

JLCB

HIGH NOBLE YELLOW TYPE 4 CROWN & BRIDGE ALLOY

JLCB is an economical high noble crown and bridge alloy with 56% Au. Classified as a Type 4 alloy, JLCB is excellent for restorations subject to high stress such as bridges with three or more units and partial dentures. Described as a versatile alloy, JLCB can be bench cooled for partials and longer bridges, and water quenched for Type IV applications.

PROPERTIES		
Melting Range	1570° to 1680°F (855° to 915°C)	
Density	13.7 g/cm ³	
Grain Size	37 microns	
	HARDENED	SOFTENED
Hardness	260 HV	195 HV
Tensile Elongation	10%	13%
Tensile Yield Strength	104,000 psi (715 MPa)	76,000 psi (520 MPa)
Ultimate Tensile Strength	112,000 psi (770 MPa)	85,300 psi (585 MPa)

CHEMISTRY	
Gold	56%
Silver	26%
Copper	13%
Palladium	4%
Contains less than 1% Zinc, Indium, Iridium	
Au & Pt group - 60%	
Classification - High Noble	

PROCESSING TECHNIQUE

SPRUIING

The indirect method is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" (6mm) to 3/8" (9mm) long. Sprues longer than 3/8" (9mm) should have a reservoir 1/16" (1.5mm) from pattern. Patterns should be a maximum of 1/4" (6mm) from top of investment.

INVESTMENT AND BURNOUT

Either gypsum or phosphate bonded investment may be used following the manufacturer's instructions. The burnout temperature should be at least 900°F (480°C) and should not exceed 1200°F (650°C).

MELTING AND CASTING

Extra winds of the casting arm are not required. Gas/compressed air or gas/oxygen flame with 5 psi gas pressure and 10 psi oxygen pressure is recommended. JLCB will fully puddle and form a ball before it is ready to cast. DO NOT OVERHEAT. The casting temperature is 1775°F (970°C). Bench cool to obtain the hardened condition. Water quench from a dull red heat to obtain the softened condition.

DEVESTING AND FINISHING SOLDER AND FLUX

Blast with aluminum oxide to remove investment particles and oxidation. Finish and polish using standard techniques.

Solder: 585 Fine Solder

Flux: Brown Fluoride Flux

5007Y r1



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 **JENSEN**
DENTAL

CASTELL

NOBLE YELLOW TYPE 3 CROWN & BRIDGE ALLOY

CASTELL is a 20% Gold noble crown and bridge alloy. CASTELL'S chemistry is based on the gold-palladium-indium system which enhances the gold color of the product, making CASTELL a rich-yellow alloy that is corrosion resistant, tarnish resistant, and very economical. CASTELL has a low density, which results in more castings per ounce.

PROPERTIES	
Melting Range	1560° to 1735°F (850° to 945°C)
Density	11.0 g/cm ³
Hardness	175 HV
Tensile Elongation	8%
Tensile Yield Strength	40,800 psi (280 MPa)
Ultimate Tensile Strength	75,000 psi (520 MPa)

CHEMISTRY	
Silver Gold Palladium	38%
Indium Zinc Copper	20%
Au & Pt group - 40%	20%
Classification - Noble	17%
	4%
	1%

PROCESSING TECHNIQUE

SPRUIING

The indirect method is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" (6mm) to 3/8" (9mm) long. Sprues longer than 3/8" (9mm) should have a reservoir 1/16" (1.5mm) from pattern. Patterns should be a maximum of 1/4" (6mm) from top of investment.

INVESTMENT

Gypsum investment (e.g. Beauty-Cast) is recommended and should be used at a burnout temperature of 1200°F (650°C). Phosphate investments may be used at a burnout temperature of 1300°F (705°C). Hold at the burnout temperature for a minimum of one hour. Add ten minutes for each larger ring size and each additional ring. Extra winds of the casting arm are not required. Melt with a reducing flame using gas and compressed air or gas and oxygen with 5 psi gas and 10 psi oxygen. DO NOT HEAT TO POINT OF ALLOY FORMING A BALL. Cast as soon as a consolidated pool is formed. DO NOT USE CASTING FLUX. The casting temperature is 1750°F (960°C). Water quench from a dull red heat.

MELTING AND CASTING

Remove castings from investment. Blast with aluminum oxide to remove investment particles and oxidation. Do not pickle. Finish and polish using standard techniques.
Solder: 615 Fine Solder
Flux: Brown Fluoride Flux

DEVESTING AND FINISHING SOLDER AND FLUX

5179Y r1



CLASSIC IV

HIGH NOBLE YELLOW PORCELAIN ALLOY

CLASSIC IV, a high noble, 88% Au porcelain dental alloys is known for its unique qualities by technicians. CLASSIC IV has a deep yellow color that is perfect for cases with lingual collars or metal occlusion. Resistant to galling, CLASSIC IV is easy to finish and polishes to a beautiful luster.

PROPERTIES	
Melting Range	1930° to 2110°F (1055° to 1155°C)
Coefficient of Thermal Expansion	
	from 25°C to 500°C: 14.2x10-6K-1
	from 25°C to 600°C: 14.4x10-6K-1
Density	19.0 g/cm3
Grain Size	12 microns

CHEMISTRY	
Gold	88%
Platinum	9.5%
Indium	1.5%
Contains less than 1% Silver, Iron, Rhenium	
Au & Pt group - 97.5%	
Classification - High Noble	

AFTER PORCELAIN FIRING	
Hardness	175 HV 11% 55,800 psi (385
Tensile Elongation	MPa) 67,800 psi (470 MPa)
Tensile Yield Strength	12.5 x 106 psi (86,000 MPa)
Ultimate Tensile Strength	
Modulus of Elasticity	

PROCESSING TECHNIQUE

WAXING AND SPRUING

Wax to a minimum thickness of .3mm for single units and .5mm for bridge work. Avoid sharp angles and corners. The indirect method is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" to 3/8" long. Sprues longer than 3/8" should have a reservoir 1/16" from pattern. Patterns should be a maximum of 1/4" from top of investment.

A phosphate-bonded, high heat investment with or without carbon content is recommended.

INVESTMENT

1300°F (705°C)

BURNOUT

Extra winds of the casting arm are not required. Use a multi-orifice torch with 10 psi fuel and

MELTING AND CASTING

20 psi oxygen. The alloy will fully puddle and form a ball before it is ready to cast. DO NOT OVERHEAT. DO NOT USE CASTING FLUX. The casting temperature is 2210°F (1210°C).

DEVESTING AND FINISHING

Blast with aluminum oxide to remove investment particles. Finish with aluminum oxide stones (Refer to our Finishing and Polishing Guide – Yellow Ceramic Alloys for more information). Reblast porcelain receiving surface with nonrecycled aluminum oxide. Clean in ultrasonic for 10 minutes in distilled water.

OXIDATION

Oxidize from 1200°F (650°C) to 1800°F (980°C) at 145°F/min (80°C/min) in air with 5 minutes hold time. Bench cool. Proceed with normal opaque technique.

Pre-Solder: CPS Solder

SOLDERS AND FLUX

Post-Solder: 650 Solder

Flux: Brown Fluoride Flux

5190Y r4



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JENSEN
DENTAL

Superior
NOBLE WHITE CERAMIC ALLOY

Superior is a noble palladium-silver alloy for porcelain fused to metal restorations. It features a narrower melting range and improved as-cast microstructure for superior casting performance. The silver concentration is minimized to improve porcelain compatibility over traditional palladium-silver alloys.

PROPERTIES¹

Melting Range 2175oF to 2330oF
Coefficient of Thermal Expansion
 from 25oC to 500oC: 14.2 x10-6K-1
 from 25oC to 600oC: 14.6 x10-6K-1
Density 11.0 g/cm³
Grain Size 8 microns
Hardness 220 HV
Tensile Elongation 35%
Tensile Yield Strength (psi) 69,000
Ultimate Tensile Strength (psi) 110,000
Modulus of Elasticity (psi) 20.0 x 10⁶

CHEMISTRY²

Palladium 62.5%
Silver 24.5%
Tin 9%
Indium 2%
Zinc
 Contains less than 1% · 2%
Ruthenium, Rhenium
Classification - Noble

Au & Pt Group - 62.5%

PROCESSING TECHNIQUE

WAXING AND SPRUING

Wax to a minimum thickness of .3mm for single units and .5mm for bridge work. Avoid sharp angles and corners. The indirect method of spruing is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" to 3/8" long. Sprues longer than 3/8" should have a reservoir 1/16" from pattern. Patterns should be a maximum of 1/4" from top of investment.

INVESTMENT

A phosphate-bonded, high heat investment without carbon content is recommended.

BURNOUT

Place in a cold furnace and raise temperature to 700oF. Hold at 700oF for one half hour. Increase temperature to 1550oF and hold for one hour. Increase hold time for larger or multiple rings.

MELTING AND CASTING

Wind casting arm one turn more than used for casting gold. Use a multi-orifice torch with 10 psi fuel and 20 psi oxygen. The alloy will fully puddle and form a ball before it is ready to cast. DO NOT OVERHEAT. DO NOT USE CASTING FLUX. The casting temperature is 2435oF.

DEVESTING AND FINISHING

Blast with aluminum oxide to remove investment particles. Finish with aluminum oxide stones. Reblast porcelain receiving surface with non-recycled aluminum oxide. Clean in ultrasonic for 10 minutes in distilled water or denatured alcohol.

CONDITIONING

Oxidize from 1200oF to 1850oF in air. Hold for 5 minutes. Bench cool. Proceed with normal opaque technique.

SOLDERS AND FLUX

Pre-Solder: PWS
Post-Solder: 1400 Solder
Flux: Brown Fluoride Flux for both pre and post soldering

¹ Test methods conform to ISO Standard 9693 and ANSI/ADA Standard 38

² Jensen Industries certifies the composition to be within the tolerances of ISO 9693 and ANSI/ADA 38.



SECURITY

HIGH NOBLE WHITE PORCELAIN ALLOY

Jensen Dental's SECURITY Alloy offers cost-conscious customers the ability to purchase a high-noble PFM dental alloy at an economical price. Since SECURITY has the smallest amount of gold possible to be classified as a "high noble" alloy (40%), it may be less expensive than other products that contain more gold. SECURITY's properties make it ideal for just about any PFM application. A strong alloy, it's great for single units, short- and long-span bridges.

PROPERTIES	
Melting Range	2120°-2300°F (1160°-1260°C)
Coefficient of Thermal Expansion	
from 25°C to 500°C	14.2x10 ⁻⁶ K-
from 25°C to 600°C	1 14.5x10-
Density	6K-1 13.0 g/cm ³

CHEMISTRY	
Gold	40%
Palladium	40%
Silver	9%
Indium	6%
Zinc	3%
Tin	2%
Contains less than 1% Rhenium	
Au & Pt group - 80%	
Classification - High Noble	

AFTER PORCELAIN FIRING	
Hardness	255 HV
Tensile Elongation	20%
Tensile Yield Strength/Proof Stress	78,230 psi (540 Mpa)
Ultimate Tensile Strength	110,230 psi (772 MPa)
Modulus of Elasticity	17.4 x 10 ⁶ psi (120,000 MPa)

PROCESSING TECHNIQUE

WAXING INVESTMENT BURNOUT MELTING AND CASTING

0.3mm for single units and 0.5mm for bridgework
 Phosphate-bonded high heat investment with or without carbon
 1550°F (850°C)
 Wind the casting arm one more time than normal (3-4 winds).
 Multi-orifice torch: 10 psi fuel and 20 psi oxygen (0.7 bars fuel and 1.4 bars oxygen).
 Heat until cloudy surface clears before releasing the casting arm. **DO NOT OVERHEAT. DO NOT USE CASTING FLUX.** Casting temperature ~2400°F (1315°C).
 Finish with aluminum oxide stones. Blast porcelain receiving surfaces with non-recycled aluminum oxide. Clean in ultrasonic for 10 minutes.
 Oxidize from 1200°F (650°C) to 1850°F (1010°C) at 145°F/min (80°C/min) in vacuum with 5 minutes hold time. Bench cool. Proceed with normal opaque technique.

FINISHING

OXIDATION

SOLDERS AND FLUX Pre-solder: PWS or LX Solder
 Post-solder: 1400 Solder
 Flux: Brown Fluoride Flux (for both pre & post soldering)

5225Y r2

