

Gas Industry Standard

GIS/14525

Specification for

**Flanged Adaptors and Mechanical Couplings from DN50 to DN600
and up to 2 bar maximum operating pressure.**

**Gas Industry Standard
Addenda to BS EN 14525:2004**

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Contents

	Page
Foreword	ii
Mandatory and non-mandatory requirements	ii
Disclaimer	ii
Brief history	iii
1 Scope	1
2. Normative references	1
3. Gas Industry Standards	2
4. Addendum to EN14252:2004	2
5. Section 4.1.1 - Table 1 – minimum working diameter range	2
6. Section 4.1.3.5 Material in contact with water intended for human consumption	2
7. Section 5.2 Pressure rating	2
8. Annex A supplementary data	3
Table 2 - covering cast iron, ductile iron and steel pipes in all known diameters and Wall thicknesses).	3

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

Addendum to EN14525:2004 Document Reviewed	November 2011 February 2016
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KEY CHANGES

Document Review	Normative References Updated

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1 Scope

This Gas Industry Standard specifies the requirements and associated test methods applicable to flanged adaptors and mechanical couplings intended for use with pipe components made from a number of pipe materials (ductile iron, grey iron, PE and steel), for providing a leak tight seal over a wide range of pipe external diameters:-

- to convey natural gas up to 2 bar maximum operating pressure.
- to be installed below ground.

The document specifies requirements for materials, dimensions and tolerances, mechanical properties and standard coatings of products.

The standard covers products cast by any type of foundry or manufactured by fabrication of cast components, as well as corresponding joints, in a size range extending from DN50 to DN600 for a maximum operating pressure (MOP) up to 2 bar for gas temperatures between 0°C and 25°C. Materials used in fitting bodies are ductile iron, steel and polyethylene (PE).

Flange adaptors/ couplings in this document only relates to PN16 designated flange connections and does not cover class designated flanges or other PN ratings.

It also gives performance requirements and associated test methods for restrained and non-restrained flexible joints. Joint design and gasket shapes are outside the scope of this standard.

NOTE 1 MOP may be limited depending on pipe materials effectively connected.

NOTE 2 In this document, all pressures are relative gauge pressures, expressed in bars (100 kPa = 1 bar)

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 EN 682, *Electrometric seals. Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids*

BS EN 969, *Specification for ductile iron pipes, fittings, accessories and their joints for gas pipelines - Requirements and test methods.*

BS EN 1092-1, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Steel flanges*

BS EN 1514-1, *Flanges and their joints. Dimensions of gaskets for PN-designated flanges. Non-metallic flat gaskets with or without inserts.*

BS EN 1515-2, *Flanges and their joints. Bolting. Classification of bolt materials for steel flanges, PN designated.*

BS EN 12329, *Corrosion protection of metals. Electrodeposited coatings of zinc with supplementary treatment on iron and steel.*

BS EN 12330, *Corrosion protection of metals. Electrodeposited coatings of cadmium on iron and steel.*

BS EN 12842, *Ductile iron fittings for PVC-U or PE piping systems – Requirements and test methods.*

BS EN 14525, *Ductile iron wide tolerance couplings and flange adaptors for use with pipes of different materials: Ductile iron, Grey iron, Steel, PVC-U, PE, Fibre-cement.*

BS EN ISO 4016, *Hexagon head bolts. Product grade C.*

BS EN ISO 4034, *Hexagon regular nuts (style 1). Product grade C.*

BS EN ISO 6506-1, *Metallic materials – Brinell hardness test – Part 1: Test method.*

BS EN ISO 7091, *Plain washers. Normal series. Product grade C.*

3. Gas Industry Standards

GIS/C6, *Specification for distribution pipe fittings cast in ductile iron for use up to 7 bar maximum operating pressures.*

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

4. Addenda to BS EN 14525:2004

For gas carrying flanged and mechanical couplings from DN50 to DN600 up to a maximum of 2 bar maximum operating pressure BS EN 14525:2004 should be followed with the following exceptions.

5. Section 4.1.1 - Table 1 – minimum working diameter range.

The minimum working range outside diameters for couplings and flange adaptors is given in table 1 below. Table 1 in EN14525:2004 should not be used for gas carrying products

Standard Mech. coupling/flanged adaptors			Wide tolerance couplings/flanged adaptors		
Maximum OD or DN of the pipes to be connected		Minimum working diameter range (mm)	Maximum OD or DN of the pipes to be connected		Minimum working diameter range (mm)
OD (mm)	DN		OD (mm)	DN	
Up to 110	Up to 100	10	Up to 110	Up to 100	10
110 to 225	100 to 200	15	110 to 225	100 to 200	15
225 to 315	200 to 300	20	225 to 315	200 to 300	20
315 to 400	300 to 400	25	315 to 400	300 to 400	25
400 to 630	400 to 600	30	400 to 630	400 to 600	30

6. Section 4.1.3.5 Material in contact with water intended for human consumption

This section does not apply to Gas carrying pipes.

7. Section 5.2 Pressure rating

This section does not apply to Gas carrying pipes.

Annex A supplementary data

In addition to the data in Annex A of EN 14525:2004 the following data should be referenced.

Table 2 - covering cast iron, ductile iron and steel pipes in all known diameters and wall thicknesses).

In using the table below the following manufacturing tolerances shall be taken into account:-

Maximum pipe type is Cast iron with a manufacturing tolerance of Nominal dia + or – 2mm.

Minimum pipe type is steel with a manufacturing tolerance of + or – 1%.

Sealing Range on universal cast fittings up to 12in should ideally accommodate these manufacturing tolerances. Sealing range on fabricated fittings above 12in will be more restricted and will have dedicated sealing range to suit a callipered main size.

Pipe Nominal Diameter	Minimum Pipe Diameter	Maximum Pipe Diameter		Pipe Nominal Diameter	Minimum Pipe Diameter	Maximum Pipe Diameter
80mm (3in)	88.9mm	98.0mm		500mm (20in)	508.0mm	560.3mm
100mm (4in)	114.3mm	122.0mm		525mm (21in)	571.5mm	587.2mm
125mm (5in)	139.7mm	149.9mm		550mm (22in)	559.0mm	613.7mm
150mm (6in)	168.3mm	177.3mm		600mm (24in)	610.0mm	667.0mm
175mm (7in)	193.7mm	204.7mm		700mm (27in)	711.0mm	746.8mm
200mm (8in)	219.1mm	232.2mm		800mm (30in)	813.0mm	826.0mm
225mm (9in)	244.5mm	259.1mm		900mm (36in)	914.0mm	984.5mm
250mm (10in)	273.0mm	286.0mm		1000mm (40in)	1016.0mm	1090.2mm
300mm (12in)	323.9mm	345.4mm		1200mm (48in)	1219.0mm	1300.5mm
350mm (14in)	355.6mm	399.3mm				
375mm (15in)	413.0mm	426.2mm				
400mm (16in)	406.4mm	453.1mm				
450mm (18in)	457.0mm	507.0mm				