UltraFlex POWER TECHNOLOGIES

JEWELRY CASTING AND MELTING SYSTEMS

OVERVIEW

Ultraflex Power Technologies designs and manufactures world-class induction heating and melting equipment for various industries and applications. In addition, we provide a wide range of services including laboratory process development, preventative maintenance, OEM systems, equipment repair and parts, integration, and installation services.

INDUCTION HEATING SYSTEMS

Versatile and reliable power supplies specifically designed to be utilized by induction heating integrators and solution providers, our induction heating systems offer a low-cost and reliable alternative to the costly or outdated custom power supplies used by many companies.

Available in models up to 200kW and different frequency ranges – all are ideal for heat treating, bonding, annealing, hardening, brazing, sealing, melting, crystal growing, soldering, tempering, shrink fitting, sucseptor heating, and more. Ultraflex offers OEM modules and customizable versions of our products to meet any specific needs of our customers.

CASTING AND MELTING SYSTEMS

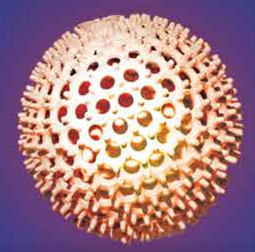
We offer a wide variety of casting machines for all metals and alloys, precious and non-precious, including titanium. Available models for centrifugal, pressure and vacuum casting – all ideal for use in Dental Laboratories, Jewelry Production and Industry.

Induction melting furnaces for precious and non-precious metals with melting capacity up to 40 kg of gold. Ultraflex's Casting and Melting Systems are very reliable and efficient, designed in accordance with all European regulations to ensure safe operation.

Our team is dedicated to perfection, continuous innovation, excellent customer support and high quality.

HEADQUARTERS

158-2 Remington Blvd
Ronkonkoma, New York 11779
Tel: 631.467.6814
sales@ultraflexpower.com



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JEWELRY CASTING AND MELTING SYSTEMS

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JEWELRY CASTING AND MELTING SYSTEMS

Ultraflex Power Technologies, Inc is a world leader in design and manufacturing of jewelry and dental induction casting machines.

Our team is focused on every aspect of customer relations, starting from the raw idea, working closely through the design and finally testing and delivering state of the art casting equipment, sold through a worldwide network of distributors and system integrators.

In July 2010, Ultraflex acquired the assets of SEIT Elettronica - Italy, induction casting and melting machines division. By transferring induction casting technology and know-how from SEIT, Ultraflex expanded its presence in the worldwide market of casting and melting systems for dental and jewelry applications.

With its ISO-9001 certified design and manufacturing facilities in USA and Bulgaria, the company has the talent and the best available technology necessary to support its customer base. Our Technical Support Team takes pride in providing excellent support and assistance for our customers and partners. All of our products are designed with a focus on high quality, reliability and ease of use.

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JEWELRY CASTING AND MELTING SYSTEMS

CASTING MACHINES





● g	page 3 EASYCAST SERIES				page 4 SUPERCAST SERIES		page 5 CS SERIES			page 6 ULTRACAST	page 7 PRESSCAST	
	EC11	EC11T	EC11V	EC12	SC J4	SC J5	CS1	CS2	CS3	UC J	PC 3	PC 5
GOLD*		150			170	170	290	650	1300	170	3000	5000
PLATINUM		140			200	200	350	750	1000	○	○	○
SILVER		80			90	90	150	350	700	90	1600	2700
BRASS		75			75	75	150	300	600	75	1200	2000
ST. STEEL		55			100	100	170	260	320	○	○	○
COPPER		75			75	75	130	300	500	80	1400	2300
TITANIUM		○			○	80	○	○	○	○	○	○
PALLADIUM		100			100	100	170	390	780	120	1800	3000

MELTING FURNACES





● kg	page 8 EASYMELT SERIES				page 9 EASYMELT AIR-1G	page 10 ULTRAMELT 4/5			page 11 ULTRAMELT 10/15				page 12 ULTRAMELT EC	
	1G	2G	1P	2P	AIR-1G	4G	5G	5P	10G	15G	15P	15S	EC25	EC40
GOLD*	1	2	○	○	1	4	5	○	10	15	○	○	25	40
PLATINUM	○	○	0.25	0.5	○	○	○	0.6	○	○	2	○	○	○
SILVER	0.55	1.1	○	○	0.55	2.2	2.75	○	5.5	8.25	○	○	13.75	22
BRASS	0.45	0.9	○	○	0.45	1.8	2.2	○	4.5	6.75	○	○	11.25	18
ST. STEEL	○	○	0.085	0.17	○	○	○	1	○	○	○	5	○	○
COPPER	0.45	0.9	○	○	0.45	1.8	2.2	○	4.5	6.75	○	○	11.25	18
PALLADIUM	0.5	1	○	○	0.5	2	2.5	○	5	7.5	○	○	12.5	20
ALUMINIUM	0.14	0.28	○	○	0.14	0.56	0.7	○	1.4	2.1	○	○	3.5	5.6

○ na

* *For 24k gold; For 22k multiply by 0.913; For 18k multiply by 0.776; For 14k multiply by 0.581.*

EASY**CAST**

CENTRIFUGAL CASTING MACHINES

Casts all metals: precious and non-precious. Automatic frequency setting.

Highly efficient induction heating technology. Low energy consumption.

Fast melting using the latest technology in induction heating generators.

Complete protection from oxidation by using vacuum and gas argon atmosphere.

Reliable modular system, easy to maintain and service.

Error and status messages for easy service and remote diagnostics.

FEATURES

- Advanced digital control panel with status and diagnostics messages
- Centrifugal injection casting with pneumatic movement for fast coil descent
- Integral water cooling system with pressure and water temperature control
- Centrifugal arm balancing with adjustable counterweight
- IR temperature reader/ regulator (EC-12)
- Melting power regulation
- DC motor with reduction gear: adjustable acceleration from 0.1 to 1 sec.
- Max rotating speed – 500 turns/min. Rotation timeout pre-set at 40 sec.
- Auto locking of the chamber lid during centrifugal phase for maximum safety
- Integral vacuum pump (EC-12)
- Inert (Argon) gas circuit included (EC-12)

SPECIFICATIONS

	EC-11	EC-11T	EC-11V	EC-12
Absorbed Power, kW	3.0	3.0	3.0	3.0
AC Line, Volts (50/60Hz)	230±10%	230±10%	230±10%	230±10%
Line Phases	1	1	1	1
Crucible Capacity	140g Pt, 150g Au, 80g Ag	140g Pt, 150g Au, 80g Ag	140g Pt, 150g Au, 80g Ag	140g Pt, 150g Au, 80g Ag
Max Flask Size (mm)	D - 80, H - 75	D - 80, H - 75	D - 80, H - 75	D - 80, H - 75
Max Melting, T°	2000 C°	2000 C°	2000 C°	2000 C°
IR Temperature Reader	n/a	included	n/a	included
Cooling System	Water-Internal	Water-Internal	Water-Internal	Water-Internal
Vacuum Pump	n/a	n/a	included	included
Weight, Lb (kg)	220.5 (100)	220.5 (100)	242.5 (110)	242.5 (110)
Dimensions, Inch (cm) LxWxH	19.7" x 26" x 41.3" (50 x 66.3 x 105)	19.7" x 26" x 41.3" (50 x 66.3 x 105)	19.7" x 26" x 41.3" (50 x 66.3 x 105)	19.7" x 26" x 41.3" (50 x 66.3 x 105)

SUPER**CAST J**

CENTRIFUGAL CASTING MACHINES

Thanks to our RCS (Rotating Coil System) technology metal is heated while rotating, which provides excellent casting results and repeatability.

The upgraded versions of our popular Super-Cast models can cast all metals – precious, non-precious including titanium.

We have implemented modern controls and diagnostic features with multiple programs, as well as new more advanced and powerful induction heating generators.

FEATURES

- Built-in vacuum pump and Argon gas circuit
- Coil rotation with arm and flask
- Metal is continuously heated and injected while the coil rotates
- Accurate temperature reader with advanced thermo regulator
- Metal emissivity regulation
- Vacuum-Argon washing cycle
- Advanced diagnostic features and error messages
- Easy to use digital Control Panel with 20 user programs, 10 programmable param-eters each
- Casting with precious stones
- Special program for titanium casting – SuperCast J5

SPECIFICATIONS

	SuperCast J4	SuperCast J5
Absorbed Power, kW	4.0	5.0
AC Line, Volts (50/60Hz)	230±10%	230±10%
Line Phases	1	1
Crucible Capacity	200g Pt, 170 Au	200g Pt, 170 Au, 80g Ti
Max Flask Size (mm)	D=80 x H=75	D=80 x H=85
Max Melting, T°	2000 C°	2000 C°
Cooling System	Water-Internal	Water-Internal
Vacuum Pump	included	included
Auto-Cast Program	No	Yes
Weight, Lb (kg)	342 (155)	385.8 (175)
Dimensions, Inch (cm) LxWxH	25.2" x 26.4" x 41.3" (64 x 67 x 105)	25.2" x 26.4" x 41.3" (64 x 67 x 105)

CS **DIGITAL**

CENTRIFUGAL CASTING MACHINES

Casts all metals and alloys:
precious and non-precious

Low energy consumption

Very high efficiency and speed

Reliable, easy to maintain and service

Easy to Install and simple to operate

New heavy duty melting generator

FEATURES

- New heavy duty melting generator
- Easy to use digital Control Panel
- 20 user programs with 10 programmable parameters each
- Built in vacuum pump and Agron Gas circuit
- Metal emissivity regulation
- Accurate temperature reader with advanced thermo regulator
- Excellent heating cycle control
- Casting with precious stones
- Vacuum-Argon washing cycle
- Advanced diagnostic features and error messages

SPECIFICATIONS

	CS-1	CS-2	CS-3
Absorbed Power, kW	7.5	7.5	10.0
AC Line, Volts (50/60Hz)	230±10%	230±10%	230±10%
Line Phases	3	3	3
Crucible Capacity	350g Pt, 290 Au	750g Pt, 650 Au	1.0kg Pt, 1.3 kg Au
Max Flask Size (mm)	D=100 x H=120	D=120 x H=160	D=150 x H=180
Max Melting, T°	2000 C°	2000 C°	2000 C°
Cooling System	Water	Water	Water
Weight, Lb (kg)	551.1 (250)	683.4 (310)	727.5 (330)
Dimensions, Inch (cm) LxWxH	27.6" x 30" x 43.5" (70 x 76 x 110.5)	35.8" x 40.6" x 43.5" (91 x 103 x 110.5)	39.4" x 43.3" x 43.5" (100 x 110 x 110.5)

ULTRA**CAST J**

PRESSURE CASTING MACHINES

Casts all metals and alloys:
precious and non-precious

Vacuum / Argon Atmosphere prevents oxidation

The process does not require crucibles or rings

No Centrifugal Force – No lost metal
Reliable, modular system, easy to maintain and service

Easy to install and simple to operate

Durable and compact system

FEATURES

- Pressure injection casting
- Compact Tabletop Design
- Simple Operation – Load – Melt – Cast
- Easy to navigate user interface
- Built-in compact water cooling unit
- Loaded with tuning and diagnostic features
- Advanced induction heating technology
- Sophisticated control of Vacuum / Argon Atmosphere

SPECIFICATIONS

	UltraCast-J
Absorbed Power, kW	4.0
AC Line, Volts (50/60Hz)	230±10%
Line Phases	1
Crucible Capacity	170g Gold
Min Flask Size inch/mm	D=1,5" x L=2,3" (D=38 x L=58)
Max Flask Size inch/mm	D=3,2" x L=2,5" (D=63.5 x L=81)
Max Melting, T°	2000 C°
Cooling System	Water-Internal
Weight, Lb (kg)	123.5 (56)
Dimensions, Inch (cm) LxWxH	20.1" x 23.2" x 24.8" (51 x 59 x 63)

PRESS**CAST**

PRESSURE CASTING MACHINES

Casts gold, silver and brass

Low energy consumption

Fast heating by advanced induction generator

Very high efficiency and speed

Reliable, easy to maintain and service

FEATURES

- Metal injection with vacuum and pressure
- Pneumatic Flask Lift - air pressure 6 bar
- Graphite Stopper Rod positioned at the centre of the crucible
- Temperature Control - Thermocouple in the sealing rod
- Granulation system (optional)
- 10 Programmable cycles with 10 parameters per cycle
- External water cooling - 6 L/min (1.6 gpm) at 3 Bar (45 psi) minimum, 30°C
- Vacuum: 100 mbar with 40m³/hr vacuum pump
- Argon required for each casting – max 60 L, Argon pressure 2 bar

SPECIFICATIONS

	PressCast 3	PressCast 5
Absorbed Power kW (max)	5.0	10.0
Frequency kHz	6	6
AC Line, Volts (50/60Hz)	230±10%	230±10%
Line Phases	3	3
Crucible Capacity	3kg Gold	5kg Gold
Max Flask Size (mm)	D=120 x H=300	D=120 x H=300
Max Melting T°	1300 C°	1300 C°
Cooling System	Water	Water
Weight Lb (kg)	639.3 (290)	937 (425)
Dimensions Inch (cm) LxWxH	27.6" x 39.8" x 53.1" (70 x 101 x 135)	27.6" x 39.8" x 53.1" (70 x 101 x 135)

EASY**MELT**

MELTING FURNACES

Induction melting furnaces for gold, platinum and steel melting

Efficient circuit with low energy consumption

Reliable, easy to maintain and service

Easy to install and simple to operate

FEATURES

- Timer (1 – 30min)
- Power regulation (10 – 100%)
- LED display for Power, Time and Temperature
- Graphite or ceramic crucible
- Temperature reader for models up to 1200°C

SPECIFICATIONS

	EasyMelt 1G	EasyMelt 1P	EasyMelt 2G	EasyMelt 2P
Absorbed Power, kW	2.8	2.8	2.8	2.8
AC Line, Volts (50/60Hz)	230±10%	230±10%	230±10%	230±10%
Line Phases	1	1	1	1
Crucible Capacity	1 kg Gold	50-250g Pt	2 kg Gold	200-500g Pt
Max Melting, T°	1300 C°	2000 C°	1300 C°	2000 C°
Cooling System	Water (external)	Water (external)	Water (external)	Water (external)
Weight, Lb (kg)	30.9 (14)	30.9 (14)	30.9 (14)	30.9 (14)
Dimensions, Inch (cm) LxWxH	15.7" x 17.7" x 7.1" (40 x 45 x 18)	15.7" x 17.7" x 7.1" (40 x 45 x 18)	15.7" x 17.7" x 7.1" (40 x 45 x 18)	15.7" x 17.7" x 7.1" (40 x 45 x 18)

EASY**MELT AIR - 1G**

MELTING FURNACES

Desktop induction melting machines for gold and silver

No water connection is required

Efficient circuit with low energy consumption

Reliable, easy to maintain and service

Easy to install and simple to operate

High efficiency RF generator

Improved energy efficiency

Higher degree of controllability

Increased repeatability

Low maintenance requirements

Increased productivity

FEATURES

- Timer (1 - 30min)
- Power regulation (10 - 100%)
- LED display for Power, Time and Temperature
- Efficient coil overheating protection
- Temperature control by optional thermocouple
- Modern digital controls and diagnostics

SPECIFICATIONS

	EasyMelt AIR - 1G
Absorbed Power, kW	2.8
AC Line, Volts (50/60Hz)	230±10%
Line Phases	1
Crucible Capacity	1 kg Gold
Max Melting, T°	1300 C°
Cooling System	Forced Air
Weight, Lb (kg)	30.9 (14)
Dimensions, Inch (cm) LxWxH	15.4" x 18" x 7.2" (39.1 x 45.7 x 18.1)

ULTRA**MELT 4/5**

MELTING FURNACES

Induction melting furnaces for gold, platinum and steel melting

Efficient circuit with low energy consumption

Reliable, easy to maintain and service

Easy to install and simple to operate

FEATURES

- Digital control panel with advanced service and diagnostics features
- Temperature control with thermocouple
- Power regulation with power bar-graph indicator
- Graphite or ceramic crucible
- Modern stainless steel enclosure with temperature resistant top plate
- Advanced induction heating technology
- Optional IR Temperature reader

SPECIFICATIONS

	UltraMelt 4G	UltraMelt 5G	UltraMelt 5P
Absorbed Power, kW	4.0	5.0	5.0
AC Line, Volts (50/60Hz)	230±10%	230±10%	230±10%
Line Phases	1	1	1
Crucible Capacity	4kg Gold	5kg Gold	600g Pt
Max Melting, T°	1300 C°	1300 C°	2000 C°
Cooling System	Water	Water	Water
Weight, Lb (kg)	123 (56)	123 (56)	123 (56)
Dimensions, Inch (cm) LxWxH	18.1" x 15.7" x 37.4" (46 x 40 x 95)	18.1" x 15.7" x 37.4" (46 x 40 x 95)	18.1" x 15.7" x 37.4" (46 x 40 x 95)

ULTRA**MELT EC**

MELTING FURNACES

Induction melting machines for bigger volume for all types of metal

Digital control panel with status messages and diagnostics features

Efficient circuit with low energy consumption

Reliable, easy to maintain and service

Easy to install and simple to operate

FEATURES

- Temperature probe under the crucible
- Accurate power regulation and control
- Automatic Tilting chamber
- Advanced induction heating technology
- Infrared Temperature reader (optional)
- Also available with manual tilting mechanism (optional)

SPECIFICATIONS

	UltraMelt EC25	UltraMelt EC40
Absorbed Power kW (max)	25	40
Frequency kHz	10-40	10-40
AC Line, Volts (50/60Hz)	380/480 ±10%	380/480 ±10%
Line Phases	3	3
Crucible Capacity	25 kg Gold	40kg Gold
Max Melting T°	1250 C°	1250 C°
Cooling System	Water	Water
Weight Lb (kg)	550 (250)	550 (250)
Dimensions Inch (cm) LxWxH	24.8" x 22" x 51.2" (63 x 56 x 130)	24.8" x 22" x 51.2" (63 x 56 x 130)

ULTRA**MELT 10/15**

MELTING FURNACES

Induction melting furnaces for gold, platinum and steel melting

Efficient circuit with low energy consumption

Reliable, easy to maintain and service

Easy to install and simple to operate

FEATURES

- Digital control panel with advanced service and diagnostics features
- Temperature control with thermocouple
- Power regulation with power bar-graph indicator
- Graphite or ceramic crucible
- Modern stainless steel enclosure with temperature resistant top plate
- Advanced induction heating technology
- Optional IR Temperature reader

SPECIFICATIONS

	UltraMelt 10G	UltraMelt 15G	UltraMelt 15P	UltraMelt 15S
Absorbed Power, kW	10.0	15.0	15.0	15.0
AC Line, Volts (50/60Hz)	380/480 ±10%	380/480 ±10%	380/480 ±10%	380/480 ±10%
Line Phases	3	3	3	3
Crucible Capacity	10 kg Gold	15 kg Gold	2 kg Pt	5 kg SS
Max Melting, T°	1300 C°	2000 C°	2000 C°	2000 C°
Cooling System	Water	Water	Water	Water
Weight, Lb (kg)	275.6 (125)	275.6 (125)	275.6 (125)	275.6 (125)
Dimensions, Inch (cm) LxWxH	21.7" x 25.6" x 38.2" (55 x 65 x 97)	21.7" x 25.6" x 38.2" (55 x 65 x 97)	21.7" x 25.6" x 38.2" (55 x 65 x 97)	21.7" x 25.6" x 38.2" (55 x 65 x 97)

SUPERCAST, EASYCAST*, CS DIGITAL*

Air purging 1 2

To secure optimal environment for clean and successful casting, the melting chamber is consecutively deep vacuumed (1) and refilled with argon (2).
This process is cycled several times to make sure all oxygen is entirely evacuated. The last stage is backfilling the chamber with argon to prepare it for melting and casting.

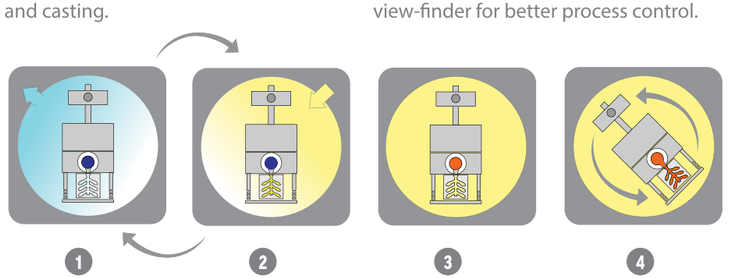
Melting 3

Heating is turned on as soon as the chamber is backfilled with argon. An optical sensor is continuously monitoring the alloy temperature as a built-in temperature controller is following the best temperature profile.

The alloy is also visible through a view-finder for better process control.

Injection and Compression 4

When the molten alloy reaches casting temperature, an injection and compression cycle is started by following a precise spin profile. It makes sure that the right centrifugal force and right force duration is applied for successful casting. A patented technology utilizes non-interrupted heating process to avoid premature alloy solidification.



* *The EasyCast and CS Digital series use a drop down coil system, not a rotating coil as shown on the diagram.*

PRESSCAST

Material Loading 1

Ingots or scrap are loaded prior to process initiation.

Air purging 2 3

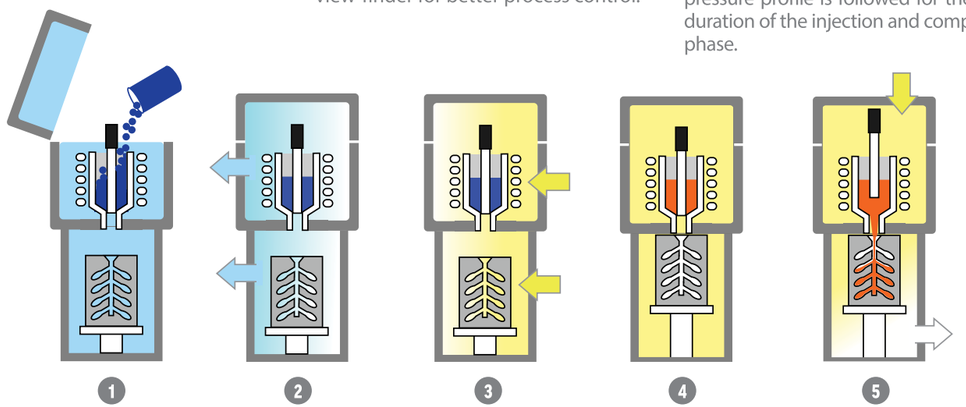
To secure optimal environment for clean and successful casting, both melting and casting chambers are consecutively deep vacuumed (2) and refilled with argon (3). This process is cycled several times to make sure all oxygen is entirely evacuated. The last stage is backfilling the chambers with argon to prepare them for melting and casting.

Melting 4

Heating is turned on as soon as both chambers are backfilled with argon and the flask is raised up to position. An optical sensor is continuously monitoring the alloy temperature as a built-in temperature controller is following the best temperature profile.
The alloy is also visible through a view-finder for better process control.

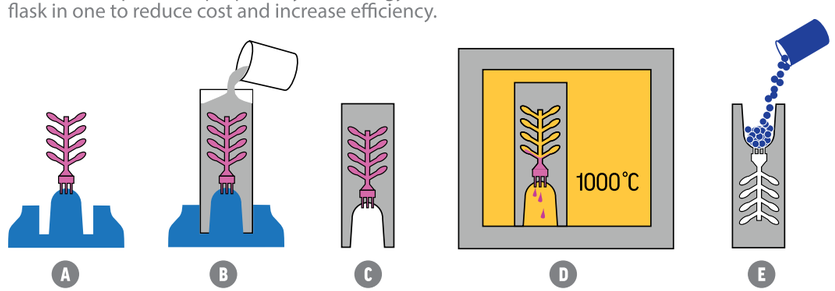
Injection and Compression 5

When the molten alloy reaches casting temperature, an injection and compression cycle is started by raising the plunger and applying the right pressure and vacuum. Pressure is applied to the melting chamber, while vacuum is pulled from the casting chamber.
That eliminates miscasting and significantly reduces shrinkage porosity.
For the best results, a precise vacuum/pressure profile is followed for the whole duration of the injection and compression phase.



ULTRACAST

Ultracast is a patented proprietary technology that combines the crucible and flask in one to reduce cost and increase efficiency.



Flask preparation

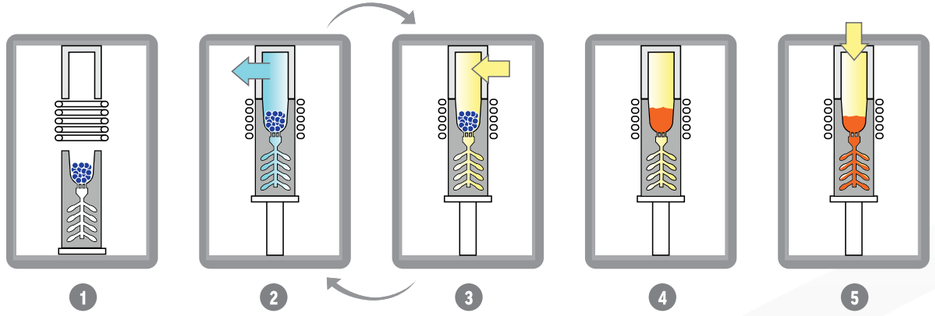
A Tree wax model is built on a reusable rubber base (supplied).

B Ceramic tube is placed around the tree wax model and is filled with investment material.

C Flask is pulled from the rubber base once the investment material solidifies.

D Flask is placed in a burnout furnace for investment material curing.
Wax melts down, leaks out and opens model cavity.

E Once burnout is completed, the flask acquires crucible functionality as well. While hot, the flask/crucible is filled with ingots or scrap.



UltraCast loading 1

Ingot-filled hot flask/crucible is placed on the platform inside UltraCast machine. (1)

Chamber sealing 2

The platform is raised up to position and a mini chamber is closed and sealed. (2)

Air purging 2 3

To secure optimal environment for clean and successful casting, the mini chamber is consecutively vacuumed (2) and refilled with argon (3). This process is cycled several times to make sure all oxygen is entirely evacuated. The last stage is backfilling the chamber with argon to prepare it for melting and casting.

Melting 4

Heating is turned on as soon as the chamber is backfilled with argon. An optical sensor is continuously monitoring the alloy temperature as a built-in temperature controller is following the best temperature profile. The alloy is also visible through a view-finder for better process control.

Injection and Compression 5

When the molten alloy reaches casting temperature, an injection and compression cycle is started by applying the right pressure to the chamber.

Pressure is precisely monitored and regulated so it is strong enough to push molten alloy through the channels at the bottom of the crucible. For the best results, pressure duration is precisely controlled as well.