BRITISH STANDARD

BS 3388:2004

Forks, shovels and spades — Requirements and test methods

ICS 53.120

Committees responsible for this British Standard

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Foreword

This British Standard has been prepared by Subcommittee MTE/15/13 and is based on a draft submitted by the Federation of British Hand Tool Manufacturers. It supersedes BS 3388:1973, which is withdrawn.

The main difficulty in the standardization of forks, shovels and spades is the very strong regional preferences for particular shapes of blade and handle, which has led to the development, over several centuries, of a number of variations of the basic design. Stronger preferences have been recognized and included in the standard and it is hoped that as the work of standardization proceeds, agreement will be reached on the further rationalization of types and sizes, thus leaving a reasonable range of tools covering all fields of general usage which can be manufactured with greater economy.

The tools in this edition have been arranged in four performance categories which are given in **3.2**. These categories are intended to aid the consumer to select a tool suitable for the task to be performed and they cater for the increasing market in forks, shovels and spades for the domestic user.

Furthermore, with customer safety in mind, an annex giving guidance on safe use of the tools included in this British Standard has been added.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 61 and a back cover.

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1 Scope

This British Standard specifies the dimensions, materials, construction, finish and testing for a range of garden, agricultural and contractors' tools.

NOTE Guidance on the safe use of tools is also given in Annex B.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 970-1, Specification for wrought steels for mechanical and allied engineering purposes — Part 1: General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steels.

BS 1449-1, Steel plate, sheet and strip — Part 1: Carbon and carbon-manganese plate, sheet and strip.

BS 3823, Grading of ash and hickory wood handles for hand tools.

BS 8020, Tools for live working — Insulating hand tools for work on or near conductor rail systems operating at voltages up to 1 000 V a.c. or 1 500 V d.c.

BS EN 10216-2, Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties.

BS EN 10217-2, Welded steel tubes for pressure purposes — Technical delivery conditions — Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties.

BS EN 10296-1, Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 1: Non-alloy and alloy steel tubes.

BS EN 10305-3, Steel tubes for precision applications — Technical delivery conditions — Part 3: Welded cold sized tubes.

BS EN 10305-5, Steel tubes for precision applications — Technical delivery conditions — Part 5: Welded and cold sized square and rectangular tubes.

BS EN 13706 (all parts), Reinforced plastics composites — Specifications for pultruded profiles.

BS EN ISO 6508-1, Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T).

3 Nomenclature and classification

3.1 For the purposes of this British Standard, the nomenclature given in Figure 1 and Figure 2 applies.

3.2 Tools shall be classified according to their usage as a result of testing in accordance with Annex A into the following categories:

a) light duty garden tools;

b) standard garden tools (covering both domestic and professional gardener use);

c) professional and agricultural tools;

d) contractors' tools.

An example of a test rig for forks is shown in Figure 3 and an example of a test rig for shovels and spades is shown in Figure 4.

4 Types and dimensions

The various types and dimensions, with a tolerance of ±10 mm unless otherwise stated, of garden, agricultural and contractors' tools are detailed in Figure 5 to Figure 36. The dimensions of wooden handled tools shall conform to Figure 5 to Figure 36.

Optional variations to the range of tools are shown in Figure 37 to Figure 62.

NOTE The dimensions of handles and sockets may vary depending upon the handle materials used.

5 Materials

5.1 General

The prongs of forks and blades of shovels and spades shall be manufactured from steel, alloys or plastics. Finished tools shall be tested in accordance with Clause **9** and the performance of the tool in the anticipated range of operating conditions shall not be impaired (in respect of toxicity, tolerance of climate variations and the effects of oil, grease and sunlight).

NOTE 1 The handles of tools are traditionally made of wood, but other materials such as light alloy, fibreglass or plastics may be used, see **5.6**.

NOTE 2 When selecting manufacturing materials for tool prongs and blades, the anticipated range of operating conditions for the tool should be considered, so the performance of the tool is not impaired.

5.2 Forged forks, shovels and spades

The prongs of forged forks and blades of forged shovels and spades shall either be manufactured from steel whose component analysis conforms to Table 1 or steels with hardness values in accordance with Clause **6** and that successfully withstand testing in accordance with Clause **9**.

Table 1 — Component analysis of steel for prongs and blades of forged tools

Element	Content %
Carbon	≥ 0.32
Manganese	≥ 0.50
Silicon	≤ 0.40
Sulfur	≤ 0.06
Phosphorus	≤ 0.06
Carbon and manganese together	≥ 1

5.3 Open-socket or fabricated tools

Heads of open-socket or fabricated tools shall be manufactured from steel conforming to BS 1449-1.

5.4 Straps and sockets

The straps and sockets of tools which are not solid forged shall be manufactured from low carbon steels, i.e. steels containing less than 0.3 % carbon and less than 0.9 % manganese, conforming to BS 1449-1.

5.5 Rivets/fasteners

Rivets/fasteners shall be manufactured from material conforming to BS 1449-1 or BS 970-1.

5.6 Handles

Handles of forks, shovels and spades shall be manufactured from one of the following materials:

a) graded ash conforming to BS 3823;

b) hardwoods conforming to BS 3823;

c) tubular steel conforming to BS EN 10296-1, BS EN 10305-3 or BS EN 10305-5 for high tensile steel tubes and BS EN 10216-2 or BS EN 10217-2 for seamless tubes;

d) fibreglass reinforced plastics conforming to BS EN 13706 or BS 8020.

NOTE 1 When selecting materials for tool handles, the anticipated range of operating conditions for the tool should be considered, e.g. environmental toxicity, climate variation, and the effects of oil, grease and sunlight.

NOTE 2 Users are cautioned that as wood is a natural grown material, it can be inconsistent in performance.

6 Heat treatment and hardness

When measured not less than 50 mm from the shoulder, heat-treated unalloyed steel prongs of forks and blades of shovels and spades which have been hardened and tempered shall have a hardness value between 39 HRC and 47 HRC in accordance with BS EN ISO 6508-1.

NOTE 1 Corresponding values of Brinell and Rockwell hardness numbers may be used as given in BS 860.

NOTE 2 The hardness of alloy steels may vary.

Non-heat-treated steel tools shall undergo the same testing as heat-treated steel tools.

7 Construction

7.1 Fully forged tools

Fully forged tools shall be constructed with the prongs of forks and the blades of shovels and spades forged integrally with straps, sockets and tangs from a single piece of material.

7.2 Part forged tools

Part forged tools shall be constructed with the prongs of forks and the blades of shovels and spades either:

a) forged and welded to the straps or socket; or

b) welded to a forged tang and the tang welded to a socket or straps.

7.3 Fabricated tools

Fabricated tools shall have a multi-piece, welded construction.

7.4 Open-socket tools

Open-socket tools shall be constructed with the prongs or blades and sockets formed integrally from a single piece of material.

8 Finish

8.1 When inspected visually, the prongs or blades of tools shall be free from scale, cracks and deformations and shall be uniform in shape.

8.2 All sockets and straps shall be smooth (i.e. have a surface that is even and regular, free from perceptible lumps, projections, indentations or roughness) and permanently secured (for example, riveted or in the case of fibreglass epoxy glued) to the handles preventing movement of the component parts against each other. The sockets and straps shall be close fitting and shall have a smooth transition from shaft to socket. Rivets, where used, shall be given a smooth finish.

8.3 Handles shall be in alignment with the shoulders of the prongs or blades (see Figure 1 or Figure 2).

NOTE 1 The configurations of handles which are available and handle construction are shown in Figure 37 to Figure 45.

NOTE 2 Where handles manufactured from materials other than wood are used, the socket may be shorter than indicated.

8.4 The blades of all spades shall have a sharp working edge. Handles shall have a smooth finish in order to prevent injury to hands.

8.5 All metal surfaces shall be finished with one of the following methods:

a) bright finish with an anti-corrosion treatment;

b) self-coloured;

c) paint-finished.

9 Testing

9.1 Mechanical testing

When tested in accordance with **A.1**, forks, shovels and spades shall, on removal of the load, show no signs of damage or loosening of any component part, nor shall there be any permanent set in excess of 25 mm when measured at the centre of the hilt (i.e. at the standard test length of 710 mm).

9.2 Individual tine testing for forks designed for digging

When tested in accordance with **A.2**, the fork shall, on removal of the load, show no signs of damage or loosening of any component part, nor shall there be any permanent set in excess of 10 mm when measured at a distance of 533 mm from the centre of Roller A, see Figure 3. Individual tine displacement shall not exceed 4 mm.

9.3 Tine or prong squeeze testing

When tested in accordance with **A.3**, the tines or prongs of the fork shall show no sign of permanent set or damage in excess of 1 mm per tine or prong.

10 Marking

10.1 All forks, shovels and spades shall either be legibly and permanently marked on the metal portion of the tool or foil marked/branded on the handle with the following information:

a) the supplier's name or trademark;

b) the number and date of this British Standard, i.e. BS 3388:2004[1)].

10.2 Light duty tools shall be marked with the words "light duty".

10.3 Tools which are marked on the prong or blade shall be marked not more than 50 mm from the shoulder.

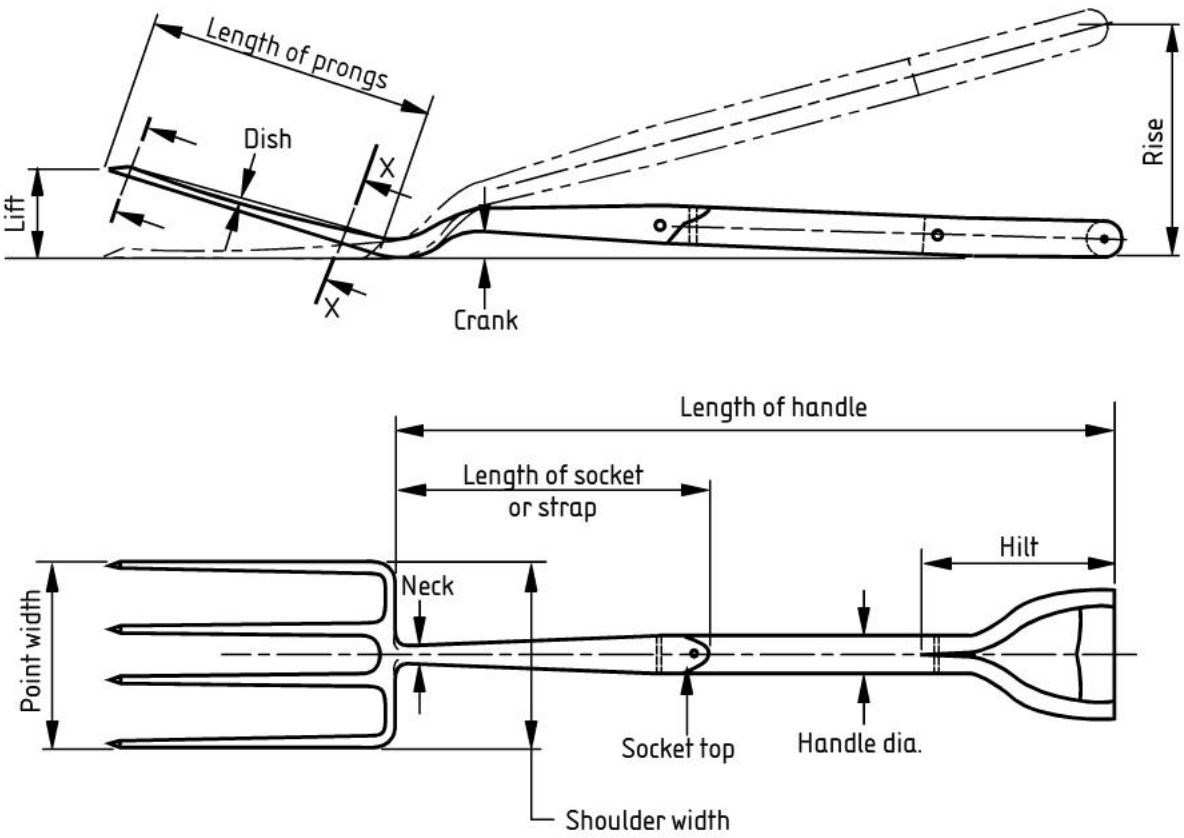
11 User information

The information given in **B.1** shall be supplied with all forks when requested, along with the information regarding the appropriate designed use of the fork given in **B.3**.

The information given in **B.2** shall be supplied with all shovels and spades when requested, along with the information regarding the appropriate designed use of the shovel or spade given in **B.3**.

The information given in Annex C shall be supplied with all wooden handled tools when requested.

1) Marking BS 3388:2004 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.



Prong profile at X - X		Normal use
Square	▨	Garden, contractor's, ballast
Diamond	◈	Coke
Round or oval	⊘ ⬭	Hay, bale manure, ballast, beet or potatoe ball end
Ribbed back	▨	Potato

Prong point		Normal use
Pencil	◁	with round or oval prong
Chisel	◁	with square prong
oval or ball end	◁	with round or oval prong
Square	◁	with square or ribbed back
Pyramid	◁	with square or diamond

Figure 1 — Nomenclature for forks

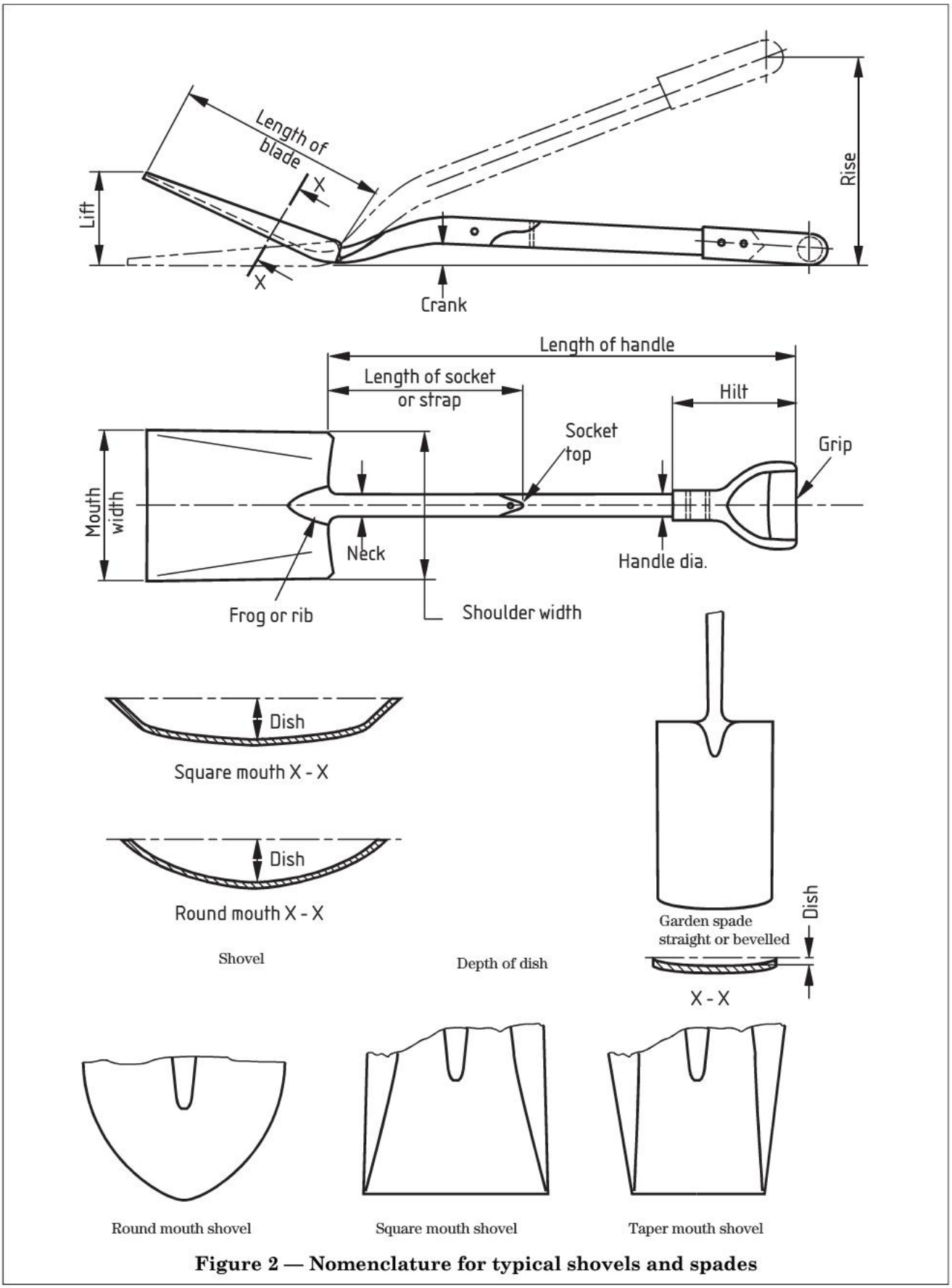


Figure 2 — Nomenclature for typical shovels and spades

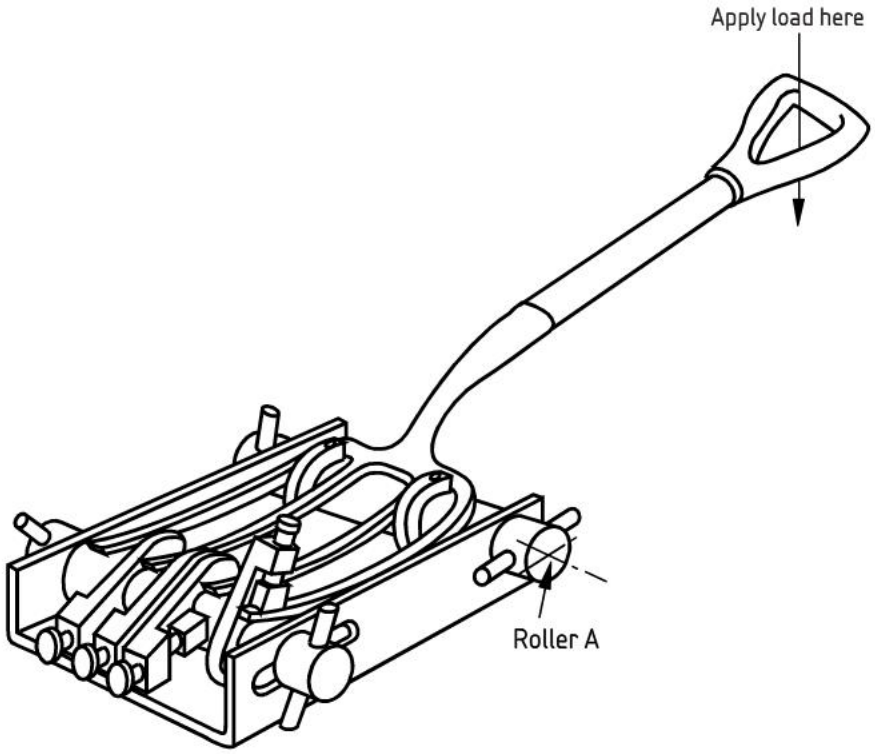


Figure 3 — Example of a test rig for forks

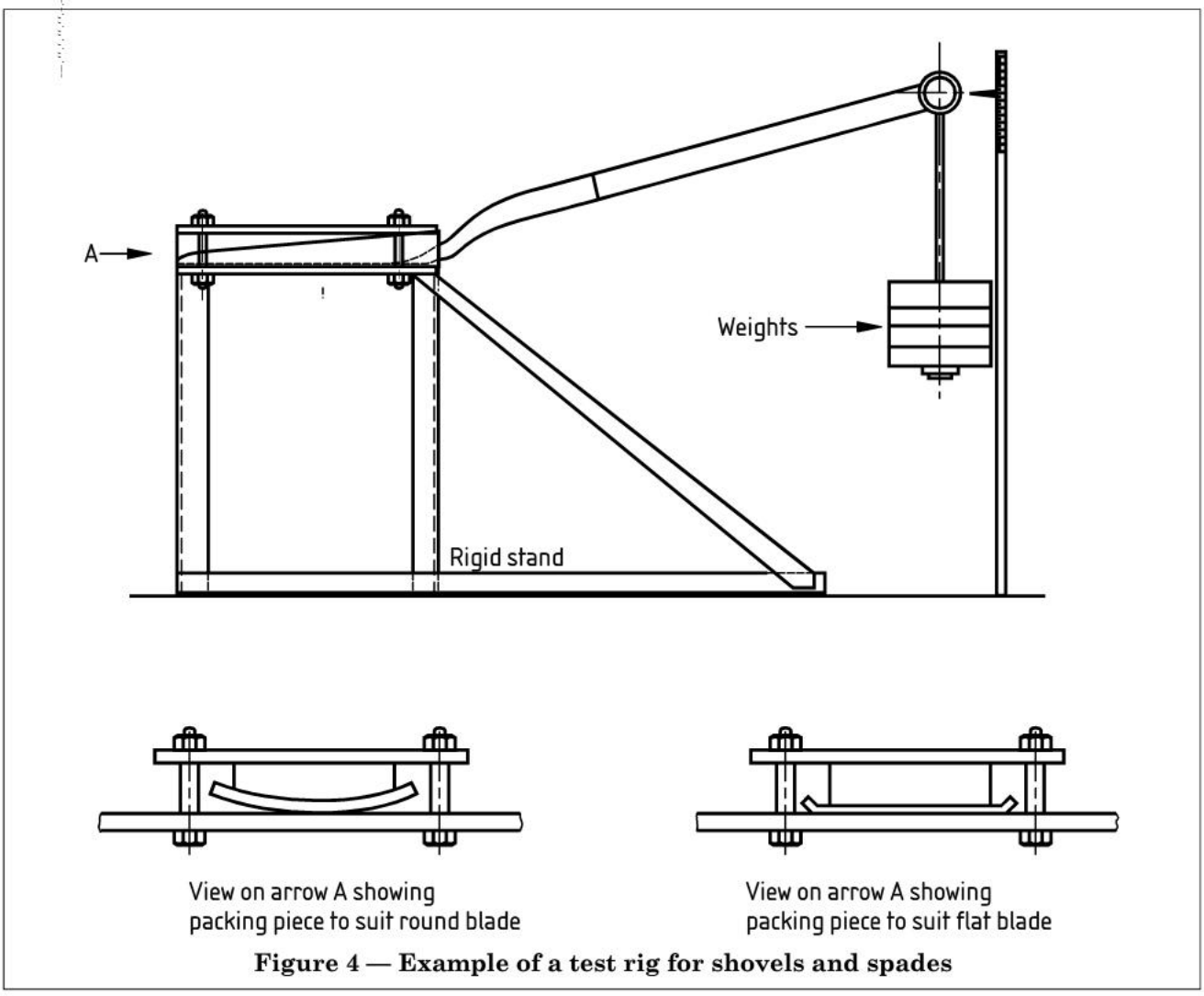


Figure 4 — Example of a test rig for shovels and spades

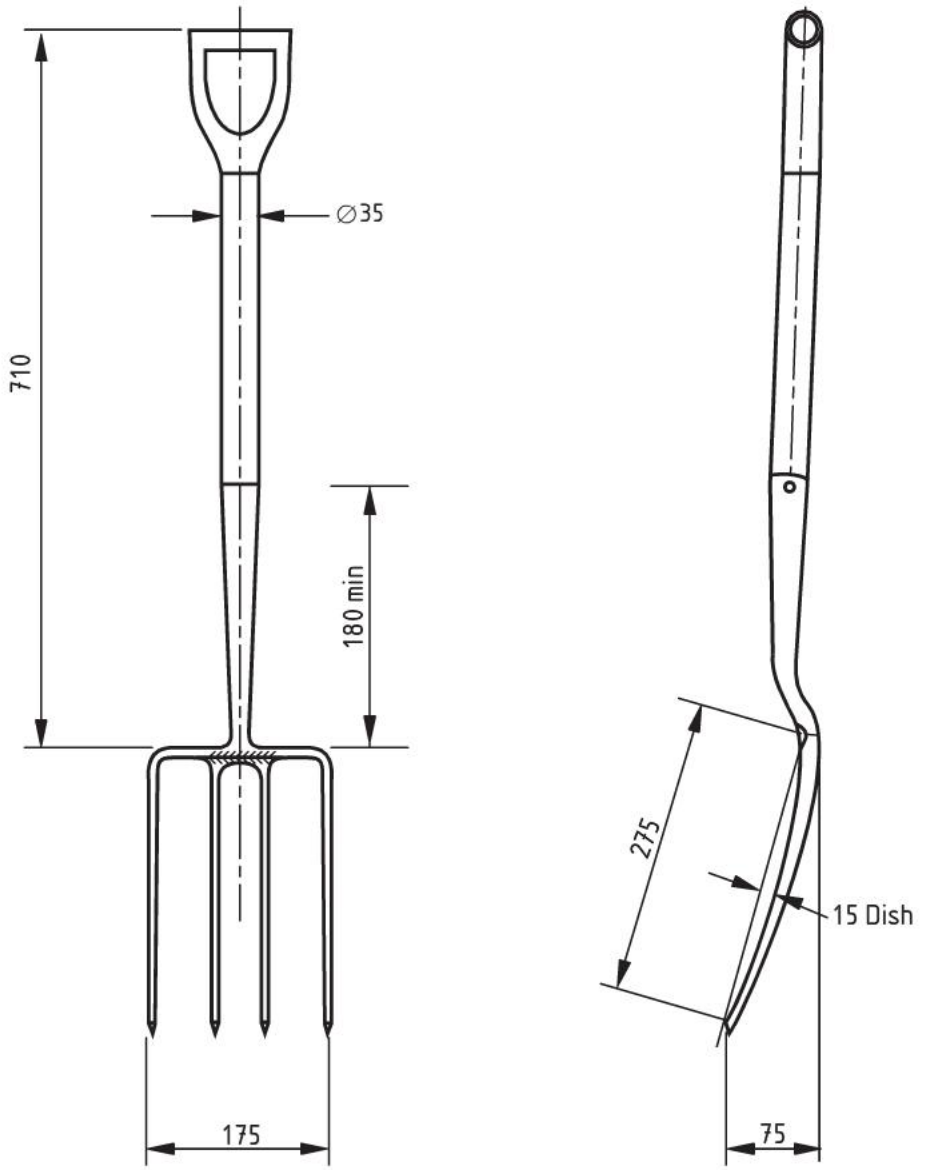


Figure 5 — Light duty garden fork

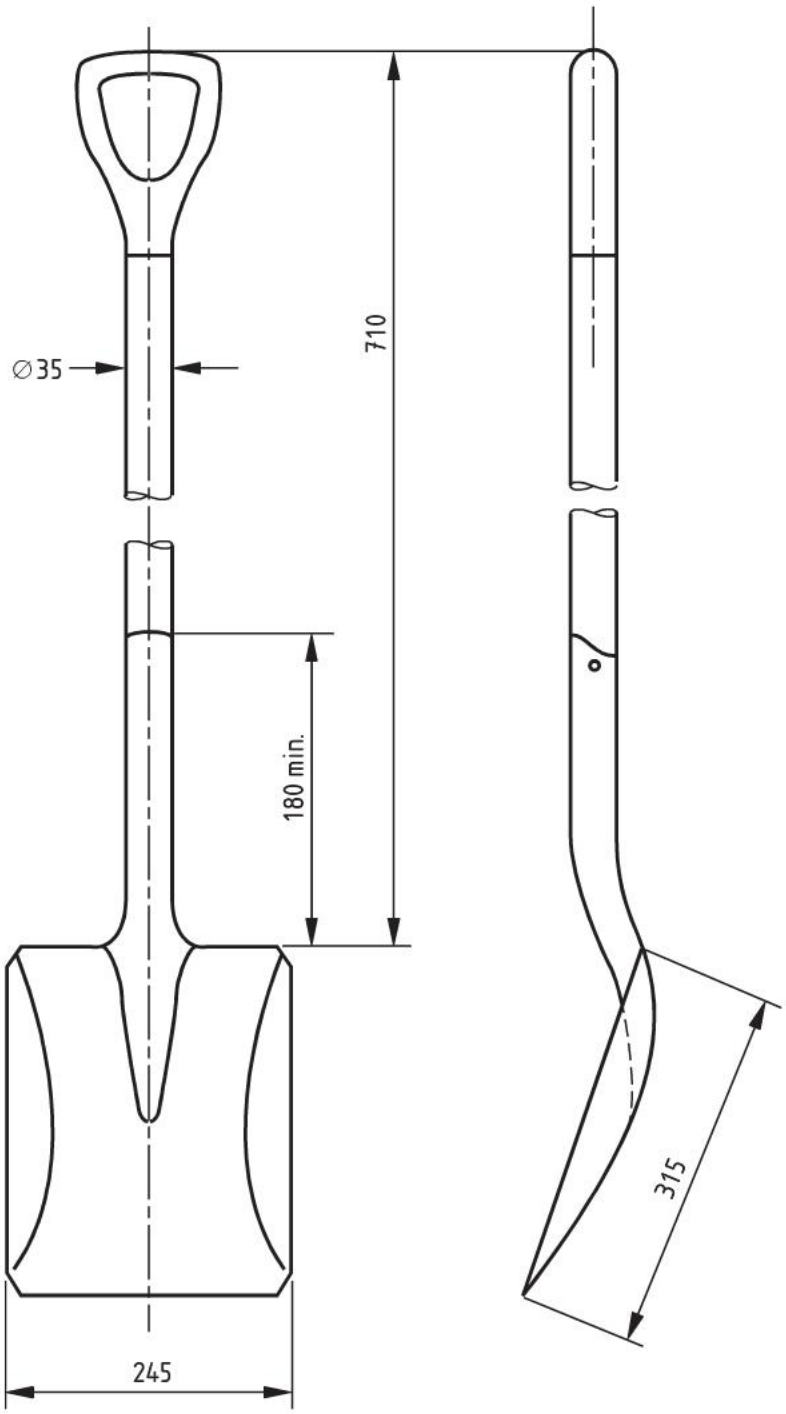


Figure 6 — Light duty square-mouth (open-socket) shovel

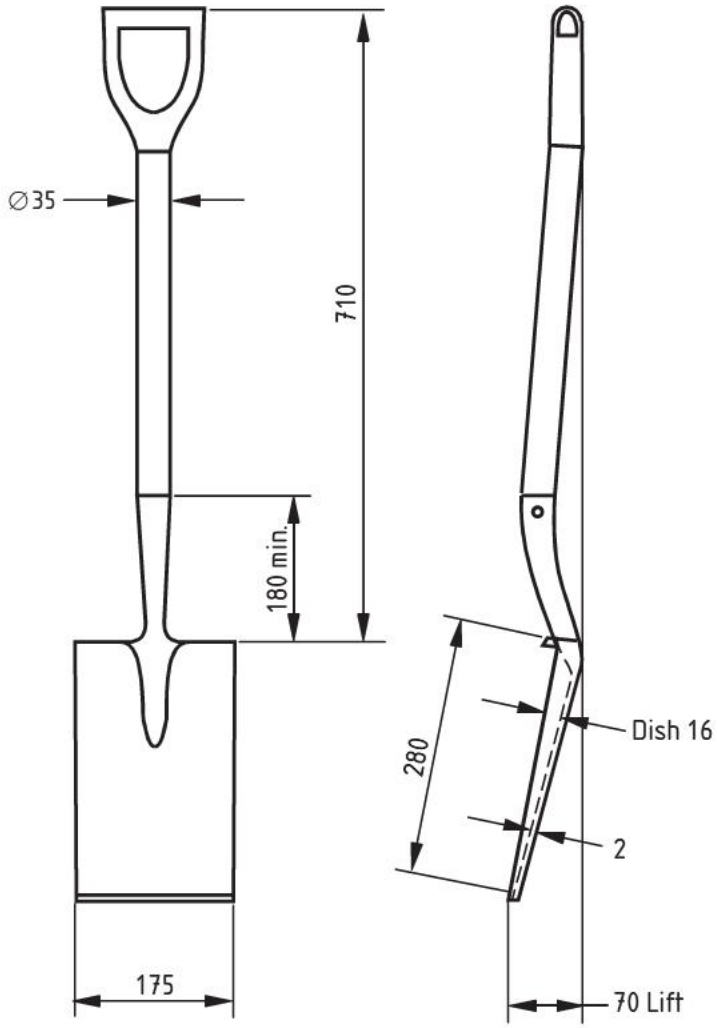


Figure 7 — Light duty garden space (open-socket or fabricated with or without treads)

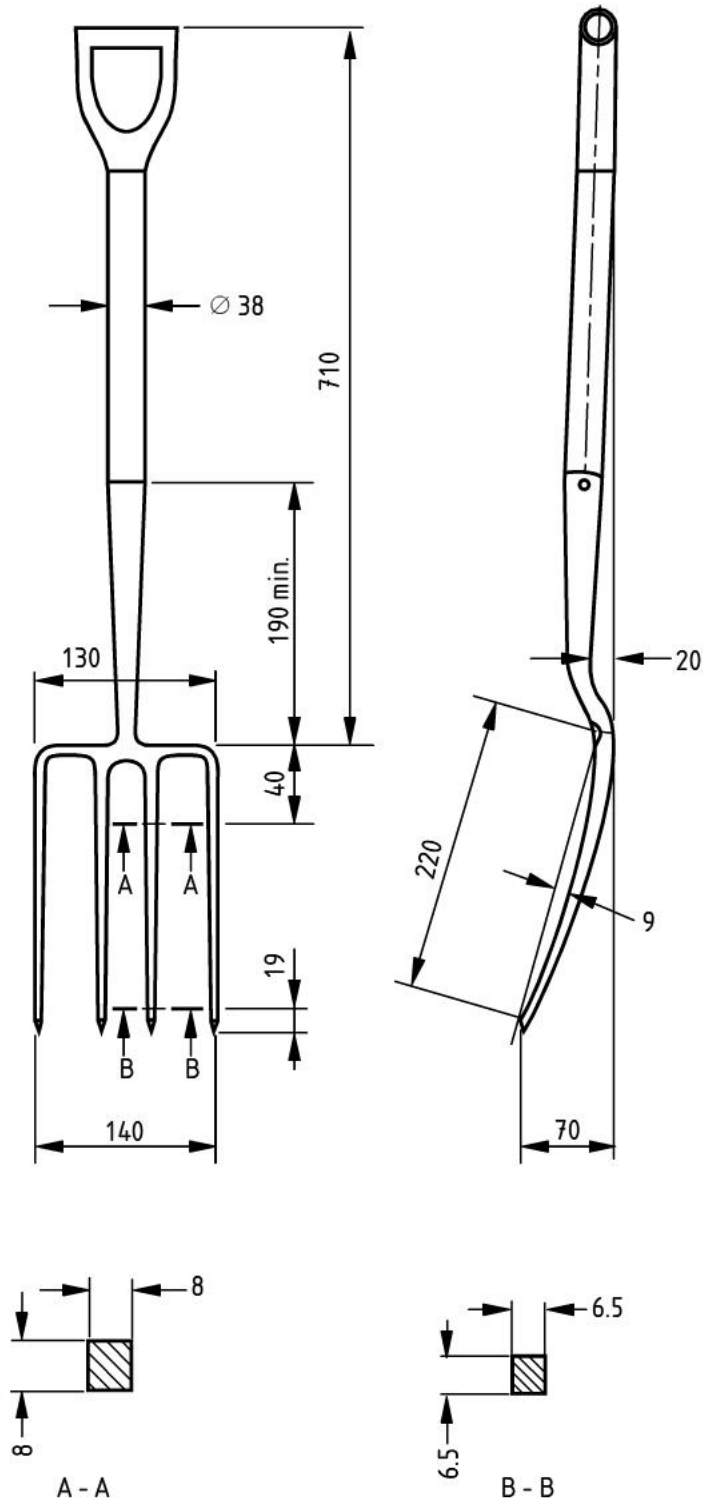


Figure 8 — Standard garden border fork

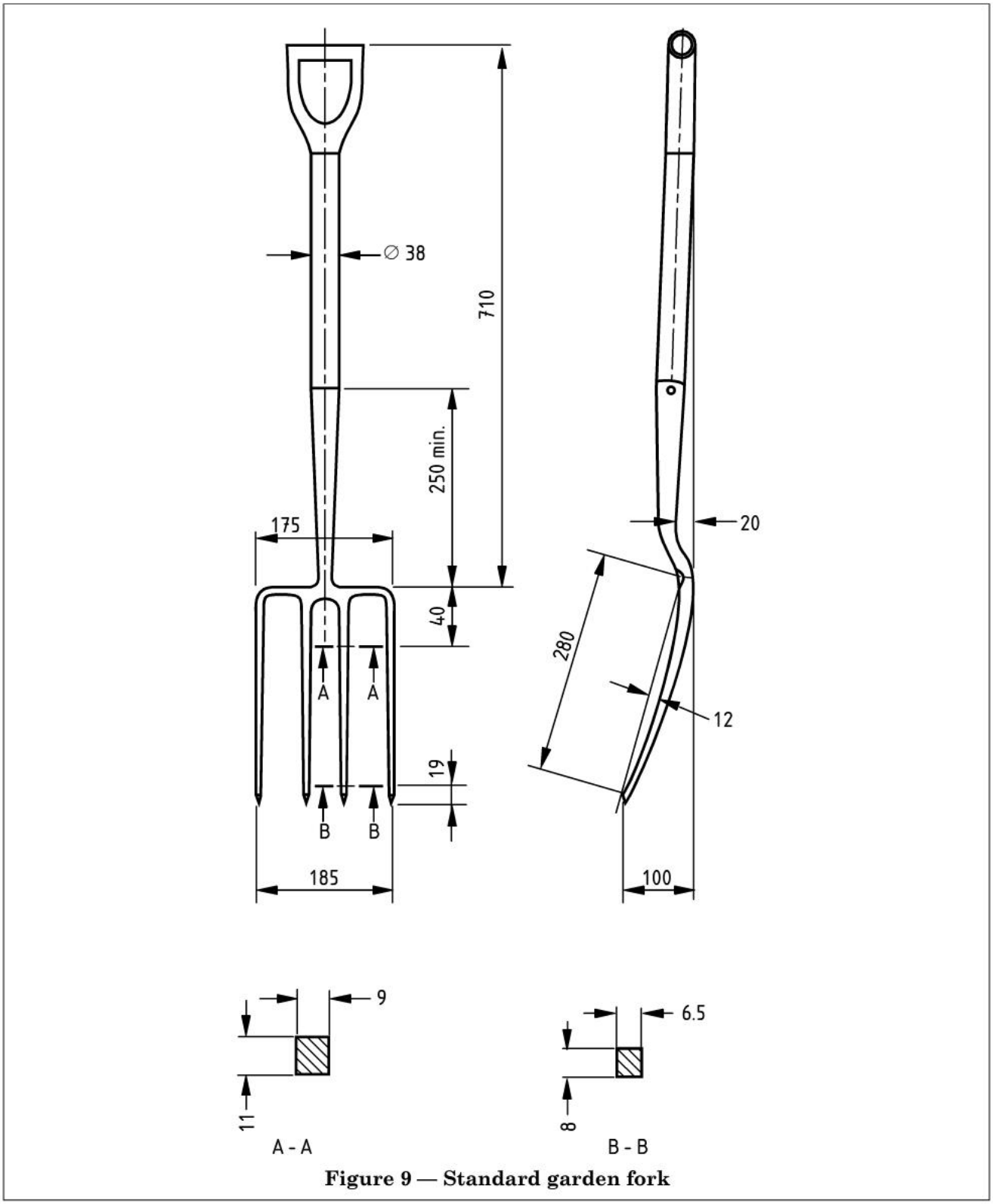


Figure 9 — Standard garden fork

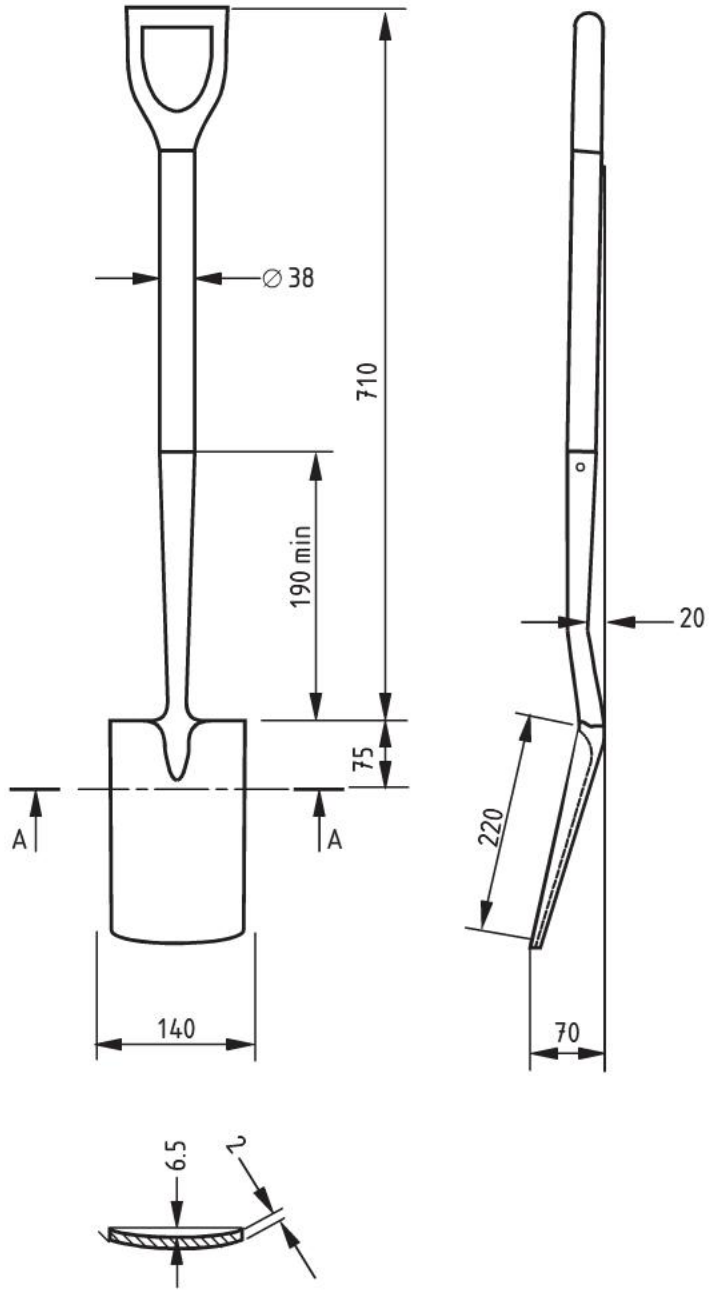


Figure 10 — Standard garden border spade

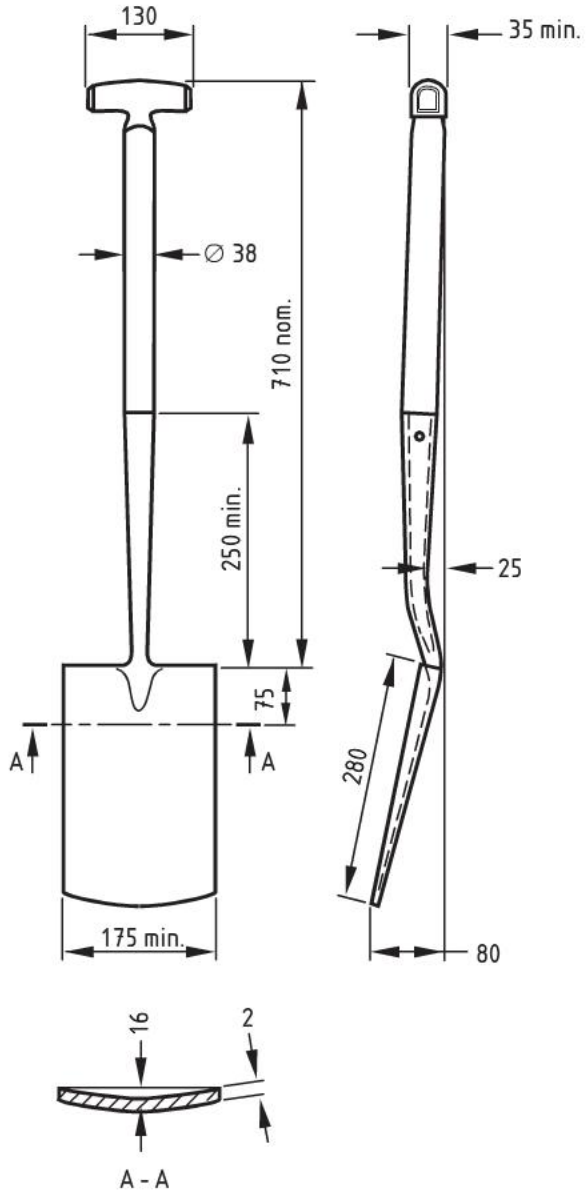


Figure 11 — Standard garden digging spade

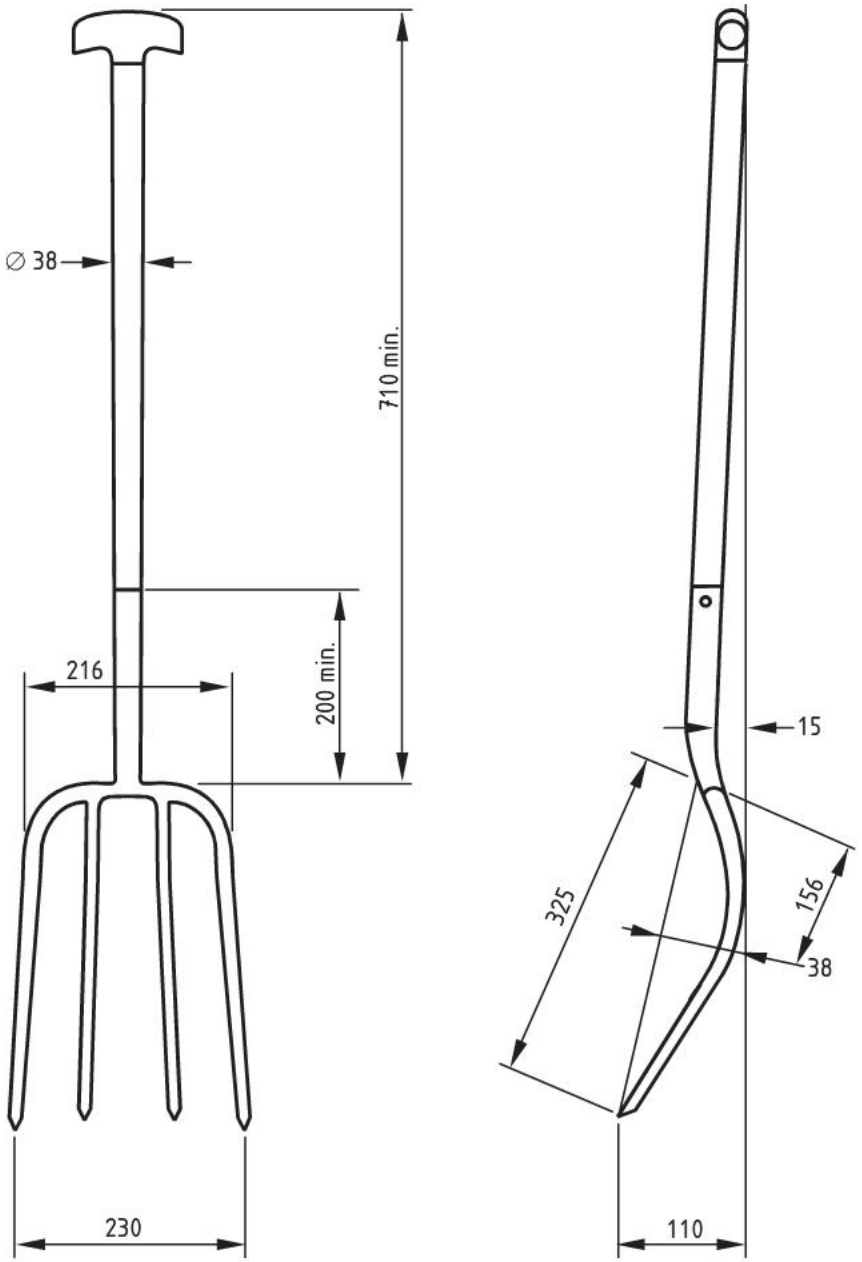


Figure 12 — 4 prong oval prong agricultural manure fork

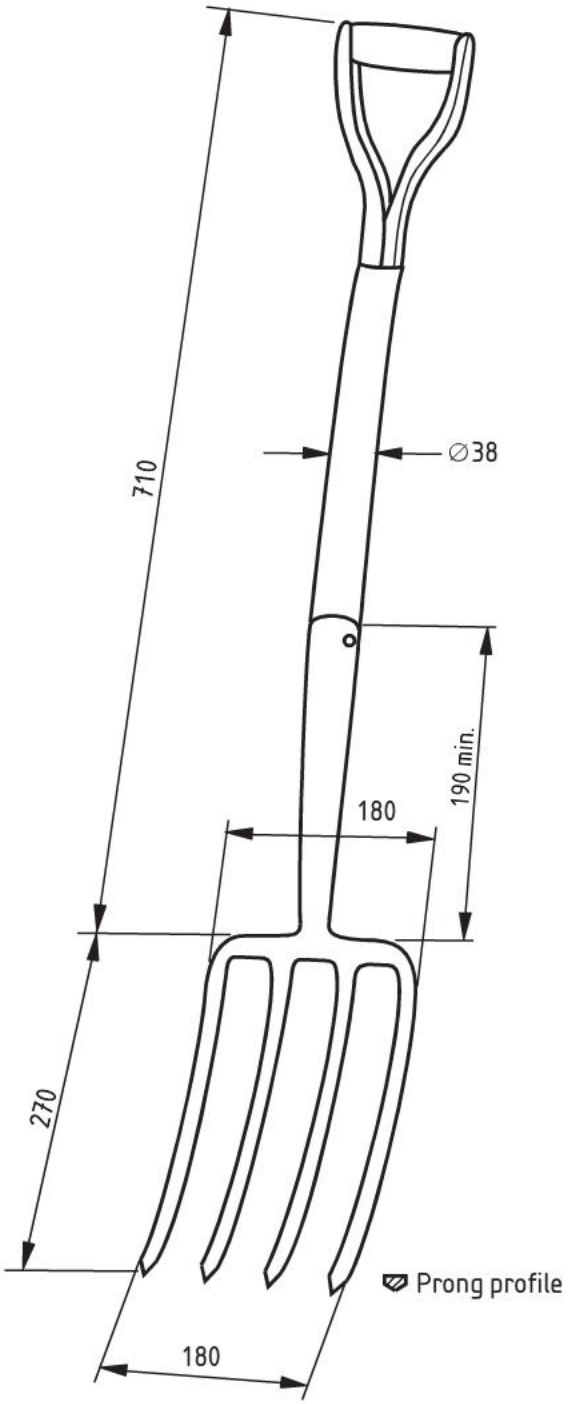


Figure 13 — Agricultural spading or potato fork ribbed back

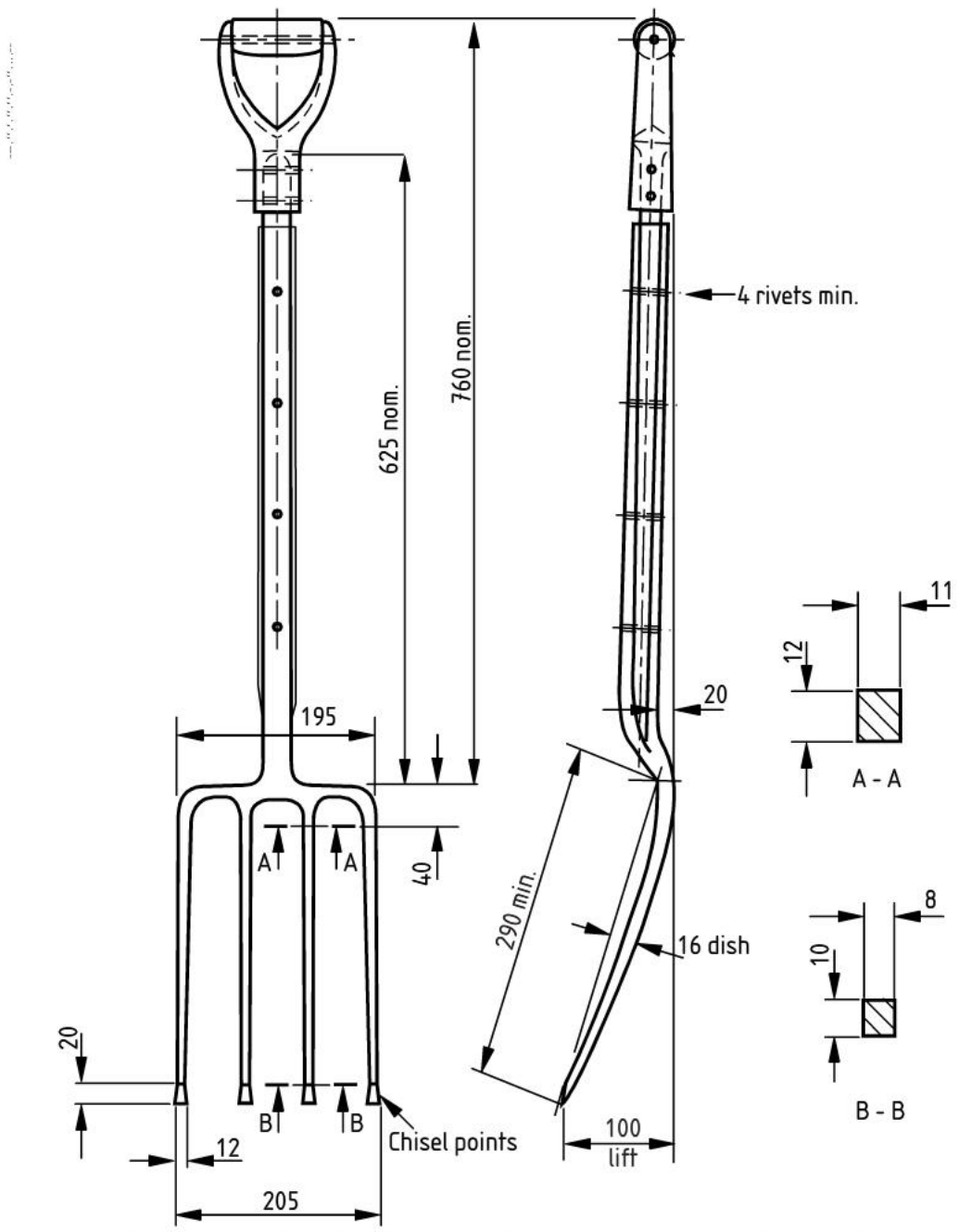


Figure 14 — Professional agricultural and contractors' trenching or plantation fork

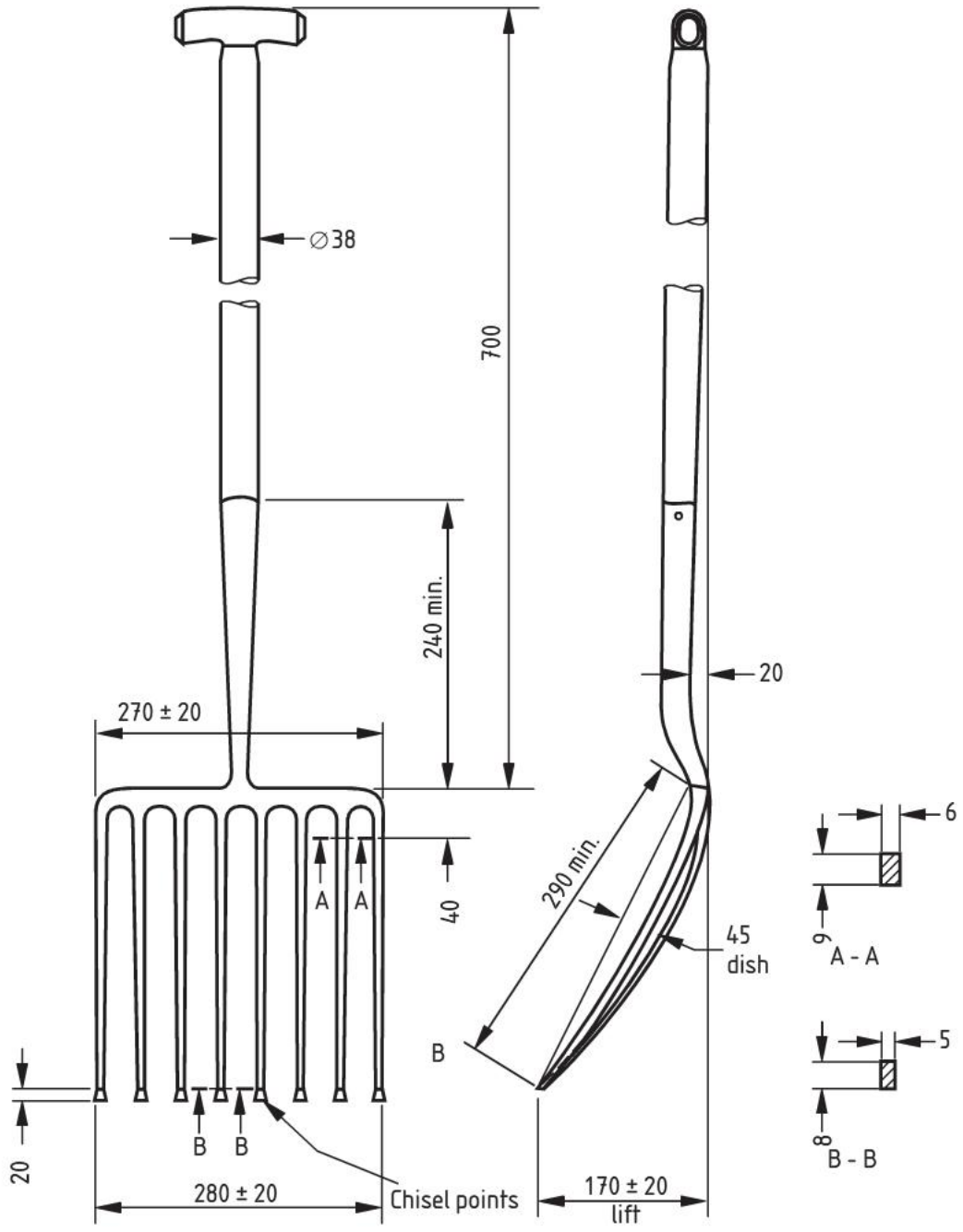


Figure 15 — Professional agricultural and contractors' ballast and tarmacadam fork

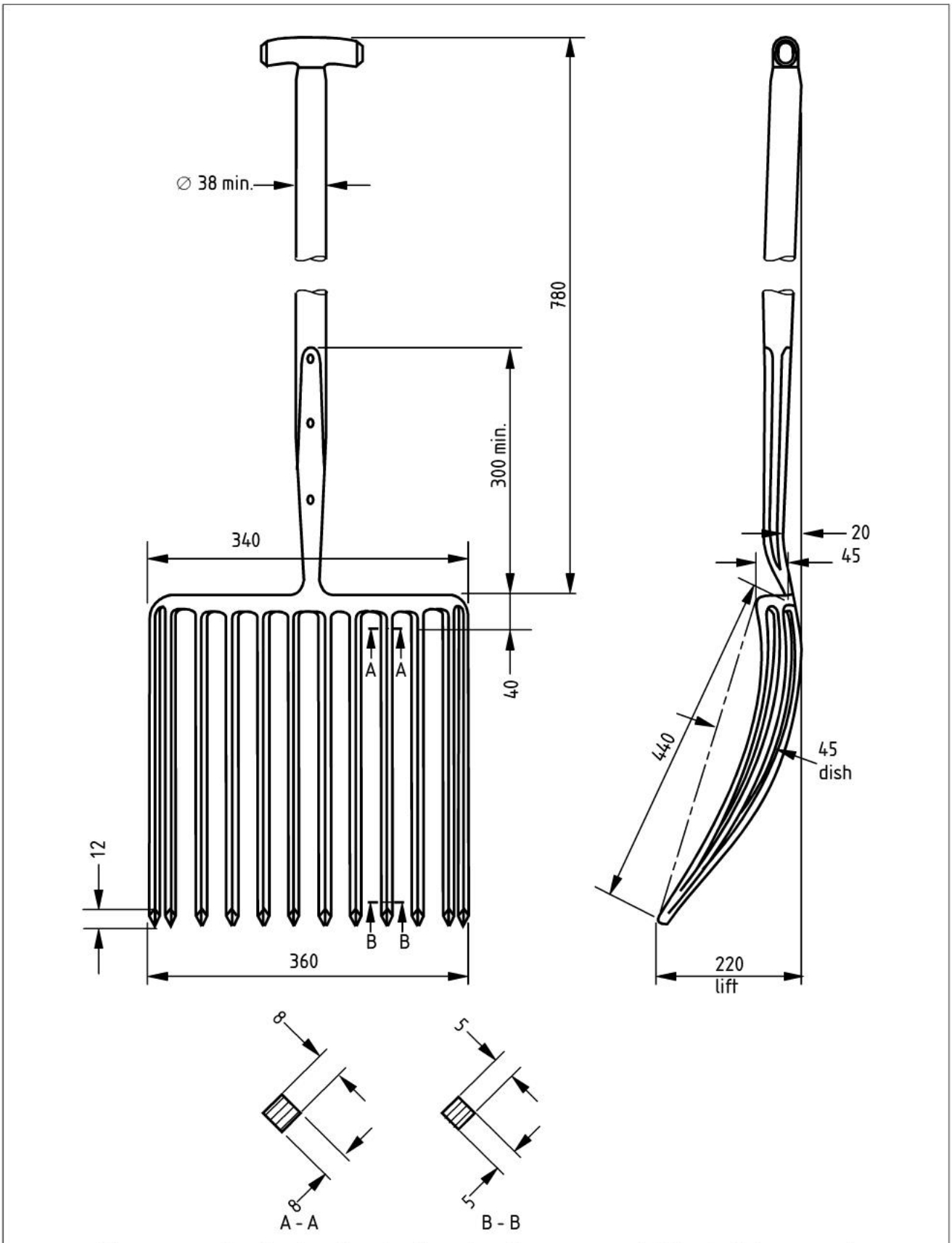


Figure 16 — Professional agricultural and contractors' Coke fork (12-prong)

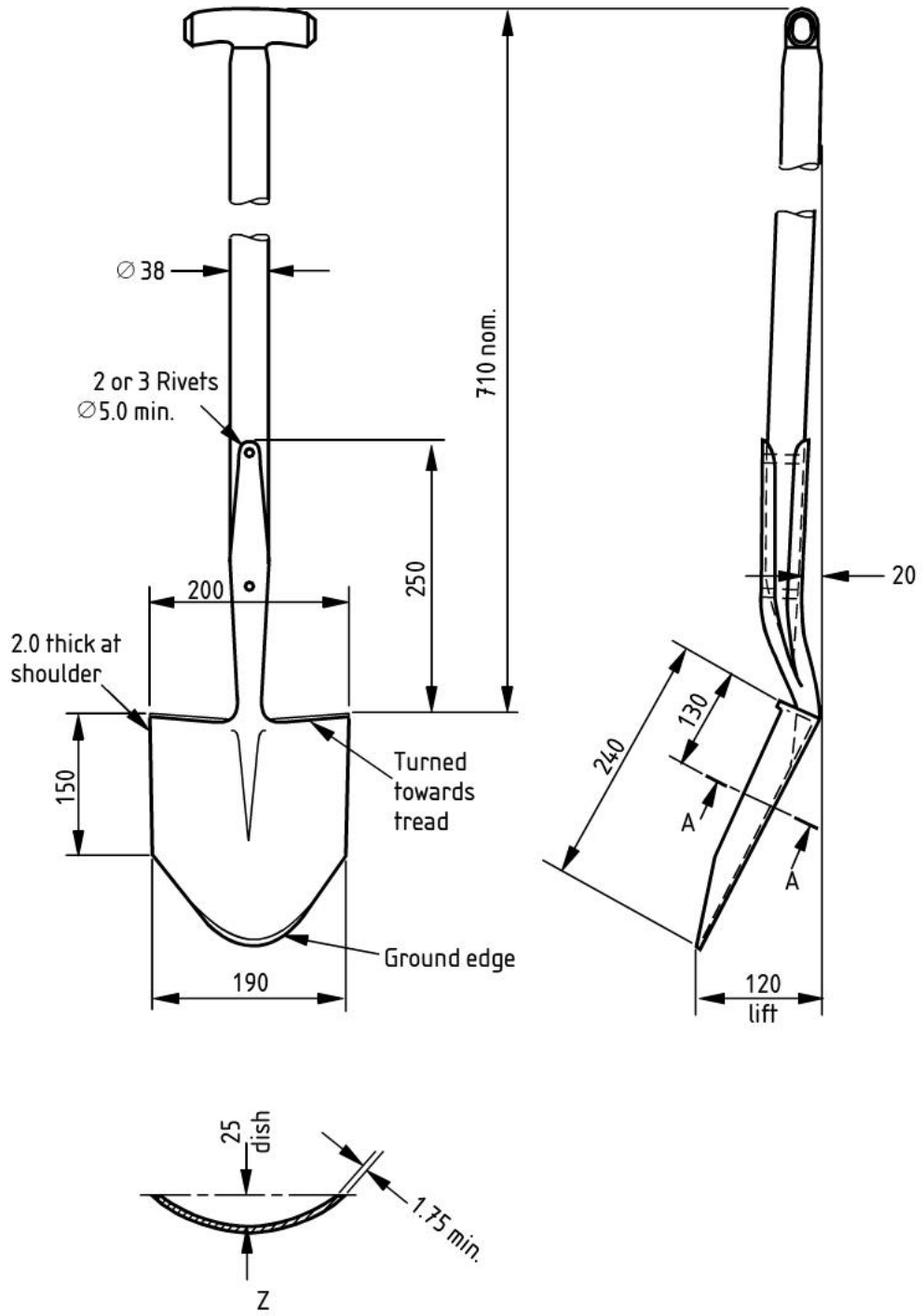


Figure 17 — Strapped general service forged shovel

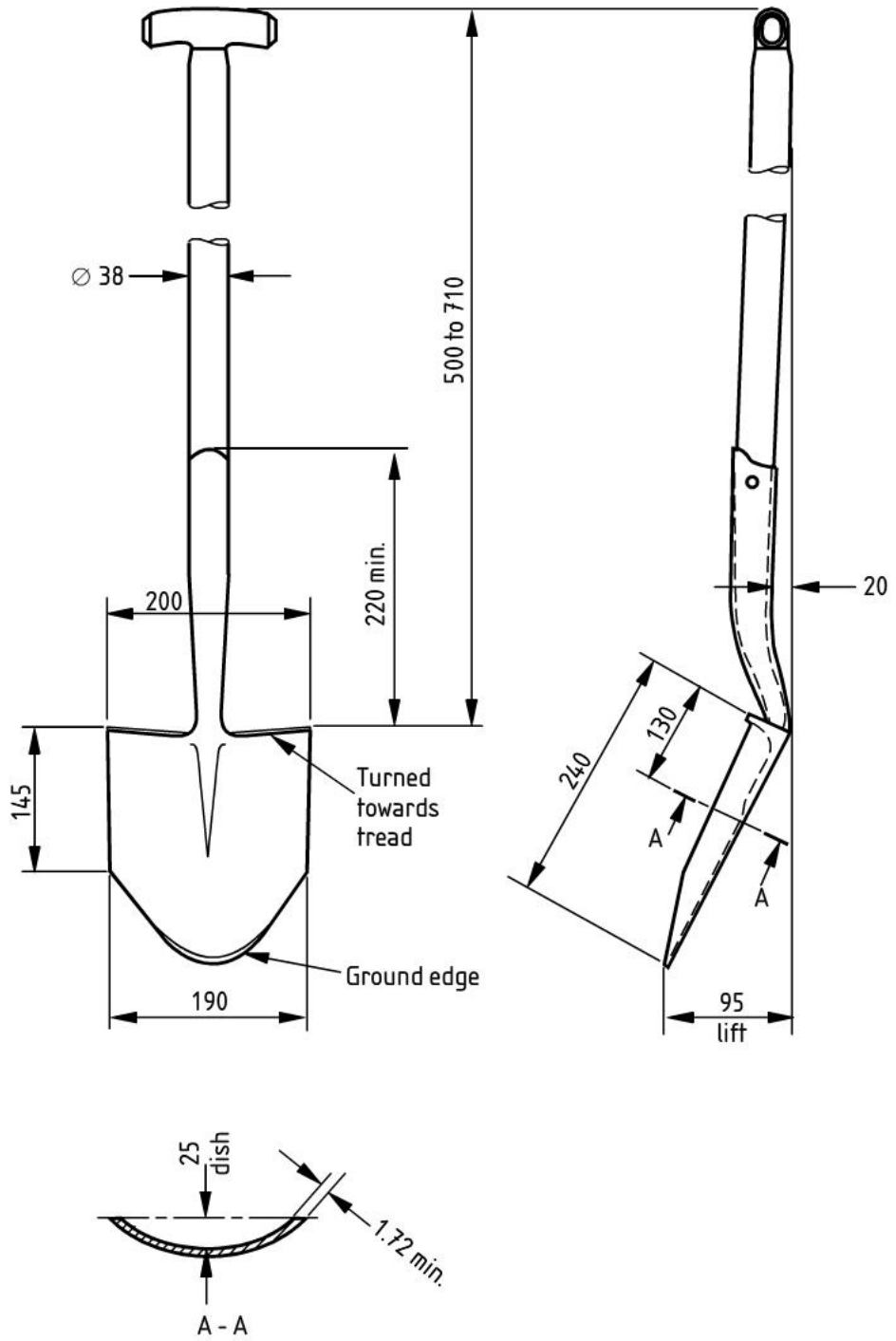


Figure 18 — General service (open-socket) shovel

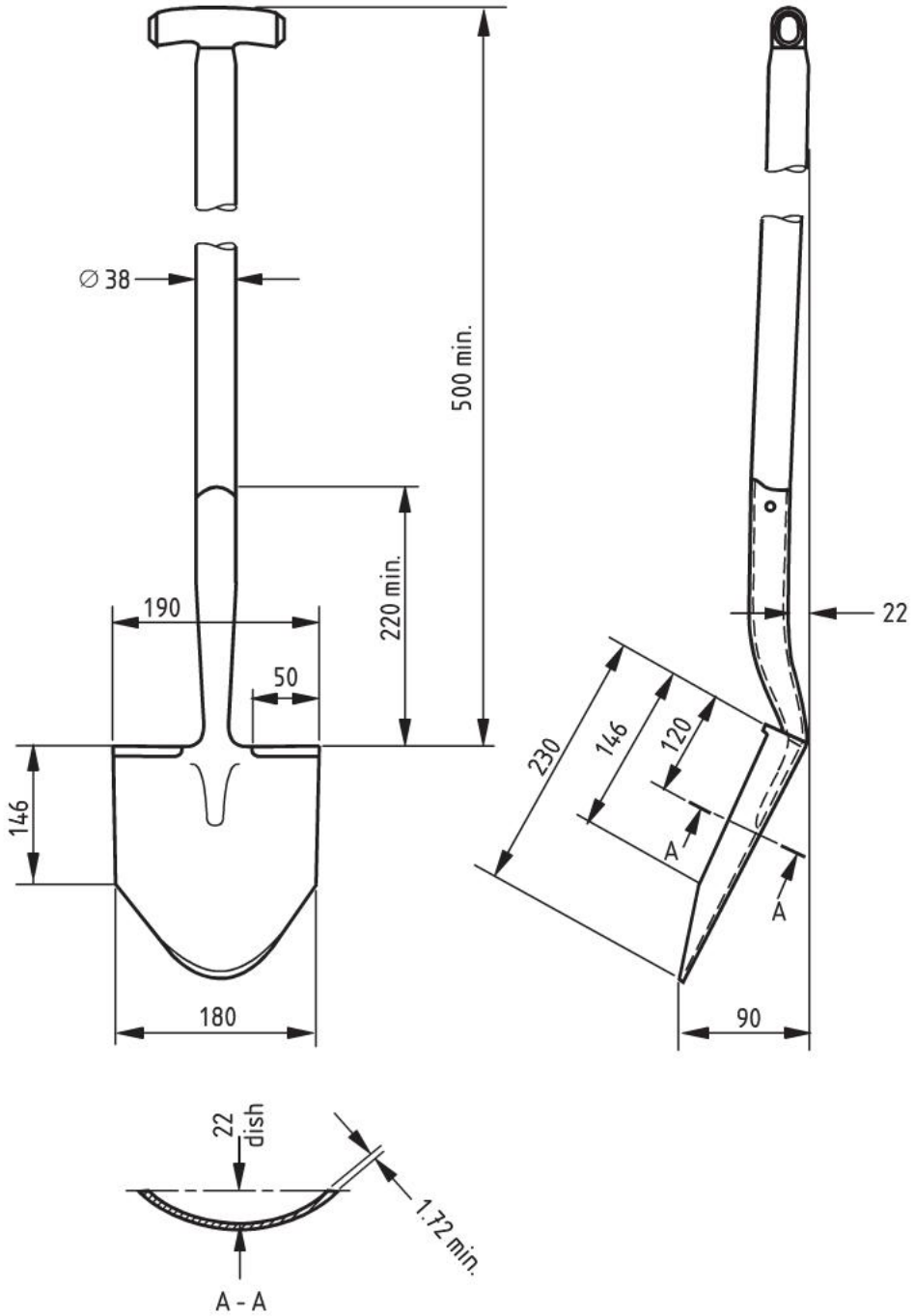


Figure 19 — General service lightweight infantry shovel (open-socket)

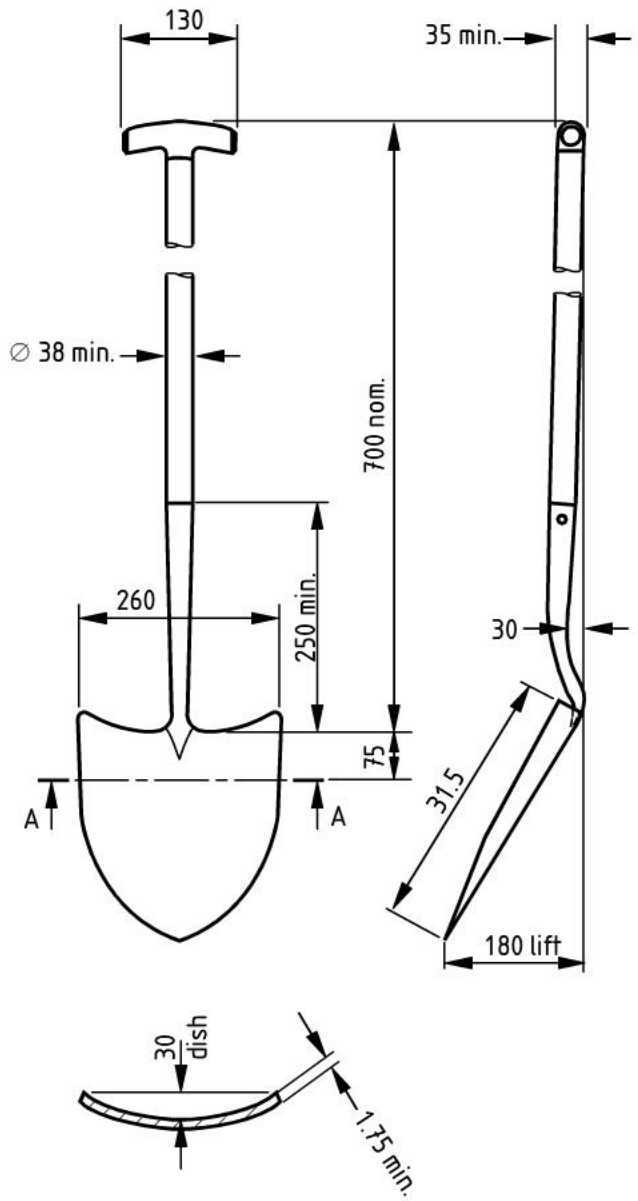
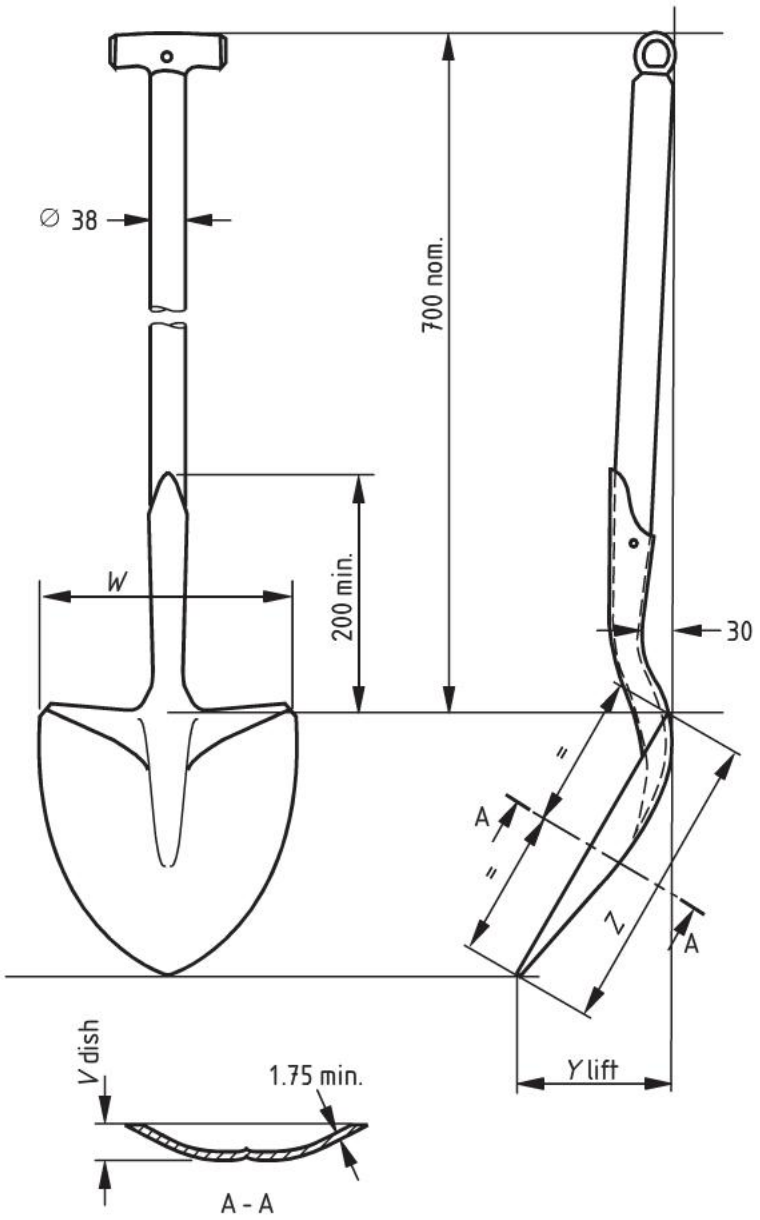


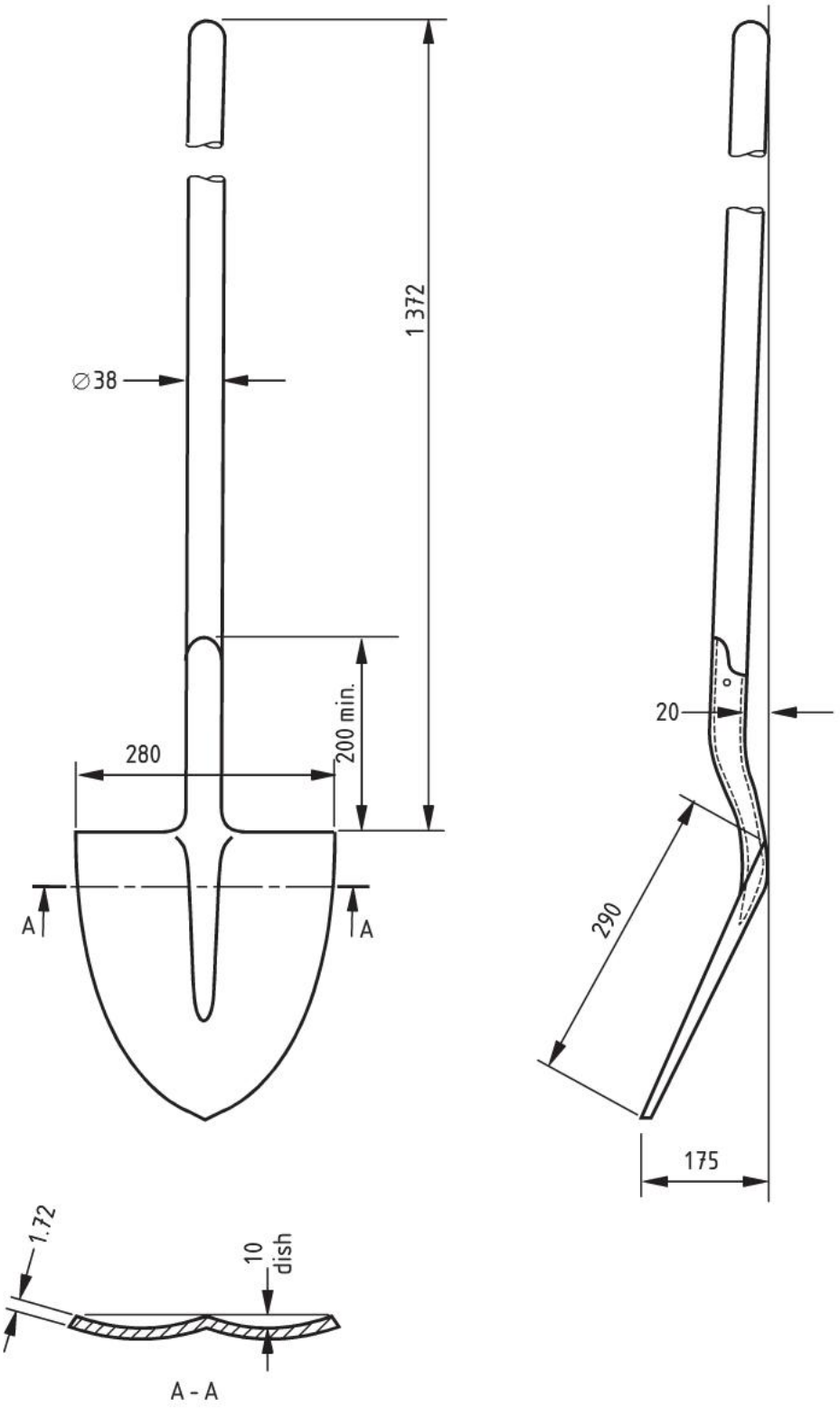
Figure 20 — Contractor's round mouth forged shovel



All dimensions are in millimetres

Size	Dish *V*	Width[a] *W*	Lift *Y*	Length *Z*
2	30	260	150	320
4	40	300	170	340
[a] Tolerance of −15 mm.				

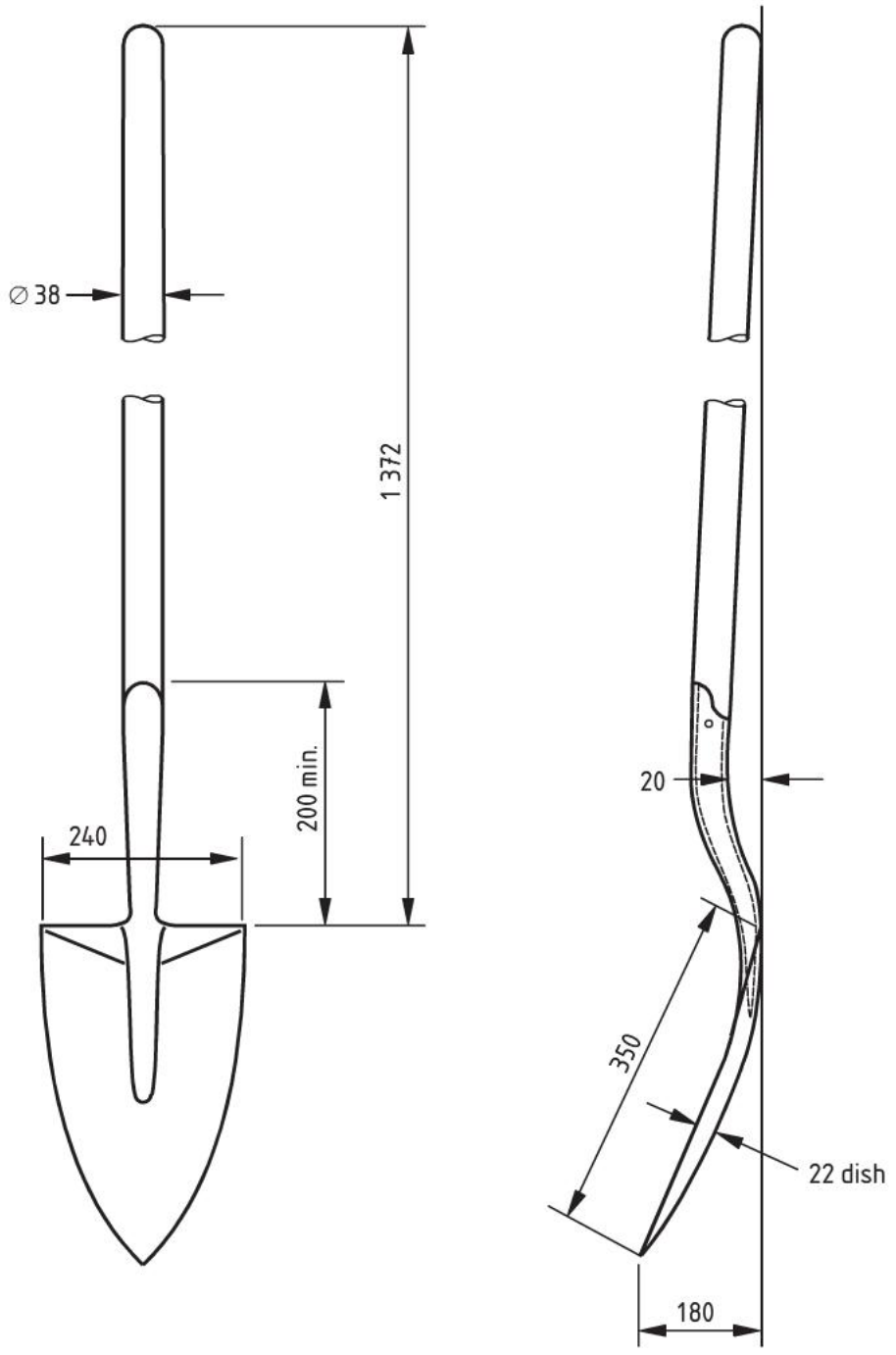
Figure 21 — Contractors' round mouth (open-socket) shovel



NOTE 1 Preferred types of hilt are: crutch tee, wooden Y-dee, metal capped and metal Y-dee.

NOTE 2 Alternative types of socket tops may be supplied as shown in Figure 46, Figure 47 and Figure 48.

Figure 22 — Contractors' round mouth West Country (open-socket) shovel



NOTE Alternative types of socket may be supplied as shown in Figure 46, Figure 47 and Figure 48.

Figure 23 — Contractors' round mouth Irish (open-socket) shovel

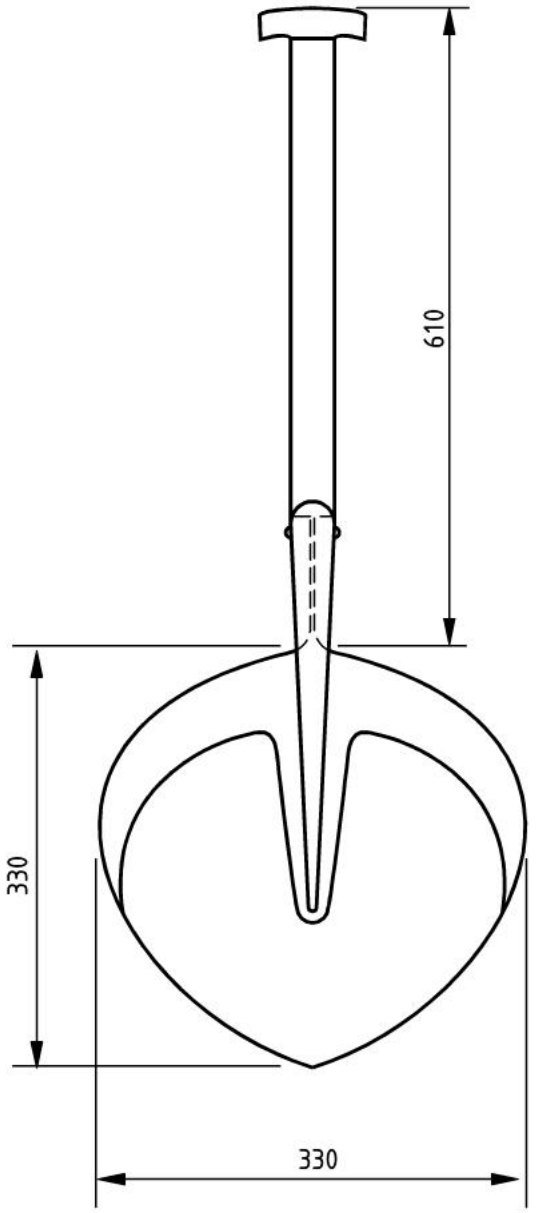


Figure 24 — Contractors' round mouth miners' pit pan shovel (open-socket)

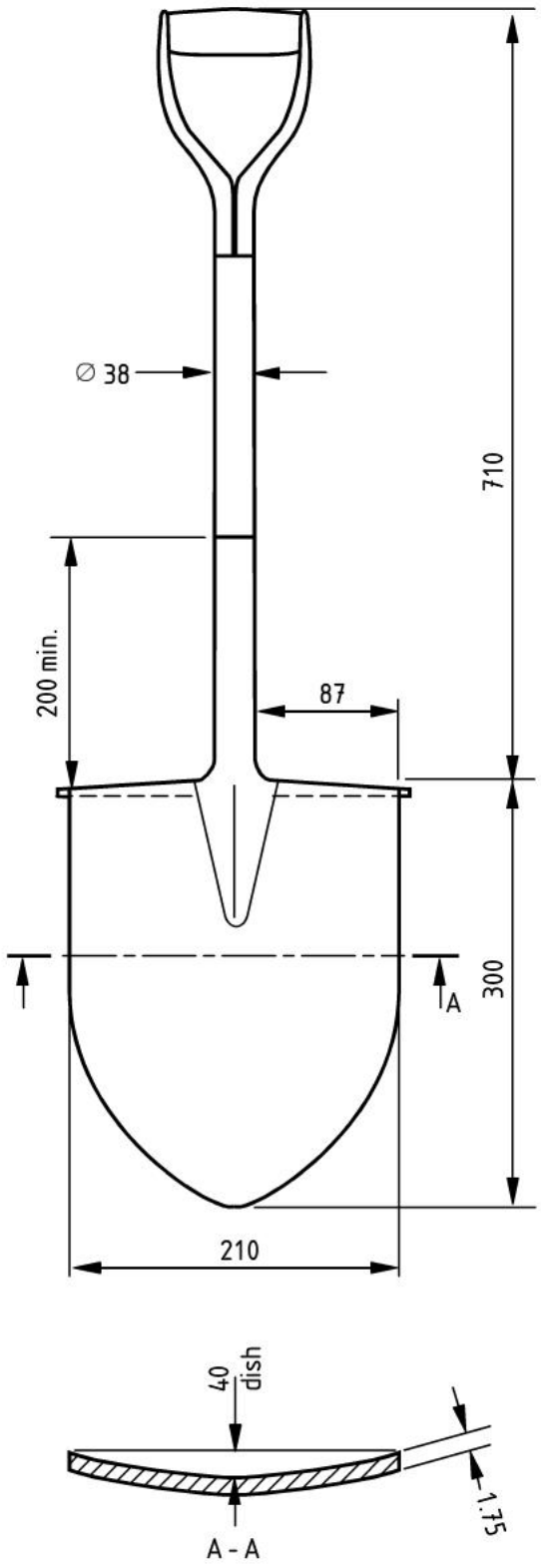


Figure 25 — Contractors' round mouth (open-socket) miners' shovel (American pattern)

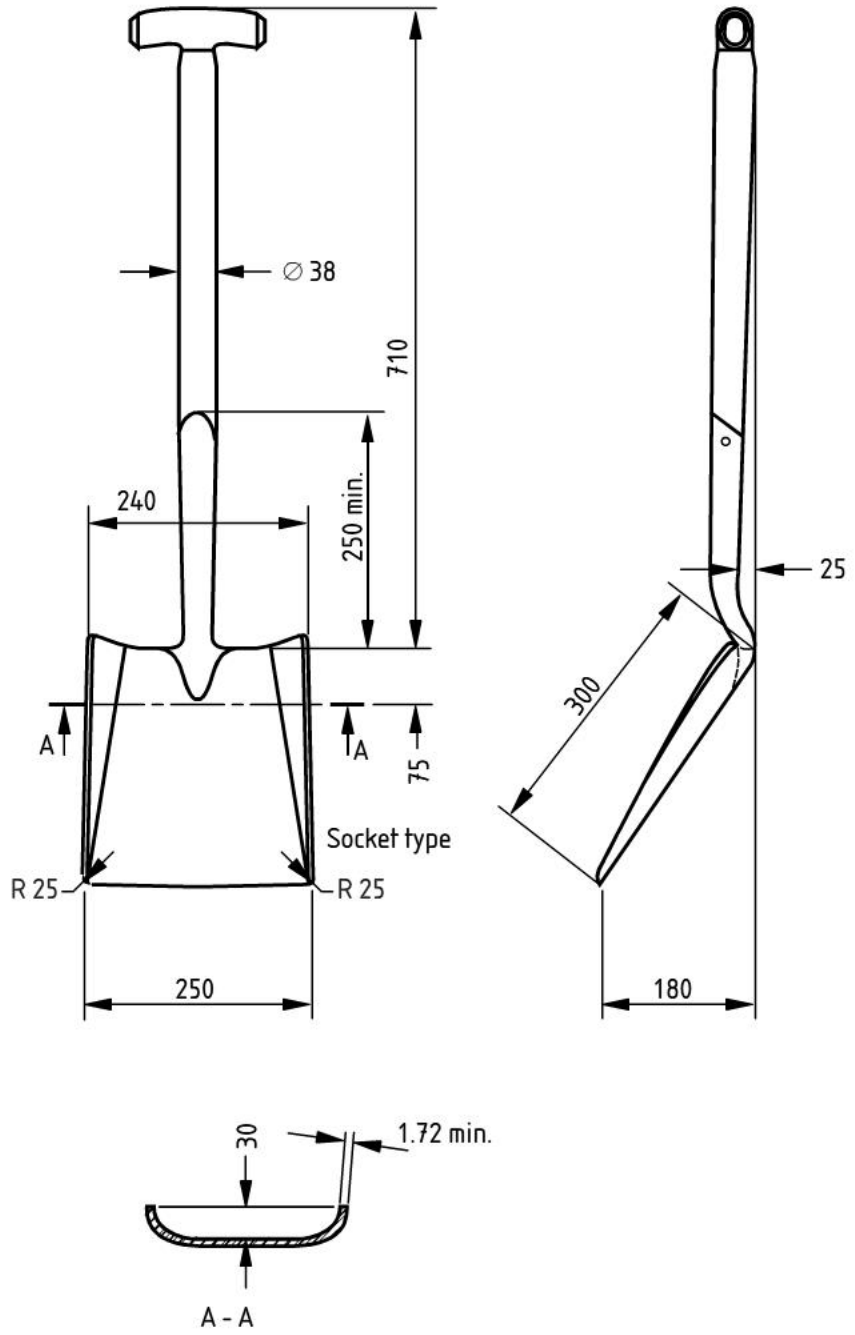
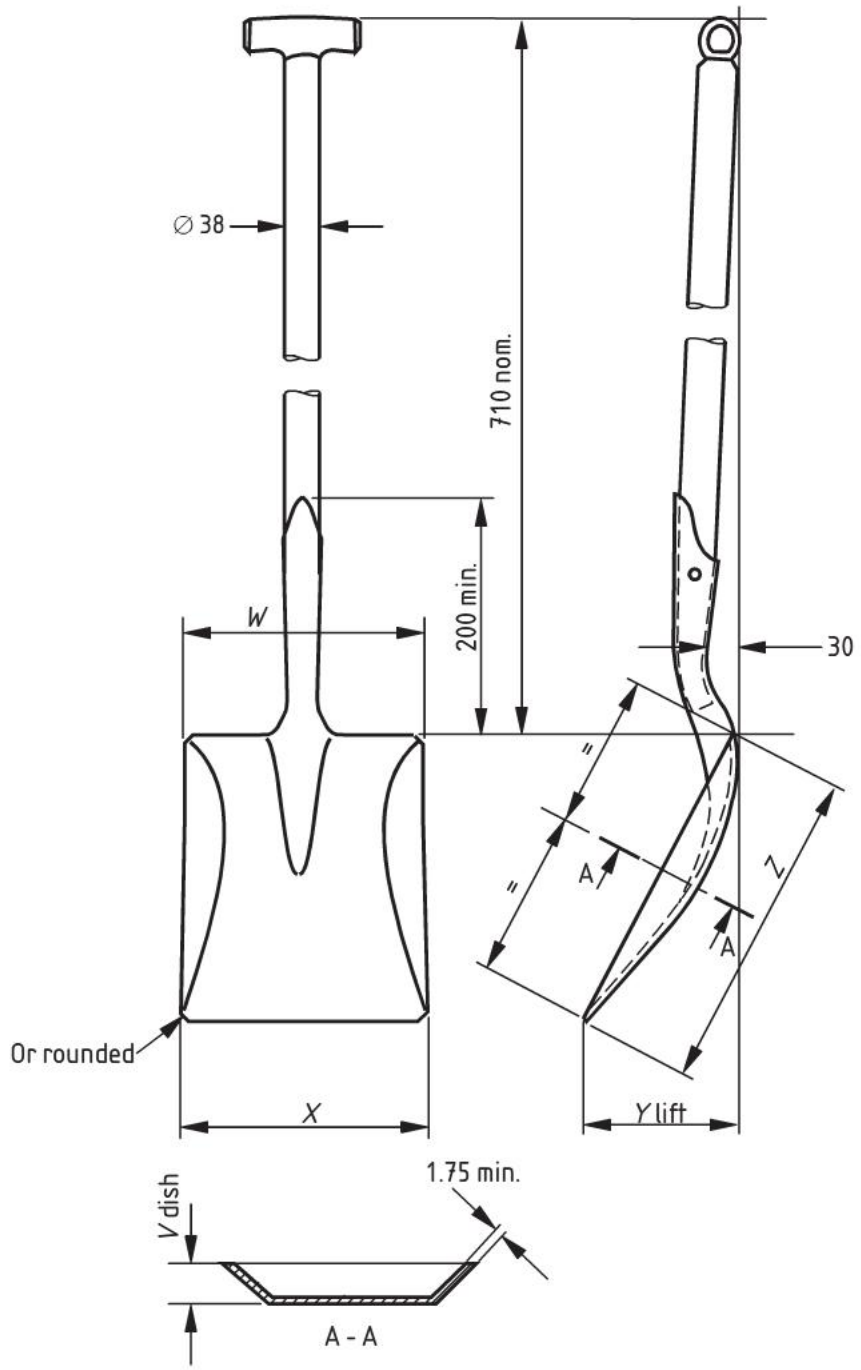


Figure 26 — Contractors' square mouth forged shovel



NOTE 1 Tolerances on dimensions are the same as those given for Figure 21.

NOTE 2 Preferred types of hilt are: crutch tee, wooden Y-dee, metal capped and metal Y-dee.

NOTE 3 Alternative types of socket may be supplied as shown in Figure 46, Figure 47 and Figure 48.

All dimensions are in millimetres

Size	Dish *V*	Shoulder width *W*	Mouth width *X*	Lift *Y*	Length *Z*
2	35	240	250	140	320
4	40	260	280	160	350
6	40	300	300	180	370
8	45	320	340	190	400

Figure 27 — Contractors' square mouth (open-socket) shovel

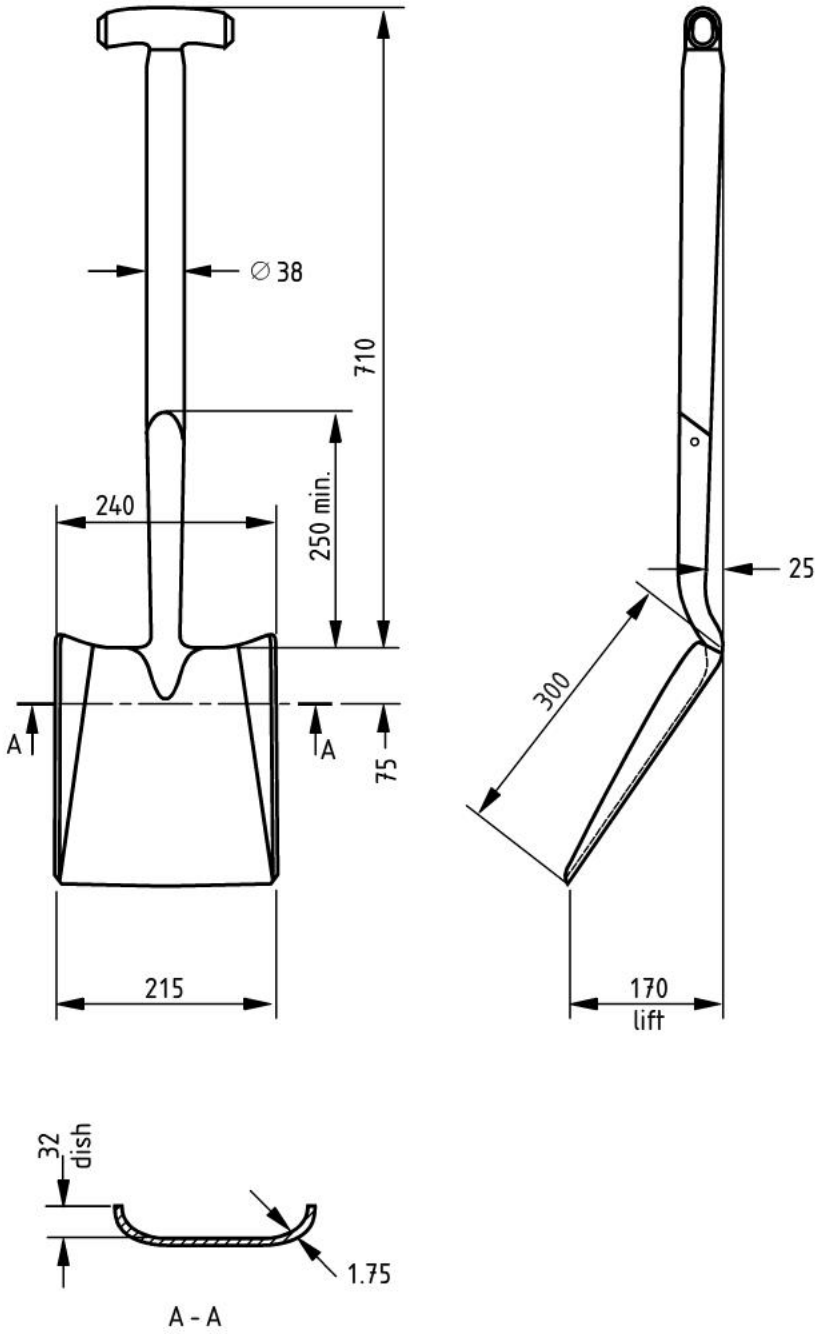
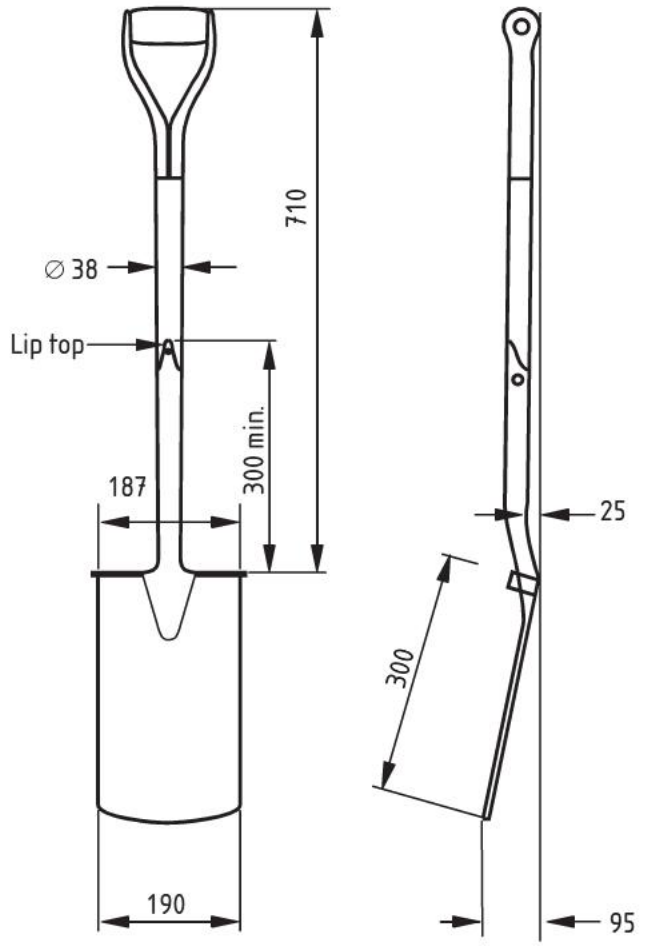


Figure 28 — Contractors' taper mouth forged shovel



NOTE 1 Preferred types of hilt are: crutch tee, wooden Y-dee and metal capped.

NOTE 2 Alternative types of socket may be supplied as shown in Figure 46, Figure 47 and Figure 48.

Figure 29 — Contractors' forged lip-top spade

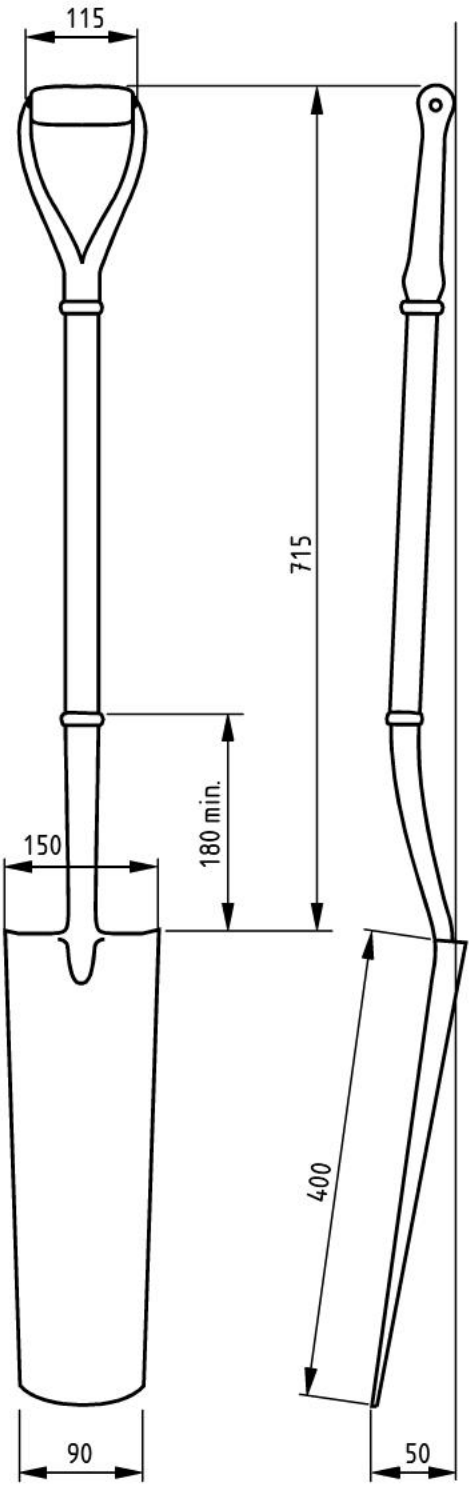


Figure 30 — Contractors' all steel draining spade

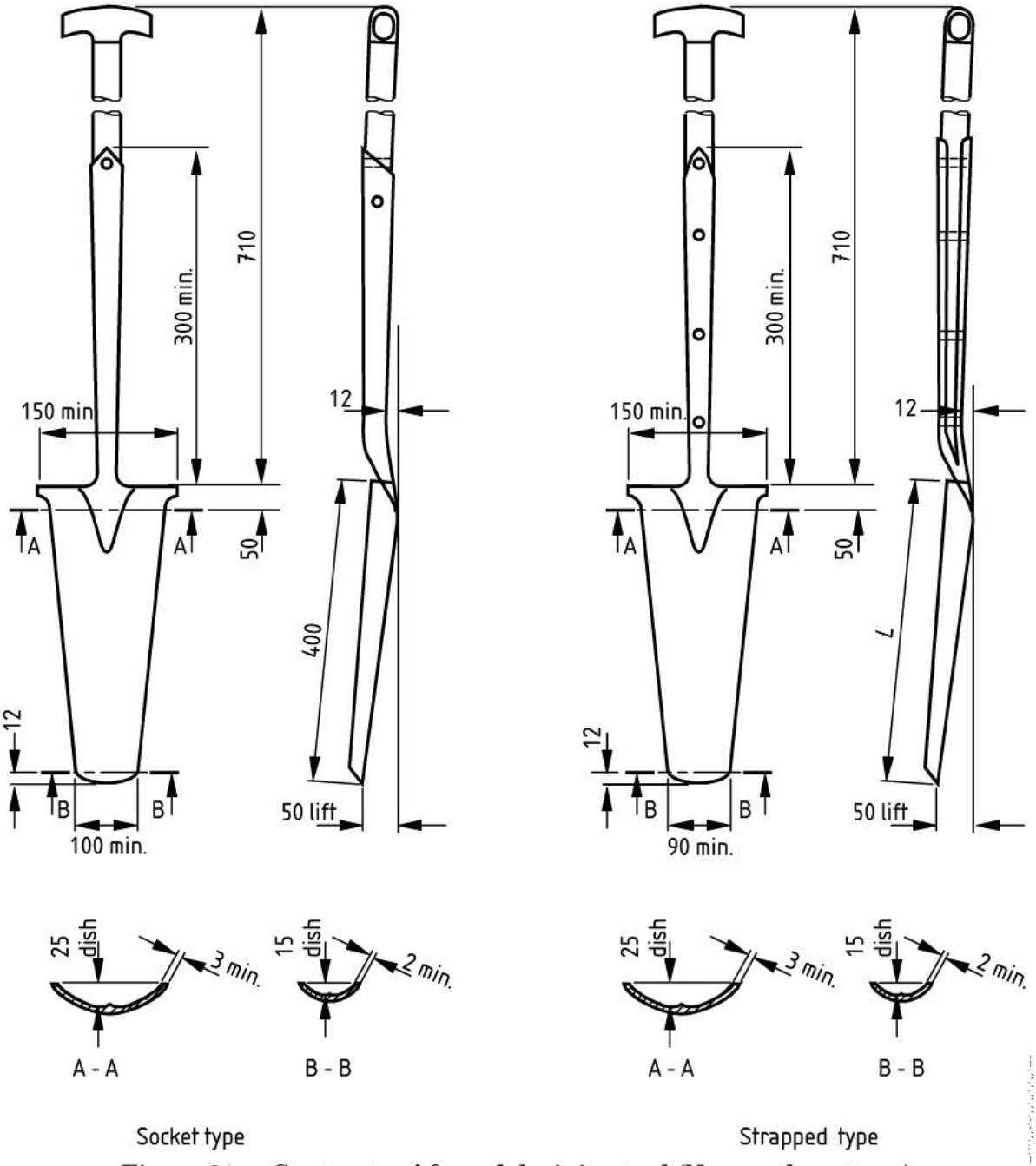


Figure 31 — Contractors' forged draining tool (Newcastle pattern)

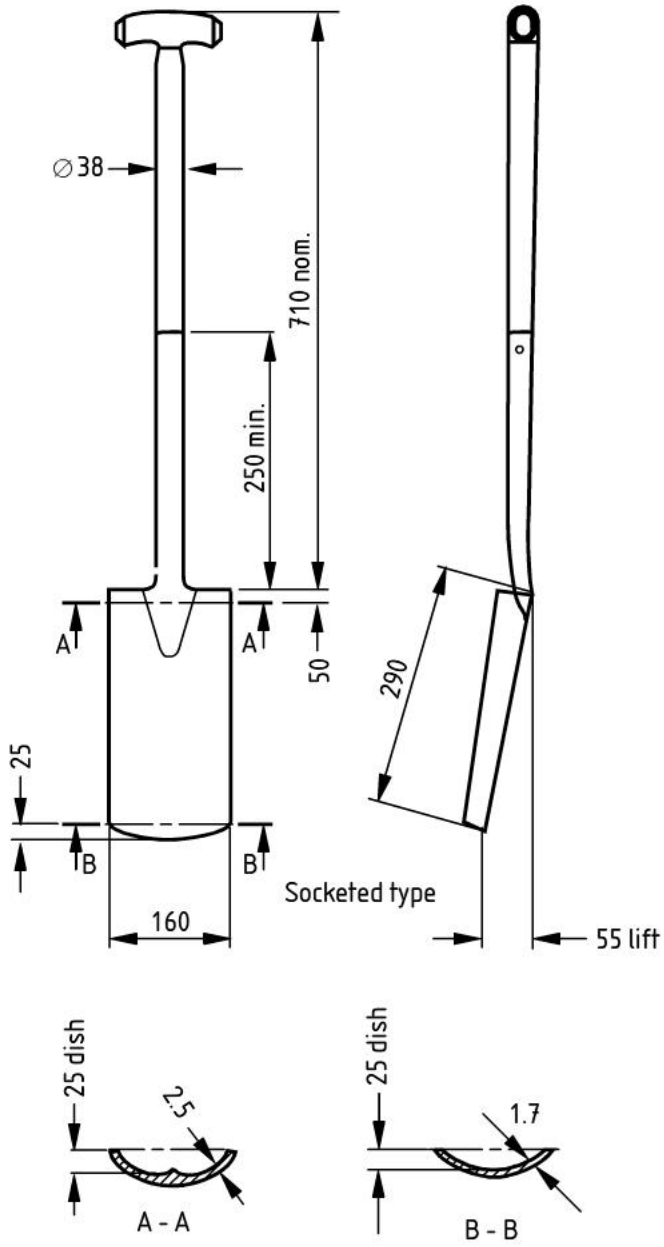


Figure 32 — Contractors' forged grafting spade

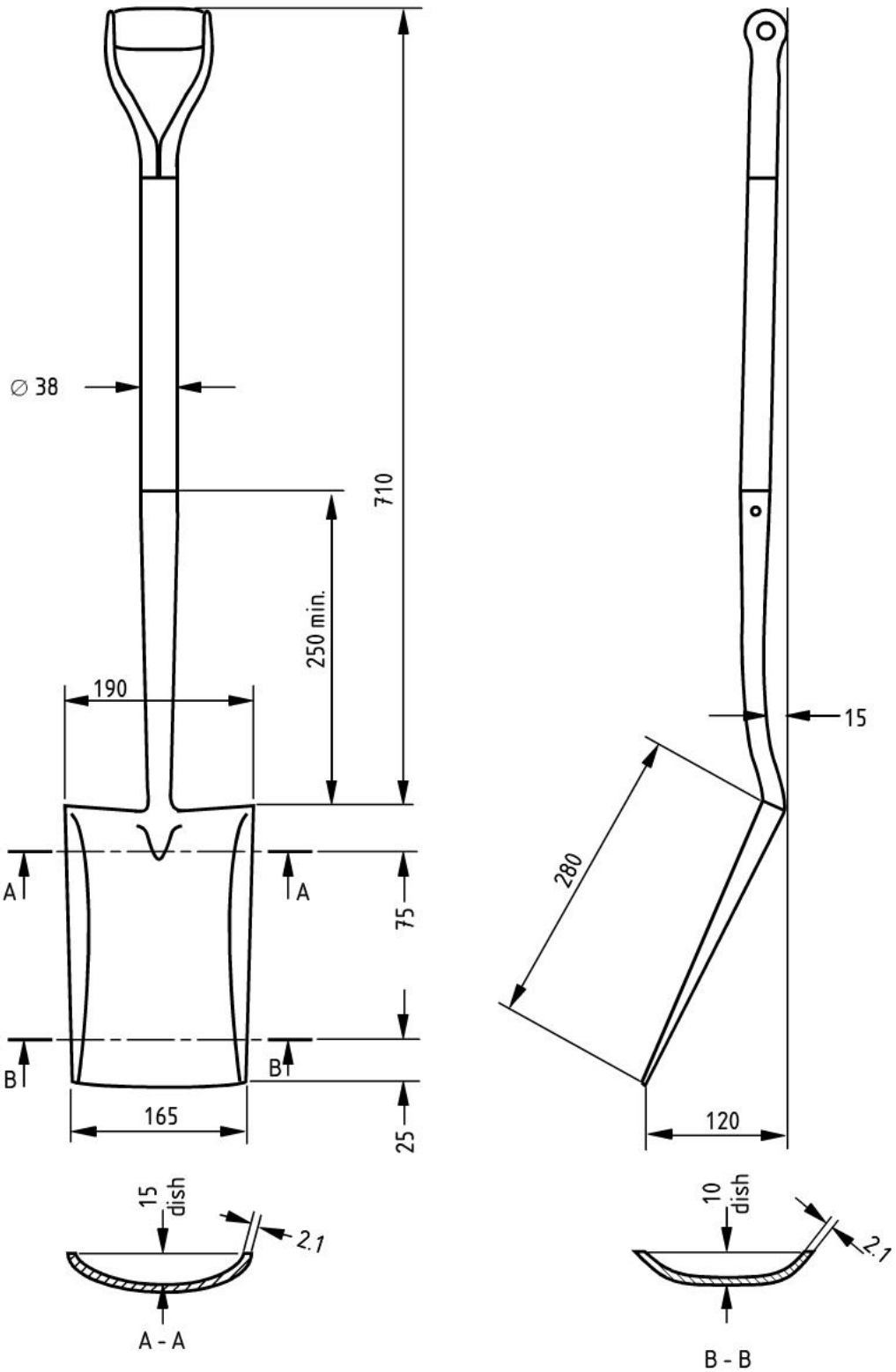


Figure 33 — Contractors' forged trenching spade

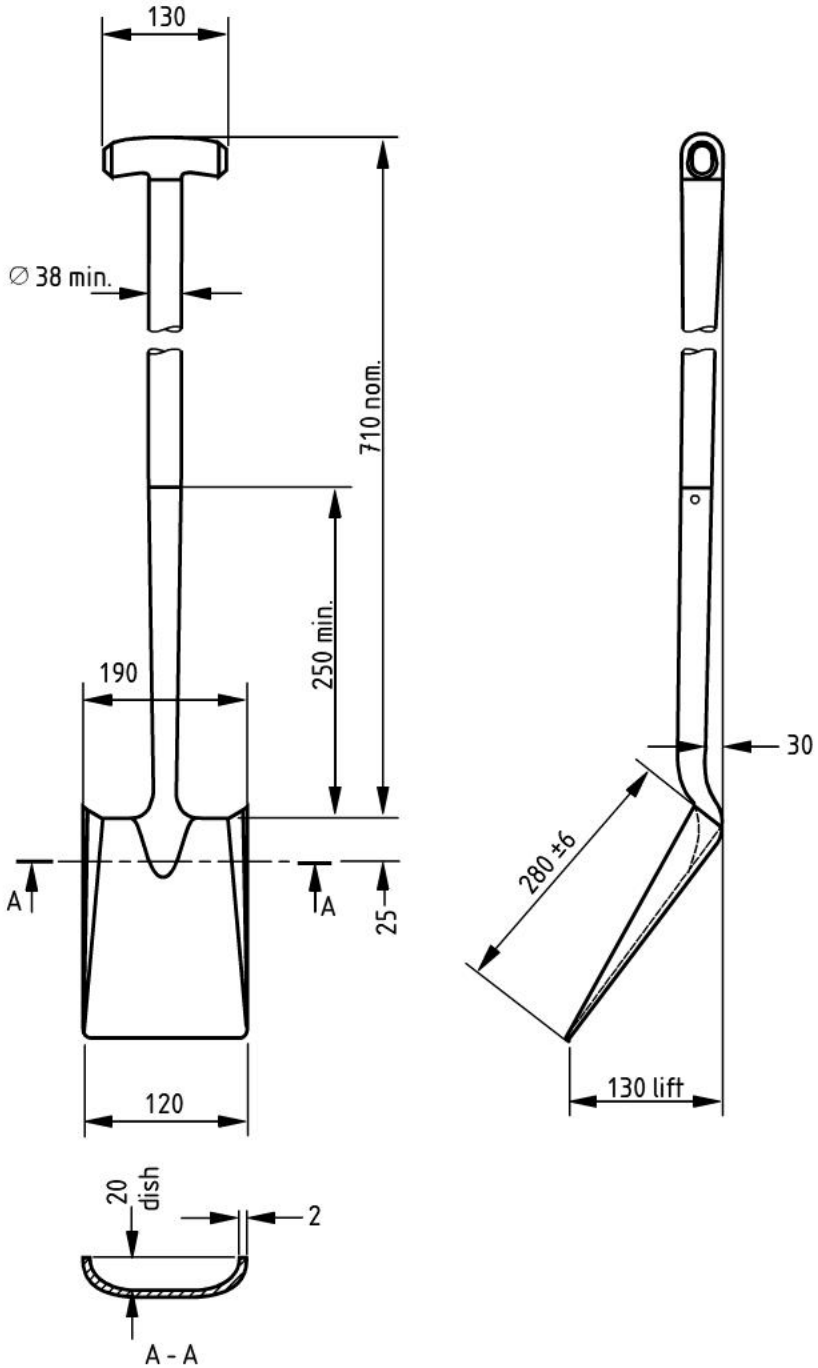


Figure 34 — Contractors' forged cable-laying spade

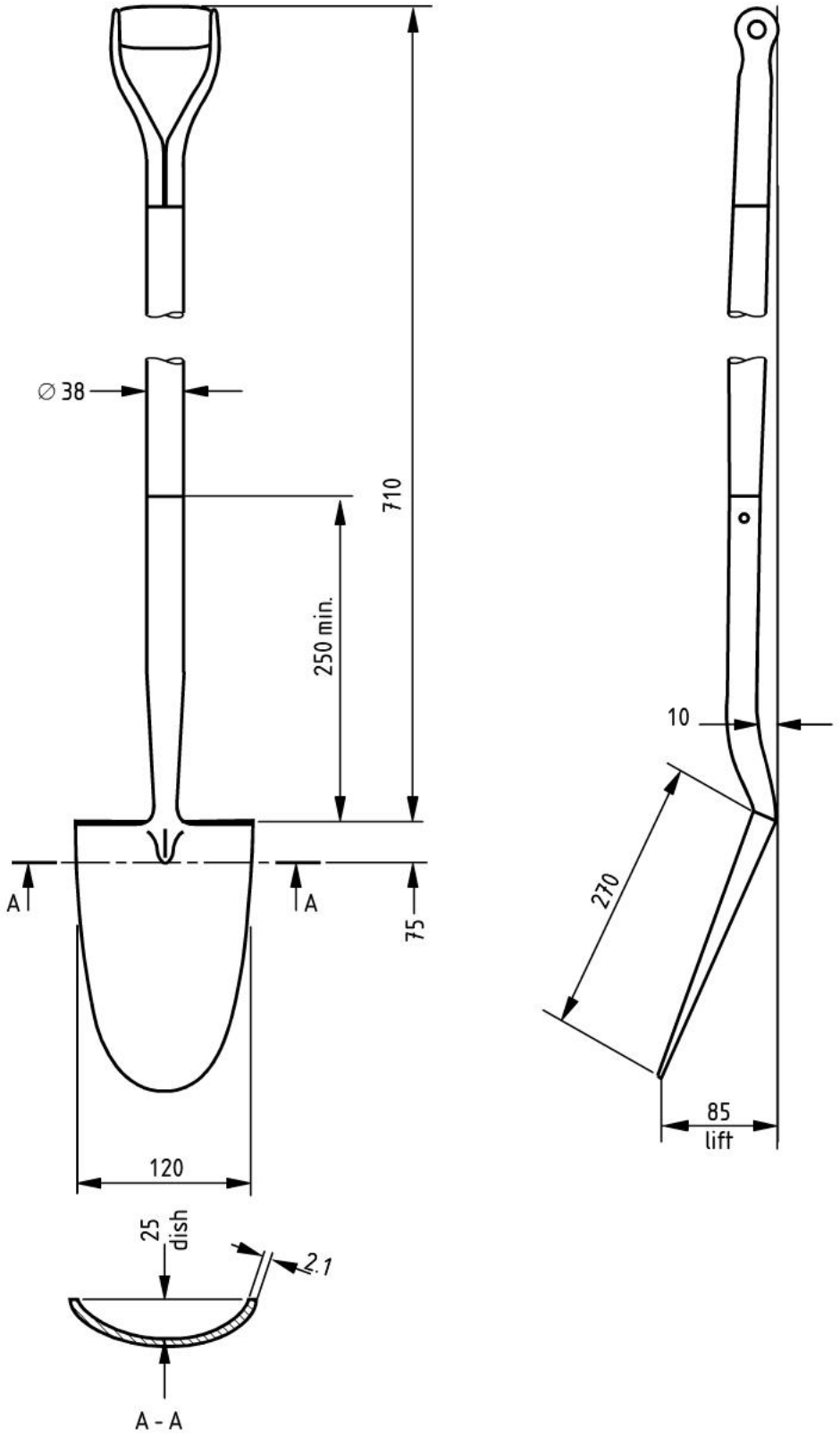


Figure 35 — Agricultural forged ditching or rabbiting spade

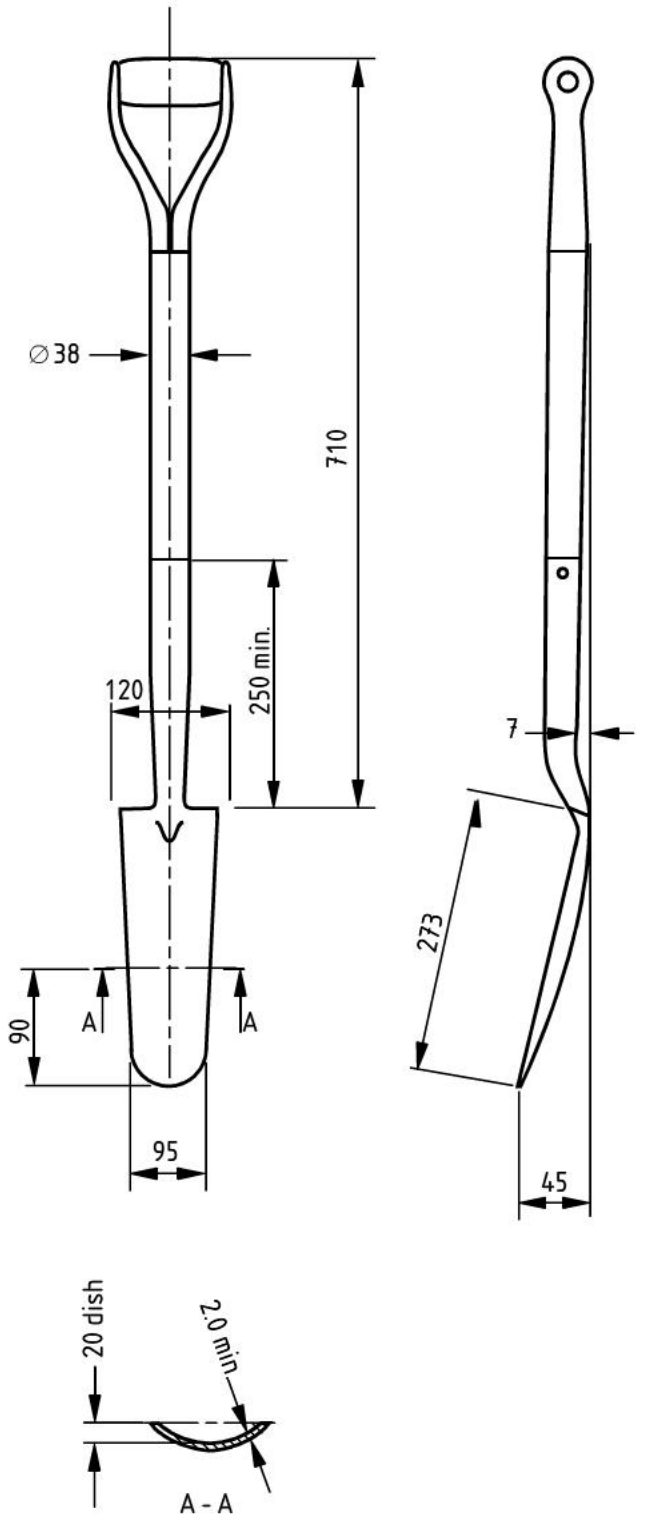


Figure 36 — Agricultural forged tree planting or poachers' spade

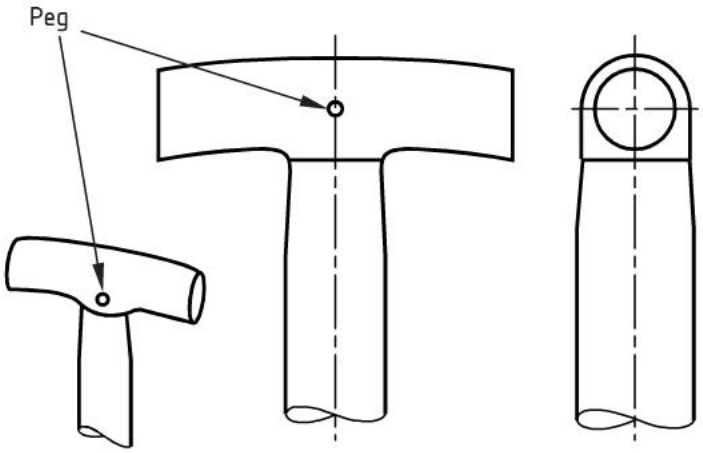


Figure 37 — Example of a shaped crutch tee hilt

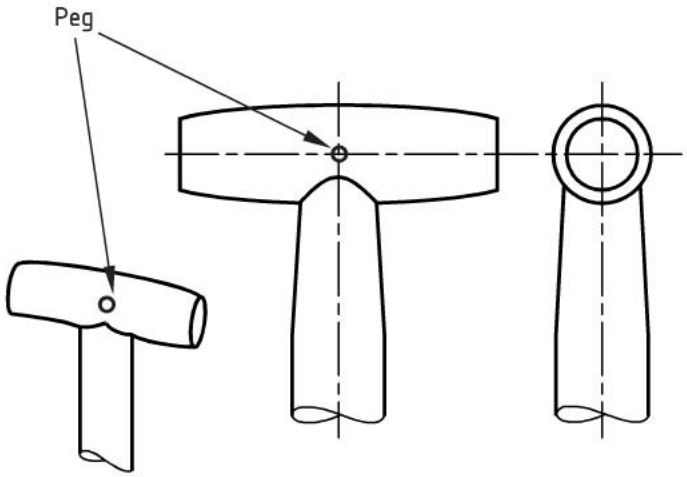


Figure 38 — Example of a barrel tee hilt

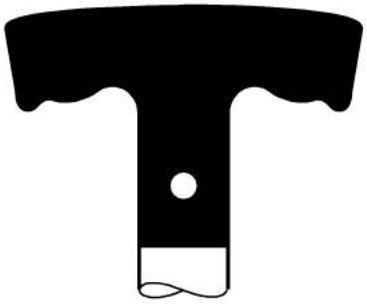


Figure 39 — Example of a plastics tee hilt

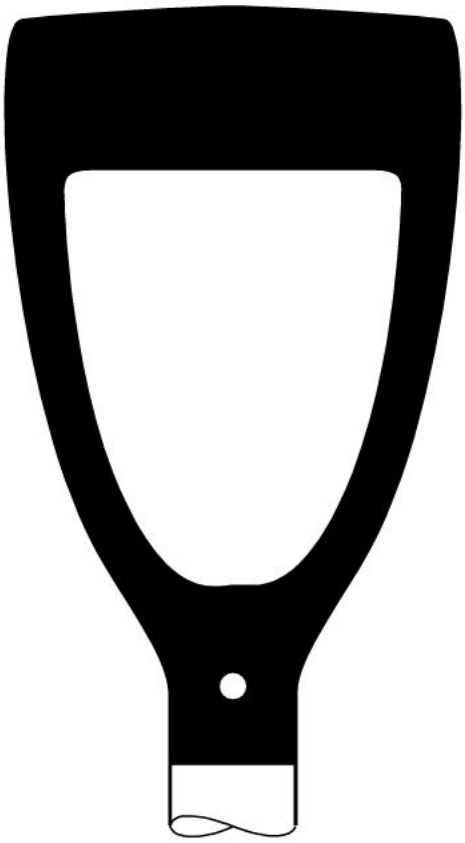


Figure 40 — Example of a plastics Y-dee hilt

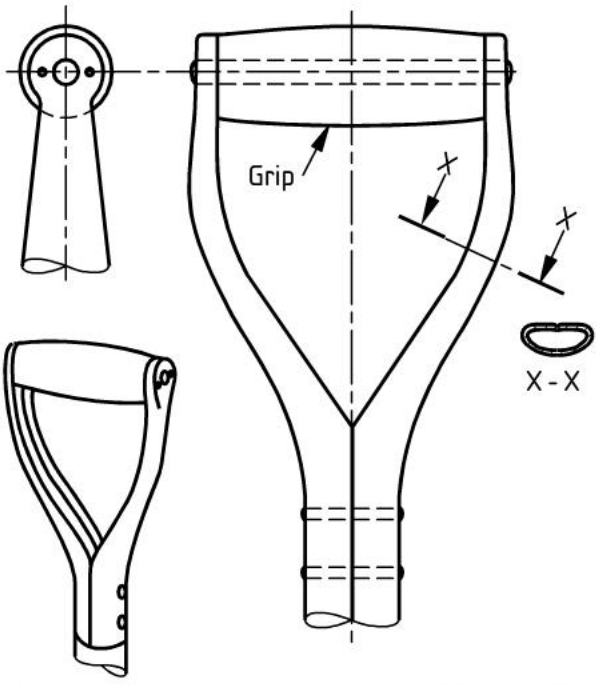


Figure 41 — Example of a metal Y-dee hilt

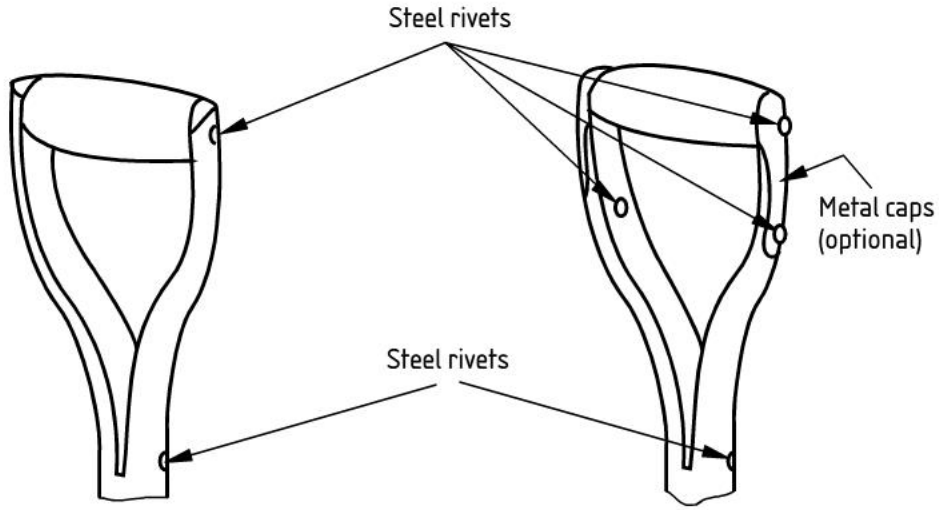


Figure 42 — Examples of wooden Y-dee hilts

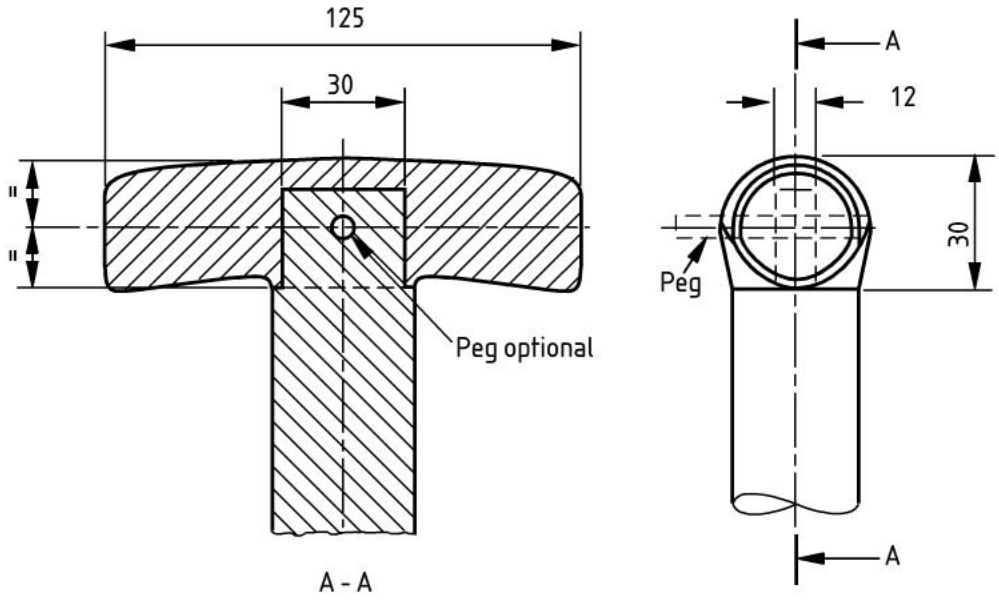
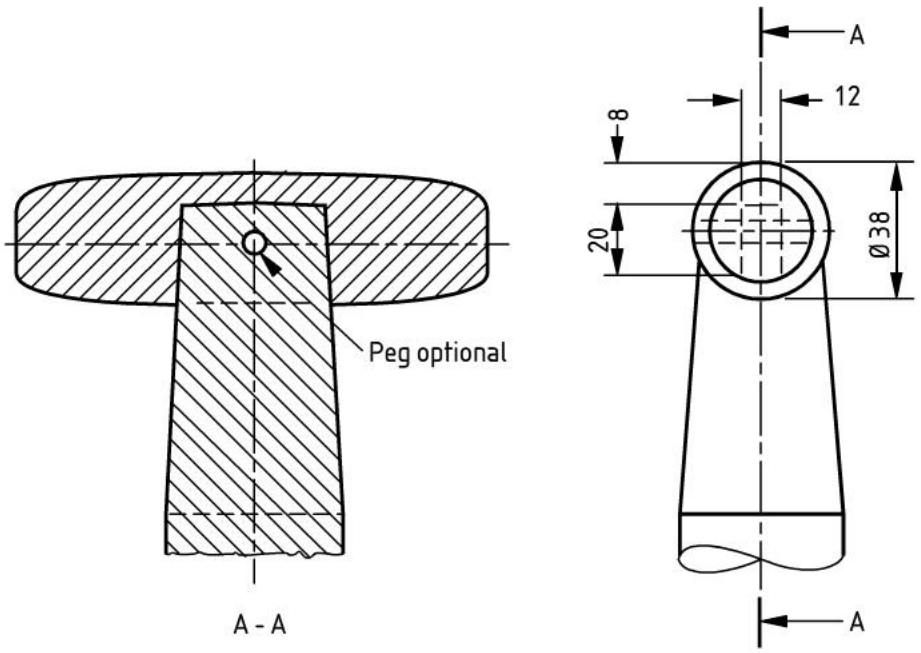
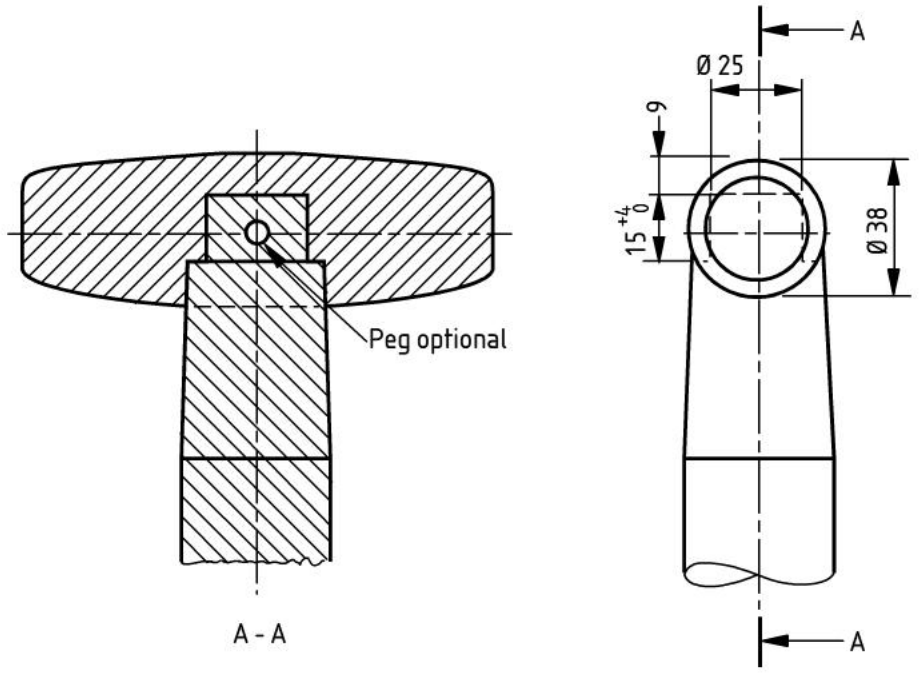


Figure 43 — Method of fixing a shaped crutch tee hilt rectangular tenon (tenon part-way and fixed with waterproof adhesive)



a) Tenon fixed with waterproof adhesive



b) Round tenon fixed with waterproof adhesive

Figure 44 — Methods of fixing a barrel tee hilt

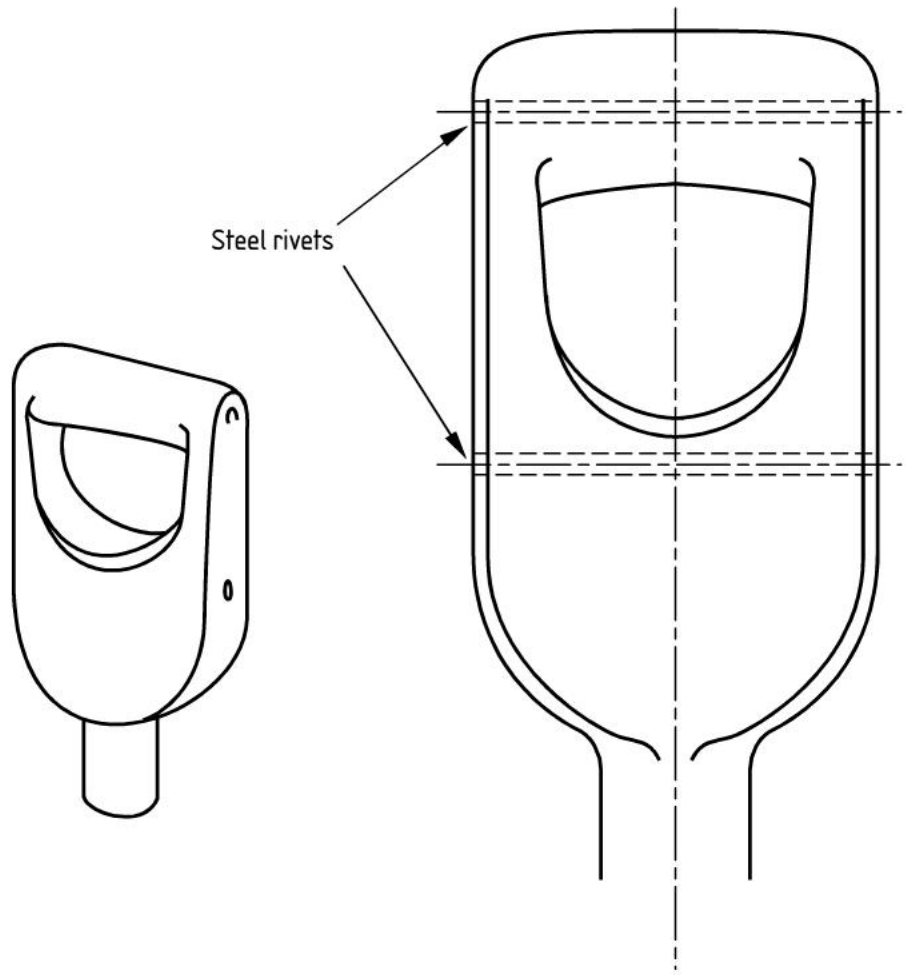


Figure 45 — Box dee hilt

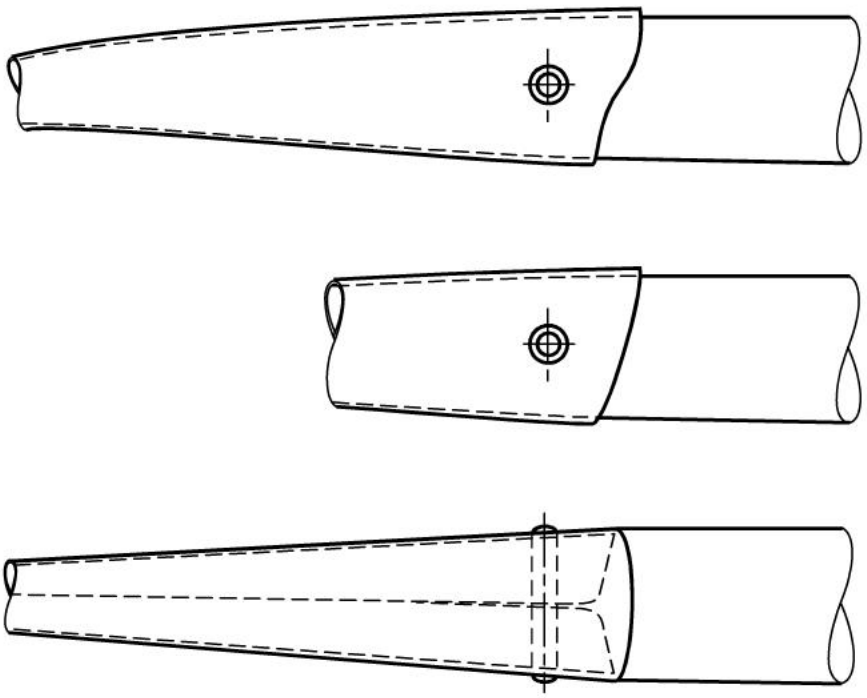


Figure 46 — Typical bevel top sockets

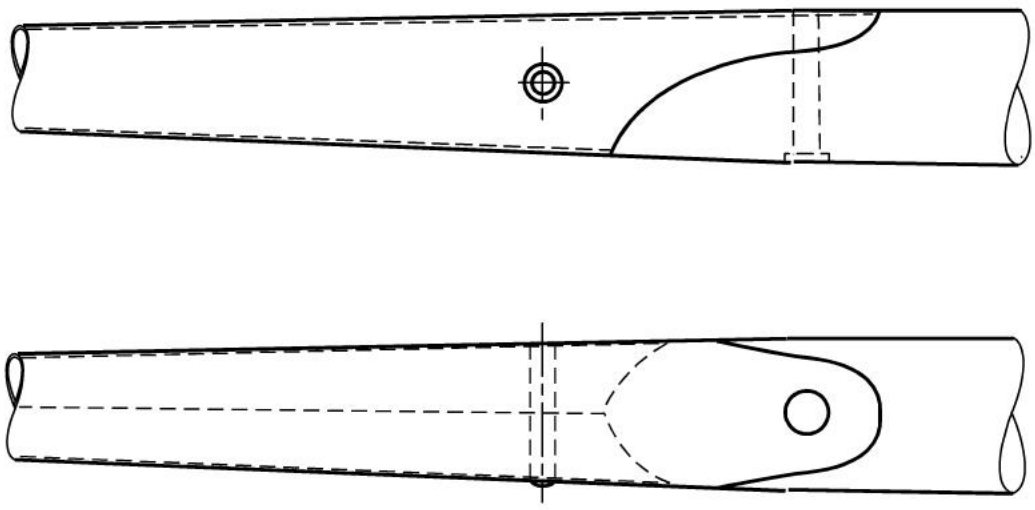


Figure 47 — Typical lip-top sockets

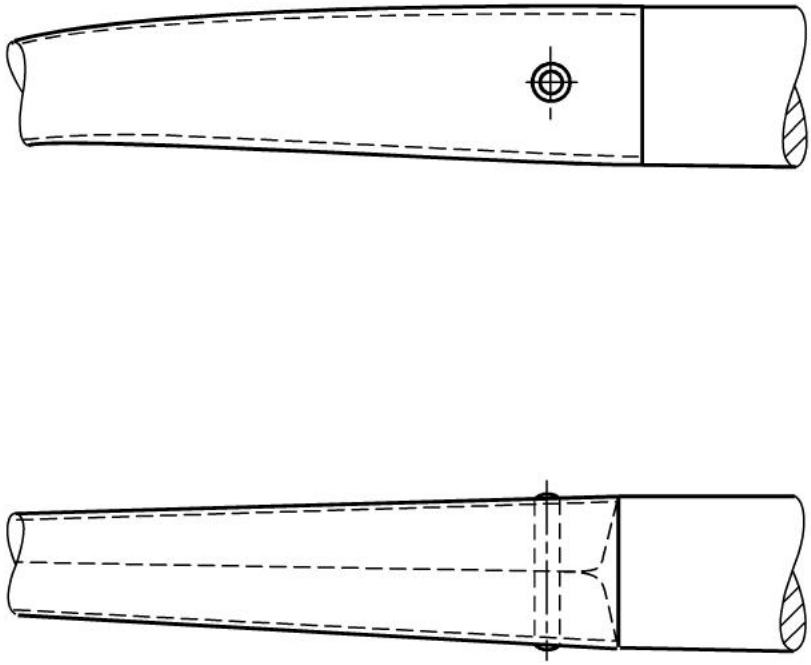
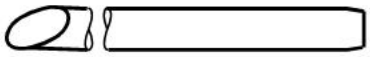
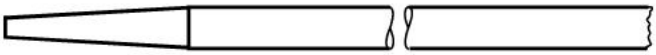


Figure 48 — Typical square-top sockets

a) Straight and blunt: requires to be chamfered before fitting

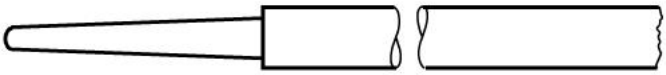


b) Chamfered for strapped forks, shovels and spades



c) Straight taper for solid socket fork, shovel or spade

d) Bored and socketted for tanged and ferruled straight top socket if strapped ferrule taper as c



e) Socketted for solid socketforks, shovels and spades

Figure 49 — Examples of shaft ends for fitting into various sockets

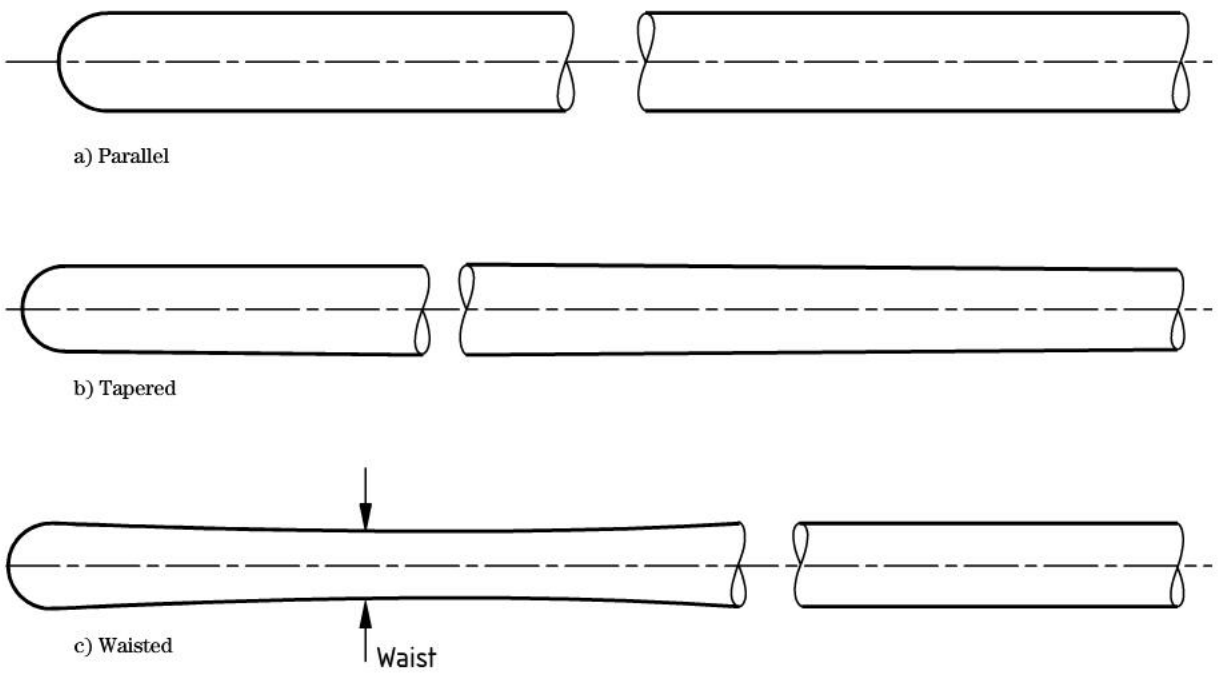


Figure 50 — Examples of grips for long knob handles

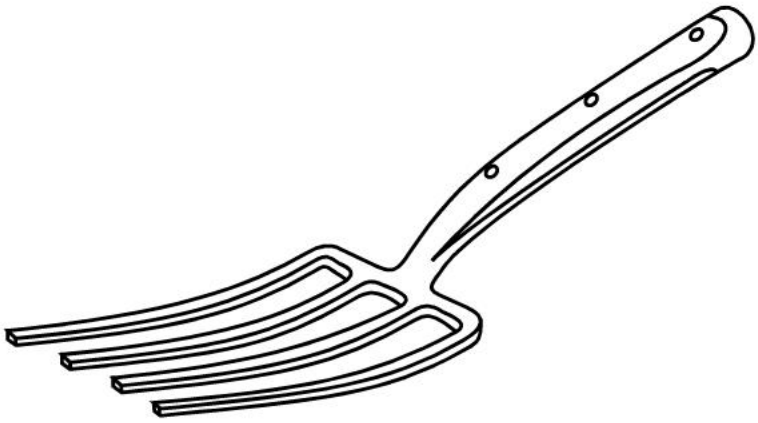


Figure 51 — Example of a strapped fork

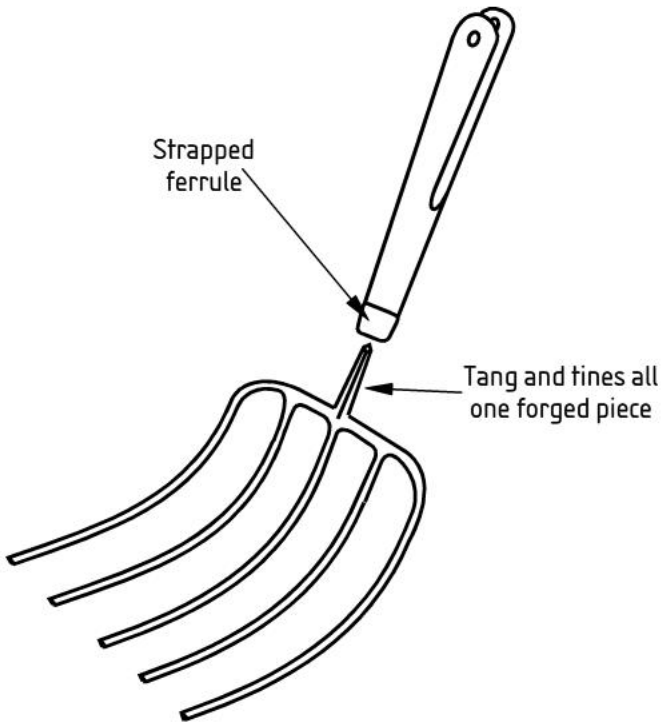


Figure 52 — Example of a tanged strap and ferrule assembly

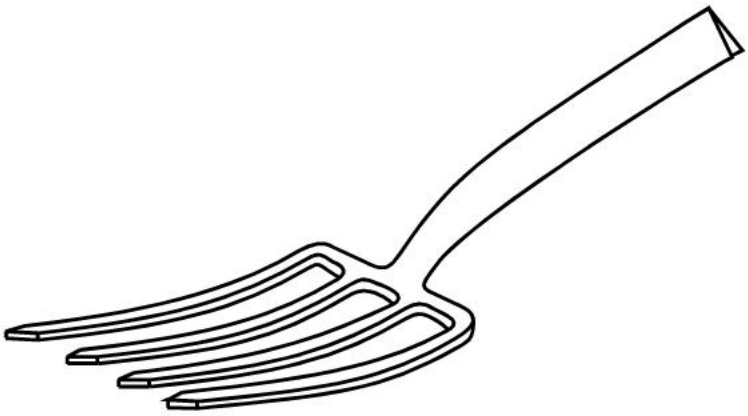


Figure 53 — Example of a solid socket fork

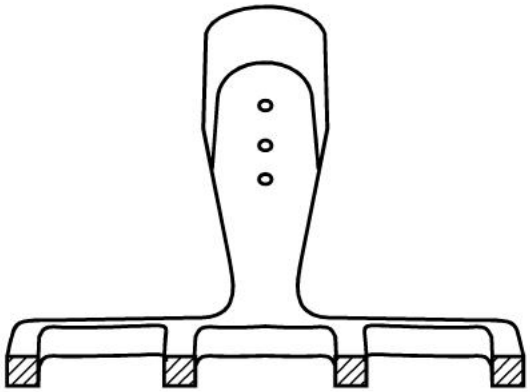


Figure 54 — Example of square-section prongs

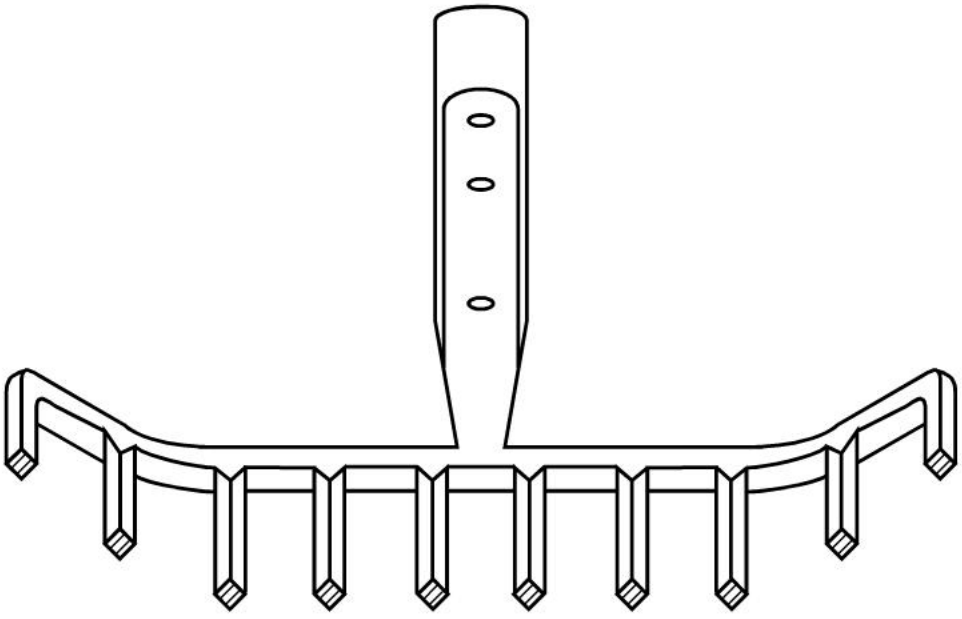


Figure 55 — Example of diamond-section prongs

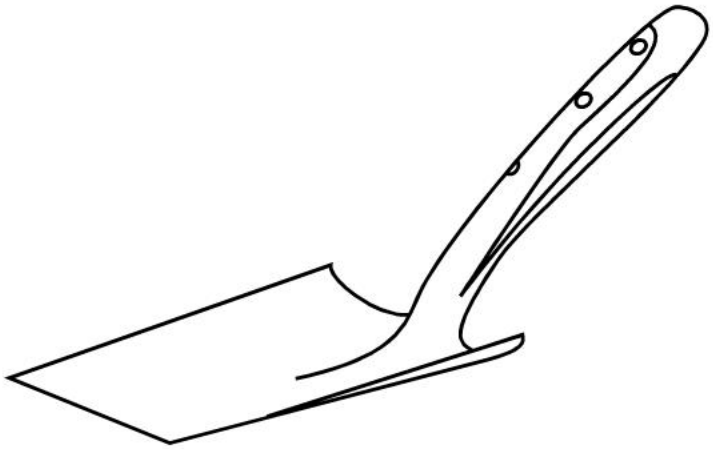


Figure 56 — Example of a strapped shovel or spade

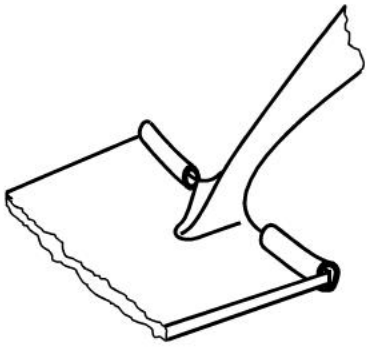


Figure 57 — Example of a clip on tread

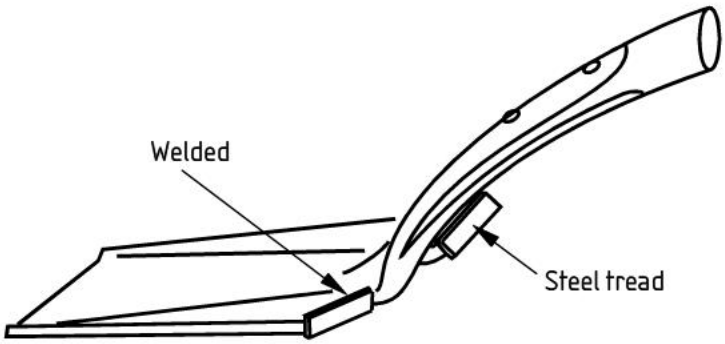


Figure 58 — Example of a welded tread

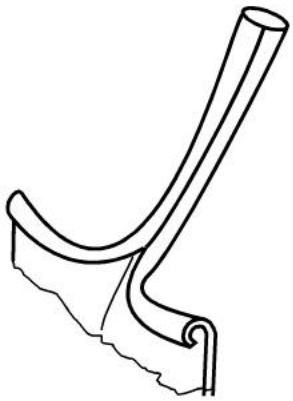


Figure 59 — Example of turned-back rolled shoulders

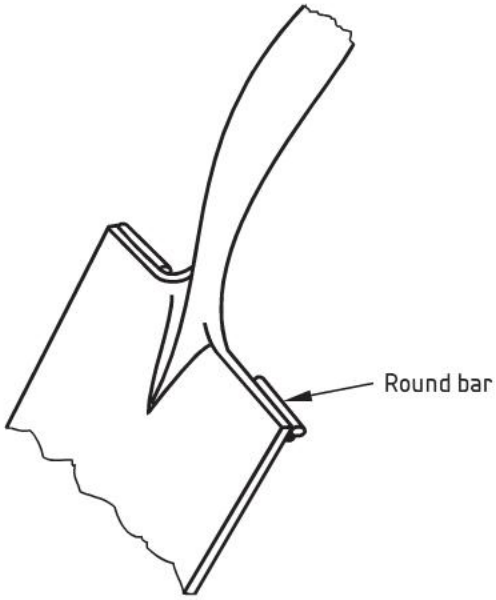


Figure 60 — Example of a welded-on round bar tread

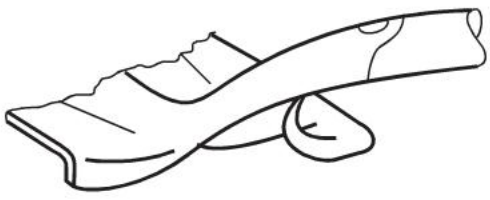


Figure 61 — Example of a turned-back tread

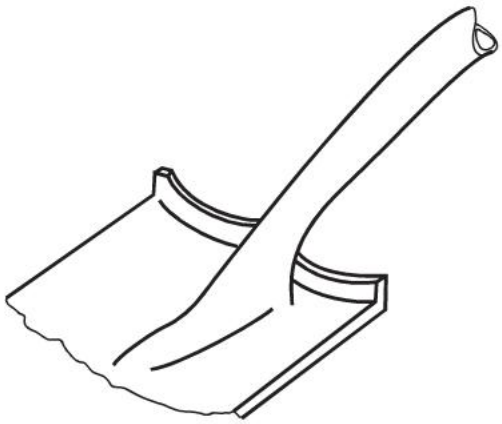


Figure 62 — Example of a turned-forward tread

Annex A (normative)
Testing of tools

A.1 Mechanical test

A.1.1 *Principle*

A test load is applied to a tool for a specified period of time and the effect on the tool is then examined and any damage measured.

A.1.2 *Apparatus*

A.1.2.1 *Test rig*, see Figure 3 for forks and Figure 4 for shovels and spades.

A.1.3 *Procedure*

A.1.3.1 Clamp the tool as shown in Figure 3 for forks and Figure 4 for shovels and spades.

A.1.3.2 Gradually apply the relevant load as given in Table A.1 for the particular tool at a standard length of 710 mm and maintain the full test load for 1 min.

NOTE If settling is observed, a pre-load of 50 % of the test load may be applied.

A.1.3.3 If modifications are introduced which affect the protruding length of the tool under test, i.e. from the shoulder of the blade to the hilt, adjust the test load so that the moment is equal to the moment applied to tools of the preferred dimensions.

A.1.3.4 Remove the load from the tool. Examine the tool for signs of damage and loosening of components.

A.1.3.5 Measure the amount of permanent set in millimetres at the centre of the hilt (i.e. at the standard test length of 710 mm).

A.2 Individual tine test for forks designed for digging

A.2.1 *Principle*

A test load is applied to a fork for a specified period of time and the effect on the fork is then examined and any damage measured.

A.2.2 ***Apparatus***

A.2.2.1 *Test rig*, see Figure 3.

A.2.3 ***Procedure***

A.2.3.1 Clamp the fork as shown in Figure 3.

A.2.3.2 Gradually apply the relevant load as given in Table A.1 for the particular fork by suspension from the grip. Maintain the load in this manner for 1 min and then remove it.

A.2.3.3 If modifications are introduced that affect the protruding length of the fork under test, i.e. from the shoulder of the prong to the hilt, adjust the test load so that the moment is equal to the moment applied to tools of the preferred dimensions.

A.2.3.4 Remove the load from the fork. Examine the fork for signs of damage and loosening of components.

A.2.3.5 Measure the amount of permanent set in millimetres at a position 533 mm from the centre of Roller A (see Figure 3).

A.2.3.6 Measure the amount of individual tine displacement in millimetres.

A.3 Tine or prong squeeze test

A.3.1 *Principle*

A specified number of adjacent prongs of a fork are brought together by hand and released and any damage to the prongs is measured.

A.3.2 *Procedure*

A.3.2.1 Test the tines or prongs of the following types of forks by bringing the tips of the stated number of prongs together by hand:

— digging and trenching forks: 2 adjacent prongs;

— ballast forks: 4 adjacent prongs;

— coke forks: 5 adjacent prongs.

A.3.2.2 Release the prongs and examine the fork for permanent set.

A.3.2.3 Measure the amount of any permanent set or damage in millimetres.

Table A.1 — Test loads for mechanical testing (forks, shovels and spades) and individual tine testing (digging forks)

Classification category	Figure reference	Description	Mechanical test load (see A.1) kg	Individual tine test load (see A.2) kg
Light duty garden tools	5	Light duty garden fork	20 to 25	10
	6	Light duty square-mouth (open-socket) shovel	20 to 25	—
	7	Light duty garden spade	20 to 25	—
Standard garden tools	8	Garden border fork	40	15
	9	Garden fork	55	20
	10	Garden border spade	40	—
	11	Garden digging spade	55	—
Professional and agricultural tools	12	Manure fork	30	—
	13	Spading (potato) fork	40	15
	14	Trenching fork	65	30
	15	Ballast and tarmacadam fork	65	—
	16	Coke fork (12 prong)	55	—
Contractors' tools: shovels	17	Strapped general service forged shovel	40	—
	18	General service (open-socket) shovel	40	—
	19	General service lightweight infantry shovel	35 for handle length <508 mm 50 for handle length ≥ 508 mm	—
	20	Round mouth forged shovel	65	—
	21	Round mouth (open-socket) shovel	65	—
	22	Round mouth West Country (open-socket) shovel	50	—
	23	Round mouth Irish (open-socket) shovel	65	—
	24	Round mouth miners' pit pan shovel (open-socket)		—
	25	Round mouth (open-socket) miners' shovel (American pattern)	65	—
	26	Square mouth forged shovel	65	—
	27	Square mouth (open-socket) shovel	65	—
	28	Taper mouth forged shovel	65	—
Contractors' tools: spades	29	Lip-top spade	65	—
	30	Draining spade	65	—
	31	Draining tool (Newcastle pattern)	65	—
	32	Grafting spade	65	—
	33	Trenching spade	65	—
	34	Cable-laying spade	65	—
	35	Rabbiting spade	65	—
	36	Planting spade	65	—

Annex B (informative)
Guidance on safe use of tools

B.1 Forks

Forks should not be used as levers, prising bars or striking tools, or for any purposes other than those for which the tools are designed.

The prongs of forks and allied tools are sharp by design and stout, protective footwear should be worn when using these tools.

In the absence of training in the use of these tools, unskilled use can result in injuries. Care should be taken to avoid twisting prongs out of alignment.

B.2 Shovels and spades

Shovels and spades should not be used as crowbars, levers or striking tools, or for any purpose other than that for which they were designed. Sharp edges should be avoided as should points which could result in injuries.

B.3 Designed uses of the tools

B.3.1 *General*

The purchaser/user should be advised that the limitations of safe use of the various groups of tools included in this British Standard are as given in **B.3.2** to **B.3.21**.

B.3.2 *Light duty garden fork (Figure 5)*

Designed for digging in well cultivated light soil and turning of fibrous materials.

B.3.3 *Light duty garden spade (Figure 7)*

Designed for digging light, well cultivated soils only.

B.3.4 *Standard garden border fork (Figure 8)*

Designed for general garden duty in confined, restricted areas and for turning of fibrous materials, ground aerating and breaking up of soil.

B.3.5 *Standard garden digging fork (Figure 9)*

Designed for general garden duty, breaking up of heavy clods, turning of fibrous materials, ground aerating and digging up of root crops.

B.3.6 *Standard garden border spade (Figure 10)*

Designed for digging and cultivation of confined, restricted areas of all types of soil, including digging out small bushes.

B.3.7 *Standard garden digging spade (Figure 11)*

Designed for heavy, general garden duty, digging and cultivation of all types of soils and conditions, including digging out bushes and small trees.

B.3.8 *4 prong oval prong agricultural manure fork (Figure 12)*

Designed for loading or unloading manure, mucking out stables and cow houses but not for positioning hay or silage bales.

B.3.9 *Professional agricultural and contractors' trenching or plantation fork (Figure 14)*

Designed for heavy digging in the building and construction industry to break up hard, unbroken ground or cohesive soils such as heavy clay after the surface has been loosened with a pickaxe; digging out coarse, granular material, such as stones or gravel, lifting small bushes. A typical use is to excavate a narrow trench for water, gas or electricity mains. Also used on sugar cane and tea plantations.

B.3.10 *Professional agricultural and contractors' ballast and tarmacadam fork (Figure 15)*

Designed for loading or unloading coarse, granular materials, such as gravel or small stones on railways, for grading ballast and packing under sleepers.

B.3.11 *Professional agricultural and contractors' coke fork (12 prong) (Figure 16)*

Designed for loading or unloading coke, coal or clinker, also for handling scrap, swarf or turnings.

B.3.12 ***Strapped general service forged shovel (Figure 17)***

Designed for general military service, usually attached to a tank, landrover or an AFV (armoured fighting vehicle) for digging out bogged-down vehicles, excavating slit trenches, and filling sand bags; also a dual-purpose tool suitable for digging, shovelling and loading.

B.3.13 ***General service (open-socket) shovel (Figure 18)***

Designed for general military use, usually supplied with equipment to each individual soldier where a strong, lighter tool is required; identical use to the strapped general service professional forged shovel (see **B.3.12**). Also supplied with a 508 mm long handle for attachment to personal equipment. The lightweight pattern is shown in Figure 19.

B.3.14 ***Contractors' round mouth forged shovel (Figure 20)***

Dual-purpose shovel designed with a pointed end which enables it to penetrate the materials when excavating, shovelling and loading loose coarse granular materials such as gravel and small stones, loose soil mixed with stones or bricks, rubble, and cohesive materials such as stiff clay.

B.3.15 ***Contractors' round mouth (open-socket) shovel (Figure 21)***

Similar use to the round mouth forged shovel for light duty (see **B.3.14**).

Another main use is in the mining industry for moving and loading coal and other material ores where a strong, lightweight tool is required.

B.3.16 ***Contractors' square mouth forged shovel (Figure 26)***

Designed as a builders' or contractors' shovel to move sand, cement and chippings, or to mix concrete where the straight edge of the blade is used to mix the constituents together; also used for shovelling up rubbish or rubble. Sometimes used for digging but this use is not recommended owing to the shovel's high lift.

B.3.17 ***Contractors' square mouth (open-socket) shovel (Figure 27)***

Designed for use in agriculture and mining, to move manure, coal, sand, cement and chippings, or to mix concrete where the straight edge of the blade is used to mix the constituents together; also used for shovelling up rubbish or rubble. Digging is not recommended, but, where a lighter tool is required it is mainly used for removal of garden rubbish and vegetation or manure in stables and farm buildings, and in mines for moving coal and mineral ores.

B.3.18 ***Contractors' taper mouth forged shovel (Figure 28)***

Designed as a builders' or contractors' shovel, it is a dual purpose shovel for loading and unloading and with uses as for the square mouth forged shovel (see **B.3.17**). Also useful for digging since, because of the taper, there are virtually no sides at the bottom of the blade.

B.3.19 ***Contractors' draining spades (Figure 30 and Figure 31)***

Designed for use in agriculture, forestry and contracting, originally for excavating a narrow trench for field drains and channels to a depth of approximately 380 mm; also for tree planting. Used in the building and civil engineering industry for excavating deep narrow trenches for water, gas, sewers and electricity mains without unnecessarily disturbing the surrounding ground.

B.3.20 ***Contractors' forged grafting spade (Figure 32)***

Designed for contracting and agricultural use, for digging and excavating very cohesive soils such as stiff clay, also for producing round holes for fencing posts, since it has a stronger blade and a much deeper dish than a traditional spade.

B.3.21 ***Contractors' forged trenching spade (Figure 33)***

Designed for use in contracting and building, it can be used for excavating slightly wider and shallower trenches than those produced by draining spades (see **B.3.19**).

Annex C (informative)
Recommendations for storing products with wooden handles

Excessive drying out of wooden handles can seriously affect the elasticity and natural properties of the timber. Therefore, to avoid shrinkage, handles should be stored in a cool dry place, preferably with humidity control. They should not be exposed to bright sunlight and should be placed in racks to avoid warping caused by excessive weight. Storage should be arranged so that stocks are used in rotation according to age, the oldest being used first.

Bibliography

Standards publication

BS 860:1967, *Tables for comparison of hardness scales.*

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