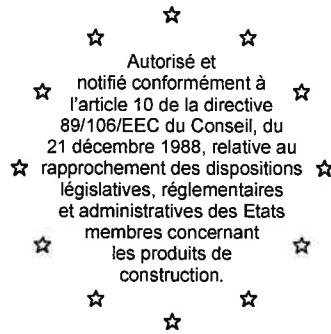


Centre Scientifique et Technique du Bâtiment

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CSTB
le futur en construction

MEMBRE DE L'EOTA

Agrément Technique Européen ETA-09/0248

(English language translation, the original version is in french language)

Trade names:

Noms commerciaux :

- FLEX-SEAL Plus (NORHAM Company)
- CANADA Plus (MÜCHER DICHTUNGEN GMBH & CO KG)

Holder of approval:

Titulaire :

Société NORHAM
ZA Les Druisieux
F-26260 Saint-Donat-sur-l'Herbasse

Generic type and use of construction product:

Type générique et utilisation prévue du
produit de construction :

**Elastomeric flexible couplings, with or without stainless
steel shear band used to assembly sewer or drainage pipe.**
Raccords flexibles en élastomère, avec ou sans bande de renfort en
acier inoxydable, destinés à assembler différents types de canalisations
d'assainissement.

Validity from / to:

Validité du :
au :

15 January 2013
15 January 2018

Manufacturing plant :

Usines de fabrication :

- Société NORHAM
ZA Les Druisieux
F-26260 Saint-Donat-sur-l'Herbasse
- MÜCHER DICHTUNGEN GMBH & CO KG
Saalestrasse
D-58256 Ennepetal

This European Technical Approval contains:

Le présent Agrément technique européen
contient :

**14 pages including 4 annexes which form an integral part of the
document**

14 pages incluant 4 annexes faisant partie intégrante du document.



Organisation pour l'Agrément Technique Européen
European Organisation for Technical Approvals

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European Technical Approval is issued by Centre Scientifique et Technique du Bâtiment in accordance with :
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by Council Directive 93/68/EEC of 22 July 1993² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - Décret n° 92-647 du 8 juillet 1992⁴ concernant l'aptitude à l'usage des produits de construction;
 - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC⁵;
- 2 The Centre Scientifique et Technique du Bâtiment is authorised to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant (for example concerning the fulfilment of assumptions made in this European Technical Approval with regard to manufacturing). Nevertheless, the responsibility for the conformity of the products with the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.
- 3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturer other than those indicated on page 1; or manufacturing plants other than those indicated on page 1 of this European Technical Approval.
- 4 This European Technical Approval may be withdrawn by the Centre Scientifique et Technique du Bâtiment pursuant to Article 5 (1) of the Council Directive 89/106/EEC.
- 5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of the Centre Scientifique et Technique du Bâtiment. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.
- 6 The European Technical Approval is issued by the approval body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities L 40, 11.2.1989, p. 12

2 Official Journal of the European Communities L 220, 30.8.1993, p. 1

3 Official Journal of the European L 284, 31 October 2003 p.25

4 Journal officiel de la République française du 14 juillet 1992

5 Official Journal of the European Communities L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1. Definition of product

Flexible coupling and fitting FLEX-SEAL Plus or CANADA plus for drains are elastomeric connections (EPDM or nitrile), possibly equipped one metal band of reinforcement (stainless steel), intended to connect various types of pipe possibly made up of different materials.

The tightening of elastomeric element on the drains is obtained by stainless steel tension band for which the tightening torque is recommended. The material constitutive of the pipe and their diameter can be different.

The various ranges characteristic of connections FLEX-SEAL Plus or CANADA Plus are the following ones:

- connections SC (FLEX-SEAL Plus) or MSC (CANADA plus) : with metal reinforcement, for weak adaptation of the outside diameters of the pipe to be connected.
- connections AC (FLEX-SEAL Plus) or MAC (CANADA plus) : without metal reinforcement, for adaptation important of the diameters external of the pipe to be connected.
- connections DC (FLEX-SEAL Plus) or MDC (CANADA plus) : without metal reinforcement, for weak adaptation of the outside diameters of the drains to be connected.

In addition with these connections, the elastomeric bush (BC) can be used according to the diameters to connect.

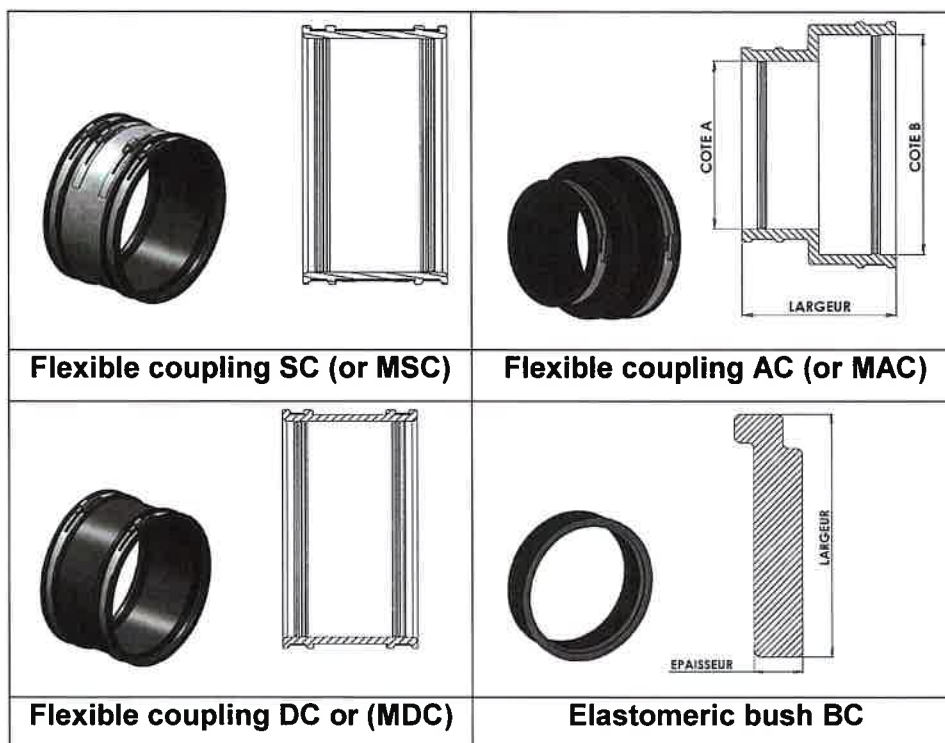


Figure 1 : Ranges of flexible couplings FLEX-SEAL Plus or CANADA Plus

1.2. Intended use

Flexible coupling FLEX-SEAL Plus or CANADA Plus make possible to connect various types of gravity or pressure pipes, intended to transport waste water or rainwater inside or outside of the building, in buried or not buried.

Subject to the respect of the tolerances on the outside diameter of the drains to which they are connected, limiting conditions of use of the connections are shown table 1:

Table 1 : Types of flexible couplings

Type of coupling	Maximal pressure in the pipe (bars)	Outside diameter and pipes connected material	Shear resistance R(N)*
SC (or MSC)	1,0	Different	R(N) > 25 DN (mm)
AC (or MAC)	0,6	Different	Low
DC (or MDC)	0,6	Same	Low
* according to EN 476. The value of DN is the maximum diameter possible to connect at the flexible coupling in mm.			

The provisions made in this European Technical Approval are based on an assumed intended working life of 50 years provided that the conditions as defined section 4.2 for the packaging, storage and installation are met. The indications given on the working life cannot be interpreted as a guarantee given by the ETA holder, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2 Characteristics of the product and methods of verification

The assessment of fitness of a flexible coupling FLEX-SEAL plus or CANADA Plus in relation to the requirements for the mechanical resistance, stability, safety in case of fire, hygiene-health and environment and safety in use in the sense of the Essential Requirements 1, 2, 3 and 4 has been made in accordance with the following paragraphs.

2.1. Dimensions

2.1.1. Sleeves

Dimensions of the sleeves and bushes are tested according to ISO 3302-1.

Internal elastomeric sleeve diameter shall be checked with the clamps removed by measuring the external circumference around the tension band position and thickness.

The dimensional specifications of the sleeves constituting connections FLEX-SEAL Plus or CANADA Plus are indicated in Annex 1 to 3.

The minimum inside diameter of the sleeves are the minimum values of the range indicated.

The dimensional tolerances of the moulded components are in conformity with the class M3 of ISO 3302-1.

The dimensional tolerances of the extruded and vulcanized components are in conformity with the class E3 of ISO 3302-1.

2.1.2. Shear and tension bands

Dimensions of the shear and tension band shall be tested by using a calliper.

The dimensional specifications are indicated in Annex 1 to 3.

The reinforcements and bands of tension are free from sharp edges to prevent any damage of the elastomeric sleeve or wounds for fitter.

2.2. Strength of tension band assembly

The tested band is tightened on a test tool include a cylindrical former which will not distort under the applied load and a calibrated torque wrench according ISO 6789.

Depending of the flexible coupling, the recommended tool (screw driver or lever tool) is describe annex 1 to 3.

Tension band assembly shall withstand a minimum torque of 10 N.m when a screw-driver is recommended.

Tension band assembly shall withstand a minimum torque of 17N.m when a lever tool is recommended.

2.3. Tensile strength of welds or clinch

The tensile test strength is realized on a sample prepared with a minimum of 100 mm length of unperforated tension band strip to a section of shear band strip cut with a minimum 100 mm length.

The test rate applied is 3 mm/min until failure. The maximum tensile force is recorded.

The assembly shall withstand a minimum force value of 6000 N.

2.4. Heat resistance

The test method for measurement of heat resistance of flexible coupling FLEX-SEAL Plus or CANADA Plus is based on EN 1055.

When tested according to this method the assembly shall not leak.

2.5. Assembly torque

The assembly of couplings with the thickest bush shall not leak with the recommended torque and the following hydrostatic pressure :

Type of flexible couplings	Pressure (bars)
AC (or MAC)	0,6
DC (or MDC)	0,6
SC (or MSC)	1,5

2.6. Reaction to fire

Reaction to fire of flexible couplings FLEX-SEAL Plus or CANADA Plus is tested according EN ISO 11925-2.

Flexible coupling FLEX-SEAL Plus or CANADA Plus are classified E according EN 13501-1.

2.7. Steel grade

Stainless steel components of flexible couplings FLEX-SEAL Plus or CANADA Plus are tested and classified according EN 10088-2.

Stainless steel used are austenitic with a minimum of Chrome of 17% and Nickel of 8% (or grade 1.4401 or 1.4404).

The different components of tensile band are made of stainless steel with the same requirements and a minimum hardness according to class +C850 according to EN 10088-2.

2.8. Characteristics of elastomeric elements

Sleeves and bushes are made of EPDM (type WC) or Nitril (type WG) according to 681-1.

The components made of elastomeric materials of flexible coupling FLEX-SEAL Plus or CANADA Plus are tested according the following table :

Table 2 : Characteristics of elastomeric elements

Characteristics	Test method	Requirement
Hardness (DIDC)	ISO 48	60±5
Tensile strength (MPa)	ISO 37	≥ 9
Elongation at break (%)		≥ 300
Compression set. (%)	ISO 815	
- 72 h at 23°C		≤ 12
- 24 h at 70 °C		≤ 20
- 72 h at -10°C		≤ 50
Ageing in air	ISO 188	
- Change hardness (%)		+8/-5
- Change tensile strength (%)		-20
- Change elongation at break (%)		+10/-30
Stress relaxation maxi.	ISO 3384	
- 7days at 23°C (%)		15
- 100 days at 23°C (%)		22
- Stress relaxation (per logarithmic decad) (%)		5,9
Volume change in water maxi. (%)	ISO 1817	+8/-1
Resistance of splice strength (%)	EN 681-1	100
Specification complementary (Type WG) :	ISO 1817	± 10 et + 50
Volume change in oil (1 et 3) en %		

2.9. Coupling performances

When tested according the following conditions and depending of type, flexible couplings FLEX-SEAL Plus or CANADA Plus do not leak :

Table 3 : Couplings performances

Type of flexible couplings	Conditions		Assembly	Requirements
SC or MSC	Vacuum (air) : - 0,3 bar time test : 15 min	Shear load : 25 DN (N)	- Rigid/rigid	End value pressure ≤ -0,27 bar
SC or MSC AC or MAC DC or MDC		Angular deflection $D_{ext} \leq 200 : 3^\circ$ $201 \leq D_{ext} \leq 300 : 2^\circ$ $301 \leq D_{ext} \leq 600 : 1,75^\circ$	- Rigid/rigid - Rigid/flexible - Flexible/flexible	
SC or MSC	Pressure (water) : - SC or MSC : 1,5 bars - AC or MAC : 0,6 bar - DC or MDC : 0,6 bar time test : 15 min	Shear load : 25 DN (N)	- Rigid/rigid	No leakage
SC or MSC AC or MAC DC or MDC		Angular deflection $D_{ext} \leq 200 : 3^\circ$ $201 \leq D_{ext} \leq 300 : 2^\circ$ $301 \leq D_{ext} \leq 600 : 1,75^\circ$	- Rigid/rigid	
SC or MSC AC or MAC DC or MDC	Vacuum (air) : - 0,3 bar time test : 15 min	Diameter distortion	- Rigid/flexible - Flexible/flexible	End value pressure ≤ -0,27 bar
SC or MSC AC or MAC DC or MDC	Pressure (water) : - SC or MSC : 1,5 bars - AC or MAC : 0,6 bar - DC or MDC : 0,6 bar time test : 15 min		- Rigid/flexible - Flexible/flexible	No leakage

2.10. Long term shear resistance and long term creep resistance

When tested according to EN 295-3 § 18.3, 18.5 and 18.6 with two rigid pipes, a downward vertical force (in N) of 25 DN per mm of nominal size of pipe and during a period of 3 month, flexible couplings FLEX-SEAL Plus SC or CANADA Plus MSC do not leak.

2.11. Content and/or release of dangerous substances

A written declaration is submit to the holder.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, there may be other requirements applicable to the product falling within its scope (e.g transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive. These requirements need also, if applicable, to be complied with when and where they apply.

3 Evaluation and attestation of conformity and CE marking

3.1. System of attestation of conformity

According to the decision 97/464.CE du 27/06/1997 of the European Commission the system(s) of attestation of conformity for flexible couplings FLEXSEAL Plus or CANADA plus is 4 for :

- ER1 (Mechanical resistance and stability)
- ER3 (Hygiene, health and environnement)

In addition, according to the decision 2004/663/CE du 20/09/2004 of the European Commission the system of attestation of conformity is 3 for :

- ER2 (safety in case of fire).

The systems of attestation of conformity referred to above is defined as follows:

System 3 : Declaration of conformity of the product by the manufacturer on the basis of :

- a) Tasks for the manufacturer : factory production control,
- b) Tasks for the notified body : initial type-testing of the product,

System 4: Declaration of conformity of the product by the manufacturer on the basis of:

- a) Tasks for the manufacturer :
 - 1. Initial type-testing of the product,
 - 2. Factory production control .

3.2. Responsibilities

3.2.1 Task of the manufacturer

3.2.1.1 Factory production control

The manufacturer has a factory production control system in the plant and exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system ensures that the product is in conformity with the European Technical Approval.

The manufacturer shall only use raw materials stated in the technical documentation of this ETA.

The factory production control shall be in accordance with the control plan. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with CSTB.

The frequency of controls and tests conducted during production is laid down in the prescribed test plan taking account of the automated manufacturing process of the product.

The results of factory production control are recorded and evaluated in accordance with the provisions of the control plan. The records include at least the following information:

- designation of the product, basic material and components;
- type of control or testing;
- date of manufacture of the product and date of testing of the product or basic material and components;
- result of control and testing and, if appropriate, comparison with requirements;
- signature of person responsible for factory production control.

The records shall be presented to the inspection body during the continuous surveillance. On request, they shall be presented to the Centre Scientifique et Technique du Bâtiment.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of ER 2 (Safety in case of fire) in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

In the case of ER 1 (Mechanical resistance and stability) and ER 3 (Hygiene, health and environment) the manufacturer shall make a declaration of conformity, stating that the

construction product is in conformity with the provisions of the European technical approval ETA-...(number) issued on ...(date).

3.2.2 Tasks for the approved bodies

The approved body shall perform the initial type-testing of the product in accordance with the provisions laid down in the control plan.

The approved body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

3.3. CE marking

The CE marking shall be affixed on a label gummed on each flexible coupling. The symbol « CE » shall be accompanied by the following information:

- number of the European Technical Approval,
- name or identifying mark of the producer : FLEX-SEAL Plus or CANADA Plus,
- the last two digits of the year in which the CE-marking was affixed,
- reference (added with three letter "N" in case of NBR rubber) and range of diameter,
- month and year of product,
- recommended assembly torque,
- maximum using pressure,
- reaction to fire class,

Following information shall be written on the direction for use :

- factory production unit,
- intended use : inside or outside building,
- statement on the presence or other wise of dangerous substances including concentration.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1. Manufacturing

Depending of diameters and types, flexible couplings are moulded or manufactured by vulcanization welding of rubber extruded section.

Tension bands are fixed on shear bands (SC or MSC couplings) by point welding or clinch.

The European technical approval is issued for the product on the basis of agreed data/information, deposited with CSTB, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to CSTB before the changes are introduced. CSTB will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

4.2. Installation

Components are delivered ready to use in an appropriate packaging.

The fitness of the flexible coupling for the intended use is given only if installed as describe in annex 4.

It is the responsibility of the ETA-holder to guarantee that the information about design and installation of this panels are easily accessible to the concerned people.

These information can be given using reproductions of the European Technical Approval. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction shells using one or several illustrations.

The minimal data required are:

- outside diameters of pipes to connect,
- maximum pressure in use,
- torque and tool to assembly,
- capacity of the flexible coupling to resist at a shear load.
- information about installation, preferably with an illustration.

All data shall be presented in a clear and explicit form.

Annex 1, 2, 3 et 4 indicate flexible coupling to choose, function of outside diameters.

For flexible coupling SC (or MSC) the choice of the thickness bushes shall be according to the following table :

	A bush is necessary if the difference between the external diameters is greater than :
① for $D_{ext.} \leq 120$ mm	10 mm
② for $300 \geq D_{ext.} > 120$ mm	12 mm
③ for $D_{ext.} > 300$ mm	15 mm

The bush is pushed on the lower outside diameter.

If the difference of external diameters is greater than these values it is necessary to install a bush on the lower outside diameter.

In case of flexible coupling AC (or MAC) the bush shall be choose to have the recommended range of use of the flexible coupling.

Le Directeur Technique
C. BALOCHE


Table 1 : Flexible couplings "AC" or "MAC" (type 1)

Outside diameter (mm)	Thickness under tension band (mm)	Width of tension band (mm)	Thickness of tension band (mm)
< 200	4,5	12	0,6
201 - 375	5,5		



Minimal values for dimensions of flexible couplings "AC" or "MAC"

Side A = Side little diameter Side B = Side great diameter

References AC (or MAC)	Range of using side A (mm)	Range of using side B (mm)	Width (mm)	Torque assembly (N.m)
1221	80-95	110-125	120	 6 N.m Tool :
1361	80-95	121-136	120	
5144	100-115	110-125	120	
1362	100-115	121-136	120	
5654	100-115	130-145	102	
5664	100-115	155-170	150	
5164	100-115	165-182	153	
0264	100-115	180-200	150	
4000	110-125	121-136	120	
1452	110-125	130-145	120	
1602	110-125	144-160	120	
1702	110-125	155-170	120	
1922	110-125	170-193	120	
2102	110-125	185-210	150	
2352	110-125	210-235	150	
1603	121-136	144-160	120	
1923	121-136	170-193	120	
2353	121-136	210-235	150	
1703	130-145	155-170	120	
2000	130-145	180-200	150	
2104	130-145	185-210	150	
5685	130-145	210-235	166	
1924	144-160	170-193	120	
2105	144-160	185-210	152	
2354	144-160	210-235	150	
2654	144-160	240-265	150	
5686	150-170	197-222	150	
0286	153-168	232-257	153	
2001	155-170	180-200	150	
56106	155-175	255-280	165	
6000	160-180	180-200	150	
2355	170-193	210-235	150	
2655	170-193	240-265	150	
0698	180-200	275-300	152	
2356	190-215	210-235	150	
2656	190-215	240-265	150	
56108	197-222	250-275	165	
2657	210-235	240-265	150	
5612	250-275	300-325	165	
0212	300-325	350-375	153	

Range of flexible couplings "SC" or "MSC"

Nota : the reference of the couplings made of NBR rubber is added by the letter "N"

Flexible couplings FLEX-SEAL Plus or CANADA Plus



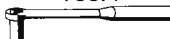
Dimensions

Annex 1
of European Technical Approval
ETA-09/0248

Tableau 2 : Flexible couplings "SC " or "MSC" (type 2B)

Outside diameter (mm)	Width (mm)	Thickness under tension band (mm)	Width of shear band (mm)	Thickness shear band (mm)	Width of tension band (mm)	Thickness of tension band (mm)
< 200	120	7,0	54	0,35	12	0,6
201 – 300	150	7,5	78	0,35	12	0,6
301 – 600	185	9,0	97	0,75	12	0,6

Minimal values for dimensions of flexible couplings type "SC" or "MSC"

Reference	Diameter Mini (mm)	Diameter Maxi (mm)	Width (mm)	Torque assembly
SC or MSC115	100	115	120	<p>6N.m Tool :</p> 
SC or MSC 120	105	120	120	
SC or MSC 137	120	137	120	
SC or MSC 150	130	150	120	
SC or MSC 162	137	162	120	
SC or MSC 175	150	175	120	
SC or MSC 180	165	180	150	
SC or MSC 190	165	190	150	
SC or MSC 200	175	200	150	<p>10N.m Tool :</p> 
SC or MSC 212	187	212	150	
SC or MSC 225	200	225	150	
SC or MSC 250	225	250	150	
SC or MSC 275	250	275	150	
SC or MSC 290	265	290	150	
SC or MSC 310	285	310	190	
SC or MSC 320	290	320	190	
SC or MSC 335	310	335	190	
SC or MSC 350	325	350	190	
SC or MSC 360	335	360	190	<p>13 N.m Tool :</p> 
SC or MSC 365	340	365	190	
SC or MSC 385	355	385	190	
SC or MSC 410	385	410	190	
SC or MSC 430	400	430	190	
SC or MSC 445	415	445	190	
SC or MSC 465	435	465	190	
SC or MSC 490	460	490	190	
SC or MSC 510	480	510	190	
SC or MSC 525	495	525	190	
SC or MSC 545	515	545	190	
SC or MSC 550	525	550	190	
SC or MSC 560	530	560	190	
SC or MSC 570	545	570	190	
SC or MSC 585	550	585	190	
SC or MSC 600	570	600	190	

Range of flexible couplings "SC" or "MSC"

Nota : the reference of the couplings made of NBR rubber is added by the letter "N"

Flexible couplings FLEX-SEAL Plus or CANADA Plus

Dimensions


Annex 2

of European Technical Approval
ETA-09/0248

Table 3 : Flexible couplings "DC" or "MDC" (Type 1)

Outside diameter (mm)	Width (mm)	Thickness under tension band (mm)	Width of tension band (mm)	Thickness of tension band (mm)
< 200	120	7,0	12	0,6
201 – 275	150	7,5	12	0,6

Minimal values for dimensions of flexible couplings type "DC" or "MDC"

Reference	Diameter Mini (mm)	Diameter Maxi (mm)	Width (mm)	Torque assembly
DC or MDC 115	100	115	102	6N.m Tool : 
DC or MDC 120	110	120	120	
DC or MDC 137	120	137	120	
DC or MDC 150	125	150	120	
DC or MDC 162	137	162	120	
DC or MDC 175	150	175	120	
DC or MDC 180	160	180	150	
DC or MDC 190	165	190	150	
DC or MDC 200	175	200	150	
DC or MDC 212	187	212	150	
DC or MDC 225	200	225	150	
DC or MDC 250	225	250	150	
DC or MDC 275	250	275	150	

Range of flexible couplings "DC" or "MDC"

Nota : the reference of the couplings made of NBR rubber is added by the letter "N"

Table 4 : dimensions for bushes « BC »

Reference BC	08-80	16-80	08-100	16-100	24-100	32-100	40-100	48-100
Thickness (mm)	8	16	8	16	24	32	40	48
Width (mm)	80	80	100	100	100	100	100	100
Intended use	AC & SC or MAC & MSC width < 190 mm		SC or MSC width ≥ 190 mm					

Nota : the reference of the bushes made of NBR rubber is added by the letter "N"

Flexible couplings FLEX-SEAL Plus or CANADA Plus

Dimensions

Annex 3
of European Technical Approval
ETA-09/0248

Tableau 7: Installation

Flexible couplings « SC » - « DC » or « MSC » - « MDC »

In all the cases, the coupling shall be in contact with the pipe on 4 cm on each side. In case of shearing, the distance between the 2 pipes should not exceed 2 cm



① Trace on the larger external diameter pipe a reference mark corresponding to half of the width of the coupling.

② Loosen fixings and slip the coupling on the larger external diameter pipe.

③ Align the 2 pipes and approach them nearest possible one to the other.

④ Slip the coupling to the reference mark and tighten all fixings until blocking (The recommended tightening torque is indicated on the label of the coupling).

Flexible couplings « SC » or « MSC » with « BC »

In all the cases, the coupling shall be in contact with the pipe on 4 cm on each side. In case of shearing, the distance between the 2 pipes should not exceed 2 cm.



① Loosen fixings and slip the coupling on the larger external diameter pipe.

② Slip the ring on the smaller external diameter pipe. The ring levels the edge of the pipe.

③ Align the 2 pipes and approach them nearest possible one to the other.

④ Slip the coupling on the bush until the coupling level the shoulder of the bush. Tighten fixings until blocking (the tightening torque recommended is indicated on the label of the coupling).

Flexible couplings « AC » or « MAC »

In all the cases, the coupling must be in contact with the pipe on 4 cm on each side.



① Loosen fixings.

② Slip the coupling on the smaller external diameter pipe.

③ Push the smaller external diameter pipe towards largest and push the larger diameter external pipe nearest possible of the internal shoulder to the coupling.

④ Tighten the fixations of the coupling until blocking. (The tightening torque recommended is indicated on the label of the coupling).

Complementary remarks :

-1 : In case of assembly "coupling+bush", according to the direction of the flow, it can be useful to block the bush in order to limit the risks of dismantling.

-2 : For any connection on concrete pipe, check before the surface quality of the pipe; if necessary make the surface clean, smooth and clear.

-3 : For any connection on corrugated pipe, place the clamp at the top of corrugation.

Flexible couplings FLEX-SEAL Plus or CANADA Plus

Installation

Annex 4

of European Technical Approval
ETA-09/0248