

# PVDF Pining systems

PVDF is an extremely pure polymer and contains in comparison with a lot of other plastics no stabilizers UV-, Thermostabilizers, softener, lubricants or flame-retardant additives. Its particular suitable for ultra-pure water constructions and for the transport of clear chemical liquids in the semi-conductor industry. Due to its chemical inertness, reaction against most media is nearly impossible.

## Advantages of PVDF

- \* Wide temperature range, high heat deflection temperature
- \* Very good chemical resistance, even in connection with high temperatures
- \* good resistance against UV- and  $\gamma$ -radiations therefore high ageing resistance
- \* Excellent abrasion resistance
- \* Low friction coefficient
- \* Good mechanical properties
- \* Excellent insulating characteristics in connection with very good electrical values
- \* Flame retarding
- \* Physiologically non-toxic
- \* Good and easy processing
- \* Good weldability
- \* Good heat formability

## Solubility

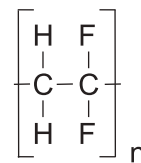
PVDF homopolymere swells in high polar solvents e.g.

- \* Acetone
- \* Ethyl acetate

Soluble in polar solvents e.g.

- \* Dimethylformamide
- \* Dimethylacetamide

## Chemical structure



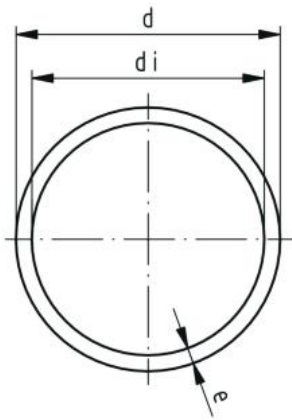
## Application

- \* Semiconductor
- \* Glass etching
- \* Electroplating
- \* Water treatment
- \* Photovoltaic
- \* Iron and steel
- \* Chemical industry
- \* Electric power

## Technical characteristics

	Property	Standard	Unit	Data
	Specific density at 23°C	ISO 1183	g/cm <sup>3</sup>	1.78
	Melt flow index MFR 230/5	ISO 1133	g/10min	6
Mechanical Properties	Tensile stress at yield	ISO 527	Mpa	50
	Elongation at yield	ISO 527	%	9
	Elongation at break	ISO 527	%	80
	Impact strength unnotched at 23°C	ISO 179	KJ/m <sup>3</sup>	124
	Impact strength notched at 23°C	ISO 179	KJ/m <sup>3</sup>	11
	Flexural strength	ISO 178	Mpa	80
	Modulus of elasticity	ISO 527	Mpa	2000
	Thermal Properties	Vicat-Softening point VST/B/50	ISO 306	°C
Heat deflection temperature HDT/B		ISO 75	°C	145
Linear coefficient of thermal expansion		DIN 53752	K <sup>-1</sup> × 10 <sup>-4</sup>	1.2
Thermal conductivity at 20°C		DIN 52612	W/(m×k)	0.2
Flammability		UL 94	-	V-0
Electrical Properties	Specific volume resistance	VDE 0303	OHM cm	10 <sup>13</sup>
	Specific surface resistance	VDE 0303	OHM	10 <sup>12</sup>
	Relative dielectric constant at 1 MHz	DIN 53483	-	7.25
	Dielectric strength	VDE 0303	KV/mm	22
	Physiologically non-toxic	EEC 90/128	-	YES
	FDA	-	-	YES
	UV stabilized	-	-	YES
	Colour	-	-	Natural

Note: The mentioned values are recommend values for the particular material  
Part of the data comes from raw material manufacturers

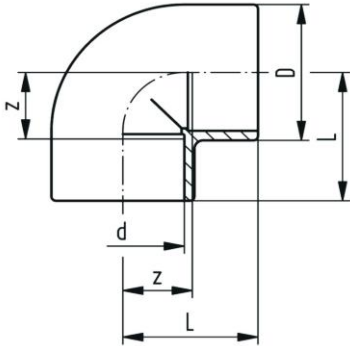


### Pipe 4m PVDF SDR21 PN16

d (mm)	PN (bar)	code	weight (kg/m)	di (mm)	e (mm)	L (mm)
16	16	000.00.016.16	0,14	12,2	1,5	4,000
20	16	000.00.020.16	0,21	16,2	1,9	4,000
25	16	000.00.025.16	0,27	21,2	1,9	4,000
32	16	000.00.032.16	0,44	27,2	2,4	4,000
40	16	000.00.040.16	0,55	35,2	2,4	4,000
50	16	000.00.050.16	0,85	44,0	3,0	4,000
63	16	000.00.063.16	1,09	57,0	3,0	4,000
75	16	000.00.075.16	1,55	67,8	3,6	4,000
90	16	000.00.090.16	2,22	81,4	4,3	4,000
110	16	000.00.110.16	3,32	99,4	5,3	4,000
125	16	000.00.125.16	4,24	113,0	6,0	4,000
140	16	000.00.140.16	5,31	126,6	6,7	4,000
160	16	000.00.160.16	6,96	144,6	7,7	4,000

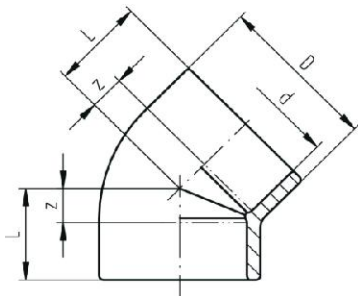
### Pipe 4m PVDF SDR33 PN10

d (mm)	PN (bar)	code	weight (kg/m)	di (mm)	e (mm)	L (mm)
63	10	000.01.063.10	0,93	58,0	2,5	4,000
75	10	000.01.075.10	1,11	70,0	2,5	4,000
90	10	000.01.090.10	1,48	84,4	2,8	4,000
110	10	000.01.110.10	2,20	103,2	3,4	4,000
125	10	000.01.125.10	2,84	117,2	3,9	4,000
140	10	000.01.140.10	3,52	131,4	4,3	4,000
160	10	000.01.160.10	4,54	150,2	4,9	4,000



### Elbow 90° Socket-end PVDF PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	010.00.020.16	0,04	29	31,0	15
25	16	010.00.025.16	0,06	35	33,0	15
32	16	010.00.032.16	0,10	43	40,5	21
40	16	010.00.040.16	0,16	52	46,5	25
50	16	010.00.050.16	0,27	64	54,5	30
63	16	010.00.063.16	0,48	81	63,0	35
75	16	010.00.075.16	0,59	92	71,5	39
90	16	010.00.090.16	1,09	113	86,0	50
110	16	010.00.110.16	1,55	133	100,5	59

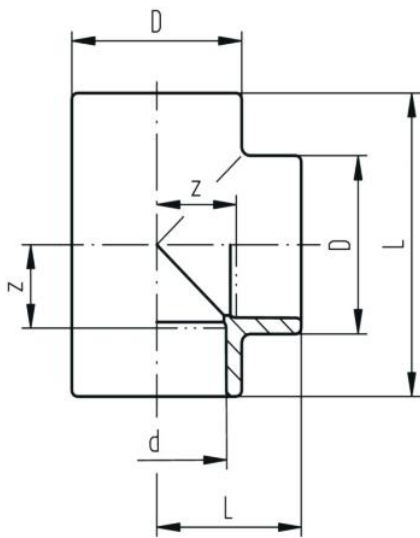


### Elbow 45° Socket-end PVDF PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	010.01.020.16	0,04	30	21,0	5
25	16	010.01.025.16	0,06	35	24,0	6
32	16	010.01.032.16	0,10	43	26,0	7
40	16	010.01.040.16	0,16	52	30,5	9
50	16	010.01.050.16	0,27	64	35,0	11
63	16	010.01.063.16	0,48	81	45,0	16
75	16	010.01.075.16	0,59	92	48,0	16
90	16	010.01.090.16	1,09	113	55,5	19
110	16	010.01.110.16	1,55	133	68,5	27



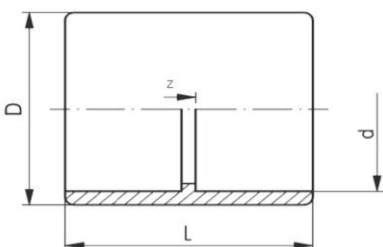
### Tee Socket-end PVDF PN16



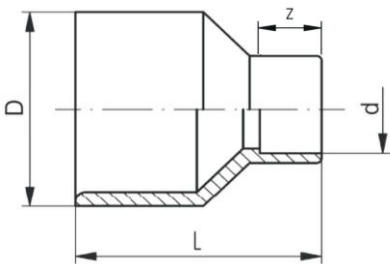
d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	020.00.020.16	0,06	29	60	14,5
25	16	020.00.025.16	0,07	35	68	16,5
32	16	020.00.032.16	0,13	43	80	20,5
40	16	020.00.040.16	0,20	52	94	25,5
50	16	020.00.050.16	0,33	64	108	30,0
63	16	020.00.063.16	0,59	81	125	35,5
75	16	020.00.075.16	0,75	92	153	42,5
90	16	020.00.090.16	1,49	113	183	53,5
110	16	020.00.110.16	1,98	133	208	61,5



### Socket Adaptor PVDF PN16

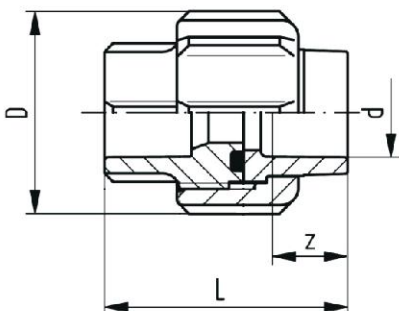


d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	030.00.020.16	0,03	29	35	4
25	16	030.00.025.16	0,03	35	39	4
32	16	030.00.032.16	0,05	43	43	4
40	16	030.00.040.16	0,07	52	47	5
50	16	030.00.050.16	0,13	64	52	6
63	16	030.00.063.16	0,23	81	60	4
75	16	030.00.075.16	0,29	92	70	5
90	16	030.00.090.16	0,58	113	78	5
110	16	030.00.110.16	0,76	133	90	5



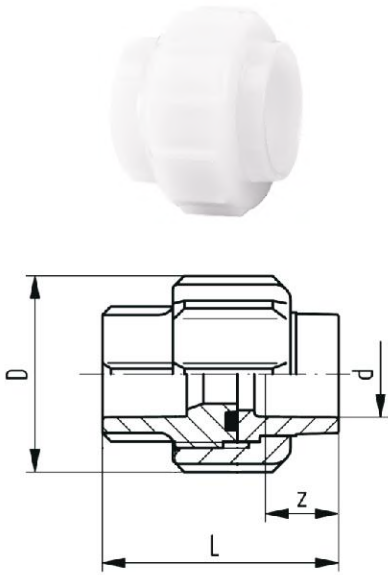
### Reducer concentric Socket-end PVDF PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
25/20	16	030.01.2520.6	0,02	29	40	15,5
32/20	16	030.01.3220.6	0,03	43	44	15,5
32/25	16	030.01.3225.6	0,04	43	44	17,5
40/20	16	030.01.4020.6	0,03	52	49	15,5
40/25	16	030.01.4025.6	0,05	52	49	17,5
40/32	16	030.01.4032.6	0,04	52	49	20,2
50/20	16	030.01.5020.6	0,06	64	55	15,5
50/25	16	030.01.5025.6	0,07	64	55	17,5
50/32	16	030.01.5032.6	0,08	64	55	20,2
50/40	16	030.01.5040.6	0,09	64	55	25,0
63/25	16	030.01.6325.6	0,11	81	64	17,5
63/32	16	030.01.6332.6	0,12	81	64	20,2
63/40	16	030.01.6340.6	0,13	81	64	20,5
63/50	16	030.01.6350.6	0,15	81	64	24,6
75/50	16	030.01.7550.6	0,18	92	64	24,6
75/63	16	030.01.7563.6	0,21	92	64	29,0
90/63	16	030.01.9063.6	0,35	113	87	29,0
90/75	16	030.01.9075.6	0,36	113	87	33,0
110/63	16	030.01.1163.6	0,48	133	87	29,0
110/90	16	030.01.1190.6	0,58	133	87	35,5



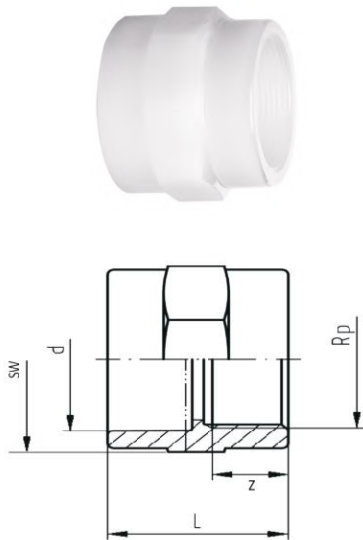
### Union Socket-end PVDF-EPDM PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	040.00.020.16	0,06	47	45	16
25	16	040.00.025.16	0,10	57	49	18
32	16	040.00.032.16	0,14	64	53	20
40	16	040.00.040.16	0,22	78	59	22
50	16	040.00.050.16	0,28	89	67	24
63	16	040.00.063.16	0,50	109	79	29



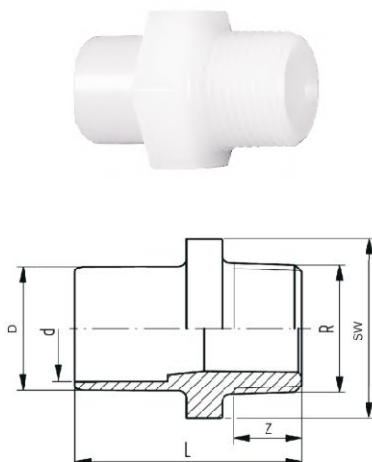
### Union Socket-end PVDF-FPM PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	z (mm)
20	16	040.01.020.16	0,06	47	45	16
25	16	040.01.025.16	0,10	57	49	18
32	16	040.01.032.16	0,14	64	53	20
40	16	040.01.040.16	0,22	78	59	22
50	16	040.01.050.16	0,28	89	67	24
63	16	040.01.063.16	0,50	109	79	29



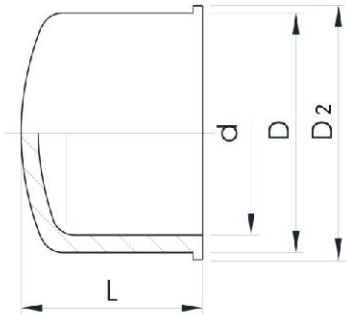
### Adaptor Female Thread R-thread Socket-end PVDF PN16

R (inch)	d (mm)	PN (bar)	code	weight (kg)	SW (mm)	L (mm)	z (mm)
1/2	20	16	070.00.020.16	0,04	32	45	16
3/4	25	16	070.00.025.16	0,06	41	50	18
1	32	16	070.00.032.16	0,09	46	57	20
1-1/4	40	16	070.00.040.16	0,15	55	62	24
1-1/2	50	16	070.00.050.16	0,22	70	68	26
2	63	16	070.00.063.16	0,40	85	74	30



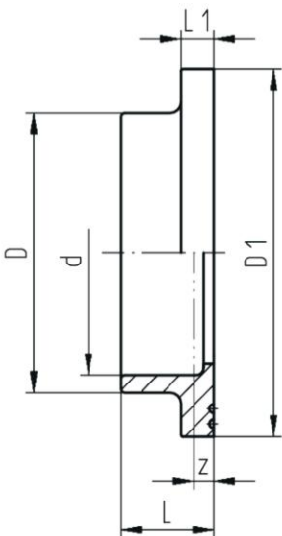
### Adaptor Male Thread R-thread Socket-end PVDF PN16

R (inch)	d (mm)	PN (bar)	code	weight (kg)	SW (mm)	L (mm)	z (mm)
1/2	20	16	070.02.020.16	0,04	29	51	16
3/4	25	16	070.02.025.16	0,06	34	61	18
1	32	16	070.02.032.16	0,09	42	66	20
1-1/4	40	16	070.02.040.16	0,15	51	74	24
1-1/2	50	16	070.02.050.16	0,22	62	78	26
2	63	16	070.02.063.16	0,40	77	84	30



### End Cap Socket-end PVDF PN16

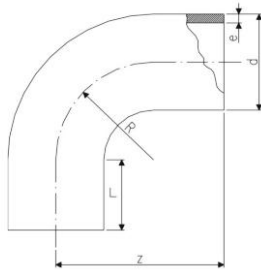
d (mm)	PN (bar)	code	weight (kg)	D (mm)	L (mm)	D2 (mm)
20	16	060.00.020.16	0,02	29	27	32
25	16	060.00.025.16	0,03	35	30	37
32	16	060.00.032.16	0,05	43	35	46
40	16	060.00.040.16	0,07	52	39	57
50	16	060.00.050.16	0,13	64	49	69
63	16	060.00.063.16	0,24	81	59	86
75	16	060.00.075.16	0,30	92	66	97
90	16	060.00.090.16	0,53	113	77	119
110	16	060.00.110.16	0,81	133	92	139



### Flange Adaptor Socket-end PVDF PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	D1 (mm)	L (mm)	L1 (mm)
20	16	050.00.020.16	0,02	27	45	21	6
25	16	050.00.025.16	0,03	33	58	22	7
32	16	050.00.032.16	0,05	41	68	25	7
40	16	050.00.040.16	0,07	50	78	26	8
50	16	050.00.050.16	0,13	61	88	30	8
63	16	050.00.063.16	0,24	76	102	33	9
75	16	050.00.075.16	0,30	90	122	37	10
90	16	050.00.090.16	0,53	109	125	41	11
110	16	050.00.110.16	0,81	131	150	48	12





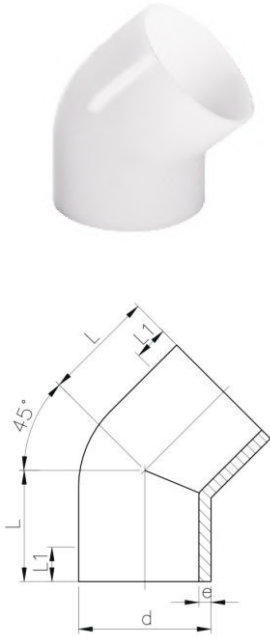
### Elbow 90° Butt + IR PVDF SDR21 PN16

d (mm)	PN (bar)	code	weight (kg)	e (mm)	z (mm)	R (mm)	L (mm)
16	16	010.02.016.16	0,01	1,9	39	16	24
20	16	010.02.020.16	0,02	1,9	51	20	33
25	16	010.02.025.16	0,04	1,9	56	25	33
32	16	010.02.032.16	0,05	2,4	63	32	33
40	16	010.02.040.16	0,08	2,4	72	40	36
50	16	010.02.050.16	0,13	3,0	84	50	36
63	16	010.02.063.16	0,20	3,0	97	63	35
75	16	010.02.075.16	0,30	3,6	100	75	28
90	16	010.02.090.16	0,52	4,3	123	90	34
110	16	010.02.110.16	0,92	5,3	142	110	34
125	16	010.02.125.16	0,94	6,0	135	125	34
140	16	010.02.140.16	2,01	6,7	216	140	73
160	16	010.02.160.16	2,86	7,7	236	160	73

### Elbow 90° Butt + IR PVDF SDR33 PN10

d (mm)	PN (bar)	code	weight (kg)	e (mm)	z (mm)	R (mm)	L (mm)
90	16	010.03.090.10	0,39	2,8	123	90	34
110	16	010.03.110.10	0,47	3,4	142	110	34
125	16	010.03.125.10	0,65	3,9	135	125	34
140	16	010.03.140.10	1,39	4,3	216	140	73
160	16	010.03.160.10	1,97	4,9	236	160	73

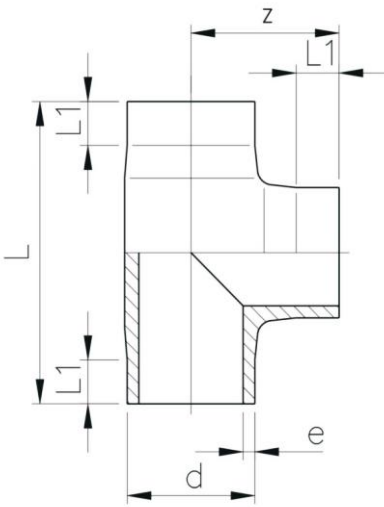
### Elbow 45° Butt + IR PVDF SDR21 PN16



d (mm)	PN (bar)	code	weight (kg)	e (mm)	L (mm)	R (mm)	L1 (mm)
20	16	010.04.020.16	0,02	1,9	43	20	33
25	16	010.04.025.16	0,03	1,9	45	25	33
32	16	010.04.032.16	0,05	2,4	52	32	33
40	16	010.04.040.16	0,08	2,4	58	40	36
50	16	010.04.050.16	0,13	3,0	66	50	36
63	16	010.04.063.16	0,17	3,0	75	63	35
75	16	010.04.075.16	0,14	3,6	48	75	28
90	16	010.04.090.16	0,26	4,3	59	90	34
110	16	010.04.110.16	0,48	5,3	68	110	34
140	16	010.04.140.16	0,89	6,7	85	140	73
160	16	010.04.160.16	1,37	7,7	103	160	73

### Elbow 45° Butt + IR PVDF SDR33 Pn10

d (mm)	PN (bar)	code	weight (kg)	e (mm)	L (mm)	R (mm)	L1 (mm)
90	10	010.05.090.10	0,17	2,8	59	90	36
110	10	010.05.110.10	0,32	3,4	68	110	45
140	10	010.05.140.10	1,47	4,3	85	140	57
160	10	010.05.160.10	0,99	4,9	103	160	65

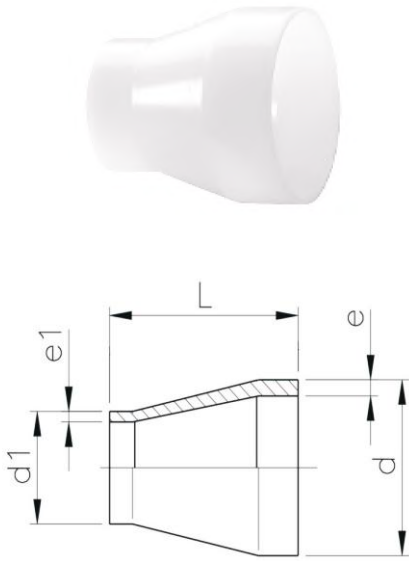


### Tee Butt + IR PVDF SDR21 PN16

d (mm)	PN (bar)	code	weight (kg)	e (mm)	L (mm)	z (mm)	L1 (mm)
20	16	020.01.020.16	0,02	1,9	70	35	15
25	16	020.01.025.16	0,04	1,9	80	40	15
32	16	020.01.032.16	0,06	2,4	89	45	17
40	16	020.01.040.16	0,09	2,4	100	50	16
50	16	020.01.050.16	0,16	3,0	120	60	23
63	16	020.01.063.16	0,26	3,0	149	75	28
75	16	020.01.075.16	0,40	3,6	174	87	28
90	16	020.01.090.16	0,63	4,3	181	92	33
110	16	020.01.110.16	1,15	5,3	223	110	33
125	16	020.01.125.16	1,22	6,0	279	139	52
140	16	020.01.140.16	2,28	6,7	308	154	60
160	16	020.01.160.16	2,64	7,7	279	140	45

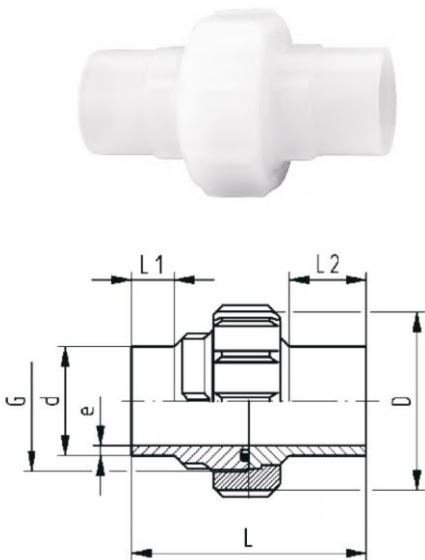
### Tee Butt + IR PVDF SDR33 PN10

d (mm)	PN (bar)	code	weight (kg)	e (mm)	L (mm)	z (mm)	L1 (mm)
90	10	020.01.090.10	0,47	2,8	181	92	33
110	10	020.01.110.10	0,94	3,4	223	110	33
125	10	020.01.125.10	0,90	3,9	279	139	52
140	10	020.01.140.10	1,90	4,3	308	154	60
160	10	020.01.160.10	1,74	4,9	279	140	45



### Reducer concentric Butt + IR PVDF SDR21 PN16

d (mm)	PN (bar)	code	weight (kg)	L (mm)	e (mm)	e1 (mm)
25/20	16	030.02.2520.6	0,01	50	1,9	1,9
32/20	16	030.02.3220.6	0,02	50	2,4	1,9
32/25	16	030.02.3225.6	0,02	50	2,4	1,9
40/20	16	030.02.4020.6	0,02	55	2,4	1,9
40/25	16	030.02.4025.6	0,03	55	2,4	1,9
40/32	16	030.02.4032.6	0,07	55	2,4	2,7
50/20	16	030.02.5020.6	0,04	60	3,0	1,9
50/25	16	030.02.5025.6	0,04	60	3,0	1,9
50/32	16	030.02.5032.6	0,08	60	3,0	2,4
50/40	16	030.02.5040.6	0,05	60	3,0	2,4
63/25	16	030.02.6325.6	0,05	75	3,0	1,9
63/32	16	030.02.6332.6	0,06	65	3,0	2,4
63/40	16	030.02.6340.6	0,06	65	3,0	2,4
63/50	16	030.02.6350.6	0,07	65	3,0	3,0
75/50	16	030.02.7550.6	0,20	148	3,6	3,0
75/63	16	030.02.7563.6	0,21	149	3,6	3,0
90/50	16	030.02.9050.6	0,12	90	4,3	3,0
90/63	16	030.02.9063.6	0,28	160	4,3	3,0
90/75	16	030.02.9075.6	0,30	162	4,3	3,6
110/63	16	030.02.1163.6	0,24	103	5,3	3,0
110/90	16	030.02.1190.6	0,53	180	5,3	4,3

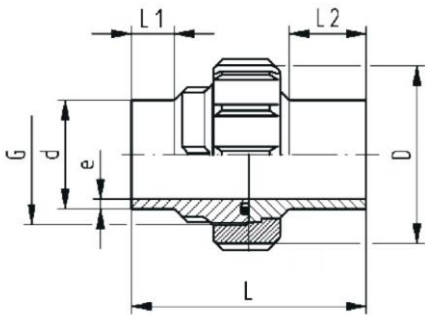


### Union Butt + IR PVDF-EPDM SDR21 PN16

d (mm)	PN (bar)	code	weight (kg)	D (mm)	G (inch)	L (mm)	L1 (mm)	L2 (mm)
20	16	040.02.020.16	0,07	43	1	106	25	37
25	16	040.02.025.16	0,11	53	1-1/4	112	25	38
32	16	040.02.032.16	0,15	60	1-1/2	118	25	40
40	16	040.02.040.16	0,22	74	2	124	25	41
50	16	040.02.050.16	0,29	82	2-1/4	130	25	43
63	16	040.02.063.16	0,45	100	2-3/4	136	25	44



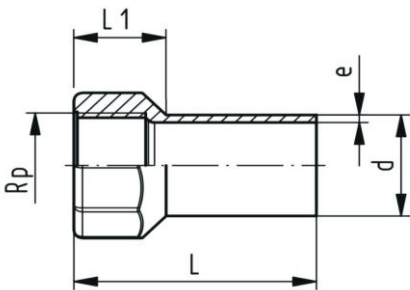
### Union Butt + IR PVDF-FPM SDR21 PN16



d (mm)	PN (bar)	code	weight (kg)	D (mm)	G (inch)	L (mm)	L1 (mm)	L2 (mm)
20	16	040.03.020.16	0,07	43	1	106	25	37
25	16	040.03.025.16	0,11	53	1-1/4	112	25	38
32	16	040.03.032.16	0,15	60	1-1/2	118	25	40
40	16	040.03.040.16	0,22	74	2	124	25	41
50	16	040.03.050.16	0,29	82	2-1/4	130	25	43
63	16	040.03.063.16	0,45	100	2-3/4	136	25	44



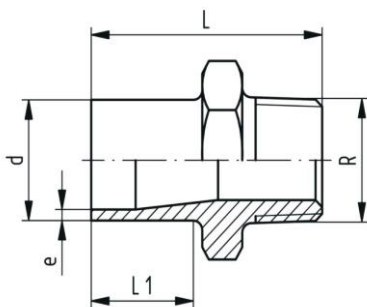
### Adaptor Female Thread R-thread Butt + IR PVDF SDR21 PN16



R (inch)	d (mm)	PN (bar)	code	weight (kg)	L (mm)	L1 (mm)	e (mm)
1/2	20	16	070.01.020.16	0,03	46	16	1,9
3/4	25	16	070.01.025.16	0,05	51	18	1,9
1	32	16	070.01.032.16	0,08	58	20	2,4
1-1/4	40	16	070.01.040.16	0,13	62	24	2,4
1-1/2	50	16	070.01.050.16	0,21	68	24	3,0
2	63	16	070.01.063.16	0,33	75	28	3,0



### Adaptor Male Thread R-thread Butt + IR PVDF SDR21 PN16



R (inch)	d (mm)	PN (bar)	code	weight (kg)	L (mm)	L1 (mm)	e (mm)
1/2	20	16	070.03.020.16	0,02	46	18	1,9
3/4	25	16	070.03.025.16	0,02	51	20	1,9
1	32	16	070.03.032.16	0,04	61	23	2,4
1-1/4	40	16	070.03.040.16	0,07	66	27	2,4
1-1/2	50	16	070.03.050.16	0,10	74	29	3,0
2	63	16	070.03.063.16	0,13	80	31	3,0

### Stub Flange Butt + IR PVDF SDR21 PN16

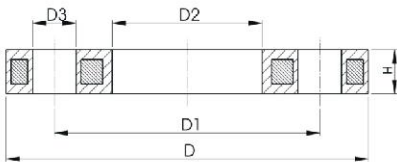


d (mm)	PN (bar)	code	weight (kg)	D (mm)	D1 (mm)	L (mm)	L1 (mm)	e (mm)
20	16	050.01.020.16	0,03	27	45	50	6	1,9
25	16	050.01.025.16	0,05	33	58	50	6	1,9
32	16	050.01.032.16	0,07	40	68	50	7	2,4
40	16	050.01.040.16	0,09	50	78	50	8	2,4
50	16	050.01.050.16	0,13	61	88	50	9	3,0
63	16	050.01.063.16	0,18	76	102	50	10	3,0
75	16	050.01.075.16	0,26	89	122	50	10	3,6
90	16	050.01.090.16	0,41	105	138	80	11	4,3
110	16	050.01.110.16	0,54	125	158	80	12	5,3
125	16	050.01.125.16	0,61	132	158	80	18	6,0
140	16	050.01.140.16	0,88	155	188	80	15	6,7
160	16	050.01.160.16	1,08	175	212	80	16	7,7

### Stub Flange Butt + IR PVDF SDR33 PN10

d (mm)	PN (bar)	code	weight (kg)	D (mm)	D1 (mm)	L (mm)	L1 (mm)	e (mm)
90	16	050.02.090.10	0,36	105	138	80	11	2,8
110	16	050.02.110.10	0,48	125	158	80	12	3,4
125	16	050.02.125.10	0,56	132	158	80	14	3,9
140	16	050.02.140.10	0,67	155	188	80	18	4,3
160	16	050.02.160.10	0,95	175	212	80	16	4,9

### Backing Ring Steel Insert Black DIN PN16



d (mm)	PN (bar)	code	weight (kg)	D (mm)	D1 (mm)	D2 (mm)	D3 (mm)	H (mm)
20	16	050.03.020.16	0,24	95	65	28	14	12
25	16	050.03.025.16	0,31	108	75	34	14	14
32	16	050.03.032.16	0,42	115	85	42	14	16
40	16	050.03.040.16	0,64	140	100	51	18	18
50	16	050.03.050.16	0,70	150	110	62	18	18
63	16	050.03.063.16	0,79	165	125	78	18	18
75	16	050.03.075.16	1,10	187	145	92	18	18
90	16	050.03.090.16	1,17	202	160	108	18	20
110	16	050.03.110.16	1,61	222	180	128	18	20
125	16	050.03.125.16	1,45	222	180	135	18	20
140	16	050.03.140.16	2,00	250	210	158	18	24
160	16	050.03.160.16	2,61	286	240	178	22	24

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