



7th International Abilympics

Vocational Skills Contest

V1. Artificial Limb Making

1. Task

Produce a socket for the artificial lower limb (PTB socket) according to Sections 3 (Instructions) and 4 (Specifications) below using the positive mold and provided materials.

2. Allocated time

Standard time: 4 hours 15 minutes
Maximum time: 4 hours 45 minutes

3. Instructions

- (a) Contestants shall confirm that the items, quantities, etc., of the provided materials are those specified in Section 5 (Materials to be provided on site).
- (b) Provided materials will not be replaced except for ones with significant defects, which is caused not by the relevant contestant.
- (c) In principle, after the contest is started, the items of materials already provided will not be provided again.
- (d) Contestants are not allowed to use tools, etc., other than those designated in Sections 6 and 7 below.
- (e) Contestants are not allowed to lend or borrow tools during the contest.
- (f) Contestants shall notify the judge when they finish the task.
- (g) When a contestant continues to work after expiration of the standard time, the marks will be deducted from his/her marks according to the excess time.

4. Specifications

4-1 Production of a socket for the artificial lower limb (PTB socket)

- (a) Relief leather shall be attached to the positive mold in eight (8) locations for depressurization (head of fibula, edge of fibula, tibial tuberosity, tibial ridge, lateral tibial condyle, tibial edge and the hamstrings on both sides) . In this case, one sheet of leather can be used for attaching it to two or more parts for depressurization. However, leather shall not be attached to parts other than the locations specified above.
- (b) The sponge for the soft socket to be attached on the positive mold shall be used while dividing it into 5 or more parts.
- (c) As materials to cover the positive mold, four sheets of the stockinet and two sheet of polyester felt shall be used.
- (d) The laminating process shall be performed using the vacuum pump.
- (e) Acrylic resin, compound of hard type (80%) and soft type (20%), shall be used for the laminating process. Incidentally, the hardening agent to be used shall be equivalent to about 3% of the acrylic resin.
- (f) The upper edge of the produced socket for the artificial limb (PTB socket) and soft socket shall be properly trimmed.

4-2 Mounting of the ornamental cap to the socket for the artificial lower limb (PTB socket)

The ornamental cap for the cuff belt shall be mounted to the produced socket for the artificial limb (PTB socket) produced as specified in the 4-1 above.

5. Materials to be provided on site

Items	Dimension or specification (Unit: mm)	Qty	Remarks
Positive mold		1	One that is completely dry
Leather	3 x 230 x 230	1	For relief
Vinyl leather	0.7 x 400 x 400	1	
Rubber sponge	3 x 400 x 400	1	Yellow neoprene
PVA film tube	#6000	2	Size suitable for the provided model
PVA film	#6000、 200×200	1	For the lid of PVA film tube
Acrylic resin	Hard and soft type	As required	
Hardening agent	For acrylic resin	As required	
Stockinet	75×3000	1	
Polyester felt	400×400	2	
Ornamental cap		2	For artificial limb

6. Tools, etc., to be brought by each contestant

Items	Dimension or specification (Unit: mm)	Qty	Remarks
Tailoring shears		1	
Leather cutter		1	
Screwdriver	+ (Phillips) - (Slotted head)	As required	
Harness clamp		5	Clip for artificial limb
Iron work file	Half-round, flat	1 each	
Chisel, etc.		1	For splitting socket plaster
Hammer	Small	1	For metal work
Resin hammer (or rubber hammer)		1	
Angle gauge		1	
Plaster cutter		1	
Dryer		1	

(Note)

Contestants who wish to bring their own tools are requested to prepare a list of such tools and present it to the organizer for approval in advance. The organizer reserves the right not to allow the use of any tools that are considered to give the contestant an unfair advantage.

7. Items to be prepared on site

	Items	Dimension or specification (Unit: mm)	Qty	Remarks
Equipment	Working table	Appropriate for the work	1	
	Curving machine or sanding machine		One for two contestants	
	Vice		1	
Machine	Electric drill		One for two contestants	With 8 drills (3.2mm×4) (4.0mm×4)
	Sewing machine		One for two contestants	
	Vacuum pump		One for two contestants	
Tools, etc	Weighing scale	For 1kg	One for two contestants	For resin
	Paper cup	Large	2	For resin
	Adhesive agent for PVA film		As required	
	Talc		As required	
	Acetone		500cc for one contestant	
	Straight measure	300mm or similar	1	
	Tape measure	1,500mm or similar	1	
	Vinyl tape		1 roll	
	Abrasive paper		1 sheet	
	Cord (Round braid)	φ3mm, 600mm long	1	
	Towel		1 sheet	
	Adhesive agent	150g	1	For bonding sponge/ With spatula and brush
	Glass sheet	150mm x150mm or similar	1 sheet	
Disposable chopsticks		2	For agitating resin	

(Note)

Unless otherwise specified, the quantity shows the number for one contestant.

8. Evaluation criteria

The items to be evaluated and marks allotted shall be as defined below.

Items to be evaluated		Maximum marks allotted
Product	Dimensional accuracy	44
	Quality of work	30
Working attitude		14
Working time		12
Total		100