

Gas Industry Standard

GIS/SER6:2006

Specification for

Live riser transfer technique



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Foreword

Gas Industry Standards (GIS) are revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition. Contractors and other users external to Gas Transporters should 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 should 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

For the purposes of a GIS the following auxiliary verbs have the meanings indicated:

- can** indicates a physical possibility;
- may** indicates an option that is not mandatory;
- shall** indicates a GIS requirement;
- should** indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment needs to 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

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1 Scope

This Gas Industry Standard (GIS) defines the requirements for the fittings, components and equipment to be used in conjunction with the live riser transfer technique, which allows the establishment of a new gas supply to a riser system and the abandonment of the existing gas supply, whilst keeping the riser system operational.

The technique is applicable for use on low pressure risers with diameters in the range $\frac{3}{4}$ in to 6 in.

The fittings, components and equipment used in the technique fall into two classifications:

- Type I covers items that form part of the final live riser transfer installation.
- Type II covers pressure-retaining items used when deploying the live riser transfer technique.

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.

Formal standards

BS 476-20, *Fire tests on building materials and structures — Method for determination of the fire resistance of elements of construction (general principles)*.

BS 3799, *Specification for steel pipe fittings, screwed and socket-welding for the petroleum industry*.

BS EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Cast iron flanges*.

Gas industry standards

GIS/E59, *Specification for foam plug flow stop devices for LP and MP gas mains and services*.

GIS/L2, *Specification for steel pipe 21.3 mm to 1 219 mm outside diameter for operating pressures up to 7 bar (supplementary to BS EN 10208-1)*.

GIS/LC8-4, *Specification for methods of repairing leaking ferrous gas mains — Part 4: Pipe repair clamps, split collars and under pressure branch connections*.

GIS/PL3, *Specification for self anchoring mechanical fittings for polyethylene pipe for natural gas and suitable manufactured gas*.

GIS/V4, *Specification for Service isolation valves up to 50 mm diameter for use up to 2 bar maximum working pressures*.

GIS/V7-1, *Specification for distribution valves — Part 1: Metal-bodied line valves for use at pressures up to 16 bar and construction valves for use at pressures up to 7 bar*.

3 Terms and definitions

For the purposes of this GIS the following definitions apply.

3.1

LP riser

any pressure up to and including 75 mbar

3.2

safe working load (SWL)

maximum load that an item of equipment can be subjected to under particular service conditions

4 Materials

4.1 All component materials shall be suitable for use with natural gas.

4.2 The equipment material shall be resistant to petroleum-based products such as oil, petrol and diesel.

5 Design requirements

5.1 Type I – Permanent installation items

5.1.1 All pressure-containing components shall be capable of withstanding a maximum operating pressure of 75 mbar.

5.1.2 The design life of the pressure containing components shall be 50 years.

5.1.3 Pressure-containing components shall be designed to withstand a 30 minute fire resistance test in accordance with GIS/PL3, **5.1.2**; this may be accomplished by protecting the component with a fire-retardant material.

5.1.4 If a pressure containing component is not able to withstand the fire resistance test it shall be protected with a fire retardant material that shall ensure that pressure-retaining components are able to withstand the 30 minute fire resistance test.

NOTE Components that include elastomeric seals are likely to be affected. These are:

- underpressure tees (UPTs);
- repair clamps;
- ends caps (non screwed).

5.1.5 If a riser section providing axial support is permanently removed from a live riser transfer installation, alternative support shall be provided. The alternative support shall be capable of withstanding the 30 minute fire resistance test (see **5.1.2** to **5.1.3**) without losing its ability to provide structural support

5.1.6 The items used as part of a permanent live riser transfer installation shall conform to the standards listed in Table 1.

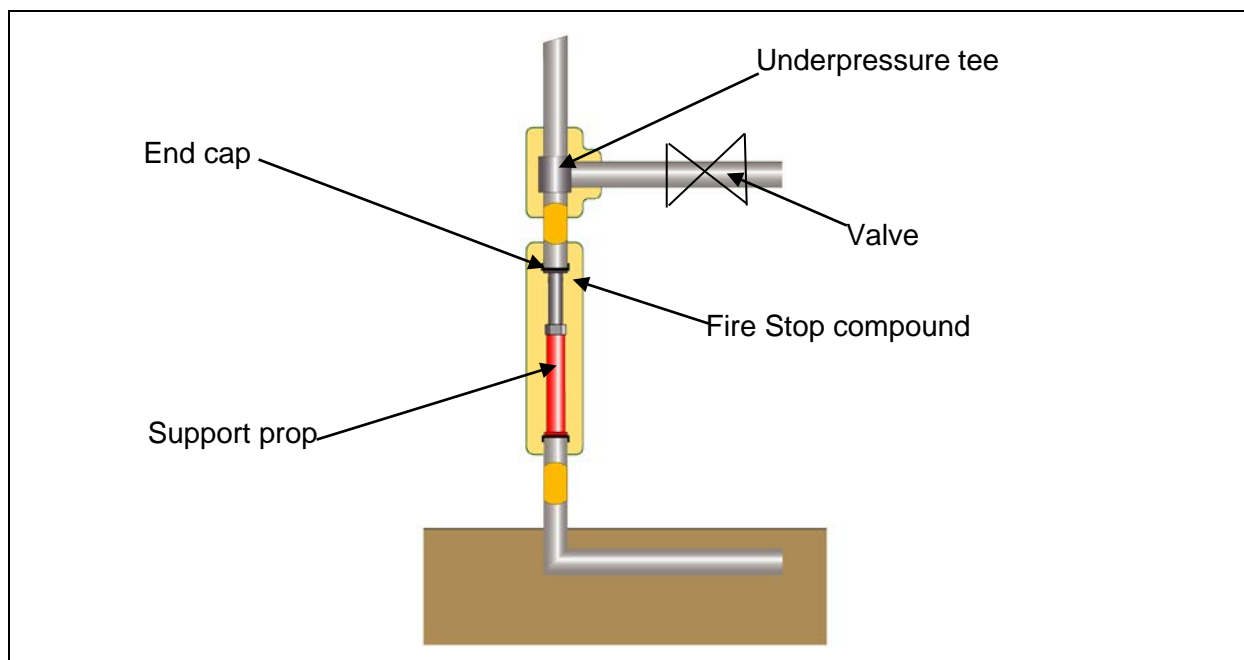
NOTE A typical set-up is in shown in Figure 1.

Table 1 — Components used for permanent installations

Item	Standard	Size range in
UPTs	GIS/LC8-4	¾ to 6
Repair clamps	GIS/LC8-4	¾ to 6
Valves: full bore	GIS/V4	¾ to 2
Valves: slide or damper	GIS/V7-1	3 to 6
Support prop	SWL certified by a competent person or body	Variable according to riser diameter
End caps	a)	¾ to 6
Steel pipes	GIS/L2	¾ to 6
System B220 Fire Stop compound ^{b)} or equivalent intumescent fire protective coating	BS 476-20	
Steel fittings	BS 3799 and BS EN 1092-2	

a) Standard yet to be determined.

b) System B220 Fire Stop is a trade mark owned by Nullifire Ltd, Torrington Avenue, Coventry CV4 9TJ, UK and is an example of a suitable product available commercially. This information is given for the convenience of users of this standard and does not constitute an endorsement of this product.

**Figure 1 — Typical Type I installation**

5.2 Type II – Pressure retaining equipment and fittings used during the installation of the live riser technique

5.2.1 All pressure containing components shall be capable of withstanding a maximum operating pressure of 75 mbar.

5.2.2 The items used as part of a live riser transfer installation shall conform to the standards listed in Table 1.

NOTE A typical installation arrangement is shown in Figure 2.

Table 2 — Components used during the installation of the live riser transfer technique

Item	Standard	Size range in
Angled installation tee	GIS/LC8-4	¾ to 6
Foam bag	GIS/E59	¾ to 6

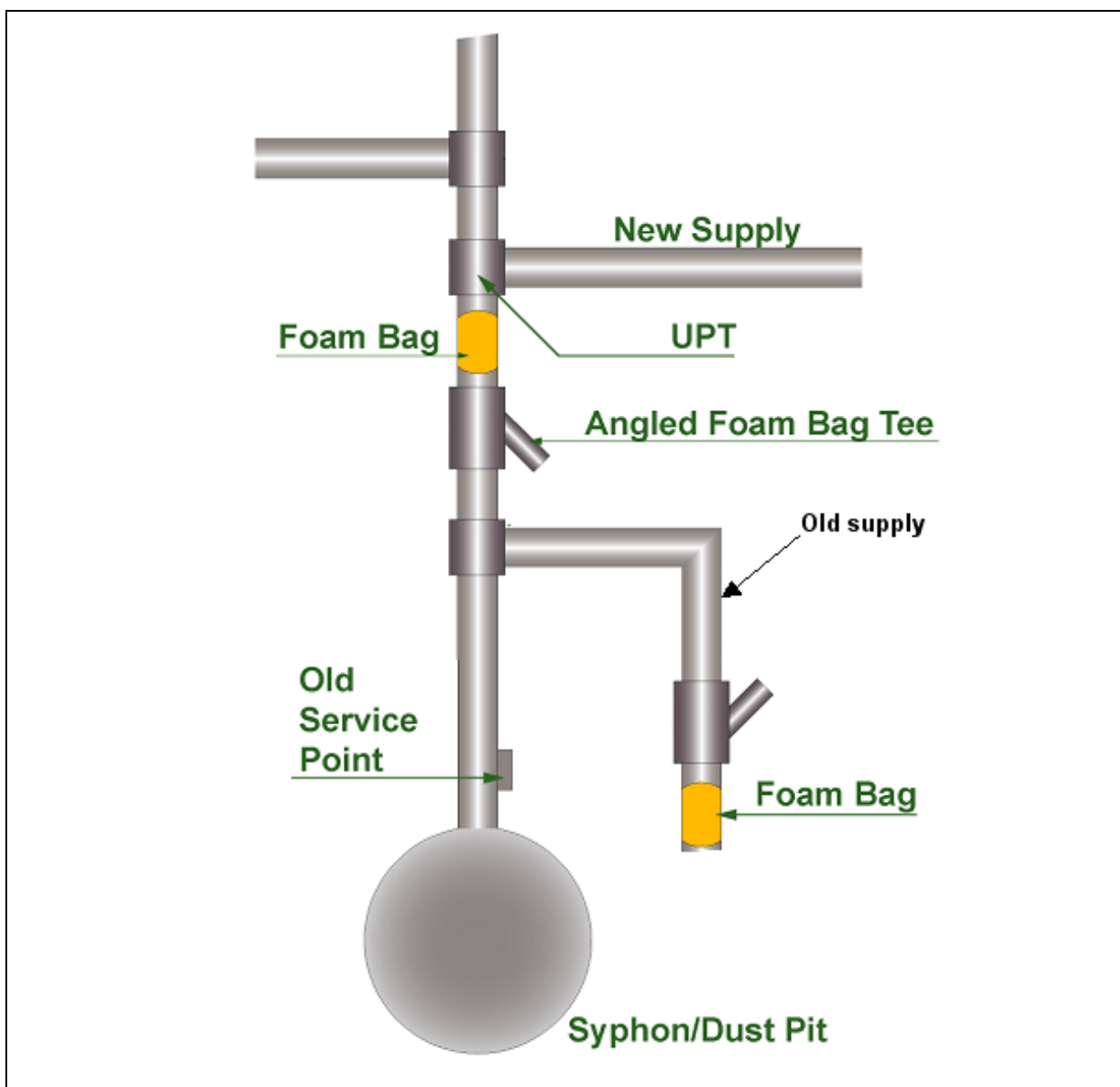


Figure 2 — Typical components used during installation

6 Performance tests

6.1 Pressure-retaining fittings protected with the System B220 Fire Stop compound ¹⁾ or an equivalent intumescent fire protective coating shall be fire tested in accordance with GIS/PL3, **5.1.2**. Alternatively a generic fire test shall be carried out to ensure that any fitting protected with an intumescent fire protective coating has a 30 minute fire resistance capability. Typical fittings are shown below:

- UPTs;
- repair clamps;
- ends caps (non screwed).

6.2 Support prop design shall be tested to ensure that the design incorporates a safety factor of 4 in determining the SWL. The SWL shall cover all failure mechanisms, which can include: compression, bending and collapse loads. The SWL shall be revalidated every 12 months.

6.3 If materials likely to fail a fire test (see **5.1.3** to **5.1.4**) are used in the design of a support prop protected with System B220 Fire Stop compound ²⁾ or equivalent intumescent fire protective coating, a separate test shall be conducted to establish that the structural integrity of the support prop is not compromised.

7 Markings

7.1 Components conforming to GIS/SER6 shall be permanently marked with the following information:

- a) the number and date of this standard, i.e. GIS/SER6:2006 ³⁾;
- b) the name or trademark of the manufacturer or their appointed agent;
- c) the production date;
- d) the model and serial number of the component;
- e) the manufacturer's contact details;
- f) where authorized, the product conformity mark of a third party certification body, e.g. BSI Kitemark.

NOTE Attention is drawn to the advantages of using third party certification of conformance to a standard.

7.2 The SWL shall be permanently marked on the support prop, along with any labels relating to safety, operating, and maintenance or servicing instructions.

¹⁾ System B220 Fire Stop is a trade mark owned by Nullifire Ltd, Torrington Avenue, Coventry CV4 9TJ, UK and is an example of a suitable product available commercially. This information is given for the convenience of users of this standard and does not constitute an endorsement of this product.

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³⁾ Marking GIS/SER6:2006 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 therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.