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TG 06 PDC FOR NON APPROVED PIPES

FIELD OF APPLICATION

PDC products are developed to be used together with Wavin products. In some occasions it might be needed to connect them to not yet approved Wavin pipes or non-Wavin products.

In this technical guidance some directions are given to determine if there is a chance that the PDC might fit with other (non-Wavin) pipes.

CONTENTS

- Products
- Procedure
- Pipes which fit with PDC
- Sizes of inserts
- Sizes of PDC set 2

PRODUCTS

PDC branch with 3 * set 2
PDC connector with 2 * set 2
PDC fork with 3 * set 2

PROCEDURE

PDC products are developed for selected range of Wavin pipes. In case a new Wavin pipe will be developed, also the PDC will be taken into account to be sure that the pipe will fit with the PDC.

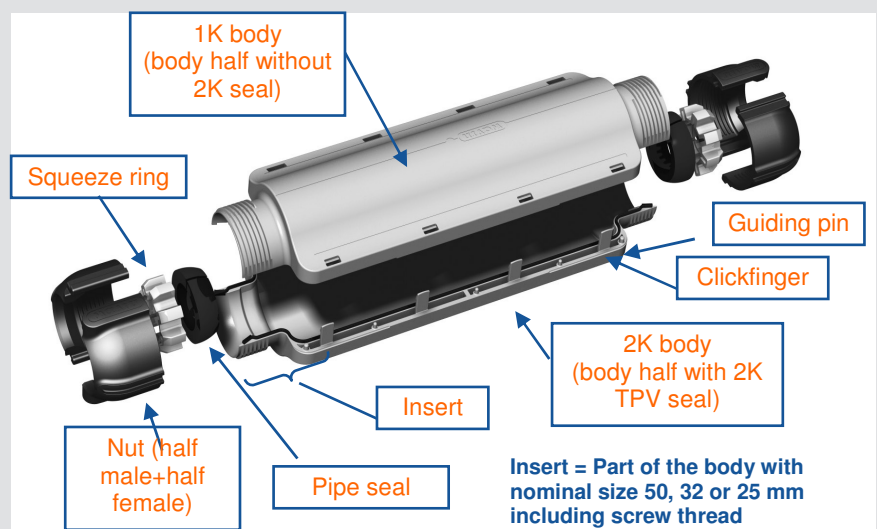
In case the PDC have to be combined with competition pipes, the approval for this should be given by Novotech. This TG can give you some guidelines to see if competition pipe will fit to the PDC.

For checking if a pipe fit the following points should be true:

- the product should have a round shape
- the ovality of the product should be less than 5 %
- the tolerances of the pipe should fit within the insert size (see table 2)
- the tolerances of the OD should fit within an existing set 2 diameter (as well in the sizes of the pipe seal as the sizes of the squeeze ring (see Table 3)
- the right fit should further be confirmed by a test at Wavin Novotech. For this 3 x 1 meter pipe sample is needed.

If the pipes doesn't fit, a development of a set 2 (squeeze ring + pipe seal) have to be done and should be requested by Wavin Novotech to Wavin T&I.

Wavin will only give a guarantee for the right application if Wavin pipes are used or pipes are approved by testing at Novotech.



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PIPES WHICH FIT WITH PDC

The PDC's are developed to be used with the following products.

*Table 1 : Wavin-Novotech pipes which fits with the PDC**

Product type	Dimensions
Optopipes	20, 25, 32, 40 and 50 mm fulfilling normal pipe tolerances
Microducts DB	Outer diameters 7, 8, 10, 12, 15, 16
Novospace	Outer diameters 25, 32, 40 and 50 mm
Novonet (4 mm)	3x4 / 7x4 / 14x4 / 19x4 / 24x4
Novonet (5 mm)	3x5 / 7x5 / 13x5 / 19x5 / 24x5
Novonet (7 mm)	3x7 / 7x7 / 13x7 / 19x7
Novonet (10 mm)	3x10 / 4x10 / 7x10 / 13x10
Novonet (12 mm)	3x12 / 7x12
Novonet (15 mm)	3x15 / 7x15

*other products to be checked by Novotech

SIZES OF INSERTS

The PDC's moulds have exchangeable inserts. Inserts of PDC connector / PDC branch and PDC fork are similar and have the nominal size 25, 32 or 50 mm.

Table 2 : Size range of the inserts of PDC couplers.

Nominal size insert	Min diam (mm)	Max diam (mm)	Ovality
25 mm	6,9	25,4	Max 5 %
32 mm	24,9	33,3	Max 5 %
50 mm	31,9	50,5 50,8	Max 5 % Max 2 %

Although the range of each insert is available, not for each pipe size within this range a squeezing / pipe seal combination (set 2) is available.

SIZES OF PDC SET 2 (SEAL RING / SQUEEZE RING)

The set 2 of the PDC is a plastic bag in the packaging containing a squeeze ring and a pipe seal.

Sets 2 are always delivered in combination with set 1 (body + nuts) and cannot be ordered separately. The article numbers in Table 3 only helps to identify the available sets.

You can see in Table 3 that there are 18 sets available and 2 sets contain the same squeeze ring (set 4034827 and 4034826).

Table 3 : Size range of the set 2 of PDC couplers.

Art.no. Novotech	Pipe dimension		Fit to pipe types	Seal ring code	Squeeze ring code
	Ø min	Ø max			
50 mm insert					
4034828	49,0	52,0	NN 13x10 NN 7x15 NS 50 Opto 50	52	A
4034827	43,0	45,5	NN 7x12	45,5	B
4034826	41,5	45,5	NN 19x7	44,5	B
4034825	38,3	41,5	NN 3x15 NN 13x7 NS 40 Opto 40	41,5	C
4034824	37,0	40,0	NN 24x5 NN 7x10	40	D
4034823	32,0	35,0	NN19 x5 NN 13x5	32 - 35	E
32 mm insert					
4034822	31,0	33,5	NN 3x12 NS 32 Opto 32	33,5	F
4034821	29,5	31,5	NN 24x4	31,5	G
4034820	26,5	29,0	NN 13x4 NN 7x7 NN 3x10	29	H
4034819	25,0	27,0	NN 19x4	27	I
25 mm insert					
4034818	24,5	25,5	NS 25 Opto 25	25	J
4034817	21,0	23,5	NN 7x5	23	K
4034816	19,5	21,5	NN 3x7 Opto 20	21,5	L
4034815	15,5	17,6	NN 3x5 NN 7x4 NMDB 16 Opto 16	17,5	M
4034814	14,5	15,1	NMDB 15	15	N
4034813	11,8	14,0	NN 3x4 NMDB 12	14	O
4034812	9,8	10,2	NMDB 10	10	P
4034811	6,8	8,0	NMDB 7 NMDB 8	8	Q

NN=Novonet; NS=Novospace; NMDB=Novomicro DB; Opto = optopipe.

Table 4 : Available bodies.

Branch off

Art.no. Novotech	In [mm]	Out [mm]	Branch [mm]	Minimum order quantity
4034797	25	25	25	1 box
4034798	32	32	25	1 box
4034799	50	50	25	1 box
4034800	50	50	32	1 box

Connector

Art.no. Novotech	In [mm]	Out [mm]]	Minimum order quantity
4034792	25	25		1 box
4034793	32	32		1 box
4034794	50	50		1 box
4034795	25	32		1 pallet
4034796	32	50		1 pallet

Fork

Art.no. Novotech	In [mm]	Out/1 [mm]	Out/2 [mm]	Minimum order quantity
4034801	32	25	25	1 box
4034802	32	32	25	1 pallet
4034803	32	32	32	1 pallet
4034804	32	50	32	1 pallet
4034805	50	25	25	1 pallet
4034806	50	32	25	1 pallet
4034807	50	32	32	1 box
4034808	50	50	25	1 pallet
4034809	50	50	32	1 pallet
4034810	50	50	50	1 box

Table 5 : Number per packing unit.

Article type	No of units per box	No of units per pallet
Branch	8	128
Connector	8	128
Fork	4	64

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PDC FORK

PRODUCT DESCRIPTION

This product is a **P**rotective **D**uct **C**losure (PDC) Fork for telecom applications. Specific to connect multiple or single protective micro ducts.

The product can be used with Wavin's standard Novonet, Novospace and Novomicro DB products. Also with protective pipes fulfilling EN 50086-2-4 (or NF 330, or EN 14281) with respect to dimensions. The pipe seal-squeeze ring combinations are specially designed to safeguard the water tightness with these products. The size of the nut relates to the chosen duct product.



APPLICATION AREA

The PDC Fork will be used to split a multiple duct into two (different) multiple duct systems. The application is typical for the feeder or the distribution part of the network. The PDC Fork can be used in a Direct Buried or in a Direct Installed situation (manhole).

Application temperatures: as from -15 °C.

PRODUCT FEATURES

Splittable (body, nuts, squeeze ring + pipe seals)

- Suitable for pipes with diameters up to 50 mm
- Body provides enough space for connecting microducts with microduct fittings.
- Attractive industrial design appearance
- Water tight
- Resistance to tensile forces used in the field
- Suitable for low temperature installation
- Easy installation, without tools
- Small number of components

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PRODUCT COMPONENTS

Part	Description	No of parts
A.	Body half	2
B.	Set of nut halves	3
C.	Pipe seal ring	3
D.	Squeeze ring	3
E.	Connection clamps	10



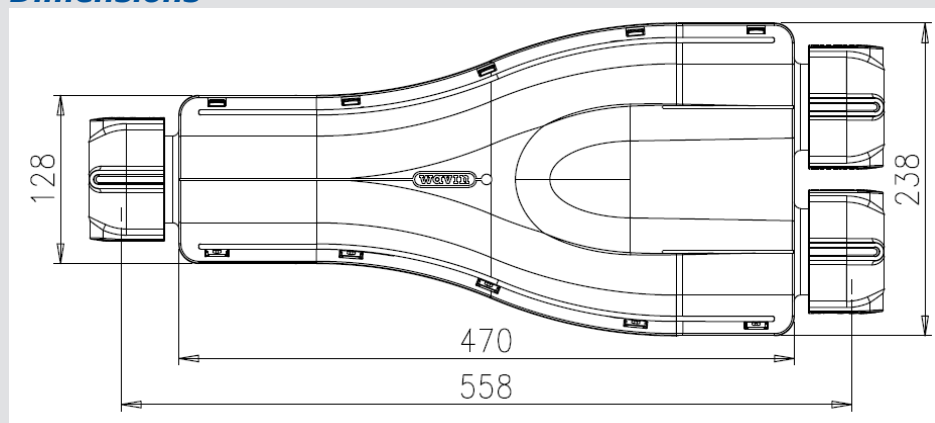
Different seal ring and squeeze ring sets sizes will be supplied with the product depending on the pipe to be installed. Herewith also Novonet pipes can be connected.

PRODUCT SPECIFICATIONS

Material

Body	: PP
2K seal	: TPE-V
Nuts	: PP
Squeeze ring	: POM
Pipe seal ring	: EPDM
Pipe stop	: PE

Dimensions



Colour

Body	: Light industrial blue (NCS : 2020 R90B)
Nuts	: Dark blue (NCS : 6020 R90B)

PRODUCT PERFORMANCE

Pull out force

>1500 N at test speed of 25 mm/min or at least stronger than the pipe installed.

Loading tests

Showed no leakage when the installed body is tested after it is loaded with 100 kg.



Loading test
Pull out test

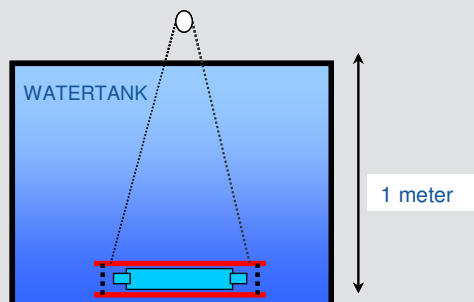


Impact resistance

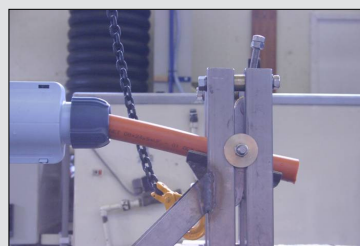
- No failure when dropped as delivered in plastic bag from 1 m height (-10 °C).
- No failure at 1 J impact test (1 kg load at 1 m with product on flat surface).

Water tightness

- IP 68 (pipe bended with 9 ° and test with 5% ovality).



IP 68 test

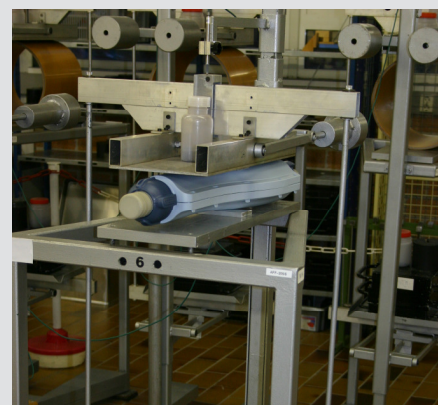


9° bending

- Body deformation test at 5 % showed no leakage in water tightness test.



Body deformation test



Durability

50 years life time expectancy through material testing.

Creep test

Tightness after deformation

Closing force

140 N, can be done by hand, no tools needed.

PACKAGING AND LABELLING***Packaging***

The carton box carries a label with a bar code, product drawing, product name and traceability number and contains:

- 4 plastic bags with a complete product
- Installation data sheet.

Labelling

The plastic bag carries a label with a bar code, product drawing, product name and traceability number and contains:

- 2 body halves
- 3 sets of nut halves
- 3 plastic bags with the pipe seal - squeeze ring sets.
- 10 connection clamps

The bag with a pipe seal - squeeze ring sets is labelled with a list of connectable ducts.

Service packs

Loose sets of nut halves and pipe seal - squeeze ring sets are available on request.

SAFETY ASPECTS

In case of overpressure in the PDC the two body halves will release the pressure via the TPV seal at 0,3 Bar.

INSTALLATION

For installation method we refer to our Installation Data Sheet (IDS05) for this product and available in every box.

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PDC CONNECTOR

PRODUCT DESCRIPTION

This product is a **P**rotective **D**uct **C**losure (PDC) Connector for telecom applications. Specific to connect multiple or single protective micro ducts.

The product can be used with Wavin's standard Novonet, Novospace and Novomicro DB products. Also with protective pipes fulfilling EN 50086-2-4 (or NF 330, or EN 14281) with respect to dimensions. The pipe seal-squeeze ring combinations are specially designed to safeguard the water tightness with these products. The size of the nut relates to the chosen duct product.



APPLICATION AREA

The PDC Connector will be used to connect micro ducts from a multiple duct system. The application is typical for the feeder or the distribution part of the network and can be used as a repair coupler in the total system. The PDC Branch can be used in a Direct Buried or in a Direct Installed situation (manhole).

Application temperatures: as from -15 °C.

PRODUCT FEATURES

Splittable (body, nuts, squeeze ring + pipe seals)

- Suitable for pipes with diameters up to 50 mm
- Body provides enough space for connecting microducts with microduct fittings.
- Attractive industrial design appearance
- Water tight
- Resistance to tensile forces used in the field
- Suitable for low temperature installation
- Easy installation, without tools
- Small number of components



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PRODUCT COMPONENTS

Part	Description	No of parts
A.	Body half	2
B.	Set of nut halves	2
C.	Pipe seal ring	2
D.	Squeeze ring	2
E.	Connection clamps	8

Different seal ring and squeeze ring sets sizes will be supplied with the product depending on the pipe to be installed. Herewith also Novonet pipes can be connected.

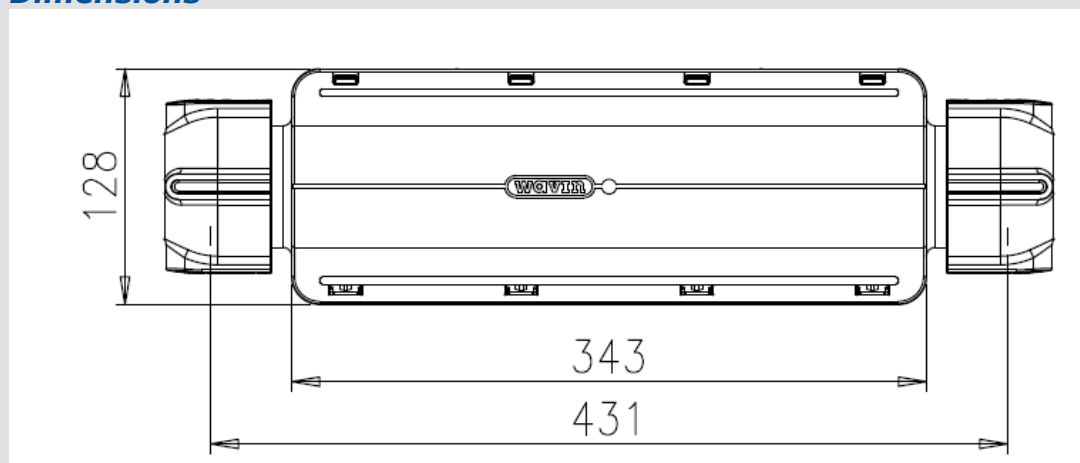


PRODUCT SPECIFICATIONS

Material

Body	: PP
2K seal	: TPE-V
Nuts	: PP
Squeeze ring	: POM
Pipe seal ring	: EPDM
Pipe stop	: PE

Dimensions



Colour

Body	: Light industrial blue (NCS : 2020 R90B)
Nuts	: Dark blue (NCS : 6020 R90B)

PRODUCT PERFORMANCE

Pull out force

>1500 N at test speed of 25 mm/min or at least stronger than the pipe installed.

Loading tests

Showed no leakage when the installed body is tested after it is loaded with 100 kg.



Loading test



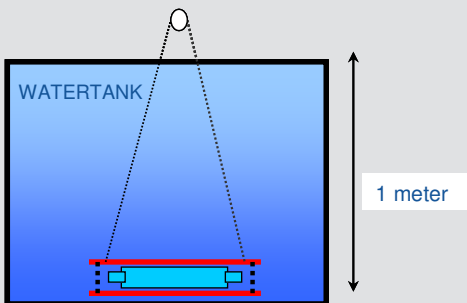
Pull out test

Impact resistance

- No failure when dropped as delivered in plastic bag from 1 m height (-10 °C).
- No failure at 1 J impact test (1 kg load at 1 m with product on flat surface).

Water tightness

- IP 68 (pipe bended with 9 ° and test with 5% ovality).



IP 68 test

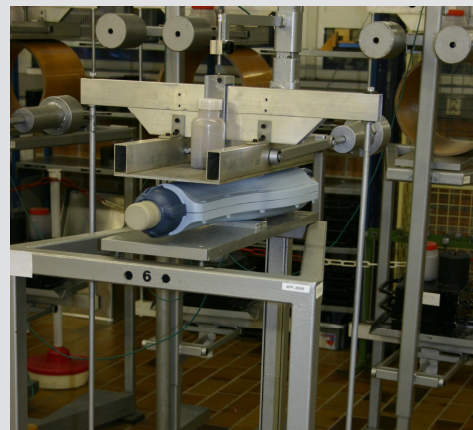


9° bending

- Body deformation test at 5 % showed no leakage in water tightness test.



Body deformation test



Durability

50 years life time expectancy through material testing.

Creep test

Tightness after deformation

Closing force

140 N, can be done by hand, no tools needed.

PACKAGING AND LABELLING***Packaging***

The carton box carries a label with a bar code, product drawing, product name and traceability number and contains:

- 8 plastic bags with a complete product
- Installation data sheet

Labelling

The plastic bag carries a label with a bar code, product drawing, product name and traceability number and contains:

- 2 body halves
- 3 sets of nut halves
- 3 plastic bags with the pipe seal - squeeze ring sets.
- 8 connection clamps

The bag with a pipe seal - squeeze ring sets is labelled with a list of connectable ducts.

Service packs

Loose sets of nut halves and pipe seal - squeeze ring sets are available on request.

SAFETY ASPECTS

In case of overpressure in the PDC the two body halves will release the pressure via the TPV seal at 0,3 Bar.

INSTALLATION

For installation method we refer to our Installation Data Sheet (IDS05) for this product available in every box.



PDC BRANCH

PRODUCT DESCRIPTION

This product is a **P**rotective **D**uct **C**losure (PDC) Branch for telecom applications. Specific to branch off multiple or single protective micro ducts.

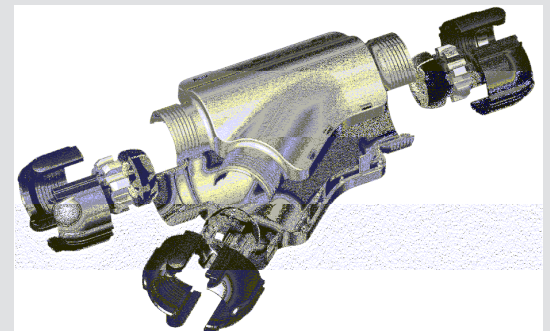
The product can be used with Wavin's standard Novonet, Novospace and Novomicro DB products. Also with protective pipes fulfilling EN 50086-2-4 (or NF 330, or EN 14281) with respect to dimensions. The pipe seal-squeeze ring combinations are specially designed to safeguard the water tightness with these products. The size of the nut relates to the chosen duct product.



APPLICATION AREA

The PDC Branch will be used to branch off a small amount of micro ducts from a multiple duct system. The branch can be a multi duct or a single (micro) duct. The application is typical for the feeder or the distribution part of the network. The PDC Branch can be used in a Direct Buried or in a Direct Installed situation (manhole).

Application temperatures: as from -15 °C.



PRODUCT FEATURES

- Splittable (body, nuts, squeeze ring + pipe seals)
- Suitable for pipes with diameters up to 50 mm
- Body provides enough space for connecting microducts with microduct fittings.
- Attractive industrial design appearance
- Water tight
- Resistance to tensile forces used in the field
- Suitable for low temperature installation
- Easy installation, without tools
- Small number of components

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PRODUCT COMPONENTS

Part	Description	No of parts
A.	Body half	2
B.	Set of nut halves	3
C.	Pipe seal ring	3
D.	Squeeze ring	3
E.	Connection clamp	6

Different seal ring and squeeze ring sets sizes will be supplied with the product depending on the pipe to be installed. Herewith also Novonet pipes can be connected.



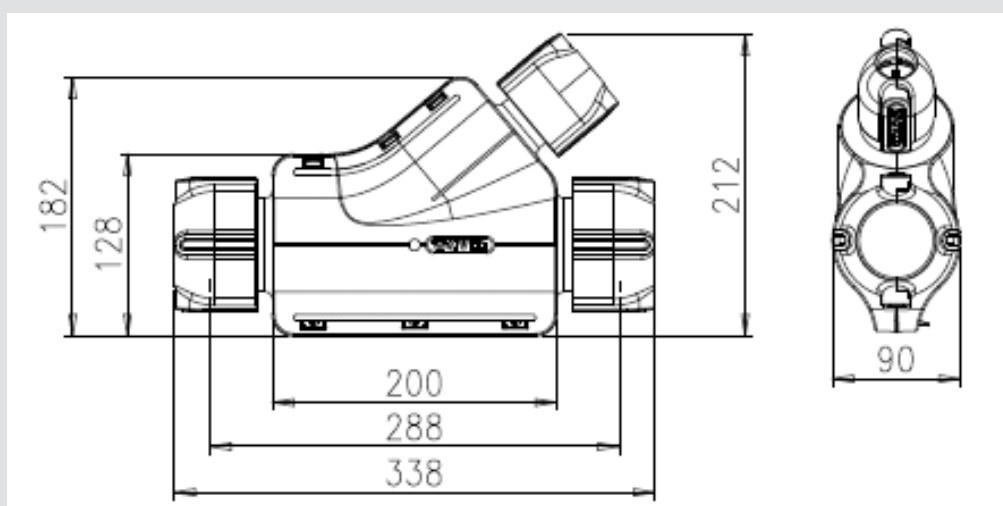
Squeeze and seal rings

PRODUCT SPECIFICATIONS

Material

Body	: PP
2K seal	: TPE-V
Nuts	: PP
Squeeze ring	: POM
Pipe seal ring	: EPDM
Pipe stop	: PE

Dimension



Colour

Body	: Light industrial blue (NCS : 2020 R90B)
Nuts	: Dark blue (NCS : 6020 R90B)

PRODUCT PERFORMANCE

Pull out force

>1500 N at test speed of 25 mm/min or at least stronger than the pipe installed.

Loading tests

Showed no leakage when the installed body is tested after it is loaded with 100 kg.



Loading test

Pull out test

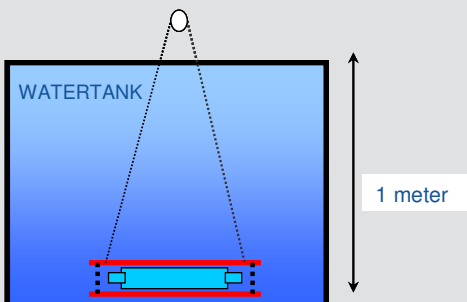


Impact resistance

- No failure when dropped as delivered in plastic bag from 1 m height (-10 °C).
- No failure at 1 J impact test (1 kg load at 1 m with product on flat surface).

Water tightness

- IP 68 (pipe bended with 9 ° and test with 5% ovality).



IP 68 test



9° bending

- Body deformation test at 5 % showed no leakage in water tightness test.



Body deformation test



Durability

50 years life time expectancy through material testing.

Creep test

Tightness after deformation

Closing force

140 N, can be done by hand, no tools needed.

PACKAGING AND LABELLING***Packaging***

The carton box carries a label with a bar code, product drawing, product name and traceability number and contains:

- 8 plastic bags with a complete product
- Installation data sheet

Labelling

The plastic bag carries a label with a bar code, product drawing, product name and traceability number and contains:

- 2 body halves
- 3 sets of nut halves
- 3 plastic bags with the pipe seal - squeeze ring sets.
- 6 connection clamps

The bag with a pipe seal - squeeze ring sets is labelled with a list of connectable ducts.

Service packs

Loose sets of nut halves and pipe seal - squeeze ring sets are available on request.

SAFETY ASPECTS

In case of overpressure in the PDC the two body halves will release the pressure via the TPV seal at 0,3 Bar.

INSTALLATION

For installation method we refer to our Installation Data Sheet (IDS05) for this product I available in every box.