

**STANDARDS FOR THE
DESIGN / MANUFACTURE /
PERFORMANCE / PURCHASING
OF
100L STAINLESS STEEL KEG
BEER CONTAINERS**

Executive Summary:

The following four documents refer to reusable stainless steel draught beer containers and are an industry recommendation to address best practice in the design, manufacture, purchase and performance of said containers, to ensure due diligence.

The information held within these documents is drawn from previous industry standards.

These documents may be used separately or in combination, as required

Thanks is given to the UK brewers who have given permission for their standards and specifications to be used and who have engaged throughout the process.

Participating Associations:

British Beer & Pub Association

Tel: +44 (0)20 7627 9191

Email: slivens@beerandpub.com

Website www.beerandpub.com

Brewing, Food & Beverage Industry Suppliers' Association

Tel: +44 (0)1902 422303

Email: info@bfbi.org.uk

Website www.bfbi.org.uk

Society of Independent Brewers

Tel: +44 (0)845 337 9158

Email: secretariat@siba.co.uk

Website: www.siba.co.uk

GENERIC DESIGN STANDARD

100L STAINLESS STEEL KEG BEER CONTAINERS

1. Technical Drawings

- 1.1 The Manufacturer must adhere to a specified technical drawing for that size and type of container. This shall either be issued by [Brewer] or produced by the manufacturer in response to dimensional and other constraints stipulated by [Brewer] (see Appendix 1) and signed by [Brewer's] nominated representative. Manufacturers' drawings must show dimensions and all tolerances, material gauges (identifying whether initial or as finished), weld positions and types (eg, MIG/GMAW, TIG/GTAW) and any filler rods used.
- 1.2 Each drawing must carry a unique reference (eg. drawing number/ sheet number/ issue number) and any change to the information thereon must have the prior, written agreement of [Nominated representative of Brewer] and must result in a new reference (eg: by updating the issue number). The new issue must identify the change and the date from which it is applicable.
- 1.3 Subsequent tenders may be met by reference to such authorised drawings.
- 1.4 Unless fully dimensioned on the master drawings (1.1 above) separate drawings of Barnes Necks and chimbs (or skirts) must be provided.
- 1.5 All drawings remain the property of the manufacturer and are confidential unless otherwise agreed.

2 Materials

- 2.1.1 The deep drawn body shells shall be AISI 304 stainless steel of initial thickness 2.0 ± 0.08 mm and a tensile strength of 550-700 N/mm².
- 2.1.2 Chimbs (skirts) shall be manufactured from AISI 304 stainless steel of initial thickness 2.50 ± 0.08 mm and a tensile strength greater than 850 N/mm².
- 2.1.3 Necks shall be stainless steel 304.

3 Capacity and weight

- 3.1 The capacity of all containers is to be equivalent to 100.3 ± 0.15 litres of water at 4°C.
- 3.2 The weight of each finished container, clean and dry (excluding the extractor) is to be 21.8 ± 0.4 kg.

4 Identification

At the discretion of the customer, each container shall be stamped or engraved as below on the outer face of the top chimb

4.1 Ownership

"THIS CONTAINER REMAINS THE PROPERTY OF [Brewer]. THIRD PARTY USE OR DISPOSAL IS PROHIBITED"

4.2 *Serial numbers*

Serial numbers, as listed on [Brewer's] Purchase Order, shall be permanently stamped into/marked on the top chimb or where requested by the customer.

4.3 *Additional Information*

- PRESSURISED CONTAINER, DO NOT TAMPER
- BEVERAGE USE ONLY
- Approved licence numbers for Italy, Spain and other countries relevant at the time of manufacture
- European beverage use symbol (fork and glass)
- Re-cycleable container symbol (four arrows)

4.4 *Colour identification*

To assist container identification, an industry colour-banding scheme is operated in the UK. Colour combinations already allocated are listed on the BBPA/SIBA Container Master Database (see www.beerandpub.com/cask). The specification for each of [Brewer's] containers is given in Appendix 1 within the Container Master Database.

5 **Hand holes**

If requested, two hand holes of a minimum size of 115 x 35 mm should be incorporated in the upper chimb, diametrically opposite one another.

6 **Drain holes**

6.1 Drain holes will be required as agreed between manufacturer and customer. Drain holes between top/bottom chimb (skirt) and body need to be specified and of an agreed design.

7 **Bursting disc**

7.1 At the customers discretion, each keg shall incorporate, in its top or bottom dome a point of failure, designed to burst at 40 ± 5 barg (588 ± 73.5 psig) in accordance with DIN 6647-1.

8 **Extractor tubes (spears)**

All new containers may be sold with appropriate extractor tube. All new extractor tubes (spears) fitted shall be "safety spears" to an approved written design, specification, procedure and warranty (guarantee). The extractor tube (spears) information, specifications, drawings and manuals are to be detailed separately by the approved supplier.

It is recommended that:

- Safety extractor tubes incorporate a device to prevent an extractor tube ejecting from a keg under pressure
- For health and safety reasons only safety extractor tubes should be used in the UK market

There are three main types of extractor tube fixing available:

- 14" tpi threaded extractor tube ~ A type; G type; S type; M type; D type
 - Internal circlip extractor tube ~ A type; G type; S type; M type
 - External circlip extractor tube ~ S type; U type; D type
- It is important to note the integrity of the extractor safety system is achieved through a combination of the correct dimensional fit of the extractor tube with the keg neck.
 - Safety extractor tubes are designed:
 - To not eject from a pressurised keg up to a pressure of 6 bar should an attempt be made to demount the extractor tube whilst the keg is pressurised
 - To actively reduce the keg pressure whilst being demounted
 - It is good practice to ensure a new extractor tube to keg neck sealing rubber is fitted every time an extractor tube is fitted in keg
 - Metal parts are to be manufactured in 304 or 316 grade stainless steel.
 - Service Tools - Safety extractor tubes must only be removed using specialist bespoke tools. These tools are only made available to accredited companies i.e. Brewers; keg manufacturers; keg repair companies
 - Extractor tubes (especially seals) should be resistant to exposure to short term temperature of +135 degrees C

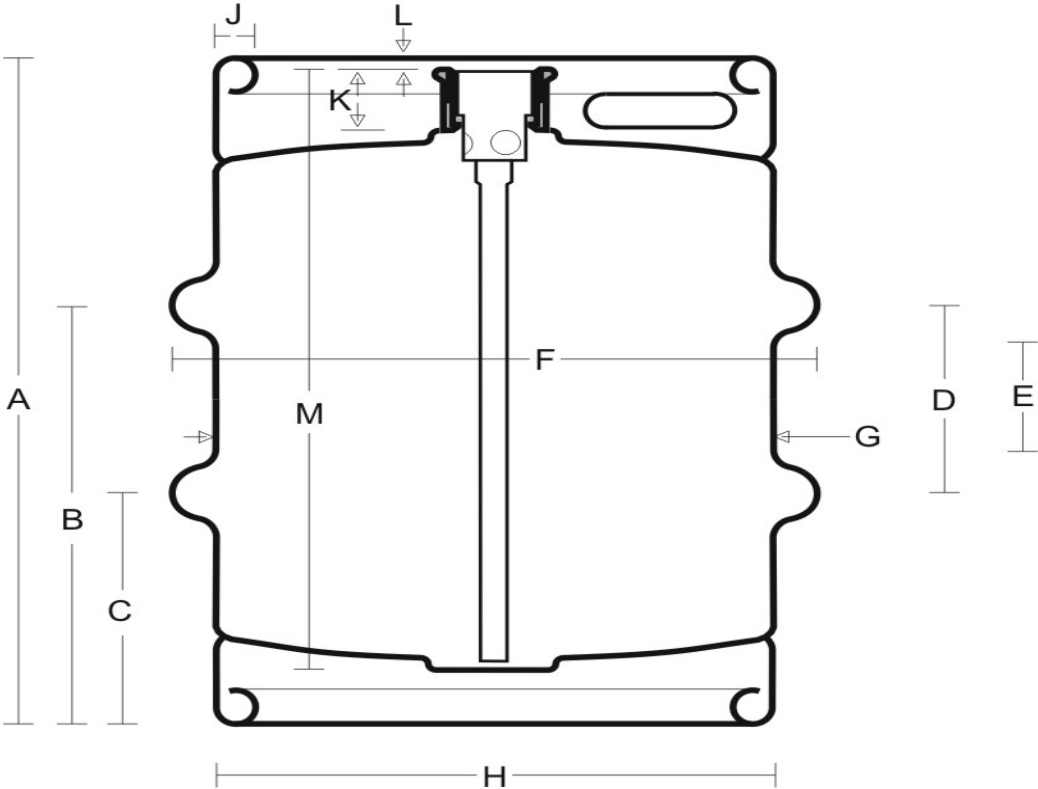
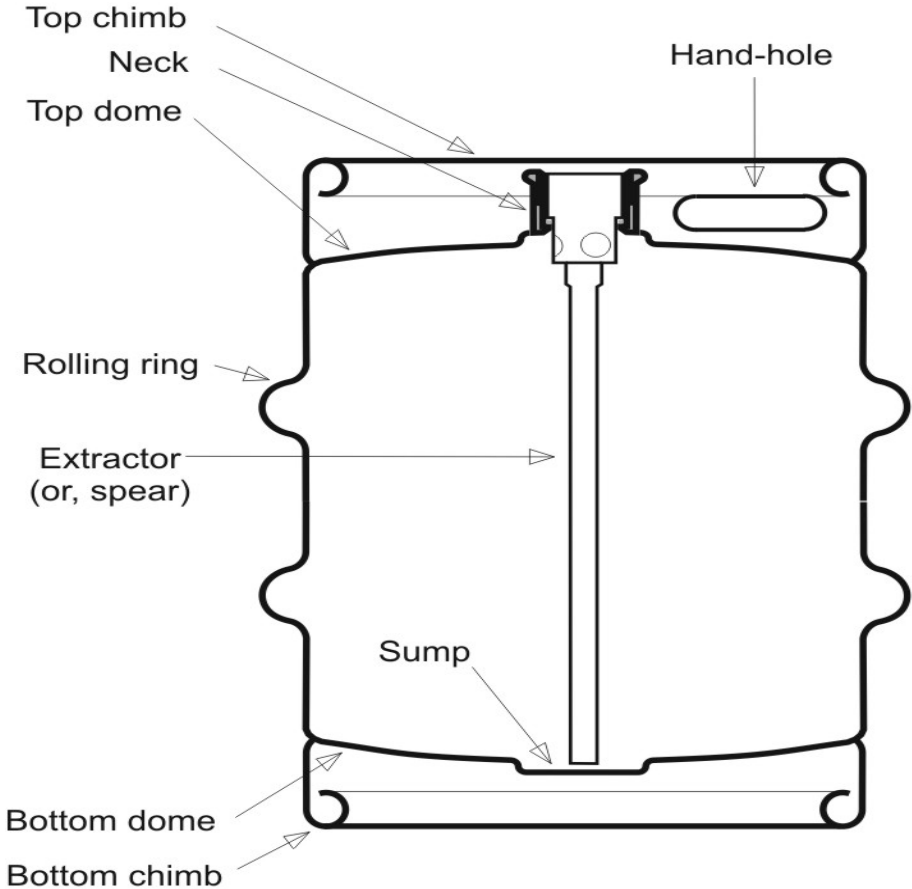
[Brewer's] colour banding

For colours, widths of bands, positions of bands for each type/size of container please refer to the BBPA/SIBA Register on www.beerandpub.com/cask.

TEMPLATE
[Brewer's] Critical dimensions (see diagrams) — kegs only

	Dimension	Keg A	Keg B	Keg C	Keg D
A	Overall height				
B	Top rolling-ring to floor				
C	Bottom rolling-ring to floor				
D	Rolling-ring centres				
E	Length of body between rolling-rings				
F	Diameter over rolling-rings				
G	Diameter between rolling-rings				
H	Diameter at end of chimb				
J	Diameter of chimb roll-over bead				
	Neck design				
K	Height of Barnes Neck				
L	Barnes Neck-to-chimb clearance				
M	Internal height				

TYPICAL KEG FOR PRESSURISED BEERS



GENERIC MANUFACTURING STANDARD

100L STAINLESS STEEL KEG BEER CONTAINERS



1 General

- 1.1 All manufacturers must adopt Good Manufacturing Practice according to EC Regulation 2023/2006. Particular attention is drawn to Articles 1, 3 and 5.
- 1.2 All product-contact materials must comply with the Framework Directive (EC 1935/2004; The *'Materials and Articles intended to come into contact with Food'* Regulation). Particular attention is drawn to Articles 3, 15, 16 and 17.
- 1.3 All product-contact surfaces must comply with Article 2 of the Food Hygiene Regulations (EC 852/2004). Particular attention is drawn to Article 2 and Chapters II and V.
- 1.4 Compliance with the above (and all other relevant) regulations shall be signified by marking each container with the CE mark.

2 Assurance of raw material grade and quality

- 2.1 Tests are undertaken to ensure the specified material is being used within production with certified traceability.

3 Dimensional checks on raw material (stainless steel only)

3.1 Procedure

See Appendix 1, samples 1

3.2 Frequency

5 minimum for each batch of steel equivalent

3 Dimensional checks at start of production

3.1 Procedure

See Appendix 1, Sample 2

3.2 Frequency

1 per coil or 5 minimum for each batch of steel equivalent

4 Dimensional checks for continuous production

4.1 Procedure

See Appendix 1, Sample 3

4.2 Frequency

Continuous checks of 1% of the total production taken over the production process.

5 Manufacturing quality

- 5.1 The deep drawing process should not reduce the body thickness by more than 0.2 mm.
- 5.2 The tolerance on neck verticality is $\pm 1^\circ$.
- 5.3 All sharp edges must be de-burred.

6 Welds

The welds used for kegs are of two types; butt welds and fillet welds.

In a butt weld the edges of two components are brought together and a weld is laid down (either from one side or sometimes from both sides) such that the weld material penetrates the full thickness of the joint. Examples of butt welds include the central circumferential weld joining the deep-drawn halves of a two-part container, the longitudinal centreband weld and the dome-to-centreband welds of a three-part container, the weld which joins the ends of a strip of material to create a tubular chimb.

In a fillet weld, one component is laid on top of another and a weld is run along its raw edge. The weld material is not intended to penetrate right through the thickness of the second component; it joins the two components with a 'wedge' of weld metal. Examples of fillet welds are the chimb-to-body or chimb-to-dome welds.

Explanatory diagrams are appended and numbered according to the sections below to which they refer.

6.1 *Alignment of Component Parts (butt welds only).*

- 6.1.1 Where two components are of different gauges at the point of contact, the thinner material should be positioned within the surfaces of the thicker.
- 6.1.2 The maximum permissible step between surfaces exposed to beer at any point along the weld run shall be 0.4 mm or 25% of the gauge of the components at the point of contact (the thinner in the case of materials of two different gauges), whichever is the lesser.
- 6.1.3 Where neither surface is exposed to beer (eg: in the case of the shive bush outer weld) the limit in 6.1.2 shall be applied to the outer surfaces.

6.2 *Penetration*

6.2.1 *Butt Welds*

- 6.2.1.1 The weld shall penetrate for at least the full depth of the original area of contact of the two component parts (as shaded on diagram) at all points along the weld run.
- 6.2.1.2 Overpenetration on the side in contact with beer shall be no more than the value defined for misalignment in 6.1.2 above as measured from the original innermost point of contact of the two components (but see 6.2.1.4 below).
- 6.2.1.3 The height of the weld bead above the higher surface nearest to the weld torch must not exceed a value equal to that defined for misalignment in 6.1.2 above (but see 6.2.1.4 below).
- 6.2.1.4 Where a weld run is laid down with the torch acting from the side which will be in contact with beer, section 6.2.1.3 shall apply and not 6.2.1.2.

- 6.2.1.5 Where a weld is formed by two passes, one from each side of the joint, it must be demonstrable by sectioning of samples that the weld beads meet or overlap so as to comply with 6.2.1.1 above.

6.2.2 *Fillet Welds*

- 6.2.2.1 The weld run must fuse the full thickness of the attached component, and must penetrate demonstrably adequately into the parent material, over the entire length of the weld run.
- 6.2.2.2 Where the fillet weld will be in contact with beer (eg. a patch, or inner shive, plate) the weld bead shall not protrude above the surface of the attached plate by more than 0.4 mm or 25% of the gauge of the attached plate, whichever is the lesser.
- 6.2.2.3 After any pickling there shall be no weld bead standing proud of the opposite surface of the main plate from that onto which the fillet weld was made.

6.3 *Inclusions and Porosity*

Adequate quality assurance procedures must be demonstrable by sections taken from samples to ensure that welds contain no porosity or inclusions which will affect the effectiveness of the weld. Any visible porosity or inclusions in the surfaces of weld beads are also unacceptable.

6.4 *Linearity*

Each visible edge of a weld run should generally deviate no more than 1 mm from a straight line. Should this criterion not be met, more detailed investigation of the area(s) concerned shall be made in accordance with Sections 6.1 to 6.3 above.

6.5 *Appearance and Finish*

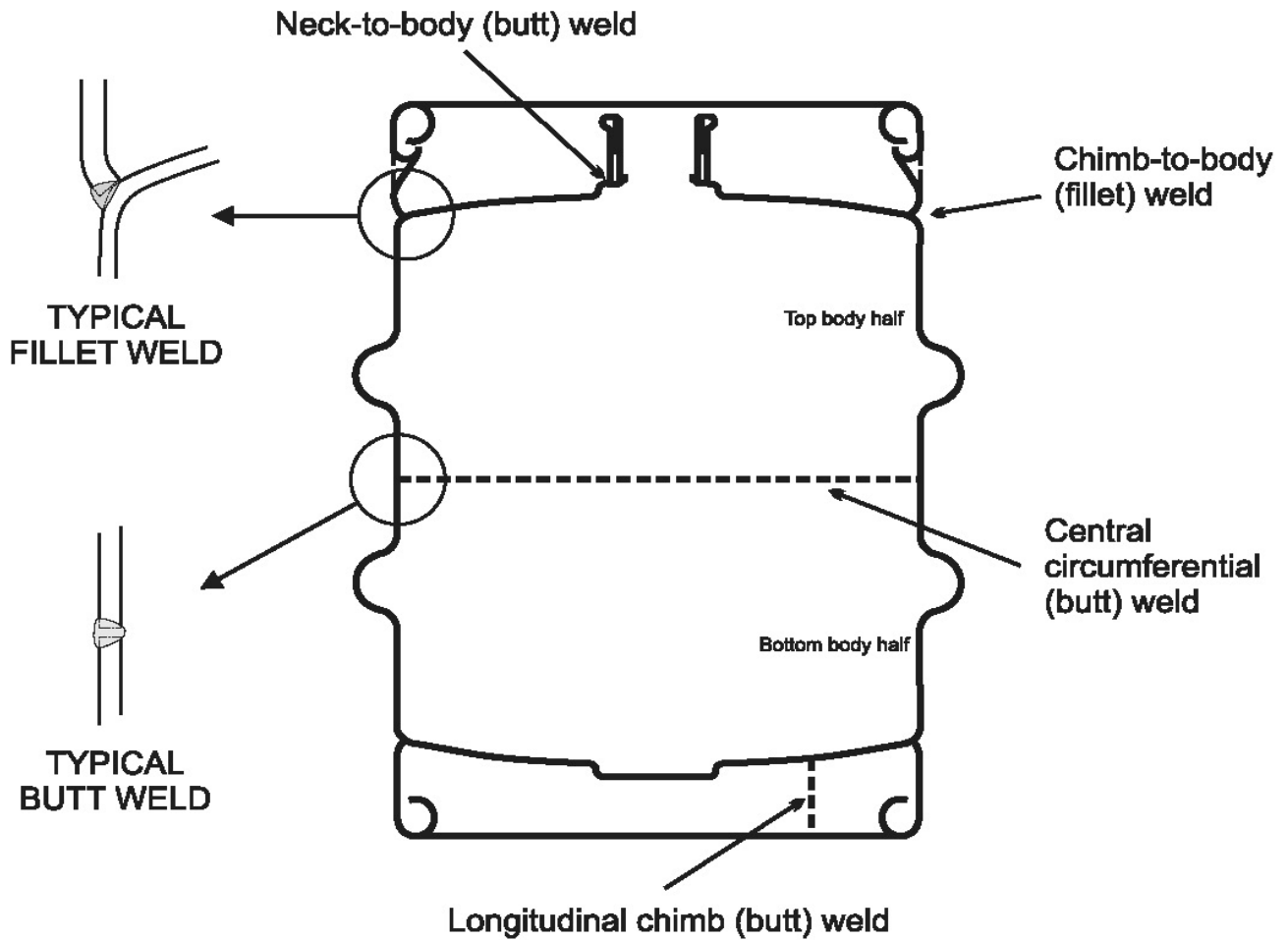
- 6.5.1 Welds must be of smooth and even appearance. Re-work of central circumferential body welds must not total more than 1% of the total weld length.
- 6.5.2 All sharp edges (eg. handholes, shive bush outer mouth, etc.) shall be deburred.

6.6 *Pickling*

- 6.6.1 Any pickling procedures (chemicals, concentrations, temperatures and contact times) must be equivalent in effect to a declared process recommended by the material manufacturer for removing all weld scale and heat tint.
- 6.6.2 Adequate rinsing after pickling and/or passivation must be demonstrable and must remove all chemical residues and stains.

WELDS OF A TWO-PART KEG

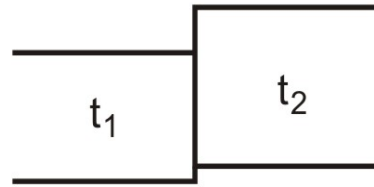
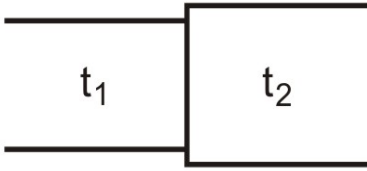
The body of the keg is made from two deep-drawn halves



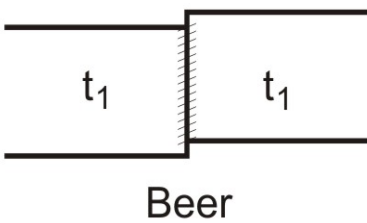
WELDING STANDARDS – EXPLANATORY DIAGRAMS

see Manufacturing Standards for Beer Containers section 6

6.1.1

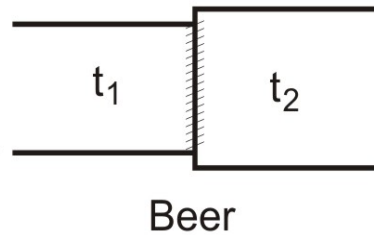


6.1.2 6.2.1.1

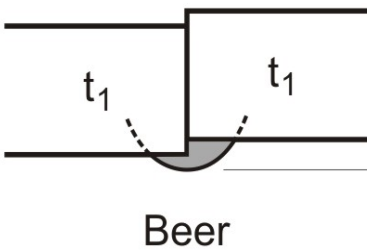


or

↓
↑
Maximum
0.4 mm or
25% of t_1

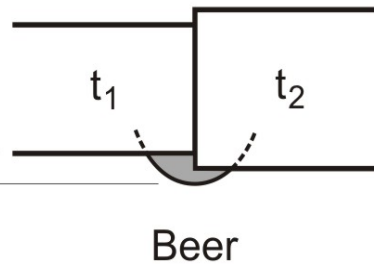


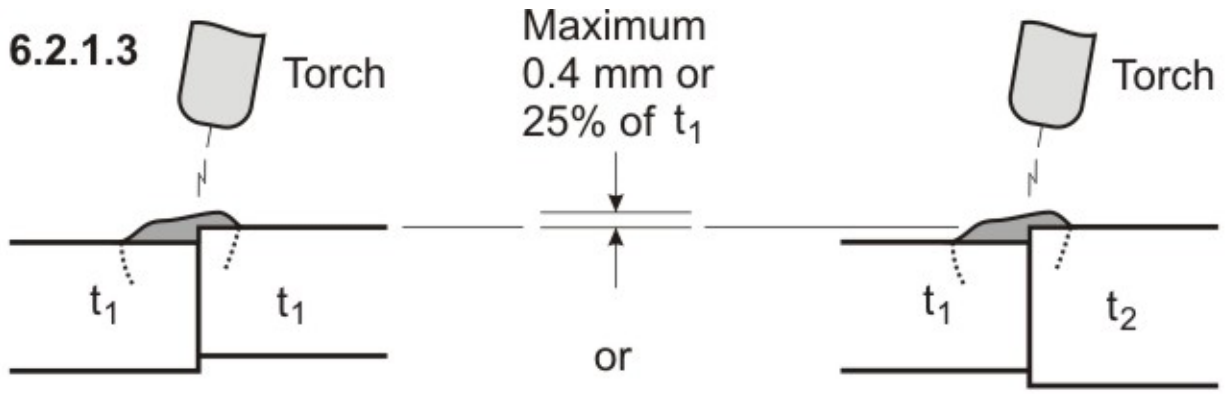
6.2.1.2



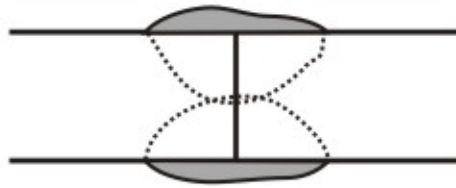
or

↓
↑
Maximum
0.4 mm or
25% of t_1

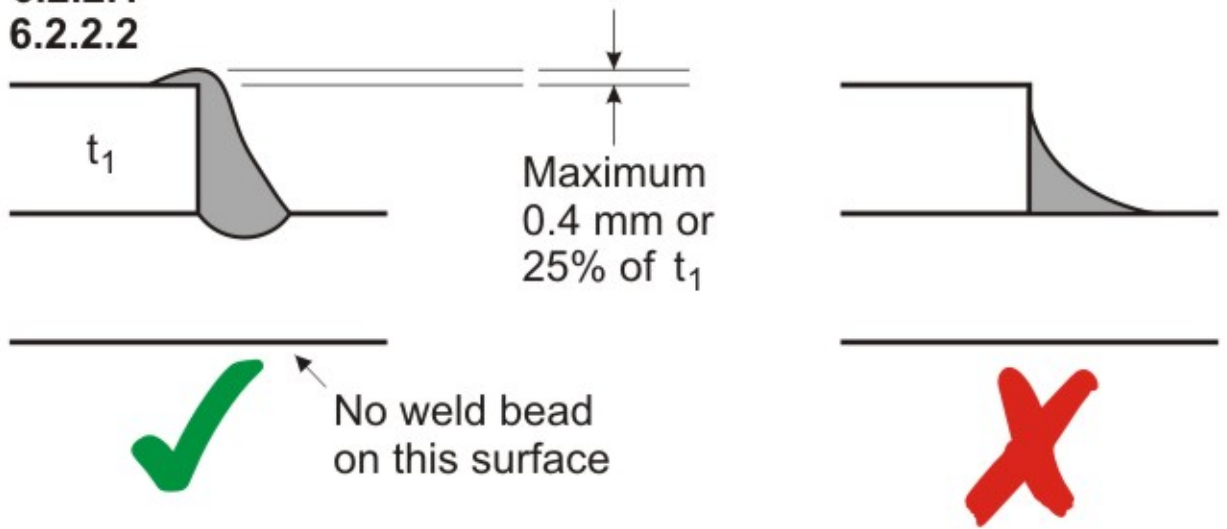




6.2.1.5



6.2.2.1
6.2.2.2



6.4



7 Internal and External Finish

- 7.1 All product-contact surfaces, including those of welds, should have a clean-cut surface finish (for stainless steel, no greater than 1.0µm Ra or less) and be free from porosity, inclusions, micro-cavities, tears or laps which might harbour micro-organisms or shield them from the cleaning processes.
- 7.2 Following preparation of the surfaces as above and preceding pressure-testing, all container surfaces must be decontaminated to remove any oil, grease and foreign matter.
- 7.3 To avoid first-use iron pick up, it is recommended that a passivation treatment at manufacture is undertaken (nitric/citric acid surface preparation).

8 Fitting of extractor tubes (spears)

Whilst fitting certain seals only approved food grade lubricants shall be used.

- 8.1 It is recommended that threaded extractor tubes always be mounted in kegs with a minimum tightening torque of 61 Nm.

9 Identification

- 9.1 The body discs of containers are to be discreetly marked in a manner and position which will allow identification and traceability of material.
- 9.2 All containers must be clearly marked with the manufacturer's name and country of origin, the month and year of production, the material of construction, the capacity and the Safe Working Pressure.

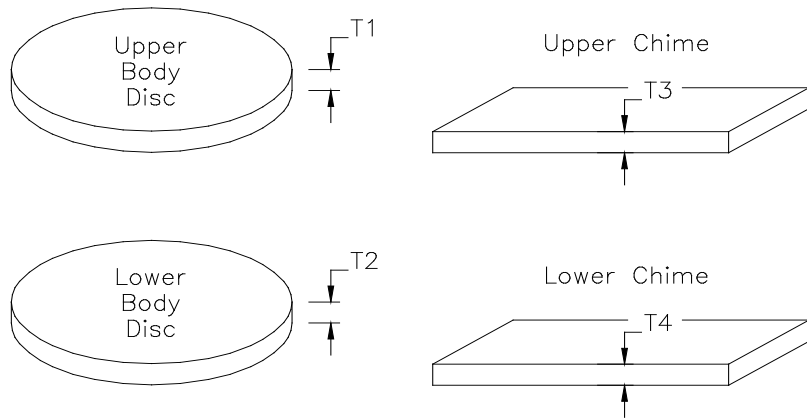
10 Preparation for despatch

- 10.1 All kegs shall be subject to a final internal & external visual inspection.
- 10.2 At the customer's discretion, after fitting of their extractor tubes, all kegs shall be pressurised to 1.0 barg (15 psig) with clean air before despatch.

APPENDIX 1 – Dimensional Checks on Raw Material

EXAMPLES ONLY:

SAMPLE 1:



STEEL BATCH DETAILS	TENSILE SPEC.	TENSILE VALUE	DIM.	IDENTIFICATION NUMBER (Traceability)	THICKNESS SPEC.	THICKNESS VALUE
	550-700N/mm ²		T1		2.00±0.076mm	
	550-700N/mm ²		T2		2.00±0.076mm	
	850-1025N/mm ²		T3		2.5±0.76mm	
	850-1025N/mm ²		T4		2.5±0.076mm	

SAMPLE 2:

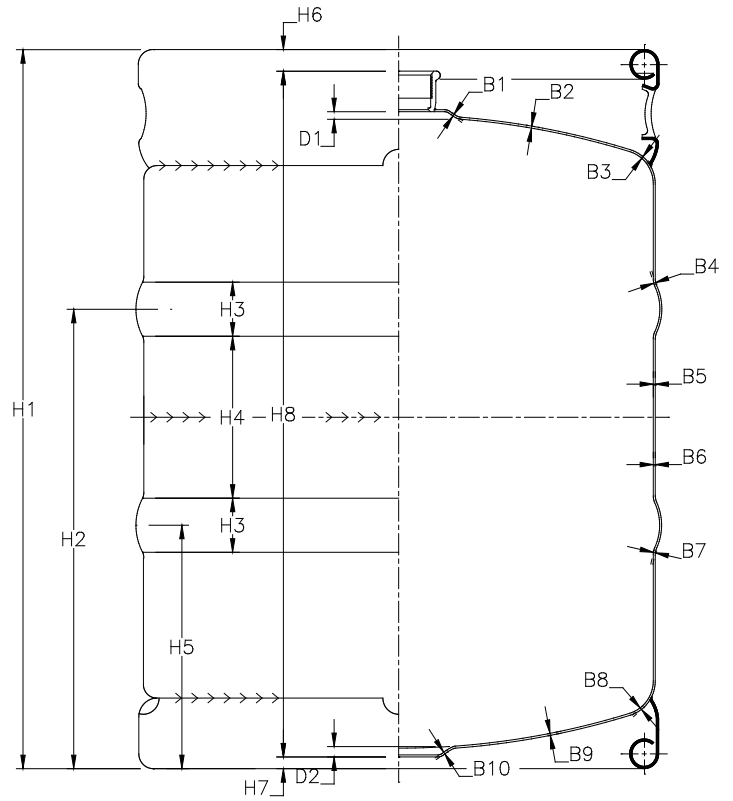
Manufacturer

Manufacturing date

Identification No. T3 T1 T2 T4

Keg number

DIM.	SPEC.	VALUE
H1	620 +/- 3mm	
H2	386 +/- 3mm	
H3 Top	40mm	
H3 Bottom	40mm	
H4	112mm	
H5	234 +/- 3mm	
H6	14 mm	
H7	24mm	
H8	578 +/- 3mm	
B1		
B2		
B3		
B4		
B5		
B6		
B7		
B8		
B9		
B10		
D1	4mm	
D2	4mm	



SAMPLE 3:

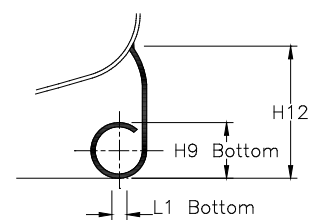
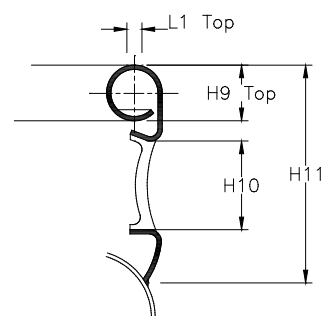
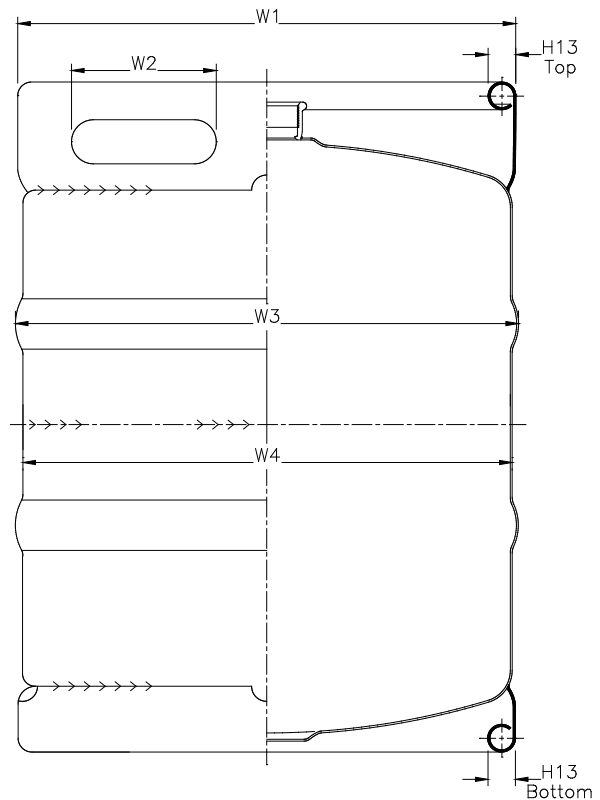
Manufacturer

Manufacturing date

Identification No. T3 T1 T2 T4

Keg number

DIM.	SPEC.	VALUE
H9 Top	$\leq 22\text{mm}$	
H9 Bottom	$\leq 22\text{mm}$	
H10	35 mm	
H11	80 +/- 3 mm	
H12	66 +/-3 mm	
H13 Top	22mm	
H13 Bottom	22mm	
W1	445 +/-5mm	
W2	115mm	
W3 Top	536 +/-3mm	
W3 Bottom	536 +/-3mm	
W4	522 +/-2mm	
WEIGHT	21.8±0.4 kg	
CAPACITY	100.3 ± 0.2 ltrs	



**GENERIC MINIMUM PERFORMANCE
SPECIFICATION**

**100L STAINLESS STEEL KEG
BEER CONTAINERS**



100 LITRE KEG SINGLE APERTURE CONTAINER SPECIFICATION

A. TECHNICAL REQUIREMENTS

1. PRESSURE

1.1 Safe Working Pressure.

The Safe Working Pressure of all containers shall be 4.14 barg (60 psig).

1.1.1 After manufacture, every container shall be tested to 6.21 barg (90 psig).

1.2 Leak-tightness.

After manufacture, every container shall be leak tested by an approved method (either by means of air-under-water, gas detection or equivalent).

1.3 Volumetric change.

Containers should be demonstrably designed to suffer a permanent increase in capacity at 10 barg (145 psig) of no more than 100 ml (0.10 litres).

1.4 Pressurisation to failure

Should a container be excessively pressurised it must fail in safe manner, i.e: by ductile, not brittle fracture. No part of the container must be ejected dangerously at or before failure.

For safety, the pressurising medium should be water and the containers filled completely before pressurisation.

As per the manufacturing quality procedures, containers should demonstrably withstand a minimum of 75 barg (1102 psig) and then be taken to failure in order to quantify its pressure capability. Such samples should not, of course, have bursting discs.

1.5 Bursting disks.

At the discretion of the customer, containers may be fitted with a bursting disc situated on the top/bottom dome.

1.5.1 Where bursting discs are specified, two containers at the start of each production run and one during every day of production thereafter should demonstrably withstand 40 ± 5 barg (588 ± 73.5 psig) in accordance with DIN 6647-1.

1.5.2 Containers, which must be free-standing during the test, must not move at the point of failure. They must fail in a safe manner (see 1.4 above).

2 DROP TESTS

2.1 Horizontal

Containers should demonstrate compliance with the following test criteria:

They shall be held in slings (with a quick release mechanism) such that the long axis of the keg is horizontal. They shall be dropped three times from 1200 mm (4 feet) onto a 25 mm (1 inch) steel plate on concrete. It is essential that the point of impact is exactly the same each time. The outside diameter of the rolling rings at A1, A2, B1 and B2 shall be measured.

A1 and A2 shall alter by no more than 8mm and B1 and B2 by no more than 5mm. Any leakage shall be noted.

2.2 45° angle

45° drop-tests shall be carried out for each of three different points of impact:

- 2.2.1 at a hand hole in the top chimb,
- 2.2.2 90° away from the hand holes in the top chimb,
- 2.2.3 the bottom chimb.

Containers should demonstrate compliance with the following test criteria:

They shall be held in slings (with a quick release mechanism) such that the long axis of the keg is at 45° to the horizontal. They shall be dropped three times from 1200 mm (4 feet) onto a 25 mm (1 inch) steel plate on concrete.

It is essential that the point of impact is exactly the same each time a container is dropped. After each drop, the displacement from the normal inside and outside diameter of the chimb at the point of impact and also inside and outside diameter perpendicular to it shall be measured together with any reduction in chimb to neck clearance at the mid point of the extractor tube (top chimb) / sump (bottom chimb).

The final deformation at the point of impact shall not exceed 18 mm and at a point 90° around the chimb from the point of impact it shall not exceed 2 mm. The reductions in chimb-to-neck and chimb-to-sump clearances shall not exceed 5 mm. No shell deformation is acceptable and there must be no evidence of splitting of the body. Any leakage shall be noted.

3 NECK DEFLECTION

Containers should demonstrate compliance to the following test criteria:

Both static and dynamic testing of the kegs are carried out on a purpose built test rig.

3.1 Lateral — static.

An inflexible bar, at least 1000 mm long and with a fitting to locate positively in the neck of a keg, shall be attached to the neck whilst the keg is held immovably in the horizontal position.

A 25 kg load shall be placed on the bar at a distance of 100 mm from the neck of the keg, left there for a minimum of two seconds and then moved a further 100 mm away from the keg neck for a further two seconds and so on.

After its removal from a position 1000 mm from the keg neck, the deflection of the bar at the 1000 mm marker shall not exceed 20 mm from its position before the load was applied.

3.2 **Lateral — dynamic.**

The test arrangement is as in 3.1 above.

A 10 kg load shall be dropped onto the bar at a point 300 mm from the neck and from a height of 350 mm.

The total deflection at the 1000 mm marker when the load is dropped and the permanent set after the load has been removed shall both be measured. The latter shall not exceed 30 mm.

3.3 **Axial.**

A gradually-increasing load shall be applied vertically downwards onto the centre of the neck. This is normally achieved by using a hydraulic pump and ram on a beam with the resultant reaction being taken by the top chimb hand holes.

The top dome must withstand a force of 9.5KN with no permanent deformation when the load is removed.

4 **PAINT ADHESION**

4.1 Containers should demonstrate compliance to the following test criteria:

Containers shall have paint applied and allowed to cure for 24 hours. The containers shall be subjected to hot water or mild detergent at a temperature of 60-70°C, or a steam bath, followed by cooling with cold running water for a minimum of 1 minute. This shall be repeated 10 times.

4.2 The test itself shall comprise either scratching or the firm application for five seconds of an adhesive tape followed by its removal. The loss of any paint constitutes a failure and all kegs produced at this time must be inspected.

5 **TRANSPONDER (TAG) ADHESION**

The transponder shall be welded using a minimum of four spot welds to the top surface of the container. It is accepted that the welding process will cause slight discoloration of the internal surface, but excessive discolouration is not acceptable.

The leverage forces applied during “topping” shall be simulated using a torque wrench and extension tool with an overall length of 600 mm. The tip of the extension tool shall be placed on top of the steel fixing ring against the side of the plastic transponder. Torque shall be applied using the top chimb as the leverage point.

5.1.1 Two containers at the start of each production run and one during every day of production thereafter, or whenever the welding equipment is changed during a production run, shall be tested. No damage to the transponder or fixing ring should occur at a torque of less than 26 Nm.

5.1.2 At the commencement of manufacture, five transponders must be tested to destruction and their failure torques recorded.

GENERIC PURCHASING STANDARD

STAINLESS STEEL KEG BEER CONTAINERS

1 General

- 1.1 Supply must comply with the requirements of [Brewer's] attached Design Specification, including identified and authorised technical drawings, and with the industry (BBPA, BFBi and SIBA) Standards for Manufacture and for Performance.
- 1.2 No changes in materials or design specifications shall be made without written approval of the authorised representative of [Brewer].

2 Legislation

- 2.1 All manufacturers must adopt Good Manufacturing Practice according to EC Regulation 2023/2006. Particular attention is drawn to Articles 1, 3 and 5.
- 2.2 All product-contact materials must comply with the Framework Directive (EC 1935/2004; The *'Materials and Articles intended to come into contact with Food'* Regulation). Particular attention is drawn to Articles 3, 15, 16 and 17.
- 2.3 All product-contact surfaces must comply with Article 2 of the Food Hygiene Regulations (EC 852/2004). Particular attention is drawn to Article 2 and Chapters II and V.
- 2.4 Compliance with the above (and all other relevant) regulations shall be signified by marking each container with the CE mark.

3 Ownership identification and colour banding

- 3.1 [Brewer's] ownership identification (name) shall be applied to each container in the format detailed in [Brewer's] Design Standard.
- 3.2 A unique and permanent colour band(s) shall be applied to each container in the format detailed in [Brewer's] Design Standard. Written confirmation of [Brewer's] entitlement to specify this colour-banding will be submitted to the container manufacturer.

4 Container Numbering

- 4.1 In the format detailed in the [Brewer's] Design Standard, a unique and permanent serial number shall be applied to each container.
- 4.2 The serial numbers to be used for each production run will be specified on [Brewer's] Purchase Order/Instructions.
- 4.3 Lists of serial numbers used shall be sent to [Brewer] immediately upon completion of the production run. These lists will identify the technical drawings to which the containers were made.
- 4.4 The keg manufacturer shall keep copies of these data for a minimum of 7 years.

5 Keg necks and extractor tubes (spears)

- 5.1 Keg necks which are produced by a manufacturer must be manufactured in accordance with the extractor tube manufacturer's specifications to ensure the integrity of the extractor

tube safety system.

- 5.2 Only extractor tubes (spears) to a specification approved in writing by [Brewer] may be used and they must be fitted in accordance with extractor tube manufacturer's instructions.
- 5.3 Storage of the synthetic components of extractor tubes awaiting use at the keg manufacturer's premises must be in accordance with the recommendations of the manufacturer of those components and must, in particular, avoid exposure to direct sunlight, cold temperatures (ice) and/or ozone-producing conditions.

6 Quality Assurance and Quality Control

- 6.1 [Brewer] encourages every manufacturer to operate a "right first time" policy and to seek ISO 9001 accreditation. Reworked containers shall therefore be identified as such with a durable sign on the container. Full details of each re-worked container shall be documented for [Brewer].
- 6.2 [Brewer] (or his appointed, qualified nominee) reserves the right to inspect production of the manufacturing process and premises before manufacture is commenced according to the established ISO 9001 audit procedure, and also to inspect and, if necessary, halt production of containers during the process.
- 6.3 [Brewer] (or his appointed, qualified nominee) reserves the right to inspect the manufacturer's Technical Production Files detailing all materials and manufacturing processes. [Brewer] undertakes to respect the confidentiality of this information.

7 Guarantees/Warranty

- 7.1 There shall be provided a written guarantee/warranty by the container manufacturer against faulty materials and manufacturing processes for a period not less than seven years. (This applies to the container and its neck only; not to the extractor tubes supplied to him.)
- 7.2 The appropriate Indemnity Certificate shall be issued with each manufacturing batch.
- 7.3 A list of manufacturers who have lodged their records with the BFBi may be accessed via +44 (0)1902 422303.

APPENDIX

Participating Manufacturers & Suppliers:

Comet N.V.

Belgium
Tel: +32 (0)15 287550
Email: kegs@comet.be
Website: www.comet.be

DSI

UK
Tel: +44 (0)1302 560190
Email: garrity@dsi-group.net
Website: www.dispensegroup.com

Franke Blefa

Germany
Tel: +49 2732 777 210
Email: alexander.brand@franke.com
Website: www.franke.com

Kammac

UK
Tel: +44 (0)1283 743734
Email: jay.patel@kammac.com
Website: www.kammac.com

Maisonneuve-Keg SA

France
Tel: +33 (0)233 51 9027
Email: amarie@groupe-maisonneuve.com
Website: www.groupe-maisonneuve.com

Micro Matic

UK
Tel: +44 (0)1254 669700
Email: mmukd@micro-matic.co.uk
Website: www.micro-matic.co.uk

Portinox SA

Spain
Tel: +44 (0)1924 885010
Email: tparker@portinoxuk.co.uk
Website: www.portinox.es

Schaefer Kegs

Germany
Tel: (UK Representative) +44 (0)1772 311882
Email: liam@morrow-brothers.co.uk
Website: www.schaeferkegs.com

Spears Limited

UK
Tel: +44 (0)1743 354447
Email: ken@spears.ltd.uk
Website: www.spears.ltd.uk