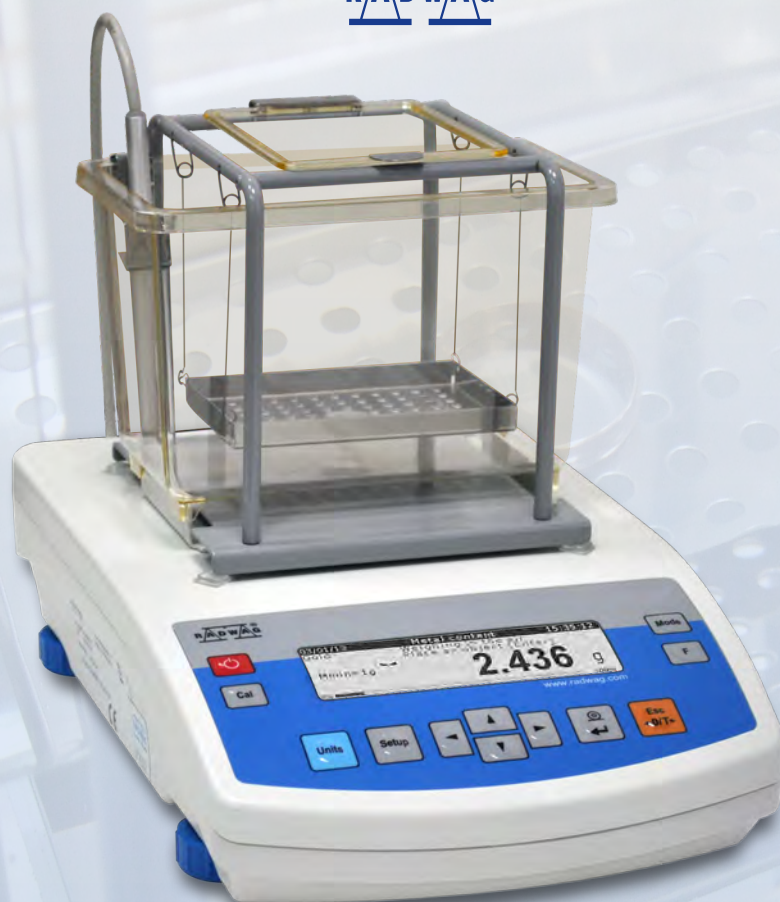


Advanced weighing technology in jewellery

PRECIOUS METAL PURITY TESTER



PS 200/2000/X/AU

- GOLD PURITY TESTER, RANGE 9K - 24K
- TESTING OF GOLD CONTENT ALLOYED WITH SILVER AND COPPER
- TESTING PLATINUM CLASS ALLOYED WITH NICKEL AND PALLADIUM
- TESTING TWO- AND THREE-COMPONENT ALLOYS OF DIFFERENT METALS



MEASURING RANGE

Minimum mass = 1 g
1g to 200 g / 1mg
200g to 2000 g / 10mg



DESIGN

Electromagnetic
measuring system,
res. 16 mln divisions



ACCURACY

Automatic internal
adjustment system,
GLP procedures



INTERFACES

Documenting,
data archiving,
ergonomics

PRECIOUS METAL PURITY TESTER

DESIGN

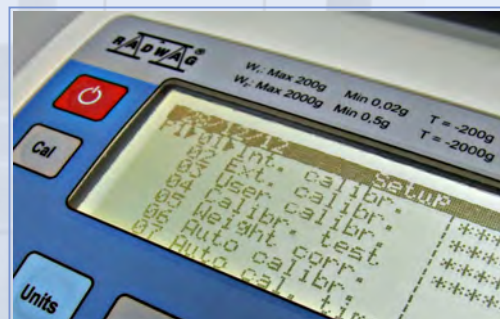
A balance PS 200/2000/X/AU series is easily used as a laboratory weighing instrument. A glass anti-draft shield placed over the weighing pan protects against air movement impact.

Apart from precise weighing, the PS/X/AU series ensures speed and ergonomics of operation. The advanced technology uses graphic alphanumeric display to communicate on balance operation.



ACCURACY REGARDLESS OF CONDITIONS

The system of automatic internal adjustment is a guarantee of reliable and accurate measurements independently on ambient conditions. It is automatically triggered on changes of temperature and time.

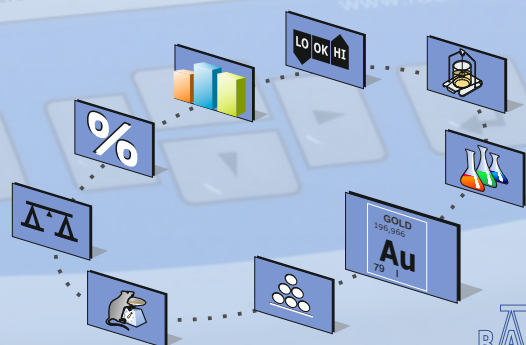


ERGONOMICS AND VERSATILITY

PS 200/2000/X/AU is simply two balances in one. It offers two weighing ranges with automatically changing readabilities. There is no need to use many balances. Our accurate metal purity tester PS 200/2000/X/AU series simply weights light and heavy samples.



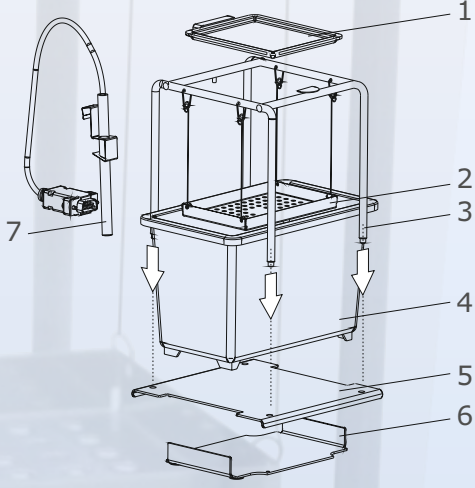
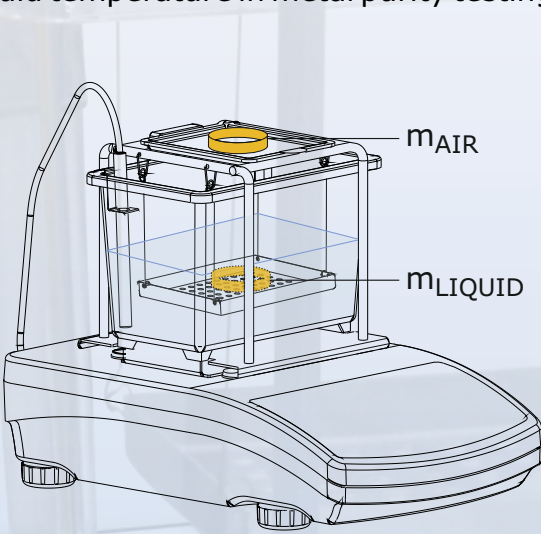
Multiple working modes make the balance a multipurpose weighing tool. You can easily determine percents from a standard, calculate statistics, control sample mass with set limits, determine density, prepare a formulation, test metal purity, count parts or weigh animals.



PRECIOUS METAL PURITY TESTER

MEANS OF OPERATION

The weighing method uses the mode of differential determining of sample mass. First weigh a sample on the top pan of the metal purity kit, i.e. „weighing in the air”, and then determine mass of the sample by weighing it in liquid, on the bottom pan. The process is available on assembling the dedicated metal purity kit as replacement of balance’s weighing pan. Balance PS/X/AU series comes standard with an external control thermometer for on-line monitoring of liquid temperature in metal purity testing mode.



- 1 top weighing pan
- 2 bottom weighing pan
- 3 rack
- 4 container for water
- 5 rack basis
- 6 container basis
- 7 control thermometer with a holder

On measuring process the balance automatically monitors liquid temperature and density. It is one of the components of Good Manufacturing Practice.

In case the thermometer is not plugged to the balance, user should manually control liquid temperature and enter its value to balance memory.

Metal content setup		
M8 ▶ 01	Procedure	▶ Karat
02	Liquid	WATER
03	Temperature	21 °C
04	Density	0.998 g/cm ³
05	Mode	Au - Cu - Ag
06	Proportion	4:6
07	Run	

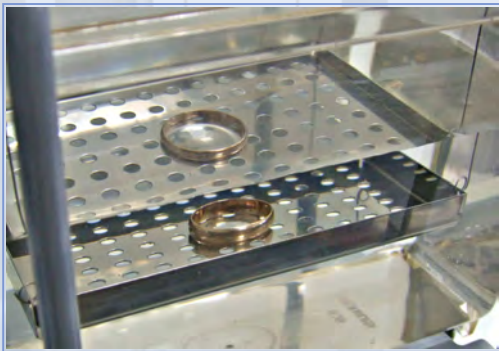
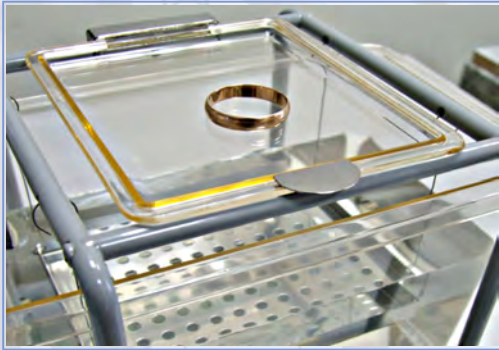
density of water table
Grid of data points

PRECIOUS METAL PURITY TESTER



Gold purity test Testing purity of alloyed gold

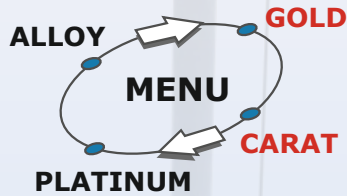
Specific gravity 19,3 g/cm³. Alloy components Cu, Ag, Pt, Pd, Ni.



	Au	Cu	X
MENU	Au	Ag	X
	Au	Cu	Ag

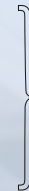


RATIO	
Cu	Ag
4	6
5	5
6	4
7	1



1. Select mode,
2. Select type of alloyed component
3. Weigh tested sample on the top pan,
4. Weigh tested sample on the bottom pan,
5. Balance display indicates measurement result,
6. Report generated automatically.

Date : 09/01/2013
 Time : 10:56:36
 User Id : Martin
 Project Id: Ring
 Balance Id: 321876
 Metal content
 Procedure: Gold



GLP MENU

Air: 3.08[4] g
 Water: 2.85[3] g
 Temperature: 22 °C
 Density: 13.321 g/cm³
 Volume: 0.232 cm³
 Percent: 61.94 %
 Carat: 14.87 K



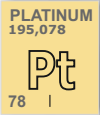
TEST RESULT

Gold carat content	% content of alloyed Au	Alloy density [g/cm ³]			Alloy density [g/cm ³]
		Cu / Ag	Cu	Ag	
24 K	100 / 100	19,32	19,32	19,32	19,13 ÷ 19,51
22 K	91,6 / 100	17,73	17,63	18,06	17,45 ÷ 18,24
20 K	83,4 / 100	16,42	16,19	16,94	16,03 ÷ 17,11
18 K	75,0 / 100	15,24	14,99	15,96	14,84 ÷ 16,12
14 K	58,4 / 100	13,38	13,04	14,30	12,91 ÷ 14,44
10 K	41,7 / 100	11,91	11,54	12,96	11,42 ÷ 13,09

Carat content of gold in relation to the alloyed components

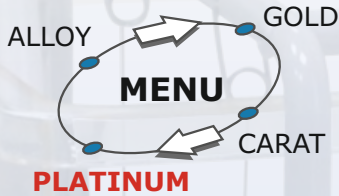


PRECIOUS METAL PURITY TESTER



Testing platinum class

Colour white with shade of greyish-blue, metallic sheen.
 Specific gravity 21,5 g/cm³. Alloy components Nickel, Palladium.



MENU	Platinum	X	X
	Platinum	Nickel	X
	Platinum	Palladium	X

Metal content setup

M8	▶01	Procedure	▶Platinum
	02	Liquid	WATER
	03	Temperature	22 ^o C
	04	Density	0,998 g/cm ³
	05	Alloy	Pt-Pd >>>>>
	06	Run	

Pt-Pd
Pt-Ni

1. Select mode,
2. Select type of alloy component to be tested (Ni/Pd)
3. Weigh tested sample on the top pan,
4. Weigh tested sample on the bottom pan,
5. Balance display indicates platinum class,
6. Report generated automatically.



Date : 08/01/2013
 Time : 14:12:01
 User Id : Martin
 Project Id: Ring
 Balance Id: 321876
 Metal content
 Procedure: Platinum Pt-Pd



Air: 46.33[8] g
 Water: 43.30[8] g
 Temperature: 22 °C
 Density: 15.259 g/cm³
 Volume: 3.037 cm³
 Percent: 48.28 %
 Carat: 482.84 PT

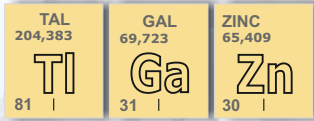
Example of a printout on testing platinum class

Platinum class [PT]	% content of alloyed PT	Alloy density [g/cm ³]		Alloy density [g/cm ³]
		Nickel	Palladium	
1000	100 / 100	21,45	21,45	21,24 ÷ 21,66
950	95,0 / 100	20,04	20,64	19,84 ÷ 20,85
900	90,0 / 100	18,80	19,88	18,61 ÷ 20,08
850	85,0 / 100	17,71	19,18	17,53 ÷ 19,38
800	80,0 / 100	16,73	18,53	16,56 ÷ 18,72
750	75,0 / 100	15,86	17,92	15,70 ÷ 18,10

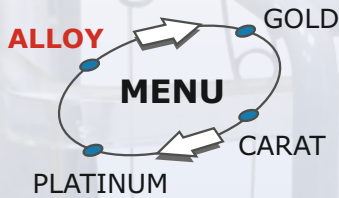
Platinum class in relation to nickel and palladium content



PRECIOUS METAL PURITY TESTER



Determining percent content of main alloy component in a tested sample



ALLOY 1	ρ [g/cm ³]	X	X
ALLOY 2	ρ [g/cm ³]	ALLOY 2	X
ALLOY 3	ρ [g/cm ³]	ALLOY 3	RATIO

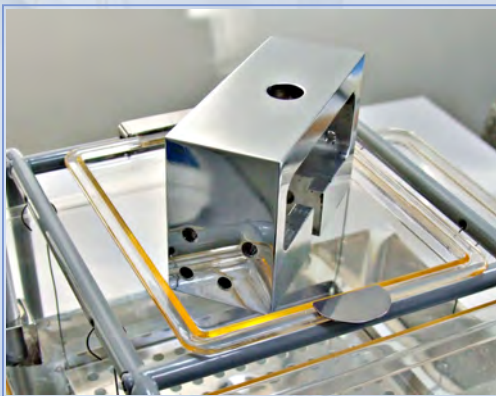
ALLOYS	
No.2	No.3
4	6
5	5
6	4
7	3
8	2

Analysis of weight of an optional two and three component alloy requires specifying data on density of the alloying metals. In case of a three component alloy, the acquired data has to specify percent ratio of minor metal constituents used in the alloy.

1. Select mode,
2. Select alloy type (AL-2;AL-3)
3. Enter density of metals (ratio),
4. Weigh sample on the top and bottom pan,
5. Balance display indicates % content of the main metal in the alloy,
6. Report generated automatically.

Metal content setup			
M8	▶01	Procedure	Alloy WATER
	02	Liquid	22°C
	03	Temperature	0.998 g/cm ³
	04	Density	
	05	Alloy type	▶AL-3
		Run	

Metal content setup			
M8	▶05	▶01	Alloy type AL-3
		02	d1 8.000 g/cm ³
		03	d2 2.700 g/cm ³
		04	d3 2.00 g/cm ³
		05	Ratio ▶8:2



METAL PURITY KIT ENABLES TESTING OBJECTS WITH DIFFERENT SHAPES



ONLINE UPDATED LIQUID TEMPERATURE

Date : 09/01/2013
 Time : 12:36:20
 User Id : ADMIN
 Project Id: Element no 4
 Balance Id: 321876
 Metal content
 Procedure: Alloy AL-3

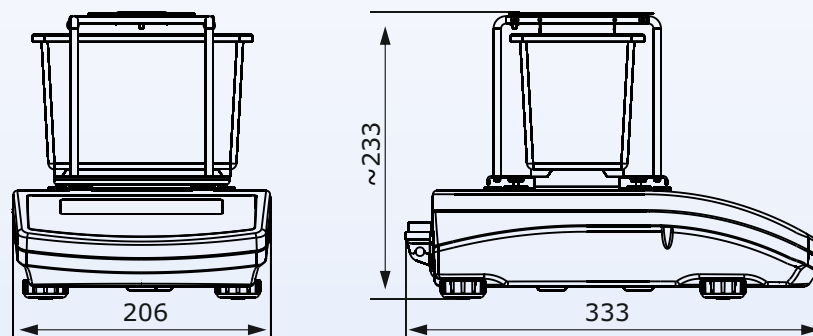
Air: 97.05[2] g
 Water: 72.91[7] g
 Temperature: 22 °C
 Density: 4.012 g/cm³
 Volume: 24.189 cm³
 Percent: 54.16 %

Example of a printout on testing 3-component alloy



PRECIOUS METAL PURITY TESTER

DIMENSIONS



ACCESSORIES

Anti-vibration table	Power adapter ZR-02
Thermal printer Kafka	Rack for under hook weighing
Dot matrix printer Epson	Mass standard
Foot button: "Tare" or "Print" function	Suitcase for balance
Computer software "PW-WIN"	RS232 - RS485 converter "KR-01"
Computer software "RAD-KEY"	Cable RS 232 (balance - Kafka printer) "P0136"
Additional LCD display "WD-3/01"	Cable RS 232 (balance - computer) "P0108"
PC keyboard (PS/2 type)	Cable RS 232 (balance - Epson, Citizen printer) "P0151"

TECHNICAL DATA	PS 200/2000/X/AU
Max capacity	200/2000 g
Min load	0,02 g
Readability	0,001/0,01 g
Tare range	-2000 g
Repeatability	1/10 mg
Linearity	±2/10 mg
Reading accuracy of gold carat content	0,01 K
Reading accuracy of sample density	0,001 g/cm ³
Reading accuracy of sample volume	0,001 cm ³
Reading accuracy of [%] content	0,01 %
Reading accuracy of platinum class	1 PT (1-1000 PT)
Minimum mass in carat mode	1 g
Stabilization time	3 seconds
Pan size (EN-45501)	125×145 mm
Working temperature	10 ÷ 40°C
Power supply	13,5÷16V DC/2,1A

RADWAG BALANCES AND SCALES

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