الأعمال المتقدمة للإستشارات المالية والإدارية
Advanced Business Consultants

ADVANCED BUSINESS CONSULTANTS

AN ISO 9001:2015, ISO 14001 & BS OHSAS 18001 CERTIFIED COMPANY

P.O. BOX: 698, PC: 133, MUSCAT
SULTANATE OF OMAN
TEL: +968- 24792173 / 24792174 FAX: +968- 24792175

Submitted to

MINISTRY OF COMMERCE, INDUSTRY AND INVESTMENT PROMOTION
SULTANATE OF OMAN

&

مدائن madayn

PUBLIC ESTABLISHMENT FOR INDUSTRIAL ESTATES
SULTANATE OF OMAN

JULY 2021

PRE-FEASIBILITY REPORT (DRAFT)

FOR

SETTING UP A STEEL CASTING & FABRICATION UNIT IN OMAN

CONTENTS

1. INTRODUCTION

1.1. PROJECT BRIEF

This report relates to a study on the feasibility of setting up a Steel Casting & Fabrication plant in Sultanate of Oman. The following is the Brief illustration of the project:

Name of Product	Steel Casting & Fabrication
Capacity of the Project	3,960 Tons per Annum
Total Investment	RO 3.718 million
Equity Investment	RO 1.487 Million
Key Appraisal Criteria:	
IRR on total investment	18.7%
IRR on Equity	28.9%
Payback period of Total Investment	5 Years 11 Months
Payback period on equity	5 Years 10 Months
DSCR	2.62
Total Debt Equity ratio	1.5 : 1
Number of Employees	88

1.2. PROJECT RATIONALE

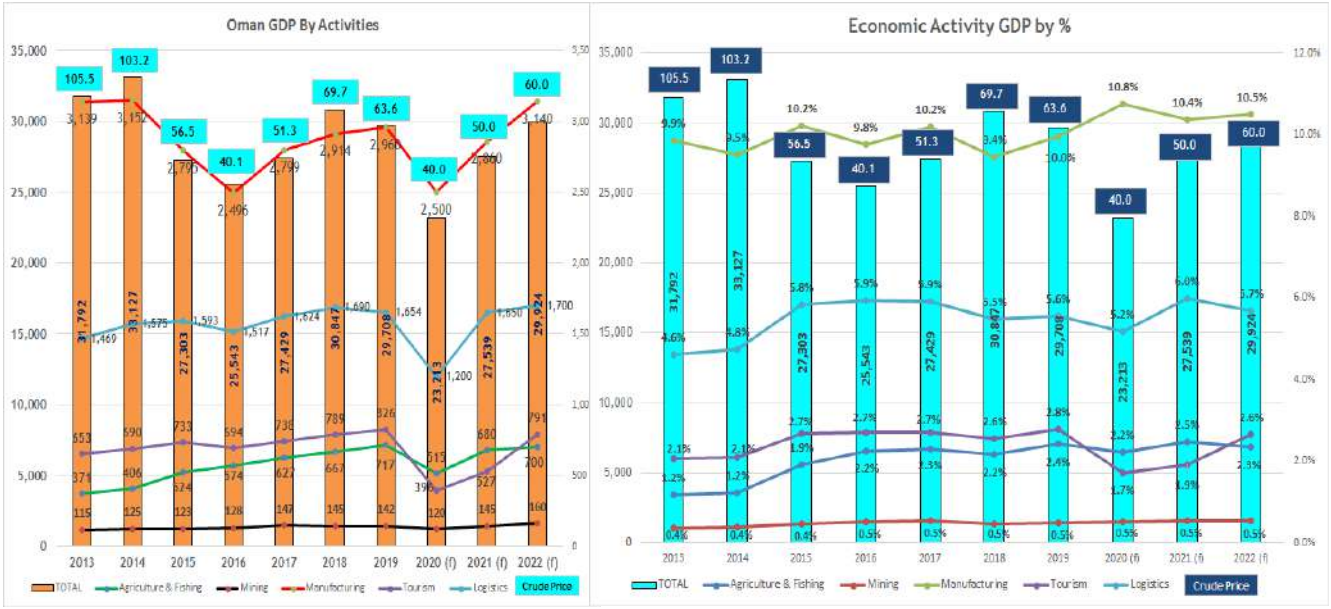
The competitive advantage of locating the plant in Oman is the expected lower cost of production. The product can be sold comparatively at a lower price considering the following:

- The project can focus on tapping the ICV development / support provided by the Government.
- Major raw materials - MS Scrap, Ferro Manganese, Ferro Chromium, Silica sand and other consumables - required for the manufacture of steel casting are available in Oman.
- The products are widely used in many industries like construction, oil & gas, marine, automotive & transportation, etc. Hence a diversified domestic market is available for the project.

2. INDUSTRY ANALYSIS

2.1. MACROECONOMIC CONDITIONS

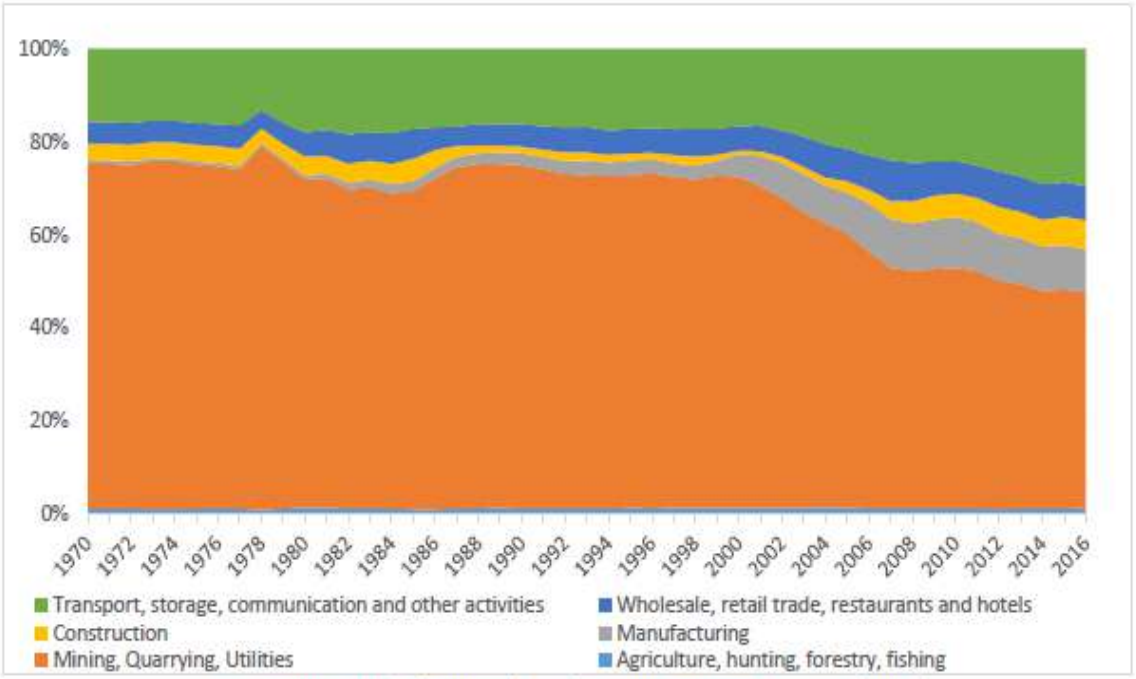
The recently published statistical bulletin from National Centre for Statistics and Information (NCSI) indicates that the GDP at market prices reduced by 15% during Year 2020 when compared to the Year 2019. This is mainly due to the dual impact of slump in oil prices and the COVID – 19 pandemic. As per the World Bank outlook a revival is expected in 2021 and in 2022 on an average of around 4%. The estimated GDP of Oman considering the past trend, current situation and the expected recovery is illustrated below:



The average price of Oil for 2020 is USD 46/Barrel. We expect this to go up to USD 50/barrel in 2021 and USD 60/barrel in 2022.

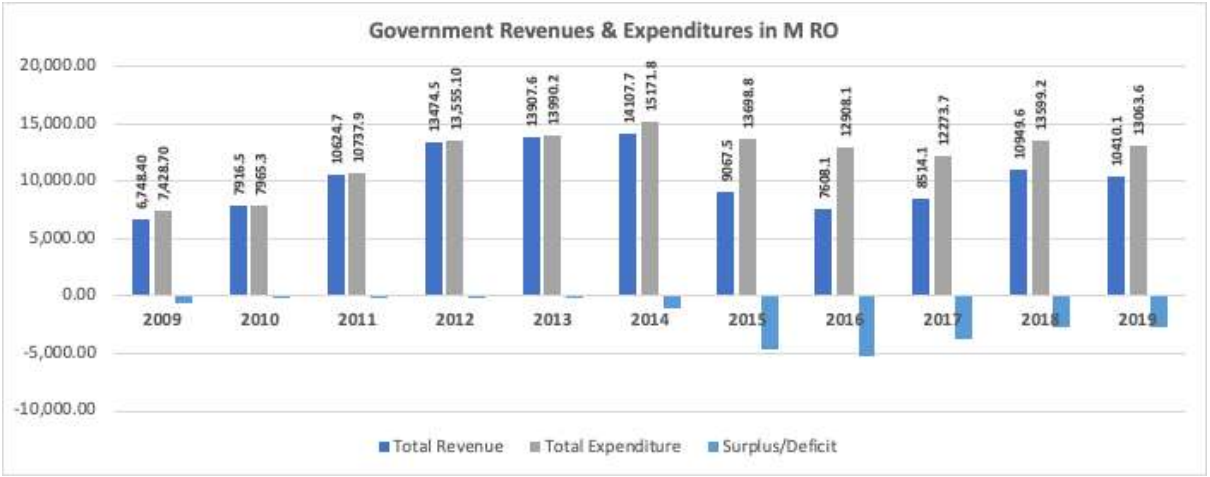
2.2. TREND IN ECONOMIC DIVERSIFICATION

Since the beginning of the millennium our economic activity has significantly moved away from oil as indicated below. The following graph gives data up to 2016. In 2019 Crude Petroleum contributed to 29.11% of GDP.



Source: UNIDO elaboration based on UN Statistics Division (2018)

However the Government income is still substantially dependent on Oil sector. The tightening of spending, introduction of VAT and increased revenues from Gas are expected to contain deficits to manageable levels by 2022.



2.3. OVERVIEW OF STEEL MANUFACTURING SECTOR IN OMAN

The following table illustrates the overall performance of the Basic Metals including Steel Processing sector in Oman.

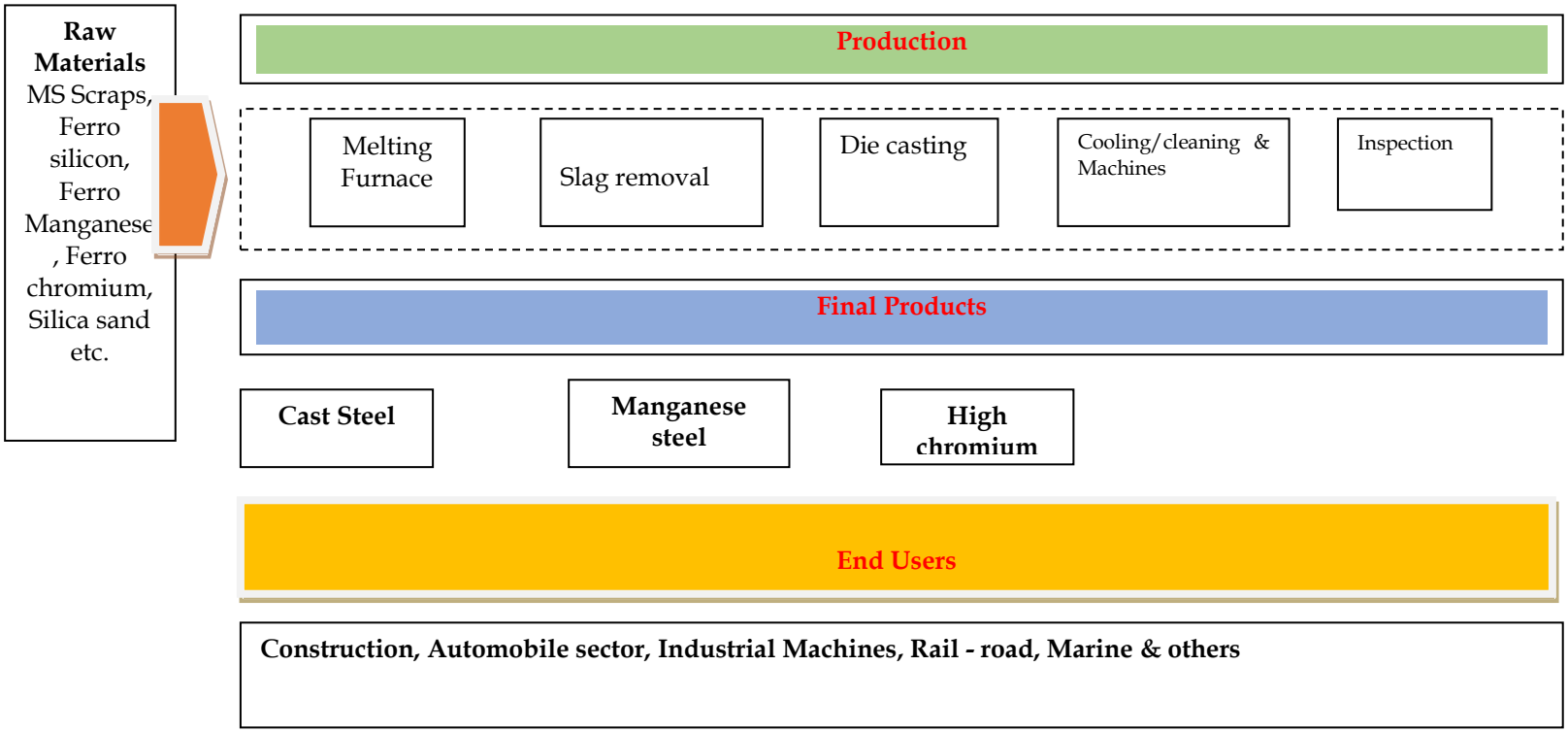
Year	Total Units	Total Employees	Book Value of Fixed Assets (VFA)	Materials	Imported Materials	Output	Value Added (VA)	Labour Efficiency (RO/ Employee)	Capital Efficiency (VA /VFA)
	No.	No.	(RO million)					Rial Omani	
2012	34	8,231	1,432.58	596.44	399.43	1,077.04	377.08	45,813	0.26
2013	28	7,659	1,541.05	451.81	287.94	995.30	457.19	59,693	0.30
2014	27	6,791	1,494.91	423.05	288.46	946.79	382.04	56,257	0.26
2015	37	9,504	1,692.05	462.15	284.47	937.83	363.48	38,245	0.21
2016	36	8,492	1,318.16	500.17	352.91	996.85	376.60	44,347	0.29
2017	35	8,450	1,416.64	580.05	480.44	1,141.33	398.77	47,192	0.28

Following are the key inferences with respect to the sector performance:

- The increase in the level of employment, value of fixed assets and output indicate a growth in the sector performance.
- The labour efficiency and the capital efficiency remain the same, indicating limited change in technology improvements in the sector.

2.4. VALUE-CHAIN OF STEEL CASTING PRODUCTS AND USES

The following chart illustrates the overall value chain of Steel casting products:



2.5. REGIONAL (GCC) AND LOCAL VALUE-CHAIN

Steel casting industries are existing in almost all GCC countries, especially in UAE & Saudi. While steel scrap is locally available in the respective countries, the specialty additives are supplied by traders. The end use industries are prevalent in these markets.

2.6. VALUE CHAIN IN OMAN

Steel castings are manufactured in Oman. However specialty steel casting manufacturing is still nascent in Oman.

While steel scrap is locally available, there are traders who can supply the specialty steel raw materials and additives required for the high end steel casting process.

The end use sectors including oil & gas, construction, marine and manufacturing industries are well established in Oman.

3. MARKET ANALYSIS

3.1. PRODUCT & ITS USES

3.1.1. Product Description

Steel casting is a specialized form of casting involving various types of steel. Steel castings are used when cast irons cannot deliver enough strength or shock resistance.

Examples of items that are steel castings include: hydroelectric turbine wheels, forging presses, gears, railroad truck frames, valve bodies, pump casings, mining machinery, marine equipment, and engine casings.

Steel castings and steel weldments are competitive materials employed in ferrous metal fabrications. They are at times used as replacements for each other in engineering structures, depending on the cost and quantity differential and the familiarity which the designer has in the material of construction and the service application of the particular engineering structure.

Type of castings will vary depending on customer's requirements. Generally, it can be categorized as Steel & Alloy steel, Cast Iron, Alloy Cast Iron & Ductile Iron castings conforming to specific customer requirements. The foundry will be able to manufacture castings for various core sectors such as Mining, Power, Automobile, Steel, Cement, Refractory and General Engineering Industry as well as for Export.

3.1.2. Product specifications

Castings are categorized depending on their quality requirements related to their applications. This foundry will be cap[able of producing castings conforming to Indian Standard specifications as well as certain International Standards such as British (BS), American (ASTM), German (DIN), Japanese (JIS) and Russian (GOST) standards. The majority of the

castings which will be manufactured in this foundry will fall within preview of following specifications.

Category	Specifications
Steel castings for General Engineering Purpose	IS 1030, BS 3100, DIN 1681, GOST 977, ASTM A148. ASTM A216. ASTM A27
Low Alloy Steel castings for critical applications	IS 2707, IS 2708, IS 2644, IS 3038, BS 3100, ASTM A217. IS 4896
High Alloy Heat Resistance Steel castings	IS 4522, ASTM A297
Abrasion Resistant Austenitic Manganese Steel castings	IS 276, ASTM A128, DIN 17006, BS 3100
Abrasion Resistance Alloy Cast Iron castings.	IS 4771, ASTM A532
Spheroidal Graphite Cast Iron / Ductile Iron castings	IS 1865, ASTM A536, ASTM A439, DIN 1693, BS 2798, JIS G5502

Besides above mentioned specifications, the foundry will be able to manufacture castings conforming to any other National or International specifications and specific customer requirements.

3.1.3. Characteristics & Features of Steel castings

Steel castings are produced by pouring molten steel of the desired composition into a mold of the desired configuration and allowing the steel to solidify. The major characteristics & Features are:

- The mold material may be silica, zircon, chromite sand, olivine sand, graphite, metal, or ceramic.
- The choice of mold material depends on the size, intricacy, dimensional accuracy of the casting, and cost. While the producible size, surface finish, and dimensional accuracy of castings vary

widely with the type of mold, the properties of the cast steel are not affected significantly.

- Steel castings can be made from any of the many types of carbon and alloy steel produced in wrought form. Those castings produced in any of the various types of molds and wrought steel of equivalent chemical composition respond similarly to heat treatment, have the same weldability, and have similar physical and mechanical properties.

- Cast steels do not exhibit the effects of directionality on mechanical properties that are typical of wrought steels.

- Cast steels are made only from fully killed (deoxidized) steel in a foundry, while wrought products can be made from rimmed, semikilled, or killed steel ingots in a mill.

- The method of producing the killed steel used for a casting may also differ from that used for a wrought product because of differences in the tapping temperatures required in casting and ingot production. The salient features of producing killed steel in a casting foundry are the same as those features important to the production of fully killed steel ingots.

- For deoxidation of carbon and low-alloy steels (that is, for control of their oxygen content), aluminum, titanium, and zirconium are used. Of these, aluminum is used more frequently because of its effectiveness and low cost. Unless otherwise specified, the normal sulfur limit for carbon and low-alloy steels is 0.06%, and the normal phosphorus limit is 0.05%

3.1.4. Properties of Steel Casting

The following table illustrates the key characteristics of the steel castings:

Property	Remarks
Weldability	Steel castings tend to have better weldability
Part Geometries	Steel castings lend themselves more easily to complex shapes
Chemical requirements	Unique chemistries tend to be better (less expensively produced) with steel castings
Mechanical properties	Steel castings are ISOTROPIC - meaning "similar properties in all directions". Steel forgings are ANISOTROPIC - meaning "similar properties in the direction of flow''. In a steel casting, the properties are similar in all directions
Corrosion resistance	In certain stainless steels, castings tend to have better corrosion resistance due to controlled amounts of ferrite present in castings
Weight	Steel castings are almost always lighter their forged counterparts "redesign from forgings to castings usually results in substantial savings in weight". For example - a forged cannon muzzle brake weighed 600 lbs; this same part as a casting weighed 400 lbs. (and lasted over three times longer).

3.1.5. Advantages of Steel Casting

Major advantages of working with Steel castings are:

- Design Flexibility
- Metallurgical Versatility
- Minimum set up and Tooling cost
- Short delivery period
- Weldability
- Reliability

3.1.6. Product Quality

Steel castings are widely specified for a multitude of uses throughout industry, right from agricultural implements to automobile, power generation, railways, defense, mining, refractory, cement, petroleum, fertilizer, steel, construction & engineering industry.

Steel castings are produced by pouring molten steel of the desired composition into a mold of the desired configuration and allowing the steel to solidify. The mold material may be silica, zircon, chromite sand, olivine sand, graphite, metal, or ceramic. The choice of mold material depends on the size, intricacy, dimensional accuracy of the casting, and cost. While the producible size, surface finish, and dimensional accuracy of castings vary widely with the type of mold, the properties of the cast steel are not affected significantly.

To ensure the quality, well equipped in-house testing facilities are essential. The output quality can be ensured by adopting the following procedure batch wise:

- Process Control Method
- Finished Products Test

3.2. PRODUCT USES & APPLICATIONS

Steel casting is the complicated process of casting all kinds of different steel. The complete procedure of steel casting involves melting the steel, creating molds and cores and finally cleaning the castings and heating them.

Mostly the need to use steel castings results when cast irons do not provide sufficient strength or shock resistance. Through steel casting, one can obtain small yet complex machine shapes there removing the need for wielding, assembling and other finishing work. Steel castings are used in different kinds of industries such as:

- Industrial Machines
- Other Transportation,
- Farm Equipments
- Construction
- Electric power
- Automobiles
- Ingot Moulds
- Pipes
- Rail- Road
- Marine.

Ideally these kind of casting are constructed from low temperature steel, low and high alloy steel and heat resistant steel. Since they happen to be more powerful and stronger than cast iron or malleable iron therefore they are extensively utilized in the manufacture of complex parts where it is required to resist shocks or heavy load.

3.3. PRODUCT MIX OF THE PROPOSED PROJECT

The proposed project will manufacture the following products.

- Cast Steel Castings
- Manganese Steel Castings
- High Chromium Iron Castings

The following sections provide further details on the specific products that will be manufactured by the project.

3.3.1. Cast Steel Castings

Steel castings are categorized into two general groups: carbon steels and alloy steels.

Carbon steel is steel where the main alloying constituent is carbon. The American Iron and Steel Institute (AISI) defines carbon steel as: "Steel is considered to be carbon steel when no minimum content is specified or required for chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium or zirconium, or any other element to be added to obtain a desired alloying effect; when the specified minimum for copper does not exceed 0.40 percent; or when the maximum content specified for any of the following elements does not exceed the percentages noted: manganese 1.65, silicon 0.60, copper 0.60.

As the carbon content rises, steel has the ability to become harder and stronger through heat treating, but this also makes it less ductile. Regardless of the heat treatment, higher carbon content reduces weldability. In carbon steels, the higher carbon content lowers the melting point.

Carbon steel finds uses in rolling mills, rope wire, screw drivers, hammers, wrenches, band saws etc.

Alloy steel is steel alloyed with a variety of elements in total amounts of between 1.0% and 50% by weight to improve its mechanical properties. Alloy steels are broken down into two groups: low alloy steels and high alloy steels.

The range of improved properties in alloy steels as compared to carbon steels is strength, hardness, toughness, wear resistance, hardenability, and hot hardness. In order to achieve some of these improved properties the metal may require heat treating.

Commonly alloyants include manganese, nickel, chromium, molybdenum, vanadium, silicon, and boron. Less common alloyants include aluminum, cobalt, copper, cerium, niobium, titanium, tungsten, tin, and zirconium.

Some of these find uses in exotic and highly-demanding applications, such as in the turbine blades of jet engines, in spacecraft, and in nuclear reactors. Because of the ferromagnetic properties of iron, some steel alloys find important applications where their responses to magnetism are very important, including in electric motors and in transformers.

3.3.2. Manganese Steel Casting

Manganese steel is a steel alloy containing an average of around 13% manganese. It is known for its high impact strength and resistance to abrasion.

Manganese steel is made by alloying steel, containing 0.8 to 1.25% carbon, with 11 to 15% manganese. It is a unique non-magnetic steel with extreme anti-wear properties. The material is very resistant to abrasion and will achieve up three times its surface hardness during conditions of impact, without any increase in brittleness which is usually associated with hardness. This allows manganese steel to retain its toughness.

Most steels contain 0.15 to 0.8% Manganese while High strength alloys often contain 1 to 1.8% Manganese. At about 1.5% manganese content, the steel becomes brittle, and this trait increases until about 4 to 5% manganese content is reached. At this point, the steel will pulverize at the strike of a hammer. Further increase in the manganese content will increase both hardness and ductility. At around 10% manganese content the steel will remain in its austenite form at room temperature. Both hardness and ductility reach their highest points around 12%, depending on other alloying agents.

Manganese steel has been used in the mining industry, cement mixers, rock crushers, and other high impact and abrasive environments. These alloys are finding new uses as cryogenic steels, due to their high strength at very low temperatures.

3.3.3. High Chromium Iron Castings

High Chromium cast Iron is widely used for parts subject to abrasive wear. High chromium cast iron may be additionally alloyed with nickel, molybdenum and vanadium. In the cast conditions the structure consists of super cooled austenite with eutectic carbide.

Under high operating pressure the meta-stable austenite in high chromium cast iron is hardened, forming a hard surface layer that provides high wear resistance. In the overwhelming majority of casting of high chromium cast iron operating under abrasive wear conditions where the pressure is small the austenite is hardly cold at all.

3.4. INDUSTRY OVERVIEW

3.4.1. Global Scenario

The steel casting market size according to *Technovia* will record an incremental growth of 2.90 million MT and a CAGR of over 4% during 2020-2024. The global metal casting market size was valued at USD 123.8 billion in 2018.

- Metal casting is one of the popular manufacturing processes and involves pouring molten metal into a die or sand mold to get the desired shape. It helps produce complex and large-size parts for various industrial applications
- Finished products can be used in construction equipment & machinery, heavy vehicles, curtain walling, door handles, windows, and roofing.

- Cast iron is an alloy containing metals such as silicon, carbon, manganese, sulfur, and phosphorus with wide application range. Increasing demand for pans, pots, utensils, engines, piping, and automotive are the growth factors for the cast iron market. Demand for grey iron metal is projected to increase over the years on account of its applications in housing, engine blocks, cylinder heads, and enclosures. Its properties, such as stiffness, high thermal conductivity, and wear resistance, make it useful in such applications.
- According to ***Marc*** study, Global Metal Casting market to reach US$ 35.4 Billion by 2024, impelled by burgeoning Automotive Sector.

3.4.2. Global Trade

The metal casting products are traded under the following HS Code:

HS Code	Products
730711	Tube or pipe fittings of non-malleable cast iron
730719	Cast tube or pipe fittings of iron or steel

The following sections provide an overview of the global trade of various products.

3.4.2.1. Major Global Exporters

- ***Export HS code: 730711***

Country	2016	2017	2018	2019	
	Figures in Tons				%
China	299,843	331,401	322,191	316,960	76%
India	22,090	55,061	24,455	23,741	6%
Italy	7,652	8,441	9,850	8,868	2%
United Kingdom	7,132	6,935	7,346	7,246	2%
Netherlands	3,469	3,528	4,735	6,014	1%
Ghana	-	-	1,084	4,430	1%
Brazil	4,432	3,504	2,999	4,043	1%
Czech Republic	4,261	3,962	3,698	3,862	1%
France	3,408	3,739	3,789	3,684	1%
Germany	4,823	4,733	4,308	3,554	1%
Others	38,708	39,060	34,329	36,024	9%
TOTAL	**395,818**	**460,364**	**418,784**	**418,426**	**100%**

Source: ITC Data

- ***Export HS code: 730719***

Country	2016	2017	2018	2019	
	Figures in Tons				%
China	268,537	270,136	285,811	229,387	34%
Poland	22,802	34,275	37,788	35,352	5%
Belgium	12,818	10,311	10,247	34,992	5%
USA	26,388	27,264	30,137	27,418	4%
Malaysia	11,653	22,839	29,228	21,562	3%
Thailand	18,156	18,610	20,751	19,880	3%
Germany	19,559	17,511	17,052	15,159	2%
Austria	14,351	14,178	14,191	13,969	2%
Spain	11,520	12,784	14,720	13,968	2%
India	9,812	13,059	14,341	13,493	2%
Others	367,798	374,390	423,006	476,814	71%
TOTAL	**514,857**	**545,221**	**611,461**	**672,607**	**100%**

Source: ITC Data

3.4.2.2. Major Importers

- ***Import - HS code: 730711***

Country	2016	2017	2018	2019	
	Figures in Tons				%
Australia	1,224,508	1,118,920	1,687,697	1,755,677	92%
Maldives	8,169	14,461	13,779	31,386	2%
Chile	21,019	26,427	23,126	28,473	1%
UAE	13,686	24,057	19,905	23,419	1%
U K	15,068	15,406	15,760	16,995	1%
Japan	12,683	14,500	15,538	16,474	1%
France	18,092	17,516	17,089	14,976	1%
Korea	3,203	6,394	8,116	11,613	1%
USA	13,615	12,812	8,582	8,629	0%
Qatar	-	9,796	13,772	8,346	0%
TOTAL	**1,330,043**	**1,260,289**	**1,823,364**	**1,915,988**	**100%**

Source: ITC Data

- ***Import - HS code: 730719***

Country	2016	2017	2018	2019	
	Figures in Tons				%
Australia	9,292,026	10,921,345	14,070,455	11,499,335	96%
Maldives	212,361	260,659	340,553	169,983	1.4%
USA	143,553	162,175	188,732	148,535	1.2%
Canada	29,272	31,738	34,124	29,311	0.2%
Spain	19,459	21,919	22,907	24,643	0.2%
Germany	25,406	25,440	25,719	23,170	0.2%
Korea	22,126	25,050	23,813	21,536	0.2%
Taipei, Chinese	24,991	26,568	21,637	19,861	0.2%
Hong Kong, China	16,928	23,979	22,542	19,707	0.2%
France	12,172	11,273	12,721	18,586	0.2%
TOTAL	**9,798,294**	**11,510,146**	**14,763,203**	**11,974,667**	**100%**

Source: ITC Data

3.4.3. Major Global Producers

The market for steel casting is highly competitive in nature owing to the presence of several major players.

	Company	Country
1	Alcoa Corporation	USA
2	Avalon Precision Metals	USA
3	Avio Cast Inc	Taiwan
4	Bradken Limited	Australia
5	Doncasters Group	UK
6	Doosan Heavy Industries & Construction	South Korea
7	Esco Corporation	USA
8	Georg Fisher Limited	Switzerland
9	GIW Industries Inc	USA
10	Kubota Corporation	Japan

Source: ITC Data

3.5. ESTIMATE OF DOMESTIC DEMAND

The continuing investment of the Government in strengthening the manufacturing sector by setting up mega projects and supporting formation of downstream industries as well as infrastructure development the Sultanate, is expected to sustain the demand for steel casting products industrial products, ingot moulds, petrochemical industry, rail-road etc in the future.

The demand estimates have been established based on two methods

- Based on the analysis of local production and net imports
- Survey of the users. The following sections provide further details of the demand estimate.

3.5.1. Local Production

There is only one casting facility in Oman viz., Sohar Foundry & Marine Engineering LLC with a production capacity of about 3600 tons per year. Following are the key aspects of its performance:

- Sohar Foundry and Marine Engineering L.L.C (SFME) commenced in 2006, is an ISO 9001:2015 certified company Located in Sultanate of Oman at Sohar Industrial Estate
- SFME is a multifunctional organization diversified in the following:
  - Iron & Steel casting
  - Fabrication shop
  - Machine Shop
  - Construction & Maintenance
  - Chemical & Physical Testing Laboratory
- Products
  - Manufacture of Anode stems, crucibles, vessels etc.
  - Maintenance of Anode Stems
  - Iron casting
  - Steel casting
- Steel Foundry Capacity: 1 MT Melting capacity
- Fabrication: Capable to manufacture equipments up to Dia. 4 meter and length up to 50 meter weigh up to 100 MT.
- Monthly Production Capacity - 300 MT
- Heat Treatment
  - 3 MT Heat Treatment furnace (fixed)
  - 0.5 MT Heat Treatment furnace (mobile)

Discussions with the company authorities indicate that the company is manufacturing about 250 tons per month.

3.5.2. Foreign Trade

3.5.2.1. HS Codes Considered

The metal casting products are traded under the following HS Code:

HS Code	Products
730711	Tube or pipe fittings of non-malleable cast iron
730719	Cast tube or pipe fittings of iron or steel

The following sections provide an overview of the global trade of various float glass products

3.5.2.2. Trend in Foreign Trade - Net Import of Steel casting to Oman

The net import of steel castings into the sultanate has been arrived at based on the import-export statistics published by the Directorate general of Customs, Royal Oman Police, and Sultanate of Oman detailed survey of the trade in Oman. The findings are illustrated in the table below.

HS Code 73071100 : Cast fittings of Non-Malleable Cast Iron (Tons)					
Detail	**2015**	**2016**	**2017**	**2018**	**2019**
Import	2,202	54,139	1,283	1,424	1,145
Export	20	11	4	75	0
Re export	11	6	157	135	210
Net Import	**2,172**	**54,122**	**1,122**	**1,213**	**934**
HS Code 73071900 : Cast fittings other than Non-Malleable CI					
Import	7,557	15,354	1,623	1,388	1,171
Export	9	10	33	0	229
Re export	77	23	257	153	222
Net Import	**7,471**	**15,321**	**1,332**	**1,235**	**721**
GRAND TOTAL					
Total Net Import	**9,642**	**69,442**	**2,454**	**2,448**	**1,655**
YoY Increase		*620%*	*-96%*	*0%*	*-32%*

Source: Foreign Trade Statistics

Imports have been fluctuation. Net Import in 2019 is only 1,655 Tons.

3.5.2.3. Import Sources - 2019

- **HS Code 73071100 :** Cast fittings of Non-Malleable Cast Iron (Tons)

Countries	2019			
	RO'000	*Tons*	*% of Total*	*RO / Ton*
U.A.E.	736,252	606	53%	1,215
China	191,819	274	24%	700
India	165,686	188	16%	884
U K	60,510	19	2%	3,153
Malaysia	13,800	12	1%	1,174
Saudi	4,591	10	1%	451
Sri Lank	8,715	8	1%	1,136
Singapore	5,900	7	1%	839
Qatar	17,952	6	1%	3,132
Others	59,643	16	1%	3,800
Total	**1,264,868**	**1,145**	**100%**	**1,105**

The major imports are from UAE at very competitive prices. However, there is sizeable import of premium products from UAE.

- **HS Code 73071900** : Cast fittings other than Non-Malleable CI

Countries	2019			
	Tons	*RO'000*	*% of Total*	*RO / Ton*
U.A.E.	1,674,432	845	72.2%	1,981
China	74,701	101	8.6%	743
Thailand	64,671	66	5.7%	977
U.S.A.	400,292	50	4.3%	7,990
France	103,177	35	3.0%	2,969
India	92,525	18	1.5%	5,128
Iran	12,463	17	1.4%	746
Italy	23,645	13	1.1%	1,837
Turkey	30,012	11	0.9%	2,811
Qatar	55,922	6	0.5%	9,103
Belgium	12,150	2	0.1%	7,962
Others	66,479	8	0.7%	7,943
Total	**2,610,469**	**1,171**	**100%**	**2,229**

As it can be seen, that 72% of the products are imported from UAE.

3.5.2.4. Estimated Demand / Consumption

The table below illustrates the consumption of weld mesh from 2016 to 2019 based on the domestic production and net import data:

Details	2016	2017	2018	2019
	Figures in tons			
Net Import	69,442	2,454	2,448	1,660
Local Production				2,700
Demand				**4,360**

(Source: Foreign Trade Statistics, ABC Primary survey)

As it can be seen, about 62% of the domestic consumption has met from the local production and the balance from import.

3.5.3. Demand Segmentation

The above demand of 4,360 Tons consists of two major segments viz., small spare parts and components with an average weight mostly ranging from about 3 kg to 50 kg per component and large castings that are used for fabrication of machinery and equipment and other fabrication work, that mostly have a weigh range of over 100 kg to 300 per casting.

The segmentation has been made for two categories so as to provide a basis for the furnace design / selection. The segmented demand based on our discussion with some of the end users is illustrated in the table below.

Application	Weight Range (Kg / Component)	Estimated Share of Demand (%)	Estimated Demand (Tons)
Small spare parts / Consumables for Industrial applications	Up to 100 Kg	40%	1,960
Large components for use in equipment / machinery manufacture as well large size fabrications	More than 100 kg	60%	2,700
Total		**100 %**	**4,360**

3.5.4. Demand Projection

- The total demand for steel casting products in Oman for the year 2019 is estimated at 4,360 tons.
- With the recent outbreak of COVID-19 and the drop in oil prices, the overall economic growth is expected to be negative during 2020 and 2021.
- From 2022 an increase of 3% considered.

The following table illustrates the projected demand for steel casting products till 2028 based on the above growth rates:

Year	2019	2020	2021	2022	2023	2024	2025	2026
Demand (Tones '000)	4,355							
Projected Growth rate	%	-5%	0%	3%	3%	3%	3%	3%
Projected Demand (Tons '000)		4,137	4,137	4,261	4,389	4,521	4,657	4,796

3.5.5. Major Sources of Supply

In addition to the local production, the supply of steel casting products in Oman is from imports especially from UAE.

3.5.6. Local Manufacturers

Sohar Foundry and Marine Engineering L.L.C is the single manufacturer in Oman. The installed capacity is 3,600 Tons per year. However, due to various techno-commercial constraints, the unit is not focussing aggressively on the steel castings products. The current production is about 2,700 tons (75%) per year. They sell their products in the domestic and export market, especially UAE.

3.5.7. Major Traders in Oman

In addition to the local manufacturer certain traders also provide casting products. Following are the major traders of steel castings in Oman.

- Al Shaheen LLC, Muscat
- Bahwan Building Materials LLC, Muscat
- Desert Piping Enterprises, Muscat
- URUK International LLC. Salalah
- KIPSCO, Sohar

3.5.8. Local Fabrication Units

Most of the local fabrication units (machine shops) buy the castings from the local manufacturer or import the castings, do the finishing work on the same and supply to the end users. Mostly small replacement spares / consumables for machines, conveyors etc., are available in the market through this channel.

3.5.9. Supply from UAE

Discussions with a range of end users indicate that major supplies are received from UAE. There are about six major manufacturers of steel castings in UAE. The list of these manufacturers is given in the table below.

Name of Manufacturer	Location
Emirates Techno Casting	Sharjah
The Ducast steel plant	Dubai
Haji Siddique Foundry	Sharjah
OK-eM Lankister Steel Foundry LLC	Abu Dhabi
Qatar Steel (Dubai Subsidiary)	Dubai
Quality Castings Ltd	Fujairah

3.6. MARKETING MIX STRATEGY OF COMPETITORS

3.6.1. Product Range

The A wide variety of steel casting products are available in the market according to the types and uses. They are used for various industrial/ construction activities. The common products are:

Sl No	Products
1	Cast Steel
2	Manganese Steel
3	High Chromium Cast Iron

The products are sold based on the uses and requirement.

3.6.2. Product Quality

Casting quality is one of the prime concerns. The company will be using quality raw materials & components as per safety guidelines and best international quality. In order to maintain the best quality of the products; the co will use high quality raw materials, which will be sourced from certified marketers. The parameters for testing of quality assurance are as mentioned below will be ensured:

- Chemical composition
- Dimensional accuracy
- Grain structure
- Surface finish
- Sustainability of quality parameter
- Resistance against corrosion
- Physical parameters such as hardness and tensile strength

3.6.3. Pricing

The prices of steel castings depend mainly on the raw material prices. The following table illustrates the selling prices of different varieties.

Steel Casting – Selling Price		
Sl No	**Product**	**RO / Ton**
1	Cast Steel	1,400-1,500
2	Manganese Steel	1,450 -1,650
3	High Chromium Cast Iron	1,450 -1,650

3.6.4. Promotion

Steel castings are an industrial product which requires certain types of promotional tools to reach the end users. Following sales promotional efforts are currently practiced by the local manufacturers / traders

- Personal selling – direct to the Companies
- Brochures providing insight about all product specification along with different product pictures for the product itself.

3.6.5. Trade Credit

The industry practice is to offer a reasonable credit period depending on the credit worthiness of the client. Normally, maximum 90 days credit is considered.

3.6.6. Distribution

The distribution process for steel casting in Oman is following both the direct and indirect distribution. The end users of the steel casting are the major Mining/petrochemical companies/industries/contractor who executes the construction work.

- The local manufacturers directly sell to the consumers through their sales personal or through their sister companies (training wing) of the same promoters.
- The imports from UAE are generally channelized through local agents or they are directly approached by the end users with their requirements.

3.7. POTENTIAL FOR EXPORTS TO OTHER GCC COUNTRIES

3.7.1. Net Imports into GCC countries

The unit cannot focus only on the local market and needs to explore the possibility of exports. As indication of the potential for exports, the details of net import of steel castings in the other GCC countries from 2017 to 2019 has been analyzed and presented in the following Table:

NET IMPORT OF GCC COUNTRIES			
HS Code 73071100 : Cast fittings of Non-Malleable Cast Iron			
	2017	***2018***	***2019***
Country	***Quantity in Tons***		
Bahrain	688	397	394
Kuwait	657	7,312	867
Qatar	9,796	13,772	8,346
Saudi Arabia	11,246	6,587	7,271
UAE	19,435	15,691	20,012
Total	**41,822**	**43,759**	**36,890**
HS Code 73071900 : Cast fittings other than Non-Malleable CI			
Bahrain	537	741	539
Kuwait	3,104	3,348	2,543
Qatar	366	1,843	1,996
Saudi Arabia	1,553	-362	6,606
UAE	18,287	11,605	7,103
Total	**23,847**	**17,175**	**18,787**
Total of HS Code 73071100 & 73071900			
Bahrain	1,225	1,138	933
Kuwait	3,761	10,660	3,410
Qatar	10,162	15,615	10,342

Saudi Arabia	12,799	6,225	13,877
UAE	37,722	27,296	27,115
Total	65,669	60,934	55,677
Grand Total			
Total Net Import	65,669	60,934	55,677
YoY Increase	**-**	***-7.2%***	***-8.6%***

(Source: Foreign Trade Statistics)

As illustrated above:

- The total net-imports into the region for the year 2019 was about 55,677 tons
- UAE accounted for almost 49% of the GCC net-imports at 27,115 tons.
- Other major Net importers include Saudi Arabia and Qatar with a net import of 13,877 tons and 10,342 tons respectively.

The above facts ensure the demand for the steel casting products in the GCC countries in the coming years.

3.7.2. Major Steel Casting Manufacturers in Other GCC Countries

While there are relatively large imports into the GCC countries, it has also to be noted that there are large manufacturers of these products in the different GCC countries ensuring a highly competitive market. The details of major manufacturers of steel castings in other GCC Countries are given in the following Table:

Company	Country/ Location	Activity/product
Emirates Techno Casting	Sharjah, UAE	Manufacturing of Steel Castings and Export/Sale of Steel Scrap.
The Ducast steel plant	UAE	Manufacturer of ductile, cast iron manhole covers and frames or gullies.
Haji Siddique Foundry	Sharjah, UAE	Deals in matching and casting of ferrous and non ferrous materials and also de-watering pumps. About 5 to 2 tons of steel are handled by the steel plant annually.
OK-eM Lankister	Abu Dhabi,	Company newly formed in Abu Dhabi in partnership with OK-eM

Company	Country/ Location	Activity/product
Steel Foundry LLC	UAE	Group - India and Lankister Group – U.A.E to manufacture quality steel and alloy steel castings to cater to the local needs for Cement Industries, construction and earth moving equipments. The company proposes to use locally available metal scrap and is located in Abu Dhabi , UAE
Qatar Steel	Dubai UAE	Cast iron castings
QUALITY CASTINGS LTD.	Fujairah UAE	One of the biggest Steel foundries in UAE Producing 600M Of Castings per months. Steel castings, Alloy steel, High Chrome Iron, Manganese steels, Stainless steel (HH, HK grades) & Cast iron. Mainly For Quarry Industries, Cement plants & coal plants etc. 80% of Castings Exporting to UK, USA, Germany, Finland, Holland, Australia.
Qatar Steel (formerly QASC)	Qatar	Was formed in 1974 as the first integrated steel plant in the Persian Gulf. Commercial production commenced in 1978 with the company becoming wholly owned by Industries Qatar in 2003.
Arabian Axels Foundries & Spare parts co	Damam Saudi Arabia	Since October 2003. Arabian Axles Foundry is the only biggest foundry of SUADI ARABIA Producing – Ductile Iron, Grey cast iron, and Alloyed Cast iron castings for Automobile, Agriculture Pipe Fittings industries along with steel & non ferrous castings.
Saudi Cast	Riyadh, Saudi Arabia.	Established in 1972. The production capacity is 1000 tones per month of gray iron, ductile iron, and steel castings.
H. Khushaim & M. Jamal co., ltd	Saudi Arabia	Produces Grey & ductile cast iron, steel castings, aluminium & copper alloys castings, machinery parts, spare parts.
National foundry factory pumps	Saudi Arabia	Produces gray and ductile cast iron, alloy steel, bronze and aluminum castings, cast parts for turbine pumps, submersible pumps, horizontal centrifugal pumps, sewage pumps, fuel pumps, spiral pumps and piston pumps, column pipes and shafts, automatic moulding line with capacity 200 000 pump parts / year.
Riyadh Foundry co.	Saudi Arabia	A part of Sudairy Group of companies, grey cast iron, ductile cast iron, steel, aluminium and copper alloys castings, sanitary products - manhole covers, gratings, surface boxes, clean outs, tree grates, catch basins of oil fields, mechanical components - agriculture pumps, automotive, elevator and escalators wear resistance parts, building accessories.
Saudi Cyprus Foundries ltd.	Saudi Arabia	Produces Gray cast iron, ductile cast iron, carbon steel, manganese steel, aluminum and brass castings, cast products for municipalities, highway authorities, electrical and telecommunication companies: manhole covers and frames, gratings, surface boxes, cast metal steps, pipe fittings, and engineering parts.
Industrial Co. For Casting	Riyadh	Manufacturing - Cast Iron Castings
Modern Factory For Casting(Mofac)	Riyadh	Has a production capacity of 8, 000 tons of Manholes covers Road gratings, Channel gratings, Tree gratings, Catch Basin Grates, Roof & Floor Drains made of cast iron (flake graphite cast iron).

Company	Country/ Location	Activity/product
Riyadh Foundry For Casting & Moulding	Riyadh	The Foundry is fully Saudi-owned and produces grey cast iron castings as well as nonferrous castings in aluminum and copper alloys, brass and bronze. Cast and ductile iron covers and frames, gulleys and channel gratings, catch basin and gratings for tree protection are some of the grey cast iron products.
Red Sea Factory	Jeddah	Manufacturing - Cast Iron Castings
Saudi Pipe Systems Fty. Co.	Jeddah	Manufacturers of GRP pipes, HDPR pipes, Pre-insulated pipes, Valves, Fittings, Manhole cover & Gratings
Eastern Co. For Pallets & Steel Sheets	Al-dammam	A leading manufacturer of steel products since 1992.
Hamzah Khushaim & Mohammad Jamal Co	Al-dammam	Casting of metal & Metal alloys such as spare parts pigged from steel, Cast Iron(Raw Shafts, Rollers, Coils, Fans, Gears and all kinds of sanitary drain sink covers), Copper, Aluminum alloys
National Metal Mfg & Casting Company (Maadaniyah)	Saudi Arabia	Established in 1993, its manufacturing plant at Jubail Industrial City in the Eastern Province
MEBA	Bahrain	Produce engineered Ferrous and Non-Ferrous Castings and components to the industrial community around the world. The unit Manufactures pumps, valves, hydraulic power transmission, water line fittings etc.

3.7.3. GCC Import Trends

The following table illustrates the imports trends in different GCC countries for 2017-2019.

HS Code 73071100 : Cast fittings of Non-Malleable Cast Iron									
Country	***Quantity in tons***			***US Dollers ('000)***			***USD / Ton***		
	2017	***2018***	***2019***	***2017***	***2018***	***2019***	***2017***	***2018***	***2019***
Bahrain	846	474	477	1,412	1,309	1,245	1,669	2,762	2,610
Kuwait	685	7,313	970	3,205	15,090	4,882	4,679	2,063	5,033
Qatar	9,796	13,772	8,346	39,980	51,429	31,982	4,081	3,734	3,832
Saudi Arabia	24,057	19,905	23,419	39,500	30,397	37,133	1,642	1,527	1,586
UAE	11,520	6,986	8,171	47,776	44,625	51,965	4,147	6,388	6,360
HS Code 73071900 : Cast fittings other than Non-Malleable CI									
Country	***Quantity in tons***			***US Dollers ('000)***			***USD / Ton***		
	2017	***2018***	***2019***	***2017***	***2018***	***2019***	***2017***	***2018***	***2019***
Bahrain	601	750	598	2,615	2,367	1,919	4,351	3,156	3,209
Kuwait	3,356	4,623	2,572	12,097	20,610	17,304	3,605	4,458	6,728
Qatar	366	1,843	1,996	1,849	8,840	8,317	5,052	4,797	4,167
Saudi Arabia	7,109	8896	9,287	26,272	36,482	36,333	3,696	4,101	3,912
UAE	22,151	16,274	16,521	63,635	58,153	51,941	2,873	3,573	3,144

3.8. PROPOSED MARKETING MIX STRATEGY FOR THE COMPANY

3.8.1. Target Market

The project will target the entire Oman market as well as exports to other GCC countries.

3.8.2. Product Mix

The demand for steel castings and its segmentation have been discussed in the earlier sections. It was clear from the study that various types of steel castings are available and they find usage in various segments. Hence the company will have to make available the various products as per the requirements in the market. The exact product mix will vary depending on the project to which supplies are committed. However based on the current market trends, the following product mix (in terms of total capacity) is estimated:

Steel Casting – Product Mix	
Products	***Mix – Qty (Ton)***
Cast Steel	1,540
Manganese Steel	1,540
High Chromium Cast Iron	1,540
Total	**4,620**

3.8.3. Pricing

The company has proposed to maintain a competitive pricing policy. In this regard it has to be noted that the pricing in this industry, like any other metal converting industry, is directly related to the variation in the raw material price. The following table provides the projected average prices for the different products.

Average Selling Price of steel casting			
S. No.	*Product*	*RO / Ton*	
		Domestic	*Exports*
1	Cast Steel	1,400	1,260
2	Manganese Steel	1,470	1,323
3	High Chromium Cast Iron	1,470	1,323

The prices shown are the prices realizable ex-factory.

3.8.4. Promotion

The company shall concentrate on building healthy personal contacts with various segments mainly in manufacturing and construction industries. A sales team comprising of a sales manager and one executive is proposed for the sales. The Sales personnel will build and retain long term relationships with customer segments.

In addition, the unit would also promote and create awareness about its techno-commercial capabilities in handling complex casting jobs to ensure customer confidence and improving market reach / market penetration.

3.8.5. Distribution

The company would concentrate on direct marketing to the companies/industries/contractors in the domestic market. In the export market, the unit will operate through agents / representatives against a minimum off take at pre-determined off take rates that are linked to the international metal rates.

A competent marketing team comprising of a Marketing Manager and marketing Executives will be engaged for marketing the products.

3.9. PROJECTED MARKET SHARE

The unit with a production capacity of 3,960 tons per annum (600 kg per hour, 20 hours a day, 330 days) can effectively leverage its capability to service the large size corporate customers.

Country	Detail	2022	2023	2024	2025	2026
Oman	Demand Potential (Tons)	4,389	4,521	4,657	4,796	4,940
	Estimated Market share (%)	20%	25%	30%	30%	30%
	Projected Sales (Tons)	878	1,130	1,397	1,439	1,482
	Production Capacity	3960	3960	3960	3960	3960
	Capacity Utilisation	60%	70%	75%	80%	85%
	Actual Production	2,376	2,772	2,970	3,168	3,366
	Available for Export	1,498	1,642	1,573	1,729	1,884

It may be noted that the unit in addition to capturing sizeable market share in the local market has to focus on exports to other GCC countries aiming at a market share of about 3.5%-4%.

Considering the current market potential and the supply dynamics in domestic as well as other GCC markets, the proposed market shares are aggressive but achievable, by establishing technical capabilities and ensuring final product quality.

4. TECHNICAL ANALYSIS

4.1. LOCATION

The Steel Casting Plant is proposed to be located in Sohar Industrial City with focus on the domestic market and the export market.

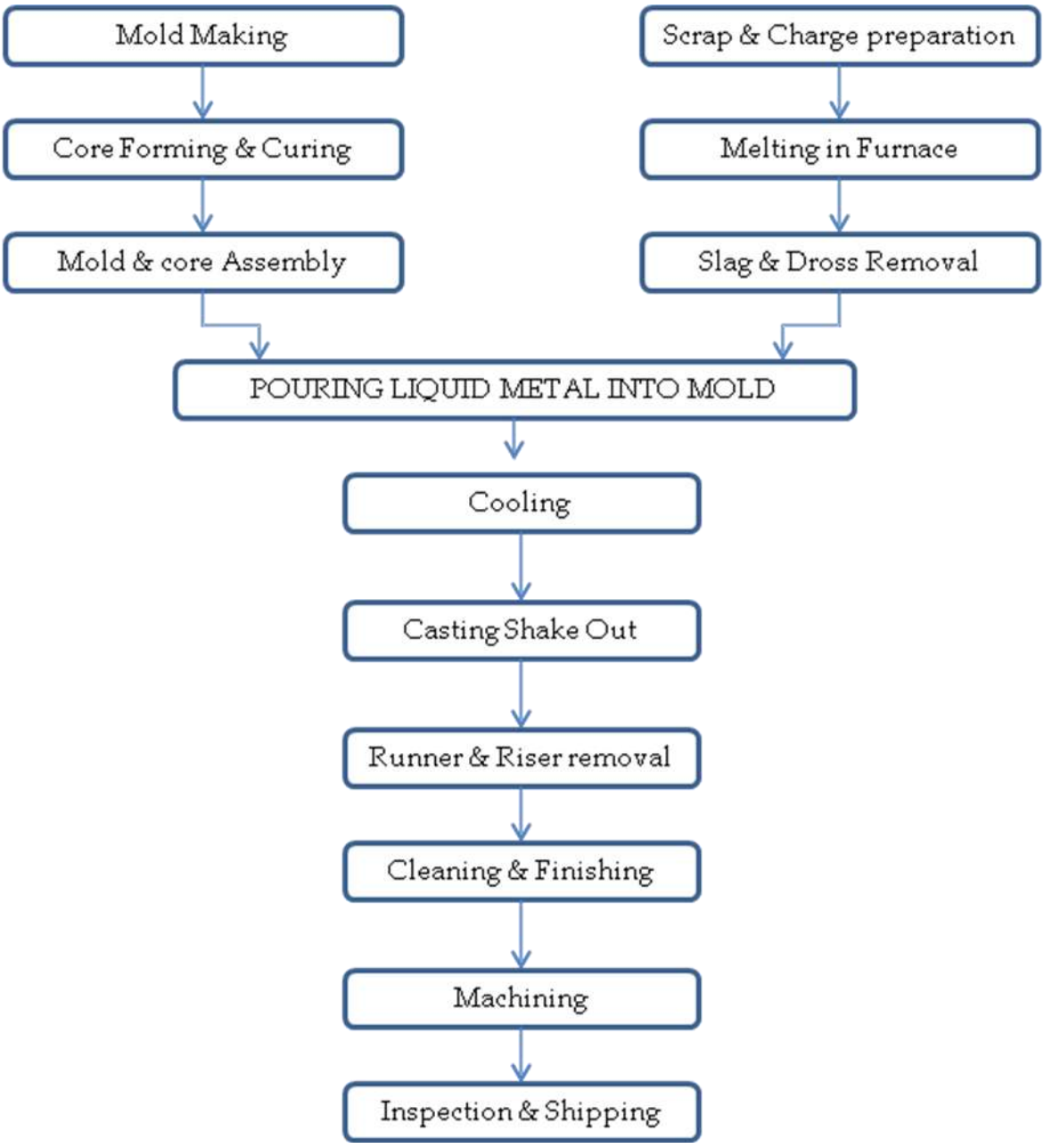
4.2. PROCESS AND TECHNOLOGY

4.2.1. Production Process

Casting is a manufacturing process in which molten metal is poured into a mold, allowed to solidify within the mold, and then the mold is broken and the solid piece is taken out. Casting is used for making parts of complex shape that would be difficult or uneconomical to make by other methods. High alloy Steel castings can be heat treated to bring about the diffusion of carbon or alloying elements, softening, hardening, stress relieving, toughening, improve machinability, increase wear resistance, and removal of hydrogen entrapped at the surface of the casting. The Casting product range includes:

- Plain Carbon Steel Castings
- High Alloy Steel Castings
- Manganese Steel Castings
- Hi Chrome Castings
- Ni-Hard Castings
- SG Iron Castings
- Stainless Steel Castings
- Heat Resistant Cast Steel

The process involved in the steel casting Plant is depicted in the following process flow chart.



4.3. LAND

The company has to acquire the required area of land on lease. The estimated cost of site development and related work comes to RO 69,000. Site development includes, soil testing, fencing, parking lot, sewage, provisions for roads, electric connection, etc.

4.4. BUILDING & CIVIL WORKS

A total built up space of 5,550 M^2 is required for the proposed activities. The total cost works out to RO 917,000. Details are in Annexure- 1.2

4.5. PLANT CAPACITY & MACHINERY

The total cost of plant and machinery for the estimated capacity of 3,960 tons per annum, comes to RO 760,000. Details are given in Annexure -1.3.

A list of potential machinery suppliers for this project is illustrated below.

1. Richards Engineering (Leeds) Limited
   10 Wortley Moor Lane, Leeds, West Yorkshire, LS12 4HX
   Telephone: +44 (0) 1132319224
   Mobile: +44 (0) 1132319225
   Email: sales@richardseng.co.uk / mark@richardseng.co.uk
   Website: https://richardseng.co.uk/

2. Inductotherm (india) pvt. Ltd.
   Phone: +91 271 762 1000
   Sales +91 937 457 8586
   Email: sales@inductothermindia.com
   Website: https://inductothermindia.com/

3. Omega Sinto Foundry Machinery Ltd
   Telephone: +44 (0) 1733 232231
   Email: sales@ofml.net
   Website: https://www.ofml.net/global-contacts/global-offices

4. The Wesman Engineering Co Pvt Ltd
   Telephone: +91 (33) 25604104
   Fax: +91 (33) 25606774
   Email: contact@wesman.com
   Website: http://wesman.com/contact

5. J.K Foundry Engineers
   Phone: +91 - 2764- 268555
   E-Mail: info@jkfoundryequipments.com
   For Sales Enquiry: sales@jkfoundryequipments.com
   Web Site: www.jkfoundryequipments.com

4.6. VEHICLES

The vehicles are required for sales purposes. The estimated cost is RO 143,000. Details are provided in Annexure 1.4.

4.7. FURNITURE

The total estimated cost of furniture, furnishing and equipment is RO 70,000. The details and the break-up of the estimates are given in Annexure - 1.5.

4.8. RAW MATERIALS AND CONSUMABLES

The raw materials used are:

- Steel scrap metal made of iron or Manganese steel.
- Pit scrap, ingots too short to roll, rejected ingots and cuttings, blooms and billets & end cutting from bars.
- Silico manganese,
- Ferro manganese,
- Ferro silicon
- Ferro chrome.

Apart from this, expendable material such as thinner, sodium silicate, co2 gas, silica sand, grinding wheels, refractory foundry fluxes, welding electrodes, diesel oil for D.G. set and Light Diesel Oil are also used to manufacture castings.

4.9. UTILITIES

The utilities required are: -

4.9.1. Water

Water is required for processing as well as general consumption. It is estimated that 3,300 cubic metre of water is required per annum and the cost at installed capacity works out to RO 2,541.

4.9.2. Electricity

Electricity is used for machine operations and for general purpose lighting. It is estimated that the annual requirement is 12,000,000 KWH and the cost works out to RO 360,000.

4.10. MANPOWER

The total manpower required for the operation is 88. The annual wages and salaries work out to be RO 557,340.

4.11. PROJECT IMPLEMENTATION

The critical activities include civil construction and the erection of the plant. It will take about 15 months for completion of the erection, trial run and other activities like acquiring accessories and equipment, setting up offices, etc.

5. FINANCIAL ANALYSIS

5.1. COST OF PROJECT

The total cost of the project is estimated at RO 3.718 million. Details are given in Annexure – I. The break-up is given below:

PROJECT COST	TOTAL COST (RO)
Land for Plant Site	69,000
Building & Civil Works	917,000
Plant & Machinery	760,000
Vehicles and Internal Transport	143,000
Furniture & Office Equipment	70,000
Pre- Operative Expenses	372,000
Contingency & Escalation	95,000
Sub Total	**2,426,000**
Working Capital	1,292,000
TOTAL	**3,718,000**

5.1.1. Land

The total extent of land is 30,000 Sq. M. The land is to be taken on lease. Development expenses are estimated at RO 69,000. Details are in Annexure 1.1

5.1.2. Building & Civil Works

The total cost of building and civil works is estimated at RO 917,000. Details are given in Annexure- 1.2.

5.1.3. Plant & Machinery

The main Plant and Machinery is proposed to be imported. The total cost of plant and machinery is estimated at RO 760,000. Details are given in Annexure- 1.3.

5.1.4. Vehicles & Internal Transport

The total cost of vehicles and internal transport is estimated at RO 143,000. Details are given in Annexure- 1.4.

5.1.5. Furniture & Office Equipments

The total cost of furniture and office equipment is estimated at R.O 70,000. Details are given in annexure- 1.5.

5.1.6. Pre-Operative Expenses

The pre-operative expenses include expenses for feasibility study, interest during project implementation, salaries and wages of project staff, travel and communication, legal fees, audit fees and other miscellaneous expenses. The total pre-operative expenses are estimated at RO 372,000. Details are given in Annexure- 1.6.

5.1.7. Contingency & Escalation

A provision of 5 % of the estimated cost of items including building, plant & machinery, vehicles, technical know-how fee etc., is provided in the Project cost towards price escalation and any unforeseen expenses. This works out to RO 95,000. Details are given in Annexure- 1.6.

5.1.8. Working Capital

Following assumptions are made for the computation of working capital.

Particulars	*Period*
Accounts Receivable	3 Months
Raw Materials	2 Month
Consumables & packing	2 Month
Utilities	1 Month
Factory Wages	1 Month
Administration Expenses	1 Month
Sales Expenses	1 Month
Work in Progress	21 Days
Finished Goods	1 Month
Finance Cost	1 Month

The working capital requirements for the first 4 years are given below. The working capital requirement in the first year comes to RO 1,292,000. Details are given in Annexure 1.8.

Particulars	Year 1	Year 2	Year 3	Year 4
Working Capital Requirement (RO '000)	1,292	1,462	1,542	1,622

5.2. MEANS OF FINANCE

It is proposed to finance the Project as indicated in the following table.

Details	*Total Cost (RO)*
Equity Capital	1,487,000
Bank Term Loan	1,456,000
Commercial Loan for Working Capital	775,000
TOTAL	**3,718,000**

It is proposed that the project cost of RO 3.718 million will be financed by owner's fund [equity] to the tune of RO 1.487 million, Bank Term Loan of RO 1,456,000 and commercial borrowings for working capital at RO 775,000. Term loan and Working Capital loan will carry interest @ 6%. Details are in Annexure- 1

5.3. COST OF SALES

The estimated cost of sale for first ten years of operation is given in Annexure-2 and those of first five years are summarized as below:

	Year of Operation	1	2	3	4	5
No	**Item**	*In RO'000*				
1	Raw Material	1,540	1,797	1,925	2,054	2,182
2	Consumables	193	225	241	257	273
3	Utilities	218	254	272	290	308
4	Factory Wages	375	386	397	409	422
5	**PRIME COST**	2,325	2,661	2,835	3,010	3,185
7	Factory Overheads	45	63	63	63	63
8	Misc. Factory Exp.	24	27	29	31	32
9	**FACTORY COST**	2,394	2,751	2,927	3,104	3,280
10	Rent on Land	30	30	30	30	30
11	Administrative salary	135	138	140	143	146
12	Admin. Expenses	37	37	37	37	37
13	Total Admin expenses	202	205	208	210	213
14	Sales Salaries	-	-	-	-	-
15	Sales Expenses	28	28	28	28	28
16	Advert.& Business Promotion	95	112	120	128	136
17	Sales Commission	-	-	-	-	-
18	Total sales & distribution costs	123	140	148	156	164
19	**OPERATING COST**	2,719	3,096	3,283	3,470	3,657
20	**Finance cost**					
21	Interest on Institutional finance	87	84	69	55	40
22	Interest on working capital	47	47	47	47	47
23	Total finance cost	134	130	116	101	87
24	**Non-cash expenses**					
25	Depreciation	180	180	180	180	180
26	Prelim Expenses written off	372	-	-	-	-
27	**COST OF SALE**	**3,405**	**3,406**	**3,579**	**3,751**	**3,924**

5.3.1. Raw Materials

The cost of raw materials and packing materials works out to RO 2.888 million in the first year of operation. Please refer Annexure 2.1 for details.

5.3.2. Utilities

The total cost of utilities is RO 362,541. The basis of estimate and the break up are given in Annexure – 2.2.

5.3.3. Salaries & Wages

The cost of salaries and wages in the normal year of operation is RO 557,340. Details are given in Annexure 2.3.

5.3.4. Factory Overheads

The annual expenses include repairs and maintenance, civil repairs, cost of spares, spare parts, insurance and vehicle expense and the same is estimated at RO 45,055 for the first year, RO 62,940 for the second year onwards. Details are given in Annexure- 2.4.

5.3.5. Administrative Expenses

The basis of estimates of administrative expenses exclusive of salaries & wages is given in Annexure 2.5 and it works out to RO 37,346. Administrative expense include rents and rates, vehicle expenses, communication related expenses, stationery, etc.

5.3.6. Sales Expenses

Total sales expenses are estimated at RO 27,825. Details given in Annexure- 2.6

5.3.7. Depreciation

Depreciation works out to RO 180,180 million each for first ten years. In addition, a preliminary expense amount of RO 372,000 is written off in the first year of operation. Depreciation calculation is given in annexure- 2.7. The following are the rates considered for the calculation of depreciation.

Assets	*Life (years)*	*% of depreciation*
Buildings	25	5
Plant & Machinery	10	10
Technical Know-How		10
Vehicles and Internal Transport	4	25
Furniture & Office Equipment	5	20
Contingency & Escalation		10

5.3.8. Loan & Interest Calculation

Interest rate for term loan is taken at 6% and for working capital is taken at 6%. Details of interest calculations are given in Annexure- 2.8

5.4. INCOME TAX

No income tax is provided as the new units are exempted from tax for the first five years. From sixth year onwards, 15% tax is considered.

5.5. SALES REALIZATION

The annual sales realization at installed capacity is given as annexure 3.1. The annual sales realization for the first five years of operation is provided below:

Details	Year 1	Year 2	Year 3	Year 4	Year 5
Local sales (RO)	1,254	1,614	1,995	2,055	2,116
Export Sales (RO)	1,925	2,110	2,022	2,222	2,421
Total sales (RO)	**3,179**	**3,724**	**4,017**	**4,277**	**4,538**

5.6. COST RATIOS

The major cost indicators as a percentage of sales realization are given in Annexure- 3.

Years of Operation	1	2	3	4	5
R M & Consumables / Total Sales	54.5%	54.3%	53.9%	54.0%	54.1%
Utilities / Total Sales	6.8%	6.8%	6.8%	6.8%	6.8%
Factory wages / Total Sales	11.8%	10.4%	9.9%	9.6%	9.3%
Prime Cost / Total Sales	73.1%	71.5%	70.6%	70.4%	70.2%
Factory exp. / Total Sales	2.2%	2.4%	2.3%	2.2%	2.1%
Factory Cost / Total Sales	75.3%	73.9%	72.9%	72.6%	72.3%
Admin exp. / Total Sales	6.4%	5.5%	5.2%	4.9%	4.7%
Selling exp. / Total Sales	3.9%	3.7%	3.7%	3.7%	3.6%
Finance Cost / Total Sales	4.2%	3.5%	2.9%	2.4%	1.9%
Non-Cash exp. /Total Sales	17.4%	4.8%	4.5%	4.2%	4.0%
Total Cost / Sales	107.1%	91.5%	89.1%	87.7%	86.5%

5.7. NET PROFIT AND PROFITABILITY ANALYSIS

As per the financial projection in Annexure – 3, the venture is financially viable. The summary of the analysis is given below:

Year of Operation		1	2	3	4	5	6	7	8	9	10
No	**Item**	**In RO '000**									
1	**Operating Cost**	2,719	3,096	3,283	3,470	3,657	3,678	3,694	3,710	3,727	3,745
2	Expected Sales										
a	Local	1,254	1,614	1,995	2,055	2,116	2,116	2,116	2,116	2,116	2,116
b	Export	1,925	2,110	2,022	2,222	2,421	2,421	2,421	2,421	2,421	2,421
c	**Total**	**3,179**	**3,724**	**4,017**	**4,277**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**
3	**Profit before Int & dep**	**460**	**628**	**733**	**807**	**880**	**860**	**844**	**827**	**810**	**793**
4	Depreciation	180	180	180	180	180	180	180	180	180	180
5	Finance Cost	134	130	116	101	87	72	57	47	47	47
6	**Operating profit**	**146**	**318**	**437**	**526**	**614**	**608**	**606**	**601**	**584**	**566**
7	Other income if any						-				
8	Prelim Exp written off	372	-	-	-	-	-	-	-	-	-
9	**Profit/Loss before tax**	**(226)**	**318**	**437**	**526**	**614**	**608**	**606**	**601**	**584**	**566**
10	Income Tax	-	-	-	-	-	91	91	90	88	85
11	**Profit after tax**	**(226)**	**318**	**437**	**526**	**614**	**517**	**515**	**511**	**496**	**481**
12	**Net cash accruals**	**326**	**498**	**618**	**706**	**794**	**697**	**696**	**691**	**676**	**661**

5.8. KEY APPRAISAL CRITERIA

The viability of the project based on major appraisal criteria is given below.

Detail	Value
IRR on total investment	18.7%
IRR on Equity	28.9%
Payback period of Total Investment	5 Years 11 Months
Payback period on equity	4 Years 10 Months
Break Even Point (as % of Capacity)	44.8%
Cash Break Even Point (as % of Capacity)	38.2%
DSCR	2.62
Total debt equity ratio	1.5 : 1

5.9. SENSITIVITY ANALYSIS

A sensitivity analysis has been carried out to determine the susceptibility of the project to changes in main variables as given below:

Effect on the IRR on equity investment, based on 10 years of operation due to change in various variables is as follows:

Particulars	Original	Volume Down by 10%	RM Cost up by 10%	Sales Realization Down by 10%
IRR on Investment	18.72	18.13	13.69	14.07
IRR on equity	28.89	24.29	19.91	20.57

6. KEY SUCCESS AND PUSHBACK FACTORS

The following aspects are highlighted as the key success / pushback factors.

6.1. KEY SUCCESS FACTOR

- The project shall enhance the ICV of steel castings supply to the carious end use sectors including Oil and Gas.
- In addition to the price preference incentive provided for Government The project shall be able to effectively leverage on the government incentives including low cost well developed industrial land, utilities etc.

6.2. KEY PUSHBACK FACTORS

The project is expected to face competition from other GCC manufacturers. Ensuring optimum level of investment, choosing appropriate technology and ensuring lower cost of production are key to success.

7. CONCULSION

The IRR on Total Investment for the project is 18.7% and the IRR on Equity Investment is 28.9%. Based on the various analyses done on the project, the project is found to be technically feasible and financially viable.

Annexures – Financial Projections

ANNEXURE- 1					
STEEL CASTING PROJECT					
ESTIMATED PROJECT COST					
S.No	**Item**	**Refer**		**Amount**	**Remarks**
		App.		**(RO)**	
A1	**PROJECT COST**				
1	Land for Plant Site	1.1	69,000		Estimates
2	Building etc.	1.2	917,000		Estimates
3	Plant & Machinery	1.3	760,000		Estimates
4	Vehicles and Int. Transport	1.4	143,000		Estimates
5	Furniture & Office Equip.	1.5	70,000		Estimates
6	Pre- Operative Expenses	1.6	372,000		Estimates
7	Contingency & Escalation	1.7	95,000		Estimates
	Sub Total		2,426,000	**2,426,000**	
A2	**WORKING CAPITAL**		1,291,923	**1,292,000**	
A3	**TOTAL CAPITAL**			**3,718,000**	
B	**MODE OF FINANCE**				
1	Equity			1,487,000	40%
2	Term Loan			1,456,000	60%
3	Total			**2,943,000**	
4	Commercial Borrwings for Working Capital			775,000	60%
5	**TOTAL CAPITAL**			**3,718,000**	

ANNEXURE- 1.1						
STEEL CASTING PROJECT						
ESTIMATED COST OF LAND & SITE DEVELOPMENT						
S.No.	**Item**	**Unit**	**Q'ty**	**Rate**	**Amount**	**Remarks**
				(RO)	**(RO)**	
A	**LAND**					
1	Land for Plant	Sq. M	30,000	0	-	On lease (600M x500 M)
B	**SITE DEVELOPMENT**					
1	Soil Testing				3,000	Lumpsum
2	Levelling	Sq. M	3,000	1.000	3,000	Levelling of 1/3 of land area
3	Fencing	M	693	40	27,713	Concrete / Chain link
4	Paving /Roads	Sq. M	1,000	10	10,000	Asphalt
5	Sewerage/Drainage	M	500	20	10,000	Lumpsum
6	Prov for gas connection					
7	Prov for Electric line				10,000	
8	Prov for Water line from ring main				5,000	
	Sub Total				68,713	
C	**TOTAL**				68,713	
	Say				**69,000**	Sum (B1 to B10)

ANNEXURE- 1.2						
STEEL CASTING PROJECT						
ESTIMATED COST OF BUILDING & CIVIL WORKS						
S.No.	**Item**		**Area**	**Rate**	**Amount**	**Remarks**
			(SqM)	**(RO)**	**(RO)**	
A	**MAIN PLANT BUILDINGS**					
1	Melt Shop	Sq. M	1,350	150	202,500	Masonary wall & steel roof
2	Fettling, Finishing, Inspection & Despatch	Sq. M	1,350	150	202,500	Masonary wall & steel roof
3	Heat Treatment Shop	Sq. M	525	150	78,750	Masonary wall & steel roof
4	Pattern & Core Shop	Sq. M	600	100	60,000	Masonary wall & steel lean-to roof
5	Physical Lab	Sq. M	150	180	27,000	Masonary wall & steel roof
6	Spectro & Chemical Lab	Sq. M	150	180	27,000	
	Sub Total		**4,125**		**597,750**	Sum (A1 to A6)
B	**UTILITIES & MAINTENANCE**					
1	Generator & Compressor Room	Sq. M	60	120	7,200	Masonary wall & steel roof
2	Electrical Room	Sq. M	60	120	7,200	Masonary wall & steel roof
3	Maitenance Workshop	Sq. M	375	120	45,000	Masonary wall & steel roof
4	Pump House,Cooling Tower etc	Sq. M	150	180	27,000	
	Sub Total		**645**		**86,400**	Sum (B1 to B4)
C	**STORE**					
1	Store	Sq. M	350			Masonary wall & steel roof
	Sub Total		**350**	**150**	**52,500**	Sum (C1 to C2)
D	**ADMINISTRATIVE BUILDINGS**					
1	Office	Sq. M	300			RCC
2	Security Office	Sq. M	30			RCC
	Sub Total		**330**	**180**	**59,400**	Sum (D1 to D2)
E	**NON FACTORY BUILDINGS**					
1	Canteen	Sq. M	50			Masonary wall & steel roof
2	Change Room	Sq. M	50			Masonary wall & steel roof
	Sub Total		**100**	**120**	**12,000**	Sum (E1 to E2)
F	**OTHER CIVIL WORKS**					
1	Water Tank				10,000	
2	Associated Electro-mechanical works		5,550	15	83,250	
	Sub Total				**93,250**	
G	**ENGINEERING FEES**					
1	Design				8,081	At 1% on built up area cost
2	Supervision				8,081	At 1% on built up area cost
	Sub Total				**16,161**	
H	**TOTAL**				917,461	
	Say				**917,000**	

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount**	**Amount**	**Remarks**
			(INR)	**(RO)**	
A	**PRODUCTION EQUIPMENTS**				
1	Medium Frequency Induction Melting Furnace with 1650 KW Dual Power Track & 2 nos. 3000 kg crucibles along with all accessories such as Transformers, Pumps, Heat Exchanger, Cooling Tower etc.	1 No.	3,850,000		
2	Medium Frequency Induction Melting Furnace with 1100 KW Dual Power Track & 2 nos. 2000 kg crucibles along with all accessories such as Transformers, Pumps, Heat Exchanger, Cooling Tower etc.	1 No.	2,750,000		
3	Medium Frequency Induction Melting Furnace with 550 KW Dual Power Track & 2 nos. 1000 kg crucibles along with all accessories such as Transformers, Pumps, Heat Exchanger, Cooling Tower etc.	2 Nos.	3,300,000		
4	Platform Type Weighing Balance	1 No.	300,000		
5	Platform Type Weighing Balance	1 No.	150,000		
6	Pan Type Weighing Balance	1 No.	50,000		
7	Digital Crane Scale	1 No.	350,000		
8	Geared Bottom Pouring Ladle	1 No.	350,000		
9	Geared Bottom Pouring Ladle	2 Nos.	200,000		
10	Geared Lip Pouring Ladle	2 Nos.	150,000		
11	Ladle Pre-Heater	1 Nos.	250,000		
12	Ladle Pre-Heater	1 Nos.	100,000		
13	Charging Bins (One Side Open)	4 Nos.	200,000		
14	Pendant operated EOT Crane-Double Girder	1 Nos.	1,500,000		
15	Pendant operated EOT Crane-Double Girder	3 Nos.	1,300,000		
16	Pendant operated EOT Crane-Double Girder	1 No.	1,000,000		
17	Transfer Trolley with 28 M track	1 No.	50,000		
18	Transfer Trolley with 10 M track	2 Nos.	100,000		
B	**MACHINES FOR SAND MOULDING**				

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount (INR)**	**Amount (RO)**	**Remarks**
1	Continuous Resin Sand Mixer for Core Shop	1 No.	500,000		
2	Continuous Silicate Sand Mixer for Core Shop		750,000		
3	Articulated Arm Continuous Silicate Sand Mixer for Core Shop		2,000,000		
4	Compaction Table with roller top frame	1 No.	800,000		
5	Roller Conveyor before and after compaction Table				
6	Pneumatic Sand Rammers	4 Nos.	100,000		
7	Silicate Sand Reclamation Plant		12,500,000		
a	Knock-out Machine with 2.5 M x 2 M Table	1 No.			
b	Vibro Feeder under Knock-out	1 No.			
c	Underground Belt Conveyor	1 No.			
d	HD Vibrader Attrition Unit	1 No.			
e	Fluidized Bed Sand Classifier	1 No.			
f	Pneumatic Sand Conveyor with piping from vessel to hoppers	1 No.			
g	Dust Extraction System with Reverse Pulse Jet Arrangement	1 No.			
8	Pneumatic Sand Conveyor for new sand with piping	1 No.	1,500,000		
9	Reclaimed Sand Hopper in Mould Shop	1 No.	50,000		
10	New Sand Hopper in Mould Shop	1 No.	50,000		
11	New Sand Hopper in Core Shop	2 Nos.	50,000		
12	New Sand Pneumatic Sand Conveyor with three diverter valves and piping	1 No.	241,000		
13	Rotary Sand Drier		250,000		
14	Mould Drier	1 No.	50,000		
15	Spray Coating Equipment For Mould and Core	1 No.	600,000		

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount**	**Amount**	**Remarks**
			(INR)	**(RO)**	
16	Mould Boxes	Lot	2,000,000		
17	Sand Bins (One side Open)	4 Nos.	100,000		
18	CO_2 Gas Manifold	1 No.	300,000		
C	**HEAT TREATMENT PLANT**				
1	Oil/Gas Fired Bogie Hearth Heat-Treatment Furnace	1 No.			
2	Gas Fired /Electrically Heated Fixed Hearth Heat-Treatment Furnace	1 No.			
3	Water Quenching Tank	1 No.	12,000,000		
4	Oil Quenching Tank	1 No.			
5	Quenching Arrangement				
6	Accessories like Control System, Heat-exchanger etc				
D	**FETTLING SHOP**				
1	Swing Frame Grinding Machine with 12"Ø wheel	4 Nos.	500,000		
2	Pneumatic Straight Grinding Machine with 6"Ø wheel	4 Nos.	150,000		
3	Pneumatic Angle Grinding Machine with 9"Ø wheel	4 Nos.	150,000		
4	Pneumatic Pencil Grinding Machine with mounted point wheel	2 Nos.	50,000		
5	Welding Machine	2 Nos.	100,000		
6	Gas Cutting Torch	2 Set	100,000		
7	Shot Blasting Machine	1 No.	3,500,000		
E	**MAINTENANCE WORSHOP**				
1	Lathe Machine	1 No.			
2	Shaping Machine	1 No.			
3	Radial Drilling Machine	1 No.	2,000,000		
4	Plano Miller Machine	1 No.			
5	Automatic Horizontal Sawing Machine				

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount**	**Amount**	**Remarks**
			(INR)	**(RO)**	
F	**PATTERN SHOP**				
1	Multi Purpose Woodworking Machine	1 No.	500,000		
2	Woodworking Hand Tools	Set			
3	Inspection Tools and Tackles	Set	200,000		
G	**OTHER GENERAL PURPOSE MACHINES**				
1	Screw Type Air Compressor with Reservoir & Distribution Pipework	2 Nos.	1,800,000		
2	Power Distribution System receiving Transformer , OCB, ACB, DB and cables etc	Set	3,000,000		
3	Diesel Generator Set	1 No.	1,500,000		
4	Water Distribution System with Bore-Well, Pump, Over-Head Tank and Distribution pipe work	Set	300,000		
5	Miscellaneous Tools	Set	200,000		
6	Electronic Weigh Bridge	1 No.	1,500,000		
	Total of A to G		**65,341,000**	**353,195**	
H	**QUALITY ASSURANCE EQUIPMENTS**				
1	CCD based Spark discharge Optical Emission Spectrometer	1 No.	2,500,000		
2	Spectro Sample cutting and polishing machines	Set	500,000		
3	Chemical Laboratory for Wet Analysis of carbon, silicon, manganese, sulphur, phosphorous, chromium, nickel, molybdenum and ferro alloys	Set	500,000		

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount**	**Amount**	**Remarks**
			(INR)	**(RO)**	
4	Digital Display Immersion Pyrometer	2 Nos	150,000		
5	Inverted Metallurgical Microscope with Image Analyser Software	1 No.	750,000		
6	Metallographic Sample Cutting and Polishing Equipments	Set	250,000		
7	Computerized Universal Tensile Testing Machine with bend and hardness test attachment	1 No.	600,000		
8	Combined Digital Charpy Impact Testing Machine with Sub-Zero Temperature Bath with digital Temperature Indicator	1 No.	200,000		
9	Digital Brinell Hardness Testing Machine	1 No.	150,000		
10	Digital Display Dynamic Hardness Testing Machine	1 No.	600,000		
11	Ultrasonic Flaw Detector	1 No.	550,000		
12	Magnetic Particle Test Equipment	1 No.	400,000		
13	Dye Penetrant Test Kit	1 No.	50,000		
14	Sand Testing Equipments	Set	300,000		
	Sub Total		7,500,000	**40,541**	
I	**MACHINE SHOP**				
1	Vertical turret	1		40,000	
2	Horizontal Boring Machine	1		55,000	
3	Cylindrical Grinding Machine	1		20,000	
4	Surface Grinding Machine	1		19,000	
5	Universal Milling Machine	1		16,000	

ANNEXURE- 1.3					
STEEL CASTING PROJECT					
ESTIMATED COST OF PLANT & MACHINERY					
S.No.	**Item**	**Q'ty**	**Amount**	**Amount**	**Remarks**
			(INR)	**(RO)**	
6	Radial drilling machine	2		10,000	
7	Veretical Keyway Machine	1		2,000	
8	Band Saw Machine	1		2,000	
9	Lathe- Heavy Duty	1		25,000	
10	Lathe- Medium Duty	1		9,000	
11	Lathe- Light Duty	1		4,000	
12	Dynamic Balancing Machine	1		20,000	
	Sub Total			**222,000**	
J	**ELECTRIFICATION - Local**				
1	Switch boards/Distribution boards			-	
2	Power cables to transformer station			-	
3	Lightning conductors & earthing			-	
4	PF correction			10,000	
	Sub Total			**10,000**	
K	**AT SITE COST**				
1	Total Cost of Plant			625,735	
2	Spares - Import			10,000	
3	Spares - Local			5,000	
4	Packing, Insurance Forwarding & Freight - Import			62,574	10% of EPC contract value
5	C I F Cost			703,309	
6	Import duty				
7	Clearing & Transport to Site			7,033	1% of total cost
8	At Site Cost			710,342	
L	**ERECTED COST**				
1	At Site Cost			710,342	
2	Cost of erection - Local			30,000	
3	Technical Supervision -Import			10,000	
4	Accommodation, Food Etc.			10,000	
	TOTAL ERECTED COST			**760,342**	
	Say			**760,000**	

ANNEXURE- 1.4				
STEEL CASTING PROJECT				
ESTIMATED COST OF VEHICLES & INTERNAL TRANSPORT				
S.No.	**Item**	**Q'ty**	**Amount**	**Remarks**
		(Nos.)	**(RO)**	
A	**VEHICLES**			
1	Car Saloon	1	10,000	For Gen. Manager
2	Car - Small	10	60,000	For Senior Managers
4	Bus	2	40,000	For all Staff
	Sub Total	**13**	**110,000**	
B	**TRANSP. EQUIPMENT**			
1	Fork lift truck - 3 Ton	2	20,000	
2	Registration, Painting, Spares etc		13,000	10% of cost of vehicles
	Sub Total		**33,000**	
C	**TOTAL**		143,000	
	Say		**143,000**	

ANNEXURE- 1.5					
STEEL CASTING PROJECT					
ESTIMATED COST OF FURNITURE & OFFICE EQUIPMENT					
S.No.	**Item**	**Q'ty**	**Rate**	**Amount**	**Remarks**
			(RO)	**(RO)**	
A	**OFFICE**				
1	P.C with Printer	20	250	5,000	
2	Photocopier	1	1,500	1,500	
3	Fax, Telephone			2,000	Lumpsum
4	Other Office Equipment			2,500	Lumpsum
5	Air Conditioners	20	250	5,000	Lumpsum
6	Office Furnitures			10,000	Lumpsum
7	Board room furniture			7,000	Lumpsum
	Sub Total			**33,000**	
B	**ACCOMODATION**				
	Workers			17,100	
	Sub Total			**17,100**	
C	**FACTORY**				
1	Furniture / Fittings	Set		20,000	Lumpsum
	Sub Total			**20,000**	
D	**TOTAL**			70,100	Sum A + B+C
				70,000	

ANNEXURE- 1.6				
STEEL CASTING PROJECT				
ESTIMATED COST OF PRE-OPERATIVE EXPENSES				
S.No	**Item**		**Amount**	**Remarks**
		(RO)	**(RO)**	
1	Preliminary Expenses		7,000	Upto formation of Co.
2	Feasibility Studies		7,500	
3	Project Management Expenses		74,360	2% on Project Cost
4	Company Employees			
a	Salary & benefits - Production Manager	4,500		2 Months
b	Salary & benefits - Production Staff	28,970		1 Month
c	Salary & benefits - Admin. Staff	11,235		1 Month
d	Salary & benefits - Sales Staff	3,990		1 Month
	Sub-Total		48,695	
e	Visa, Passage etc.			
	Lower Level	13	11,700	
	Middle level	7	7,700	
	Senior Level	37	92,500	
	Sub Total			
5	Financing Cost			
a	Institutional Loan Interest	43,680		At 6% 6 months
b	Mortgage & Gurantee Expenses	14,560		At 1% on Institu: Loan
c	Capital goods Import duty gurante	0		
d	Other Bank Charges	5,000		Lumpsum
	Sub Total		63,240	
6	Communication		1,350	RO 75/M for 18 Months
7	Travel		5,000	Lumpsum
8	Recruitment Charges		11,400	Lumpsum
9	Audit Fees, Legal Fees		5,000	Lumpsum
10	Insurance		6,708	At 0.4 % of Plant & Bldg.
11	Staff Training		5,000	
12	Start Up Expenses		10,000	Estimate
13	Product Launching, Advt. etc.		10,000	Provision
14	Miscellaneous		5,000	Provision
15	Total		372,153	
	Say..		**372,000**	

ANNEXURE- 1.7					
STEEL CASTING PROJECT					
ESTIMATES OF CONTINGENCY AND ESCALATION					
S.No.	**Item**	**Cost**	**Rate**	**Provision**	**Remarks**
		(RO)	**(%)**	**(RO)**	
A	**FIXED ASSETS**				
1	Land for Plant Site	69,000	0.0	-	
2	Building etc.	917,000	5.0	45,850	
3	Plant & Machinery	760,000	5.0	38,000	
4	Technical Know-How	-	5.0	-	
5	Vehicles and Int. Transport	143,000	5.0	7,150	
6	Furniture & Office Equip.	70,000	5.0	3,500	
	TOTAL			94,500	
				95,000	say

ANNEXURE- 1.8								
STEEL CASTING PROJECT								
ESTIMATES OF WORKING CAPITAL REQUIREMENTS								
S.No.	**Item**	**Req.**		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Remarks**
				In RO '000				
1	Acct. Receivable	3	Months	713	807	850	893	Cost of sales - Non C Ex.
2	Raw Materials	2	Months	257	300	321	342	
3	Consumables	1	Months	16	19	20	21	
4	Utilities	1	Month	18	21	23	24	
5	Factory Wages	1	Month	31	32	33	34	
6	Admn. Expenses	1	Month	14	15	15	15	
7	Sales Expenses	1	Month	10	12	12	13	
8	Work in Progress	21	Days	138	158	168	179	At Factory Cost
9	Finished Goods	1	Month	227	257	271	285	At total Cost-Non cash-Selling and Distrbn
10	Finance Cost	1	Month	11	11	10	8	At Finance Cost
	Sub-Total			***1,436***	***1,631***	***1,723***	***1,814***	
11	Payables							
a	Raw Materials	1	Months	128	150	160	171	
b	Consumables &Packing	1	Months	16	19	20	21	
	Sub-Total			***144***	***168***	***181***	***193***	
	Say			**1,292**	**1,462**	**1,542**	**1,622**	

ANNEXURE- 2												
STEEL CASTING PROJECT												
COST OF SALE												
	Year of Operation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
	Production	60%	70%	75%	80%	85%	85%	85%	85%	85%	85%	
	Metric Tons	2,376	2,772	2,970	3,168	3,366	3,366	3,366	3,366	3,366	3,366	
No	**Item**	**In RO '000**										**Remarks**
1	Raw Material	1,540	1,797	1,925	2,054	2,182	2,182	2,182	2,182	2,182	2,182	Refer Annexure 2.1
2	Consumables	193	225	241	257	273	273	273	273	273	273	Refer Annexure 2.1
3	Utilities	218	254	272	290	308	308	308	308	308	308	Refer Annexure 2.2
4	Factory Wages	375	386	397	409	422	434	447	461	475	489	Refer Annexure 2.3
5	**PRIME COST**	2,325	2,661	2,835	3,010	3,185	3,197	3,210	3,224	3,238	3,252	
6	Factory Overheads	45	63	63	63	63	63	63	63	63	63	Refer Annexure 2.4
7	Misc. Factory Exp.	24	27	29	31	32	33	33	33	33	33	1% of sum of (1) to (6)
8	**FACTORY COST**	2,394	2,751	2,927	3,104	3,280	3,293	3,306	3,320	3,334	3,348	
9	Rent on Land	30	30	30	30	30	35	35	35	35	35	RO 1/ Sqm/ year with 15% increase from year
10	Administrative salary	135	138	140	143	146	149	152	155	158	161	Refer Annexure 2.3
11	Admin. Expenses	37	37	37	37	37	37	37	37	37	37	Refer Annexure 2.5
13	Total Admin expenses	202	205	208	210	213	221	224	227	230	233	
14	Sales Salaries	-	-	-	-	-	-	-	-	-	-	Refer Annexure 2.3
15	Sales Expenses	28	28	28	28	28	28	28	28	28	28	Refer Annexure 2.6
16	Advert.& Business Promotion	95	112	120	128	136	136	136	136	136	136	3% of Sales Revenue
17	Total sales & dist: costs	123	140	148	156	164	164	164	164	164	164	
18	**OPERATING COST**	2,719	3,096	3,283	3,470	3,657	3,678	3,694	3,710	3,727	3,745	
	Finance cost											
19	Int on Institutional finanace	87	84	69	55	40	25	11	0	0	0	Refer Annexure 2.8
20	Int on working capital	47	47	47	47	47	47	47	47	47	47	Refer Annexure 2.8
21	Total finance cost	134	130	116	101	87	72	57	47	47	47	
	Non cash expenses											
22	Depreciation	180	180	180	180	180	180	180	180	180	180	Refer Annexure 2.7
23	Prelim Expenses written off	372	-	-	-	-	-	-	-	-	-	Refer Annexure 2.7
24	**COST OF SALE**	**3,405**	**3,406**	**3,579**	**3,751**	**3,924**	**3,930**	**3,931**	**3,937**	**3,954**	**3,972**	

ANNEXURE- 2.1						
STEEL CASTING PROJECT						
ESTIMATED COST OF RAW MATERIALS						
S.No.	**Item**	**Unit**	**Qty**	**Rate**	**Amount**	**Remarks**
A	**RAW MATERIALS**			**(RO)**	**(RO)**	
1	Melting grade M.S. Scrap	MT	3,520	577	2,029,954	
2	Ferro-Silicon	MT	9	462	3,960	
3	Ferro- Manganese (HC)	MT	258	577	148,925	
4	Ferro- Manganese (MC)	MT	40	692	27,437	
5	Ferro-Chromium (HC)	MT	330	769	253,770	
6	Ferro-Molybdenum	MT	13	7,700	103,125	
	Sub Total		4,169		2,567,171	
	Total Raw Materials				**2,567,171**	
B	**CONSUMPTION MATERIALS**					
1	Aluminium Notch-Bar	MT	5	1,950	10,446	
2	Acid Ramming Mass	MT	23	163	3,656	
3	Boric Acid	MT	1	2,708	1,451	
4	Basic Ramming Mass	MT	23	406	9,141	
5	Lining Former	MT	5	433	2,321	
6	M.S.Rod, Spoon etc	MT	4	406	1,741	
7	Slag Coagulant	MT	2	542	1,161	
8	Cast-able Refractory	MT	5	481	2,579	
9	Silica Sand	MT	3,750	20	73,125	
10	Sodium Silicate	MT	198	221	43,805	
11	CO2 Gas	MT	49	193	9,492	
12	Mold Paints	MT	6	715	4,596	
13	Anti-piping Compound	MT	9	474	4,062	
14	Foundry Nails, Chaplets etc	LOT		0	1,350	
15	Kerosene Oil	Lit	664	1	717	
16	Exothermic Sleeves	LOT		0	32,143	
17	Tips for Immersion Pyrometer	Nos	1,318	1	959	
18	Grinding Wheels	LOT		0	9,150	
19	Welding Electrodes	LOT		0	1,821	
20	Oxygen Cylinders		825	2	1,791	
21	D.A Cylinders		166	7	1,222	
22	Laboratory Chemicals	LOT		0	4,575	
23	Furnace Oil	KL	439	182	79,950	
24	Spares for Maintenance	LOT		0	5,000	
25	Shots for Shot Blasting		6	826	5,312	
26	Miscellaneous Items Lot	LOT		0.00	9,321	
	Sub Total				**320,890**	
	TOTAL MATERIALS				**2,888,061**	

ANNEXURE- 2.2						
STEEL CASTING PROJECT						
ESTIMATED COST OF UTILITIES						
S.No.	**Item**	**Unit**	**Qty**	**Rate**	**Amount (RO)**	**Remarks**
	UTILITIES					
1	Water	Cu M	3,300	0.770	2,541	
2	Electricity	KWH	12,000,000	0.030	360,000	
	TOTAL				**362,541**	

ANNEXURE- 2.3							
STEEL CASTING PROJECT							
ESTIMATES OF ANNUAL SALARIES AND WAGES							
S.No.	**Item**	**Number of personnel**		**Salary (RO)**		**Amount**	**Remarks**
		Omanis	**Expatriates**	**Omanis**	**Expatriates**	**(RO)**	
A1	**PRODUCTION**						
	Basic Salary						
1	Works Manager		1		1,500	18,000	
2	Methods Engineer		1		1,000	12,000	
3	Melting Shop In charge		1		700	8,400	
4	Heat treatment-in-charge		1		700	8,400	
5	Melters	1	1	350	300	7,800	
6	Production Supervisors	1	1	550	400	11,400	
7	Skilled workers		6	400	300	21,600	
8	Semi-skilled workers	2	14	350	225	46,200	
9	Unskilled workers	10	15	325	150	66,000	
	Sub Total	**14**	**41**			**199,800**	
	Other Benefits					79,920	At 40 % of Salary
	Total Cost					**279,720**	
A2	**QUALITY**						
a	**Basic Salary**						
1	Quality Assurance Manager		1		1,000	12,000	
2	Metallurgists		1		700	8,400	
3	Chemist		2		400	9,600	
4	Inspectors		2		400	9,600	
	Sub Total	**0**	**6**			**39,600**	
	Other Benefits					15,840	At 40 % of Salary
	Total Cost					**55,440**	
A3	**MAINTENANCE / SAFETY**						
a	**Basic Salary**						
1	Maintenance Manager		1		850	10,200	
2	Maintenance Supervisors		2		400	9,600	
3	Mechanics		2		350	8,400	
	Sub Total	**0**	**5**			28,200	
	Other Benefits					11,280	At 40 % of Salary
	Total Cost					**39,480**	
	Total Production Wages Cost	**14**	**52**			**374,640**	
B	**ADMINISTRATION & ACCOUNTS**						
a	**Administration**						
1	General Manager	1	0	2,000		24,000	
2	Commercial Manager		1		850	10,200	
3	Manager-HRD	1			700	-	
4	Secretary	1		325		3,900	
5	PRO	1			500	-	
6	Driver	2		400		9,600	

ANNEXURE- 2.3							
STEEL CASTING PROJECT							
ESTIMATES OF ANNUAL SALARIES AND WAGES							
S.No.	**Item**	**Number of personnel**		**Salary (RO)**		**Amount**	**Remarks**
		Omanis	**Expatriates**	**Omanis**	**Expatriates**	**(RO)**	
7	Office Boy/ Messenger	0	2		150	3,600	
9	Security Guards	3		350		12,600	
	Sub Total	**8**	**3**			**63,900**	
	Other Benefits					25,560	At 40 % of Salary
	Total Cost					**89,460**	
b	**Accounts & Stores**						
1	Accounts Manager		1		850	10,200	
2	Accountant		1		500	6,000	
3	Store Keeper	2		350		8,400	
4	Secretary cum computer operator	2	0	325	250	7,800	
	Sub Total	**4**	**2**			**32,400**	
	Other Benefits					12,960	At 40 % of Salary
	Total Cost					**45,360**	
	Total Admin and Accounts Salaries Cost	**12**	**5**			**134,820**	
C	**SALES**						
a	**Sales**						
1	Marketing Manager	1	0	1,000	1,000	12,000	
2	Sales Executives	3	0	500	450	18,000	
3	Assistants	1		350	300	4,200	
	Sub Total	**5**	**0**			**34,200**	
	Other Benefits					13,680	At 40 % of Salary
	Total Sales Salaries Cost					**47,880**	
D	**GRAND TOTAL**	**31**	**57**			**557,340**	
	Omanization		**35%**				

ANNEXURE- 2.4					
STEEL CASTING PROJECT					
ESTIMATES OF ANNUAL FACTORY EXPENSES					
S.No.	**Item**	**Year**	**Year**	**Year**	**Remarks**
		1	**2**	**3**	
1	Repairs & Maintena	1,900	3,800	3,800	At 0.25%0.5 % of erected cost of Plant and Machinery
2	Civil Repairs	4,585	9,170	9,170	At 0.5% & 1 % of cost of Building and Civil Works
3	Spare Parts	3,800	15,200	15,200	At 0.5%, 2.0% and 2.0% of 'at-site' cost of Plant and Machinery
4	Insurance	16,770	16,770	16,770	At 1 % of cost Building, Plant and Machinery
5	Vehicle Expenses				
a	Cars (3Nos)	3,600	3,600	3,600	At RO 100 pm
b	Bus (2 nos)	7,200	7,200	7,200	At RO 300 pm
c	Forklifts (2 nos)	7,200	7,200	7,200	At RO 300 pm
	TOTAL	**45,055**	**62,940**	**62,940**	

ANNEXURE- 2.5				
STEEL CASTING PROJECT				
ESTIMATES OF ANNUAL ADMINISTRATIVE EXPENSES				
S.No.	**Item**	**Amount (RO)**		**Remarks**
	ADMINISTRATION			
1	Salaries & Benefits		134,820	
2	Rents and Rates		-	Considered under Cost of sales
3	Vehicle Expenses & Petrol			
a	Cars (4Nos)	3,600		At RO 75/Month
	Sub Total		3,600	
4	Telephone, Fax etc.		6,000	At RO 500 /Month
5	Stationery, Postage etc.		3,000	At RO 250/Month
7	Passage		2,748	
8	Travel & Recruitment		5,000	Lump sum
9	Legal, Audit Fees		2,000	Lump sum
10	Utilities outside Plant		1,800	At RO 150/Month
11	Insurance		5,000	Lump sum
12	Miscellaneous		8,198	At 5 % of above
13	Total		**172,166**	

ANNEXURE- 2.6				
STEEL CASTING PROJECT				
ESTIMATES OF ANNUAL SALES EXPENSES				
S.No.	**Item**		**Amount**	**Remarks**
		(RO)	**(RO)**	
	SALES			
1	Salaries		-	See Annexure 2.3
2	Advertisement		-	Provided separately
3	Business Promotion		-	Provided separately
4	Export Travel		2,500	Lumpsum
5	Vehicle Expenses & Petrol			
a	Sales Cars(4)	24,000		At RO 500/Month
	Sub Total		24,000	
6	Miscellaneous Expenses		1,325	At 5 % of above
	Total		**27,825**	

ANNEXURE- 2.7						
STEEL CASTING PROJECT						
DEPRECIATION CALCULATIONS						
	Item	**Cost**	**Rate**	**S.V.**	**Amount**	**Renewals**
			(%)	**(RO)**	**(RO)**	
A	**FIXED ASSETS**					
1	Land for Plant Site	69,000	0	-	-	Nil
2	Building etc.	962,850	5	481,425	48,143	Nil
3	Plant & Machinery	798,000	10	-	79,800	Year 11
4	Technical Know-How	-	10	-	-	Nil
5	Vehicles and Int. Transp.	150,150	25	75,075	37,538	Years 5, 9
6	Furniture & Office Equip.	73,500	20	-	14,700	Years 6, 11
	Sub Total	2,053,500		556,500	**180,180**	
B	**PRELIM &PRE OPE: EXP**	372,000	100	-	**372,000**	Nil
C	**WORKING CAPITAL**					
1	Working Capital	1,621,842	0	1,621,842	-	
D	**TOTAL**			**2,178,342**	**552,180**	
	Less Balance Loan			**775,000**		
E	**SALVAGE VALUE**			**1,403,342**		
	Note: S.V. = Salvage Value at the end of 10th year.					

ANNEXURE- 2.8								
STEEL CASTING PROJECT								
LOAN & INTEREST CALCULATIOS								
		TERM LOAN			Working Capital		Annual	
No	**Year**	**Prn**	**Int**	**Rep**	**Prn**	**Int**	**Int**	**Rep**
			6%			6%		
1		1,456	44	-	775	23		
2	1	1,456	44	-	775	23	**133.9**	**0**
3		1,456	44	121	775	23		
4	2	1,335	40	121	775	23	**130.2**	**243**
5		1,213	36	121	775	23		
6	3	1,092	33	121	775	23	**115.7**	**243**
7		971	29	121	775	23		
8	4	849	25	121	775	23	**101.1**	**243**
9		728	22	121	775	23		
10	5	607	18	121	775	23	**86.5**	**243**
11		485	15	121	775	23		
12	6	364	11	121	775	23	**72.0**	**243**
13		243	7	121	775	23		
14	7	121	4	121	775	23	**57.4**	**243**
15		0	0	-	775	23		
16	8	0	0	-	775	23	**46.5**	**0**
17		0	0	-	775	23		
18	9	0	0	-	775	23	**46.5**	**0**
19		0	0	-	775	23		
20	10	0	0	-	775	23	**46.5**	**0**

ANNEXURE- 3												
STEEL CASTING PROJECT												
ESTIMATED WORKING RESULTS												
	Year of Operation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
	Production	60%	70%	75%	80%	85%	85%	85%	85%	85%	85%	
	M. Tons	2,376	2,772	2,970	3,168	3,366	3,366	3,366	3,366	3,366	3,366	
No	**Item**	**In RO '000**										**Remarks**
1	**Operating Cost**	2,719	3,096	3,283	3,470	3,657	3,678	3,694	3,710	3,727	3,745	
2	Expected Sales											
a	Local	*1,254*	*1,614*	*1,995*	*2,055*	*2,116*	*2,116*	*2,116*	*2,116*	*2,116*	*2,116*	
b	Export	*1,925*	*2,110*	*2,022*	*2,222*	*2,421*	*2,421*	*2,421*	*2,421*	*2,421*	*2,421*	
c	**Total sales**	**3,179**	**3,724**	**4,017**	**4,277**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**	
3	**Profit before Int & dep**	**460**	**628**	**733**	**807**	**880**	**860**	**844**	**827**	**810**	**793**	
4	Depreciation	180	180	180	180	180	180	180	180	180	180	
5	Finance Cost	134	130	116	101	87	72	57	47	47	47	
6	**Operating profit**	**146**	**318**	**437**	**526**	**614**	**608**	**606**	**601**	**584**	**566**	
7	Other income if any						-					
8	Prelim Expenses written of	372	-	-	-	-	-	-	-	-	-	
9	Profit/Loss before tax	(226)	318	437	526	614	608	606	601	584	566	
10	Income Tax	-	-	-	-	-	91	91	90	88	85	
11	**Profit after tax**	**(226)**	**318**	**437**	**526**	**614**	**517**	**515**	**511**	**496**	**481**	
12	Statutory reserve	-	32	44	53	61	52	52	51	50	48	
13	Profit for appropriation	-	286	394	473	552	465	464	460	446	433	
14	Dividend	-	-	-	-	-	-	-	-	-	-	
15	General reserve	-	286	394	473	552	465	464	460	446	433	
16	**Net cash accruals**	**326**	**498**	**618**	**706**	**794**	**697**	**696**	**691**	**676**	**661**	

ANNEXURE- 3.1												
STEEL CASTING PROJECT												
ESTIMATES OF SALES REALISATION												
S.No.	**Product**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Plant Capacity (MT)		3,960	3,960	3,960	3,960	3,960	3,960	3,960	3,960	3,960	3,960
2	Capacity Utilization		60%	70%	75%	80%	85%	85%	85%	85%	85%	85%
3	Estimated Production (MT)		2,376	2,772	2,970	3,168	3,366	3,366	3,366	3,366	3,366	3,366
	Sales Projections (MT)											
4	Domestic Sales		878	1,130	1,397	1,439	1,482	1,482	1,482	1,482	1,482	1,482
5	Export Sales		1,498	1,642	1,573	1,729	1,884	1,884	1,884	1,884	1,884	1,884
			2,376	2,772	2,970	3,168	3,366	3,366	3,366	3,366	3,366	3,366
DOMESTIC SALES												
			Qty in MT									
	Castings	**Product mix**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Cast Steel	60%	527	678	838	863	889	889	889	889	889	889
2	Manganeese Steel	25%	219	283	349	360	371	371	371	371	371	371
3	High Chromium Cast Iron	15%	132	170	210	216	222	222	222	222	222	222
	TOTAL		878	1,130	1,397	1,439	1,482	1,482	1,482	1,482	1,482	1,482
			Sales Revenue (In RO '000)									
	Castings	**Rate per Ton**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Cast Steel	1,400	737	949	1,173	1,209	1,245	1,245	1,245	1,245	1,245	1,245
2	Manganeese Steel	1,470	323	415	513	529	545	545	545	545	545	545
3	High Chromium Cast Iron	1,470	194	249	308	317	327	327	327	327	327	327
	TOTAL DOMESTIC SALES REVENUE		***1,254***	***1,614***	***1,995***	***2,055***	***2,116***	***2,116***	***2,116***	***2,116***	***2,116***	***2,116***
EXPORT SALES												
			Qty in MT									
	Castings	**Product mix**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Cast Steel	60%	899	985	944	1,037	1,130	1,130	1,130	1,130	1,130	1,130
2	Manganeese Steel	25%	375	410	393	432	471	471	471	471	471	471
3	High Chromium Cast Iron	15%	225	246	236	259	283	283	283	283	283	283
	TOTAL		1,498	1,642	1,573	1,729	1,884	1,884	1,884	1,884	1,884	1,884
			Sales Revenue (In RO '000)									
	Castings	**Rate per Ton**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Cast Steel	1,260	1,133	1,241	1,189	1,307	1,424	1,424	1,424	1,424	1,424	1,424
2	Manganeese Steel	1,323	496	543	520	572	623	623	623	623	623	623
3	High Chromium Cast Iron	1,323	297	326	312	343	374	374	374	374	374	374
	TOTAL EXPORT SALES REVENUE		***1,925***	***2,110***	***2,022***	***2,222***	***2,421***	***2,421***	***2,421***	***2,421***	***2,421***	***2,421***
	TOTAL SALES REVENUE		**3,179**	**3,724**	**4,017**	**4,277**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**	**4,538**

ANNEXURE- 4												
STEEL CASTING PROJECT												
PROJECTED CASH FLOW STATEMENT												
	Year of Operation		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
No	**Item**	**In RO '000**										
A	**CASH INFLOW**											
1	Equity	1,487	-	-	-	-	-	-	-	-	-	-
2	ODB Loan	-										
2	Profit bef tax & int		(92)	448	553	627	700	680	664	647	630	613
3	Depreciation	-	180	180	180	180	180	180	180	180	180	180
4	Prel exp written off		372	-	-	-	-	-	-	-	-	-
5	Increase in Other term loan	-	-	-	-	-	-	-	-	-	-	-
6	Increase in Istitu: Loan	1,456	-	-	-	-	-	-	-	-	-	-
7	Increase in W C loan	775	-	-	-	-	-	-	-	-	-	-
	Sub Total	3,718	460	628	733	807	880	860	844	827	810	793
B	**CASH OUTFLOW**											
1	Capital Project expenditure	2,054	-	-	-	-	150	74	-	-	150	-
2	Other normal cap exp	372										
3	Increse in Working Cap:	1,292	170	80	-	-	-	-	-	-	-	-
4	Decrease in Term Loan	-	-	243	243	243	243	243	243	-	-	-
5	Decrease in Subordinated Loan			-	-	-						
6	Interest on term loans		87	84	69	55	40	25	11	0	0	0
7	Interest on work cap loan		47	47	47	47	47	47	47	47	47	47
8	Income Tax	-	-	-	-	-	-	91	91	90	88	85
9	Dividend	-	-	-	-	-	-	-	-	-	-	-
	Sub Total	3,718	304	453	358	344	479	479	391	137	284	131
C	**OPENING BALANCE**	-	-	156	331	706	1,169	1,570	1,951	2,404	3,095	3,621
D	**SURPLUS**	**-**	**156**	**175**	**375**	**463**	**401**	**381**	**453**	**691**	**526**	**661**
E	**CLOSING BALANCE**	**-**	**156**	**331**	**706**	**1,169**	**1,570**	**1,951**	**2,404**	**3,095**	**3,621**	**4,282**

ANNEXURE- 5													
STEEL CASTING PROJECT													
INTERNAL RATE OF RETURN ON TOTAL CAPITAL													
	Year of Operation		1	2	3	4	5	6	7	8	9	10	
No	Item	In RO '000											Remarks
A	**CASH INFLOW**												
1	Net Profit bef. Tax		-226	318	437	526	614	608	606	601	584	566	Refer Annexure - 3
2	Depreciation	0	180	180	180	180	180	180	180	180	180	180	Ref Annexure 2.7
3	Prelim Exp written off		372	0	0	0	0	0	0	0	0	0	Ref Annexure 2.7
4	Finance Cost	0	134	130	116	101	87	72	57	47	47	47	Ref Annexure 2.8
5	Salvage Value	0	0	0	0	0	0	0	0	0	0	5,675	Ref Annexure 2.7
6	Sub Total	0	460	628	733	807	880	860	844	827	810	6,468	Sum of A1 to A5
B	**CASH OUTFLOW**												
1	Capital Project expenditure	2,054	0	0	0	0	150	74	0	0	150	0	Refer Annexure - 1
2	Other normal cap exp	372	0	0	0	0	0	0	0	0	0	0	Refer Annexure - 1
3	Working Capital	1,292	170	80	0	0	0	0	0	0	0	0	Refer Annexure - 1
4	Income Tax		0	0	0	0	0	91	91	90	88	85	Refer Annexure - 3.2
5	Sub Total	3,718	170	80	0	0	150	165	91	90	238	85	Sum of B1 to B4
C	**NET CASHFLOW (AT)**	**-3,718**	**290**	**548**	**733**	**807**	**730**	**695**	**753**	**737**	**573**	**6,383**	
E	**INTERNAL RATE OF RETURN ON TOTAL INVESTMENT**										**18.7%**	%	

ANNEXURE- 6													
STEEL CASTING PROJECT													
INTERNAL RATE OF RETURN ON EQUITY CAPITAL (AFTER TAX)													
	Year of Operation	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
No	**Item**	**In RO '000**											**Remarks**
A	**CASH INFLOW**												
1	Net Profit before Tax	-	(226)	318	437	526	614	608	606	601	584	566	Refer Annexure- 3
2	Depreciation	-	180	180	180	180	180	180	180	180	180	180	Refer Annexure - 2.7
3	Prelim Exp written off	-	372	-	-	-	-	-	-	-	-	-	Refer Annexure - 2.7
4	Salvage Value	-	-	-	-	-	-	-	-	-	-	5,675	Refer Annexure - 2.7
5	Sub Total	-	326	498	618	706	794	788	787	781	764	6,421	Sum of A1 to A4
B	**CASH OUTFLOW**												
1	Equity	1,487	-	-	-	-	-	-	-	-	-	-	Refer Annexure - 1
2	Fixed Assets	-	-	-	-	-	150	74	-	-	150	-	Refer Annexure - 1
3	Working Capital	-	170	80	-	-	-	-	-	-	-	-	Refer Annexure - 1
4	Loan Instalment	-	-	243	243	243	243	243	243	-	-	-	Refer Annexure - 2.8
5	Income Tax	-	-	-	-	-	-	91	91	90	88	85	Refer Annexure - 3.1
6	Sub Total	1,487	170	323	243	243	393	407	334	90	238	85	Sum of A1 to A5
C	**NET CASHFLOW**	**(1,487)**	**156**	**175**	**375**	**463**	**401**	**381**	**453**	**691**	**526**	**6,337**	
D	**INTERNAL RATE OF RETURN ON EQUITY INVESTMENT**								**28.9%**				

ANNEXURE- 7												
STEEL CASTING PROJECT												
PROJECTED BALANCE SHEET												
	Year of Operation		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
No	**Item**	**In RO '000**										
A	**ASSETS EMPLOYED**											
1	Fixed Assets											
a	Gross Fixed Assets	2,054	2,054	2,054	2,054	2,054	2,204	2,278	2,278	2,278	2,428	2,428
b	Preliminary expenses	372	-	-	-	-	-	-	-	-	-	-
c	Acc. Depreciation	-	180	360	541	721	901	1,081	1,261	1,441	1,622	1,802
d	Net Fixed Assets	2,426	1,874	1,694	1,513	1,333	1,303	1,197	1,016	836	806	626
2	Current Assets											
a	Cash	-	156	331	706	1,169	1,570	1,951	2,404	3,095	3,621	4,282
b	Other Cur. Assets	1,292	1,462	1,542	1,542	1,542	1,542	1,542	1,542	1,542	1,542	1,542
c	Total Cur. Assets	1,292	1,618	1,873	2,248	2,711	3,112	3,493	3,946	4,637	5,163	5,824
3	Less: Cur. Liabilities	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	**3,718**	**3,492**	**3,567**	**3,762**	**4,045**	**4,415**	**4,690**	**4,962**	**5,473**	**5,969**	**6,450**
B	**FINANCED BY**											
1	Equity	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487
2	Subordinated Loan	-		-	-	-	-	-	-	-	-	-
2	Statutory reserve		-	32	76	128	189	241	293	344	393	441
3	General reserves	-	(226)	60	453	926	1,479	1,944	2,408	2,867	3,314	3,747
4	Other term loan	-	-	-	-	-	-	-	-	-	-	-
5	Institutional Finance	1,456	1,456	1,213	971	728	485	243	0	0	0	0
6	Bank Borrowings	775	775	775	775	775	775	775	775	775	775	775
	TOTAL	**3,718**	**3,492**	**3,567**	**3,762**	**4,045**	**4,415**	**4,690**	**4,962**	**5,473**	**5,969**	**6,450**

ANNEXURE- 8											
STEEL CASTING PROJECT											
RATIO ANALYSIS											
	Years of Operation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A	**COST RATIOS**										
1	R M & Consumables / Total Sales	54.5%	54.3%	53.9%	54.0%	54.1%	54.1%	54.1%	54.1%	54.1%	54.1%
2	Utilities / Total Sales	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%
3	Factory wages / Total Sales	11.8%	10.4%	9.9%	9.6%	9.3%	9.6%	9.9%	10.2%	10.5%	10.8%
4	Prime Cost / Total Sales	73.1%	71.5%	70.6%	70.4%	70.2%	70.5%	70.7%	71.0%	71.4%	71.7%
5	Factory exp. / Total Sales	2.2%	2.4%	2.3%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
6	Factory Cost / Total Sales	75.3%	73.9%	72.9%	72.6%	72.3%	72.6%	72.9%	73.2%	73.5%	73.8%
7	Administrative exp. / Total Sales	6.4%	5.5%	5.2%	4.9%	4.7%	4.9%	4.9%	5.0%	5.1%	5.1%
8	Selling exp. / Total Sales	3.9%	3.7%	3.7%	3.7%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
9	Finanace Cost / Total Sales	4.2%	3.5%	2.9%	2.4%	1.9%	1.6%	1.3%	1.0%	1.0%	1.0%
10	Non-Cash exp. /Total Sales	17.4%	4.8%	4.5%	4.2%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
11	Total Cost / Sales	107.1%	91.5%	89.1%	87.7%	86.5%	86.6%	86.6%	86.8%	87.1%	87.5%
B	**PROFITABILITY RATIOS**										
1	PBDIT / Sales	14.5%	16.9%	18.3%	18.9%	19.4%	19.0%	18.6%	18.2%	17.9%	17.5%
2	Operating profit / Sales	4.6%	8.5%	10.9%	12.3%	13.5%	13.4%	13.4%	13.2%	12.9%	12.5%
3	PAT / Sales	-7.1%	8.5%	10.9%	12.3%	13.5%	11.4%	11.4%	11.3%	10.9%	10.6%
4	PAT / Investment	-7.7%	10.8%	14.9%	17.9%	20.8%	17.6%	17.5%	17.3%	16.9%	16.4%
5	Payout Ratio	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	EPS	0	192	265	318	371	313	312	309	300	291

ANNEXURE- 9				
STEEL CASTING PROJECT				
BREAK EVEN ANALYSIS				
S.No.	**Item**	**Year 1**	**Year 6**	**Remarks**
		In RO '000		
A	**FIXED COST**			
1	Production Wages	375	434	Refer Annexure - 2
2	Factory Overhads	45	63	Refer Annexure - 2
3	Misc. Factory Exp.	24	33	Refer Annexure - 2
4	Admin. Expenses	172	186	Refer Annexure - 2
5	Sales Expenses	123	164	Refer Annexure - 2
6	Depreciation	180	180	Refer Annexure - 2
7	Prelim. Expenses written off	372	-	Refer Annexure - 2
8	Financing Cost	134	72	Refer Annexure - 2
9	Income Tax	-	91	Refer Annexure - 2
10	**Sub Total**	**1,425**	**1,223**	
B	**VARIABLE COST**			
1	Raw materials	1,540	2,182	Refer Annexure - 2
2	Utilities	218	308	Refer Annexure - 2
3	Misc. Expenses	-	-	
4	Sub Total	1,758	2,490	
C	**SALES**	3,179	4,538	Refer Annexure - 3
D	**CONTRIBUTION**	1,421	2,047	Difference C - B
E	**BREAK EVEN POINT**	100.26	59.75	As % of Production
		60.15	44.81	As % of Plant Capacity
F	**CASH BEP**	61.40	50.95	As % of Production
		36.84	38.21	As % of Plant Capacity

ANNEXURE- 10						
STEEL CASTING PROJECT						
SENSITIVITY ANALYSIS (IRR FOR 10 YEARS)						
		Projection	Change in One			
S.No.	Item	No Change	Variable at a Time			Combined
			1	2	3	
A	VARIABLE		R. M	R. M	Sales	
			Cost	Cost	Value	1 & 3
	Value- Original		1733	1733	3179	
B	PESSIMISTIC		Up	Up	Down	
	Change		5%	10%	-5%	1 & 3
	- New Value		1819	1906	3020	
C	I R R - PESSIMISTIC PROJECTION					
1	I R R on Investmer	18.72	18.13	13.69	14.07	11.55
2	I R R on Equity	28.89	24.29	19.91	20.57	16.38

ANNEXURE- 11												
STEEL CASTING PROJECT												
DEBT SERVICE COVERAGE RATIO												
	Years of Operation	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
No	**Item**	**In Dhs'000**										
1	Profit after tax		(226)	318	437	526	614	517	515	511	496	481
2	Depreciation		180	180	180	180	180	180	180	180	180	180
3	Prelimnery exp. Written off		372	-	-	-	-	-	-	-	-	-
4	Interest		134	130	116	101	87	72	57	47	47	47
5	Total		460	628	733	807	880	769	753	737	723	708
1	Annual repayment		-	243	243	243	243	243	243	-	-	-
2	Interest		134	130	116	101	87	72	57	47	47	47
3	Total		134	373	358	344	329	315	300	47	47	47
	D.S.C.R		3.44	1.68	2.05	2.35	2.67	2.44	2.51	15.86	15.54	15.22
	WT. AVERAGE D.S.C.R	2.62										