

CLIENTS



PONGSAN

LOCATIONS



CERTIFICATIONS

ISO 9001
AS 9100
PED
OSHAS 18001
ISO 13485
ISO 17025

Wachon Factory

Vacuum melting
Casting
Open die forging



Deokchon Factory

Machining
Overlay welding



Sowol Factory

Radial forging
Rolling
Extrusion



Sangam Factory

Ring Rolling



KPC Metal

Address. » 249 Wacheonseo-gil, Wachon-myeon Gyeongsan-si, Gyeongsangbuk-do, 38412, South Korea
Tel. » 82-53-850-9200
Fax. » 82-53-853-6386
E-mail » kpcm@kpccorp.co.kr
URL » www.kpctitanium.com / www.kpcmmetal.co.kr

VELOX

Forged Round Bar

Address. » 22 Geumsong-ro 87-gil, Gyeongsan-si, Gyeongsangbuk-do, 38412, South Korea
Tel. » 82-53-853-8877
Fax. » 82-53-964-3398
URL » www.velox.co.kr

KPC

Automated ball valve

Main office & factory

Address. » 8 Ansim-ro 59 gil, Dong-gu, Daegu, 41081, South Korea
Tel. » 82-53-960-1500
Fax. » 82-53-963-6386
URL » www.kpccorp.co.kr

Seoul office

Address. » 13F, Dongwha Bldg, 106 Seosomun-ro, Jung-gu, Seoul, 04513, South Korea
Tel. » 82-2-2637-9188
Fax. » 82-2-2637-9118



AEROSPACE & DEFENSE



KPC Metal Co., Ltd.
The Integrated Solution

KPC METAL CO. LTD. (KPCM) IS

Korea's leading company in production and supply of titanium- and nickel-alloys and other super alloys for critical engineering. Founded in 1977, we have 40 years of experience supplying the alloys for industries that are required to perform in challenging environments. We offer an integrated solution to our customers by producing these materials in our in-house facilities including VIM, ESR, VAR, extrusion press, rolling mill, forging press and radial forging machines. This enables us to meet the specific requirements of our customers in the aerospace and defense industries. Currently we supply components for space launch vehicle, missile and submarine and tooling and press die material for commercial aircraft. To satisfy our valued customers in always changing global business environment, we make constant efforts for quality assurance and development of advanced materials.

COMPANY HISTORY

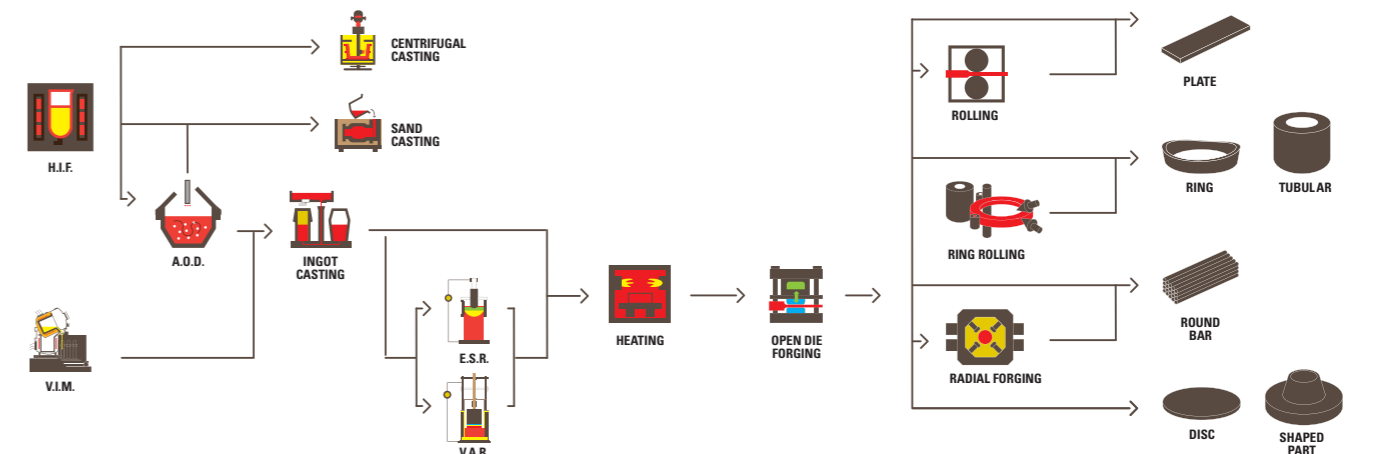
- 1977. 10. Established Korea Precision Casting Co.
- 1982. 03. Started Ball Valve Division
- 1987. 09. Started Special Alloy Casting & Forging
- 1988. 06. Started Vacuum Arc Re-melting Division
- 1997. 12. Started Titanium Casting & Forging
- 1998. 08. Reactive Metal Research Institute Registered
- 2004. 03. Operated Wachon 1st Factory (Vacuum Melting, Open Die Forging)
- 2006. 11. Operated Deokchon Factory (Machining, Welding)
- 2007. 05. Operated Sowol 1st & 2nd Factory (Rolling Mill, Extrusion, Radial Forging, Centrifugal Casting)
- 2010. 12. KPC Metal Co., Ltd. Spun off from KPC Corporation
- 2015. 10. Awarded the Gold Tower Order of Industrial Service Merit from the Korean Government

Our strength and competitiveness come from a vertically integrated production process, allowing us cost-saving, better quality control and responsive delivery time for our customers.

OUR MATERIAL LIST FOR AEROSPACE & DEFENSE SECTORS

Material	Chemical Composition	Mechanical Properties	Characteristics	A&D Applications
Ti 6AL-4V	Al 6%, V 4%, Fe (Max 0.25%), O (Max 0.2%), Ti (balance)	Tensile Strength, 895 MPa Yield Strength, 828 MPa	High strength and toughness; light weight and superb corrosion resistance; the ability to withstand extreme temperatures	Aircraft turbine engine components, aircraft structural components, aerospace fasteners, high-performance automotive parts, marine application, combat vehicle armour.
Inconel 625	Ni 65.5%, Cr 22%, Mo 9%, Nb 3.5%	Tensile Strength, 830 MPa Yield Strength, 415 MPa	High strength, outstanding corrosion and oxidation resistance; high creep-rupture strength; oxidation resistant to 1800°F; seawater pitting and crevice corrosion resistant; immune to chloride ion stress corrosion cracking; non-magnetic	Various uses in the aerospace, petrochemical and chemical industries. Used for its high heat performance and corrosion resisting metals. Aerospace applications include aircraft ducting systems, aerospace Jet engine exhaust systems and engine thrust-reverser systems. Also used for offshore engineering, marine, thermal-processing, specialized seawater equipment and chemical process equipment.
Inconel 718	Ni 53%, Cr 19%, Fe 18%, Mo 3%, Nb 5%, Ti 1%	Tensile Strength, 1275 MPa Yield Strength, 1034 MPa	High strength age-hardenable alloy with good corrosion resistance at high and low temperatures	Offshore and marine engineering, drilling equipment, pumps and valves
Invar 36	Ni 36%, Fe (balance)	Tensile Strength, 462 MPa Yield Strength, 261 MPa	Alloy with lowest coefficient of thermal expansion from cryogenic temperature to about 200°C [390°F]	Tooling for aerospace composites, standards of length, measuring tapes and gauges, precision components as well as the low expansion component in bi-metal strip, in cryogenic engineering and for laser components.
Al 7050	Zn 6%, Mg 2.5%, Cu 2.3%, Zr 0.1%, Al (balance)	Tensile Strength, 530 MPa(T6) Yield Strength, 455 MPa(T6)	Al 7050 is the premier choice for aerospace applications requiring the best combination of strength, stress corrosion cracking (SCC) resistance and toughness. It exhibits better toughness/corrosion resistance characteristics than alloy 7075	Mainly used for aircraft structural parts such as rivets and bolts.
Al 7175	Zn 5.6%, Mg 2.5%, Cu 1.6%, Cr 0.23%, Al (balance)	Tensile Strength, 503 MPa(T74) Yield Strength, 434 MPa(T74)	Al 7050 is a high strength, heat treatable, forging alloy. High toughness and tensile strength; good machinability; average anodisation; acceptable resistance to atmospheric corrosion. Welding can be applied by the resistance welding process.	Typical applications include machined fittings as used in the aircraft industry.
Maraging Steel (C250)	Ni 18%, Co 8%, Mo 5%, Ti 0.4%, Al 0.1%	Tensile Strength, 1760 MPa Yield Strength, 1725 MPa	Excellent properties, workability and heat treatment characteristics. High yield and ultimate tensile strengths; high toughness, ductility and impact strengths; high fatigue strength, high compressive strength, hardness and wear resistance sufficient for many tooling applications	Critical parts in aerospace, structural, component and tooling applications. Widely used for missile and rocket motor cases, landing and takeoff gear, munitions, aerospace, extrusion tooling, die casting, high performance shafting, gears and fasteners
Maraging Steel (T250)	Ni 19%, Mo 3%, Ti 1.4%, Al 0.1%	Tensile Strength, 1760 MPa Yield Strength, 1726 MPa	High yield and ultimate tensile strengths; High toughness, ductility and impact strengths; High fatigue strength, high compressive strength, hardness and wear resistance; Sufficient for many tooling applications	Critical parts in aerospace, structural, component and tooling applications. Widely used for missile and rocket motor cases, landing and takeoff gear, munitions, aerospace, extrusion tooling, die casting, high performance shafting, gears and fasteners
15-5PH	Cr 15%, Ni 5%, Cu 4%, Fe (balance)	Tensile Strength, 1070 MPa(H1025) Yield Strength, 1000 MPa(H1025)	Good mechanical properties at temperatures up to 600°F (316°C) Excellent longitudinal and transverse toughness Good in corrosive and high-pressure environments Equivalent weldability to 17-4 PH with greater toughness Low temperature hardening	Because of these outstanding characteristics, 15-5 PH is used to create gears, shafts, fittings, valves, cylinders, engine parts, and fasteners for a wide range of industries including aerospace, petrochemical and chemical.
17-4PH (SUS630)	Cr 16%, Ni 4.5%, Cu 3.5%, Fe (balance)	Tensile Strength, 1069 MPa(H1025) Yield Strength, 1000 MPa(H1025)	Good resistance to stress corrosion cracking in the lower strength conditions; high strength, good corrosion resistance, good mechanical properties at temperatures up to 600°F (316°C), good toughness in both base metal and welds and short time, low-temperature heat treatments that minimize warpage and scaling.	Used for aerospace fasteners, chemical processing equipment, oil and petroleum refining equipment and nuclear components. General metalworking applications that call for precipitation-hardening stainless steel.
D6AC	Mo 1%, Mn 0.7%, Ni 0.5%, C 0.45%, V 0.1%, Fe (balance)	Tensile Strength, 1590 MPa Yield Strength, 1310 MPa	High room and elevated temperature strength; High notch tolerance. Thermal expansion coefficients compatible with low alloy steel turbine casing materials. Lower design and operating risks.	Widely used in the field of ship, vehicle, airplane, guided missile, weapons, railway, bridges, pressure vessel, machine tools, mechanical components with a bigger sectional size. Examples are mechanical gears, gear shaft, main axis, valve rod, connecting rod, bolt and nut.

OUR MANUFACTURING PROCESS



Space Launch Vehicle



> Forged Bar

- Material** » Ti-6Al-4V
- Specification** » AMS 4928
- Manufacturing Process** » Double Melting (VAR + VAR) – Forging – H.T. – Machining
- Usage** » Combustion Tube Nozzle



> Shape Forging

- Material** » F316L
- Specification** » ASTM A182
- Manufacturing Process** » Melting – Forging – Shape Forging – H.T.
- Usage** » Liquid Fuel Burner



- Material** » Duplex
- Specification** » JIS G4303 SUS329J1
- Manufacturing Process** » Melting – Forging – Shape Forging – H.T.
- Usage** » Liquid Fuel Burner



- Material** » Cr-Cu
- Manufacturing Process** » Melting – Forging – Shape Forging – H.T.
- Usage** » Liquid Fuel Burner



> Forged Ring

- Material** » Al7175 & Al7050
- Specification** » AMS 4131 & AMS 4149
- Manufacturing Process** » Melting – Forging – Ring Forging – Ring Milling – H.T.
- Usage** » Skirty & Cylinder

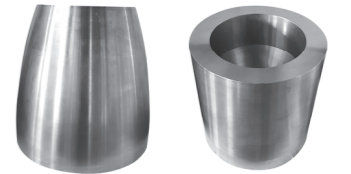


Missile



> Shape Forging

- Material** » Ti-6Al-4V
- Specification** » AMS 4928
- Manufacturing Process** » Double Melting (VAR + VAR) – Forging – H.T. – Machining
- Usage** » Missile Body, Cover & Warhead



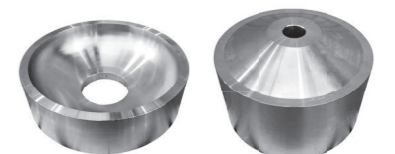
- Material** » Maraging C250 & T250
- Specification** » AMS 6512 & AMS 6519
- Manufacturing Process** » Double Melting (VIM + VAR) – Forging – H.T. – Machining – (Back Extrusion – Flow Forming)
- Usage** » Missile Warhead



- Material** » Maraging Steel C250 & T250
- Specification** » AMS 6512 & AMS 6519
- Manufacturing Process** » Double Melting (VIM + VAR) – Forging – H.T. – Machining – (Back Extrusion – Flow Forming)
- Usage** » Missile Case



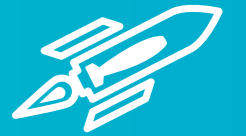
- Material** » D6AC
- Specification** » AMS 6431M
- Manufacturing Process** » Melting (VAR) – Forging – H.T. – Machining – (Back Extrusion – Flow Forming)
- Usage** » Front Cover, Rear Cover, Case



Commercial Aircraft

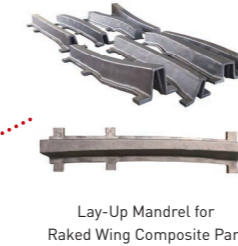
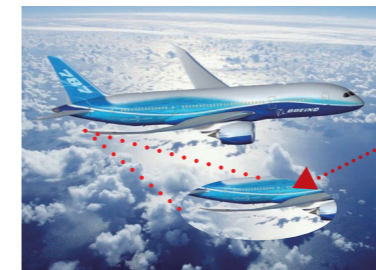


Aero Engine



> Casting

- Material** » Invar 36
- Specification** » Boeing D33028-2
- Manufacturing Process** » Molding – Melting – H.T. – Shot Blast
- Usage** » Lay-up Mandrel for Raked Wing Composite Part



> Forging

- Material** » Duplex, Inconel 625 & 718
- Specification** » AMS 5662/5663/5666 & AMS A276
- Manufacturing Process** » Melting – Forging – (Ring Forging) – H.T. – Machining
- Usage** » Turbo Pump

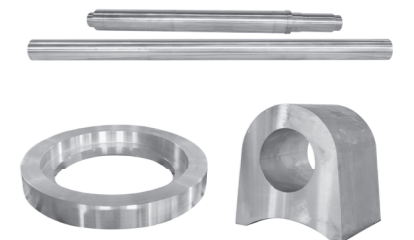


Submarine



> Forging

- Material** » 1.4313 (F6NM)
- Specification** » UNS S41500
- Manufacturing Process** » Melting (VAR) – Forging – H.T. – Machining
- Usage** » Shaft, Setting Ring & Bearing



> Forging

- Material** » 1.4462 (F51)
- Specification** » UNS S31803
- Manufacturing Process** » Melting (ESR or AOD) – Forging – H.T. – Machining
- Usage** » Shaft, Radar, ESM Mast FDN, Bearing, Blank, etc.



Good material is key to good product performance. We produce our ingots through vacuum melting processes – VIM and VAR – to ensure superior purity and homogeneity that are required by aerospace and defense industries.