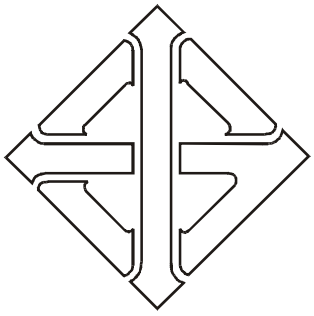

มาตรฐานผลิตภัณฑ์อุตสาหกรรม

THAI INDUSTRIAL STANDARD

มอก. 2397 เล่ม 3–2551

ISO 8548-3 : 1993

กายอุปกรณ์เทียมและกายอุปกรณ์เสริม-ส่วนแขนและขาที่ขาดไป

เล่ม 3 : วิธีการเรียกความพิการระดับต่างๆ ของแขนที่เกิดจากการตัด

PROSTHETICS AND ORTHOTICS - LIMB DEFICIENCIES-

PART 3 : METHOD OF DESCRIBING UPPER LIMB AMPUTATION STUMPS

สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

กระทรวงอุตสาหกรรม

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มาตรฐานผลิตภัณฑ์อุตสาหกรรม

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มอก. 2397 เล่ม 3 – 2551

สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
กระทรวงอุตสาหกรรม ถนนพระรามที่ 6 กรุงเทพฯ 10400
โทรศัพท์ 0 2202 3300

ประกาศในราชกิจจานุเบกษา ฉบับประกาศและงานทั่วไป เล่ม 126 ตอนพิเศษ 23ง
วันที่ 12 กุมภาพันธ์ พุทธศักราช 2552

กายอุปกรณ์เป็นอุปกรณ์ที่จำเป็นสำหรับผู้พิการ หรือช่วยให้ผู้พิการมีคุณภาพชีวิตที่ดี สามารถดำรงชีวิตและประกอบอาชีพได้เหมือนบุคคลปกติทั่วไป จึงกำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรม กายอุปกรณ์เทียมและกายอุปกรณ์เสริม-ส่วนแขนและขาที่ขาดไป เล่ม 3 : วิธีการเรียกความพิการระดับต่างๆ ของแขนที่เกิดจากการตัด ขึ้น

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ กำหนดขึ้นโดยรับ ISO 8548-3 : 1993 Prosthetics and orthotics-Limb deficiencies-Part 3 : Method of describing upper limb amputation stumps มาใช้ในระดับเหมือนกันทุกประการ (identical) โดยใช้ ISO ฉบับภาษาอังกฤษเป็นหลัก

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ กำหนดขึ้นเพื่อให้ทันกับความต้องการของผู้ใช้ และจักได้แปลเป็นภาษาไทยในโอกาสอันสมควร หากมีข้อสงสัยโปรดติดต่อสอบถามที่สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

คณะกรรมการมาตรฐานผลิตภัณฑ์อุตสาหกรรมได้พิจารณามาตรฐานนี้แล้ว เห็นสมควรเสนอรัฐมนตรีประกาศตามมาตรา 15 แห่งพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ. 2511

ประกาศกระทรวงอุตสาหกรรม

ฉบับที่ 3914 (พ.ศ. 2551)

ออกตามความในพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม

พ.ศ. 2511

เรื่อง กำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรม

กายอุปกรณ์เทียมและกายอุปกรณ์เสริม-ส่วนแขนและขาที่ขาดไป

เล่ม 3 : วิธีการเรียกความพิการระดับต่าง ๆ ของแขนที่เกิดจากการตัด

อาศัยอำนาจตามความในมาตรา 15 แห่งพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ.2511 รัฐมนตรีว่าการกระทรวงอุตสาหกรรมออกประกาศกำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรม กายอุปกรณ์เทียมและกายอุปกรณ์เสริม-ส่วนแขนและขาที่ขาดไป เล่ม 3 : วิธีการเรียกความพิการระดับต่าง ๆ ของแขนที่เกิดจากการตัด มาตรฐานเลขที่ มอก. 2397 เล่ม 3-2551 ไว้ ดังมีรายการละเอียดต่อท้ายประกาศนี้

ประกาศ ณ วันที่ 16 ตุลาคม พ.ศ. 2551

พลตำรวจเอก ประชา พรหมนอก

รัฐมนตรีว่าการกระทรวงอุตสาหกรรม

มาตรฐานผลิตภัณฑ์อุตสาหกรรม
กายอุปกรณ์เทียมและกายอุปกรณ์เสริม-ส่วนแขนและขาที่ขาดไป
เล่ม 3 : วิธีการเรียกความพิการระดับต่าง ๆ ของแขนที่เกิดจากการตัด

บทนำ

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ กำหนดขึ้นโดยรับ ISO 8548-3 : 1993 Prosthetics and orthotics-Limb deficiencies-Part 3 : Method of describing upper limb amputation stumps มาใช้ในระดับเหมือนกันทุกประการ (identical) โดยใช้ ISO ฉบับภาษาอังกฤษเป็นหลัก

ขอบข่าย

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้กำหนดวิธีการเรียกความพิการระดับต่าง ๆ ของแขนที่เกิดจากการตัด

เอกสารอ้างอิง

รายละเอียดให้เป็นไปตาม ISO 8548-3 : 1993 ข้อ 2

บทนิยาม

ความหมายของคำที่ใช้ในมาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ ให้เป็นไปตาม ISO 8548-3 : 1993 ข้อ 3

วิธีการวัดส่วนของตอแขนที่เหลือจากการตัด

รายละเอียดให้เป็นไปตาม ISO 8548-3 : 1993 ข้อ 4

วิธีเรียกความพิการระดับต่างๆ ของแขนที่เกิดจากการตัด

รายละเอียดให้เป็นไปตาม ISO 8548-3 : 1993 ข้อ 5

Introduction

Many different systems have been developed to classify amputation stumps, but none has achieved universal acceptance. The reasons for this are many. The members of the clinic teams in different countries, working with different patients and different technical possibilities, develop their own systems to meet their individual needs. Hence there is a need for an international system to be developed in order to compare one publication with another, one patient against another. The different care groups who will appreciate and use a standardized system of describing stumps include surgeons of different disciplines, other doctors (especially those concerned with rehabilitation), physical and occupational therapists and prosthetists. Such a system is also of value to epidemiologists and government health officials.

The system proposed has to meet the needs of the different members of the clinic team and to enable the description of the stump to be recorded in a way that can be easily incorporated in reports. This part of ISO 8548 deliberately aims at defining the minimum information to be described. It should be feasible for this information to be included in forms designed by the individual institution; the information should also be capable of ready adaptation for computer analysis.

Prosthetics and orthotics — Limb deficiencies —

Part 3:
Method of describing upper limb amputation stumps

1 Scope

This part of ISO 8548 establishes a method of describing upper limb amputation stumps and for recording the descriptive information.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8548. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8548 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8548-1:1989, *Prosthetics and orthotics — Limb deficiencies — Part 1: Method of describing limb deficiencies present at birth.*

ISO 8549-1:1989, *Prosthetics and orthotics — Vocabulary — Part 1: General terms for external limb prostheses and external orthoses.*

ISO 8549-2:1989, *Prosthetics and orthotics — Vocabulary — Part 2: Terms relating to external limb prostheses and wearers of these prostheses.*

3 Definitions

For the purposes of this part of ISO 8548, the definitions given in ISO 8548-1, ISO 8549-1 and ISO 8549-2 apply.

4 Measurement of upper limb amputation stumps

4.1 Reference levels and reference planes

Identify the reference levels and planes relevant to the particular level of amputation as described in 4.1.1 and 4.1.2, preferably with the patient standing erect and with the stump hanging unconstrained.

4.1.1 Reference levels

4.1.1.1 Axilla level — the most proximal level at which a circumferential measurement, perpendicular to the centreline of the upper arm, can be obtained.

4.1.1.2 Medial epicondyle level — the level of the medial epicondyle of the humerus.

4.1.1.3 Stump end level — the level of the end of the stump.

4.1.1.4 Ulnar styloid level — the level of the tip of the ulnar styloid in wrist disarticulation stumps and on the contralateral limb.

4.1.1.5 Bone end level — the level of the bone end in trans-humeral and trans-radial amputation stumps.

4.1.1.6 Minimum circumferential level — the level of the minimum circumferential measurement in elbow disarticulation stumps.

4.1.2 Reference planes

4.1.2.1 Posterior ulnar plane — the plane of the posterior aspect of the shaft of the ulna, parallel with the centreline of the forearm when the elbow is flexed at 90°.

4.1.2.2 Anterior elbow crease plane — the plane perpendicular to the centreline of the forearm at the level of the anterior elbow crease with the elbow flexed at 90°.

4.2 Measurements

4.2.1 Length measurements

Measure and record the length measurements as specified in the appropriate table (see tables 1 to 7) for the particular level of amputation.

4.2.2 Circumferential measurements

Measure and record the circumferential measurements as specified in the appropriate table (see tables 1 to 7) for the particular level of amputation.

4.3 Assessment of joint function

4.3.1 General

The aspects of joint function which need to be recorded include abnormalities of range of joint movement, significant reduction of muscle power and any loss of joint stability.

4.3.2 Measurement of abnormal range of joint movement

Record any abnormalities of the range of joint movement using the method of measurement of joint motion as adopted by the American Academy of Orthopaedic Surgeons in 1964 in which all motions of the joint are measured from defined zero starting positions.

4.3.3 Assessment of joint power

Record any reduction of muscle power likely to affect performance significantly.

NOTE 1 Muscle power can be measured objectively but requires expensive and bulky apparatus which is inapplicable here. The scales relating to measurements of power in poliomyelitis cases are equally inappropriate.

The subjective judgement as to whether there is significant reduction of power or not has to be based on an appreciation as to whether the power demonstrated would be sufficient to stabilize the proximal joint with the stump in a well-fitted socket.

4.3.4 Assessment of joint stability

Record an assessment of the joint stability.

NOTE 2 It is recognized that the stability of a joint is a function of the integrity of the skeletal, ligamentous and neuro-muscular elements. In the context of this part of ISO 8548, the recording of the joint instability refers solely to bony and/or ligamentous impairments and their consequences.

5 Method of describing upper limb amputation stump

5.1 General

Describe the stump using the relevant descriptors listed in the appropriate tables (see tables 1 to 7), and by the use of the guidance given in annex A.

5.2 Forequarter amputation

Use the descriptors shown in table 1.

5.3 Shoulder disarticulation

Use the descriptors shown in table 2.

NOTE 3 Shoulder disarticulation refers either to amputation at the scapula-humeral joint or to amputation above the upper reference level as described for the usual trans-humeral level (see 5.4).

5.4 Trans-humeral amputation (above-elbow)

Use the descriptors shown in table 3.

NOTE 4 The upper reference level for length measurements is the axilla but, in the case of a flexion deformity, the upper reference level for length would be the highest level

at which a circumferential measurement is possible at right angles to the centreline of the stump.

5.5 Elbow disarticulation

Use the descriptors shown in table 4.

NOTE 5 The upper reference level for length measurements is the axilla but, in the case of a flexion deformity, the upper reference level for length would be the highest level at which a circumferential measurement is possible at right angles to the centreline of the stump.

5.6 Trans-radial amputation (below-elbow)

Use the descriptors shown in table 5.

NOTE 6 The upper reference level for length measurements is the medial epicondyle but, in the case of a flexion deformity, the upper reference level for length would be the highest level at which a circumferential measurement is possible at right angles to the centreline of the stump.

5.7 Wrist disarticulation

Use the descriptors shown in table 6.

NOTE 7 The upper reference level for length measurements is the medial epicondyle but, in the case of a flexion deformity, the upper reference level for length would be the highest level at which a circumferential measurement is possible at right angles to the centreline of the stump.

5.8 Partial hand amputation

Use the descriptors shown in table 7.

Describe the abnormality of the hand remnant in terms of deformity, range of movements and power, stability and overall function.

Table 1 — Descriptors for recording forequarter amputations (see 5.2 and annex A)

Descriptor	Statements to be recorded
Measurements	Not relevant
Stump shape	
Scapular remnant	Absent/present
Clavicular remnant	Absent/present
	If the contralateral arm is the site of an amputation, state the level
Skin of the stump	
Amputation scar	Healed/unhealed
	Mobile/adherent
General	Skin barrier intact/skin barrier not intact
	Sensation normal/sensation impaired
	No additional scarring/additional scarring
Circulation	
Oedema	None/present/excessive
Soft tissues of the stump	
Amount	Adequate/inadequate/excessive
Consistency	Normal/flabby/indurated
Significant pain	
Spontaneous pain	No/yes
Tenderness	No/yes (generalized)/yes (localized)
Painful neuroma	No/yes
Phantom pain	No/yes

Table 2 — Descriptors for recording shoulder disarticulations (see 5.3 and annex A)

Descriptor	Statements to be recorded
Measurements	Not relevant
Stump shape	
Upper humeral remnant	Absent/present but not prominent/present and prominent If the contralateral arm is the site of an amputation, state the level
Skin of the stump	
Amputation scar	Healed/unhealed Mobile/adherent
General	Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation	
Oedema	None/present/excessive
Soft tissues of the stump	
Amount	Adequate/inadequate/excessive
Consistency	Normal/flabby/indurated
Significant pain	
Spontaneous pain	No/yes
Tenderness	No/yes (generalized)/yes (localized)
Painful neuroma	No/yes
Phantom pain	No/yes

Table 3 — Descriptors for recording trans-humeral (above-elbow) amputations (see 5.4, figure 1 and annex A)

Descriptor	Statements to be recorded
Measurements	Record the following measurements: — the length from the axilla to the stump end, l_1 — the length from the bone end to the stump end, l_2 — the length of the contralateral arm from the axilla to the ulnar styloid, l_3 — the length of the contralateral arm from the axilla to the medial epicondyle, l'_4 — the length of the contralateral arm from the axilla to the posterior aspect of the shaft of the ulna when the elbow is flexed to 90°, l_5 — the circumference at the axilla, C_1 — the circumference at the bone end, C_2 If the contralateral arm is also the site of an amputation, state the level
Stump shape General End of humerus	 Cylindrical/conical/bulbous Not prominent/prominent
Skin of the stump Amputation scar General	 Healed/unhealed Mobile/adherent Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation Colour of skin Temperature (to the examining hand) Oedema	 Normal/cyanotic/other discoloration Warm/cold None/present/excessive
Soft tissues of the stump Amount Consistency	 Adequate/inadequate/excessive Normal/flabby/indurated
Significant pain Spontaneous pain Tenderness Painful neuroma Phantom pain	 No/yes No/yes (generalized)/yes (localized) No/yes No/yes
Joint function **Shoulder** (combined gleno-humeral and scapulo-thoracic) Range of movement Muscle power Stability Pain	 Normal/abnormal (specify) No significant reduction/significant reduction Normal/impaired No/yes

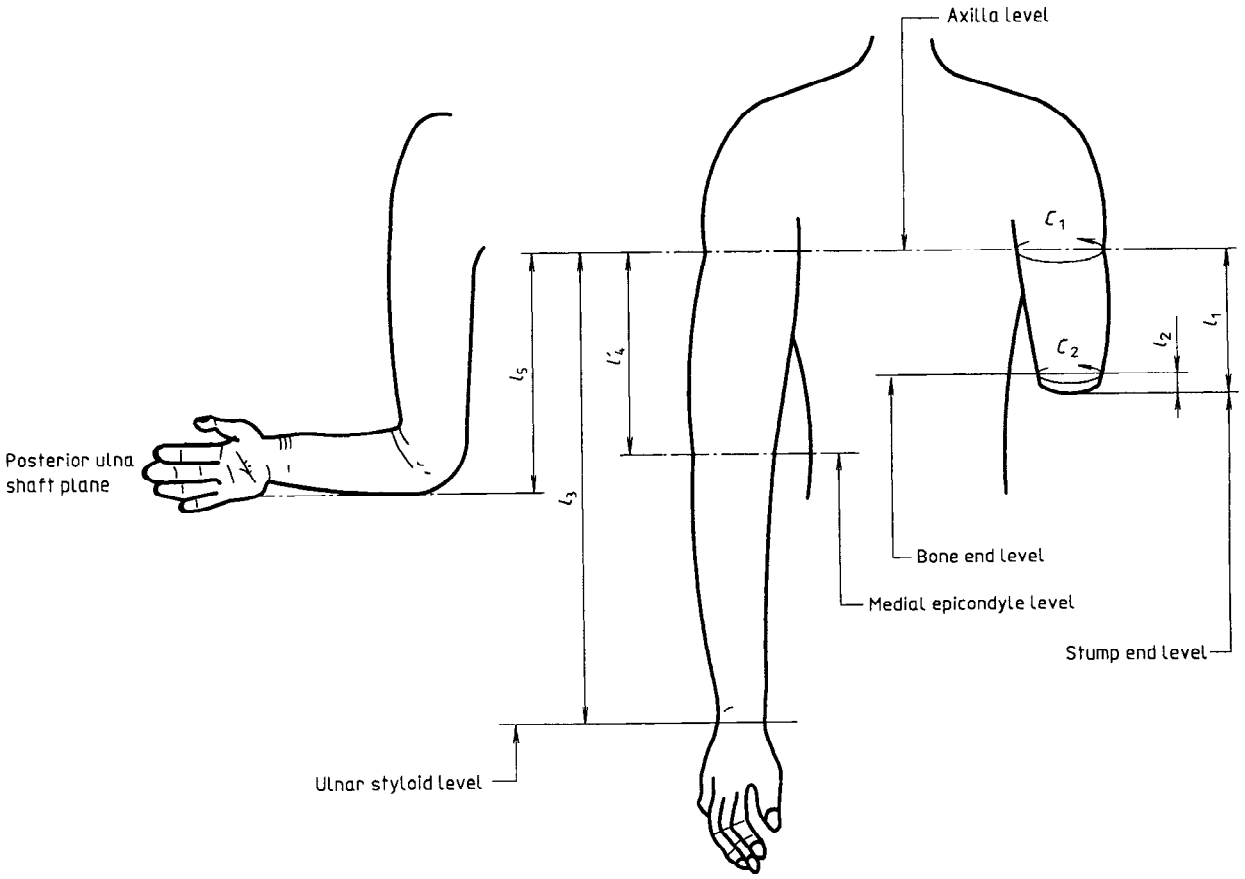

Figure 1 — Measurement of trans-humeral amputation

Table 4 — Descriptors for recording elbow disarticulations (see 5.5, figure 2 and annex A)

Descriptor	Statements to be recorded
Measurements	Record the following measurements: — the length from the axilla to the stump end, l_1 — the length of the contralateral arm from the axilla to the ulnar styloid, l_3 — the length of the contralateral arm from the axilla to the medial epicondyle, l'_4 — the circumference at the axilla, C_1 — the minimum circumference of the stump, C_4 — the circumference at epicondyles, C_3 If the contralateral arm is also the site of an amputation, state the level
Stump shape General	 Cylindrical/bulbous/conical
Skin of the stump Amputation scar General	 Healed/unhealed Mobile/adherent Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation Colour of skin Temperature (to the examining hand) Oedema	 Normal/cyanotic/other discoloration Warm/cold None/present/excessive
Soft tissues of the stump Amount Consistency	 Adequate/inadequate/excessive Normal/flabby/indurated
Significant pain Spontaneous pain Tenderness Painful neuroma Phantom pain	 No/yes No/yes (generalized)/yes (localized) No/yes No/yes
Joint function **Shoulder** (combined gleno-humeral and scapulo-thoracic) Range of movement Muscle power Stability Pain	 Normal/abnormal (specify) No significant reduction/significant reduction Normal/impaired No/yes

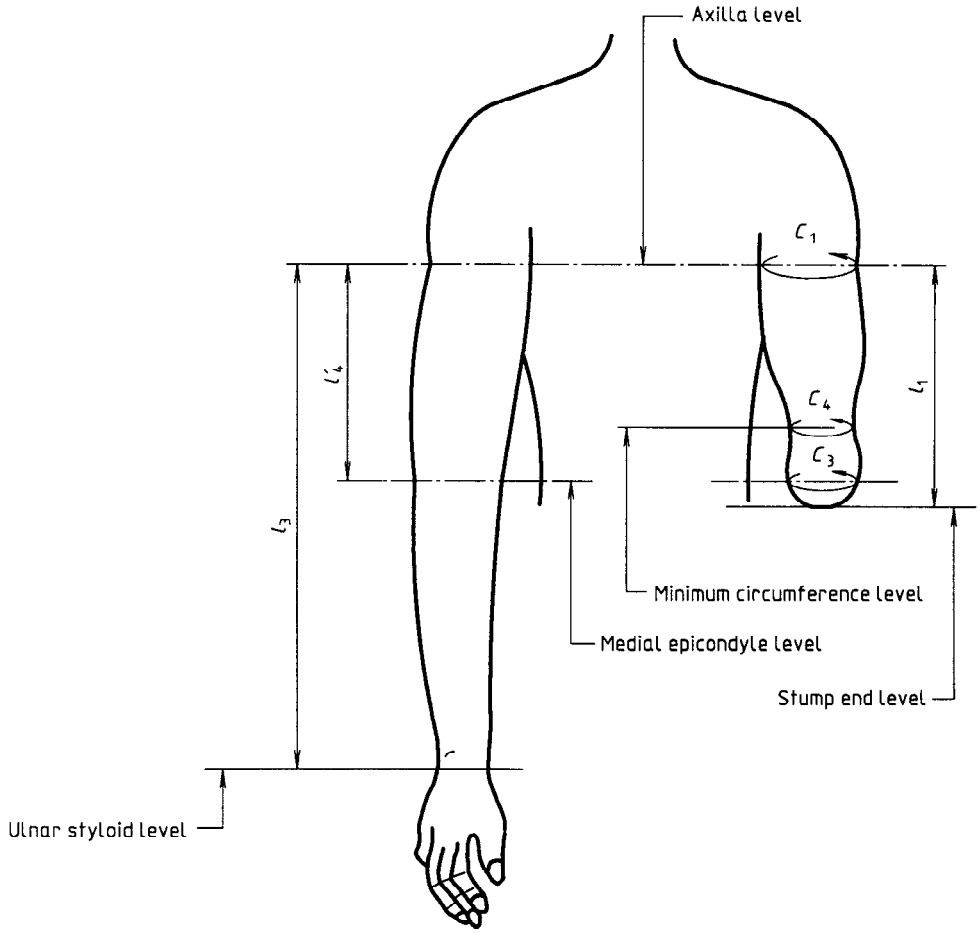

Figure 2 — Measurement of elbow disarticulation

Table 5 — Descriptors for recording trans-radial (below-elbow) amputations (see 5.6, figure 3 and annex A)

Descriptor	Statements to be recorded
Measurements	Record the following measurements: — the length from the axilla to the medial epicondyle, l_4 — the length from the medial epicondyle to the stump end, l_6 — the length from the bone end to the stump end, l_2 — the circumference, perpendicular to the centreline of the stump, at the level of the longer forearm bone, C_2 — the circumference at the level of the anterior elbow crease with the elbow supported at a right angle, in the plane perpendicular to the centreline of the stump, C_5 — the length of the contralateral arm from the axilla to the medial epicondyle, l'_4 — the length of the contralateral arm from the axilla to the ulnar styloid, l_3 If the contralateral arm is also the site of an amputation, state the level Also record if the cut end of the ulna is proximal, level with, or distal to the cut end of the radius
Stump shape General End of radius End of ulna	 Cylindrical/conical/bulbous Not prominent/prominent Not prominent/prominent
Skin of the stump Amputation scar General	 Healed/unhealed Mobile/adherent Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation Colour of skin Temperature (to the examining hand) Oedema	 Normal/cyanotic/other discoloration Warm/cold None/present/excessive
Soft tissues of the stump Amount Consistency	 Adequate/inadequate/excessive Normal/flabby/indurated
Significant pain Spontaneous pain Tenderness Painful neuroma Phantom pain	 No/yes No/yes (generalized)/yes (localized) No/yes No/yes
Joint function **Shoulder** (combined gleno-humeral and scapulo-thoracic) Range of movement Muscle power Stability **Elbow** Range of movement Muscle power Stability Pain in proximal joints	 Normal/abnormal (specify) No significant reduction/significant reduction Normal/impaired Normal/abnormal (specify) No significant reduction/significant reduction Normal/impaired No/yes

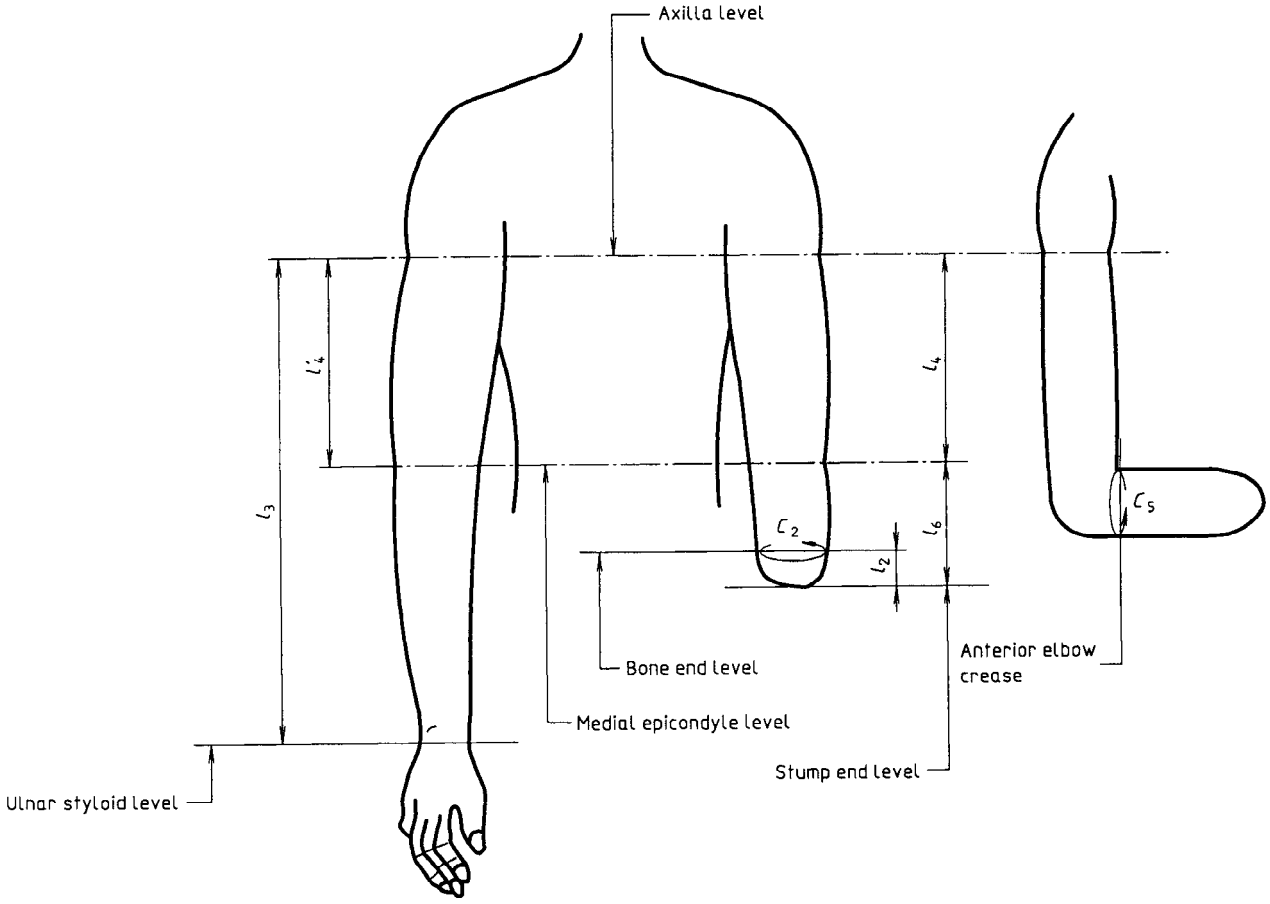

Figure 3 — Measurement of trans-radial amputation

Table 6 — Descriptors for recording wrist disarticulations (see 5.7, figure 4 and annex A)

Descriptor	Statements to be recorded
Measurements	Record the following measurements: — the length from the axilla to the medial epicondyle, l_4 — the length from the medial epicondyle to the stump end, l_6 — the length of the contralateral arm from the axilla to the ulnar styloid, l_3 — the length of the contralateral arm from the axilla to the medial epicondyle, l'_4 — the circumference at the anterior elbow crease with the elbow supported at 90°, C_5 — the circumference of the styloid process, C_6 If the contralateral arm is also the site of an amputation, state the level
Stump shape	
General	Cylindrical/bulbous
Bone	Not prominent/prominent
Skin of the stump	
Amputation scar	Healed/unhealed Mobile/adherent
General	Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation	
Colour of skin	Normal/cyanotic/other discoloration
Temperature (to the examining hand)	Warm/cold
Oedema	None/present/excessive
Soft tissues of the stump	
Amount	Adequate/inadequate/excessive
Consistency	Normal/flabby/indurated
Significant pain	
Spontaneous pain	No/yes
Tenderness	No/yes (generalized)/yes (localized)
Painful neuroma	No/yes
Phantom pain	No/yes
Joint function	
Shoulder (combined gleno-humeral and scapulo-thoracic)	
Range of movement	Normal/abnormal (specify)
Muscle power	No significant reduction/significant reduction
Stability	Normal/impaired
Elbow	
Range of movement	Normal/abnormal (specify)
Muscle power	No significant reduction/significant reduction
Stability	Normal/impaired
Pain in proximal joints	No/yes

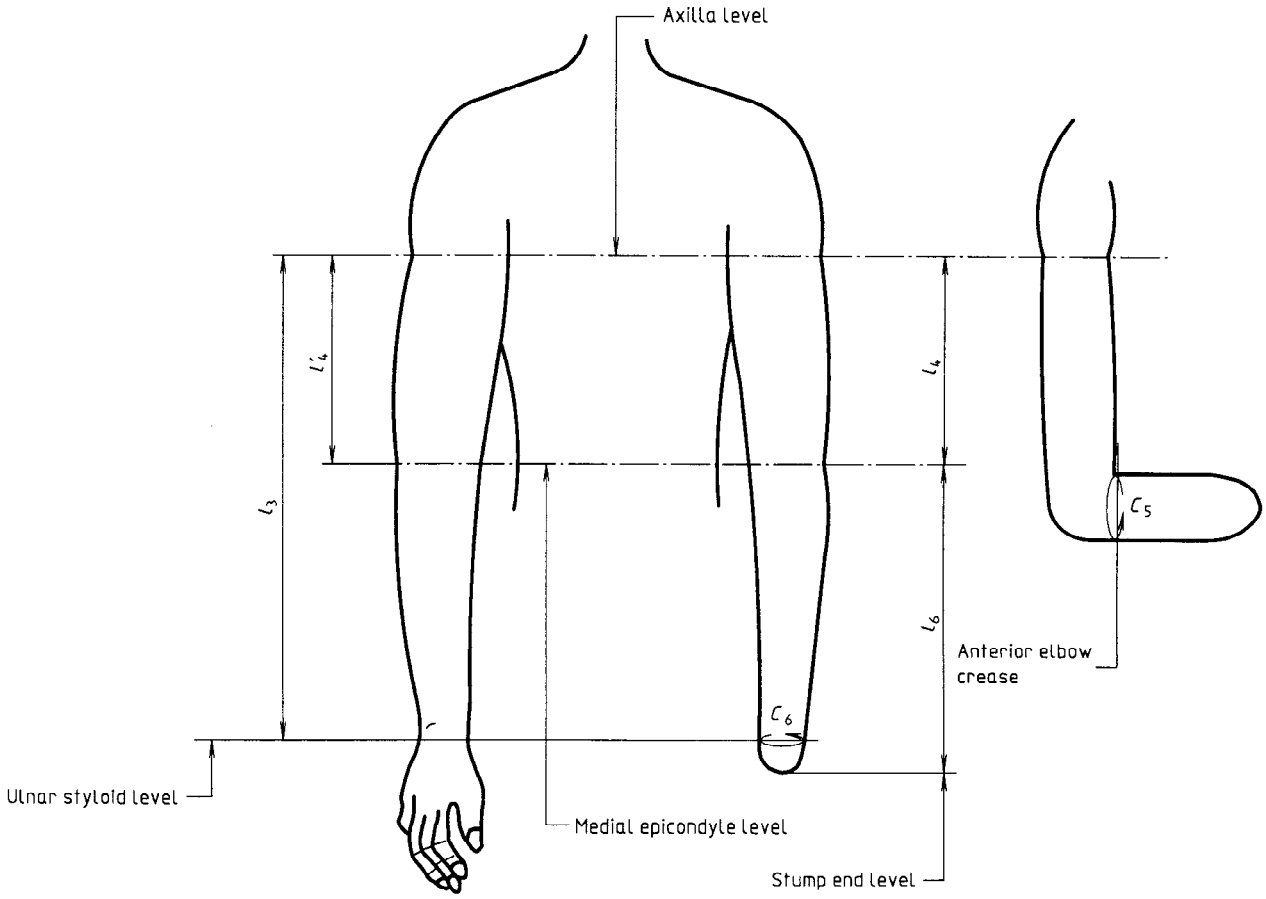

Figure 4 — Measurement of wrist disarticulation

Table 7 — Descriptors for recording partial hand amputations (see 5.8 and annex A)

Descriptor	Statements to be recorded
Measurements	Record the following measurements: — the level of amputation in relation to joints and bones of the hand — any significant length discrepancy between the segments of the affected and contralateral arms, using the reference levels described in 4.1.
Stump shape	
Bones	Not prominent/prominent
Skin of the stump	
Amputation scar	Healed/unhealed Mobile/adherent
General	Skin barrier intact/skin barrier not intact Sensation normal/sensation impaired No additional scarring/additional scarring
Circulation	
Colour of skin	Normal/cyanotic/other discoloration
Temperature (to the examining hand)	Warm/cold
Oedema	None/present/excessive
Soft tissues of the stump	
Amount	Adequate/inadequate/excessive
Consistency	Normal/flabby/indurated
Significant pain	
Spontaneous pain	No/yes
Tenderness	No/yes (generalized)/yes (localized)
Painful neuroma	No/yes
Phantom pain	No/yes
Joint function	
Shoulder (combined gleno-humeral and scapulo-thoracic)	
Range of movement	Normal/abnormal (specify)
Muscle power	No significant reduction/significant reduction
Stability	Normal/impaired
Elbow	
Range of movement	Normal/abnormal (specify)
Muscle power	No significant reduction/significant reduction
Stability	Normal/impaired
Wrist	
Range of movement	Normal/abnormal (specify)
Muscle power	No significant reduction/significant reduction
Stability	Normal/impaired
Pain in proximal joints	No/yes
Hand remnant	Otherwise normal/abnormal (specify)

Annex A
(informative)

Explanatory notes for descriptors used in tables 1 to 7

A.1 General

The main elements in any description should include:

a) stump measurements;

b) stump shape;

c) the condition of the skin of the stump;

d) the condition of the circulation in the stump;

e) the condition of the soft tissues of the stump;

f) pain;

g) proximal joint function, to include range of movement;

h) relevant dimensions of the contralateral arm.

A.2 Measurements

The measurements chosen are non-invasive, require no special equipment, and can be made by any member of the clinic team. The number of measurements used is no more than is necessary to give an adequate description of the stump and its proportions.

A.3 Shape

Descriptions of the shape are restricted to conical, bulbous and cylindrical. Bulbous is self-evident and, provided the words "cylindrical" or "conical" are not interpreted too literally, they are equally descriptive. In addition it is important to record whether any bone end is unduly prominent.

A.4 Skin

In describing the skin of the stump, one is concerned simply with the general situation. It is sufficient to note whether the skin barrier is intact or not, and whether the skin has normal sensation. There is no requirement to describe the operation incision in any detail but it should be recorded whether the scar is healed and mobile, or otherwise. The presence of additional scarring should be noted.

A.5 Circulation

Many factors concerning the circulation might well be recorded but it is enough to state:

a) whether the skin is normal, cyanotic, or otherwise discoloured;

b) whether it is warm to the examining hand or not; and

c) whether oedema is present.

Excessive oedema is seen to be that which would force the patient to take off the prosthesis during the day or such that one would hesitate to fit the patient with a prosthesis.

A.6 Soft tissues

The soft tissues of the stump are described only in terms of the amount and consistency.

A.7 Pain

Pain as an entity is always difficult to describe and is largely incapable of measurement. The presence or absence of significant spontaneous pain from whatever source, tenderness, painful neuroma and phantom pain is to be distinguished from the common phantom sensations and is to be recorded.

A.8 Joint function

Proximal joint function in terms of range of movement, power and stability, and the presence of pain is to be noted. Abnormalities of movement (e.g. contractures) or excessive movement is also to be recorded.

A.9 Contralateral arm

In order that the description of the stump can be related to the patient as a whole the contralateral arm needs some minimal dimensional description.