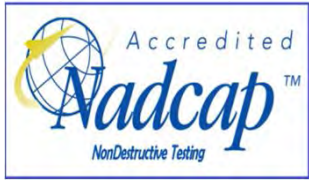


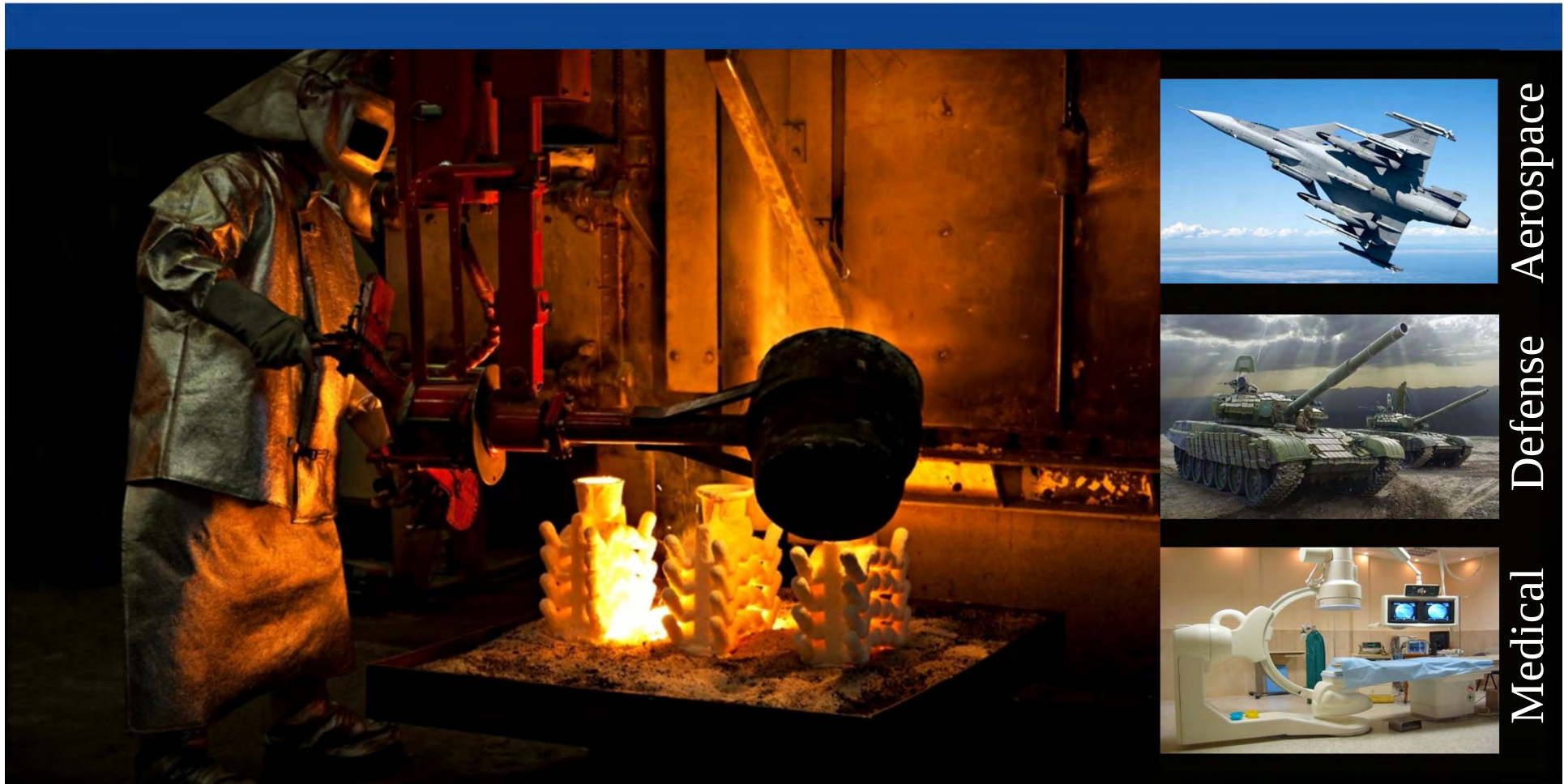


Turbo Cast (India) Pvt. Ltd.

Join India's First Indigenous Investment Casting foundry
exclusively for Aerospace, Defence & Medical application



Turbo Cast (India) Pvt.Ltd.



A World Class Investment Casting Foundry

AS9100D & Nadcap Certified Investment Casting Foundry



History

❖ 2000

Joined as Managing Director (Partner) in M/s **Inova Cast Pvt. Ltd.** (Lost Wax Investment Casting Manufacturers).

❖ 2001

Certified by **ISO 9001, P.E.D. & AD 2000 - Merkblatt W 0** from TUV Nord.

❖ 2005

We started 2nd manufacturing unit M/s **Inovative Technocast** to fulfill growing needs from our customers.

❖ 2010

We developed In-House **CNC Machine Shop** to supply ready to use quality components to our customers.

❖ 2015

We started **Turbo Cast (India) Pvt. Ltd. (Aerospace Division)** certified for AS 9100D, exclusively for Aerospace, Defense and Medical Applications.

❖ 2018

I have sold down my shares / stakes from Inova & Inovative and started Turbo Cast (India) Pvt. Ltd. (**Commercial Division**) to serve our Commercial Customers.

❖ 2019

Certified by Nadcap (NDT) , ISO 14001:2015 & ISO 45001:2018

Production Capacity and Range



Description	Aerospace Division	Commercial Division
➤ Area of Land	16,000 Meter ²	16,000 Meter ²
➤ Built up Area	8,000 Meter ²	8,000 Meter ²
➤ Max. Overall Size	600 mm x 300 mm x 200 mm	600 mm x 300 mm x 200 mm
➤ Installed Capacity	30 MT / Month	60 MT / Month
➤ Present Production	5 MT / Month	30 MT / Month
➤ Weight Range	45 Grams to 45 Kg. for Steel 15 Grams to 15 Kg. for Al.	45 Grams to 45 Kg.
➤ Min. Wall Thickness	2.00 mm for Steel 1.50 mm for Aluminum	3.00 mm
➤ Surface Roughness (Steel)	As Cast Ra 3.2 to 6.3 μm Machined Ra 0.4 μm (Min)	As Cast Ra 3.2 to 6.3 μm Machined Ra 0.4 μm (Min)
➤ Surface Roughness (Aluminum)	As Cast Ra 2.4 to 3.2 μm Machined Ra 0.6 μm (Min)	
➤ Quality Approval	AS 9100D, NADCAP (NDT), ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018	ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 P.E.D. (2014/68/EU) & AD 2000-Merkblatt W0
➤ Total Employee	40 Nos.	80 Nos.

Our Approval / Accreditation



Nadcap (NDT)



Associate Member



AS9100D



ISO 14001:2015



Member



ISO 45001:2018



P.E.D.(2014/68/EU)



ISO 9001:2015



AD 2000-Merkblatt W0

Our Road Map.....

2015

Aerospace
Division
Production
Started

2018

NADCAP in
NDT (FPI)

2019

NADCAP in
Heat
Treatment

2016

FPI System
as per
NADCAP

2018

Commercial
Division
Production
Started

2020

Vacuum
Melting
(Super
Alloy)



Casting for Universe

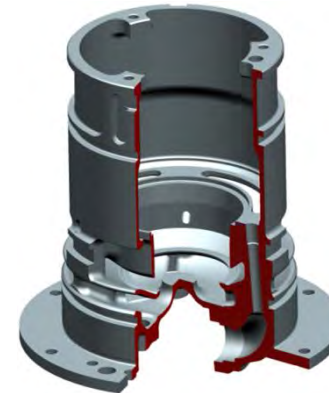
Aerospace



Material : BS L 169
Weight : 0.660 Kg
Size : Ø150 x 150 mm
Thickness : 2.00 mm minimum
Application : Air Bus Fuel Pump Part
Radiography : 100% ASTM E1742
Fluorescent Penetrant Inspection: 100%

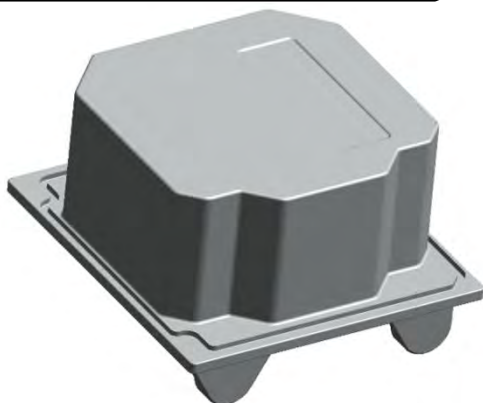


Material : AMS 4218 (A356 T6)
Weight : 0.500 Kg
Size : 100 x 100 x 100 mm
Thickness : 3.00 mm Minimum
Application : Boeing Engine Part
Radiography : 100 % ASTM E1742,
Acceptance as per AMS 2175 Grade B

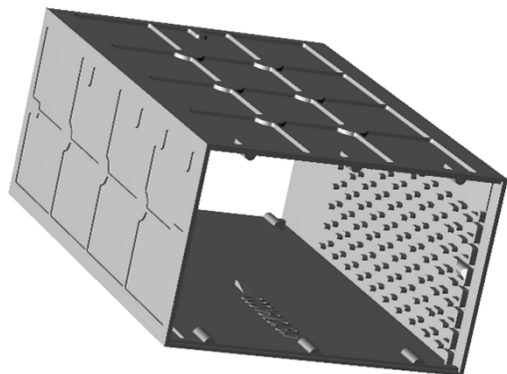


Material : L 169 (A357 T6)
Weight : 0.700 Kg
Size : 150 x 150 x 110 mm
Thickness : **2.50** mm minimum
Application : Air Bus Fuel Pump Part
Radiography : ASTM E1742,
Acceptance standard AMS 2175 Grade B

Aerospace



Material : MSRR 6527 (S.S.)
Weight : 0.100 Kg
Size : 75 x 40 x 40 mm
Thickness : 1.50 mm minimum
Application : **Jaguar Fighter Aircraft**
Radiography : 100% ASTM E1742
Fluorescent Penetrant Inspection: 100%

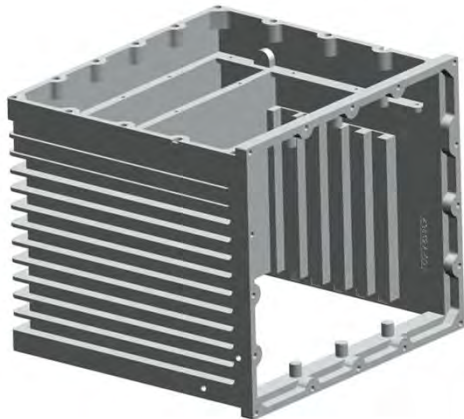


Material : AS7G03
Weight : 0.220 Kg
Size : 110 x 110x 70 mm
Thickness : 1.50 mm minimum
Application : **Advanced Light Helicopter (ALH)**
Radiography : 100% EN 12681
Fluorescent Penetrant Inspection: 100%

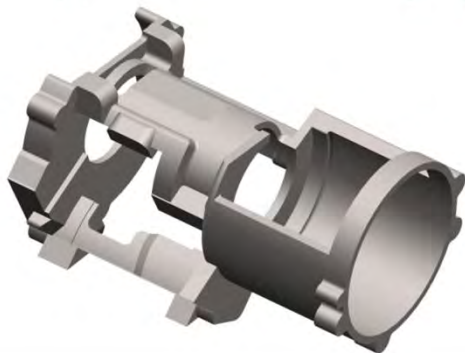


Material : AS7G03
Weight : 1.060 Kg
Size : 310 x 200 x 130 mm
Thickness : 1.50 mm minimum
Application : **Advanced Light Helicopter (ALH)**
Radiography : 100% EN 12681
Fluorescent Penetrant Inspection: 100%

Defense



Material : A356 T6
Weight : 0.100 Kg
Size : 140 x 120 x 80 mm
Thickness : 1.50 mm minimum
Application : **TIFCS (Joystick) Part**



Material : A356 T6
Weight : 5 Kg
Size : 270 x 250 x 230 mm
Thickness : 2.50 mm Minimum
Application : **TIFCS (Army Tank Part)**



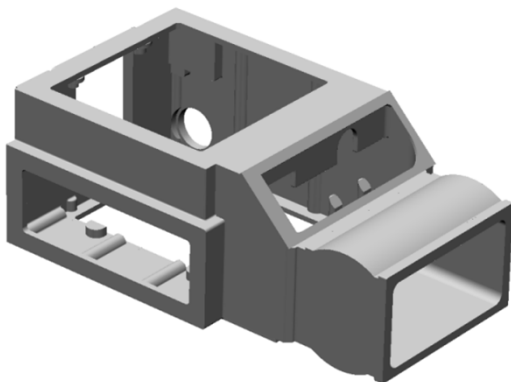
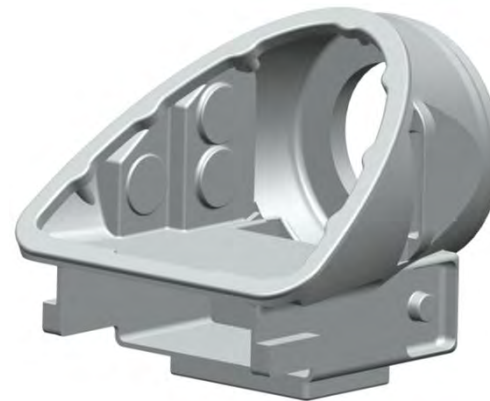
Material : 17-4 PH
Weight : 1.400 Kg
Size : 170 x 110 x 100 mm
Thickness : 2.50 mm minimum
Application : **Light Machine Gun Part**

Defense



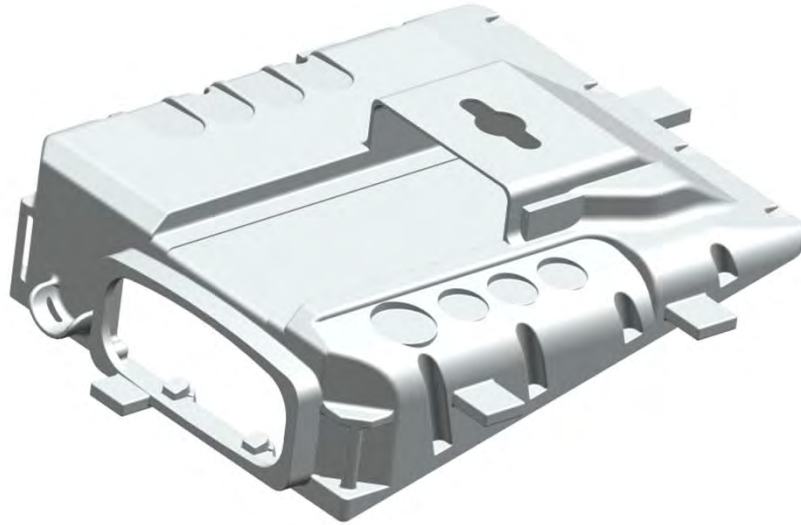
Material : A356 T6
Weight : 0.170 Kg
Size : 170 x 160 x 70 mm
Thickness : 1.50 mm Minimum

Material : A356 T6
Weight : 0.170 Kg
Size : 170 x 160 x 70 mm
Thickness : 1.50 mm Minimum
Application : **Thermal Imager Binocular**



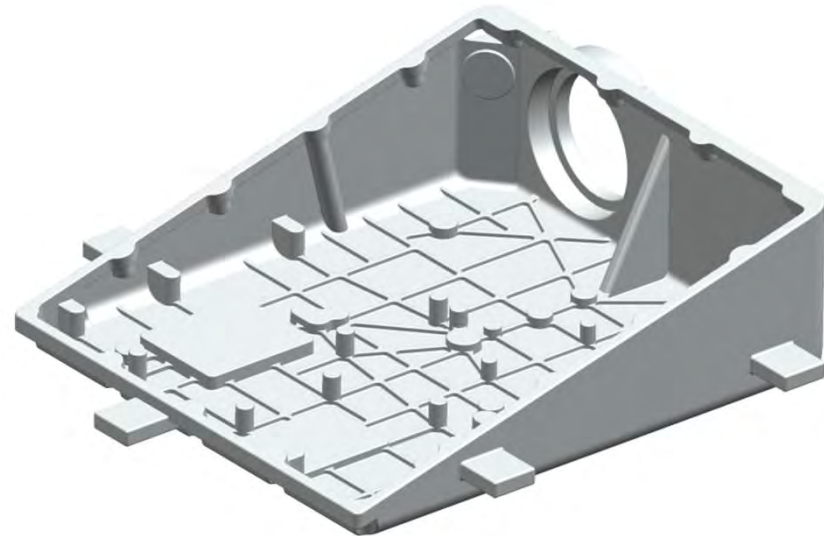
Material : A356 T6
Weight : 2.500 Kg
Size : 310 x 180 x 120 mm
Thickness : 1.50 mm minimum
Application : **T-72 Tank Housing**

Defense



Material : A356 T6
Weight : 0.670 Kg
Size : 270 x 240 x 80 mm
Thickness : 1.50 mm minimum
Application : **Thermal Imager (HHTI)**
Radiography : 2% ASTM E1742
Fluorescent Penetrant Inspection: 100%

Material : A356 T6
Weight : 0.610 Kg
Size : 270 x 240 x 100 mm
Thickness : 1.50 mm Minimum
Application : **Thermal Imager (HHTI)**
Radiography : 2% ASTM E1742
Fluorescent Penetrant Inspection: 100%

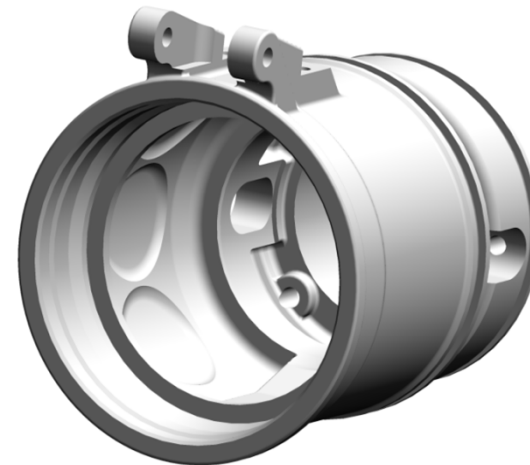


Defense



Material : LM25
Weight : 0.200 Kg
Size : 120 x 80 x 70 mm
Thickness : 2.00 mm Minimum
Application : **Defense Application**

Material : LM25
Weight : 0.080 Kg
Size : 80 x 70 x 60 mm
Thickness : 1.20 mm minimum
Application : **Defense Application**

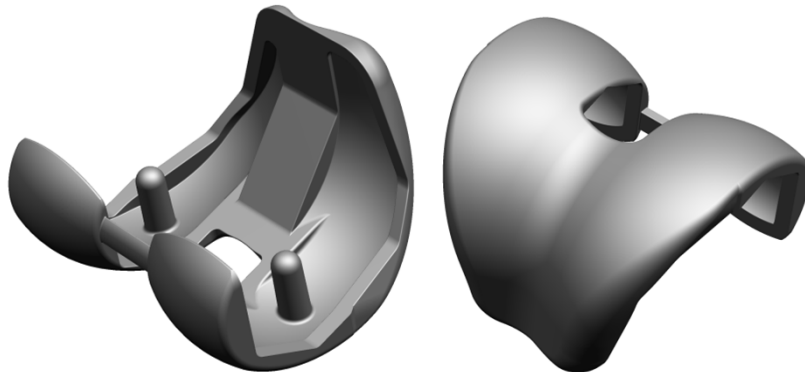


Medical



Material : AISI 316L
Weight : 0.850 Kg
Size : 200 x 110 x 80 mm
Thickness : 1.50 mm minimum

Application : **Medical Part**



Material : A356 T6
Weight : 8.000 Kg
Size : 300 x 300 x 90 mm
Thickness : 1.50 mm minimum

Application : **Medical Part**



Material : Co28Cr6Mo
Weight : 0.250 Kg
Size : 70 x 60 x 50 mm
Thickness : 2.00 mm Minimum

Application : **Knee Femoral**

Turbocharger

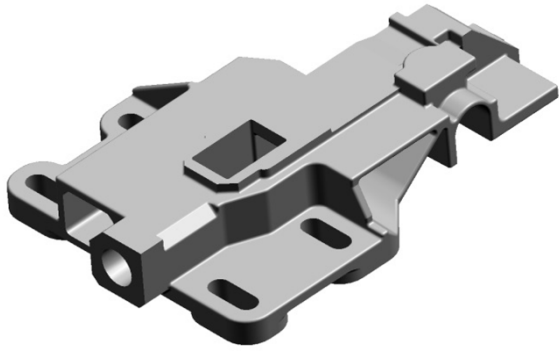


Material : Austenitic Heat Resistant Steel
Weight : 3.600 Kg
Size : 230 x 150 120 mm
Thickness : 2.50 mm Minimum
Application : **Turbo Charger Part**

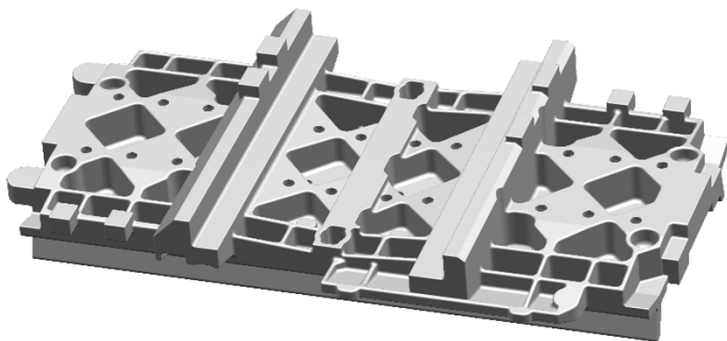
Material : AL9
Weight : 2.000 Kg
Size : 250 x 250 x 150 mm
Thickness : 3.000 mm Minimum
Application : **Turbo Charger Part**



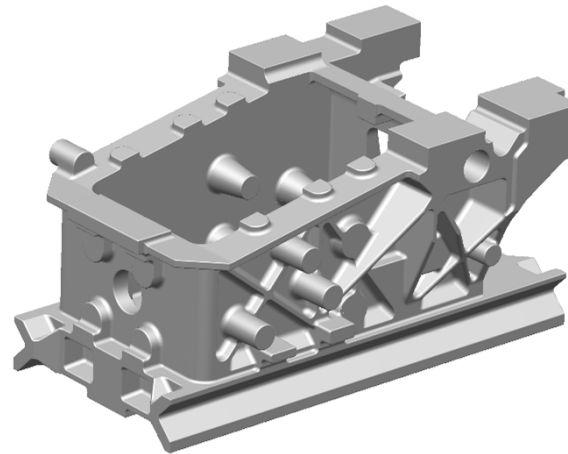
Electronics



Material : A356 T6
Weight : 1.350 Kg
Size : 170 x 100 x 90
Thickness : 2.00 mm minimum
Application : **Electronics Part**



Material : A356 T6
Weight : 0.380 Kg
Size : 180 x 120 x 40 mm
Thickness : 2.00 mm minimum
Application : **Semi-conductor Part**

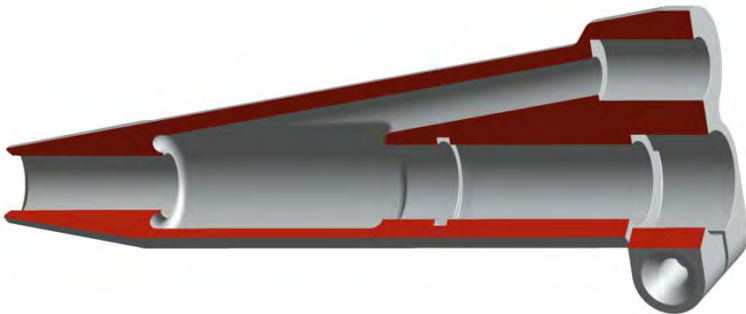


Material : A356 T6
Weight : 1.100 Kg
Size : 300 x 170 x 60 mm
Thickness : 2.00 mm minimum
Application : **Electronics Part**

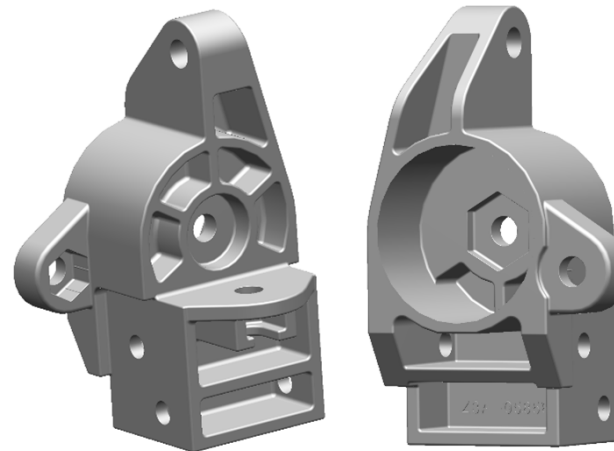
Aluminum Alloy



Material : A356 T6
Weight : 0.110Kg
Size : 90 x 60 x 50 mm
Thickness : 1.50 mm minimum
Application : **Renewable Energy**



Material : A356 T6
Weight : 0.060 Kg
Size : 70 x 50 x 40 mm
Thickness : 1.50 mm minimum
Application : **Renewable Energy**



Material : A356 T6
Weight : 0.100 Kg
Size : 140 x 50 x 20
Thickness : 2.00 mm minimum
Application : **Renewable Energy**

Nuclear Power



Material : CF8M
Weight : 1.800 Kg
Size : 100 x 100 x 80 mm
Application : **Control Instrument Part**

Material : CF8M
Weight : 0.650 Kg
Size : 80 x 70 x 30 mm
Application : **Control Instrument Part**



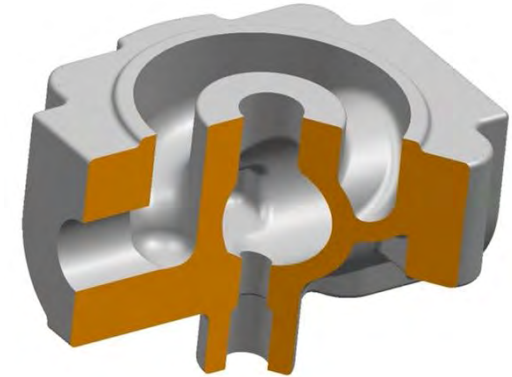
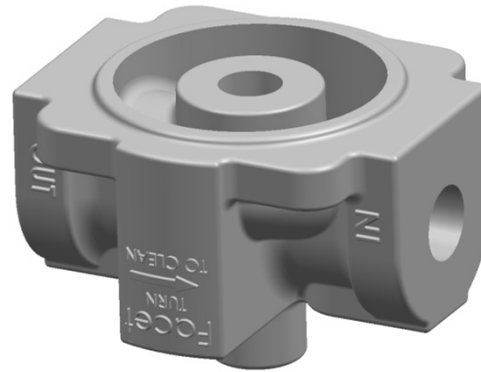
Material : CF8M
Weight : 0.490 Kg
Size : 80 x 80 x 30 mm
Application : **Control Instrument Part**



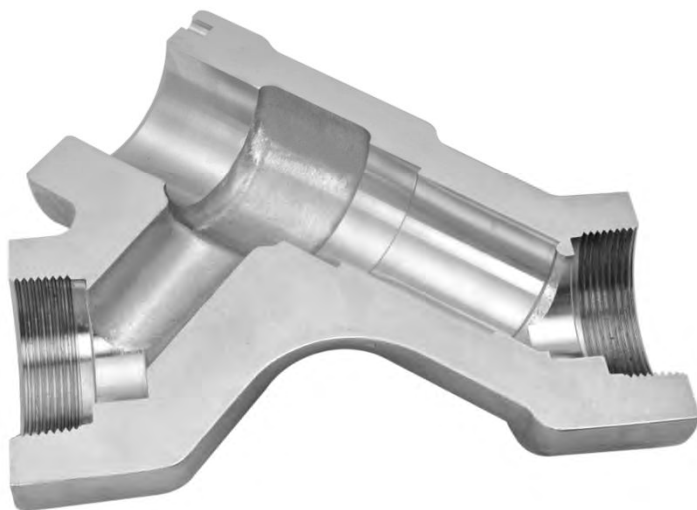
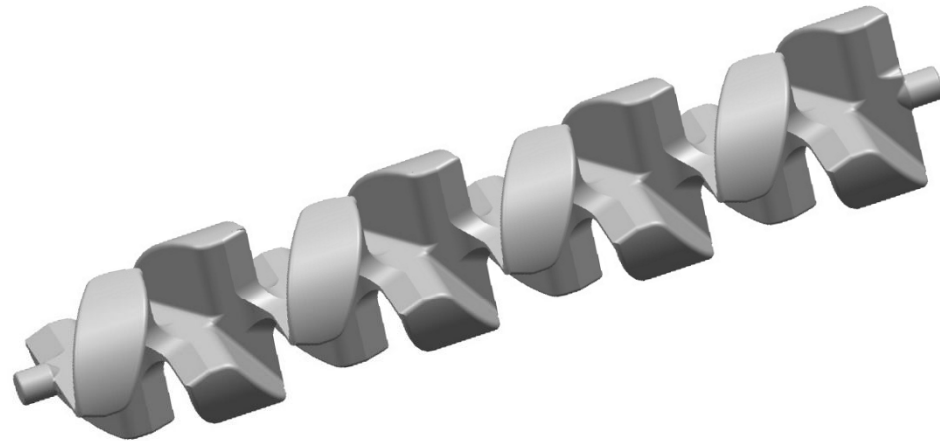
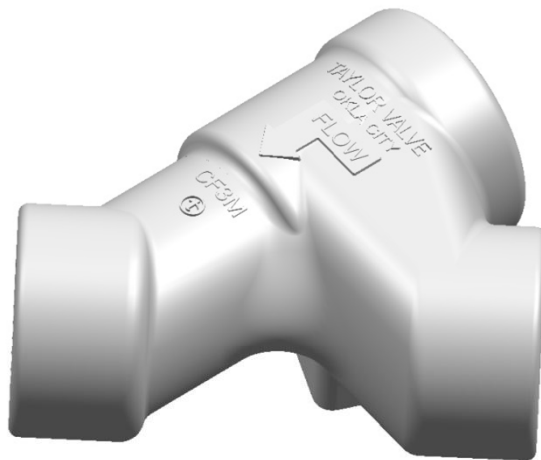
Valve Components



Valve Components



High Pressure Components



Production Facilities



CNC Machine Shop Facility

Turbo Cast (India) Pvt. Ltd.



Sr. No.	Machine Type	Specification (MM)	Axis	Make
1	CNC Turn Mill Center	Dia. 200 & Length 500	2 Axis	DMG
2	CNC Turning Center	Dia. 200 & Length 500	2 Axis	JYOTI
3	CNC Turning Center	Dia. 300 & Length 700	2 Axis	LMW
4	CNC Turning Center	Dia. 200 & Length 500	2 Axis	LMW
5	CNC Turning Center	Dia. 300 & Length 700	2 Axis	LMW
6	CNC Turning Center	Dia. 300 & Length 700	2 Axis	LMW
7	CNC Turning Center	Dia.400 & Length.700	2 Axis	LMW
8	CNC Vertical Machining Center	X=600, Y=400, Z=400	3 Axis + 1 Axis (Rotary Table)	JYOTI
9	CNC Vertical Machining Center	X=1000, Y=500, Z=500	3 Axis	JYOTI
10	CNC Vertical Machining Center	X=800, Y=500, Z=500	3 Axis + 2 Axis (Rotary Table)	JYOTI
11	CNC Vertical Machining Center	X=600, Y=400, Z=500	3 Axis	LMW
12	CNC Vertical Machining Center	X=600, Y=400, Z=400	3 Axis + 1 Axis (Rotary Table)	BFW
13	CNC Vertical Machining Center	X=800, Y=500, Z=500	3 Axis + 1 Axis (Rotary Table)	JYOTI
14	CNC Vertical Machining Center	X=800, Y=500, Z=500	3 Axis + 1 Axis (Rotary Table)	JYOTI
15	CNC Vertical Machining Center	X=800, Y=500, Z=500	3 Axis	JYOTI

Surface Treatment

Turbo Cast (India) Pvt. Ltd.

Turbo owns a variety of surface treatment methods and facilities.



Electro Polishing



Tumble Blasting



Sand Blasting



Pickling & Passivation

In House



Powder Coating



Phosphating



Blackening



Painting

Out Sourced



Zinc Coating



Mirror Polishing



Anodizing



Chromate Conversion

Special Techniques



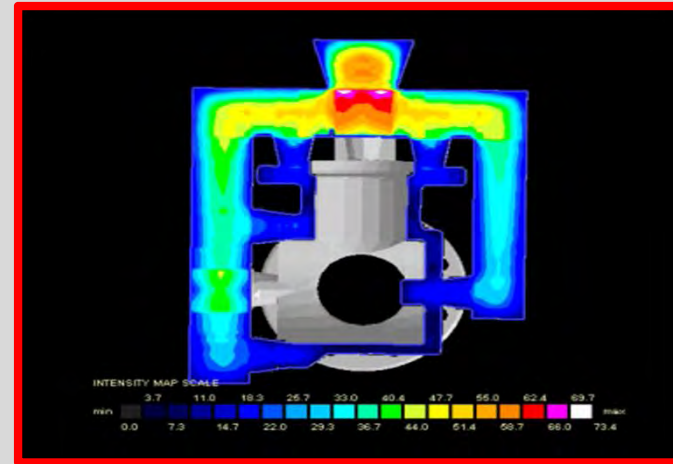
Special Techniques Enable Turbo Cast to Be Competent with Those Difficulties at Wax Injection stage When Mfg the Parts with Inner-Sophisticated-Structures.

In House

Soluble Wax Core



Simulation



Special Techniques



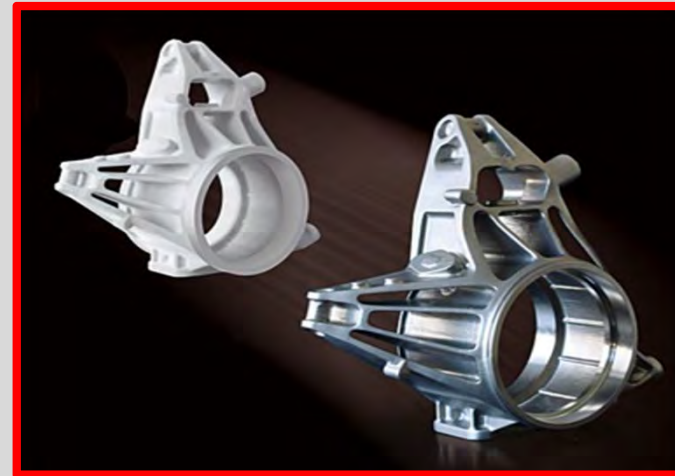
Special Techniques Enable Turbo Cast to Be Competent during Wax Pattern Development Without Tooling & with Those Difficulties at Shell Making stage When Mfg the Parts with Inner-Sophisticated-Structures.

Out Sourced

Ceramic Core



Rapid Proto Typing



Testing & Inspection Facilities

Turbo Cast (India) Pvt. Ltd.



Hardness Tester



CMM (700x1000x600)



U.T.M.



Impact Machine



Metallurgical Microscope



Spectrometer
(Spectro GmbH)

NDT Facility

Turbo Cast (India) Pvt. Ltd.

➤ 1) **FPI** (Fluorescent Penetrant Inspection)

- Semi Automatic System as per NADCAP Requirement

➤ 2) **MPI** (Magnetic Particle Inspection)

- Prod Type Magnetic Particle Testing Machine

In House

➤ 3) **Radiography Testing**

NABL Approved (Local)

- ISO/ IEC 17025: 2005 Certified
- ASNT Person Qualification

NADCAP Appd. (Bangalore)

- AC7004 Certified
- NAS 410 Person Qualification

Out Sourced

Heat Treatment Facility

Turbo Cast (India) Pvt. Ltd.

- Normalizing

- Annealing

- Solution Annealing

- Tempering

- Precipitation Hardening

- Hardening

In House

- Drop bottom type Heat treatment Furnace for Alloy

- Water Quenching & Polyalkylene Glycol Quenchant Solution

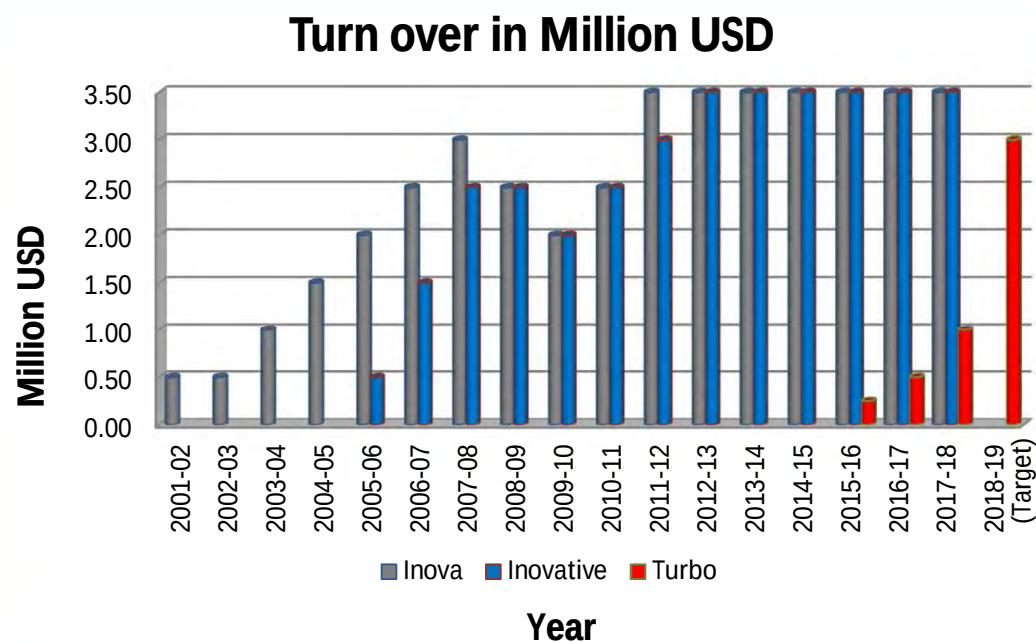
In House
From 2019

- NADCAP Approved (Bangalore)

- Hardening / Oil Quenching (Local)

Out Sourced

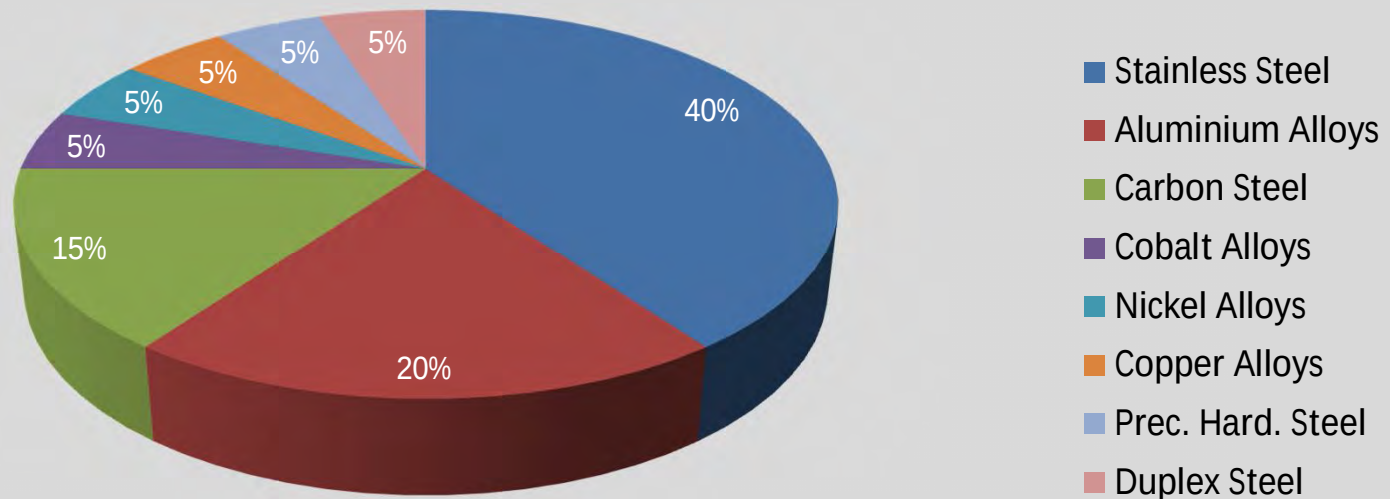
Turnover in the Last years



2001-02	\$ 0.50 M	▲
2002-03	\$ 0.50 M	▲
2003-04	\$ 1.00 M	▲
2004-05	\$ 1.50 M	▲
2005-06	\$ 2.50 M	▲ ▲
2006-07	\$ 4.00 M	▲ ▲
2007-08	\$ 5.50 M	▲ ▲
2008-09	\$ 5.00 M	▲ ▲
2009-10	\$ 4.00 M	▲ ▲
2010-11	\$ 5.00 M	▲ ▲
2011-12	\$ 6.50 M	▲ ▲
2012-13	\$ 7.00 M	▲ ▲
2013-14	\$ 7.00 M	▲ ▲
2014-15	\$ 7.00 M	▲ ▲
2015-16	\$ 7.00 M	▲ ▲ ■
2016-17	\$ 7.00 M	▲ ▲ ■
2017-18	\$ 8.00 M	▲ ▲ ■
2018-19	\$ 3.00 M	■

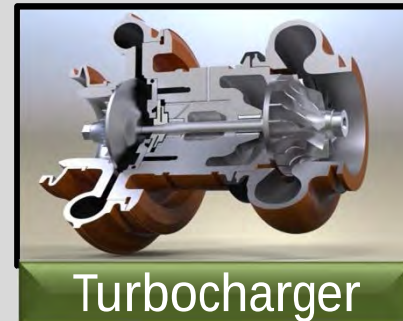
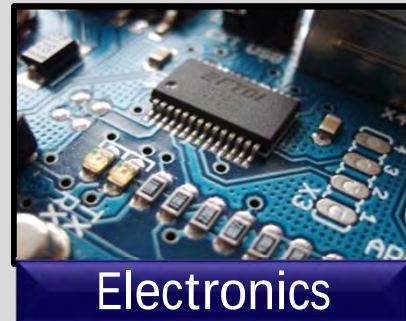
Alloy of Products

Turbo Cast (India) Pvt.Ltd.

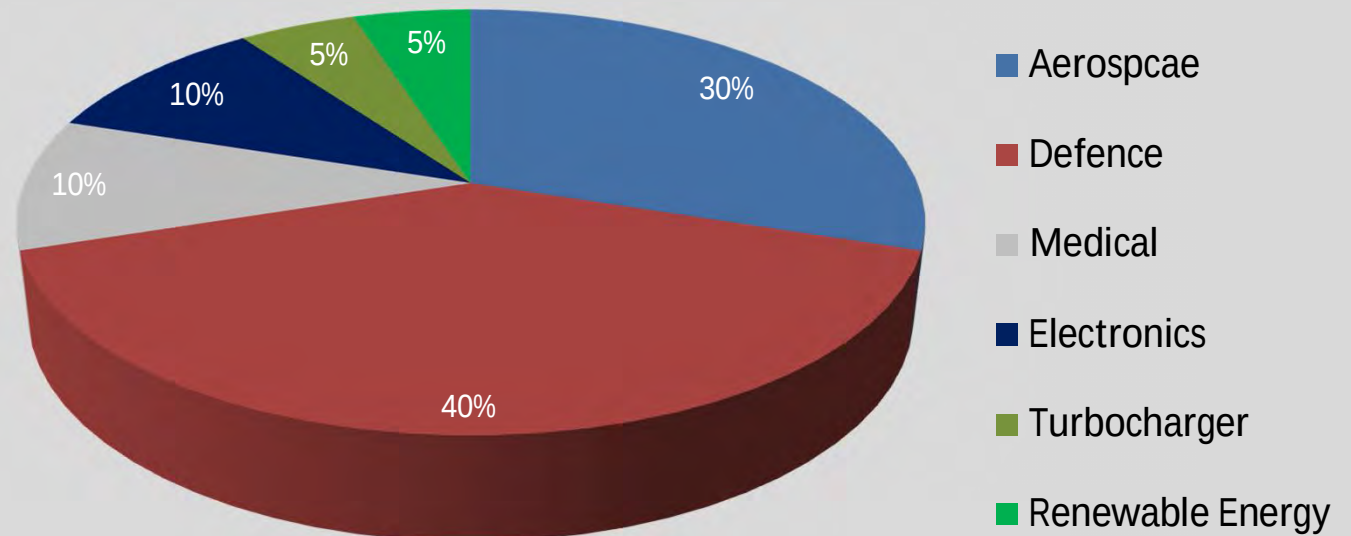


➤ Stainless Steel	1.4408, 1.4581, CK3MCuN, CN7M, CH-20, CF3M, MSRR 6527, etc.
➤ Aluminum Alloys	A201, A356, A357,359, C355, L169, ADC12, AlSi7Mg0.3, etc.
➤ Low Alloy Steel	WCB, WCC, LCB, LCC, WC6, 1.0619, 1.6220, 1.7744.5, Gr. A2, GG20, etc.
➤ Cobalt Alloys	Stellite-6, Stellite-12, Co28Cr6Mo, etc.
➤ Nickel Alloys	CW12MW, CZ-100, M35-1, CW6MC, CU5MCuC, N12MV, Inconel, etc.
➤ Copper Alloys	Aluminum Bronze, Tin Bronze, Phosphorus Bronze, etc.
➤ Prec. Hard. Steel	17-4PH, 15-5 PH, etc.
➤ Duplex Steel	Gr.1B (CD4MCuN), Gr.3A, Gr.4A, Gr.5A, Gr.6A, etc.

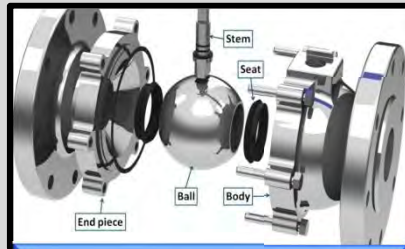
Industry Catered



Aerospace Division



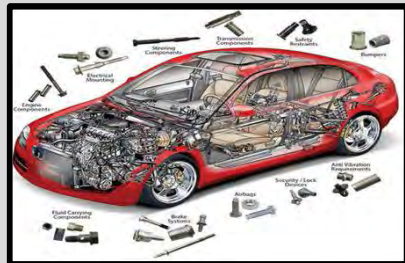
Industry Catered



Valve



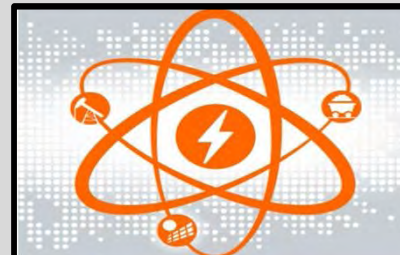
Pump



Automobile



Marine

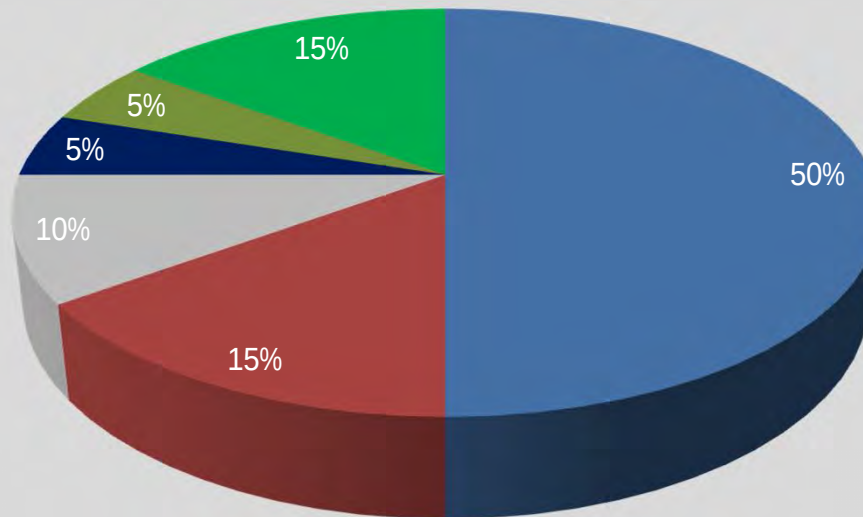


Nuclear



General Engg.

Commercial Division



- Valve
- Pump
- Automobile
- Marine
- Nuclear
- General Engg.

Quality Accreditation Certificates



AS 9100D Certificate



ISO 9001 Certificate

Quality Accreditation Certificates



CERTIFICATE

The TÜV NORD Systems GmbH & Co. KG
certifies that the company

Turbo Cast (India) Pvt. Ltd.
Survey No. 21, Village: Biliyala
Rajkot - Gondal National Highway
Rajkot - 360 311, Gujarat, India

has been verified and recognized as material manufacturer according to

AD 2000-Merkblatt W0

Certificate-No.: 07/203/1409/WP/2191/17
File No.: 811 534 3016 / SEI-1189/17

Production site: **See Above**

The scope of approval is available in the annex "scope of approval".

The company fulfils the following essential requirements:
Facilities for appropriate manufacturing and testing, appropriate procedures for manufacturing of the products, qualified personnel for manufacturing and testing of the products and a quality management system with appropriate records which ensures proper manufacture of the products as well as compliance with the requirements specified in the material specification.

This certificate is valid until

October 2020

Essen, 26.10.2017

Annex: Scope of approval

Region: Essen
Langemarkstr. 20,
45141 Essen

Tel: +49-(0) 201-825-2722
Fax: +49-(0) 201-825-2858
e-mail: dniekamp@tuev-nord.de


Niekamp
TÜV NORD Systems GmbH & Co. KG,
Große Bahnstraße 31, 22525 Hamburg, Germany

STW-ZE-AD2000-W0-Zertifikat-FB-320_ENG_Rev 07_2017-04

AD 2000-Merkblatt W0



CERTIFICATE

Quality-Assurance System for material manufacturer
according to Pressure Equipment Directive 2014/68/EU

Certificate no.: 07/202/1409/WZ/2191/17

Name and address of the manufacturer: **Turbo Cast (India) Pvt. Ltd.**
Survey No. 21, Village: Biliyala
Rajkot - Gondal National Highway
Rajkot - 360 311, Gujarat, India

Herewith we certify that the manufacturer has established and applies a **quality-assurance system related to the material**. This QA System has been subjected to a specific assessment acc. to directive 2014/68/EU, annex I, point 4.3 with regard to the materials mentioned in the scope of approval.

Approved acc. to directive 2014/68/EU: **QA-System in relation to materials, EN 764-5, section 4.2 and AD2000-Merkblatt W0**

Certification file no.: **811 534 3016**

Audit report file no.: **811 511 1245 (TN India)**

Scope of approval: **Manufacturer & Supply of Investment Castings**
(product / material)

Production site: **Survey No. 21, Village: Biliyala, Rajkot-Gondal National Highway, Rajkot - 360 311, Gujarat, India**

The certificate is valid until: **October 2020**

Only valid in conjunction with a valid certificate acc. to EN ISO 9001:

Essen, 26.10.2017

Annex: scope of approval

Region: Essen
Langemarkstr. 20
45141 Essen, Germany

Phone: +49-(0) 201-825-2722
Fax: +49-(0) 201-825-2858
e-mail: dniekamp@tuev-nord.de

Member of


Niekamp
TÜV NORD Systems GmbH & Co. KG,
Große Bahnstraße 31, D-22525 Hamburg


COMMISSION EUROPEENNE DES CONTRÔLES

Certificate QA material manufacturer_PED eng_Rev 2/03 17

P.E.D. (2014/68/EU)

Customer Appreciation Letter



BEL, Chennai - 2015



KUN Aerospace - 2015

Our Valued Customers

Aerospace Division



Our Valued Customers

Commercial Division



Our Business Divisions

 **turbo** Cast (India) Pvt. Ltd.

Aerospace Division

- Aerospace Application
- Defense Application
- Medical Application
- Electronics Application
- Turbo Charger Application



Commercial Division

- Automobile Application
- Marine Application
- Nuclear Application
- Renewable Energy
- Valve Application





Thank you

Turbo Cast (India) Pvt. Ltd.

Address

Survey No. 21, Village :- Biliyala, Rajkot - Gondal National Highway,
B/h Pan Agri Export, Rajkot - 360311, Gujarat, India

Cell No.

+91 – 9825 107090

E-mail

info@turbo-cast.com

Website

www.turbo-cast.com