

World's Most Sensitive Equal Arm Balances

The Gold Standard  
Balance for Gas  
Blending

# Precision

Standard sensitivity: 1 part in 10 million

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# Capacity

Volume: up to 100kg; hanger ht. up to 175cm (70")

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# Durability

Uncompromising material and construction standards

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# RAYMOR

Manufacturers of the World's Most Sensitive  
High-Capacity Equal Arm Balances

# Raymor:

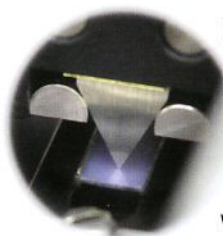
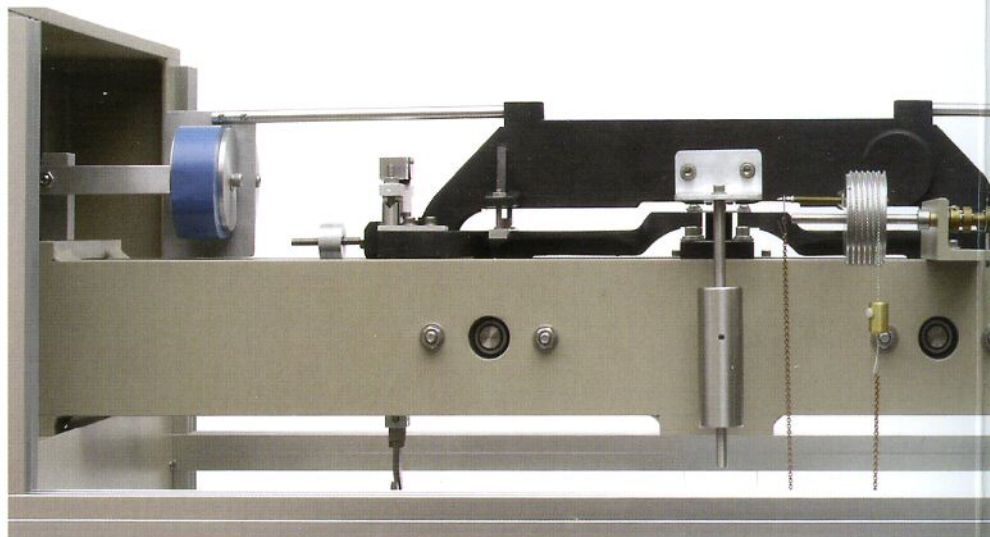
## The New World Standard in High-Capacity Weighing Technology

### *Keepers of the Flame*

Raymor Tool Company was founded by three former employees of Voland Corporation, the pioneering leaders of high capacity, high precision weighing technology.

With their collective experience of over 100 years in the design, fabrication and service of precision equal arm balances, Raymor's technicians are uniquely qualified to carry on the demanding legacy of world-standard balance manufacture.

Raymor's Senior Engineer, Bernie Wasko, designed the original Voland line, and has elevated that expertise to a new technological level with the Raymor HCE line. The same rigorous standards combined with modern electronic advances make the Raymor HCE line the new world standard in high capacity equal-arm weighing technology.



Microscopically adjustable to millionths of an inch, knife blades—like every component of Raymor balances—are designed and built with the exacting standards that 1 part in 10 million repeatable weighing demands.

## SENSITIVITY:

One Part in Ten Million

## REPRODUCIBILITY:

(SD) Equal to or Better than Twice the Sensitivity



## The Raymor HCE Gravimetric Method for Gas Blending



*Bernie Wasko*  
Senior Engineering Consultant, Raymor

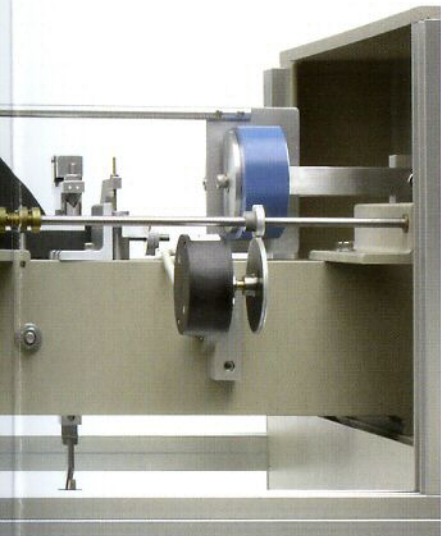
The N.I.S.T. (National Institute for Science and Technology) sets primary weight standards using a balance of the same design as the Raymor HCE Series. Only calibrated weights of this origin can certify the precision of a gas mixture.

In gas mixture, given the choice between measuring the partial pressure of each component and knowing precisely the actual weight of each component, the latter—the gravimetric method—is the superior method. This requires two essential features in the weighing device: ultra-sensitivity, and a double-pan design.

The Raymor HCE's sensitivity of 1 part in 10,000,000 with a reproducibility as low as 10mg ensures the absolute precision necessary for gas blending.

With the HCE's double-pan design, the tare cylinder and the cylinder being filled are equally affected by any variables in temperature, atmospheric pressure, humidity and the relative weights of gaseous components such as nitrogen, O<sub>2</sub> and CO<sub>2</sub>, thus eliminating their effect on the measured weight.

Using calibrated weights with the Raymor HCE, the gravimetric method enables the seller to report component gas values with the highest possible degree of confidence.



# The Balance Used Worldwide for Establishing Mass Standards

The Main Beam Assembly, Arrestment Mechanism, Magnetic Damper, Digital Encoder and Chain Weight Mechanism are all mounted on a single, rugged chassis and frame, ensuring precision and repeatability.



Easy-to-use electronic zero and sensitivity controls eliminate the need for mechanical adjustments on the weigh beam. The chain weight provides stable, continuously variable weight value.

*Bernie Wasko was Vice President and Director of Engineering for Voland Corporation, then the premier American manufacturer of large precision mass comparators. He is credited with the creation of the world's first mass comparator capable of calibrating mass standards to 1 part in 1,000,000,000 (one billion).*

*Mr. Wasko's gravimetric method of specialty gas mixture comparison remains the standard in the industry, and his work with the National Bureau of Standards (now NIST) established the international mass comparator standard used to this day.*

# When One Part in Ten Million Matters

**The balance design used by Standards Organizations from the N.I.S.T. to the EPA**

*The ultimate in balance sensitivity and durability*

## The World Standard in Gas Balance Comparators



The HCE's double-pan design obviates atmospheric variance between the tare cylinder and the cylinder being filled. Raymor offers a hydraulic lift truck for easy transport and loading of cylinders as large as 250mm (10") diameter and 175cm (70") height.

Every aspect of a Raymor balance is designed for ease of use and years of exacting, reliable performance. National and International standards agencies, government and military standards laboratories and industry quality control specialists rely on the exacting and dependable service of Raymor designed balances. There is literally no equal to the quality, sensitivity, precision and durability of a Raymor balance.

When the precision of one part in ten million matters; when rugged, dependable performance over decades of use is essential, there is one choice in weighing instruments worldwide: Raymor.

# Raymor Voland™ Balance Service and Support

*By technicians  
who designed and  
built them*

The Raymor technical staff has installed and serviced hundreds of Voland HCE balances worldwide. If your Voland balance requires service or replacement parts, or you are interested in upgrading your analog display to digital, Raymor is your source.

Our specialized calibration equipment and highly experienced staff allow us to make this unique statement:

*"We can restore  
any Voland HCE  
balance to its  
original  
specifications."*

Call, or visit our website at [www.raymortool.com](http://www.raymortool.com) for more information.

## RAYMOR HCE-Series Specifications

MODEL	HCE-10	HCE-25	HCE-50	HCE-100	HCE-100G
<b>Capacity</b>	10 kg	25 kg	50 kg	100 kg	100 kg
<b>Standard Sensitivity*</b>	1 mg	2.5 mg	5 mg	10 mg	10 mg
<b>Chain Range</b>	1 g	1 g	1 g	10 g	10 g
<b>Pan Width x Depth</b>	12" x 10" 305 x 255mm	18" x 14" 455 x 355mm	18" x 14" 455 x 355mm	18" x 14" 455 x 355mm	18" x 14" 455 x 355mm
<b>Hanger Height**</b>	15" 380mm	26" 660mm	26" 660mm	26" 660mm	54" 1370mm
<b>Case Width</b>	44" 1120mm	66" 1680mm	66" 1680mm	66" 1680mm	68" 1725mm
<b>Case Height</b>	40" 1010mm	57" 1440mm	57" 1440mm	57" 1440mm	90" 2285mm
<b>Case Depth</b>	19" 490mm	28" 700mm	28" 700mm	28" 700mm	28" 700mm
<b>Shipping Weight</b>	450 lb 195 kg	950 lb 410 kg	950 lb 410 kg	950 lb 410 kg	1500 lb 680 kg

### General Specifications

<b>Beam</b>	Heat-treated aluminum
<b>Knives</b>	Tantung "G"
<b>Bearings</b>	Choice Brazilian Agate
<b>Pan Arrest</b>	Gravity operated for optimum dampening
<b>Arrestment</b>	Concentric arc with 3 point suspension
<b>Load Suspension</b>	3-point, fully compensating
<b>Beam Dampening</b>	Magnetic, adjustable
<b>Chainweight</b>	Digital readout
<b>Case Panels</b>	Oak formica on flakeboard for stability
<b>Frame</b>	Structural aluminum u-beams
<b>Pans</b>	Aluminum with stainless steel hanger rods

- \* Higher sensitivity available on special order.
- \*\* Extended Hanger Height available for all models
- Reproducibility (SD) is equal to or better than two times the sensitivity.

# RAYMOR

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