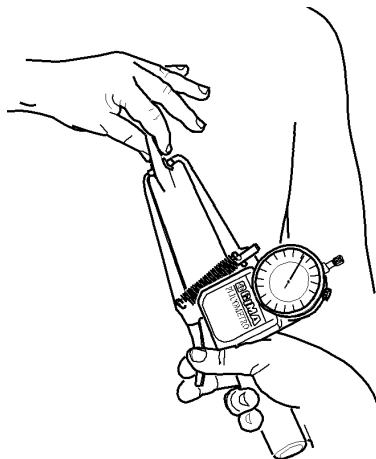




GIMA

**PLICOMETRO - SKINFOLD CALIBER - ADIPOMÈTRE
HAUTFALTENMESSER - PLICOMETRO**



**MANUALE D'USO E MANUTENZIONE
USE AND MAINTENANCE BOOK
INSTRUCTIONS DE FONCTIONNEMENT ET ENTRETIEN
BETRIEBS UND WARTUNGS ANWEISUNGEN
MANUAL DE USO Y MANTENIMIENTO**

ATTENZIONE: Gli operatori devono leggere e capire completamente questo manuale prima di utilizzare il prodotto.

ATTENTION: *The operators must carefully read and completely understand the present manual before using the product.*


AVIS: Les opérateurs doivent lire et bien comprendre ce manuel avant d'utiliser le produit.

ACHTUNG: *Die Bediener müssen vorher dieses Handbuch gelesen und verstanden haben, bevor sie das Produkt benutzen.*

ATENCIÓN: Los operadores tienen que leer y entender completamente este manual antes de utilizar el producto.

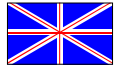
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M27320-M-Rev.9-01.20

 **Metrica S.p.A. Via Grandi n.18,
20097 San Donato (MI) - Italy**

CE 0476





PREFACE

The purpose of this manual is to provide the client with all kinds of indications concerning the skinfold caliber. The operating and maintenance instructions should enable the durability of the skinfold caliber's performance and efficiency. The operating instructions manual should be kept in good state and be easily accessible for quick consultation. The skinfold caliber is subject to up-datings and therefore different items may be assembled to it than those depicted. This possibility does not prejudice in any way the explanations contained in the instructions manual nor the security of the skinfold caliber.

USE

The skinfold caliber may be used by professional medical staff and as such it is marked with the CE 0476 certificate, which denotes a class I medical device that has the function of measuring in accordance with CEE directive 93/42.

PURPOSE OF THE DEVICE

The skinfold caliber is an instrument that has the function to measure in mm with a pressure of 10gr/mm² ($\pm 10\%$) the thickness of a layer of skin tissue with its substratum of body fat.

INSTRUCTIONS OF THE DEVICE

Before using the skinfold caliber the calibration of the exercised pressure by its vice needs to be verified with the supplied dynamometrical shell, proceeding in the following manner:

- a) Loosen the knob (see fig. 5-12) on the quadrant and regulate the quadrant in the way that the indicator is positioned on 0. After this tighten the knob again.
- b) Open the vice of the skinfold caliber and interpose the dynamometrical shell (see fig. 5-(11), pag.17) on its elastic part between the two cheeks of the skinfold caliber, keeping the outer part of the shell strictly nearby the inner side of the skinfold caliber's vice (see fig. 5.).
- c) On the quadrant it should read 2 mm \pm 0,2 mm. If this measure doesn't appear you should regulate the allen screw (see fig. 5-13.) that is positioned on the spacer (fig. 5-3) of the skinfold caliber, so that the springs are tightened until the measure of 2 \pm 0,2mm can be read on the instrument's quadrant.
- d) The skinfold caliber is ready for use.



N.B. for a correct use we suggest repeating the above operation every day.

HOW TO VALUE THE LAYERS OF SKIN TISSUE (fig. 1)

The skinfold caliber is applied on the layer of skin tissue after that you have drawn up the two ends of the skin layer with its substrata of fat that has to be measured.

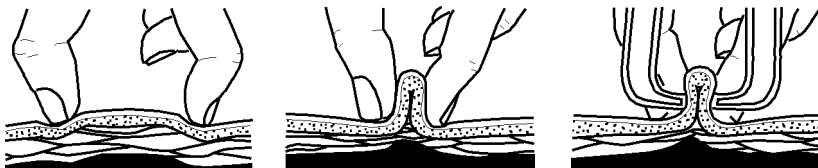


fig. 1

1) To value the layers of skin tissue, firmly grasp a layer of skin between the tip of the thumb and the tip of the forefinger of your non-dominant hand and lift it. In this way the skin and the fat underneath will be lifted and separated from the underlying muscular layers.



2) The clutches of the skinfold caliber are handled by the other hand. After having been widened, working on the right grip, they will be released crosswise on the skin layer itself, immediately under (about one centimetre) the fingers that have lifted it, so that its thickness may be measured. The value reading, on millimetric scale, can be carried out directly on the gradual scale (the quadrant) of the skinfold caliber, and immediately after that the skinfold caliber has been released in such a way that no progressive and excessive crushing of the soft parts has been provoked.

3) The value given will be an arithmetic medium of two successive measurements, in case the difference between these does not exceed 5%. If the difference is greater, it is necessary to carry out a third accurate measurement and to carry out the medium between the latter and the closer measurement of the former. In case of doubt it is allowed to take a bigger number of counter-checks. It may happen, especially with female patients, to encounter somewhat difficulty when you lift the skin layers. This is caused by the fact that the underlying tissue often is joint with the underlying muscle layer, and therefore it adheres to it with a certain tenacity. In this case it is good to precede the tissue meter measurement by a series of stinging and loosening actions .

SKIN LAYERS THAT NEED TO BE NOTED

- **Triceps and subscapular for the male sex (see fig. 2)**
- **Triceps and front thigh for the female sex (see fig. 3)**

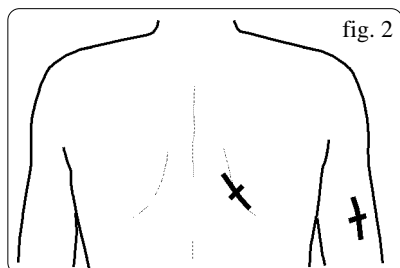


fig. 2

Triceps:

Vertical skin layer measured along the mid-tricipital line halfway between the olecranon (elbow) and the coracoid apophysis (shoulder).

Subscapular:

Oblique skin layer at 45°, in the direction from upper-medial to lower-lateral, measured just under the scapular point (shoulder). (fig. 2)

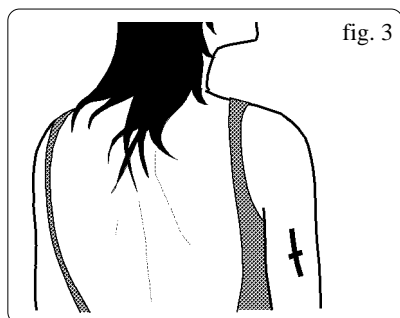


fig. 3

Triceps:

Vertical skin layer measured along the mid-tricipital line halfway between the olecranon (elbow) and the coracoid apophysis (shoulder). (fig. 3)

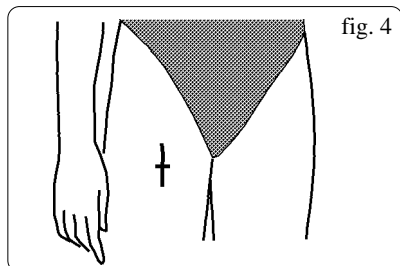


fig. 4

Front thigh:

Vertical skin layer on the frontmiddle line of the thigh, halfway between the kneecap and the upper margin of the iliaccrest. (see fig. 4)



SCEDULE FOR THE ESTIMATION OF THE PERCENTAGE OF MALE ADIPOSITY

- 1) Sum up the thickness of the TRICIPITAL and SUBSCAPULAR skin layers after having them obtained with the skinfold caliber
- 2) Insert the obtained data in the column referring to the age of the examined patient, stopping at the coinciding numerical level.
- 3) Scroll horizontally to the right with a ruler until you reach the columns OBESITY and DIAGNOSIS to establish the values

AGE 35 yrs	AGE 35-50 yrs	AGE 50 yrs	OBESITY %	DIAGNOSIS of adiposity
8-12	7-11	6-10	4	very thin
13-18	12-17	11-16	8	thin
19-25	18-23	17-22	12	within the norm
26-32	24-30	23-29	16	slight adiposity
33-40	31-37	30-35	20	excessive adiposity
41-49	38-46	36-43	24	obesity
50-58	47-54	44-50	28	high obesity

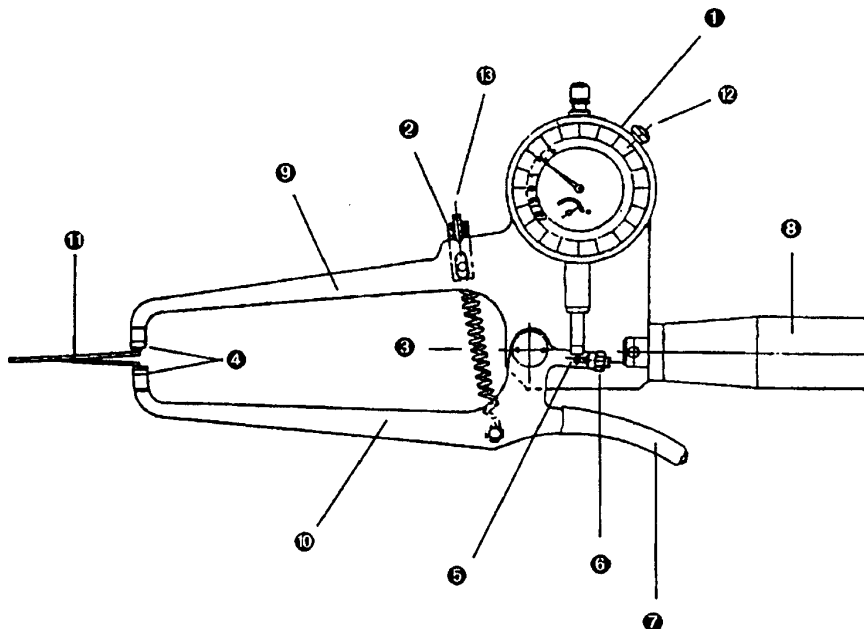
SCEDULE FOR THE ESTIMATION OF THE PERCENTAGE OF FEMALE ADIPOSITY

- 1) Sum up the thickness of the TRICIPITAL and FRONT THIGH skin layers after having them obtained with the skinfold caliber
- 2) Insert the obtained data in the column referring to the age of the examined patient, stopping at the coinciding numerical level.
- 3) Scroll horizontally to the right with a ruler until you reach the columns OBESITY and DIAGNOSIS to establish the values

AGE 35 yrs	AGE 35-50 yrs	AGE 50 yrs	OBESITY %	DIAGNOSIS of adiposity
17-24	16-22	15-20	13	very thin
25-33	23-31	21-29	17	thin
34-43	32-40	30-38	21	within the norm
44-52	41-49	39-47	25	slight adiposity
53-61	50-58	48-55	29	excessive adiposity
62-71	59-67	56-64	33	obesity
72-84	68-79	65-74	37	high obesity



SCHEMA PEZZI DI RICAMBIO
CHART OF SPARE PARTS
(Fig. 5)



DESCRIZIONE PEZZI DI RICAMBIO:

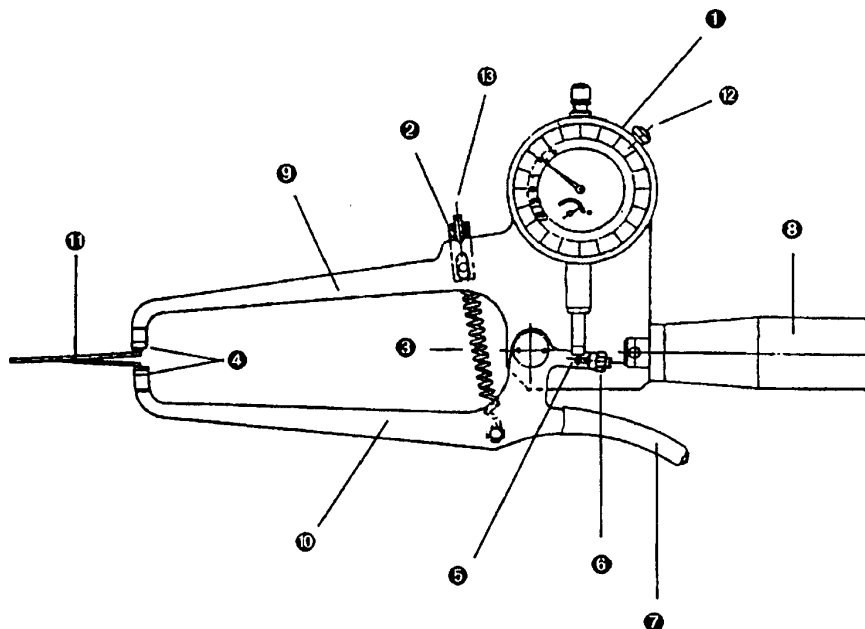
- 1 COMPARATORE
- 2 PORTASPINA
- 3 MOLLA - DISTANZIATORE
- 4 PIASTRINE IN PVC
- 5 GRANO DI REGOLAZIONE
- 6 DADO M4
- 7 TUBETTO PROTETTIVO
- 8 IMPUGNATURA
- 9 BRACCIO FISSO
- 10 BRACCIO MOBILE
- 11 LAMINA DINAMOMETRICA
- 12 POMOLO
- 13 VITE A BRUGOLA

DESCRIPTION OF SPARE PARTS:

- 1 DIAL GAUGE
- 2 PLUG BOX
- 3 SPRING \bar{n} SPACER
- 4 PVC PLATES
- 5 REGULATION GRAIN
- 6 M4 NUT
- 7 PROTECTIVE TUBE
- 8 HANDLE
- 9 FIXED ARM
- 10 MOBILE ARM
- 11 DYNAMOMETRICAL SHELL
- 12 KNOB
- 13 ALLEN SCREW











SCHÉMA DES PIÈCES DE RECHANGE
SCHEMA DER ERSATZTEILE
 ESQUEMA PIEZAS DE RECAMBIO
 (Fig. 5)



DESCRIPTION DES COMPOSANTS *BESCHREIBUNG DER BESTANDTEILE* DESCRIPCIÓN COMPONENTES.

1	COMPARATEUR	1	KOMPARATOR	1	Comprador
2	PORTE PRISE	2	STECKERANSCHLUSS	2	PORTACLAVIA
3	RESSORT - ENTRETOISE	3	FEDER-DISTANZIATOR	3	MUELLE - DISTANCIADOR
4	PLAQUE EN PVC	4	PVC PLATTEN	4	PLAQUITAS EN PVC
5	CAME DE RÉGLAGE	5	REGULIERUNGSSTIFT	5	TORNILLO DE REGULACIÓN
6	BOUTON M4	6	SCHRAUBENMUTTER M4	6	TUERCA M4
7	MANCHON DE PROTECTION	7	SCHUTZSCHLAUCH	7	tubo protect.
8	POIGNÉE	8	GRIFF	8	empuñadura
9	BRAS FIXE	9	FESTER ARM	9	BRAZO FIJO
10	BRAS MOBILE	10	BEWEGLICHER ARM	10	BRAZO MÓVIL
11	LAME DYNAMOMÉTRIQUE	11	DYNAMOMETRISCHES BLÄTTCHEN	11	LÁMINA DINAMOMÉTRICA
12	BOUTON	12	KNOPF	12	POMO
13	VIS ALLEN	13	SCHRAUBE	13	TORNILLO ALLEN

Simboli / Symbols / Symboles / Symbole / Simbolos

	<p>IT - Attenzione: Leggere e seguire attentamente le istruzioni (avvertenze) per l'uso GB - Caution: read instructions (warnings) carefully FR - Attention: lisez attentivement les instructions (avertissements) DE - Achtung: Anweisungen (Warnings) sorgfältig lesen ES - Precaución: lea las instrucciones (advertencias) cuidadosamente</p>		<p>IT - Dispositivo medico conforme alla Direttiva 93/42/CEE GB - Medical Device complies with Directive 93/42/EEC FR - Medical Device complies with Directive 93/42/EEC DE - Medizinprodukt gemäß Richtlinie 93/42/CEE ES - Dispositivo médico según a la Directiva 93/42 / CEE</p>
	<p>IT - Conservare in luogo fresco ed asciutto GB - Keep in a cool, dry place FR - À conserver dans un endroit frais et sec DE - An einem kühlen und trockenen Ort lagern ES - Conservar en un lugar fresco y seco</p>		<p>IT - Conservare al riparo dalla luce solare GB - Keep away from sunlight FR - À conserver à l'abri de la lumière du soleil DE - Vor Sonneneinstrahlung geschützt lagern ES - Conservar al amparo de la luz solar</p>
	<p>IT - Fabbricante GB - Manufacturer FR - Fabricant DE - Hersteller ES - Fabricante</p>		<p>IT - Leggere le istruzioni per l'uso GB - Consult instructions for use FR - Consulter les instructions d'utilisation DE - Gebrauchsanweisung beachten ES - Consultar las instrucciones de uso</p>
	<p>IT - Codice prodotto GB - Product code FR - Code produit DE - Erzeugniscode ES - Código productó</p>		<p>IT - Numero di lotto GB - Lot number FR - Numéro de lot DE - Chargennummer ES - Número de lote</p>