

argo

★ argo ★ night ★ sky
Low-noise house
sewage system

Argonomy of low-noise house sewage
system: because we enjoy the tranquility of living



argo
Argonomy of Connections

ARGO d.o.o. is a Slovenian company established in 1990 which deals with manufacturing and trade activities. Initially it was engaged in the designing and the production of specialised nautical equipment, in the deck equipment of vessels for recreational and competitive sailing. Today the sailing boats represent 5% of the whole production.

In 1991 we added "house sewage systems" products to the nautical programme. The programme of the production of pipes and polypropylene fittings has successfully expanded and has surpassed the nautical programme. Today it represents as much as 70% of the production. Argo is a manufacturer of sanitary plastic products with the most wide-ranging products in the country. The quality of our products is second to none in Slovenia; we are also successfully proving our worth within the markets of Western and Eastern Europe.

In 2001 we launched a third programme: the programme of polyethylene cable ducts which currently represents 25% of our production.

We are operating on an area of 17,000 m², of which 4,000 m² of those are covered.

We produce approximately 1,000 tons of polyethylene and 3,000 tons of polypropylene annually. We also offer our clients a comprehensive programme of pipe systems including pipes and fittings for house sewage systems, street sewage systems, drainage, plumbing and so on.

Despite the fact that we are already successful in our activities we do not intend to rest. We are expanding through complementing and improving our offers. Therefore it is no coincidence that we named our company Argo. In mythology Argo was the name of Jason's ship that carried the fearless and daring sailors into the unknown world to find the Golden Fleece. Daring, bold and the desire to make new discoveries is the entrepreneurial spirit of the Argonauts that also pervades our company. This is the reason as to why we constantly expand and upgrade our manufacturing capacities, invest in professional training, follow world trends and develop innovative solutions.

All this enables us to reach our most important goal: customer satisfaction. We strive to offer every client not only products of high quality but also solutions that are tailored for the client's specific needs and wishes. Following this mission is also the best guarantee for an even greater success on the broader European market, including Slovenia.

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Polypropylene – a modern story of success

Polypropylene is a polymer which is odourless and colourless, that is slightly transparent to opaque and can be coloured in an easy way and in multiple hues. It's most important properties are high bruising resistance and a resistance to most chemical substances; it is highly resistant to physical damage, detergents and tensioactive materials even at high temperatures, to dissolve inorganic substances in water, low-concentration inorganic acids, basic solutions, alcohols and some oils. However, it is not resistant to strong oxidising agents, chlorine sulphuric acid, and 100% oleum, to evaporating nitrate acid and to halogen hydrocarbons. It is also not suitable for adhesives.

It is resistant to almost every acid, base or salt, even in high concentrations or in temperatures above 60°C. It also excels at being resistant to working temperatures, at washing away effluents due to a smooth inner wall, a great stable shape and good insulation. It only absorbs minimum quantities of water (less than 0.02%) which are on the surface layer only.

To the pure raw material we can, at our client's request, add additives to achieve the desired effect – for example halogens (bromides) are added for self-extinguishing, and a better resistance to low temperatures can be achieved through co-polymerisation with other olefines (most frequently with ethylene).

There are various types of polypropylene with different molecular structure, for industrial purposes, however; only the isotactic polymer is relevant. It is used to produce pipes and fittings used in house sewage systems to drain away domestic and faecal sewage as well as rain water in buildings.

A step forward in the development of house sewage systems

ARGO NIGHT SKY is a low-noise house sewage system. Its production is a result of our own know-how and years of experience in the production of house sewage systems.

The exceptional quality and ease of use offer a possibility for the ARGO NIGHT SKY system to be used everywhere for a higher quality of living and where the reduction of environmental noise is required. We recommend ARGO NIGHT SKY system to be installed in hotels, hospitals, education facilities, multi residential buildings etc.

ARGO NIGHT SKY system is produced in six different dimensions: DN40, DN50, DN75, DN110, DN125 and DN160, which enables a wide variety of uses and is 100% compatible with the classic house sewage systems.

Advantages of Argo pipe system

- a wide-ranging selection of fittings in various diameters, lengths and shapes enable the fastest and the most economical installation
- simple installation – no expensive adhesives and kits necessary
- easy to repair and potentially replace
- the manner of connecting and a wide range of special fittings allow for an easy and fast connection of various pipes
- highly stable pipe shapes allow for an effective, functional, long-lasting and safe connection to a rubber gasket
- impact resistance
- excellent resistance to boiling water effluents from washing machines and dishwashers
- the surface structure allows for drainage of waste water without the formation of crusts and sediments
- lower condensation due to a low thermal conductivity

Pipes, sockets, connectors, gaskets

Gaskets made of elastomer are already pre-installed in the suitable canal in the socket of the bottom part. They are made from materials that provide the best possible sealing, are the safest and have lifetime durability equal to those of pipes and fittings. They comply with the conditions, methodology and frequency of control in accordance with standard EN 1451.

Argo can also provide you with numerous special elements needed for removing various installation problems: connectors made from various materials, special reducer elements including small sized reducer elements etc.

Warning: Do not expose the gaskets to direct sunlight as they are not UV-stabilised.

Proper use of pipes and connecting elements

A professional installer should plan and estimate every detail of the sewage system beforehand.

If a sewage system is to be installed outside the building, you should – before excavating – foresee a possibility of an unequal load on a part or parts of pipes due to possible eventual terrain subsidence. In such cases, we recommend you excavate in a straight line with curves that enable the installation of special elements with specific angles (15°, 30°, 45° etc.). We also recommend that you line the bottom of the excavation with a smooth concrete base with a suitable incline and with suitable pipe holders to prevent pipe load only on the area of connectors.

Vertical fitting should pose no problem as the installation procedure is simplified by the connector sockets that function as dilation clips. Installation can be mounted in two ways:

- lay the pipe conduit so that the clips are cemented in the concrete slab of a storey:



- no additional securing is needed
- any pipe elongation under the concrete slab will be absorbed by the connector in the lower storey without any sheer load in the dilution element.
- to compensate for the elongation it is essential to determine the eventual pipe dilation beforehand
- place a clamp in each storey to secure the pipes so that sliding is possible
- as a free pipe conduit, for example in the auxiliary shaft;

Ensure the primary ventilation by extending the drainage pipe through the ceiling of the top storey in the building. The diameter of the ventilation pipe above the last drainage point should be equal to the diameter of the drainage pipe (usually 110mm). A special muzzle

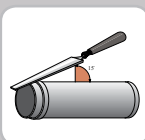
protection above the ventilation pipe is not necessary, however, be sure to provide a protection that will prevent snow covering the muzzle in wintertime.

As a rule this system is used for lower buildings. It could also be called installation with a vent. In some cases it reduces or removes a siphon effect due to vacuum, however it does not remove the siphon effect due to compression (pressure).

We also recommend that you follow the instructions below:



For pipe elongation, use a saw with fine teeth; saw at a right angle cut.



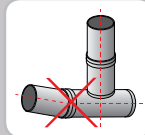
Brush the pipe ends with a special device or with a fine filer at the angle of 15°; the surface of the brushed part must be smooth, because this is the only way to prevent damage to the peripheral gasket in the neck of the pipe into which you will be inserting the new pipe.



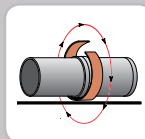
The ends of connecting elements should never be shortened as the connector then becomes unreliable.



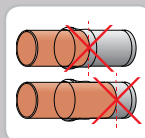
Always check the inside of the pipe socket, gasket and the new pipe end; intersperse the connectors with a material that allows sliding – soap water is also an option, but do not use mineral oil or grease.



Prevent excessive pipe movement as this can reduce the reliability of the pipe connector, and render the sealing incomplete.



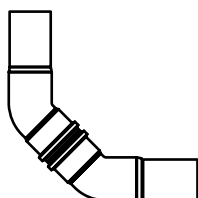
We recommend that you cover the connectors so that the gaskets are protected from concrete which can damage them.



Insert the pipes in the socket – insert the bottom part relatively deep; determine the depth in accordance with the necessary expansion joint; if the pipe is not inserted deep enough the sealing will not be complete; however, if it is inserted too deep you will prevent pipe elongation.

Installation instructions for ARGO NIGHT SKY low-noise system

1. Wherever standards and requirements regarding sound insulation must be met, installers must respect certain construction and installation rules.
2. For house sewage installation one must pay attention that the pipes are not laid directly on the massive walls without a sound insulation layer. The sound absorbing pipes, laid above the plaster are fixed using special fittings.
3. It is possible to influence the source of noise by carefully choosing and arranging the piping. The main source of noise is usually the point where the flow changes direction from vertical to horizontal.
4. At the point where the flow changes direction from vertical to horizontal two fittings at 45° should be used. By this the change of direction is alleviated and the noise reduced.



5. With vertical assemblies special pipe clamps which are coated with rubber are used. Their main role is to minimize the passage of sound and vibrations from the pipe to the construction.

Laying the pipes in concrete

1. Pipes and fittings can be laid directly in the concrete (vertically), but one must pay particular attention to the dilatation of the pipes and fittings. The slot between the pipe and the clamp is sealed to prevent any entry of the cement fluid.

2. With thicker concrete layer or with stronger vertical lading it is essential to carry out a static lading calculation.

Laying the pipes in brick wall (groove)

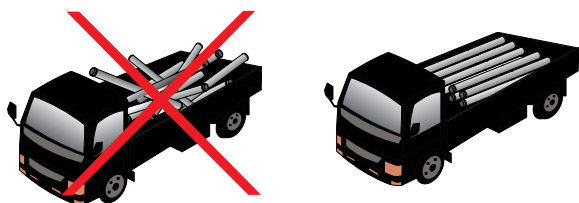
1. Laying the pipes in the brick walls is permitted only if the load capacity and stability is unaltered. The groove must be large enough to enable the correct function of the piping system. The pipes are fixed using special fittings, coated in rubber.
2. With the passage of the pipe through a wall or a ceiling one must pay attention to the contact between the pipe and the wall. If a direct contact occurs, it could cause vibrations and unwanted noise. To prevent this, the pipe must be coated in isolative material such as glass wool or armaflex.
3. With laying the pipes in the grooves one must pay attention to prevent "air bridges" which are a source of noise.

Required groove dimensions for laying the pipes:

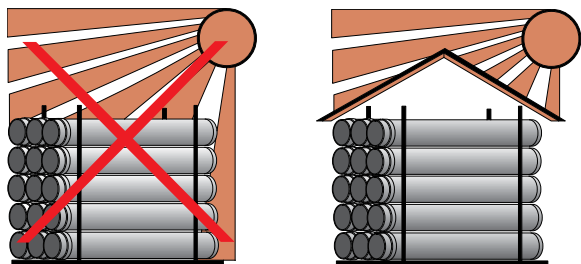
PIPE DI-AMETER (DN)	GROOVE DEPTH WITHOUT ISO-LATION	GROOVE DEPTH WITH ISOLATION
75	140x140	180x180
110	180x180	220x220
125	190x190	230x230
160	230x230	270x270

Transport and storing

Transport and store with care. Before transportation the pipes should be loaded horizontally and in such a manner which prevents the pipes from crossing. We recommend loading the pipes on to a palette before transportation and also inserting the pipes into spacers in order to prevent any damage caused through movement.

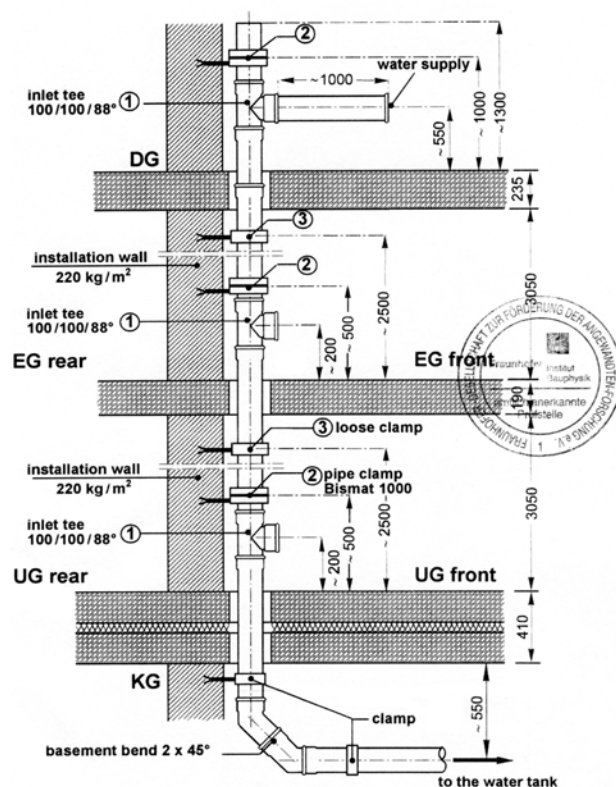


For optimal storage for pipes and fittings we suggest a closed or covered storage area which will prevent the pipes and fittings against low temperature, direct sunlight and any other such weather influences. This is crucial for when temperatures drop below zero degrees Celsius due to their structure. All polymers, as well as polypropylene become brittle and less flexible when exposed to such harsh conditions. We recommend stacking pipes in a horizontal position on pallets. Do not stack pipes higher than 1.7 m. The pipes should not be exposed to any direct sunlight for more than 12 months.



The results of sound measurements

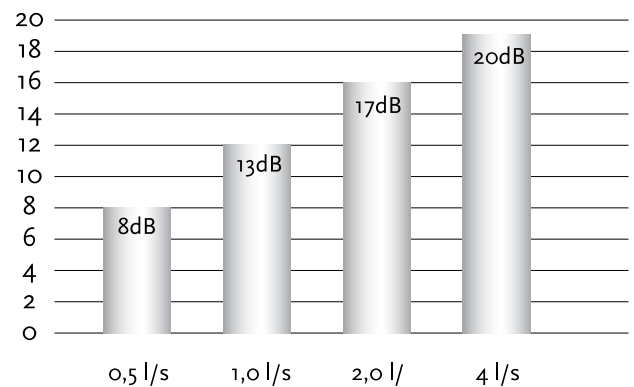
We had Argo Night Sky soundproof household waste water system tested at Fraunhofer Institute for Biophysics in Stuttgart which is a certified laboratory for measuring sound in buildings and noise insulating according to European and German standards DIN EN ISO/IEC 17025.



the wall which weight was 220 kg/m², pipes nominal size DN110 with the use of clamps.

The results of measurements prove that the soundproof household waste water system Argo Night Sky corresponds to the strict European standards and demands used in all the projects that demand the installation and use of soundproof pipes (hotels, hospitals, schools, kindergartens, conference halls,)

It has to be taken into account that the measurements were done in a laboratory in the conditions stated above. Differences in the construction of installation wall, clamps or entire system might lead to noise levels different from the ones achieved during the test.

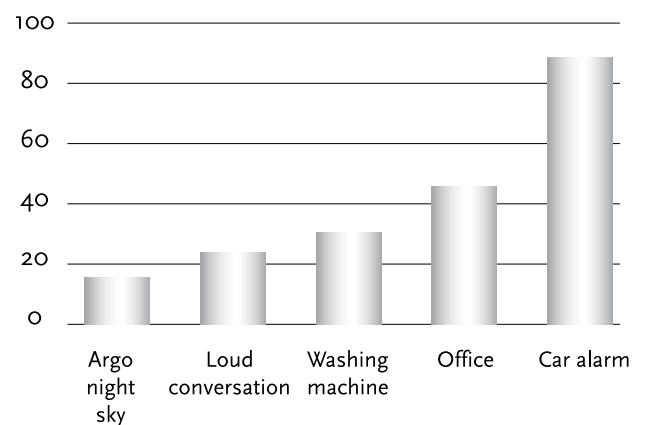


The boundary conditions are as follows:

- measured flow in the waste an soil system
- pipe-line diameter DN110 (most frequent diameter)
- measurements taken on the lowest floor, in room UG rear
- assembly wall, weight 220kg/m²

The measurements were done according to the European standard EN 14366: 2005-02 »Laboratory measurement of noise from waste water installations« in the laboratory of the already mentioned institute. The measurements refer to the UG rear room – ground floor rear (see the plan). Argo Night Sky pipes were installed on

EVERYDAY NOISE



Technical specification argo night sky

MATERIAL:

Ago Night Sky, mineral-reinforced polypropylene homopolymer and copolymer

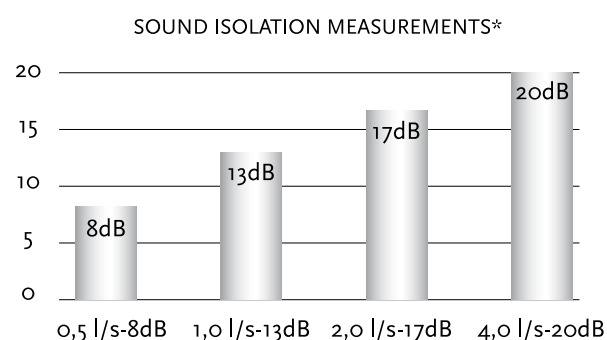
TYPICAL DENSITY OF THE MINERAL FILLER:

PIPES : 2,03 g/cm³

FITTINGS: 1,25 g/cm³

SOUNDPROOF LEVEL:

The sound isolation measurements were conducted at the Fraunhofer Institute in Stuttgart, in correspondence to the DIN EN 14366 norm and are quoted in the report nr. P-BA 2236/2008e



FIRE RESISTANCE CHARACTERISTIC:

DIN 4102, class B2

COLOUR:

outer layer black RAL 9005, inner layer white RAL 9001

RANGE OF PRODUCTION:

DN40

DN50

DN75

DN110

DN125

DN160

Other Characteristics:

- Fungus and bacteria resistant
- Electrical insulation
- Smooth surface
- Impact resistance
- Corrosion resistance
- Inflammable**
- Long life-span
- Chemical endurance: the product is resistant to a wide range of PH values


QUALITY ASSURANCE:

Argo Night Sky pipes and fittings quality is regularly monitored by tests and quality controls, managed and certified by the EN ISO 9001

* In the case of any disregard for the installation instructions and also in the case of any inappropriate materials within installation the actual values may differ from the ones quoted.

** Available upon customer request and/or in the markets where this characteristic is obligatory

Certificates



Fraunhofer Institut Bauphysik

Baufachlich anerkannte Stelle
für Prüfung, Überwachung und
Zertifizierung
Zulassung neuer Baustoffe, Bauteile
und Bauarten
Forschung, Entwicklung,
Demonstration und Beratung auf
den Gebieten der Bauphysik

Institutleitung
Univ.-Prof. Dr. Gerd Hauser
Univ.-Prof. Dr. Klaus Sedlbauer

Test report P-BA 236/2008e

**Determination of the Acoustic Performance
of a Wastewater Installation System in the Laboratory**

Client: ARGO D.O.O. HORJUL
VRHNIŠKA CESTA 30
1354 HORJUL
SLOVENIA

Test specimen: Wastewater installation system consisting of "ARGO NIGHT SKY" plastic pipes and fittings (manufacturer: ARGO) mounted with pipe clamps "Bismat 1000" (manufacturer: Walraven).

Contents:

Table 1:	Summary of test results
Figures 1 to 3:	Detailed results
Figure 4:	Installation plan
Annex A:	Measurement set-up, noise excitation, acoustic parameters
Annex F:	Evaluation of measurements
Annex P:	Description of test facility

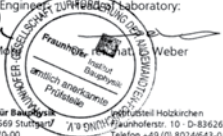
The tests were performed in a laboratory accredited by the German Accreditation System for Testing (DAP, file no. PL-3743.26) according to standard EN ISO/IEC 17025.

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Stuttgart, November 6, 2008

Responsible Test Engineer:


Dipl.-Ing. (FH) J. M. Weber



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 Telefax +49 (0) 80 24/643-66
 www.bauphysik.de

ORGANISATION MONDIALE
DE LA PROPRIÉTÉ INTELLECTUELLE




ARRANGEMENT ET PROTOCOLE
DE MADRID

54, chemin des Colombettes, case postale 18, CH-1211 Genève 20 (Suisse)
Tél.: (41-22) 320 9111 - Télécopieur (marques internationales): (41-22) 740 1439
Messagerie électronique: info@OMPI.ch - Internet: <http://www.OMPI.ch>

CERTIFICAT D'ENREGISTREMENT

Le Bureau international de l'Organisation Mondiale de la Propriété Intellectuelle (OMPI) certifie que les indications figurant dans le présent certificat sont conformes aux inscriptions portées au registre international tenu en vertu de l'Arrangement et du Protocole de Madrid.


 Judith ZAHRA
 Administrateur chargé du service
 Département des enregistrements internationaux
 Division des opérations relatives
 aux enregistrements internationaux

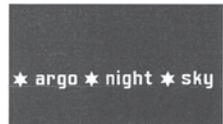
Genève, le 16 octobre 2008

977 625

Date d'enregistrement: 9 mai 2008
Date d'expiration: 9 mai 2018

ARGO d.o.o.,
navtična oprema, uvoz, izvoz
Vrhniška cesta 30
SI-1354 Horjul
(Slovénie).

Nom et adresse du mandataire: PATENTINA PISARNA,
d.o.o., Copova 14, p.p. 1725, SI-1001 Ljubljana (Slovénie).



Classification des éléments figuratifs:
1.1; 27.5.

Liste des produits et services - NCL(9):

11 Appareils de chauffage, de production de vapeur, de cuisson, de réfrigération, de séchage, de ventilation, de distribution d'eau et installations sanitaires, conduits (parties d'installations sanitaires), appareils sanitaires de salles de bains, installations de bain, installations pour l'approvisionnement d'eau, installations de distribution d'eau, installations sanitaires, serpentins (parties d'installations de distillation, de chauffage ou de refroidissement), conduits (parties d'installations de distribution d'eau), installations

17 Caoutchouc, gutta-percha, gomme, amiante, mica et produits en ces matières compris dans cette classe; produits en matières plastiques mi-cuivrées; matières à calfeutrer, à étouper et à isoler; tuyaux flexibles non métalliques, joints pour conduites, manchons de tuyaux non métalliques, raccords de tuyaux non métalliques, tuyaux pliants non métalliques, garnitures d'échappement, tuyaux, tubes et pièces de raccord pour tuyaux, tubes de canalisation, tuyaux et pièces de raccord de canalisation intérieure des habitations; tuyaux et pièces de raccord de canalisation externe, tuyaux et pièces de raccord de distribution d'eau chaude et froide dans les unités de logement, tuyaux et pièces de raccord en polypropylène pour la distribution d'eau chaude et froide dans les unités de logement, tuyaux pour l'eau potable, tuyaux alcajènes pour l'eau potable, tuyaux de descente et de drainage, pièces de raccord pour tuyaux de descente et de drainage, raccords pour tuyaux de descente, de drainage et de canalisation, tuyaux de gaz, tuyaux de gaz en polyéthylène, tubes de protection pour le passage des câbles, tubes de protection en polyéthylène, en polypropylène et en PVC pour le passage des câbles, tous les produits précités non métalliques et compris dans cette classe.

19 Matériaux de construction non métalliques; tuyaux rigides non métalliques pour la construction; asphalte, poix et bitume; constructions transportables non métalliques; monuments non métalliques; roseau pour la construction, conduites non métalliques, tuyaux de drainage non métalliques.

Certificates

SKZ
Slovenian National Building and Civil Engineering Institute

Prüfzeugnis: 242902/2.2/51253

Auftraggeber: Argo plastika d.o.o.
Horjul 70a
SLO-1354 Horjul

Produktionsstätte: SLO-1354 Horjul

Überwachungsprüfung: 2. Halbjahr 2002

Erzeugnis: Hausabflusssysteme
Bogen 87° PP-4HT DN 50

Schreiben von: — **Zeichen:** —

Probeneingang: 2002-12-05 **Probenentnahme:** 2002-11-21

Prüfzeitraum: 2003-03-03 bis 2003-03-18

Ergebnis: Die Anforderungen der DIN V 19960 werden erfüllt.

Das Prüfzeugnis umfasst 2 Seiten.

Wurzburg, 2003-03-22
MS/G

I. A.  **I. A.** 
Martin Schütz

The institution has implemented the necessary measures to ensure the reliability of the results of the examination and to ensure the confidentiality of the results of the examination.

Notizen des Prüfzeugnisses: 1. Das Prüfzeugnis ist gültig für die angegebenen Produkte. 2. Das Prüfzeugnis ist gültig für die angegebenen Produkte. 3. Das Prüfzeugnis ist gültig für die angegebenen Produkte.

Zavod za gradbeništvo Slovenije
Slovenian National Building and Civil Engineering Institute

ZAG

Slovensko tehnično soglasje **STS-06/081**
Slovenian Technical Approval

Podjetje na podlagi določil Zakona o gradbenih proizvodih - ZGPro (Ur. list RS, št. 52/00 in št. 110/02 - ZGO-1) naslednjemu gradbenemu proizvodu:
On the basis of provisions of the Construction Products Act - ZGPro (Official Gazette of the Republic of Slovenia, no. 52/00 and 110/02 - ZGO-1) granted to the following construction product:

Komercialno ime proizvoda: PP CEVI IN FITINGI ZA HİŞNO KANALIZACIJO
Imetnik soglasja: ARGO d.o.o. HORJUL, Vrtniška cesta 30, 1354 Horjul

Vrsta in predvidena uporaba proizvoda: PP cevi in fittingi za hišno kanalizacijo DN 32,40,50,75,110,125,160 kategorije B - uporaba znotraj stavb ali zunaj stavb, če so vgrajene ali pritrjene na steno

Glavni tip in var. izdaja proizvoda: 26. marec 2007
27. marec 2012

Veljavnost: od (pričetka) do (krajnosti)
26. marec 2007
27. marec 2012

Proizvodni obrat: ARGO d.o.o., Horjul
Vrtniška cesta 30
1354 Horjul

Testirali: BODE GMBH, KIRCHWEG 114 D-34558 HENSTEDT-ULZBURG

To slovensko tehnično soglasje obsega: 19 strani s prilogo 2 prilogami
This Slovenian Technical Approval includes: 19 pages including 2 annexes

BUREAU VERITAS
Certification

Certification
Awarded to
ARGO d.o.o. HORJUL
VRNIŠKA C 30, 1354 HORJUL, SLOVENIA

Bureau Veritas Certification certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below.

Standards
ISO 9001:2000

Scope of supply
DEVELOPMENT, PRODUCTION AND MARKET RESEARCH OF THE SYSTEMS FOR INDOOR AND OUTDOOR SEWAGE AND CABLE PROTECTION PIPES

Original / Approval Date: 06/07/2000
Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until: 12/06/2000

To check the certificate validity please call +386 (0) 47 57 478
Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be requested by contacting the organization.

Certificate number: 205805 **Date:** 18/12/2006



Bureau Veritas Certification is a member of the Bureau Veritas Group, which is a member of the Bureau Veritas Group.

of

Technische & Innovations GmbH

Prüfbericht Nr.: 369.198 Datum: 2007-09-27
Kunststoff-Rohrleitungssysteme zum Ableiten von Abwasser innerhalb der Gebäudestruktur aus Polypropylen

Antragsteller: ARGO d.o.o.
Vrtniška cesta 30
1354 Horjul
SLOVENIA

Gegenstand: Rohre und Formstücke aus Polypropylen (PP) zum Ableiten von Abwasser niedriger und hoher Temperatur innerhalb der Gebäudestruktur den Abmessungsgruppen 1 und 2 und den Formstückgruppen 1,2 und 3 mit dem Anwendungsprofil B

Inhalt: Erstprüfung nach ÖNORM EN 1451-1 (Ausgabe 2000)

Auftrag: schriftlich durch Herrn Mag. Baar vom 2007-09-12

Datum der Probenahme: 2007-09-03

Eingang der Proben: 2007-09-04

Zeichen: DL Papp / Ppou



Technische & Innovations GmbH is a member of the Bureau Veritas Group, which is a member of the Bureau Veritas Group.

PRODUCT – PP LOW-NOISE PIPES AND FITTINGS

PP LOW-NOISE PIPES
★ argo ★ night ★ sky







PP LOW-NOISE ONE SOCKET PIPE HTM

OD Ø (mm)	L (mm)	EAN code	unit	units per palette
40	250	383 10205 1200 9	pcs	2880
40	500	383 10205 1201 6	pcs	1920
40	1000	383 10205 1202 3	pcs	600
40	2000	383 10205 1203 0	pcs	600
40	3000	383 10205 1204 7	pcs	600
50	250	383 10205 1205 4	pcs	2520
50	500	383 10205 1206 1	pcs	1440
50	1000	383 10205 1207 8	pcs	400
50	2000	383 10205 1208 5	pcs	400
50	3000	383 10205 1209 2	pcs	400
75	250	383 10205 1210 8	pcs	1080
75	500	383 10205 1211 5	pcs	720
75	1000	383 10205 1212 2	pcs	210
75	2000	383 10205 1213 9	pcs	210
75	3000	383 10205 1214 6	pcs	210
110	250	383 10205 1215 3	pcs	600
110	500	383 10205 1216 0	pcs	400
110	1000	383 10205 1217 7	pcs	100
110	2000	383 10205 1218 4	pcs	100
110	3000	383 10205 1219 1	pcs	100
125	250	383 10205 1220 7	pcs	560
125	500	383 10205 1221 4	pcs	320
125	1000	383 10205 1222 1	pcs	64
125	2000	383 10205 1223 8	pcs	64
125	3000	383 10205 1224 5	pcs	64
160	250	383 10205 1225 2	pcs	288
160	500	383 10205 1226 9	pcs	192
160	1000	383 10205 1227 6	pcs	48
160	2000	383 10205 1228 3	pcs	48
160	3000	383 10205 1229 0	pcs	48

PP LOW-NOISE PIPE WITHOUT SOCKET HTGL



40	3000		pcs	600
40	5000		pcs	600
50	3000		pcs	400
50	5000		pcs	400
75	3000		pcs	210
75	5000		pcs	210
110	3000		pcs	100
110	5000		pcs	100
125	3000		pcs	64
125	5000		pcs	64
160	3000		pcs	48
160	5000		pcs	48

PRODUCT – PP LOW-NOISE PIPES AND FITTINGS					
PP LOW-NOISE PIPES ★ argo ★ night ★ sky	OD Ø (mm)	OD Ø2 (mm)	EAN code	unit	units per box
BEND HTB 15° 	40		383 10205 1270 2	pcs	50
	50		383 10205 1275 7	pcs	20
	75		383 10205 1280 1	pcs	20
	110		383 10205 1285 6	pcs	20
	125		383 10205 1290 0	pcs	20
	160		383 10205 1295 5	pcs	10
BEND HTB 30° 	40		383 10205 1271 9	pcs	50
	50		383 10205 1276 4	pcs	20
	75		383 10205 1281 8	pcs	20
	110		383 10205 1286 3	pcs	20
	125		383 10205 1291 7	pcs	20
	160		383 10205 1296 2	pcs	10
BEND HTB 45° 	40		383 10205 1272 6	pcs	50
	50		383 10205 1277 1	pcs	20
	75		383 10205 1282 5	pcs	20
	110		383 10205 1287 0	pcs	20
	125		383 10205 1292 4	pcs	20
	160		383 10205 1297 9	pcs	10
BEND HTB 67° 	40		383 10205 1273 3	pcs	50
	50		383 10205 1278 8	pcs	20
	75		383 10205 1283 2	pcs	20
	110		383 10205 1288 7	pcs	20
	125		383 10205 1293 1	pcs	20
BEND HTB 87° 	40		383 10205 1274 0	pcs	50
	50		383 10205 1279 5	pcs	20
	75		383 10205 1284 9	pcs	20
	110		383 10205 1289 4	pcs	20
	125		383 10205 1294 8	pcs	20
	160		383 10205 1299 3	pcs	10
BRANCH HTEA 45° 	40	40	383 10205 1300 6	pcs	20
	50	50	383 10205 1303 7	pcs	20
	75	75	383 10205 1308 2	pcs	20
	110	110	383 10205 1319 8	pcs	20
	125	125	383 10205 1324 2	pcs	20
	160	160	383 10205 1330 3	pcs	10

PRODUCT – PP LOW-NOISE PIPES AND FITTINGS

PP LOW-NOISE PIPES

★ argo ★ night ★ sky

OD Ø
(mm)OD Ø₁
(mm)OD Ø₂
(mm)

EAN code

unit

units per box

BRANCH HTEA 67°



40	40	383 10205 1301 3	pcs	20
50	50	383 10205 1304 4	pcs	20
110	110	383 10205 1320 4	pcs	20

BRANCH HTEA 87°



40	40	383 10205 1302 0	pcs	20
50	50	383 10205 1305 1	pcs	20
75	75	383 10205 1309 9	pcs	20
110	110	383 10205 1321 1	pcs	20
125	125	383 10205 1325 9	pcs	10
160	160	383 10205 1331 0	pcs	10

REDUCED BRANCH HTEA 45°



50	40	383 10205 1306 8	pcs	20
75	50	383 10205 1310 5	pcs	20
110	40	383 10205 1312 9	pcs	20
110	50	383 10205 1314 3	pcs	20
110	75	383 10205 1317 4	pcs	20
125	110	383 10205 1322 8	pcs	10
160	110	383 10205 1326 6	pcs	10
160	125	383 10205 1328 0	pcs	10

REDUCED BRANCH HTEA 67°



75	50		pcs	20
110	50	383 10205 1315 0	pcs	20
110	75		pcs	20

REDUCED BRANCH HTEA 87°



50	40	383 10205 1307 5	pcs	20
75	50	383 10205 1311 2	pcs	20
110	40	383 10205 1313 6	pcs	20
110	50	383 10205 1316 7	pcs	20
110	75	383 10205 1318 1	pcs	20
125	110	383 10205 1323 5	pcs	10
160	110	383 10205 1327 3	pcs	10
160	125	383 10205 1329 7	pcs	10

DOUBLE BRANCH HTDA 45°



50	50	50	pcs	10
75	50	50	pcs	10
75	75	75	pcs	10
110	50	50	pcs	10
110	110	110	pcs	10

DOUBLE BRANCH HTDA 87°



50	50	50	pcs	10
75	50	50	pcs	10
75	75	75	pcs	10
110	50	50	pcs	10
110	110	110	pcs	10

PRODUCT – PP LOW-NOISE PIPES AND FITTINGS

PP LOW-NOISE PIPES

★ argo ★ night ★ sky

DOUBLE BRANCH HTED 67° kotni

OD Ø
(mm)

OD Ø₁
(mm)

OD Ø₂
(mm)

EAN code

unit

units per box

110

110

110

pcs

10

ACCESS PIPE HTRE



50

383 10205 1370 9

pcs

20

75

383 10205 1371 6

pcs

20

110

383 10205 1372 3

pcs

20

125

383 10205 1373 0

pcs

20

160

383 10205 1374 7

pcs

10

PRODUCT – PP LOW-NOISE PIPES AND FITTINGS

PP LOW-NOISE PIPES

★ argo ★ night ★ sky

SLIP COUPLER HTU



40

383 10205 1340 2

50

50

383 10205 1341 9

20

75

383 10205 1342 6

20

110

383 10205 1343 3

20

125

383 10205 1344 0

20

160

383 10205 1345 7

10

COUPLER HTMM

40

383 10205 1346 4

50

50

383 10205 1347 1

20

75

383 10205 1348 8

20

110

383 10205 1349 5

20

125

383 10205 1350 1

20

160

383 10205 1351 8

10

REDUCER HTR



50

40

383 10205 1358 7

50

75

50

383 10205 1359 4

20

110

50

383 10205 1360 0

20

110

75

383 10205 1361 7

20

125

110

383 10205 1362 4

20

160

110

383 10205 1363 1

20

160

125

383 10205 1364 8

20

CLOSING CAP HTM



40

383 10205 1352 5

100

50

383 10205 1353 2

50

75

383 10205 1354 9

20

110

383 10205 1355 6

20

125

383 10205 1356 3

20

160

383 10205 1357 0

10

Technical data

PIPES AND SHAPED ELEMENTS

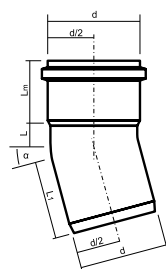
★ argo ★ night ★ sky

POLYPROPENE SHAPED ELEMENTS

sizes in mm

HTB d/15°

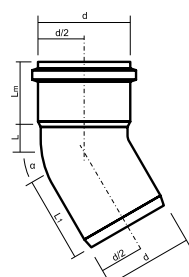
BEND



d	40	50	110
a	15°	15°	15°
L	63	60	82
L1	55	57	77
Lm	53	52	70
w			

HTB d/30°

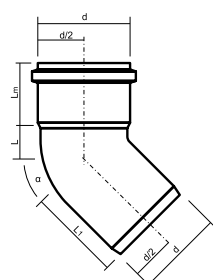
BEND



d	40	50	110
a	30°	30°	30°
L	60	61	90
L1	57	59	77
Lm	53	52	67
w			

HTB d/45°

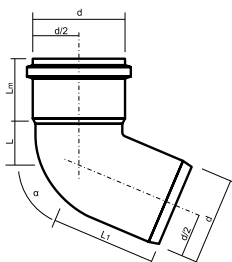
BEND



d	40	50	75	110	125	160
a	45°	45°	45°	45°	45°	45°
L	170	183	225	287	320	411
L1	54	53	62	63	71	88
Lm	54	52	57	65	70	85
w						

HTB d/67°

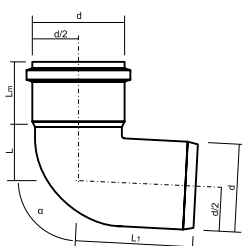
BEND



d	40	50	110
a	67°30'	67°30'	67°30'
L	69	69	105
L1	64	66	100
Lm	53	53	68
w			

HTB d/87°

BEND



d	40	50	75	110	125	160
a	87°30'	87°30'	87°30'	87°30'	87°30'	87°30'
L	25	32	46	62	72	92
L1	70	78	108	124	136	155
Lm	47	48	57	68	70	86
w						

PIPES AND SHAPED ELEMENTS

★ argo ★ night ★ sky

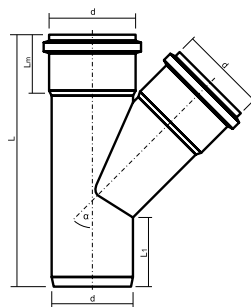
POLYPROPENE SHAPED ELEMENTS

order number

sizes in mm

HTEA d/ d/45°

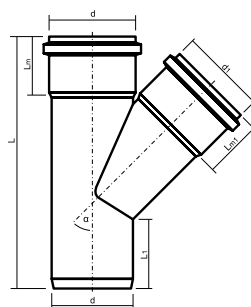
SINGLE BRANCH
FITTING



d	40	50	75	110	125	160
a	45°	45°	45°	45°	45°	45°
L	170	183	225	287	320	411
L1	54	53	62	63	71	88
Lm	54	52	57	65	70	85
w						

HTEA d/ d1/ 45°

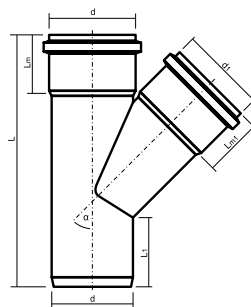
SINGLE
REDUCED
BRANCH
FITTING



d	50	75	110	110	110	125	160
d1	40	50	40	50	75	110	110
a	45°	45°	45°	45°	45°	45°	45°
L	167	193	200	200	239	301	342
L1	52	60	68	65	66	71	94
Lm	52	55	68	60	65	64	85
Lm1	55	52	53	50	55	61	69
w							

HTEA d/ d1/ 45°

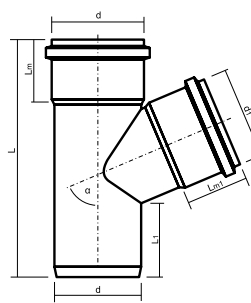
SINGLE
REDUCED
BRANCH
FITTING



d	160
d1	125
a	45°
L	370
L1	94
Lm	85
Lm1	70
w	

HTEA d/ d1/ 67°

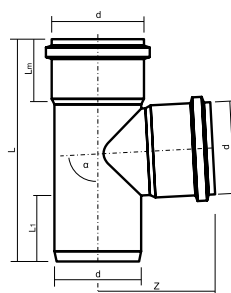
SINGLE
BRANCH
FITTING and
SINGLE
REDUCED
BRANCH
FITTING



d	40	50	110	110
d1	40	50	110	50
a	67°30'	67°30'	67°30'	67°30'
L	153	164	260	185
L1	51	54	70	60
Lm	53	52	65	65
Lm1				50
w				

HTEA d/ d1/ 67°

SINGLE
BRANCH
FITTING



d	40	50	75	110	125	160
a	87°30'	87°30'	87°30'	87°30'	87°30'	87°30'
L	153	160	195	241	269	340
L1	56	52	59	60	68	86
Lm	53	51	57	66	70	85
Z	80	85	103	133	146	187
w						

PIPES AND SHAPED ELEMENTS

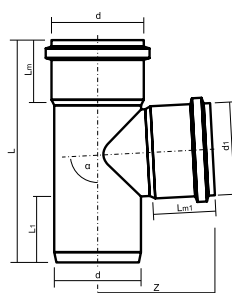
★ argo ★ night ★ sky

POLYPROPENE SHAPED ELEMENTS

order number

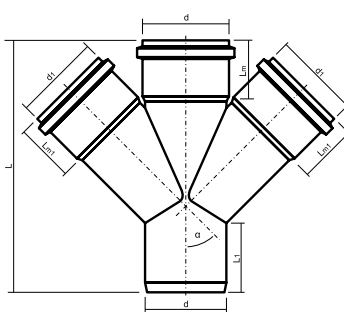
sizes in mm

HTEA d/d/87°

SINGLE
REDUCED
BRANCH FITTING


d	75	110	110	110	125	160	160
d1	50	40	50	75	110	110	125
a	87°30'	87°30'	87°30'	87°30'	87°30'	87°30'	87°30'
L	179	185	188	212	208	292	322
L1	62	68	70	70	72	90	95
Lm	57	69	61	62	70	85	85
Lm1	52	55	50	56	70	70	70
w							

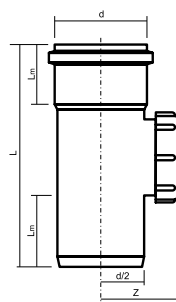
HTDA d/d1/d1/45°

DOUBLE
BRANCH
FITTING


d	110	110
d1	50	110
a	45°	45°
L	215	300
L1	68	70
Lm	68	69
Lm1	52	69
w		

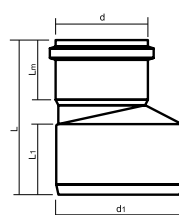
HTRE d

ACCESS PIPE



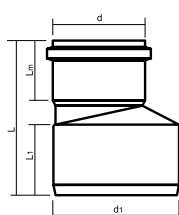
d	50	75	110	125	160
L	195	210	257	268	292
L1	52	62	70	78	90
Lm	54	57	68	73	85
Z	61	73	96	103	127
w					

HTR d1/d

ECCENTRIC
PIECE


d	40	50	50	75	110
d1	50	75	110	110	125
L	109	128	130	146	158
L1	53	65	68	65	73
Lm	44	50	50	55	71
w					

HTR d1/d

ECCENTRIC
PIECE


d	110	125
d1	160	160
L	174	170
L1	88	85
Lm	69	70
w		

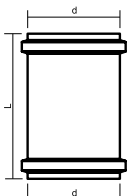
PIPES AND SHAPED ELEMENTS

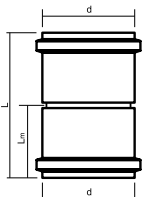
★ argo ★ night ★ sky

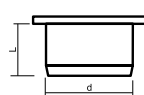
POLYPROPENE SHAPED ELEMENTS

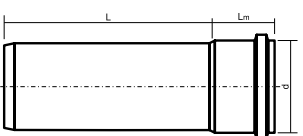
order number

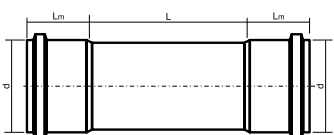
sizes in mm

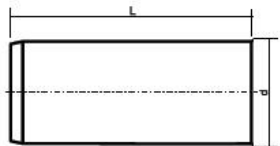
HTU d	SLIDE COUPLER		d	40	50	75	110	125	160
			L	110	116	122	150	166	180
			w						

HTMM d	CONNECTOR WITH EDGE		d	40	50	75	110	125	160
			L	110	116	122	150	166	180
			Lm	55	58	61	75	83	90
			w						

HTM d	CLOSING CAP		d	40	50	75	110	125	160
			L	33	31	34	37	42	48
			w						

HTEM d/L	PIPE WITH SINGLE neck SOCKET		d	40	50	75	110	125	160
			Lm	53	54	57	65	69	82
			L	250 500 1000 1500 2000 2500 3000	250 500 1000 1500 2000 2500 4000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000
			w						

HTDM d/L	PIPE WITH TWO SOCKETS		d	40	50	75	110	125	160
			Lm	53	54	57	65	69	82
			L	250 500 1000 1500 2000 2500 3000	250 500 1000 1500 2000 2500 4000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000	250 500 1000 1500 2000 2500 6000
			w						

HTGL d/L	PIPE WITHOUT SOCKET		d	40	50	75	110	125	160
			L	3000 5000	3000 5000	3000 5000	3000 5000	3000 5000	3000 5000
			w						





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