



Introduction: This documents explain engineering service as parts and assemblies that manufactured by this company .this spare parts are rotary and stationary equipments as multistage pumps, steam turbine,compressor,blower and power transition and piping(spool,closer joint,expansion joint,silencer,strainer,...,engineering service as reverse engineering,finite element analysis,dynamic simulation,3Ddesign,as built draws,manufacturing process,...)
key words: oil refinery,petrochemical,rotary,stationary,spare parts,pump,turbine,compressor,piping,impeller,shaft,wear ring,blower,fan,connection rod,plunger,worthington,coupling,flexible shims coupling,discharge valve,check valve,piping,spool,closer joint,silencer,finite element,solidworks,simulation,design,labyrinth,VOITH,cross head,cranck shaft,stuffing box,wrist pin,bush,chain



Industrial Engineer (B.D) Karim Pakzad

Management Director

Mechanical Engineer (M.D) REZA PARSAEI

Technical Director



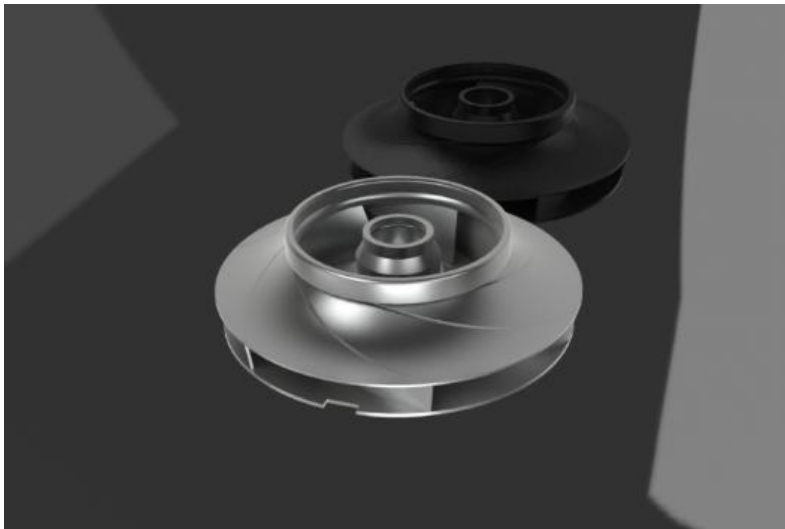
Rotary equipments

PUMPS

Multistage pump impeller(WELDING)

Stainless steel AISI316L material plate with 1mm thickness

Technology of product is EBB(Electron Beam Brazing)



INDENT NUMBER: AP920156

NAME: IMPELLER

MESC NO.: 31.34.17.433.2

PUMP TYPE:WORTHINGTON

YEAR BUILT:2013

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN

Pumps and multistage pumps spare parts

This section explain spare parts and assemblies for pumps that use at refinery oil and petrochemical company

- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- TOOL DESIGN AND MANUFACTURING OR SUPPLY
- 7- PARTS MANUFACTURING
- 8- QUALITY CONTROL(Q.C) PARTS
- 9- ASSEMBLY PARTS
- 10- FINAL Q.C
- 11- BALANCING
- 12- PACKING



FABRICATED IMPELLER IMAGE

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IMPELLER PARTS PRODUCT



IMPELLER ASSEMBLY PRODUCT



FINAL BRAZING IMPELLER

PUMP CLOSE IMPELLER DISCHARGE(CASTING)

INDENT NUMBER: RTS-9380159-RT

NAME: IMPELLER

MESC NO.: 33.65.90.148.3

MATERIAL:GRAY CAST IRON (GG25)

PUMP TYPE:AKAY

YEAR BUILT:2014

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN

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- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- MODELING FOR MOULD SAND CASTING
- 7- FINAL Q.C
- 8- BALANCING
- 9- PACKING



FABRIC AND MANUFACTURING CASTING IMPELLER

PUMP SHAFT(machining)

INDENT NUMBER: RTS-9380157-RT

NAME: SHAFT

MESC NO.: 32.10.16.536.3

MATERIAL: STEEL DIN1.7225(MO40)

YEAR BUILT:2014

TYPE OF PUMP:WORTHINGTON

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN

- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- ROUGH MACHINING AND HEAT TREATMENT AND FINISH MACHINING
- 7- FINAL Q.C
- 8- BALANCING(if required)
- 9- PACKING



FABRICATED AND MANUFACTURED SHAFT



MACHINING PROCESS(ROUGHING) and FINISHING BY ROTARY GRINDING

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PUMP OPEN IMPELLER(CASTING)

INDENT NUMBER: RTS-9380159-RT

NAME: IMPELLER

MESC NO.: 33.36.40.106.3

MATERIAL:STAINLESS STEEL AISI316

PUMP TYPE:AKAY

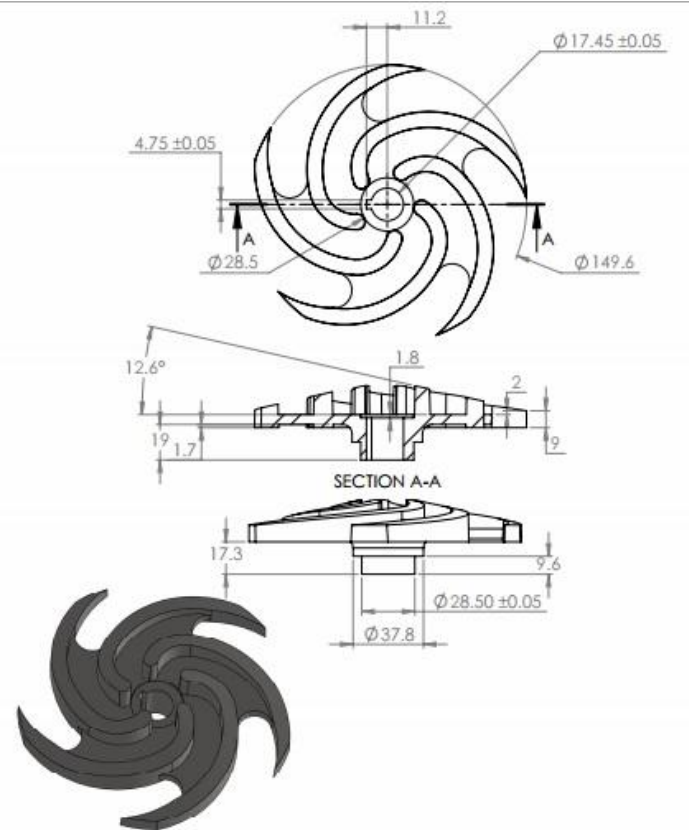
YEAR BUILT:2014 and 2016

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- MODELING FOR MOULD SAND CASTING
- 7- FINAL Q.C
- 8- BALANCING
- 9- PACKING



FABRIC IMPELLER



3D MODELING AND AS BUILT DRAW

PUMP CASING WEAR RING(CASTING)

INDENT NUMBER: RLS-46409-LA

NAME: CASING WEAR RING

MESC NO.: 31.97.03.463.2

MATERIAL: STAINLESS STEEL CA6NM

YEAR BUILT: 2016

PROCESS: REVERS ENGINEERING

1- DIMENSION ANALYSIS(OPTIC DIGITIZER)

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- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- MODELING FOR MOULD SAND CASTING(3D PRINT)
- 7- FINAL Q.C
- 8- MACHINING
- 9- FINAL Q.C
- 10- PACKING



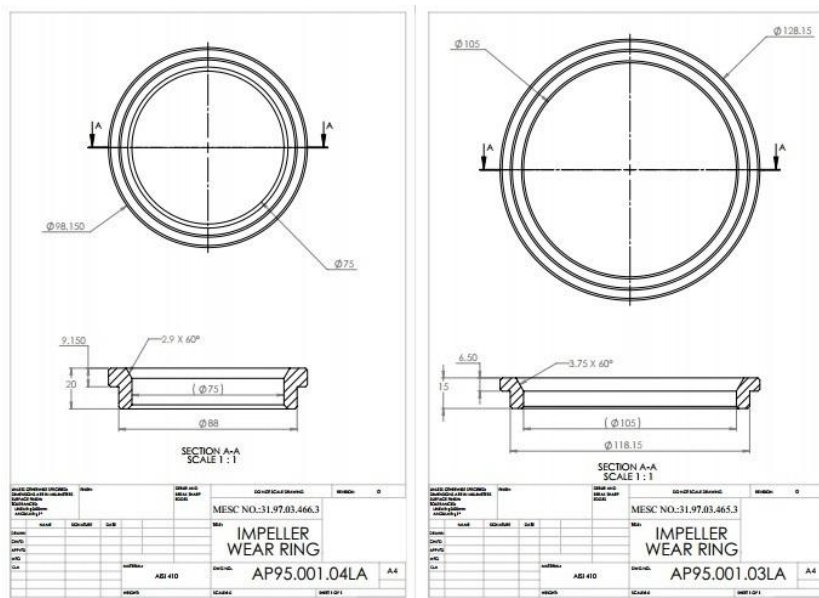
SAMPLE FOR REVERSE ENGINEERING



- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- MODELING FOR MOULD SAND CASTING(3D PRINT)
- 7- FINAL Q.C
- 8- MACHINING
- 9- FINAL Q.C
- 10- PACKING



IMPELLER WEAR RING MANUFACTURED BY THIS COMPANY



METERING PUMP CHECK VALVE(MACHINING)

INDENT NUMBER: RNL-9346320-TM

NAME: CHECK VALVE

MESC NO.: 34.45.19.107

MATERIAL:STAINLESS STEEL **AISI316Ti**

PUMP TYPE:BRAN+LUEBBE METERING PUMP

YEAR BUILT:2016

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- CNC MACHINING AND **STELLITED AND LAPPING**
- 7- FINAL Q.C
- 8- PACKING



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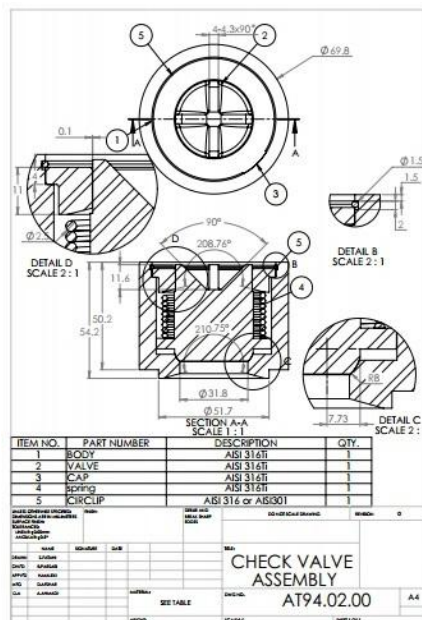
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FABRICATED SAMPLE



DISASSEMBLY FABRIC VALVE



ASSEMBLY DRAW CHECK VALVE

BLOWERS

BLOWER FAN (LASER CUTTING)

INDENT NUMBER: RHS-0891301-T02

NAME: FAN

MESC NO.:

MATERIAL:ALUMINIUM PLATE THICKNESS 2mm CLASS 1000 DIAMETER 994mm

YEAR BUILT:2017

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- LASER CUTTING
- 7- ASSEMBLY AND WELDING
- 8- MACHINING
- 9- FINAL Q.C
- 10- BALANCING
- 11- PACKING

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ASSEMBLY AND WELDING PRODUCT



FINAL ASSEMBLY FAN maximum diameter 994mm

TURBINE

TURBINE SEAT AND STOP PLATE(MACHINING)

INDENT NUMBER:

NAME: SEAT AND STOP PLATE WITH LAPPING

MESC NO.:

MATERIAL:STEEL DIN1.6565(VCN200)

YEAR BUILT:2013

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS(OPTIC DIGITIZER)
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- LATHE AND CNC MILLING
- 7- GRINDING AND **LAPPING**
- 8- FINAL Q.C
- 9- PACKING



SEAT FABRICATED FOR SAMPLE

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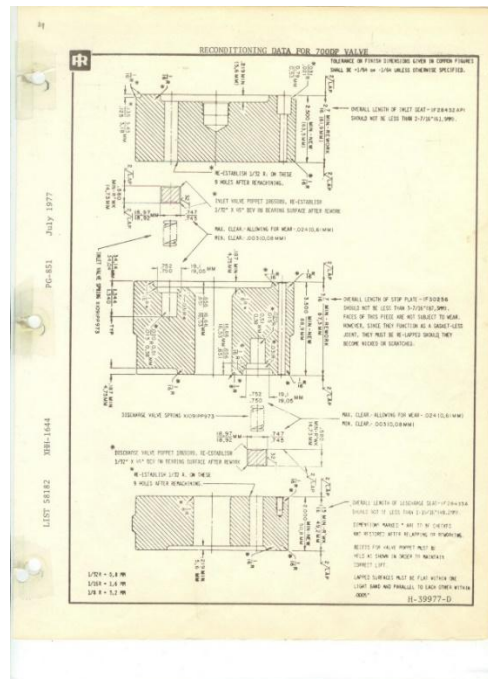
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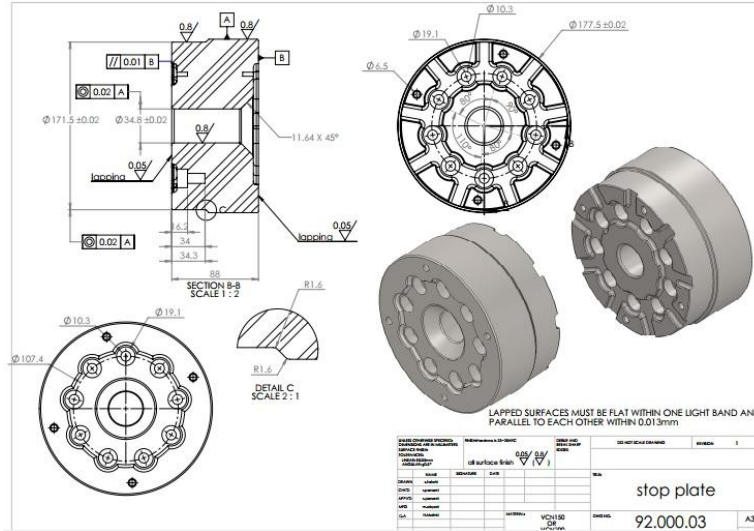
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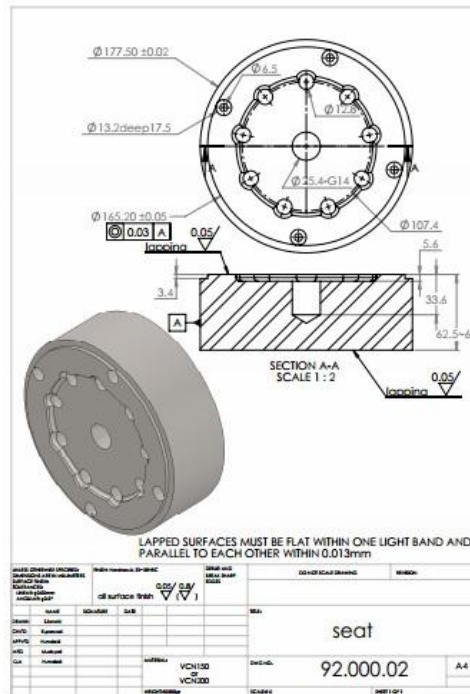
STOP PLATE FABRICATED FOR SAMPLE



DATA SHEET FOR MANUFACTURING PROCESS



STOP PLATE AS BUILT DRAW



SEAT PLATE AS BUILT DRAW

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STEAM TURBINE COUPLING DESIGN AND PRODUCT(MACHINING)

INDENT NUMBER:

NAME: FLEXIBLE SHIMS COUPLING

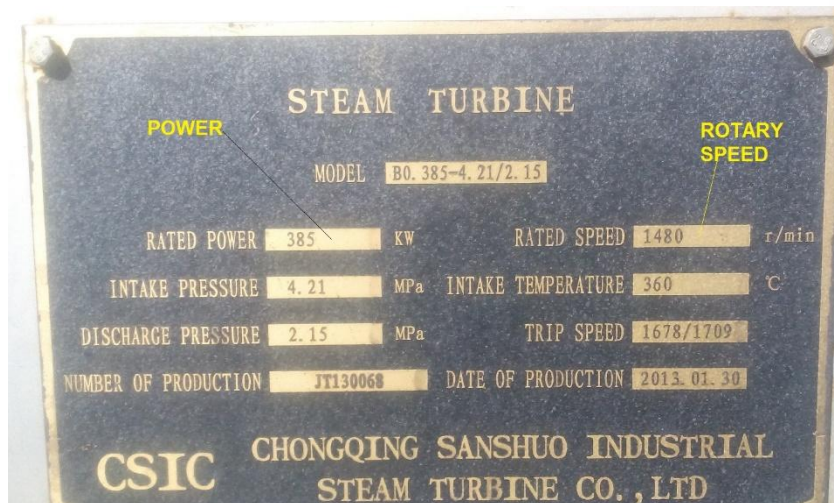
MESC NO.:

MATERIAL:STEEL DIN1.1191(CK45) AND FLEXIBLE SHIMS ARE AISI301

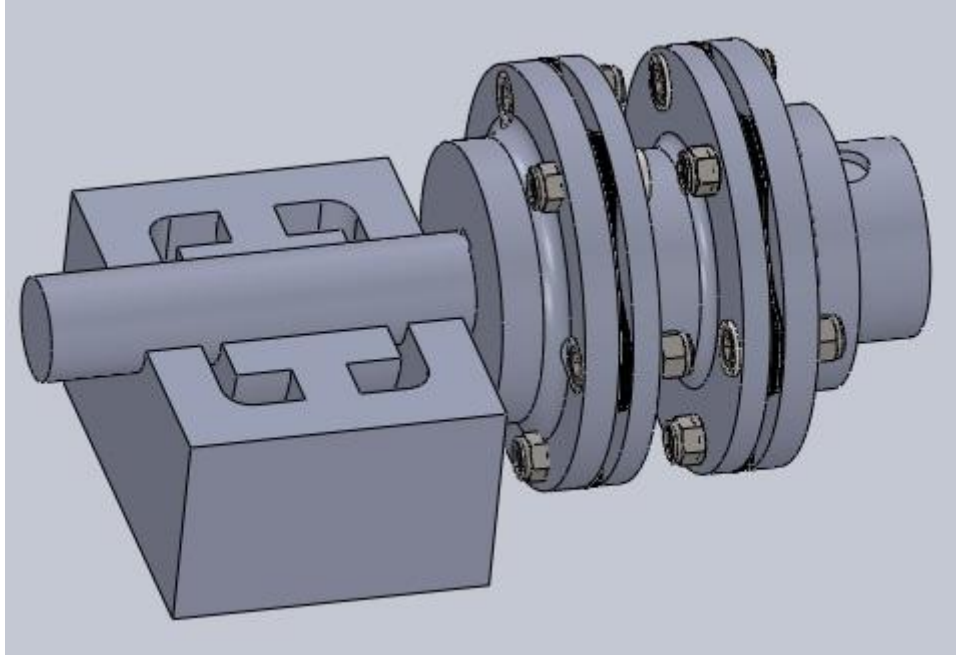
YEAR BUILT:2015

PROCESS: DESIGN BY THIS COMPANY(DESIGNER REZA PARSAEI)

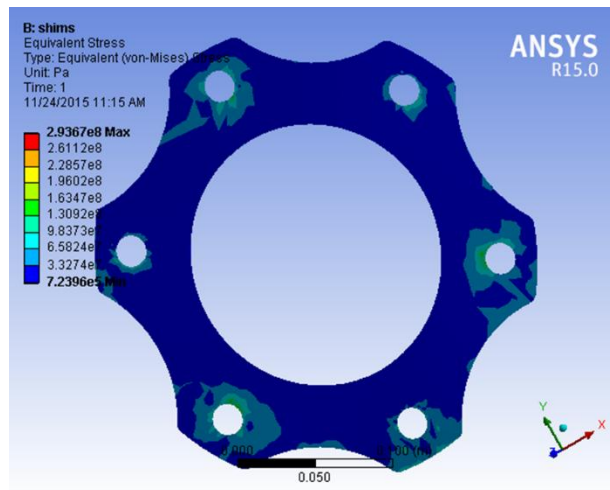
- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)
- 3- FINITE ELEMENTS ANALYSIS(FEA BY ANSYS SOFTWARE)
- 4- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 5- MANUFACTURING PROCESS DESIGN
- 6- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 7- LATHE AND MILLING BODY
- 8- WIRECUT SHIMS AND ASSEMBLY AND BALANCING
- 9- FINAL Q.C
- 10- PACKING



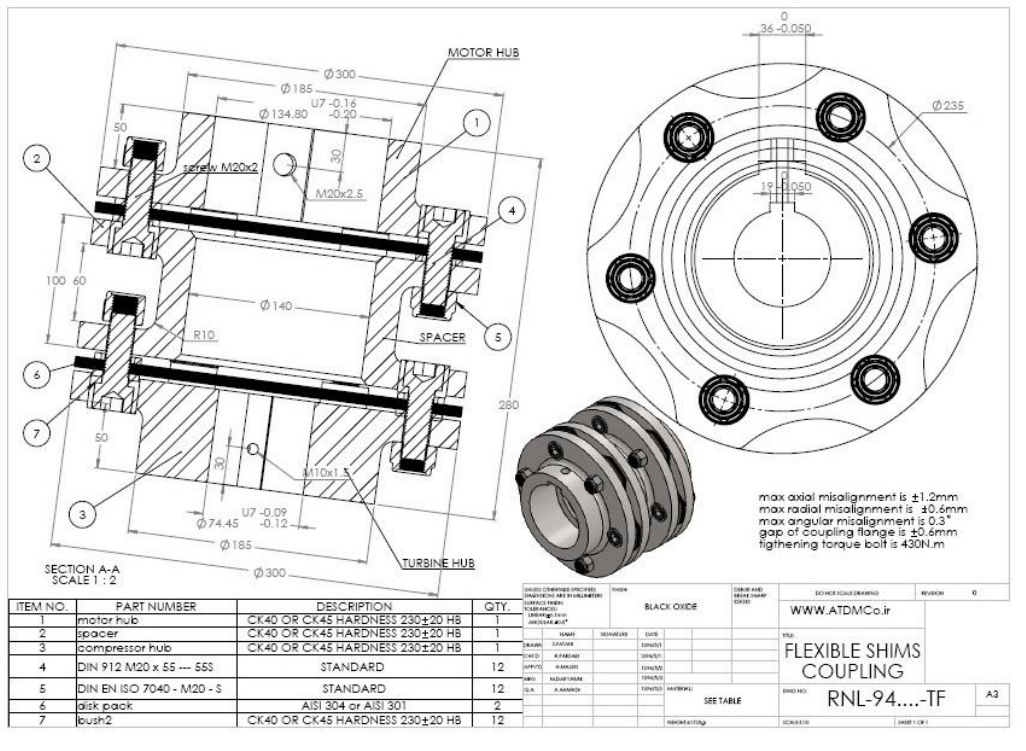
START BY DATA LABEL VAPOR TURBINE FOR DESIGN



COUPLING FINAL DESIGN



FINITE ELEMENTS ANALYSIS FOR T=10000N.m



ASSEMBLY DRAW



COUPLING ASSEMBLED BY OPERATOR BETWEEN TURBINE AND BLOWER

COMPRESSORS

COMPRESSOR DISCHARGE VALVE(MACHINING)

INDENT NUMBER: RKS-9132155-KM

NAME: DISHARGE VALVE COMPLETE

MESC NO.: 22.52.78.251.3

MATERIAL:STAINLESS STEEL AISI420

HOERBIGER COMPRESSOR

YEAR BUILT:2015

PROCESS: REVERS ENGINEERING

- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- LATHE AND MILLING BODY
- 7- GRINDING AND **LAPPING**
- 8- FINAL Q.C
- 9- PACKING

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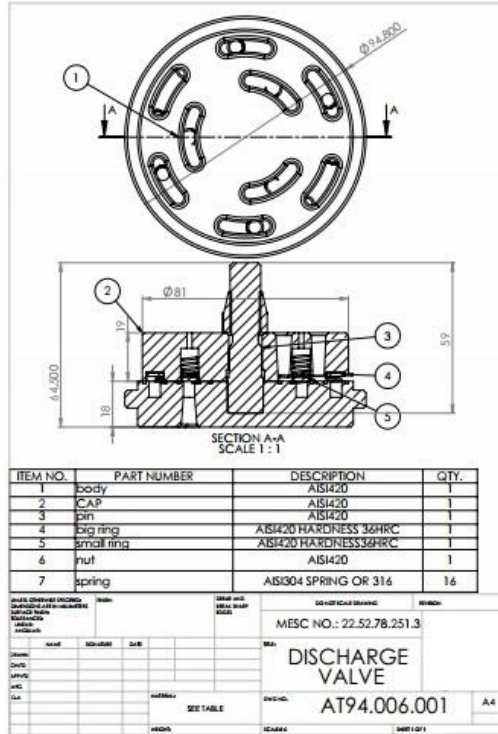
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FABRICATED SAMPLE FOR REVERS ENGINEERING



MANUFACTURING PARTS AND ASSEMBLY



ASSEMBLY DRAW

COMPRESSOR UNLOADER ASSY.(CASTING & MACHINING)

INDENT NUMBER: RTS-9380177-RT

NAME: UNLOADER ASSY.

MESC NO.: 24.16.36.752.3

MATERIAL:GGG40 BODY AND SHAFT AISI630 OR AISI410 AND SPRING AISI316

HOERBIGER COMPRESSOR

YEAR BUILT:2014

PROCESS: REVERS ENGINEERING

- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)

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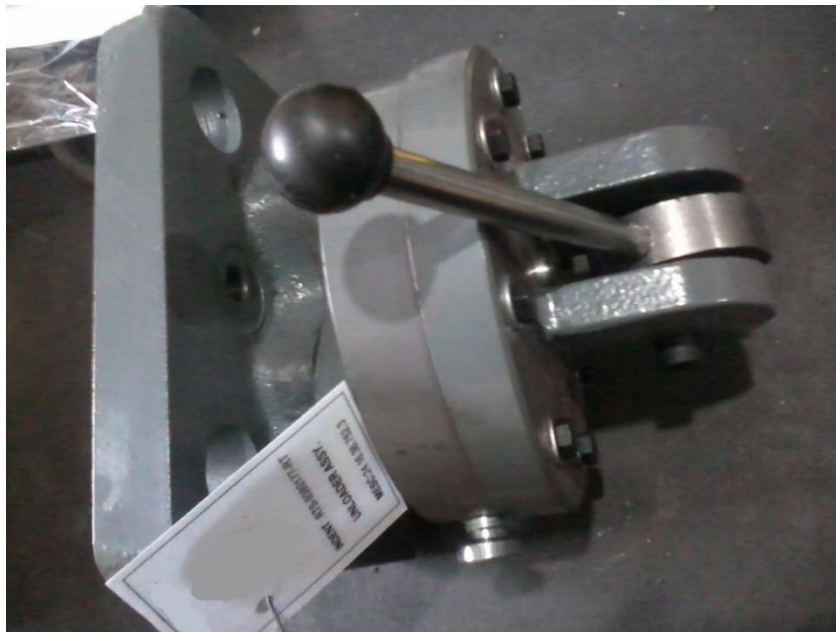
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- MODELING FOR MOULD SAND CASTING
- 6- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 7- LATHE AND MILLING BODY
- 8- FINAL Q.C
- 9- PACKING



UNLOADER ASSY. FABRIC FOR SAMPLE



COUNTINUE UNLOADER ASSY.



UNLOADER ASSY. MANUFACTURING BY

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ITEM NO.	PART NUMBER	DESCRIPTION/MATERIAL	QTY.
1	main body	GGG40	1
2	middle body	GGG40	1
3	upper body	GGG40	1
4	lever	C.S	1
7	head lever	PLASTIC	1
8	steel shaft	AISI410	1
10	small shaft	AISI410	1
11	star piece	GGG40	1
12	spring	AISI316	1
13	cylinder	GGG40	1

DATE: 05/05/2023		SCALE: 1:1	DESIGNER: M. S. S.	REVISION: 0
DRAWN: M. S. S.		BLACK PAINTING	MESC2416367523	
CHECKED: M. S. S.		SEE TABLE	UNLOADER ASSY	
APPROVED: M. S. S.			RTS-9380177-RT	
DATE: 05/05/2023			A4	

ASSEMBLY DRAW



COMPRESSOR PRESSURE PLATE(CASTING & MACHINING)

INDENT NUMBER: RTS-9380023-RT

NAME: PRESSURE PLATE

MESC NO.: 22.97.05.610.3

MATERIAL:DIN1.1191(CK45)

HOERBIGER COMPRESSOR

YEAR BUILT:2014

PROCESS: REVERS ENGINEERING

- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- MODELING FOR MOULD SAND CASTING
- 6- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 7- LATHE AND MILLING BODY
- 8- FINAL Q.C
- 9- PACKING



FABRICATED SAMPLE FOR REVERSE ENGINEERING

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MANUFACTURING PRESSURE PLATE BY THIS COMPANY

COMPRESSOR CONNECTION ROD (CASTING & MACHINING)

INDENT NUMBER: P-130/203A/B

NAME: CONNECTION ROD

MESC NO.: 30.49.46.270.3

MATERIAL: GGG-50(A536(65-45-12) (ASTM))

HOERBIGER COMPRESSOR

YEAR BUILT:2015

PROCESS: REVERS ENGINEERING

- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN

- 5- MODELING FOR MOULD SAND CASTING
- 6- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 7- LATHE AND MILLING BODY
- 8- FINAL Q.C

4	SCREW	2	#20.79x69.44	1020 (AISI)	160 HV	0.07
3	SPRING WASHER	2	#10x2.54	1090(AISI)	600 HV	0.002
2	BUSH	1	#41.3x50.7	B271 (C83200) (UNS)	65 HB	0.212
1	CONNECTION ROD	1	255.4x110x50.7	A536 (B545-12) (ASTM)	200 HB	3.6
No.	Part Name	QTY	Dimension	Mat.	Hardness	Weight (kg)

TOLERANCES ACCORDING TO ISO 2768-1(M) / ISO 2768-2(H)		ACCORDING DIN 4768	
PROJECT: 30.49.46.270.3		Drawing No.: -----	
Tag No.: P-330/203 A/B		Ref DWG No.: -----	
Part No.: ---		Scale: A2 SHOWN Unit: mm	
Drawing Name: CONNECTION ROD		ANG. PROJ.:	
REV	Revision Note	By	Drawn By: S. HOSSEINI / Checked By: S. HOSSEINI / Approved By: A4
		Date: 02/02/22	Date: 02/02/22 / Sheet: 2/2 / REV: 0

ASSEMBLY DRAW

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CONNECTION ROD MANUFACTURING BY

COMPRESSOR SLIDING BEARING (MACHINING)

INDENT NUMBER: RTS-9480317-RT

NAME: SLIDING BEARING

MESC NO.: 31.04.05.378.3

MATERIAL: CK22 or CK45 BABBITT COATING 3mm

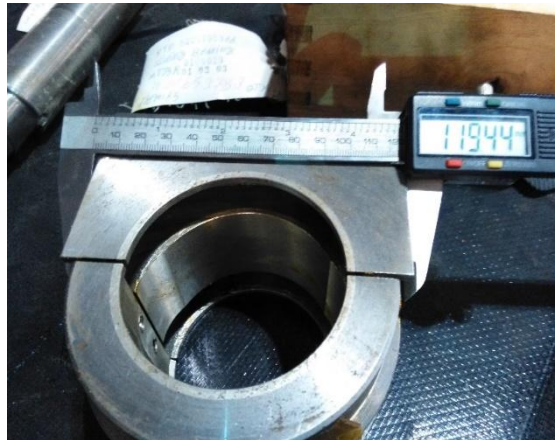
HOERBIGER COMPRESSOR

YEAR BUILT:2016

PROCESS: REVERS ENGINEERING

- 1- DIMENSION DESIGN
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- MODELING FOR MOULD SAND CASTING
- 6- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL

- 7- LATHE AND MILLING BODY
- 8- BABBITTING**
- 9- FINAL MACHINING
- 10- FINAL Q.C
- 11- PACKING



FABRICATED SAMPLE FOR REVERSE ENGINEERING



SLIDING BEARING MANUFACTURING BY

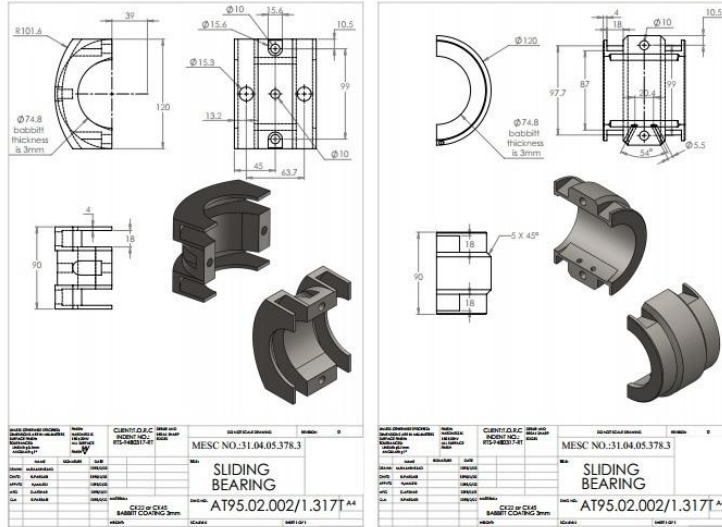
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3D MODELING AND DRAW FOR CNC MILLING

Stationary equipments

Piping

Piping SPOOL ASSY. AND PICKUP TUBE(WELDING)

INDENT NUMBER: FAB-2283 & FAB-2285

NAME: SPOOL ASSY.

MESC NO.:

MATERIAL:AISI350 FLANGE CLASS#600 FL2

YEAR BUILT:2017

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- TOOL DESIGN AND MANUFACTURING OR SUPPLY
- 7- PARTS MANUFACTURING
- 8- QUALITY CONTROL(Q.C) PARTS
- 9- ASSEMBLY PARTS
- 10- WELDING PARTS AT FIXTURE(WPS)
- 11- FINAL Q.C
- 12- PACKING

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SPOOL ASSY FABRICATED FOR SAMPLE



MANUFACTURING SPOOL ASSY.



MANUFACTURING PICKUP TUBE

EXHAUST

SUCTION FILTER AND DISCHARGE SILENCER(WELDING)

INDENT NUMBER: RTL-9241163-RT

NAME: SILENCER ASSY.

MESC NO.:

MATERIAL:AISI304

YEAR BUILT:2012

PROCESS: REVERS ENGINEERING

- 1- DIMENSION ANALYSIS
- 2- MODELING(WITH SOLIDWORKS)
- 3- AS BUILT DRAWS OR MANUFACTURE DRAWS(WITH TOLERANCE DESIGN)
- 4- MANUFACTURING PROCESS DESIGN

TEL: +982156243026,+9856243082,+989122456971,+989128140635

FAX: +982156243082

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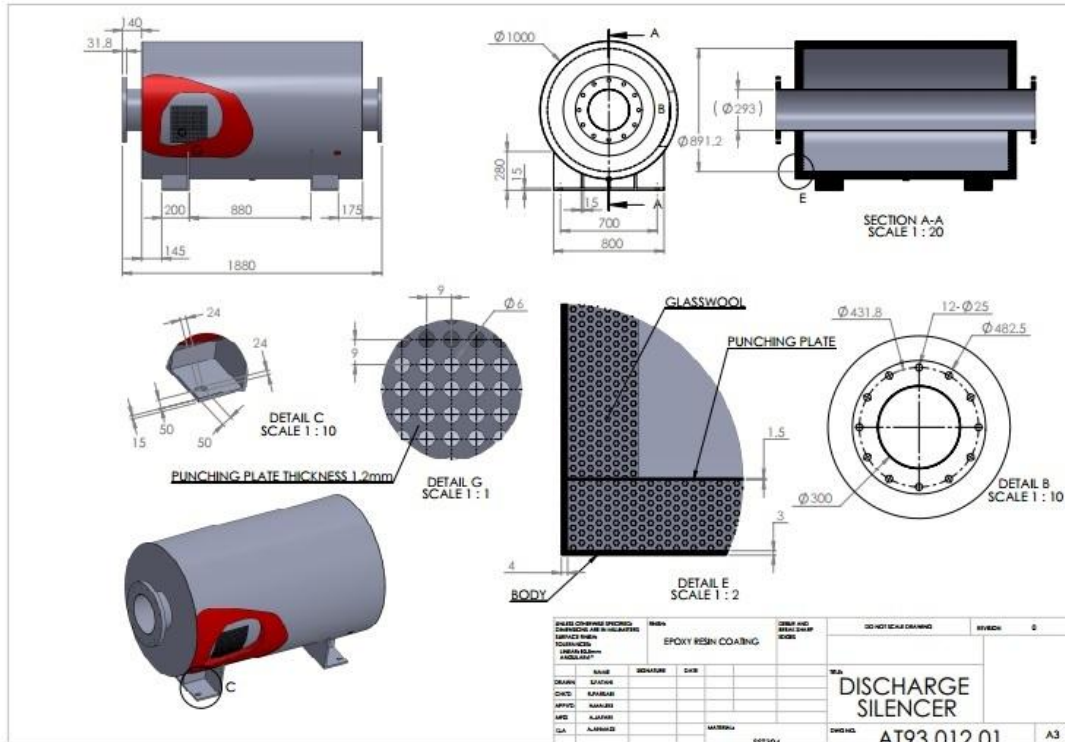
- 5- SUPPLY MATERIAL AND ANALYSIS FOR CERTIFY MATERIAL
- 6- TOOL DESIGN AND MANUFACTURING OR SUPPLY
- 7- PARTS MANUFACTURING
- 8- QUALITY CONTROL(Q.C) PARTS
- 9- ASSEMBLY PARTS
- 10- WELDING PARTS AT FIXTURE(WPS)
- 11- FINAL Q.C
- 12- PACKING



FABRICATED SAMPLE IN THE SITE



MANUFACTURING SILENCER ASSY.



AS BUILT DRAW

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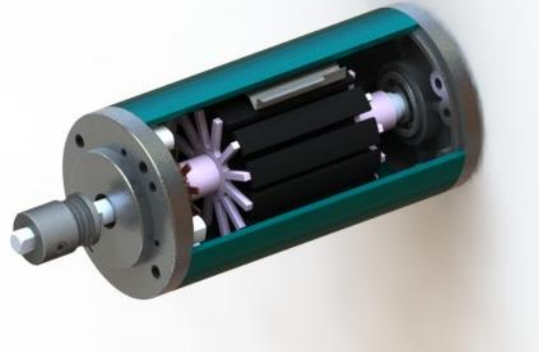
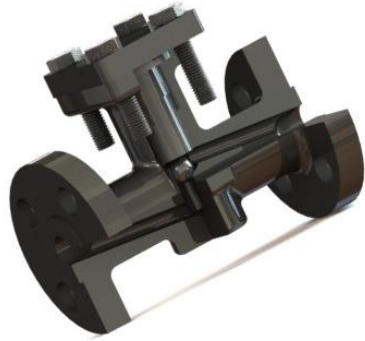
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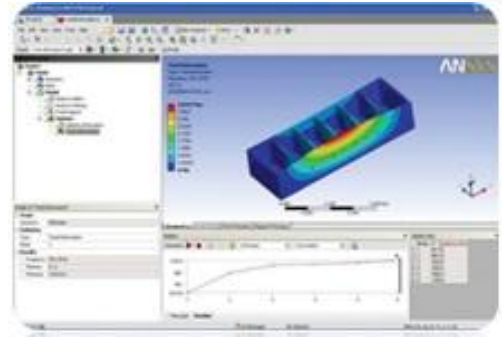
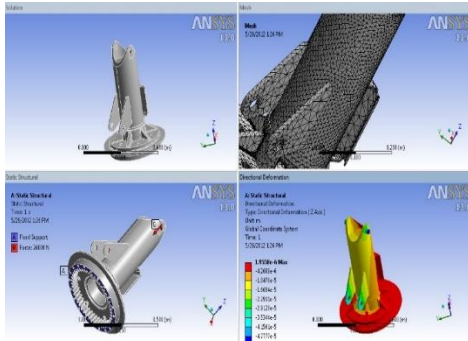
ENGINEERING SERVICE

- 1-ADVISOR MECHANICAL & METALURGICAL ENGINEERING**
- 2-DESIGN AND REVERSE ENGINEERIN**
- 3-Conceptual Design**
 - 3-1 - Mathematical Model**
 - 3-2 - Analytical Manner**
- 4-Detail Design**
 - 4-1- Sketch**
 - 4-2- 3D Design**
 - 4-3- Analysis(FEA)**
 - 4-4- Simulation**
 - 4-5- Optimization**
 - 4-6- Final Design**
- 5-Manufacturing and Fabrication**
 - 5-1- Manufacturing Process Design**
 - 5-2- Tool Making(Mould & Jig & Fixture)**
 - 5-3- Part Fabrication**
 - 5-4- Precision Part Process Design**
 - 5-5- Precision Part Fabrication**
 - 5-6- Special Method Products**
- 6-Accomplishment and Performance**
 - 6-1- Procure Layout and Block Diagram**
 - 6-2- Setup and Establish Line Product**
- 7-Machine Design**
 - 7-1- Sketch Mechanism**
 - 7-2- 3D Design**
 - 7-3- Analysis(FEA)**
 - 7-4- Simulation Mechanism**
 - 7-5- Optimization**
 - 7-6- Final Design**
 - 7-7- Manufacturing Parts**
 - 7-8- Assembly Machine**
 - 7-9- Test and Evaluation**

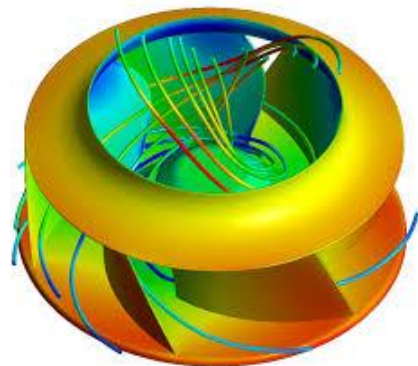
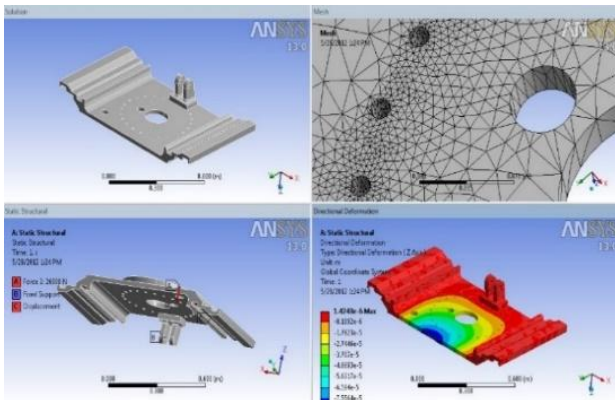
3D MODELING AND DESIGN BY SOLIDWORKS



Check valve and DC motor modeling assembly at solidworks
STRESS ANALYSIS



FINITE ELEMENT ANALYSIS BY ANSYS STRESS AND MODAL ANALYSIS



CONCENTRATION STRESS AND CFM ANALYSIS

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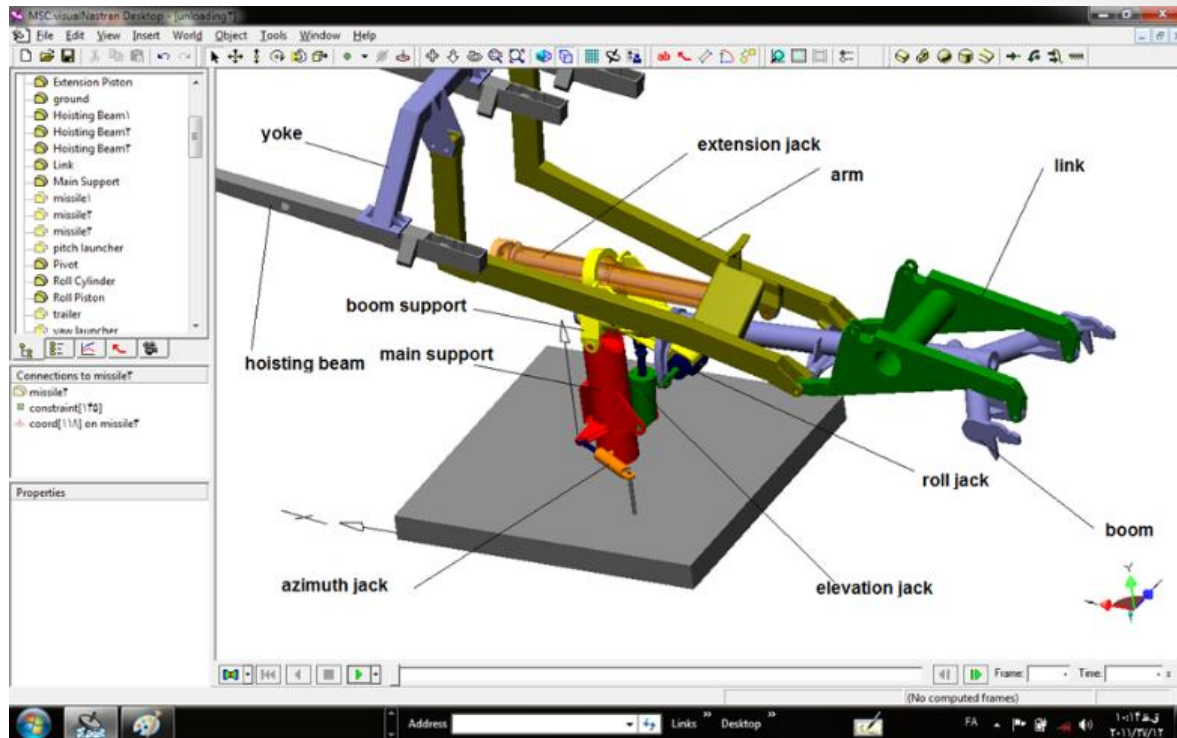
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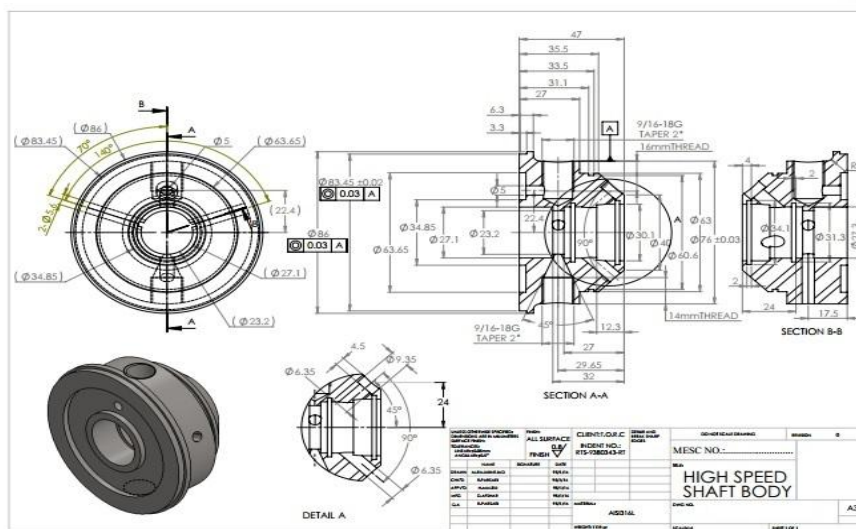
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DYNAMIC SIMULATION BY VISUAL NASTRAN




LOADER ASSY AT ENVIRONMENT SIMULATION



AS BUILT DRAWING AND TOLERANCE DESIGN BY SOLIDWORKS

CERTIFY DOCUMENTS



Razi Applied Science Foundation

Website: www.razifoundation.com
Email: info@razi-foundation.com

Contract No.	2-3385
Date Reported	2014-Sep-21
Revision No.	1
Attachment	0
Received on	2014-Sep-20
Tested on	2014-Sep-20
Page No.	1 of 2

Client: _____
Address: _____

Sample Name: Star piece sample

Spectrochemical Analysis

Result of chemical analysis test of metal:

STANDARD TEST METHOD: ASTM E 305-08

C	Si	Mn	P	S	Cr	Mo	Ni	Al	Co	Cu	Mg
* 1.74	0.24	0.016	0.017	0.05	0.03	0.05	0.008	Trace		0.2	0.022
Nb	Ti	V	Pb	Sn	B	Ce	Zr	Fe			
0.008	0.027	0.008	0.02	< 0.003	0.0024	0.03	0.02	Base			


Lab. Manager: M. Asadi
M. Asadi

Scientific Head: P. Davami
P. Davami

- Further to chemical analysis, the mention sample confirms in requirement of "Ductile Cast Iron"
 - Due to not permission to destructive testing in sample for precise analysis re-melt is mandatory.

* Clients may collect the sample within one month as of being tested. Samples are disposed after this period. * RASF is not responsible for the conformity of the sample name and the tested part
 * Sampling is done by the client. * Above results are valid for the tested samples only. * Reproducing this report is possible only after receiving the permission of RASF and in its complete form
 * RASF is committed to provide clients with speciality information. Clients may call RASF's general director for more info at (+9821) 46846087.

MATERIAL COMPOSITION ANALYSIS



Razi Applied Science Foundation

Website: www.razifoundation.com
Email: info@razi-foundation.com

Contract No.	2-3385
Date Reported	2014-Sep-21
Revision No.	0
Attachment	0
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Tested on	2014-Sep-20
Page No.	1 of 1

Client: _____
Address: _____

Sample Name: Star piece sample

BRINELL HARDNESS TESTING

Reference Standard: ISO 6506-1(2005)

Applied Force (Kgf): HB 187.5

Indenter: Ball ϕ 2.5mm

Test Temperature: Ambient

Applied force time: 10-15 s

ROW	Location	Value 1 (HB)	Value 2(HB)	Value 3(HB)	Average Value (HB)	Standard Limit (HB)
1	surface	170	174	172	172	---

Lab. Manager: F. Najafzadeh
F. Najafzadeh

Scientific Head: P. Davami
P. Davami

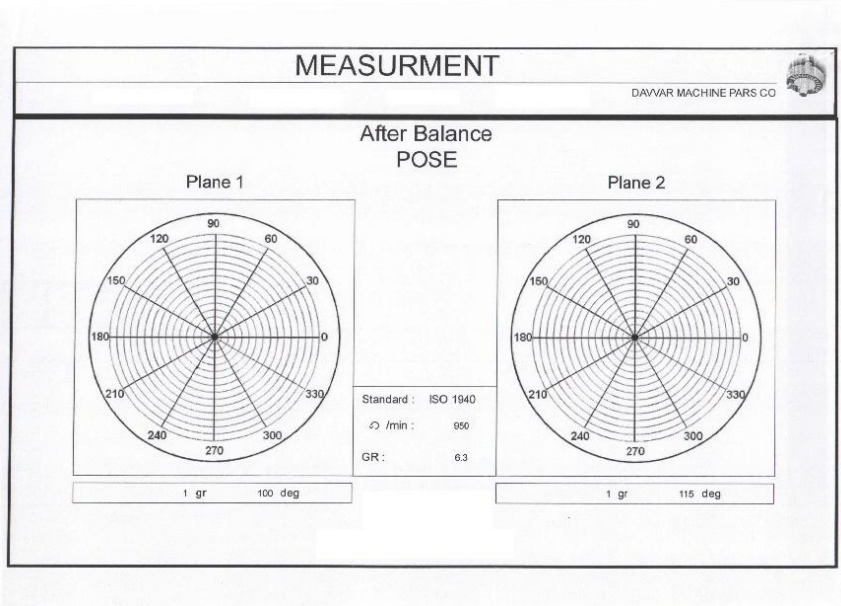
* Clients may collect the sample within one month as of being tested. Samples are disposed after this period. * RASF is not responsible for the conformity of the sample name and the tested part
 * Sampling is done by the client. * Above results are valid for the tested samples only. * Reproducing this report is possible only after receiving the permission of RASF and in its complete form
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HARDNESS ANALYSIS


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PAK
BRONZ co.



BALANCING CERTIFY



RASI APPLIED SCIENCE FOUNDATION

ENGINEERING MATERIALS LABORATORY

No.27, Firman St., Shahid Ghanem Afshari Blvd., Km 21 Kangi Molinsan Road, Tehran-IRAN TEL: (9821) 46841121, FAX: (9821)46841122

Penetration Test Report


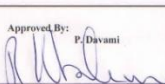
Client:	Order No : 5133-2	Page 1 of 1
Customer Letter No: ---	Date Reported : 14.Dec.2014	
Project/ Unit: ---	Description: glandstuffing RTS-9380159-RT	
Component: ---	Test Plan No/Rev./Pos: Rev.1	
Part/ Qty: ---	Standard: ---	
Drawing No: ---	Date/Place of test: 11.Dec.2014/ RASF	

Surface condition: As Welded Ground Machined As Forged As Cast As Rolled

Description of test:
No surface defects

Results:
Accepted Rejected

Notification:

Inspector:  S. Nasiri	Approved By:  P. Davami
--	--

PENETRATION TEST CERTIFY(PT)

RTS-9780313-RT(1398/12/20)	RHS-0964311-T05 بندرعباس	RTS-9880220-RT SPACER
RTL-9700601-RT بوش چدنی GG20	RHP-7302505377-T17 بندرعباس	RLS-87912-LA Coupling tsk27 DBSE152
RHP-9726211002-T22 قلم 14 قطعات برج	RLS-77374-LA لاون	RLS-87987-LA STARTER DOG
RTS-9780080-RT spring cone	چک ساید سیلینگ (مترو)	RTL-9800063-RT چهار نظام
RLS-77611-LA SEAT AND PLUG1400/12/04	RLS-77515-LA لاون	RLS-88034-LA
RTS-9780362-RT	RTL-9700377-RT تهران	RLS-98179-LA COUPLING TSKS0075-1400
RTL-9700994-RT چرخنده خورشیدی	RHS-0963102-T23 SHAFT GABB	RLL-990127-LA COUPLING TSL0011-1800
RLL-971694 AL FLOATER TUBE	RLS-77591-LA	RTS-9880455-RT FLOAT JACKET
RLD-42228-LA COUPLING TSKS0027-7"	RLL-971694 AL FLOATER TUBE	RTL-9900402-RT BALL VALVE 1-1/4"
RLS-77643-LA FISHER CONTROL VALVE	RLL-971649 NOZZLE1"	RLD-92994-LA PLUNGER & VALVE BODY
RTS-9880013-RT LOCKNUT	RLP-71472-LA	RLD-93012-LA SPACER COUPLING
RLS-87853-LA	RTS-9780166-RT	RLS-98425-LA VALVE SEAT
RTL-98000228-RT هوک چرئیل	RHS-0964311-T05 بندرعباس	RLL-4000508-LA seat
disk pack for coupling	gray cast bush	11 item COMPRESSOR SPARE PARTS
bush gray cast iron	COUPLING shimS	impeller cast iron
Spacer	shfat PUMP	RLS-46239-LA pump spare parts
shaft duplex	coupling design for turbine	RLS-46241-LA pump spare parts
Wear ring 17-4PH	VALVE	coupling
Thrust bearing	11 ITEM PUMP PARTS	coupling design
sleeve ply	brass washer	steel clamp
coupling(flexible shims coupling)	borescope	throttle bush
Vibrator for oven	coupling set	RTS-9380343-RT(high speed SHAFT)

TABLE OF PROJECT NAME

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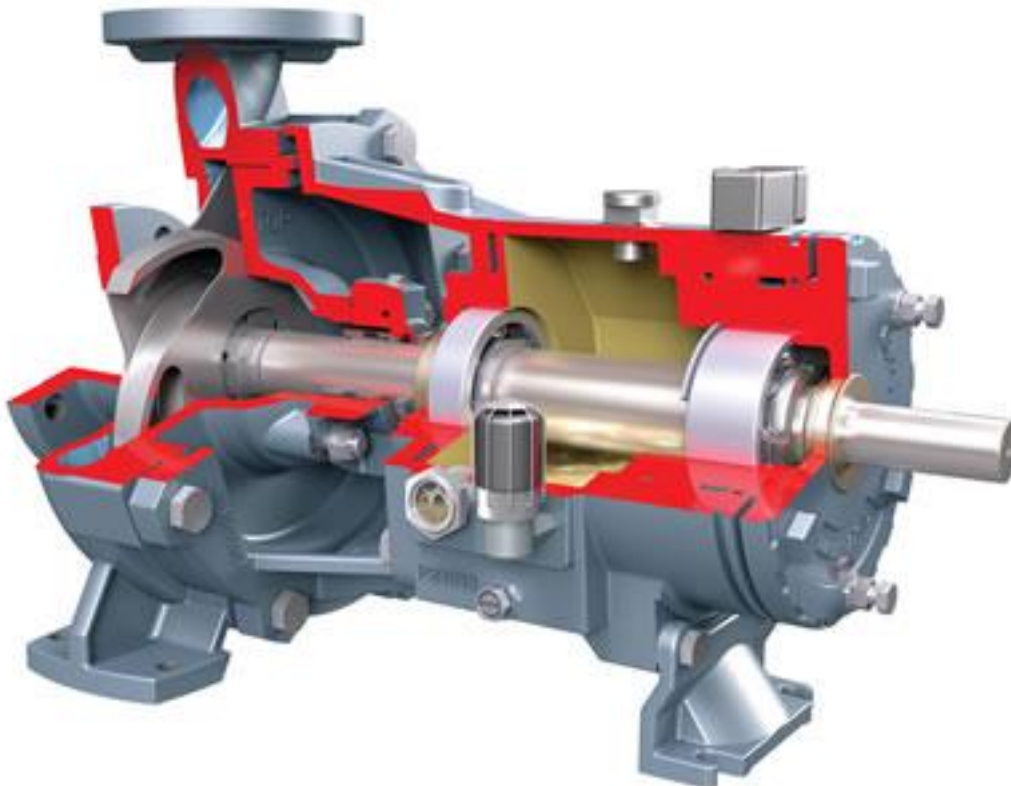
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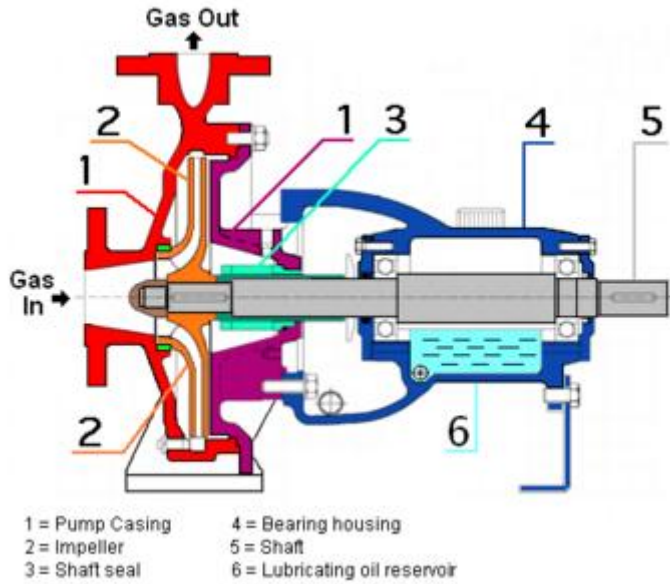


TYPE OF PUMPS

- [*IDP-Flowserve Pumps*](#)
- [*Ahlstrom / Sulzer Pumps*](#)
- [*Goulds Centrifugal Pumps*](#)
- [*Nash Vacuum Pumps*](#)
- [*Allis Chalmers Centrifugal Pumps*](#)
- [*Bingham Centrifugal Pumps*](#)
- [*Ingersoll Rand Pumps*](#)
- [*Griswold Pumps*](#)
- [*Warren Centrifugal Pumps*](#)
- [*Worthington Centrifugal Pumps*](#)
- [*AKAY PUMPS*](#)



CENTRIFUGAL PUMP



PARTS OF PUMP



CENTRIFUGAL HORIZONTAL PUMP WITH CLOSE IMPELLER

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FAX: +982156243082

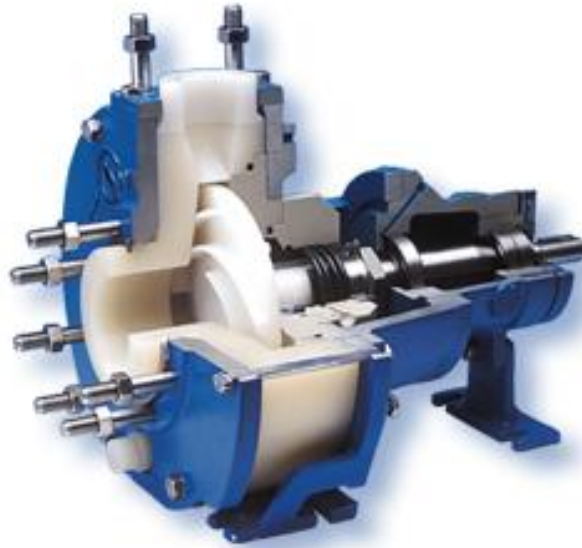
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ACID PUMP



5-STAGE HORIZONTAL CENTRIFUGE PUMP



PUMP SPARE PARTS AS IMPELLER,SHAFT,SLEEVE,CASE,...

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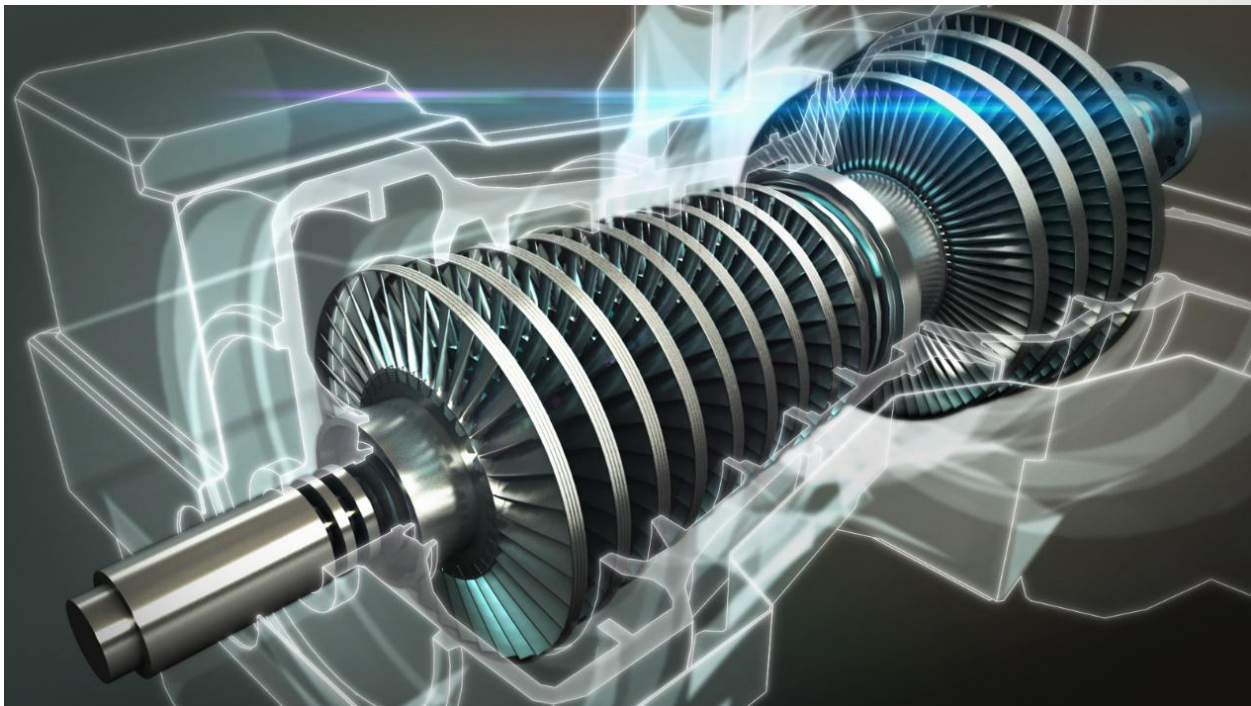
MAIL: info@pakbronz.com

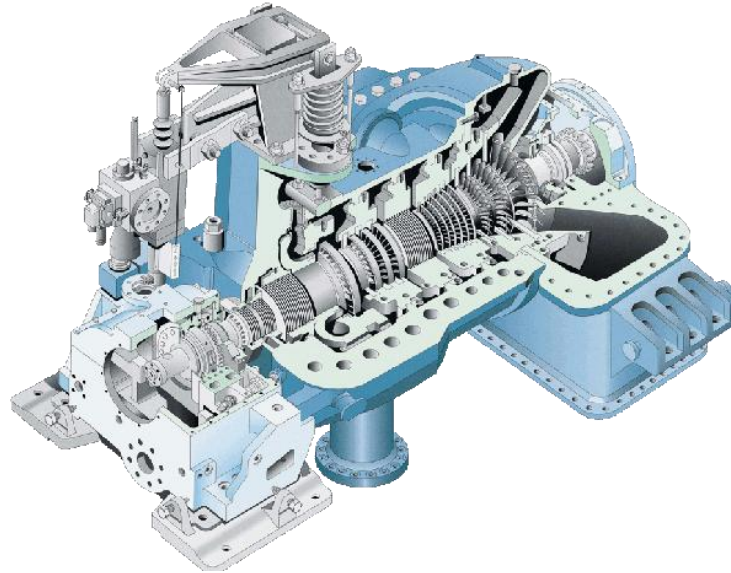
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TYPE OF TURBINE

- [ELLIOT GROUP STEAM TURBINE](#)
- [ARANI STEAM TURBINE](#)
- [SIEMENS STEAM TURBINE](#)
- [PETER BROTHERHOOD STEAM TURBINE](#)
- [DRESSER-RAND STEAM TURBINES](#)





STEAM TURBINE



TURBINE SPARE PARTS AS LABYRINTH,BUSH SLEEVE,SLIDE BEARING,BLADE,GEAR,COUPLING,...

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TYPE OF COMPRESSOR

- [ATLAS COPCO GAS COMPRESSOR](#)
- [BAUER GAS COMPRESSOR](#)
- [KOBELCO GAS COMPRESSOR\(SCREW,RECIPROCATING,CENTRIFUGAL\)](#)
- [ELGI AIR COMPRESSOR\(INDIAN MART\)](#)
- [VAN ELEWOUT KOMPRESSOREN](#)



ATLAS COPCO G-200 SCREW COMPRESSOR



PISTON AIR COMPRESSOR




AIR COMPRESSOR SPARE PARTS AS DISCHARGE VALVE, CONNECTION ROD, CROSS HEAD, STUFFING BOX, CRANK SHAFT, CRANK HALF BEARING, ...

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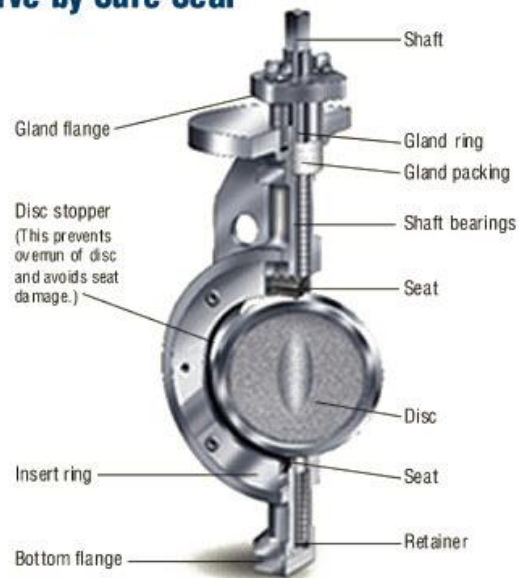


TYPE OF VALVE

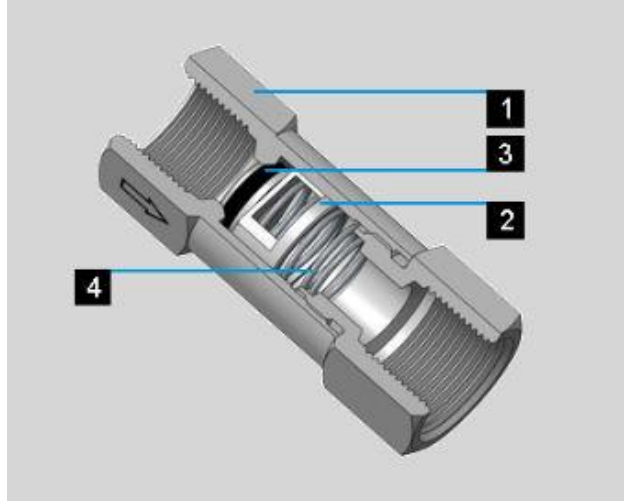
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- BALL VALVE



Soft Seated High Performance Valve by Sure Seal

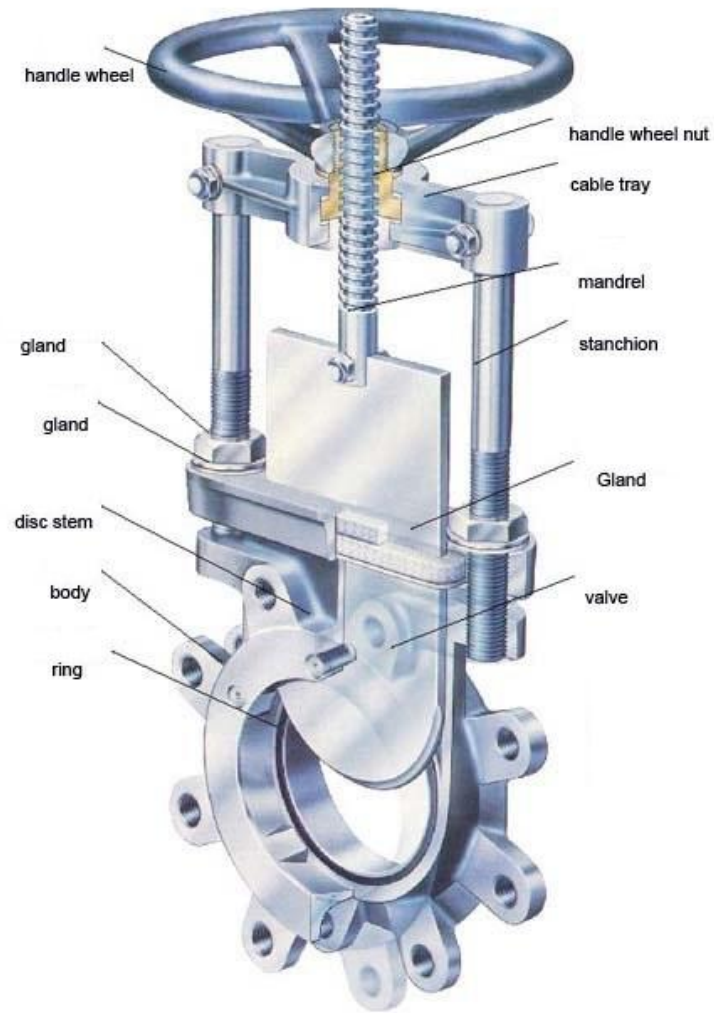


BUTTERFLY VALVE

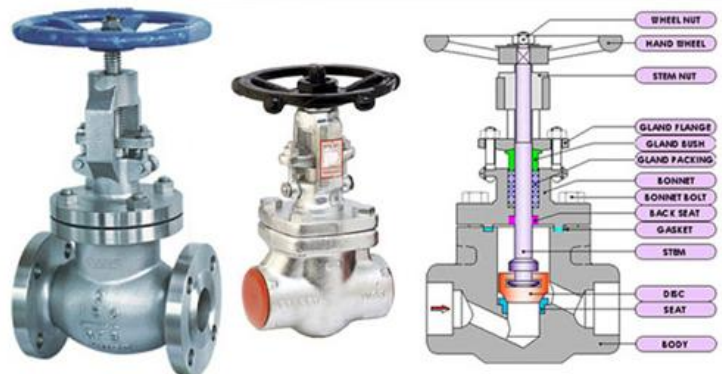


PISTON CHECK VALVE AND CHECK VALVE

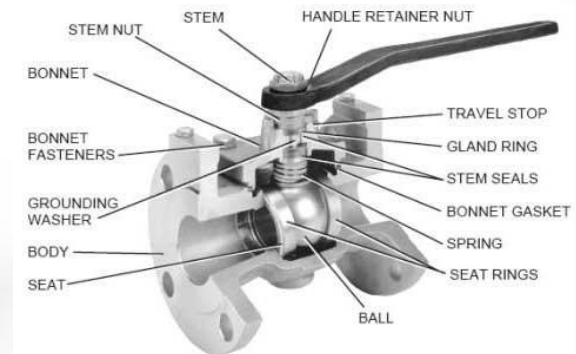




GATE VALVE



GLOBE VALVE



BALL VALVE

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TYPE OF FLANGE

- [threaded flange](#)
- [socket welding flange](#)
- [welding neck flange\(WNF\)](#)
- [lap joint flange \(LJF\)](#)
- [blind flange](#)
- [orifice flange](#)
- [reducing flange](#)



REDUCING FLANGE

Flange brand

1- vector

2- Kurt J. Lesker Company

3- KSC(kinarri steel corporation)

4- Metal industries

5- Arcon Italian flange

6- ...

TYPE OF COUPLING

- [FLEXIBLE SHIMS COUPLING](#)
- [GRID COUPLING](#)
- [HRC RUBBER COUPLING](#)
- [PIN AND BUSH COUPLING](#)
- [RIGID COUPLING](#)
- [GEAR COUPLING](#)
- [Bellows coupling](#)
- [Universal joint coupling](#)
- [OTHER COUPLING](#)



TYPE OF COUPLINGS

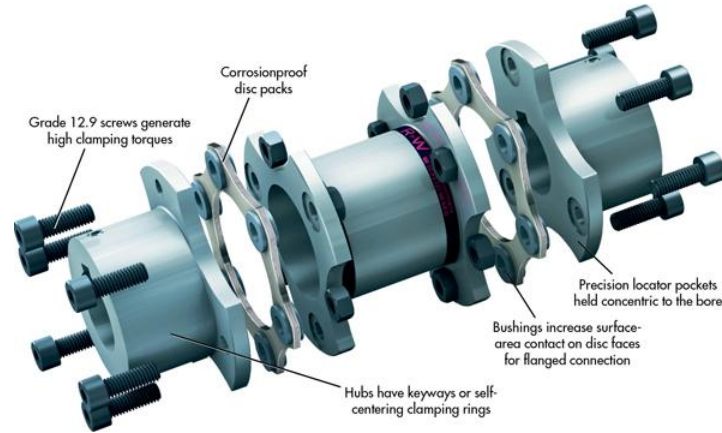
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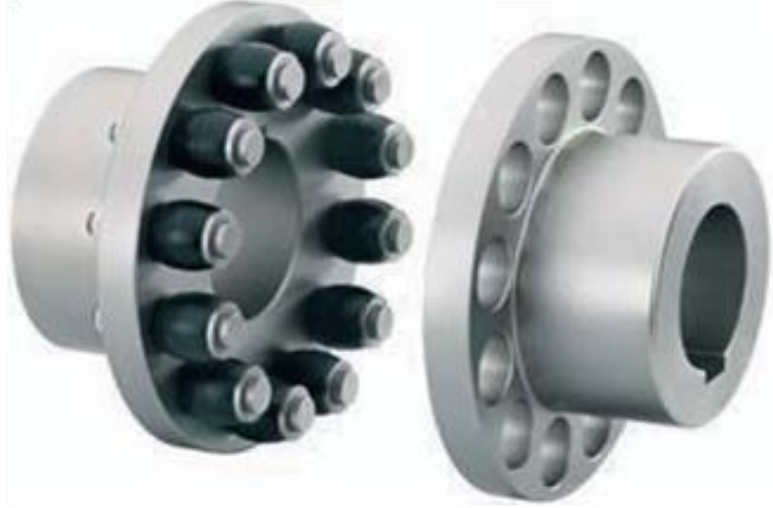
FLEXIBLE SHIMS COUPLING



GRID COUPLING



HRC-RUBBER COUPLING



PIN AND BUSH COUPLING



RIGID COUPLING

GEAR COUPLING



Bellows coupling



Universal joint coupling



CHAIN COUPLING



RUBBER TUBE COUPLING



VOITH FLUID COUPLING

OTHER COUPLING

Brand of couplings

- | | |
|-----|-------------------------|
| 1- | Falk |
| 2- | Rexnord |
| 3- | Baldor |
| 4- | Steelflex |
| 5- | Thomas and Addax |
| 6- | N-eupex |
| 7- | KTR |
| 8- | Lovejoy |
| 9- | Danum couplings |
| 10- | Dresser |
| 11- | VW impex |
| 12- | Rtc coupling technology |
| 13- | Raptor-baldor |
| 14- | VOITH |

SUPPLY STANDARD MATERIAL BY CERTIFY WITH FORMS BAR,PIPE AND TUBE,PLATE AND STRAP,SHIMS, BULK, HEXAGONAL,SQUAR AND.... AS:



- 1- CARBON STEEL AND LOW ALLOY STEEL
AS DIN1.1221(CK60)-DIN1.1203(CK55)-DIN1.1191(CK45)- DIN1.1183(CK35)-
DIN1.1158(CK25)-DIN1.1141(CK15) OR AISI1015-DIN 1.7225(MO40)-
DIN1.7218(MO2)-DIN1.6565(VCN200) OR AISI4340- DIN1.6582(VCN150) OR
AISI4340-...
- 2- MARTENSITE STAINLESS STEEL AS
AISI403 OR DIN1.4000-AISI405 OR DIN 1.4002 OR DIN1.4742-AISI410 OR DIN1.4006-
AISI420 OR DIN1.4021-AISI430 OR DIN1.4016 OR DIN1.4742-AISI430F OR
DIN1.4104-AISI434 OR DIN1.4113-AISI431 OR DIN1.4057,...
- 3- Austenitic Stainless Steel AS AISI301 OR
DIN1.4310-AISI304 OR DIN1.4301 OR DIN1.4350-AISI304L OR DIN1.4311-AISI316 OR
DIN1.4401 OR DIN1.4436-AISI316L OR DIN1.4404-AISI317L OR DIN1.4438-AISI321
OR DIN1.4541-AISI347 OR DIN1.4550-AISI316Ti OR DIN1.4571-AISI318 OR
DIN1.4583-AISI309 OR DIN4828-AISI310S OR DIN1.4845,...
- 4- Austenitic/Ferritic Stainless Steel
(Duplex) AS DIN1.4460 OR S32900-DIN1.4462-DIN1.4821-DIN1.4823-DIN1.4362 OR
S32304,...
- 5- Gray Cast Iron AS GG10-GG15-GG20-
GG25-GG30-GG35-GG40
- 6- Gray Cast Iron with Nodular Graphite AS
GGG35-GGG40-GGG50-GGG60-GGG70

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- 7- White malleable Cast Iron AS GTW40-GTW45-GTW55-GTW65-GTS35-GTS45,...
- 8- Non-Ferrous Materials
 - 8-1- Aluminium Alloys AS AISI1000(AL99.5)-AISI A360-AISI A352-AISI A356-AISI A2024T6-AISI A7075T6-AISI A6063,...
 - 8-2- Copper Alloys AS UNS C93200 OR DIN2.109-UNS C83600 OR DIN2.1096-UNS C93700 OR DIN2.1176-UNS C93800 OR DIN2.1182-UNS C63000 OR DIN2.0966-UNS C23000 OR DIN2.0240-UNS C26000 OR DIN2.0265-UNS C86500 OR DIN2.0592-UNS C94100 OR DIN2.1188,...
- 9- Super-Alloys Fe-based AS DIN1.4558 OR INCOLOY800 OR AISI N08800-DIN1.4562 OR AISI N08031-DIN 1.4864 OR AISI 330 OR SUH330,...
- 10- Super-Alloys Co-based AS Haynes 188 OR AISI R30188- L605 (Haynes 25) OR AISI R30605- MARM-302, 322, 509- Stellite 6, 21, 31
- 11- Super-alloys Ni-based AS Monel 400 OR DIN2.4360- Hastelloy C-4 OR DIN2.4610- Nimonic 75 OR DIN2.4630- Inconel 690 OR DIN2.4642- Hastelloy C OR DIN2.4810- Inconel 625 OR DIN2.4856- Incoloy 825 OR DIN2.4858- Monel K-500 OR DIN2.4375- Inconel 718 OR DIN2.4668- Inconel X-750 OR DIN2.4669- Hastelloy B OR DIN2.4685- Inconel 751 OR DIN2.4694,...
- 12- Titanium and titanium alloys AS TiAl6V4 OR DIN3.7165 OR AISI R56400- Ti6V6Al2Sn OR DIN3.7175 OR AISI 56620,....
- 13- Non metal material as PA6,PA6.6,PTFE,TEFLON FILLED CARBON,PVC,PVDF,PC,EPOXY RESIN,FENOLIC RESIN,...
- 14- STANDARD PARTS AS BOLTS AND SCREWS AND NUTS,RETAINING WASHER,SPRING WASHER,CIRCLIPSELBOW AND FLANGS,...



- 15- Heat treatment accordance to ASM heat treatment handbook and standard ASTM B/917,B/917M-12, B/918M-09 FOR ALUMINIUM ALLOY AND ASTM A389 AND ASTM A389M-13 FOR STEEL CASTING AND ASTM A580 AND ASTM A580M-16 FOR STAINLESS STEEL WIRE AND ASTM A747 AND ASTM A747M-16a FOR STAINLESS STEEL Precipitation Hardening AND ASTM A788 AND ASTM A788M-16a FOR FORGING STEEL AND ...
- 16- CRYOGENIC TREATMENT FOR STABILIZE PHYSICAL PROPERTIES



WORKSHOP ENVIRONMENT AND MACHINING INSTRUMENTS

NO	NAME OF EQUIPMENT	MODEL/YEAR	NUMBER	PRICE(\$)
1	CNC MILL650x380x460	BEMATO/2008	1	25000
2	CNC MILL650x380x460	V CENTER/2008	1	25000
3	MANUAL LATHE660x2000	CHINA/2000	1	10000
4	MANUAL LATHE660x2000	TABRIZ/1990	1	10000
5	STATIONARY DRILL	TABRIZ/1990	1	1000

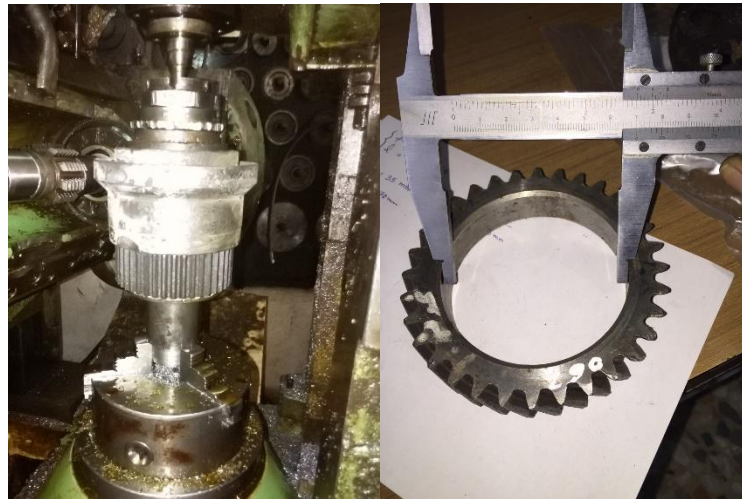


CNC MILL TYPES BEMATO CONTROL FANUC O-MD & V CENTER-4S (X=650mm,Y=380mm,Z=460mm)

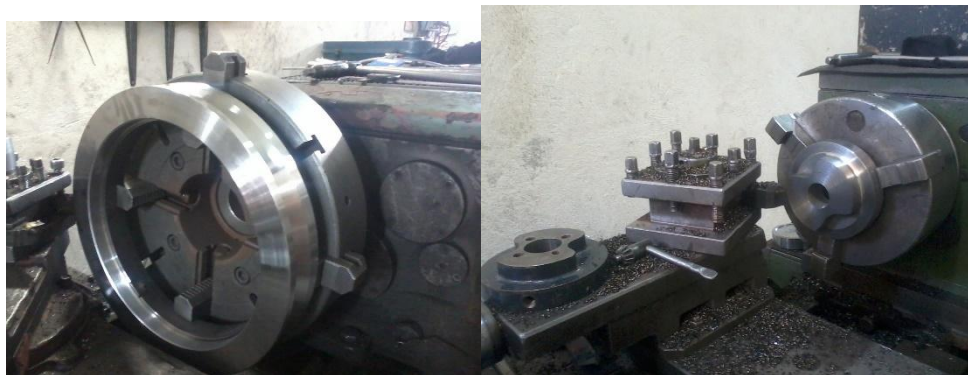




HEAD BORING TURBINE COVER



HUB GEAR MACHINE



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LATHE MACHINE



DEBURRING AND ASSEMBLY SLEWBEARING

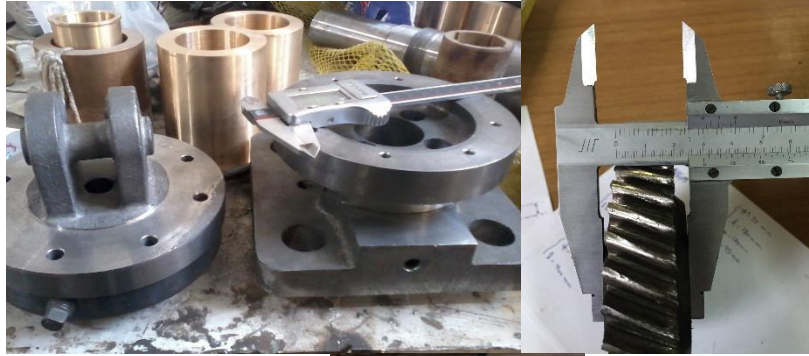


WORKSHOP

Address : QOM road , 30th km, No9, Tehran, Iran SHAMSABAD, SETAREH ALLEY

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Q.C AND CONTROL DIMENSION

NOTE:

OUT SOURCING AS HEAT TREATMENTS,BALANCING,TIG WELDING,WIRECUT,BRAZING,ROLLING AND THREAD ROLLING,CASTING



LABELING AND PACKING

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SOME OF THE PARTS AND ASSEMBLIES BUILT IN THE COMPANY

OIL CAP,SLIDING BABBITTE BEARING,IMPELLER WEAR RING,STRAINER,RIGID COUPLING,PLUNGER,FLEXIBLE SHIMS COUPLING,FLEXIBLE COUPLING,LABYRINTH,FLOATER,PUMP SHAFT,HIGH SPEED SHAFT,IMPELLER

Personnel

No	Job position	Degree of education	work experience	Field of Study	Name/last name
1	Management director(PRESIDENT)	B.D	15 years	INDUSTRIAL ENG.	Karim/Pakzad
2	Technical manager(VICE PRESIDENT)	M.D	20 years	Mechanical Engineer	Reza/Parsaei
3	Accountant (SALES MANAGER)	B.D	20 years	Accountant	KOBRA/SHOKRIAN
4	Workshop manager	DIPLOMA	15 years	MACHINIST	SAJAD/MAHROY
5	OTHER	DIPLOMA	2 years	Diploma	OMID/FAZLOLAHI
6	After Sales /Service Manager	M.D	5 years	Electronic Engineering	SANAZ/ZAHRAVI



WE ARE ON YOUR SIDE

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