



TECHNICAL CATALOG | 2022

HDPE 100 INJECTION FITTING

HDPE 100 ELECTROFUSION FITTINGS

HDPE 100 CONFECTION FITTINGS

BF & EF WELDING MACHINES

İÇİNDEKİLER

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EF Manşon
EF Coupler



EF Dirsek 45°
EF Elbow 45°



EF Dirsek 90°
EF Elbow 90°



EF Eşit TE 90°
EF Equal TEE 90°



EF İnegal TE 90°
EF Reduced TEE 90°



EF Redüksiyon
EF Reducer



EF Kör Tapa
EF Cap



EF Semer
EF Saddle



EF Semer
EF Saddle



EF Tamir Semeri
EF Repair Saddle



EF Semer
EF Saddle



EF Semer
EF Saddle



EF Vanasız Servis TE
EF Tapping Tee Without Valve



EF Vanasız Servis TE 360
EF Tapping Tee Without Valve 360



EF Vanalı Servis TE 360°
EF Valve Tapping TEE 360°



Dirsek 11° (Konfeksiyon)
Elbow 11° (Confection)



Dirsek 30° (Konfeksiyon)
Elbow 30° (Confection)



Dirsek 45° (Enjeksiyon)
Elbow 45° (Injection)



Dirsek 45° (KİT Enjeksiyon Kaynaklı)
Elbow 45° (KIT Injection Welded)



Dirsek 45° (Konfeksiyon)
Elbow 45° (Confection)



Dirsek 60° (KİT Enjeksiyon Kaynaklı)
Elbow 60° (KIT Injection Welded)



Dirsek 60° (Konfeksiyon)
Elbow 60° (Confection)



Dirsek 90° (Enjeksiyon)
Elbow 90° (Injection)



Dirsek 90° (Konfeksiyon)
Elbow 90° (Confection)



Eşit TE 90° (Enjeksiyon)
Equal TEE 90° (Injection)



Eşit TE 90° (Konfeksiyon)
Equal TEE 90° (Confection)



İnegal TE 90° (Enjeksiyon)
Reduced TEE 90° (Injection)



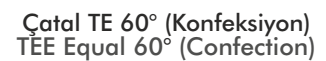
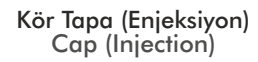
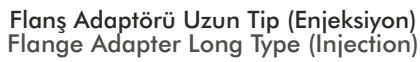
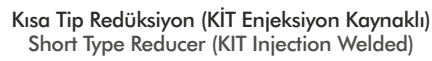
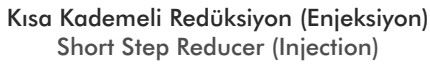
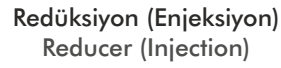
İnegal TE 90° (KİT Enjeksiyon Kaynaklı)
Reduced TEE 90° (KIT Injection Welded)



İnegal TE 90° (Konfeksiyon)
Equal TEE 90° (Confection)



İnegal TE 90° (KİT Enjeksiyon Kaynaklı)
Reduced TEE 90° (KIT Injection Welded)





İnegal İstavroz TE 90 (Enjeksiyon)
Reduced Cross TEE 90 (Injection)



İnegal İstavroz TE 90 (KİT Enjeksiyon Kaynaklı)
Reduced Cross TEE 90 (KIT Injection Welded)



İnegal İstavroz TE 90 (Konfeksiyon)
Reduced Cross TEE 90 (Confection)



PE-Pirinç (MS 58)-Metal Geçiş Adaptörü (Dış Dişli)
PE-Brass (MS-58)- Metal Transition Adaptor
(male threaded)



PE-Pirinç (MS 58)-Metal Geçiş Adaptörü (İç Dişli)
PE-Brass(MS-58)- Metal Transition Adaptor
(Female threaded)



PE Dış Dişli Adaptör (Enjeksiyon)
PE Male Threaded Adaptor (Injection)



PE-Çelik Geçiş (Kaynak Ağızlı)
Pe-Steel Transition



PE-Çelik Geçiş (Kaynak Ağızlı)
Pe-Steel Transition



PE - Çelik Geçiş Adaptörü (Dış Dişli)
PE- Steel Transition Adaptor (Male Threaded)



Çelik Flanş
Steel Flange



Çelik Kör Flanş
Steel Blind Flange



PP Kaplı Çelik Flanş
PP Covered Steel Flange



Çatal TE 45° (KİT Enjeksiyon Kaynaklı)
Tee 45° Equal (KIT Injection Welded)



MHW160

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W160

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W160 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W 250

W 250 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W 315

W 315 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W 400

W 400 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI

POLYETHYLENE PIPE BUTT WELDING MACHINE



W 500

W 500 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI

POLYETHYLENE PIPE BUTT WELDING MACHINE



W 630

W 630 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI

POLYETHYLENE PIPE BUTT WELDING MACHINE



W 800

W 800 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI

POLYETHYLENE PIPE BUTT WELDING MACHINE



W 1000

W 1000 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI

POLYETHYLENE PIPE BUTT WELDING MACHINE



W 1200

W 1200 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W 1600

W 1600 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



W 2000

W 2000 CNC

POLİETİLEN BORU ALIN KAYNAK MAKİNASI
POLYETHYLENE PIPE BUTT WELDING MACHINE



EF-W630

EF-W1200

POLİETİLEN BORU ELEKTROFÜZYON
KAYNAK MAKİNASI
POLYETHYLENE PIPE ELECTROFUSION
WELDING MACHINES



Data Logger For Hdpe Pipe
Butt Welding Machine

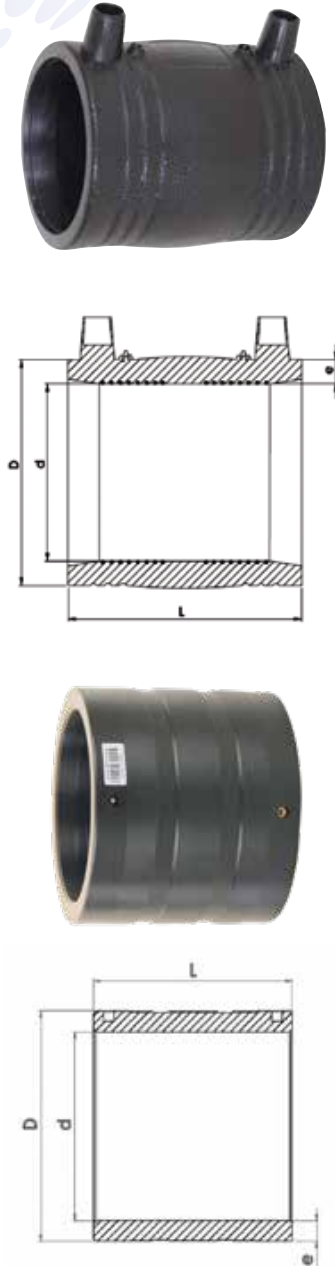
Elektrofüzyon Ek Parçaları

Electrofusion Fittings



EF MANŞON EF COUPLER ЭЛ.СВАРНАЯ МУФТА

Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

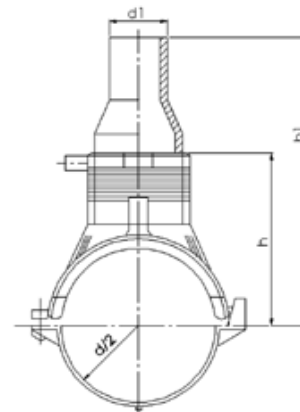


d	Article No	Bar	D	L	e	Weight (kg)	Pack (pc)
Ø20	MN001600002014	PN16	31	68	2,0	0,035	120
Ø25	MN001600002514	PN16	36	71	2,3	0,040	120
Ø32	MN001600003214	PN16	45	79	3,0	0,050	100
Ø40	MN001600004014	PN16	53	80	3,7	0,080	80
Ø50	MN001600005014	PN16	67	89	4,6	0,120	60
Ø63	MN001600006314	PN16	82	97	5,8	0,200	40
Ø75	MN001600007514	PN16	95	98	6,8	0,275	25
Ø90	MN001600009014	PN16	116	114	8,2	0,400	12
Ø110	MN001600011014	PN16	138	146	10,0	0,700	16
Ø125	MN001600012514	PN16	153	150	11,4	1,050	12
Ø140	MN001600014014	PN16	177	162	12,7	1,450	10
Ø160	MN001600016014	PN16	200	178	14,6	1,850	4
Ø180	MN001000018014	PN10	218	192	10,7	1,700	4
	MN001600018014	PN16	221	192	16,4	2,350	4
Ø200	MN001000020014	PN10	233	213	11,9	2,280	3
	MN001600020014	PN16	246	216	18,2	3,300	3
Ø225	MN001000022514	PN10	257	235	13,4	2,650	1
	MN001600022514	PN16	267	230	20,5	3,850	1
Ø250	MN001000025014	PN10	287	245	14,8	3,650	1
	MN001600025014	PN16	309	230	22,7	5,650	1
Ø280	MN001000028014	PN10	339	250	16,6	6,570	1
	MN001600028014	PN16	339	250	25,4	6,950	1
Ø315	MN001000031514	PN10	361	256	18,7	5,990	1
	MN001600031514	PN16	380	251	28,6	8,550	1
Ø355	MN001000035514	PN10	400	272	21,1	7,250	1
	MN001600035514	PN16	422	272	32,2	10,650	1
Ø400	MN001000040014	PN10	454	271	23,7	9,670	1
	MN001600040014	PN16	483	271	36,3	15,250	1
Ø450	MN001000045014	PN10	510	327	26,7	16,500	1
	MN001600045014	PN16	527	327	40,9	23,500	1
Ø500	MN001000050014	PN10	565	320	29,7	16,500	1
	MN001600050014	PN16	615	350	45,4	29,258	1
Ø560	MN001000056014	PN10	640	350	33,2	24,600	1
	MN001600056014	PN16	685	350	50,8	38,360	1
Ø630	MN001000063014	PN10	720	360	37,4	29,500	1
	MN001600063014	PN16	780	360	57,2	54,300	1
Ø710	MN001000071014	PN10	810	380	42,1	38,500	1
	MN001600071014	PN16	880	380	64,5	68,500	1
Ø800	MN001000080014	PN10	910	400	47,4	60,000	1
	MN001600080014	PN16	980	400	72,6	89,000	1
Ø900	MN001000090014	PN10	1025	450	53,3	80,000	1
	MN001600090014	PN16	1105	450	81,7	130,000	1
Ø1000	MN001000100014	PN10	1140	500	59,3	111,500	1
	MN001600100014	PN16	1225	500	90,8	165,000	1
Ø1200	MN001000120014	PN10	1370	500	71,1	161,000	1
	MN001600120014	PN16	1450	500	109,1	245,000	1
Ø1400	MN001000140014	PN10	1600	550	83,0	243,000	1
	MN001600140014	PN16	1700	550	127,3	380,000	1
Ø1600	MN001000160014	PN10	1830	575	94,8	336,000	1
	MN001600160014	PN16	1900	575	145,5	448,000	1

EF SEMER EF SADDLE ЭЛ.СВАРНОЕ СЕДЛО

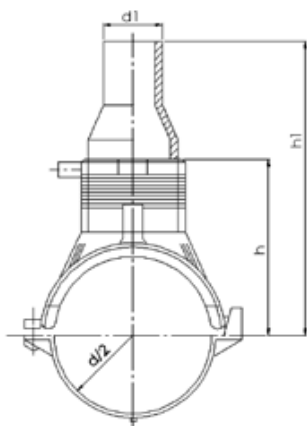
Elektrofüzyon / Electrofusion / Material:PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	h	h1	L	Weight (kg)	Pack (pc)
Ø63-20	SE001600632020	PN16	80	152	161	0.418	24
Ø63-25	SE001600632520	PN16	80	152	161	0.441	24
Ø63-32	SE001600633220	PN16	80	152	161	0.428	24
Ø63-40	SE001600634020	PN16	80	152	161	0.434	24
Ø63-50	SE001600635020	PN16	80	175	161	0.470	15
Ø63-63	SE001600636320	PN16	80	80	161	0.347	15
Ø75-20	SE001600752020	PN16	86	158	161	0.507	24
Ø75-25	SE001600752520	PN16	86	158	161	0.531	24
Ø75-32	SE001600753220	PN16	86	158	161	0.518	24
Ø75-40	SE001600754020	PN16	86	158	161	0.524	24
Ø75-50	SE001600755020	PN16	86	181	161	0.562	15
Ø75-63	SE001600756320	PN16	86	86	161	0.438	15
Ø90-20	SE001600902020	PN16	94	166	161	0.481	18
Ø90-25	SE001600902520	PN16	94	166	161	0.502	18
Ø90-32	SE001600903220	PN16	94	166	161	0.489	18
Ø90-40	SE001600904020	PN16	94	166	161	0.495	18
Ø90-50	SE001600905020	PN16	94	189	161	0.533	18
Ø90-63	SE001600906320	PN16	94	94	161	0.409	18
Ø110-20	SE001601102020	PN16	104	176	161	0.597	18
Ø110-25	SE001601102520	PN16	104	176	161	0.619	18
Ø110-32	SE001601103220	PN16	104	176	161	0.606	18
Ø110-40	SE001601104020	PN16	104	176	161	0.611	18
Ø110-50	SE001601105020	PN16	104	199	161	0.650	18
Ø110-63	SE001601106320	PN16	104	104	161	0.524	18
Ø125-20	SE001601252020	PN16	111	183	161	0.567	18
Ø125-25	SE001601252520	PN16	111	183	161	0.589	18
Ø125-32	SE001601253220	PN16	111	183	161	0.575	18
Ø125-40	SE001601254020	PN16	111	183	161	0.581	18
Ø125-50	SE001601255020	PN16	111	206	161	0.619	18
Ø125-63	SE001601256320	PN16	111	111	161	0.495	18
Ø140-20	SE001601402020	PN16	119	191	161	0.560	15
Ø140-25	SE001601402520	PN16	119	191	161	0.573	15
Ø140-32	SE001601403220	PN16	119	191	161	0.560	15
Ø140-40	SE001601404020	PN16	119	191	161	0.566	15
Ø140-50	SE001601405020	PN16	119	214	161	0.603	12
Ø140-63	SE001601406320	PN16	119	119	161	0.479	12
Ø160-20	SE001601602020	PN16	129	201	161	0.536	15
Ø160-25	SE001601602520	PN16	129	201	161	0.549	15
Ø160-32	SE001601603220	PN16	129	201	161	0.536	15
Ø160-40	SE001601604020	PN16	129	201	161	0.542	15
Ø160-50	SE001601605020	PN16	129	224	161	0.580	12
Ø160-63	SE001601606320	PN16	129	129	161	0.457	12
Ø180-20	SE001601802020	PN16	139	221	162	0.666	15
Ø180-25	SE001601802520	PN16	139	211	162	0.689	15
Ø180-32	SE001601803220	PN16	139	211	162	0.676	15
Ø180-40	SE001601804020	PN16	139	211	162	0.682	15
Ø180-50	SE001601805020	PN16	139	234	162	0.720	12
Ø180-63	SE001601806320	PN16	139	139	161	0.596	12
Ø200-20	SE001602002020	PN16	149	221	162	0.653	15
Ø200-25	SE001602002520	PN16	149	221	162	0.680	15



EF SEMER EF SADDLE ЭЛ.СВАРНОЕ СЕДЛО

Elektrofúzyon / Electrofusion / Material:PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

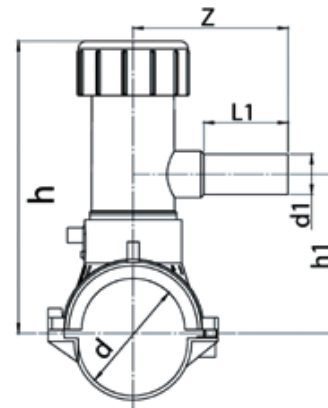


d-d1	Article No	Bar	h	h1	L	Weight (kg)	Pack (pc)
Ø200-32	SE001602003220	PN16	149	221	162	0.667	15
Ø200-40	SE001602004020	PN16	149	221	162	0.673	15
Ø200-50	SE001602005020	PN16	149	244	162	0.710	12
Ø200-63	SE001602006320	PN16	149	149	162	0.586	12
Ø225-20	SE001602252020	PN16	161	233	162	0.658	15
Ø225-25	SE001602252520	PN16	161	233	162	0.689	15
Ø225-32	SE001602253220	PN16	161	233	162	0.675	15
Ø225-40	SE001602254020	PN16	161	233	162	0.682	15
Ø225-50	SE001602255020	PN16	161	256	162	0.719	12
Ø225-63	SE001602256320	PN16	161	161	162	0.595	12
Ø250-20	SE001602502020	PN16	174	246	162	0.691	20
Ø250-25	SE001602502520	PN16	174	246	162	0.709	20
Ø250-32	SE001602503220	PN16	174	246	162	0.696	20
Ø250-40	SE001602504020	PN16	174	246	162	0.702	20
Ø250-50	SE001602505020	PN16	174	269	162	0.740	20
Ø250-63	SE001602506320	PN16	174	174	162	0.616	20
Ø280-20	SE001602802020	PN16	189	261	162	0.727	20
Ø280-25	SE001602802520	PN16	189	261	162	0.754	20
Ø280-32	SE001602803220	PN16	189	261	162	0.740	20
Ø280-40	SE001602804020	PN16	189	261	162	0.746	20
Ø280-50	SE001602805020	PN16	189	284	162	0.784	20
Ø280-63	SE001602806320	PN16	189	189	162	0.660	20
Ø315-20	SE001603152020	PN16	206	278	161	0.742	20
Ø315-25	SE001603152520	PN16	206	278	161	0.781	20
Ø315-32	SE001603153220	PN16	206	278	161	0.767	20
Ø315-40	SE001603154020	PN16	206	278	161	0.774	20
Ø315-50	SE001603155020	PN16	206	301	161	0.811	20
Ø315-63	SE001603156320	PN16	206	206	162	0.687	20
Ø355-20	SE001603552020	PN16	226	298	161	0.825	20
Ø355-25	SE001603552520	PN16	226	298	161	0.856	20
Ø355-32	SE001603553220	PN16	226	298	161	0.842	20
Ø355-40	SE001603554020	PN16	226	298	161	0.848	20
Ø355-50	SE001603555020	PN16	226	321	161	0.886	20
Ø355-63	SE001603556320	PN16	226	226	162	0.762	20
Ø400-20	SE001604002020	PN16	249	321	161	0.895	20
Ø400-25	SE001604002520	PN16	249	321	161	0.936	20
Ø400-32	SE001604003220	PN16	249	321	161	0.922	20
Ø400-40	SE001604004020	PN16	249	321	161	0.927	20
Ø400-50	SE001604005020	PN16	249	344	161	0.966	20
Ø400-63	SE001604006320	PN16	249	249	162	0.842	20

EF VANASIZ SERVİS TE (MONO BLOCK) EF TAPPING TEE (WITHOUT VALVE) (MONO BLOCK) ЭЛ.СВАРНОЕ СЕДЛО С АРМАТУРОЙ ДЛЯ ВРЕЗКИ

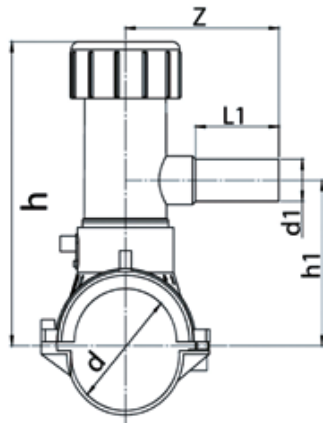
Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	h	h1	L	L1	Z	Weight (kg)	Pack (pc)
Ø40-20	ST001600402021	PN16	99	33	99	70	110	0,235	25
Ø40-25	ST001600402521	PN16	99	33	99	70	110	0,235	25
Ø40-32	ST001600403221	PN16	99	33	99	75	110	0,238	25
Ø50-20	ST001600502021	PN16	105	38	99	70	110	0,228	15
Ø50-25	ST001600502521	PN16	105	38	99	70	110	0,227	15
Ø50-32	ST001600503221	PN16	105	38	99	75	110	0,228	15
Ø63-20	ST001600632021	PN16	168	71	157	84	120	0,480	15
Ø63-25	ST001600632521	PN16	168	71	157	84	120	0,490	15
Ø63-32	ST001600633221	PN16	168	71	157	84	120	0,500	15
Ø63-40	ST001600634021	PN16	168	71	157	84	120	0,520	15
Ø75-20	ST001600752021	PN16	175	71	157	84	120	0,530	15
Ø75-25	ST001600752521	PN16	175	71	157	84	120	0,540	15
Ø75-32	ST001600753221	PN16	175	71	157	84	120	0,550	15
Ø75-40	ST001600754021	PN16	175	71	157	84	120	0,560	15
Ø90-20	ST001600902021	PN16	177	88	157	82	120	0,520	15
Ø90-25	ST001600902521	PN16	177	88	157	82	120	0,530	15
Ø90-32	ST001600903221	PN16	177	88	157	82	120	0,540	15
Ø90-40	ST001600904021	PN16	177	88	157	82	120	0,550	15
Ø110-20	ST001601102021	PN16	185	96	160	82	120	0,630	10
Ø110-25	ST001601102521	PN16	185	96	160	82	120	0,640	10
Ø110-32	ST001601103221	PN16	185	96	160	82	120	0,650	10
Ø110-40	ST001601104021	PN16	185	96	160	82	120	0,660	10
Ø125-20	ST001601252021	PN16	188	102	156	60	96	0,740	8
Ø125-25	ST001601252521	PN16	188	102	156	60	96	0,750	10
Ø125-32	ST001601253221	PN16	188	102	156	60	96	0,760	10
Ø125-40	ST001601254021	PN16	188	102	156	60	96	0,770	10
Ø140-20	ST001601402021	PN16	196	102	156	60	96	0,780	8
Ø140-25	ST001601402521	PN16	196	102	156	60	96	0,790	10
Ø140-32	ST001601403221	PN16	196	102	156	60	96	0,800	10
Ø140-40	ST001601404021	PN16	196	102	156	60	96	0,810	10
Ø160-20	ST001601602021	PN16	204	122	157	61	95	0,630	8
Ø160-25	ST001601602521	PN16	204	122	157	61	95	0,640	10
Ø160-32	ST001601603221	PN16	204	122	157	61	95	0,650	10
Ø160-40	ST001601604021	PN16	204	122	157	61	95	0,660	10
Ø200-20	ST001602002021	PN16	224	122	157	61	95	0,720	8
Ø200-25	ST001602002521	PN16	224	122	157	61	95	0,730	10
Ø200-32	ST001602003221	PN16	224	122	157	61	95	0,740	10
Ø200-40	ST001602004021	PN16	224	122	157	61	95	0,750	10



EF VANASIZ SERVİS TE 360° EF TAPPING TEE (WITHOUT VALVE) 360° ЭЛ.СВАРНОЕ СЕДЛО С АРМАТУРОЙ ДЛЯ ВРЕЗКИ

Elektrofúzyon / Electrofusion / Material:PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

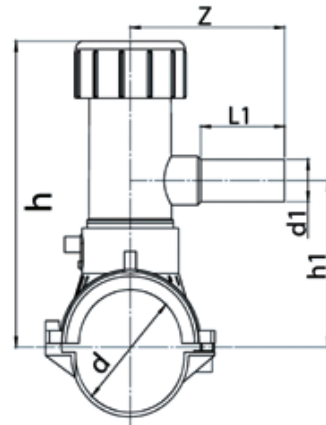


d-d1	Article No	Bar	h	h1	L	L1	z	Weight (kg)	Pack (pc)
Ø63-20	ST001600632021	PN16	180	97	161	76	129	0.712	15
Ø63-25	ST001600632521	PN16	180	97	161	75	128	0.706	15
Ø63-32	ST001600633221	PN16	180	97	161	75	129	0.706	15
Ø63-40	ST001600634021	PN16	180	97	161	82	136	0.722	15
Ø63-50	ST001600635021	PN16	227	110	161	100	160	1.024	15
Ø63-63	ST001600636321	PN16	227	110	161	97	157	1.086	8
Ø75-20	ST001600752021	PN16	186	104	161	76	129	0.801	8
Ø75-25	ST001600752521	PN16	186	104	161	75	128	0.795	15
Ø75-32	ST001600753221	PN16	186	104	161	75	129	0.794	15
Ø75-40	ST001600754021	PN16	186	104	161	82	136	0.812	15
Ø75-50	ST001600755021	PN16	233	121	161	100	160	1.113	15
Ø75-63	ST001600756321	PN16	233	121	161	97	157	1.175	8
Ø90-20	ST001600902021	PN16	194	112	161	76	129	0.772	8
Ø90-25	ST001600902521	PN16	194	112	161	75	128	0.765	12
Ø90-32	ST001600903221	PN16	194	112	161	75	129	0.765	12
Ø90-40	ST001600904021	PN16	194	112	161	82	136	0.782	12
Ø90-50	ST001600905021	PN16	241	129	161	100	160	1.084	12
Ø90-63	ST001600906321	PN16	241	129	161	97	157	1.146	10
Ø110-20	ST001601102021	PN16	204	122	161	76	129	0.890	10
Ø110-25	ST001601102521	PN16	204	122	161	75	128	0.884	10
Ø110-32	ST001601103221	PN16	204	122	161	75	129	0.882	10
Ø110-40	ST001601104021	PN16	204	122	161	82	136	0.900	10
Ø110-50	ST001601105021	PN16	251	139	161	100	160	1.201	10
Ø110-63	ST001601106321	PN16	251	139	161	97	157	1.263	8
Ø125-20	ST001601252021	PN16	211	129	161	76	129	0.860	8
Ø125-25	ST001601252521	PN16	211	129	161	75	128	0.854	10
Ø125-32	ST001601253221	PN16	211	129	161	75	129	0.852	10
Ø125-40	ST001601254021	PN16	211	129	161	82	136	0.870	10
Ø125-50	ST001601255021	PN16	258	146	161	100	160	1.171	10
Ø125-63	ST001601256321	PN16	258	146	161	97	157	1.233	8
Ø140-20	ST001601402021	PN16	219	137	161	76	129	0.838	8
Ø140-25	ST001601402521	PN16	219	137	161	75	128	0.834	10
Ø140-32	ST001601403221	PN16	219	137	161	75	129	0.832	10
Ø140-40	ST001601404021	PN16	219	137	161	82	136	0.849	10
Ø140-50	ST001601405021	PN16	266	154	161	100	160	1.150	10
Ø140-63	ST001601406321	PN16	266	154	161	97	157	1.213	8
Ø160-20	ST001601602021	PN16	229	147	161	76	129	0.820	8
Ø160-25	ST001601602521	PN16	229	147	161	75	128	0.814	10
Ø160-32	ST001601603221	PN16	229	147	161	75	129	0.812	10
Ø160-40	ST001601604021	PN16	229	147	161	82	136	0.830	10
Ø160-50	ST001601605021	PN16	276	164	161	100	160	1.131	10
Ø160-63	ST001601606321	PN16	276	164	161	97	157	1.194	8
Ø180-20	ST001601802021	PN16	239	157	162	76	129	0.958	8
Ø180-25	ST001601802521	PN16	239	157	162	75	128	0.953	10
Ø180-32	ST001601803221	PN16	239	157	162	75	129	0.952	10
Ø180-40	ST001601804021	PN16	239	157	162	82	136	0.968	10

EF VANASIZ SERVİS TE 360° EF TAPPING TEE (WITHOUT VALVE) 360° ЭЛ.СВАРНОЕ СЕДЛО С АРМАТУРОЙ ДЛЯ ВРЕЗКИ

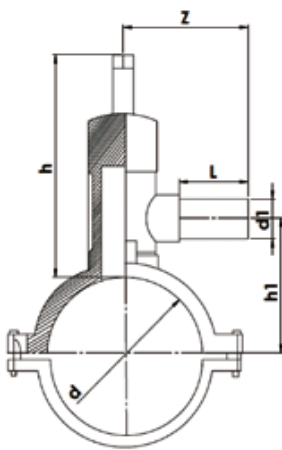
Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	h	h1	L	L1	Z	Weight (kg)	Pack (pc)
Ø180-50	ST001601805021	PN16	286	174	162	100	160	1.270	10
Ø180-63	ST001601806321	PN16	286	174	162	97	157	1.332	8
Ø200-20	ST001602002021	PN16	249	168	162	76	129	0.947	8
Ø200-25	ST001602002521	PN16	249	168	162	75	128	0.942	10
Ø200-32	ST001602003221	PN16	249	168	162	75	129	0.940	10
Ø200-40	ST001602004021	PN16	249	168	162	82	136	0.958	10
Ø200-50	ST001602005021	PN16	296	184	162	100	160	1.260	10
Ø200-63	ST001602006321	PN16	296	184	162	97	157	1.322	8
Ø225-20	ST001602252021	PN16	261	179	162	76	129	0.957	8
Ø225-25	ST001602252521	PN16	261	179	162	75	128	0.952	10
Ø225-32	ST001602253221	PN16	261	179	162	75	129	0.952	10
Ø225-40	ST001602254021	PN16	261	179	162	82	136	0.970	10
Ø225-50	ST001602255021	PN16	308	196	162	100	160	1.271	10
Ø225-63	ST001602256321	PN16	308	196	162	97	157	1.332	8
Ø250-20	ST001602502021	PN16	274	192	162	76	129	0.981	8
Ø250-25	ST001602502521	PN16	274	192	162	75	128	0.974	10
Ø250-32	ST001602503221	PN16	274	192	162	75	129	0.973	10
Ø250-40	ST001602504021	PN16	274	192	162	82	136	0.990	10
Ø250-50	ST001602505021	PN16	321	209	162	100	160	1.291	10
Ø250-63	ST001602506321	PN16	321	209	162	97	157	1.353	10
Ø280-20	ST001602802021	PN16	289	207	162	76	129	1.024	10
Ø280-25	ST001602802521	PN16	289	207	162	75	128	1.016	10
Ø280-32	ST001602803221	PN16	289	207	162	75	129	1.017	10
Ø280-40	ST001602804021	PN16	289	207	162	82	136	1.034	10
Ø280-50	ST001602805021	PN16	336	224	162	100	160	1.336	10
Ø280-63	ST001602806321	PN16	336	224	162	97	157	1.398	10
Ø315-20	ST001603152021	PN16	306	224	162	76	129	1.051	10
Ø315-25	ST001603152521	PN16	306	224	162	75	128	1.045	10
Ø315-32	ST001603153221	PN16	306	224	162	75	129	1.044	10
Ø315-40	ST001603154021	PN16	306	224	162	82	136	1.061	10
Ø315-50	ST001603155021	PN16	353	241	162	100	160	1.363	10
Ø315-63	ST001603156321	PN16	353	241	162	97	157	1.425	10
Ø355-20	ST001603552021	PN16	326	244	162	76	129	1.124	10
Ø355-25	ST001603552521	PN16	326	244	162	75	128	1.118	10
Ø355-32	ST001603553221	PN16	326	244	162	75	129	1.116	10
Ø355-40	ST001603554021	PN16	326	244	162	82	136	1.134	10
Ø355-50	ST001603555021	PN16	373	261	162	100	160	1.435	10
Ø355-63	ST001603556321	PN16	373	261	162	97	157	1.497	10
Ø400-20	ST001604002021	PN16	349	267	162	76	129	1.206	10
Ø400-25	ST001604002521	PN16	349	267	162	75	128	1.201	10
Ø400-32	ST001604003221	PN16	349	267	162	75	129	1.198	10
Ø400-40	ST001604004021	PN16	349	267	162	82	136	1.216	10
Ø400-50	ST001604005021	PN16	396	284	162	100	160	1.518	10
Ø400-63	ST001604006321	PN16	396	284	162	97	157	1.579	10



EF VANALI SERVİS TE 360° EF TAPPING TEE (WITH VALVE) 360° ЭЛ.СВАРНОЕ СЕДЛО С АРМАТУРОЙ ДЛЯ ВРЕЗКИ

Elektrofúzyon / Electrofusion / Material:PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

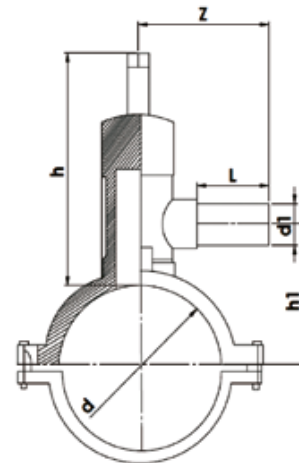


d-d1	Article No	Bar	h	h1	L	L1	z	Weight (kg)	Pack (pc)
Ø63-20	STV01600632021	PN16	244	110	161	75	130	1.497	15
Ø63-25	STV01600632521	PN16	244	110	161	75	130	1.507	15
Ø63-32	STV01600633221	PN16	244	110	161	75	130	1.517	15
Ø63-40	STV01600634021	PN16	244	110	161	97	153	1.613	15
Ø63-50	STV01600635021	PN16	244	110	161	97	153	1.623	15
Ø63-63	STV01600636321	PN16	244	110	161	97	153	1.633	8
Ø75-20	STV01600752021	PN16	250	115	161	75	130	1.633	8
Ø75-25	STV01600752521	PN16	250	115	161	75	130	1.643	15
Ø75-32	STV01600753221	PN16	250	115	161	75	130	1.653	15
Ø75-40	STV01600754021	PN16	250	115	161	97	153	1.704	15
Ø75-50	STV01600755021	PN16	250	115	161	97	153	1.714	15
Ø75-63	STV01600756321	PN16	250	115	161	97	153	1.724	8
Ø90-20	STV01600902021	PN16	258	123	161	75	130	1.559	8
Ø90-25	STV01600902521	PN16	258	123	161	75	130	1.569	12
Ø90-32	STV01600903221	PN16	258	123	161	75	130	1.579	12
Ø90-40	STV01600904021	PN16	258	123	161	97	153	1.675	12
Ø90-50	STV01600905021	PN16	258	123	161	97	153	1.685	12
Ø90-63	STV01600906321	PN16	258	123	161	97	153	1.695	10
Ø110-20	STV01601102021	PN16	268	133	161	75	130	1.674	10
Ø110-25	STV01601102521	PN16	268	133	161	75	130	1.684	10
Ø110-32	STV01601103221	PN16	268	133	161	75	130	1.694	10
Ø110-40	STV01601104021	PN16	268	133	161	97	153	1.790	10
Ø110-50	STV01601105021	PN16	268	133	161	97	153	1.800	10
Ø110-63	STV01601106321	PN16	268	133	161	97	153	1.810	8
Ø125-20	STV01601252021	PN16	275	140	161	75	130	1.645	8
Ø125-25	STV01601252521	PN16	275	140	161	75	130	1.655	10
Ø125-32	STV01601253221	PN16	275	140	161	75	130	1.665	10
Ø125-40	STV01601254021	PN16	275	140	161	97	153	1.761	10
Ø125-50	STV01601255021	PN16	275	140	161	97	153	1.771	10
Ø125-63	STV01601256321	PN16	275	140	161	97	153	1.781	8
Ø140-20	STV01601402021	PN16	283	148	161	75	130	1.629	8
Ø140-25	STV01601402521	PN16	283	148	161	75	130	1.639	10
Ø140-32	STV01601403221	PN16	283	148	161	75	130	1.649	10
Ø140-40	STV01601404021	PN16	283	148	161	97	153	1.745	10
Ø140-50	STV01601405021	PN16	283	148	161	97	153	1.755	10
Ø140-63	STV01601406321	PN16	283	148	161	97	153	1.765	8
Ø160-20	STV01601602021	PN16	293	158	161	75	130	1.607	8
Ø160-25	STV01601602521	PN16	293	158	161	75	130	1.617	10
Ø160-32	STV01601603221	PN16	293	158	161	75	130	1.627	10
Ø160-40	STV01601604021	PN16	293	158	161	97	153	1.723	10
Ø160-50	STV01601605021	PN16	293	158	161	97	153	1.733	10
Ø160-63	STV01601606321	PN16	293	158	161	97	153	1.743	8
Ø180-20	STV01601802021	PN16	303	168	162	75	130	1.746	8
Ø180-25	STV01601802521	PN16	303	168	162	75	130	1.756	10
Ø180-32	STV01601803221	PN16	303	168	162	75	130	1.766	10
Ø180-40	STV01601804021	PN16	303	168	162	97	153	1.862	10

EF VANALI SERVİS TE 360° EF TAPPING TEE (WITH VALVE) 360° ЭЛ.СВАРНОЕ СЕДЛО С АРМАТУРОЙ ДЛЯ ВРЕЗКИ

Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	h	h1	L	L1	Z	Weight (kg)	Pack (pc)
Ø180-50	STV01601805021	PN16	303	168	162	97	153	1.872	10
Ø180-63	STV01601806321	PN16	303	168	162	97	153	1.882	8
Ø200-20	STV01602002021	PN16	313	178	162	75	130	1.736	8
Ø200-25	STV01602002521	PN16	313	178	162	75	130	1.746	10
Ø200-32	STV01602003221	PN16	313	178	162	75	130	1.756	10
Ø200-40	STV01602004021	PN16	313	178	162	97	153	1.852	10
Ø200-50	STV01602005021	PN16	313	178	162	97	153	1.862	10
Ø200-63	STV01602006321	PN16	313	178	162	97	153	1.872	8
Ø225-20	STV01602252021	PN16	325	190	162	75	130	1.745	8
Ø225-25	STV01602252521	PN16	325	190	162	75	130	1.755	10
Ø225-32	STV01602253221	PN16	325	190	162	75	130	1.765	10
Ø225-40	STV01602254021	PN16	325	190	162	97	153	1.861	10
Ø225-50	STV01602255021	PN16	325	190	162	97	153	1.871	10
Ø225-63	STV01602256321	PN16	325	190	162	97	153	1.881	8
Ø250-20	STV01602502021	PN16	338	203	162	75	130	1.766	8
Ø250-25	STV01602502521	PN16	338	203	162	75	130	1.776	10
Ø250-32	STV01602503221	PN16	338	203	162	75	130	1.786	10
Ø250-40	STV01602504021	PN16	338	203	162	97	153	1.882	10
Ø250-50	STV01602505021	PN16	338	203	162	97	153	1.892	10
Ø250-63	STV01602506321	PN16	338	203	162	97	153	1.902	10
Ø280-20	STV01602802021	PN16	353	218	162	75	130	1.810	10
Ø280-25	STV01602802521	PN16	353	218	162	75	130	1.820	10
Ø280-32	STV01602803221	PN16	353	218	162	75	130	1.830	10
Ø280-40	STV01602804021	PN16	353	218	162	97	153	1.926	10
Ø280-50	STV01602805021	PN16	353	218	162	97	153	1.936	10
Ø280-63	STV01602806321	PN16	353	218	162	97	153	1.946	10
Ø315-20	STV01603152021	PN16	370	235	162	75	130	1.837	10
Ø315-25	STV01603152521	PN16	370	235	162	75	130	1.847	10
Ø315-32	STV01603153221	PN16	370	235	162	75	130	1.857	10
Ø315-40	STV01603154021	PN16	370	235	162	97	153	1.953	10
Ø315-50	STV01603155021	PN16	370	235	162	97	153	1.963	10
Ø315-63	STV01603156321	PN16	370	235	162	97	153	1.973	10
Ø355-20	STV01603552021	PN16	390	255	162	75	130	1.912	10
Ø355-25	STV01603552521	PN16	390	255	162	75	130	1.922	10
Ø355-32	STV01603553221	PN16	390	255	162	75	130	1.932	10
Ø355-40	STV01603554021	PN16	390	255	162	97	153	2.028	10
Ø355-50	STV01603555021	PN16	390	255	162	97	153	2.038	10
Ø355-63	STV01603556321	PN16	390	255	162	97	153	2.048	10
Ø400-20	STV01604002021	PN16	413	278	162	75	130	1.992	10
Ø400-25	STV01604002521	PN16	413	278	162	75	130	2.002	10
Ø400-32	STV01604003221	PN16	413	278	162	75	130	2.012	10
Ø400-40	STV01604004021	PN16	413	278	162	97	153	2.108	10
Ø400-50	STV01604005021	PN16	413	278	162	97	153	2.118	10
Ø400-63	STV01604006321	PN16	413	278	162	97	153	2.128	10



EF DİRSEK 45° EF ELBOW 45° 3Φ OTBOD 45°

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
*Ø32	DR451600003217	PN16	44	119	32	87	0,154	1
Ø40	DR451600004014	PN16	54	52	42	10	0,105	1
Ø50	DR451600005014	PN16	67	58	45	13	0,170	1
Ø63	DR451600006314	PN16	81	67	49	18	0,245	1
Ø75	DR451600007514	PN16	94	83	62	21	0,433	1
Ø90	DR451600009014	PN16	114	90	64	26	0,655	1
Ø110	DR451600011014	PN16	138	108	78	30	1,155	1
Ø125	DR451600012514	PN16	153	109	77	32	1,255	1
*Ø125	DR451600014017	PN16	163	213	83	130	3,205	1
Ø160	DR451600016014	PN16	195	130	92	38	2,425	1
*Ø180	DR451600018017	PN16	222	152	105	47	4,160	1
*Ø200	DR451600020017	PN16	247	192	108	84	5,020	1
*Ø225	DR451600022517	PN16	273	160	120	40	6,750	1
*Ø250	DR451000025017	PN10	302	332	122	210	13,993	1
	DR451600025017	PN16	302	332	122	210	15,920	1
*Ø280	DR451000028017	PN10	350	345	125	220	19,826	1
	DR451600028017	PN16	350	345	125	220	22,665	1
*Ø315	DR451000031517	PN10	380	373	133	240	25,895	1
	DR451600031517	PN16	380	373	133	240	28,585	1
*Ø355	DR451000035517	PN10	410	360	129	231	26,780	1
	DR451600035517	PN16	425	360	129	231	36,046	1
*Ø400	DR451000040017	PN10	460	384	131	253	35,210	1
	DR451600040017	PN16	490	384	131	253	49,060	1
*Ø450	DR451000045017	PN10	510	471	162	309	55,060	1
	DR451600045017	PN16	555	471	162	309	78,882	1
*Ø500	DR451000050017	PN10	570	509	175	334	73,080	1
	DR451600050017	PN16	615	509	175	334	102,516	1
*Ø560	DR451000056017	PN10	640	441	175	266	80,940	1
	DR451600056017	PN16	685	441	175	266	121,760	1
*Ø630	DR451000063017	PN10	720	460	180	280	101,240	1
	DR451600063017	PN16	780	460	180	280	168,700	1

* İşareti olan ürünler KİT'tir./ *Products which marked are specially produced.

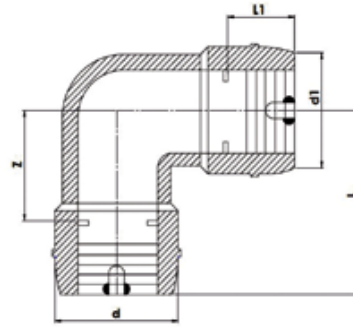


EF DİRSEK 90° EF ELBOW 90° ЭФ ОТВОД 90°

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
Ø20	DR901600002014	PN16	31	44	34	10	0,042	1
Ø25	DR901600002514	PN16	36	48	34	14	0,054	1
Ø32	DR901600003214	PN16	45	53	35	18	0,070	1
Ø40	DR901600004014	PN16	55	61	39	22	0,118	1
Ø50	DR901600005014	PN16	67	70	42	28	0,172	1
Ø63	DR901600006314	PN16	81	80	46	34	0,276	1
Ø75	DR901600007514	PN16	95	100	61	39	0,475	1
Ø90	DR901600009014	PN16	113	120	63	57	0,800	1
Ø110	DR901600011014	PN16	137	143	80	63	1,345	1
Ø125	DR901600012514	PN16	152	140	77	63	1,520	1
*Ø140	DR901000014017	PN10	163	278	83	195	3,240	1
	DR901600014017	PN16	163	278	83	195	3,778	1
Ø160	DR901600016014	PN16	195	171	93	78	2,920	1
*Ø180	DR901600018017	PN16	222	152	105	47	5,620	1
*Ø200	DR901600020017	PN16	246	215	104	110	5,500	1
*Ø225	DR901600022517	PN16	276	245	120	135	9,750	1
*Ø250	DR901000025017	PN10	302	412	122	290	15,570	1
	DR901600025017	PN16	302	412	122	290	17,960	1
*Ø280	DR901000028017	PN10	350	425	125	300	21,720	1
	DR901600028017	PN16	350	425	125	300	25,218	1
*Ø315	DR901000031517	PN10	380	468	133	335	29,415	1
	DR901600031517	PN16	380	468	133	335	34,256	1
*Ø355	DR901000035517	PN10	410	474	129	345	31,880	1
	DR901600035517	PN16	425	474	129	345	42,377	1
*Ø400	DR901000040017	PN10	460	501	131	370	41,005	1
	DR901600040017	PN16	490	501	131	370	57,605	1
*Ø450	DR901000031517	PN10	510	607	162	445	62,960	1
	DR901600031517	PN16	555	607	162	445	89,762	1
*Ø500	DR901000031517	PN10	570	660	175	485	84,180	1
	DR901600031517	PN16	615	660	175	485	117,516	1
*Ø560	DR901000031517	PN10	640	968	175	793	126,468	1
	DR901600031517	PN16	685	968	175	793	190,648	1
*Ø630	DR901000031517	PN10	720	1008	180	828	160,810	1
	DR901600031517	PN16	780	1008	180	828	258,234	1

* İşareti olan ürünler KİT'tir./ *Products which marked are specially produced.

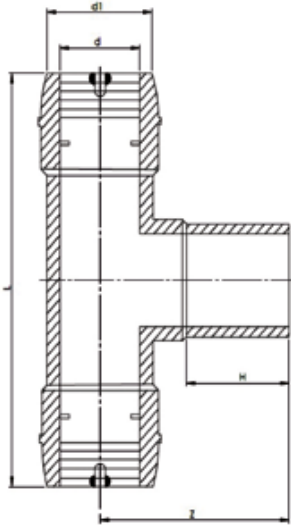


EF EŞİT TE 90° EF EQUAL TEE 90° ЭФ ТРОЙНИК 90°

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
*Ø20	TE001600002017	PN16	31	213	50	75	0,097	1
*Ø25	TE001600002517	PN16	36	226	50	80	0,126	1
Ø32	TE001600003214	PN16	43	103	40	67	0,087	1
Ø40	TE001600004014	PN16	54	120	46	77	0,140	1
Ø50	TE001600005014	PN16	65	135	49	87	0,220	1
Ø63	TE001600006314	PN16	78	150	55	100	0,323	1
Ø75	TE001600007514	PN16	92	183	66	120	0,565	1
Ø90	TE001600009014	PN16	110	201	76	140	0,865	1
Ø110	TE001600011014	PN16	135	251	85	161	1,550	1
Ø125	TE001600012514	PN16	151	253	88	173	1,870	1
Ø140	TE001600014014	PN16	170	283	98	187	2,300	1
Ø160	TE001600016014	PN16	193	322	98	205	3,695	1
*Ø180	TE001600018017	PN16	211	606	105	225	7,690	1
*Ø200	TE001600020017	PN16	230	655	115	250	10,110	1
Ø225	TE001600022514	PN16	256	658	116	253	12,100	1
*Ø250	TE001000025017	PN10	302	794	130	275	17,795	1
	TE001600025017	PN16	302	794	130	275	20,090	1
*Ø280	TE001000028017	PN10	350	840	145	290	24,420	1
	TE001600028017	PN16	350	840	145	290	27,905	1
*Ø315	TE001000031517	PN10	380	935	155	325	33,285	1
	TE001600031517	PN16	380	935	155	325	38,400	1
*Ø355	TE001000035517	PN10	410	988	155	360	37,807	1
	TE001600035517	PN16	410	988	155	360	45,785	1
*Ø400	TE001000040017	PN10	460	1050	155	395	50,550	1
	TE001600040017	PN16	490	1045	155	395	68,940	1
*Ø450	TE001000045017	PN10	510	1213	175	445	76,000	1
	TE001600045017	PN16	555	1213	175	445	107,882	1
*Ø500	TE001000050017	PN10	570	1350	250	500	91,356	1
	TE001600050017	PN16	615	1350	250	500	130,895	1
*Ø560	TE001000056017	PN10	640	1410	250	530	113,424	1
	TE001600056017	PN16	685	1410	250	530	170,994	1
*Ø630	TE001000063017	PN10	720	1490	250	565	143,988	1
	TE001600063017	PN16	780	1490	250	565	232,867	1

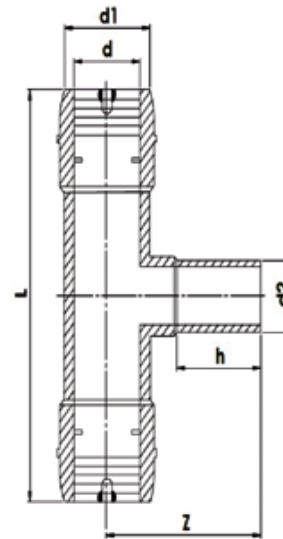
* İşareti olan ürünler KİT'tir. / *Products which marked are specially produced.
2 tarafı ayrı ayrı kaynatılabilir. / 2 side seperate fusion zone.



EF İNEGAL TE 90° EF REDUCED TEE 90° ЭФ ТРОЙНИК-ПЕРЕХОДНИК 90°

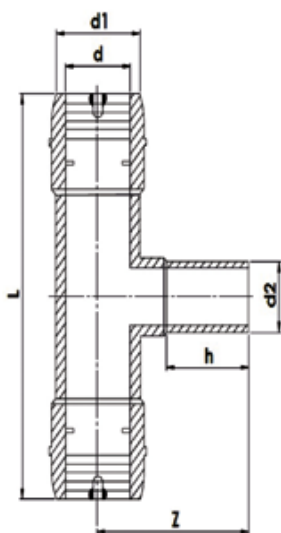
Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d2	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
*Ø25-20	TE001600502517	PN16	36	226	35	110	0,131	1
*Ø32-20	TE001600502517	PN16	43	237	35	105	0,179	1
*Ø32-25	TE001600502517	PN16	43	237	55	80	0,174	1
Ø40-20	TE001600502514	PN16	53	120	35	67	0,135	1
Ø40-25	TE001600502514	PN16	53	120	39	71	0,138	1
Ø40-32	TE001600502514	PN16	53	120	45	77	0,140	1
Ø50-20	TE001600502014	PN16	64	134	35	73	0,208	1
Ø50-25	TE001600502514	PN16	64	134	39	77	0,214	1
Ø50-32	TE001600503214	PN16	64	134	43	81	0,218	1
Ø50-40	TE001600504014	PN16	64	134	48	86	0,220	1
Ø63-20	TE001600632014	PN16	79	134	37	87	0,262	1
Ø63-25	TE001600632514	PN16	79	134	40	90	0,267	1
Ø63-32	TE001600633214	PN16	78	135	46	95	0,265	1
Ø63-40	TE001600634014	PN16	77	134	55	100	0,250	1
Ø63-50	TE001600635014	PN16	78	151	54	98	0,330	1
Ø75-32	TE001600753214	PN16	92	185	45	100	0,520	1
Ø75-40	TE001600754014	PN16	92	185	45	100	0,540	1
Ø75-50	TE001600755014	PN16	92	185	45	100	0,535	1
*Ø75-63	TE001600756317	PN16	95	375	60	115	1,040	1
Ø90-20	TE001600902014	PN16	115	193	60	120	0,640	1
Ø90-25	TE001600902514	PN16	115	193	63	124	0,645	1
Ø90-32	TE001600903214	PN16	115	193	65	126	0,655	1
Ø90-40	TE001600904014	PN16	115	193	67	128	0,670	1
Ø90-50	TE001600905014	PN16	115	193	67	128	0,700	1
Ø90-63	TE001600906314	PN16	115	193	67	128	0,730	1
Ø90-75	TE001600907514	PN16	115	193	67	128	0,750	1
*Ø110-20	TE001601102017	PN16	133	393	35	150	1,959	1
*Ø110-25	TE001601102517	PN16	133	393	55	125	1,954	1
*Ø110-32	TE001601103217	PN16	133	393	60	135	1,962	1
Ø110-40	TE001601104014	PN16	139	227	68	143	1,260	1
Ø110-50	TE001601105014	PN16	137	225	67	149	1,267	1
Ø110-63	TE001601106314	PN16	135	225	66	147	1,270	1
*Ø110-75	TE001601107517	PN16	133	459	70	142	2,250	1
Ø110-90	TE001601109014	PN16	137	253	84	162	1,600	1
*Ø125-50	TE001601255017	PN16	152	517	45	167	3,272	1
*Ø125-63	TE001601256317	PN16	152	517	60	140	3,220	1
*Ø125-75	TE001601257517	PN16	152	517	65	202	3,389	1
Ø125-90	TE001601259014	PN16	151	255	86	175	1,896	1
Ø125-110	TE001612511014	PN16	151	255	86	171	1,900	1
Ø140-90	TE001601409014	PN16	170	283	85	174	2,000	1
Ø140-110	TE001614011014	PN16	170	283	85	174	2,100	1
Ø140-125	TE001614012514	PN16	170	283	95	184	2,200	1
Ø160-50	TE001601605014	PN16	195	275	61	187	2,600	1
Ø160-63	TE001601606314	PN16	195	275	61	187	2,655	1



EF İNEGAL TE 90° EF REDUCED TEE 90° ЭФ ТРОЙНИК-ПЕРЕХОДНИК 90°

Elektrofuzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1



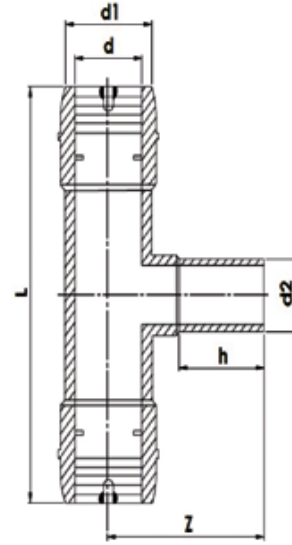
d-d2	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
*Ø160-75	TE001601607517	PN16	195	495	70	165	5,075	1
Ø160-90	TE001601609014	PN16	195	275	84	197	2,720	1
Ø160-110	TE001616011014	PN16	195	277	85	196	2,555	1
Ø160-125	TE001616012514	PN16	195	280	90	205	2,830	1
Ø160-140	TE001616014014	PN16	195	280	90	205	2,900	1
*Ø180-90	TE001601809017	PN16	211	606	95	455	6,648	1
*Ø180-110	TE001618011017	PN16	211	606	99	455	6,865	1
*Ø180-125	TE001618012517	PN16	211	606	100	455	6,800	1
*Ø180-160	TE001618016017	PN16	211	606	105	455	7,000	1
*Ø200-63	TE001602006317	PN16	230	655	63	495	8,790	1
*Ø200-75	TE001602007517	PN16	230	655	78	495	9,100	1
*Ø200-90	TE001602009017	PN16	230	655	80	495	9,137	1
*Ø200-110	TE001620011017	PN16	230	655	82	495	9,180	1
*Ø200-125	TE001620012517	PN16	230	655	95	495	9,150	1
*Ø200-140	TE001620014017	PN16	230	655	98	495	9,500	1
*Ø200-160	TE001620016017	PN16	230	655	102	495	9,680	1
*Ø200-180	TE001620018017	PN16	230	655	110	495	10,162	1
*Ø225-110	TE001622511017	PN16	256	658	85	515	10,621	1
*Ø225-160	TE001622516017	PN16	256	658	100	515	11,157	1
*Ø225-200	TE001622520017	PN16	256	658	110	515	11,600	1
*Ø250-90	TE001002509017	PN10	302	669	82	220	14,400	1
	TE001602509017	PN16	302	669	82	220	17,050	1
	TE001025011017	PN10	302	694	83	240	14,270	1
*Ø250-110	TE001625011017	PN16	302	694	83	240	16,610	1
	TE001025012517	PN10	302	699	97	260	14,600	1
*Ø250-125	TE001625012517	PN16	302	699	97	260	17,050	1
	TE001025014017	PN10	302	694	93	240	14,330	1
*Ø250-140	TE001625014017	PN16	302	699	85	320	17,276	1
	TE001025016017	PN10	302	694	100	260	14,530	1
*Ø250-160	TE001625016017	PN16	302	694	100	260	17,020	1
	TE001025018017	PN10	302	799	90	295	17,401	1
*Ø250-180	TE001625018017	PN16	302	799	95	305	19,711	1
	TE001028011017	PN10	350	720	85	250	20,980	1
*Ø280-110	TE001628011017	PN16	350	710	85	250	23,765	1
	TE001028012517	PN10	350	710	80	295	23,078	1
*Ø280-125	TE001628012517	PN16	350	710	80	300	24,175	1
	TE001028016017	PN10	350	710	98	260	22,960	1
*Ø280-160	TE001628016017	PN16	350	710	98	260	24,035	1
	TE001003159017	PN10	380	775	87	304	26,442	1
*Ø315-90	TE001603159017	PN16	380	775	80	302	30,041	1
	TE001031511017	PN10	380	775	80	265	26,345	1
*Ø315-110	TE001631511017	PN16	380	775	80	265	29,907	1
	TE001031512517	PN10	380	775	80	312	26,381	1
*Ø315-125	TE001631512517	PN16	380	775	80	312	30,777	1
	TE001031516017	PN10	380	775	100	290	26,150	1
*Ø315-160	TE001631516017	PN16	380	780	100	295	30,650	1
	TE001031518017	PN10	380	775	90	327	26,820	1
*Ø315-180	TE001631518017	PN16	380	775	95	337	31,117	1

EF İNEGAL TE 90° EF REDUCED TEE 90° ЭФ ТРОЙНИК-ПЕРЕХОДНИК 90°

Elektrofizyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d2	Article No	Bar	d1	L	L1	Z	Weight (kg)	Pack (pc)
*Ø315-200	TE001031520017	PN10	380	775	120	310	26,600	1
	TE001631520017	PN16	380	775	120	305	30,750	1
*Ø315-225	TE001031522517	PN10	380	935	110	315	30,600	1
	TE001631522517	PN16	380	930	125	392	37,063	1
*Ø315-250	TE001031525017	PN10	380	930	125	315	31,485	1
	TE001631525017	PN16	380	930	125	315	36,070	1
*Ø355-110	TE001035511017	PN10	410	688	85	290	26,900	1
	TE001635511017	PN16	428	688	85	290	35,506	1
*Ø355-125	TE001035512517	PN10	410	688	80	332	27,439	1
	TE001635512517	PN16	428	688	80	337	36,290	1
*Ø355-250	TE001035525017	PN10	410	838	150	327	31,500	1
	TE001635525017	PN16	428	838	150	327	42,266	1
*Ø400-250	TE001040025017	PN10	460	891	150	350	40,500	1
	TE001640025017	PN16	489	891	150	350	56,130	1
*Ø450-90	TE001004509017	PN10	510	1213	85	830	79,505	1
	TE001604509017	PN16	557	1213	85	810	110,534	1
*Ø450-125	TE001045012517	PN10	510	1213	95	785	79,408	1
	TE001645012517	PN16	557	1213	85	745	110,526	1
*Ø450-180	TE001045018017	PN10	510	1213	90	755	79,502	1
	TE001645018017	PN16	557	1213	90	735	110,829	1
*Ø450-225	TE001045022517	PN10	510	1213	115	770	80,807	1
	TE001645022517	PN16	557	1213	115	795	121,535	1
*Ø450-315	TE001045031517	PN10	510	1213	130	670	80,021	1
	TE001645031517	PN16	557	1213	140	705	114,685	1

* İşareti olan ürünler KİT'tir./ *Products which marked are specially produced.
2 tarafı ayrı ayrı kaynatılabilir. / 2 side seperate fusion zone.



EF REDÜKSİYON EF REDUCER ЭФ ПЕРЕХОДНИК

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

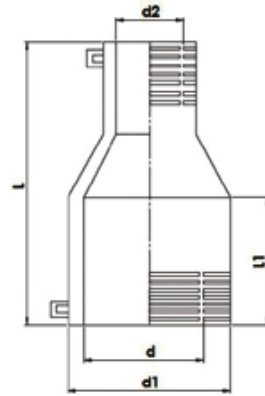


d-d2	Article No	Bar	d1	L	L1	Weight (kg)	Pack (pc)
*Ø25-20	RD001600252017	PN16	36	150	76	0,084	1
*Ø32-20	RD001600322017	PN16	43	180	86	0,111	1
*Ø32-25	RD001600322517	PN16	43	187	91	0,121	1
*Ø40-20	RD001600402017	PN16	53	179	85	0,136	1
*Ø40-25	RD001600402517	PN16	53	181	85	0,146	1
*Ø40-32	RD001600403217	PN16	53	181	85	0,162	1
*Ø50-25	RD001600502517	PN16	65	189	89	0,199	1
*Ø50-32	RD001600503217	PN16	65	195	89	0,221	1
*Ø50-40	RD001600504017	PN16	65	224	114	0,277	1
*Ø63-20	RD001600632017	PN16	80	200	98	0,273	1
*Ø63-25	RD001600632517	PN16	80	203	98	0,303	1
Ø63-32	RD001600633214	PN16	78	106	55	0,155	1
Ø63-40	RD001600634014	PN16	78	107	51	0,165	1
*Ø63-50	RD001600635017	PN16	80	206	98	0,382	1
*Ø75-20	RD001600752017	PN16	95	303	123	0,477	1
*Ø75-25	RD001600752517	PN16	95	305	123	0,486	1
*Ø75-32	RD001600753217	PN16	95	250	123	0,485	1
*Ø75-40	RD001600754017	PN16	95	250	125	0,522	1
*Ø75-50	RD001600755017	PN16	95	264	125	0,579	1
*Ø75-63	RD001600756317	PN16	95	263	120	0,660	1
*Ø90-32	RD001600903217	PN16	110	282	136	0,672	1
*Ø90-40	RD001600904017	PN16	110	341	141	0,775	1
*Ø90-50	RD001600905017	PN16	110	285	141	0,779	1
Ø90-63	RD001600906314	PN16	116	146	66	0,350	1
Ø90-75	RD001600907514	PN16	116	146	66	0,400	1
*Ø110-50	RD001001105017	PN10	133	305	162	0,989	1
	RD001601105017	PN16	133	305	162	1,071	1
Ø110-63	RD001601106314	PN16	135	161	77	0,602	1
*Ø110-75	RD001001107517	PN10	133	372	157	1,332	1
	RD001601107517	PN16	133	322	162	1,315	1
Ø110-90	RD001601109014	PN16	141	170	80	0,750	1
*Ø125-50	RD001001255017	PN10	152	395	169	1,435	1
	RD001601255017	PN16	152	377	169	1,493	1
Ø125-63	RD001601256314	PN16	150	180	85	0,694	1
*Ø125-75	RD001001257517	PN10	152	407	169	1,650	1
	RD001601257517	PN16	152	345	170	1,652	1
*Ø125-90	RD001001259017	PN10	152	353	169	1,641	1
	RD001601259017	PN16	152	353	169	1,820	1
*Ø125-110	RD001012511017	PN10	152	365	159	1,855	1
	RD001612511017	PN16	152	365	159	2,090	1
*Ø140-90	RD001001409017	PN10	163	424	178	2,040	1
	RD001601409017	PN16	163	354	178	2,090	1
*Ø140-110	RD001014011017	PN10	163	364	178	2,080	1
	RD001614011017	PN16	163	369	178	2,375	1
*Ø140-125	RD001014012517	PN10	163	371	178	2,380	1
	RD001614012517	PN16	163	376	178	2,650	1
*Ø160-63	RD001001606317	PN10	195	425	188	2,370	1
	RD001601606317	PN16	195	410	188	2,619	1

EF REDÜKSİYON EF REDUCER ЭФ ПЕРЕХОДНИК

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

d-d2	Article No	Bar	d1	L	L1	Weight (kg)	Pack (pc)
*Ø160-75	RD001001607517	PN10	195	433	188	2,504	1
	RD001601607517	PN16	195	438	188	2,795	1
*Ø160-90	RD001001609017	PN10	195	369	188	2,480	1
	RD001601609017	PN16	195	379	188	2,815	1
Ø160-110	RD001616011014	PN16	191	221	93	1,734	1
*Ø160-125	RD001016012517	PN10	195	386	183	2,982	1
	RD001616012517	PN16	195	386	183	3,344	1
*Ø160-140	RD001016014017	PN10	195	395	183	3,115	1
	RD001616014017	PN16	195	395	183	3,560	1
*Ø180-110	RD001018011017	PN10	218	423	201	3,432	1
	RD001618011017	PN16	218	423	201	3,825	1
*Ø180-125	RD001018012517	PN10	218	425	201	3,717	1
	RD001618012517	PN16	218	425	201	4,195	1
*Ø180-140	RD001018014017	PN10	218	424	201	3,887	1
	RD001618014017	PN16	218	424	201	4,480	1
*Ø180-160	RD001018016017	PN10	218	434	201	4,453	1
	RD001618016017	PN16	218	434	201	5,100	1
*Ø200-63	RD001002006317	PN10	245	483	218	4,587	1
	RD001602006317	PN16	245	483	218	5,048	1
*Ø200-75	RD001002007517	PN10	245	483	218	4,789	1
	RD001602007517	PN16	245	483	218	5,186	1
*Ø200-90	RD001002009017	PN10	245	489	218	4,883	1
	RD001602009017	PN16	245	489	218	5,359	1
*Ø200-110	RD001020011017	PN10	245	440	218	4,945	1
	RD001620011017	PN16	245	440	218	5,380	1
*Ø200-125	RD001020012517	PN10	245	452	208	5,120	1
	RD001620012517	PN16	245	442	218	5,730	1
*Ø200-140	RD001020014017	PN10	245	446	223	5,240	1
	RD001620014017	PN16	245	446	223	5,780	1
*Ø200-160	RD001020016017	PN10	245	446	223	5,892	1
	RD001620016017	PN16	245	456	218	6,500	1
*Ø200-180	RD001020018017	PN10	245	449	223	6,380	1
	RD001620018017	PN16	245	454	218	7,145	1
*Ø225-110	RD001022511017	PN10	273	463	236	6,077	1
	RD001622511017	PN16	273	458	236	6,745	1
*Ø225-125	RD001022512517	PN10	273	470	236	6,291	1
	RD001622512517	PN16	273	535	231	7,502	1
*Ø225-140	RD001022514017	PN10	273	464	231	6,355	1
	RD001622514017	PN16	273	544	231	7,718	1
*Ø225-160	RD001022516017	PN10	273	464	236	7,127	1
	RD001622516017	PN16	273	469	231	7,845	1
*Ø225-180	RD001022518017	PN10	273	497	236	7,877	1
	RD001622518017	PN16	273	537	211	9,047	1
*Ø225-200	RD001022520017	PN10	273	484	231	8,880	1
	RD001622520017	PN16	273	484	211	9,730	1
*Ø250-75	RD001002507517	PN10	273	606	216	6,968	1
	RD001602507517	PN16	273	551	231	7,273	1

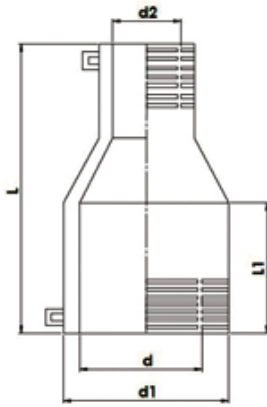


EF REDÜKSİYON EF REDUCER ЭФ ПЕРЕХОДНИК

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

d-d2	Article No	Bar	d1	L	L1	Weight (kg)	Pack (pc)
*Ø250-160	RD001025016017	PN10	302	520	227	8,607	1
	RD001625016017	PN16	302	520	242	9,312	1
*Ø250-200	RD001025020017	PN10	302	535	227	10,358	1
	RD001625020017	PN16	302	530	242	11,597	1
*Ø250-225	RD001025022517	PN10	302	533	227	11,430	1
	RD001625022517	PN16	302	533	222	12,090	1
*Ø280-110	RD001028011017	PN10	350	612	265	11,093	1
	RD001628011017	PN16	350	607	265	12,303	1
*Ø280-140	RD001028014017	PN10	350	613	265	11,352	1
	RD001628014017	PN16	350	598	265	12,547	1
*Ø280-200	RD001028020017	PN10	350	568	265	13,287	1
	RD001628020017	PN16	350	553	265	14,595	1
*Ø280-225	RD001028022517	PN10	350	576	265	14,497	1
	RD001628022517	PN16	350	556	260	15,530	1
*Ø280-250	RD001028025017	PN10	350	567	260	15,480	1
	RD001628025017	PN16	350	572	260	16,802	1
*Ø315-160	RD001031516017	PN10	380	560	283	13,920	1
	RD001631516017	PN16	380	555	278	15,635	1
*Ø315-180	RD001031518017	PN10	380	619	278	14,845	1
	RD001631518017	PN16	380	639	283	16,858	1
*Ø315-200	RD001031520017	PN10	380	576	278	15,675	1
	RD001631520017	PN16	380	576	283	17,437	1
*Ø315-250	RD001031525017	PN10	380	585	278	17,250	1
	RD001631525017	PN16	380	580	278	19,685	1
*Ø315-280	RD001031528017	PN10	380	608	268	20,375	1
	RD001631528017	PN16	380	593	278	22,015	1
*Ø355-250	RD001035525017	PN10	410	616	289	18,740	1
	RD001635525017	PN16	428	611	284	23,688	1
*Ø355-280	RD001035528017	PN10	410	729	289	26,402	1
	RD001635528017	PN16	428	704	289	28,152	1
*Ø400-160	RD001040016017	PN10	460	663	271	19,153	1
	RD001640016017	PN16	489	658	271	24,739	1
*Ø400-250	RD001040025017	PN10	460	808	271	25,211	1
	RD001640025017	PN16	489	613	276	28,690	1
*Ø400-315	RD001040031517	PN10	460	623	271	26,310	1
	RD001640031517	PN16	489	638	251	34,512	1
*Ø400-355	RD001040035517	PN10	460	625	261	27,555	1
	RD001640035517	PN16	489	620	261	36,843	1
*Ø450-180	RD001045018017	PN10	510	848	312	31,441	1
	RD001645018017	PN16	557	838	312	42,695	1
*Ø450-315	RD001045031517	PN10	510	804	312	38,110	1
	RD001645031517	PN16	557	839	312	52,649	1
*Ø500-315	RD001050031517	PN10	570	888	325	48,250	1
	RD001650031517	PN16	615	923	325	67,926	1

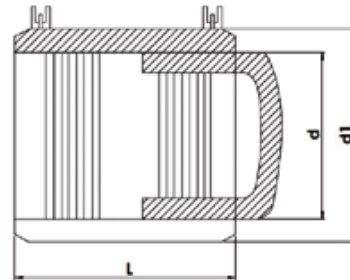
*İşareti olan ürünler KİT'tir. / *The marked products are KIT



EF KEP EF END CAP ЭФ ЗАГЛУШКА

Elektrofüzyon / Electrofusion / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	d1	L	Weight (kg)	Pack (pc)
Ø20	KE001600002014	PN16	30	75	0,038	1
Ø25	KE001600002514	PN16	36	81	0,049	1
Ø32	KE001600003214	PN16	43	87	0,068	1
Ø40	KE001600004014	PN16	53	90	0,100	1
Ø50	KE001600005014	PN16	65	104	0,159	1
Ø63	KE001600006314	PN16	80	112	0,245	1
Ø75	KE001600007514	PN16	95	125	0,412	1
Ø90	KE001600009014	PN16	110	137	0,585	1
Ø110	KE001600011014	PN16	144	153	0,887	1
Ø125	KE001600012514	PN16	149	170	1,290	1
Ø140	KE001600014014	PN16	169	173	1,520	1
Ø160	KE001600016014	PN16	191	189	2,198	1
Ø180	KE001600018014	PN16	217	201	3,072	1
Ø200	KE001600020014	PN16	241	212	4,509	1
Ø225	KE001600022514	PN16	276	231	5,857	1
Ø250	KE001600025014	PN16	301	245	7,274	1
Ø280	KE001600028014	PN16	348	256	10,506	1
Ø315	KE001600031514	PN16	382	277	13,750	1
Ø355	KE001600035514	PN16	428	279	17,489	1
Ø400	KE001600040014	PN16	489	276	23,747	1



Enjeksiyon - Konfeksiyon & KİT Ek Parçaları

Injection - Confection & KIT Fittings



45° DİRSEK 45° ELBOW 45° ОТВОД

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

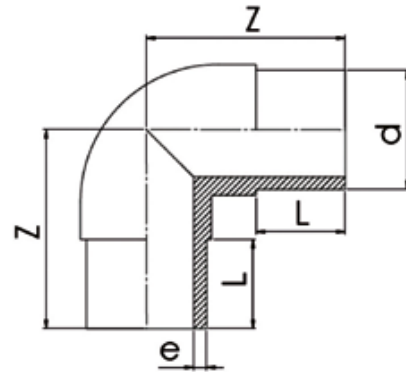
d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø20	DR451600002011	PN16	40	70	2,0	0,015	120
Ø25	DR451600002511	PN16	40	75	2,3	0,025	120
Ø32	DR451600003211	PN16	55	75	3,0	0,050	100
Ø40	DR451600004011	PN16	55	82	3,7	0,076	60
Ø50	DR451600005011	PN16	63	86	4,6	0,120	50
Ø63	DR451000006311	PN10	63	93	3,8	0,170	25
	DR451600006311	PN16	63	93	5,8	0,220	25
Ø75	DR451000007511	PN10	71	99	4,5	0,240	40
	DR451600007511	PN16	69	99	6,8	0,320	40
Ø90	DR451000009011	PN10	78	109	5,4	0,450	22
	DR451600009011	PN16	78	109	8,2	0,500	22
Ø110	DR451000011011	PN10	83	120	6,6	0,650	20
	DR451600011011	PN16	83	120	10,0	0,820	20
Ø125	DR451000012511	PN10	98	137	7,4	0,920	8
	DR451600012511	PN16	98	137	11,4	1,181	8
Ø140	DR451000014011	PN10	97	142	8,3	1,420	6
	DR451600014011	PN16	97	142	12,7	1,512	6
Ø160	DR451000016011	PN10	100	153	9,5	1,530	4
	DR451600016011	PN16	102	153	14,6	2,070	4
Ø180	DR451000018011	PN10	108	155	10,7	1,950	3
	DR451600018011	PN16	108	155	16,4	2,700	3
Ø200	DR451000020011	PN10	117	173	11,9	2,690	2
	DR451600020011	PN16	120	173	18,2	3,700	2
Ø225	DR451000022511	PN10	126	223	13,4	4,440	1
	DR451600022511	PN16	123	222	20,5	6,020	1
Ø250	DR451000025011	PN10	129	218	14,8	5,534	1
	DR451600025011	PN16	130	219	22,7	7,680	1
Ø280	DR451000028011	PN10	140	238	16,6	6,926	1
	DR451600028011	PN16	139	238	25,4	9,765	1
Ø315	DR451000031511	PN10	152	255	18,7	9,840	1
	DR451600031511	PN16	148	256	28,6	12,585	1
Ø355	DR451000035511	PN10	164	280	21,1	15,470	1
	DR451000035511	PN16	164	280	32,2	22,500	1
Ø400	DR451000040011	PN10	179	315	23,7	21,920	1
	DR451000040011	PN16	179	315	36,3	32,000	1



90° DİRSEK 90° ELBOW 90° ОТВОД

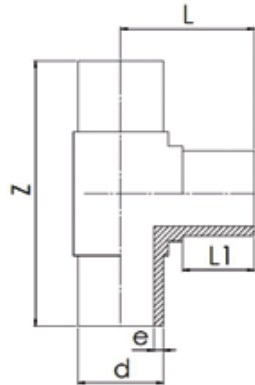
Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø20	DR901600002011	PN16	40	70	2,0	0,023	120
Ø25	DR901600002511	PN16	40	75	2,3	0,036	120
Ø32	DR901600003211	PN16	53	80	3,0	0,050	100
Ø40	DR901600004011	PN16	57	90	3,7	0,090	60
Ø50	DR901600005011	PN16	62,5	100	4,6	0,140	40
Ø63	DR901600006311	PN10	63	102	3,8	0,200	20
	DR901600006311	PN16	63	102	5,8	0,250	20
Ø75	DR901000007511	PN10	69	110	4,5	0,300	37
	DR901000007511	PN16	68	110	6,8	0,400	37
Ø90	DR901000009011	PN10	76,5	125	5,4	0,470	20
	DR901000009011	PN16	76,5	125	8,2	0,620	20
Ø110	DR901000011011	PN10	85	136	6,6	0,780	15
	DR901600011011	PN16	85	136	10,0	1,035	15
Ø125	DR901000012511	PN10	96	152	7,4	1,380	8
	DR901600012511	PN16	96	152	11,4	1,430	8
Ø140	DR901000014011	PN10	96	157	8,3	1,480	6
	DR901600014011	PN16	96	157	12,7	1,900	6
Ø160	DR901000016011	PN10	108	182	9,5	1,940	4
	DR901600016011	PN16	108	182	14,6	2,600	4
Ø180	DR901000018011	PN10	103	182	10,7	2,570	2
	DR901600018011	PN16	103	182	16,4	3,490	2
Ø200	DR901000020011	PN10	119	202	11,9	3,510	2
	DR901600020011	PN16	119	202	18,2	4,800	2
Ø225	DR901000022511	PN10	126	225	13,4	5,070	1
	DR901600022511	PN16	126	225	20,5	6,750	1
Ø250	DR901000025011	PN10	130	230	14,8	5,640	1
	DR901600025011	PN16	138	230	22,7	7,710	1
Ø280	DR901000028011	PN10	137	268	16,6	9,550	1
	DR901600028011	PN16	137	268	25,4	13,000	1
Ø315	DR901000031511	PN10	149	286	18,7	11,900	1
	DR901600031511	PN16	150	286	28,6	16,300	1
Ø355	DR901000035511	PN10	145	345	21,1	15,880	1
	DR901600035511	PN16	145	345	32,2	21,710	1
Ø400	DR901000040011	PN10	150	370	23,7	21,005	1
	DR901000040011	PN16	150	370	36,3	30,180	1



90° EŞİT TE 90° EQUAL TEE 90° ТРОЙНИК

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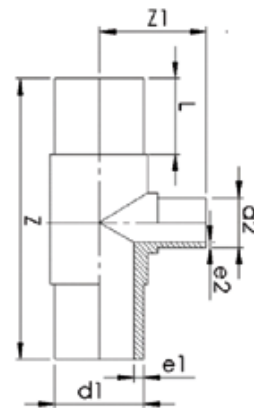


d	Article No	Bar	L	L1	Z	e	Weight (kg)	Pack (pc)
Ø20	TE001600002011	PN16	75	50	145	2,0	0,040	50
Ø25	TE001600002511	PN16	80	50	155	2,3	0,050	50
Ø32	TE001600003211	PN16	86	55	168	3,0	0,080	45
Ø40	TE001600004011	PN16	92	55	185	3,7	0,125	35
Ø50	TE001600005011	PN10	100	60	205	3,0	0,170	25
	TE001600005011	PN16	108	62	208	4,6	0,206	25
Ø63	TE001600006311	PN10	110	62	220	3,8	0,330	30
	TE001600006311	PN16	110	62	220	5,8	0,345	30
Ø75	TE001600007511	PN10	125	70	245	4,5	0,490	21
	TE001600007511	PN16	125	70	245	6,8	0,540	21
Ø90	TE001600009011	PN10	140	80	275	5,4	0,745	14
	TE001600009011	PN16	140	80	275	8,2	0,840	14
Ø110	TE001600011011	PN10	153	88	306	6,6	1,055	8
	TE001600011011	PN16	153	88	306	10,0	1,415	8
Ø125	TE001600012511	PN10	170	100	345	7,4	1,455	5
	TE001600012511	PN16	170	100	345	11,4	2,000	5
Ø140	TE001600014011	PN10	176	95	355	8,3	1,870	4
	TE001600014011	PN16	176	95	355	12,7	2,520	4
Ø160	TE001600016011	PN10	200	102	400	9,5	2,700	3
	TE001600016011	PN16	200	102	400	14,6	3,690	3
Ø180	TE001000018011	PN10	210	105	415	10,7	3,495	2
	TE001000018011	PN16	210	105	415	16,4	4,600	2
Ø200	TE001000020011	PN10	235	115	425	11,9	4,840	1
	TE001000020011	PN16	235	115	425	18,2	6,995	1
Ø225	TE001000022511	PN10	255	122	520	13,4	6,520	1
	TE001000022511	PN16	255	122	520	20,5	9,280	1
Ø250	TE001000025011	PN10	280	130	552	14,8	9,080	1
	TE001000025011	PN16	286	131	560	22,7	11,290	1
Ø280	TE001000028011	PN10	290	145	590	16,6	11,520	1
	TE001000028011	PN16	290	145	590	25,4	15,005	1
Ø315	TE001000031511	PN10	325	155	705	18,7	16,000	1
	TE001000031511	PN16	340	150	670	28,6	21,940	1
Ø355	TE001000035511	PN10	360	155	730	21,1	21,807	1
	TE001000035511	PN16	360	155	730	32,2	29,785	1
Ø400	TE001000040011	PN10	395	155	785	23,7	30,550	1
	TE001000040011	PN16	395	155	785	36,3	41,510	1

90° İNEGAL TE 90° REDUCED TEE 90° ТРОЙНИК-ПЕРЕХОДНИК

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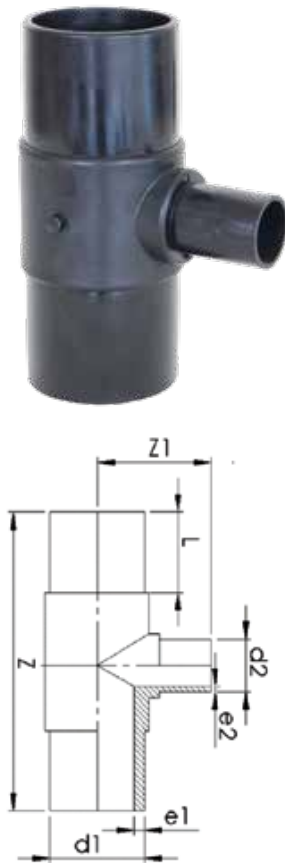
d1-d2	Article No	Bar	Z	Z1	L	e1	e2	Weight (kg)	Pack (pc)
Ø32-20	TE001600322011	PN16	165	80	55	3,0	2,0	0,060	50
Ø32-25	TE001600322511	PN16	165	80	55	3,0	2,3	0,070	50
Ø40-32	TE001600402011	PN16	190	95	55	3,7	2,0	0,117	50
Ø40-32	TE001600403211	PN16	190	95	55	3,7	3,0	0,125	50
Ø50-25	TE001600502511	PN16	205	99	62	4,6	2,3	0,195	50
Ø50-32	TE001600503211	PN16	202	108	61	4,6	3,0	0,190	50
Ø50-40	TE001600504011	PN16	205	102	60	4,6	3,7	0,206	50
Ø63-25	TE001600632511	PN16	188	75	63	5,8	2,3	0,245	35
Ø63-32	TE001600633211	PN16	191	105	65	5,8	3,0	0,250	35
Ø63-40	TE001600634011	PN16	197	107	64	5,8	3,7	0,265	35
Ø63-50	TE001600635011	PN16	206	111	63	5,8	4,6	0,300	35
Ø75-32	TE001000753211	PN10	242	120	71	4,5	2,0	0,480	20
	TE001600753211	PN16	242	120	71	6,8	3,0	0,510	20
Ø75-40	TE001000754011	PN10	241	128	68	4,5	2,4	0,300	20
	TE001600754011	PN16	241	124	70	6,8	3,7	0,505	20
Ø75-50	TE001000755011	PN10	245	120	70	4,5	3,0	0,350	20
	TE001600755011	PN16	242	118	71	6,8	4,6	0,520	20
Ø75-63	TE001000756311	PN10	245	130	70	4,5	3,8	0,414	20
	TE001600756311	PN16	242	129	69	6,8	5,8	0,530	20
Ø90-32	TE001000903211	PN10	250	129	80	5,4	2,0	0,498	15
	TE001600903211	PN16	251	112	78	8,2	3,0	0,650	15
Ø90-40	TE001000904011	PN10	252	130	80	5,4	2,4	0,500	15
	TE001600904011	PN16	251	130	80	8,2	3,7	0,650	15
Ø90-50	TE001000905011	PN10	250	132	78	5,4	3,0	0,610	15
	TE001600905011	PN16	250	130	77	8,2	4,6	0,700	15
Ø90-63	TE001000906311	PN10	251	137	80	5,4	3,8	0,580	15
	TE001600906311	PN16	251	137	80	8,2	5,8	0,658	15
Ø90-75	TE001000907511	PN10	260	127	80	5,4	4,5	0,650	15
	TE001600907511	PN16	259	135	80	8,2	6,8	0,800	15
Ø110-32	TE001001103211	PN10	260	142	82	6,6	2,0	0,910	11
	TE001601103211	PN16	260	142	82	10,0	3,0	0,980	11
Ø110-40	TE001001104011	PN10	260	142	82	6,6	2,4	0,735	10
	TE001601104011	PN16	260	142	82	10,0	3,7	0,975	10
Ø110-50	TE001001105011	PN10	260	138	82	6,6	3,0	0,715	10
	TE001601105011	PN16	260	138	82	10,0	4,6	0,995	10
Ø110-63	TE001001106311	PN10	260	140	83	6,6	3,8	0,900	10
	TE001601106311	PN16	260	140	83	10,0	5,8	0,996	10
Ø110-75	TE001001107511	PN10	271	136	84	6,6	4,5	0,815	10
	TE001601107511	PN16	270	136	84	10,0	6,8	0,810	10
Ø110-90	TE001001109011	PN10	286	147	83	6,6	5,4	0,930	10
	TE001601109011	PN16	286	147	83	10,0	8,2	1,180	10
Ø125-50	TE001001255011	PN10	360	135	95	7,4	3,0	1,000	5
	TE001601255011	PN16	360	140	90	11,4	4,6	1,500	5
Ø125-63	TE001001256311	PN10	313	163	94	7,4	3,8	1,140	5
	TE001601256311	PN16	313	163	94	11,4	5,8	1,535	5
Ø125-75	TE001001257511	PN10	312	160	95	7,4	4,5	1,125	5
	TE001601257511	PN16	312	160	95	11,4	6,8	1,550	5



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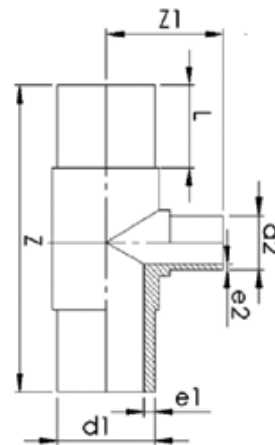
d1-d2	Article No	Bar	Z	Z1	L	e1	e2	Weight (kg)	Pack (pc)
Ø125-90	TE001001259011	PN10	309	173	96	7,4	5,4	1,175	5
	TE001601259011	PN16	309	173	97	11,4	8,2	1,595	5
Ø125-110	TE001012511011	PN10	325	160	97	7,4	6,6	1,290	5
	TE001612511011	PN16	325	160	97	11,4	10,0	1,795	5
Ø140-63	TE001001406311	PN10	395	165	100	8,3	3,8	1,790	4
	TE001601406311	PN16	395	160	100	12,7	5,8	2,300	4
Ø140-75	TE001001407511	PN10	395	160	100	8,3	4,5	1,820	4
	TE001601407511	PN16	395	155	100	12,7	6,8	2,400	4
Ø140-90	TE001001409011	PN10	332	176	100	8,3	5,4	1,540	4
	TE001601409011	PN16	332	176	100	12,7	8,2	2,155	4
Ø140-110	TE001014011011	PN10	332	180	100	8,3	6,6	1,830	4
	TE001614011011	PN16	332	176	95	12,7	10,0	2,150	4
Ø140-125	TE001014012511	PN10	395	170	100	8,3	7,4	1,860	4
	TE001614012511	PN16	320	180	90	12,7	11,4	2,150	4
Ø160-32	TE001001603211	PN10	320	155	100	9,5	2,0	1,625	4
	TE001601603211	PN16	320	155	100	14,6	3,0	2,270	4
Ø160-50	TE001001605011	PN10	320	160	100	9,5	3,0	1,600	4
	TE001601605011	PN16	320	160	100	14,6	4,6	2,200	4
Ø160-63	TE001001606311	PN10	327	178	105	9,5	3,8	1,845	4
	TE001601606311	PN16	327	178	105	14,6	5,8	2,440	4
Ø160-75	TE001001607511	PN10	325	180	105	9,5	4,5	1,790	4
	TE001601607511	PN16	325	180	105	14,6	6,8	2,430	4
Ø160-90	TE001001609011	PN10	325	182	105	9,5	5,4	1,780	4
	TE001601609011	PN16	325	182	105	14,6	8,2	2,470	4
Ø160-110	TE001016011011	PN10	320	180	105	9,5	6,6	1,945	3
	TE001616011011	PN16	320	180	105	14,6	10,0	2,430	3
Ø160-125	TE001016012511	PN10	345	190	105	9,5	7,4	1,940	3
	TE001616012511	PN16	345	190	105	14,6	11,4	2,680	3
Ø160-140	TE001016014011	PN10	396	198	100	9,5	8,3	2,730	3
	TE001616014011	PN16	396	198	100	14,6	12,7	3,610	3
Ø180-90	TE001001809011	PN10	455	195	105	10,7	5,4	3,300	3
	TE001601809011	PN16	455	195	105	16,4	8,2	4,435	3
Ø180-110	TE001018011011	PN10	357	195	108	10,7	6,6	2,525	3
	TE001618011011	PN16	357	195	108	16,4	10,0	3,475	3
Ø180-125	TE001018012511	PN10	355	195	110	10,7	7,4	2,600	2
	TE001618012511	PN16	455	210	105	16,4	11,4	4,587	2
Ø180-140	TE001018014011	PN10	355	200	110	10,7	8,3	2,800	2
	TE001618014011	PN16	455	215	105	16,4	12,7	4,650	2
Ø180-160	TE001018016011	PN10	408	213	110	10,7	9,5	3,110	2
	TE001618016011	PN16	408	213	110	16,4	14,6	4,400	2
Ø200-32	TE001002003211	PN10	420	195	110	11,9	2,0	3,300	2
	TE001602003211	PN16	420	180	110	18,2	3,0	4,650	2
Ø200-63	TE001002006311	PN10	420	200	110	11,9	3,8	3,400	2
	TE001602006311	PN16	420	200	110	18,2	5,8	4,700	2
Ø200-75	TE001002007511	PN10	420	200	110	11,9	4,5	3,400	2
	TE001602007511	PN16	420	200	110	18,2	6,8	4,800	2
Ø200-90	TE001002009011	PN10	420	220	110	11,9	5,4	3,700	2
	TE001602009011	PN16	420	220	110	18,2	8,2	5,050	2



90° İNEGAL TE 90° REDUCED TEE 90° ТРОЙНИК-ПЕРЕХОДНИК

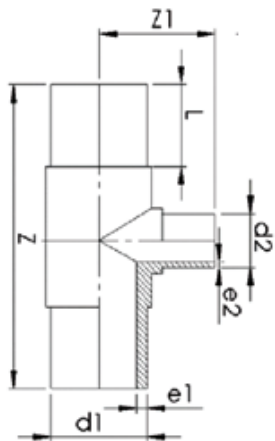
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d1-d2	Article No	Bar	Z	Z1	L	e1	e2	Weight (kg)	Pack (pc)
Ø200-110	TE001020011011	PN10	276	212	120	11,9	6,6	3,230	2
	TE001620011011	PN16	276	212	120	18,2	10,0	4,365	2
Ø200-125	TE001020012511	PN10	420	230	110	11,9	7,4	3,550	2
	TE001620012511	PN16	420	230	110	18,2	11,4	5,100	2
Ø200-140	TE001020014011	PN10	420	230	110	11,9	8,3	3,800	2
	TE001620014011	PN16	420	235	110	18,2	12,7	5,200	2
Ø200-160	TE001020016011	PN10	424	220	122	11,9	9,5	3,835	2
	TE001620016011	PN16	424	220	122	18,2	14,6	5,340	2
Ø200-180	TE001020018011	PN10	420	235	110	11,9	10,7	4,100	2
	TE001620018011	PN16	420	250	110	18,2	16,4	7,360	2
Ø225-90	TE001002259011	PN10	425	225	115	13,4	5,4	4,350	2
	TE001602259011	PN16	425	225	115	20,5	8,2	6,200	2
Ø225-110	TE001022511011	PN10	425	225	115	13,4	6,6	4,310	2
	TE001622511011	PN16	425	225	115	20,5	10,0	6,250	2
Ø225-125	TE001022512511	PN10	425	240	115	13,4	7,4	4,450	2
	TE001622512511	PN16	425	240	115	20,5	11,4	6,000	2
Ø225-140	TE001022514011	PN10	425	245	115	13,4	8,3	4,600	2
	TE001622514011	PN16	425	250	115	20,5	12,7	6,400	2
Ø225-160	TE001022516011	PN10	425	250	115	13,4	9,5	4,850	2
	TE001622516011	PN16	425	255	115	20,5	14,6	6,600	2
Ø225-180	TE001022518011	PN10	425	255	115	13,4	10,7	5,000	2
	TE001622518011	PN16	425	260	115	20,5	16,4	6,800	2
Ø225-200	TE001022520011	PN10	425	260	115	13,4	11,9	5,600	2
	TE001622520011	PN16	425	260	115	20,5	18,2	7,000	2
Ø250-90	TE001002509011	PN10	455	245	130	14,8	5,4	5,900	1
	TE001602509011	PN16	455	245	130	22,7	8,2	7,950	1
Ø250-110	TE001025011011	PN10	455	240	130	14,8	6,6	5,470	1
	TE001625011011	PN16	455	240	130	22,7	10,0	8,000	1
Ø250-125	TE001025012511	PN10	455	260	130	14,8	7,4	5,800	1
	TE001625012511	PN16	455	260	130	22,7	11,4	8,250	1
Ø250-140	TE001025014011	PN10	455	240	130	14,8	8,3	5,530	1
	TE001625014011	PN16	455	240	130	22,7	12,7	5,530	1
Ø250-160	TE001025016011	PN10	455	250	130	14,8	9,5	6,150	1
	TE001625016011	PN16	455	250	130	22,7	14,6	8,200	1
Ø250-180	TE001025018011	PN10	455	255	130	14,8	10,7	7,000	1
	TE001625018011	PN16	455	250	130	22,7	16,4	8,500	1
Ø250-200	TE001025020012	PN10	555	255	130	14,8	11,9	8,310	1
	TE001625020011	PN16	555	255	130	22,7	18,2	10,440	1
Ø250-225	TE001025022511	PN10	555	260	130	14,8	13,4	8,600	1
	TE001625022511	PN16	555	260	130	22,7	20,5	11,000	1
Ø280-110	TE001028011011	PN10	460	250	150	16,6	6,6	8,080	1
	TE001628011011	PN16	460	250	150	25,4	10,0	10,865	1
Ø280-125	TE001028012511	PN10	460	255	150	16,6	7,4	8,200	1
	TE001628012511	PN16	460	255	150	25,4	11,4	11,000	1
Ø280-140	TE001028014011	PN10	460	260	150	16,6	8,3	8,400	1
	TE001628014011	PN16	460	260	150	25,4	12,7	11,200	1



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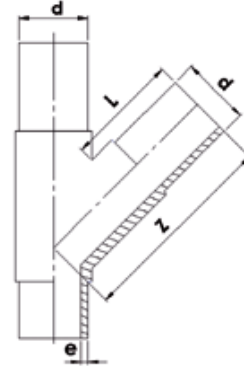


d1-d2	Article No	Bar	Z	Z1	L	e1	e2	Weight (kg)	Pack (pc)
Ø280-160	TE001028016011	PN10	460	260	150	16,6	9,5	10,060	1
	TE001628016011	PN16	460	260	150	25,4	14,6	11,135	1
Ø280-180	TE001028018011	PN10	460	265	150	16,6	10,7	10,200	1
	TE001628018011	PN16	460	265	150	25,4	16,4	11,400	1
Ø280-200	TE001028020011	PN10	460	270	150	16,6	11,9	10,400	1
	TE001628020011	PN16	590	275	135	25,4	18,2	13,580	1
Ø280-225	TE001028022511	PN10	460	275	150	16,6	13,4	11,000	1
	TE001628022511	PN16	590	280	135	25,4	20,5	14,000	1
Ø280-250	TE001028025011	PN10	460	280	150	16,6	14,8	12,000	1
	TE001628025011	PN16	590	285	135	25,4	22,7	15,000	1
Ø315-90	TE001003159011	PN10	510	265	140	18,7	5,4	9,760	1
	TE001603159011	PN16	510	265	140	28,6	8,2	13,900	1
Ø315-110	TE001031511011	PN10	510	265	140	18,7	6,6	10,345	1
	TE001631511011	PN16	510	265	140	28,6	10,0	13,907	1
Ø315-125	TE001031512511	PN10	510	270	140	18,7	7,4	10,450	1
	TE001631512511	PN16	510	270	140	28,6	11,4	14,200	1
Ø315-140	TE001031514011	PN10	510	285	140	18,7	8,3	10,500	1
	TE001631514011	PN16	510	290	140	28,6	12,7	10,150	1
Ø315-160	TE001031516011	PN10	510	290	140	18,7	9,5	10,600	1
	TE001631516011	PN16	510	290	140	28,6	14,6	14,650	1
Ø315-180	TE001031518011	PN10	510	300	140	18,7	10,7	10,800	1
	TE001631518011	PN16	510	300	140	28,6	16,4	14,800	1
Ø315-200	TE001031520011	PN10	510	305	140	18,7	11,9	11,000	1
	TE001631520011	PN16	510	305	140	28,6	18,2	14,750	1
Ø315-225	TE001031522511	PN10	510	315	140	18,7	13,4	14,600	1
	TE001631522511	PN16	510	310	140	28,6	20,5	15,200	1
Ø315-250	TE001031525011	PN10	510	320	140	18,7	14,8	15,485	1
	TE001631525011	PN16	665	315	145	28,6	22,7	20,070	1
Ø315-280	TE001031528011	PN10	510	325	140	18,7	16,6	16,000	1
	TE001631528011	PN16	665	320	145	28,6	25,4	21,000	1
Ø355-110	TE001035511011	PN10	430	290	130	21,1	6,6	10,900	1
	TE001635511011	PN16	430	290	130	32,2	10,0	14,840	1
Ø355-160	TE001035516011	PN10	430	300	130	21,1	9,5	11,330	1
	TE001635516011	PN16	430	300	130	32,2	14,6	15,597	1
Ø355-250	TE001035525011	PN10	580	325	120	21,1	14,8	15,500	1
	TE001635525011	PN16	580	325	120	32,2	22,7	21,600	1
Ø400-110	TE001040011011	PN10	485	315	155	23,7	6,6	16,325	1
	TE001640011011	PN16	485	315	155	36,3	10,0	21,787	1
Ø400-160	TE001040016011	PN10	485	330	145	23,7	9,5	16,530	1
	TE001640016011	PN16	485	330	145	36,3	14,6	22,825	1
Ø400-250	TE001040025011	PN10	630	350	160	23,7	14,8	20,500	1
	TE001640025011	PN16	630	350	160	36,3	22,7	28,700	1

45° ÇATAL TE 45° WYE TEE 45° КОСЫЙ ТРОЙНИК

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

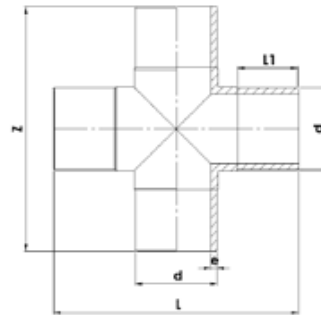
d	Article No	Bar	Z	L	e	Weight (kg)	Pack (pc)
Ø63	CT451000006311	PN10	164	254	3,8	0,342	1
	CT451600006311	PN16	164	254	5,8	0,474	1
Ø75	CT451000017511	PN10	185	284	4,5	0,502	1
	CT451600017511	PN16	185	284	6,8	0,693	1
Ø90	CT451000029011	PN10	213	321	5,4	0,840	1
	CT451600029011	PN16	213	321	8,2	1,150	1
Ø110	CT451000011011	PN10	230	390	6,6	1,526	1
	CT451600011011	PN16	230	390	10,0	1,968	1
Ø125	CT451000012511	PN10	277	412	7,4	2,125	1
	CT451600012511	PN16	277	412	11,4	2,860	1
Ø160	CT451000016011	PN10	300	503	9,5	3,986	1
	CT451600016011	PN16	300	503	14,6	5,225	1
Ø180	CT451000018011	PN10	394	578	10,7	6,470	1
	CT451600018011	PN16	394	578	16,4	8,590	1
Ø200	CT451000020011	PN10	430	630	11,9	8,580	1
	CT451600020011	PN16	430	630	18,2	11,350	1
Ø225	CT451000022511	PN10	475	692	13,4	11,920	1
	CT451600022511	PN16	475	692	20,5	15,790	1
Ø250	CT451000025011	PN10	507	729	14,8	14,840	1
	CT451600025011	PN16	507	729	22,7	20,130	1



90° İSTAVROZ TE 90° CROSS TEE 90° КРЕСТОВИНА

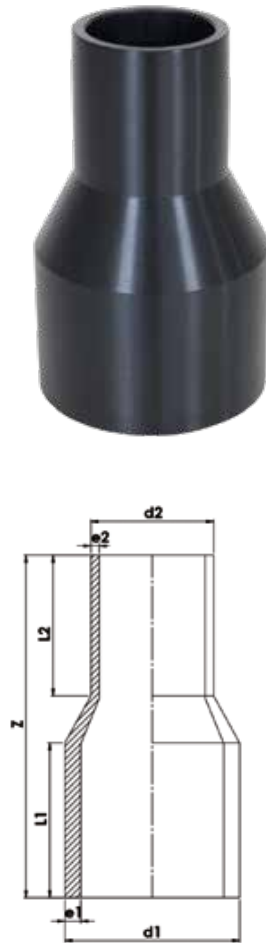
Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

d	Article No	Bar	L	Z	I	Weight (kg)	Pack (pc)
Ø110	TV901011011013	PN10	310	160	105	1,315	1
	TV901611011013	PN16	310	160	105	1,814	1
Ø160	TV901016016013	PN10	400	200	115	3,212	1
	TV901616016013	PN16	400	200	115	4,395	1



REDÜKSİYON REDUCER ПЕРЕХОДНИК

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

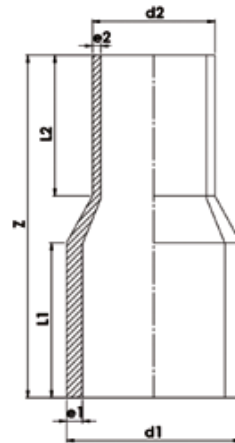


d1- d2	Article No	Bar	Z	L1	L2	e1	e2	Weight (kg)	Pack (pc)
Ø25-20	RD001600252011	PN16	80	40	35	2,3	2,0	0,014	150
Ø32-20	RD001600322011	PN16	125	55	54	3,0	2,0	0,027	150
Ø40-20	RD001600402011	PN16	150	73	57	3,7	2,0	0,040	100
Ø32-25	RD001600322511	PN16	133	58	54	3,0	2,3	0,039	150
Ø40-25	RD001600402511	PN16	148	73	55	3,7	2,3	0,051	80
Ø40-32	RD001600403211	PN16	140	70	50	3,7	3,0	0,057	80
Ø50-20	RD001600502011	PN16	110	45	45	4,6	2,0	0,070	75
Ø50-25	RD001600502511	PN16	152	71	54	4,6	2,3	0,072	80
Ø50-32	RD001600503211	PN16	153	71	52	4,6	3,0	0,072	80
Ø50-40	RD001600504011	PN16	150	70	52	4,6	3,7	0,083	70
Ø63-20	RD001600632011	PN16	120	50	45	5,8	2,0	0,082	50
Ø63-25	RD001600632511	PN16	150	63	52	5,8	2,3	0,085	50
Ø63-32	RD001600633211	PN16	150	63	52	5,8	3,0	0,091	50
Ø63-40	RD001600634011	PN16	150	62	57	5,8	3,7	0,101	50
Ø63-50	RD001600635011	PN16	148	62	57	5,8	4,6	0,118	50
Ø75-32	RD001600753211	PN16	172	70	57	6,8	3,0	0,139	35
Ø75-40	RD001600754011	PN16	172	70	65	6,8	3,7	0,149	35
Ø75-50	RD001600755011	PN16	172	70	64	6,8	4,6	0,176	35
Ø75-63	RD001600756311	PN16	170	70	67	6,8	5,8	0,195	25
Ø90-32	RD001000903211	PN10	182	78	55	5,4	2,0	0,197	25
	RD001600903211	PN16	182	78	55	8,2	3,0	0,300	25
Ø90-40	RD001000904011	PN10	190	80	55	5,4	2,4	0,280	20
	RD001600904011	PN16	190	80	55	8,2	3,7	0,184	20
Ø90-50	RD001000905011	PN10	186	77	50	5,4	3,0	0,186	20
	RD001600905011	PN16	186	77	50	8,2	4,6	0,290	20
Ø90-63	RD001000906311	PN10	187	77	68	5,4	3,8	0,235	22
	RD001600906311	PN16	187	77	68	8,2	5,8	0,320	20
Ø90-75	RD001000907511	PN10	184	82	64	5,4	4,5	0,300	20
	RD001600907511	PN16	184	82	64	8,2	6,8	0,311	20
Ø110-32	RD001001103211	PN10	200	75	57	6,6	2,0	0,291	14
	RD001601103211	PN16	200	75	57	10,0	3,0	0,330	14
Ø110-40	RD001001104011	PN10	200	75	50	6,6	2,4	0,280	14
	RD001601104011	PN16	200	75	50	10,0	3,7	0,296	14
Ø110-50	RD001001105011	PN10	198	75	55	6,6	3,0	0,320	14
	RD001601105011	PN16	198	75	55	10,0	4,6	0,410	14
Ø110-63	RD001001106311	PN10	202	78	55	6,6	3,8	0,328	10
	RD001601106311	PN16	202	78	55	10,0	5,8	0,470	10
Ø110-75	RD001001107511	PN10	197	73	59	6,6	4,5	0,392	10
	RD001601107511	PN16	197	73	59	10,0	6,8	0,495	10
Ø110-90	RD001001109011	PN10	203	77	80	6,6	5,4	0,428	10
	RD001601109011	PN16	203	77	80	10,0	8,2	0,530	10
Ø125-50	RD001001255011	PN10	200	80	60	7,4	3,0	0,430	24
	RD001601255011	PN16	200	80	60	11,4	4,6	0,474	24
Ø125-63	RD001001256311	PN10	202	79	60	7,4	3,8	0,460	24
	RD001601256311	PN16	202	79	60	11,4	5,8	0,505	24
Ø125-75	RD001001257511	PN10	200	80	72	7,4	4,5	0,410	24
	RD001601257511	PN16	200	80	72	11,4	6,8	0,560	24
Ø125-90	RD001001259011	PN10	198	79	73	7,4	5,4	0,460	24
	RD001601259011	PN16	198	79	73	11,4	8,2	0,649	24

REDÜKSİYON REDUCER ПЕРЕХОДНИК

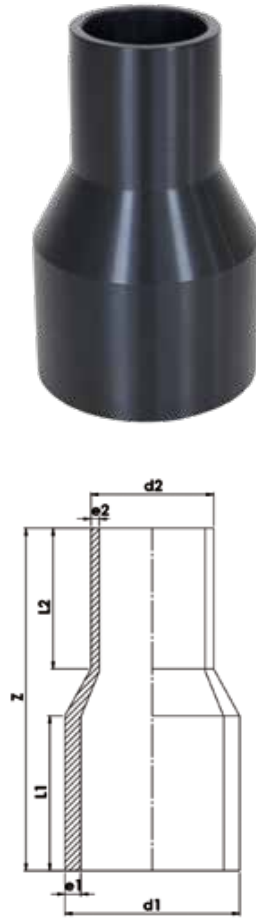
Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d1- d2	Article No	Bar	Z	L1	L2	e1	e2	Weight (kg)	Pack (pc)
Ø125-110	RD0010012511011	PN10	198	79	71	7,4	6,6	0,590	16
	RD001612511011	PN16	198	79	71	11,4	10,0	0,721	16
Ø140-50	RD001001405011	PN10	221	85	72	8,3	3,0	0,475	12
	RD001601405011	PN16	221	85	72	12,7	4,6	0,635	12
Ø140-63	RD001001406311	PN10	223	85	75	8,3	3,8	0,500	11
	RD001601406311	PN16	223	85	75	12,7	5,8	0,690	11
Ø140-75	RD001001407511	PN10	223	79	72	8,3	4,5	0,567	11
	RD001601407511	PN16	223	79	72	12,7	6,8	0,755	11
Ø140-90	RD001001409011	PN10	220	93	83	8,3	5,4	0,720	9
	RD001601409011	PN16	220	93	83	12,7	8,2	0,850	9
Ø140-110	RD001014011011	PN10	218	90	85	8,3	6,6	0,741	9
	RD001614011011	PN16	218	90	85	12,7	10,0	0,925	9
Ø140-125	RD001014012511	PN10	221	96	91	8,3	7,4	0,790	9
	RD001614012511	PN16	221	96	91	12,7	11,4	1,040	9
Ø160-50	RD001001605011	PN10	235	90	75	9,5	3,0	1,240	10
	RD001601605011	PN16	235	90	75	14,6	4,6	1,290	10
Ø160-63	RD001001606311	PN10	227	90	65	9,5	3,8	0,960	9
	RD001601606311	PN16	227	90	65	14,6	5,8	1,045	9
Ø160-75	RD001001607511	PN10	220	90	70	9,5	4,5	0,766	9
	RD001601607511	PN16	220	90	70	14,6	6,8	1,000	9
Ø160-90	RD001001609011	PN10	228	92	75	9,5	5,4	0,875	8
	RD001601609011	PN16	228	92	75	14,6	8,2	1,165	8
Ø160-110	RD001016011011	PN10	230	98	87	9,5	6,6	0,850	8
	RD001616011011	PN16	230	88	87	14,6	10,0	1,120	8
Ø160-125	RD001016012511	PN10	231	91	76	9,5	7,4	1,020	8
	RD001616012511	PN16	231	91	76	14,6	11,4	1,260	8
Ø160-140	RD001016014011	PN10	230	91	76	9,5	8,3	0,900	8
	RD001616014011	PN16	230	91	76	14,6	12,7	1,460	8
Ø180-63	RD001001806311	PN10	256	102	86	10,7	3,8	1,105	7
	RD001601806311	PN16	256	102	86	16,4	5,8	1,150	7
Ø180-75	RD001001807511	PN10	242	105	77	10,7	4,5	1,213	7
	RD001601807511	PN16	242	105	77	16,4	6,8	1,245	7
Ø180-90	RD001001809011	PN10	256	100	91	10,7	5,4	0,930	7
	RD001601809011	PN16	256	100	91	16,4	8,2	1,360	7
Ø180-110	RD001018011011	PN10	254	98	95	10,7	6,6	1,015	7
	RD001618011011	PN16	254	98	95	16,4	10,0	1,380	7
Ø180-125	RD001018012511	PN10	254	101	98	10,7	7,4	1,095	6
	RD001618012511	PN16	254	101	98	16,4	11,4	1,512	6
Ø180-140	RD001018014011	PN10	251	104	93	10,7	8,3	1,220	6
	RD001618014011	PN16	251	104	93	16,4	12,7	1,724	6
Ø180-160	RD001018016011	PN10	250	104	99	10,7	9,5	1,300	5
	RD001618016011	PN16	250	104	99	16,4	14,6	1,800	5
Ø200-90	RD001002009011	PN10	250	104	90	11,9	5,4	1,263	5
	RD001602009011	PN16	250	104	90	18,2	8,2	1,735	5
Ø200-110	RD001020011011	PN10	265	104	78	11,9	6,6	1,420	5
	RD001620011011	PN16	265	104	78	18,2	10,0	1,845	5
Ø200-125	RD001020012511	PN10	266	104	84	11,9	7,4	1,506	5
	RD001620012511	PN16	266	104	84	18,2	11,4	2,005	5
Ø200-140	RD001020014011	PN10	264	104	96	11,9	8,3	1,593	5
	RD001620014011	PN16	264	104	96	18,2	12,7	2,140	5



REDÜKSİYON REDUCER ПЕРЕХОДНИК

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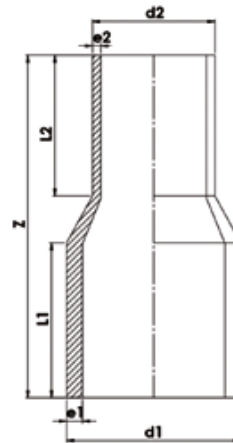


d1- d2	Article No	Bar	Z	L1	L2	e1	e2	Weight (kg)	Pack (pc)
Ø200-160	RD001020016011	PN10	262	104	98	11,9	9,5	1,760	5
	RD001620016011	PN16	262	104	98	18,2	14,6	2,245	5
Ø200-180	RD001020018011	PN10	258	104	105	11,9	10,7	2,180	5
	RD001620018011	PN16	258	104	105	18,2	16,4	2,460	5
Ø225-90	RD001002259011	PN10	270	104	84	13,4	5,4	2,422	1
	RD001602259011	PN16	270	104	84	20,5	8,2	1,642	1
Ø225-110	RD001022511011	PN10	270	104	84	13,4	6,6	1,727	1
	RD001622511011	PN16	270	104	84	20,5	10,0	2,290	1
Ø225-125	RD001022512511	PN10	270	104	83	13,4	7,4	1,730	1
	RD001622512511	PN16	270	104	83	20,5	11,4	2,520	1
Ø225-140	RD001022514011	PN10	270	104	83	13,4	8,3	1,790	1
	RD001622514011	PN16	270	104	83	20,5	12,7	2,576	1
Ø225-160	RD001022516011	PN10	270	104	90	13,4	9,5	1,740	1
	RD001622516011	PN16	270	104	90	20,5	14,6	3,126	1
Ø225-180	RD001022518011	PN10	270	104	98	13,4	10,7	2,030	1
	RD001622518011	PN16	270	104	98	20,5	16,4	2,972	1
Ø225-200	RD001022520011	PN10	270	104	100	13,4	11,9	2,380	1
	RD001622520011	PN16	270	104	100	20,5	18,2	2,310	1
Ø250-110	RD001025011011	PN10	320	104	110	14,8	6,6	2,270	1
	RD001625011011	PN16	320	104	110	22,7	10,0	3,125	1
Ø250-125	RD001025012511	PN10	275	104	80	14,8	7,4	3,198	1
	RD001625012511	PN16	275	104	80	22,7	11,4	4,760	1
Ø250-140	RD001025014011	PN10	275	104	90	14,8	8,3	3,198	1
	RD001625014011	PN16	275	104	90	22,7	12,7	2,334	1
Ø250-160	RD001025016011	PN10	313	104	110	14,8	9,5	1,742	1
	RD001625016011	PN16	313	104	110	22,7	14,6	3,130	1
Ø250-180	RD001025018011	PN10	315	104	111	14,8	10,7	2,780	1
	RD001625018011	PN16	315	104	111	22,7	16,4	4,038	1
Ø250-200	RD001025020011	PN10	315	104	100	14,8	11,9	2,923	1
	RD001625020011	PN16	315	104	100	22,7	18,2	4,020	1
Ø250-225	RD001025022511	PN10	315	104	120	14,8	13,4	3,670	1
	RD001625022511	PN16	315	104	120	22,7	20,5	4,760	1
Ø280-110	RD001028011011	PN10	340	104	102	16,6	6,6	3,280	1
	RD001628011011	PN16	340	104	102	25,4	10,0	4,520	1
Ø280-125	RD001028012511	PN10	340	104	105	16,6	7,4	3,340	1
	RD001628012511	PN16	340	104	105	25,4	11,4	4,524	1
Ø280-140	RD001028014011	PN10	340	104	105	16,6	8,3	3,344	1
	RD001628014011	PN16	340	104	105	25,4	12,7	4,524	1
Ø280-160	RD001028016011	PN10	340	104	110	16,6	9,5	3,460	1
	RD001628016011	PN16	340	104	110	25,4	14,6	5,054	1
Ø280-180	RD001028018011	PN10	340	104	120	16,6	10,7	3,462	1
	RD001628018011	PN16	340	104	120	25,4	16,4	5,058	1
Ø280-200	RD001028020011	PN10	340	104	120	16,6	11,9	3,630	1
	RD001628020011	PN16	340	104	120	25,4	18,2	5,560	1
Ø280-225	RD001028022511	PN10	340	104	135	16,6	13,4	3,820	1
	RD001628022511	PN16	340	104	135	25,4	20,5	4,347	1
Ø280-250	RD001028025011	PN10	340	104	140	16,6	14,8	4,450	1
	RD001628025011	PN16	340	104	140	25,4	22,7	7,090	1

REDÜKSİYON REDUCER ПЕРЕХОДНИК

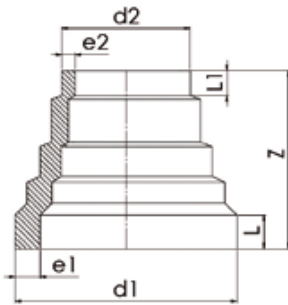
Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d1- d2	Article No	Bar	Z	L1	L2	e1	e2	Weight (kg)	Pack (pc)
Ø315-160	RD001031516011	PN10	335	104	95	18,7	9,5	4,560	1
	RD001631516011	PN16	335	104	95	28,6	14,6	4,560	1
Ø315-180	RD001031518011	PN10	335	104	110	18,7	10,7	4,236	1
	RD001631518011	PN16	335	104	110	28,6	16,4	4,775	1
Ø315-200	RD001031520011	PN10	360	104	130	18,7	11,9	5,170	1
	RD001631520011	PN16	360	104	130	28,6	18,2	7,600	1
Ø315-225	RD001031522511	PN10	355	104	120	18,7	13,4	4,706	1
	RD001631522511	PN16	355	104	120	28,6	20,5	7,130	1
Ø315-250	RD001031525011	PN10	356	104	140	18,7	14,8	5,150	1
	RD001631525011	PN16	356	104	140	28,6	22,7	8,740	1
Ø315-280	RD001031528011	PN10	379	104	140	18,7	16,6	5,852	1
	RD001631528011	PN16	379	104	140	28,6	25,4	7,565	1
Ø355-160	RD001035516011	PN10	360	104	140	21,1	9,5	5,378	1
	RD001635516011	PN16	360	104	140	32,2	14,6	8,194	1
Ø355-180	RD001035518011	PN10	360	104	140	21,1	10,7	5,378	1
	RD001635518011	PN16	360	104	140	32,2	16,4	8,914	1
Ø355-200	RD001035520011	PN10	365	104	135	21,1	11,9	5,260	1
	RD001635520011	PN16	365	104	135	32,2	18,2	8,144	1
Ø355-225	RD001035522511	PN10	360	104	140	21,1	13,4	5,378	1
	RD001635522511	PN16	360	104	140	32,2	20,5	8,914	1
Ø355-250	RD001035525011	PN10	365	104	136	21,1	14,8	5,960	1
	RD001635525011	PN16	365	104	136	32,2	22,7	9,040	1
Ø355-280	RD001035528011	PN10	370	104	150	21,1	16,6	6,590	1
	RD001635528011	PN16	370	104	150	32,2	25,4	10,341	1
Ø355-315	RD001035531511	PN10	390	104	150	21,1	18,7	10,460	1
	RD001635531511	PN16	390	104	150	32,2	28,6	11,300	1
Ø400-200	RD001040020011	PN10	375	104	110	23,7	11,9	7,430	1
	RD001640020011	PN16	375	104	110	36,3	18,2	9,400	1
Ø400-250	RD001040025011	PN10	375	104	105	23,7	14,8	8,180	1
	RD001640025011	PN16	375	104	105	36,3	22,7	11,716	1
Ø400-280	RD001040028011	PN10	375	104	105	23,7	16,6	8,056	1
	RD001640028011	PN16	375	104	105	36,3	25,4	11,432	1
Ø400-315	RD001040031511	PN10	382	104	145	23,7	18,7	8,310	1
	RD001640031511	PN16	382	104	145	36,3	28,6	12,670	1
Ø400-355	RD001040035511	PN10	375	104	155	23,7	21,1	12,260	1
	RD001640035511	PN16	375	104	155	36,3	32,2	13,808	1



REDÜKSİYON - KISA KADEMELİ REDUCER - SHORT STEPPED ПЕРЕХОДНИК - КОРОТКИЙ СТУПЕНЧАТЫЙ

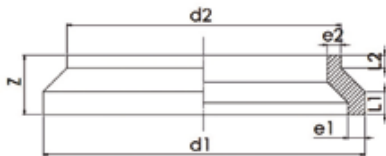
Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1



d1- d2	Article No	Bar	Z	L	L1	e1	e2	Weight (kg)	Pack (pc)
Ø450-400	KR001045040033	PN10	98	38	48	26,7	23,7	2,800	1
	KR001645040033	PN16	98	38	48	40,9	36,3	4,200	1
Ø500-400	KR001050040033	PN10	152	43	48	29,7	23,7	5,400	1
	KR001650040033	PN16	152	43	48	45,4	36,3	8,000	1
Ø500-450	KR001050045033	PN10	90	44	40	29,7	26,7	4,000	1
	KR001650045033	PN16	90	44	40	45,4	40,9	5,900	1
Ø560-400	KR001056040033	PN10	258	48	48	33,2	23,7	9,000	1
	KR001656040033	PN16	258	48	48	50,8	36,3	13,500	1
Ø560-450	KR001056045033	PN10	170	48	44	33,2	26,7	7,700	1
	KR001656045033	PN16	170	48	44	50,8	40,9	11,500	1
Ø560-500	KR001056050033	PN10	112	55	44	33,2	29,7	5,750	1
	KR001656050033	PN16	112	55	44	50,8	45,4	8,500	1
Ø630-400	KR001063040033	PN10	295	62	48	37,4	23,7	14,412	1
	KR001663040033	PN16	300	62	48	57,2	36,3	20,400	1
Ø630-450	KR001063045033	PN10	252	62	40	37,4	26,7	12,150	1
	KR001663045033	PN16	252	62	40	57,2	40,9	18,000	1
Ø630-500	KR001063050033	PN10	176	62	44	37,4	29,7	10,000	1
	KR001663050033	PN16	176	62	44	57,2	45,4	15,000	1
Ø630-560	KR001063056033	PN10	110	62	48	37,4	33,2	7,200	1
	KR001663056033	PN16	110	62	48	57,2	50,8	11,000	1

REDÜKSİYON - KISA TİP REDUCER - SHORT TYPE ПЕРЕХОДНИК - КОРОТКИЙ ТИП

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

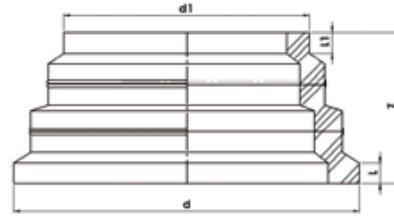


d1- d2	Article No	Bar	L1	L2	Z	e1	e2	Weight (kg)	Pack (pc)
Ø800-710	RD100680071011	PN6	60	60	150	30,6	27,2	11,270	1
	RD101080071011	PN10	60	60	150	47,4	42,1	16,020	1
	RD101680071011	PN16	60	60	150	72,6	64,5	22,720	1
Ø900-800	RD100690080011	PN6	60	60	150	34,4	30,6	14,250	1
	RD101090080011	PN10	60	60	150	53,3	47,4	20,260	1
	RD101690080011	PN16	60	60	150	81,7	72,6	28,760	1
Ø1000-900	RD100610009011	PN6	60	60	150	38,2	34,4	17,480	1
	RD101010009011	PN10	60	60	150	59,3	53,3	25,030	1
	RD101610009011	PN16	60	60	150	90,8	81,7	35,660	1
Ø1200-1000	RD100612001011	PN6	60	60	150	45,9	38,2	26,020	1
	RD101012001011	PN10	60	60	150	71,1	59,3	36,040	1
	RD101612001011	PN16	60	60	150	109,1	90,8	50,140	1
Ø1400-1200	RD100612001011	PN6	90	60	210	53,5	45,9	53,640	1
	RD101012001011	PN10	90	60	210	83,0	71,1	73,120	1
Ø1600-1400	RD100612001011	PN6	90	60	210	61,2	53,5	73,240	1
	RD101012001011	PN10	90	60	210	94,8	83,0	97,990	1

REDÜKSİYON - KISA TİP REDUCER - SHORT TYPE ПЕРЕХОДНИК - КОРОТКИЙ ТИП

KİT Enjeksiyon / Injected Welded Desing / Material:PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

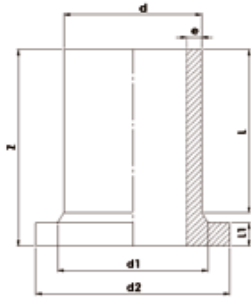
d- d1	Article No	Bar	L	L1	Z	e1	e2	Weight (kg)	Pack (pc)
Ø710-450	RD021071045013	PN10	40	32	373	42,1	26,7	23,500	1
	RD021671045013	PN16	40	32	373	64,5	40,9	33,200	1
Ø710-500	RD021071050013	PN10	40	30	318	42,1	29,7	21,950	1
	RD021671050013	PN16	40	30	318	64,5	45,5	30,910	1
Ø710-560	RD021071056013	PN10	40	100	200	42,1	33,2	16,070	1
	RD021671056013	PN16	40	100	200	64,5	50,9	22,210	1
Ø710-630	RD021071063013	PN10	50	90	160	42,1	37,4	13,260	1
	RD021671063013	PN16	50	90	160	64,5	57,2	18,630	1
Ø800-400	RD021080040013	PN10	35	32	503	47,4	23,7	36,400	1
	RD021680040013	PN16	35	32	503	72,6	36,4	55,100	1
Ø800-450	RD021080045013	PN10	35	30	503	47,4	26,7	34,850	1
	RD021680045013	PN16	35	30	503	72,6	40,9	52,800	1
Ø800-500	RD021080050013	PN10	35	30	395	47,4	29,7	32,970	1
	RD021680050013	PN16	35	30	395	72,6	45,5	50,500	1
Ø800-560	RD021080056013	PN10	35	100	330	47,4	33,2	28,970	1
	RD021680056013	PN16	35	100	330	72,6	50,9	44,110	1
Ø800-630	RD021080063013	PN10	35	90	290	47,4	37,4	26,160	1
	RD021680063013	PN16	35	90	290	72,6	57,2	40,580	1
Ø900-400	RD021090040013	PN10	32	45	633	53,3	23,7	56,550	1
	RD021690040013	PN16	32	45	633	81,7	36,4	83,590	1
Ø900-450	RD021090045013	PN10	30	45	578	53,3	26,7	55,000	1
	RD021690045013	PN16	30	45	578	81,7	40,9	81,300	1
Ø900-500	RD021090050013	PN10	30	45	525	53,3	29,7	53,120	1
	RD021690050013	PN16	30	45	525	81,7	45,5	78,540	1
Ø900-560	RD021090056013	PN10	45	100	460	53,3	33,2	49,120	1
	RD021690056013	PN16	45	100	460	81,7	50,9	72,600	1
Ø900-630	RD021090063013	PN10	45	90	420	53,3	37,4	46,310	1
	RD021690063013	PN16	45	90	420	81,7	57,2	69,070	1
Ø900-710	RD021090071013	PN10	45	70	280	53,3	42,1	33,050	1
	RD021690071013	PN16	45	70	280	81,7	64,5	50,390	1
Ø1000-400	RD0210100040013	PN10	32	40	763	59,3	23,7	82,010	1
	RD0216100040013	PN16	32	40	763	91,2	36,4	118,800	1
Ø1000-450	RD0210100045013	PN10	30	40	708	59,3	26,7	80,460	1
	RD0216100045013	PN16	30	40	708	91,2	40,9	117,210	1
Ø1000-500	RD0210100050013	PN10	30	40	665	59,3	29,7	78,580	1
	RD0216100050013	PN16	30	40	665	91,2	45,5	114,450	1
Ø1000-560	RD0210100056013	PN10	40	100	590	59,3	33,2	74,580	1
	RD0216100056013	PN16	40	100	590	91,2	50,9	108,000	1
Ø1000-630	RD0210100063013	PN10	40	90	550	59,3	37,4	71,770	1
	RD0216100063013	PN16	40	90	550	91,2	57,2	104,000	1
Ø1000-710	RD0210100071013	PN10	40	70	410	59,3	42,1	58,510	1
	RD0216100071013	PN16	40	70	410	91,2	64,5	86,300	1
Ø1000-800	RD0210100080013	PN10	40	70	280	59,3	47,4	64,400	1
	RD0216100080013	PN16	40	70	280	91,2	72,6	45,610	1



FLANŞ ADAPTÖRÜ FLANGE ADAPTOR ВТУЛКА ПОД ФЛАНЕЦ

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	Z	L1	L	d1	d2	e	Weight (kg)	Pack (pc)
Ø20	FA001600002011	PN16	67	11	50	27	44	2,6	0,030	400
Ø25	FA001600002511	PN16	64	10	45	33	57	2,3	0,040	300
Ø32	FA001600003211	PN16	88	10	55	43	67	3,0	0,060	100
Ø40	FA001600004011	PN16	87	13	57	50	76	3,7	0,080	75
Ø50	FA001600005011	PN16	91	13	50	61	87	4,6	0,120	48
Ø63	FA001600006311	PN16	101	17	62	71	98	6,4	0,200	70
Ø75	FA001600007511	PN16	120	16	80	84	110	8,2	0,280	18
Ø90	FA001000009044	PN10	133	18	105	102	132	6,2	0,330	25
	FA001600009011	PN16	132	18	105	102	130	8,2	0,400	25
Ø110	FA001000011044	PN10	149	18	120	120	157	7,2	0,530	20
	FA001600011044	PN16	149	18	120	120	157	10,2	0,650	20
Ø125	FA001000012544	PN10	171	23	134	130	158	8,2	0,650	14
	FA001600012544	PN16	171	23	134	130	158	12,0	0,860	14
Ø140	FA001000014044	PN10	188	22	151	150	185	9,3	0,950	12
	FA001600014044	PN16	188	22	151	150	185	13,2	1,210	12
Ø160	FA001000016044	PN10	176	23	138	170	213	11,5	1,260	6
	FA001600016044	PN16	176	23	138	170	213	15,5	1,550	6
Ø180	FA001000018044	PN10	193	25	137	185	222	11,8	1,600	4
	FA001600018044	PN16	193	25	137	185	222	17,0	2,000	4
Ø200	FA001000020044	PN10	197	30	135	220	270	13,0	2,400	2
	FA001600020044	PN16	197	30	135	220	270	18,9	2,900	2
Ø225	FA001000022544	PN10	196	30	145	230	270	13,8	2,400	1
	FA001600022544	PN16	196	30	145	230	270	21,6	3,300	1
Ø250	FA001000025044	PN10	221	36	132	265	319	17,0	4,000	1
	FA001600025044	PN16	221	36	132	265	319	23,5	4,900	1
Ø280	FA001000028044	PN10	240	39	155	290	335	18,5	4,360	1
	FA001600028044	PN16	240	39	155	290	335	28,0	6,200	1
Ø315	FA001000031544	PN10	249	40	169	339	376	21,0	6,150	1
	FA001600031544	PN16	249	40	169	339	376	31,0	7,750	1
Ø355	FA001000035544	PN10	260	36	180	377	423	22,0	7,500	1
	FA001600035544	PN16	260	36	180	377	423	30,0	10,500	1
Ø400	FA001000040044	PN10	242	49	155	418	485	25,0	9,800	1
	FA001600040044	PN16	242	49	155	418	485	41,0	13,200	1
Ø450	FA001000045044	PN10	277	51	190	456	531	31,0	13,400	1
	FA001600045044	PN16	277	51	190	456	531	44,0	17,400	1
Ø500	FA001000050044	PN10	278	58	190	526	584	32,0	16,500	1
	FA001600050044	PN16	278	58	190	526	584	49,0	22,400	1
Ø560	FA001000056044	PN10	274	52	191	594	682	36,0	24,000	1
	FA001600056044	PN16	274	52	175	615	682	50,8	30,450	1
Ø630	FA001000063044	PN10	275	55	200	640	682	37,4	29,100	1
	FA001600063044	PN16	275	55	200	640	682	57,2	39,150	1



Kelebek vana için isteğe bağlı üretim.
Specially design for Butterfly valve
according your request.

FLANŞ ADAPTÖRÜ – KISA TİP FLANGE ADAPTOR – SHORT TYPE ВТУЛКА ПОД ФЛАНЕЦ – КОРОТКИЙ ТИП

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

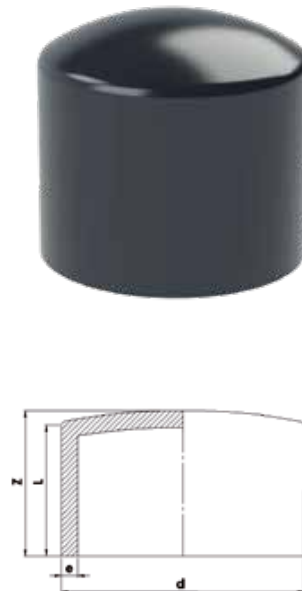
d	Article No	Bar	Z	L1	L	d1	d2	e	Weight (kg)	Pack (pc)
Ø400	FA101000040011	PN10	140	74	49	419	484	27,0	6,900	1
	FA101600040011	PN16	140	55	56	525	578	45,4	15,000	1
Ø450	FA101000045011	PN10	143	67	52	453	537	29,0	8,750	1
	FA101600045011	PN16	143	62	47	458	532	45,0	11,000	1
Ø500	FA101000050011	PN10	140	56	55	525	578	29,7	12,150	1
	FA101600050011	PN16	151	66	62	517	583	51,0	15,000	1
Ø560	FA101000056011	PN10	152	59	100	597	685	36,0	16,000	1
	FA101600056011	PN16	152	60	58	615	685	50,8	22,000	1
Ø630	FA101000063011	PN10	150	58	60	642	683	37,4	15,500	1
	FA101600063011	PN16	144	74	54	632	675	66,0	18,000	1
Ø710	FA101000071011	PN10	155	60	70	737	800	42,1	19,000	1
	FA101600071011	PN16	155	70	60	737	800	64,5	25,200	1
Ø800	FA101000080011	PN10	155	55	60	840	905	47,4	23,970	1
	FA101600080011	PN16	155	60	55	840	905	72,6	32,120	1
Ø900	FA101000090011	PN10	155	60	60	944	1005	53,3	31,510	1
	FA101600090011	PN16	155	60	60	944	1005	81,7	42,100	1
Ø1000	FA101000100011	PN10	155	60	75	1047	1110	59,3	35,570	1
	FA101600100011	PN16	155	75	60	1047	1110	90,8	45,420	1
Ø1200	FA101000120011	PN10	155	70	60	1245	1330	71,1	53,020	1
Ø1400	FA101000140011	PN10	200	85	40	1450	1535	83,0	90,900	1
Ø1600	FA101000160011	PN10	200	100	40	1645	1737	94,8	120,500	1



KEP END CAP ЗАГЛУШКА

Enjeksiyon / Injected / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

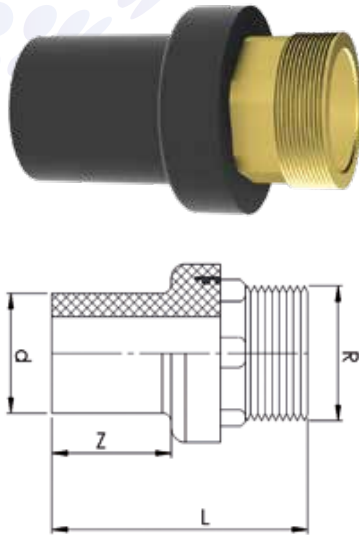
d	Article No	Bar	Z	L	e	Weight (kg)	Pack (pc)
Ø20	KE001600002011	PN16	45	40	2,0	0,008	600
Ø25	KE001600002511	PN16	48	44	3,0	0,010	450
Ø32	KE001600003211	PN16	57,5	54	3,3	0,026	100
Ø40	KE001600004011	PN16	60	56	3,9	0,028	200
Ø50	KE001600005011	PN16	66,5	62,5	5,0	0,048	100
Ø63	KE001600006311	PN16	66,5	62,5	6,5	0,080	70
Ø75	KE001600007511	PN16	77	71,3	7,8	0,136	64
Ø90	KE001600009011	PN16	83,5	78,5	9,3	0,200	27
Ø110	KE001600011011	PN16	93	85	11	0,338	30
Ø125	KE001600012511	PN16	103	90	11,5	0,450	30
Ø140	KE001600014011	PN16	98	90	14	0,665	26
Ø160	KE001600016011	PN16	118	105	15	0,850	20
Ø180	KE001600018011	PN16	122	108	19,5	1,400	13
Ø200	KE001600020011	PN16	128	112	18,5	1,680	8
Ø225	KE001600022511	PN16	123	109	21,5	1,888	1
Ø250	KE001600025011	PN16	155	128	23,5	2,916	1
Ø280	KE001600028011	PN16	170	140	25,5	3,550	1
Ø315	KE001600031511	PN16	155	129	36,5	7,500	1
Ø355	KE001600035511	PN16	160	136	35,5	7,740	1
Ø400	KE001600040011	PN16	162	128	37	10,000	1



PE - METAL DIŞ DIŞLI GEÇİŞ PE-METAL MALE THREADED TRANSITION ПЭ-МЕТАЛ ПЕРЕХОД С НАРУЖ РЕЗЬБОЙ

Material: Brass + PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

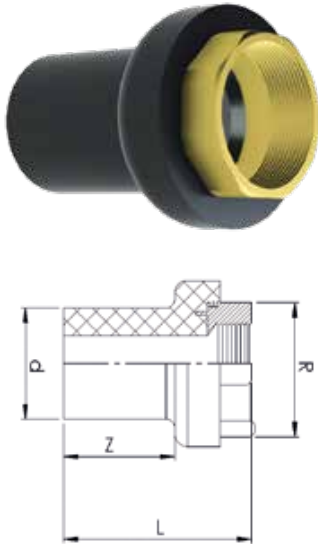
d	R (inch)	Article No	Bar	L	Z	Weight (kg)	Pack (pc)
Ø20	1/2"	DD001600002077	PN16	45	83	0.084	250
Ø25	3/4"	DD001600002577	PN16	45	83	0.104	150
Ø32	3/4"	DD001600003277	PN16	51	89	0.118	100
Ø32	1"	DD001600003277	PN16	47	96	0.175	100
Ø40	1 1/4"	DD001600004077	PN16	56	118	0.412	60
Ø50	1 1/2"	DD001600005077	PN16	56	119	0.512	30
Ø63	2"	DD001600006377	PN16	69	137	0.610	30
Ø75	2 1/2"	DD001600007577	PN16	80	155	0.820	15
Ø90	3"	DD001600009077	PN16	83	165	1.205	8
Ø110	4"	DD001600011077	PN16	85	168	1.800	5
Ø125	4"	DD001600012577	PN16	88	171	2.400	5



PE - METAL İÇ DIŞLI GEÇİŞ PE-METAL FEMALE THREADED TRANSITION ПЭ-МЕТАЛ ПЕРЕХОД С НАРУЖ РЕЗЬБОЙ

Material: Brass + PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

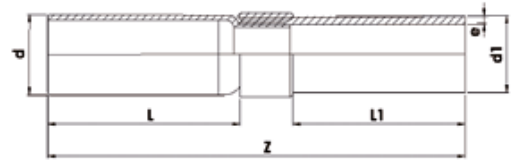
d	R (inch)	Article No	Bar	L	Z	Weight (kg)	Pack (pc)
Ø20	1/2"	ID001600002077	PN16	46	70	0.048	250
Ø25	3/4"	ID001600002577	PN16	45	71	0.076	150
Ø32	1"	ID001600003277	PN16	47	81	0.138	100
Ø40	1 1/4"	ID001600004077	PN16	56	100	0.307	60
Ø50	1 1/2"	ID001600005077	PN16	68	116	0.292	30
Ø63	2"	ID001600006377	PN16	68	116	0.478	25
Ø75	2 1/2"	ID001600007577	PN16	75	122	0.833	15
Ø90	3"	ID001600009077	PN16	80	142	1.140	10
Ø110	4"	ID001600011077	PN16	83	138	1.442	5
Ø125	4"	ID001600012577	PN16	85	168	1.800	5



PE - ÇELİK KAYNAK AĞIZLI GEÇİŞ
PE - STEEL WELDABLE TRANSITION
ПЭ-СТАЛЬ ПЕРЕХОДНИК ПОД СВАРКУ

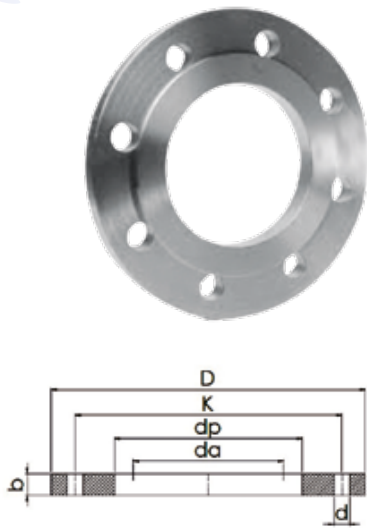
Steel / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	R (inch)	Article No	Bar	L	L1	Z	Weight (kg)	Pack (pc)
Ø20	1/2"	KA001600002077	PN16	185	75	325	0.342	30
Ø25	3/4"	KA001600002577	PN16	180	85	330	0.520	30
Ø32	1"	KA001600003277	PN16	170	95	345	0.576	16
Ø40	1 1/4"	KA001600004077	PN16	175	100	355	0.972	9
Ø50	1 1/2"	KA001600005077	PN16	172	100	355	1.055	9
Ø63	2"	KA001600006377	PN16	175	110	355	1.688	9
Ø75	2 1/2"	KA001600007577	PN16	140	135	385	2.450	4
Ø90	3"	KA001600009077	PN16	180	145	440	3.075	4
Ø110	4"	KA001600011077	PN16	195	160	470	5.510	2
Ø125	4"	KA001600012577	PN16	225	210	515	7.165	2
Ø160	6"	KA001600016077	PN16	200	175	465	13.962	1
Ø180	6"	KA001600018077	PN16	310	220	620	15.105	1
Ø200	8"	KA001600020077	PN16	325	250	660	22.947	1
Ø225	8"	KA001600022577	PN16	305	235	640	25.495	1
Ø250	10"	KA001600025077	PN16	340	245	680	34.420	1
Ø280	10"	KA001600028077	PN16	300	220	620	44.495	1
Ø315	12"	KA001600031577	PN16	265	200	610	52.500	1
Ø355	14"	KA001600035577	PN16	365	235	750	98.000	1
Ø400	16"	KA001600040077	PN16	370	220	770	114.000	1
Ø450	18"	KA001600045077	PN16	367	230	767	150.000	1
Ø500	20"	KA001600050077	PN16	370	220	760	184.000	1



ÇELİK FLANŞ STEEL FLANGE СТАЛЬНОЙ ФЛАНЕЦ

Standart: TS ISO 7005-1. TS EN 1092-1 + A1

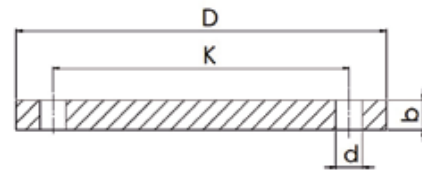


d	da (steel)	Article No	Bar	dp	K	D	d	b	Holes	Weight (kg)	Pack (pc)
Ø20	Ø15	FN001000002088	PN10	28	65	95	14	14	4	0.650	1
		FN001600002088	PN16	28	65	95	14	14	4	0.650	1
Ø25	Ø20	FN001000002588	PN10	34	75	105	14	16	4	0.910	1
		FN001600002588	PN16	34	75	105	14	16	4	0.910	1
Ø32	Ø25	FN001000003288	PN10	42	85	115	14	16	4	1.060	1
		FN001600003288	PN16	42	85	115	14	16	4	1.060	1
Ø40	Ø32	FN001000004088	PN10	51	100	140	18	16	4	1.550	1
		FN001600004088	PN16	51	100	140	18	16	4	1.550	1
Ø50	Ø40	FN001000005088	PN10	62	110	150	18	16	4	1.720	1
		FN001600005088	PN16	62	110	150	18	16	4	1.720	1
Ø63	Ø50	FN001000006388	PN10	78	125	165	18	18	4	2.210	1
		FN001600006388	PN16	78	125	165	18	18	4	2.210	1
Ø75	Ø65	FN001000007588	PN10	92	145	185	18	18	4	2.720	1
		FN001600007588	PN16	92	145	185	18	18	4	2.720	1
Ø90	Ø80	FN001000009088	PN10	108	160	200	18	20	8	3.180	1
		FN001600009088	PN16	108	160	200	18	20	8	3.180	1
Ø110	Ø100	FN001000011088	PN10	125	180	220	18	20	8	3.730	1
		FN001600011088	PN16	125	180	220	18	20	8	3.730	1
Ø125	Ø100	FN001000012588	PN10	135	180	220	18	20	8	3.410	1
		FN001600012588	PN16	135	180	220	18	20	8	3.410	1
Ø140	Ø125	FN001000014088	PN10	158	210	250	18	22	8	4.750	1
		FN001600014088	PN16	158	210	250	18	22	8	4.750	1
Ø160	Ø150	FN001000016088	PN10	178	240	285	22	22	8	6.210	1
		FN001600016088	PN16	178	240	285	22	22	8	6.210	1
Ø180	Ø150	FN001000018088	PN10	188	240	285	22	22	8	5.710	1
		FN001600018088	PN16	188	240	285	22	22	8	5.710	1
Ø200	Ø200	FN001000020088	PN10	235	295	340	22	24	8	8.380	1
		FN001600020088	PN16	235	295	340	22	24	8	8.380	1
Ø200	Ø225	FN001000022588	PN10	238	295	340	22	24	8	8.170	1
		FN001600022588	PN16	238	295	340	22	24	8	8.170	1
Ø250	Ø250	FN001000025088	PN10	288	350	395	22	26	12	10.810	1
		FN001600025088	PN16	288	350	395	22	26	12	10.810	1
Ø250	Ø280	FN001000028088	PN16	294	350	395	22	26	12	10.250	1
		FN001600028088	PN16	294	355	405	26	26	12	11.160	1
Ø300	Ø315	FN001000030088	PN10	338	400	445	22	26	12	12.530	1
		FN001600030088	PN16	338	410	460	26	28	12	15.440	1
Ø350	Ø355	FN001000035088	PN10	376	460	505	22	26	16	17.020	1
		FN001600035088	PN16	376	470	520	26	30	16	21.920	1
Ø400	Ø400	FN001000040088	PN10	430	515	565	26	26	16	19.850	1
		FN001600040088	PN16	430	525	580	30	32	16	27.110	1
Ø450	Ø450	FN001000045088	PN10	465	565	615	26	28	20	25.690	1
		FN001600045088	PN16	465	585	640	30	34	20	36.850	1
Ø500	Ø500	FN001000050088	PN10	533	620	670	26	28	20	26.180	1
		FN001600050088	PN16	533	650	715	33	34	20	43.150	1
Ø600	Ø560	FN001000060088	PN10	618	725	780	30	28	20	36.070	1
		FN001600060088	PN16	618	770	840	36	36	20	66.240	1
Ø600	Ø630	FN001000063088	PN10	645	725	780	30	28	20	30.170	1
		FN001600063088	PN16	645	770	840	36	36	20	58.660	1
Ø700	Ø710	FN001000070088	PN10	740	840	895	30	30	24	42.980	1
		FN001600070088	PN16	740	840	910	36	36	24	55.490	1
Ø800	Ø800	FN001000080088	PN10	843	950	1015	33	32	24	58.030	1
		FN001600080088	PN16	843	950	1025	39	38	24	71.270	1
Ø900	Ø900	FN001000090088	PN10	947	1050	1125	33	34	28	66.380	1
		FN001600090088	PN16	947	1050	1125	39	40	28	80.640	1
Ø1000	Ø1000	FN001000100088	PN10	1050	1160	1230	36	34	28	78.610	1
		FN001600100088	PN16	1050	1170	1255	42	42	28	109.830	1
Ø1200	Ø1200	FN001000120088	PN10	1250	1380	1455	39	38	32	118.790	1
		FN001600120088	PN16	1250	1390	1455	48	48	32	168.790	1
Ø1400	Ø1400	FN001000140088	PN10	1460	1590	1675	42	42	36	158.470	1
		FN001600140088	PN16	1460	1590	1685	48	52	36	200.750	1
Ø1600	Ø1600	FN001000160088	PN10	1650	1820	1915	48	46	40	242.370	1
		FN001600160088	PN16	1650	1820	1930	55	58	40	315.930	1

ÇELİK KÖR FLANŞ STEEL BLIND FLANGE СТАЛЬНОЙ ГЛУХОЙ ФЛАНЕЦ

Standart: TS ISO 7005-1. TS EN 1092-1 + A1

d	da (steel)	Article No	Bar	K	D	d	b	Holes	Weight (kg)	Pack (pc)
Ø20	Ø15	FN001000002088	PN10	65	95	14	14	4	0.710	1
		FN001600002088	PN16	65	95	14	14	4	0.710	1
Ø25	Ø20	FN001000002588	PN10	75	105	16	14	4	1.010	1
		FN001600002588	PN16	75	105	16	14	4	1.010	1
Ø32	Ø25	FN001000003288	PN10	85	115	16	14	4	1.230	1
		FN001600003288	PN16	85	115	16	14	4	1.230	1
Ø40	Ø32	FN001000004088	PN10	100	140	16	18	4	1.810	1
		FN001600004088	PN16	100	140	16	18	4	1.810	1
Ø50	Ø40	FN001000005088	PN10	110	150	16	18	4	2.100	1
		FN001600005088	PN16	110	150	16	18	4	2.100	1
Ø63	Ø50	FN001000006388	PN10	125	165	18	18	4	2.880	1
		FN001600006388	PN16	125	165	18	18	4	2.880	1
Ø75	Ø65	FN001000007588	PN10	145	185	18	18	4	3.660	1
		FN001600007588	PN16	145	185	18	18	4	3.660	1
Ø90	Ø80	FN001000009088	PN10	160	200	20	18	8	4.620	1
		FN001600009088	PN16	160	200	20	18	8	4.620	1
Ø110	Ø100	FN001000011088	PN10	180	220	20	18	8	5.660	1
		FN001600011088	PN16	180	220	20	18	8	5.660	1
Ø125	Ø100	FN001000012588	PN10	180	220	20	18	8	5.660	1
		FN001600012588	PN16	180	220	20	18	8	5.660	1
Ø140	Ø125	FN001000014088	PN10	210	250	22	18	8	8.150	1
		FN001600014088	PN16	210	250	22	18	8	8.150	1
Ø160	Ø150	FN001000016088	PN10	240	285	22	22	8	10.520	1
		FN001600016088	PN16	240	285	22	22	8	10.520	1
Ø180	Ø150	FN001000018088	PN10	240	285	22	22	8	10.520	1
		FN001600018088	PN16	240	285	22	22	8	10.520	1
Ø200	Ø200	FN001000020088	PN10	295	340	24	22	8	16.570	1
		FN001600020088	PN16	295	340	24	22	12	16.280	1
Ø200	Ø225	FN001000022588	PN10	295	340	24	22	8	16.570	1
		FN001600022588	PN16	295	340	24	22	12	16.280	1
Ø250	Ø250	FN001000025088	PN10	350	395	26	22	12	24.140	1
		FN001600025088	PN16	350	395	22	26	12	25.050	1
Ø250	Ø280	FN001000028088	PN16	350	395	26	22	12	24.140	1
		FN001600028088	PN16	355	405	26	26	12	25.050	1
Ø300	Ø315	FN001000030088	PN10	400	445	26	22	12	30.890	1
		FN001600030088	PN16	410	460	26	28	12	35.210	1
Ø350	Ø355	FN001000035088	PN10	460	505	26	22	16	39.730	1
		FN001600035088	PN16	470	520	26	30	16	48.130	1
Ø400	Ø400	FN001000040088	PN10	515	565	26	26	16	49.560	1
		FN001600040088	PN16	525	580	30	32	16	63.680	1
Ø450	Ø450	FN001000045088	PN10	565	615	38	26	20	63.110	1
		FN001600045088	PN16	585	640	30	34	20	82.280	1
Ø500	Ø500	FN001000050088	PN10	620	670	28	20	20	75.340	1
		FN001600050088	PN16	650	715	33	34	20	102.840	1
Ø600	Ø560	FN001000060088	PN10	725	780	28	30	20	102.160	1
		FN001600060088	PN16	770	840	36	36	20	151.220	1
Ø600	Ø630	FN001000063088	PN10	725	780	28	30	20	102.160	1
		FN001600063088	PN16	770	840	36	36	20	151.220	1
Ø700	Ø710	FN001000070088	PN10	840	895	30	30	24	144.510	1
		FN001600070088	PN16	840	910	36	36	24	177.320	1
Ø800	Ø800	FN001000080088	PN10	950	1015	32	33	24	198.570	1
		FN001600080088	PN16	950	1025	39	38	24	238.160	1
Ø900	Ø900	FN001000090088	PN10	1050	1115	34	33	28	254.820	1
		FN001600090088	PN16	1050	1125	39	40	28	332.330	1
Ø1000	Ø1000	FN001000100088	PN10	1150	1230	34	36	28	310.270	1
		FN001600100088	PN16	1170	1255	42	42	28	395.990	1
Ø1200	Ø1200	FN001000120088	PN10	1380	1455	38	39	32	485.730	1
		FN001600120088	PN16	1390	1455	48	48	32	632.290	1
Ø1400	Ø1400	FN001000140088	PN10	1590	1675	42	42	36	711.740	1
		FN001600140088	PN16	1590	1685	52	48	36	885.760	1
Ø1600	Ø1600	FN001000160088	PN10	1820	1915	46	48	40	1.016.320	1
		FN001600160088	PN16	1820	1930	55	58	40	1.291.780	1



11°-30° DİRSEK 11°- 30° ELBOW 11°- 30° ОТВОД

KİT / Injected Welded Desing/ Material:PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

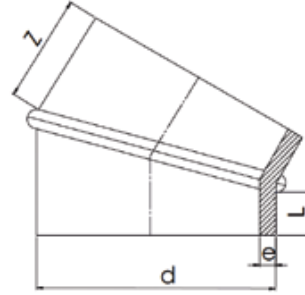
d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø90	DR111000009013	PN10	79	120	5,4	0.380	1
	DR111600009013	PN16	78	120	8,2	0.487	1
Ø110	DR111000011013	PN10	82	131	6,6	0.598	1
	DR111600011013	PN16	82	130	10,0	0.772	1
Ø125	DR111000012513	PN10	87	138	7,4	0.794	1
	DR111600012513	PN16	85	138	11,4	1.129	1
Ø140	DR111000014013	PN10	92	151	8,3	1.055	1
	DR111600014013	PN16	91	150	12,7	1.402	1
Ø160	DR111000016013	PN10	97	160	9,5	1.491	1
	DR111600016013	PN16	98	161	14,6	1.970	1
Ø180	DR111000018013	PN10	105	170	10,7	2.037	1
	DR111600018013	PN16	105	171	16,4	2.659	1
Ø200	DR111000020013	PN10	113	186	11,9	2.703	1
	DR111600020013	PN16	110	185	18,2	3.574	1
Ø225	DR111000022513	PN10	120	200	13,4	4.366	1
	DR111600022513	PN16	122	200	20,5	5.915	1
Ø250	DR111000025013	PN10	129	218	14,8	5.479	1
	DR111600025013	PN16	130	217	22,7	7.603	1
Ø280	DR111000028013	PN10	140	238	16,6	6.857	1
	DR111600028013	PN16	139	238	25,4	9.667	1
Ø315	DR111000031513	PN10	150	256	18,7	9.796	1
	DR111600031513	PN16	148	256	28,6	12.459	1



11°-30° DİRSEK 11°-30° ELBOW 11°-30° ОТВОД

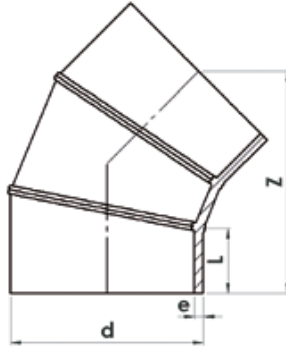
Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø200	DR111000020012	PN10	130	157	11,9	2,120	1
	DR111600020012	PN16	130	157	18,2	3,330	1
Ø225	DR111000022512	PN10	130	160	13,4	3,040	1
	DR111600022512	PN16	130	160	20,5	4,460	1
Ø250	DR111000025012	PN10	130	164	14,8	3,820	1
	DR111600025012	PN16	130	164	22,7	5,620	1
Ø280	DR111000028012	PN10	130	168	16,6	4,860	1
	DR111600028012	PN16	130	168	25,4	8,120	1
Ø315	DR111000031512	PN10	170	212	18,7	7,730	1
	DR111600031512	PN16	170	212	28,6	11,380	1
Ø355	DR111000035512	PN10	170	218	21,1	10,060	1
	DR111600035512	PN16	170	218	32,2	14,790	1
Ø400	DR111000040012	PN10	170	224	23,7	13,080	1
	DR111600040012	PN16	170	224	36,3	19,290	1
Ø450	DR111000045012	PN10	170	230	26,7	17,010	1
	DR111600045012	PN16	170	230	40,9	25,130	1
Ø500	DR111000050012	PN10	170	237	29,7	21,640	1
	DR111600050012	PN16	170	237	45,4	31,860	1
Ø560	DR111000056012	PN10	170	245	33,2	32,880	1
	DR111600056012	PN16	170	245	50,8	41,210	1
Ø630	DR111000063012	PN10	200	285	37,4	40,860	1
	DR111600063012	PN16	200	285	57,2	60,060	1
Ø710	DR111000071012	PN10	220	320	42,1	57,220	1
	DR111600071012	PN16	220	320	64,5	84,530	1
Ø800	DR111000080012	PN10	250	358	47,4	82,240	1
	DR111600080012	PN16	250	358	72,6	120,330	1
Ø900	CT451000090012	PN10	300	420	53,3	115,000	1
Ø1000	CT451000100012	PN10	300	434	59,3	152,000	1
Ø1200	CT451000120012	PN10	300	460	71,1	225,000	1
Ø1400	CT451000140012	PN10	400	587	83,0	385,000	1
Ø1600	CT451000160012	PN10	400	614	94,84	525,000	1
Ø1800	CT451000180012	PN10	400	641	106,6	695,000	1
Ø2000	CT451000200012	PN10	400	668	118,4	890,000	1



45° DİRSEK 45° ELBOW 45° ОТВОД

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

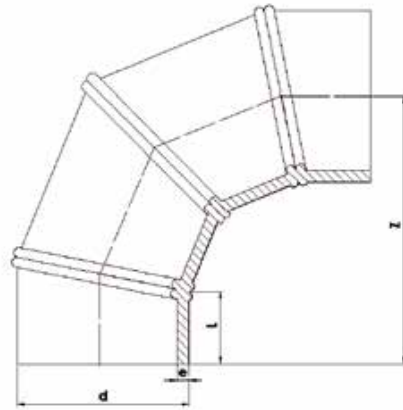


d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø200	DR451000020012	PN10	130	248	11,9	2,950	1
	DR451600020012	PN16	130	248	18,2	4,510	
Ø225	DR451000022512	PN10	130	255	13,4	3,420	1
	DR451600022512	PN16	130	255	20,5	5,230	
Ø250	DR451000025012	PN10	130	260	14,8	3,850	1
	DR451600025012	PN16	130	260	22,7	5,900	
Ø280	DR451000028012	PN10	130	267	16,6	4,430	1
	DR451600028012	PN16	130	267	25,4	6,780	
Ø315	DR451000031512	PN10	170	337	18,7	6,300	1
	DR451600031512	PN16	170	337	28,6	9,640	
Ø355	DR451000035512	PN10	170	346	21,1	7,300	1
	DR451600035512	PN16	170	346	32,2	11,140	
Ø400	DR451000040012	PN10	170	357	23,7	8,460	1
	DR451600040012	PN16	170	357	36,3	12,960	
Ø450	DR451000045012	PN10	170	368	26,7	9,830	1
	DR451600045012	PN16	170	368	40,9	15,050	
Ø500	DR451000050012	PN10	170	380	29,7	11,290	1
	DR451600050012	PN16	170	380	45,4	17,250	
Ø560	DR451000056012	PN10	170	394	33,2	13,080	1
	DR451600056012	PN16	170	394	50,8	20,020	
Ø630	DR451000063012	PN10	220	488	37,4	18,250	1
	DR451600063012	PN16	220	488	57,2	27,910	
Ø710	DR451000071012	PN10	220	506	42,1	85,360	1
	DR451600071012	PN16	220	506	64,5	126,100	
Ø800	DR451000080012	PN10	250	560	47,4	110,880	1
	DR451600080012	PN16	250	560	72,6	162,220	
Ø900	DR451000090012	PN10	300	600	53,3	191,550	1
Ø1000	DR451000100012	PN10	300	670	59,3	220,000	1
Ø1200	DR451000120012	PN10	300	712	71,1	330,000	1
Ø1400	DR451000140012	PN10	400	906	83,0	575,000	1
Ø1600	DR451000160012	PN10	400	948	94,84	785,000	1
Ø1800	DR451000180012	PN10	400	990	106,6	1.035,000	1
Ø2000	DR451000200012	PN10	400	1030	118,4	1.330,000	1

90° DİRSEK 90° ELBOW 90° OTBOD

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

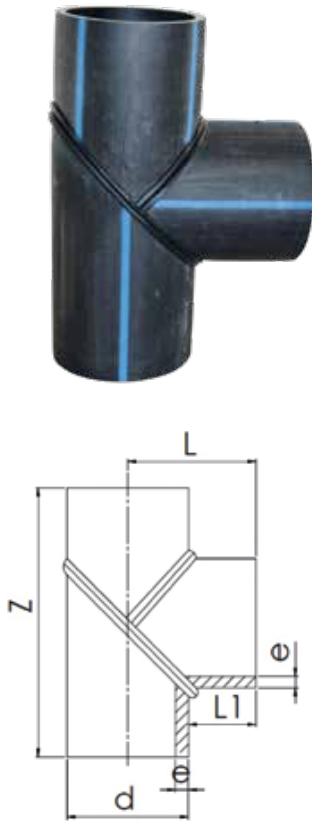
d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø200	DR901000020012	PN10	130	410	11,9	4,860	1
	DR901600020012	PN16	130	410	18,2	7,180	1
Ø225	DR901000022512	PN10	130	420	13,4	6,430	1
	DR901600022512	PN16	130	420	20,5	9,430	1
Ø250	DR901000025012	PN10	130	430	14,8	8,030	1
	DR901600025012	PN16	130	430	22,7	11,830	1
Ø280	DR901000028012	PN10	130	442	16,6	10,140	1
	DR901600028012	PN16	130	442	25,4	15,020	1
Ø315	DR901000031512	PN10	170	543	18,7	16,530	1
	DR901600031512	PN16	170	543	28,6	24,320	1
Ø355	DR901000035512	PN10	170	561	21,1	21,660	1
	DR901600035512	PN16	170	561	32,2	31,850	1
Ø400	DR901000040012	PN10	170	580	23,7	29,400	1
	DR901600040012	PN16	170	580	36,3	43,370	1
Ø450	DR901000045012	PN10	170	602	26,7	37,880	1
	DR901600045012	PN16	170	602	40,9	55,960	1
Ø500	DR901000050012	PN10	170	624	29,7	47,740	1
	DR901600050012	PN16	170	624	45,4	70,310	1
Ø560	DR901000056012	PN10	170	650	33,2	63,020	1
	DR901600056012	PN16	170	650	50,8	92,920	1
Ø630	DR901000063012	PN10	220	786	37,4	97,160	1
	DR901600063012	PN16	220	786	57,2	142,800	1
Ø710	DR901000071012	PN10	220	820	42,1	132,000	1
	DR901600071012	PN16	220	820	64,5	195,000	1
Ø800	DR901000080012	PN10	220	860	47,4	179,200	1
	DR901600080012	PN16	220	860	72,6	262,180	1
Ø900	DR901000090012	PN10	300	1160	53,3	260,000	1
Ø1000	DR901000100012	PN10	300	1210	59,3	335,000	1
Ø1200	DR901000120012	PN10	300	1310	71,1	520,000	1
Ø1400	DR901000140012	PN10	400	1646	83,0	890,000	1
Ø1600	DR901000160012	PN10	400	1746	94,84	1.230,000	1
Ø1800	DR901000180012	PN10	400	1846	106,6	1.645,000	1
Ø2000	DR901000200012	PN10	400	1946	118,4	2.135,000	1



90° EŞİT TE 90° EQUAL TEE 90° ТРОЙНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1

d	Article No	Bar	L	L1	Z	e	Weight (kg)	Pack (pc)
Ø200	TE001000020012	PN10	540	170	270	11,9	5,710	1
	TE001600020012	PN16	540	170	270	18,2	8,420	1
Ø225	TE001000022512	PN10	565	170	282,5	13,4	7,590	1
	TE001600022512	PN16	565	170	282,5	20,5	11,140	1
Ø250	TE001000025012	PN10	590	170	295	14,8	9,790	1
	TE001600025012	PN16	590	170	295	22,7	14,420	1
Ø280	TE001000028012	PN10	620	170	310	16,6	12,880	1
	TE001600028012	PN16	620	170	310	25,4	19,080	1
Ø315	TE001000031512	PN10	655	170	327,5	18,7	17,400	1
	TE001600031512	PN16	655	170	327,5	28,6	25,600	1
Ø355	TE001000035512	PN10	795	220	397,5	21,1	26,520	1
	TE001600035512	PN16	795	220	397,5	32,2	39,000	1
Ø400	TE001000040012	PN10	840	220	420	23,7	36,400	1
	TE001600040012	PN16	840	220	420	36,3	53,690	1
Ø450	TE001000045012	PN10	890	220	445	26,7	49,560	1
	TE001600045012	PN16	890	220	445	40,9	73,220	1
Ø500	TE001000050012	PN10	940	220	470	29,7	63,510	1
	TE001600050012	PN16	940	220	470	45,4	93,530	1
Ø560	TE001000056012	PN10	1020	230	510	33,2	84,940	1
	TE001600056012	PN16	1020	230	510	50,8	125,240	1
Ø630	TE001000063012	PN10	1090	230	545	37,4	114,510	1
	TE001600063012	PN16	1090	230	545	57,2	168,300	1
Ø710	TE001000071012	PN10	1310	300	655	42,1	176,000	1
	TE001600071012	PN16	1310	300	655	64,5	260,000	1
Ø800	TE001000080012	PN10	1400	300	700	47,4	240,800	1
	TE001600080012	PN16	1400	300	700	72,6	352,300	1
Ø900	TE001000090012	PN10	1500	300	750	53,3	225,000	1
Ø1000	TE001000100012	PN10	1700	350	850	59,3	315,000	1
Ø1200	TE001000120012	PN10	1900	350	950	71,1	515,000	1
Ø1400	TE001000140012	PN10	2300	450	1150	83,0	835,000	1
Ø1600	TE001000160012	PN10	2600	550	1350	94,84	1.255,000	1
Ø1800	TE001000180012	PN10	2900	600	1400	106,6	1.975,000	1
Ø2000	TE001000200012	PN10	3200	600	1500	118,4	2.265,000	1

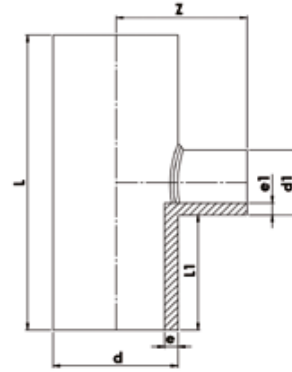


İNEĞAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø225-50	RT901002255012	PN10	420	100	13,4	3,0	4,590	1
	RT901602255012	PN16	420	100	20,5	4,6	6,670	1
Ø225-63	RT901002256312	PN10	420	115	13,4	3,8	4,650	1
	RT901602256312	PN16	420	115	20,5	5,8	6,730	1
Ø225-75	RT901002257512	PN10	420	130	13,4	4,5	4,750	1
	RT901602257512	PN16	420	130	20,5	6,8	6,830	1
Ø225-90	RT901002259012	PN10	450	130	13,4	5,4	5,290	1
	RT901602259012	PN16	450	130	20,5	8,2	7,590	1
Ø225-110	RT901022511012	PN10	480	150	13,4	6,6	6,120	1
	RT901622511012	PN16	480	150	20,5	10,0	8,620	1
Ø225-125	RT901022512512	PN10	500	165	13,4	7,4	6,630	1
	RT901622512512	PN16	500	165	20,5	11,4	9,350	1
Ø225-140	RT901022514012	PN10	520	165	13,4	8,3	7,450	1
	RT901622514012	PN16	520	165	20,5	12,7	10,370	1
Ø225-160	RT901022516012	PN10	540	180	13,4	9,5	8,250	1
	RT901622516012	PN16	540	180	20,5	14,6	11,380	1
Ø225-180	RT901022518012	PN10	580	210	13,4	10,7	9,950	1
	RT901622518012	PN16	580	210	20,5	16,4	13,700	1
Ø225-200	RT901022520012	PN10	580	230	13,4	11,9	11,290	1
	RT901622520012	PN16	580	230	20,5	18,2	15,260	1
Ø250-50	RT901002505012	PN10	420	230	14,8	3,0	11,120	1
	RT901602505012	PN16	420	100	22,7	4,6	16,320	1
Ø250-63	RT901002506312	PN10	420	100	14,8	3,8	11,180	1
	RT901602506312	PN16	420	115	22,7	5,8	16,380	1
Ø250-75	RT901002507512	PN10	440	115	14,8	4,5	11,280	1
	RT901602507512	PN16	440	130	22,7	6,8	16,480	1
Ø250-90	RT901002509012	PN10	460	130	14,8	5,4	11,380	1
	RT901602509012	PN16	460	130	22,7	8,2	16,580	1
Ø250-110	RT901025011012	PN10	460	130	14,8	6,6	11,760	1
	RT901625011012	PN16	460	150	22,7	10,0	16,960	1
Ø250-125	RT901025012512	PN10	500	150	14,8	7,4	11,830	1
	RT901625012512	PN16	500	165	22,7	11,4	17,030	1
Ø250-140	RT901025014012	PN10	520	165	14,8	8,3	12,200	1
	RT901625014012	PN16	520	165	22,7	12,7	17,400	1
Ø250-160	RT901025016012	PN10	540	165	14,8	9,5	12,550	1
	RT901625016012	PN16	540	165	22,7	14,6	17,750	1
Ø250-180	RT901025018012	PN10	590	210	14,8	10,7	12,910	1
	RT901625018012	PN16	590	210	22,7	16,4	18,110	1
Ø250-200	RT901025020012	PN10	590	210	14,8	11,9	13,810	1
	RT901625020012	PN16	590	210	22,7	18,2	19,010	1
Ø250-225	RT901025022512	PN10	590	230	14,8	13,4	14,150	1
	RT901625022512	PN16	590	230	22,7	20,5	19,350	1
Ø280-50	RT901002805012	PN10	590	100	16,6	3,0	13,820	1
	RT901602805012	PN16	590	100	25,4	4,6	20,420	1

PE Enjeksiyon Malzeme
PE Injected Material

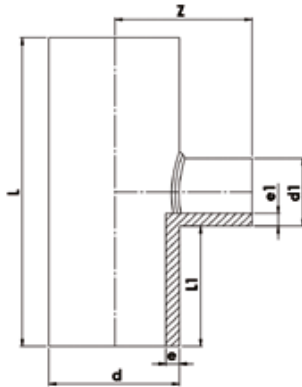


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø280-63	RT901002806312	PN10	420	115	16,6	3,80	7,030	1
	RT901602806312	PN16	420	115	25,4	5,80	10,330	1
Ø280-75	RT901002807512	PN10	420	130	16,6	4,50	7,130	1
	RT901602807512	PN16	420	130	25,4	6,80	10,430	1
Ø280-90	RT901002809012	PN10	420	130	16,6	5,40	7,920	1
	RT901602809012	PN16	420	130	25,4	8,20	11,550	1
Ø280-110	RT901028011012	PN10	460	150	16,6	6,60	8,980	1
	RT901628011012	PN16	460	150	25,4	10,00	12,940	1
Ø280-125	RT901028012512	PN10	500	165	16,6	7,40	9,740	1
	RT901628012512	PN16	500	165	25,4	11,40	14,030	1
Ø280-140	RT901028014012	PN10	510	165	16,6	8,30	10,790	1
	RT901628014012	PN16	510	165	25,4	12,70	15,410	1
Ø280-160	RT901028016012	PN10	520	180	16,6	9,50	11,830	1
	RT901628016012	PN16	520	180	25,4	14,60	16,780	1
Ø280-180	RT901028018012	PN10	530	180	16,6	10,70	14,240	1
	RT901628018012	PN16	530	180	25,4	16,40	20,180	1
Ø280-200	RT901028020012	PN10	560	200	16,6	11,90	17,880	1
	RT901628020012	PN16	560	200	25,4	18,20	25,140	1
Ø315-50	RT901003155012	PN10	420	100	18,7	3,00	8,820	1
	RT901603155012	PN16	420	100	28,6	4,60	12,920	1
Ø315-63	RT901003156312	PN10	430	115	18,7	3,80	8,880	1
	RT901603156312	PN16	430	115	28,6	5,80	12,980	1
Ø315-75	RT901003157512	PN10	440	130	18,7	4,50	8,980	1
	RT901603157512	PN16	440	130	28,6	6,80	13,080	1
Ø315-90	RT901003159012	PN10	450	130	18,7	5,40	9,950	1
	RT901603159012	PN16	450	130	28,6	8,20	14,460	1
Ø315-110	RT901031511012	PN10	480	150	18,7	6,60	11,200	1
	RT901631511012	PN16	480	150	28,6	10,00	16,120	1
Ø315-125	RT901031512512	PN10	500	165	18,7	7,40	12,140	1
	RT901631512512	PN16	500	165	28,6	11,40	17,470	1
Ø315-140	RT901031514012	PN10	500	165	18,7	8,30	13,380	1
	RT901631514012	PN16	500	165	28,6	12,70	19,120	1
Ø315-160	RT901031516012	PN10	520	180	18,7	9,50	14,600	1
	RT901631516012	PN16	520	180	28,6	14,60	20,750	1
Ø315-180	RT901031518012	PN10	540	180	18,7	10,70	15,830	1
	RT901631518012	PN16	540	180	28,6	16,40	22,390	1
Ø315-200	RT901031520012	PN10	550	200	18,7	11,90	17,600	1
	RT901631520012	PN16	550	200	28,6	18,20	24,570	1
Ø315-225	RT901031522512	PN10	620	200	18,7	13,40	18,810	1
	RT901631522512	PN16	620	200	28,6	20,50	26,190	1
Ø315-250	RT901031525012	PN10	620	220	18,7	14,80	25,730	1
	RT901631525012	PN16	620	220	28,6	22,70	35,570	1
Ø315-280	RT901031528012	PN10	655	260	18,7	16,60	26,720	1
	RT901631528012	PN16	655	260	28,6	25,40	36,560	1
Ø400-50	RT901004005012	PN10	420	100	23,7	3,00	14,120	1
	RT901604005012	PN16	420	100	36,3	4,60	20,770	1
Ø400-63	RT901004006312	PN10	420	115	23,7	3,80	14,180	1
	RT901604006312	PN16	420	115	36,3	5,80	20,830	1
Ø400-75	RT901004007512	PN10	420	130	23,7	4,50	14,280	1
	RT901604007512	PN16	420	130	36,3	6,80	20,930	1

PE Enjeksiyon Malzeme
PE Injected Material

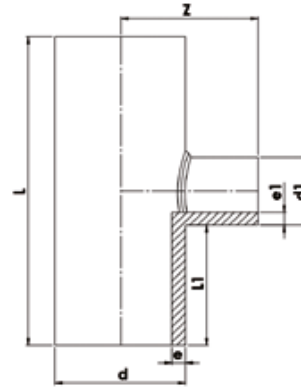


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø400-90	RT901004009012	PN10	450	130	23,7	5,40	28,000	1
	RT901604009012	PN16	450	130	36,3	8,20	41,300	1
Ø400-110	RT901040011012	PN10	480	150	23,7	6,60	28,000	1
	RT901640011012	PN16	480	150	36,3	10,00	41,300	1
Ø400-125	RT901040012512	PN10	500	165	23,7	7,40	28,000	1
	RT901640012512	PN16	500	165	36,3	11,40	41,300	1
Ø400-140	RT901040014012	PN10	520	165	23,7	8,30	28,000	1
	RT901640014012	PN16	520	165	36,3	12,70	41,300	1
Ø400-160	RT901040016012	PN10	540	180	23,7	9,50	28,000	1
	RT901640016012	PN16	540	180	36,3	14,60	41,300	1
Ø400-180	RT901040018012	PN10	580	180	23,7	10,70	28,000	1
	RT901640018012	PN16	580	180	36,3	16,40	41,300	1
Ø400-200	RT901040020012	PN10	580	200	23,7	11,90	28,000	1
	RT901640020012	PN16	580	200	36,3	18,20	41,300	1
Ø400-225	RT901040022512	PN10	600	200	23,7	13,40	28,000	1
	RT901640022512	PN16	600	200	36,3	20,50	41,300	1
Ø400-250	RT901040025012	PN10	600	200	23,7	14,80	28,000	1
	RT901640025012	PN16	600	200	36,3	22,70	41,300	1
Ø400-280	RT901040028012	PN10	630	230	23,7	16,60	28,000	1
	RT901640028012	PN16	630	230	36,3	25,40	41,300	1
Ø400-315	RT901040031512	PN10	740	260	23,7	18,70	28,000	1
	RT901640031512	PN16	740	260	36,3	28,60	41,300	1
Ø400-355	RT901040035512	PN10	740	260	23,7	21,10	28,000	1
	RT901640035512	PN16	740	260	36,3	32,20	41,300	1
Ø450-50	RT901004505012	PN10	740	260	26,7	3,00	26,310	1
	RT901604505012	PN16	740	260	40,9	4,60	38,880	1
Ø450-63	RT901004506312	PN10	420	100	26,7	3,80	15,000	1
	RT901604506312	PN16	420	100	40,9	5,80	22,000	1
Ø450-75	RT901004507512	PN10	420	115	26,7	4,50	15,100	1
	RT901604507512	PN16	420	115	40,9	6,80	22,150	1
Ø450-90	RT901004509012	PN10	420	130	26,7	5,40	15,15	1
	RT901604509012	PN16	420	130	40,9	8,20	22,200	1
Ø450-110	RT901045011012	PN10	450	130	26,7	6,60	15,160	1
	RT901645011012	PN16	450	130	40,9	10,00	22,320	1
Ø450-125	RT901045012512	PN10	480	150	26,7	7,40	15,180	1
	RT901645012512	PN16	480	150	40,9	11,40	22,440	1
Ø450-140	RT901045014012	PN10	500	165	26,7	8,30	15,260	1
	RT901645014012	PN16	500	165	40,9	12,70	22,550	1
Ø450-160	RT901045016012	PN10	520	165	26,7	9,50	15,380	1
	RT901645016012	PN16	520	165	40,9	14,60	22,730	1
Ø450-180	RT901045018012	PN10	540	180	26,7	10,70	15,520	1
	RT901645018012	PN16	540	180	40,9	16,40	22,940	1
Ø450-200	RT901045020012	PN10	580	180	26,7	11,90	15,680	1
	RT901645020012	PN16	580	180	40,9	18,20	23,160	1
Ø450-225	RT901045022512	PN10	600	200	26,7	13,40	15,900	1
	RT901645022512	PN16	600	200	40,9	20,50	23,470	1

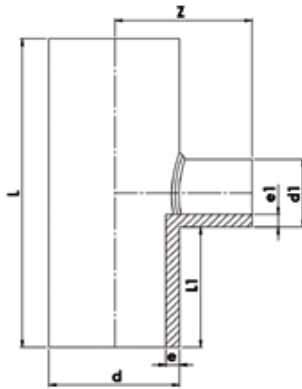
PE Enjeksiyon Malzeme
PE Injected Material



İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

PE Enjeksiyon Malzeme
PE Injected Material



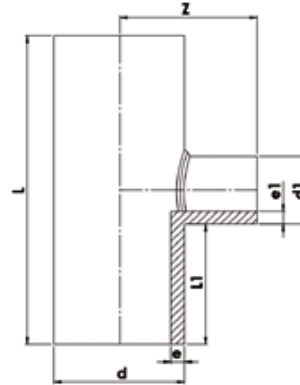
d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø450-250	RT901045025012	PN10	600	260	26,7	14,8	24,100	1
	RT901645025012	PN16	600	260	40,9	22,7	35,600	1
Ø450-280	RT901045028012	PN10	640	260	26,7	16,6	24,800	1
	RT901645028012	PN16	640	260	40,9	25,4	36,650	1
Ø450-315	RT901045031512	PN10	790	400	26,7	18,7	35,000	1
	RT901645031512	PN16	790	400	40,9	28,6	52,000	1
Ø450-355	RT901045035512	PN10	790	400	26,7	21,1	36,800	1
	RT901645035512	PN16	790	400	40,9	32,2	54,000	1
Ø450-400	RT901045040012	PN10	790	400	26,7	23,7	39,200	1
	RT901645040012	PN16	790	400	40,9	36,3	58,000	1
Ø500-50	RT901005005012	PN10	420	100	29,7	3,0	18,440	1
	RT901605005012	PN16	420	100	45,4	4,6	27,150	1
Ø500-63	RT901005006312	PN10	420	115	29,7	3,8	18,460	1
	RT901605006312	PN16	420	115	45,4	5,8	27,250	1
Ø500-75	RT901005007512	PN10	420	130	29,7	4,5	18,530	1
	RT901605007512	PN16	420	130	45,4	6,80	27,300	1
Ø500-90	RT901005009012	PN10	450	130	29,7	5,4	19,900	1
	RT901605009012	PN16	450	130	45,4	8,2	29,300	1
Ø500-110	RT901050011012	PN10	480	150	29,7	6,6	21,350	1
	RT901650011012	PN16	480	150	45,4	10	31,440	1
Ø500-125	RT901050012512	PN10	500	165	29,7	7,4	22,350	1
	RT901650012512	PN16	500	165	45,4	11,4	32,920	1
Ø500-140	RT901050014012	PN10	520	165	29,7	8,3	23,350	1
	RT901650014012	PN16	520	165	45,4	12,7	34,380	1
Ø500-160	RT901050016012	PN10	540	180	29,7	9,5	24,460	1
	RT901650016012	PN16	540	180	45,4	14,6	36,030	1
Ø500-180	RT901050018012	PN10	580	180	29,7	10,7	26,430	1
	RT901650018012	PN16	580	180	45,4	16,4	38,920	1
Ø500-200	RT901050020012	PN10	580	200	29,7	11,9	26,550	1
	RT901650020012	PN16	580	200	45,4	18,2	39,100	1
Ø500-225	RT901050022512	PN10	600	200	29,7	13,4	28,060	1
	RT901650022512	PN16	600	200	45,4	20,5	41,320	1
Ø500-250	RT901050025012	PN10	620	200	29,7	14,8	29,360	1
	RT901650025012	PN16	620	200	45,4	22,7	43,230	1
Ø500-280	RT901050028012	PN10	630	230	29,7	16,6	30,750	1
	RT901650028012	PN16	630	230	45,4	25,4	45,300	1
Ø500-315	RT901050031512	PN10	630	240	29,7	18,7	31,770	1
	RT901650031512	PN16	630	240	45,4	28,6	46,780	1
Ø500-355	RT901050035512	PN10	840	240	29,7	21,1	42,100	1
	RT901650035512	PN16	840	240	45,4	32,2	62,000	1
Ø500-400	RT901050040012	PN10	840	400	29,7	23,7	48,000	1
	RT901650040012	PN16	840	400	45,4	36,3	70,700	1
Ø500-450	RT901050045012	PN10	840	400	29,7	26,7	50,950	1
	RT901650045012	PN16	840	400	45,4	40,9	75,100	1

İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø560-50	RT901005605012	PN10	600	260	33,2	3,0	33,000	1
	RT901605605012	PN16	600	260	50,8	4,6	48,650	1
Ø560-63	RT901005606312	PN10	640	260	33,2	3,8	33,060	1
	RT901605606312	PN16	640	260	50,8	5,8	48,750	1
Ø560-75	RT901005607512	PN10	790	400	33,2	4,5	43,700	1
	RT901605607512	PN16	790	400	50,8	6,8	79,590	1
Ø560-90	RT901005609012	PN10	450	130	33,2	5,4	24,850	1
	RT901605609012	PN16	450	130	50,8	8,2	45,270	1
Ø560-110	RT901056011012	PN10	480	150	33,2	6,6	26,630	1
	RT901656011012	PN16	480	150	50,8	10,0	39,250	1
Ø560-125	RT901056012512	PN10	500	165	33,2	7,4	27,850	1
	RT901656012512	PN16	500	165	50,8	11,4	41,070	1
Ø560-140	RT901056014012	PN10	520	165	33,2	8,3	29,070	1
	RT901656014012	PN16	520	165	50,8	12,7	42,850	1
Ø560-160	RT901056016012	PN10	540	180	33,2	9,5	30,400	1
	RT901656016012	PN16	540	180	50,8	14,6	44,830	1
Ø560-180	RT901056018012	PN10	580	180	33,2	10,7	32,810	1
	RT901656018012	PN16	580	180	50,8	16,4	48,380	1
Ø560-200	RT901056020012	PN10	580	180	33,2	11,9	33,050	1
	RT901656020012	PN16	580	180	50,8	18,2	48,730	1
Ø560-225	RT901056022512	PN10	600	200	33,2	13,4	34,670	1
	RT901656022512	PN16	600	200	50,8	20,5	51,100	1
Ø560-250	RT901056025012	PN10	620	200	33,2	14,8	36,180	1
	RT901656025012	PN16	620	200	50,8	22,7	53,340	1
Ø560-280	RT901056028012	PN10	630	230	33,2	16,6	37,650	1
	RT901656028012	PN16	630	230	50,8	25,4	55,570	1
Ø560-315	RT901056031512	PN10	630	240	33,2	18,7	38,700	1
	RT901656031512	PN16	630	240	50,8	28,6	57,050	1
Ø560-355	RT901056035512	PN10	900	400	33,2	21,1	58,160	1
	RT901656035512	PN16	900	400	50,8	32,2	85,720	1
Ø560-400	RT901056040012	PN10	900	400	33,2	23,7	60,520	1
	RT901656040012	PN16	900	400	50,8	36,3	89,240	1
Ø560-450	RT901056045012	PN10	900	400	33,2	26,7	63,480	1
	RT901656045012	PN16	900	400	50,8	40,9	93,640	1
Ø560-500	RT901056050012	PN10	900	400	33,2	29,7	66,840	1
	RT901656050012	PN16	900	400	50,8	45,4	98,520	1
Ø630-63	RT901006306312	PN10	420	115	37,4	3,8	29,230	1
	RT901606306312	PN16	420	115	57,2	5,8	42,960	1
Ø630-75	RT901006307512	PN10	420	130	37,4	4,5	29,280	1
	RT901606307512	PN16	420	130	57,2	6,8	43,030	1
Ø630-90	RT901006309012	PN10	450	130	37,4	5,4	31,420	1
	RT901606309012	PN16	450	130	57,2	8,2	46,170	1
Ø630-110	RT901063011012	PN10	480	150	37,4	6,6	33,560	1
	RT901663011012	PN16	480	150	57,2	10,0	49,320	1
Ø630-125	RT901063012512	PN10	500	165	37,4	7,4	35,150	1
	RT901663012512	PN16	500	165	57,2	11,4	51,670	1

PE Enjeksiyon Malzeme
PE Injected Material

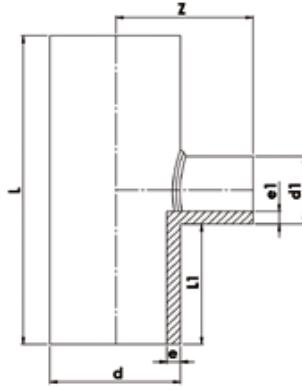


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø630-140	RT901063014012	PN10	520	165	37,4	8,3	36,660	1
	RT901663014012	PN16	520	165	57,2	12,7	53,880	1
Ø630-160	RT901063016012	PN10	540	180	37,4	9,5	38,290	1
	RT901663016012	PN16	540	180	57,2	14,6	56,280	1
Ø630-180	RT901063018012	PN10	580	180	37,4	10,7	41,280	1
	RT901663018012	PN16	580	180	57,2	16,4	68,670	1
Ø630-200	RT901063020012	PN10	580	180	37,4	11,9	41,520	1
	RT901663020012	PN16	580	180	57,2	18,2	61,030	1
Ø630-225	RT901063022512	PN10	600	200	37,4	13,4	43,430	1
	RT901663022512	PN16	600	200	57,2	20,5	63,820	1
Ø630-250	RT901063025012	PN10	620	200	37,4	14,8	45,230	1
	RT901663025012	PN16	620	200	57,2	22,7	66,480	1
Ø630-280	RT901063028012	PN10	630	230	37,4	16,6	46,870	1
	RT901663028012	PN16	630	230	57,2	25,4	68,930	1
Ø630-315	RT901063031512	PN10	630	240	37,4	18,7	47,900	1
	RT901663031512	PN16	630	240	57,2	28,6	70,400	1
Ø630-355	RT901063035512	PN10	970	400	37,4	21,1	76,160	1
	RT901663035512	PN16	970	400	57,2	32,2	111,940	1
Ø630-400	RT901063040012	PN10	970	400	37,4	23,7	78,520	1
	RT901663040012	PN16	970	400	57,2	36,3	115,460	1
Ø630-450	RT901063045012	PN10	970	400	37,4	26,7	81,480	1
	RT901663045012	PN16	970	400	57,2	40,9	119,860	1
Ø630-500	RT901063050012	PN10	970	400	37,4	29,7	84,840	1
	RT901663050012	PN16	970	400	57,2	45,4	124,740	1
Ø630-560	RT901063056012	PN10	970	400	37,4	33,2	89,240	1
	RT901663056012	PN16	970	400	57,2	50,8	131,260	1
Ø710-63	RT901007106312	PN10	500	115	42,1	3,8	44,080	1
	RT901607106312	PN16	500	115	64,5	5,8	180,000	1
Ø710-75	RT901007107512	PN10	500	130	42,1	4,5	44,130	1
	RT901607107512	PN16	500	130	64,5	6,8	65,190	1
Ø710-90	RT901007109012	PN10	530	130	42,1	5,4	46,830	1
	RT901607109012	PN16	530	130	64,5	8,2	69,170	1
Ø710-110	RT901071011012	PN10	560	150	42,1	6,6	49,600	1
	RT901671011012	PN16	560	150	64,5	10	73,270	1
Ø710-125	RT901071012512	PN10	580	165	42,1	7,4	51,490	1
	RT901671012512	PN16	580	165	64,5	11,4	76,070	1
Ø710-140	RT901071014012	PN10	600	165	42,1	8,3	53,370	1
	RT901671014012	PN16	600	165	64,5	12,7	78,840	1
Ø710-160	RT901071016012	PN10	620	180	42,1	9,5	55,370	1
	RT901671016012	PN16	620	180	64,5	14,6	81,800	1
Ø710-180	RT901071018012	PN10	660	180	42,1	10,7	59,100	1
	RT901671018012	PN16	660	180	64,5	16,4	87,310	1
Ø710-200	RT901071020012	PN10	660	180	42,1	11,9	59,350	1
	RT901671020012	PN16	660	180	64,5	18,2	87,670	1
Ø710-225	RT901071022512	PN10	680	200	42,1	13,4	61,630	1
	RT901671022512	PN16	680	200	64,5	20,5	91,020	1

PE Enjeksiyon Malzeme
PE Injected Material

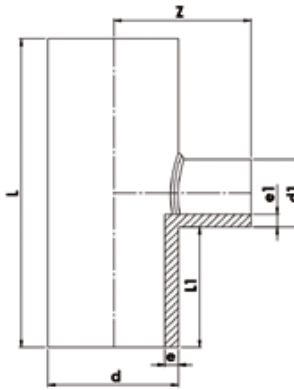


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø710-250	RT901071025012	PN10	710	200	42,1	14,8	64,680	1
	RT901671025012	PN16	710	200	64,5	22,7	95,540	1
Ø710-280	RT901071028012	PN10	710	230	42,1	16,6	65,630	1
	RT901671028012	PN16	710	230	64,5	25,4	96,970	1
Ø710-315	RT901071031512	PN10	780	300	42,1	18,7	73,860	1
	RT901671031512	PN16	780	300	64,5	28,6	109,080	1
Ø710-355	RT901071035512	PN10	880	300	42,1	21,1	84,070	1
	RT901671035512	PN16	880	300	64,5	32,2	124,150	1
Ø710-400	RT901071040012	PN10	960	300	42,1	23,7	92,880	1
	RT901671040012	PN16	960	300	64,5	36,3	137,190	1
Ø710-450	RT901071045012	PN10	1270	440	42,1	26,7	127,330	1
	RT901671045012	PN16	1270	440	64,5	40,9	188,110	1
Ø710-500	RT901071050012	PN10	1270	440	42,1	29,7	131,030	1
	RT901671050012	PN16	1270	440	64,5	45,4	193,480	1
Ø710-560	RT901071056012	PN10	1270	440	42,1	33,2	135,870	1
	RT901671056012	PN16	1270	440	64,5	50,8	200,650	1
Ø710-630	RT901071063012	PN10	1270	440	42,1	37,4	142,300	1
	RT901671063012	PN16	1270	440	64,5	57,2	209,980	1
Ø800-90	RT901080009012	PN10	530	130	47,4	5,4	59,550	1
	RT901680009012	PN16	530	130	72,6	8,2	87,120	1
Ø800-110	RT901080011012	PN10	560	150	47,4	6,6	62,940	1
	RT901680011012	PN16	560	150	72,6	10	92,080	1
Ø800-125	RT901080012512	PN10	580	165	47,4	7,4	65,530	1
	RT901680012512	PN16	580	165	72,6	11,4	95,880	1
Ø800-140	RT901080014012	PN10	600	165	47,4	8,3	67,770	1
	RT901680014012	PN16	600	165	72,6	12,7	99,150	1
Ø800-160	RT901080016012	PN10	620	180	47,4	9,5	70,250	1
	RT901680016012	PN16	620	180	72,6	14,6	102,790	1
Ø800-180	RT901080018012	PN10	660	180	47,4	10,7	74,950	1
	RT901680018012	PN16	660	180	72,6	16,4	109,660	1
Ø800-200	RT901080020012	PN10	660	180	47,4	11,9	75,190	1
	RT901680020012	PN16	660	180	72,6	18,2	110,020	1
Ø800-225	RT901080022512	PN10	680	200	47,4	13,4	77,570	1
	RT901680022512	PN16	680	200	72,6	20,5	113,500	1
Ø800-250	RT901080025012	PN10	710	230	47,4	14,8	81,140	1
	RT901680025012	PN16	710	230	72,6	22,7	118,730	1
Ø800-280	RT901080028012	PN10	710	230	47,4	16,6	82,050	1
	RT901680028012	PN16	710	230	72,6	25,4	120,070	1
Ø800-315	RT901080031512	PN10	780	300	47,4	18,7	92,580	1
	RT901680031512	PN16	780	300	72,6	28,6	135,490	1
Ø800-355	RT901080035512	PN10	880	300	47,4	21,1	105,190	1
	RT901680035512	PN16	880	300	72,6	32,2	153,950	1
Ø800-400	RT901080040012	PN10	960	300	47,4	23,7	115,920	1
	RT901680040012	PN16	960	300	72,6	36,3	169,690	1
Ø800-450	RT901080045012	PN10	1080	300	47,4	26,7	131,580	1
	RT901680045012	PN16	1080	300	72,6	40,9	192,660	1

PE Enjeksiyon Malzeme
PE Injected Material

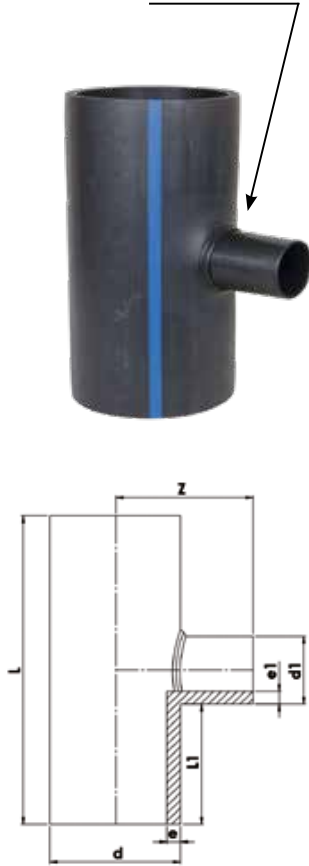


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø800-500	RT901080050012	PN10	1360	440	47,4	29,7	171,590	1
	RT901680050012	PN16	1360	440	72,6	45,4	251,230	1
Ø800-560	RT901080056012	PN10	1360	440	47,4	33,2	176,430	1
	RT901680056012	PN16	1360	440	72,6	50,8	258,400	1
Ø800-630	RT901080063012	PN10	1360	440	47,4	37,4	182,860	1
	RT901680063012	PN16	1360	440	72,6	57,2	267,730	1
Ø800-710	RT901080071012	PN10	1410	440	47,4	42,1	196,640	1
	RT901680071012	PN16	1410	440	72,6	64,5	288,240	1
Ø900-110	RT901090011012	PN10	710	150	53,3	6,6	79,840	1
	RT901690011012	PN16	710	150	81,7	10,0	116,810	1
Ø900-125	RT901090012512	PN10	725	165	53,3	7,4	102,680	1
	RT901690012512	PN16	725	165	81,7	11,4	151,040	1
Ø900-140	RT901090014012	PN10	740	165	53,3	8,3	104,910	1
	RT901690014012	PN16	740	165	81,7	12,7	154,320	1
Ø900-160	RT901090016012	PN10	760	180	53,3	9,5	107,970	1
	RT901690016012	PN16	760	180	81,7	14,6	158,830	1
Ø900-180	RT901090018012	PN10	780	180	53,3	10,7	111,000	1
	RT901690018012	PN16	780	180	81,7	16,4	163,300	1
Ø900-200	RT901090020012	PN10	800	180	53,3	11,9	114,000	1
	RT901690020012	PN16	800	180	81,7	18,2	167,800	1
Ø900-225	RT901090022512	PN10	825	200	53,3	13,4	118,110	1
	RT901690022512	PN16	825	200	81,7	20,5	173,730	1
Ø900-250	RT901090025012	PN10	850	230	53,3	14,8	122,380	1
	RT901690025012	PN16	850	230	81,7	22,7	180,020	1
Ø900-280	RT901090028012	PN10	880	230	53,3	16,6	127,230	1
	RT901690028012	PN16	880	230	81,7	25,4	187,190	1
Ø900-315	RT901090031512	PN10	915	300	53,3	18,7	134,250	1
	RT901690031512	PN16	915	300	81,7	28,6	197,460	1
Ø900-355	RT901090035512	PN10	955	300	53,3	21,1	141,280	1
	RT901690035512	PN16	955	300	81,7	32,2	207,830	1
Ø900-400	RT901090040012	PN10	1000	300	53,3	23,7	149,400	1
	RT901690040012	PN16	1000	300	81,7	36,3	219,800	1
Ø900-450	RT901090045012	PN10	1050	300	53,3	26,7	158,670	1
	RT901690045012	PN16	1050	300	81,7	40,9	233,470	1
Ø900-500	RT901090050012	PN10	1100	350	53,3	29,7	170,430	1
	RT901690050012	PN16	1100	350	81,7	45,4	250,730	1
Ø900-560	RT901090056012	PN10	1160	350	53,3	33,2	182,740	1
	RT901690056012	PN16	1160	350	81,7	50,8	268,870	1
Ø900-630	RT901090063012	PN10	1230	350	53,3	37,4	197,720	1
	RT901690063012	PN16	1230	350	81,7	57,2	290,810	1
Ø900-710	RT901090071012	PN10	1310	350	53,3	42,1	215,510	1
	RT901690071012	PN16	1310	350	81,7	64,5	317,200	1
Ø900-800	RT901090080012	PN10	1400	350	53,3	47,4	236,600	1
	RT901690080012	PN16	1400	350	81,7	72,6	347,720	1
Ø1000-110	RT901010001112	PN10	710	150	59,3	6,6	100,430	1
	RT901610001112	PN16	710	150	90,8	10,0	147,730	1

PE Enjeksiyon Malzeme
PE Injected Material

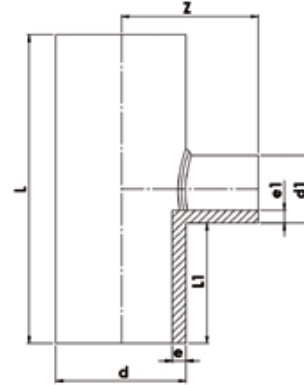


İNEGAL TE REDUCED TEE ТРОЙНИК-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	Z	e	e1	Weight (kg)	Pack (pc)
Ø1000-125	RT901010001212	PN10	725	165	59,3	7,4	127,330	1
	RT901610001212	PN16	725	165	90,8	11,4	186,340	1
Ø1000-140	RT901010001412	PN10	740	165	59,3	8,3	129,950	1
	RT901610001412	PN16	740	165	90,8	12,7	190,180	1
Ø1000-160	RT901010001612	PN10	760	180	59,3	9,5	133,810	1
	RT901610001612	PN16	760	180	90,8	14,6	195,830	1
Ø1000-180	RT901010001812	PN10	780	180	59,3	10,7	137,530	1
	RT901610001812	PN16	780	180	90,8	16,4	201,260	1
Ø1000-200	RT901010002012	PN10	800	180	59,3	11,9	141,270	1
	RT901610002012	PN16	800	180	90,8	18,2	206,740	1
Ø1000-225	RT901010002212	PN10	825	200	59,3	13,4	146,610	1
	RT901610002212	PN16	825	200	90,8	20,5	213,890	1
Ø1000-250	RT901010002512	PN10	850	230	59,3	14,8	151,280	1
	RT901610002512	PN16	850	230	90,8	22,7	221,400	1
Ø1000-280	RT901010002812	PN10	880	230	59,3	16,6	157,150	1
	RT901610002812	PN16	880	230	90,8	25,4	230,020	1
Ø1000-315	RT901010003112	PN10	915	300	59,3	18,7	165,340	1
	RT901610003112	PN16	915	300	90,8	28,6	242,000	1
Ø1000-355	RT901010003512	PN10	955	300	59,3	21,1	173,750	1
	RT901610003512	PN16	955	300	90,8	32,2	254,320	1
Ø1000-400	RT901010004012	PN10	1000	300	59,3	23,7	183,400	1
	RT901610004012	PN16	1000	300	90,8	36,3	268,480	1
Ø1000-450	RT901010004512	PN10	1050	300	59,3	26,7	194,370	1
	RT901610004512	PN16	1050	300	90,8	40,9	284,580	1
Ø1000-500	RT901010005012	PN10	1100	350	59,3	29,7	207,830	1
	RT901610005012	PN16	1100	350	90,8	45,4	304,270	1
Ø1000-560	RT901010005612	PN10	1160	350	59,3	33,2	222,180	1
	RT901610005612	PN16	1160	350	90,8	50,8	325,340	1
Ø1000-630	RT901010006312	PN10	1230	350	59,3	37,4	239,540	1
	RT901610006312	PN16	1230	350	90,8	57,2	350,690	1
Ø1000-710	RT901010007112	PN10	1310	350	59,3	42,1	260,050	1
	RT901610007112	PN16	1310	350	90,8	64,5	380,980	1
Ø1000-800	RT901010008012	PN10	1400	350	59,3	47,4	284,200	1
	RT901610008012	PN16	1400	350	90,8	72,6	415,880	1
Ø1000-900	RT901010009012	PN10	1500	400	59,3	53,3	307,300	1
	RT901610009012	PN16	1500	400	90,8	81,7	449,680	1
Ø1200-400	RT901012004012	PN10	1000	300	71,1	23,7	255,460	1
	RT901612004012	PN16	1000	300	109,1	36,3	381,220	1
Ø1400-500	RT901014005012	PN10	1100	350	83,0	29,7	385,230	1
Ø1600-500	RT901016005012	PN10	1100	350	94,84	29,7	488,560	1

PE Enjeksiyon Malzeme
PE Injected Material



45° ÇATAL TE 45° WYE TEE 45° КОСЫЙ ТРОЙНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

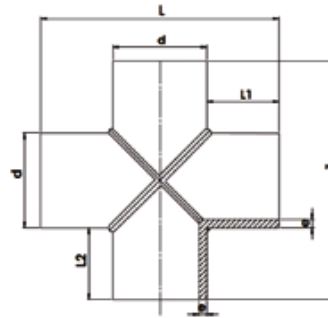
d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø90	CT451000009012	PN10	556	333	5,4	1,170	1
	CT451600009012	PN16	556	333	8,2	1,690	1
Ø125	CT451000012512	PN10	577	351	7,4	2,220	1
	CT451600012512	PN16	577	351	11,4	3,270	1
Ø140	CT451000014012	PN10	598	369	8,3	2,870	1
	CT451600014012	PN16	598	369	12,7	4,200	1
Ø180	CT451000018012	PN10	655	417	10,7	5,100	1
	CT451600018012	PN16	655	417	16,4	7,500	1
Ø200	CT451000020012	PN10	783	491	11,9	7,590	1
	CT451600020012	PN16	783	491	18,2	11,150	1
Ø225	CT451000022512	PN10	818	522	13,4	9,980	1
	CT451600022512	PN16	818	522	20,5	14,570	1
Ø250	CT451000025012	PN10	954	602	14,8	14,400	1
	CT451600025012	PN16	954	602	22,7	21,120	1
Ø280	CT451000028012	PN10	996	638	16,6	18,580	1
	CT451600028012	PN16	996	638	25,4	27,440	1
Ø315	CT451000031512	PN10	1145	730	18,7	27,190	1
	CT451600031512	PN16	1145	730	28,6	39,850	1
Ø355	CT451000035512	PN10	1202	779	21,1	35,990	1
	CT451600035512	PN16	1202	779	32,2	52,720	1
Ø400	CT451000040012	PN10	1266	833	23,7	47,660	1
	CT451600040012	PN16	1266	833	36,3	69,990	1
Ø450	CT451000045012	PN10	1336	893	26,7	63,090	1
	CT451600045012	PN16	1336	893	40,9	92,780	1
Ø500	CT451000050012	PN10	1407	954	29,7	81,670	1
	CT451600050012	PN16	1407	954	45,4	119,670	1
Ø560	CT451000056012	PN10	1492	1026	33,2	107,520	1
	CT451600056012	PN16	1492	1026	50,8	157,680	1
Ø630	CT451000063012	PN10	1591	1110	37,4	144,020	1
	CT451600063012	PN16	1591	1110	57,2	210,390	1



90° İSTAVROZ TE 90° CROSS TEE 90° КРЕСТОВИНА

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

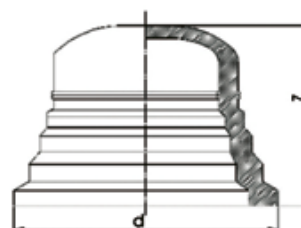
d	Article No	Bar	L	Z	L1	L2	e	Weight (kg)	Pack (pc)
Ø75	TV901000007513	PN10	255	127	90	90	4,5	0,410	1
	TV901600007513	PN16	255	127	90	90	6,8	0,580	1
Ø90	TV901000009013	PN10	270	135	90	90	5,4	0,590	1
	TV901600009013	PN16	270	135	90	90	8,2	0,860	1
Ø125	TV901000012513	PN10	364	182	120	120	7,4	1,500	1
	TV901600012513	PN16	364	182	120	120	11,4	2,210	1
Ø140	TV901000014013	PN10	400	200	130	130	8,3	2,050	1
	TV901600014013	PN16	400	200	130	130	12,7	2,990	1
Ø180	TV901000018013	PN10	480	240	150	150	10,7	3,950	1
	TV901600018013	PN16	480	240	150	150	16,4	5,800	1
Ø200	TV901000020013	PN10	500	250	150	150	11,9	4,950	1
	TV901600020013	PN16	500	250	150	150	18,2	7,260	1
Ø225	TV901000022513	PN10	524	262	150	150	13,4	6,370	1
	TV901600022513	PN16	524	262	150	150	20,5	9,290	1
Ø250	TV901000025013	PN10	550	275	150	150	14,8	8,010	1
	TV901600025013	PN16	550	275	150	150	22,7	11,710	1
Ø280	TV901000028013	PN10	580	290	150	150	16,6	10,170	1
	TV901600028013	PN16	580	290	150	150	25,4	14,970	1
Ø315	TV901000031513	PN10	614	307	150	150	18,7	13,210	1
	TV901600031513	PN16	614	307	150	150	28,6	19,280	1
Ø355	TV901000035513	PN10	754	377	200	200	21,1	21,640	1
	TV901600035513	PN16	754	377	200	200	32,2	31,610	1
Ø400	TV901000040013	PN10	800	400	200	200	23,7	28,090	1
	TV901600040013	PN16	800	400	200	200	36,3	41,120	1
Ø450	TV901000045013	PN10	850	425	200	200	26,7	36,390	1
	TV901600045013	PN16	850	425	200	200	40,9	53,340	1
Ø500	TV901000050013	PN10	900	450	200	200	29,7	46,150	1
	TV901600050013	PN16	900	450	200	200	45,4	67,360	1
Ø560	TV901000056013	PN10	1060	530	250	250	33,2	70,360	1
	TV901600056013	PN16	1060	530	250	250	50,8	102,900	1
Ø630	TV901000063013	PN10	1130	565	250	250	37,4	91,550	1
	TV901600063013	PN16	1130	565	250	250	57,2	133,270	1



KEP END CAP ЗАГЛУШКА

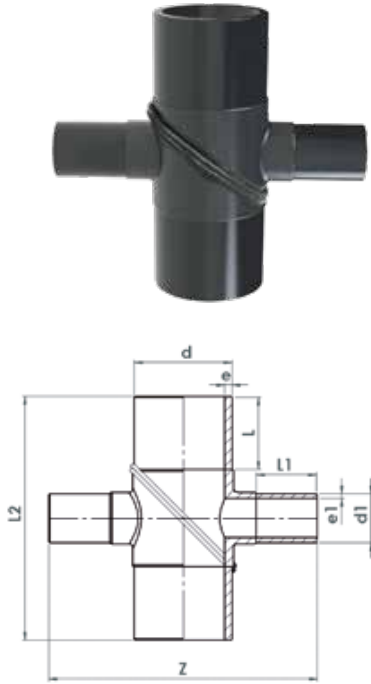
KIT / Injected Welded Desing/ Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d	Article No	Bar	Z	Weight (kg)	Pack (pc)
Ø450	KE001000045055	PN10	210	11.200	1
	KE001600045055	PN16	210	11.600	1
Ø500	KE001000050055	PN10	260	14.500	1
	KE001600050055	PN16	260	15.100	1
Ø560	KE001000056055	PN10	335	19.750	1
	KE001600056055	PN16	335	20.800	1
Ø630	KE001000063055	PN10	375	24.390	1
	KE001600063055	PN16	375	26.200	1



90° İNEGAL İSTAVROZ TE 90° REDUCED CROSS TEE 90° НЕРОВНОПРОХОДНАЯ КРЕСТОВИНА

KİT Enjeksiyon / Injected Welded Desing / Material:PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1



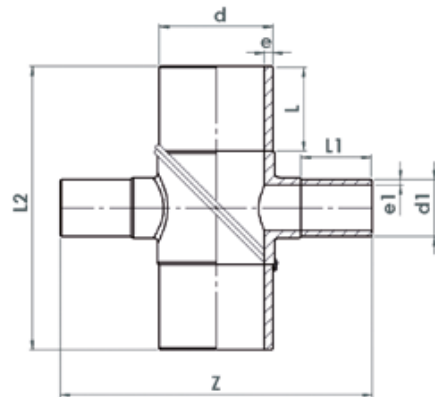
d-d1	Article No	Bar	L	L1	L2	Z	e	e1	Weight (kg)	Pack (pc)
Ø40-32	*	*	*	*	*	*	*	*	*	*
Ø50-25	*	*	*	*	*	*	*	*	*	*
Ø50-32	*	*	*	*	*	*	*	*	*	*
Ø50-40	*	*	*	*	*	*	*	*	*	*
Ø63-25	TV901600632513	PN16	65	55	220	200	5,8	2,3	0,237	35
*Ø63-32	TV901600633211	PN16	65	55	220	200	5,8	3,0	0,240	35
Ø63-40	TV901600634013	PN16	65	55	220	200	5,8	3,7	0,257	35
Ø63-50	TV901600635013	PN16	65	55	220	200	5,8	4,6	0,298	35
Ø75-32	TV901600753213	PN16	70	50	260	245	6,8	3,0	0,315	35
Ø75-50	TV901600755013	PN16	70	50	260	245	6,8	4,6	0,486	20
Ø75-63	TV901600756313	PN16	70	50	260	245	6,8	5,8	0,562	20
Ø90-25	TV901600902513	PN16	80	55	270	160	8,2	2,3	0,643	20
Ø90-32	TV901600903213	PN16	80	55	270	160	8,2	3,0	0,671	15
Ø90-40	TV901600904013	PN16	80	55	270	160	8,2	3,7	0,688	15
Ø90-50	TV901600905013	PN16	80	55	270	160	8,2	4,6	0,800	15
Ø90-63	TV901600906313	PN16	80	55	270	160	8,2	5,8	0,765	15
Ø90-75	TV901600907513	PN16	80	55	270	160	8,2	6,8	0,955	15
Ø110-25	TV901001102513	PN10	80	60	260	260	6,6	2,0	0,631	11
	TV901601102513	PN16	80	60	260	260	10,0	2,3	0,855	15
Ø110-32	TV901001103213	PN10	80	60	260	260	6,6	2,0	0,628	11
	TV901601103213	PN16	80	60	260	260	10,0	3,0	0,854	11
Ø110-40	TV901001104013	PN10	80	60	260	260	6,6	2,4	0,665	10
	TV901601104013	PN16	80	60	260	260	10,0	3,7	0,890	11
Ø110-50	TV901001105013	PN10	80	60	260	260	6,6	3,0	0,685	10
	TV901601105013	PN16	80	60	260	260	10,0	4,6	0,908	10
Ø110-63	TV901001106313	PN10	80	60	260	260	6,6	3,8	0,730	10
	TV901601106313	PN16	80	60	260	260	10,0	5,8	0,970	10
Ø110-75	TV901001107513	PN10	80	60	260	260	6,6	4,5	0,902	10
	TV901601107513	PN16	80	60	260	260	10,0	6,8	1,274	10
Ø110-90	TV901001109013	PN10	80	60	260	260	6,6	5,4	0,993	10
	TV901601109013	PN16	80	60	260	260	10,0	8,2	1465,0	10
Ø125-32	TV901601253213	PN16	95	60	340	320	11,4	3,0	1626,0	10
Ø125-63	TV901001256313	PN10	95	60	340	320	7,4	3,8	1290,0	5
	TV901601256313	PN16	95	60	340	320	11,4	5,8	1717,0	5
Ø125-90	TV901601259013	PN16	95	60	340	320	11,4	8,2	1961,0	5
Ø125-110	TV901012511013	PN10	95	60	340	320	7,4	6,6	1614,0	5
	TV901612511013	PN16	95	60	340	320	11,4	10,0	2154,0	5
Ø140-63	TV901601406313	PN16	100	80	360	330	12,7	5,8	1854,0	5
Ø140-90	TV901601409013	PN16	100	80	360	330	12,7	8,2	2564,0	4
Ø140-110	TV901014011013	PN10	100	80	360	330	8,3	6,6	2052,0	4
	TV901614011013	PN16	100	80	360	330	12,7	10,0	2712,0	4
Ø160-25	TV901001602513	PN10	100	45	340	325	9,5	2,0	1638,0	4
	TV901601602513	PN16	100	45	340	325	14,6	3,0	2291,0	4
Ø160-32	TV901001603213	PN10	100	45	340	325	9,5	2,0	1639,0	4
	TV901601603213	PN16	100	45	340	325	14,6	3,0	2288,0	4
Ø160-63	TV901001606313	PN10	100	60	340	325	9,5	3,8	1723,0	4
	TV901601606313	PN16	100	60	340	325	14,6	5,8	2404,0	4
Ø160-75	TV901001607513	PN10	100	65	340	325	9,5	4,5	1735,0	4
	TV901601607513	PN16	100	65	340	325	14,6	6,8	2481,0	4
Ø160-90	TV901001609013	PN10	100	70	340	325	9,5	5,4	1777,0	4
	TV901601609013	PN16	100	70	340	325	14,6	8,2	2525,0	4
Ø160-110	TV901016011013	PN10	100	85	340	325	9,5	6,6	1999,0	3
	TV901616011013	PN16	100	85	340	325	14,6	10,0	2818,0	4
Ø180-90	TV901601809013	PN16	105	95	400	355	16,4	8,2	4655,0	3

* İşareti olan ürünler enjeksiyondur. / *Products which marked are injected.

90° İNEGAL İSTAVROZ TE 90° REDUCED CROSS TEE 90° НЕРОВНОПРОХОДНАЯ КРЕСТОВИНА

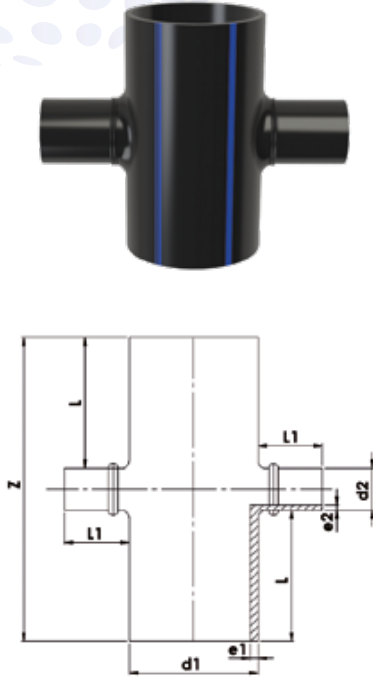
KİT Enjeksiyon / Injected Welded Desing / Material:PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d-d1	Article No	Bar	L	L1	L2	Z	e	e1	Weight (kg)	Pack (pc)
Ø180-110	TV901018011013	PN10	105	100	400	355	10,7	6,6	5,051	3
	TV901618011013	PN16	105	100	400	355	16,4	10,0	3,634	3
Ø180-125	TV901618012513	PN16	105	100	400	355	16,4	11,4	5,010	3
	TV901002006313	PN10	110	65	470	425	11,9	3,8	3,740	2
Ø200-63	TV901602006313	PN16	110	65	470	425	18,2	5,8	5,114	2
	TV901002009013	PN10	110	80	470	425	11,9	5,4	3,840	2
Ø200-90	TV901602009013	PN16	110	80	470	425	18,2	8,2	5,290	2
	TV901020011013	PN10	110	83	470	425	11,9	6,6	3,984	2
Ø200-110	TV901620011013	PN16	110	83	470	425	18,2	10,0	5,493	2
	TV901020012513	PN10	110	97	470	425	11,9	7,4	4,125	2
Ø200-125	TV901620012513	PN16	110	97	470	425	18,2	11,4	5,733	2
	TV901020016013	PN10	110	100	470	425	11,9	9,5	4,596	2
Ø200-160	TV901620016013	PN16	110	100	470	425	18,2	14,6	6,435	2
	TV901620018013	PN16	110	109	470	425	18,2	16,4	8,561	2
Ø225-110	TV901022511013	PN10	115	83	480	530	13,4	6,6	4,580	1
	TV901622511013	PN16	115	83	480	530	20,5	10,0	6,545	2
Ø225-160	TV901022516013	PN10	115	100	480	530	13,4	9,5	5,147	1
	TV901622516013	PN16	115	100	480	530	20,5	14,6	7,421	1
Ø250-110	TV901025011013	PN10	130	83	560	580	14,8	6,6	5,704	1
	TV901625011013	PN16	130	83	560	580	22,7	10,0	8,153	1
Ø250-125	TV901025012513	PN10	130	97	560	580	22,7	11,4	5,901	1
	TV901025014013	PN10	130	93	560	580	22,7	12,7	5,905	1
Ø250-160	TV901025016013	PN10	130	100	560	580	14,8	9,5	6,307	1
	TV901625016013	PN16	130	100	560	580	22,7	14,6	9,077	1
Ø250-200	TV901025020013	PN10	130	110	560	580	14,8	11,9	9,180	1
	TV901625020013	PN16	130	110	560	580	22,7	18,2	1,173	1
Ø280-110	TV901028011013	PN10	150	85	530	465	16,6	6,6	8,305	1
	TV901628011013	PN16	150	85	530	465	25,4	10,0	11,194	1
Ø280-160	TV901028016013	PN10	150	98	530	465	16,6	9,5	10,573	1
	TV901628016013	PN16	150	98	530	465	25,4	14,6	11,897	1
Ø280-200	TV901028020013	PN10	150	115	530	465	16,6	11,9	11,084	1
	TV901628020013	PN16	150	115	530	465	25,4	18,2	14,916	1
Ø315-110	TV901031511013	PN10	140	80	600	515	18,7	6,6	10,564	1
	TV901631511013	PN16	140	80	600	515	28,6	10,0	14,229	1
Ø315-140	TV901031514013	PN10	140	95	600	515	28,6	12,7	10,617	1
	TV901031516013	PN10	140	100	600	515	18,7	9,5	10,717	1
Ø315-160	TV901631516013	PN16	140	100	600	515	28,6	14,6	15,491	1
Ø315-200	TV901031520013	PN10	140	120	600	515	18,7	11,9	11,621	1
	TV901631520013	PN16	140	120	600	515	28,6	18,2	16,210	1
Ø315-225	TV901031522513	PN10	140	110	600	515	28,6	20,5	15,936	1
	TV901031525013	PN10	140	125	600	515	18,7	14,8	17,125	1
Ø315-250	TV901631525013	PN16	140	125	600	515	28,6	22,7	22,500	1
Ø355-110	TV901035511013	PN10	130	85	630	580	21,1	6,6	11,130	1
	TV901635511013	PN16	130	85	630	580	32,2	10,0	15,176	1
Ø355-160	TV901035516013	PN10	130	100	630	580	21,1	9,5	11,854	1
	TV901635516013	PN16	130	100	630	580	32,2	14,6	16,275	1
Ø355-250	TV901035525013	PN10	130	150	630	580	21,1	14,8	17,056	1
	TV901635525013	PN16	130	150	630	580	32,2	22,7	23,907	1
Ø400-110	TV901040011013	PN10	160	85	700	630	23,7	6,6	16,560	1
	TV901640011013	PN16	160	85	700	630	36,3	10,0	22,131	1
Ø400-160	TV901040016013	PN10	160	100	700	630	23,7	9,5	17,086	1
	TV901640016013	PN16	160	100	700	630	36,3	14,6	23,682	1
Ø400-250	TV901040025013	PN10	160	150	700	630	23,7	14,8	22,062	1
	TV901640025013	PN16	160	150	700	630	36,3	22,7	31,015	1



90° İNEĞAL İSTAVROZ TE 90° REDUCED CROSS TEE 90° КРЕСТОВИНА-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

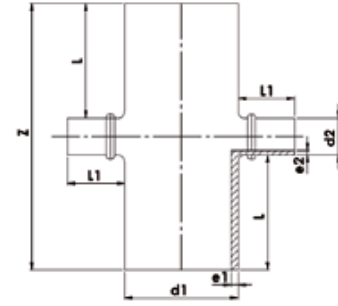


d1-d2	Article No	Bar	Z	L	L1	e1	e2	Weight (kg)	Pack (pc)
Ø400-280	RV901040028012	PN10	680	200	200	23,7	16,6	21,820	1
	RV901640028012	PN16	680	200	200	36,3	25,4	32,069	1
Ø400-315	RV901040031512	PN10	715	200	200	23,7	18,7	23,563	1
	RV901640031512	PN16	715	200	200	36,3	28,6	34,536	1
Ø450-50	RV901004505012	PN10	450	200	200	26,7	3,0	16,014	1
	RV901604505012	PN16	450	200	200	40,9	4,6	23,653	1
Ø450-63	RV901004506312	PN10	463	200	200	26,7	3,8	16,525	1
	RV901604506312	PN16	463	200	200	40,9	5,8	24,399	1
Ø450-75	RV901004507512	PN10	475	200	200	26,7	4,5	17,005	1
	RV901604507512	PN16	475	200	200	40,9	6,8	25,096	1
Ø450-90	RV901004509012	PN10	490	200	200	26,7	5,4	17,616	1
	RV901604509012	PN16	490	200	200	40,9	8,2	25,994	1
Ø450-110	RV901045011012	PN10	510	200	200	26,7	6,6	18,453	1
	RV901645011012	PN16	510	200	200	40,9	10,0	27,210	1
Ø450-125	RV901045012512	PN10	525	200	200	26,7	7,4	19,083	1
	RV901645012512	PN16	525	200	200	40,9	11,4	28,161	1
Ø450-140	RV901045014012	PN10	540	200	200	26,7	8,3	19,740	1
	RV901645014012	PN16	540	200	200	40,9	12,7	29,109	1
Ø450-160	RV901045016012	PN10	560	200	200	26,7	9,5	20,639	1
	RV901645016012	PN16	560	200	200	40,9	14,6	30,435	1
Ø450-180	RV901045018012	PN10	580	200	200	26,7	10,7	21,559	1
	RV901645018012	PN16	580	200	200	40,9	16,4	31,777	1
Ø450-200	RV901045020012	PN10	600	200	200	26,7	11,9	22,508	1
	RV901645020012	PN16	600	200	200	40,9	18,2	33,163	1
Ø450-225	RV901045022512	PN10	625	200	200	26,7	13,4	23,733	1
	RV901645022512	PN16	625	200	200	40,9	20,5	34,919	1
Ø450-250	RV901045025012	PN10	650	200	200	26,7	14,8	24,985	1
	RV901645025012	PN16	650	200	200	40,9	22,7	36,761	1
Ø450-280	RV901045028012	PN10	680	200	200	26,7	16,6	26,510	1
	RV901645028012	PN16	680	200	200	40,9	25,4	39,025	1
Ø450-315	RV901045031512	PN10	715	200	200	26,7	18,7	28,422	1
	RV901645031512	PN16	715	200	200	40,9	28,6	41,738	1
Ø450-355	RV901045035512	PN10	755	200	200	26,7	21,1	30,678	1
	RV901645035512	PN16	755	200	200	40,9	32,2	44,997	1
Ø500-50	RV901005005012	PN10	450	200	200	29,7	3,0	19,783	1
	RV901605005012	PN16	450	200	200	45,4	4,6	29,126	1
Ø500-63	RV901005006312	PN10	463	200	200	29,7	3,8	20,397	1
	RV901605006312	PN16	463	200	200	45,4	5,8	30,022	1
Ø500-75	RV901005007512	PN10	475	200	200	29,7	4,5	20,970	1
	RV901605007512	PN16	475	200	200	45,4	6,8	30,854	1
Ø500-90	RV901005009012	PN10	490	200	200	29,7	5,4	21,696	1
	RV901605009012	PN16	490	200	200	45,4	8,2	31,919	1
Ø500-110	RV901050011012	PN10	510	200	200	29,7	6,6	22,684	1
	RV901650011012	PN16	510	200	200	45,4	10,0	33,353	1
Ø500-125	RV901050012512	PN10	525	200	200	29,7	7,4	23,425	1
	RV901650012512	PN16	525	200	200	45,4	11,4	34,464	1
Ø500-140	RV901050014012	PN10	540	200	200	29,7	8,3	24,190	1
	RV901650014012	PN16	540	200	200	45,4	12,7	35,569	1

90° İNEĞAL İSTAVROZ TE 90° REDUCED CROSS TEE 90° КРЕСТОВИНА-ПЕРЕХОДНИК

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A1 • TS EN 12201-3 + A1

d1-d2	Article No	Bar	Z	L	L1	e1	e2	Weight (kg)	Pack (pc)
Ø500-160	RV901050016012	PN10	560	200	200	29,7	9,5	25,231	1
	RV901650016012	PN16	560	200	200	45,4	14,6	37,099	1
Ø500-180	RV901050018012	PN10	580	200	200	29,7	10,7	26,290	1
	RV901650018012	PN16	580	200	200	45,4	16,4	38,641	1
Ø500-200	RV901050020012	PN10	600	200	200	29,7	11,9	27,374	1
	RV901650020012	PN16	600	200	200	45,4	18,2	40,221	1
Ø500-225	RV901050022512	PN10	625	200	200	29,7	13,4	28,762	1
	RV901650022512	PN16	625	200	200	45,4	20,5	42,213	1
Ø500-250	RV901050025012	PN10	650	200	200	29,7	14,8	30,173	1
	RV901650025012	PN16	650	200	200	45,4	22,7	44,282	1
Ø500-280	RV901050028012	PN10	680	200	200	29,7	16,6	31,881	1
	RV901650028012	PN16	680	200	200	45,4	25,4	46,808	1
Ø500-315	RV901050031512	PN10	715	200	200	29,7	18,7	33,995	1
	RV901650031512	PN16	715	200	200	45,4	28,6	49,812	1
Ø500-355	RV901050035512	PN10	755	200	200	29,7	21,1	36,471	1
	RV901650035512	PN16	755	200	200	45,4	32,2	53,384	1
Ø500-400	RV901050040012	PN10	800	200	200	29,7	23,7	39,335	2
	RV901650040012	PN16	800	200	200	45,4	36,3	57,566	3
Ø630-400	RV901063040012	PN10	800	200	200	37,4	23,7	58,025	4
	RV901663040012	PN16	800	200	200	57,2	36,3	84,822	5



KÜRESEL VANA BALL VALVE ШАРОВЫЙ КРАН

Material: PE100 - Standart: TS EN 12201-3 + A1

d	Article No	Bar	L (mm)	L1 (mm)
Ø20	BG001600002018	PN16	280	70
Ø25	BG001600002518	PN16	250	60
Ø32	BG001600003218	PN16	270	65
Ø40	BG001600004018	PN16	360	100
Ø50	BG001600005018	PN16	360	100
Ø63	BG001600006318	PN16	370	110
Ø75	BG001600007518	PN16	420	125
Ø90	BG001600009018	PN16	510	115
Ø110	BG0016000110018	PN16	520	125
Ø125	BG001600012518	PN16	530	130
Ø140	BG001600014018	PN16	610	155
Ø160	BG001600016018	PN16	620	160



BETON GEÇİŞ ADAPTÖRÜ PUDDLE FLANGE ПЕРЕХОДНИК ДЛЯ БЕТОНА

Konfeksiyon / Fabricated / Material: PE100 / Standart: TS EN 1555-3:2010 + A 1 • TS EN 12201-3 + A 1



d	Article No	Bar	L	Z	e	Weight (kg)	Pack (pc)
Ø63	BG001000006312	PN10	0,13	0,4	3,8	0,288	1
	BG001600006312	PN16	0,13	0,4	5,8	0,420	1
Ø75	BG001000007512	PN10	0,15	0,4	4,5	0,408	1
	BG001600007512	PN16	0,15	0,4	6,8	0,588	1
Ø90	BG001000009012	PN10	0,18	0,4	5,4	0,584	1
	BG001600009012	PN16	0,18	0,4	8,2	0,848	1
Ø110	BG001000011012	PN10	0,22	0,5	6,6	1,085	1
	BG001600011012	PN16	0,22	0,5	10,0	1,570	1
Ø125	BG001000012512	PN10	0,25	0,5	7,4	1,380	1
	BG001600012512	PN16	0,25	0,5	11,4	2,040	1
Ø140	BG001000014012	PN10	0,28	0,5	8,3	1,730	1
	BG001600014012	PN16	0,28	0,5	12,7	2,540	1
Ø160	BG001000016012	PN10	0,32	0,5	9,5	2,260	1
	BG001600016012	PN16	0,32	0,5	14,6	3,335	1
Ø180	BG001000018012	PN10	0,36	0,6	10,7	3,426	1
	BG001600018012	PN16	0,36	0,6	16,4	5,052	1
Ø200	BG001000020012	PN10	0,40	0,6	11,9	4,230	1
	BG001600020012	PN16	0,40	0,6	18,2	6,240	1
Ø225	BG001000022512	PN10	0,45	0,6	13,4	5,358	1
	BG001600022512	PN16	0,45	0,6	20,5	7,860	1
Ø250	BG001000025012	PN10	0,50	0,6	14,8	6,600	1
	BG001600025012	PN16	0,50	0,6	22,7	9,720	1
Ø280	BG001000028012	PN10	0,56	0,6	16,6	8,220	1
	BG001600028012	PN16	0,56	0,6	25,4	12,180	1
Ø315	BG001000031512	PN10	0,63	0,7	18,7	12,180	1
	BG001600031512	PN16	0,63	0,7	28,6	17,920	1
Ø355	BG001000035512	PN10	0,71	0,7	21,1	15,470	1
	BG001600035512	PN16	0,71	0,7	32,2	22,750	1
Ø400	BG001000040012	PN10	0,80	0,8	23,7	22,400	1
	BG001600040012	PN16	0,80	0,8	36,3	33,040	1
Ø450	BG001000045012	PN10	0,90	0,8	26,7	28,320	1
	BG001600045012	PN16	0,90	0,8	40,9	41,840	1
Ø500	BG001000050012	PN10	1,00	0,9	29,7	39,420	1
	BG001600050012	PN16	1,00	0,9	45,4	58,050	1
Ø560	BG001000056012	PN10	1,12	1,00	33,2	54,800	1
	BG001600056012	PN16	1,12	1,00	50,8	80,800	1
Ø630	BG001000063012	PN10	1,26	1,00	37,4	69,400	1
	BG001600063012	PN16	1,26	1,00	57,2	102,000	1

MHW160

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 40 mm - Ø 160 mm (Ø40 mm, Ø50 mm, Ø63 mm, Ø75 mm, Ø90 mm, Ø110 mm, Ø125 mm, Ø140 mm, Ø160 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basınç / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	220 V - 1,5 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	220 V - 0,81 kW
Elektrik Sistemi / Electric System	Monofaze / Single Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	3,00 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	4 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 1 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	32 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	0,72 x 0,70 x 0,65
Toplam Hacim / Total Volume	0,33 m3
Toplam Net Ağırlık / Total Net Weight	62 kg
Toplam Brüt Ağırlık / Total Gross Weight	86 kg



CE

MHTW160

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 40 mm - Ø 160 mm (Ø40 mm, Ø50 mm, Ø63 mm, Ø75 mm, Ø90 mm, Ø110 mm, Ø125 mm, Ø140 mm, Ø160 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	220 V - 1,5 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	220 V - 0,81 kW
Elektrik Sistemi / Electric System	Monofaze / Single Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	3,00 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	4 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 1 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	24 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	0,72 x 0,50 x 0,65
Toplam Hacim / Total Volume	0,23 m3
Toplam Net Ağırlık / Total Net Weight	46 kg
Toplam Brüt Ağırlık / Total Gross Weight	66 kg



W160

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standard: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 40 mm - Ø 160 mm (Ø40 mm, Ø50 mm, Ø63 mm, Ø75 mm, Ø90 mm, Ø110 mm, Ø125 mm, Ø140 mm, Ø160 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	220 V - 1,5 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	220 V - 0,81 kW
Hidrolik Gücü / Hydraulic Power	220 V - 0,55 kW
Elektrik Sistemi / Electric System	Monofaze / Single Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	2,86 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	4 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

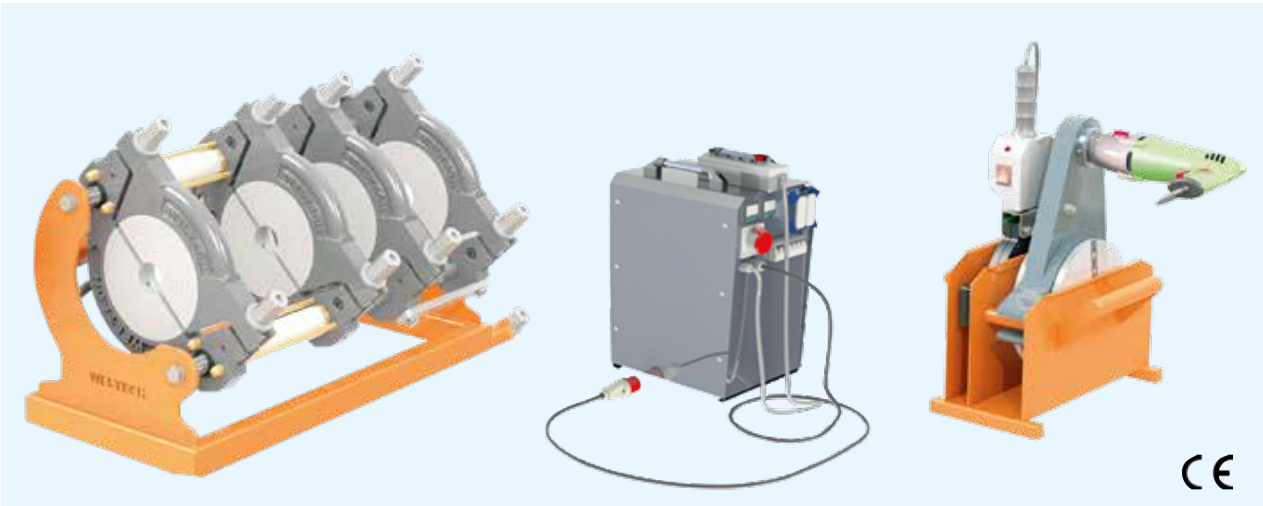
İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	32 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / box
Ebatlar / Dimensions	0,97 x 0,97 x 0,65
Toplam Hacim / Total Volume	0,74 m3
Toplam Net Ağırlık / Total Net Weight	103 kg
Toplam Brüt Ağırlık / Total Gross Weight	133 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W250

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ
POLYETHYLENE PIPE BUTT WELDING MACHINE
СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 75 mm - Ø 250 mm (Ø75 mm, Ø90 mm, Ø110 mm, Ø125 mm, Ø140 mm, Ø160 mm, Ø180 mm, Ø200 mm, Ø225 mm, Ø250 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	220 V - 2,8 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	220 V - 0,75 kW
Hidrolik Gücü / Power of Hydraulic Unit	220 V - 0,55 kW
Elektrik Sistemi / Electric System	Monofaze / Single Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	4,1 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	6 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	36 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	1,29 x 0,94 x 0,88
Toplam Hacim / Total Volume	1,07 m3
Toplam Net Ağırlık / Total Net Weight	224 kg
Toplam Brüt Ağırlık / Total Gross Weight	272 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W315

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ
POLYETHYLENE PIPE BUTT WELDING MACHINE
СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 – 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 90 mm - Ø 315 mm (Ø90 mm, Ø110 mm, Ø125 mm, Ø140 mm, Ø160 mm, Ø180 mm, Ø200 mm, Ø225 mm, Ø250 mm, Ø280 mm, Ø315 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	220 V - 3,5 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	220 V - 0,75 kW
Hidrolik Gücü / Power of Hydraulic Unit	220 V - 0,55 kW
Elektrik Sistemi / Electric System	Monofaze / Single Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	4,8 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	9 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

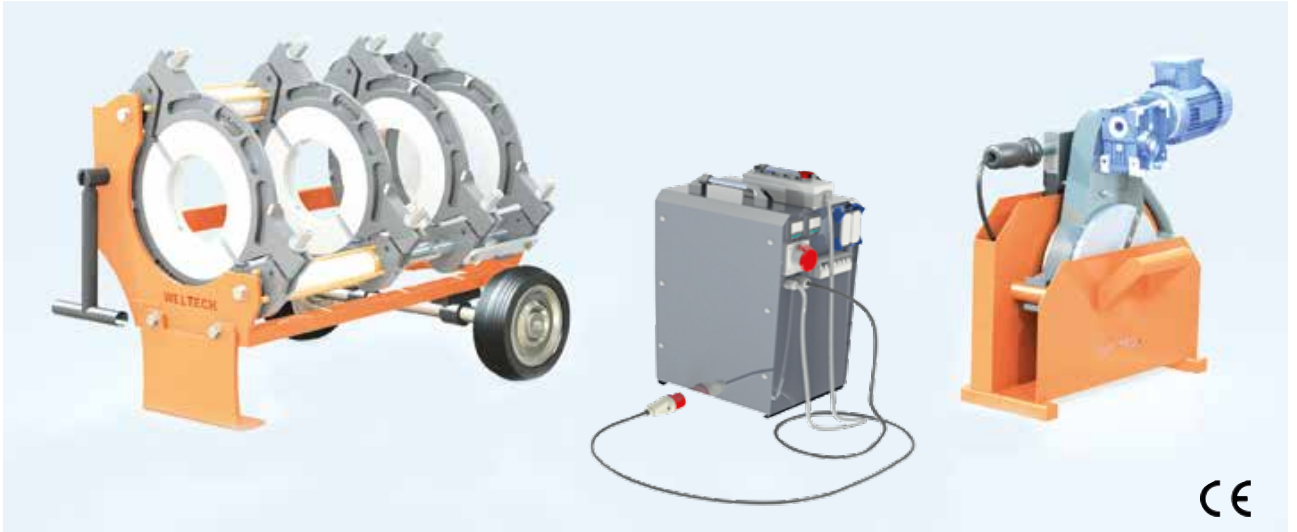
İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	40 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	1,20 x 1,14 x 0,94
Toplam Hacim / Total Volume	1,25 m3
Toplam Net Ağırlık / Total Net Weight	254 kg
Toplam Brüt Ağırlık / Total Gross Weight	305 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W400

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ
POLYETHYLENE PIPE BUTT WELDING MACHINE
СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 160 mm - Ø 400 mm (Ø160 mm, Ø180 mm, Ø200 mm, Ø225 mm, Ø250 mm, Ø280 mm, Ø315 mm, Ø355 mm, Ø400 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 4,5 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 1,1 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 0,75 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	7,35 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	12 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	32 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	1,26 x 1,30 x 1,21
Toplam Hacim / Total Volume	1,98 m3
Toplam Net Ağırlık / Total Net Weight	364 kg
Toplam Brüt Ağırlık / Total Gross Weight	428 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W500

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 180 mm - Ø 500 mm (Ø180 mm, Ø200 mm, Ø225 mm, Ø250 mm, Ø280 mm, Ø315 mm, Ø355 mm, Ø400 mm, Ø450 mm, Ø500 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 5,5 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 1,1 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 0,75 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	7,15 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	12 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	36 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	1,35 x 1,40 x 1,29
Toplam Hacim / Total Volume	2,44 m3
Toplam Net Ağırlık / Total Net Weight	430 kg
Toplam Brüt Ağırlık / Total Gross Weight	499 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



CE

W630

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ
POLYETHYLENE PIPE BUTT WELDING MACHINE
СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 315 mm - Ø 630 mm (Ø315 mm, Ø355 mm, Ø400 mm, Ø450 mm, Ø500 mm, Ø560 mm, Ø630 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basınç / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 7,5 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 1,5 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 0,75 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	9,75 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	15 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	24 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	1 paket / pack
Ebatlar / Dimensions	1,31 x 1,10 x 1,25 1,04 x 0,65 x 1,38
Toplam Hacim / Total Volume	2,75 m3
Toplam Net Ağırlık / Total Net Weight	453 kg
Toplam Brüt Ağırlık / Total Gross Weight	665 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W800

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 500 mm - Ø 800 mm (Ø500 mm, Ø560 mm, Ø630 mm, Ø710 mm, Ø800 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 10 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 2,2 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 0,75 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	12,95 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	20 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	24 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	2 paket / pack
Ebatlar / Dimensions	1,39 x 1,41 x 1,44 1,50 x 0,75 x 1,63
Toplam Hacim / Total Volume	4,66 m3
Toplam Net Ağırlık / Total Net Weight	993 kg
Toplam Brüt Ağırlık / Total Gross Weight	1.185 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



WS800

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 500 mm - Ø 800 mm (Ø500 mm, Ø560 mm, Ø630 mm, Ø710 mm, Ø800 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN32
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 10 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 2,2 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 0,75 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	12,95 kW
Çalışma Basıncı / Operating Pressure	150 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	20 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 4 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	24 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	2 paket / pack
Ebatlar / Dimensions	1,39 x 1,41 x 1,35 1,50 x 0,75 x 1,55
Toplam Hacim / Total Volume	4,47 m3
Toplam Net Ağırlık / Total Net Weight	1000 kg
Toplam Brüt Ağırlık / Total Gross Weight	1.200 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W1000

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 630 mm - Ø 1000 mm (Ø630 mm, Ø710 mm, Ø800 mm, Ø900 mm, Ø1000 mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN16
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 15 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 3 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 2,2 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	20 kW
Çalışma Basıncı / Operating Pressure	200 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	30 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 6 lt

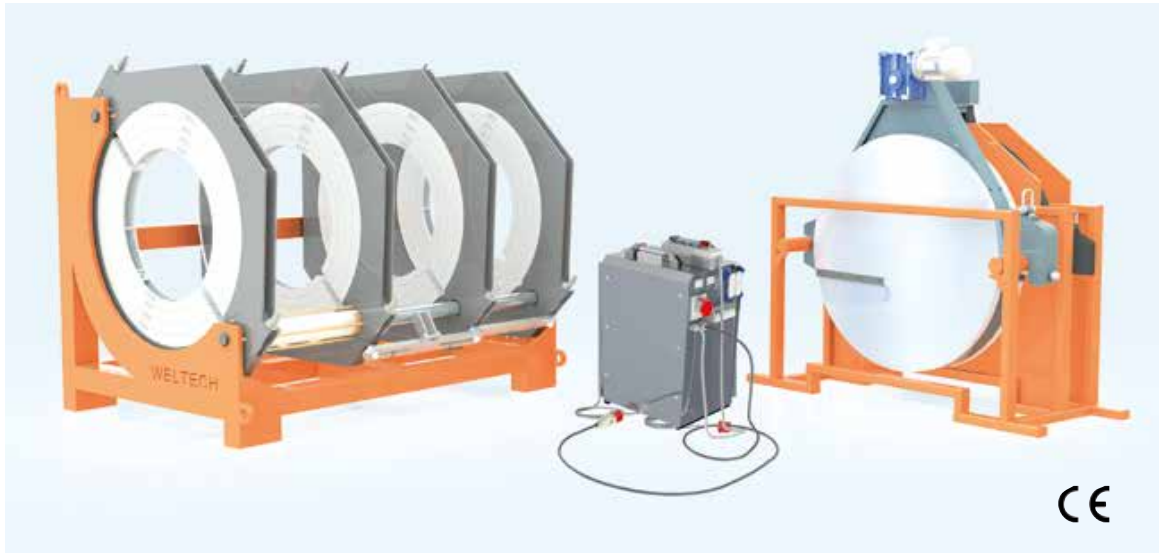
İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	16 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Tahta Sandık / Wooden Case
Kap Adedi / Number of Packages	2 paket / pack
Ebatlar / Dimensions	1,55 x 1,95 x 1,76 0,75 x 2,05 x 1,89
Toplam Hacim / Total Volume	8,24 m3
Toplam Net Ağırlık / Total Net Weight	1.720 kg
Toplam Brüt Ağırlık / Total Gross Weight	1.981 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W1200

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ
POLYETHYLENE PIPE BUTT WELDING MACHINE
СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 710 mm - Ø 1200 mm (Ø710 mm, Ø800 mm, Ø900 mm, Ø1000 mm, Ø1200mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN16
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 16 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 3 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 2,2 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	21,20 kW
Çalışma Basıncı / Operating Pressure	200 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	30 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 6 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	16 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Açık-Strec / Open-Stretch
Kap Adedi / Number of Packages	2 paket / pack
Ebatlar / Dimensions	1,70 x 1,82 x 1,82 0,63 x 1,88 x 1,89
Toplam Hacim / Total Volume	7,87 m3
Toplam Net Ağırlık / Total Net Weight	2.580 kg
Toplam Brüt Ağırlık / Total Gross Weight	2.580 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W1600

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫК. СВАР. АППАРАТ ДЛЯ ПЭ ТРУБ И ФИТИНГОВ

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 1000 mm - Ø 1600 mm (Ø1000 mm, Ø1200mm, Ø1400 mm, Ø1600mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basınç / Pipe Max. Pressure	PN16
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 24 kW
Tıraşlayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 4 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 2,2 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	30,20 kW
Çalışma Basıncı / Operating Pressure	200 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	50 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 6 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Tıraşlayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	12 ad/pcs
Takım Çantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Açık-Strec / Open-Stretch
Kap Adedi / Number of Packages	3 paket / pack
Ebatlar / Dimensions	2,15 x 2,40 x 2,40 1,00 x 2,30 x 2,25
Toplam Hacim / Total Volume	17,75 m3
Toplam Net Ağırlık / Total Net Weight	4.650 kg
Toplam Brüt Ağırlık / Total Gross Weight	4.670 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



W2000

POLİETİLEN BORU ALIN KAYNAK MAKİNESİ

POLYETHYLENE PIPE BUTT WELDING MACHINE

СТЫКОВОЙ СВАРОЧНЫЙ АППАРАТ ДЛЯ ПОЛИЭТИЛЕНА

Standart: ISO 12176 - 1 Safety: ISO12100 / EN60204 / EN ISO4413

Teknik Özellikler / Technical Specifications

Kaynak Çapı / Welding Range	Ø 1600 mm - Ø 2000 mm (Ø1600 mm, Ø1800mm, Ø2000mm)
Malzeme Cinsi / Pipe Types to Weld	PE - PP - PVDF
Boru Max. Basıncı / Pipe Max. Pressure	PN16
Isıtıcı Elektrik Gücü / Heater Electric Power	380 V - 40 kW
Traslayıcı Elektrik Gücü / Trimmer Electric Power	380 V - 7,5 kW
Hidrolik Gücü / Power of Hydraulic Unit	380 V - 4 kW
Elektrik Sistemi / Electric System	Trifaze / Triple Phase
Toplam Elektrik Sarfıyatı / Total Electricity Consumption	51,5 kW
Çalışma Basıncı / Operating Pressure	200 Bar
Gerekli Olan Jeneratör Gücü / Required Generator Power	80 kVA
Çalışma Sıcaklığı / Working Temperature	(-40 C° ~ + 40 C°)
Hidrolik Yağı / Hydraulic Oil	Hydraulic 46 / 6 lt

İçindekiler / Content

Kullanma Klavuzu / User Manual	1 ad/pcs
Ana Gövde / Main Body	1 ad/pcs
Traslayıcı / Trimmer	1 ad/pcs
Isıtıcı / Heater	1 ad/pcs
Muhafaza ve Destek Kutusu / Protective Casing	1 ad/pcs
Pafta / Stuffer	6 ad/pcs
Takım Cantası / Tool Bag	1 ad/pcs

Paketleme Detayları / Packaging Details

Ambalajın Cinsi / Type of Package	Açık-Strec / Open-Stretch
Kap Adedi / Number of Packages	3 paket / pack
Ebatlar / Dimensions	2,55 x 2,60 x 2,60 1,50 x 2,40 x 2,85
Toplam Hacim / Total Volume	27,95 m3
Toplam Net Ağırlık / Total Net Weight	5.480 kg
Toplam Brüt Ağırlık / Total Gross Weight	5.500 kg

* CNC SEÇENEĞİ / CNC OPTION / ВОЗМОЖНОСТЬ АВТОМАТИЗАЦИИ CNC



EFW

ELEKTROFÜZYON KAYNAK MAKİNESİ
EF WELDING MACHINE
АППАРАТ ДЛЯ ЭЛЕКТРОМУФТОВОЙ СВАРКИ

	EFW- 160	EFW- 630	EFW- 1200
Güç Kaynağı	170-250 V	170-250 V	170-250 V
Çalışma Aralığı	20 - 160 mm	20 - 630 mm	400 - 1200 mm
Kaynak Materyalleri	PE / PP / PP- R		
Makine Hacmi-(W x D x H)	320 x 275 x 225 mm		
Sandık Ölçüleri-(W x D x H)	270 x 400 x 370 mm		
Standart Makine ağırlığı	12 kg	16 kg	19 kg
Nominal akım	20 A	16 A	20 A
Frekans	50 ÷ 60 Hz		
Gerekli Jeneratör Gücü	4.5 KVA	5,5 KVA	7,5 KVA
Nominal kaynak akımı	30 A	80 A	100 A
Görev döngüsü (ISO 12176-2)	60%		90%
Çalışma Ortam Sıcaklığı	± 1 °C ± + 50 °C		
Kaynak voltajı	8- 48 V		
Ortam ısısı hassasiyeti	± 1 °C		
Koruma sınıfı	IP 54		
Konektör çapı	F 4 ± 4,7 mm		
Hafıza kapasitesi	3000 rapor		

NOT: ELBOR Makine firması teknik spekler ve ölçülerde istediği zaman değişiklik yapma hakkına sahiptir.

EK ÖZELLİKLER

- Taşıma çantası
- Manuel raspa
- Barkod okuyucu + kılıf
- USB bellek



MANUEL EKSTRÜDER MANUAL EXTRUDER РУЧНОЙ ЭКСТРУДЕР

Teknik Özellikler / Technical Specifications

Welding Range	1,8 - 2,1 Kg/h Ø 3-4 mm
Material	PE / PP
Weight	7,250 Kg
Length	570 mm
Electronic Speed Control	Yes
Hot Air Blower	2600 W
Voltage	220 V
Approvals	CE, ISO 9001
Standart	ISO 12176 - 1



MOBİL VİNC ELECTRICAL MOBILE CRANE СЪЕМНЫЙ ЭЛЕКТРИЧЕСКИЙ ПОДЪЕМНИК

KOD (CODE)	ÇAP (SIZE)	MOTOR (ENGINE)	MOBİL VİNC (MOBILE CRANE)
MV630 / 800	630-800	380V 1,1 KW	ELEKTRİKLİ MOBİL VİNC
MV1000 / 1200	1000-1200	380V 1,1 KW	ELEKTRİKLİ MOBİL VİNC
MV1600	1600	380V 1,5 KW	ELEKTRİKLİ MOBİL VİNC
MV2000	2000	380V 1,5 KW	ELEKTRİKLİ MOBİL VİNC



ROLLER ROLLER РОЛИК

ROLLER 315 - Teknik Özellikler / Technical Specifications

Çalışma Aralığı / Working Range	Ø 90 - 315 mm
Ebatlar / Dimensions	320 x 220 x 200 mm
Ağırlık / Weight	6 Kg



ROLLER 630 - Teknik Özellikler / Technical Specifications

Çalışma Aralığı / Working Range	Ø 315 - 630 mm
Ebatlar / Dimensions	350 x 200 x 600 mm
Ağırlık / Weight	11 Kg

ROLLER 1200 - Teknik Özellikler / Technical Specifications

Çalışma Aralığı / Working Range	Ø 315 - 1200 mm
Ebatlar / Dimensions	1250 x 800 x 420 mm
Ağırlık / Weight	35 Kg

Kaynak yapılırken boruları hizalamak ve desteklemek için kullanılır.

Roller 315'in ergonomik tasarımıyla makine seviyesine getirilen borular daha az sürtünmeye ve çekme kuvvetine maruz kalır.

90- 315 mm boruları taşıyabilir. Kompakt ve hafif yapısıyla kolay kullanım sağlar.

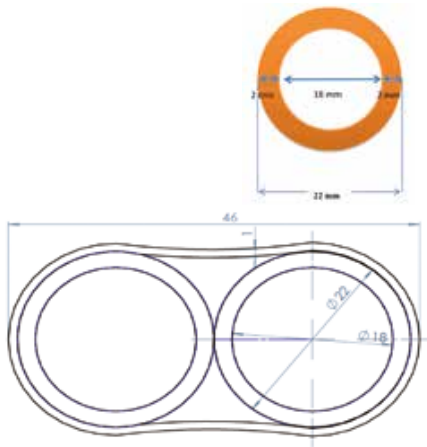
It is used to support and align the pipes during the welding process.

Roller 315 minimizes the drag force and pipe friction with its ergonomic design.

Roller 315 can handle 90-315 mm pipes. Roller 315 is user friendly with its compact body and lightweight.



2 x 22 microduct boru



MICRODUCT KABLO KANALLARI MICRODUCT CABLE CANAL ЗАЩИТНЫЕ ПЛАСТИКОВЫЕ ТРУБЫ ДЛЯ ОК

HDPE Hammadde Testleri

Yapılacak Testler	İstenen Değerler	Test Yöntemi*
Renk	Naturel veya Turuncu	Gözle
Yoğunluk	940 - 960 gr/cm ³	TS EN ISO 1183-1
Erime Akış Hızı (5 kg, 190° C)**	(0,2 - 0, 7) g/10 dak	TS EN ISO 1133
** : Aksi belirtilmedikçe standartların en son sürümleri geçerlidir.		
** Üretimde kullanılan hammadde granülünden 100gr numune idareye imalat başlan- gıcında teslim edilecektir.		

HDPE Raw material tests

Tests to be conducted	Desired values	Test Method*
Color	Natural or orange	Eye inspection
Density	940 - 960 gr/cm ³	TS EN ISO 1183-1
Melt Flow Rate (5 kg, 190° C)**	(0,2 - 0, 7) g/10 min.	TS EN ISO 1133
** : Last version of standards are valid unless stated.		

HDPE Boru Bitmiş Ürün Testleri

Yapılacak Testler	İstenen Değerler	Test Yöntemi*
Renk	Turuncu	Gözle
Yoğunluk	940 - 960 gr/cm ³	TS EN ISO 1183-1
Erime Akış Hızı (2,16 kg, 190° C)	max. +/- % 20 fark (bildirilen orijinal hamur değerinden)	TS EN ISO 1133
Kopma Uzaması	min. % 500	TS EN ISO 6259-1
Basınç Testi	16 bar, 20° C, 1 saat	TS EN ISO 1167
Sıkıştırma Deneyi***	%5 deformasyonda Min. 750 N	TS EN 50086-2-4, Madde 10.2
Darbe Deneyi	(Şartlandırma 2 saat -5 ± 1°C) - 30 cm - 5 kg -Max. 3/12 hata	TS EN 50086-2-4 Madde 10.3
OIT (200° C)	min. 20 dak	TS EN 728
** Aksi belirtilmedikçe standartların en son sürümleri geçerlidir.		
** Bu deneyin BS 2782 veya ISO 18553 standartlarından birisine göre yapılmış olması yeterlidir.		
*** Sıkıştırma deneyi göz çoklayıcı borulara uygulanmaz. Sadece tekli borulara uygulanır."		

HDPE Pipe Product Tests

Tests to be conducted	Desired values	Test Method*
Color	Orange	Eye inspection
Density	940 - 960 gr/cm ³	TS EN ISO 1183-1
Melt Flow Rate (2,16 kg, 190° C)	max. +/- % 20 dev. (from stated raw material)	TS EN ISO 1133
Brake at elongation	min. % 500	TS EN ISO 6259-1
Hydrostatic Test	16 bar, 20° C, 1 hour	TS EN ISO 1167
Compaction Test***	%5 deformation min. 750 N	TS EN 50086-2-4, Item 10.2
Impact Test	(Conditioning 2 hour -5 ± 1°C) - 30 cm - 5 kg -Max. 3/12 failure	TS EN 50086-2-4 Item 10.3
OIT (200° C)	min. 20 min.	TS EN 728
** Last version of standards are valid unless stated.		
** This test is to be conducted according to BS 2782 or ISO 18553 standartds.		
*** Compaction test is implemented only on single pipes not on multiplexer pipes.		

MICRODUCT KABLO KANALLARI MICRODUCT CABLE CANAL ЗАЩИТНЫЕ ПЛАСТИКОВЫЕ ТРУБЫ ДЛЯ ОК

Birleştirme Manşonu Hammadde ve Bitmiş Ürün Testleri

Polipropilen Maddesi	İstenen Değerler	Test Yöntemi*
Malzeme	Polipropilen	-
Erime Akış Hızı (2, 16 kg, 230 ° C)	1,5 g/10 min	TS EN ISO 1133

*: Aksi belirtilmedikçe standartların en son sürümleri geçerlidir.

HDPE Couplers Raw material tests

Tests to be conducted	Desired values	Test Method*
Material	Polypropylene	-
Melt Flow Rate (2, 16 kg, 230 ° C)	1,5 g/10 min	TS EN ISO 1133

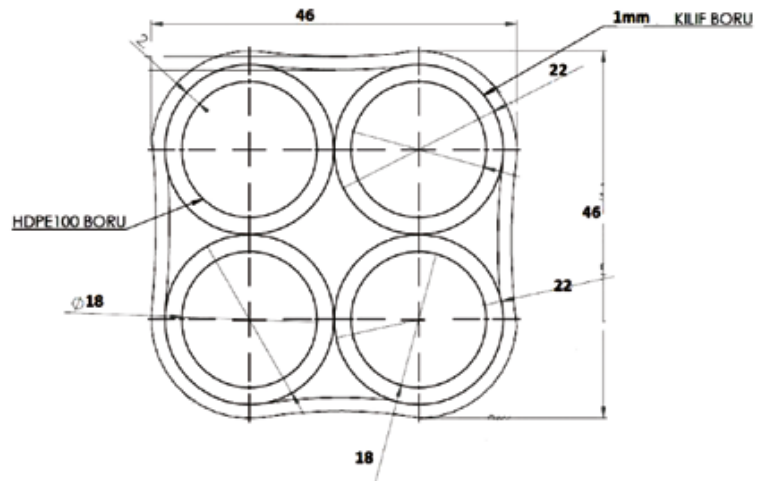
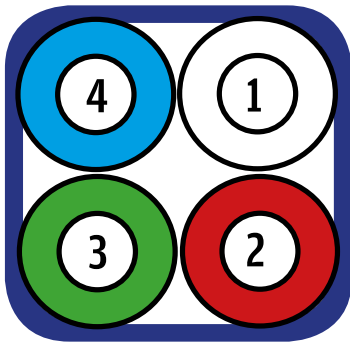
** : Last version of standards are valid unless stated.



4 x 22 microduct boru / 4 x 22 microduct pipe



Kablo Koruma borusu / Çoklayıcı boru
Cable protection pipe/ Multiplexer



HDPE100 BORU VE EK PARÇALARI HDPE100 PIPES AND FITTINGS HDPE100 ТРУБЫ И ФИТИНГИ

PRODUCT DATA SHEET

Product Name	HDPE 100 FITTINGS
Raw Material	HDPE 100 (=PE 100)
Product Color	Black
Product Standard	TSE 12201 -3 +A1
Other Standards	TSE EN 1555 -3: 2010

PRODUCT SPECIFICATIONS

Production Range	ø20 - ø2000 mm
Pressure Range	PN 10 - PN 32

QUALITY CERTIFICATES OF ELBOR



Polymer Data	PE 100	Unit	Test Method
Density at (23 °C)	0.955	g / cm ³	ISO 1183
Viscosity Number	360	cm ³ / gr	ISO 1628-3
MFR (190° / 5kg)	0.22	g / 10 dak.	ISO 1133
MFR (190° / 25 kg)	6,6	g / 10	ISO 1133
Mechanical Properties			
Yield Stress	23	Mpa	ISO 527
Elongation at yield	9	%	ISO 527
Tensile Modulus	900	%	ISO 527
Notched Impact strenght			
+ 23 °C	26	kJ / m ²	ISO 179/1eA
- 23 °C	13	kJ / m ²	ISO 179/1eA
Other Properties			
Oxidation - Induction time at 1210°C)	≥ 20	min	ISO TR 10837
Carbon Black Content	2,3 ± 0,2	%	ISO 6964
Carbon Black Dispersion	≤ 3		ISO CD 11420
MRS minimum Required Strenght	< 10	MPa	ISO TR 9080
Resistance to S.C.P [Slow Crack Propagation) x=4,6 Mpa, 80°C Notched	> 3000	h	EN 33479
Resistance to R.C.P [Rapid Crack) Propagation S4-test 110/10 mm 0°C	< 25	bar	ISO DIS 13477
Elongation at break	< 600	%	EN 638
Linear Thermal Expansion	1.8x10 ⁻⁴	0° C ⁻¹	ASTM D 696 (20-60°C)
Specific Heat Capacity	1.9	J / g °C	BPCL
Electrical Properties			
Electric Strenght	> 20	kV / mm	BS 27 82: 201 B
Volume resistivity	> 1013	Ωm	BS 27 82: 230A
Surface resistivity	> 1015	Ωm	BS 27 82: 231A
Relative resistivity	2,6	-	BS 2067 (1 to 20 MHZ)
Loss tangent	3x10 ⁻⁴	-	BS 2067

HDPE100 BORU VE FITİNGLERİN AVANTAJLARI ADVANTAGES OF HDPE100 PIPES AND FITTINGS ПРЕИМУЩЕСТВА HDPE100 ТРУБ И ФИТИНГОВ

◆ Basınc altında ek yerlerinden çıkma ve kopma olmaması, kesin sızdırmazlık.

◆ Birden fazla bağlantı şeklinin olması (alın kaynağı, elektrofüzyon kaynağı, itme soket vs).

◆ Kanal dışında birleştirilebilmesi.

◆ Boru malzemesinin kimyasal direnci yüksektir, korozyondan etkilenmez, çürümez, aşınmaz.

◆ Şantiye dışından daha az dolgu getirme ihtiyacı, daha az kazı.

◆ Rahatlıkla deniz, dere, nehir, göl ve bozuk zeminlerde, maden alanları gibi toprak hareketleri olabilecek yerlerde kullanılabilmesi

◆ Toprak hareketlerinden etkilenmemesi

◆ İç yüzeyi hidrolik pürüzsüzdür. Projelendirirken kullanılan boru çapı minimize edilir, işletirken daha az elektrik enerjisi tükettirir. İşletme giderleri azalır.

◆ Daha az dirsek gerektirir. Çünkü boru çapının 20-35 katı radiusle dönüş yapılabilir.

◆ Sağlamlık (Firesiz döşeme ve taşıma).

◆ Üretim tesisleri mobil hale getirilebilir. Önemli projelerde yerinde üretim ile nakliyeden önemli miktarda tasarruf edilebilir.

◆ Asgari ömrü 50 yıldır, doğada ancak 1000 yılda bozulur. Bakım gerektirmedikinden işletme giderleri çok düşüktür.

◆ PE boruları döşemede dirsek, te gibi yerlerde beton kütle ihtiyacı yoktur.

◆ Hafiftir, kolay ve çabuk döşenir. İnşaat sezonu kısa olan bölgelerde, yoğun trafikli yollarda büyük avantaj sağlar.

◆ İyi kaynak özellikleri.

◆ Esneklik

◆ Çatlama direnci, darbe direnci.

◆ Arazi şekline uyum.

◆ Bünyesinde karbon siyahı (karbon black) bulunması nedeniyle, güneş ışınlarından etkilenmemesi (UV dayanımı).

◆ Basınc sınıfında çeşitlilik. PN2,5'dan PN32 ye kadar 12 farklı basınc sınıfında üretilmesi.

◆ Toprak içindeki aşındırıcı maddelerden etkilenmediği için katodik koruma gibi döşeme esnasında tedbirler almak gerekmez.

◆ Advantage of perfect leak proof, no crack, no break and no deformation under pressure

◆ Availability of more than one connection method (but welding electrofusion welding, push fit sockets, etc.)

◆ Availability of connection at a place out of the trench,

◆ High resistance to chemicals, not affected from corrosion, decaying, and abrasion,

◆ Advantage of less need of excavation and less need of bringing special filling sand from out of the site,

◆ Advantage of safe application in irregular surfaces like sea, river, lake, passages and at places where there maybe frequent earth movements,

◆ Advantage of having perfectly smooth internal surface. Because of this advantage of PE pipes in comparison to the other pipe types, one size smaller PE pipe can make the same work of one size bigger pipe from the other pipe types. This brings considerable savings in the overall cost of the pipe line and the service costs,

◆ PE pipes require less fittings for connection because they are elastic and in many laces they do not require connection where the other types do. Because PE pipes re bendable with a radius of 20-35 times of its outer diameter. The other pipe types do not have this advantage,

◆ Advantage of higher durability and advantage of easy installation and transport without material loss,

◆ Advantage of mobilizability of the PE pipe production facilities. This enables very big savings in transport costs for projects where large diameter pipes are required,

◆ PE pipes have the advantage of very long service life under severe conditions.

◆ Minimum guaranteed service life of PE pipes is 50 years and decaying time 1000 years in nature,

◆ PE pipes are light in weight which enables the installation with high speed at places where the construction season is short,

◆ PE pipes have very good welding characteristics,

◆ PE pipes are elastic which a big advantage is during the earthquake or any other earth movements. This characteristics also gives big advantage in transport (coiling up to 90 mm diameter) and in installation costs,

◆ High impact and breakage resistance,

◆ Very good adaption to earth movements,

◆ Very high resistance to direct sun light (UV resistance) for long time. This is supplied by Ultraviolet light resistance agent mixed to the PE raw material,

◆ Many different pressure resistance options. PE pipes can be produced resistant to 10 different pressure classes from 4 Bars up to 32 Bars.

◆ There is no need to take protection precautions at the time of installation like cathodic protection.

Chemical Resistance

The data in this list is intended only as a guide for planning purposes and are not automatically applicable to all conditions of use. Considerable deviations can occur dependent on type of exposure and probable contamination of the chemical medium. Elbor cannot be held liable for any special, indirect or consequential damages irrespective of whether caused or allegedly caused by negligence. No warranty can be derived concerning the data mentioned.

Symbols used in the table:

+	resistant
0	limited resistance only
-	not resistant

SA saturated, aqueous solution

T	customary in trade
TP	technically pure
D	diluted

No symbol means no testing, unknown

KİMYASAL DİRENÇ CHEMICAL RESISTANCE ХИМИЧЕСКАЯ УСТОЙЧИВОСТЬ

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60"
acetaldehyde	TP	+	0	0
acetic acid	60%			
acetic acid	10%	+	+	+
acetic acid	25%			
acetic acid	"60-95%			
acetic anhydride"	TP"	+		0
acetone	TP	+	+	0
acetophenone	TO	+		-
acrylonitrile	TO	+	+	+
adipic acid	SA	+	+	+
air	-	+	+	+
allyl alcohol	96%	-	+	+
aluminium chloride	SA	+	+	+
aluminium fluoride	SA	+	+	+
aluminium sulphate	SA	+	+	+
alums	SA	+	+	+
ammonia, aqueous	SA	+	+	+
ammonia, fluid	TP	+	+	+
ammonia, gaseous	TP	+	+	+
ammonium acetate	SA			
ammonium carbonate, and bi	SA			
ammonium chloride	SA	+	+	+
ammonium fluoride	>10%	+	+	+
ammonium fluoride	20%			
ammonium fluoride	SA			
ammonium hydroxide	SA			
ammonium nitrate	SA	+	+	+
ammonium phosphate, also meta	SA	+	+	+
ammonium sulphide	SA	+	+	+
amyl acetate	TP	+	+	0
amyl alcohol	TP	+	+	0
aniline	SA			
aniline	TP	+	+	
aniline chlorhydrate	SA	+	+	+
anisole	TP	0	-	-
anthraquinone sulphonie acid, suspension	SA			
antimony trichloride	90%	+	+	+
apple juice	T	+	+	+
aqua regia (HCl / HNO3)	03:01	-	-	-
arsenic acid	SA	+	+	+
barium salts	SA	+	+	+
beer	T	+	+	+
benzaldehyde	0.1%			
benzaldehyde	TP	+	+	0
benzene	TP	0	0	0
benzine (cleaning benzine)	T	+	+	0
benzine -super (gas fuel)	T	+	+	0
benzine-benzene mixture	80/20			
benzoic acid	SA	+	+	+
benzoyl chloride	TP	0	0	0
benzyl alcohol	TP	+	+	0
borax	D			
borax	SA	+	+	+
boric acid	SA	+	+	+

KİMYASAL DİRENÇ CHEMICAL RESISTANCE ХИМИЧЕСКАЯ УСТОЙЧИВОСТЬ

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60"
brandy	T			
bromic acid	10%			
bromine vapour				
bromine, fluid	TP			
bromine, gaseous, dry	TP			
butadiene	TP	0		
butane, gaseous	TP	+	+	+
butanol	TP	+	+	+
butyl acetate	TP	0		
butyl glycol (butandiol)	TP	+		
butyl phenol	SA			
butyl phenol	TP			
butyl phthalate	TP	+		0
butyric acid	20%			
butyric acid	TP	+	+	0
calcum carbonate	SA	+	+	+
calcum chlorate	SA	+	+	+
calcum chloride	SA	+	+	+
calcum hydroxide	SA	+	+	+
calcum hypochloride	SA	+	+	+
calcium nitrate	50%			
calcium nitrate	SA	+	+	+
calcum sulphate	SA	+	+	+
calcum sulphite	SA	0	0	0
camphor oil	TP			
carbon dioxide	100%	+	+	+
carbon dioxide, gaseous, wet/dry	TP	+	+	+
carbon disulphide	TP	0		
carbon monoxide	TP	+	+	+
carbon tetrachloride	TP	0		
carbonic acid	SA			
castor oil	TP	+	+	+
caustic soda,		+	+	+
see sodium hydroxide solution				
chlorethanol	TP	+	+	+
chlorinated lime, slurry		+	+	+
chlorine, fluid	TP			
chlorine, gaseous, dry	TP	0		
chloroacetic acid	85%	+	+	+
chloroacetic acid	TP			
chloromethane	TP	0		
chlorosulphuric acid	D			
chlorosulphuric acid	TP			
chrome alum	SA	+	+	+
chromic acid	1-50%	+	0	0
citric acid	D			
citric acid	SA	+	+	+
coconut oil	TP			
copper chloride	SA	+	+	+
copper cyanide	SA			
copper nitrate	30%			
copper nitrate	SA	+	+	+
copper sulphate	SA	+	+	+
copper fluoride	2%			

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60"
corn germ oil	TP			
cottonseed oil	TP			
cresole	up to 90 %	+	+	+
cresole	> 90 %	+	+	0
cresylic acid	SA			
crotonaldehyde	TP	+		0
cyclohexane	TP			
cyclohexanol	TP	+	+	+
cyclohexanon	TP	+		0
decahydronaphtalene (decalin)	TP	+		0
developer	T	+	+	+
dextrin	D	+	+	+
dibutyl phthalate	TP	+	0	0
dichloroacetic acid	TP	0	0	0
dichloroethylene	TP			
dichloromethane (methylene chloride)	TP	0		
diethanolamine	TP	0		
diethylether	TP	0		
diglycolic acid	30 %			
diglycolic acid	SA	+	+	+
diisooctyl phthalate	TP	+	+	0
dimethylamine	30%			
dimethylamine	TP			
dimethylformamide	TP	+	+	0
dioctyl phthalate	TP	+		0
dioxane	TP	+	+	+
disodium phosphate	SA			
ethanediol	TP	+	+	+
ethanol	40 %	+		0
ethanol	TP	+	+	+
ethanolamine	TP			
ether, see diethyl ether		0		
ethyl acetate	TP	+		
ethyl chloride, mono and di	TP			
ethyl glycol, see ethanediol		+	+	+
flax oil	TP	+	+	+
fluoric acid	40 %			
fluoric acid	70 %	+	+	0
fluoride	TP			
fluorosilicic acid	40 %	+	+	+
formaldehyde (formalin)	40 %	+	+	+
formic acid	1-5 %	+	+	+
formic acid	TP	+	+	+
fructose	T	+	+	+
fruit juices	T	+	+	+
furfuryl alcohol	TP	+	+	0
gelatin	D	+	+	+
glacial acetic acid	TP	+		0
glucose	20 %			
glucose	SA	+	+	+
glucose	D	+	+	+
glycerine	TP	+	+	+
glycolic acid	30 %			
glycolic acid	SA	+	+	+

KİMYASAL DİRENÇ CHEMICAL RESISTANCE ХИМИЧЕСКАЯ УСТОЙЧИВОСТЬ

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60
heptane	TP	+	0	-
hexadecanol	TP			
hexane	TP	+	0	0
hydrobromic acid	SA	+		
hydrobromic acid	10 %			
hydrochloric acid	SA			
hydrocyanic acid	10%	+	+	+
hydrogen	TP	+	+	+
hydrogen bromide	50%	+	+	+
hydrogen bromide	TP	+	+	+
hydrogen chloride, damp	TP	+	+	+
hydrogen chloride, dry	TP			
hydrogen peroxide	30%	+	+	+
hydrogen peroxide	90%	+	0	
hydrogen sulphide	100%	+	+	+
hydrogen sulphide	SA			
hydrogen sulphide	TP	+	+	+
iodine tincture	T	+		0
i-propanol, see isopropanol		+	+	+
iron II chloride	SA	+	+	+
iron II sulphate	SA	+	+	+
iron III chloride	SA	+	+	+
iron III nitrate	D	+	+	+
iron III sulphate	SA	+	+	+
isopropanol	TP			
isopropylether	TP			
lactic acid	10%			
lactic acid	TP	+	+	+
lanolin (wool lipids)	T	+	0	0
lead acetate	SA	+	+	+
lead tetraethyl	TP	+		
magnesium carbonate	SA	+	+	+
magnesium chloride	SA	+	+	+
magnesium hydroxide	SA	+	+	+
magnesium nitrate	SA	+	+	+
magnesium sulphate	SA			
maleic acid	SA	+	+	+
malic acid	SA			
mercury	TP	+	+	+
mercury chloride	SA	+	+	+
mercury cyanide	SA	+	+	+
mercury nitrate	D	+	+	+
methanol (methyl alcohol)	TP	+	+	0
methyl acetate	TP	+	+	
methyl bromide	TP	0		-
methyl ethyl ketone	TP	+		0
methyl methacrylate	TP			
methylamine	up to 32%	+		
methylene chloride, see dichloromethane		0	-	-
milk	T	+	+	+
mineral oils	T	+	+	0
mineral water	T	+	+	+
molasses	T	+	+	+
muriatic acid	up to 35%	+	+	+

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60
muriatic acid	20 %			
muratic acid, dilute	conc.	+	+	+
naphtha	T	+	-	-
naphthalene	TP			
nickel salts	SA	+	+	+
nicotinic acid	D	+	+	
nitric acid	10 %			
nitric acid	25 %	+	+	+
nitric acid	up to 40 %	0	0	-
nitric acid	10-50 %	0	0	-
nitric acid	more than 10 %			
nitric acid	75 %	-	-	-
nitric acid	98 %			
nitrobenzene	TP	+	+	+
n-propanol	TP	+	+	+
oils and fats (vegetable/animal)	-	+	0	0
oleic acid	TP	+	+	+
olive oil	TP	+	+	0
oxalic acid	SA	+	+	+
oxygen	TP	+	+	0
ozone	TP	0	-	-
paraffin oil	TP	+	0	0
peanut oil	TP	+		
peppermint oil	TP	+		
perchloric acid	10 %			
perchloric acid	20 %	+	+	+
perchloric acid	70 %			
perhydrol, see hydrogen peroxide 30%		+	+	+
petrol ether	TP	+	0	0
phenol	D	+	+	+
phenol, dilute	90 %			
phenylhydrazine	TP			
phenylhydrazine chlorohydrate	TP			
phosphine	TP			
phosphoric acid	50 %	+	+	+
phosphoric acid	up to 85 %	+	+	0
phosphorus trichloride	TP	+	+	0
phosphoryl chloride	TP	+	+	0
picric acid	SA	+	+	0
potable water, chlorinated	TP	+	+	+
potash, see potassium nitrate		+	+	+
potassium bichromate	40 %			
potassium bichromate	SA	+	+	+
potassium borate	SA			
potassium bromate	10 %			
potassium bromide	SA	+	+	+
potassium carbonate and bi	SA	+	+	+
potassium chlorate	SA	+	+	+
potassium chloride	SA	+	+	+
potassium chromate	40 %	+	+	+
potassium cyanide	>10 %	+	+	+
potassium cyanide	SA			
potassium fluoride	SA	+	+	+

KİMYASAL DİRENÇ

CHEMICAL RESISTANCE

ХИМИЧЕСКАЯ УСТОЙЧИВОСТЬ

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60"
potassium hexacyanoferrate (II+III)	SA	+		+
potassium hydroxide	60%	+	+	+
potassium hydroxide	up to 50%	+	+	+
potassium hydroxide solution, see potassium hydroxide				
potassium hypochloride	D	+		0
potassium iodide	SA	+	+	+
potassium nitrate (potash)	SA	+	+	+
potassium orophosphate	SA	+	+	+
potassium perchlorate	1 %			
potassium perchlorate	10 %			
potassium perchlorate	SA	+	+	+
potassium permanganate	SA			
potassium permanganate	20%	+	+	+
potassium persulphate	SA	+	+	+
potassium sulphate	SA	+	+	+
potassium sulphide	D	+	+	+
propane, gaseous	TR	+	+	
propionic acid	50 %	+	+	+
propionic acid	TP	+	0	0
pyridine	TP	+	0	0
saccharic acid	SA			
salicylic acid	SA	+	+	+
sea water	T	+	+	+
sea water, see ocean water		+	+	+
silicone oil	TP	+	+	+
siliconic acid	D	+	+	+
silver acetate	SA	+	+	+
silver cyanide	SA	+	+	+
silver nitrate	SA	+	+	+
soap	D			
soda, see sodium carbonate		+	+	+
sodium acetate	SA	+	+	+
sodium benzoate	SA	+	+	+
sodium bicarbonate	SA	+	+	+
sodium biphosphate	SA	+	+	+
sodium borate	SA			
sodium bromide	SA	+	+	+
sodium carbonate	SA	+	+	+
sodium chlorate	SA	+	+	+
sodium chloride	SA	+	+	+
sodium chlorite	20 %			
sodium cyanide	SA	+	+	+
sodium dichromate	SA	+	+	+
sodium fluoride	SA	+	+	+
sodium hexacyanoferrate (II + III)	SA	+	+	+
sodium hydrogen sulphite (sodium bisulphite)	SA	+	+	+
sodium hydroxide, see sodium hydroxide solution		+	+	+
sodium hypochloride	13% active chlorine	+	+	+
sodium nitrate	SA	+	+	+
sodium nitrite	SA	+	+	+
sodium orthophosphate	SA	+	+	+

Chemical resistance	Concentration	PE-HD Temperature °C		
		20	40	60"
sodium perborate	SA	+		0
sodium phosphate	SA	+	+	+
sodium silicate (water glass)	D	+	+	+
sodium sulphate and bi	SA	+	+	+
sodium sulphide	SA	+	+	+
sodium sulphite	40%			
sodium thiosulphate	SA	+	+	+
soy bean oil	TP	+	0	0
strength	D	+	+	+
sugar	SA	+	+	+
sulphur dioxide, dry, wet	TP	+	+	+
sulphur dioxide, fluid	TP			
sulphur trioxide	TP			
sulphuric acid	up to 10%			
sulphuric acid	10-80%	+	+	+
sulphuric acid	96%	0		
sulphurous acid	SA			
sulphurous acid	30%	+	+	+
Superchloric acid, see perchloric acid				
table salt, see sodium chloride		+	+	+
tannic acid (tannins)	D	+	+	+
tartaric acid	D	+	+	+
tartaric acid	SA			
tetrahydrofuran	TP	0	0	
tetrahydronaphthalene (tetralin)	TP	0	0	
thionyl chloride	TP			
thiophene	TP	0	0	
tin chloride II+ IV	SA	+	+	+
toluene	TP			
trichloroacetic acid	50%	+	+	+
trichloroethylene	TP			
tricresyl phosphate	TP	+	+	+
triethanolamine	D	+		0
trimethylol propane	up to 10%			
turpentine oil	TP	0	0	0
urea	33%			
urea	>10%	+	+	+
urea	SA			
urine	T	+	+	+
vinegar (wine vinegar)	T	+	+	+
vinyl acetate	TP	+	+	0
whisky	T			
wine and spirits	T	+	+	+
wine vinegar	T	+	+	+
xylene	TP	0		
yeast	D	+	+	+
yeast	SA			
zinc carbonate	SA	+	+	+
zinc chloride	SA	+	+	+
zinc oxide	SA	+	+	+
zinc sulphate	SA	+	+	+

EF MANŞON KAYNAK TALİMATNAMESİ EF COUPLER WELDING INSTRUCTIONS ИНСТРУКЦИЯ ПО ЭЛЕКТРОМУФТОВОЙ СВАРКЕ

Kaynak operasyonuna başlamadan önce bu talimatnamenin okunup, anlaşılması çok önem arz etmektedir. Sık ve genel olarak yapılan hata yetkin olmayan personel ile özensiz ve dikkatsiz kaynak işleminin yapılmasıdır.

MANŞONLARIN DEPOLANMASI VE ELLEÇLEME

Elbor markalı ürünler plastik poşet içerisinde sevk edilir ve kaynak yapılana kadar plastik ambalajında saklanmalıdır. Ek parçaların poşet içerisinde saklanması nakliye ve taşıma sırasında kirlenmenin önüne geçmek için önemlidir. Ek parçalar güneş ışığına direkt olarak maruz bırakılmamalı ve depolama koşulları 50 °C'nin altında olmalıdır. Montajdan önce her seferinde ek parçanın hasar görmemiş olduğundan lütfen emin olunuz.

MONTAJ

Montaj sırasında uygun el aletlerinin kullanılması çok önemlidir. Tüm cihazların kullanıma hazır ve gerektiğinde kalibre edildiğinden emin olunuz. Gerekli el aletlerinin listesi aşağıdaki gibidir:

- ◆ Ölçüm cihazı (metre, kumpas, sirkometre vb.)
- ◆ Boru kesme aparatı
- ◆ İşaretleme kalemi
- ◆ Kazıma aparatı
- ◆ Temizlik malzemesi (alkollü mendil vb.)
- ◆ Ovallık alma aparatı
- ◆ Boru sıkma aparatı
- ◆ Güç üreticisi (jeneratör)
- ◆ Ef kaynak makinesi

BORU UYUMLULUK DEĞERLENDİRMESİ

Lütfen boru hammaddesini kontrol ediniz. Elbor ek parçaları PE80, PE100 borulara uyumludur. Lütfen boru ve ek parça SDR değerlerinin uyumlu olup olmadığını kontrol ediniz. Boru dış çapını sirkometre ile ölçünüz. Boru dış çapı uluslararası standartlardaki tanımlara uygun olmalıdır (EN 12202-2; EN 1555-2). Boru dış çapı boru ucundan belli bir mesafede ölçülmelidir (%5 OD). Eğer boru dış çapı kesilen noktada standartlardaki tanımlı aralıklarda değilse uygun olan başka bir noktadan kesit alınmalıdır. Boru dış çapı uygunluk tablosu bazı çaplar için yanda verilmiştir:

BORU ÇAPLARI (mm) PIPE DIAMETER		
DN/OD	Min. BORU ÇAPI	Max. BORU ÇAPI
16	16	16,3
20	20	20,3
25	25	25,3
32	32	32,3
40	40	40,4
50	50	50,4
63	63	63,4
75	75	75,5
90	90	90,6
110	110	110,7
125	125	125,8
140	140	140,9
160	160	161,0
180	180	181,1
200	200	201,2
225	225	226,4
250	250	251,5
280	280	281,7
315	315	316,9
355	355	357,2
400	400	402,4
450	450	452,7
500	500	503,0
560	560	563,4
630	630	633,8
710	710	716,4
800	800	807,2

It is very important to read and understand this manual before performing welding operations. Most common mistake is to perform ef welding operations with unqualified personnel and to practice sloppy and careless weldings.

FITTINGS STORAGE AND HANDLING

Elbor fittings are packed in plastic cover and should remain packed until they are ready to be used. This plastic cover is important to prevent contamination during transport and handling before installation.

Never store fittings in direct contact with sunlight and the storage conditions must be under 50 °C. Please check everytime if the fittings are damaged before installation.

INSTALLATION

It is very important to use proper hand tools during the installation. Be sure all the devices are ready to use and calibrated if necessary. A list of required tools is as below:

- ◆ Measuring device (pi tape, meter, caliper etc.)
- ◆ Pipe cutting equipment
- ◆ Marking pen
- ◆ Scraping tool
- ◆ Cleaning material (alcohol wipes etc.)
- ◆ Re-rounding tools
- ◆ Pipe clamping tools
- ◆ Power generator
- ◆ Ef welding machine

PIPE COMPATIBILITY

Please check the pipe raw material. Elbow fittings are compatible for PE80, PE100 pipes. Compare and check if the SDR class of pipe is compatible with the SDR class of the fitting. Measure the external diameter of the pipe using a Pi tape. The external diameter of the pipe should comply with the tolerances defined in the international standards (EN 12202-2; EN 1555-2). Measure the pipe outside diameter at a specified distance away from the pipe ends. (%5 OD). If the pipe diameter does not match with the requirements cut the pipe at where it is suitable. A small list of pipe diameters are listed below:

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BORU KAZIMA DERİNLİKLERİ PIPE PEEL DEPTHS

BORU DN PIPE DN	KAZIMA DERİNLİĞİ (mm) PEEL DEPTH (mm)
≤ DN25	0,2
DN32-DN63	0,2-0,3
DN75-DN225	0,2-0,4
>DN225	0,3-0,5

BORU HAZIRLIĞI

EF kaynak işleminde boru hazırlığı en önemli adımdır. Ne yazık ki sıkça yapılan hatalardan biri de bu konuya gerekli önemin verilmemesidir ki bu adımda yapılacak bir hata daha büyük hatalara ve sonuçlara yol açabilmektedir.

Boru kesme: Boru uçları düzgün kesitler halinde kesilmelidir. Boru uçlarının düzgün kesilmemesi manşonun boru üzerinde doğru konumlanmamasına yol açacaktır. Düz kesilmeyen boru uçları manşon tellerinin boru ile öpüşmemesine, dolayısıyla kısa devrelere, boru ve manşonun kontrolsüz erimesine ve hatta ani yanmalara sebep olabilir.

İşaretleme: Başarılı bir kaynak yapabilmek için manşonun boru ve ya ek parça içine muntazam bir şekilde yerleştirilmesi gereklidir. Bunu için manşon derinliği ölçülmeli ve boru ucuna beyaz kalem ile işaret konulmalıdır. Konulacak işaret mesafesi manşon derinliğinin yarısı + 2cm kadar olmalıdır.

Kazıma: İyi bir kaynak yapabilmek için boru ve ya ek parça uçlarının temiz ve oksitlenmemiş olması gerekmektedir. Temiz ve uygun bir yüzey borunun ve ya ek parçanın ancak uygun el aletleriyle kazınip temizlenmesi ile mümkün olabilmektedir. El ile kazıma çok zaman alması ve düzensiz yüzey oluşma ihtimali nedeniyle özellikle büyük çaplı manşonlarda tavsiye edilmemektedir. Bu işlemin mekanik kazıma aparatları ile yapılması tavsiye edilir.

PIPE PREPERATION

Pipe preperation is the most important step at EF welding. A very common mistake is not to give necessary attention at this step which may lead to other consequencing mistakes.

Pipe cutting: Pipe ends must be cut even and in plane sections. If pipe ends are not cut even this may lead to unproper positioning of the coupler and pipe. Coupler wires may remain uncovered and this may lead to a short circuit, uncontrolled melting if pipe ends or coupler, overheating of the coupler or even sudden combustion.

Marking: A proper coupler depth must be installed in the pipe or spigot end to achieve the successful welding. To assign this depth, measure the insertion depth of the coupler (this is usually the half of the coupler length) and put a mark with a white pen at this distance (+2 cm to check the scraped area visually after mounting) on the pipe or spigot ends.

Scraping: To perform a good welding procedure pipe surfaces must be clean and free of oxidized surface layers. This can be accomplished by scraping the pipe surfaces with suitable tools. Hand scraping is not recommended especially for larger pipe diameters due to the probability of uneven peeling and time consumption. Mechanical peeling tools are strongly recommended for proper scraping.

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Temizleme: Boru uçları temiz ve toz, topraktan arındırılmış olmalıdır. Boru uçlarından çapak ve ya kazıma artığı malzemeyi alkollü bez ve ya alkollü solüsyon kullanarak temizleyiniz. Bu işlemden sonra boru uçlarının tekrar kirlenmemesine dikkat ediniz. Manşon iç kısmının da temiz olmasına dikkat edilmelidir.

Boru ovalik alma: Ef manşonlar yuvarlak boru ve ek parçalar için tasarlanmıştır. Eğer herhangi bir sebepten ötürü boru ve ya ek parça ovalleşmiş ise düzgün kaynak yapılması mümkün olmayacaktır. Ovalliğe sebep olan bazı maddeler aşağıdaki gibidir:

Üretim koşulları: Boru üretim sırasında malzeme ovalleşebilir. Boru üreticisi ovalliği belli sınırlar içerisinde tutmak zorundadır ancak montajdan önce kaynakçı da bu kontrolü yapmalıdır.

Depolama ve taşıma koşulları: Borular depolarda bekletilirken genellikle birbirinin üzerine yerleştirilir. En alttaki boru genellikle üzerindeki kütleye bağlı olarak yuvarlaklaşır.

Boru kangallama: Kangal borular, üzerine uygulanan kuvvetler nedeniyle zaman içerisinde yuvarlaklaşır.

Monte edilmiş borular: Montajı yapılmış ve yeraltında uzun zaman kalmış olan borular, üzerlerindeki toprak ağırlığı ve ya yeraltı hareketleri sebebiyle ovalleşebilir.

Elektrofüzyon kaynağının başarısı manşon ile boru ve ya ek parça arasındaki boşlukların doldurulmasına bağlıdır. Sağlıklı bir elektrofüzyon kaynak işlemi gerçekleştirmek için boruların ovalliği uygun aletler kullanılarak giderilmelidir.

Ovallik montajdan önce aşağıdaki adımlar takip edilerek giderilmelidir:

- ◆ Kaynak yapılacak kesitteki maksimum ve minimum boru dış çapları ölçülür.
- ◆ Kaynak yapılacak ek parçadaki maksimum ve minimum dış çaplar ölçülür.
- ◆ Eğer maksimum ve minimum dış çaplar arasındaki fark aşağıdaki kriterlere uymuyorsa kaynak işlemi yapılmaz. Boru ve ya ek parçadaki ovalliği gidermek için uygun ekipmanlar kullanılır. Eğer DN < 315 mm ise;
Maks. OD (DİŞ ÇAP) - Min. OD (DİŞ ÇAP) < 1,5 % of DN or < 3 mm (hangisi daha küçükse)
Eğer DN ≥ 315 mm ise;
Maks. OD (DİŞ ÇAP) - Min. OD (DİŞ ÇAP) < 1,0 % of DN or < 5 mm (hangisi daha küçükse)

Cleaning: Pipe ends must be clean and free of any dust, dirt or soil rests if any. Remove any burrs or shavings from the pipe ends using a alcohol towel, an alcoholic solution or etc. Be carefull not to mass the pipe ends after this operation. It is recommended to clean the coupler inside also.

Pipe re-rounding: Ef couplers are designed to work on round pipes or spigots. If the pipe end or spigot has become rounded due to any reason, a proper welding cannot be achieved. Some reasons for the ovality of the pipes or spigot ends are listed below:

Manufacturing conditions: Pipe may be rounded during the manufacturing process. The manufacturer should check this parameter but the installer should also confirm before installation.

Storage and handling conditions: Pipes are stored often on top of one another. Undermost pipe usually becomes rounded due to the mass above it.

Pipe coiling: A coiled pipe will become rounded after a long period of time due to the forces applied on it.

Insatalled pipe: Pipes which have been installed and spent a long time underground may become rounded due to the bulk earth weight or ground movements.

The success of the ef welding is extremely dependent on the ability of the coupler to fill the gaps between the pipe or spigot end and the coupler. In order to perform a healthy ef welding process, pipes should be re-rounded again using proper tools.

The ovality should be checked before the installation as follows:

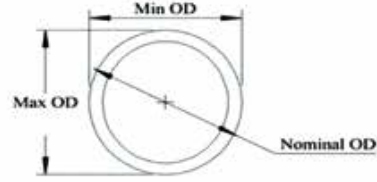
- ◆ Measure the maximum and minimum pipe outer diameters at the section which the ef welding is to be operated.
- ◆ Find the difference between max. and min. measured OD (outer diameter) of the pipe or spigot end.
- ◆ If the difference does not match the below properties, DO NOT PERFORM the welding operation. Use a re-rounder to fix the ovality at the welding section.
For DN < 315 mm
Max. OD - Min. OD < 1,5 % of DN or < 3 mm (whichever value is the smallest)
For DN ≥ 315 mm
Max. OD - Min. OD < 1,0 % of DN or < 5 mm (whichever value is the smallest)

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Hizalama: İyi bir kaynak işlemi gerçekleştirmek için borular ve ek parçalar manşon ile düzgün bir şekilde hizalanmalıdır. Kaynak sırasında, ısıtma ve soğutma sürelerinde, borular asla oynatılmamalı ve yerleri değiştirilmemelidir. Bu nedenle, kaynak ve soğutma işlemi sırasında bu tür hareketlerden kaçınmak için, manşon boruya ve ek parçaya kelepçe ile sabitlenmelidir.

Manşonun montaj derinliği boru ve ek parça üzerine beyaz bir kalem ile işaretleyiniz. Ef manşonun monte edildikten sonra işaretli alana ulaştığından emin olunuz. Boruyu düzgün bir şekilde hizaladıktan sonra kelepçeleri sıkınız.



Alignment: To perform a good welding procedure pipes or spigots must be perfectly aligned with the coupler. In order to avoid welding mistakes during welding, heating and cooling times pipes should never be moved or replaced. Therefore ef copulers must be clamped to the pipes or spigots in order to avoid such movements during welding and cooling process.

Mark the insertion depth of the coupler on the pipe with a marker. Be sure that the ef coupler reaches marked area. Tighten the clamps after aligning the pipe properly.

ELEKTROFÜZYON KAYNAK İŞLEMİ

Yukarıdaki tüm adımlar izlendikten sonra ef kaynak işlemine başlanabilir. Kaynak işlemine başlamadan önce aşağıdakileri lütfen kontrol ediniz:

- ◆ Jeneratörün hazır olduğundan ve yakıt deposunun dolu olduğundan emin olun.
- ◆ Jeneratörü çalıştırınız ve voltajın sabit olduğundan emin olunuz. Kararsız ve dalgalı güç girişi hata çıktılarına neden olabilir.
- ◆ Kaynak makinesini jeneratöre bağlayın.
- ◆ Ef makinenin iki terminalini manşona bağlayınız.



ELECTROFUSION WELDING

We can start with the welding process once all the above preparations are done. But before starting the electrofusion welding please check the followings:

- ◆ Be sure that the power generator is ready and fuel tank is full.
- ◆ Start up the power generator and make sure that the voltage is stable. Unstable power input may result in error outputs.
- ◆ Connect the welding machine to the power generator.
- ◆ Connect the two terminals to the fitting.

Kaynak Parametre Girişi

Kaynak işlemleri sırasında kısa devre yaşamamak için terminallerin bağlı olduğundan ve terminal uçlarının kirlenmediğinden emin olunuz. Ayrıca kaynak işlemi sırasında boru ve manşonun hareket etmeyeceğinden emin olunuz. Sonrasında aşağıdaki adımları takip ediniz:

- ◆ Kaynak makinesini çalıştırınız ve sıcaklık, operatör numarası, isim gibi gerekli bilgileri giriniz.
- ◆ Barkod okuyucu kullanacaksanız, kalemi gövdeden çıkarın ve barkodu kalemle okuyunuz.
- ◆ Kalem barkodu okumuyorsa, barkodun hasarlı olmadığından veya kalemin doğru açı ile tutulduğundan emin olunuz.
- ◆ Kaynak makinesi ekranında gösterilen değerlerin barkod özellikleriyle eşleşip eşleşmediğini kontrol ediniz. Sorun yoksa kaynak işlemine başlayınız.
- ◆ Manuel olarak giriş yapacaksanız parametrelerin doğru girildiğinden emin olunuz. Sorun yoksa kaynak işlemine başlayınız.
- ◆ Kaynak makinesinin ekranında herhangi bir hata uyarısı olmadığından emin olunuz.



Welding parameter input

Be sure that the terminals are connected and the terminal ends are not contaminated in order to avoid short circuit during welding operations. Also ensure that the coupler and pipe will not move during the welding process. Then follow the steps below:

- ◆ Start the welding machine and enter the necessary informations such as temperature, operator number, name etc.
- ◆ If a barcode is used take out the pencil from the casing and read the barcode with the pen.
- ◆ If the pen does not read the barcode make sure that the barcode is not damaged or pen is held with right angel.
- ◆ If OK, please check if the data shown on the welding machine screen match with the barcode properties of the item. If OK start the welding.
- ◆ If the parameters to be input manually, be careful to input correct parameters matching with the item to be welded. If OK, start welding.
- ◆ Make sure there is no error warning on the display of the welding machine.

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Kaynak Sonrası Kontroller

Kaynak işlemleri tamamlandıktan sonra operatör, biten kaynağın uygunluğunu kontrol etmelidir.

- ◆ Kaynak makinesinin ekranında herhangi bir hata uyarısı olmadığından emin olunuz.
 - ◆ Operatör kaynak süresinin tam olarak dolduğundan emin olmalıdır.
 - ◆ Operatör boru ve ek parçanın soğuma süresi boyunca hasar görmediğinden ve hareket ettirilmediğinden emin olmalıdır.
 - ◆ Operatör, ef bağlayıcısındaki yükselen pimin (erime göstergesinin) yükselip yükselmediğini kontrol etmelidir. Eriyik göstergesinin yükselmesi, kaynağın kalitesi hakkında herhangi bir ipucu vermez. Sadece kaynak yapıldığını gösterir.
 - ◆ Operatör kaynak kulakçıklarının yükseldiğini kontrol etmelidir. Yükselen kulakçık kaynak kalitesi hakkında bilgi vermez fakat kaynağın tamamlandığını belirtir.
- Kulakçık yükselmezse operatör aşağıdaki maddeleri kontrol etmelidir:
- ◆ Boru ve ek parça ovallikleri,
 - ◆ Barkod parametrelerini,
 - ◆ Güç kaynağı giriş beslemesinin sabit olup olmadığını,
 - ◆ Kaynak makinesinin ekranında herhangi bir hata uyarısı olup olmadığını,
 - ◆ Boru hizasının düzgün olup olmadığını.
- Kulakçık çıkmamasına rağmen tüm yukardaki parametreler uygunsa kaynakta bir sorun olması beklenmez.

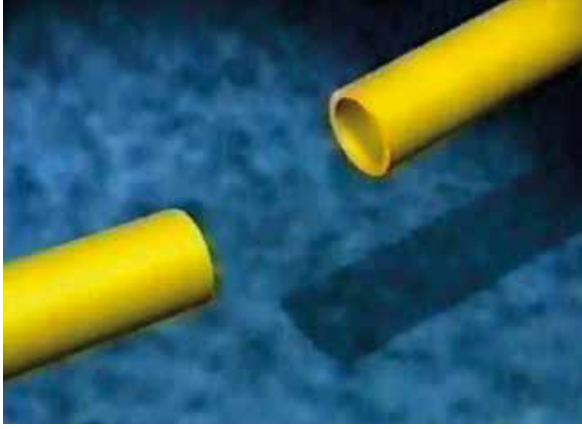
Post welding inspections

After the welding operations is completed operator should check the compatibility of the accomplished weld.

- ◆ Operator should check if there are any error warning on the display of the welding machine.
 - ◆ Operator should check if the complete time cycle has lasted for the suitable welding.
 - ◆ Operator must be sure that the fitting and the pipe has not been damaged or moved and held properly by clamps during the cooling time.
 - ◆ Operator must check whether the rising pin (melt indicator) on the ef coupler has risen. Rise of the melt indicator does not give any clue about the quality of the weld. It only indicates if the welding is performed.
- If the rising pin (melt indicator) does not rise the operator should check the followings:
- ◆ The dimensions of the pipe/spigot and the ovality.
 - ◆ The heat fusion parameters of the barcode match with the reality.
 - ◆ Input power supply to the welding machine is stable.
 - ◆ There is no error display on the screen of the welding machine.
 - ◆ Pipe alignment is correct and in place.

If all the above parameters are OK even though the melting indicator does not show up there is no need to reject the weld.

PE BORU VE BORU ELEMANLARI KAYNAK METODLARI WELDING METHODS OF HDPE PIPE AND FITTINGS СПОСОБЫ СВАРКИ HDPE ТРУБЫ И ФИТИНГА



GİRİŞ

Kaynak kalitesi, kaynakçının kabiliyeti, kullanılan ekipman ve standartların uygulanmasını sağlayan gözlemciye doğrudan bağlıdır. Kaynak prosesi başından sonuna kadar titizlikle gözlemlenmelidir. Bunun sağlanabilmesi için kaynak mahallinde bir supervisor bulundurulmalıdır. Ayrıca, kaynak esnasında kaynak dataları ekte verilen föylere kaydedilmelidir. Kaynak işlemine başlamadan önce test kaynağı yapılarak kaynak parametrelerinin doğruluğu tespit edilmelidir. Her bir kaynakçı gerekli eğitimlerden geçirilmiş ve sertifikalandırılmış olmalıdır.

ALIN KAYNAĞI

Kaynak işlemine başlamadan önce dikkat edilmesi gereken hususlar

Kaynak yapılan ortamın sıcaklığı +5 °C'nin üzerinde olmalıdır. Yağışlı ve soğuk havalarda üstü kapalı bir yer seçilmelidir. Kaynak esnasında vantilasyon nedeniyle hızlı soğumanın olmaması için boru uçları kapatılmalıdır. Kangal halindeki borularda kaynak yapılmadan önce, kangallasma esnasında oluşmuş olan ovalliklerinin alınmış olması gerekir. Kaynak bölgesi temiz ve hasarsız olmalıdır.

Kaynak metodunun tanımı

Alın kaynağı, aynı çap ve et kalınlığındaki boru ve fittinglerin basınç ve sıcaklık yardımıyla alın alına birleştirilmesi suretiyle gerçekleştirilen bir bağlantı metodudur. Kaynak yapılacak parçaların ağız kısımları, düzgünce tıraşlanarak erime sıcaklığına kadar ısıtılır (200-220 °C). Daha sonra da belirli bir basınçla birbirine alın alına yapıştırılır. Kaynak basıncı, sıcaklık ve zaman malzemenin kendi kimyasal ve fiziksel özelliklerini bozmayacak şekilde ayarlanır.

Alın kaynağı metodunda kaynak bölgeleri ısıtıcı üzerine belirli bir basınçla bastırılır (yanastırma), kaynak sıcaklığında hemen hemen sıfır basınçta beklenir (basıncsız ısıtma) ve basınç altında birleştirilir (birleştirme).

Kaliteli bir alın kaynağında bağlantı en az orijinal borunun sahip olduğu dayanıma sahiptir. Kaliteli bir alın kaynağı elde edebilmek için kaynak basıncı, sıcaklık ve zaman parametreleri titizlikle ayarlanmalıdır.

Kaynak hazırlığı

Kaynak işlemine başlamadan hemen önce kaynak makinası üzerinde görülen set sıcaklığının kontrol edilmesi gerekir. Bu işlem infrared termometre ile yapılmalıdır. Set sıcaklığına ulaşıldıktan en az 10 dak. sonra kaynak işlemine başlanmalıdır.

Kaynak kalitesinin iyi olabilmesi için ısıtıcı yüzeylerinin her kaynaktan önce temizlenmesi gerekir. Temizleme asındırıcı olmayan yumuşak malzemelerle, alkol vs. yardımıyla yapılabilir. Isıtıcı yüzeyleri çizik veya hasarlı olmamalıdır.

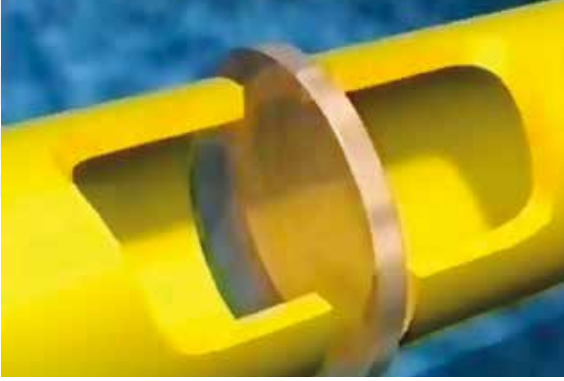
Birleştirme kuvvetleri ve birleştirme basınçları kullanılan makinanın speklerinde gösterildiği gibi olmalıdır. Bunlar kaynak makinasını üreten firmanın verdiği bilgilere, hesaplamalara veya ölçüm değerlerine göre belirlenmelidir. Hareket basıncı, kaynatılacak parçaların makinada montajlı iken hafifçe hareket ettirilmesi ile cihazın basınç göstergesinde görülen değerdir. Bu değer belirlenen birleştirme basıncının üzerine eklenmelidir. Hareket basıncı makineden makineye değiştiği gibi, kaynatılacak borunun çapına ve boyuna göre de değişir. Bu nedenle her bir kaynak işleminden önce hareket basıncı okunarak birleştirme basıncına eklenmelidir.

Birleştirilecek bölgeler kaynak yapılmadan önce tıraşlanmalıdır (Şekil 2). Bu şekilde borular tam olarak alın alına yerleştirilebilir ve yüzeylerdeki kirli bölgeler atılmış olur. Tıraşlanan iki yüzey birbiri üzerine örtüştürülünce çevre boyunca oluşan boşluğun izin verilen maksimum genişlik değeri Tablo 1'de verilmiştir.

Boşluk genişliği ve hatalı merkezleme (kaçıklık) olup olmadığının kontrol edilmelidir. Kaçıklık mümkün olduğu kadar sıfırlanmalıdır. En kötü durumda birleştirme bölgelerinin kaçıklığı 0,1*Çidar kalınlığı'nı geçmemelidir.

Boru dış çapı	Boşluk genişliği
ΦD mm	mm
≤ 355	0.5
400 ... < 630	1.0
630 ... < 800	1.3
800 ... ≤ 1000	1.5
> 1000	2.0

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Tıraşlanan kaynak bölgeleri kirlenmemeli, el ile dokunulmamalıdır. Aksi takdirde tekrar tıraşlama yapmak şarttır. Kaynak bölgesinde tıraşlama sonucunda ortaya çıkan çapaklar birleşme yüzeylerinden el değmeden temizlenmelidir.

Kaynak prosedürü

Alın kaynağı prosesinde kaynak bölgeleri bir ısıtıcı yardımıyla kaynak sıcaklığına kadar ısıtılır ve ısıtıcı çıkarıldıktan sonra basınç altında birleştirme işlemi yapılır. Isıtıcı sıcaklığı 200-220 °C arasında olmalıdır. Yüksek sıcaklık daha ince et kalınlığı için geçerli iken düşük sıcaklık büyük et kalınlıkları için geçerli olur (Grafik 1).

Yanaştırma:

Kaynatılacak borular birleşme yüzeyleri ısıtıcıya paralel olacak şekilde ısıtıcıya yanaştırılır. Paralelliğin tam olarak sağlanıp sağlanmadığı oluşan dudak yüksekliğinin tipine bağlı olarak belirlenebilir. Eğer tam paralellik sağlanamamışsa çap boyunca homojen dudak yüksekliği oluşmayacaktır. Yanaştırma işlemi P1 basıncı altında T1 süresi boyunca yapılır (Grafik 2). T1 süresi oluşan dudak yüksekliğine göre belirlenir. Olması gereken minimum dudak yükseklikleri Tablo 2'de 2. kolonda gösterilmiştir. Isıtıcının yerleştirilmesi ve dudak oluşumu işlemleri Sekil 3 ve Sekil 4'ten görülebilir.

P1 ara yüzey basıncı 0,15 N/mm² dir. Ancak bu basınç kaynak cihazının manometresinde okunan basınç değildir. Kullanıcı ara yüzeyde bu basıncı sağlamak için kaynak makinasını hangi değere ayarlayacağını kaynak makinası üreticisini verdiği bilgilere göre belirlemelidir.

Basıncsız ısıtma:

Bu işlem için yanaştırma basıncından çok kısa bir süre içerisinde kaynak yüzeylerini ısıtıcıdan ayırmadan basınç düşürülür. Bu aşamada birleşme bölgeleri ısıtıcı ile hemen hemen sıfır basınçta (ara yüzey basıncı) temastadır (P2 ! 0,02 N/mm²). Bu esnada ısı boru eksenine doğrultusunda ilerler. Isıtma süresi T2 Tablo 2'de 3. kolonda verilmiştir. Bu sürenin gerekenden kısa tutulması halinde, erimiş plastik kısmın derinliği kaynak için gerekli olan derinlikten daha kısa olur. Isıtma süresinin gerekenden uzun tutulması halinde de kaynak bölgesi aşırı eriyecek veya bozunacaktır.

Isıtıcının çıkarılması:

Basıncsız ısıtma işleminden sonra birleşme bölgeleri ısıtıcıdan ayrılır. Isıtıcı çıkarılırken birleşme bölgelerine zarar verilmemelidir.

ve/veya pislik bulaştırılmamalıdır. Isıtıcı çıkarıldıktan sonra çok çabuk bir şekilde birleştirme işlemi gerçekleştirilmelidir. Eğer gecikilirse soğuma ve oksitlenme nedeniyle kaynak kalitesi bozulur. Bu aşama için maksimum süre T3 Tablo 2'de 4. kolonda verilmiştir.

Birleştirme:

Isıtıcı çıkarıldıktan sonra borular birbirine yanaştırılır. Yanaştırma kesinlikle ısıtılmış yüzeylerin birbirine çarpması şeklinde olmamalıdır. İstenilen P3 basıncı değerine (ara yüzey basıncı) lineer bir şekilde çıkılmalıdır (Grafik 2). Gerekli süre T4 Tablo 2'de 5. kolonda verilmiştir. Birleştirme basıncı P3 0,15ffl0,01 N/mm² olmalıdır.

Soğutma:

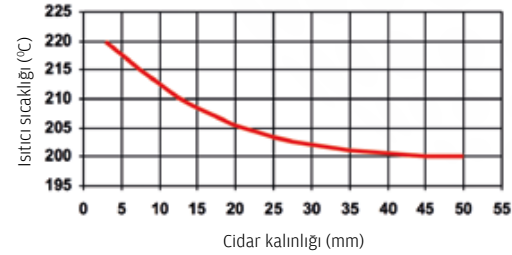
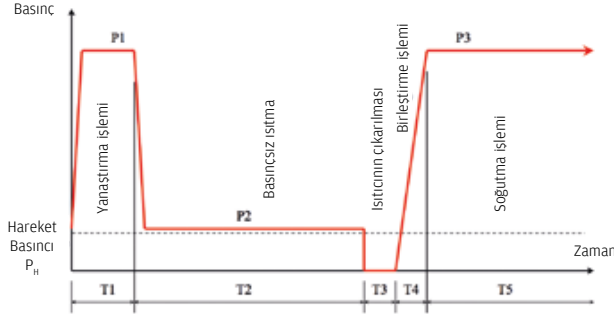
Soğutma esnasında birleştirme basıncı P3 (ara yüzey basıncı) sabit tutulmalıdır. Birleştirme işleminden sonra düzgün ikili dudak oluşmalıdır. Dudak boyutları ve şekli kaynağın düzgünlüğünü gösterir. Birleştirilen boruların melt-flow'una bağlı olarak farklı dudak şekilleri oluşabilir. Sekil 6'da gösterilen K değeri her zaman sıfırdan büyük olmalıdır. Bu aşama için gerekli minimum süre T5 Tablo 2'de 5. kolonda verilmiştir.

Not: Tabloda verilen kaynak parametrelerinden herhangi birinin dışına çıktığında veya anlatılan prosedürlerden birine uyulmadığı zaman tüm kaynak işlemi tekrar yapılmalıdır.

Adım adım kaynak işlemi

1. Gerekli kaynak koşullarını sağla, ör. kaynak mahallinin üstünün kapatılması.
2. Kaynak makinasını jeneratöre veya elektrik hattına bağlayarak çalışıp çalışmadığını kontrol et.
3. Kaynak yapılacak boruları makineye yerleştir ve boruların aksiyel yönde kolay hareket edebilmesini sağla.
4. Birleşme bölgelerini tıraşla.
5. Tıraşlama aparatını makinadan çıkar.
6. Kaynak bölgesinden çapakları temizle (fırça veya kağıt havlu)
7. Hava sirkülasyonuna karşı boru uçlarını kapat.
8. Birleşme yüzeylerinin birbirine paralelliklerini yüzeyleri birbirine değdirerek kontrol et (en kötü durumdaki boşluk genişliği Tablo 1'deki değerleri geçmemeli).
9. Kaçıklıkları kontrol et (en kötü durumda maksimum 0,1xÇidar kalınlığı).

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10. Isıtıcı yüzey sıcaklığını kontrol et (Grafik 1).
11. Isıtıcı yüzeylerini asındırıcı olmayan ve tüy bırakmayan bez veya kağıt havluyla temizle.
12. Hareket basıncını kaynak makinasının manometresinden oku ve bu değeri ekte verilen kaynak föyüne yaz.
13. Kaynak makinası üreticisinin verdiği hesaplamalara veya tablolara göre yanastırma, basıncsız ısıtma ve birleştirme basıncılarını belirle.
14. Tablo 2'deki değerleri kaynak makinası üzerinde uygula.
15. Isıtıcıyı kaynak pozisyonuna getir.
16. Birleşme bölgelerini ısıtıcıya çabuk bir şekilde yanastır ve yanastırma basıncında Tablo 2'de 2. kolonda verilen minimum dudak yüksekliklerinin oluşmasını bekle.
17. Basıncı P2 basıncına düşür. Bu basınç sıfıra yakındır !0,02 N/mm². P2 basıncında Tablo 2'de 3. kolonda verilen süre kadar bekle.
18. Boruları birleşme bölgelerine zarar vermeden ısıtıcıdan ayır ve ısıtıcıyı al.
19. Birleşme yüzeylerini Tablo 2'de 4. kolonda verilen süre içerisinde hemen hemen degecek kadar birbirine yanastır. Daha sonra %100 teması yaklaşık sıfır hızda gerçekleştir ve hemen sonra Tablo 2'de 5. kolonda verilen süre içerisinde birleştirme basıncı P3'e lineer bir şekilde çık.
20. 0,15 N/mm²'lik birleştirme basıncından sonra dudak oluşmuş olmalıdır. Şekil 6'ya göre K değeri her kesitte sıfırdan büyük olmalıdır.
21. Birleştirme basıncı altında Tablo 2'de 5. kolonda verilen süre boyunca soğuma için bekle.
22. Soğuma sonunda kaynatılmış parçaları makinadan demonte et.
23. Ekte verilen kaynak föyünü tamamla.

Alın Kaynağı kaynak kalitesiyle ilgili dikkat edilecek hususlar

Başarılı bir kaynak elde edebilmek için yukarıda belirtilen parametrelerin dışında;

- i) Kaynak yapılacak malzemelerin birbiriyle şeklen uyumlu olmasına dikkat edilmelidir.
- ii) Nem, rüzgar veya düşük sıcaklıktaki ortamlarda, kaynak parametrelerinin etkilenmemesi için makine çalışma alanı bu etkilerden korunmalıdır.
- iii) Kaynak yapılacak boruların alınlarının ısıtma süresi sonunda

aynı sıcaklıkta olmasını garanti edebilmek için kaynak bölgesi direkt gün ışığı vb. etkilerden korunmalıdır.

iv) Kaynak işlemi öncesinde kaynatılacak boruların alınları toz, çapak vs olmaması için temizlenmelidir.

v) Borular, kaynak işlemine başlanmadan önce kafalara sağlam olarak bağlanmalıdır. Bu hem parçaların tam olarak merkezlenip doğru bir kaynak elde edilebilmesi için gereklidir, hem de parçaların tıraslama sırasında kafadan kurtulup, operatöre zarar vermesini önlemek açısından önemlidir.

vi) Kaynak işlemi sırasında (soğuma süresi dahil) kaynak yapılan parçalar hiçbir şekilde mekanik bir kuvvete ve zorlamaya maruz bırakılmamalıdır. Kaynak yapılan borunun diğer kısmı, kolay hareket edebileceği kayıcı bir zemin üzerinde bulunmalıdır. Bu, kaynak bölgesine kuvvet uygulanmadan ileri-geri beslemenin sağlanabilmesi açısından gereklidir.

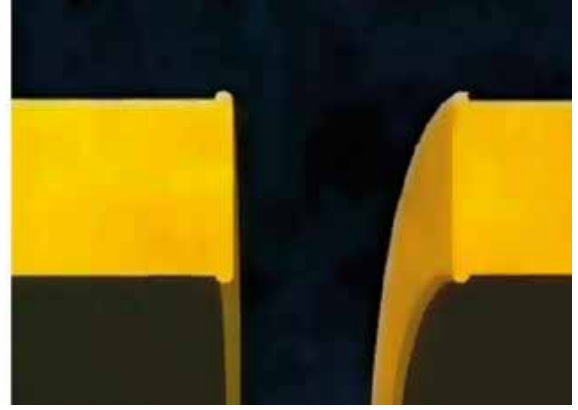
vii) Tıraslayıcı bıçağının gerekli keskinlikte olduğundan emin olunmalıdır. Belirli zaman aralıklarında bıçak bilenmeli yada değiştirilmelidir.

viii) Isıtıcının teflon kaplamasında derin çizik, çentik vb. olmamalıdır. Bunun için belirli aralıklarla ısıtıcı yüzeyi kontrol edilmelidir.

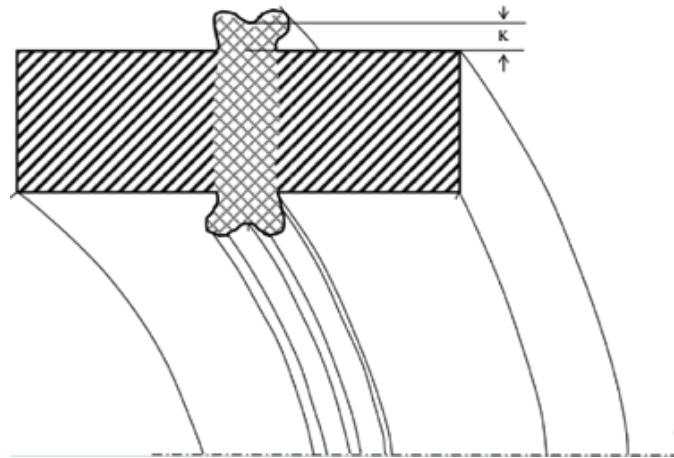
Alın Kaynağı kaynak kalitesinin kontrol edilmesi

- i) Örnek bir birleştirme hazırlanır.
- ii) Görsel olarak birleştirme bölgesi incelenerek aşağıda verilen kabul edilen birleştirme resimleriyle kıyaslanır.
- iii) Örnek birleştirmenin tamamen soğumasına izin verilir.
- iv) Örnek üzerinden şekilde belirtildiği gibi 8 adet parça kesilir.
- v) Kesilen parçanın birleştirme bölgesi görsel olarak aşağıda verilen kabul edilen birleştirme resimleriyle karşılaştırılır. Herhangi bir boşluk, hatalı yanasma, kaynamamış bölge olmamalı.
- vi) Numune parça uç kısımları birbirine degecek şekilde bükülür.
- vii) Kaynak bölgesinde deformasyon gözlemlenmemeli. Sonuç, kabul edilmeyen (aşağıdaki şekillerde gösterilen) bağlantı resimleriyle kıyaslanır. Eğer bir sorun varsa yeni numune hazırlanarak aynı işlemler tekrar edilir.

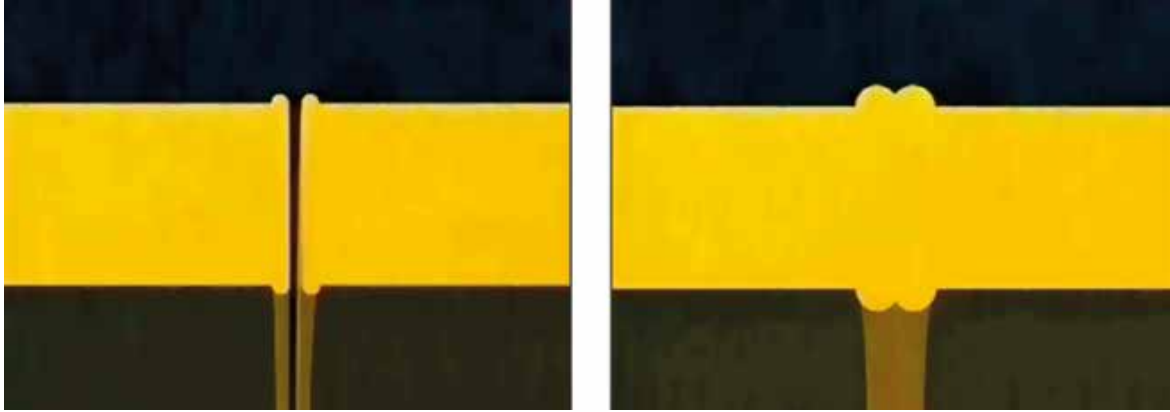
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WELDING METHODS OF HDPE PIPE AND FITTINGS
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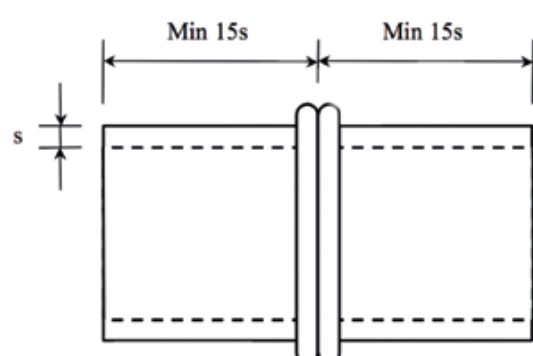
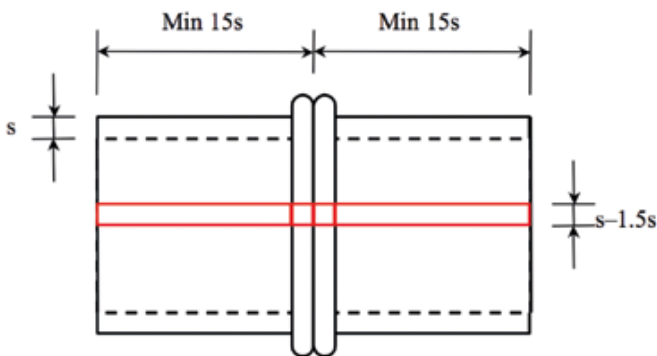
Fazla dudak genişliği	Aşırı ısıtma; fazla birleştirme kuvveti
Dudak orta kısmında oluşan boşluk yüksekliği çok fazla	Fazla birleştirme kuvveti; Yetersiz ısıtma; Isıtma esnasında basınç
Dudak üst kısmı düz	Fazla birleştirme kuvveti; Aşırı ısıtma
Boru etrafında üniform olmayan dudak	Hatalı yerleştirme (merkezleme); Arızalı ısıtma aparatı; Yalnız ekipman; Yetersiz tıraşlama
Dudaklar çok küçük	Yetersiz ısıtma; Yetersiz birleştirme kuvveti
Dudaklar boru dış yüzeyi üzerine dönmemiş (overlap)	Dudak orta kısmında oluşan boşluk çok: Yetersiz ısıtma ve fazla birleştirme kuvveti
Dudaklar çok büyük	Fazla ısıtma süresi
Dudak dış kenarı kare şeklinde	Isıtma esnasında basınç uygulanmış
Pürüzlü dudak yüzeyi	Kaynak bölgesine kaynak esnasında hidrokarbon bulaşmış



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1	2	3	4	5	6
	Yanaştırma	Basıncız ısıtma	Isıtıcının çıkarılması	Birleştirme	
Cidar Kalınlığı	Isıtıcı üzerinde gözlenen borunun dudak yüksekliği	Isıtma Süresi : 10 x Cidar kalınlığı		Birleştirme süresi	Soğutma süresi
mm	mm (minmum)	s	s (maximum)	s	s (mininum)
4,5	0,5	45	5	5	6
4,5 ... 7	1,0	45 ... 70	5 ... 6	5 ... 6	6 ... 10
7 ... 12	1,5	70 ... 120	6 ... 8	6 ... 8	10 ... 16
12 ... 19	2,0	120 ... 190	8 ... 10	8 ... 11	16 ... 24
19 ... 26	2,5	190 ... 260	10 ... 12	11 ... 14	24 ... 32
26 ... 37	3,0	260 ... 370	12 ... 16	14 ... 19	32 ... 45
37 ... 50	3,5	370 ... 500	16 ... 20	19 ... 25	45 ... 60
50 ... 70	4,0	500 ... 700	20 ... 25	25 ... 35	60 ... 80



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Figure 1a. Pipes to be welded



1. INTRODUCTION

The quality of welding joints depends on the qualification of the welder, the suitability of the used equipment and devices as well as on observance to the welding standards. The welding work must be monitored. A supervisor must be in the welding place to monitor the work. It is an important requirement to record the welding data to attached welding protocols.

Within the frame of the quality assurance it is a necessity to perform and test samples of joints before beginning and during the welding works. Every welder has to be trained and a holder of a valid qualification certificate.

2. BUTT WELDING

2.1. Precutions

The welding zone must be protected against bad weather influences (e.g. moisture and temperatures below + 5 °C). A cooling down during the welding process by ventilation has to be avoided by closing the pipe-ends during welding.

Pipes from coils are oval immediately after uncoiling. The pipe end must be prepared before welding, e. g. by careful heating up with a hot-air equipment and use of a suitable clamping and/or rerounding device.

The connection zones of the components to be welded must be undamaged and have to be free of contaminations (dirt, oil, shavings).

2.2. Description of butt welding

Butt-welding is a method, which is used to join pipes and fittings of the same diameter and wall thickness. In this process, the contact faces of the components are planed so that a perfect contact is achieved, then heated to the melting temperature, and then melted contact faces are joint under pressure. Welding pressure, temperature and time is adjusted so that the physical and chemical properties of the original material are retained.

At the butt welding method, the connection zones of the components to be welded are aligned on the heated tool (alignment), heated up to the welding temperature with reduced pressure (heating-up) and joined under pressure (joining) after removal of

the heated tool (tool removal).

A good quality butt-welded joint assures that the joint strength is the same as valid for the original pipe itself. And in order to achieve a good quality joint, welding parameters (temperature, pressure and time) should be adjusted carefully.

2.3. Preparation

Before starting of the welding process, the welding temperature set on the heated tool is to be checked. This is done by means of an infrared thermometer. For adjusting a thermic balance, the heated tool may be inserted 10 minutes after reaching the set temperature.

To ensure an optimum welding connection, the heated tool has to be cleaned with an absorbent, non-fuzzy and non-coloured paper before every welding operation. The heated tool must be free of damages in the working zone.

The joining forces and joining pressures have to be specified for the machines to be used. These can be based on manufacturer information, calculated or measured values. Additionally, at the welding of pipes, the workpiece moving force resp. moving pressure is taken from the indicator of the welding machine during the slow displacement of the part to be welded and have to be added to the prior determined joining force resp. joining pressure.

The joining areas have to be planed with a clean and grease-free tool directly before the welding, so that they are plane-parallel in clamped condition. Permissible gap width under alignment pressure see Table 1.

Pipe outside diameter ΦD mm	Gap width mm
ΦD mm	mm
≤ 355	0.5
400 ... < 630	1.0
630 ... < 800	1.3
800 ... ≤ 1000	1.5
> 1000	2.0

Table 1: Maximum gap width between the treated welding zones.

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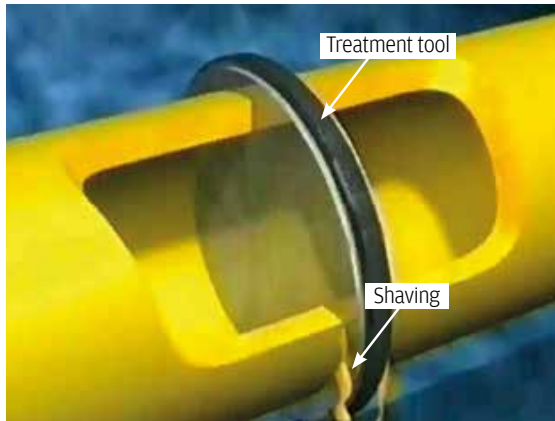


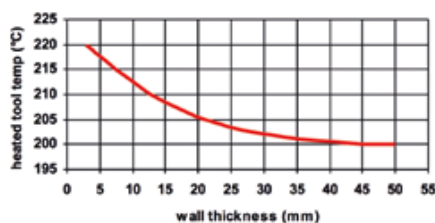
Figure 2: Pipe treatment

Both, the gap width and the misalignment have to be controlled. The misalignment of the joining areas on the pipe outside resp. sheet may not pass the permissible size of $0.1 \times$ wall thickness.

The treated (planed) welding areas should be neither dirtied nor touched by hand, as a retreatment would be necessary then. Shavings fallen into the pipe have to be removed.

2.4. Welding Procedure

In butt welding the welding areas are heated-up to the welding temperature by means of the heated tool and joined under pressure after removing the heated tool. The heated tool temperature is 200 to 220 °C. In principle the upper temperature limit is to aspired for smaller wallthicknesses, the lower temperature limit for bigger ones (see graph 1). The different stages of the process are illustrated in graphic 2.



Graphic 1: Recommended values for the heated tool temperatures subject to the wallthickness.



Graphic 2: Process stages of butt welding

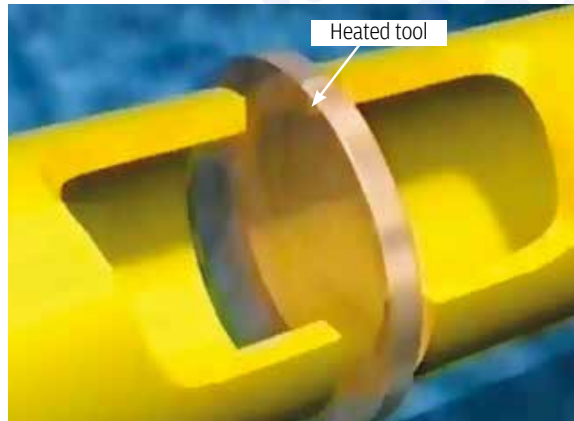


Figure 3: Inserting the heated tool

Alignment:

The joining areas of the welding components are aligned to the heated tool until all areas are plane-parallel on the heated tool. This fact is visible on the kind of beads. The alignment is finished when the bead heights have reached the mentioned values in table 2, column 2 on the total pipe circumference. The alignment pressure (P1) of 0.15 N/mm² effects during the total alignment process. The welder should determine or calculate the manometer pressure according to the instructions given by the manufacturer of the welding machine to get the required interfacial pressure.

Heating-up:

For heating-up, the joining areas must contact the heated tool with low pressure. The pressure is reduced to nearly zero (P2 ! 0.02 N/mm²). During heating-up, the heat penetrates the joining areas and the welding temperature is reached. Heatingup times are mentioned in table 2, column 3.

Removal of heated tool:

After heating-up, the joining areas are to be detached from the heated tool. The heated tool should be withdrawn in such a way that the heated joining areas are neither damaged nor contaminated. The joining areas should be joined together quickly until directly before the contact. The changeover time should be as short as possible (see table 2, column 4), as otherwise the plastified areas will cool down. The welding joint quality would be influenced negatively.

Joining:

The areas to be welded should meet with a speed of nearly zero. The demanded joining pressure is built possibly linear (Graph 2). The required times are shown in table 2, column 5. The joining pressure is P_3 0,15 $\pm$ 0,01 N/mm².

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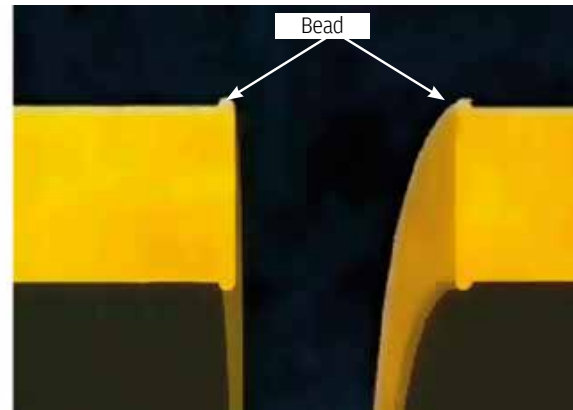
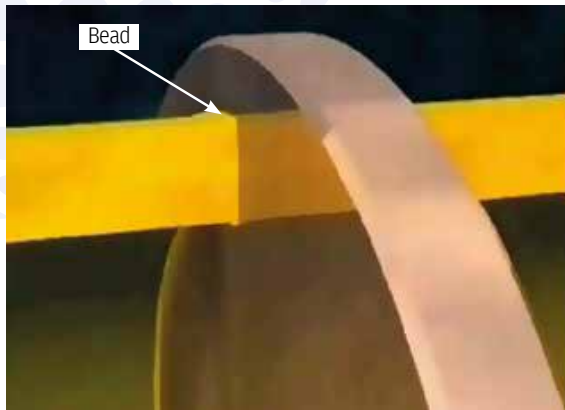


Figure 4: Bead shapes during and after alignment

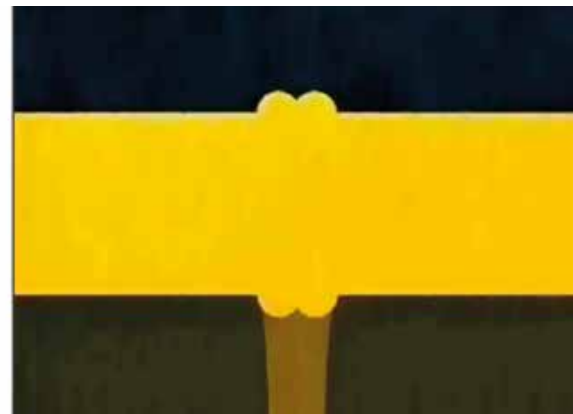


Figure 5: After the heating-up, closing the pipes face to face and joining them under pressure

Cooling:

The joining pressure (P_3) has to be kept during the cooling time T_5 (see table 2, column 5). After the joining, a regular double-bead must appear. The bead size shows the regularity of the weldings. Different beads could be caused by different melt flow behaviour of the connected materials. K must always be larger than 0 (see figure 5).

2.5. Heated tool butt welding of tapping tees

Heated tool butt weldings of tapping tees have to be carried out with the help of welding fixtures.

2.5.1. Description of method

The connection zones of pipe and tapping tee are aligned and heated up by means of a shaped heated tool under alignment pressure. After withdrawal of the shaped heated tool the joining faces are joined under joining pressure.

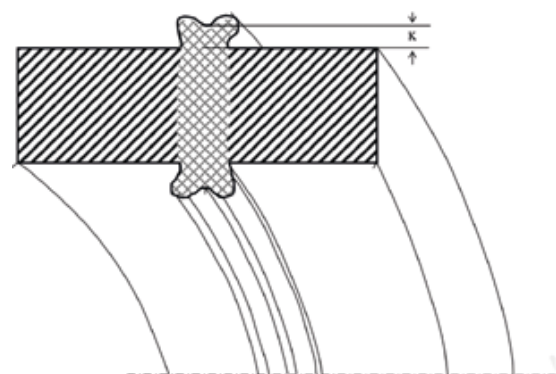


Figure 6: Bead detail

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1	2	3	4	5	6
	Alignment	Heating-Up	Changeover	Joining	
Nominal wall thickness	Bead height on heated tool at the end of the alignment time (alignment with 0.15 N/mm ²)	Heating-up time 10x wall thickness (heating-up with ≤ 0.02 N/mm ²)		Joining pressure build-up time	Cooling time under joining pressure p=0.15 N/mm ² ±0.01
mm	mm (minimum)	s	s (maximum time)	s	s (minimum value)
4,5	0,5	45	5	5	6
4,5 ... 7	1,0	45 ... 70	5 ... 6	5 ... 6	6 ... 10
7 ... 12	1,5	70 ... 120	6 ... 8	6 ... 8	10 ... 16
12 ... 19	2,0	120 ... 190	8 ... 10	8 ... 11	16 ... 24
19 ... 26	2,5	190 ... 260	10 ... 12	11 ... 14	24 ... 32
26 ... 37	3,0	260 ... 370	12 ... 16	14 ... 19	32 ... 45
37 ... 50	3,5	370 ... 500	16 ... 20	19 ... 25	45 ... 60
50 ... 70	4,0	500 ... 700	20 ... 25	25 ... 35	60 ... 80

Table 2: Recommended values for the heated tool butt welding of pipes, fittings and sheets made from PE-HD, at an outside temperature of approximately 20 °C and moderate air flow (interim values have to be interpolated).

Not: The welding work must be repeated when the welder carries out any value which is not mentioned in tabulated values and/or procedure.

2.5.2. Preparation of welding

Before starting of the welding process, the welding temperature set on the heated tool is to be checked. This is done by means of an infrared thermometer. For adjusting a thermic balance, the heated tool may be inserted 10 minutes after reaching the set temperature.

To ensure an optimum welding connection, the heated tool has to be cleaned with an absorbent, non-fuzzy and non-coloured paper before every welding operation. The heated tool must be free of damages in the working zone.

Prior to clamping into the welding equipment the joining surface of the pipe has to be scraped by trimming blade or another suitable tool. Shavings have to be removed e. g. by a brush or a paper.

The treated welding areas should be neither dirtied nor touched by hand, as a retreatment would be necessary then.

The roundness of the pipe is to be made by the clamps of the welding equipment or corresponding rerounding devices. The fit of the tapping tee face is to be controlled.

The joining forces and joining pressures have to be specified for the machines to be used. These can be based on manufacturer information, calculated or measured values.

2.5.3. Welding procedure

The heated tool, heated to the welding temperature (250 to 270 °C), is introduced between the welding components, and is pressed with an alignment pressure of 0.15 N/mm² to pipe and tapping tee.

After beads have formed (table 3, column 1) the specific set pressure for heating up is reduced to 0.02 N/mm². The heating time depends on data provided by the manufacturer of the fitting.

When the heating time is elapsed the shaped heating tool is to be withdrawn so, that the heated joining faces are neither damaged or contaminated. The joining areas should be joined together promptly after. The changeover time should be as short as possible (maximum value see table 3, column 3). After complete cooling the welding fixture is allowed to be removed.

1	"Alignment under p = 0.15 N/mm ² Bead height on heated tool at the end of the alignment time mm (minimum value)"	1,0
2	Heating-up under p ≤ 0.02 N/mm ² Heating-up time s	according to manufacturers data
3	Changeover maximum time s	10
4	Joining	Joining pressure build-up time s
5		Cooling time under joining pressure p=0,15 N/mm ² min (minimum value)

Table 3: Recommended values for the heated tool butt welding of tapping tees made from PE-HD at ambient temperature of 20 °C and at moderate air flow.

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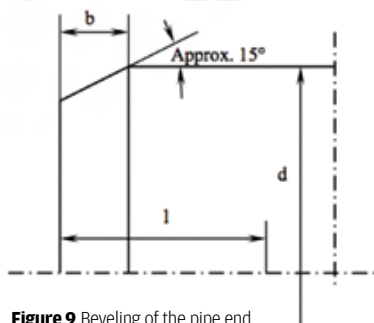


Figure 9 Beveling of the pipe end.

3. ELECTROFUSION WELDING

3.1. Description of method

The joining areas, that means the pipe surface and the inside of the fitting, are overlapped and the resistance wire inside the fitting (heating-coils) are heated up by electric current (Plas-tification). The weld is caused by the effect of heat expansion (joint pressure) during the welding time (see figure 7).

3.2. Welding equipment

The welding equipment has to supply the required voltage for the electrofusion-joint. The device must switch off as soon as the necessary quantity of heat has been fed to the welding zone. The welding equipment must be adjusted to the Electro-fusion fittings.

3.3. Preparation of welding

Clean surfaces are very important for the fabrication of perfect welding joints. The end of the pipe must be of nominal diameter in the area of the heating coil. The pipe surface has to be scraped in the welding zone and the pipe end has to be burred outside. Ovality must not exceed 1.5 % of the outer diameter in the welding zone. If necessary, corresponding rerounding devices have to be used. The preparation of the joining areas has to be done immediately prior welding is started.

3.3.1. Electrofusion welding of fittings

The welding zone of the pipe has to be treated mechanically. If a clean surface by scraping cannot be guaranteed, the surface -as far as required by the fitting manufacturer- and the welding areas of the fitting have to be carefully cleaned by means of degreasing agents (e. g. technical clean spirit) and absorbent, non-fuzzy and non-coloured paper. Ovality must not exceed 1.5 % of the outer diameter in the welding zone. Use a marking or suitable device so that the plug in depth of the pipe can be checked. The fitting must not be canted or pushed into the end of the pipe using force. The contact sleeves for connecting the welding cable must be located so that they are easily accessible. The pipe ends have to be treated according to the instructions of the fitting manufacturer.

Pipe diameter d (mm)	Pipe chamfer b (mm)	Insert depth l (mm)
16	2	13
20		13
25		15
32		17
40		18
50		20
63	3	26
75		29
90		32
110		35
125		38

Table 4: Values for pipe chamfer and insert depth.

3.3.2. Electrofusion welding of tapping tees

The welding zone of the pipe has to be treated mechanically. If a clean surface by scraping cannot be guaranteed, the surface -as far as required by the tapping tee manufacturer- and the welding areas of the tapping tee have to be carefully cleaned by means of degreasing agents (e. g. technical clean spirit) and absorbent, non-fuzzy and non- coloured paper. Clamp the tapping tee onto the pipe using suitable devices.

Ovality must not exceed 1.5 % of the outer diameter in the welding zone. If necessary, corresponding rerounding devices have to be used.

3.4. Welding procedure

The welding equipment is connected by a cable with the part to be welded. The welding cable has to be placed without weight loaded. The contact areas must be clean. The required data of the fitting or tapping tee for the welding process are taken automatically by the welding equipment or must be inserted. After starting the welding process it is finished automatically. The welding time is usually shown on the welding equipment. It has to be inserted to the welding protocol as also other shown data from the welding machine, as far as no data record is done.

The parts to be welded have to be secured by suitable measures resp. devices against change of position. The connection may be moved only after cooling down. The fitting resp. mounting manufacturer supplies corresponding information.

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1	2		3	4	5
Pipe outside diameter mm	Heating up time s		Changeover (Maximum time) S	Cooling	
	for PN 10 SDR 11 ²	for PN 6 SDR 17,6 ²		Fixed s	Total min
16	5		4	6	2
20	5		4	6	2
25	7	1)	4	10	2
32	8	1)	6	10	4
40	12	1)	6	20	4
50	12	1)	6	20	4
63	24	1)	8	30	6
75	30	15	8	30	6
90	40	22	8	40	6
110	50	30	10	50	8
125	60	35	10	60	8

Table 5: Recommended values for the heated tool socket welding of pipes and pipeline components made from PE-HD, at ambient temperature of 20 0° and at moderate air flow.

4. SOCKET WELDING

4.1. Description of method

In heated tool socket welding (see figure 8), pipe and pipeline component are welded in overlapped condition. Pipe end and fitting are heated up to welding temperature by a socket or spigot-shaped heated tool and subsequently joined together. Heating tools and fittings are dimensionally adapted so that on joining a joining pressure will be built-up. Heated tool socket welding can be performed manually up to 50 mm pipe diameter. At diameters as from 63 mm, a welding device is required because of the higher joining force.

4.2. Welding device

The heated tools are heated electrically and are coated antiadhesively.

4.3. Preparation of welding

The treatment of the joining areas of the welding components should take place immediately before welding is started. The pipe end has to be bevelled according to figure 9 and table 4. The joining area of the pipe is to be treated according to the manufacturers guidelines. At manual weldings the insert depth is to be marked on the pipe with distance l according to table 4 afterwards.

Heating socket and heating spigot must be free of contaminations and should be cleaned before welding with an absorbent, non-fuzzy and non-coloured paper. The anti-adhesive coating of the heating spigot and heating socket must be free of damages in the welding area.

4.4. Welding procedure

For the purpose of heating, fitting and pipe are pushed swiftly and axially until the stop at machine welding resp. until the mark at manual welding onto the devices fitted on the heated tool and held there. It has to be avoided that the pipe is pushed onto the end of the heating socket. Afterwards, the heating-up time starts according to the time values in table 5, column 2.

After the heating time has elapsed, fitting and pipe should be withdrawn sharply from the heated tool and pushed together immediately without any twisting until the stop or mark (maximum adjusting time see table 5, column 3).

At manual weldings the joined components have to be fixed according to the time mentioned in table 5, column 4. The connection may be loaded by further installation works only after cooling time is over (table 5, column 5).

5. TESTING OF WELDING JOINTS

Various tests can be used to test the quality of individual welding processes. Differentiation is made between destructive and non-destructive tests. Details of these are contained in table 6. Tests and sampling can be carried out prior to or during welding work according to agreement.

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	Heated tool butt welding		Elektrofusion welding		Heated tool socket welding
	Pipes, fittings	Tapping tees	Fittings	Tapping tees	
Visual test	DVS 2202-1 table 1, cont.no, 1,9	Welded joint even formed and existing on the whole circumference The mechanical treatment of the pipe surface has to be visible out Side of the welding area	DVS 2201-1 table 3, cont no. 1-5	DVS 2202-1 table 3, cont no. 6+7	DVS 2202-1 table 2, cont no, 1-5
Radiation test	Applicable Statement about e.g. Holes, not about quality are possible	No meaningful			Applicable Statement about e.g. Holes, not about quality are possible
Tensile test	DVS 2203-2 short term factor. DVS 2203-4 long term factor. Factors according to DVS 2205-1, table 3	No applicable			
Technological bending test	DVS 2203-5 Minimum bending angle according to DVS 2203-1 figure 1	No applicable			
Login time internal pressure test	DIN 16963-5 section 3.2.3.1, length of every pipe piece according to DIN 16963 table 5, Not meaningful for long-term welding factor >0.5	DIN 3544-1, section 2.3 and 3.2 at 80 °C	DIN 16963-5, section 3.2.3.1 and 4.2 at 80 °C	DIN 3544-1, section 2.3 and 3.2 at 80 °C	DIN 16963-5 section 3.2.3.1 and 4.2 at 80 °C

Table 6: Possible test methods for welding connections.

Appendix:

A. Butt Welding Processing instructions (short version)

1. Take care for allowed working conditions, e. g. welding tent.
2. Connect the welding equipment to the net or alternating current generator and control the function.
3. Adjust and clamp the parts to be welded under easy axial movement e. g. by dollies.
4. Treatment of connection areas, at pipes e. g. by planing tool.
5. Take off the planing tool at the pipe welding machine.
6. Remove shaves from the welding area (broom, brush, paper).
7. Close the pipe ends against air movement.
8. Check the plane-parallelity by coming together with the joining areas (maximum gap width according table 1).
9. Check the misalignment (maximum 0,1 x wall thickness).
10. Check the heated tool temperature subject to the wallthickness (figure 3)
11. Clean the heated tool with non-fuzzy paper.
12. Read the moving pressure resp. moving force from the pipe welding machine and insert it to the welding protocol.
13. Determine the value for aligning, heating-up and joining pressure.

14. Fix the guide values according table 2.
15. Set the heated tool to the welding position.
16. Align the welding areas to the heated tool until a bead arises (according table 2, column 2).
17. Heating-up with reduced pressure ! 0.02 N/mm², heating-up time according table 2, column 3).
18. Remove the connection areas to be welded from the heated tool after finished heating-up time and remove it from the welding position.
19. The joining areas should be joined together within the changeover time (table 2, column 4) immediately until directly before the contact. At contacting, they have to meet with a speed of nearly zero. Build-up a linear joining pressure (table 2, column 5) immediately afterwards.
20. After joining with pressure 0.15 N/mm², a bead must exist. According figure 5, K has to be > 0 on every section.
21. Cooling down under joining pressure according table 2, column 5.
22. Declamping of the welded parts after cooling time.
23. Complete the welding protocol.

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B. Heated tool welding of tapping tees (short version)

1. Take care for allowed working conditions, e.g. welding tent.
2. Control the function of the welding equipment.
3. Ensure the roundness of the pipe by the clamps of the welding equipment or corresponding rerounding devices
4. Adjust and clamp the parts to be welded under easy axial movement e. g. by dollies.
5. Scrape the pipe surface.
6. Fix the welding equipment onto the pipe.
7. Choose the correct-shaped heating tool.
8. Clamp and adjust the tapping tee.
9. Clean the treated pipe surface –as far as it is contaminated– and the heated tool by means of degreasing agents (e.g. technical clean spirit) and absorbent, non-fuzzy and noncoloured paper.
10. Determine forces for alignment and joining (table of manufacturer).
11. Check the welding temperature (250 to 270 °C).
12. Set the heated tool to the welding position.
13. Align the welding areas to the heated tool until a bead of 1 mm arises.
14. Heating-up with reduced pressure ! 0.02 N/mm², heating-up time according to manufacturers data.
15. Remove the connection areas to be welded from the heated tool after heating-up time finished and remove it from the welding position.
16. The joining areas should be joined together within the changeover time of maximum 10 seconds.
17. Build up joining pressure within 5 seconds.
18. Cooling down under joining pressure, minimum 15 minutes.
19. Decamping of the welded parts after cooling time.
20. Complete the welding protocol.

C. Electrofusion welding of fittings (short version)

1. Create permitted working conditions, e.g. welding tent.
2. Connect welding unit to the mains or the a. c. generator and check function.
3. Deburr outer edges of pipe ends cut off at right angles (for connection with fittings).
4. Ensure that pipe ends are round using rerounding clamps, permitted ovality up to 1.5% of outer diameter.
5. Process pipe surface in the welding zone with a scraping tool.
6. If soiled, clean the processed pipe surface and, if applicable depending on manufacturer's instructions, the fitting or tapping tee accessory thoroughly with a degreasing agent (e.g. technically pure wine spirit with 99.8% ethyl alcohol, < 0.1% water in original container) and unused, absorbent, non-fuzzy and non-dyed paper.
7. Push pipe into fitting and check insertion depth by marking or using suitable device.
8. Connect cable to fitting. Cable must be free of weight load.
9. Where applicable, check settings/displays on the welding unit.
10. Carry out welding process according to manufacturer's instructions.
11. Disconnect cable from fitting.
12. Observe cooling down time according to manufacturer's instructions.
13. Complete the welding protocol form.

D. Electrofusion welding of tapping tees (short version)

1. Create permitted working conditions, e.g. welding tent
2. Connect welding unit to the mains or the a.c. generator and check function
3. Ensure that pipe is round using rerounding clamps, permitted ovality up to 1.5% of outer diameter
4. Process pipe surface mechanically in welding zone.
5. If soiled, clean the process pipe surface and, if applicable depending on manufacturer's instructions, the fitting or tapping tee accessory thoroughly with a degreasing agent (e.g. technically pure wine spirit with 99.8% ethyl alcohol, < 0.1% water in original container) and unused, absorbent, non-fuzzy and non-dyed paper
6. Fasten tapping tee onto the pipe
7. Connect cable to tapping tee. Cable must be free of weight load.
8. Where applicable, check settings/displays on the welding unit.
9. Carry out welding process according to manufacturer's instructions
10. Disconnect cable from tapping tee
11. Observe cooling time according to manufacturer's instructions
12. Complete the welding protocol form.

E. Heated tool socket welding (short version)

1. Take care for allowed working conditions, e. g. welding tent.
2. Connect the welding equipment to the net or alternating current generator and control the function.
3. Clean the heating tools by non-fuzzy paper.
4. Check the welding temperature (250 to 270 °C).
5. The inside of the fitting has to be cleaned by means of a degreasing agent (e.g. technical clean spirit) and absorbent, non-fuzzy and non-coloured paper.
6. Treat the rectangular cut pipe end according figure 8 and table 4, resp. to the fitting manufacturer instruction.
7. Insert the fitting and pipe simultaneously into the heating spigot resp. the heating socket. The pipe end may not contact the end of the heating socket.
8. Keep the heating-up time according table 5, column 2.
9. Pull off the fitting and pipe and push them swiftly and axially together to the stop resp. mark (maximum adjusting time see table 5, column 3) and held this position (see table 5, column 4).
10. Cool down the connection. Mechanical load of the connection only after finished cooling time according table 5, column 5.
11. Complete the welding protocol.

HDPE 100 PIPES (TS 418-2 PREN 12201-2, ISO 4427)

S1=5/5/50=2.7			S124=9/7/5/50=5.2			S124=17/5/50=9.2			S124=40/5/50=21.7			S124=78/5/50=22.3			S124=16/0/5/50=86.7			S124=32/0/5/50=173			S124=62/5/50=339			S124=122/5/50=661			S124=256/0/5/50=138		
SDR 41; PN 4			SDR 33,6 ; PN 5			SDR 27,6; PN 6			SDR 22; PN 8			SDR 17; PN 10			SDR 13,6; PN 12,5			SDR 11; PN 16			SDR 9; PN 20			SDR 7,4; PN 25			SDR 6; PN 32		
DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M	DN	S	KG/M
75	1.8	0.46	75	2.3	0.55	75	2.7	0.63	75	3.6	0.81	75	4.5	1.02	75	5.6	1.24	75	6.8	1.47	75	8.4	1.76	75	10.3	2.09	75	12.5	2.44
90	2.3	0.64	90	2.8	0.79	90	3.3	0.91	90	4.3	1.16	90	5.4	1.46	90	6.7	1.77	90	8.2	2.12	90	10.1	2.54	90	12.3	3.00	90	15.0	3.51
110	2.7	0.94	110	3.4	1.17	110	4.0	1.36	110	5.3	1.74	110	6.6	2.17	110	8.1	2.62	110	10.0	3.14	110	12.3	3.78	110	15.1	4.49	110	18.3	5.24
125	2.5	1.23	125	3.9	1.51	125	4.5	1.78	125	6.0	2.20	125	7.4	2.76	125	9.2	3.37	125	11.4	4.08	125	14.0	4.87	125	17.1	5.77	125	20.8	6.75
140	3.5	1.54	140	4.3	1.88	140	5.1	2.21	140	6.7	2.80	140	8.3	3.46	140	10.3	4.22	140	12.7	5.08	140	15.7	6.11	140	19.2	7.25	140	23.3	8.47
160	4.0	2.00	160	4.9	2.42	160	5.8	2.86	160	7.7	3.68	160	9.5	4.52	160	11.8	5.50	160	14.6	6.67	160	17.9	7.96	160	21.9	9.44	160	26.6	11.00
180	4.4	2.49	180	5.5	3.07	180	6.5	3.66	180	8.6	4.63	180	10.7	5.71	180	13.3	6.98	180	16.4	8.42	180	20.1	10.10	180	24.6	11.90	180	29.9	14.00
200	1.9	3.05	200	6.2	3.84	200	7.2	4.50	200	9.6	5.73	200	11.9	7.05	200	14.7	8.56	200	18.2	10.40	200	22.4	12.40	200	27.4	14.80	200	33.2	17.20
225	5.5	3.86	225	6.9	4.77	225	8.2	5.68	225	10.8	7.26	225	13.4	8.93	225	16.6	10.90	225	20.5	13.10	225	25.2	15.80	225	30.8	18.60	225	37.4	21.80
250	6.2	4.83	250	7.7	5.92	250	9.1	6.99	250	11.9	8.90	250	14.8	11.00	250	18.4	13.40	250	22.7	16.20	250	27.9	19.40	250	34.2	23.00	250	41.5	27.00
280	6.9	5.98	280	8.6	7.40	280	10.1	8.77	280	13.4	11.22	280	16.6	13.70	280	20.6	16.80	280	25.4	20.30	280	31.3	24.50	280	38.3	28.90	280	46.5	33.80
315	7.7	7.52	315	9.7	9.37	315	11.4	11.02	315	15.0	14.13	315	18.7	17.40	315	23.2	21.20	315	28.6	25.60	315	35.2	30.80	315	43.1	36.50	315	52.3	42.70
355	8.7	9.55	355	10.9	11.80	355	12.9	14.04	355	16.9	17.94	355	21.1	22.10	355	26.1	26.90	355	32.2	32.50	355	39.7	39.10	355	48.5	46.30	355	59.0	54.30
400	9.8	12.10	400	12.3	15.10	400	14.5	17.77	400	19.1	22.84	400	23.7	28.00	400	29.4	34.10	400	36.3	41.30	400	44.7	49.60	400	54.7	58.80	400	66.7	68.90
450	11.0	15.30	450	13.8	19.00	450	16.3	22.46	450	21.5	28.90	450	26.7	35.40	450	33.1	43.20	450	40.9	52.30	450	50.3	62.70	450	61.5	74.40	450	75.0	87.16
500	12.3	19.00	500	15.3	23.40	500	18.1	27.69	500	23.9	35.70	500	29.7	43.80	500	36.8	53.30	500	45.4	64.50	500	55.8	77.30	500	67.6	91.80	500	83.4	107.67
560	13.7	23.60	560	17.2	29.40	560	20.3	34.77	560	26.7	44.70	560	33.2	54.80	560	41.2	66.90	560	50.8	80.80	560	62.2	97.00	560	75.7	113.61	560	93.3	134.94
630	15.4	29.90	630	19.3	37.10	630	22.8	43.91	630	30.0	56.50	630	37.4	69.40	630	46.3	84.60	630	57.2	102.00	630	70.0	121.48	630	85.1	143.70	630	105.0	170.83
710	17.4	38.00	710	21.8	47.20	710	25.7	55.75	710	33.9	72.00	710	42.1	88.00	710	52.2	107.00	710	64.5	130.00	710	78.8	154.14	710	95.9	182.51	710	118.4	217.07
800	19.6	48.10	800	24.5	59.70	800	29.0	70.86	800	38.1	91.20	800	47.4	112.00	800	58.8	136.00	800	72.7	163.86	800	88.9	195.91	800	108.1	231.79	800	133.3	275.41
900	22.0	60.90	900	27.6	75.60	900	32.6	89.00	900	42.9	115.00	900	53.3	141.00	900	66.2	171.00	900	81.8	207.49	900	100.0	247.92	900	121.6	362.11	900	150.0	378.64
1000	24.5	75.20	1000	30.6	93.10	1000	36.2	110.00	1000	47.2	143.00	1000	59.3	175.00	1000	73.5	211.11	1000	90.9	256.09	1000	111.1	306.05	1000	135.1	393.33	1000	166.7	430.48
1200	29.4	108.00	1200	36.7	134.00	1200	43.5	157.00	1200	57.2	205.00	1200	70.6	247.06	1200	88.2	310.35	1200	109.1	368.83	1200	133.3	440.65	1200	162.2	521.65	1200	200.0	619.80
1400	34.3	147.00	1400	42.9	183.00	1400	50.7	215.00	1400	66.7	278.00	1400	82.4	336.27	1400	102.9	413.62	1400	127.3	502.08	1400	155.5	599.17	1400	189.2	709.92	1400	233.3	843.51
1600	39.2	192.00	1600	49.0	238.00	1600	58.0	281.00	1600	76.2	359.79	1600	94.1	430.21	1600	117.7	540.66	1600	145.5	655.84	1600	177.8	783.63	1600	216.2	927.15	1600	266.6	



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