

## ESPIRAL PLUS RANGE


# Alimentar

### Spiral flexible pipe for transport, conveyance and transfer of wines and derivatives, musts, beers and alcohols in general - EN ISO 3994 Type 2

The Espiral Plus - Alimentar range pipes with helicoidal thermoplastic reinforcement (spiral flexible pipe) are manufactured by co-extrusion according to standard EN ISO 3994 for Type 2 - medium-duty pipes.

Alimentar flexible pipes are characterised by being non-toxic, free of heavy metals and comply with good manufacturing practices for Food Contact Materials. Specially design for wine or liquors beverages transport in wine cellars .

They have a high flexibility, mechanical reinforcement with a rigid spiral (helical thermoplastic – reinforcement) with a suitable geometric shape (rectangular or circular) providing better resistance to cold bending, resistant to impact and crushing, are light and have good resistance to abrasion.



Ø <sub>int</sub> (DN) (mm)	Ø <sub>ext</sub> (mm)	Maximum working pressure		Vacuum	Bend radius	Coils length (m)
		(23 °C) (bar)	(55 °C) (bar)	(absolute pressure) (23 °C and 55 °C) (bar)	(23 °C) (mm)	
20 ±0.75	26.0	7.3	2.1	0.65	100	25   50
25 ±1.25	31.6	7.3	2.1	0.65	125	25   50
*30 ±1.25	37.2	5.0	1.5	0.65	150	25   50
*35 ±1.25	42.6	5.0	1.5	0.65	175	25   50
40 ±1.25	48.0	5.0	1.5	0.65	200	25   50
*45 ±1.25	53.8	5.0	1.5	0.65	225	25   50
50 ±1.50	59.8	5.0	1.5	0.65	250	25   50
*60 ±1.50	71.0	5.0	1.5	0.65	300	25
*70 ±1.50	81.2	5.0	1.5	0.65	350	25
75 -0.5+2.5	86.6	4.0	1.3	0.65	375	25
80 ±1.50	92.6	4.0	1.3	0.65	400	25
90 ±2.00	102.8	4.0	1.3	0.65	450	25
100 ±2.00	113.0	3.0	1.0	0.65	500	25
*120 ±2.00	133.4	3.0	1.0	0.65	600	25

\* Diameters not covered in EN ISO 3994..

### Other characteristics

#### Material

They consist of a flexible plasticized PVC material in white crystal colour, supported in its mass by a spiral of red rigid PVC material.


The materials used in their manufacture have been tested according to standards EN 1186-1:2002 and EN 1186-3:2002 with food simulators A, B and C, complying with the limits defined in Commission Regulation (EC) No. 1935/2004, modified by Commission regulations (EU) No. 10/2011, (EU) No. 202/2014 and (EU) No. 174/2015 on Food Contact plastic materials and objects.

Note: Food simulators A, B and C are assigned to foods with a hydrophilic features and which can extract hydrophilic substances. Food simulator B should be used for foods with a pH lower than 4.5. Food simulator C replaces alcoholic foods with an alcohol content of up to 28 %, as well as foods with an important content of organic ingredients that make them more lipophilic.



## Marking

The marking of Alimentar flexible pipes is done in the helical direction with a minimum:

IBOTEC – ALIMENTAR –  – EN ISO 3994:2014 – Type 2 – DNxx – 0.yy MPa (yy bar) 23 °C – zQ (four months) + aa (2 digits of the year) – Ibotec traceability code

Note: xx diameter, yy pressure, z quarter of the year and aa last digits from year.

## Use



**Do not use with hot water nor subject the spiral flexible pipe to pressure for long periods.**

For suction and discharge in average conditions, in the conveyance and transfer of wines and derivatives, musts, beers and alcohols in general with concentration up to 38 % v/v and vinegars at an average temperature of -10 °C and +40 °C and for general use in industry and agriculture at an average temperature of -10 °C and +55 °C.

## Mechanical characteristics

Characteristic	Value	Test method
Hydrostatic pressure at 23 °C - Burst pressure of EN ISO 3994	DN20 to DN30 -> ≥ 22 bar DN35 to DN70 -> ≥ 15 bar DN75 to DN90 -> ≥ 12 bar DN100 to DN120 -> 9 bar	EN ISO 1402
- Test pressure of EN ISO 3994 <ul style="list-style-type: none"> <li>• DN20 to DN30 -&gt; 8.8 bar</li> <li>• DN35 to DN70 -&gt; 6.0 bar</li> <li>• DN75 to DN90 -&gt; 4.8 bar</li> <li>• DN100 to DN120 -&gt; 3.6 bar</li> </ul>	No failure, loss, cracking or abrupt distortion.	
Hydrostatic testing at 55 °C - Minimum burst pressure of EN ISO 3994.	DN20 to DN30 -> ≥ 6.5 bar DN35 to DN70 -> ≥ 4.5 bar DN75 to DN90 -> ≥ 4 bar DN100 to DN120 -> 3 bar	EN ISO 1402
Tensile test	Tensile strength ≥ 50 % of the value obtained in the Raw material tested with ISO 37	Annex A EN ISO 3994
Vacuum test - Absolute pressure of EN ISO 3994 0.35 bar	No collapse or fracture (located more than 1xDN from fittings)	Annex B EN ISO 3994

## Some indications for packaging, storage, use and maintenance

The packaging and storage of spiral flexible pipes prior to use have been defined in accordance with the recommendations of standard EN ISO 8331 and ISO 2230.

The packaging of Alimentar spiral flexible pipes is made in coils with straps and plastic wrapping that guarantee to hold their shape and can be supplied in loose coils or on pallets of coils.

During storage, especially for long periods, and when Alimentar flexible pipes are exposed to certain adverse influences, their physical properties can undergo changes that may result in them no longer having the optimised features corresponding to their application when they are put into service.



At the storage location, the relative humidity of the air must not exceed 70 %, temperature must be below 25 °C, and must be stored away from heat sources. Storage at temperatures above 25 °C can reduce the expected durability of Alimentar flexible pipes. They should not be exposed to temperatures above 50 °C or below -30 °C or abnormal temperature fluctuations during storage time.

Alimentar flexible pipes should be stored in shady spaces, avoiding prolonged exposure to sunlight (ultraviolet radiation can reduce the resistance of the pipes to impact and cause a change in colour). When storage is done in poorly protected sheds, Alimentar flexible pipes should be preferably covered with white, red or orange covers.

Contact with potentially hazardous products and gases such as paints, solvents, oils, fuels, fats, acids, disinfectants, etc. should also be avoided.

Alimentar pipes should be stored in such a way as to prevent them from being subjected to excessive stress (crushing, elongation or deformation). Contact with sharp, pointy or abrasive objects and surfaces must be avoided.

Storage should preferably be done on wooden or plastic pallets or on shelves, and the maximum storage height should be limited in order to maintain the verticality of the stacks, without risk of falling and permanent deformation of the bottom coils. It is not recommended that the coils hang on pins.

Alimentar flexible pipes must be handled with care, avoiding to drag them on sharp or abrasive surfaces and must not be thrown or pressed on by heavy duty vehicles or equipment.

Whenever Alimentar flexible pipes are not being used to transport liquids, or if they are removed from use for temporary storage, they must be drained (emptied). After cleaning them and before putting them back into service, the pipes should be visually examined to determine their suitability for continued use.

In use, Alimentar flexible pipes should not be subject to operating pressures including overpressures higher than the maximum declared operating pressure. The same goes for the maximum recommended operating temperature.

Torsion, exposure to continuous vibrations or stresses resulting from traction must also be avoided and the recommended bend radius must be respected (bearing in mind that the bend radius increases with decreasing temperature), thus preventing clogging and eventual fatigue of the reinforcement (especially next to connection fittings, which can cause premature ruptures).

To assemble the Alimentar spiral flexible pipes, we recommend the use of metallic or plastic fittings, adjusted to the pipe internal diameter, with grooved junctions and "Kamloc", or "Geka" or "Storz", or "BSP thread (ISO 7)" joint system.

The assembly of the joints must take into account the effective tightness of the pipe fitting, to facilitate the process, clean water or soap may be used and no greases, lubricants or solvents must be used.

Adjusting the Alimentar flexible pipes to the fitting must be ensured with the controlled tightening of the bracket. Always use Hercules-type pressure brackets to tighten the fittings.

After assembly, we recommend submitting the joint to a hydraulic test to test the operating pressure foreseen for use, to detect any leaks or movements of the fitting; if necessary, retighten.

In exposed fixed installations, the Alimentar flexible pipes must be supported by suitable brackets, mounted in such a way as to avoid distortion, expansion or contraction during use under pressure or vacuum.

The information and data given are believed to be accurate and safe.

The features can be improved as a result of improvements and technological advances.

Our Quality Control Department is at your disposal for any clarification.

**IBOTEC.**  
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