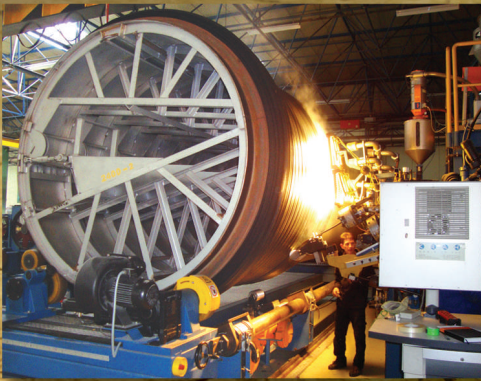


FIRAT

FCS

FIRAT COMPOSITE PIPE
SYSTEM

A New Solution For Pressure Pipe Systems





Overview

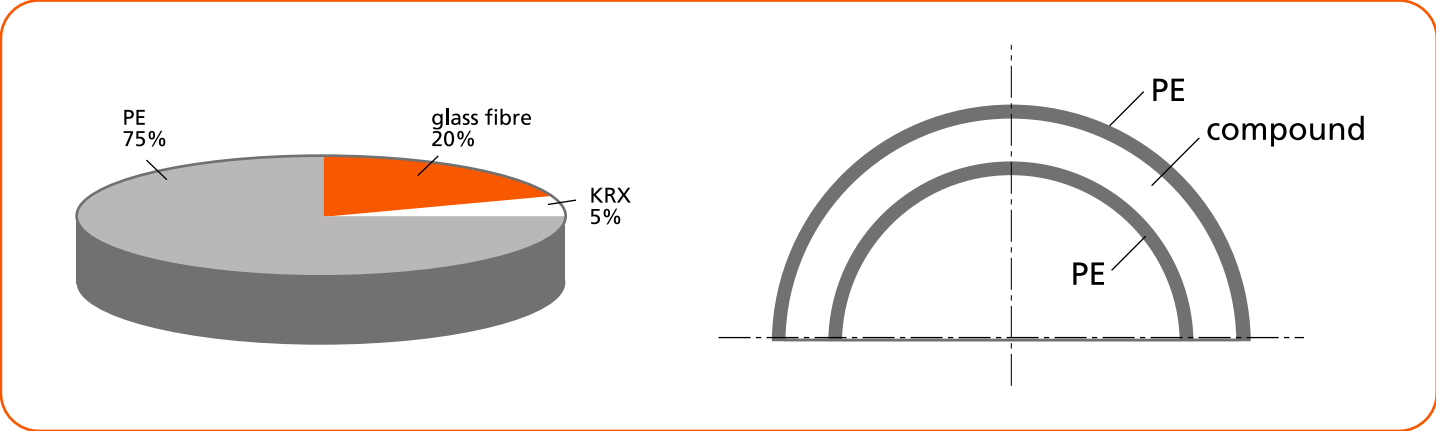
FIRAT has responded to the growing demand for high pressure pipes in big diameters by developing an innovative pipe system for a working pressure up to 25 bars. Beside the great range of big diameters, from $\varnothing 800$ mm – $\varnothing 4000$ mm, this pipe is mostly characterized by its low weight and it's very quick and easy installation, and not only because of its unique joining system, The Electro Fusion Socket. Moreover the system provides a resistance against chemicals, UV-rays, rodents, microorganisms and termites ; and also features good hydraulic properties.

Places of Application

The main area of application of this pipe system are pressured drinking and water transmission lines.

Raw Material

The FCS Pipe is made up from a composite structure which contains HDPE, Glass Fibre and KRX. The pipes inner and outer surface is made up from HDPE, and the middle layer is made up from this composite structure.



Range of Production

Pipes within the diameter range from 800 of 4000 mm , can be produced up to 6 metres in length.

FCS PIPE DIMENSIONS FIRAT Composite Pipe System - ISO /CD 29561-2 / ASTM F2720

NOMINAL INSIDE DIA ID (mm)	PN 6 bar SN 2.0kN/m ² SIDR 47		PN 8 bar SN 4.5 kN/m ² SIDR 35		PN 10 bar SN 10 kN/m ² SIDR 27		PN 12,5 bar SN 18 kN/m ² SIDR 21		PN 16 bar SN 36 kN/m ² SIDR 17		PN 20 bar SN 73 kN/m ² SIDR 13		PN 25 bar SN 137 kN/m ² SIDR 10,5	
	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)	wall thick. s (mm)	Weight (kg/m)
800	17,3	52,5	23,1	68,3	29,4	85,8	37,3	112,0	47,5	143,5	60,8	187,3	77	243
1.000	21,7	78,8	28,9	105,0	36,7	133,0	46,6	173,3	59,4	224,0	76,0	294,0	96	382
1.200	26,0	112,0	34,7	150,5	44,0	194,3	56,0	250,3	71,3	323,8	91,2	425,3	115	553
1.400	30,3	150,5	40,5	206,5	51,4	264,3	65,3	341,3	83,2	441,0	106,4	579,3	134	758
1.600	34,7	201,3	46,3	269,5	58,7	344,8	74,6	446,3	95,1	581,0	121,6	763,0	153	989
1.800	39,0	253,8	52,1	341,3	66,1	441,0	84,0	565,3	107,0	736,8	136,8	974,8	172	1.264
2.000	43,3	311,7	57,9	421,8	73,4	542,5	93,3	703,3	118,9	917,0	152,0	1.202	191	1.566
2.200	47,7	375,0	63,6	514,5	80,7	656,3	102,6	850,5	130,8	1.110	167,2	1.468		
2.400	52,0	451,7	69,4	612,5	88,1	778,8	111,9	1.012	142,6	1.330	197,6	1.899		
2.600	56,3	526,7	75,2	717,5	95,4	911,8	121,3	1.197	154,5	1.561				
2.800	60,7	607,5	81,0	833,0	102,7	1.055	130,6	1.390	166,4	1.829				
3.000	65,0	700,0	86,8	955,5	110,1	1.208	139,9	1.607	178,3	2.098				
3.200	69,3	805,0	92,6	1.096	117,4	1.397	149,3	1.829	190,2	2.394				
3.400	73,7	903,3	98,4	1.237	124,8	1.573	158,6	2.065						
3.600	78,0	1.010	104,1	1.386	132,1	1.759	167,9	2.319						
3.800	82,3	1.120	109,9	1.545	139,4	1.974	177,2	2.602						
4.000	86,7	1.253	115,7	1.726	146,8	2.184	186,6	2.884						

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Joining method

Besides joining by the electro fusion method , this pipe system can also be joined by using normal flange connections. This time-saving joining method makes it possible to connect several pipes simultaneously and to install the pipes in very narrow trenches in a very short time.



Material Properties

Material Property	Test method	Testing Time	Value	Unit
Density	EN ISO 1183		1,084	gr/cm ³
Elasticity modulus	DIN 53457	1 minute	2515	N/mm ²
	DIN 54852	24 hour	1804	N/mm ²
Linear thermal expansion coefficient	DIN 53752		0,05	mm/mK
Oxygen induction time	EN 728		> 55	dk
Tensile strength	ISO 527-4		38,6	N/mm ²
Strain at breaking	ISO 527		5,4	%
MRS			> 18	Mpa

Ring Stiffness Properties

FCS pipes don't break or crack, even under 30% deformation. This means that, even if the pipes deform up to %30, there will be no decrease in the performance the system shows.

