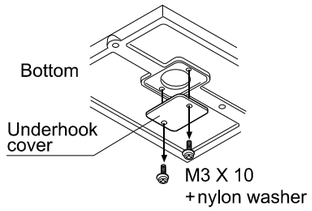
GP-20/21 Underhook

Applicable models:
- GP-20:
  GX-12001L/22001L/32001L/32001LD/42001L/32001LS/32001LDS
  GF-12001L/22001L/32001L
  GP-12K/20K/30K/32K/40K/30KS/32KS
- GP-21:
  GX-62001L/62000L/102000L/62001LS/62000LS/102000LS
  GF-62000L
  GP-61K/60K/100K/102K/61KS/60KS/100KS

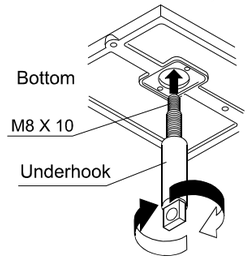
The GP-20/21 is the underhook for the GX-L/GF-L series and the GP series balance for measuring density.

Assembling

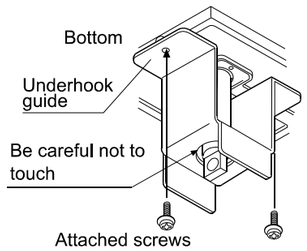
(1) Remove the underhook cover.



(2) Fasten the underhook to the sensor unit gently.



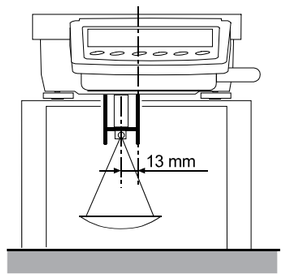
(3) Screw the guide to the bottom of the balance gently. Make sure that the underhook does not touch the underhook guide.



(4) Place the balance on a weighing table with a hole cut in it.

Attached screws
M5 X 10 (screw with toothed washer)

(5) Hang a lightweight weighing harness through this hole.



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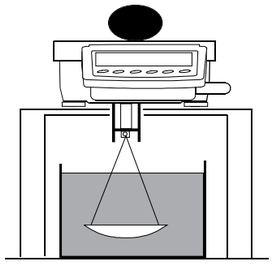
An Example of Underhook Weighing

A weight of metal immersed in a liquid decreases by the weight of the liquid it displaces (Archimedes' Principle). Therefore you can obtain the volume and the density.

(1) Place the material on the pan.
Find the weight A of the material in air. A=10000.0 g

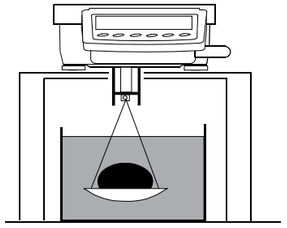


A = 10000.0 g

(2) GX-L/GF-L series: Press either the ZERO key or the TARE key so that the balance displays zero

GP series: Press the RE-ZERO key so that the balance displays zero.

(3) Lower the material into water at 10 ºC. Find the absolute weight B of the material in water.
B = 466.1 g



B = | - 466.1 g |
= 466.1 g

(4) Find the water density C from following table.
C = 466.2 cm^3

0 ºC	0.99984g/cm^3	
4	0.99997	
10	0.99970	
15	0.99910	
20	0.99820	
25	0.99704	
30	0.99565	Reference

$$\frac{466.1\ g}{0.99970\ g/cm^3} = 466.2\ cm^3$$

C = 466.2 cm^3

(5) The density is 21.45 g/cm^3. This material is most likely platinum.

$$\frac{10000.0\ g}{466.2\ g/cm^3} \approx 21.45\ g/cm^3$$

NOTE: For measuring density, refer to "DENSITY MEASUREMENT" of the GX-L/GF-L series or GP series instruction manual.

A&D Company, Ltd.