

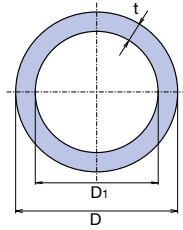
Technical Product Sheet



Polypropylene pipes

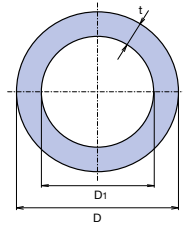
EKOPLASTIK PPR PN10 Ø 20-125 mm	EKOPLASTIK PPR PN16 Ø 16-125 mm	EKOPLASTIK PPR PN20 Ø 16-125 mm	EKOPLASTIK EVO Ø 16-125 mm	EKOPLASTIK STABI PLUS Ø 16-110 mm	EKOPLASTIK FIBER BASALT PLUS Ø 20-125 mm	EKOPLASTIK FIBER BASALT CLIMA Ø 20-125 mm
	●	●	●	●	●	●
	●	●	●	●	●	●
		●	●	●	●	●
max. 70 °C						
				●	●	
max. 90 °C						

Pipe Ekoplastik S 5 / PN 10 / SDR 11



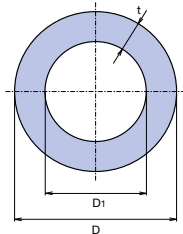
D	D ₁	t	l	⊠	⚖	CODE
mm	mm	mm	mm	m	kg/m	
20	15,6	2,2	4000	100	0,121	STR020P10X
25	20,4	2,3	4000	60	0,164	STR025P10X
32	26,2	2,9	4000	40	0,258	STR032P10X
40	32,6	3,7	4000	24	0,413	STR040P10X
50	40,8	4,6	4000	16	0,636	STR050P10X
63	51,4	5,8	4000	12	1,004	STR063P10X
75	61,4	6,8	4000	8	1,401	STR075P10X
90	73,6	8,2	4000	4	2,014	STR090P10X
110	90,0	10,0	4000	4	3,009	STR110P10X
125	102,2	11,4	4000	4	3,910	STR125P10X

Pipe Ekoplastik S 3,2 / PN 16 / SDR 7,4



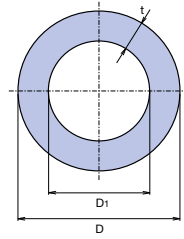
D	D ₁	t	l	⊠	⚖	CODE
mm	mm	mm	mm	m	kg/m	
16	11,6	2,2	4000	160	0,094	STR016P16X
20	14,4	2,8	4000	100	0,145	STR020P16X
25	18,0	3,5	4000	60	0,227	STR025P16X
32	23,2	4,4	4000	40	0,367	STR032P16X
40	29,0	5,5	4000	24	0,566	STR040P16X
50	36,2	6,9	4000	16	0,886	STR050P16X
63	45,8	8,6	4000	12	1,387	STR063P16X
75	54,4	10,3	4000	8	1,990	STR075P16X
90	65,4	12,3	4000	4	2,839	STR090P16X
110	79,8	15,1	4000	4	4,274	STR110P16X
125	90,8	17,1	4000	4	5,530	STR125P16X

Pipe Ekoplastik S 2,5 / PN 20 / SDR 6



D	D ₁	t	l	⊠	⚖	CODE
mm	mm	mm	mm	m	kg/m	
16	10,6	2,7	4000	160	0,107	STR016P20X
20	13,2	3,4	4000	100	0,169	STR020P20X
25	16,6	4,2	4000	60	0,259	STR025P20X
32	21,2	5,4	4000	40	0,423	STR032P20X
40	26,6	6,7	4000	24	0,657	STR040P20X
50	33,4	8,3	4000	16	1,013	STR050P20X
63	42,0	10,5	4000	12	1,611	STR063P20X
75	50,0	12,5	4000	8	2,288	STR075P20X
90	60,0	15,0	4000	4	3,332	STR090P20X
110	73,4	18,3	4000	4	4,977	STR110P20X
125	83,4	20,8	4000	4	6,470	STR125P20X

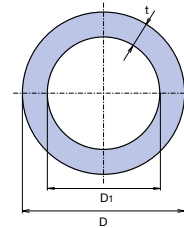
Pipe Ekoplastik S 2,5 / PN 20 / SDR 6 – 3 m



D	D1	t	l			CODE
mm	mm	mm	mm	m	kg/m	
20	13,2	3,4	3000	75	0,169	STR020P203
25	16,6	4,2	3000	45	0,259	STR025P203
32	21,2	5,4	3000	30	0,423	STR032P203

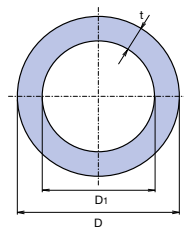
All pipes listed above could be manufactured in alternative lengths to special order by prior agreement.

Pipe Ekoplastik EVO S 3,2 / SDR 7,4 PN 28 (calculation) Pipe Ekoplastik EVO S 4 / SDR 9 PN 22 (calculation)



D	D1	t	l			CODE
mm	mm	mm	mm	m	kg/m	
16	11,6	2,2	4000	160	0,095	STRE016S32
20	15,4	2,3	4000	100	0,127	STRE020S4
25	19,4	2,8	4000	60	0,191	STRE025S4
32	24,8	3,6	4000	40	0,313	STRE032S4
40	31,0	4,5	4000	24	0,487	STRE040S4
50	38,8	5,6	4000	16	0,755	STRE050S4
63	48,8	7,1	4000	12	1,200	STRE063S4
75	58,2	8,4	4000	8	1,690	STRE075S4
90	69,8	10,1	4000	4	2,440	STRE090S4
110	85,4	12,3	4000	4	3,620	STRE110S4
125	97,0	14,0	4000	4	4,660	STRE125S4

Pipe Ekoplastik STABI PLUS 16-63 mm S 3,2 / SDR 7,4 / PN 28 (calculation) Pipe Ekoplastik STABI PLUS 75-110 mm S 4 / SDR 9 / PN 22 (calculation)



D	De	D1	t	l			CODE
mm	mm	mm	mm	mm	m	kg/m	
16	17,9	11,4	2,2	4000	120	0,137	STRS016RCT
20	21,9	14,4	2,8	4000	80	0,207	STRS020RCT
25	26,9	18,0	3,5	4000	60	0,298	STRS025RCT
32	33,9	23,2	4,4	4000	40	0,465	STRS032RCT
40	41,9	29,0	5,5	4000	20	0,692	STRS040RCT
50	52,0	36,2	6,9	4000	16	1,046	STRS050RCT
63	65,0	45,8	8,6	4000	8	1,587	STRS063RCT
75	77,0	58,2	8,4	4000	8	1,860	STRS075RCT
90	92,0	69,8	10,1	4000	4	2,673	STRS090RCT
110	112,0	85,4	12,3	4000	4	4,022	STRS110RCT

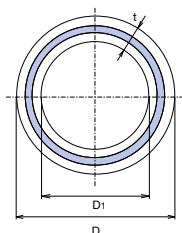


**Pipe Ekoplastik FIBER BASALT PLUS
20-63 mm S 3,2 / SDR 7,4 / PN 28**

(calculation)

**Pipe Ekoplastik FIBER BASALT PLUS
75-125 mm S 4 / SDR 9 / PN 22**

(calculation)



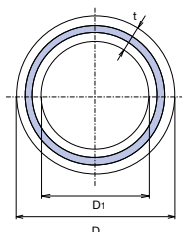
D	D ₁	t	l	📦	⚖️	CODE
mm	mm	mm	mm	m	kg/m	
20	14,4	2,8	4000	100	0,153	STRFB020TRCT
25	18,0	3,5	4000	60	0,239	STRFB025TRCT
32	23,2	4,4	4000	40	0,385	STRFB032TRCT
40	29,0	5,5	4000	24	0,599	STRFB040TRCT
50	36,2	6,9	4000	16	0,941	STRFB050TRCT
63	45,8	8,6	4000	12	1,471	STRFB063TRCT
75	58,2	8,4	4000	8	1,764	STRFB075TRCT
90	69,8	10,1	4000	4	2,546	STRFB090TRCT
110	85,4	12,3	4000	4	3,781	STRFB110TRCT
⊕ 125	97,0	14,0	4000	4	4,891	STRFB125TRCT

⊕ job-order manufacture, delivery date 30 days



**Pipe FIBER BASALT CLIMA 20-25 mm
S 4 / SDR 9 / PN 22 (calculation)**

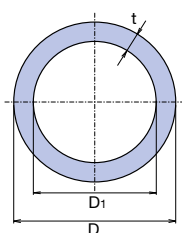
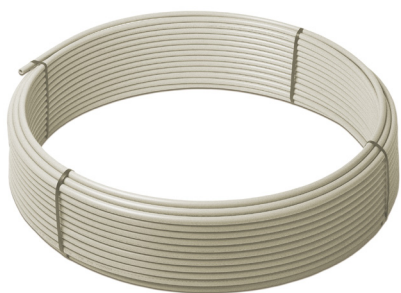
**Pipe FIBER BASALT CLIMA 32-125 mm
S 5 / SDR 11 / PN 18 (calculation)**



D	D ₁	t	l	📦	⚖️	CODE
mm	mm	mm	mm	m	kg/m	
20	15,4	2,3	4000	100	0,128	TTRFBC020TRCT
25	19,4	2,8	4000	60	0,199	TTRFBC025TRCT
32	26,2	2,9	4000	40	0,269	TTRFBC032TRCT
40	32,6	3,7	4000	24	0,428	TTRFBC040TRCT
50	40,8	4,6	4000	16	0,664	TTRFBC050TRCT
63	51,4	5,8	4000	12	1,050	TTRFBC063TRCT
⊕ 75	61,4	6,8	4000	8	1,501	TTRFBC075TRCT
⊕ 90	73,6	8,2	4000	4	2,122	TTRFBC090TRCT
⊕ 110	90,0	10,0	4000	4	3,160	TTRFBC110TRCT
⊕ 125	102,2	11,4	4000	4	4,082	TTRFBC125TRCT

⊕ job-order manufacture, delivery date 30 days

Trubka v kole



D	S	SDR	t	l	⚖️	CODE
mm			mm	m	kg/m	
16	3,2(16)	7,4	2,2	100	0,094	STRK016P17
20	5,0(10)	11	2,2	100	0,121	STRK020P11
				200		STRK020P10
20	3,2(16)	7,4	2,8	100	0,145	STRK020P17
				200		STRK020P16
16	2,5(20)	6	2,7	100	0,107	STRK016P21
				200		STRK016P20
20	2,5(20)	6	3,4	100	0,169	STRK020P21
				200		STRK020P20

Product Range – Basic Information

Pipes of the Ekoplastik System are produced in the following sizes (external pipe diameter is shown): 16, 20, 25, 32, 40, 50, 63, 75, 90, 110 and 125 mm.

The pipes are produced in various combinations of operating pressure and temperatures in separate pressure lines (of various wall thicknesses).

All plastic pipe

Ekoplastik S 5 (PN 10) for cold water and floor heating

Ekoplastik S 3,2 (PN 16) for hot water and floor heating

Ekoplastik S 2,5 (PN 20) for hot water and central heating

Ekoplastik EVO S 3,2 (16 mm), S 4 (20-125 mm), for cold and hot water, floor and central heating

Multilayer pipe

Ekoplastik STABI PLUS three-layer pipes with perforated aluminum foil (16-63 mm, S 3,2) and **Ekoplastik STABI PLUS** with perforated aluminum foil (75-110 mm, S 4), for hot water and central heating

Ekoplastik FIBER BASALT PLUS three-layer pipes S 3,2 (20-63 mm), S 4 (75-125 mm) reinforced with basalt fiber, for hot water and central heating

Ekoplastik FIBER BASALT CLIMA three-layer pipes S4 (20-32 mm), S5 (40-125 mm) reinforced with basalt fiber for cold water, air conditioning and cooling

Each class of application refers to a typical field of use and for a period of 50 years. Each class of application must be associated with the pressure it is designed for (operating system pressure). This information is assigned to each pipe in the following format: class of application/pressure, for example 1/10 bar. It means the pipe is categorized as class 1 and has the maximum operating pressure of 10 bar.

The classes of application according to ISO 10508:

- ⊕ **class 1** (supply of hot water of 60 °C, service life 50 years)
- ⊕ **class 2** (supply of hot water of 70 °C, service life 50 years)
- ⊕ **class 4** (floor heating, low temperature heaters, service life 50 years, assuming (in total for the entire lifetime) 2.5 years at the operating temperature of 20 °C, 20 years at the operating temperature of 40 °C, 25 years at the operating temperature of 60 °C, 2.5 years at the operating temperature of 70 °C)

⊕ **class 5** (high temperature heaters, service life 50 years, out of which (in total for the entire length of service life) 14 years at the operating temperature of 20 °C, 25 years at the operating temperature of 60 °C, 10 years at the operating temperature of 80 °C, 1 year at the operating temperature 90 °C). Maximum operating pressure (4, 6, 8, 10 bar) corresponding to the application class is calculated and assigned for each material and pipe series S.

The Ekoplastik STABI PLUS pipes

are three-layer pipes: the inner wall of the pipe is made of polypropylene type 4 - PP-RCT and its wall thickness is identical to that of the pipe S 3,2 and S 4. During the course of production it is coupled to the layer of aluminium and subsequently covered with an outer layer of polypropylene. Due to the aluminium layer the pipe has an oxygen barrier and meets the requirements of DIN 4726 and CSN EN 21003 for oxygen permeability. The pipes have durability and thermal length expansion comparable to metal pipes. The PP-RCT pipes are labeled according to the wall thickness as the class „S“. In order to provide the aluminium foil with some mechanical protection the pipe is furnished with an external polypropylene layer. In some cases, vaporization of residual moisture from production of the internal polypropylene pipe may occur (in the form of bubbles and blisters under the external layer). However, as this external polypropylene layer does not affect the mechanical properties of the pipe, it is considered an aesthetic issue only.

The Ekoplastik BASALT FIBER PLUS pipes

are three-layer pipes. The inner and outer layer is made of polypropylene type 4 (PP-RCT). The middle layer is from polypropylene type 4 (PP-RCT) reinforced with basalt fibers (BF). The composition of the layers can be schematically described as PP-RCT / PP-RCT + BF / PP-RCT. Due to the basalt fiber the thermal expansion occurring in the BASALT FIBER PLUS pipe is three times lower than in the all-plastic pipes.

Operating conditions according to ISO 10508

– application classes

Each class has defined system operating parameters for the total usage period of 50 years. Time when distribution system is exposed to high temperatures (Tmax) and temperatures during functional failure of the system (Tmal) are also included. Pipes are assigned certain maximum operating pressure.

When more than one operating temperature applies for a particular class, the periods are summed - see Service Life Total. All pipes compliant with the conditions in the table are suitable for cold water distribution for the period of 50 years at 20 °C and the pressure of 10 bar.

Class	service life total (years)	time of operation years / hr	operating temperature T °C	typical use	PPR S 2,5 SDR 6 (PN 20)	PPR S 3,2 SDR 7,4 (PN 16)	PP-RCT S 3,2 SDR 7,4	PP-RCT S 4 SDR 9	PP-RCT S 5 SDR 11
					max. operating pressure (bar)				
1	50 years	49 years	60	hot water 60°C	10	8	10	8	6
		1 year	80						
	Tmal/service life by Tmal	100 hr	95						
2	50 years	49 years	70	hot water 70°C	8	6	10	8	6
		1 year	80						
	Tmal/service life by Tmal	100 hr	95						
4	50 years	2,5 years	20	floor heating low temperature radiators	10	10	10	8	6
		20 years	40						
		25 years	60						
		2,5 years	70						
	Tmal/service life by Tmal	100 hr	100						
5	50 years	14 years	20	high temperature radiators	6	x	8	6	x
		25 years	60						
		10 years	80						
		1 year	90						
	Tmal/service life by Tmal	100 hr	100						

Application classes and appropriate maximum operating pressures are listed in the description of each pipe.

Example: PP-RCT pipe – S 3,2:

Class 1/10 bar, 2/10 bar, 4/10 bar, 5/8 bar means that the pipe may be used:

- ⊙ for distribution of hot water of 60 °C - operating pressure 10 bar, service life of 50 years (class 1/10)
- ⊙ for distribution of hot water of 70 °C - operating pressure 10 bar, service life of 50 years (class 2/10)
- ⊙ for underfloor heating and low temperature radiators - operating pressure 10 bar, service life of 50 years (class 4/10)
- ⊙ for high temperature radiators - operating pressure 8 bar, service life of 50 years (class 5/8)

Operating parameters of PPR and PP-RCT piping systems (according to DIN 8077/2007)

TEMPERATURE [°C]	TIME IN OPERATION (YEARS)	PPR			PP-RCT		
		S5 (PN10)	S3,2 (PN 16)	S2,5 (PN 20)	EKOPLASTIK FIBER BASALT PLUS, EKOPLASTIK STABI PLUS, EKOPLASTIK EVO		EKOPLASTIK FIBER BASALT CLIMA
					S 4	S 3,2	S 5
MAXIMUM ALLOWABLE PRESSURE (BAR)							
10	1	17,5	27,8	35,1	24,0	30,2	19,0
	5	16,5	26,2	33,0	23,2	29,3	18,4
	10	16,1	25,6	32,2	22,9	28,9	18,2
	25	15,6	24,7	31,1	22,5	28,4	17,9
	50	15,2	24,1	30,3	22,2	28,0	17,7
20	1	15,0	23,7	29,9	20,9	26,3	16,6
	5	14,1	22,3	28,1	20,2	25,4	16,0
	10	13,7	21,7	27,4	19,9	25,1	15,8
	25	13,2	21,0	26,4	19,6	24,6	15,5
	50	12,9	20,4	25,7	19,3	24,3	15,3
30	1	12,7	20,2	25,4	18,1	22,7	14,3
	5	11,9	18,9	23,8	17,4	22,0	13,9
	10	11,6	18,4	23,2	17,2	21,7	13,6
	25	11,2	17,7	22,3	16,9	21,2	13,4
	50	10,9	17,2	21,7	16,6	20,9	13,2
40	1	10,8	17,1	21,6	15,5	19,6	12,3
	5	10,1	16,0	20,2	15,0	18,9	11,9
	10	9,8	15,5	19,6	14,7	18,6	11,7
	25	9,4	15,0	18,8	14,4	18,2	11,5
	50	9,2	14,5	18,3	14,2	17,9	11,3
50	1	9,1	14,5	18,2	13,3	16,7	10,5
	5	8,5	13,5	17,0	12,8	16,1	10,1
	10	8,2	13,1	16,5	12,6	15,8	10,0
	25	7,9	12,6	15,9	12,3	15,5	9,7
	50	7,7	12,2	15,4	12,1	15,2	9,6
60	1	7,7	12,2	15,4	11,2	14,2	8,9
	5	7,1	11,3	14,3	10,8	13,6	8,6
	10	6,9	11,0	13,9	10,6	13,4	8,4
	25	6,6	10,5	13,3	10,4	13,1	8,2
	50	6,4	10,2	12,9	10,2	12,8	8,1
70	1	6,5	10,3	12,9	9,4	11,9	7,5
	5	6,0	9,5	12,0	9,1	11,4	7,2
	10	5,8	9,2	11,6	8,9	11,2	7,0
	25	5,0	8,0	10,0	8,7	10,9	6,9
	50	4,2	6,7	8,5	8,5	10,7	6,8
80	1	5,4	8,6	10,8	7,9	9,9	6,2
	5	4,8	7,6	9,6	7,5	9,5	6,0
	10	4,0	6,4	8,1	7,4	9,3	5,9
	25	3,2	5,1	6,5	7,2	9,1	5,7
95	1	3,8	6,1	7,6	5,9	7,4	4,7
	5	2,6	4,1	5,2	5,6	7,1	4,4
COLD WATER		x	x	x	x	x	x
HOT WATER			x	x	x	x	
AIR		x	x	x	x	x	x
HEATING				x	x	x	

SAFETY FACTOR 1,5

Specification of raw material used in production and Properties of Ekoplastik System

All plastic pipes Ekoplastik PPR are made from polypropylene type 3, PPR. All plastic pipes Ekoplastik EVO, multilayer pipes Ekoplastik FIBER BASALT PLUS, Ekoplastik FIBER BASALT CLIMA and Ekoplastik STABI PLUS are made from polypropylene of new generation - type 4, PP-RCT.

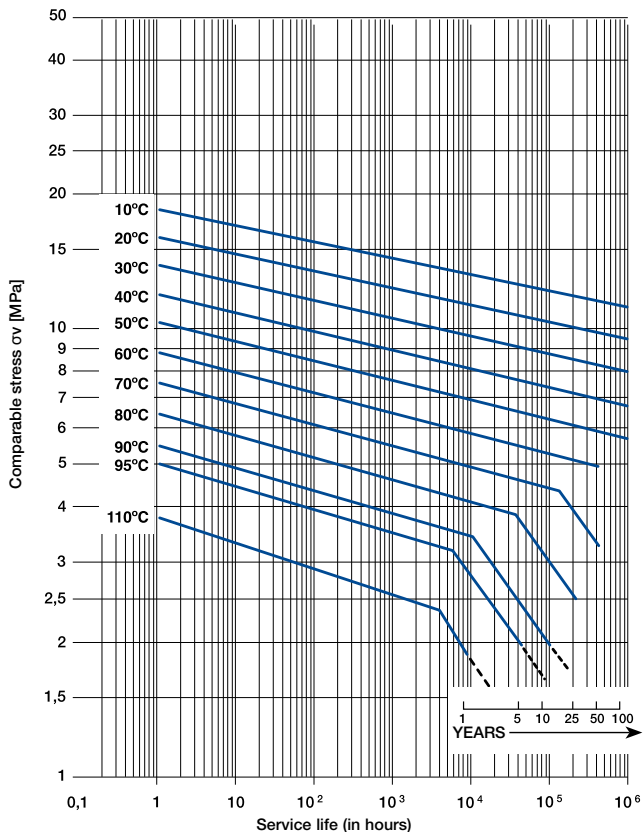
Selected characteristics of pipes

characteristics		units	PPR value
specific gravity	PPR, PP-RCT	g / cm ³	0,9
thermal expansion coefficient (elongation)	all plastic pipes	mm / m °C	0,12
	multilayer pipes		0,05
thermal conductivity coefficient	all types of pipes	W / m °C	0,24

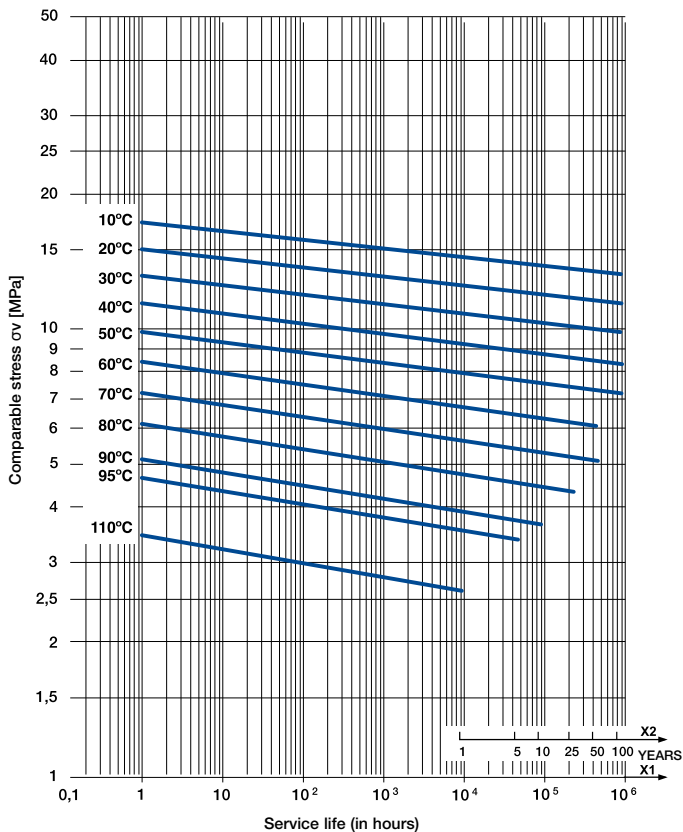
Advantages

- ⌚ Service life of more than 50 years (subject to proper utilisation)
- ⌚ No health risks
- ⌚ No corrosion or encrustation
- ⌚ Flexibility, low weight, easy and clean installation
- ⌚ Low-noise level, low pressure losses due to friction
- ⌚ Environmentally friendly product (can be recycled or safely incinerated)

Isothermal lines for PPR mechanical strength



Isothermal lines for PP-RCT mechanical strength



Termination of the isotherm indicates maximum service life even at lower tensions. The isotherms depicted in the chart are not extended.

Product manufacturing and testing standards

Ekoplastik System products are manufactured according to internal company standard PN 01 corresponding to EN ISO 15874 and German standards DIN 8077 and DIN 8078, DIN 16962, DIN 4726. The internal company standards are continuously being updated with further specification guidelines taken from the newly introduced European (EN) System of Standards.

In order to meet quality requirements specified in ISO 9001, the following activities are regularly controlled within the framework of specified procedures.

Controlled:

- ④ characteristics of raw materials entering the manufacturing process
- ④ intermediate product parameters at every production stage
- ④ manufacturing facilities
- ④ parameters of measuring instruments

Warranty

All standard products of the Ekoplastik System are covered by a 10-year warranty period. This guarantee is subject to a proper product application and adherence to the Installation Manual.

Service life

Service life of more than 50 years (subject to proper utilisation).

