INSTALLATION SYSTEM

vargokal PLUS

HOUSE SEWAGE SYSTEM - LOW NOISE

SEWAGE **PP/MF** PIPES AND FITTINGS FOR INTERNAL INSTALLATIONS

Technology
and tradition.

CATALOGUE 08/2022

Complete solutions for
sewage, water / gas supply,
drainage and cable protection

SVB VARGON
INSTALLATION SYSTEMS


Europe
Croatia
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INSTALLATION SYSTEM

vargokal PLUS

SEWAGE

PP/MF PIPES ***PLUS 3S***

PP/MF FITTINGS ***PLUS***

ACCESSORIES ***PLUS***

Description and purpose of system

vargokal PLUS 3S pipes are made out of polypropylene polymer (PP) with the addition of mineral filler (MF) in wide range of types and dimensions which are used for house sewage and water drainage. They are built in inside building construction (scope B) intended for residential and industrial use, and are especially used for sewage waste and rainwater of high and low temperatures as for ventilation of complete drainage system.

They are delivered with integrated socket and built-in seals and are produced in accordance with standard EN 1451-1

vargokal PLUS pipes and fittings are produced with self-extinguishing properties, according to classification B2 (normally combustible material).

Availability of different lengths of pipes by diameter allowes adjustment in every requested project. Polypropylene (PP) is thermoplastic resin, respectively one of the materials which change their physical condition in accordance with heat. Positive properties od polypropylene (PP) are: high mechanical resistance, high fusion point (185 °C), perfect stability of shape and high resistance of chemical compound. There are different kinds of polypropylene (PP) with different characteristics and with different applications, depending on their macromolecular structure. For industrial applications only isostatic polymer is used, because other polymers do not have a wide usage in commercial area.

Installation system vargokal consists of following programs:

- vargokal - Single layer pipes and fittings
- vargokal 3S - Three-layer pipes
- vargokal PLUS - Low noise three-layer pipes and single layer fittings
- vargokal ULTRA - Silent single layer pipes and fittings

System assembly

vargokal PLUS pipes and fittings are assembled by integrated socket with factory-fitted seals. Seals are inserted in a special fillister which ensures waterproof junction, safety and simple assembly.

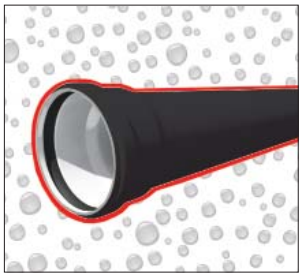
Dimensions of seals, standards of production, technology and regular control of quality meet European standard HRN EN 681 „Materials requirements for pipe joint seals used in water and drainage aplications".

System advantages

Easy manipulation and storage
Characteristic of products allows easy manipulation and storage.

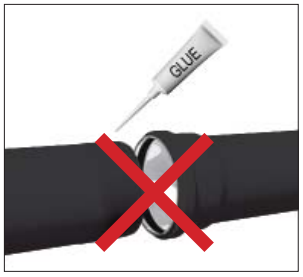
Easy and quick installation
Installation is very quick with „push-fit" type of installation.

Wide range of connecting parts provides the ability of assembly in various situations.



Excellent thermal properties
The low thermal conductivity of ***vargokal PLUS 3S*** pipes prevents condensation on the outer surface of the pipe.

No need to use tools
vargokal PLUS 3S pipes and fittings are connected manualy without tools.



No bonding
Because of integrated seal there is no need to use glue in assembly process.

Watertightness
Integrated seal ensure safe and waterproof junction.

Resistance to hot water discharge
Resistance to high temperatures, up to 90 °C.

The inability of fouling
The smooth inner surface does not retain microorganisms or a deposition.

Resistance on mechanical damages
High impact resistance at extremely low temperatures down to -20°C.

High resistance to agressive chemicals
vargokal PLUS pipes and fittings have high resistance to wide range of chemicals.

Excellent acoustic properties
vargokal PLUS 3S three-layer pipe has excellent acoustic properties due to the middle layer reinforced with filler (PP/MF).

Product packaging

Until installation ***vargokal PLUS 3S*** pipes are exposed to manipulation at loading and unloading, transport and temporary storage therefore it is necessary to pay attention to the correct way in their handling.

Immediately after the production pipes are placed and packed in original factory packaging (bundle), and pallets of standardized quantity and size. For this purpose, floor bars are used to lay pipes on, in order to prevent pipe contact with inadequate surface. Depending on the diameter and length of pipe two or three bars are used to ensure the stability of the bundle and the ability to manipulate with forklift. Pipes inside the bundles are reinforced with pipe dividers and entire bundle is secured with plastic strip that gives additional strength to the package.

Legend:

w= width of bundle h= height of bundle L= lenght of bundle a= number of pipes by width b= number of pipes by height

vargokal PLUS pipes of smaller dimensions and fittings are packed in boxes.

PACKAGING OF PIPE BUNDLES (PALLETS)						
PIPE DIAMETER DN	PIPE LENGTH *(mm) without socket*					
	500	1000	1500	2000	3000	4000
	NUMBER OF PIPES IN BUNDLE (pcs) (a x b)					
	DIMENSION OF BUNDLE (mm) (w x h x L)					
32	**100** (5 x 20)	**50** (5 x 10)	**30** (5 x 6)	**30** (5 x 6)	**20** (5 x 4)	-
	185 x 785 x 545	185 x 380 x 1045	210 x 245 x 1622	210 x 245 x 2122	210 x 175 x 3122	-
40	**100** (5 x 20)	**50** (5 x 10)	**30** (5 x 6)	**30** (5 x 6)	**20** (5 x 4)	-
	230 x 960 550	230 x 480 x 1050	250 x 305 x 1626	250 x 305 x 2126	250 x 210 x 3126	-
50	**50** (5 x 10)	**50** (5 x 10)	**30** (5 x 6)	**30** (5 x 6)	**20** (5 x 4)	-
	305 x 1200 x 630	305 x 590 x 1130	305 x 350 x 1630	305 x 350 x 2130	305 x 245 x 3130	-
75	**50** (5 x 10)	**40** (5 x 8)	**30** (5 x 6)	**30** (5 x 6)	**20** (5 x 4)	-
	435 x 865 x 640	435 x 685 x1140	435 x 525 x 1640	435 x 525 x 2140	435 x 340 x 3140	-
90	**25** (5 x 5)	**96** (8 x 12)	**96** (8 x 12)	**96** (8 x 12)	**96** (8 x 12)	**96** (8 x 12)
	500 x 500 x648	800 x 1200 x 1148	800 x 1200 x 1648	800 x 1200 x 2148	800 x 1200 x 3148	800 x 1200 x 4148
110	**25** (5 x 5)	**81** (9 x 9)	**81** (9 x 9)	**81** (9 x 9)	**81** (9 x 9)	**81** (9 x 9)
	625 x 620 x 650	1100 x 1150 x 1150	1100 x 1150 x 1650	1100 x 1150 x 2150	1100 x 1150 x 3150	1100 x 1150 x 4150
125	**20** (4 x 5)	**64** (8 x 8)	**64** (8 x 8)	**64** (8 x 8)	**64** (8 x 8)	**64** (8 x 8)
	560 x 700 x 662	1110 x 1140 x 1162	1110 x 1140 x 1662	1110 x 1140 x 2162	1110 x 1140 x 3162	1110 x 1140 x 4162
160	**9** (3 x 3)	**36** (6 x 6)	**36** (6 x 6)	**36** (6 x 6)	**36** (6 x 6)	**36** (6 x 6)
	540 x 530 x 688	1060 x 1080 x 1188	1060 x 1080 x 1688	1060 x 1080 x 2188	1060 x 1080 x 3188	1060 x 1080 x 4188

Transportation of products

When loading and unloading of bundles it is necessary to pay attention to the pipe ends in order to avoid the deformation / breakage of the pipe sleeve, damage of the seal or flat end of the pipe. Placing heavy objects over the pipes can cause ovality of pipes which will dissappear on its own when the load is decreased. For better utilization of transport bundles can be stacked in height to full height of loading space (max. 3m) without risk of damage. During transport it is recommended to stack pipes up to four bundles in height, for diameters from Ø32 to Ø75 or up to two bundles in height for diameters from Ø110 to Ø160.

Storage of products

It is recommended to use indoor warehouse or covered space in order to protect pipes from the effects of weathering. It is not recommended to expose pipes (and seals) to sunlight for more than 6 months in order to avoid change of the material properties. In conditions of low ambient temperature (0 °C or lower) all polymeric materials become brittle and less elastic so it is necessary to pay attention to protect pipes from dropping from a height.

If the pipes are on stock, they can be stacked up to four bundles in height, for diameters from Ø32 to Ø75 or up to two bundles in height for diameters from Ø110 to Ø160.

Our own laboratory

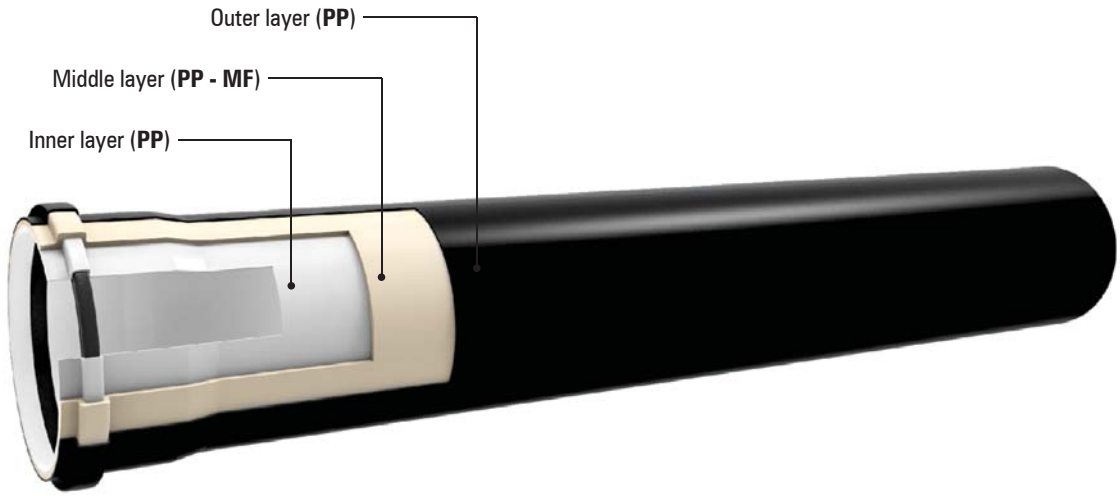
In addition to the production process, we also ensured continuous monitoring of the quality control of the production process, starting from the control of incoming raw materials to the quality testing of the finished products. The tests are carried out in our internal laboratory which is equipped with testing machines from well known producers, sufficient to examine all neccesary mechanical and physical characteristic of materials and final products, in accordance with norm requests. Process of production is continuosly supervised as well as the testing of materials and final products in accordance with requests of norm HRN EN 1451-1.

We provide the following tests:

- Testing of melt mass-flow rate of raw material and final products in accordance with norm HRN EN ISO 1133-1
- Testing the density in accordance with norm HRN EN ISO 1183-1
- Testing of dimensions (geometrical characteristics) in accordance with norm HRN EN ISO 3126 and HRN EN 1451-1
- Testing of longitudinal reversion (heat reversion) in accordance with norm HRN EN 743 and HRN EN ISO 2505
- Testing of resistance to external impact on 0 °C circumferential method in accordance with norm HRN EN 744
- Testing of watertightness in accordance with norm HRN EN 1053
- Testing of resistance to elevated temperature cycling in accordance with norm HRN EN 1055 and HRN EN ISO 13257.

Pipe PLUS 3S

Low noise three-layer pipe PP / MF



vargokal PLUS 3S pipes are produced from polypropylene (PP) polymers with the addition of the mineral filler (MF). The primary application of the pipe is drainage of waste water for residential and industrial use.

The pipes are manufactured with integrated connection socket, have compact multi-layered wall and come with a corresponding connection seal. The pipe wall is made of three layers, the outer and inner layer made of pure PP and the middle layer with the addition of mineral filler. The outer layer of the pipe is black RAL 9005, and the inner layer is white RAL 9003.

Wall thickness of ***vargokal PLUS 3S*** pipes is higher than the thickness of ***vargokal 3S*** pipes. While discharging media through pipes, ***vargokal PLUS 3S*** emits much less noise than ***vargokal 3S*** pipe, which means that the noise level of ***vargokal PLUS 3S*** pipe is lower than on ***vargokal 3S*** pipes. This is because the thicker middle layer is produced with mineral filler that has the property of good sound absorption, and also provides larger circumferential rigidity of ***vargokal 3S*** pipes.

vargokal PLUS 3S pipes comply with norm HRN EN 1451-1 which specifies the required mechanical and physical properties of pipes and fittings manufactured from PP in the field of drainage and waste water within the building structure.

Pipes are supplied with associated fittings in the appropriate dimensions.

Outer diameter DN	**Wall thickness s** *mm*	**Inner diameter** *mm*	**Pipe weight** *kg/m*
32	**1,8**	28,4	0,231
40	**1,8**	36,4	0,301
50	**2,0**	46,0	0,400
75	**2,6**	69,8	0,882
90	**3,1**	83,8	1,200
110	**3,6**	103,2	1,769
125	**3,9**	117,2	2,201
160	**4,9**	150,2	3,460

Installation system PLUS

Acoustic properties

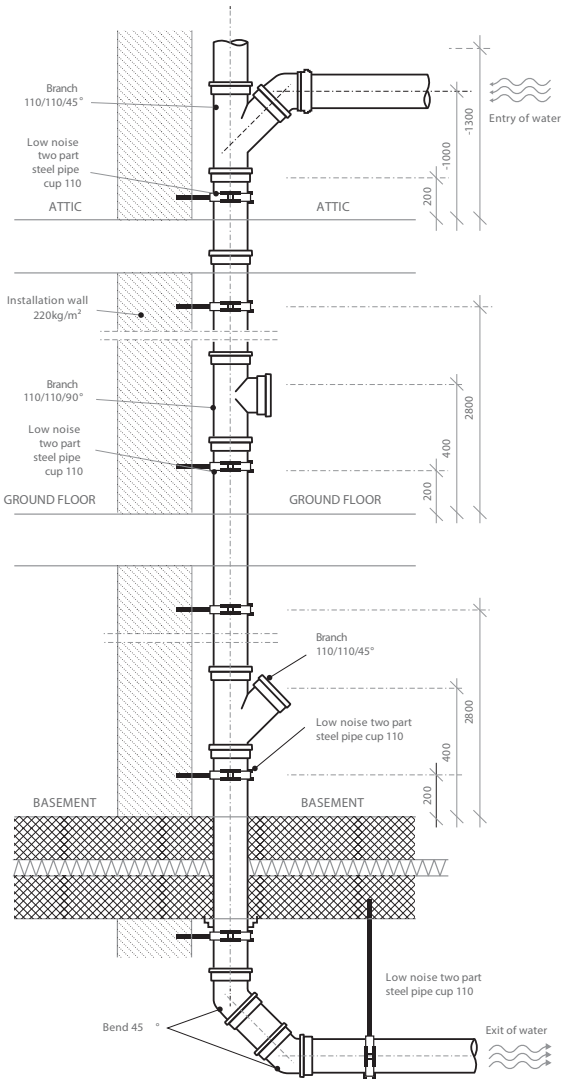
Reducing noise in homes and workplaces has become an essential criteria for better quality of life and working environment. For this reason Vargon began researching and testing sound insulation properties of materials used in ***vargokal*** system. Tests on sound insulation properties of ***vargokal PLUS*** system were conducted at the Fraunhofer Institute in Stuttgart, the world known laboratory for testing audio performance.

Research results have shown that the system ***vargokal PLUS*** fully complies with the applicable standards.

In accordance with the European standard EN 14366, and for testing purposes, installation system ***vargokal PLUS*** is used with pipes **DN 110 x 3,6**.

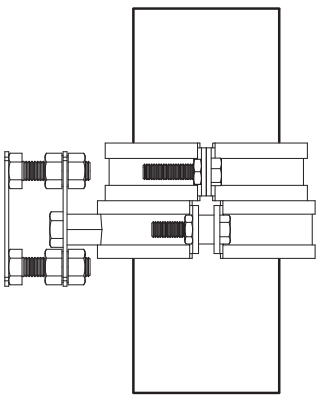
Test results:

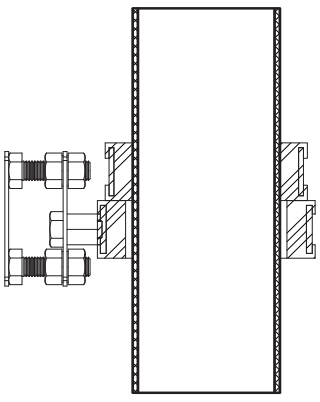
Test results obtained by measuring the water flow rate of 2 l / s indicate that the installation system ***vargokal PLUS*** does not exceed the noise levels higher than 17 dB (A).



Use of sound insulating clamps

By using BISMAT 1000 soundproofing clamps with a reinforced EPDM rubber insert, a noise reduction of up to 50% was achieved compared to the use of a classic clamp. The special double structure of the clamp enables excellent sound absorption while preventing contact with the wall surface. An additional advantage of this clamp is the simple and quick regulation of the pipe distance from the wall.





The noise level in the pipeline

Noise in nature

Noise in the nature is unwished or harmful sound to human health and the environment in outer space caused by human activity including noise emitted by means of transport, road transport, railway transport, air transport, maritime and inland waterway transport as well as the plant and projects for which the special regulations in the field of environmental protection shall obtain a decision on integrated environmental protection requirements or decision on environmental impact on the environment.

Noise protection

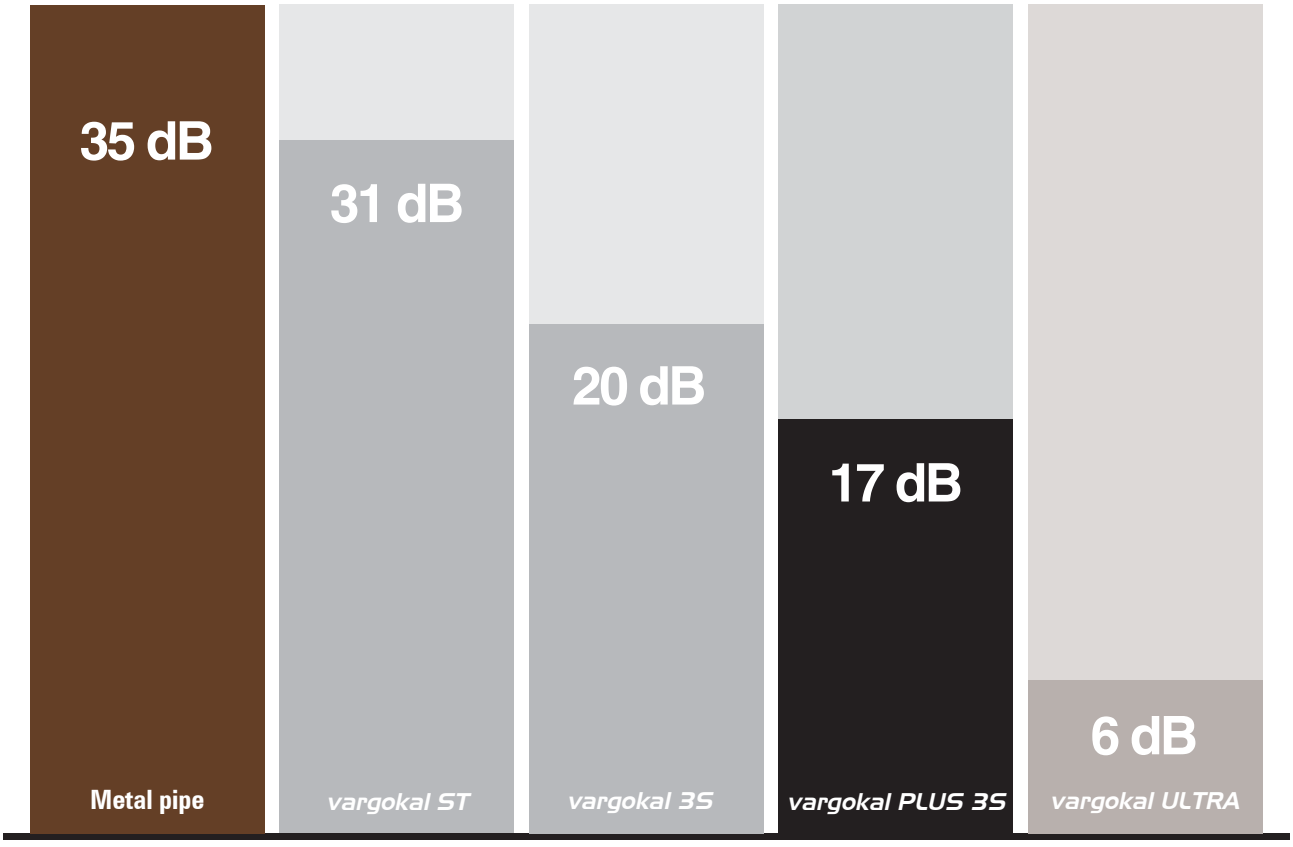
Noise protection in buildings is a very demanding task for architects and builders while planning and constructing. The flow of wastewater through the sewage systems is one of the possible sources of noise in buildings.

Soundproofing of house drainage installation systems has gained in importance due to the high demands of comfort living. The total noise can be significantly reduced by selecting the appropriate piping system. The types and the vibration of pipes depend on various factors such as the weight of pipes, the material and its internal insulation. Pipes produce air noise caused by vibration and vibration noise caused by fixation on installation wall.

Noise reduction is achieved by using:

1. special materials in the manufacture process
2. special clamps with rubber inserts.

Sound levels for different types of drainage pipes:



The table shows the noise level at a flow rate of 2 liters of water per second.

New solutions for drainage in residential buildings

We are able to offer you the ventilation branch (sovent) ***vargokal PLUS*** which offers an ideal solution in tall buildings where the factor of simultaneous use of sanitary devices is high.

The sewage system using the ventilation branch ***vargokal PLUS*** guarantees excellent ventilation of the drainage pipes and forks on each floor, limiting pressure fluctuations in the system.

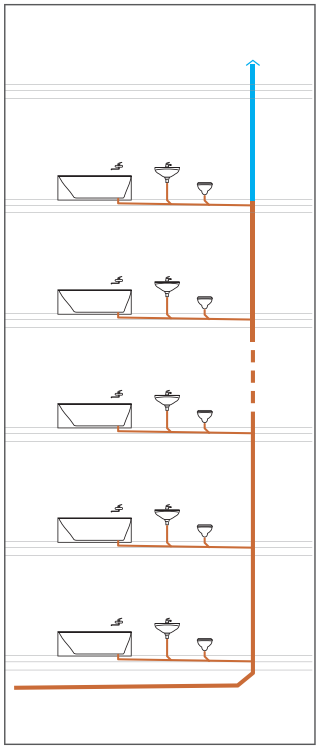
vargokal PLUS ventilation branch system offers significant advantages and money savings thanks to the possibility of building individual drainage pipes (without the need for parallel ventilation) with a diameter of 110 mm with a drainage capacity that is more than double that of a system with primary ventilation.

An ideal solution for high-rise construction

- **One drain pipe** - no additional ventilation pipes required
- **Increased drainage load** compared to conventional systems
- **Reducing the flow rate** of waste water
- **Excellent ventilation** of drainage pipes and branches of each floor
- **Up to 6 connections** on one ventilation fork
- **Up to 45 apartments** can be connected to the same drainage pipe

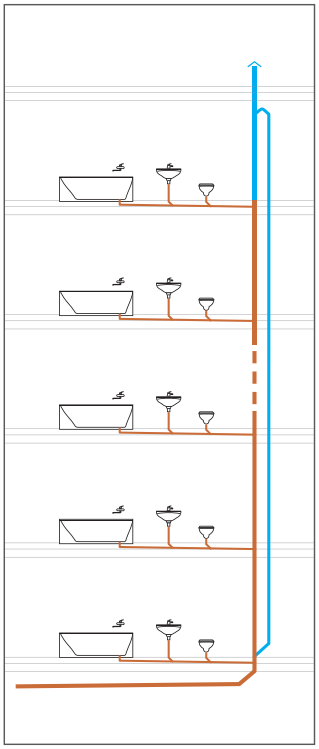
The drainage system with ventilation branch ***vargokal PLUS*** enables the drainage of larger quantities of liquids than any other waste water drainage system (primary ventilation system, direct or indirect parallel ventilation system, secondary ventilation system).

Primary ventilation system



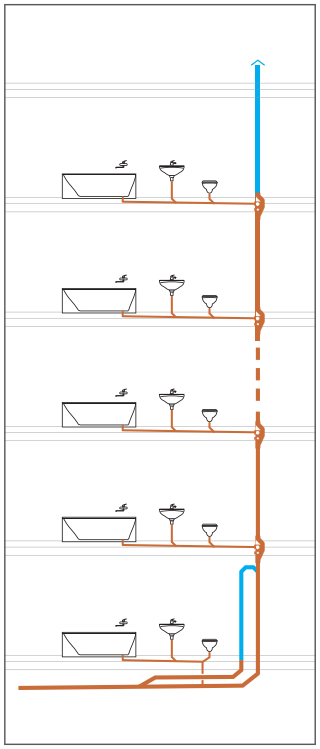
Parallel ventilation system

Drainage capacity 40% higher than waste systems with primary ventilation

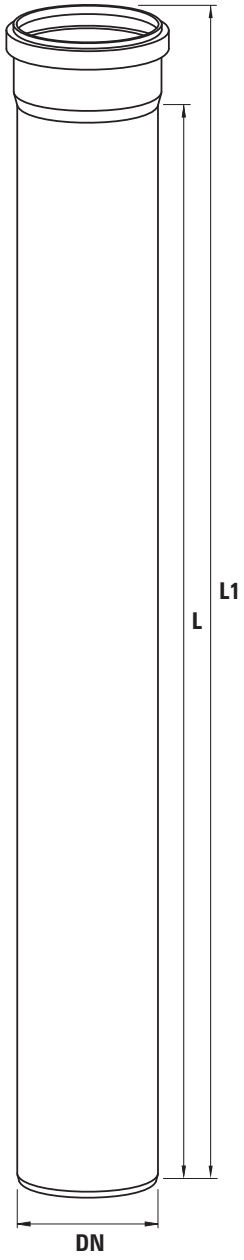


System with ventilation branch

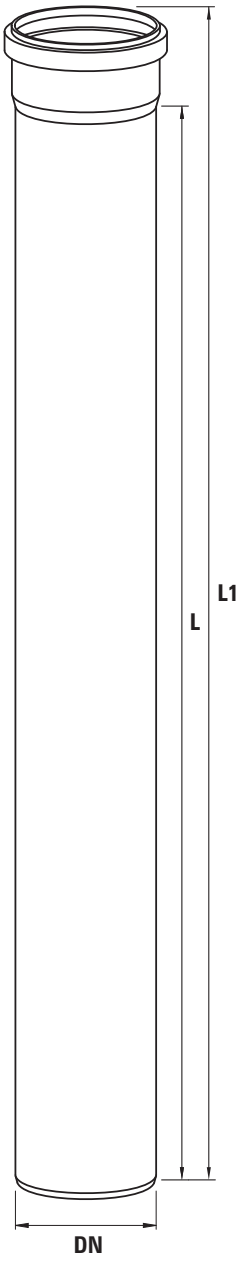
Drainage capacity is 120% higher than waste systems with primary ventilation



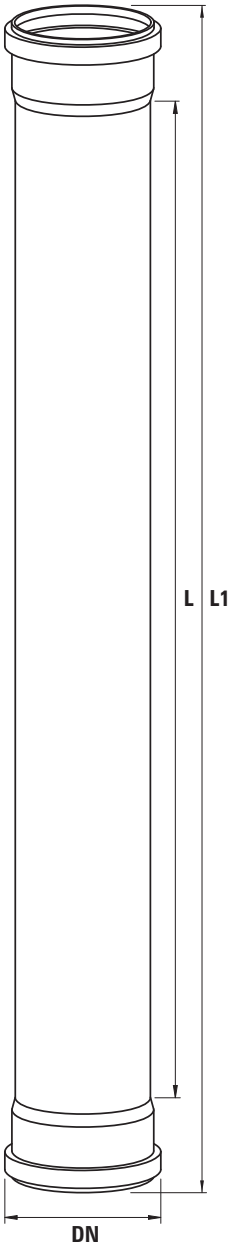
Art. 102 / 1 - PKEM
LOW NOISE THREE LAYER PIPE
SINGLE SOCKET *with seal*



DN	L *mm*	s *mm*	L1 *mm*	Code		
32	**150**	*1,8*	*211*	19716	**20**	-
32	**250**	*1,8*	*311*	19717	**20**	-
32	**500**	*1,8*	*561*	19718	-	100 / **5**
32	**750**	*1,8*	*811*	20138	-	50 / **5**
32	**1000**	*1,8*	*1061*	19719	-	50 / **5**
32	**1500**	*1,8*	*1561*	19720	-	30 / **5**
32	**2000**	*1,8*	*2061*	19721	-	30 / **5**
32	**3000**	*1,8*	*3061*	19722	-	20 / **5**
40	**150**	*1,8*	*213*	19723	**20**	-
40	**250**	*1,8*	*313*	19724	**20**	-
40	**500**	*1,8*	*563*	19725	-	100 / **5**
40	**750**	*1,8*	*813*	20139	-	50 / **5**
40	**1000**	*1,8*	*1063*	19726	-	50 / **5**
40	**1500**	*1,8*	*1563*	19727	-	30 / **5**
40	**2000**	*1,8*	*2063*	19728	-	30 / **5**
40	**3000**	*1,8*	*3063*	19729	-	20 / **5**
50	**150**	*2,0*	*215*	19730	**20**	-
50	**250**	*2,0*	*315*	19367	**20**	-
50	**500**	*2,0*	*565*	19368	-	50 / **5**
50	**750**	*2,0*	*815*	20140	-	50 / **5**
50	**1000**	*2,0*	*1065*	19362	-	50 / **5**
50	**1500**	*2,0*	*1565*	19603	-	30 / **5**
50	**2000**	*2,0*	*2065*	19369	-	30 / **5**
50	**3000**	*2,0*	*3065*	19370	-	20 / **5**
75	**150**	*2,6*	*220*	19731	**20**	-
75	**250**	*2,6*	*320*	19732	**20**	-
75	**500**	*2,6*	*570*	19733	-	50 / **5**
75	**750**	*2,6*	*820*	20141	-	40 / **5**
75	**1000**	*2,6*	*1070*	19734	-	40 / **5**
75	**1500**	*2,6*	*1570*	19735	-	30 / **5**
75	**2000**	*2,6*	*2070*	19736	-	30 / **5**
75	**3000**	*2,6*	*3070*	19737	-	20 / **5**
90	**150**	*3,1*	*224*	19738	**20**	-
90	**250**	*3,1*	*324*	19739	**20**	-
90	**500**	*3,1*	*574*	19740	-	25 / **5**
90	**750**	*3,1*	*824*	20142	-	96 / **12**
90	**1000**	*3,1*	*1074*	19741	-	96 / **12**
90	**1500**	*3,1*	*1574*	19742	-	96 / **12**
90	**2000**	*3,1*	*2074*	19743	-	96 / **12**
90	**3000**	*3,1*	*3074*	19744	-	96 / **12**

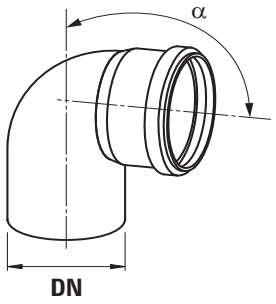
Art. 102 / 1 - PKEM **LOW NOISE THREE LAYER PIPE SINGLE SOCKET** *with seal*	DN	L *mm*	s *mm*	L1 *mm*	Code		
	**110**	**150**	*3,6*	*225*	19745	**20**	**-**
	110	**250**	*3,6*	*325*	19313	**20**	**-**
	110	**500**	*3,6*	*575*	19314	**-**	25 / **5**
	110	**750**	*3,6*	*825*	20143	**-**	81 / **9**
	110	**1000**	*3,6*	*1075*	19315	**-**	81 / **9**
	110	**1500**	*3,6*	*1575*	19746	**-**	81 / **9**
	110	**2000**	*3,6*	*2075*	19316	**-**	81 / **9**
	110	**3000**	*3,6*	*3075*	19317	**-**	81 / **9**
	125	**150**	*3,9*	*231*	19747	**10**	**-**
	125	**250**	*3,9*	*331*	19591	**10**	**-**
	125	**500**	*3,9*	*581*	19592	**-**	20 / **4**
	125	**750**	*3,9*	*831*	20144	**-**	64 / 8 / **1**
	125	**1000**	*3,9*	*1081*	19593	**-**	64 / 8 / **1**
	125	**1500**	*3,9*	*1581*	19594	**-**	64 / 8 / **1**
	125	**2000**	*3,9*	*2081*	19595	**-**	64 / 8 / **1**
	125	**3000**	*3,9*	*3081*	19596	**-**	64 / 8 / **1**
	160	**150**	*4,9*	*244*	19748	**6**	**-**
	160	**250**	*4,9*	*344*	19597	**8**	**-**
	160	**500**	*4,9*	*594*	19598	**-**	9 / **3**
	160	**750**	*4,9*	*844*	20145	**-**	36 / 6 / **1**
	160	**1000**	*4,9*	*1094*	19599	**-**	36 / 6 / **1**
	160	**1500**	*4,9*	*1594*	19600	**-**	36 / 6 / **1**
	160	**2000**	*4,9*	*2094*	19601	**-**	36 / 6 / **1**
	160	**3000**	*4,9*	*3094*	19602	**-**	36 / 6 / **1**

Art. 102 / 2 - PKDM
LOW NOISE THREE LAYER PIPE
DOUBLE SOCKET *with seals*

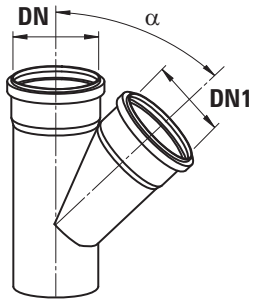


DN	L *mm*	s *mm*	L1 *mm*	Code	
32	**500**	*1,8*	*622*	20146	100 / **5**
32	**1000**	*1,8*	*1122*	20147	50 / **5**
32	**1500**	*1,8*	*1622*	20148	30 / **5**
32	**2000**	*1,8*	*2122*	20149	30 / **5**
32	**3000**	*1,8*	*3122*	20150	20 / **5**
40	**500**	*1,8*	*626*	20151	100 / **5**
40	**1000**	*1,8*	*1126*	20152	50 / **5**
40	**1500**	*1,8*	*1626*	20153	30 / **5**
40	**2000**	*1,8*	*2126*	20154	30 / **5**
40	**3000**	*1,8*	*3126*	20155	20 / **5**
50	**500**	*2,0*	*630*	20156	100 / **5**
50	**1000**	*2,0*	*1130*	20157	50 / **5**
50	**1500**	*2,0*	*1630*	20158	30 / **5**
50	**2000**	*2,0*	*2130*	20159	30 / **5**
50	**3000**	*2,0*	*3130*	20160	20 / **5**
75	**500**	*2,6*	*640*	20161	50 / **5**
75	**1000**	*2,6*	*1140*	20162	40 / **5**
75	**1500**	*2,6*	*1640*	20163	30 / **5**
75	**2000**	*2,6*	*2140*	20164	30 / **5**
75	**3000**	*2,6*	*3140*	20165	20 / **5**
90	**500**	*3,1*	*648*	20166	**25**
90	**1000**	*3,1*	*1148*	20167	96 / **12**
90	**1500**	*3,1*	*1648*	20168	96 / **12**
90	**2000**	*3,1*	*2148*	20169	96 / **12**
90	**3000**	*3,1*	*3148*	20170	96 / **12**
110	**500**	*3,6*	*650*	20171	**25**
110	**1000**	*3,6*	*1150*	20172	81 / **9**
110	**1500**	*3,6*	*1650*	20173	81 / **9**
110	**2000**	*3,6*	*2150*	20174	81 / **9**
110	**3000**	*3,6*	*3150*	20175	81 / **9**
125	**500**	*3,9*	*662*	20176	**20**
125	**1000**	*3,9*	*1162*	20177	64 / **8**
125	**1500**	*3,9*	*1662*	20178	64 / **8**
125	**2000**	*3,9*	*2162*	20179	64 / **8**
125	**3000**	*3,9*	*3162*	20180	64 / **8**
160	**500**	*4,9*	*688*	20181	**9**
160	**1000**	*4,9*	*1188*	20182	36 / **6**
160	**1500**	*4,9*	*1688*	20183	36 / **6**
160	**2000**	*4,9*	*2188*	20184	36 / **6**
160	**3000**	*4,9*	*3188*	20185	36 / **6**

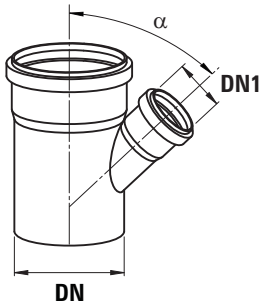
Art. 105 / 1 - PKB **BEND** *with seal*	**DN**	α	**Code**		
	32	45°	19693	**70**	6160
	32	87°	19694	**70**	6160
	40	15°	19695	**50**	4400
	40	30°	19696	**50**	4400
	40	45°	19623	**40**	3520
	40	67°	19697	**40**	3520
	40	87°	19698	**40**	3520
	50	15°	19486	**40**	1600
	50	30°	19487	**40**	1600
	50	45°	19266	**40**	1600
	50	67°	19699	**35**	1400
	50	87°	19349	**35**	1400
	75	45°	19448	**25**	600
	75	87°	19341	**20**	480
	90	15°	– 19967 –	**20**	480
	90	30°	– 19968 –	**20**	320
	90	45°	– 19969 –	**20**	320
	90	67°	– 19970 –	**20**	320
	90	87°	– 19971 –	**20**	320
	110	15°	19565	**25**	300
	110	30°	19269	**20**	240
	110	45°	19267	**25**	200
	110	67°	19301	**20**	160
	110	87°	19444	**20**	160
	125	45°	19700	**15**	120
	125	87°	19654	**10**	120
	160	45°	19529	**6**	72
	160	87°	19533	**4**	48



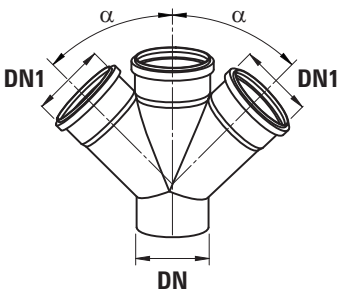
Art. 107 / 1 - PKEA **BRANCH** *with seals*	**DN**	**DN1**	α	**Code**		
	32	**32**	45°	19701	**50**	2000
	32	**32**	87°	– 19302 –	**40**	1600
	40	**40**	45°	19702	**25**	1000
	40	**40**	87°	19703	**30**	1200
	50	**50**	45°	19268	**25**	600
	50	**50**	87°	19282	**20**	800
	75	**75**	45°	19704	**20**	240
	75	**75**	87°	– 19303 –	**20**	320
	90	**90**	45°	– 19972 –	**10**	120
	90	**90**	87°	– 20133 –	**10**	120
	110	**110**	45°	19488	**12**	96
	110	**110**	87°	19530	**10**	120
	125	**125**	45°	19705	**5**	60
	125	**125**	87°	19684	**5**	60
	160	**160**	45°	19706	**3**	24
	160	**160**	87°	19707	**3**	36

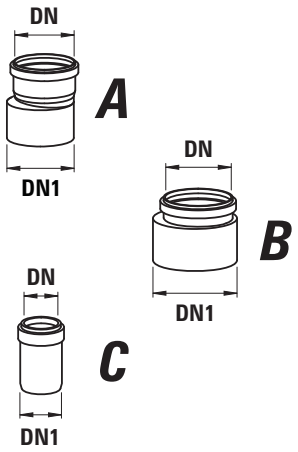


Art. 109 / 1 - PKEA **REDUCED BRANCH** *with seals*	**DN**	**DN1**	α	**Code**		
	50	**40**	45°	– 19304 –	**20**	600
	50	**40**	87°	– 19305 –	**20**	600
	75	**50**	45°	19380	**20**	640
	75	**50**	87°	– 19306 –	**20**	320
	90	**40**	45°	– 19973 –	**10**	180
	90	**50**	45°	– 19974 –	**10**	180
	90	**50**	87°	– 19975 –	**10**	180
	110	**50**	45°	19270	**20**	160
	110	**50**	87°	19290	**20**	160
	110	**75**	45°	19682	**15**	120
	110	**75**	87°	19512	**20**	160
	110	**90**	45°	– 20187 –	**10**	120
	110	**90**	87°	– 20188 –	**10**	120
	125	**110**	45°	19440	**8**	64
	125	**110**	87°	19489	**8**	96
	160	**110**	45°	19531	**3**	36
	160	**110**	87°	19441	**4**	48
	160	**125**	45°	19381	**3**	36
	160	**125**	87°	19708	**4**	48

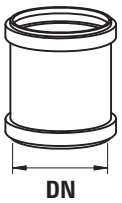


Art. 112 / 1 - PKDA **DOUBLE BRANCH** *with seals*	**DN**	**DN1**	α	**Code**		
	110	**50**	45°	19709	**10**	120
	110	**110**	67°	– 20506 –	**6**	72
	110	**110**	87°	– 20507 –	**6**	128



Art. 115 / 1 - PKR **REDUCER** *with seal*	DN	DN1	Type	Code		
	**32**	**40**	***C***	19307	**50**	4400
	32	**50**	***A***	19710	**50**	2000
	40	**50**	***C***	19711	**80**	3200
	40	**90**	***A***	– 20189 –	**20**	800
	50	**75**	***B***	19490	**40**	1600
	50	**90**	***A***	– 20190 –	**20**	800
	50	**110**	***B***	19445	**20**	480
	75	**90**	***A***	– 20191 –	**20**	600
	75	**110**	***B***	19271	**20**	480
	90	**110**	***A***	– 19976 –	**20**	360
	110	**125**	***A***	19382	**20**	240
	110	**160**	***B***	19538	**10**	240
	125	**160**	***B***	19308	**20**	240

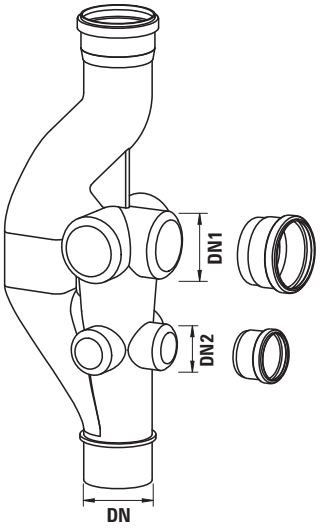
Art. 118 / 1 - PKRE **ACCESS PIPE WITH SCREW CAP** *with seal*	DN	Code		
	**50**	– 19309 –	**20**	800
	75	– 19310 –	**20**	320
	90	– 19977 –	**10**	180
	110	19712	**15**	120
	125	19713	**10**	80
	160	19532	**4**	48

Art. 121 / 1 - PKU **SLIP COUPLER** *with seals*	DN	Code		
	**32**	20225	50 / **10**	2000
	40	19311	50 / **10**	2000
	50	19384	**40**	1600
	75	19312	**20**	800
	90	– 19978 –	**20**	180
	110	19714	**20**	240
	125	19383	**20**	160
	160	19715	**5**	60

Art. 125 / 1 - PKM
CAP

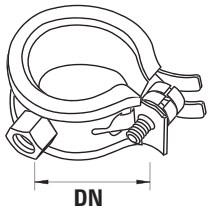
DN	Code		
32	19751	250 / **50**	10000
40	19752	200 / **50**	8000
50	19753	100 / **50**	4000
75	19750	50 / **10**	2000
90	– 20134 –	20 / **5**	1200
110	19754	40 / **10**	960
125	19755	25 / **5**	600
160	19756	15 / **5**	360

Art. 185 / 1
VENTILATION BRANCH - SOVENT WITH CONNECTIONS *with seal*

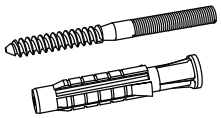


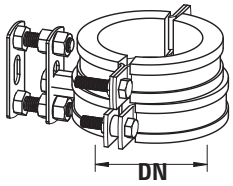
DN	DN1	DN2	Code	
110	**110**	**75**	– 20082 –	**1**

Art. 198 / 2
LOW NOISE JOINTED PIPE CLAMP *Zn*
with rubber



DN	Ø	Code	
70	75	– 20194 –	5 / **1**
90	90	– 20195 –	5 / **1**
100	110	– 20196 –	5 / **1**
125	125	– 20197 –	5 / **1**
150	160	– 20198 –	5 / **1**

Art. 199 / 3 **SCREW HANGAR RB-16** ***Zn*** *with plug*	**Dimenzija**	**Code**	
	**M10 x 80**	– 23886 –	250 / **10**
	M10 x 100	– 23887 –	200 / **10**
	M10 x 120	– 20348 –	150 / **10**

Art. 198 / 5 **LOW NOISE TWO-PART PIPE CLAMP** ***Zn*** "Walraven Bismat 1000"	**DN**	**Ø**	**Code**	
	**70**	75	– 20194 –	5 / **1**
	90	90	– 20195 –	5 / **1**
	100	110	– 20196 –	5 / **1**
	125	125	– 20197 –	5 / **1**
	150	160	– 20198 –	5 / **1**

NOTES

CERTIFICATES


SGS

VARGON d.o.o.

ISO 9001:2015

Proizvodnja plastičnih cijevi i spojeva za vodu i odvodnju.


SGS

VARGON d.o.o.

ISO 14001:2015

Proizvodnja plastičnih cijevi i spojeva za vodu i odvodnju.


Fraunhofer IBP

Test Report P-BA 86/2015e

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


CERTIFICATE

Certificate granting the right to use the seal
OFI CERT based on ZG 270 (Issue 2022) with the certificate number

0448

Plastic piping systems out of polypropylene (PP) for soil and waste discharge (low and high temperature) for the application area B within the building structure in the following dimensions:

VARGOKAL monolayer pipes in DN/OD 32 up to DN/OD 160
VARGOKAL 3S 3-layer pipes in DN/OD 32 up to DN/OD 160
VARGOKAL PLUS 3S 3-layer pipes in DN/OD 32 up to DN/OD 160
PP fittings as well as mineral modified fittings in DN/OD 32 up to DN/OD 160

VARGON d.o.o.
Kukuljanovo 352, HR-51227 Kukuljanovo

Kukuljanovo 352, HR-51227 Kukuljanovo

EN 1451-1:2017 and CEN/TS 1451-2:2019


Inspection Report

Report No.: 2200592 / 16900 Date: 2022-06-13

Client: Vargon d.o.o. Kukuljanovo 352 51227 Kukuljanovo CROATIA

Subject: Pipes and fittings made of polypropylene (PP-HT) with the trade names VARGOKAL (monolayer, DN/OD 32 up to DN/OD 160), VARGOKAL 3S (3-layer, DN/OD 32 up to DN/OD 160) and VARGOKAL PLUS 3S (3-layer, DN/OD 32 up to DN/OD 160) for soil and waste discharge (low and high temperature) within the building structure in the dimension-groups 1 and 2 as well as the fitting-groups 1, 2 and 3 for the application area B

Task: Audit Test based on ÖNORM EN 1451-1:2018 for the inspection period 2022

Order: —

Date of sampling: 2022-03-09

Location of sampling: Kukuljanovo / Croatia (Remote)

Receipt of samples: 2022-04-26


MPA NRW.

PRÜFBERICHT Nr. 221000734-2 vom 20.05.2021
Test Report no. dated

Auftraggeber / Client: VARGON d.o.o. Kukuljanovo 352 51227 KUKULJANOVO Kroatien/Croatia

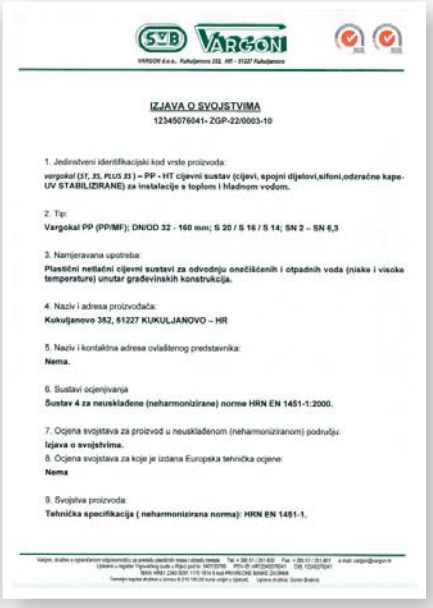
Herstellwerk / Manufacturing plant: Auftraggeber/Client

Überwachungsvertrag / Surveillance contract: Ohne / None

Grundlage der Prüfung / Underlying specification: Typprüfung nach DIN EN 681-1, Typ WCL / Initial type test acc. to DIN EN 681-1, type WCL

Gegenstand der Prüfung / Subject of inspection: Lippendichtung für den Einsatz in Muffen von Kunststoffrohren / Lip seal for the use in plastic pipe sockets

Auftragsdatum / Date of order: 18.01.2021
Probeneingang / Receipt of samples: 28.12.2020
Prüfzeitraum bis / Period of testing: 20.04.2021


VARGON

IZJAVA O SVOJSTVIMA
12345076041- ZGP-22/0003-10

1. Jedinstveni identifikacijski kod vrste proizvoda:
vargokal (3T, 3S, PLUS 3S) – PP - HT cijevni sustav (cijevi, spojni dijelovi,sifoni,odzračne kape-UV STABILIZIRANE) za instalacije s toplom i hladnom vodom.

2. Tip:
Vargokal PP (PP/MF); DN/OD 32 - 160 mm; S 20 / S 16 / S 14; SN 2 – SN 6,3

3. Namjeravana upotreba:
Plastični netlačni cijevni sustavi za odvodnju onečišćenih i otpadnih voda (niske i visoke temperature) unutar građevinskih konstrukcija.

4. Naziv i adresa proizvođača:
Kukuljanovo 352, 51227 KUKULJANOVO – HR

5. Naziv i kontaktna adresa ovlaštenog predstavnika:
Nema.

6. Sustavi ocjenjivanja
Sustav 4 za neusklađene (neharmonizirane) norme HRN EN 1451-1:2000.

7. Ocjena svojstava za proizvod u neusklađenom (neharmoniziranom) području:
Izjava o svojstvima.
8. Ocjena svojstava za koje je izdana Europska tehnička ocjena:
Nema

9. Svojstva proizvoda:
Tehnička specifikacija (neharmonizirana norma): HRN EN 1451-1.

INSTALLATION SYSTEMS

vargokal
HOUSE SEWAGE SYSTEM

vargokal PLUS
HOUSE SEWAGE SYSTEM - LOW NOISE

vargokal ULTRA
HOUSE SEWAGE SYSTEM - SILENT

vargokal SIF
HOUSE SEWAGE SYSTEM - SYPHONS

vargoterm
HOUSE WATER SUPPLY

vargoplen
WATER

vargoplen
IRRIGATION AND SEWAGE

vargoplen
GAS

vargokor
SEWAGE PIPES

vargokor
SEWAGE CHAMBERS AND CATCHPITS

vargodren
DRAINAGE PIPES

vargotect
CABLE PROTECTION PIPES

vargoheat
FLOOR HEATING PIPES

Local distributer:

ISO 9001:2008 SGS
ISO 14001 SGS

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00385 (0)51 251 801
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www.vargon.hr