

ΣΩΛΗΝΕΣ ΚΑΙ ΕΞΑΡΤΗΜΑΤΑ ΠΟΛΥΠΡΟΠΥΛΕΝΙΟΥ

PP-R Pipes & Fittings Technical Catalogue

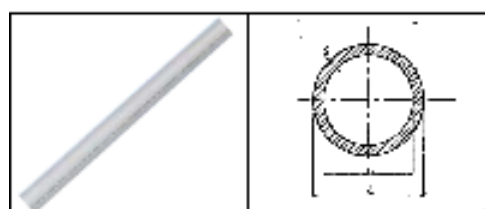


CHRYSSAFIDIS

Product Range with Drawings

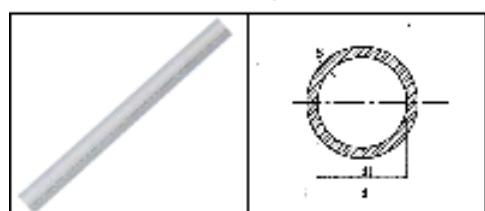
In accordance with the requirements of our customers polypropylene (PPR) pipes and fittings are produced in grey, green and white colors, Only PN 25 format is available for Oxy-Stable pipes in grey and white colors.

DIZAYN PP-R PIPE (PN 10)



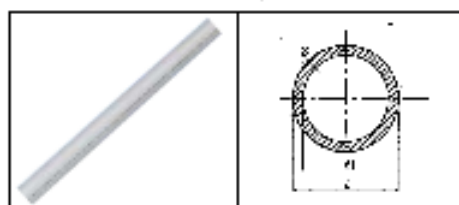
Code	d	d ₁	s
➤ 10248	16	12.4	1.8
➤ 10250	20	16.2	1.9
➤ 10252	25	20.4	2.3
➤ 10254	32	26.0	3.0
➤ 10256	40	32.6	3.7
➤ 10258	50	40.8	4.6
➤ 10260	63	51.4	5.8
➤ 10262	75	61.2	6.9
➤ 10264	90	73.6	8.2
➤ 10266	110	90.0	10.0
➤ 10268	125	102.2	11.4

DIZAYN PP-R PIPE (PN 16)



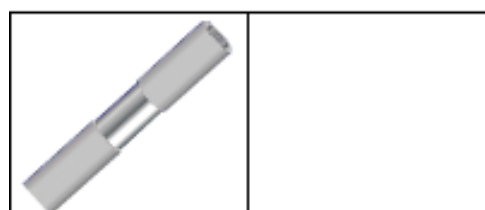
➤ 10270	16	11.4	2.3
➤ 10272	20	14.4	2.8
➤ 10274	25	18.0	3.5
➤ 10275	32	23.0	4.5
➤ 10276	40	28.8	5.6
➤ 10277	50	36.2	6.9
➤ 10278	63	45.6	8.7
➤ 10280	75	54.2	10.4
➤ 10282	90	65.0	12.5
➤ 10284	110	79.6	15.2
➤ 10286	125	90.4	17.3

DIZAYN PP-R PIPE (PN 25)



➤ 10300	16	10.6	2.7
➤ 10302	20	13.2	3.4
➤ 10304	25	16.6	4.2
➤ 10306	32	21.2	5.4
➤ 10308	40	26.6	6.7
➤ 10310	50	33.2	8.3
➤ 10312	63	42.0	10.5
➤ 10314	75	50.0	12.5
➤ 10316	90	60.0	15.0
➤ 10318	110	73.2	18.4
➤ 10320	125	83.2	20.9
➤ 10322	160	106.6	26.7

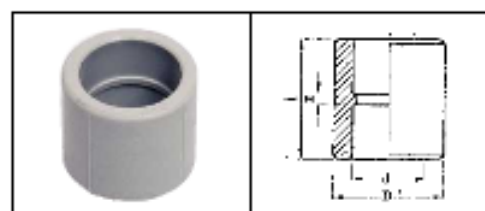
DIZAYN STABLE PIPE (PN-20)



➤ 10330	16	17.5	2.7
➤ 10332	20	21.5	3.4
➤ 10334	25	26.5	4.2
➤ 10336	32	33.5	5.4
➤ 10338	40	41.5	6.7
➤ 10340	50	51.5	8.3
➤ 10342	63	64.5	10.5
➤ 10344	75	76.5	12.5

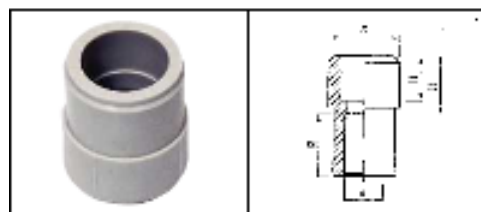
Our Oxy-Stable pipes are 20, 25 and 32 mm diameters are produced in white and grey colors, while those having 40, 50, 63, 75, 90 mm diameters are produced only in grey color.

DIZAYN SOCKET (PN-20)



Code	D	d	l	z
➤ 10400	24.4	16	29	3
➤ 10402	27.2	20	32	3
➤ 10404	33.5	25	35	3
➤ 10406	43.7	32	39	3
➤ 10408	51.6	40	44	3
➤ 10410	67.7	50	50	3
➤ 10412	86.5	63	58	3
➤ 10414	92.8	75	64	4
➤ 10416	119.9	90	71	5
➤ 10418	130.0	110	79	5
➤ 10420	147.8	125	85	5

For this diameter, the production is for PN 10.

DIZAYN REDUCTION (PN-20)

Code	D	d	L ₁	L ₂	L ₃
➤ 10500	20	16	14.5	20.2	19.0
➤ 10502	25	16	16.0	20.0	21.0
➤ 10504	25	20	16.0	23.1	16.0
➤ 10506	32	20	18.1	20.5	23.1
➤ 10508	32	25	18.1	19.0	18.1
➤ 10510	40	20	20.5	19.5	34.4
➤ 10512	40	25	20.5	19.0	28.9
➤ 10514	40	32	20.5	19.1	28.6
➤ 10516	50	20	23.5	23.6	38.6
➤ 10518	50	25	23.5	22.8	38.6
➤ 10520	50	32	23.5	22.6	30.4
➤ 10522	50	40	23.5	22.7	31.2
➤ 10524	63	25	27.4	27.0	47.4
➤ 10526	63	32	27.4	27.3	44.8
➤ 10528	63	40	27.4	26.6	43.8
➤ 10530	63	50	27.4	24.0	42.9
➤ 10532	75	50	28.1	38.0	34.6
➤ 10534	75	63	27.5	25.0	46.0
➤ 10536	90	63	33.0	28.0	28.0
➤ 10538	90	75	33.0	33.5	35.5
➤ 10540	110	90	37.0	39.0	42.0
➤ 10542	125	110	40.0	51.0	40.0

For these Dia diameters, the product is produced in PN 10.

DIZAYN ELBOW 45° (PN-20)

Code	D	d	h
➤ 10622	24.0	16	13.0
➤ 10624	26.5	20	14.5
➤ 10626	33.7	25	16.0
➤ 10628	41.4	32	18.0

DIZAYN ELBOW 90° (PN-20)

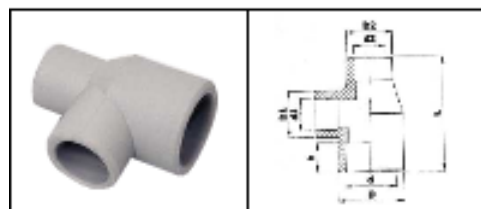
Code	D	d	L ₁	h	z
➤ 10600	22.8	16	22.3	14.3	8.0
➤ 10602	27.5	20	26.0	14.5	11.5
➤ 10604	35.1	25	33.6	16.0	17.7
➤ 10606	42.9	32	35.0	18.0	17.0
➤ 10608	51.8	40	41.6	20.5	21.0
➤ 10610	68.4	50	51.7	23.5	28.2
➤ 10612	87.5	63	63.2	27.5	35.8
➤ 10614	102.8	75	72.6	30.0	42.6
➤ 10616	119.9	90	92.0	33.0	59.0
➤ 10618	130.0	110	103.2	37.0	64.2
➤ 10620	147.8	125	114.4	40.0	71.7

For this diameter, the production is for PN 10.

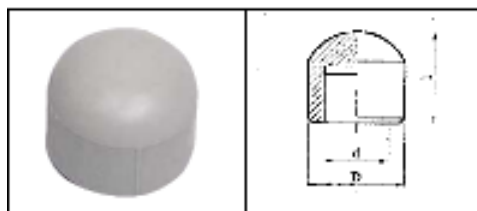
DIZAYN TEE (PN-20)

Code	D	d	L ₁	l	z
➤ 10700	24.4	16	25.0	48.0	8.5
➤ 10702	27.0	20	25.5	51.0	11.0
➤ 10704	33.5	25	29.5	59.0	13.5
➤ 10706	43.5	32	37.6	71.0	17.5
➤ 10708	52.0	40	42.8	85.6	22.3
➤ 10710	68.0	50	52.2	104.4	28.7
➤ 10712	86.7	63	64.4	128.8	36.9
➤ 10714	101.6	75	71.8	143.6	41.8
➤ 10716	119.9	90	92.0	184.0	59.0
➤ 10718	131.2	110	94.0	188.0	57.0
➤ 10720	147.8	125	110.3	222.0	71.0

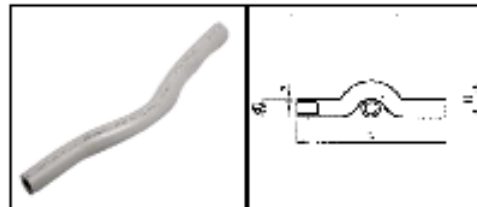
For this diameter, the production is for PN 10.

DIZAYN REDUCTION TEE (PN-20)

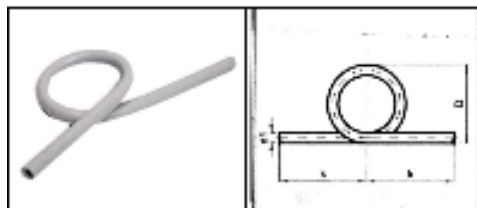
Code	D	d	D ₁	d ₁	D ₂	d ₂	h	L
➤ 10724	29.5	20	29.5	16	29.5	20	14.5	55.0
➤ 10736	33.7	25	28.7	20	28.7	20	14.5	60.7
➤ 10738	33.9	25	29.6	20	33.9	25	16.5	59.0
➤ 10748	42.3	32	28.4	20	28.4	20	18.5	70.1
➤ 10750	42.9	32	26.9	20	42.9	32	18.5	58.0
➤ 10754	43.5	32	35.3	25	29.0	20	18.5	70.5
➤ 10756	42.9	32	33.9	25	42.9	32	18.5	63.0

DIZAYN END CAP (PN-20)

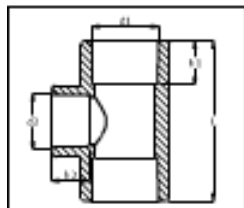
Code	d	D	I
➤ 10800	16	25.1	26.0
➤ 10802	20	29.3	27.3
➤ 10804	25	34.9	31.8
➤ 10806	32	43.7	37.9
➤ 10808	40	52.3	37.6
➤ 10810	50	64.7	43.0
➤ 10812	63	83.5	48.2
➤ 10814	75	99.8	52.0

DIZAYN CROSSOVER (PN-20)

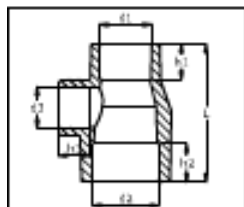
Code	d ₁	L	s	H
➤ 10900	16	31.5	2.7	32
➤ 10902	20	31.5	3.4	40
➤ 10904	25	31.5	4.2	50
➤ 10906	32	31.5	5.4	64

DIZAYN OMEGA (PN-20)

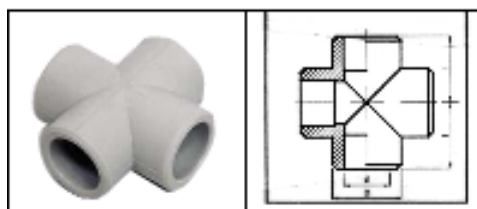
Code	D	d ₁	k
➤ 10908	130	20	167
➤ 10910	140	25	167
➤ 10912	160	32	167

DIZAYN REDUKSIYON INAGEL TEE

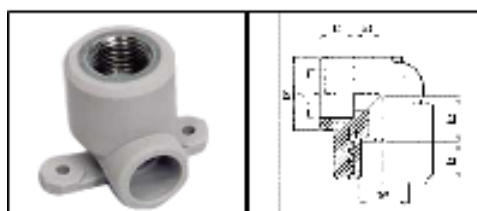
Ø	Code	d ₁	h ₁	d ₂	h ₂	L
➤ Ø20-16-20	10724	20.0	14.7	16.0	13.5	55
➤ Ø25-20-25	10738	25.0	16.5	20.0	14.7	59
➤ Ø32-20-32	10750	32.0	18.5	20.0	14.7	58
➤ Ø32-25-32	10756	32.0	18.5	25.0	16.5	63
➤ Ø75-63-75	10759	75.0	30.5	63.0	28.0	144
➤ Ø90-75-90	10758	90.0	33.5	75.0	30.5	184

DIZAYN INAGEL TEE

Ø	Code	d ₁	h ₁	d ₂	h ₂	d ₃	h ₃	L
➤ Ø25-20-20	10736	20.0	19.5	25.0	16.0	20.0	14.6	65.5
➤ Ø32-20-20	10748	20.0	14.5	32.0	18.3	20.0	14.5	70.3
➤ Ø32-25-20	10754	20.0	15.0	32.0	18.5	25.0	16.4	70.5
➤ Ø32-20-25	10749	25.0	16.5	32.0	18.5	20.0	15.5	65.5

DIZAYN CROSS-PIECE (PN-20)

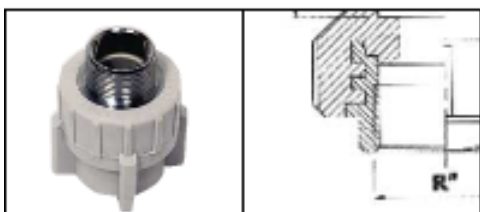
Code	D	d	L
➤ 11000	29.1	20	28.0
➤ 11002	33.5	25	31.8
➤ 11004	42.5	32	38.3
➤ 11006	51.5	40	40.9

DIZAYN FLUSH WALL DISK (PN-20)

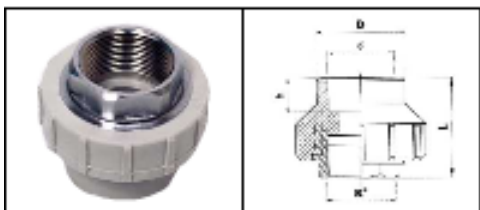
Code	D ₁	d	l ₁	l ₂	k ₁	k ₂	R''
➤ 11100	29.7	16	13.0	14.5	13.5	20.35	1/2''
➤ 11102	26.9	20	14.5	15.0	11.1	19.00	1/2''

**DIZAYN TRANSITION PIECE (ROUND FEMALE) (PN-20)**

	Code	D	d	L	L ₁	R"
➤	11200	29.5	16	43.0	14.0	1/2"
➤	11202	28.1	20	43.5	14.5	1/2"
➤	11204	29.1	20	43.0	14.5	3/4"
➤	11206	35.6	25	46.4	16.0	1/2"
➤	11208	35.1	25	46.4	16.0	3/4"
➤	11210	44.7	32	49.8	18.0	1"

DIZAYN TRANSITION PIECE (ROUND MALE) (PN-20)

	Code	D	d	L	L ₁	R"
➤	11400	29.5	16	42.8	16.0	1/2"
➤	11404	29.2	20	42.8	14.5	3/4"
➤	11402	28.1	20	43.5	14.5	1/2"
➤	11406	35.3	25	46.3	16.0	3/4"
➤	11408	34.8	25	46.4	16.0	1/2"
➤	11410	44.8	32	48.8	18.0	1"

DIZAYN TRANSITION PIECE (HEXAGONAL FEMALE) (PN-20)

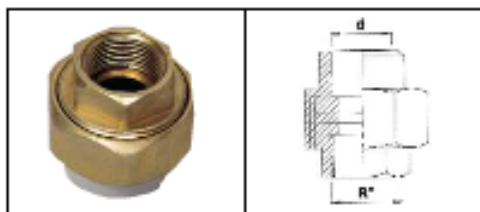
	Code	D	d	h	L	R"
➤	11212	52.6	40	20.5	50.1	1 1/4"
➤	11214	68.5	50	23.5	54.5	1 1/2"
➤	11216	86.1	63	27.5	60.4	2"
➤	11218	101.5	75	30.0	63.6	2 1/2"
➤	11220	117.5	90	33.0	78.6	3"
➤	11222	130.0	110	37.0	80.4	4"
➤	11224	147.8	125	40.0	80.7	5"

For these two diameters, our product is produced in PN 10.

DIZAYN TRANSITION JOINT (HEXAGON-MALE) (PN-20)

	Code	D	d	h	L	R"
➤	11412	52.9	40	20.5	84.1	1 1/4"
➤	11414	68.5	50	23.5	90.5	1 1/2"
➤	11416	86.5	63	29.0	97.4	2"
➤	11418	102.0	75	30.0	106.7	2 1/2"
➤	11420	107.5	90	33.0	124.7	3"
➤	11422	130.0	110	37.0	132.8	4"
➤	11424	147.8	125	40.0	136.7	5"

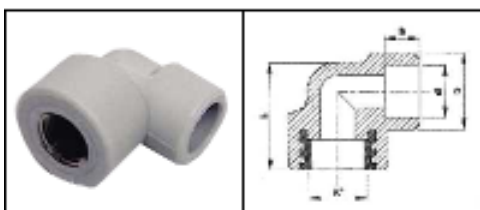
For 125 mm and 110 mm diameters, our product is produced in PN 10.

DIZAYN TRANSITION JOINT HEXAGON FEMALE (BRASS UNWELDED-SCREWABLE) (PN-20)

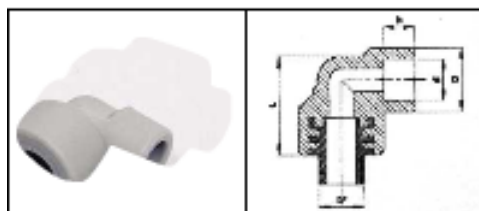
	Code	d	R"
➤	11302	20	1/2"
➤	11304	25	3/4"
➤	11306	32	1"
➤	11310	20	1"
➤	11312	25	1"
➤	11314	40	1 1/4"
➤	11316	50	1 1/2"

DIZAYN TRANSITION JOINT HEXAGON MALE (BRASS UNWELDED-SCREWABLE) (PN-20)

	Code	d-G"	L1	k
➤	11502	20 1/2	16	4
➤	11504	25 3/4	18	4
➤	11508	32 1	20	4
➤	11512	20 1	16	4
➤	11514	25 1	18	4
➤	11516	40 1 1/4	70	4
➤	11518	50 1 1/2	74	4

DIZAYN ELBOW 90° FEMALE (PN-20)

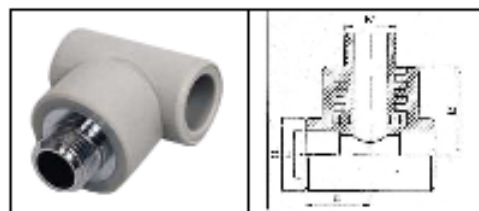
	Code	D	d	h	L	R"
➤	11600	30.4	16	13.5	50.0	1/2"
➤	11602	30.1	20	14.5	50.3	1/2"
➤	11604	29.7	20	14.5	51.1	3/4"
➤	11606	34.5	25	16.5	54.0	1/2"
➤	11608	34.5	25	16.5	54.3	3/4"
➤	11610	43.5	32	18.5	69.6	3/4"
➤	11612	43.5	32	18.5	69.8	1"

DIZAYN ELBOW 90° MALE (PN-20)

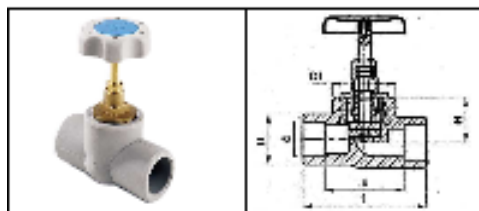
Code	D	d	h	L	R"
▶ 11614	30.0	16	13.5	45.6	1/2"
▶ 11616	29.8	20	14.5	46.4	1/2"
▶ 11618	29.8	20	14.5	46.4	3/4"
▶ 11620	35.0	25	16.5	49.4	1/2"
▶ 11622	35.9	25	16.5	49.1	3/4"
▶ 11624	43.5	32	18.5	69.7	3/4"
▶ 11626	43.2	32	18.5	69.4	1"

**CHRYSSAFIDIS****DIZAYN TEE FEMALE (PN-20)**

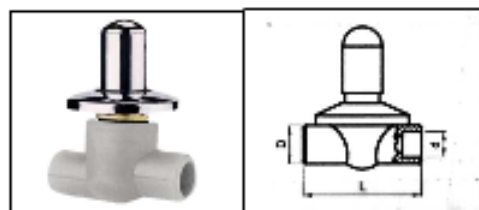
Code	D	d	L ₁	L ₂	R"
▶ 11700	24.4	16	24.00	27.75	1/2"
▶ 11702	29.8	20	27.15	31.65	1/2"
▶ 11704	30.1	20	26.90	31.15	3/4"
▶ 11706	35.3	25	37.30	31.85	1/2"
▶ 11708	34.9	25	37.00	32.15	3/4"
▶ 11710	43.4	32	37.85	41.95	3/4"
▶ 11712	43.3	32	37.65	42.85	-1"

DIZAYN TEE MALE (PN-20)

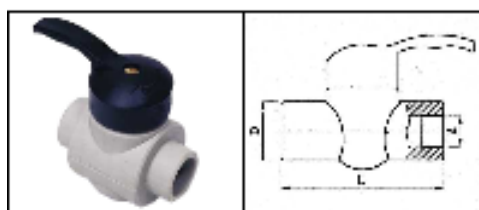
Code	D	d	L ₁	L ₂	R"
▶ 11 714	30.1	16	26.8	36.2	1/2"
▶ 11 716	29.9	20	26.7	36.1	1/2"

DIZAYN THROTTLE HEAD VALVE (PN-20)

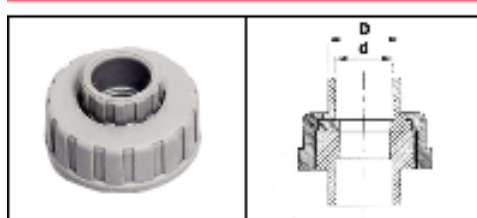
Code	D	D ₁	d	l	z	H
▶ 11800	29.0	44.6	20-3/4"	89.2	60.2	26.4
▶ 11802	35.5	44.6	25-3/4"	87.9	55.9	31.0

DIZAYN CHROMED VALVE (PN-20)

Code	D	d	L
▶ 11804	29.0	20	89.2
▶ 11806	35.5	25	87.9

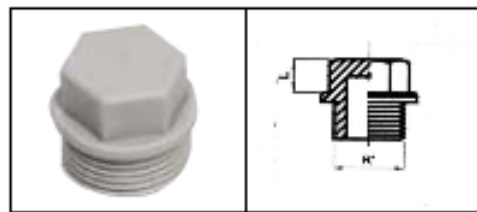
DIZAYN SPHERICAL VALVE (PN-20)

Code	D	d	L
▶ 11826	27.5	20	67
▶ 11828	36.2	25	102
▶ 11830	42.3	32	90
▶ 11832	53.7	40	95

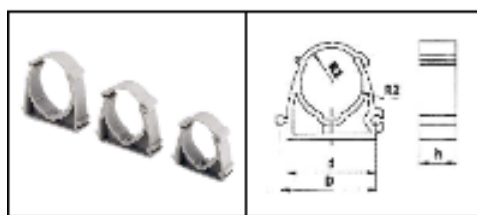
DIZAYN TRANSITION (Joint two side welded)

Code	d	D
➤ 12000	20	29
➤ 12002	25	34
➤ 12004	32	42
➤ 12006	40	52
➤ 12008	50	62
➤ 12010	63	76
➤ 12012	75	89
➤ 12014	90	103

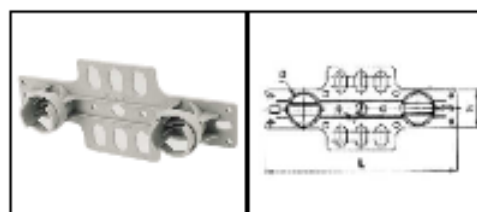
Notice: Produced upon order. Order quantity can not be less than 250 pieces for each diameter.

DIZAYN END CAP (PN-20)

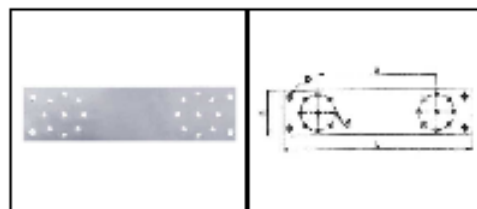
Code	L	R''
➤ 12100	6.6	3/4"
➤ 12102	26.5	1/2"

DIZAYN CLIPS WITH CAP

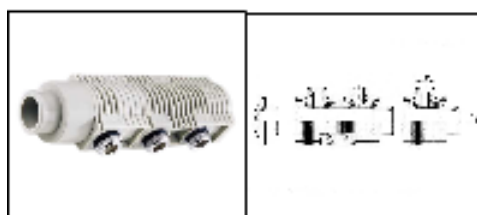
Code	Ø	d	D	h	R ₁	R ₂
➤ 12210	16	25.75	28.5	14.80	9.0	8.0
➤ 12212	20	31.65	34.4	14.50	11.5	10.0
➤ 12214	25	35.70	38.25	14.85	12.5	12.5
➤ 12216	32	45.35	47.9	15.75	16.0	15.75
➤ 12217	40	56.50	59.25	16.65	20.0	19.75
➤ 12218	50	64.75	67.5	18.70	26.0	25.25

PLASTIC MOUNTING PLATE

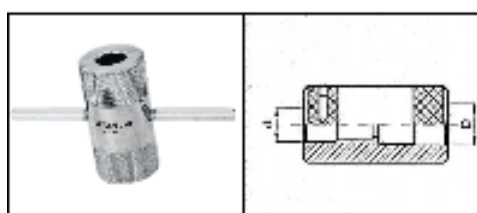
Code	D	d	h	L
➤ 00412	40	16	50.0	260.0

METAL MOUNTING PLATE

Code	Ø	D	d	L	z
➤ 12300	20 mm	7.0	5.0	255.0	160.0

DIZAYN PP-R COLLECTOR

Code	D	d	R''	Number of outlets
➤ 00270	39	40	1/2"	2x2
➤ 00280	39	40	1/2"	3x2
➤ 00290	39	40	1/2"	4x2
➤ 00300	39	40	1/2"	5x2
➤ 00310	39	40	1/2"	6x2
➤ 00320	39	40	1/2"	7x2
➤ 00330	39	40	1/2"	8x2
➤ 00340	39	40	1/2"	9x2
➤ 00350	39	40	1/2"	10x2
➤ 00360	39	40	1/2"	11x2
➤ 00370	39	40	1/2"	12x2
➤ 00380	39	40	1/2"	13x2
➤ 00390	39	40	1/2"	14x2
➤ 00400	39	40	1/2"	15x2

DIZAYN STABLE PIPE PEELING TOOL

Code	D	d
➤ 12600	16	20
➤ 12602	20	25
➤ 12604	32	40
➤ 12606	40	50
➤ 12608	63	75

**DIZAYN WELDING TOOL**

	Code	Type
	➔ 12702	16 mm Welding Tool
	➔ 12704	20 mm Welding Tool
	➔ 12706	25 mm Welding Tool
	➔ 12708	32 mm Welding Tool
	➔ 12710	40 mm Welding Tool
	➔ 12712	50 mm Welding Tool
	➔ 12714	63 mm Welding Tool
	➔ 12716	75 mm Welding Tool
	➔ 12718	90 mm Welding Tool
	➔ 12720	110 mm Welding Tool
	➔ 12722	125 mm Welding Tool
		Code

DIZAYN WELDING MACHINE

	➔ 12404	Single 16-63 mm unit
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DIZAYN PIPE SCISSORS

	Code	Type
	➔ 12500	Usable for pipes until 40 mm dia.

COMPLETE WELDING SET

	Code	Type
	➔ 12400	Complete Set

REMARKS:

1-In our production we use 3 colors. The first number of the code number describes the color;

- 1: Green
- 2: Gray
- 3: White

In this catalogue the color is considered as green.

PP-R pipes are packed in PP bags, while fittings in carton boxes.

2-Green and Grey Pipes are produced until 125 mm diameter. While white pipes are produced until 63 mm diameter. Our stable pipes are in grey and white colors.



Technical Specifications

Production Sizes and Tolerances DIN 8077 / December 1997				
External Diameter d mm	Tolerance limit mm	Wall thickness S mm	Thicknes toleranc mm	Approximate unit weight kg/m
16	+ 0.3	2.7	+ 0.5	0.110
20	+ 0.3	3.4	+ 0.6	0.172
25	+ 0.3	4.2	+ 0.7	0.266
32	+ 0.3	5.4	+ 0.8	0.434
40	+ 0.4	6.7	+ 0.9	0.671
50	+ 0.5	8.3	+ 1.1	1.040
63	+ 0.6	10.5	+ 1.3	1.650
75	+ 0.7	12.5	+ 1.5	2.340
90	+ 0.9	15.0	+ 1.7	3.360
110	+ 0.9	18.3	+ 2.1	5.010
125	+ 1.2	20.8	+ 2.3	6.470

Physical Properties			
Property	Test Method	Unit	Value
Density at 23 °C	ISO R 1183	g/cm ³	0.90
Melt flow index			
MFI 190 °C/5 kg	ASTM D 1238	g/10 dak.	0.70
MFI 230 °C/2.16 kg	ISO R 1133	g/10 dak.	0,2±0,45
MFI 230 °C/5 kg	DIN 53 735	g/10 dak.	0,6±1,2
Fusion point		°C	146

Thermal Properties			
Property	Test Method	Unit	Value
Thermal Conductivity at (23°C)	DIN 52612	W/m.K	0.23
Specific heat at 23 °C	C	Kj/kg.K	1.73
Coefficient of linear thermal expansion	DIN 53 752	K ⁻¹	1.5-1.8x10 ⁻⁴
Under weight Deformation temperature	ASTM D 648		
1.8 N/mm ²	ISO 75	°C	44
0.45 N/mm ²	DIN 53 461	°C	72
Breaking temperature	ASTM D 746	°C	-13
VICAT softening point (1 kg.)	ASTM D 1525	°C	130
(5 kg.)	ISO 306	°C	60
	DIN 53 460	°C	60



Mechanical Properties			
Properties	Test Method	Unit	Value
Strength at flow limit at 23 °C Speed of pulling: 50 mm/min. 100 mm/min.		N/mm ²	22
		N/mm ²	23
Extension at flow limit at 23 °C Speed of pulling: 50 mm/min. 100 mm/min.	ISO R 527 (Sample No 1)	%	17
		%	18
Break strength at 23 °C Speed of pulling: 50 mm/min. 100 mm/min.	DIN 53 455 (Sample No 1)	N/mm ²	35
		N/mm ²	34
Extension of break out at 23 °C Speed of pulling: 50 mm/min. 100 mm/min.		%	> 500
		%	> 500
Elasticity module at 23 °C	ASTM D 790	N/mm ²	670
Bend module at 23 °C	DIN 53 447	N/mm ²	185
Shore D hardness	ASTM D 740 ISO R 868, DIN 53 505		65
IZO D impact strength (notched) at 23 °C at 0 °C	ISO R 180 ASTM D 256	j/m ²	105
		j/m ²	30
CHARPY impact strength (notched) at 23 °C at 0 °C	DIN 53 453 ISO R 179	kJ/m ²	15
		kJ/m ²	35
CHARPY impact strength (unnotched) at 23 °C at 0 °C	DIN 53 453 ISO R 179	kJ/m ²	No break
		kJ/m ²	No break
Impact strength, at 0 °C	DIN 8078 Part 2		No break

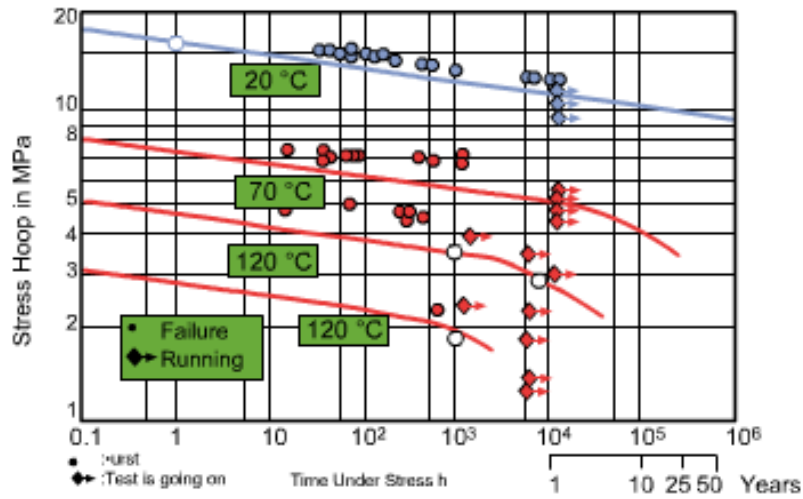
Operating life time

DIN 8078 / April 1996

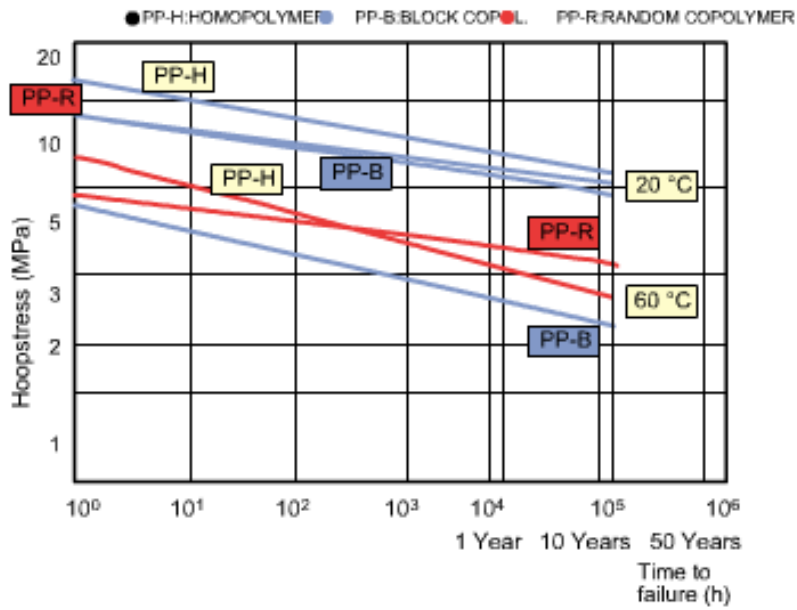
Temperature (°C)	Life (year)	Design stress (MPa)
20	50	9.5
40	50	6.8
60	50	4.7

70	50	3.2
80	25	2.5
95	5	1.85

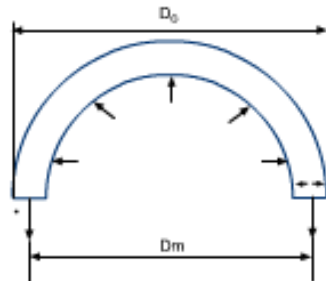
Break Strength for PP-R Pipes According to DIN 8078



The Comparison of the Failure Time (h) and The Design Stress (MPa) for the PP Pressure Pipes at 20 °C and 60 °C



Hydrostatic Pressure, P



$$\sigma \times 2 \times S = P \times D_m$$

$$D_m = D_0 - S$$

$$\sigma = P \frac{(D_0 - S)}{2 \times S}$$

- σ : Design stress
- P : Working Pressure (Mpa)
- D₀ : External Diameter (mm)
- S : Thickness

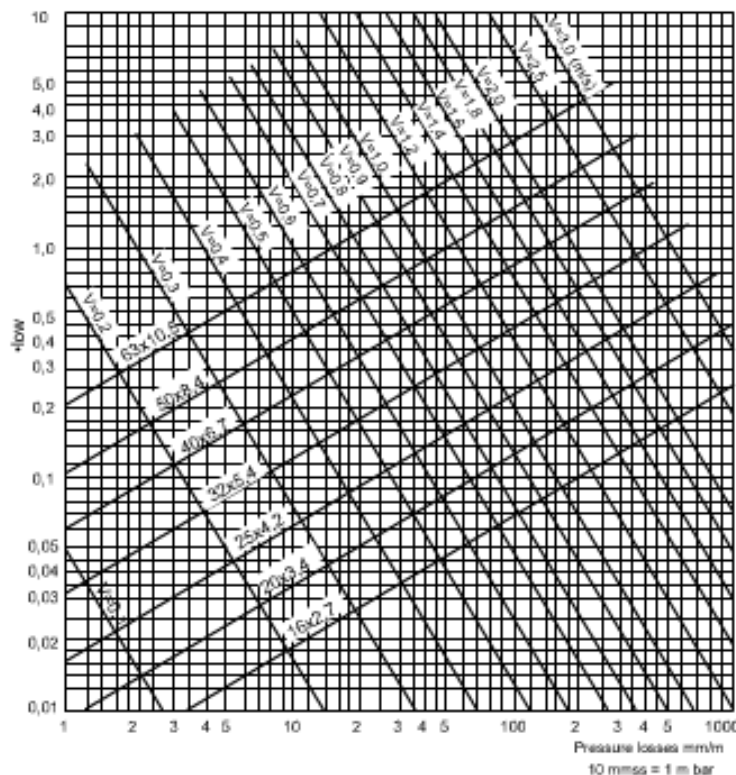


CHRYSSAFIDIS

PP-R Pipes & Fittings Technical Catalogue

Pressure Drops

Plain pipe pressure loss occurred in 50 meters long pipe used in a normal flat.



Pressure losses at the DIZAYN PP-R pipes.

Ø Fitting Diameter	16 20 25	32 40	50 63	≥ 63
Type	Resistance Coefficient			
	1,5	1,0	0,6	0,5
	2,0	1,7	1,1	0,8
			0,3	
			1,5	
Pipe entry			0,5	
Pipe exit			1,0	

These values can be used in calculating the resistance of fittings. For the average value %3-5 must be added to the total pressure lost.

Pressure drop in the resistances for the loss correction factor ($\zeta = 1$)

($\Delta t = 10 \text{ }^\circ\text{C}$ and $Q = 999,7 \text{ kg/m}^2$) being independent from the calculated flow rate

$$Z = \frac{\rho}{5} \sum \zeta$$



Calculated flow rate m/s	Pressure drop Z (for = 1) mbar	Calculated flow rate m/s	Pressure drop Z (for = 1) mbar
0,1	0,1	2,6	33,8
0,2	2,2	2,7	36,5
0,3	0,5	2,8	39,2
0,4	0,8	2,9	42,1
0,5	1,3	3,0	45
0,6	1,8	3,1	48
0,7	2,5	3,2	51
0,8	3,2	3,3	55
0,9	4,1	3,4	58
1,0	5,0	3,5	61
1,1	6,1	3,6	65
1,2	7,2	3,7	68
1,3	8,5	3,8	72
1,4	9,8	3,9	76
1,5	11,3	4,0	80
1,6	12,8	4,1	84
1,7	14,5	4,2	88
1,8	16,2	4,3	92
1,9	18,1	4,4	97
2,0	20,0	4,5	101
2,1	22,1	4,6	106
2,2	24,2	4,7	110
2,3	26,5	4,8	115
2,4	28,8	4,9	120
2,5	31,3	5,0	125

The total pressure drop in the pipe (without apparatus resistance) is the result of pressure drop caused by friction in pipes and resistances.

$$\Delta p = \Sigma (L \cdot R + Z)$$



Table of Losses

TABLE OF LOSSES IN DiZAYN FITTINGS			
No.	Resistance	Graphical representation	Resistance Coefficient **** of loss
1	Socket		0,25
2	Reduction to 2 dimensions		0,55
2a	Reduction from 3 dimensions		0,85
3	Elbow 90°		2,0
4	Elbow 45°		0,6
5	T-piece (Distributor)		1,8
5 a	Reduction tee		3,6
6	T-piece (Collector)		1,3
6 a	Reduction tee		2,6
7	T-piece (Same direction)		0,8
7 a	Reduction tee		2,6
8	T-piece (Same direction)		4,2
8 a	Reduction tee		9,0
9	T piece with joint		0,8
10	Transition with outside diameter without pendant		0,4
11	Transition with outside diameter (reduced) without pendant		0,85
12	Transition angle with outside diameter without pendant		2,2
13	Transition angle with outside diameter (reduced) without pendant		3,5

Dimensions of connection pieces for taps.

Taps (water source)	Debi I/s	average flow rate m/s	Flow pressure PMF bar	Dizayn dimension
Filtered installation				
Head with filter DN 15	0,15	1,41	1,0	16
Side filtered head DN 15	0,06	0,47	1,0	16
Head with filter DN 20	0,18	1,71	1,0	16
Head with filter DN 25	0,31	-	1,0	20
Bath basins				
Mixed water valve DN 15	0,15	1,41	1,0	16
Mixed water valve DN 20	0,4	1,57	1,0	25
Mixed water valve DN 25	1,0	2,36	1,0	32

Toilets				
Siphon DN 15	0,7	1,65	1,2	32
Siphon DN 20	1,0	2,36	1,2	32
Siphon DN 25	1,0	2,36	1,2	32
Siphon Case DN 15	0,13	1,25	0,5	16
Toilet (for urine)				
Siphon DN 15	0,3	1,84	1,2	20
Siphon Case DN 15	0,13	1,25	0,5	16
Bide				
Mixed water valve DN 15	0,07	0,66	1,0	16
Hospital outlet				
Mixed water valve DN 15	0,12	1,13	1,0	16
Siphon DN 20	1,0	2,36	1,2	32
Outlets				
Flow valve DN 15	0,12	1,13	1,0	16
Mixed water valve DN 15	0,12	1,13	1,0	16
Sinks				
Mixed water valve DN 15	0,07	0,66	1,0	16
Mixed water valve DN 20	0,02	1,18	1,0	16
Sinks				
Flow valve DN 15	0,07	0,66	0,5	16
Mixed water valve DN 15	0,07	0,66	1,0	16
Flow valves without extra flow resistance				
DN 15	0,3	1,84	0,5	20
DN 20	0,5	1,97	0,5	25
DN 25	1,0	2,36	0,5	32
Mixed water valve DN 15	0,15	1,41	1,0	16
Mixed water valve DN 20	0,30	1,84	1,0	20
Dish washing machine	0,15	1,41	1,0	20
Washing machine	0,25	1,53	1,0	20
Gas and elektro boiler				
6 kw				
12 kw	0,07	0,66	1,0	16
18 kw	0,1	0,94	1,0	16
21 kw	0,15	1,41	1,0	16
24 kw	0,17	1,61	1,0	16
33 kw	0,2	1,89	1,0	16
Elektro thermosiphon DN 15	0,3	1,84	1,0	20
Low pressure		1,41	1,0	16
Electro thermosiphon DN 15	0,15	1,41	0,05	16

For the armatures not available in this table, see the list in DIN 1988 standart. For the hot water producing apparatus (water heaters, etc.) the instructions of the producer must be taken into consideration.