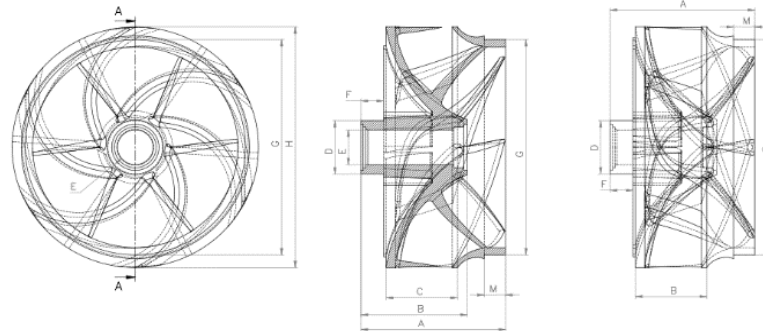




KHAVAR ENGINEERING COMPANY

KEC

in Overall view





KEC Location:

Head Office:

- Area: 600 m²
- Bahar Av., Mashhad, Iran



Factory:

- Area: 1000 m²
- Khorasan Science & Technology Park, Mashhad, Iran





The journey of KEC:

- **Commercial (since 1951)**
 - **Selection Engineering**
 - **After Sales Services**
 - **Engineering Design**
 - **Engineering Productions**



Field of Activities:

- 1- Agricultural and general industries (1951)
- 2- Water supplying and pump stations (1997)
- 3- Building and food industries (2003)
- 4- Mineral industries (2010)
- 5- Oil, gas and petrochemical industries (2013)





KEC Events:

Conferences:

- **1th conference on rotating equipment's in oil and power industries (Iran Rotate 2008)**
- **6th Condition Monitoring and Fault Diagnosis Conference (CMFD 2012)**

Workshops:

- **6th Condition Monitoring and Fault Diagnosis Conference (CMFD 2012) – Balancing Pressure System in M-stage Pumps**
- **Technical University of Mashhad (2011)- Selection Engineering workshop**
- **Toos Ab Consulting Co. (2011) – Vertical line shaft and Submersible Pumps Fundamentals workshop**

Seminars:

- **Tehran Esteghlal Hotel for Caprari Presentation (2014)**
- **Tabriz Petrochemical Co. – Energy Saving monitoring in Rotary Equipments (2015)**
- **Jam Petrochemical Co. - (2015)**



KEC Events:

Exhibitions:

- **Tehran Oil Show 1396**
- **Ahvaz Oil Show 1395**
- **Tehran Oil Show 1395**
- **Tehran Oil Show 1395**
- **Mashhad ABfa - 1394**
- **Tehran ABfa 1394**
- **Tehran Industrial Show 1390**
- **Tehran ABfa 1389**
- **Tehran Oil Show 1388**
- **Tehran Oil Show 1387**
- **Tehran Cement Show 1387**
- **Water Fair 1387**



There are different types of companies in the field of Rotary Equipment (BIG COMPANIES):



No. of employees: 16,196

Revenue: 2,334 Million €



No. of employees: 18,000

Revenue: 4,300 Million €

SULZER

No. of employees: 15,500

Revenue: 3,160 Million €



There are different types of companies in the field of Rotary Equipment (SMALL COMPANIES):



No. of employees: 300

Revenue: 65 Million €



No. of employees: 100

Revenue: 25 Million €



No. of employees: 200

Revenue: 58 Million €



KEC advantages:



4 in 5 Americans believe that smaller companies place a greater emphasis on customer service than large businesses

Close to the Customer



Solution Provider in Short Time



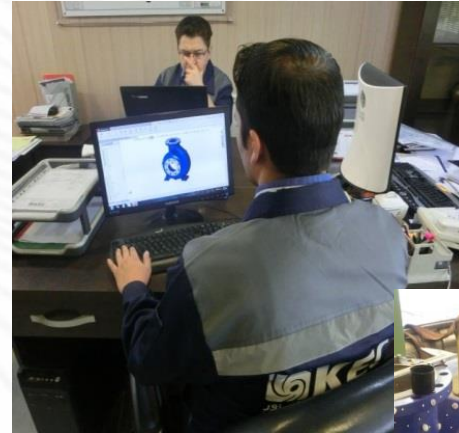
Flexible



KEC Strategies:

as a Knowledge-Based Company

- ✓ sales and selection
- ✓ Modification and Improvement
- ✓ Tailor made centrifugal pumps manufacturing
- ✓ Faults Diagnosis in Rotary Equipment
- ✓ Maintenance and refurbishment
- ✓ After Sales Services in Rotary Equipment
- ✓ commissioning and start up





Some of KEC customers:

- National Iranian Drilling Company (NIDC)
- South Pars Gas Company (SPGC)
- Khuzestan Water and Power Authority (KWPA)
- MAPNA group
- National Iranian Oil Engineering and Construction Co. (NIOEC)
- Hormozgan Steel Company (HOSCO)
- Oil Turbo Compressor Co (OTC)
- Iranian Offshore Oil Company (IOOC)
- Mobarakeh Steel Company (MSC)
- Abadan Oil Refinery Company (AORC)
- Bandar Emam petrochemical company (BIPC)
- Tabriz oil refinery company (TPCO)
- Maroon petrochemical company (MOGPC)
- Saba steel company
- Petrochemical Industries Design and Engineering Company (PIDEC)
- Karoon petrochemical company (KRNPC)
- Fariman petrochemical company
- Water waves land company





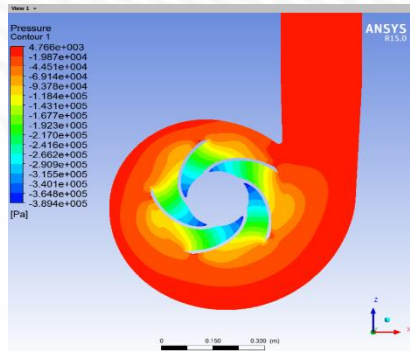
KEC as a supplier:

- ✓ Clean water
- ✓ Raw water
- ✓ Salty water
- ✓ Industrial water
- ✓ Hot water
- ✓ High pressure water
- ✓ Highly corrosive media
- ✓ Driver support

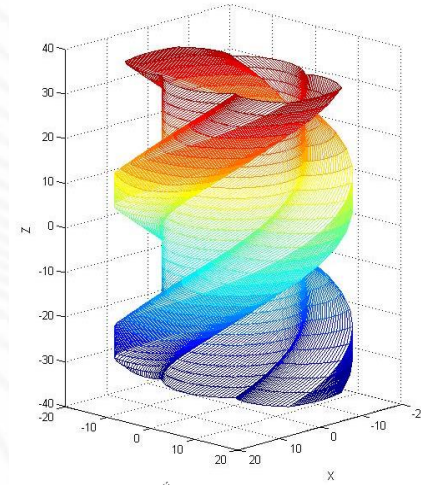




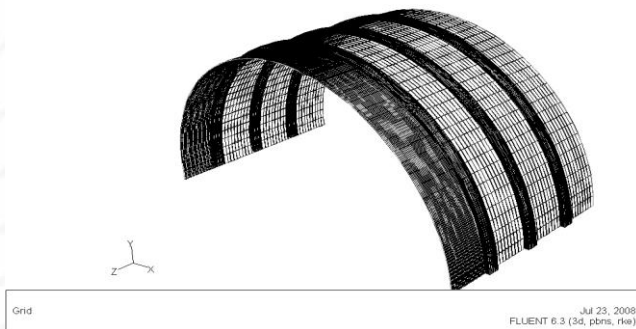
KEC as a Designer:



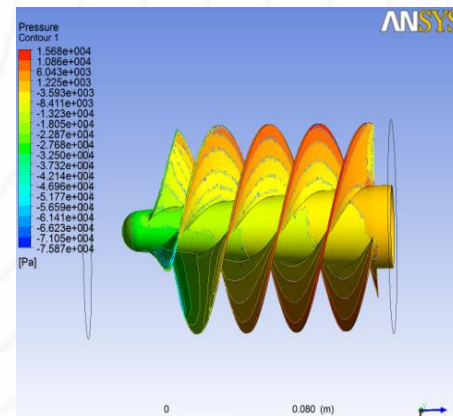
The design of Hydraulic parts



The design of Screw pump



The design of Balance drum



The design of Inducer



KEC Action as a Manufacturer:

Engineering

- KEC

Modeling

- KEC

Machining

- KEC

Special Machining
/ Casting

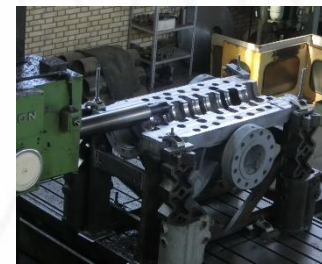
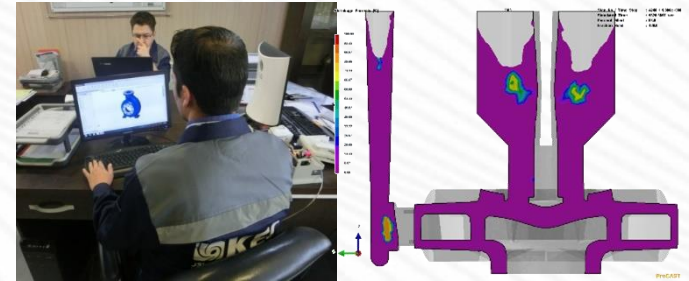
- Out Source with supervising

QC

- KEC

Assembling /
Painting

- KEC





KEC as a manufacturer:

- ✓ **Boiler Feed Water**
- ✓ **Crude Oil Transfer (API610)**
- ✓ **Desalinating Water**
- ✓ **RO Application**





KEC as a manufacturer:

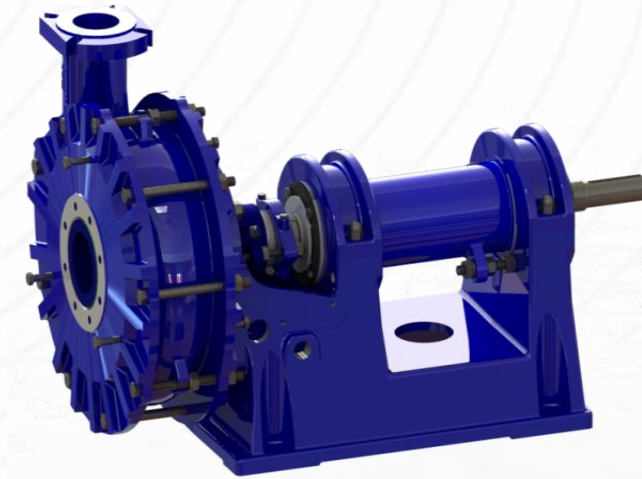
- ✓ EN 733 Standard Pump
- ✓ ISO 2858 Standard Pump
- ✓ Non-Clogging Pump
- ✓ Chemical Resistant
- ✓ Industrial Water
- ✓ Clean Water





KEC as a manufacturer:

- ✓ **Slurry Application**





KEC as a manufacturer:

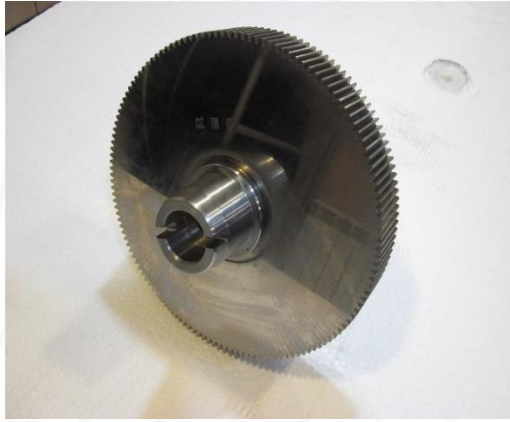
- ✓ Industrial Water Transfer
- ✓ Chemical Resistant Application
- ✓ Clean Water Transfer





KEC as a manufacturer:

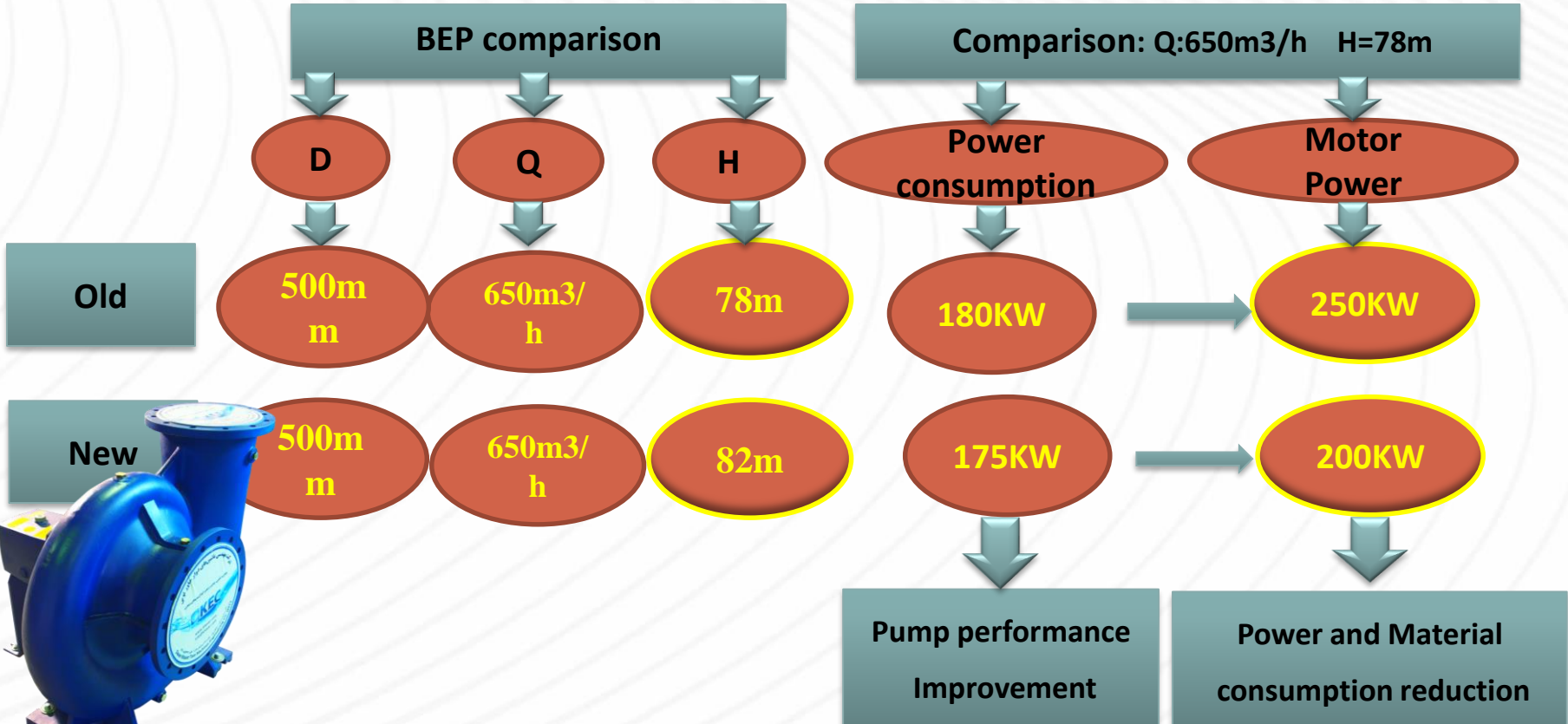
- ✓ Spare Parts for Centrifugal Pumps and Compressors





Energy Saving:

Pump Model: Etanorm R200-500 old and new design Comparison





KEC as a Supervisor:



**SPGC
 PHASES 17 & 18- OICO**



**Roodhart Pump
 NIOEC – Danial Petro**



KEC as an After Sales Service Center:

SABA pump station



Mobarakeh Steel Company





KEC as a Solution provider:

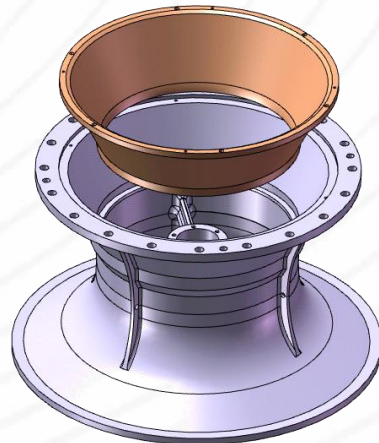
Water supply from Karoon river

Speed: 1000 rpm- Power: 1000 kW



Defects in Thrust bearings

Speed: 4800 rpm- Power: 3500 kW





✓ Data collecting via calibrated precision instruments and 3D scanner



ESFARAYEN INDUSTRIAL COMPLEX
 Producer Of Different Parged Sections & Parts

inpe
 Iranian National Institute for Standardization and Metrology

Date: 02/08/01
 No: QC/008/35649
 Ref:

کواشنامه کیفیت محصول
 این کواشنامه بر طبق استاندارد 15204-3.18 شماره شده است

مشاوره فنی: 13104/16
 نام مشتری: گزن اروج
 جنس فولاد: A105-LF2
 ابعاد: 800 (mm)

ملاحظات: عملیات جازمانه ایران
 تعداد: 1
 کد بوم: 92AKV02

بازرسی ها
 متالوگرافی: بررسی میکروسکوپی: مطابق نقشه
 ذرات: اوتواسونگ
 کنترل ابعادی و سطحی: کنترل بصری
 معیار پذیرش: DIN7527
 روش: SEP 102 III(D)G
 نتیجه: OK

رنگیت تشخیصی: (درصد وزنی)

کد شماره	کد بوم	آنالیز ذرات									
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu
132528-1F		0.17	0.18	1.01	0.015	0.002	0.28	0.13	0.04	0.005	

خواص مکانیکی:

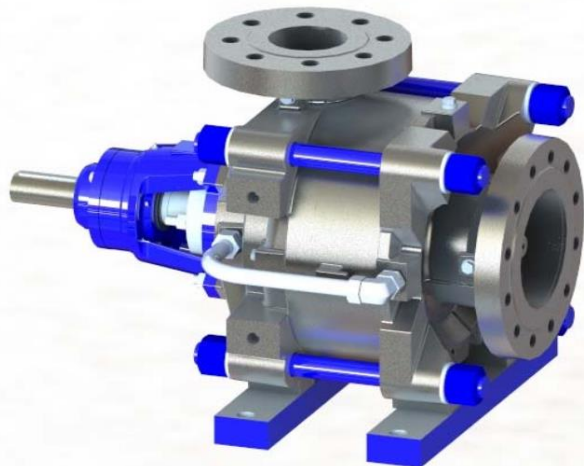
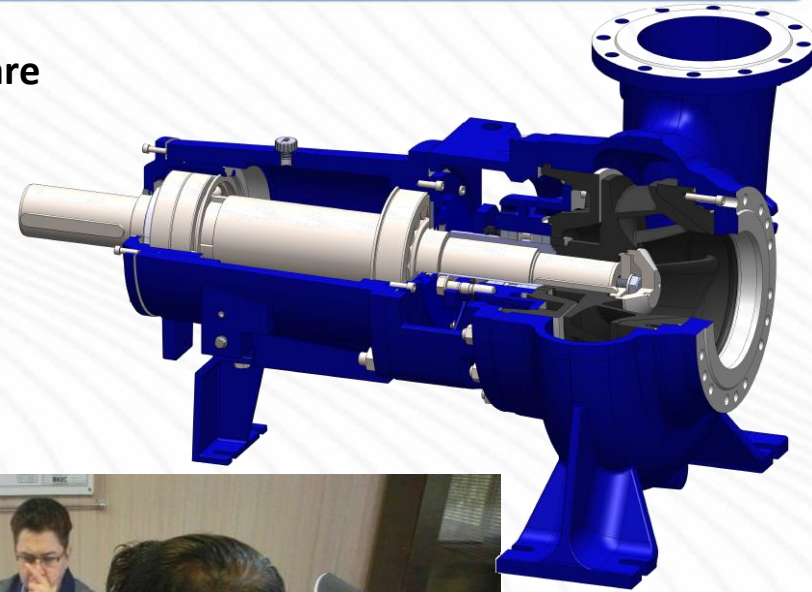
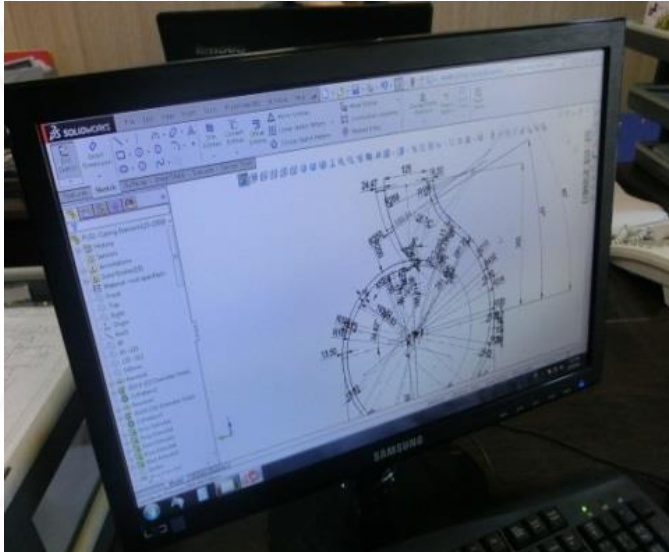
حاصل شده	مستند	استحکام تسلیم	استحکام کششی	%E	درجه کاهش سطح مقطع	انرژی ضربه
	HB	N/MM ²	N/MM ²			

ISO 9001:2008 & ISO 14001:2004 & OHSAS 18001:2007 & ISO 50001:2010





- ✓ 3D modeling and assembling via SolidWorks software





Booklet of detailed manufacturing processes

دفترچه جزئیات فرآیند ساخت

FE0000



ID	Task Name	Duration	شروع	2015 Qtr 1			2015 Qtr 2		
				Jan	Feb	Mar	Apr	May	
1	پروژه نمونه سازی	427 days	۱۳۹۳/۱۲/۰۹						
2	✓ انجام هماهنگی و تهیه امکانات لازم جهت داده برداری	1 wk	۱۳۹۳/۱۲/۰۹						
3	مرحله مهندسی معکوس	204 days	۱۳۹۳/۱۲/۱۶						
4	✓ داده برداری و اسکن سه بعدی	2 wks	۱۳۹۳/۱۲/۱۶						
5	شناسایی و دسته بندی مواد	2 wks	۱۳۹۳/۱۲/۲۲						
6	تهیه نقشه های سه بعدی از گروکی برداری	18 wks	۱۳۹۴/۰۱/۰۵						
7	تهیه نقشه های سه بعدی از نتایج اسکن سه بعدی	18 wks	۱۳۹۴/۰۱/۰۵						
8	مونتاژ کامپیوتری قطعات و تایید نهایی	8 wks	۱۳۹۴/۰۳/۰۹						
9	تهیه نقشه های کارگاهی و ماشین کاری	7 wks	۱۳۹۴/۰۴/۲۶						
10	تدوین فهرست مواد و قطعات	5 wks	۱۳۹۴/۰۶/۰۶						
11	تعریف مراحل ماشین کاری و ایستگاههای کنترلی	2 wks	۱۳۹۴/۰۶/۰۶						
12	مرحله تامین نیاز مندی های تولید	216 days	۱۳۹۴/۰۴/۰۲						
13	طراحی و تدوین نقشه ها و مدل های ریخته گری و ابزار	12 wks	۱۳۹۴/۰۴/۰۲						
14	شناسایی پیمانکاران ماشین کاری و ریخته گری قطعات	2 wks	۱۳۹۴/۰۴/۲۶						
15	ساخت مدل های ریخته گری و ابزارهای مورد نیاز	30 wks	۱۳۹۴/۰۵/۰۷						
16	تامین مواد و قطعات استاندارد داخلی	6 wks	۱۳۹۴/۰۷/۰۵						
17	تامین مواد و قطعات خارج از کشور	8 wks	۱۳۹۴/۰۷/۰۵						

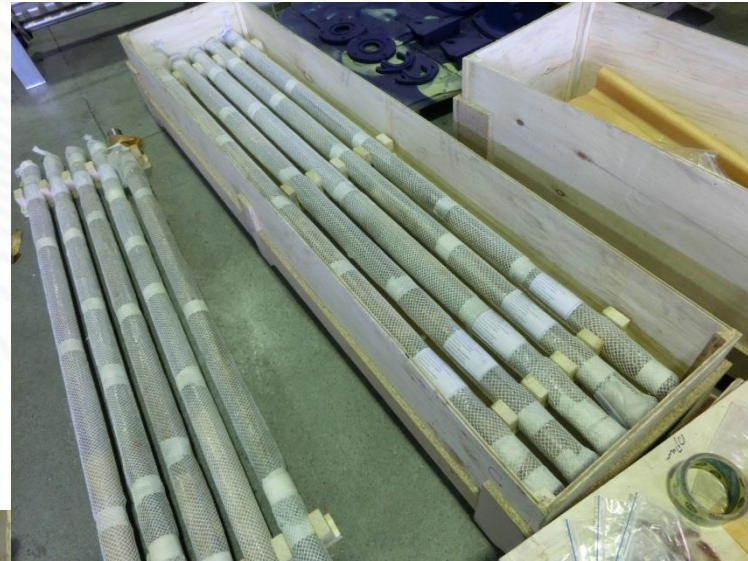


❖ One of KEC projects for Mobarakeh Steel Company (MSC)



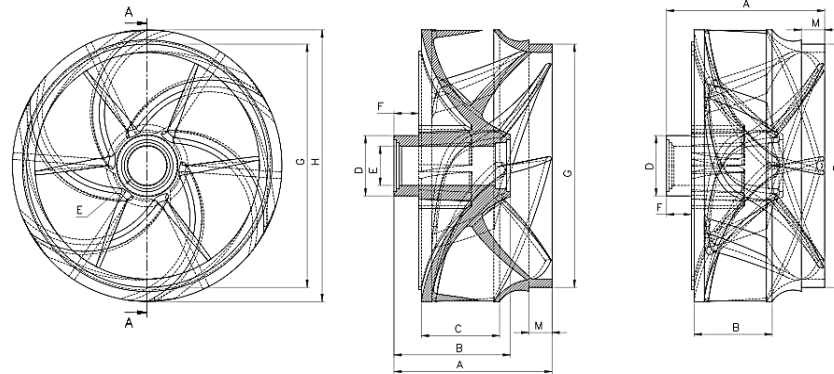


✓ **Packaging**





Thank you for your kind attention!



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