

SECON[®]-X

Pipe system for petrol stations

Double wall flexible fill pipe for automotive fuels in petrol station construction

System advantages

- flexible, double walled
- impermeable and safe from corrosion
- fast and simple to install
- environmentally safe
- the most cost effective metallic pipe

General Description

SECON[®]-X has been specially developed as a coaxial pipe for underground service in petrol stations. Fast and easy installation without welding, early completion and minimal downtime on retrofits are only some of the major advantages of SECON[®]-X.

Construction

SECON[®]-X is a flexible pipe system with a stainless steel primary pipe capable of being tested and even monitored for leaks. The SECON[®]-X double wall pipe system consists of a helically convoluted stainless steel primary pipe, and a polyethylene secondary containment casing pipe. Helical channels are formed by the geometry of the primary pipe around the circumference, aided by longitudinal channels in the secondary pipe. Both extend over the entire length of the pipe. These longitudinal channels between the carrier and casing pipe provide the necessary annular gap for the safe and contained flow of leaking product along and within the coaxial pipe.

The stainless steel primary pipe of SECON[®]-X is not only safe from corrosion but is also a permeation proof barrier. It is also capable of handling the future generation of automotive fuels. Being made of corrosion proof materials SECON[®]-X does not need any additional cathodic protection.

Fields of application

SECON[®]-X pipes, subject to compliance with local and national requirements, are designed for use as:

- Suction pipes
- Pressure pipes
- Fill pipes



Sizes and Pressure ratings

Available sizes: DN (nom. bore) 40 (1 1/2"), 50 (2") and 100 (4")

Max. operating pressure: + 10.0 bar (145 PSIG) or any pressure below atmospheric pressure.

Connection method

For connectors see data sheet No. 5.01.16 to 5.01.20.

A special graphite ring is used to seal between the corrugated (primary) pipe and the connector.

The connector can be supplied with:

- Weld neck
- Thread
- Loose flange or split flange

The seal between the secondary PE pipe and the connector is achieved with a boot.

Installation

SECON[®]-X is available ex works coiled in lengths of up to 150 m (500 ft). The convoluted primary pipe gives this pipe extraordinary good bendability for ease of installation. SECON[®]-X can easily be cut to the required lengths on site and – where necessary – bent at very tight radii. Unlike with plastic piping there is virtually no spring back once bent. A feature that makes the contractors job a lot easier and quicker. It also saves money.



Fig. 1: SECON®-X connection:
Non-weld, flared end, ending with round or oval collar flanges. Threaded male adaptors also available.

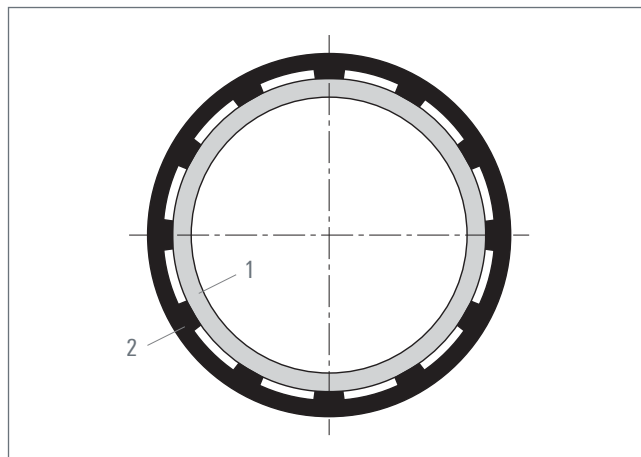


Fig. 2: SECON®-X construction:
1 convoluted stainless steel primary pipe
2 internally fluted PE-LD jacket

Physical properties of SECON®-X pipes

Type designation:		SEC 40	SEC 50	SEC 100
material:	<ul style="list-style-type: none"> primary pipe: stainless steel EN 1.4571 secondary pipe: PE-LD 	•	•	•
max. operating pressure for:	• all connector types	+ 10,0 bar / 145 PSI	+ 10,0 bar / 145 PSI	+ 10,0 bar / 145 PSI
nominal bore*:		DN 40 / 1 1/2"	DN 50 / 2"	DN 100 / 4"
dimensions:	<ul style="list-style-type: none"> internal diameter external diameter volume primary pipe (litres/lin. m) 	48 mm 63 mm 2,00	60 mm 75 mm 3,00	98 mm 121 mm 8,40
mean bending radius:		300 mm	400 mm	800 mm
weight:	(kg/lin. m)	1,6	2,1	4,7
available type of connectors:	<ul style="list-style-type: none"> weld neck threaded loose flange or split flange 	• • •	• • •	not available not available •
Recommendation for use:	<ul style="list-style-type: none"> suction line pressure pipe gravity fill pipe 	• •	• •	• •

* sizing in accordance with actual heads loss computations for gaseous or liquid gasoline

All technical data subject to change.



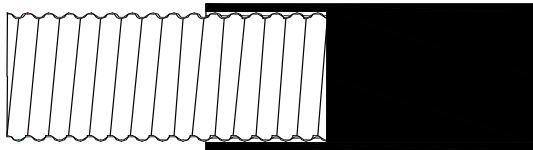
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Systems description

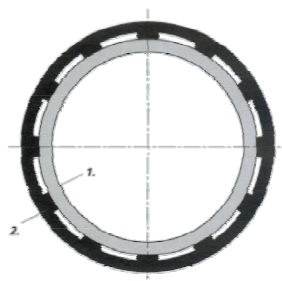
SECON[®]-X is a flexible, double-wall composite piping system with a stainless steel primary pipe and a ribbed secondary pipe made of PE. This pipe system was specially developed for underground fuel lines in petrol/gas stations.



- Flexible, double-wall
- Impermeable and corrosion resistant
- Quick and easy installation

Pipe Construction

The flexible composite pipe consists of a corrugated primary pipe made of stainless steel No. 1.4404 (equivalent to AISI TP 316 L). This pipe is encased by a PE pipe with ribs that dovetail the corrugations of the inner pipe. The combination of the helical corrugation of the inner pipe and the ribs of the outer pipe forms an interstitial space over the entire length of the pipe which prevent the leakage of fuel to the outside in the event of a pipe rupture, thus preventing contamination. This interstitial space can also be used for pressure testing or for leak detection. SECON[®]-X Pipe is also suitable for next generation fuels with a high methanol content and further additives. Since SECON[®]-X is made of corrosion-resistant materials, no additional cathodic corrosion protection is needed.



1. Corrugated stainless steel inner pipe
2. PE ribbed outer pipe

Range of Applications

- Transport pipes operated under pressure
- Transport pipes operated under vacuum
- Fill pipes
- Venting, vapor recovery and vapor compensation pipes

Nominal Diameters and Pressures

SECON-X[®] is available in nominal IDs 40 mm (1 5/8"), 50 mm (2") and 100 mm (4").

Maximum allowable operating pressure is 10 bar. Suction operation can be at any vacuum.

Connections

The ends of the SECON-X[®] pipes are connected on site. This is accomplished without welding or hard-soldering. The connection is simply pressed onto the corrugated pipe end with easy to use tools. There is a choice of a two-piece collar with a loose flange, a threaded connection or a welded connection. An elastomer collar with a test nipple is available for monitoring the interstitial space with a leak detector.

Accessories

- Pipe entry boots
- T-pieces
- Leak detectors
- Other accessories are under development

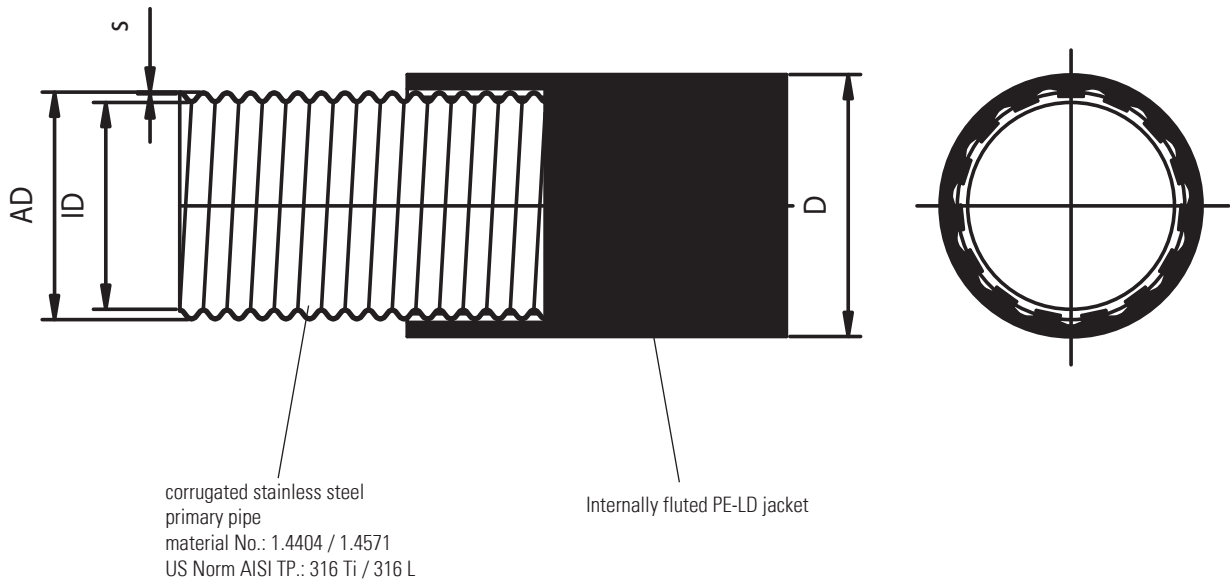
Pipe Installation

SECON-X[®] piping is manufactured in standard lengths of 500 m to up to 1000 m. The specific lengths for a specific project are delivered to the site on reels or in coils. They can be pulled and laid directly into the prepared trench. They can also be cut to length on site and, where necessary, installed around obstacles using extremely narrow bending radii. This leads to very fast and simple pipe installation.

Type-Testing, and Approvals

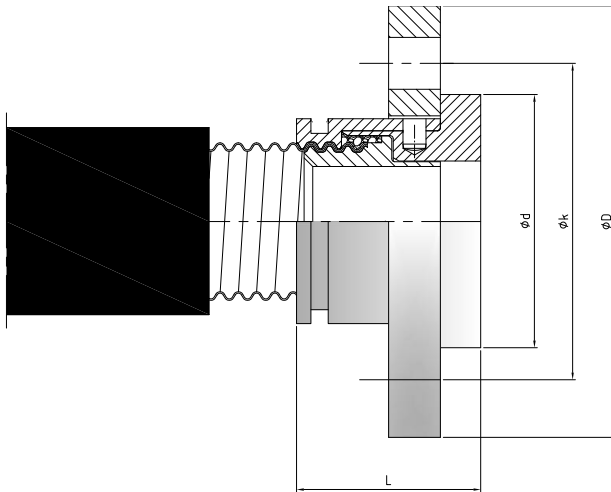
The SECON-X[®] Pipe is approved according to the IP Specification and the European standard EN 14125 "Underground Piping for Petrol Stations". Also ERA-Technology and KIWA approvals have been granted.

Typ: SECON®-X

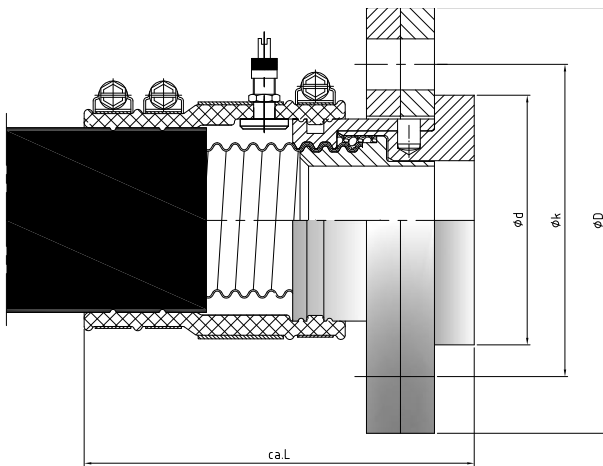


Type	DN	ND	Dimensions				Bending Radius	Weight	Volume	Article No.
			ND mm inch	AD mm inch	s mm inch	D mm inch				
SEC 40	40	1,5	48 1.890	54 2.126	0.5 0.020	65 2.559	36 14.2	1.7 1.1	2.0 37	700 203 91
SEC 50	50	2	60 2.362	66 2.598	0.5 0.020	77 3.031	40 15.7	2.1 1.4	3.0 56	700 204 91
SEC 100	100	4	98 2.589	109 4.291	0.8 0.031	124 4.882	80 31.5	4.5 3.0	8.4 156	700 206 91

* bending template or bending device required



End connector with loose flange



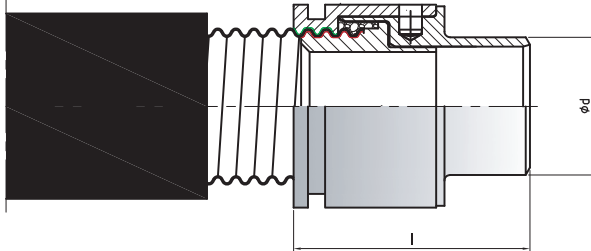
End connector with split flange acc. to DIN 2656
and termination boot (see worksheet 5.01.18)



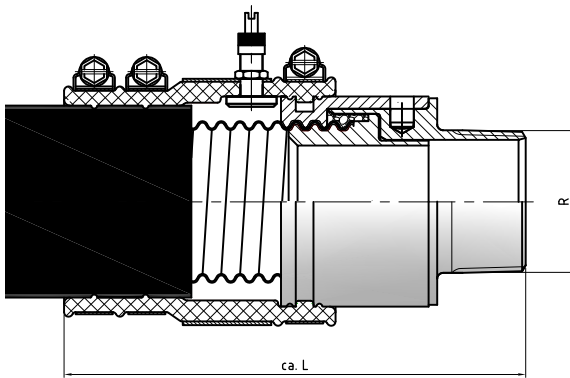
- Subject to technical alterations -

End connector set

Type	DN mm	ND inch	D mm inch	d mm inch	K mm inch	I mm inch	L mm inch	End connector with loose flange	End connector with split flange
								Article No.	Article No.
SEC 40	40	1,5	150 5.901	88 3.465	110 4.331	64 2.520	140 5.512	701 103 02	701 103 03
SEC 50	50	2	165 6.496	102 4.016	125 4.921	67 2.638	140 5.512	701 104 02	701 104 03
SEC 100	100	4	220 8.661	158 6.220	180 7.086	91 3.582	190 7.480	-	701 105 05



End connector with welding neck



End connector with BSP male thread
and termination boot (see worksheet 5.01.18)

End connector set

Type	BSP Thread R inch	Welding neck d/mm inch	L mm inch	l mm inch	Article No. Screw thread	Article No. Welding neck
SEC 40	R 1.5	48.3 1.902	160 6.299	83 3.268	701 103 01	no request
SEC 50	R 2	60.3 2.374	160 6.299	89 3.504	701 104 01	no request
SEC 100	R3	88.9 3.5	217 8.543	122 4.803	701 303 06	no request
SEC 100	R4	114.3 4.5	227 8.937	128 5.039	no request	no request

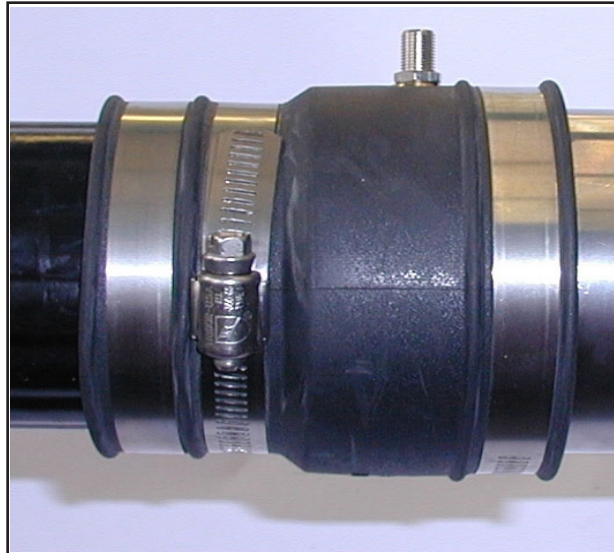
SECON - X

Pipe End Connector and Interstitial
Space Termination
Boot for Leak Detection

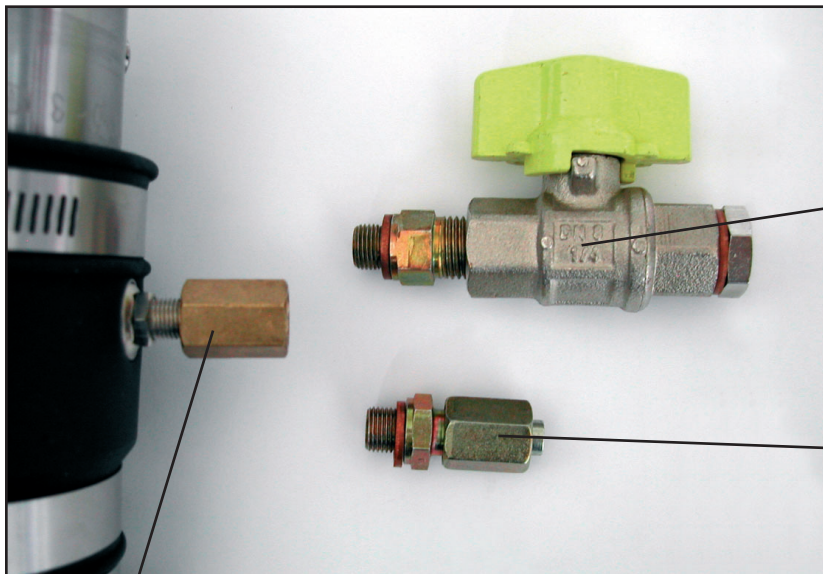
SEC

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End connector termination boot



Adaptor Art.-No. 989 905 10

Check Valve
Art.-No. 829 44 893

Measuring branch
Art.-No. 829 334 00

- Subject to technical alterations -

Type	max. diameter mm inch	Article No.
SEC 40	85 3.315	989 488 00
SEC 50	98 3.846	989 488 01
SEC 100	163 6.417	989 487 07