# fitt sewer
# fitt sewer evo

## Environmental Product Declaration

**In accordance with**
**ISO 14025 and EN 15804:2012+A2:2019**

EPD®

ECO PLATFORM EPD VERIFIED

**CPC Code:** 36320

**Date of publication:** 2021-11-10

**Date of validity:** 2026-10-25

**Revision:** rev. 1, 2022-01-13

**Registration number:** S-P-04909

**Programme:**
The International EPD® System,
**www.environdec.com**

**Programme operator:**
EPD International AB

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**www.environdec.com**

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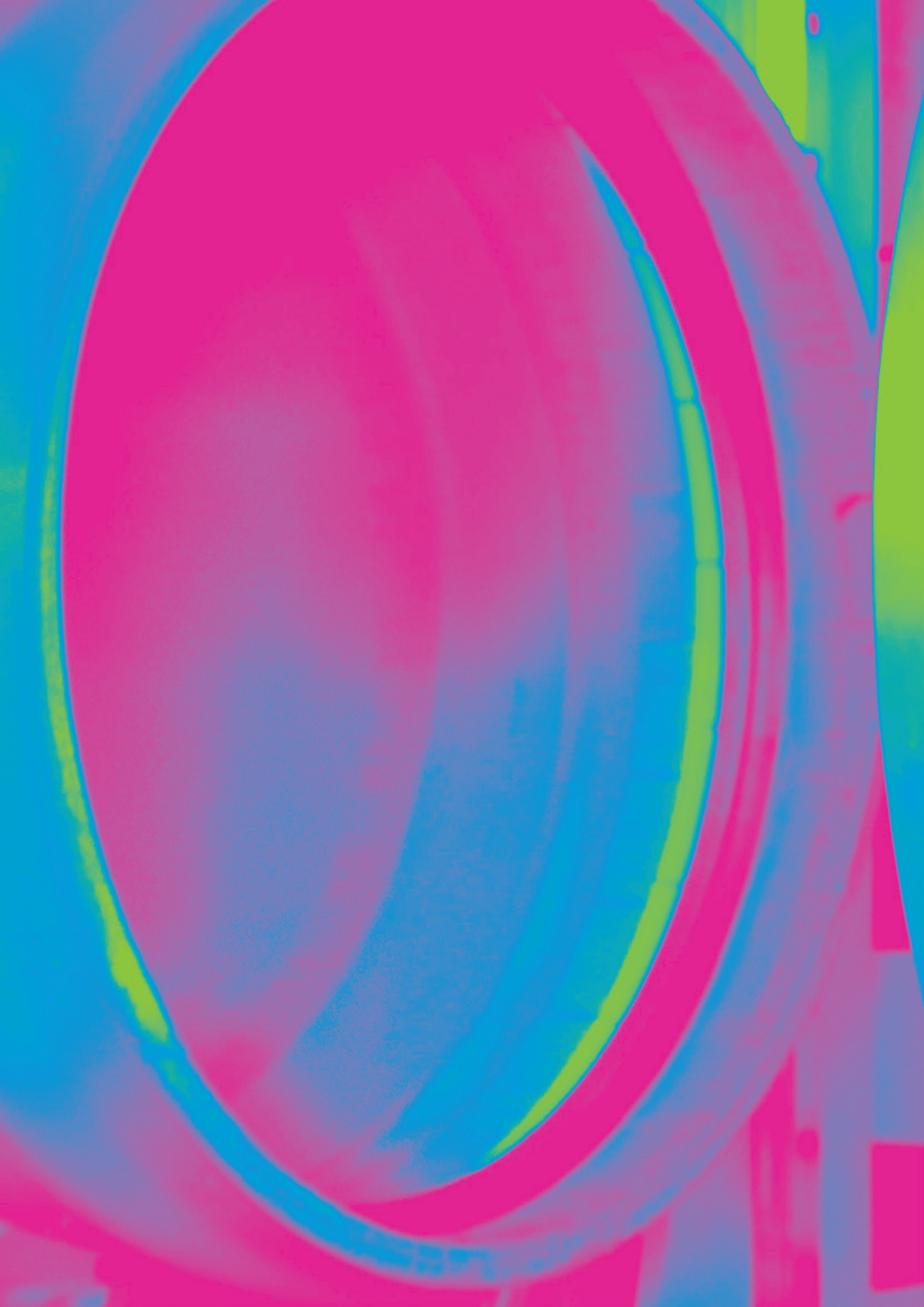
**FITT INFRASTRUCTURE SOLUTIONS**



# fitt sewer
# fitt sewer evo

**Environmental Product Declaration**

EPD®

# contents



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# 1. programme information

An Environmental Product Declaration, or EPD®, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules). Environmental product declarations within the same product category from different programmes may not be comparable. EPD® of construction products may not be comparable if they do not comply with EN 15804. This version of the EPD® has been updated to clarify which pipe dimensions the installation results refer to.

| | |
|---|---|
| **Programme** | The International EPD® System<br>EPD® International AB, Box 210 60<br>SE-100 31 Stockholm - Sweden<br>www.environdec.com / info@environdec.com |
| **Product category rules (PCR):** | PCR 2019:14 Construction Products (v1.11), CPC 36320 |
| **PCR review was conducted by:** | The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact. |
| **Independent third-party verification of the declaration and data, according to: ISO 14025:2006:** | EPD® process certification ☐<br>EPD® verification ☑ |
| **Third party verifier:** | SGS Italia S.p.A. via Caldera, 21, 20153 – Milano<br>T +39 02 73 931 - F +39 02 70 12 46 30 / www.it.sgs.com |
| **In case of accredited certification bodies:** | |
| **Accredited by:** | Accredia, certification n.006H |
| **In case of recognised individual verifiers:** | |
| **Approved by:** | The International EPD® System |
| **Procedure for follow-up of data during EPD® validity involves third party verifier:** | Yes ☑<br>No ☐ |

The EPD® owner has the sole ownership, liability, and responsibility for the EPD®.

# 2. company information

FITT is an international leader and a company specialised in the creation of complete fluid transfer systems made of thermoplastic materials, both for the industrial and the building sectors – at infrastructural and civil engineering level – and also for the home, gardening and hobby markets.

Established in 1969, for 50 years FITT has been developing technologically advanced solutions that offer reliability, safety, extremely high performance levels and ease of use. With headquarters in Sandrigo (Vicenza), FITT exports to 87 countries, has a total staff of 950 employees, 9 production sites (5 in Italy and 4 in other countries), 13 logistic sites all over the world and 5 subsidiaries. In 2020 FITT had a turnover of 233 M Euros.

**Export**
Export countries
87

**Production plants**
5 in Italy, 3 in France
and 1 in Poland
9

**Logistic centres**
6 in Italy, 3 in France,
1 in Spain, 1 in China,
1 in Poland and 1 in USA
13

**Commercial branches**
1 in France, 1 in Monaco,
1 in Spain, 1 in China
and 1 in USA
5

**Technological partner**
In Japan
1

Owner of the EPD: **FITT S.p.A.**
Contact: Francesco Negrin, francesco.negrin@fitt.com
Technical support: Department of Industrial Engineering, University of Padua
Name and location of the production site:
FITT S.p.A., Fara Vicentino (Italy)

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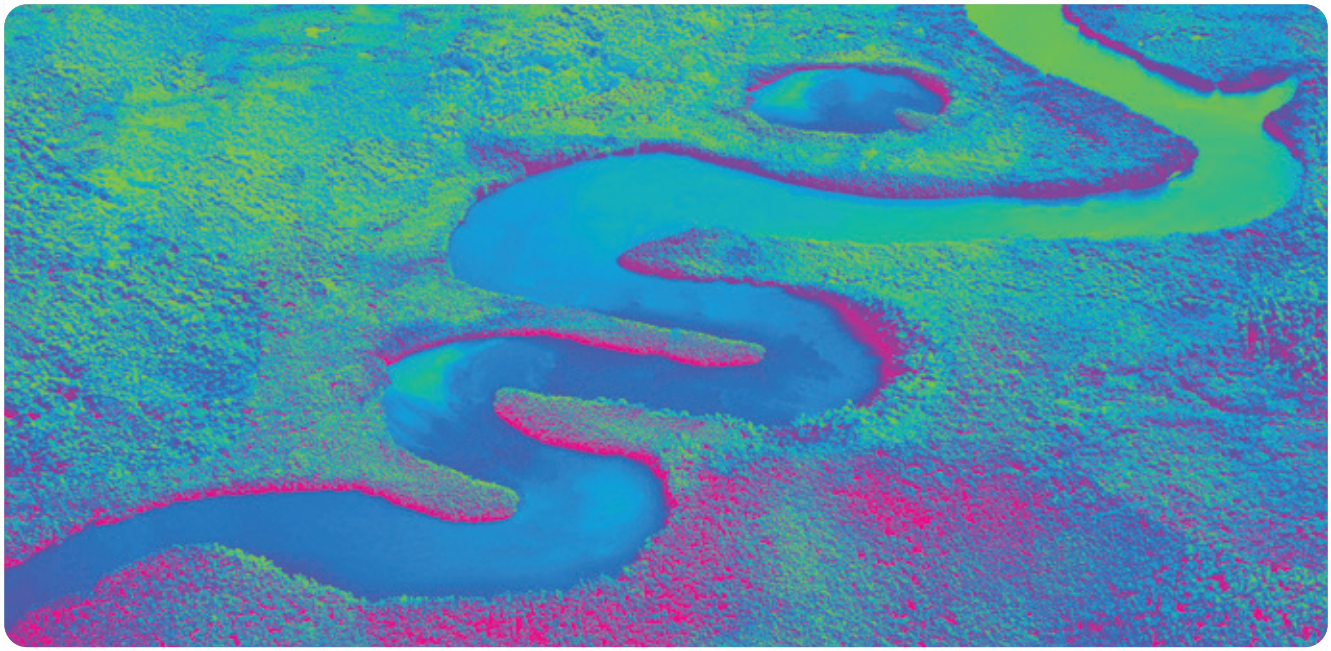
## 2.1 / TALES OF CONTINUOUS INNOVATION

FITT is the creator of technologies that have revolutionised the markets in which it operates: a digital Concept Lab, fully dedicated to the development of new products and process technologies, is supported by the continuous and consistent innovation capabilities of the company. Open innovation and the collaboration with a network of international partners and research bodies, allows FITT to be always up to date with the latest generation materials, the most recent technologies and current regulations. External certifying bodies validate protocols and quality tests.

## 2.2 / ENVIRONMENTAL SUSTAINABILITY, A STRATEGIC DRIVER

For FITT, environmental sustainability is the result of a balance among respect for the environment and people, social advancement and industrial development, with the aim of creating advantageous conditions for all the stakeholders, and of granting the same rights to future generations.
According to these principles FITT has made several efforts in the design of its products by considering the destination of the products after the end of their useful life in terms of recycling and final reuse, the re-use of PVC scraps within its facilities, as well as the reduction of the quantity of materials used guaranteeing the same final product performances (e.g. in the case of PVC-U, -25% compared to a standard PVC-U product realized according to ISO 1452-2:2009), both for the products themselves and their packaging, the reduction of the energy consumed in its production facilities.



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# 3. product information

### 3.1 / FITT SEWER EVO

Fitt Sewer EVO is a range of PVC-U pipes in accordance with UNI EN 1401-1:2019 standard for sewage and non-pressure industrial drains. FITT Sewer EVO differs from the FITT Sewer pipes in that they have an integrated and non-removable jointing system which guarantees a perfect watertight seal and protects the surrounding environment from any dispersion of pollutants into the subsoil and groundwater. Instead, FITT Sewer pipes have an accompanying non-integrated EPDM rubber gasket.
Sewer networks for the collection and conveyance of waste water are of considerable importance in modern society, as they contribute significantly to the protection of the environment.
In view of the stresses to which they are subjected and their underground installation, these systems must be built using high-quality products.
UNI EN 1401-1:2019 PVC pipes have proven their reliability over the years.
FITT has decided to further increase the quality of its product by improving the jointing system, to ensure perfect hydraulic tightness and therefore protect the surrounding environment from possible dispersions of pollutants in the underground and the aquifers.
The FITT Sewer EVO pipes meeting the UNI EN 1401-1:2019 standard are produced with the exclusive Sewer Lock®, a socket based jointing system with integrated non-removable gasket, developed in collaboration with Trelleborg Forsheda. Moreover, the use of OBS organic stabilizers free of heavy metals ensures the compliance of FITT Sewer with the most stringent environmental protection regulatory standards of the main European markets.

### 3.2 / A CERTIFIED PRODUCT RANGE

The UNI EN 1401-1:2019 European standard has set common rules for all EU countries regarding the quality and performance requirements for sewage system pipes, replacing the types of pipes of the previous standard with those provided for by the current one, also defining the areas of application for the different types of pipes:

- U: Underground pipes installed more than 1 metres from dwellings
- D: Underground pipes inside dwellings and up to 1 metre away from them, capable of withstanding hot waste.
- UD: Pipes suitable for both applications.

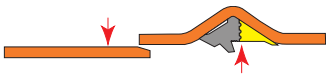
The use of state-of-the-art technologies and increasingly sophisticated product quality checks ensure that the performance standards of the sewage system PVC pipe are the highest of its class.
FITT Sewer and FITT Sewer EVO comply with the KIWA UNI EN 1401 certification and meet the quality and performance requirements of the main industry certification bodies, such as ZIK and Bureau Veritas.
On the basis of the type tests and the regular inspections carried out by Kiwa, FITT Sewer and FITT Sewer EVO (PVC-U pipes for underground non-pressurised sewage systems and drains) are considered as compliant with the requirements of Annex K03 of technical document Ki-0410 based on the UNI EN 1401:2019 standard, and therefore come with the Kiwa-UNI mark.

### 3.3 / THE SEWER LOCK® INTEGRATED GASKET

FITT Sewer EVO features a socket based jointing system with integrated gasket, mechanically preinserted during the hot formation of the socket based joint. The Sewer Lock® gasket consists of a sealing element according to UNI EN 681, co-moulded and with stiffening ring made of fibre-reinforced polypropylene. This jointing system makes the gasket absolutely impossible to remove and guarantees high performance because:

- of its optimum hydraulic tightness both for negative and positive pressure. Sealing performance is proven by the IIP rests carried out with higher pressure levels and much more demanding stress conditions (diameter deformation and angular deflection) than required by the reference standards;
- of its optimum functionality even in case of high offsets: Up to 3° on the joint;
- it eliminates the operations for inserting the gasket in the socket based joint and the marking of the maximum insertion point (the pipes reach the site already ready for installation and marked);
- it guarantees quick and easy installation;
- it requires a low assembly force as demonstrated by test report produced directly by the manufacturer in table 1;
- it ensures that the running test is always successful.
- The integrated socket based jointing system ensures better safety of use because:
  - it prevents the loss of the gasket
  - it prevents damage to the gasket, wrong insertion or movements during the assembly of the pipes.

**Table 1 / Nominal jointing force for some FITT Sewer EVO pipes with Sewer Lock**

|  | Force (N) |
|---|---|
| DN 110 | 150 |
| DN 160 | 230 |
| DN 200 | 405 |
| DN 250 | 630 |
| DN 315 | 735 |

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### 3.4 / FITT SEWER EVO SN16, INNOVATION AND TECHNOLOGY

By offering the new SN16 FITT Sewer Evo, FITT is one of the first Italian companies capable of incorporating in its products the innovation provided for by the UNI EN 1401-01:2019 standard. The constant attention to the technological development of its products has also brought the capability of offering the SN16 version with Power Lock® gasket.
The FITT SN16 Sewer EVO class features a socket based jointing system with integrated gasket inserted during the formation of the socket.
The Power Lock® gasket consists of a sealing element in EPDM elastomer according to UNI EN 681, co-moulded and with a fibre reinforced polypropylene stiffening ring.
This jointing systems ensures the absolute stability of the gasket, and therefore easy assembly, perfect functionality and optimal long-term hydraulic tightness.
The integral socket based jointing system requires the formation of the socket on the mandrel and the gasket, fully eliminating any irregularities normally found in standard products and effectively removing any tolerances
between the gasket and its housing, also ensuring the stability of the gasket and absence of movement during the assembly of the pipes.

**The advantages offered by Power Lock® can be seen by all the operators in the sector:**

**DESIGNERS**

- High gasket performance
- Time savings during checks and tests
- Hydraulic tightness in case of both positive and negative pressure
- More reliable joint seal
- 3.0° angular deflection at the joint (high offset)
- Internal socket based joint sizes non-susceptible to variations

**INSTALLERS**

- The pipe is delivered with the gasket already fitted, therefore avoiding any loss or damage of the same
- No gasket movement
- Quick, easy and safe installation
- Low jointing force - which becomes more and more significant with the increase of the diameter -, with savings on applied forces (in terms of several hundred Newtons)
- Manual assembly without the need for any machinery

**SYSTEM UTILITIES**

- Safety of the hydraulic tightness despite the deflection of the joint
- The pipe and the gasket act as a single component
- No risk of incorrect pipeline installation
- Guarantee of perfect system operation, both for the installer and the utility

### 3.5 / FITT SEWER AND FITT SEWER EVO PIPE MANUFACTURING

FITT Sewer and FITT Sewer EVO pipes are manufactured primarily from PVC resin along with additives, including: calcium carbonate, titanium dioxide, calcium-based stabiliser, lubricants, processing aids and pigments.
The PVC resin is the main ingredient in all PVC pressure pipes, and is manufactured in Europe primarily from imported vinyl chloride monomer.
Internal PVC pipe scrap from production is fed back into the feed mix and utilised in new pipe.
The feed mix is heated and mixed prior to extrusion and then water cooled to form the pipe structure.
One end of the pipe is then re-heated after cutting and expanded to allow for pipe jointing.
Finally, the pipes are palletised, packaged with softwood timber frames, steel nails and strapping.

FITT Sewer pipe manufacturing sites are shown in Figure 2. The FITT Sewer product range pipes are manufactured in the Fara Vicentino and Occhiobello plants (the latter only for diameters between 100 and 200 mm), both in northern Italy. However, this EPD only considers the FITT Sewer pipes produced in the Fara Vicentino factory, which represent 89% of the total 2020 FITT Sewer production. On the other hand, the FITT Sewer EVO range of pipes is produced exclusively in Fara Vicentino.
Geographical scope: Italy
CPC Code: 36320

**Table 2**
**Product characteristics of PVC-U pipes**

| | |
|---|---|
| Product names/application | **FITT Sewer – non pressure pipe**<br>**FITT Sewer EVO – non pressure pipe (with integrated gasket)** |
| Density | **1,40 - 1,56 kg/dm$^3$** |
| Average coefficient of linear thermal expansion | **≈ 0,08 mm/mK** |
| Modulus of elasticity | **3200 MPa** |
| Thermal conductivity | **≈ 0,16 W/mK** |
| Surface resistance | **>10$^{12}$ Ω** |
| Poisson's ratio | **0,35** |

# 4. lca information

**4.1 / LIFE CYCLE ASSESSMENT**

Life Cycle Assessment (LCA) is an analytical tool that captures the overall environmental impacts of a product, process or human activity from raw material acquisition, through production and use, to waste management.

LCA studies are structured in 4 phases. The goal and scope definition is implemented to clarify the objective of the study, to determine the main methodological boundaries as well as the life cycle processes to be included in the analysis (also referred as system boundaries). Another fundamental step of this phase is the definition of the so called functional unit which is the measuring unit that quantify the function of the product under study. The inventory analysis phase includes the data collection and modelling of all of the input and outputs of material, energy and other elementary flows that can cause potential environmental impacts. In this study, the inventory phase is supported by the collection of primary data related to the production of PVC-U piping system occurring in the FITT's plant located in Fara Vicentino (Italy). In the impact assessment phase inventory data are characterized into potential environmental impacts. Finally, the interpretation phase is applied to discuss the validity of the results concerning the goal and scope of the study and to identify the most impacting life cycle stage.


**Figure 2**

### 4.2 / DECLARED UNIT

One kilogram of piping system (the weight per meter of pipe are reported in the following tables).

**Table 3 / Weights per meter of the different diameters and nominal stiffness' specifications for the FITT Sewer range pipes**

| DN [mm] | Weight [kg/m] SN2 | Weight [kg/m] SN4 | Weight [kg/m] SN8 |
|---|---|---|---|
| 110 | - | 1.777 | - |
| 125 | - | 2.027 | 2.318 |
| 160 | 2.611 | 3.212 | 3.734 |
| 200 | 3.819 | 4.738 | 5.741 |

**Table 4 / Weights per meter of the different diameters and nominal stiffness' specifications for the FITT Sewer EVO range pipes**

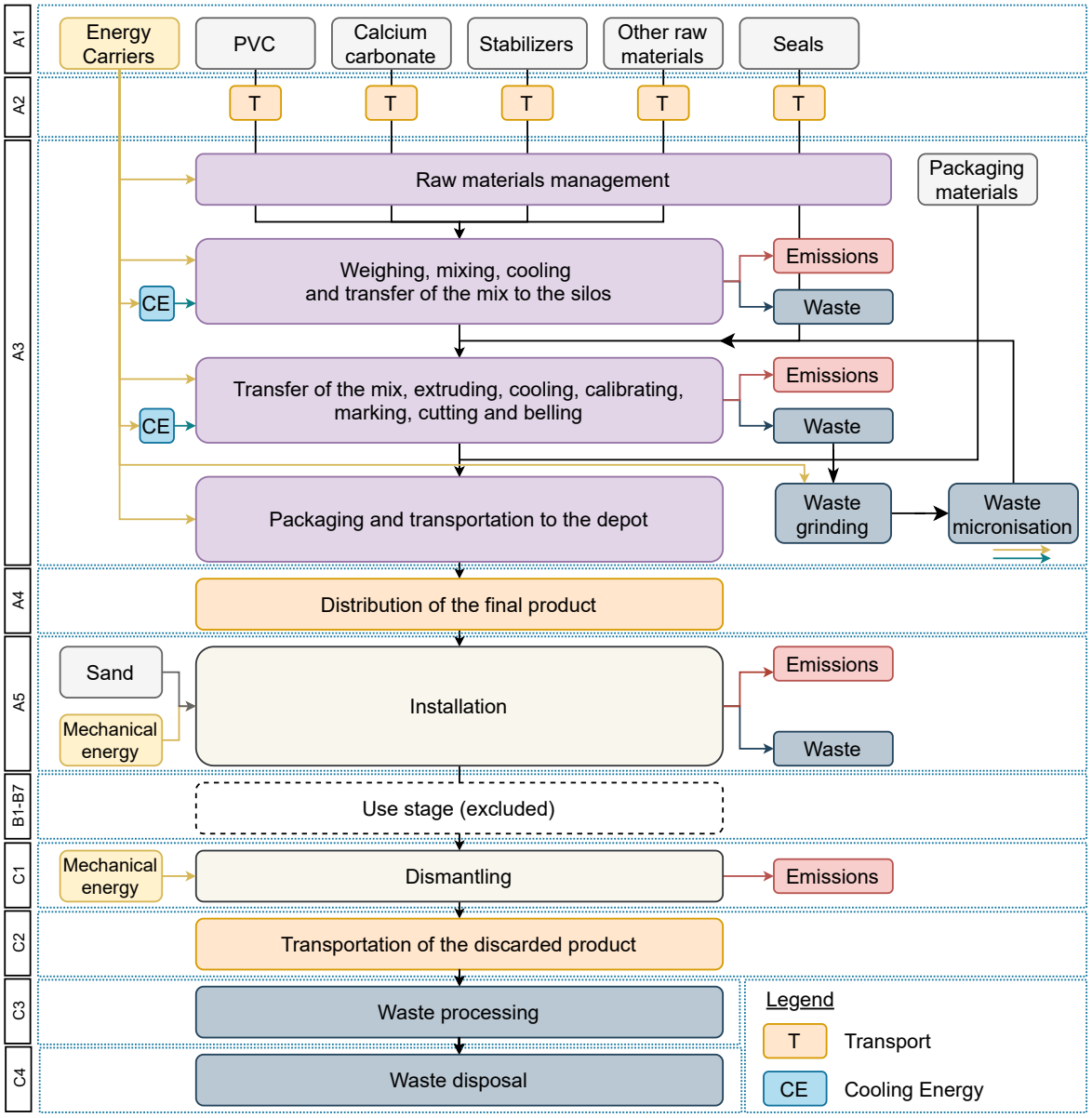
| DN [mm] | Weight [kg/m] SN2 | Weight [kg/m] SN4 | Weight [kg/m] SN8 | Weight [kg/m] SN 16 |
|---|---|---|---|---|
| 110 | - | - | - | 2.202 |
| 125 | - | - | - | 2.884 |
| 160 | - | - | 3.734 | 4.637 |
| 200 | - | 5.815 | 5.896 | 7.301 |
| 250 | - | 8.946 | 9.193 | 11.366 |
| 315 | 9.517 | 11.714 | 14.021 | 17.889 |
| 400 | 15.372 | 18.954 | 22.592 | 28.843 |
| 500 | 23.813 | 29.703 | 36.432 | 45.010 |
| 630 | 37.620 | 46.680 | 57.792 | 71.270 |
| 710 | 49.066 | 61.100 | 72.678 | - |
| 800 | 62.433 | 78.250 | 93.700 | - |

# 4. lca information

### 4.3 / TIME REPRESENTATIVENESS
Data cover the year 2020

### 4.4 / DATABASE(S) AND LCA SOFTWARE USED
Secondary data has been obtained from Ecoinvent v.3.6 and Industry Data v2.0 databases, using the software SimaPro 9.1.1 to carry out the assessment.

### 4.5 / SYSTEM DIAGRAM



X=module included in EPD® / ND= not declared

| | Product stage | | Construction process stage | | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| Module | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Modules declared | X | X | X | X | x | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| Geography | GLO, EU, IT | GLO, EU, IT | IT | IT | IT | | | | | | | | IT | IT | IT | IT | IT |
| Specific data used | > 90% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | < 10% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | Not relevant | | | | | - | - | - | - | - | - | - | - | - | - | - | - |

# 4. lca information

**4.6 / DESCRIPTION OF SYSTEM BOUNDARIES**

The system boundaries include the modules A1-A3, A4, A5, C1, C2, C3, C4 and D provided by the Standard EN 15804, as shown in the following table according to an application of type “Cradle to gate with options, modules C1-C4, module D and with optional modules”.

The construction, maintenance, and disposal of the infrastructures, intended as building, and the occupation of industrial land were not considered, due to the negligible contribution to the environmental impact. The use phase is not included in the study.

The parameter chosen for the initial inclusion of input and output elements is based on the definition of a cut-off level of 1%, in terms of mass, energy and environmental relevance. This means that a process has been neglected if it is responsible for less than 1% of the total mass, primary energy and total impact. In Accordance with this criterion, the consumption of lubricants for the PVC compounds and the nails for the packaging of the pipes (both less than 0.01% by weight) were excluded.

Modules A1, A2 and A3 include:

A1. Extraction and treatment of raw materials (PVC resins, calcium carbonate, chlorinated polyethylene, stabilisers, dyes, gasketing systems and packaging materials) as well as production processes of energy carriers;

A2. Raw material transport from the production site to FITT production plant

A3. The following processes are part of this module:

- Mixing of substances that make up the mixtures for pipe production
- Pipe extrusion and belling processes
- Pipe packaging (including packaging material production)
- Transport to storage
- Loading and preparation for shipment

The following table shows the scenarios adopted for the modeling of the modules A4, A5, C1-C4 and D.

| Modules | Scenarios |
|---|---|
| A4 | The product distribution scenario was defined based on a sampling of the sites in which FITT Sewer and FITT Sewer EVO were installed. The transport was modeled using the datasetTransport, freight lorry, 16-32 EUR 3 and Transport, freight, sea, container ship. |
| A5 | The impacts associated with the installation and the pipeline were modeled considering the activity of the operating machines (0.02233 hours / kg of pipe), the consumption of sand for backfilling the pipe (assuming the transport for a distance of 10 km), the transport towards a deposit of excess land (10km), the management of the waste generated. An average laying depth of 2.07 m is considered. It is considered that 1% of the pipe becomes waste during installation operations. The generated waste was modeled considering the scenarios indicated by EN 15804 and a transport of 100 km. |
| C1 | The impacts associated with the dismantling of the pipeline have been modeled as the activity of the operating machines, assuming the same consumption calculated for the installation phase, equal to 0.02233 hours of activity of an operating machine per kg of pipe removed from the ground. It is assumed that 100% of the laid pipe is removed. |
| C2 | The product at the end of its life is sent to selection centers, therefore a distance of 100 km is assumed. The transport was modeled using the dataset Transport, freight lorry, 16-32 EUR 3. |
| C3 | The recycling percentages of PVC, Cast iron, PP and Rubber were assumed in line with Annex C of the PEFCR Guidance v6.3 (the average European scenario defined by Annex C is considered representative for the italian context). |
| C4 | The fraction not sent to recycling activities is destined for disposal in landfills or for incineration. Also, in this case the percentages for the breakdown between landfill and incineration were derived from Annex C (Italian scenario: 65% landfill and 35% incineration), referring to the Italina scenario. |
| D | Benefits and impacts related to material recycling as weel as heat and power production from materials sent for incineration are part of this module. The recycling and incineration scenarios have been defined in accordance with Annex C of the PEFCR Guidance (for PVC 32% recycling and 24% incineration). For PVC, substitution of virgin polymer has been considered. An efficiency of 85,5% has been considered fro the PVC’s recycling process. The energy recovery scenario considered foresees an efficiency of 17% for electrical energy and 4% for thermal energy. |

### 4.7 / DEFINITION OF REPRESENTATIVE PRODUCTS

The aim of this LCA is to provide clear and reliable information for costumers regarding the environmental impact linked to the production of two families of piping system: FITT Sewer and FITT Sewer EVO.
The background LCA report tested the variation in results between different diameters.
The composition of the FITT PVC-U pipes varies as a function of the diameter, the nominal stiffness and the length. The configurations differ in the type of compound, the contribution of the gasket to the total weight, energy and material consumption during construction site operations.
The representative product for FITT Sewer is composed of a mix (50% -50%) of the two configurations characterized by the lowest and highest weight per meter and the minimum and maximum length (respectively, DN 110 SN 4 1 m and DN 250 SN 8 6 m). The variability in terms of environmental indicators was found to be less than 10%.
The representative product for FITT Sewer EVO is composed of a mix (50% -50%) of the two configurations characterized by the lowest and highest weight per meter (respectively, DN 110 SN 16 1 m and DN 800 PN 8 6 m). The variability in terms of environmental indicators was found to be less than 10%.

| Source | Residual Mix 2020 |
|---|---|
| Renewables Unspecified | 0.00% |
| Solar | 5.02% |
| Wind | 1.75% |
| Hydro&Marine | 1.72% |
| Geothermal | 0.00% |
| Biomass | 1.73% |
| Nuclear | 11.42% |
| Fossil Unspecified | 0.00% |
| Lignite | 0.55% |
| Hard Coal | 17.88% |
| Gas | 55.95% |
| Oil | 3.98% |
| TOTALE | 100.00% |

### 4.8 / MODELLING OF ELECTRICAL ENERGY (MODULE A3)

The modelling of electricity consumption in Module A3 was carried out using the Italian national residual mix, using as a source of data from the latest AIB report (AIB, 2021). The breakdown of the energy sources used is given. The emission factor obtained is equal to 608 $gCO_2eq/kWh$.

### 4.9 / DIFFERENCES VERSUS PREVIOUS VERSIONS

Compared to the previous version of the Environmental Product Declaration (EPD), the information relating to the composition of the compound has been corrected and the values of the environmental indicators updated accordingly.

# 5. content declaration

**5.1 / PRODUCT**
No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in FITT PVC-U Pipes, either above the threshold for registration with the European Chemicals Agency or above 0.1 % (wt/wt).

**5.2 / PACKAGING**
FITT Sewer and FITT Sewer EVO are packaged using wood, nails and metallic strips.

**5.3 / RECYCLED MATERIAL**
In the FITT Sewer and FITT Sewer EVO production systems, no external recycled material is used as raw material.

| Materials/chemical substances | FITT Sewer | FITT Sewer EVO | CAS No. |
|---|---|---|---|
| Polyvinyl chloride resin K65-68 | 74,4% | 74,0% | 9002-86-2 |
| Stabilizers based on Organic Calcium | 2,7% | 2,7% | Confidential (nothing hazardous) |
| Calcium carbonate | 21,2% | 21,1% | 471-34-1 |
| Lubricants | 0,4% | 0,4% | Confidential (nothing hazardous) |
| Dyes | 0,6% | 0,6% | Confidential (nothing hazardous) |
| Polypropylene | 0,0% | 0,4% | 9003-07-0 |
| Glass fiber | 0,0% | 0,5% | 65997-17-3 |
| EPDM | 0,7% | 0,4% | 25038-36-2 |
| TPE | 0,0% | 0,1% | 308079-71-2 |

The representative products for FITT Sewer and FITT Sewer EVO consist of an average (50% - 50%) of the configurations characterized by the minimum and maximum weight per meter and the minimum and maximum length (respectively, for FITT Sewer DN 110 SN 4 1 m and DN 250 SN 8 6 m, while for FITT Sewer EVO DN 110 SN 16 1 m and DN 800 PN 8 6 m). The values shown in the table refer to the pipe plus gasket system. It is emphasized that the PVC compounds used have a PVC content of at least 75%.

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# 6. environmental information

## 6.1 / POTENTIAL ENVIRONMENTAL IMPACT

To present a clear and complete view of the environmental impacts associated with the two families FITT Sewer and FITT Sewer EVO, these are proposed disaggregated into modules for all the considered impact categories:

**Climate change.**
Global Warming Potential (GWP) expressed as kgCO2eq. This category quantifies how the process contributes to the release of greenhouse gases, based on the model developed by IPCC. Results are presented thorough the following indicators: GWP-total, GWP-fossil, GWP-biogenic, GWP-luluc (land use and land use change). According to the used PCR, the additional indicator GWP-GHG will be presented. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product

**Ozone Depletion.**
Ozone Depletion Potential (ODP) expressed as kgCFC11eq. This category refers to the degradation of stratospheric ozone layer, reducing its ability to prevent UV light entering the earth's atmosphere.

**Acidification.**
Acidification Potential (AP) expressed as mol H+eq. This category quantifies the impact of the release of oxides of nitrogen and sulphur in the atmosphere, soil and water, where the acidity can be modified, affecting the flora and fauna, as well as human health and construction materials.

**Eutrophication.**
Eutrophication potential (EP) refers the nutrient enrichment, which determines unbalance in ecosystems causing negative effects on flora and fauna. It considers: EP-freshwater (expressed as kg PO4eq and kg Peq), EP-marine (expressed as kg Neq) and EP-terrestrial (mol N eq).

**Photochemical Ozone Formation.**
Formation potential of tropospheric ozone (POCP) expressed as kg NMVOC eq. Photochemical ozone formation takes place in the atmosphere by the degradation of volatile organic compounds in presence of lights and nitrogen oxides. This phenomenon is harmful to both plants and humans, causing irritation, respiratory problems and damage to the respiratory system.

**Depletion of abiotic resources.**
Abiotic depletion potential (ADP) evaluates the impact of the activity on different non-renewable natural resources, such as ores containing metals, petroleum, mineral raw materials etc. It considers two indicators: ADP-mineral&metals (expressed as kg Sb eq.) and ADP-fossil (expressed as MJ, net calorific value).

**Water use.**
Water (user) deprivation potential (WDP) expressed as m3 world eq. deprived. This indicator evaluates the potential for deprivation of water resources, both for humans and ecosystems, starting from the assumption that the less water is available, the more likely it is that a further user, human or ecosystem, will be deprived of it.

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# 7. results fitt sewer

fitt sewer

## Potential environmental impact

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GWP-fossil** | kg $CO_2$ eq. | 2,12E+00 | 1,14E-01 | 1,65E-02 | 2,25E+00 | 4,82E-02 | 2,08E+00 | 1,81E+00 | 9,55E-03 | 0,00E+00 | 6,07E-01 | -4,16E-01 | 6,79E+00 |
| **GWP-biogenic** | kg $CO_2$ eq. | 1,88E-02 | 7,75E-05 | -9,98E-02 | -8,09E-02 | 2,58E-05 | 1,95E-02 | 4,99E-04 | 6,95E-06 | 0,00E+00 | 4,97E-04 | 5,24E-02 | -6,04E-02 |
| **GWP-luluc** | kg $CO_2$ eq. | 2,02E-04 | 4,38E-05 | 8,34E-05 | 3,30E-04 | 1,69E-05 | 2,10E-04 | 1,41E-04 | 2,78E-06 | 0,00E+00 | 2,27E-04 | 1,65E-04 | 9,28E-04 |
| **GWP-total** | kg $CO_2$ eq. | 2,13E+00 | 1,14E-01 | -8,32E-02 | 2,17E+00 | 4,82E-02 | 2,10E+00 | 1,81E+00 | 9,56E-03 | 0,00E+00 | 6,08E-01 | -3,64E-01 | 6,73E+00 |
| **ODP** | kg CFC 11 eq. | 7,66E-07 | 2,57E-08 | 2,12E-09 | 7,94E-07 | 1,10E-08 | 4,36E-07 | 3,87E-07 | 2,27E-09 | 0,00E+00 | 9,04E-08 | -2,27E-07 | 1,72E-06 |
| **AP** | mol H+ eq. | 5,87E-03 | 8,52E-04 | 1,04E-04 | 6,82E-03 | 3,31E-04 | 1,18E-02 | 9,83E-03 | 6,67E-05 | 0,00E+00 | 9,87E-04 | -1,07E-03 | 2,98E-02 |
| **EP-freshwater** | kg PO43- eq. | 5,13E-04 | 2,90E-05 | 2,02E-05 | 5,62E-04 | 1,09E-05 | 3,23E-04 | 1,98E-04 | 2,07E-06 | 0,00E+00 | 2,35E-04 | 1,21E-04 | 1,33E-03 |
| **EP-freshwater** | kg P eq | 1,67E-04 | 9,45E-06 | 6,59E-06 | 1,83E-04 | 3,53E-06 | 1,05E-04 | 6,44E-05 | 6,73E-07 | 0,00E+00 | 7,65E-05 | 3,95E-05 | 4,33E-04 |
| **EP-marine** | kg N eq. | 1,23E-03 | 3,19E-04 | 2,79E-05 | 1,57E-03 | 1,29E-04 | 4,58E-03 | 3,90E-03 | 2,61E-05 | 0,00E+00 | 1,16E-03 | -1,48E-04 | 1,14E-02 |
| **EP-terrestrial** | mol N eq. | 1,34E-02 | 3,49E-03 | 3,05E-04 | 1,72E-02 | 1,41E-03 | 5,03E-02 | 4,28E-02 | 2,86E-04 | 0,00E+00 | 2,31E-03 | -2,42E-03 | 1,14E-01 |
| **POCP** | kg NMVOC eq. | 4,72E-03 | 9,56E-04 | 1,08E-04 | 5,78E-03 | 3,87E-04 | 1,39E-02 | 1,18E-02 | 8,04E-05 | 0,00E+00 | 6,32E-04 | -8,97E-04 | 3,25E-02 |
| **ADP-minerals &metals*** | kg Sb eq. | 8,41E-06 | 2,97E-06 | 3,73E-07 | 1,17E-05 | 1,30E-06 | 5,30E-06 | 2,75E-06 | 1,62E-07 | 0,00E+00 | 3,49E-06 | 2,22E-06 | 2,48E-05 |
| **ADP-fossil*** | MJ | 4,54E+01 | 1,72E+00 | 2,23E-01 | 4,73E+01 | 7,33E-01 | 2,84E+01 | 2,47E+01 | 1,50E-01 | 0,00E+00 | 2,06E+00 | -1,15E+01 | 1,03E+02 |
| **WDP*** | $m^3$ | 6,54E+00 | 5,04E-03 | 3,88E-03 | 6,55E+00 | 2,02E-03 | 1,12E-01 | 3,31E-02 | 4,79E-04 | 0,00E+00 | 1,46E-01 | -2,11E+00 | 6,85E+00 |
| **GWP-GHG** | kg $CO_2$ eq. | 2,09E+00 | 1,13E-01 | 1,64E-02 | 2,22E+00 | 4,80E-02 | 2,07E+00 | 1,80E+00 | 9,51E-03 | 0,00E+00 | 5,98E-01 | -4,08E-01 | 6,75E+00 |
| **Acronyms** | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption. | | | | | | | | | | | | |

***The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.**

# 7. results fitt sewer

## Use of resources

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 2,57E+00 | 1,91E-02 | 1,60E-02 | 2,60E+00 | 7,03E-03 | 3,35E-01 | 1,00E-01 | 1,35E-03 | 0,00E+00 | 1,73E-01 | -7,67E-01 | 3,22E+00 |
| **PERM** | MJ | 7,96E-01 | 8,65E-03 | 1,11E+00 | 1,91E+00 | 3,24E-03 | 9,33E-02 | 3,31E-02 | 5,09E-04 | 0,00E+00 | 5,10E-02 | -4,29E-01 | 2,09E+00 |
| **PERT** | MJ | 3,36E+00 | 2,77E-02 | 1,12E+00 | 4,51E+00 | 1,03E-02 | 4,28E-01 | 1,34E-01 | 1,86E-03 | 0,00E+00 | 2,24E-01 | -1,20E+00 | 5,31E+00 |
| **PENRE** | MJ | 3,15E+01 | 1,72E+00 | 2,19E-01 | 3,34E+01 | 7,33E-01 | 2,84E+01 | 2,47E+01 | 1,50E-01 | 0,00E+00 | 2,06E+00 | -7,01E+00 | 8,95E+01 |
| **PENRM** | MJ | 1,39E+01 | 0,00E+00 | 3,87E-03 | 1,39E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -4,54E+00 | 1,39E+01 |
| **PENRT** | MJ | 4,54E+01 | 1,72E+00 | 2,22E-01 | 4,73E+01 | 7,33E-01 | 2,84E+01 | 2,47E+01 | 1,50E-01 | 0,00E+00 | 2,06E+00 | -1,15E+01 | 1,03E+02 |
| **SM** | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **RSF** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **NRSF** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **FW** | $m^3$ | 1,53E-01 | 1,98E-04 | 1,16E-04 | 1,54E-01 | 7,66E-05 | 3,37E-03 | 1,27E-03 | 1,68E-05 | 0,00E+00 | 4,06E-03 | -4,84E-02 | 1,62E-01 |
| **Acronyms** | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water. | | | | | | | | | | | | |

## Waste production

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 3,27E-01 | 4,43E-06 | 1,04E-06 | 3,27E-01 | 1,92E-06 | 7,51E-05 | 6,72E-05 | 3,64E-07 | 0,00E+00 | 3,34E-06 | -1,07E-01 | 3,27E-01 |
| **Non-hazardous waste disposed** | kg | 3,75E-02 | 7,86E-02 | 4,53E-03 | 1,21E-01 | 3,48E-02 | 1,67E-01 | 2,99E-02 | 1,28E-02 | 0,00E+00 | 4,86E-01 | 6,50E-02 | 8,51E-01 |
| **Radioactive waste disposed** | kg | 2,34E-05 | 1,17E-05 | 9,19E-07 | 3,61E-05 | 5,00E-06 | 1,91E-04 | 1,71E-04 | 1,02E-06 | 0,00E+00 | 7,72E-06 | 8,61E-06 | 4,13E-04 |

fitt sewer

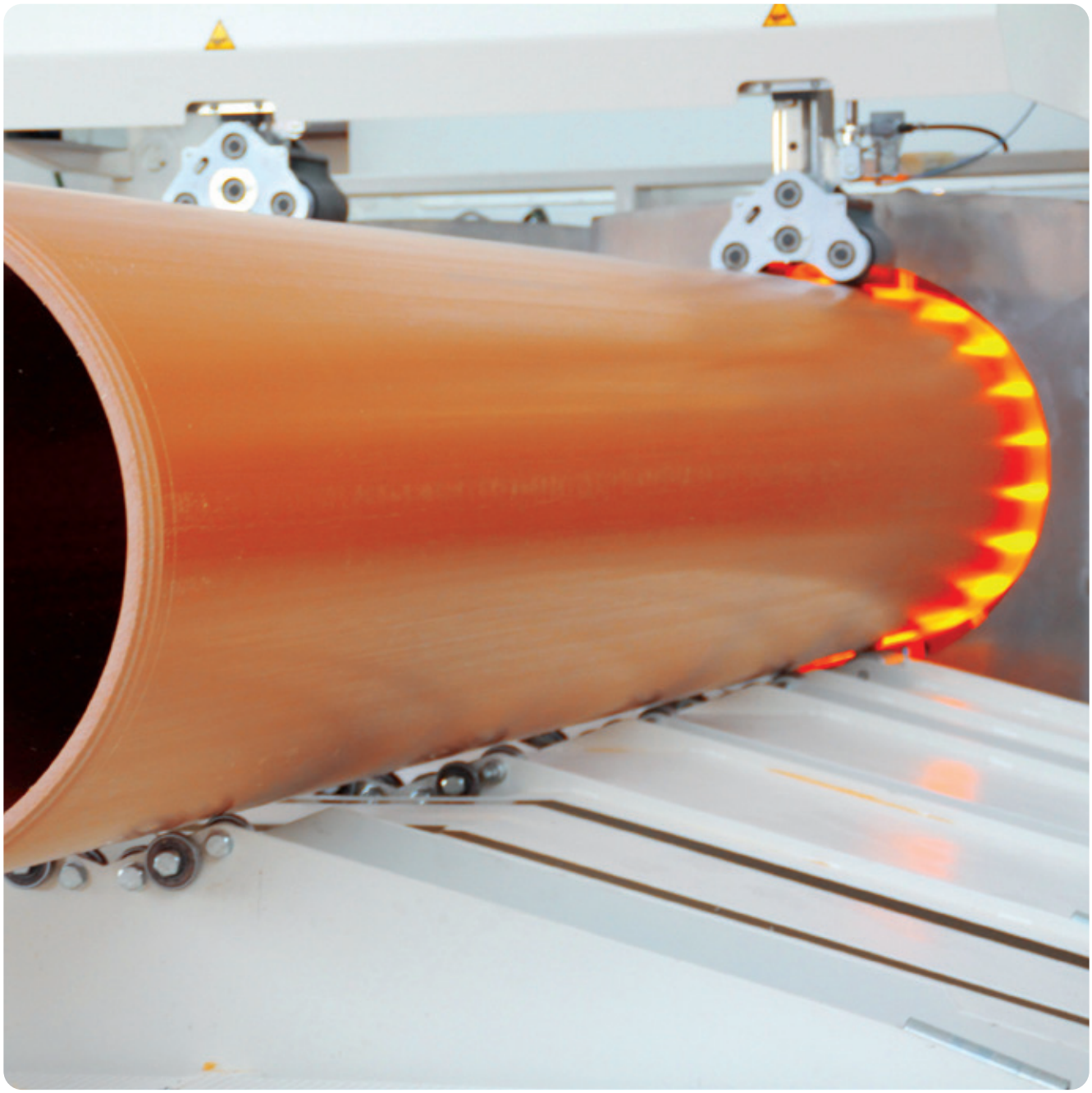
## Output flows

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Components for re-use** | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **Material for recycling** | kg | 0,00E+00 | 0,00E+00 | 1,60E-03 | 1,60E-03 | 0,00E+00 | 1,66E-02 | 0,00E+00 | 0,00E+00 | 3,19E-01 | 0,00E+00 | 0,00E+00 | 3,37E-01 |
| **Materials for energy recovery** | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **Exported energy, electricity** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **Exported energy, thermal** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## Information on biogenic carbon content

| BIOGENIC CARBON CONTENT | Unit | Quantity |
|---|---|---|
| **Biogenic carbon content in product** | kg C | 0,00E+00 |
| **Biogenic carbon content in packaging** | kg C | 1,62E-02 |

# 8. results fitt sewer evo



fitt sewer

## Potential environmental impact

| Indicator | Unit | A1 | A2 | A3 | Tot. A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GWP-fossil** | kg $CO_2$ eq. | 2,16E+00 | 1,17E-01 | 3,34E-02 | 2,31E+00 | 4,90E-02 | 1,99E+00 | 1,81E+00 | 9,66E-03 | 0,00E+00 | 6,09E-01 | -4,16E-01 | 6,77E+00 |
| **GWP-biogenic** | kg $CO_2$ eq. | 1,85E-02 | 7,90E-05 | -1,38E-01 | -1,19E-01 | 2,63E-05 | 1,70E-02 | 4,99E-04 | 7,03E-06 | 0,00E+00 | 4,95E-04 | 5,29E-02 | -1,01E-01 |
| **GWP-luluc** | kg $CO_2$ eq. | 2,07E-04 | 4,47E-05 | 1,25E-04 | 3,76E-04 | 1,72E-05 | 1,89E-04 | 1,41E-04 | 2,81E-06 | 0,00E+00 | 2,26E-04 | 1,64E-04 | 9,52E-04 |
| **GWP-total** | kg $CO_2$ eq. | 2,17E+00 | 1,17E-01 | -1,04E-01 | 2,19E+00 | 4,90E-02 | 2,01E+00 | 1,81E+00 | 9,67E-03 | 0,00E+00 | 6,10E-01 | -3,63E-01 | 6,67E+00 |
| **ODP** | kg CFC 11 eq. | 7,68E-07 | 2,63E-08 | 2,87E-09 | 7,97E-07 | 1,12E-08 | 4,21E-07 | 3,87E-07 | 2,29E-09 | 0,00E+00 | 8,99E-08 | -2,26E-07 | 1,71E-06 |
| **AP** | mol H+ eq. | 6,03E-03 | 8,71E-04 | 1,76E-04 | 7,07E-03 | 3,37E-04 | 1,12E-02 | 9,83E-03 | 6,75E-05 | 0,00E+00 | 9,82E-04 | -1,07E-03 | 2,94E-02 |
| **EP-freshwater** | kg PO43- eq. | 5,23E-04 | 2,96E-05 | 3,11E-05 | 5,84E-04 | 1,10E-05 | 2,83E-04 | 1,98E-04 | 2,09E-06 | 0,00E+00 | 2,34E-04 | 1,20E-04 | 1,31E-03 |
| **EP-freshwater** | kg P eq | 1,70E-04 | 9,65E-06 | 1,01E-05 | 1,90E-04 | 3,60E-06 | 9,21E-05 | 6,44E-05 | 6,81E-07 | 0,00E+00 | 7,61E-05 | 3,92E-05 | 4,27E-04 |
| **EP-marine** | kg N eq. | 1,28E-03 | 3,26E-04 | 4,78E-05 | 1,65E-03 | 1,31E-04 | 4,36E-03 | 3,90E-03 | 2,64E-05 | 0,00E+00 | 1,16E-03 | -1,48E-04 | 1,12E-02 |
| **EP-terrestrial** | mol N eq. | 1,37E-02 | 3,57E-03 | 4,52E-04 | 1,77E-02 | 1,43E-03 | 4,79E-02 | 4,28E-02 | 2,89E-04 | 0,00E+00 | 2,30E-03 | -2,43E-03 | 1,12E-01 |
| **POCP** | kg NMVOC eq. | 4,80E-03 | 9,78E-04 | 1,67E-04 | 5,94E-03 | 3,94E-04 | 1,32E-02 | 1,18E-02 | 8,13E-05 | 0,00E+00 | 6,30E-04 | -9,00E-04 | 3,20E-02 |
| **ADP-minerals &metals*** | kg Sb eq. | 8,04E-06 | 3,04E-06 | 4,99E-07 | 1,16E-05 | 1,33E-06 | 4,50E-06 | 2,75E-06 | 1,64E-07 | 0,00E+00 | 3,47E-06 | 2,21E-06 | 2,38E-05 |
| **ADP-fossil*** | MJ | 4,60E+01 | 1,77E+00 | 6,01E-01 | 4,83E+01 | 7,45E-01 | 2,72E+01 | 2,47E+01 | 1,52E-01 | 0,00E+00 | 2,05E+00 | -1,15E+01 | 1,03E+02 |
| **WDP*** | $m^3$ | 6,60E+00 | 5,16E-03 | 1,64E-02 | 6,63E+00 | 2,06E-03 | 8,68E-02 | 3,31E-02 | 4,85E-04 | 0,00E+00 | 1,45E-01 | -2,10E+00 | 6,89E+00 |
| **GWP-GHG** | kg $CO_2$ eq. | 2,13E+00 | 1,16E-01 | 3,29E-02 | 2,28E+00 | 4,88E-02 | 1,98E+00 | 1,80E+00 | 9,62E-03 | 0,00E+00 | 6,00E-01 | -4,08E-01 | 6,72E+00 |
| **Acronyms** | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption. | | | | | | | | | | | | |

***The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.**

# 8. results fitt sewer evo

## Use of resources

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PERE** | MJ | 2,58E+00 | 1,95E-02 | 2,08E-02 | 2,62E+00 | 7,15E-03 | 2,58E-01 | 1,00E-01 | 1,37E-03 | 0,00E+00 | 1,72E-01 | -7,65E-01 | 3,16E+00 |
| **PERM** | MJ | 8,10E-01 | 8,84E-03 | 1,53E+00 | 2,35E+00 | 3,30E-03 | 7,38E-02 | 3,31E-02 | 5,15E-04 | 0,00E+00 | 5,08E-02 | -4,37E-01 | 2,51E+00 |
| **PERT** | MJ | 3,39E+00 | 2,83E-02 | 1,55E+00 | 4,97E+00 | 1,04E-02 | 3,32E-01 | 1,34E-01 | 1,88E-03 | 0,00E+00 | 2,23E-01 | -1,20E+00 | 5,67E+00 |
| **PENRE** | MJ | 3,20E+01 | 1,77E+00 | 5,95E-01 | 3,44E+01 | 7,45E-01 | 2,72E+01 | 2,47E+01 | 1,52E-01 | 0,00E+00 | 2,05E+00 | -7,01E+00 | 8,92E+01 |
| **PENRM** | MJ | 1,39E+01 | 0,00E+00 | 6,35E-03 | 1,40E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -4,54E+00 | 1,40E+01 |
| **PENRT** | MJ | 4,60E+01 | 1,77E+00 | 6,01E-01 | 4,83E+01 | 7,45E-01 | 2,72E+01 | 2,47E+01 | 1,52E-01 | 0,00E+00 | 2,05E+00 | -1,15E+01 | 1,03E+02 |
| **SM** | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **RSF** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **NRSF** | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| **FW** | $m^3$ | 1,55E-01 | 2,02E-04 | 4,06E-04 | 1,55E-01 | 7,79E-05 | 2,70E-03 | 1,27E-03 | 1,70E-05 | 0,00E+00 | 4,04E-03 | -4,81E-02 | 1,63E-01 |
| **Acronyms** | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water. | | | | | | | | | | | | |

## Waste production

| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 3,28E-01 | 4,54E-06 | 1,35E-06 | 3,28E-01 | 1,95E-06 | 7,26E-05 | 6,72E-05 | 3,68E-07 | 0,00E+00 | 3,32E-06 | -1,06E-01 | 3,29E-01 |
| **Non-hazardous waste disposed** | kg | 3,97E-02 | 8,06E-02 | 6,39E-03 | 1,27E-01 | 3,53E-02 | 1,30E-01 | 2,99E-02 | 1,30E-02 | 0,00E+00 | 4,87E-01 | 6,47E-02 | 8,21E-01 |
| **Radioactive waste disposed** | kg | 2,32E-05 | 1,20E-05 | 1,53E-06 | 3,68E-05 | 5,08E-06 | 1,85E-04 | 1,71E-04 | 1,04E-06 | 0,00E+00 | 7,68E-06 | 8,54E-06 | 4,07E-04 |

## Output flows

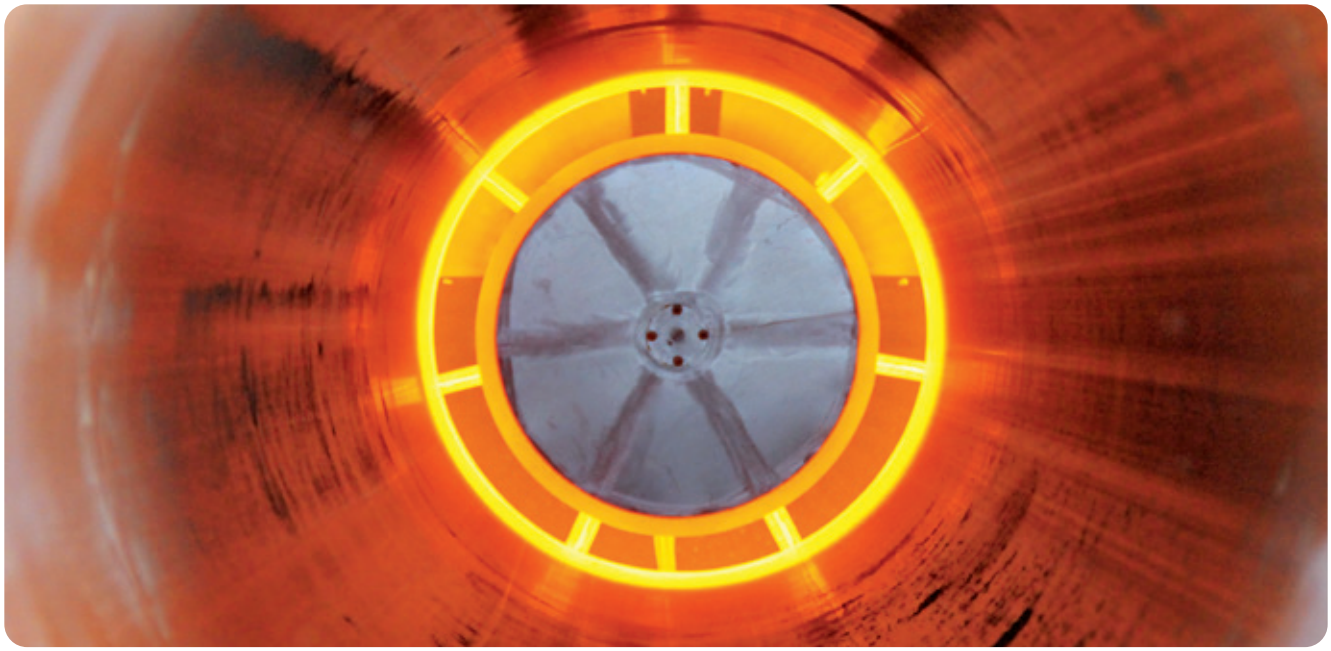
| Indicator | Unit | A1 | A2 | A3 | Tot.A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D | Total (D excluded) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Components for re-use | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for recycling | kg | 0,00E+00 | 0,00E+00 | 2,11E-03 | 2,11E-03 | 0,00E+00 | 1,66E-02 | 0,00E+00 | 0,00E+00 | 3,17E-01 | 0,00E+00 | 0,00E+00 | 3,36E-01 |
| Materials for energy recovery | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy, electricity | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy, thermal | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## Information on biogenic carbon content

| BIOGENIC CARBON CONTENT | Unit | Quantity |
|---|---|---|
| Biogenic carbon content in product | kg C | 0,00E+00 |
| Biogenic carbon content in packaging | kg C | 2,22E-02 |

# 9. additional environmental information

FITT recognises the importance of incorporating environmental sustainability into our business strategies. Environmental issues are now the subject of greater community awareness.
FITT has long been mindful of these issues, demonstrated by our achievements in minimising waste, postindustrial and post-consumer recycling, minimising energy use on production as well as minimising embodied energy in our products.



fitt sewer

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# 9. additional environmental information

**9.1 / GUIDANCE FOR PVC-U PIPES RECYCLING**
Due to PVC-U pipes being installed in the ground, it is economically unfeasible to excavate at end of life for the purpose of recycling. However, PVC-U pipe excavated for other reasons (e.g. new construction) has a high recyclability and can be mechanically recycled back into a pipe product performing the same structural function as one made only from virgin material. Due to the long life of rigid PVC-U products and low volume in waste streams, there is also no current limitation for the amount of recycled PVC-U that can be utilised. The following key properties of

FITT PVC-U pipe aid recyclability:

- FITT PVC-U pipe contains no plasticiser – so no phthalates
- There are no dioxins in FITT PVC-U pipe
- FITT PVC-U pipe contains no heavy metal additives – so no lead and no cadmium.

fitt sewer

## 9.2 / THE PRODUCTION PLANT AND TRIGENERATION

FITT Sewer and FITT Sewer EVO is produced in the Fara Vicentino facilities, powered by a trigeneration plant. Trigeneration is a process that allows the production of electricity and heat from the same energy source. Through absorption refrigerators, it also allows to use heat to obtain refrigerated water for conditioning and industrial process purposes. The trigeneration plant can adjust the production of hot and cold water and electricity on the basis of production needs. It also makes it possible to eliminate any natural losses normally incurred during the transport of energy, therefore improving energy efficiency and reducing carbon dioxide emissions.

## 9.3 / END OF LIFE

PVC pressure pipes are generally installed underground and are assumed to remain underground at end of life. PVC-U is 100% recyclable and can be reintroduced in the production cycle of other PVC-U pipes.

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# 10. references


ISO 2020a, ISO 14040:2006/Amd 1:2020 Environmental management – Life cycle assessment – Principles and framework – Amendment 1, International Organization for Standardisation (ISO), Ginevra

ISO 2020b, ISO 14044:2006/Amd 2:2020 Environmental management — Life cycle assessment — Requirements and guidelines — Amendment 2, International Organization for Standardisation (ISO), Ginevra

PRé, 2016. SimaPro Database Manual Methods Library. © 2002-2016 PRé. Some rights reserved.

IIP 1.1/19 Technical Specification: "Unplasticized polyvinyl chloride alloy (PVC-U) pipes for water conveying."

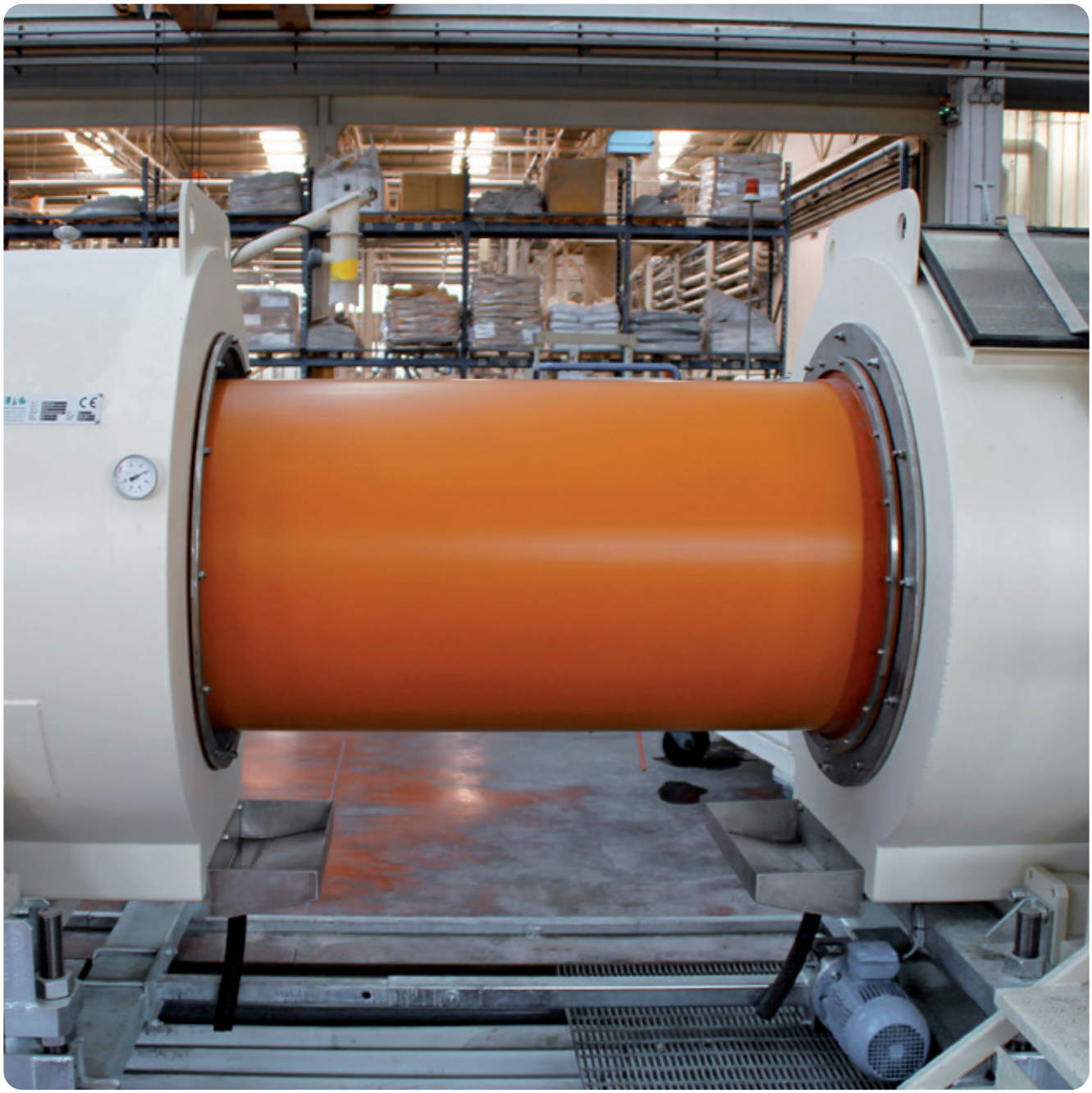
M.D. 174, 06/04/2004: "Water for human consumption."
UNI EN 1622 standard – "Water analysis – determination of the threshold odour number (TON) and the threshold flavour number (TFN).

UNI EN ISO 1167-1:2006 - Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressureBS PAS 27:1999 - Unplasticized poly (vinyl chloride) alloy (PVC-U) pipes and bends for water under pressure.

UNI EN 681-1:2006 - Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber.

CEN, 2019, EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction works, European Committee for Standardization (CEN), Brussels
FITT, 2021 Studio di Life Cycle Assessment FITT Sewer e FITT Sewer EVO.
Third Party Report rev. 0, 07/10/2021.


fitt sewer



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# 11. attachment "a" products codes

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.561.101.075.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 1m | 110 | 1,00 |
| 314.561.102.075.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 2m | 110 | 2,00 |
| 314.561.103.075.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 3m | 110 | 3,00 |
| 314.561.105.075.941 | FITT SEWER SN4 / Ø 110 5m + B CANP | 110 | 5,00 |
| 314.561.105.075.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 5m | 110 | 5,00 |
| 314.561.105.775.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 0,57m | 110 | 0,57 |
| 314.561.106.075.955 | FITT SEWER SN4/8 UNI EN1401 / Ø 110 6m | 110 | 6,00 |
| 314.561.250.575.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 0,57m | 125 | 0,57 |
| 314.561.251.075.941 | FITT SEWER SN4 / Ø 125 1m + B CANP | 125 | 1,00 |
| 314.561.251.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 1m | 125 | 1,00 |
| 314.561.252.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 2m | 125 | 2,00 |
| 314.561.253.075.941 | FITT SEWER SN4 / Ø 125 3m + B CANP | 125 | 3,00 |
| 314.561.253.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 3m | 125 | 3,00 |
| 314.561.255.075.941 | FITT SEWER SN4 / Ø 125 5m + B CANP | 125 | 5,00 |
| 314.561.255.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 5m | 125 | 5,00 |
| 314.561.256.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 125 6m | 125 | 6,00 |
| 314.561.600.575.955 | FITT SEWER SN4 UNI EN1401 / Ø 160 0,59m | 160 | 0,59 |
| 314.561.605.075.941 | FITT SEWER SN4 / Ø 160 5m + B CANP | 160 | 5,00 |
| 314.562.000.675.955 | FITT SEWER SN4 UNI EN1401 / Ø 200 0,6m | 200 | 0,60 |
| 314.562.001.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 200 1m | 200 | 1,00 |
| 314.562.005.075.941 | FITT SEWER SN4 / Ø 200 5m + B CANP | 200 | 5,00 |
| 314.562.005.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 200 5m | 200 | 5,00 |
| 314.562.005.775.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø200 5,70m | 200 | 5,70 |
| 314.562.006.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 200 6m | 200 | 6,00 |
| 314.562.006.175.955 | FITT SEWER SN4 UNI EN1401 / Ø 200 6m + B | 200 | 6,00 |
| 314.562.501.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 250 1m | 250 | 1,00 |
| 314.562.502.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 250 2m | 250 | 2,00 |
| 314.562.503.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 250 3m | 250 | 3,00 |
| 314.562.505.075.941 | FITT SEWER SN4 / Ø 250 5m + B CANP | 250 | 5,00 |
| 314.562.505.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 250 5m | 250 | 5,00 |
| 314.562.505.775.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø250 5,70m | 250 | 5,70 |
| 314.562.506.075.955 | FITT SEWER SN4 UNI EN1401 / Ø 250 6m | 250 | 6,00 |
| 314.563.153.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 315 3m | 315 | 3,00 |
| 314.563.155.075.941 | FITT SEWER EVO SN4 / Ø 315 5m + B CANP | 315 | 5,00 |

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.563.156.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 315 6m | 315 | 6,00 |
| 314.564.001.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 400 1m | 400 | 1,00 |
| 314.564.002.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 400 2m | 400 | 2,00 |
| 314.564.003.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 400 3m | 400 | 3,00 |
| 314.564.005.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 400 5m | 400 | 5,00 |
| 314.564.005.075.941 | FITT SEWER EVO SN4 / Ø 400 5m + B CANP | 400 | 5,00 |
| 314.564.006.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 400 6m | 400 | 6,00 |
| 314.565.003.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 500 3m | 500 | 3,00 |
| 314.565.005.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 500 5m | 500 | 5,00 |
| 314.565.005.075.941 | FITT SEWER EVO SN4 / Ø 500 5m + B CANP | 500 | 5,00 |
| 314.565.006.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 500 6m | 500 | 6,00 |
| 314.566.303.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 630 3m | 630 | 3,00 |
| 314.566.305.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 630 5m | 630 | 5,00 |
| 314.566.305.075.941 | FITT SEWER EVO SN4 / Ø 630 5m + B CANP | 630 | 5,00 |
| 314.566.306.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 630 6m | 630 | 6,00 |
| 314.567.103.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 710 3m | 710 | 3,00 |
| 314.567.105.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 710 5m | 710 | 5,00 |
| 314.567.106.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 710 6m | 710 | 6,00 |
| 314.568.003.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 800 3m | 800 | 3,00 |
| 314.568.005.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 800 5m | 800 | 5,00 |
| 314.568.006.075.940 | FITT SEWER EVO SN4 UNI EN1401 / Ø 800 6m | 800 | 6,00 |
| 314.571.601.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 160 1m | 160 | 1,00 |
| 314.571.602.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 160 2m | 160 | 2,00 |
| 314.571.603.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 160 3m | 160 | 3,00 |
| 314.571.605.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 160 5m | 160 | 5,00 |
| 314.571.605.175.941 | FITT SEWER SN2 / Ø 160 5m + B | 160 | 5,00 |
| 314.571.606.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 160 6m | 160 | 6,00 |
| 314.572.001.075.941 | FITT SEWER SN2 / Ø 200 1m + B CANP | 200 | 1,00 |
| 314.572.001.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 200 1m | 200 | 1,00 |
| 314.572.002.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 200 2m | 200 | 2,00 |
| 314.572.003.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 200 3m | 200 | 3,00 |
| 314.572.005.075.941 | FITT SEWER SN2 / Ø 200 5m + B | 200 | 5,00 |
| 314.572.005.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 200 5m | 200 | 5,00 |
| 314.572.006.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 200 6m | 200 | 6,00 |

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# 11. attachment "a" products codes

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.572.501.075.941 | FITT SEWER SN2 / Ø 250 1m + B CANP | 250 | 1,00 |
| 314.572.501.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 250 1m | 250 | 1,00 |
| 314.572.502.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 250 2m | 250 | 2,00 |
| 314.572.503.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 250 3m | 250 | 3,00 |
| 314.572.505.075.941 | FITT SEWER SN2 / Ø 250 5m + B | 250 | 5,00 |
| 314.572.505.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 250 5m | 250 | 5,00 |
| 314.572.506.075.955 | FITT SEWER SN2 UNI EN1401 / Ø 250 6m | 250 | 6,00 |
| 314.573.151.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 315 1m | 315 | 1,00 |
| 314.573.152.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 315 2m | 315 | 2,00 |
| 314.573.153.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 315 3m | 315 | 3,00 |
| 314.573.155.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 315 5m | 315 | 5,00 |
| 314.573.155.075.941 | FITT SEWER EVO SN2 / Ø 315 5m + B | 315 | 5,00 |
| 314.573.156.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 315 6m | 315 | 6,00 |
| 314.574.003.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 400 3m | 400 | 3,00 |
| 314.574.005.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 400 5m | 400 | 5,00 |
| 314.574.005.075.941 | FITT SEWER EVO SN2 / Ø 400 5m + B | 400 | 5,00 |
| 314.574.006.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 400 6m | 400 | 6,00 |
| 314.575.003.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 500 3m | 500 | 3,00 |
| 314.575.005.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 500 5m | 500 | 5,00 |
| 314.575.005.075.941 | FITT SEWER EVO SN2 / Ø 500 5m + B | 500 | 5,00 |
| 314.575.006.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 500 6m | 500 | 6,00 |
| 314.576.303.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 630 3m | 630 | 3,00 |
| 314.576.305.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 630 5m | 630 | 5,00 |
| 314.576.305.075.941 | FITT SEWER EVO SN2 / Ø 630 5m + B | 630 | 5,00 |
| 314.576.306.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 630 6m | 630 | 6,00 |
| 314.577.103.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 710 3m | 710 | 3,00 |
| 314.577.105.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 710 5m | 710 | 5,00 |
| 314.577.106.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 710 6m | 710 | 6,00 |
| 314.578.003.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 800 3m | 800 | 3,00 |
| 314.578.005.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 800 5m | 800 | 5,00 |
| 314.578.006.075.940 | FITT SEWER EVO SN2 UNIEN1401 / Ø 800 6m | 800 | 6,00 |
| 314.601.251.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 125 1m | 125 | 1,00 |
| 314.601.252.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 125 2m | 125 | 2,00 |
| 314.601.253.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 125 3m | 125 | 3,00 |

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.601.255.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 125 5m | 125 | 5,00 |
| 314.601.256.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 125 6m | 125 | 6,00 |
| 314.601.601.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 160 1m | 160 | 1,00 |
| 314.601.602.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 160 2m | 160 | 2,00 |
| 314.601.603.006.340 | FITT SEWER EVO SN8 / Ø 160 3m H | 160 | 3,00 |
| 314.601.603.075.941 | FITT SEWER SN8 / Ø 160 3m + B CANP | 160 | 3,00 |
| 314.601.603.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 160 3m | 160 | 3,00 |
| 314.601.605.075.941 | FITT SEWER SN8 / Ø 160 5m + B CANP | 160 | 5,00 |
| 314.601.605.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 160 5m | 160 | 5,00 |
| 314.601.606.006.340 | FITT SEWER EVO SN8 / Ø 160 6m H | 160 | 6,00 |
| 314.601.606.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 160 6m | 160 | 6,00 |
| 314.602.001.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 200 1m | 200 | 1,00 |
| 314.602.002.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 200 2m | 200 | 2,00 |
| 314.602.003.006.340 | FITT SEWER EVO SN8 / Ø 200 3m H | 200 | 3,00 |
| 314.602.003.075.941 | FITT SEWER SN8 / Ø 200 3m + B CANP | 200 | 3,00 |
| 314.602.003.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 200 3m | 200 | 3,00 |
| 314.602.005.075.941 | FITT SEWER SN8 / Ø 200 5m + B CANP | 200 | 5,00 |
| 314.602.005.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 200 5m | 200 | 5,00 |
| 314.602.005.775.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 200 5,70m | 200 | 5,70 |
| 314.602.006.006.340 | FITT SEWER EVO SN8 / Ø 200 6m H | 200 | 6,00 |
| 314.602.006.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 200 6m | 200 | 6,00 |
| 314.602.501.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 250 1m | 250 | 1,00 |
| 314.602.502.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 250 2m | 250 | 2,00 |
| 314.602.503.006.340 | FITT SEWER EVO SN8 / Ø 250 3m H | 250 | 3,00 |
| 314.602.503.075.941 | FITT SEWER SN8 / Ø 250 3m + B CANP | 250 | 3,00 |
| 314.602.503.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 250 3m | 250 | 3,00 |
| 314.602.505.075.941 | FITT SEWER SN8 / Ø 250 5m + B CANP | 250 | 5,00 |
| 314.602.505.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 250 5m | 250 | 5,00 |
| 314.602.505.775.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 250 5,70m | 250 | 5,70 |
| 314.602.506.006.340 | FITT SEWER EVO SN8 / Ø 250 6m H | 250 | 6,00 |
| 314.602.506.075.955 | FITT SEWER SN8 UNI EN1401 / Ø 250 6m | 250 | 6,00 |
| 314.603.151.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø 315 1m | 0 | 1,00 |
| 314.603.152.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø 315 2m | 0 | 2,00 |
| 314.603.155.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø 315 5m | 0 | 5,00 |

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# 11. attachment "a" products codes

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.603.155.075.941 | FITT SEWER EVO SN8 / Ø 315 5m + B CANP | 0 | 5,00 |
| 314.603.155.775.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 315 5,7m | 315 | 5,70 |
| 314.604.003.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 400 3m | 400 | 3,00 |
| 314.604.005.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø400 5m | 400 | 5,00 |
| 314.604.005.075.941 | FITT SEWER EVO SN8 / Ø 400 5m + B CANP | 400 | 5,00 |
| 314.604.005.775.940 | FITT SEWER EVO SN8 UNI EN 1401 / Ø 400 5,7m | 400 | 5,70 |
| 314.604.006.006.340 | FITT SEWER EVO SN8 / Ø 400 6m H | 400 | 6,00 |
| 314.604.006.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 400 6m | 400 | 6,00 |
| 314.605.003.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 500 3m | 500 | 3,00 |
| 314.605.003.075.941 | FITT SEWER EVO SN8 / Ø 500 3m + B CANP | 500 | 3,00 |
| 314.605.005.075.941 | FITT SEWER EVO SN8 / Ø 500 5m + B CANP | 500 | 5,00 |
| 314.605.006.006.340 | FITT SEWER EVO SN8 / Ø 500 6m H | 500 | 6,00 |
| 314.605.006.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 500 6m | 500 | 6,00 |
| 314.606.303.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 630 3m | 630 | 3,00 |
| 314.606.305.075.941 | FITT SEWER EVO SN8 / Ø 630 5m + B CANP | 630 | 5,00 |
| 314.606.305.775.940 | FITT SEWER EVO SN8 UNI EN 1401 / Ø 630 5,7m | 630 | 5,70 |
| 314.606.306.006.340 | FITT SEWER EVO SN8 / Ø 630 6m H | 630 | 6,00 |
| 314.606.306.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 630 6m | 630 | 6,00 |
| 314.606.306.095.943 | FITT SEWER EVO SN8 / Ø 630 6m X | 630 | 6,00 |
| 314.607.103.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 710 3m | 710 | 3,00 |
| 314.607.105.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø 710 5m | 710 | 5,00 |
| 314.607.106.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 710 6m | 710 | 6,00 |
| 314.608.003.006.440 | FITT SEWER EVO SN8 EN 1452/ Ø 800 3m | 800 | 3,00 |
| 314.608.003.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 800 3m | 800 | 3,00 |
| 314.608.005.075.940 | FITT SEWER EVO SN8 UNIEN1401 / Ø 800 5m | 800 | 5,00 |
| 314.608.005.675.940 | FITT SEWER EVO SN8 UNI EN 1401 / Ø 800 5,6m | 800 | 5,60 |
| 314.608.006.006.440 | FITT SEWER EVO SN8 EN 1452 / Ø800 6m | 800 | 6,00 |
| 314.608.006.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 800 6m | 800 | 6,00 |
| 314.701.106.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 110 6maf | 110 | 6,00 |
| 314.701.256.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 125 6maf | 125 | 6,00 |
| 314.701.606.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 160 6maf | 160 | 6,00 |
| 314.702.003.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 200 3maf | 200 | 3,00 |
| 314.702.006.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 200 6maf | 200 | 6,00 |
| 314.702.503.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 250 3maf | 250 | 3,00 |

| Code | Description | Diameter | m |
|---|---|---|---|
| 314.702.506.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 250 6maf | 250 | 6,00 |
| 314.703.153.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 315 3maf | 315 | 3,00 |
| 314.703.156.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 315 6maf | 315 | 6,00 |
| 314.704.003.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 400 3maf | 400 | 3,00 |
| 314.704.006.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 400 6maf | 400 | 6,00 |
| 314.705.003.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 500 3maf | 500 | 3,00 |
| 314.705.006.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 500 6maf | 500 | 6,00 |
| 314.706.303.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 630 3maf | 630 | 3,00 |
| 314.706.306.005.943 | FITT SEWER EVO SN16 UNI EN1401 / Ø 630 6maf | 630 | 6,00 |
| 314.804.006.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 400 6m GR | 400 | 6,00 |
| 314.806.306.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 630 6m GR | 630 | 6,00 |
| 314.807.105.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 710 5m GR | 710 | 5,00 |
| 314.807.106.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 710 6m GR | 710 | 6,00 |
| 314.808.005.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 800 5m GR | 800 | 5,00 |
| 314.808.006.075.940 | FITT SEWER EVO SN8 UNI EN1401 / Ø 800 6m GR | 800 | 6,00 |

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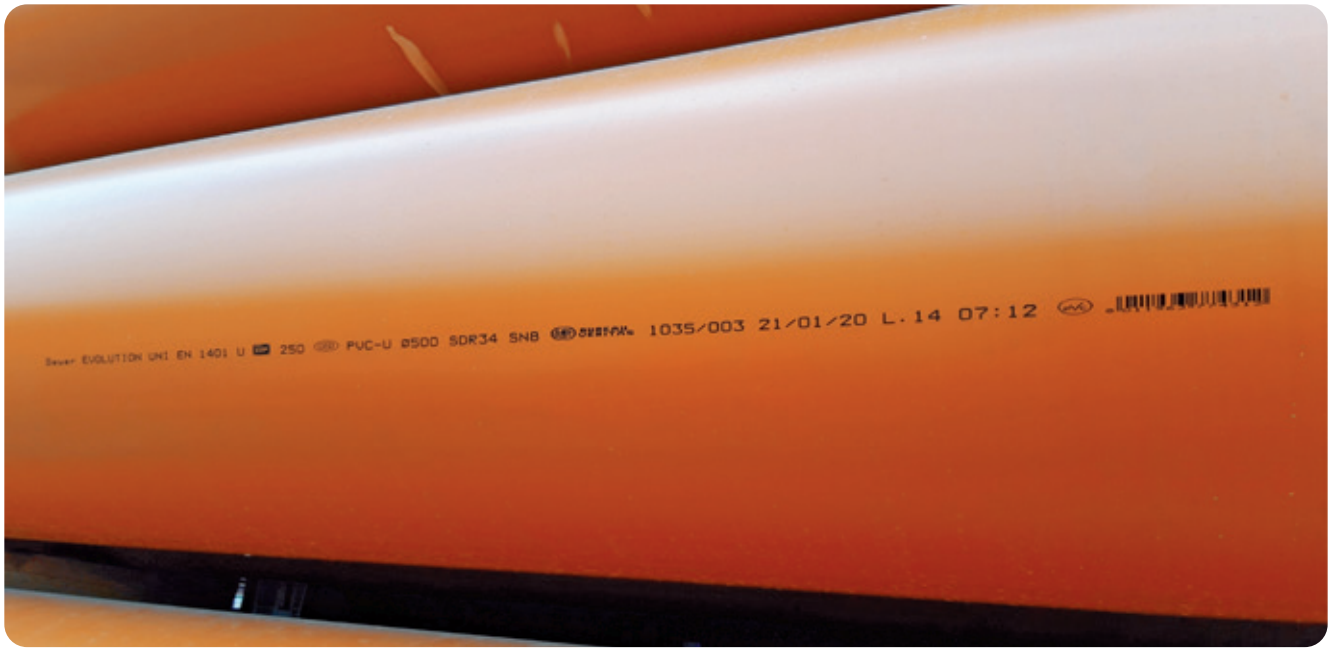
# 12. attachment "b"
# fitt sewer and fitt sewer evo specification item

Supply and installation of standard PVC-U pipes UNI EN 1401-01: 2019 brown-orange color RAL 8023 for pipelines intended for conveyance wastewater from civil, industrial and agricultural sewers.

The stabilizers used must be organic OBS and therefore totally free of heavy metals.
Cup joint system with gasket mechanically pre-inserted hot during the phase of glass formation, composed of element seal in accordance with UNI EN 681 coupled to a ring reinforcement in polypropylene without metal elements.

The joining system must be able to give positive result in leak tests conducted and certified by a third party accredited according to conditions B and C of the UNI EN 1277: 2005 (now UNI EN ISO 13259: 2018) with the following test parameters: hydrostatic pressure 1.5 bar and negative air pressure - 0.6 bar.
The pipes will have to be manufactured by companies that operate according to the Company Quality system compliant with UNI EN ISO 9001 standard.




fitt sewer

EPD®

# insurance certificate

FITT guarantees its products
with a special insurance coverage
for all damages caused to third parties.

In relation to the **FITT Sewer and FITT Sewer EVO** products,
a specific policy has been drawn up with:

## 15.000.000 EURO LIMIT OF LIABILITY

## WORLDWIDE VALIDITY

## COVERAGE VALID FROM THE DATE OF SALE

10 YR
INSURANCE COVERAGE

**The following damages are also refunded, if they occur or are presumed to occur:**
repair or modification or rectification of the defective product and the assembly of the defect-free product; replacement, namely the dismantling of the defective product and the corresponding assembly of the defect-free product.

fitt®
Flowing forward

# certified company quality

**FITT** implements a business management policy aimed at ensuring the highest quality in terms of technology, products and services, in full respect of the environment in which it operates.
The certification of the quality system obtained by the company confirms its compliance with the requirements of the **UNI EN ISO 9001:2015** standard for the following categories:

"Design, manufacture, storage and distribution of:

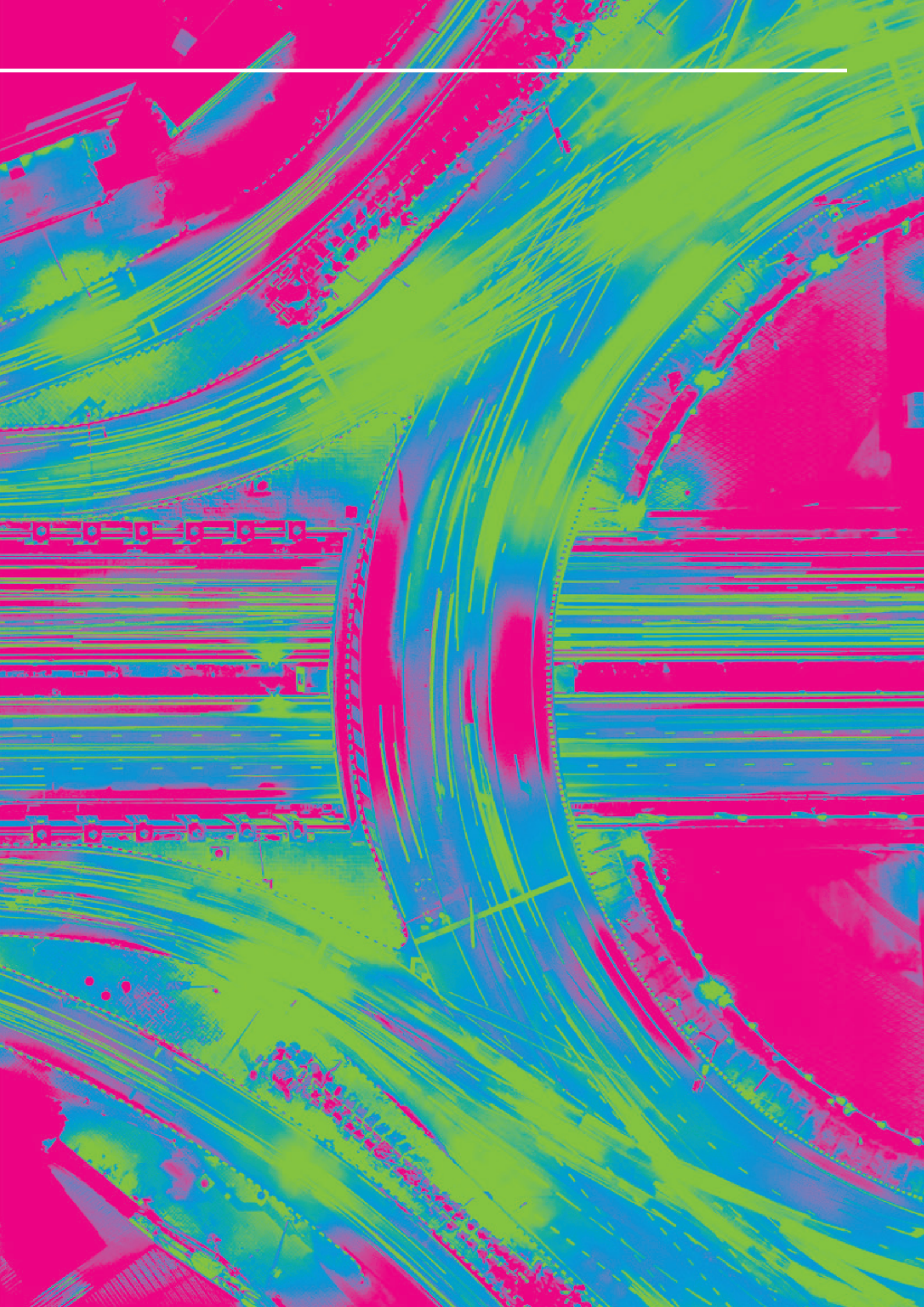
- Ducts and systems in plastic material, also suitable for food use, for Garden, Industrial and Building applications, obtained by extrusion and moulding.
- Extruded plastic film
- Virgin and regenerated PVC granules, obtained through mixing and granulation.

Marketing of ducts and systems."

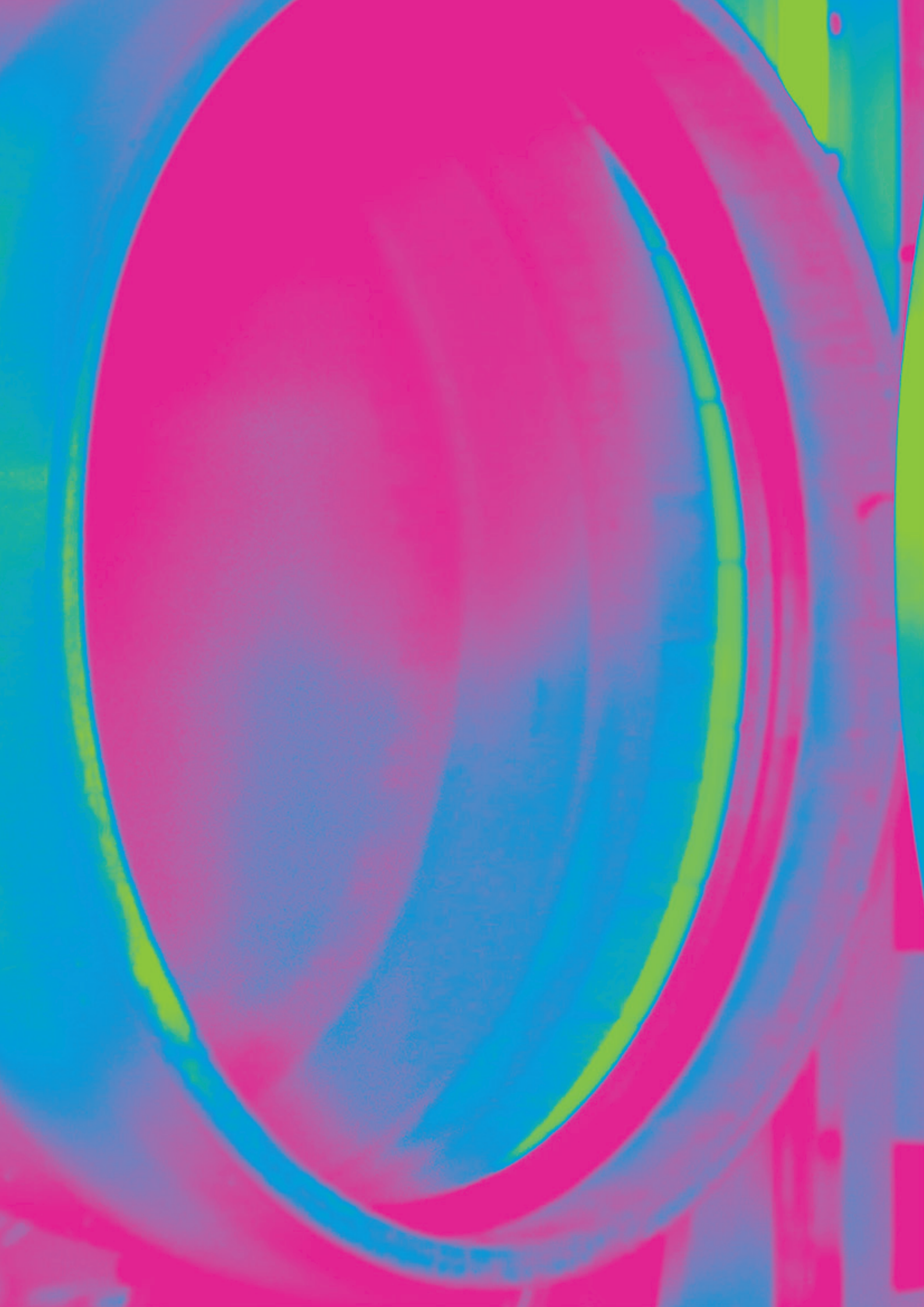
fitt®

INFRASTRUCTURE
SOLUTIONS

This is the business area of the FITT Group that produces and develops complete piping, hose and fitting solutions for the pressure and gravity flow of fluids intended for the integrated water service management utilities, such as drinking water and sewerage networks.



# notes



fitt.com

**FITT Sewer and FITT Sever EVO**
Environmental Product Declaration

For more information:
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www.environdec.com


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