Fernco International Ltd
Endeavour Works
Newlands Way
Valley Park
Wombwell, Barnsley
South Yorkshire S73 0UW
Tel: 01226 340222 Fax: 01226 340400
e-mail: sales@flexseal.co.uk
website: www.flexseal.co.uk

CI/SfB
(52) t6

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

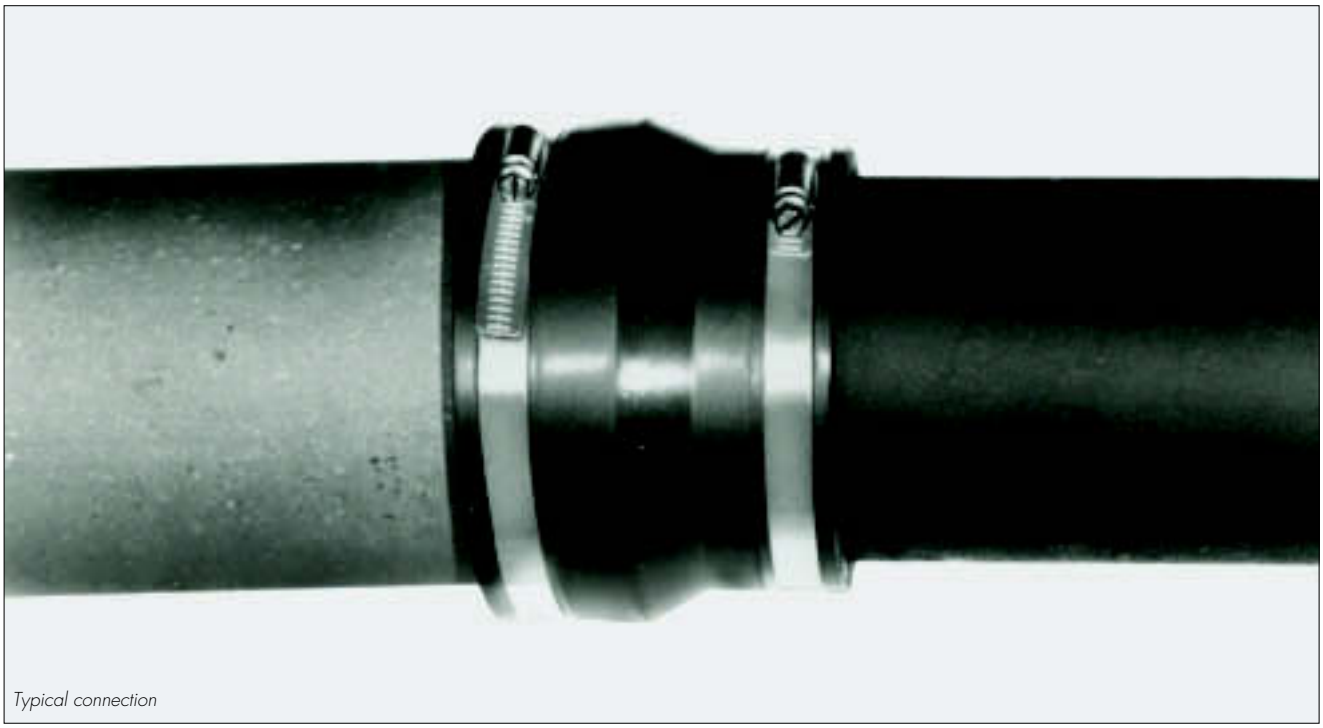
Designated by Government to issue European Technical Approvals

Agrément Certificate No 91/2615
*Third issue**

FERNCO FLEXIBLE COUPLINGS

Raccordement de conduit
Formstücke

Product



Typical connection

- *THIS CERTIFICATE RELATES TO FERNCO FLEXIBLE COUPLINGS.*
- *The couplings are for use with sanitary pipework, underground drainage, sewers and rainwater pipes.*
- *The couplings are for jointing pipes from 40 mm to 245 mm nominal outside diameter.*
- *The couplings are for use with treated effluents normally found in sewers and drains.*

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of flexible couplings with the Building Regulations. In the opinion of the BBA, Fernco Flexible Couplings, if used in accordance with the provision of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	H1	Foul water drainage
Comment:		See section 7.1 of this Certificate.
Requirement:	H3	Rainwater drainage
Comment:		See section 7.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See sections 8 and 15 of this Certificate.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

In the opinion of the BBA, Fernco Flexible Couplings, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system is acceptable. See sections 8 and 15 of this Certificate.
Regulation:	24	Drainage
Standard:	M2.4	Drainage system — Wastewater and surface water drainage
Comment:		The system will meet the relevant requirements of this Standard. See section 7.1 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, Fernco Flexible Couplings, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See sections 8 and 15 of this Certificate.
Regulation:	N3	Sanitary pipework
Regulation:	N4	Underground foul drainage
Regulation:	N5	Rain-water drainage
Comment:		The system satisfies the requirements of these Regulations. See section 7.1 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended)

Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

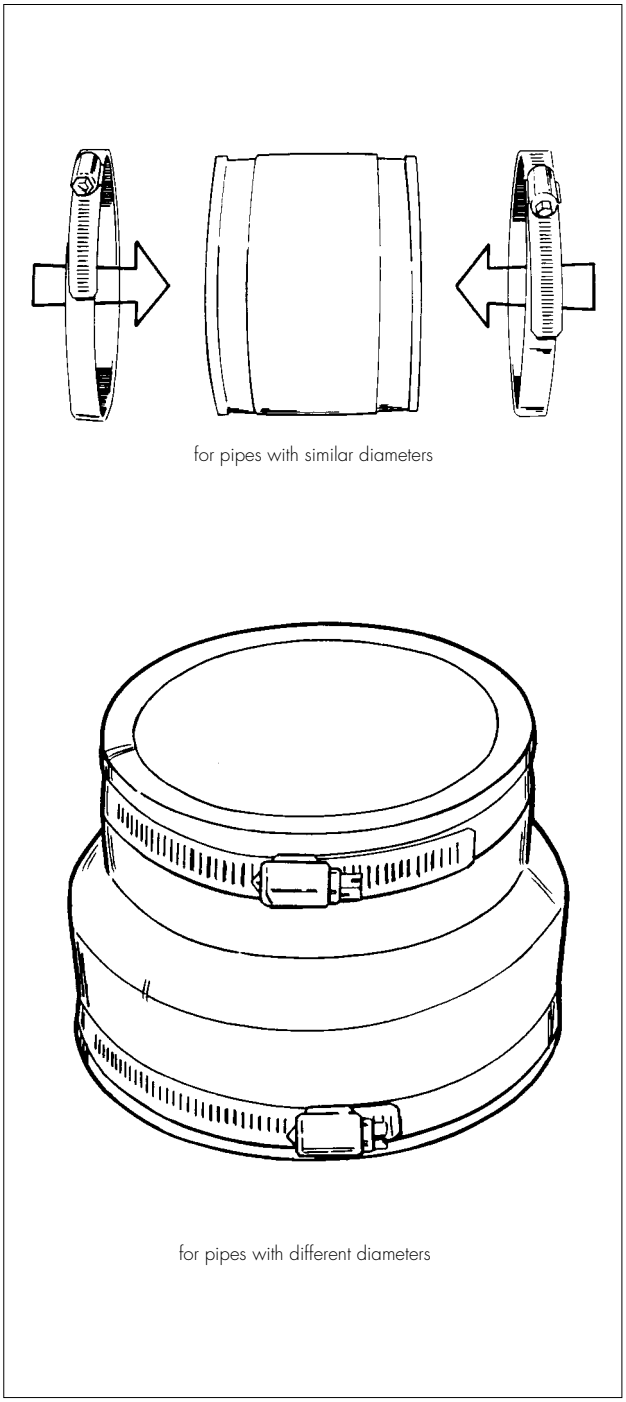
See section: 16 *General* (Installation)

Technical Specification

5 Description

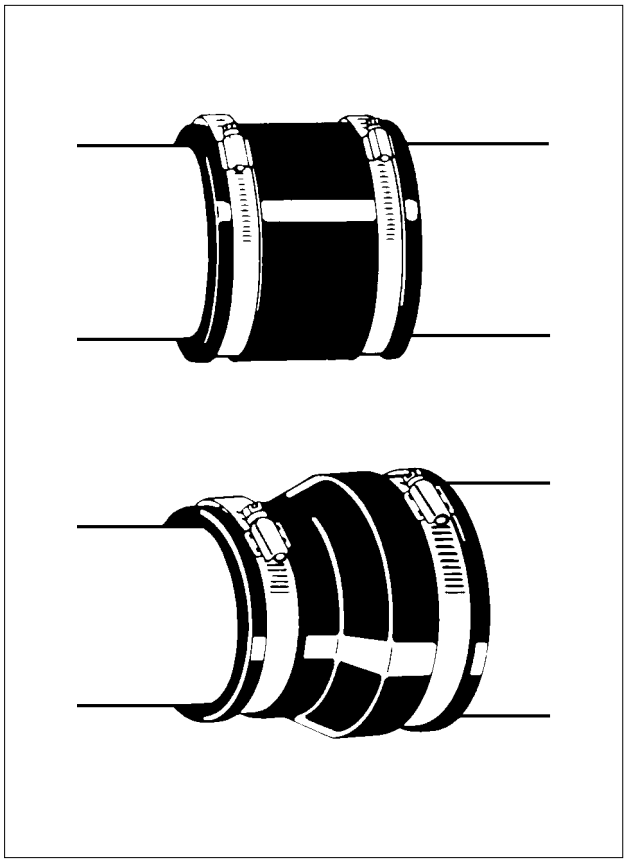
5.1 Fernco Flexible Couplings (see Figure 1) consist of sleeves based on a moulded synthetic polymer and stainless steel clamps to ASTM A 167 and screws to ASTM 1493.

Figure 1 Fernco Flexible Couplings



5.2 The couplings can be used for jointing two pipes of either similar external diameter (see Tables 1, 2, 3 and 4) or different external diameter (see Table 4). Typical connections are shown in Figure 2.

Figure 2 Typical connections



5.3 The steel clamps are tightened by the adjustable screws to the recommended torque setting of 7 Nm using a preset torque wrench. The maximum recommended torque is 8 Nm.

5.4 Continuous quality control carried out during manufacture includes hardness testing and visual and dimensional checks.

5.5 The couplings are suitable for jointing pipes of the following materials:

- cast iron to BS 416-1 : 1990, BS EN 877 : 1999
- grey or ductile iron to BS EN 877 : 1999
- asbestos-cement to BS EN 588-1 : 1997
- polyvinyl chloride to BS 4660 : 2000 and BS EN 1401-1 : 1998
- vitrified clay to BS EN 295, Parts 1 to 3 : 1991and BS EN 295-4 : 1995
- ductile iron to BS EN 545 : 2002
- ductile iron to BS EN 598 : 1995
- fibre cement to BS EN 588-1 : 1997.

6 Delivery and site storage

The couplings are packed in polythene bags containing a card bearing the BBA identification mark incorporating the number of this Certificate. Reasonable care in handling and storage is required to avoid damage or distortion.

Table 1 Series 1001 — clay to clay

Part No	A		B		C	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1001-44	5.25	133	5.25	133	4.00	101
1001-66	7.52	191	7.52	191	6.00	152
1001-88	9.65	245	9.65	245	6.00	152

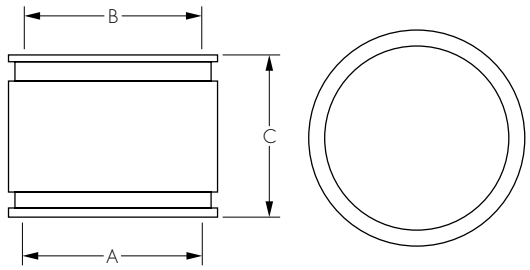


Table 2 Series 1002 — clay to cast iron or plastic

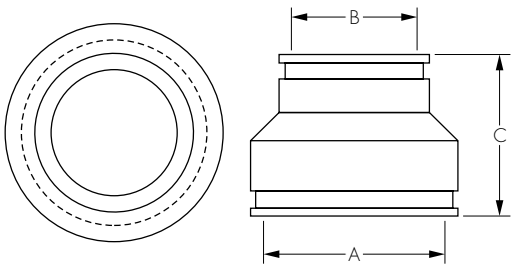
Part No	A		B		C	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1002-43	5.25	133	3.38	85	4.00	101
1002-44	5.25	133	4.38	111	4.00	101
1002-64	7.38	187	4.38	111	6.00	152
1002-66	7.38	187	6.38	162	6.00	152
1002-88	9.65	245	8.50	215	6.00	152

Table 3 Series 1051 — asbestos cement fibre or ductile iron to cast iron or plastic

Part No	A		B		C	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1051-44	4.75	120	4.38	111	4.00	101

Table 4 Series 1056 — cast iron, plastic to cast iron, plastic

Part No	A		B		C	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1056-125	1.65	40	1.65	40	3.50	88
1056-150/125	1.90	48	1.65	40	3.50	88
1056-150	1.90	48	1.90	48	3.50	88
1056-215	2.40	60	1.90	48	3.50	88
1056-22	2.40	60	2.40	60	3.50	88
1056-315	3.38	85	1.90	48	4.00	101
1056-32	3.38	85	2.40	60	4.00	101
1056-33	3.38	85	3.38	85	4.00	101
1056-42	4.38	111	2.40	60	4.00	101
1056-43	4.38	111	3.38	85	4.00	101
1056-44	4.42	112	4.42	112	4.00	101
1056-54	5.62	142	4.38	111	4.00	101
1056-55	5.62	142	5.62	142	4.00	101
1056-64	6.38	162	4.38	111	6.00	152
1056-65	6.50	165	5.50	140	6.00	152
1056-88	8.50	215	8.50	215	6.00	152



Design Data

7 General

7.1 Fernco Flexible Couplings are suitable for use in drainage systems for the conveyance, by combined or separate systems, of surface water or domestic sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991, Chapter 56, the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 1973.

7.2 The couplings are suitable for use in drainage systems designed in accordance with the relevant parts of BS EN 752. The couplings can be installed and the trench backfilled as drain laying proceeds.

8 Strength

The product has adequate strength to resist loads associated with installation and subsequent use in the situations defined in this Certificate.

9 Performance of joints

9.1 The performance of joints will not be adversely affected by thermal expansion or contraction when correctly made.

9.2 Joints made using the couplings remain watertight under conditions of pipeline movement in excess of that expected to occur, in accordance with the relevant standards (see section 5.5).

10 Flow characteristics

Joints made using the couplings have no significant effect on the flow characteristics associated with underground drainage systems.

11 Resistance to chemicals

The product is suitable for use with the pipes and fittings listed in section 5.5 and has adequate resistance to the type and quantity of chemicals likely to be found in domestic sewage.

12 Resistance to elevated temperatures

The product has adequate resistance to the temperatures likely to be found in domestic sewage.

13 Practicability of installation

Installation of the product can be carried out easily under normal site conditions.

14 Maintenance

A system using these couplings can be cleared without difficulty using standard rodding equipment. When installed in accordance with this Certificate, the coupling is protected by the pipe wall and, therefore, is unlikely to be damaged by cleaning devices, eg toothed root cutters.

15 Durability

When used within the conditions and recommendations given in this Certificate the couplings are expected to have a life expectancy equivalent to that of the pipework.

Installation

16 General

Fernco Flexible Couplings must be installed in accordance with the Certificate holder's installation instructions, general good practice for trenchwork and any specific site requirements.

17 Procedure

17.1 When inserting a junction or length of pipe into an existing pipeline, the pipe ends should be cut square. Any discontinuities on the external surface, eg mould joint lines on the barrel of iron pipes, may require smoothing to achieve a watertight joint.

17.2 Before making the connection the coupling and the pipe ends must be clean.

17.3 To make a joint the coupling is positioned centrally over the pipe ends and the gap.

17.4 The fitting of the coupling is completed by the alternate tightening of the adjustable screws of the steel clamps to the recommended torque setting (see section 5.3).

17.5 The Certificate holder recommends that before backfilling or concealing the joint it is tested to a maximum pressure of 0.5 bar.

Technical Investigations

The following is a summary of the technical investigations carried out on Fernco Flexible Couplings.

18 Tests

Tests were carried out to determine:

- dimensional accuracy
- ease of jointing
- resistance of joints to hydrostatic pressure, shear or deformation
- withdrawal and deflection
- effect of accelerated ageing
- thermal cycling and box loading.

19 Investigations

19.1 A factory visit was carried out to assess the effectiveness of the quality control procedure.

19.2 An examination was made of data relating to:

- resistance to hydrostatic pressure, shear or deformation
- adequacy of specifications
- effect of pipe tolerances
- chemical resistance
- durability.

19.3 A user survey was carried out to evaluate performance in use.

Bibliography

BS 416-1 : 1990 *Discharge and ventilating pipes and fittings, sand-cast or spun in cast iron — Specification for spigot and socket systems*

BS 4660 : 2000 *Thermoplastics ancillary fittings of nominal sizes 110 and 160 for below ground gravity drainage and sewerage*

BS EN 295-1 : 1991 *Vitrified clay pipes and fittings and pipe joints for drains and sewers — Requirements*
BS EN 295-2 : 1991 *Vitrified clay pipes and fittings and pipe joints for drains and sewers — Quality control and sampling*
BS EN 295-3 : 1991 *Vitrified clay pipes and fittings and pipe joints for drains and sewers — Test methods*
BS EN 295-4 : 1995 *Vitrified clay pipes and fittings and pipe joints for drains and sewers — Requirement for special fittings, adaptors and compatible accessories*

BS EN 545 : 2002 *Ductile iron pipes, fittings, accessories and their joints for water pipelines — Requirements and test methods*

BS EN 588-1 : 1997 *Fibre-cement pipes for sewers and drains — Pipes, joints and fittings for gravity systems*

BS EN 598 : 1995 *Ductile iron pipes, fittings, accessories and their joints for sewerage applications — Requirements and test methods*

BS EN 752-1 : 1996 *Drain and sewer systems outside buildings — Generalities and definitions*
BS EN 752-2 : 1997 *Drain and sewer systems outside buildings — Performance requirements*
BS EN 752-3 : 1997 *Drain and sewer systems outside buildings — Planning*
BS EN 752-4 : 1998 *Drain and sewer systems outside buildings — Hydraulic design and environmental considerations*

BS EN 877 : 1999 *Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings — Requirements, test methods and quality assurance*

BS EN 1401-1 : 1998 *Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinylchloride) (PVC-U) — Specifications for pipes, fittings and the system*

ASTM A 167 : 1999 *Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip*

ASTM 1493 *Stainless and Heat-Resisting Steel for Cold Heading and Cold Forging — Bar and Wire*

Conditions of Certification

20 Conditions

20.1 This Certificate:

(a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;

(b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;

(c) is valid only within the UK;

(d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;

(e) is copyright of the BBA;

(f) is subject to English law.

20.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

(a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

20.4 In granting this Certificate, the BBA is not responsible for:

(a) the presence or absence of any patent or similar rights subsisting in the product or any other product;

(b) the right of the Certificate holder to market, supply, install or maintain the product; and

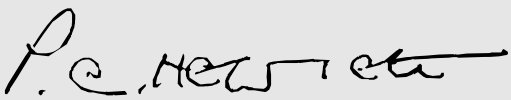
(c) the nature or standard of individual installations of the product or any maintenance thereto, including methods and workmanship.

20.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, Fernco Flexible Couplings are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 91/2615 is accordingly awarded to Fernco International Ltd.

On behalf of the British Board of Agrément



Date of Third issue: 5th March 2004

Chief Executive

**Original Certificate issued 26th March 1991. This amended version includes change of Certificate holder's name and address, reference to revised Building Regulations and Standards, addition of reference to CDM Regulations and new* Conditions of Certification.

British Board of Agrément
P O Box No 195, Bucknalls Lane
Garston, Watford, Herts WD25 9BA
Fax: 01923 665301

e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk