No. | Pages | Remark |
|---|---|---|---|---|
| 1 | **Bearing Block Assembly Drawing** **1821E004** | AAC-99-EQF-DW-018-A2 | 4 | -- |
| 2 | **ITP-St52-3** | ITP-St52-3 | 3 | |
| 3 | **ITP-St50-2** | ITP-St50-2 | 3 | |
| 4 | **ITP-St37** | ITP-St37 | 3 | |
| 5 | **ITP-SS 304** | ITP-SS 304 | 3 | |
| 6 | **ITP-CK45** | ITP-CK45 | 3 | |
| 7 | **ITP-A325** | ITP-A325 | 3 | |

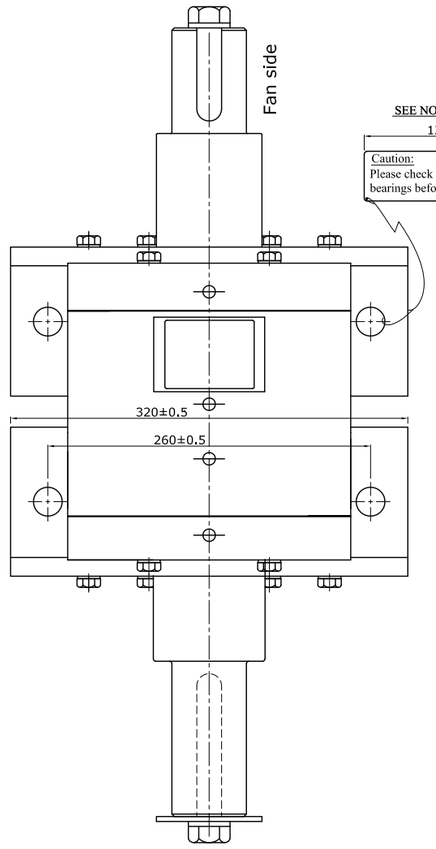
| REFERENCE DRAWINGS | |
|---|---|
| Fan & Motor Support Drawing | AAC-99-EQF-DW-15 |

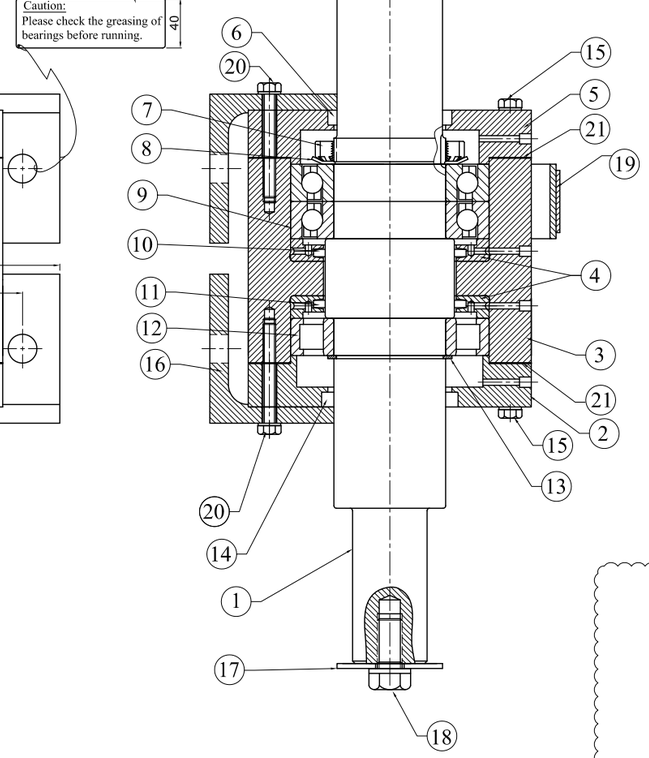
| | NO. | DESCRIPTION | MATERIAL | QTY. | T.Weight (kg.) |
|---|---|---|---|---|---|
| | 23 | Pulley side key 115 x 18 x 11 | ST 50-1 K | 1 | 0.21 |
| | 22 | Fan side key 75 x 18 x 11 | ST 50-1 K | 1 | 0.23 |
| | 21 | GASKET TEMAC 100 | -- | 2 | -- |
| | 20 | BOLT M10x L80 +SW (Dacromet) | CLASS 8.8 | 8 | -- |
| | 19 | NAME PLATE ASSEMBLY | S.S. AND ST. 37 | 1 | 0.4 |
| A2 | 18 | BOLT M20x L40 +SW (Dacromet) | CLASS 8.8 | 2 | -- |
| | 17 | STOPPER Ø90x4 (Dacromet) | ST-37 | 1 | 0.4 |
| | 16 | SUPPORT L 160x160x15 , 320 Length | ST-37 | 2 | 21 |
| | 15 | BOLT M10x L65 +SW (Dacromet) | CLASS 8.8 | 4 | -- |
| | 14 | SEALING 110x90x10 | R or V (P) | 1 | -- |
| | 13 | RETAINIG RING ID=86x2.5 | -- | 1 | -- |
| | 12 | BEARING SKF NU218 | -- | 1 | 2.36 |
| | 11 | FELT | -- | 1 | -- |
| | 10 | FELT | -- | 1 | -- |
| | 9 | BEARING SKF 7218 (ARR.: BACK TO BACK) | -- | 2 | 4.5 |
| A2 | 8 | LOCKING WASHER MB18 | S.S | 1 | -- |
| | 7 | LOCK NUT KM18 | S.S | 1 | 2.7 |
| | 6 | SEALING 85x100x10 | R or V (P) | 1 | -- |
| | 5 | UPPER CAP | ST-52 | 1 | 8.4 |
| | 4 | BACKING RING | ST 60 or 52 | 2 | 2.4 |
| | 3 | FLANGE | ST-52 | 1 | 30 |
| | 2 | LOWER CAP | ST-52 | 1 | 7.4 |
| | 1 | SHAFT Ø104 x 635L | CK45 or 60 | 1 | 30 |

| DISTRIBUTION | | |
|---|---|---|
| ITEM CODE | QTY. | TAG NO. |
| 1821E004 A/B | 2 | 17198-1821E004 A/B |
| TOTAL | 2 | |

A2



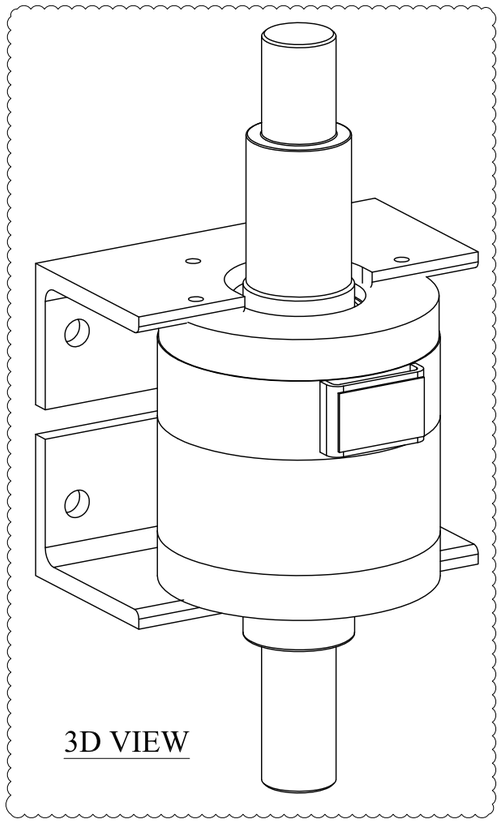




FAN SIDE




PULLEY SIDE



3D VIEW

A2

NOTES :
1-All bolts should be used with a spring washer .
2-The bearings housing should be fill by lithium base grease.
( SHELL Alvania G2 OR EQ. )
Amount of grease :
Top bearing= 450 gr. & Bot. bearing = 400 gr.
3-Coating: According to painting procedure for steel structure.
Doc. No. : AAC-99-QCM-PR-043 ( Paint system B ).
4-Approx. total weight for one bearing block is 120 Kg.
5-This lable should be attached on bearing block before sending to site.
6- For bearing design all requirement of clause 7.2.4 of API 661 has been considered.

A2

| REV | DESCRIPTION | PREP. | CHECK | APPROVE | DATE |
|---|---|---|---|---|---|
| A2 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 26.Feb.23 |
| A1 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 01.Feb.23 |

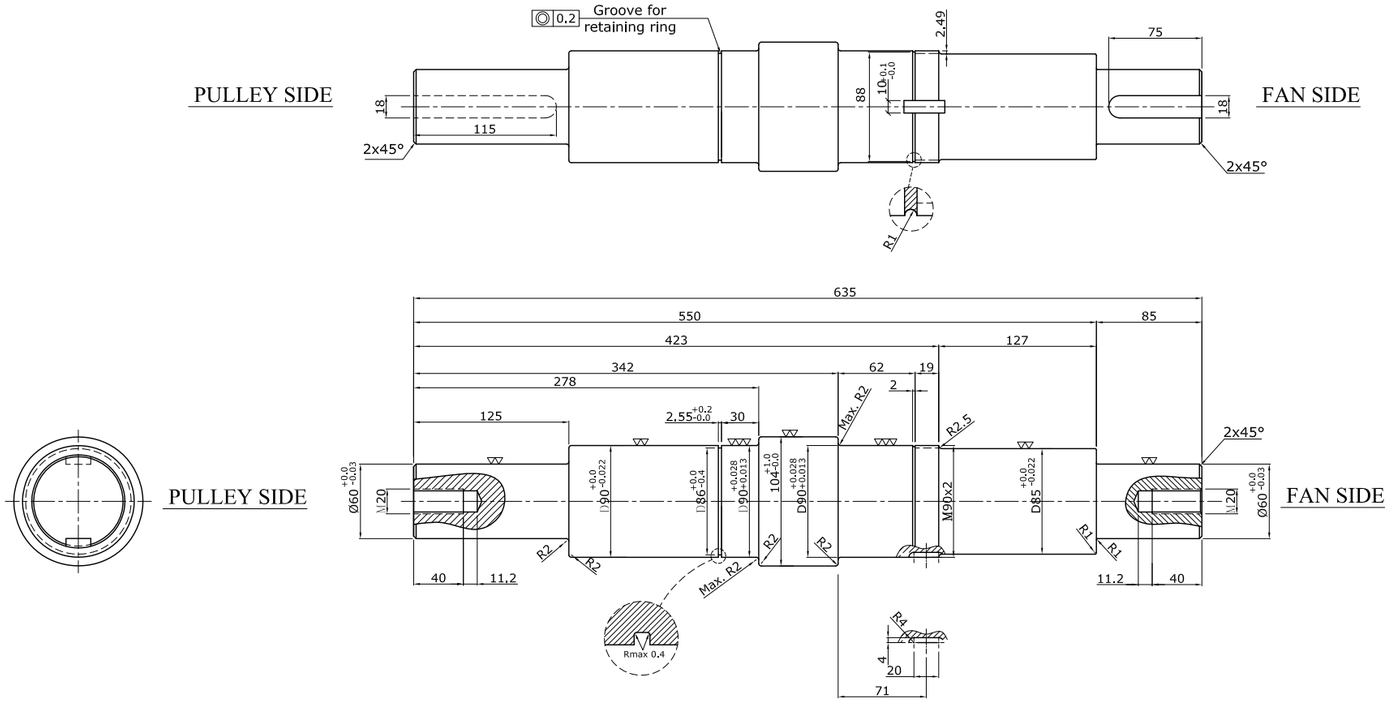
ARTA ENERGY

AAC PROJECT No. 17198 — Aban Air Cooler Co.

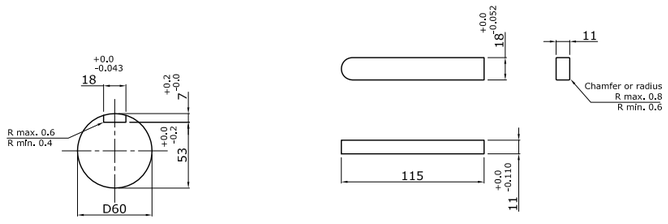
PROJECT: ARDABIL METHANOL

TITLE: Bearing Block Assembly Drawing 1821E004

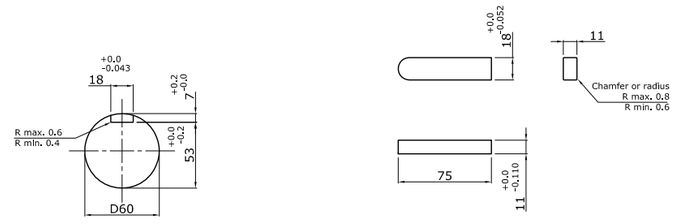
| JOB. No. | SCALE | DRAWING NUMBER | SHEET | REV |
|---|---|---|---|---|
| 110 | -- | AAC-99-EQF-DW-015 | 1 OF 4 | A2 |




# 1 SHAFT DETAIL




23 Key and Keyway dimensions Pulley side ▽▽
(Material : St 50-1K)




22 Key and Keyway dimensions Fan side ▽▽
(Material : St 50-1K)

A2

NOTES :
1-All bolts should be used with a spring washer .
2-The bearings housing should be fill by lithium base grease.
( SHELL Alvania G2 OR EQ. )
Amount of grease :
Top bearing= 450 gr. & Bot. bearing = 400 gr.
3-Coating: According to painting procedure for steel structure.
Doc. No. : AAC-99-QCM-PR-043 ( Paint system B ).
4-Approx. total weight for one bearing block is 120 Kg.
5-This lable should be attached on bearing block before sending to site.
6- For bearing design all requirement of clause 7.2.4 of API 661 has been considered.

| REV | DESCRIPTION | PREP. | CHECK | APPROVE | DATE |
|---|---|---|---|---|---|
| A2 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 26.Feb.23 |
| A1 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 01.Feb.23 |

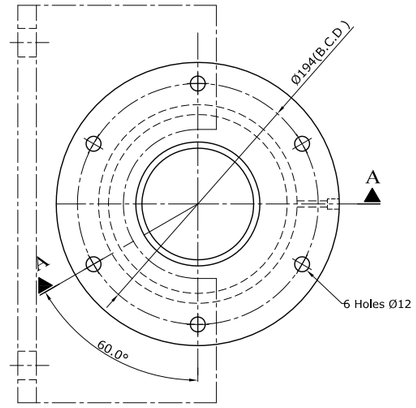
ARTA ENERGY

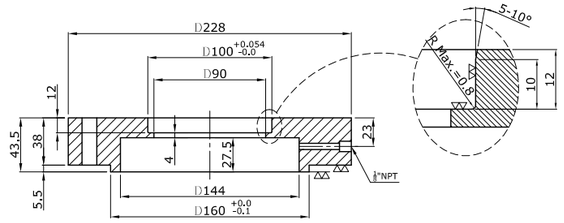
AAC PROJECT No. 17198 — Aban Air Cooler Co.

PROJECT: ARDABIL METHANOL

TITLE: Bearing Block Assembly Drawing 1821E004

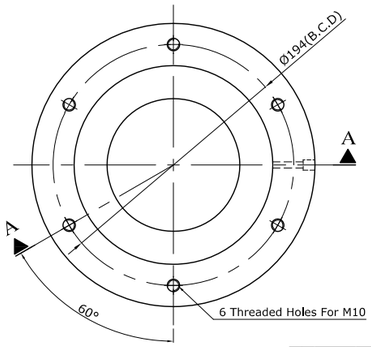
| JOB. No. | SCALE | DRAWING NUMBER | SHEET | REV |
|---|---|---|---|---|
| 110 | -- | AAC-99-EQF-DW-018 | 2 OF 4 | A2 |

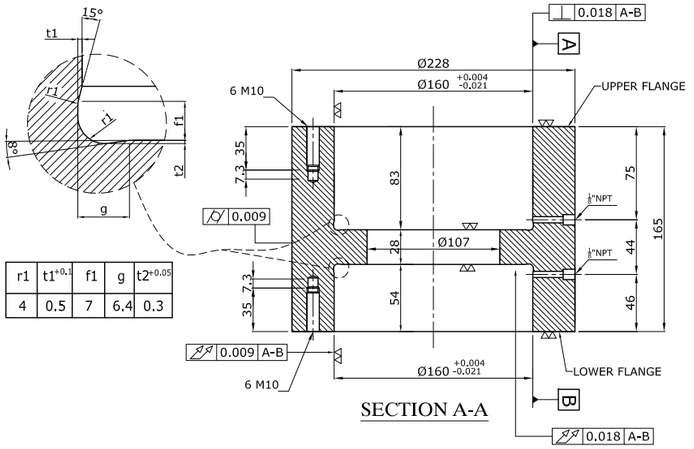



SECTION A-A

# UPPER CAP DETAIL (5)

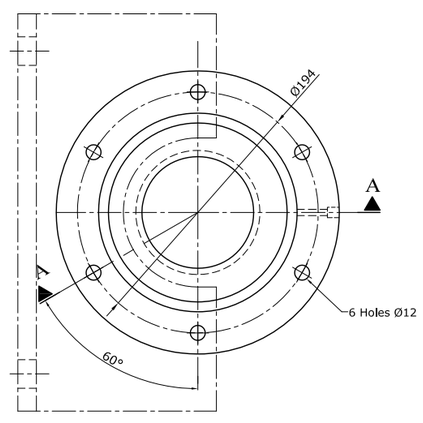


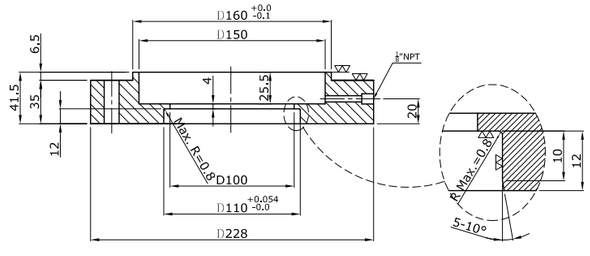




| r1 | t1 +0.1 | f1 | g | t2 +0.05 |
|---|---|---|---|---|
| 4 | 0.5 | 7 | 6.4 | 0.3 |

SECTION A-A

# FLANGE DETAIL (3)




SECTION A-A

# LOWER CAP DETAIL (2)

A2

NOTES :

1-All bolts should be used with a spring washer .

2-The bearings housing should be fill by lithium base grease.
( SHELL Alvania G2 OR EQ. )
Amount of grease :
Top bearing= 450 gr. & Bot. bearing = 400 gr.

3-Coating: According to painting procedure for steel structure.
Doc. No. : AAC-99-QCM-PR-043 ( Paint system B ).

4-Approx. total weight for one bearing block is 120 Kg.

5-This lable should be attached on bearing block before sending to site.

6- For bearing design all requirement of clause 7.2.4 of API 661 has been considered.

| REV | DESCRIPTION | PREP. | CHECK | APPROVE | DATE |
|---|---|---|---|---|---|
| A2 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 26.Feb.23 |
| A1 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 01.Feb.23 |

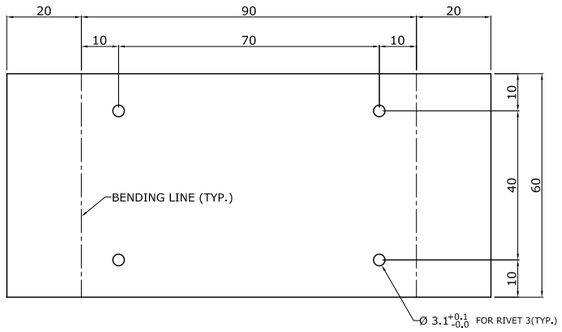
ARTA ENERGY

AAC PROJECT No. 17198 — Aban Air Cooler Co.

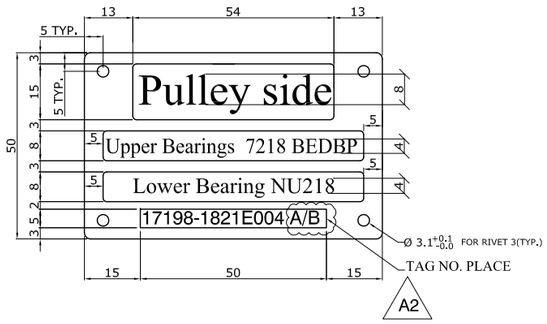
PROJECT: ARDABIL METHANOL

TITLE: Bearing Block Assembly Drawing 1821E004

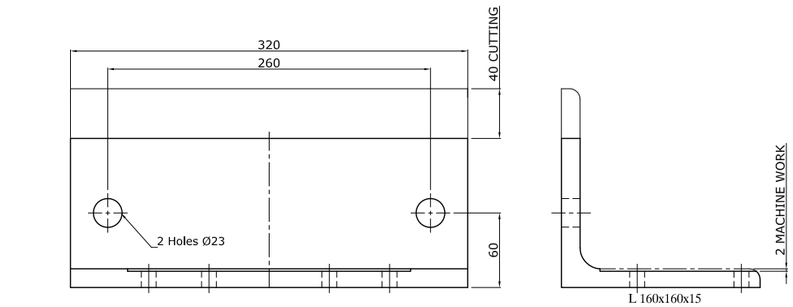
| JOB. No. | SCALE | DRAWING NUMBER | SHEET | REV |
|---|---|---|---|---|
| 110 | -- | AAC-99-EQF-DW-018 | 3 OF 4 | A2 |

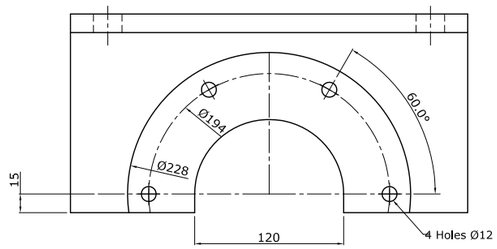



NAME PLATE SUPPORT (19)
THK. 5 (Material : SA 36)

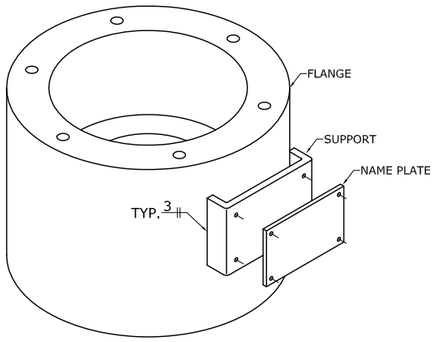



NAME PLATE DETAIL
THK 3 (Material : Stainless Steel)

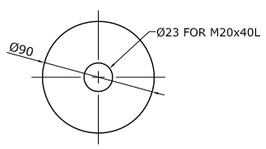


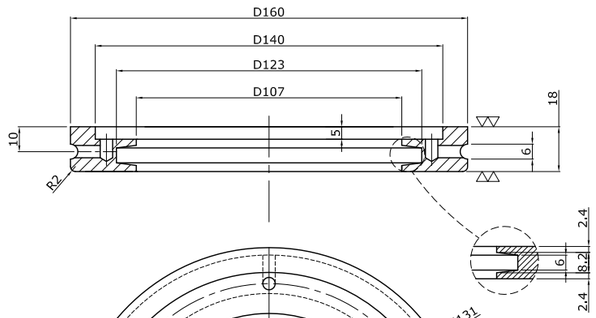

SUPPORT DETAIL (16)

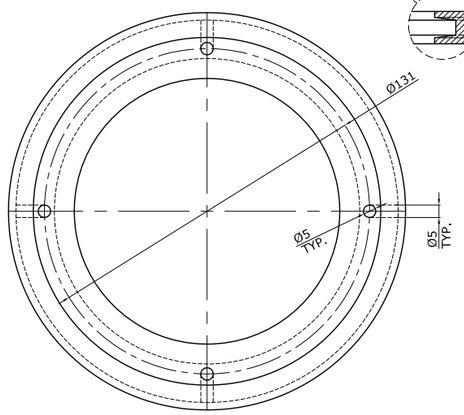



NAME PLATE AND SUP. ASS'Y




(17) STOPPER ▽
THK.4




BACKING RING (4)

A2

NOTES :
1-All bolts should be used with a spring washer .
2-The bearings housing should be fill by lithium base grease.
( SHELL Alvania G2 OR EQ. )
Amount of grease :
Top bearing= 450 gr. & Bot. bearing = 400 gr.
3-Coating: According to painting procedure for steel structure.
Doc. No. : AAC-99-QCM-PR-043 ( Paint system B ).
4-Approx. total weight for one bearing block is 120 Kg.
5-This lable should be attached on bearing block before sending to site.
6- For bearing design all requirement of clause 7.2.4 of API 661 has been considered.

| REV | DESCRIPTION | PREP. | CHECK | APPROVE | DATE |
|---|---|---|---|---|---|
| A2 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 26.Feb.23 |
| A1 | ISSUED FOR APPROVAL | A.SH | M.J | P.K | 01.Feb.23 |

ARTA ENERGY

AAC PROJECT No. 17198 — Aban Air Cooler Co.

PROJECT: ARDABIL METHANOL

TITLE: Bearing Block Assembly Drawing 1821E004

| JOB. No. | SCALE | DRAWING NUMBER | SHEET | REV |
|---|---|---|---|---|
| 110 | -- | AAC-99-EQF-DW-015 | 4 OF 4 | A2 |