Riplast®

IRRIGATION PIPE

SOAPLAST

ITALIAN DRIPLINES MANUFACTURER

RIPLAST PIPE

The RIPLAST® pipes are specifically designed for irrigation systems: lateral branches and small adduction pipes from the water reserve to the field, characterized by a prevalent base and moving parts.

They are produced with alternative high-quality materials, consisting of R-PE UNI 10687, that is to say, secondary raw materials with a polymetric matrix of LDPE and LLDPE, which has been carefully selected, subjected to additional processes with virgin materials and special additives.

Due to their characteristics, they represent a valid and economic alternative, able to offer optimum performance over time.

SOAPLAST has been producing RIPLAST® pipes from the beginning, paying particular attention to the selection and provenance of the materials, to their mixture , to the enrichment with virgin polymers of high mechanical characteristics,so, gradually remedying the phenomenon of premature aging of the product.

The search continues to commit the company to the aim of improving more and more the quality of the product, through the elaboration of a specific plan of self-control, of the raw materials, to the examinations of the finished products.

To guarantee the standard dimension of PE pipes in commerce, RIPLAST® refers to the national technical standards for low density polyethylene pipes for pressurized fluid pipes.

The RIPLAST® pipes are available in coils from 016 to 0110 mm with three different series.

Over time, RIPLAST® pipes have been appreciated by many installers and farmers, comforted by the high and durable performance. It is for this reason that SOAPLAST has wanted to patent the RIPLAST® brand.

TECHNICAL DATA

General characteristics

The RIPLAST® pipes are always more appreciated due to their technical characteristics, typical of polyethylene pipes and their profitability:

- Easy placement thanks to its lightness and high flexibility;
- Reduced flow losses thanks to the low roughness of the material and the resistance to the presence of incrustations;
- Resistance to corrosion; It can be buried without any protection;
- A vast range of chemical products do not adhere, it is resistant to most of the bactereological agents present in the field;
- Resistance to atmospheric agents and their alterations caused by ultraviolet rays due to their carbon black content;
- Simplicity of maintenance and repair procedures.

Marking

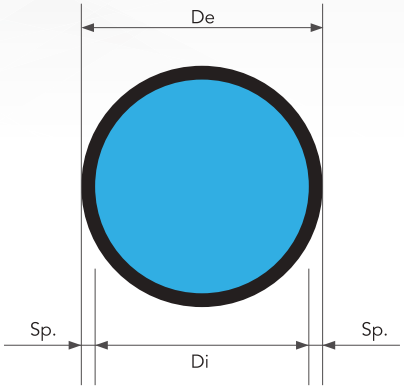
The pipes are hot marked along the generator. The mark is indelible and understandable during the production process.
The marking contains:

- the RIPLAST brand
- diameter and type of tube
- date and production shift
- production line
- footage

Dimensions

Footage pipes are produced by dimensions in reference to the national technical standards for low density polyethylene pipes for pressure fluid pipes, in three different series:

TYPE 4 small thickness series
TYPE 6 medium thickness series
TYPE 10 large thickness series



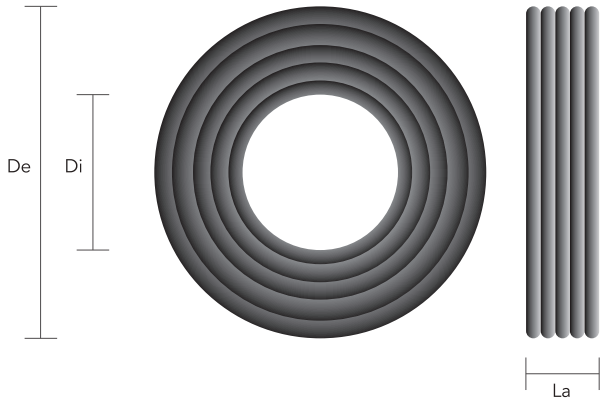


Table 1 - Dimensions of the RIPLAST® tube

De		TYPE 4			TYPE 6			TYPE 10		
		Sp	Di	Weight*	Sp	Di	Weight*	Sp	Di	Weight*
mm	inc	mm	mm	Kg/m	mm	mm	Kg/m	mm	mm	Kg/m
16	3/8"				1,5	13,0	0,068			
20	1/2"	1,5	17.0	0,093	1,6	16,8	0,096	2,6	14,8	0,143
25	3/4"	1,8	21,4	0,138	2,1	20,8	0,156	3,2	18,6	0,216
32	1"	1,9	28,2	0,191	2,6	26,8	0,244	4,2	23,6	0,364
40	1,1/4"	2,4	35,2	0,296	3,4	33,2	0,391	5,1	29,8	0,566
50	1,1/2"	3,0	44,0	0,455	4,2	41,6	0,614	6,5	37,0	0,883
63	2"	3,8	55,4	0,729	5,2	52,6	0,946	8,3	46,4	1,411
75	2,1/2"	4,5	66,0	1,025	6,3	62,4	1,379	10,0	55,0	1,987
90	3"	5,5	79,0	1,467	7,6	74,8	1,967	12,0	66,0	2,854
110	4"	7,0	96,0	2,190	9,2	91,6	2,875	14,5	81,0	4,288

*weights are merely indicative

Table 2 - Dimensions of RIPLAST® tube coils

De		TYPE 4					TYPE 6					TYPE 10				
		VISIBILITY			COIL		VISIBILITY			COIL		VISIBILITY			COIL	
		De	Di	La	L(*)	P	De	Di	La	L(*)	P	De	Di	La	L(*)	P
mm	inc	cm	cm	cm	m	Kg	cm	cm	cm	m	Kg	cm	cm	cm	m	Kg
16	3/8"						88	38	26	500	34,2					
20	1/2"	77	42	29	300	27.9	77	42	29	300	28,8	77	42	29	300	42,8
25	3/4"	84	43	27	200	27,5	98	43	27	300	46,8	98	43	27	200	64,9
32	1"	136	98	35	200	38,1	136	98	35	200	48,8	102	43	35	200	72,8
40	1,1/4"	156	103	29	200	59,2	156	103	29	200	78,1	134	108	29	200	56,6
50	1,1/2"	149	117	29	100	45,5	149	117	29	100	61,4	149	117	29	100	88,3
63	2"	202	152	26	100	72,9	202	152	26	100	94,6	202	152	26	100	141,1
75	2,1/2"	206	156	28	100	102,5	206	156	28	100	137,9	206	156	28	100	198,7
90	3"	232	196	28	50	73,3	232	196	28	50	98,3	239	189	28	50	142,7
110	4"	292	238	28	50	109,5	292	238	28	50	143,8	292	238	28	50	214,4

*Medium length coils can be supplied on request.

QUALITY

All pipes are subject to severe quality controls before being placed on the market, following a specific self-control plan drawn up by the company.

To perform these tests, SOAPLAST uses its own internal laboratory equipped with modern qualified machineries and technicians in addition to accredited external laboratories.

The self-control plan contemplates:

- Acceptance tests of the raw material;
- tests during the production process;
- final examinations on finished products.

Production controls

During production, linear control of the dimensions are carried out in each one of the coils to verify the fulfillment of the specific company techniques.

During the production hot marking is done to identify the production batches, the raw materials used and the operator, for a complete traceability of the product.

Acceptance tests

Specific controls and quality control procedures are carried out for each of the batches of raw material:

- Selection of raw material with periodic visits to the direct supplier;
- Low amount of impurities and residues; homogeneity of the components (being different, they are not easy to mix) .This situation produces the separation of the polymeric phases and a reduction of the mechanical properties;
- Long-term thermal stability;
- Resistance to UV rays;
- Homogeneity of the density and the index of fluidity.

Final exams

The final tests are carried out in each batch of production before its commercialization.
The main tests refer to:

- Resistance to hydrostatic pressure at 20 ° C
- Resistance to hydrostatic pressure at 80 ° C
- Carbon black content
- Dispersion and distribution of carbon black
- Internal tension
- Stress cracking (up to Ø32 mm)

USAGE

Transportation and stacking of the tubes

During the transportation of the coils, excessive bumps and protuberances, contact with sharp bodies should be avoided.

The coils must be transported and stacked horizontally to avoid excessive loss of roundness or folds.

They should preferably be laid on smooth and regular surfaces (for example paillets), overlapping on layers not higher than 2-2.5m.

If the diameter of the coil prevents stacking inside the means of transport, they can be positioned vertically and suitably supported.

During the loading and unloading of the coils, they should not be pulled or dragged on the edges of the means of transport, because they should be delicately lifted and laid, making sure that the supporting surface does not have sharp edges.

If the pipes are not used for long periods of time, they should be protected from direct sunlight.

Installation

The polyethylene pipes can be used buried or out of the ground, depending on the characteristics of the irrigation system that must be built. If the pipes are buried, the depth of their positioning must be such as to protect the pipe from possible vertical loads (tractors, means of transport, etc.).

If the depth is lower, it is necessary to use suitable protection devices. The bed where the tube is laid on must be leveled, free of stones and pebbles and covered with a layer of sand of 10 cm. Before burying it, it is necessary to immobilize the tube on each side and covered it with sand dissolved by at least 20 cm.

The burial can be done with the same extracted material, eliminating the parts with dimensions greater than 10 cm, as animal detritus, vegetables, etc. The succeeding layers of 30 cm thick must be compacted one on the other.

The pipes outside the ground can be hung or simply laid on it. In this case, all necessary precautions must be taken in order to prevent the tube from being accidentally crushed. The hanging pipes must be festooned properly due to thermal expansion.

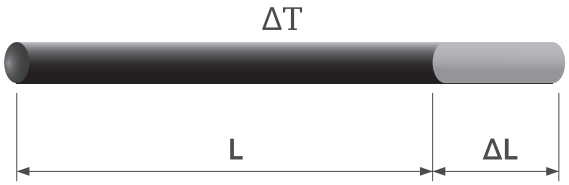
In the case of lines of adduction with consistent length it is necessary to take into account the thermal expansion of the material. To calculate the dilation we can use the following relation:

$$\Delta L = \delta L \cdot \Delta T$$

In which:
ΔL - Variation in length due to thermal variation;

δ - Thermic dilation coefficient ($2x10^{-4}°C^{-1}$)
L - Length of the conduit section in mts

ΔT - difference between maximum and minimum temperatures (C °)



For a quick consultation, the values of thermal dilation expressed in meter can be extracted from the following table, depending on the thermal gradients and the length of the conduit:

	ΔT			
L (m)	10C°	20C°	30C°	40C°
100	0,2	0,4	0,6	0,8
200	0,4	0,8	1,2	1,6
300	0,6	1,2	1,8	2,4
400	0,8	1,6	2,4	3,2
500	1,0	2,0	3,0	4,0
600	1,2	2,4	3,6	4,8
700	1,4	2,8	4,2	5,6
800	1,6	3,2	4,8	6,4
900	1,8	3,6	5,4	7,2
1000	2,0	4,0	6,0	8,0

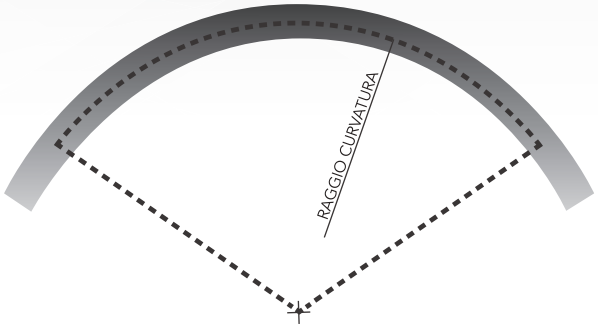
The expansion can be absorbed through dilation joints in the form of bellows (in neoprene) or telescope or other means during positioning.

Both in buried and out-of-earth conduits, it is necessary to keep the maximum curvature ray in mind, in order to avoid stress to the high walls, especially in thinner pipes.

The minimum acceptable bending rays are reported in the following chart:

T	Tipo 10	Tipo 6	Tipo 4
20 °C	>20 ø	>30 ø	>45 ø
10 °C	>35 ø	>45 ø	>60 ø
0 °C	>50 ø	>60 ø	>75 ø

For example, for a 40 TYPE 4 tube the minimum curvature radius at 20 ° C is 45x40 = 1800mm



With the purpose of ensuring the functionality and safety of the irrigation system, it is necessary to install some indispensable devices for control:

- pressure regulating valves able to keep the pressure constant in the distribution network;
- manual interception valves or mechanical actuation, to control and direct the water flow;
- purge valves, necessary to expel the air in the filling phase of the conduits or for the entering of it in case of emptying;
- discharge valves, suitable for emptying or draining the system. They must be installed at the lowest point of the system;
- retention valves, useful to prevent the flow of water from reversing its direction;

Particular attention must be paid to the purge valves. They prevent the presence of air inside the irrigation system and, above all, the vacuum caused by the emptying of the same after use (which in certain circumstances may cause the pipe to collapse).

Implant dimensioning

The RIPLAST® pipes are specifically indicated for the realization of the distribution and connection lines in which the dispensers are inserted.

The most suitable point in the conduit can be calculated with the Blasius abacus (APPENDIX A). Obviously, the useful output section must be considered, that is, the one that refers to the internal diameter of the pipe. The calculation tables obtained with the Blasius equation may be used (APPENDIX A).

Some ordinary applications normally adopted in the supply lines can lead to unwanted stress cracking phenomena. This is evident in the form of cracks produced by the cutting of a knife blade, in the shape of multiple cracks with the same direction. They can occur at the most stressed points of the material such as:

- **graft holes of the dripper;**
- **holes for adapting the supports;**
- **grafting point of fittings, couplings, tees with connection to hose;**
- **folds to 180 ° of the tube.**

To prevent the phenomenon of cracks under normal conditions of use, tests are conducted on the conduits in the laboratory, in accordance with the UNI 10207 standard and the use of high quality raw materials provided by approved suppliers in possession of a ISO 9000 certificate.

In order to avoid such a phenomenon it is anyway necessary:

- **Do not use lubricating oils, greases, soaps or surfactants.**
  These products, commonly used incorrectly to allow greater ease of installation, are highly harmful to polyethylene since they quickly degrade the molecular structure, especially under high temperatures, such as prolonged exposure to solar radiation. To facilitate the installation, it is necessary to heat with hot water the section of pipe concerned.

- **Use hose connections of good quality; the connection must not increase the tube diameter more than 15-20% and must not have traces of oils, greases, etc.**

Resistance to pressure

The choice of the pipe and consequently the thickness of it, depends on the pressure exerted during operation and the maximum and minimum pressures that are verified in the hydraulic transients (maneuver to open and close the valves).

The values of the pressure exerted depending on the temperature are shown below and expressed in bar

Temperatura °C	Tipo4	Tipo6	Tipo10
20	2.5	4.0	6.0
30	1.6	2.5	4.0
40	1.0	1.6	2.5
50	0.6	1.0	1.6

Exceeding the pressure can cause the burst phenomenon. The rupture of the pipe as a consequence of the explosion is of ductile type, since a bubble is formed at the point of rupture, with or without lacerations.

In most cases, the explosion is attributed to the incorrect installation and / or conduction of the system.

For example, other possible causes of explosion might be:

- the presence of air in the hydraulic circuit. This inconvenience must be avoided through the use of retention valves that avoid the emptying of the pipe when the system is not active, and with the use of discharge valves in the mounting points of the pipes.

- abrupt maneuvers of closing and opening of the gates. The excess of pressure exerted by these maneuvers, is known as "water hammer" and can be such to overcome the pressure of rupture of the pipe.

- use of a non-ideal type pipe. For a temperature higher than 20 ° C, the value of the maximum operating pressure must be reduced (according to the above-mentioned leaflet), as the temperature increases.

Load losses

The equation to determine the loss of load in the conduits with pressure in a circular section in uniform function is as follows:

$$J = \frac{\lambda \cdot V^2}{2 \cdot g \quad D}$$

In which:
J Loss of load in m / Km
λ Load loss coefficient
V Speed in m / s
g Acceleration of gravity in m/s2
D Internal tube diameter (mm)

The Blasius formula can be used to determine the load loss coefficient:

$$\lambda = 0.3164\ Re^{-0.25}$$

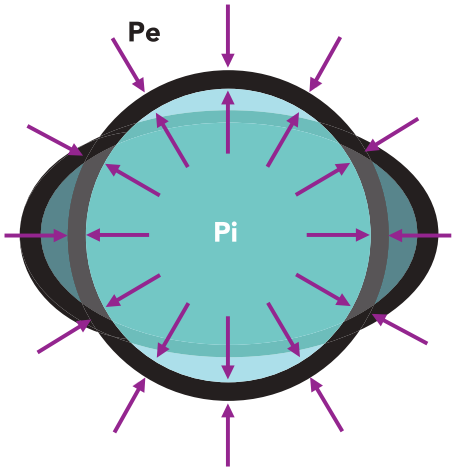
With RE, Reynolds number. The Blasius equation provides resistance values for smooth pipes and approximately expresses the equation of uniform operation in polyethylene pipes with RE values.

In APPENDIX A tabular results are shown for calculating the load losses in the RIPLAST®, TYPE 4, TYPE 6, TYPE 10 tubes, following the Blasius equation. For a quick evaluation ,the Blasius abacus can also be used.

Resistance to external pressure

Empty water pipes subjected to external pressure or excessive decompression by emptying must be checked during flattening.

Verification can be carried out considering the absolute pressure exerted from the external one, due to the difference between external and internal pressure.



The values of these pressures are indicated in the following chart for T = 20 ° C

	Type4	Type6	Type10
Critical pressure (bar)	0.6	1.9	7.5

It is necessary to specify that as temperature increases, the value of the absolute pressure decreases. For T = 40 ° C this is equivalent to almost half, and therefore, for pipes with greater thinness (TYPE 4) it is always necessary to carry out a control.

In order to avoid an excessive decompression of the pipe, that is, the suction caused by the emptying of it after the system has been turned off, it is necessary to choose the pipe that is suitable for different slopes.

Slope	PN
DH<10 m	Tipo 4
10<DH<20 m	Tipo 6
20<DH<40 m	Tipo 10

The phenomenon of flattening is never attributed to the quality of the pipe, but to the incorrect realization of the hydraulic system.

A correct hydraulic system must have the following characteristics:

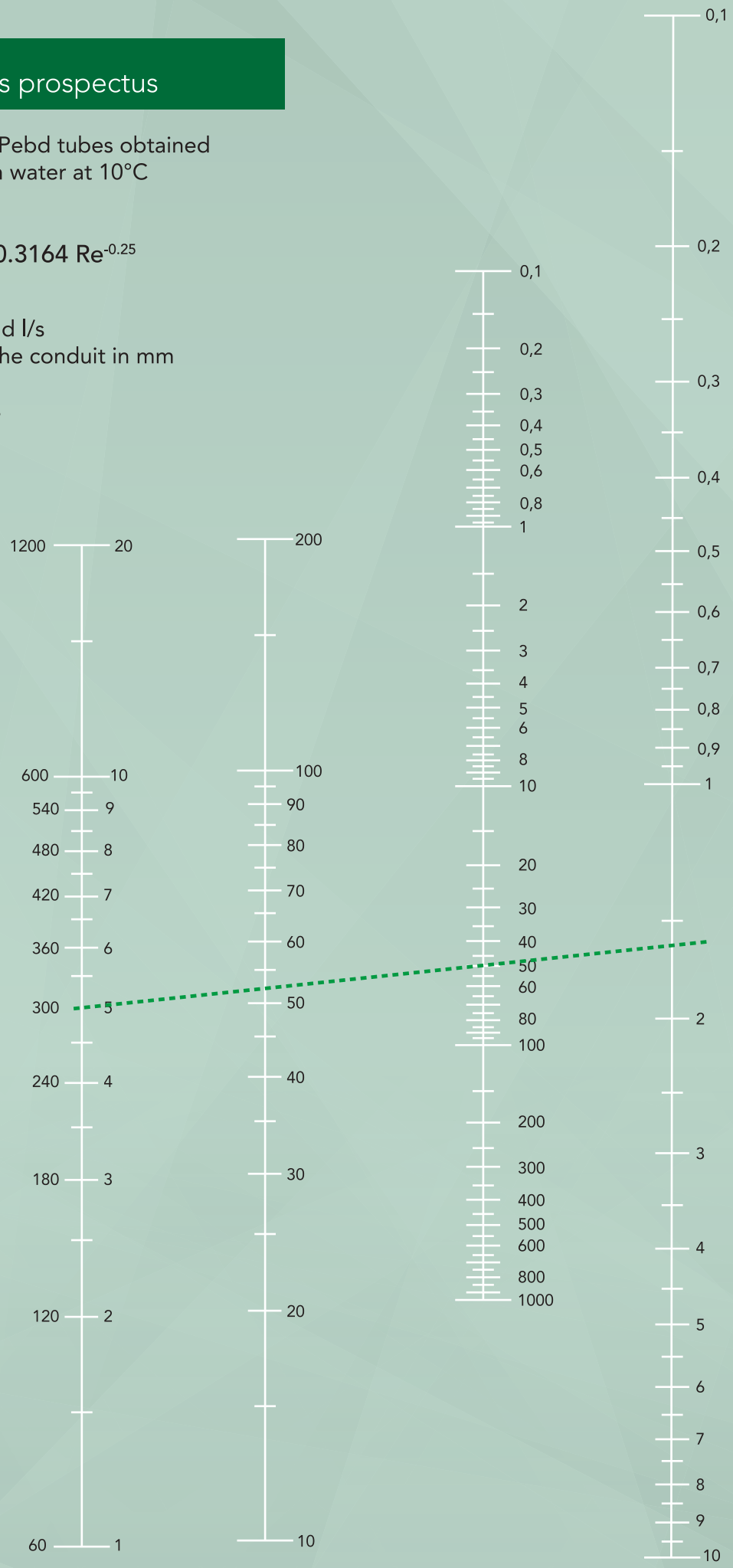
- retention valves to prevent the emptying of the pipe when it is not used.
- suitable selection of the ideal type of pipe depending on the slope presented in the area.

APPENDIX A | Load loss prospectus

Abacus of the load losses in Pebd tubes obtained from the Blasius formula with water at 10°C

$$J = \frac{\lambda \cdot V^2}{2 \cdot g \; D} \quad e \quad \lambda = 0.3164 \; Re^{-0.25}$$

Q	water flow in l/min and l/s
D	internal diameter of the conduit in mm
J	load loss in m/km
V	average speed in m/s



Blasius abacus is very useful because it is enough to identify 2 of the 4 magnitudes to obtain the remaining ones by drawing a simple line of conjunctions.

EXAMPLE
since the diameter D=63PN10 (internal diameter 52.2 mm) and Q = 5 l /s, the load loss J = 48 m/km and the speed V = 1.6 m/s are obtained

Prospectus of load losses in pipes from Ø16 to Ø32,
Obtained with the blasius equation for RIPLAST® tubes.

Q			TUBE DIAMETER																			
			16		20						25						32					
mc/h	l/min	l/s	TYPE 6		TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10	
			J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V
0,036	0,6	0,01	1,3	0,08					0,7	0,06												
0,072	1,2	0,02	4,2	0,15	1,2	0,09	1,3	0,09	2,3	0,12												
0,108	1,8	0,03	8,6	0,23	2,4	0,13	2,5	0,14	4,7	0,17			0,9	0,09	1,6	0,11						
0,144	2,4	0,04	14,2	0,30	4,0	0,18	4,2	0,18	7,7	0,23	1,3	0,11	1,5	0,12	2,6	0,15						
0,18	3	0,05	21,1	0,38	5,9	0,22	6,2	0,23	11,4	0,29	2,0	0,14	2,3	0,15	3,8	0,18					1,2	0,11
0,216	3,6	0,06	29,0	0,45	8,1	0,26	8,6	0,27	15,6	0,35	2,7	0,17	3,1	0,18	5,3	0,22			0,9	0,11	1,7	0,14
0,252	4,2	0,07	37,9	0,53	10,6	0,31	11,2	0,32	20,5	0,41	3,6	0,19	4,1	0,21	6,9	0,26			1,2	0,12	2,2	0,16
0,288	4,8	0,08	47,9	0,60	13,4	0,35	14,2	0,36	25,9	0,47	4,5	0,22	5,1	0,24	8,7	0,29	1,2	0,13	1,5	0,14	2,8	0,18
0,324	5,4	0,09	58,9	0,68	16,5	0,40	17,4	0,41	31,8	0,52	5,5	0,25	6,3	0,26	10,7	0,33	1,5	0,14	1,9	0,16	3,5	0,21
0,36	6	0,1	70,8	0,75	19,8	0,44	20,9	0,45	38,2	0,58	6,6	0,28	7,6	0,29	12,9	0,37	1,8	0,16	2,3	0,18	4,2	0,23
0,72	12	0,2	238,2	1,51	66,6	0,88	70,5	0,90	128,6	1,16	22,3	0,56	25,5	0,59	43,4	0,74	6,0	0,32	7,7	1,35	14,0	0,46
1,08	18	0,3			135,4	1,32	143,2	1,35	261,5	1,74	45,4	0,83	51,9	0,88	88,3	1,10	12,2	0,48	15,6	0,53	28,5	0,69
1,44	24	0,4			224,0	1,76	237,0	1,80			75,1	1,11	85,9	1,18	146,1	1,47	20,2	0,64	25,8	0,71	47,2	0,91
1,8	30	0,5			331,0	2,20					110,9	1,39	127,0	1,47	215,9	1,84	29,9	0,80	38,1	0,89	69,7	1,14
2,16	36	0,6									152,6	1,67	174,7	1,77			41,2	0,96	52,4	1,06	95,9	1,37
2,52	42	0,7									199,9	1,95	228,8	2,06			53,9	1,12	68,6	1,24	125,6	1,60
2,88	48	0,8									252,5	2,22					68,1	1,28	86,7	1,42	158,6	1,83
3,24	54	0,9									310,3	2,50					83,7	1,44	106,6	1,60	194,9	2,06
3,6	60	1															100,6	1,60	128,1	1,77	234,4	2,29
3,96	66	1,1															118,9	1,76	151,4	1,95		
4,32	72	1,2															138,4	1,92	176,3	2,13		
4,68	78	1,3															159,2	2,08	202,8	2,30		
5,04	84	1,4															181,3	2,24	230,9	2,48		
5,4	90	1,5															204,5	2,40	260,5	2,66		
5,76	96	1,6															229,0	2,56	291,7	2,84		
6,12	102	1,7															254,6	2,72				
6,48	108	1,8															281,4	2,88				
6,84	114	1,9															309,3	3,04				
7,2	120	2																				

Q water flow **J** load loss in m/Km **V** medium speed in m/s

Prospectus of load losses in pipes from Ø40 to Ø63, Obtained with the blasius equation for RIPLAST® tubes.

Q			TUBE DIAMETER																	
			40						50						63					
mc/h	l/min	l/s	TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10	
			J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V
0,036	0,6	0,01																		
0,072	1,2	0,02																		
0,108	1,8	0,03																		
0,144	2,4	0,04																		
0,18	3	0,05																		
0,216	3,6	0,06																		
0,252	4,2	0,07					0,7	0,10												
0,288	4,8	0,08					0,9	0,11												
0,324	5,4	0,09			0,7	0,10	1,1	0,13												
0,36	6	0,1	0,6	0,10	0,8	0,12	1,4	0,14					0,5	0,09						
0,72	12	0,2	2,1	0,21	2,8	0,23	4,6	0,29			0,9	0,15	1,7	0,19					0,6	0,12
1,08	18	0,3	4,3	0,31	5,6	0,35	9,4	0,43	1,5	0,20	1,9	0,22	3,4	0,28			0,6	0,14	1,1	0,18
1,44	24	0,4	7,1	0,41	9,3	0,46	15,6	0,57	2,4	0,26	3,2	0,29	5,6	0,37	0,8	0,17	1,0	0,18	1,9	0,24
1,8	30	0,5	10,4	0,51	13,8	0,58	23,0	0,72	3,6	0,33	4,7	0,37	8,2	0,47	1,2	1,21	1,5	0,23	2,8	0,30
2,16	36	0,6	14,4	0,62	19,0	0,69	31,7	0,86	5,0	0,39	6,5	0,44	11,3	0,56	1,7	0,25	2,1	0,28	3,9	0,35
2,52	42	0,7	18,8	0,72	24,8	0,81	41,5	1,00	6,5	0,46	8,5	0,52	14,8	0,65	2,2	0,29	2,8	0,32	5,1	0,41
2,88	48	0,8	23,7	0,82	31,4	0,92	52,4	1,15	8,2	0,53	10,7	0,59	18,7	0,74	2,8	0,33	3,5	0,37	6,4	0,47
3,24	54	0,9	29,2	0,93	38,5	1,04	64,4	1,29	10,1	0,59	13,2	0,66	23,0	0,84	3,4	0,37	4,3	0,41	7,9	0,53
3,6	60	1	35,1	1,03	46,3	1,16	77,4	1,43	12,2	0,66	15,9	0,74	27,7	0,93	4,1	0,41	5,2	0,46	9,4	0,59
5,4	90	1,5	71,4	1,54	94,2	1,73	157,4	2,15	24,7	0,99	32,3	1,10	56,3	1,40	8,3	0,62	10,6	0,69	19,2	0,89
7,2	120	2	118,0	2,06	155,9	2,31	260,4	2,87	40,9	1,32	53,4	1,47	93,1	1,86	13,7	0,83	17,5	0,92	31,8	1,18
9	150	2,5	174,4	2,57	230,3	2,89	384,8	3,59	60,4	1,64	78,9	1,84	137,6	2,33	20,2	1,04	25,9	1,15	47,0	1,48
10,8	180	3	240,0	3,08	316,9	3,47	529,4	4,30	83,2	1,97	108,5	2,21	189,4	3,26	27,8	1,24	35,6	1,38	64,6	1,77
12,6	210	3,5	314,3	3,60	415,0	4,04	693,3	5,02	108,9	2,30	142,1	2,58	248,0	2,79	36,5	1,45	46,6	1,61	84,6	2,07
14,4	240	4	397,0	4,11	525,2	4,62			137,6	2,63	179,6	2,94	313,3	3,72	46,1	1,66	58,9	1,84	106,9	2,37
16,2	270	4,5	487,9	4,63	644,2	5,20			169,1	2,96	220,7	3,31	385,0	4,19	56,6	1,87	72,4	2,07	131,4	2,66
18	300	5	586,7	5,14					203,3	3,29	265,3	3,68	463,0	4,65	68,1	2,07	87,1	2,30	158,0	2,96
19,8	330	5,5							240,2	3,62	313,5	4,05	547,0	5,12	80,4	2,28	102,9	2,53	186,6	3,25
21,6	360	6							279,7	3,95	365,1	4,42			93,6	2,49	119,8	2,76	217,3	3,55
23,4	390	6,5							321,7	4,28	420,0	4,78			107,7	2,70	137,8	2,99	250,0	3,84
25,2	420	7							366,3	4,60	478,1	5,15			122,6	2,90	156,9	3,22	284,6	4,14
27	450	7,5							413,3	4,93					138,4	3,11	177,0	3,45	321,2	4,44
28,8	480	8							462,7	5,26					154,9	3,32	198,2	3,68	359,6	4,73
30,6	510	8,5													172,2	3,53	220,4	3,91	399,8	5,03
32,4	540	9													190,4	3,73	243,5	4,14		
34,2	570	9,5													209,2	3,94	267,7	4,37		
36	600	10													228,9	4,15	292,8	4,60		
37,8	630	10,5													249,3	4,36	318,9	4,83		
39,6	660	11													270,4	4,56	346,0	5,06		
41,4	690	11,5													292,3	4,77				
43,2	720	12													314,9	4,98				

Q water flow **J** load loss in m/Km **V** medium speed in m/s

Prospectus of load losses in pipes from Ø75 to Ø110,
Obtained with the blasius equation for RIPLAST® tubes.

Q			TUBE DIAMETER																	
			75						90						110					
mc/h	l/min	l/s	TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10		TYPE 4		TYPE 6		TYPE 10	
			J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V	J	V
1,8	30	0,5																		
3,6	60	1					4,2	0,42												
5,4	90	1,5			4,7	0,49	8,6	0,63												
7,2	120	2	6,0	0,58	7,8	0,65	14,2	0,84												
9	150	2,5	8,8	0,73	11,5	0,82	20,9	1,05					8,8	0,73						
10,8	180	3	12,1	0,88	15,8	0,98	28,8	1,26			6,7	0,68	12,1	0,88						
12,6	210	3,5	15,9	1,02	20,7	1,14	37,7	1,47	6,8	0,71	8,8	0,80	15,9	1,02						
14,4	240	4	20,0	1,17	26,2	1,31	47,7	1,68	8,5	0,82	11,1	0,91	20,0	1,17						
16,2	270	4,5	24,6	1,32	32,2	1,47	58,6	1,89	10,5	0,92	13,6	1,02	24,6	1,32					9,3	0,87
18	300	5	29,6	1,46	38,7	1,64	70,4	2,10	12,6	1,02	16,3	1,14	29,6	1,46			6,2	0,76	11,2	0,97
19,8	330	5,5	35,0	1,61	45,7	1,80	83,2	2,32	14,9	1,12	19,3	1,25	35,0	1,61	5,9	0,76	7,4	0,83	13,2	1,07
21,6	360	6	40,8	1,75	53,2	1,96	96,9	2,53	17,4	1,22	22,5	1,37	40,8	1,75	6,9	0,83	8,6	0,91	15,4	1,16
23,4	390	6,5	46,9	1,90	61,2	2,13	111,5	2,74	20,0	1,33	25,9	1,48	46,9	1,90	7,9	0,90	9,9	0,99	17,7	1,26
25,2	420	7	53,4	2,05	69,7	2,29	126,9	2,95	22,7	1,43	29,5	1,59	53,4	2,05	9,0	0,97	11,3	1,06	20,2	1,36
27	450	7,5	60,2	2,19	78,6	2,45	143,2	3,16	25,6	1,53	33,2	1,71	60,2	2,19	10,2	1,04	12,7	1,14	22,8	1,46
28,8	480	8	67,4	2,34	88,0	2,62	160,3	3,37	28,7	1,63	37,2	1,82	67,4	2,34	11,4	1,11	14,2	1,21	25,5	1,55
30,6	510	8,5	75,0	2,48	97,9	2,78	178,3	3,58	31,9	1,73	41,4	1,93	75,0	2,48	12,6	1,17	15,8	1,29	28,3	1,65
32,4	540	9	82,9	2,63	108,2	2,94	197,0	3,79	35,3	1,84	45,7	2,05	82,9	2,63	14,0	1,24	17,5	1,37	31,3	1,75
34,2	570	9,5	91,1	2,78	118,9	3,11	216,6	4,00	38,8	1,94	50,3	216	91,1	2,78	15,4	1,31	19,2	1,44	34,4	1,84
36	600	10	99,7	2,92	130,1	3,27	236,9	4,21	42,4	2,04	55,0	2,28	99,7	2,92	16,8	1,38	21,0	1,52	37,7	1,94
39,6	660	11	117,7	3,22	153,7	3,60	279,9	4,63	50,1	2,24	65,0	2,50	117,7	3,22	19,9	1,52	24,8	1,67	44,5	2,14
43,2	720	12	137,1	3,51	179,0	3,92	326,0	5,05	58,4	2,45	75,7	2,73	137,1	3,51	23,1	1,66	28,9	1,82	51,8	2,33
46,8	780	13	157,7	3,80	205,5	4,25			67,1	2,65	87,0	2,96	157,7	3,80	26,6	1,80	33,2	1,97	59,6	2,52
50,4	840	14	179,6	4,09	234,4	4,58			76,4	2,86	99,1	3,19	179,6	4,09	30,3	1,93	37,8	2,12	67,9	2,72
54	900	15	202,6	4,39	264,5	4,91			86,2	3,06	111,8	3,41	202,6	4,39	34,2	2,07	42,7	2,28	76,6	2,91
57,6	960	16	226,6	4,68	296,1	5,23			96,6	3,26	125,2	3,64	226,8	4,68	38,3	2,21	47,8	2,43	85,7	3,11
61,2	1020	17	252,2	4,97					107,4	3,47	139,2	3,87	252,2	4,97	42,5	2,35	53,2	2,58	95,3	3,30
64,8	1080	18	278,7	5,26					118,7	3,67	153,8	4,10			47,0	2,49	58,8	2,73	105,4	3,49
68,4	1140	19							130,4	3,88	169,1	4,32			51,7	2,63	64,6	2,88	115,8	3,69
72	1200	20							142,7	4,08	185,0	4,55			56,5	2,76	70,7	3,04	126,7	3,88
75,6	1260	21							155,4	4,29	201,4	4,78			61,6	2,90	76,9	3,19	138,0	4,08
79,2	1320	22							168,6	4,49	218,5	5,01			66,8	3,04	83,5	3,34	149,7	4,27
82,8	1380	23							182,2	4,69					72,2	3,18	90,2	3,49	161,8	4,46
86,4	1440	24							196,3	4,90					77,8	3,32	97,2	3,64	174,3	4,66
90	1500	25							210,9	5,10					83,5	3,45	104,4	3,79	187,2	4,85
93,6	1560	26													89,5	3,59	111,8	3,95	200,5	5,05
97,2	1620	27													95,6	3,73	119,5	4,10		
100,8	1680	28													101,9	3,87	127,3	4,25		
104,4	1740	29													108,3	4,01	135,4	4,40		
108	1800	30													114,9	4,15	143,6	4,55		
115,2	1920	32													128,7	4,42	160,8	4,86		
122,4	2040	34													143,1	4,70	178,8	5,16		
129,6	2160	36													158,1	4,97				
136,8	2280	38													173,6	5,25				
144	2400	40													190,2	5,53				

Q water flow **J** load loss in m/Km **V** medium speed in m/s

Riplast®

IRRIGATION PIPE

SOAPLAST

ITALIAN DRIPLINES MANUFACTURER

Soaplast offers a **complete range of driplines** for every type of crop, topographical conditions, soil quality and water.

The **drip irrigation system** allows significant savings of water and economic, the efficient use of water, where necessary, guarantees nourishment to the plants avoiding unnecessary waste.

Since the **80s**, Soaplast has invested in the research of irrigation solutions for agriculture using high quality raw materials and advanced machinery in the production of driplines.

The constant quality of the production process is guaranteed by the **ISO 9001**.

The Soaplast International Logistics benefits great simplifications thanks to the **AEO** Authorization released by the European Agency of Customs and Monopolies, after strict controls.

Soaplast goods sold to Countries which have signed a Free Trade Agreement with the EU pay less customs duties, so-called preferential customs tariffs, because Soaplast is an **Exporter Authorized** by the European Customs Authorities.

The Company also holds **International Patents**.

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