Gas Industry Standard

GIS/L2: 2018

Specification for

Steel pipe 21.3 mm to 1219 mm outside diameter for operating pressures up to 7 bar (supplementary to BS EN ISO 3183 PSL 2)

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Contents

Foreword

Gas Industry Standards (GIS) are revised, when necessary, by the issue of new editions. Users shall ensure that they are in possession of the latest edition. Contractors and other users external to gas transporters shall direct their requests for copies of a GIS to the department or group responsible for the initial issue of their contract documentation.

Comments and queries regarding the technical content of this document shall be directed in the first instance to the contract department of the gas transporter responsible for the initial issue of their contract documentation.

This standard calls for the use of procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Compliance with this engineering document does not confer immunity from prosecution for breach of statutory or other legal obligations.

Mandatory and non-mandatory requirements

In this document:

may: indicates an option that is not mandatory;

shall: indicates a mandatory requirement;

should: indicates best practice and is the preferred option. If an alternative method is used then a suitable risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.

Disclaimer

This engineering document is provided for use by gas transporters and such of their contractors as are obliged by the terms of their contracts to comply with this engineering document. Where this engineering document is used by any other party, it is the responsibility of that party to ensure that the engineering document is correctly applied.

Brief history

First published as BGC/PS/ L2	August 1983
Amendment No.1 published	September 1985
Amendment No.2 published	June 1986
Amendment No.3 published	October 1989
Amended issue published as GBE/L2	November 1992
Amendment No.1 published	September 1994
Editorial update to reflect demerger November 2000	June 2001
Editorial update to reflect merger October 2002	November 2002
Editorial update to comply with GRM	August 2004
Edited by BSI in accordance with BS 0-3:1997	August 2006
Amendment following the withdrawal of BS EN 10208-1, and update in line with BS EN ISO 3183	December 2018

Key changes

Section	Amendments
8.10.3	Added clause prohibiting supply of pipes with coil/plate end welds.
9.6 a)	Modified flattening test requirements to standard BS EN ISO 3183 requirements, but applicable to all pipe diameters.
9.11.3.1 / Table 3	Clarified out-of-roundness tolerance for pipe except the end, for outside diameter of 1219mm or higher.
9.11.3.1	Removed requirement for check of pipe ends using ring gauge, allowing use of other methods as permitted by ISO 3183.
9.11.3.2	Removed additional wall thickness tolerance requirement for welded pipes with wall thickness of 8 mm or greater.
9.12.5.2	Modified to allow pipe with and outside diameter up to 60.3 mm to be supplied with beveled ends.
10	Removed clause requiring 3.1 certificate as already specified in ISO 3183.
10.2.3.2	Removed clause excluding use of round bar tensiles.
E.1	Allowed equivalent qualifications to BS EN ISO 9712 for non-destructive inspection where approved by the purchaser.
E.3.1.1	Removed requirement for UT of SAW welds to BS EN ISO 10893-11 acceptance level U2.
E.4	Removed additional requirements for radiographic inspection.
Annex A	Changed wording in clauses for Section 7 of ISO 3183 to explicitly state requirements and reference relevant sections of the GIS where possible.
Annex A 7.2b) 10)	Added requirements for Charpy testing method.
Annex B	Informative annex added to give a list of checks and required actions to assess compliance of small quantities of stock PSL 2 pipe with GIS/L2.

1 Scope

Add:

This GIS specifies additional and modified requirements for the manufacture of pipe to BS EN ISO 3183 PSL 2, for maximum operating pressures up to 7 bar and in the standard sizes specified in Table 1.

Table 1 — Standard pipe diameter, thickness and type combinations

Nominal size (mm)	Outside diameter (mm)	Nominal wall thickness (mm)	Permitted pipe types
15	21.3	3.2	HFW / SMLS
20	26.9	3.2	HFW / SMLS
25	33.7	4.0	HFW / SMLS
32	42.4	4.0	HFW / SMLS
40	48.3	4.0	HFW / SMLS
50	60.3	4.5	HFW / SMLS
80	88.9	5.0	HFW / SMLS
100	114.3	5.4	HFW / SMLS
150	168.3	5.4	HFW / SMLS
200	219.1	6.3	HFW
250	273.0	6.3	HFW
300	323.9	6.3	HFW
400	406.4	8.0	HFW / SAWL / SAWH
450	457.0	8.0	HFW / SAWL / SAWH
600	610.0	8.0	HFW / SAWL / SAWH
750	762.0	9.5	SAWL / SAWH
900	914.0	11.9	SAWL / SAWH
1 050	1 067	12.7	SAWL / SAWH
1 200	1 219	14.3	SAWL / SAWH

NOTE 1: Pipe grade for all sizes indicated above shall be L245.

NOTE 2: Pipe types are as follows:

- SMLS – seamless;
- HFW – high frequency electric welded; This category equates to the ERW pipe type in earlier versions of this GIS;
- SAWL – submerged arc welded (longitudinal seam);
- SAWH – submerged arc welded (helical seam).

NOTE 3: Where two or three options for the pipe type are indicated the choice is left to the manufacturer unless otherwise indicated at the time of order.

2 Conformance

2.3 Compliance to this international standard

Add:

Steel pipe supplied in accordance with this GIS shall in all respects conform to the requirements of BS EN ISO 3183 PSL 2, except where supplemented or amended by this GIS. The supplements and amendments detailed in this GIS shall take precedence over the corresponding guidance in

BS EN ISO 3183. The supplements and amendments correspond to the applicable clause number in BS EN ISO 3183. Clauses in BS EN ISO 3183 that remain unchanged are not repeated in this GIS.

3 Normative References

Add:

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.

International standards

API 5L: 45th edition (2012), Specification for Line Pipe

BS EN ISO 3183:2012, Petroleum and natural gas industries - Steel pipe for pipeline transportation systems.

BS EN ISO 9001, Quality management systems. Requirements.

BS EN 10204:2004, Metallic materials — Types of inspection documents.

BS EN 10168, Steel products - Inspection documents - List of information and description.

BS EN ISO 9712, Non-destructive testing. Qualification and certification of NDT personnel.

BS EN ISO 10893-10, Non-destructive testing of steel tubes. Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections.

BS EN ISO 10893-11, Non-destructive testing of the weld seam of steel tubes. Automated ultrasonic of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections.

BS EN ISO 10893-3, Non-destructive testing of steel tubes. Automated full peripheral flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal and/or transverse imperfections.

BS EN ISO 10893-2, Non-destructive testing of steel tubes. Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections.

BS EN ISO 10893-8, Non-destructive testing of steel tubes. Automated testing of seamless and welded steel tubes for the detection of laminar imperfections.

Gas Distribution network (GDN) standards

*/SP/P1, Specification for the welding of steel pipe for distribution systems and installations (operating at pressures below 7 bar).

*/SP/CW6-1, The external protection of steel line pipe and fittings using fusion bonded powder and associated coating systems — Part 1: Requirements for coating materials and method of test.

*/SP/CW6-2, The external protection of steel line pipe and fittings using fusion bonded powder and associated coating systems — Part 2: Factory applied coatings.

*/SP/CM1, Procedure for internal coating operations for steel line pipe and fittings.

*/SP/CM2, Internal coating materials for steel line pipe and fittings.

*/SP/CW4, Specification for polyethylene cladding on steel pipe.

** Denotes the GDN.*

4 Terms and definitions

For the purposes of this document, the terms and definitions given in BS EN ISO 3183 shall apply.

5 Symbols and abbreviated terms

For the purpose of this document the symbols and abbreviated terms given in BS EN ISO 3183 shall apply.

6 Pipe grade, steel grade and delivery condition

6.1 Pipe grade and steel grade

6.1.2 *Modify:*

The pipe grade shall be PSL 2 Grade L245 or B.

6.2 Delivery condition

6.2.2 *Modify:*

For welded pipe, the delivery condition shall be N or M.

For SMLS pipe, the delivery condition shall be N. SMLS pipe in the quench and tempered condition (Q) may be supplied if agreed by the gas transporter. SMLS pipe in the as-rolled condition (L245R or BR) shall not be supplied.

HFW pipe manufactured by cold forming of as-rolled or thermomechanical-rolled coil, followed by thermomechanical forming of the pipe, shall not be supplied.

7 Information to be supplied by the purchaser

See Appendix A of this GIS.

8 Manufacturing

8.1 Process of manufacture

Add:

The pipe type shall be as indicated in Table 1 of this GIS.

Double-seam SAWL pipe shall not be supplied.

8.3 Starting material

Add:

The Quality System of the pipe manufacturer and/or the stockist shall be certified in accordance with BS EN ISO 9001, by an Accredited Certification Body.

8.10 Coil/plate end welds

8.10.3 *Modify:*

Coil/plate end welds shall not be supplied in any finished pipe.

8.11 Jointers

8.11.1 *Modify:*

The delivery of jointers is not permitted.

9 Acceptance criteria

9.2 Chemical composition

9.2.2 *Add:*

The heat and product analyses shall comply with the requirements of Table 5 in BS EN ISO 3183 and the amendments given in Table 2 of this GIS.

Table 2 — Chemical composition of cast and product analysis

Analysis	C (wt. %)	Al (wt. %)
Heat	0.20 (max.)	0.015 - 0.060
Product	0.22 (max.)	0.010 - 0.065

The steel shall be fully killed.

9.3 Tensile properties

9.3.2 *Modify:*

The maximum tensile strength shall be 555 MPa.

9.6 a) Flattening test

Modify:

2) For all pipe sizes there shall be no cracks or breaks other than in the weld before the distance between the plates is less than 33% of the original outside diameter.

9.11 Dimensions, mass and tolerance

9.11.1.2 *Modify:*

The standard pipe diameter and wall thickness shall be as specified in Table 1 of this GIS.

9.11.3 Tolerances for diameter, wall thickness, length and straightness

9.11.3.1 *Modify:*

The diameter and out-of-roundness tolerances for welded pipe shall be per Table 3 of this GIS.

For all pipe with an outside diameter > 210 mm the diameter and out-of-roundness tolerances at the pipe ends shall apply to the inside diameter.

Table 3 — Diameter and out-of-roundness tolerances for welded pipe

<table>
<tr><th rowspan="2">Outside diameter
D (mm)</th><th colspan="2">Diameter tolerance</th><th colspan="2">Out-of-roundness</th></tr>
<tr><th>Pipe except the end</th><th>Pipe end</th><th>Pipe except the end</th><th>Pipe end</th></tr>
<tr><td>D ≤ 610</td><td rowspan="2">±0,5 % D
(Max. = ±3 mm
Min. = ±0,5 mm)</td><td>±0,3 % D
(Max. = ±1,1 mm
Min. = ±0,5 mm)</td><td rowspan="3">1,5 % (1,0 % for SAW pipe)</td><td rowspan="3">1 %</td></tr>
<tr><td>610 < D ≤ 914</td><td>±1,3 mm</td></tr>
<tr><td>914 < D < 1 219</td><td>±4 mm</td><td>±1,6 mm</td></tr>
<tr><td>D ≥ 1 219</td><td>±4 mm</td><td>±1,6 mm</td><td>1,5 %</td><td>1,25 %</td></tr>
</table>

9.11.3.3 a) *Add:*
The pipes shall be supplied as random length designation 12 in Table 12 of BS EN ISO 3183 unless otherwise agreed by the purchaser.

9.12.5 Pipe ends

9.12.5.1 *Modify:*

Steel pipe up to 60.3 mm outside diameter inclusive, the purchaser shall specify whether the pipe is supplied with either beveled or square ends.

Steel pipe greater than 60.3 mm outside diameter shall be supplied with a weld bevel configuration as given in clause 9.12.5.2 of BS EN ISO 3183 unless requested otherwise.

10 Inspection

10.1.3 Inspection documentation for PSL 2 pipe

10.1.3.2 *Add:*

Add the following, in accordance with EN 10168, B: Description of products to which the inspection document applies:

m) D01: Marking and verification of the surface appearance and dimensional properties.

n) Z: Authentication of the inspection document.

10.2.1.2 *Modify:*

The inspection frequency for dimensional testing and out-of-roundness at the pipe ends shall be every pipe.

10.2.3.2 Test pieces for tensile tests

Add:

For SMLS pipe ≥ 219.1 mm OD transverse tensile specimens shall be used.

The use of ring expansion tests for transverse yield strength determinations is not permitted.

10.2.4 Test methods

10.2.4.6 Guided bend test

Add:

The mandrel diameter shall be 3t.

10.2.8 Dimensional testing

10.2.8.1 The diameter measurements shall be made with either a circumferential tape or caliper gauge.

11 Marking

11.2 Pipe markings

11.2.1 *Modify:*

b) ISO 3183 GIS/L2 shall be marked when the product is in complete compliance with ISO 3183 and the additional requirements of this GIS;

Delete:

h) Mark of the customer's inspection representative (Y), if applicable.

Add:

k) The Buyer's order and item number;

l) Cast number;

m) A unique pipe number that can be traced back to the cast number

11.2.3 *Modify:*

For pipe sizes up to and including 457 mm outside diameter, as an alternative to paint stencil markings, low stress dot matrix stamping may be employed positioned at one end of the pipe within the coating cut-back area. For HFW pipe low stress dot matrix stamping shall only be adjacent to the weld seam. In all cases, the area to be stamped shall be clean and free from paint, other coatings and rust. Any original coating shall be replaced after stamping. Alternative procedures for die stamping may be submitted for the approval of the gas transporter.

12 Coatings and thread protectors

12.1 Coatings and linings

12.1.3 *Add:*

All pipes with outside diameter greater than 168.3 mm shall be externally coated in accordance with the requirements of */SP/CW6-1 and */SP/CW6-2.

Pipes with outside diameter between 21.3 mm and 168.3 mm inclusive shall be externally coated in accordance with the requirements of */SP/CW6-1 and */SP/CW6-2, unless specified that the external coating is to be applied in the field. In this case, the pipe shall be supplied with a temporary external coating to prevent rusting in transit and storage. This temporary coating shall be an epoxy holding primer or equivalent and not a grease based coating.

12.1.4 *Add:*

All pipes shall be internally coated in accordance with the requirements of */SP/CM1 and */SP/CM2.

All weld end preparations shall be protected against corrosion using a method approved by the gas transporter. Protection against mechanical damage of the weld end preparations shall also be applied if specified by the gas transporter.

Annex E - Non-destructive inspection for other than sour service or offshore service

E.1 Qualification of personnel

Add:

All non-destructive inspection shall be authorized by a level 3 individual, approved by the employer, and certified in accordance with BS EN ISO 9712 (or equivalent if approved by the purchaser).

E.3 Methods of inspection

E.3.1 General

E.3.1.1 *Modify:*

SAW pipe welds shall be inspected for the detection of longitudinal and transverse imperfections using UT in accordance with BS EN ISO 10893-11.

HFW welds, in all pipe sizes, shall be inspected full length (100%) for the entire thickness for the detection of longitudinal imperfections, using UT in accordance with BS EN ISO 10893-10 or BS EN ISO 10893-11. In addition, at the discretion of the manufacturer, UT may be replaced by the following methods:

a) For pipes with a specified wall thickness of < 10 mm; the flux leakage method in accordance with BS EN ISO 10893-3 to acceptance level F3.

b) For pipes with a nominal outside diameter of < 100 mm, the eddy current method in accordance with BS EN ISO 10893-2 to acceptance level E3.

E.3.2 Pipe end inspection - Welded pipe

E.3.2.3 *Modify:*

Ultrasonic inspection in accordance with BS EN ISO 10893-8 shall be used to verify that the 25 mm wide zone at the end of each pipe is free of laminar imperfections > 6,4 mm in the circumferential direction.

E.3.3 Pipe end inspection - SMLS pipe

E.3.3.2 *Modify:*

Ultrasonic inspection in accordance with BS EN ISO 10893-8 shall be used to verify that the 25 mm wide zone at the end of each pipe is free of laminar imperfections > 6,4 mm in the circumferential direction.

Appendix A (normative)
Amendments to Section 7 of BS EN ISO 3183

Clauses 7.1 and 7.2 in BS EN ISO 3183 shall be amended as follows.

7.1 General information

Clause	GIS/L2 requirement
a)	As specified on the Purchase Order
b)	Pipe shall be PSL 2
c)	The type of pipe shall be as specified in Table 1 of this GIS
d)	Reference shall be made to this standard (GIS/L2) and BS EN ISO 3183
e)	The steel grade shall be L245
f)	Outside diameter and wall thickness shall be as specified in Table 1 of this GIS
g)	Pipes shall be supplied to random length designation 12 per Table 12 of BS EN ISO 3183
h)	Annexes C, D and E shall apply, with any additions and modification given in this GIS. Other annexes shall apply only if specified by the purchaser

Add:

Clause	GIS/L2 requirement
i)	If specified by gas transporter, protection of weld end preparations against mechanical damage(see Section 12.1.4 of this GIS)
j)	For pipes of 21.3 mm to 168.3 mm outside diameter where the standard cladding in accordance with */SP/CW4 is not required, the gas transporter shall specify “varnished” pipe.

7.2 Additional information

a) Clauses 1-9 are not applicable to this GIS

b) Items that apply as prescribed in BS EN ISO 3183, unless otherwise agreed:

Clause	GIS/L2 requirement
1)	As prescribed in BS EN ISO 3183
2)	As prescribed in BS EN ISO 3183
3)	Not applicable
4)	As prescribed in BS EN ISO 3183 and Table 2 of this GIS
5)	Not applicable
6)	Not applicable
7)	See 9.11.3.3 a) of this GIS
8)	Not applicable
9)	See 9.12.5.1 of this GIS
10)	Charpy testing shall be performed to ASTM A370, or ISO 148-1 with striker radius of 2mm
11)	As prescribed in BS EN ISO 3183
12)	As prescribed in BS EN ISO 3183
13)	Not applicable
14)	As prescribed in BS EN ISO 3183
15)	As prescribed in BS EN ISO 3183

c) Items that apply if agreed:

Clause	GIS/L2 requirement
1)	See Section 6.2.2 of this GIS
2)	Not applicable
3)	Not applicable
4)	Double-seam SAWL pipe shall not be supplied
5)	Not applicable
6)	Coil/plate end welds shall not be supplied in finished pipes
7)	Jointers shall not be supplied
8)	Not applicable
9)	Not applicable
10)	Not applicable
11)	Not applicable
12)	Not applicable
13)	Not applicable
14)	Not applicable
15)	Bevel configuration shall be in accordance with Section 9.12.5.1 of this GIS
16)	Not applicable
17)	Not applicable
18)	Not applicable
19)	Not applicable
20)	Not applicable
21)	See Section 10.2.3.2 of this GIS
22)	The ring expansion test shall not be used
23)	Alternatives to macrographic examination shall not be used
24)	Not applicable
25)	Not applicable
26)	Not applicable
27)	Use of minimum wall thickness shall not be used to determine hydrostatic test pressure
28)	Not applicable
29)	See Section 9.11.3.1 of this GIS
30)	As prescribed in BS EN ISO 3183
31)	Not applicable
32)	See Section 11.2.1 of this GIS
33)	As prescribed in BS EN ISO 3183
34)	See Section 11.2.3 of this GIS
35)	Marking of the pipe shall be performed by the manufacturer
36)	As prescribed in BS EN ISO 3183
37)	Not applicable
38)	Not applicable

Clause	GIS/L2 requirement
39)	See Section 12.1.3 of this GIS
40)	See Section 12.1.3 of this GIS
41)	See Section 12.1.4 of this GIS
42)	Not applicable
43)	See Section E.3.1.1 of this GIS
44)	Not applicable
45)	As prescribed in BS EN ISO 3183
46)	See Section E.3.2.3 of this GIS
47)	See Section E.3.3.2 of this GIS
48)	Not applicable
49)	Holes and notches may be used if required
50)	Not applicable
51)	Not applicable
52)	Not applicable
53)	Not applicable
54)	Not applicable
55)	Not applicable
56)	Not applicable
57)	Not applicable
58)	Not applicable
59)	As prescribed in this GIS

Appendix B (informative)

Additional Requirements to BS EN ISO 3183 or API 5L PSL 2 Line Pipe for Compliance with GIS/L2

B.1 General

This annex is intended to aid in the procurement of small quantities of line pipe that cannot be manufactured to GIS/L2 due to order size, but are required to be suitable for service within the scope of GIS/L2.

This annex is informative and should be used in conjunction with the main body of this GIS in all cases to ensure compliance.

It is recommended that pipe manufactured to GIS/L2 is used in all instances where possible. It is the responsibility of the IDN to determine in which situations alternative pipe can be deemed acceptable and ordered based on a specific application.

B.2 Compliance with GIS/L2

Table B.1 gives a list of the required checks to determine whether pipe manufactured to the standard requirements of BS EN ISO 3183 PSL 2 can be supplied as equivalent to GIS/L2. Where additional testing or inspection can be performed to achieve compliance with GIS/L2 these actions are identified in Table B.1.

For small quantities of line pipe procured in line with this Annex, it is recommended that the standard dimensional tolerances as specified by BS EN ISO 3183 or API 5L PSL 2 can be accepted, on the basis that for a small number of construction welds any issues with fit-up caused by the less onerous dimensional requirements can be accommodated during construction welding activities. Therefore, no clause has been included in this Annex relating to dimensional tolerances. It is the responsibility of the IDN to determine in which situations the more onerous dimensional requirements of GIS/L2 may be required, and in this case dimensional checks can be conducted on the pipes.

The IDN shall ensure that there is full traceability of any pipe procured in line with this data sheet. Records shall be retained that confirm the pipe was assessed in line with this GIS and found to be acceptable. Additional marking shall be applied to the pipe to confirm that the pipes meet the requirements of GIS/L2.

Table B.1 – Additional Requirements to BS EN ISO 3183 or API 5L PSL 2 Line Pipe for Compliance with GIS/L2

Item	Applicable To	Requirement	Relevant Sections of GIS/L2	Action
1	All pipe	If pipe cannot be procured to the dimensions specified in Table 1 of this specification, alternative pipe may be proposed by the stockist for review by the purchaser.	Table 1	-
2	All pipe	Pipe grade shall be L245 or B, or shall be dual certified as L245 / B, and L290 / X42, unless otherwise specified by the purchaser.	Table 1 6.1.2	-
3	All pipe	If agreed by the purchaser, grades of up to and including X52 can be used. NOTE if grades other than grade B are to be used, the purchaser shall inform the welding contractor at the earliest opportunity.	Table 1 6.1.2	-
4	All pipe	Pipe size and type shall meet Table 1 of GIS/L2. Double-seam SAWL pipe shall not be accepted.	Table 1 8.1	-
5	All pipe	The quality system of the manufacturer and/or stockist shall be certified in accordance with BS EN ISO 9001, by an Accredited Certification Body.	8.3	-
6	All pipe	Jointers are not permitted.	8.11.1	Cut out or reject jointers. If cut out, new pipe ends shall be prepared and re-inspected as required by GIS/L2.
7	All pipe	The carbon level shall be ≤ 0.20% for the heat analysis and ≤ 0.22% for the product analysis.	9.2.2 Table 2	-
8	All pipe	The aluminum level shall be between 0.015 - 0.060% for the heat analysis and 0.010 - 0.065% for the product analysis.	9.2.2 Table 2	-
9	All pipe	The UTS shall be < 555 MPa.	9.3.2	-

Item	Applicable To	Requirement	Relevant Sections of GIS/L2	Action
10	All pipe	All pipes with outside diameter greater than 168.3 mm shall be externally coated in accordance with the requirements of */SP/CW6-1 and */SP/CW6-2. Pipes with outside diameter between 21.3 mm and 168.3 mm inclusive shall be externally coated in accordance with the requirements of */SP/CW6-1 and */SP/CW6-2, unless the external coating is to be applied in the field. In this case, the pipe shall be supplied with a temporary external coating to prevent rusting in transit and storage. This temporary coating shall be an epoxy holding primer or equivalent and not a grease based coating.	12.1.3	Coat pipes externally as required by section 12.1.3 of GIS/L2.
11	All pipe	All pipes shall be internally coated in accordance with the requirements of */SP/CM1 and */SP/CM2.	12.1.4	Coat pipes internally as required by section 12.1.4 of GIS/L2.
12	All pipe	The end bevels shall be free from corrosion and damage.	12.1.4	If any corrosion or damage is identified the pipes shall be re-beveled.
13	All pipe	The end 25 mm shall be inspected by UT in accordance with BS EN ISO 10893-8, with no laminations > 6.4 mm in the circumferential direction.	E.3.2.3 / E3.3.2	If it cannot be verified that previous inspection meets this requirement, inspect again per the requirement.
14	Pipes of nominal size 25-50 mm (inclusive)	It shall be specified by the purchaser whether the pipes are supplied with either square ends or beveled ends.	9.12.5.1	Pipes that are not furnished with square ends / beveled ends shall be re-beveled with the correct preparation.
15	SAW	The delivery condition shall be N or M.	6.2.2	-
16	HFW / SAWH	Coil end welds shall not be supplied.	8.10.3	Cut out any coil end welds, or reject pipes containing coil end welds. If cut out, new pipe ends shall be prepared and re-inspected as required by GIS/L2.
17	HFW	The delivery condition shall be N or M.	6.2.2	-
18	HFW	Pipes shall not have not been cold formed followed by thermomechanical forming.	6.2.2	-

Item	Applicable To	Requirement	Relevant Sections of GIS/L2	Action
19	HFW	The weld seam shall be inspected 100% (full-length) by UT in accordance with BS EN ISO 10893-10 or BS EN ISO 10893-11. For pipes with specified wall thickness < 10 mm, this may be replaced by the flux leakage method to BS EN ISO 10893-3 acceptance level F3. For pipes with outside diameter < 100 mm, this may be replaced by the eddy current method to BS EN ISO 10893-2 acceptance level E3.	E.3.1.1	If it cannot be verified that previous inspection meets this requirement, inspect each pipe per the requirement.
20	HFW pipes of nominal size 15-25 mm (inclusive)	In flattening tests, there shall be no cracks or breaks other than in the weld before the distance between the plates is less than 50% of the original diameter.	9.6 a)	If it cannot be verified that this requirement was met for pipes of nominal size 15-25 mm, conduct flattening test in accordance with this requirement for each test unit.
21	SMLS	The delivery condition shall be N. Delivery condition Q shall be supplied only if agreed by the purchaser.	6.2.2	-
22	SMLS pipe with OD ≥ 219.1 mm	Test certificates shall confirm that transverse tensile testing has been performed.	10.2.3.2	If transverse tensile testing cannot be evidenced, perform transverse tensile testing for each test unit.