



TECHNICAL PLASTICS **PRODUCT RANGE 2017**

The safe jointing technology for gas, water and industrial pipings made of HD-PE and PE-Xa

Valid from 1st February 2017

FRIALEN®
Safety Fittings

FRIAFIT®
Sewage System

FRIATOOLS®
Technical Equipment



FRIALEN® **SAFETY FITTINGS**

The safe jointing technology for gas, water and industrial pipings made of HD-PE and PE-Xa

Product Range ES 37/17

Things worth knowing about FRIALEN® Safety Fittings and this Product Range

Contents

The following pages present a list of keywords that are to help you find your way through our range to the products you are looking for.

Stocked status

Please note when planning your material requirements:

- Articles with stocked status 1 are generally available from stock.
- Articles with stocked status 3 are custom products and therefore have a delivery time of 3–4 weeks. These articles cannot be returned or exchanged.

Packaging and pallet units

Packaging (BX) and pallet units (PU) are given on the price list. Orders for complete BXs/PUs simplify your incoming goods and warehousing processes. In addition, they promote fast order picking and delivery at our locations. The price list shows that the units we have chosen are fair and practicable.

Returns

We must first approve all returns of goods before they are entered as credit items. Please inform us of your wish to return goods. Following approval, we shall send you a return slip bearing a unique number. Your return cannot be processed without this number. Our quality management requires in addition that the goods fulfil certain criteria. If you wish, we shall be pleased to send you details under separate cover. If the goods fulfil the criteria and the return has been approved, a credit entry is made with a 28% deduction for the examination costs.

Inspection test certificates

We charge a processing fee of €17,50/item for inspection test certificates as set down under DIN EN 10204 – 3.1. The inspection test certificate must be included in the order, and cannot be issued at a later date.

To eliminate unnecessary expenditure, we can also provide you with the certificate for FRIALEN articles if this is needed. This needs only the component's traceability batch found on the barcode or in the shipping documents. The inspection test certificates are archived for a period of ten years.

Component traceability

Each component is provided with an additional barcode for its traceability.

Quality

FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, and our FRIATOOLS technical equipment are subjected to continuous quality control and strict testing regulations that form part of our extensive quality management system certified under DIN EN ISO 9001:2008.

FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, and our FRIATOOLS technical equipment are all matched to each other. All modifications and supplements arising from our continued developments are treated accordingly. Our continuous quality control extends to FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, our FRIATOOLS technical equipment, and the quality of fusion joins as a result of these components' interactions. The operation and functional reliability of equipment provided by other manufacturers (third party equipment) are not subjected to our specifications and control procedures. When installing pipe systems, please proceed in accordance with the fitting instruction manuals and equipment operating instructions.

Certifications of our management systems

In addition to the quality management system certified under DIN EN ISO 9001:2008 FRIATEC AG, Technical Plastics, has introduced an environmental management system certified under DIN EN ISO 14001:2004 and an energy management system certified under ISO 50001:2011.

This is to testify to our endeavours targeting the sustainable development, manufacture, and use of our products.

The current certificates can be found in the download area.

DVGW certification / fusability

FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, also included shut-off valve, fulfill the requirements of relevant standards, e.g. for gas according to EN 1555-3, -4, ISO 4437-3, -4, for drinking water and pressure drainage systems according to EN 12201-3, -4 and ISO 4427-3, -4.

Specific application areas are termed by the description of the product. Worldwide certifications underline the highest quality level of FRIALEN, FRIALEN XL and FRIAFIT safety fittings, Shut-off valves, which comply with the following quality marks:

The current certificates can be found at www.frialen.de, Downloads.



Fusability

FRIALEN safety fittings can be fused to pipes SDR17.6 (s min = 3 mm) to SDR11 or as given in the product description.

FRIAFIT couplers AM SDR 17 can be fused to pipes SDR 33 to SDR 17.

FRIALEN saddles and tapping tees ≤ d 63 can be processed only with pipes ≤ SDR11.

Please also note the details for each of the fusible SDR sizes given on the fitting's barcode label as well as all other binding codes affixed directly to the product.

Please consult our application engineering department before processing thin walled pipes > SDR 17.6.

FRIALEN, FRIALEN XL and FRIAFIT safety fittings can be processed with pipes of PE 100 and PE 100RC, PE 80, PE 63, PE 50 according to DIN 8074/75, EN 1555, EN 12201, ISO 4437, and ISO 4427, PE-Xa according to DIN 16892/93, LDPE according to DIN 8072/73. For PE pipes, the melt flow rate shall be MFR 190/5 0.2–1.7 g / 10 min.

Components with an MFR < 0.20 require confirmation of suitability. LDPE pipes can be fused at ambient temperatures > 0 °C.

FRIALEN, FRIALEN XL safety fittings and FRIAFIT couplers made of PE 100 fulfil the requirements under EN 1555-3, EN 12201-3, ISO 4427-3, ISO 4437-3. FRIALEN, FRIALEN XL and FRIAFIT safety fittings can be processed with FRIAMAT fusion units at ambient temperatures from -10 °C to +45 °C.

Joinings, which require material transition, e.g. threaded joints or welds must in addition comply with the relevant component standards and installation instructions, especially with respect to sealing, heat transfer during welding and corrosion protection.

In case of restricted application for processing or installation of FRIALEN, FRIALEN XL and FRIAFIT safety fittings in general, please read our assembly instructions. Also our area sales managers will be pleased to answer any questions you may have.

Things worth knowing about FRIALEN® Safety Fittings and this Product Range

Pressure bearing capacity

The maximum design pressure ure bearing capacity of FRIALEN/ FRIALEN XL/FRIAFIT safety fittings made of PE 100 is defined by SDR (standard dimension ratio).

SDR = pipe outer dia. d / pipe wall thickness s

The maximum design pressure depends on the design factor C, which is given in the relevant application standard for gas (e.g. EN12007-2) and for pressure piping systems (e.g. EN 805). With respect to „C“ the following maximum operating pressures may apply:

Fitting material PE 100 (FRIALEN standard)	Water	Gas
SDR level	maximum operating pressure in bar at C = 1,25	maximum operating pressure in bar at C = 2
26	6	-
17	10	5
11	16	10
9	20	-
7,4	25	-

Fusion process

FRIALEN/FRIALEN XL/FRIAFIT safety fittings can be processed with universal fusion units, e.g. the FRIAMAT series. The fusion parameters are transferred automatically from the fitting's barcode.

FRIALEN/FRIALEN XL/FRIAFIT safety fittings can also be processed with fusion units delivering a fixed output voltage of 39.5 V following the manual entry of the fusion time. The fusion parameters entered manually require the fusion time on the barcode.

PLEASE NOTE! Fixed voltage fusion units can be used to process our products at ambient temperatures of -5 °C to +35 °C.

The fusion time given on the fitting's barcode applies to the whole temperature range.

The list of suitable components can be found on our website. Simply enter the webcode ft10001 in the search field.

Cooling times

FRIALEN/FRIALEN XL/FRIAFIT couplers / elbows / T pieces / transition fittings:

The cooling times (CT) given on the barcodes specify the times until the fused join can be moved.

Longer cooling times must be observed until pressurisation. Please read our assembly instructions.

FRIALEN/FRIALEN XL/FRIAFIT saddles, tapping tees and -valves:
The cooling times (CT) given on the barcodes specify the times until the tap.

The saddle fusion joint can be pressure tested earlier. Please read our assembly instructions.

Processing and additional informations

Processing is described in our assembly instructions, which is also available for download on the internet at www.frialeen.de. This address also provides further details on the products and their processing, approvals, publications and contacts.

FRIALEN saddle fittings top-loading

The specified dimensions, including the values in brackets, define the permitted assembly and fusion area for the saddle fitting. The standard application range may be restricted by technical constraints (e.g. driller length, pipe wall thickness, tapping diameter, required diameter for balloon insertion for SPA-TL). Divergent uses require a suitability test.

Technical details

The technical details presented on this price list are incomplete. Details can be taken from our data sheets that are also available in the download section at www.friatec.com. Technical instructions for processing and use may be delivered with the product and, in this case, must be observed without fail.

Up-to-dateness / technical progress

All details were up to date at the time of printing. Changes serving the advancement of our technologies may be made without prior announcement. We accept no liability for printing errors.

Brand names

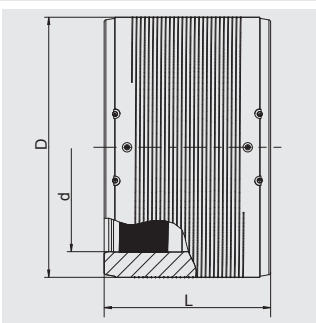
For easier reading, this price list dispenses with the symbols ® and ™ in continuous text. The following trademarks are registered: FRIALEN®, FRIAFIT®, FRIAGRIP®, FRIATOOLS®, Philmac®, MAGNUM 3G®, FRIALOC®, FRIAMAT®, Sentry GS®, BAIO®, Rilsan®, and Gas-Stop™.

Table of Contents

Article	Brief Description	Page
SHUT-OFF VALVE		
Shut-Off Valve with shut-off mechanism suitable for plastics Application: Water	FRIALOC	49
Installation kits FBS for FRIALOC® PE shut-off valves with KlickFix® system.	FBS	49
PRESSURE TAPPING TEES		
Pressure Tapping Tees with extra long outlet spigot	DAA	41
Pressure Tapping Tees with parallel dome and extra long outlet spigot	DAP	43
Pressure Tapping Tee Top-Loading with extra long outlet spigot	DAA TL	42
Pressure Tapping Tee Top-Loading / Relining with extra long outlet spigot	DAA TL RE	42
Cap for Pressure Tapping Tees	K	43
PRESSURE TAPPING VALVES		
Pressure Tapping Valves with extra long outlet spigot	DAV	47
Pressure Tapping Valve Top-Loading with extra long outlet spigot	DAV TL	48
Installation kits for Pressure Tapping Valves	EBS	48
FLANGE ADAPTORS		
Full Faced Flanges (Spigot fittings)	EFL	34
Flange T-Pieces	FLT	34
Flange Reducer	FLR	35
EXCESS FLOW VALVES		
Long Couplers with integrated Mertik Maxitrol excess flow valve	FRIASTOPP	17
Long Couplers with integrated Pipelife Gas-Stop™ system	FRIASTOPP	17
Electrofusion Reducers with integrated Mertik Maxitrol excess flow valve	MR STOPP	18
BALL VALVES		
Ball Valves, 1/4-Turn	KHP	50
Ball Valves made from HD-PE, 1/4-Turn, full port passage	KH	50
Tapping Ball Valves in HD-PE, 1/4 turn, for side tapping under pressure	AKHP	51
Tapping Ball Valves in HD-PE, 1/4 turn, Top-Loading for side tapping under pressure	AKHP TL	51
Installation kits for Ball Valves and Tapping Ball Valves (Standard and Top-Loading)	BS	52
COUPLERS		
Slide-over Couplers, SDR 11	UB SDR 11	10
Couplers with removable stop	MB	11
Couplers SDR 17	AM	11
Slide-over Couplers, SDR 17	UB SDR 17	12
Slide-over Couplers, SDR 7.4	UB SDR 7.4	12
Slide-over Couplers, SDR 9	UB SDR 9	13
Long Couplers with removable center stop	FRIALONG	13
Conical ring Couplers	KM XL	14
Relining Slide-over Couplers	REM	14
End Caps	MV	15
REDUCERS		
Electrofusion Reducers	MR	16
REPAIRS		
Repair Sleeves	RW	25
Repair Saddle RS XL	RS XL	36
PIPE JUNCTION FOR BOREHOLE HEAT EXCHANGERS		
Y-pieces with integrated heating coils made of PE 100 SDR 11	Y	24
Y-pieces with integrated heating coils and PE spigot end made of PE 100 SDR 11	YS	25
SHUT OFF SADDLES		
Balloon Shut off Saddles	SPA	45
Balloon Shut off Saddles Top-Loading	SPA TL	46
Cap for Balloon Shut off Saddles	SPAK	46

Table of Contents

Article	Brief Description	Page
SPIGOT SADDLES		
Spigot Saddles	SA	37
Spigot Saddles Top-Loading	SA TL	37
NEW Spigot Saddles	SA UNI	38
Spigot Saddles SA XL	SA XL	39
Spigot Saddles with integral drill	SAB	40
Spigot Saddles with flange outlet	SAFL	40
T-PIECES		
T-Pieces with extra long outlet spigot in kit version; coupler MB with removeable center stop included	TA KIT	22
T-Pieces	T	23
T-Pieces reduced with extra long outlet spigot	TA RED	23
T-Pieces XL	T XL	24
T-Pieces reduced XL	T RED XL	24
T-Pieces with HD-PE/GGG adapter for connection of BAIO® spigot hydrant	TGB	22
TRANSITION FITTINGS		
Transition Fittings HD-PE/Steel	USTR	26
NEW Transition Fittings HD-PE/Steel (Spigot fittings)	USTRS	27
Transition Fittings HD-PE/Steel with male thread	USTN	27
Transition Fittings HD-PE/Steel with female thread	USTM	28
Transition Elbows 90° HD-PE/Steel with male thread	WUSTN 90	28
Transition Elbows 90° HD-PE/Steel with female thread	WUSTM 90	29
Transition Fittings HD-PE/Brass with male thread	MUN	29
Transition Fittings HD-PE/Stainless steel with male thread	MUN V2A	30
Transition Fittings HD-PE/Gunmetal with female thread	MUM	30
NEW Universal adapter HD-PE/Brass with travelling nut and female thread	UAM ET	31
Transition Elbows 90° HD-PE/Brass with male thread	WUN 90	31
Transition Elbows 90° HD-PE/Stainless steel with male thread	WUN V2A 90	32
NEW Universal adapter HD-PE/Brass with male thread	UAN	32
NEW Universal adapter HD-PE/Brass with female thread	UAM	33
Transition Fitting for liquid gas HD-PE/Copper	UFLG	33
VALVE TAPPING SADDLES		
Valve Tapping Saddles with HD-PE/Gunmetal adapter, female thread	VAM RG	44
Valve Tapping Saddle Top-Loading with HD-PE/Gunmetal adapter, female thread	VAM RG TL	44
Valve Tapping Saddles for irrigation systems, female thread for adaption to PVC-U fittings	VAM P	45
REPAIR AND REINFORCING SADDLES		
Reinforcing Saddle	RS	35
Repair and Reinforcing Saddles	VVS	35
Repair Saddle Top-Loading	VSC TL	36
ELBOWS		
I/A Elbows 11°	WS11	18
Elbows 30°	W30	19
Elbows 45°	W45	19
Elbows 45° XL	W45 XL	20
Elbows 90°	W90	20
Elbows 90° XL	W90 XL	21
Swan Neck Bend	WET	21
90° Elbow with base unit	WF 90	21
90° Elbow with base unit and HD-PE/GGG adapter for connection of BAIO® spigot hydrant	WFGB	22



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With separate fusion zone and one indicator per fusion zone for visual fusion control.

With pre-heating technology (d 400 – d 450 optional use; d 500 – d 900 required).

Special sizes, pressure stages and designs on request

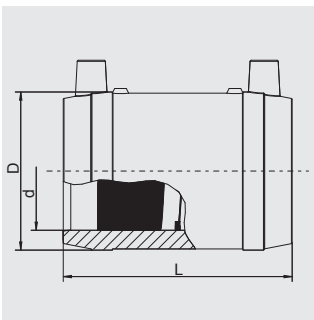
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



	d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
NEW	16	616577	1	135	4.320	29	60	0.030
	20	612660	1	110	3.520	33	60	0.037
	25	612661	1	90	2.880	37	78	0.054
	32	612662	1	60	1.920	45	77	0.064
	40	612663	1	40	1.280	54	86	0.096
	50	612664	1	25	800	68	98	0.151
	63	612665	1	15	480	82	112	0.225
	75	612666	1	50	400	98	122	0.360
	90	612667	1	30	240	114	157	0.510
	110	612668	1	24	192	137	159	0.705
	125	612669	1	16	128	156	172	0.946
	140	615001	1	12	96	174	184	1.270
	160	612671	1	8	64	199	190	1.772
	180	612672	1	6	48	220	210	2.088
	200	612673	1	1	56	247	220	2.798
	225	612674	1	1	36	277	236	3.950
	250	612675	1	1	24	315	246	5.800
	280	615073	1	1	18	347	285	7.740
	315	612670	1	1	18	390	300	10.040
	355	615074	1	1	9	445	300	14.600
	400	615075 ①	1	1	4	500	320	20.800
	450	615076 ①	1	1	4	560	340	30.000
	500	615124 ①	1	1	3	630	360	40.000
	560	616312 ①	1	1	2	715	380	55.000
	630	616269 ①	1	1	2	810	420	79.600
	710	616313 ①	1	1	1	900	442	101.000
	800	616314 ①	1	1	1	1000	500	138.800
	900	616440 ①	3	1	1	1130	600	210.300

① separate fusion zones

MB**Couplers with removable stop**

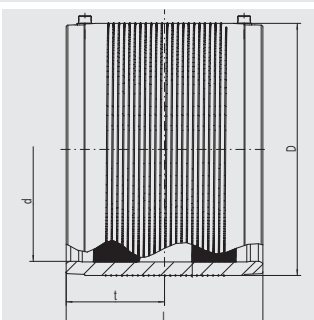
Can also be used as repair couplers. With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

Other pressure stages and designs on request.

**PE 100 SDR 11**

Maximum working pressure 16 bar (water)/10 bar (gas)

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
20	612680	1	110	3.520	33	60	0.040
25	612681	1	90	2.880	37	78	0.054
32	612682	1	60	1.920	45	78	0.064
40	612683	1	40	1.280	54	86	0.100
50	612684	1	25	800	68	98	0.150
63	612685	1	15	480	82	110	0.221
75	612686	1	50	400	98	122	0.360
90	612687	1	30	240	114	157	0.510
110	612688	1	24	192	137	159	0.710
125	612689	1	16	128	156	172	0.950
140	612690	1	12	96	174	184	1.270
160	612691	1	8	64	199	190	1.770

AM**Couplers SDR 17**

For the jointing of HD-PE pipes in non-pressure and pressure systems for sewerage, wastewater or drinking water pipes. With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material for use without holding devices. With pin indicator for visually checking fusion.

**PE 100 SDR 17**

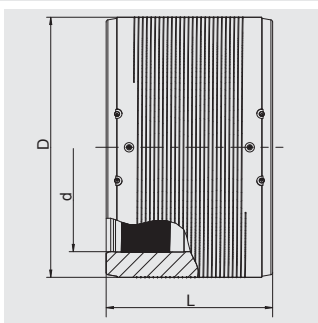
Maximum working pressure 10 bar (water, sewage)

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
110	680001	1	24	192	130	160	0.600
125	680013	1	22	176	146	160	0.650
160	680002	1	12	96	184	180	1.100
180	680003	1	8	64	207	180	1.450
200	680004	1	1	75	236	180	2.070
225	680005	1	1	52	263	200	2.723
250	680006	1	1	44	282	220	2.200
280	680007	1	1	32	316	220	3.800

For couplers PE 100 SDR 17 in the dimensions d 315 - d 1200 please see FRIALEN UB SDR 17.

UB SDR 17

Slide-over Couplers, SDR 17



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With separate fusion zones.

UB d 1000 and above can only be fused with the FRIAMAT XL.

From d 560 with pre-heating technology.

Special sizes, pressure stages and designs on request.

PE 100 SDR 17

Maximum working pressure 10 bar (water)/5 bar (gas)



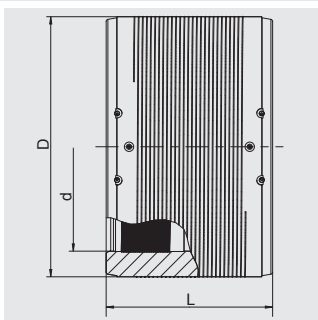
d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
315	616529	1	1	18	356	280	5.880
355	616530	1	1	9	400	290	7.600
400	616531 ^①	1	1	9	450	300	10.100
450	616532 ^①	1	1	3	506	320	13.650
500	616533 ^①	1	1	3	562	350	18.250
560	615706 ^①	1	1	2	630	380	24.190
630	615726 ^①	1	1	2	710	420	34.870
710	615994 ^①	1	1	2	800	442	46.000
800	616290 ^①	1	1	1	900	500	65.900
900	616345 ^①	3	1	1	1024	500	91.500
1000	616403 ^①	3	1	1	1130	610	128.000
1200	616416 ^①	3	1	1	1356	670	205.000

① separate fusion zones

For couplers PE 100 SDR 17 in the dimensions d 110 - d 280, please see couplers AM.

UB SDR 7.4

Slide-over Couplers, SDR 7.4



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Processing range SDR 11 – SDR 7.4.

Diameter d 280 and bigger with pre-heating technology (optional use).

PE 100 SDR 7.4

Maximum working pressure 25 bar (water)



d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
90	616270	1	30	240	117	138	0.530
110	616271	1	24	192	142	159	0.870
125	616272	1	16	128	160	172	1.230
140	616273 ^②	3	12	96	181	184	1.640
160	616274	1	8	64	206	203	2.360
180	616282 ^②	3	6	48	225	210	2.700
200	616283 ^②	3	2	36	250	224	3.610
225	616284	1	1	33	280	240	4.900
250	616285 ^③	3	1	24	315	246	6.700
280	616286 ^{①③}	3	1	18	355	268	9.300
315	616287 ^{①③}	3	1	18	400	285	12.100
355	616288 ^{①③}	3	1	9	450	300	16.700

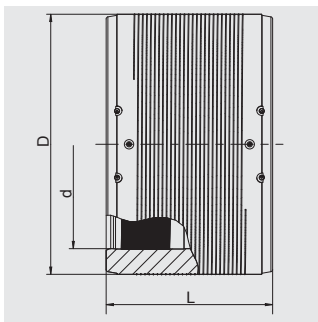
① separate fusion zones

② minimum order quantity = 1 packaging unit

③ minimum order quantity = 1 palette unit

UB SDR 9

Slide-over Couplers, SDR 9



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With separate fusion zone and one indicator per fusion zone for visual fusion control.

With pre-heating technology (d 400 – d 450 optional use; d 500 – d 630 required).

Special sizes, pressure stages and designs on request

PE 100 SDR 9

Maximum working pressure 20 bar (water)



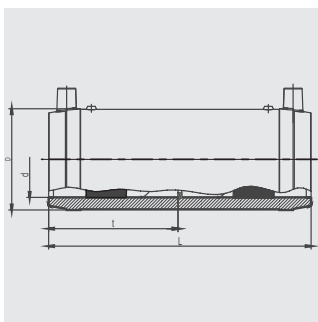
d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
400	616441 ^①	1	1	3	500	320	20.800
450	616447 ^{① ②}	3	1	3	560	340	30.000
500	616445 ^①	1	1	3	630	360	40.000
560	616446 ^{① ②}	3	1	2	715	380	55.000
630	616439 ^{① ②}	3	1	2	810	420	79.600

① separate fusion zones

② minimum order quantity = 1 palette unit

FRIALONG

Long Couplers with removable center stop



The coupler with more safety aspects. With exposed heating coils for optimal heat transfer, extra large insertion depth, extra wide fusion zones plus cold zones at the end. For best possible pipe installation and tension-free fusion without holding devices.

PE 100 SDR 11

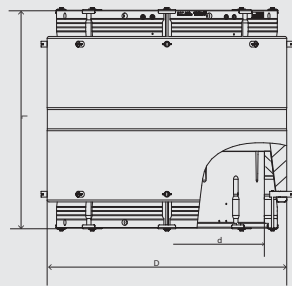
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	615736	1	40	1280	45	136	0.110
40	615737	1	30	960	54	146	0.140
50	615608	1	16	512	68	175	0.250
63	615738	1	10	320	82	197	0.370

KM XL

Conical ring Couplers



Easy and quick assembly, also as slide over coupler and given limited space. Variable diameter range to bridge large tolerance conditions of the outer pipe diameter and out-of-roundness. With flexible fusion conical ring for easy assembly given pronounced pipe out-of-roundness. The installation is made without fixing device and rounding clamp. Mechanical minimisation of the joint gap thanks to flex ring system. Integrated tensioning device for assembly and gap minimisation. Exposed, fixed heating coil, for optimal heat transfer during fusion, broad fusion zones as well as melt flow-inhibiting cold zones at the fronts and the centre for improved pipe guidance and prevention of melt release.

The KM-XL can only be fused with the FRIAMAT XL with Y connector (see Product Range FRIATOOLS).

Other dimensions or pressure rating as well as special dimensions on request.

PE 100 SDR 17

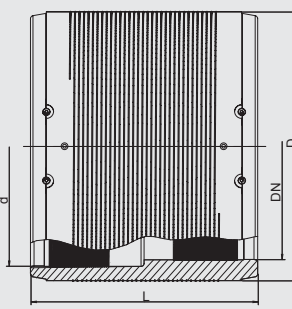
Maximum working pressure 10 bar (water)/5 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
355	616535	3	1	1	497	706	36.500
400	616536	3	1	1	550	731	46.000
450	616537	3	1	1	602	746	54.000
560	616539	3	1	1	730	840	88.100
630	616523	3	1	1	805	940	135.000
NEW 800	616541	3	1	1	1005	1046	207.000
1000	616434	3	1	1	1245	1125	350.000
1200	616435	3	1	1	1450	1290	500.000

REM

Relining Slide-over Couplers



For connection from relining pipe to standard pipe. With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Gap reduction between coupler and pipe possible through special preheating barcode. For processing refer to relining installation instructions. For processing refer to the FRIALEN XL-Assembly Instructions for laying large pipes and relining pipe networks. Other pressure stages and designs on request.

With pre-heating barcode

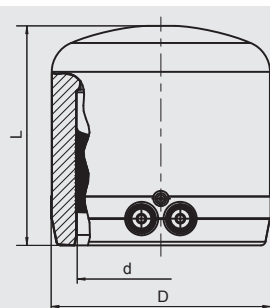
PE 100 SDR 17

Maximum working pressure 10 bar (water)/5 bar (gas)



d/DN	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
110/100	615569 ^①	3	24	192	127	150	0.680
160/150	615571	1	12	96	180	180	1.540
315/300	615576	1	1	18	355	285	7.950

① minimum order quantity = 1 packaging unit



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end to prevent the flow of molten material, for use without holding devices.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

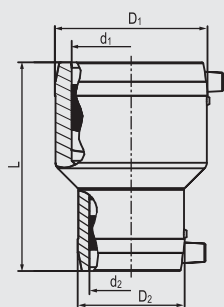


d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
20	612025	1	40	2000	31	62	0.035
25	612026	1	40	2000	35	65	0.040
32	612027	1	40	1280	44	70	0.060
40	612028 ①	1	25	800	55	75	0.090
50	612029	1	20	640	67	80	0.125
63	612030	1	15	480	84	88	0.210
75	612031	1	20	640	99	99	0.320
90	612032	1	16	288	118	114	0.500
110	612033	1	12	216	143	125	0.825
125	612034	1	8	144	163	135	1.160
160	612035	1	10	60	208	160	2.240
180	616183	1	6	48	225	195	2.800
200	616184	1	4	32	250	210	3.900
225	616185	1	4	32	280	230	5.050

① Also recommended as fused caps for the dome of FRIALEN-Pressure Tapping Tees DAA/DAP (models without fast clamping lever) $\leq d63$.

MR

Electrofusion Reducers



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

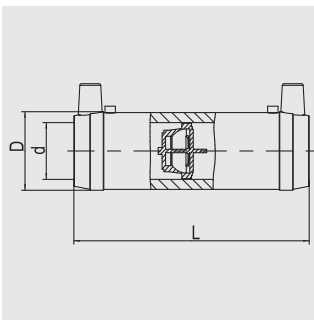
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



	d ₁	d ₂	Order Ref.	Stock-status	BX	PU	D ₁ /D ₂	L	Weight kg/each
	32	16	616452	3	70	2.240	45/28	91	0.060
NEW	32	20	615386	1	80	2560	45/32	88	0.060
	32	25	615502	1	70	2240	45/38	88	0.070
	40	20	615387	1	60	1920	54/32	98	0.080
	40	32	615388	1	50	1600	54/45	98	0.090
	50	20	612069	1	32	1024	68/32	110	0.130
	50	32	612070	1	32	1024	68/45	110	0.140
	50	40	612071	1	25	800	68/54	110	0.140
	63	32	615389	1	18	576	82/45	125	0.210
	63	40	615390	1	16	512	82/54	125	0.220
	63	50	612072	1	16	512	82/68	125	0.230
NEW	75	63	616583	1	15	270	94/79	143	0.325
	90	50	615391	1	15	270	117/68	160	0.470
	90	63	615392	1	15	270	117/82	160	0.510
NEW	90	75	616582	1	15	270	113/94	159	0.505
	110	63	615393	1	10	180	142/82	160	0.730
	110	90	615693	1	8	144	140/115	180	0.900
	125	90	615694	1	8	144	155/115	200	0.980
NEW	125	110	616510	1	16	128	157/137	202	1.300
	160	110	615695	1	8	64	201/140	230	1.990
NEW	180	125	616511	1	1	60	214/155	275	2.600
	225	160	616356	1	1	36	282/203	270	4.860

available soon: MR d40/25

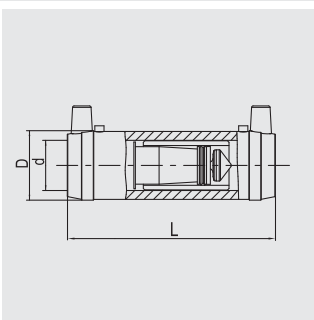


FRIALONG long coupler with integrated SENTRY GS safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or drilling. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten material escape at the front and in the centre for processing without holding device. The universal type Z meets all practical requirements of the operating pressure range and the required flow quantity. Type D and Z with overflow.

PE 100 SDR 11
Maximum working pressure type Z, B: 5 bar (gas), type D: 1 bar (gas)


d	Type	Order Ref.	Operating pressure range $p_{min} - p_{max}$	VN	Stock-status	BX	PU	D	L	Weight kg/each
32	Z	616187	35 mbar - 5 bar	17 - 40	1	40	1280	45	136	0.140
40	Z	616188	35 mbar - 5 bar	26 - 62	1	30	960	54	146	0.220
50	Z	616189	35 mbar - 5 bar	41 - 99	1	16	512	68	175	0.380
63	Z	616190	35 mbar - 5 bar	66 - 158	1	10	320	82	197	0.530
32	D	616191	25 mbar - 1 bar	11 - 16	1	40	1280	45	136	0.140
40	D	616193 ①	25 mbar - 1 bar	19 - 27	3	30	960	54	146	0.220
50	D	616195	25 mbar - 1 bar	28 - 40	1	16	512	68	175	0.380
63	D	616197	25 mbar - 1 bar	51 - 72	1	10	320	82	197	0.530
32	B	616192	100 mbar - 5 bar	26 - 60	1	40	1280	45	136	0.140
40	B	616194 ①	100 mbar - 5 bar	39 - 90	3	20	640	54	146	0.220
50	B	616196 ①	100 mbar - 5 bar	58 - 135	3	10	320	68	175	0.380
63	B	616198 ①	100 mbar - 5 bar	94 - 219	3	8	256	82	197	0.530

① minimum order quantity = 1 packaging unit



FRIALONG long coupler with integrated Gas-Stop™ safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or drilling. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten material escape at the front and in the centre for processing without holding device. The universal type U meets all practical requirements of the operating pressure range and the required flow quantity. Type A/D and U_{ue} with overflow.

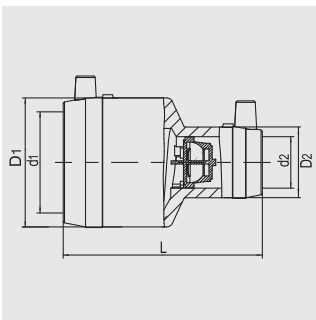
PE 100 SDR 11
Maximum working pressure type U, U_{ue} , S: 5 bar (gas), type A/D: 1 bar (gas)


d	Type	Order Ref.	Operating pressure range $p_{min} - p_{max}$	VN	Stock-status	BX	PU	D	L	Weight kg/each
32	U	616199	35 mbar - 5 bar	16 - 38	1	40	1280	45	136	0.140
50	U	616201	35 mbar - 5 bar	38 - 91	1	20	640	68	175	0.350
63	U	616203	35 mbar - 5 bar	58 - 140	1	12	384	82	197	0.560
32	U_{ue}	616200	35 mbar - 5 bar	16 - 38	1	40	1280	45	136	0.140
50	U_{ue}	616202	35 mbar - 5 bar	38 - 91	1	20	640	68	175	0.350
63	U_{ue}	616204	35 mbar - 5 bar	58 - 140	1	12	384	82	197	0.560
32	A/D	616205	25 mbar - 1 bar	10 - 14	1	40	1280	45	136	0.140
50	A/D	616207	25 mbar - 1 bar	25 - 36	1	20	640	68	175	0.350
63	A/D	616209	25 mbar - 1 bar	40 - 55	1	12	384	82	197	0.560
32	S	616339	200 mbar - 5 bar	36 - 80	1	40	1280	45	136	0.140
50	S	616340 ①	200 mbar - 5 bar	110 - 240	3	20	640	68	175	0.350
63	S	616341 ①	200 mbar - 5 bar	180 - 400	3	12	384	82	197	0.560

① minimum order quantity = 1 packaging unit

MR STOPP

Electrofusion Reducers with integrated Mertik Maxitrol excess flow valve



Reducer MR with integrated SENTRY GS safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or drilling. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten material escape at the front and in the centre for processing without holding device. The universal type Z meets all practical requirements of the operating pressure range and the required flow quantity. Type D and Z with overflow.

PE 100 SDR 11

Maximum working pressure Type Z: 5 bar (gas), Type D: 1 bar (gas)

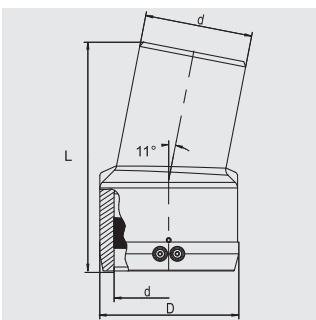


d ₁	d ₂	Type	Order Ref.	Operating pressure range p _{min} - p _{max}	VN	Stock-status	BX	PU	D ₁ /D ₂	L	Weight kg/each
50	40	Z	616218 ①	35 mbar - 5 bar	26 - 62	3	12	600	68/54	110	0.210
63	32	Z	616219	35 mbar - 5 bar	17 - 40	1	18	576	82/45	125	0.240
63	40	Z	616220 ①	35 mbar - 5 bar	26 - 62	3	8	400	82/54	125	0.290
63	50	Z	616221	35 mbar - 5 bar	41 - 99	1	8	400	82/68	125	0.360
50	40	D	616237 ①	25 mbar - 1 bar	19 - 27	3	12	600	68/54	110	0.210
63	32	D	616238 ①	25 mbar - 1 bar	11 - 16	3	10	500	82/45	125	0.240
63	50	D	616240	25 mbar - 1 bar	28 - 40	1	16	512	82/68	125	0.360

① minimum order quantity = 1 packaging unit

WS11

I/A Elbows 11°



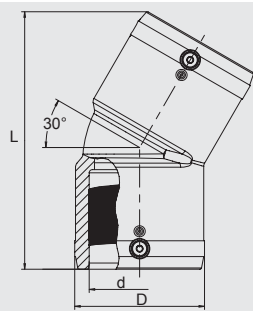
For universal and stress free changes in direction even in restricted spaces. Optimum flexibility through male/female design. Elbows of 22°, 33° etc. can be set up thanks to multiple application. Coupler side with exposed heating coils for optimum heat transfer, large insertion depth and wide fusion zone. Spigot for processing with FRIALEN MB or UB couplers.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



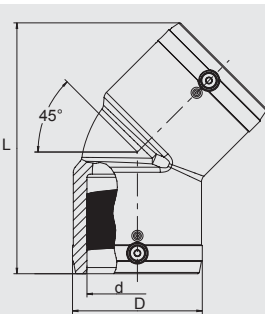
d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
110	616139	1	8	144	141	235	0.920
125	616140	1	5	90	160	250	1.250
160	616141	1	8	64	200	295	2.260
180	616142	1	4	32	226	310	3.050
225	616143	1	1	18	280	350	5.280

W30**Elbows 30°**

With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

**PE 100 SDR 11****Maximum working pressure 16 bar (water)/10 bar (gas)**

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
90	615272	1	8	144	115	224	0.780
110	615273	1	6	108	142	252	1.260
125	615274	1	4	72	158	270	1.640
160	615340	1	5	40	199	350	3.870
180	616261	1	3	24	229	390	4.990
200	616262	1	1	18	254	412	6.350
225	616263	1	1	18	281	456	8.220

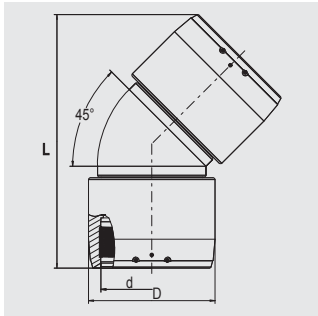
W45**Elbows 45°**

With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

**PE 100 SDR 11****Maximum working pressure 16 bar (water)/10 bar (gas)**

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	612092	1	45	1440	43	102	0.070
40	612094	1	25	800	54	120	0.110
50	612096	1	20	640	66	136	0.175
63	612098	1	10	320	82	158	0.295
75	612100	1	14	252	96	198	0.520
90	612102	1	8	144	115	232	0.810
110	612104	1	10	80	138	265	1.320
125	612106	1	10	80	157	279	1.770
160	615275	1	4	32	207	377	4.410
180	615687	1	3	24	228	382	4.610
200	616264	1	1	18	254	415	6.760
225	615688	1	1	8	280	450	8.290

available soon: W 45° d25

W45 XL**Elbows 45° XL**

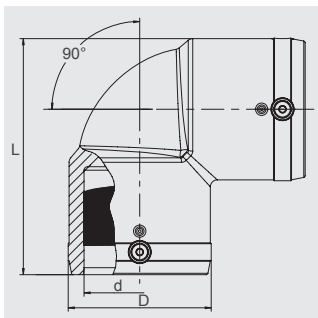
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks to the fused-on eyebolts.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
250	616404	1	1	6	310	621	17.300
280	616405	1	1	4	350	702	25.600
315	616406	1	1	2	396	755	36.000

W90**Elbows 90°**

With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

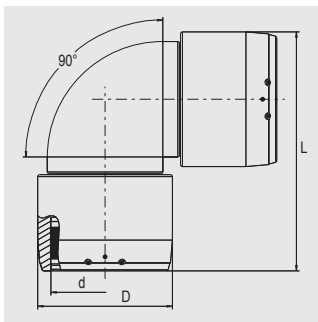
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
25	612091	1	60	1920	37	73	0.060
32	612093	1	45	1440	43	82	0.070
40	612095	1	25	800	53	96	0.110
50	612097	1	20	640	66	113	0.190
63	612099	1	8	256	83	136	0.340
75	612101	1	12	216	96	170	0.600
90	612103	1	6	108	115	202	0.950
110	612105	1	10	80	138	234	1.560
125	612107	1	8	64	157	254	2.030
160	615276	1	3	24	207	329	4.850
180	615689	1	3	24	228	354	5.760
200	616265	1	2	16	254	392	8.557
225	615690	1	1	8	280	430	10.220

available soon: W 90° d20

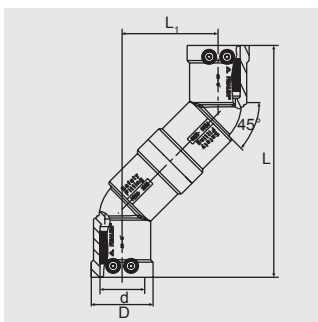
W90 XL**Elbows 90° XL**

With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks to the fused-on eyebolts.

**PE 100 SDR 11**

Maximum working pressure 16 bar (water)/10 bar (gas)

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
250	616408	1	1	6	310	534	19.100
280	616409	1	1	2	350	621	27.500
315	616410	1	1	2	396	677	40.000

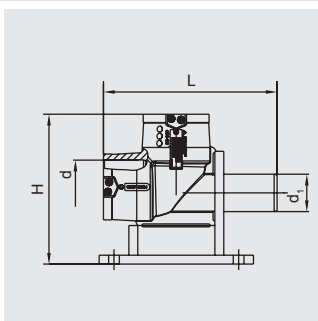
WET**Swan Neck Bend**

Compact fitting for jointing of pipes which are not aligned and for jointing of service lines with DAA/DAV pressure tapping valves when parallel-installing two mains with identical overlap height. With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices.

**PE 100 SDR 11**

Maximum working pressure 16 bar (water)/10 bar (gas)

d	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
32	616051	1	15	750	49	177	74	0.220
40	616052	1	15	480	58	215	89	0.330
50	616053	1	15	270	70	242	101	0.510
63	616054	1	10	180	84	256	106	0.700

WF 90**90° Elbow with base unit**

Compact fitting in HD-PE to integrate a hydrant next to the mains. Base unit and elbow make up a homogenous unit, base plate can be mounted onto base. With spigot outlet d 63/SDR 11 for service pipe connections avoiding stagnation at dead ends of hydrant branches. For hydrants with flange connection we recommend our Full Faced Flanges EFL. The elbow with separate fusion zones enables simple and tension free fusion. With exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

**PE 100 SDR 11**

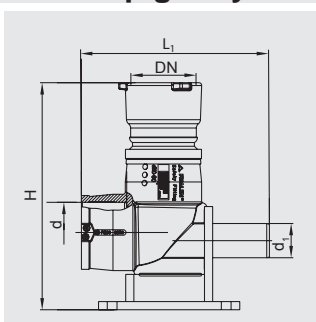
Maximum working pressure 16 bar (water)

d	d ₁	Order Ref.	Stock-status	BX	PU	H	L	Weight kg/each
90	63	615989	1	3	54	253	293	2.250
110	63	615998 ①	1	1	32	293	346	2.940

① see FLR flange reducer for connection to DN80

WFGB

90° Elbow with base unit and HD-PE/GGG adapter for connection of BAIO® spigot hydrant



For jointing of hydrant with spigot according to BAIO system as alternative to flange connection. Compact fitting manufactured from FRIALEN 90° elbow with base (see WF 90°) and BAIO coupler made from ductile cast iron including sealing ring. BAIO coupler anchored in PE moulded part. Cannot be released or rotated. Please observe specific processing instructions for „BAIO“ system. For below floor hydrants the safety device against dirt and distortion for BAIO spigots is required.

PE 100 SDR 11

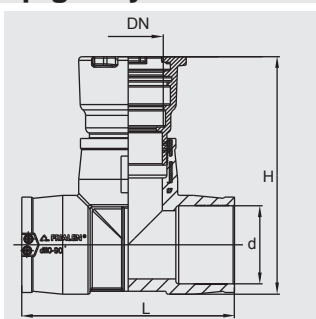
Maximum working pressure 16 bar (water)



d/DN	d ₁	Order Ref.	Stock-status	BX	PU	H	L ₁	Weight kg/each
110/80	63	616150	1	3	12	418	346	8.200

TGB

T-Pieces with HD-PE/GGG adapter for connection of BAIO® spigot hydrant



For jointing of hydrant or shut-off valves with spigot according to the BAIO system as an alternative to flange connection. Compact fitting manufactured from FRIALEN T-piece and BAIO coupler connection at outlet made from ductile cast iron including sealing ring. BAIO coupler anchored in PE moulded part. Cannot be released or rotated. T-piece with exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zone plus cold zone at the end and in the middle to prevent the flow of molten material, for use without holding devices. Please observe specific processing instructions for „BAIO“ system. For below floor hydrants the safety device against dirt and distortion for BAIO spigots is required.

PE 100 SDR 11

Maximum working pressure 16 bar (water)

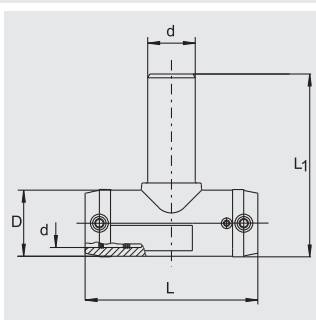


d/DN	Order Ref.	Stock-status	BX	PU	H	L	Weight kg/each
110/80	616147①	3	4	16	337	302	7.530
125/80	616148①	3	3	12	361	314	8.300
160/80	616149①	3	2	8	380	390	12.000

① minimum order quantity = 1 packaging unit

TA KIT

T-Pieces with extra long outlet spigot in kit version; coupler MB with removeable center stop included



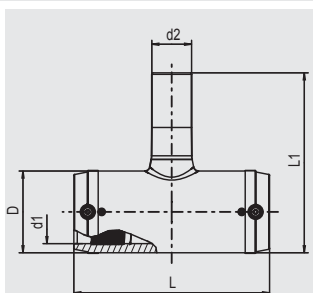
Straight connector with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Extra long outlet spigot dimensioned for 2 fusion operations.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
25/25	616335	1	40	720	36	108	110	0.124
32/32	612161	1	30	540	44	116	131	0.190
40/40	612162	1	20	360	53	146	151	0.290
50/50	612163	1	10	180	67	175	186	0.500
63/63	612164	1	5	90	81	197	203	0.750

TA RED**T-Pieces reduced with extra long outlet spigot**

With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Outlet spigot SDR 11 for processing couplers UB/MB.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

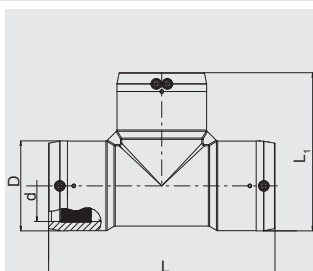
Outlet spigot pipe SDR 11



d	Order Ref.	Stock-status	BX	PU	D	L	L1	Weight kg/each
32/20	616417	1	30	540	46	116	117	0.110
40/32	616418 ①	3	20	360	55	146	148	0.170
50/32	616419	1	10	180	69	175	158	0.295
50/40	616420	1	10	180	69	175	167	0.315
63/32	616421	1	10	180	84	197	173	0.435
63/40	616422	1	10	180	84	197	182	0.450
63/50	616423	1	10	180	84	197	197	0.490

available soon: TA d20/20 (equal t-piece)

① minimum order quantity = 1 packaging unit

T**T-Pieces**

With exposed heating coils for optimal heat transfer on all 3 sides, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Straight passage fusible in one-step, therefore a total of only two fusions necessary.

PE 100 SDR 11

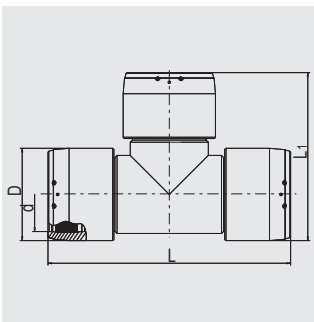
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
75	612165	1	8	144	96	278	187	0.980
90	612166	1	10	80	117	305	211	1.650
110	612167	1	6	48	142	355	248	2.580
125	612168	1	5	40	160	384	272	3.520
160	615277	1	3	24	200	430	315	5.820
180	615691	1	2	16	228	480	354	7.900
200	616266	1	1	8	251	550	400	11.130
225	615692	1	1	8	284	580	432	13.900

T XL

T-Pieces XL



With exposed heating coils for optimal heat transfer on all 3 sides, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks to the fused-on eyebolts.

PE 100 SDR 11

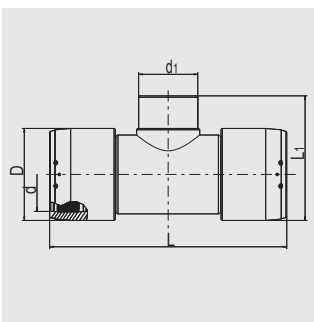
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	D	L	L1	Weight kg/each
250	616412	1	1	4	310	770	540	27.400
280	616413	1	1	2	350	905	630	42.200
315	616414	1	1	1	396	940	670	55.900

T RED XL

T-Pieces reduced XL



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Outlet spigot SDR 11 for processing of UB/MB couplers. Other branch dimensions can be created using MR d 225/160 or MR d 110/90 and MR d 110/63. Handling at the construction site is made easy thanks to the fused-on eyebolts. Other dimensions on request.

PE 100 SDR 11

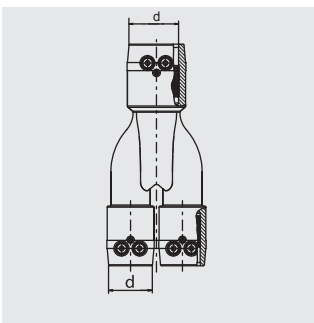
Maximum working pressure 16 bar (water)/10 bar (gas) outlet spigot pipe SDR11



d	d ₁	Order Ref.	Stock-status	BX	PU	D	L	L1	Weight kg/each
250	110	616426	1	1	2	310	770	405	22.100
250	225	616427	1	1	2	310	770	440	23.500
280	110	616428	1	1	2	350	905	440	34.100
280	225	616429	1	1	2	350	905	475	35.500
315	110	616430	1	1	1	396	940	485	42.400
315	225	616431	1	1	1	396	940	525	43.500

Y

Y-pieces with integrated heating coils made of PE 100 SDR 11



Pipe junction (Y piece) in a compact design with 3 integrated couplers with exposed, fixed heating coils for direct heat transfer to the pipe.

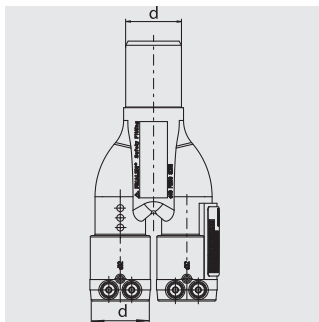
SKZ mark A 500 (SKZ HR 3.26)

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	BX	PU	Weight kg/each
32-32-40	640034	1	28	504	0.230
40-40-50	640036	1	18	324	0.340

YS**Y-pieces with integrated heating coils and PE spigot end made of PE 100 SDR 11**

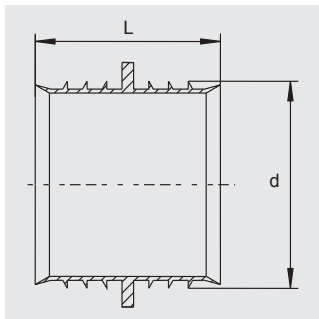
Pipe junction (Y piece) in a compact design with 2 integrated couplers and a PE spigot end to connect pipes e.g. FRIALEN elbow 90°.

SKZ mark A 500 (SKZ HR 3.26)

**PE 100 SDR 11**

Maximum working pressure 16 bar (water)/10 bar (gas)

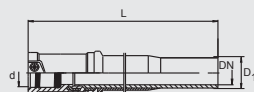
d	Order Ref.	Stock-status	BX	PU	Weight kg/each
32-32-40	640035	1	28	504	0.190
40-40-50	640037	1	18	324	0.300

RW**Repair Sleeves**

For the repair of water service pipes in the depressurised state. Prevents the ingress of water into the fused area of the FRIALEN MB or UB couplers. Measure d means: Repair Sleeves for pipe d xy.

**Only suitable for pipes SDR 11**

d	d ₁	d ₂	Order Ref.	Stock-status	BX	PU	L	L ₁	Weight kg/each
32	21	27	615127	1	50	4500	35	16	0.004
40	28	34	615128	1	50	2500	35	16	0.005
50	36	42	615129	1	50	2500	35	16	0.007
63	46	53	615130	1	40	2000	47	22	0.012



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material, for use without holding devices. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in gas systems. Steel pipe sockets marked by restrutting (for use with gas up to 10 bar).

PE 100 SDR 11
Maximum working pressure 10 bar (gas)


d/DN	Order Ref.	Stock-status	BX	PU	D ₁	L	Weight kg/each
32/25	612780 ①	1	15	360	34	387	0.820
40/32	612781 ①	1	10	240	42	393	1.070
50/40	612782 ①	1	8	192	48	409	1.320
63/50	612783 ①	1	6	144	60	410	1.880
75/65	612789	1	4	96	76	425	4.420
90/80	612784 ①	1	1	77	89	405	5.350
110/100	612785 ①	1	1	54	114	420	8.380
125/100	612786 ①	1	1	45	114	425	8.870
160/150	612787	1	1	24	168	484	17.000
180/150	615030	1	1	18	171	500	21.250
200/200	612795	1	1	12	219	480	27.020
225/200	612370	1	1	11	219	505	27.350

① Front face of steel pipe according to DIN 2559-3, EN 10217-1; ASTM A106/A106M-14

USTRS

Transition Fittings HD-PE/Steel (Spigot fittings)

NEW



Compact transition fitting. HD-PE end with fused on ends for use with FRIALEN-couplers MB or UB. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. Little insulating work due to injection moulded protective tube. For use in gas systems. Steel pipe sockets marked by restrutting (for use with gas up to 10 bar).



PE 100 SDR 11

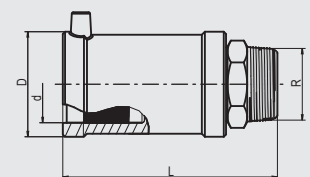
Maximum working pressure 16 bar (water) / 10 bar (gas)

	d/DN	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
NEW	20/15	616632	3	21	630	45	425	80	0.450
NEW	25/20	616633	1	21	432	45	460	90	0.650
NEW	32/25	616634	1	18	360	51	460	95	0.950
NEW	40/32	616635	1	12	240	63	470	100	1.250
NEW	50/40	616636	1	8	216	70	480	110	1.450
NEW	63/50	616637	1	6	98	89	480	110	2.150
NEW	75/65	616638	3	2	98	95	540	130	2.950
NEW	90/80	616639	1	2	50	117	580	140	3.950
NEW	110/100	616640	1	2	50	150	585	145	7.050
NEW	125/100	616641	1	2	25	150	585	150	7.300
NEW	140/125	616642	3	1	25	163	580	155	8.000
NEW	160/150	616643	1	1	25	210	610	160	10.500
NEW	180/150	616644	1	1	16	210	610	170	11.000
NEW	200/200	616645	1	1	16	259	630	155	17.500
NEW	225/200	616646	1	1	8	259	610	145	18.000
NEW	250/250	616647	3	1	8	324	640	140	30.500
NEW	280/250	616648	3	1	6	324	640	160	31.000
NEW	315/300	616649	3	1	6	368	725	220	46.500
NEW	355/300	616650	3	1	6	368	735	260	48.000
NEW	400/400	616651	3	1	3	475	770	190	83.200
NEW	500/500	616652	3	1	2	590	1050	365	127.500
NEW	630/600	616653	3	1	1	735	1100	430	242.000

Frontface of steel pipe according to: DIN EN ISO 3183, ASTM A106

USTN

Transition Fittings HD-PE/Steel with male thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in gas systems.

Other thread sizes on request



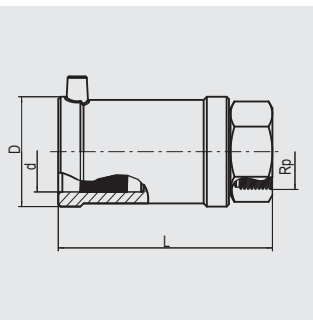
PE 100 SDR 11

Maximum working pressure 5 bar (gas)

d	R	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	1"	612580	1	20	1080	47	119	0.345
40	1 1/4"	612582	1	20	800	58	131	0.530
50	1 1/2"	612584	1	15	600	70	146	0.700
63	2"	612586	1	10	400	84	152	1.050

USTM

Transition Fittings HD-PE/Steel with female thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in gas systems.

Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 5 bar (gas)

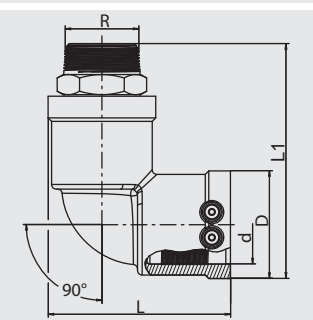


d	Rp	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	1"	612570	1	20	1080	47	112	0.340
40	1"	612571 ^①	3	20	600	58	121	0.610
40	1 1/4"	612572	1	20	800	58	121	0.500
50	1 1/2"	612574	1	15	600	70	136	0.650
63	2"	612576	1	10	400	84	141	1.010

① minimum order quantity = 1 packaging unit

WUSTN 90

Transition Elbows 90° HD-PE/Steel with male thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in gas systems.

Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 5 bar (gas)

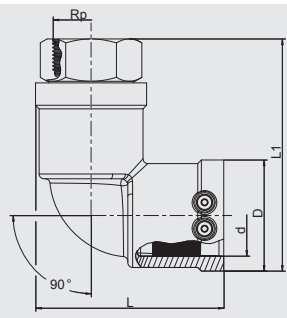


d	R	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
40	1 1/4"	612602 ^①	3	15	750	58	102	144	0.560
50	1 1/2"	612604	1	10	500	70	118	160	0.770
63	2"	612606	1	10	320	84	128	176	1.130

① minimum order quantity = 1 packaging unit

WUSTM 90

Transition Elbows 90° HD-PE/Steel with female thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in gas systems.

Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 5 bar (gas)

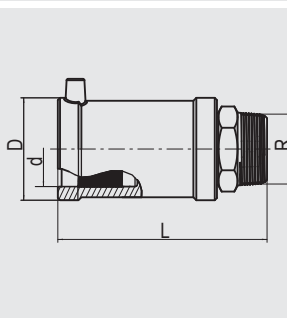


d	Rp	Order Ref.	Stock-status	BX	PU	D	L	L ₁	Weight kg/each
32	1"	612610	1	20	1000	47	85	111	0.368
40	1"	612611①	3	15	600	58	102	130	0.650
40	1 1/4"	612612①	3	15	750	58	102	130	0.540
50	1 1/2"	612614	1	10	500	70	118	146	0.710
63	2"	612616	1	10	320	84	128	161	1.115

① minimum order quantity = 1 packaging unit

MUN

Transition Fittings HD-PE/Brass with male thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Brass end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in water systems.

Standard: Brass. Gunmetal on request

Other thread sizes on request

PE 100 SDR 11

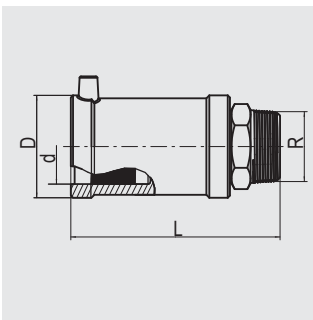
Maximum working pressure 16 bar (water)



d	R	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	1"	612712	1	20	1.440	47	112	0.310
32	1 1/4"	612709	1	20	1.080	47	120	0.390
32	1 1/2"	612698	1	15	810	47	121	0.450
40	1"	612721	1	20	800	58	123	0.480
40	1 1/4"	612713	1	20	800	58	126	0.460
40	1 1/2"	612718	1	20	800	58	127	0.520
40	2"	612725	1	20	600	58	132	0.680
50	1"	612719	1	15	600	70	134	0.620
50	1 1/4"	612716	1	15	600	70	136	0.610
50	1 1/2"	612714	1	15	600	70	137	0.620
50	2"	612706	1	15	600	70	147	0.760
63	1 1/4"	612722	1	10	400	84	138	0.910
63	1 1/2"	612717	1	10	400	84	137	0.890
63	2"	612715	1	10	400	84	142	0.920
75	2"	612694	1	10	240	98	165	1.470
75	2 1/2"	612695	1	10	240	98	167	1.490

MUN V2A

Transition Fittings HD-PE/Stainless steel with male thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Stainless steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry without elastomer seal. For use in water systems.

Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 16 bar (water)

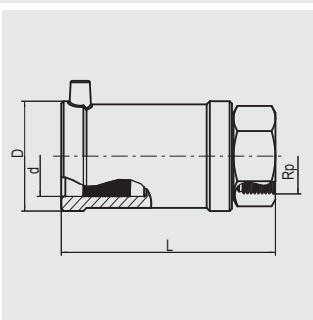


d	R	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
40	1"	616516 ①	3	20	800	58	123	0.460
40	1 1/2"	612727	1	20	800	58	127	0.495
50	1 1/2"	612726	1	15	600	70	137	0.600
63	1 1/2"	612705	1	10	400	84	137	0.865
63	2"	612899	1	10	400	84	142	0.910

① minimum order quantity = 1 packaging unit

MUM

Transition Fittings HD-PE/Gunmetal with female thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Gunmetal end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry without elastomer seal. For use in water systems. Standard: Gunmetal. Stainless steel on request.

Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 16 bar (water)

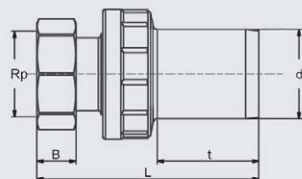


d	Rp	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32	1"	612595	1	20	1080	47	112	0.360
40	1 1/4"	612596	1	20	800	58	121	0.520
50	1 1/2"	612692	1	15	600	70	136	0.650
63	1 1/2"	612708	1	10	300	84	141	1.230
63	2"	612693	1	10	400	84	141	1.050

UAM ET

Universal adapter HD-PE/Brass with travelling nut and female thread

NEW



Transition adapter, brass end permanently anchored in HD-PE, with traveling nut for a simple and fast assembling on a fixed male pipe thread.
For use in Water area. PE pipe spigot SDR11. Length of the spigot not suitable for FRIALONG couplers.

Other thread dimensions on request.
Standard: Brass. Stainless steel on request.
Sealing gasket is not included.

PE 100 SDR 11

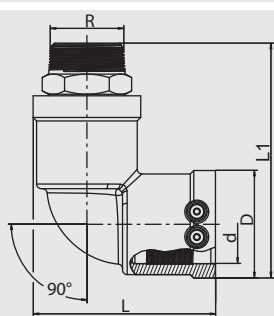
Maximum working pressure 16 bar (water)



	d	Rp	Order Ref.	Stock-status	BX	PU	L	t	Weight kg/each
NEW	25	3/4"	616654	1	100	3000	110	44	0.130
NEW	32	1"	616655	1	60	1800	120	47	0.200
NEW	40	1 1/4"	616626	1	35	1050	145	56	0.300
NEW	50	1 1/2"	616627	1	30	900	150	57	0.600
NEW	63	1 1/2"	616629	1	20	600	160	63	0.700
NEW	63	2"	616628	1	20	600	170	63	0.840

WUN 90

Transition Elbows 90° HD-PE/Brass with male thread



Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Brass end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry without elastomer seal. For use in water systems.
Standard: Brass. Gunmetal on request.

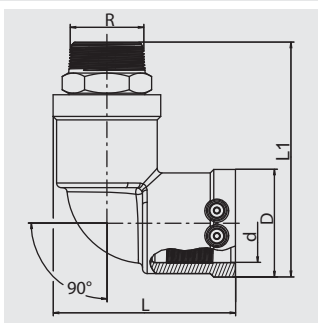
Other thread sizes on request

PE 100 SDR 11

Maximum working pressure 16 bar (water)



	d	R	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
	32	1"	612120	1	20	1000	47	85	0.340
	32	1 1/2"	612140	1	20	800	47	94	0.470
	40	1"	612127	1	15	750	58	102	0.500
	40	1 1/4"	612122	1	15	750	58	102	0.520
	40	1 1/2"	612121	1	15	750	58	102	0.560
	50	1"	612119	1	10	500	70	118	0.680
	50	1 1/4"	612123	1	10	500	70	118	0.670
	50	1 1/2"	612124	1	10	500	70	118	0.680
	63	1 1/2"	612125	1	10	320	84	128	0.980
	63	2"	612126	1	10	320	84	128	1.000

WUN V2A 90**Transition Elbows 90° HD-PE/Stainless steel with male thread**

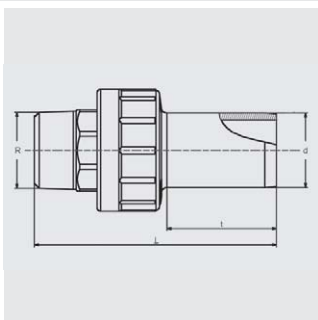
Compact transition fitting. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Stainless steel end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry without elastomer seal. For use in water systems.

Other thread sizes on request

PE 100 SDR 11**Maximum working pressure 16 bar (water)**

d	R	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
40	1"	616514	1	15	750	58	102	0.540
40	1 1/2"	612148	1	15	750	58	102	0.535
50	1 1/2"	612118	1	10	600	70	118	0.650
63	1 1/2"	612186	1	10	320	84	128	0.980
63	2"	616515 ①	3	10	320	84	128	0.950

① minimum order quantity = 1 packaging unit

UAN**Universal adapter HD-PE/Brass with male thread**

Compact fitting, spigot allows for assembly irrespective of its position and homogenous fusion joint with all suitable FRIALEN fittings. Brass side permanently and tightly connected with PE spigot. Cannot be released or rotated.

Other thread sizes on request

PE 100 SDR 11**Maximum working pressure 16 bar (water)/5 bar (gas)**

	d	R	Order Ref.	Stock-status	BX	PU	L	t	Weight kg/each
NEW	20	1/2"	616604	1	100	3000	94	41	0.100
NEW	25	3/4"	616605	1	100	3000	92	44	0.150
	32	1"	616152	1	60	1800	104	47	0.240
	40	1 1/4"	616153	1	35	1050	121	56	0.400
	50	1 1/2"	616154	1	30	900	123	57	0.520
NEW	63	1 1/2"	616610	3	20	600	136	63	0.620
	63	2"	616155	1	20	600	140	63	0.730
NEW	75	2 1/2"	616612	3	14	336	155	70	1.200
NEW	90	3"	616613	3	6	180	172	78	1.600
NEW	110	4"	616614	3	4	120	200	87	2.900
NEW	125	4"	616664	3	4	120	200	92	2.950

UAM**Universal adapter HD-PE/Brass with female thread****NEW**

Compact fitting, spigot allows for assembly irrespective of its position and homogenous fusion joint with all suitable FRIALEN fittings. Brass side permanently and tightly connected with PE spigot. Cannot be released or rotated.

Other thread sizes on request

PE 100 SDR 11**Maximum working pressure 16 bar (water)/5 bar (gas)**

	d	Rp	Order Ref.	Stock-status	BX	PU	L	t	Weight kg/each
NEW	20	1/2"	616615	3	150	4500	79	41	0.080
NEW	25	3/4"	616616	1	100	3000	77	44	0.120
	32	1"	616156	1	60	1800	88	47	0.190
	40	1 1/4"	616157	1	50	1500	100	56	0.290
	50	1 1/2"	616158	1	35	1050	102	57	0.350
NEW	63	1 1/2"	616621	3	20	600	115	63	0.450
	63	2"	616159	1	20	600	120	63	0.580
NEW	75	2 1/2"	616665	3	14	420	128	70	0.760
NEW	90	3"	616623	3	10	300	144	78	1.030
NEW	110	4"	616624	3	6	180	161	87	1.870
NEW	125	4"	616666	3	6	180	161	92	1.990

UFLG**Transition Fitting for liquid gas HD-PE/Copper**

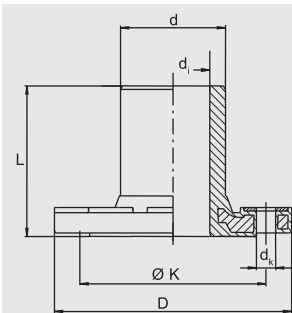
Compact transition fitting for service pipes in liquified natural gas installations for the operating of consumer installations from the gas phase. Exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Copper-side not detachable and anchored in HD-PE with no risk of turning. Self-sealing, patented sealing geometry without elastomere sealing. Copper-side from SF Cu-F25, EN 1057 can be connected with the copper pipe through hard-soldering (coupler soldering).

PE 100 SDR 11**Maximum working pressure 5 bar (gas)**

d/DN	Order Ref.	Stock-status	BX	PU	D	D ₁	L	Weight kg/each
32/20	615733	1	25	750	49	22	340	0.510

EFL

Full Faced Flanges (Spigot fittings)



Flange Adaptor and flange as a factory made flange piece. Metal insert in the flange to prevent creep. Spigot end for use with FRIALEN-couplers MB or UB. Steel-reinforced elastomeric gaskets recommended. Additional washers are necessary.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

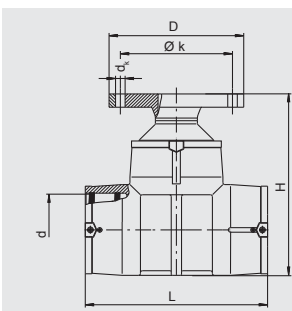


d/DN	Order Ref.	Stock-status	BX	PU	D	d _i	d _k	L	Ø k	Holes for screw	Weight kg/each
63/50	615417	1	5	250	169	51	17	105	125	4	1.500
90/80	615418	1	5	160	204	72	17	130	160	8	2.540
110/100	615419	1	3	96	224	87	17	150	180	8	3.310
125/100	615605	1	2	64	224	101	17	160	180	8	3.280
160/150	615421	1	2	36	288	127	21	190	240	8	6.140
180/150	615927	1	2	36	288	123	21	200	240	8	6.660
225/200	615607 ^①	1	1	27	343	180	21	225	295	8	9.100

① Hole PN 10.

FLT

Flange T-Pieces



Compact fitting in HD-PE. Factory made combination made from FRIALEN-T-Piece, Reducer and Full Faced Flanges (fixed flange). T-Piece with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material for use without holding devices. No internal welding bead at the weld seam. Steel-reinforced elastomeric gaskets recommended. Additional washers are necessary for the flange reducer.

PE 100 SDR 11

Maximum working pressure 16 bar (water)



d/DN	Order Ref.	Stock-status	BX	PU	D	d _k	H	L	Ø k	Holes for screw	Weight kg/each
110/80	615590	1	4	32	204	17	316	355	160	8	4.920
125/80	615591	1	3	24	204	17	343	384	160	8	5.480
160/80	615592	1	2	16	204	17	390	430	160	8	8.050
180/80	615910	1	1	8	204	17	416	480	160	8	10.000

PE 100 SDR 17

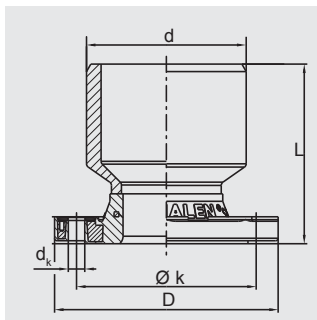
Maximum working pressure 10 bar (water)



d/DN	Order Ref.	Stock-status	BX	PU	D	d _k	H	L	Ø k	Holes for screw	Weight kg/each
225/80	616031	1	2	4	204	17	465	580	160	8	15.420

FLR

Flange Reducer



Compact fitting manufactured by factory from HD-PE reducer and FRIALEN EFL Full Face Flanges. Specially suited for the horizontal connection of flange valves to FRIALEN T-pieces T for reduced branches in DN 80 and DN 100. For the vertical connection of hydrants using our elbow including foot support WF 90° d 110 or the T-piece T, the installation depth must be taken into consideration. No internal welding bead at the weld seam of the reduction. Steel-reinforced elastomeric gaskets recommended. Additional washers are necessary.

FRIALEN®

PE 100 SDR 11

Maximum working pressure 16 bar (water)

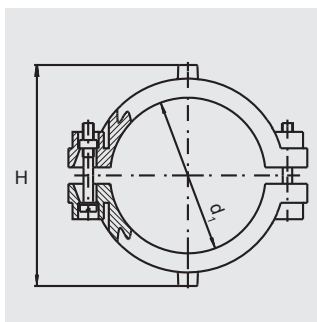


d/DN	Order Ref.	Stock-status	BX	PU	D	d _k	L	Ø k	Holes for screw	Weight kg/each
110/80	616065	1	3	96	204	17	161	160	8	3.500
160/100	616241	1	2	64	224	17	180	180	8	4.060
225/100	616242 ①	3	2	36	224	17	270	180	8	5.390

① minimum order quantity = 1 packaging unit

RS

Reinforcing Saddle



Compact fitting manufactured from 2 HD-PE saddles for the repair of minor pipe damage. With exposed heating elements for optimal heat transfer.

PE 100 SDR 11

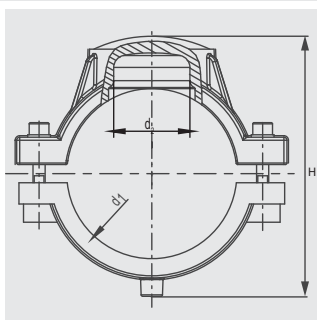
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	Order Ref.	Stock-status	BX	PU	H	Weight kg/each
63	612519	1	20	360	106	0.260

VVS

Repair and Reinforcing Saddles



Compact fitting consisting of one repair saddle and one reinforcing saddle for the repair of minor pipe damage. With exposed heating elements for optimal heat transfer.

PE 100 SDR 11

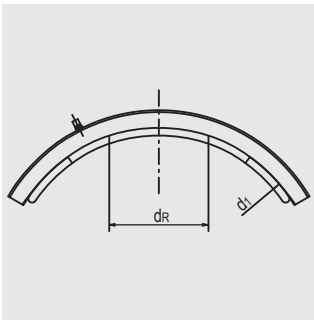
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	BX	PU	H	Weight kg/each
90	50	615164	1	24	192	148	0.920
110	50	615165	1	16	128	170	1.162
125	50	615166	1	15	120	183	1.360
160	50	615168	1	10	80	218	1.670
180	50	615169	1	6	48	238	1.810
200	50	615170	1	5	40	258	1.820
225	50	615171	1	5	40	283	1.900

RS XL

Repair Saddle RS XL



For the repair of damages such as scratches, grooves or pipe penetration. Compact fitting made of HD-PE. Saddle with exposed heating element for optimal heat transfer. For assembly with FRIATOOLS clamping unit VACUSET XL (see Product Range FRIATOOLS). The damage must be within the specified repair area d_R and may not be covered by the fusion zone.

PE 100 SDR 17

Maximum working pressure 10 bar (water)/5 bar (gas)

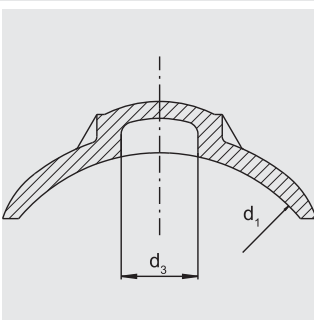


d_1	Order Ref.	Stock-status	BX	PU	Repair area d_R	Weight kg/each
500	616366	1	1	4	230	13.600
560	616367	1	1	4	230	14.300
630	616368 ^①	3	1	4	230	15.000
710	616369	1	1	4	230	18.900
800	616370 ^①	3	1	4	230	15.800
900	616371 ^①	3	1	4	230	17.600
1000	616372 ^①	3	1	4	230	16.400
1200	616379 ^①	3	1	2	230	16.250

^① minimum order quantity = 1 palette unit

VSC TL

Repair Saddle Top-Loading



Suitable for all pipe diameters in the given range by means of the FRIALEN-FRIATOP Clamping Unit (see Product Range FRIATOOLS). HD-PE saddle for the repair of minor pipe damage with or without escape of fluid. In order to avoid discharge of media the leak has to be sealed with a separate plug* ($\leq d_3$). With exposed heating element for optimal heat transfer.

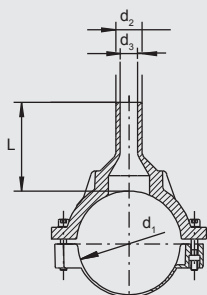
*The plug is not included in the scope of delivery.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d_1	Order Ref.	Stock-status	BX	PU	d_3	Weight kg/each
250-560	615397	1	10	180	50	0.570



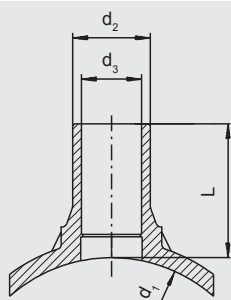
Compact fitting in HD-PE, saddle with exposed heating element for optimal heat transfer and outlet spigot for use with FRIALEN-couplers MB or UB. Swarfless tapping in the depressurised state by means of commercial drilling units (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)).



PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
63	32	612757	1	20	360	22	20	100	0.330
63	50	612759	1	20	360	37	36	113	0.370
75	50	615020	1	15	270	38	36	82	0.430
90	32	615285	1	20	160	21	20	103	0.700
90	63	612819	1	20	160	50	46	103	0.720
110	32	615334	1	12	96	24	20	125	0.788
110	50	615031	1	12	96	39	36	132	0.816
110	63	612760	1	12	96	49	46	150	0.868
110	90	615411	1	12	96	70	65	115	0.960
125	32	615087	1	12	96	21	20	109	0.945
125	63	612761	1	12	96	47	46	109	0.990
125	90	615412	1	12	96	70	65	116	1.080
125	110	615584	1	10	80	86	84	116	1.150
160	32	612886	1	8	64	21	20	126	1.440
160	63	612762	1	6	48	47	46	140	1.520
160	90	615413	1	2	36	70	65	140	1.640
160	110	615739	1	2	36	86	84	140	1.765
160	125	615585	1	2	36	98	95	140	1.880
180	63	612763	1	6	48	47	46	109	1.190
180	90	615414	1	2	36	70	65	116	1.820
180	110	615948	1	2	36	86	84	136	1.960
180	125	615740	1	2	36	98	95	141	2.110
200	63	612764	1	5	40	47	46	109	1.260
225	63	612765	1	5	40	47	46	109	1.210
225	90	615415	1	5	40	70	65	130	1.950
225	110	616044	1	5	40	86	84	140	1.960
225	125	616045	1	4	32	97	95	146	2.240
225	160	616046	1	4	32	125	123	157	2.580



Suitable for all pipe diameters in the given range by means of the FRIALEN-FRIATOP Clamping Unit (see Product Range FRIATOOLS). Compact fitting in HD-PE. Saddle with exposed heating element for optimal heat transfer and outlet spigot for use with FRIALEN-couplers MB or UB. Swarfless tapping in the depressurised state by means of commercial drilling units (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)).

d_3 = maximum tapping diameter in mm

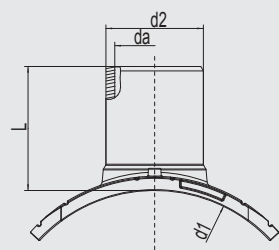


PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
250-560	32	615465	1	5	90	21	20	109	0.621
250-560	63	615466	1	5	90	47	46	109	0.676

NEW



For integration of a branch line in PE pipelines –unpressurised or under operating pressure. Compact fitting made of HD-PE. Saddle with exposed heating element for optimal heat transfer. Outlet spigot for processing with FRIALEN couplers MB or UB. Suitable for all pipe diameters in the given range. Assembly with FRIATOOLS clamping unit UNITOP (see Product Range FRIATOOLS). Tapping in unpressurised condition with FRIATOOLS tapping kit FWAB XL (see Product Range FRIATOOLS). Pressure test of saddles fusion is possible before tapping via integrated pressure nozzle and pressure test adaptor FWDPA (see Product Range FRIATOOLS).

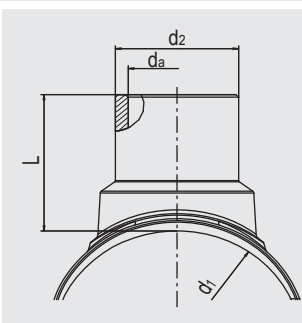
For tapping of pipes under operation pressure please contact us.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



	d_1	d_2	Order Ref.	Stock-status	BX	PU	Drilling $\varnothing d_a$	L	Weight kg/each
NEW	250-280	90	616553	1	5	40	66	130	1.465
NEW	250-280	110	616554	1	5	40	82	140	1.610
NEW	250-280	125	616555	1	5	40	94	146	1.790
NEW	250-280	160	616556	1	5	40	123	158	2.180
NEW	315-400	90	616557	1	5	40	66	130	1.485
NEW	315-400	110	616558	1	5	40	82	140	1.630
NEW	315-400	125	616559	1	5	40	94	146	1.810
NEW	315-400	160	616560	1	5	40	123	158	2.190
NEW	450-800	90	616561	1	5	40	66	130	1.500
NEW	450-800	110	616562	1	5	40	82	140	1.645
NEW	450-800	125	616563	1	5	40	94	146	1.820
NEW	450-800	160	616564	1	5	40	123	158	2.200



For integration of a branch line or vent in PE pipelines with large diameters – unpressurised or under operating pressure. Compact fitting made of HD-PE. Saddle with exposed heating element for optimal heat transfer. Outlet spigot for processing with FRIALEN couplers MB or UB. Assembly with FRIATOOLS clamping unit VACUSET XL (see Product Range FRIATOOLS). Tapping in unpressurised condition with FRIATOOLS tapping kit FWAB XL (see Product Range FRIATOOLS).

For tapping of pipes under operation pressure please contact us.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	L	Weight kg/each
315	225	616387	1	1	4	172	233	9.920
315	250	616398 ①	3	1	4	187	233	9.720
355	225	616388	1	1	4	172	235	9.940
355	250	616399 ①	3	1	4	187	235	9.250
450	225	616390 ①	3	1	4	172	272	10.180
450	250	616401 ①	3	1	4	187	272	10.000

① minimum order quantity = 1 palette unit

For other dimensions we refer to our new product Spigot Saddle SA UNI.

PE 100 SDR 17

Maximum working pressure 10 bar (water)/5 bar (gas)



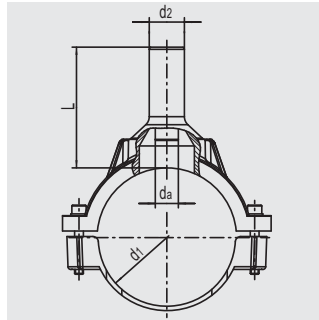
d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	L	Weight kg/each
500	225	616391 ②	3	1	4	172	300	13.600
560	160	616373 ②	3	1	4	123	300	15.300
560	225	616392 ②	3	1	4	172	300	16.200
630	160	616374 ②	3	1	4	123	300	16.000
630	225	616393 ②	3	1	4	172	300	17.000
710	160	616375 ②	3	1	4	123	300	19.900
710	225	616394 ②	3	1	4	172	300	20.750
800	225	616395 ②	3	1	2	172	300	17.650
900	225	616396 ②	3	1	4	172	300	19.500
1000	160	616378 ②	3	1	4	123	300	17.350
1000	225	616397 ②	3	1	4	172	300	18.200
1200	160	616383 ②	3	1	4	123	300	17.200
1200	225	616384 ②	3	1	4	172	300	18.100

② minimum order quantity = d500-d710: 3pcs., d800-d1000: 4pcs., d1200: 5pcs.

For other dimensions we refer to our new product Spigot Saddle SA UNI.

SAB

Spigot Saddles with integral drill



Compact fitting in HD-PE, saddle with exposed heating element for optimal heat transfer and outlet spigot for use with FRIALEN-couplers MB or UB. Swarfless tapping in the depressurised state by means of the integral drill.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

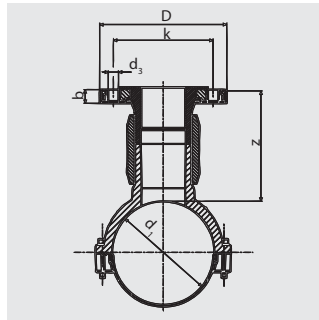


d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	L	Weight kg/each
63	32	615091 ①	1	20	360	21	100	0.425
90	32	615092	1	20	160	21	104	0.820
110	32	615093	1	12	96	21	125	0.938
125	32	615094	1	12	96	21	109	1.105
160	32	615095	1	6	48	21	110	1.275

① Saddle parts d 63 can only be processed using pipes up to SDR11.

SAFL

Spigot Saddles with flange outlet



Compact fitting in HD-PE. Manufactured combination of FRIALEN spigot saddle, coupler and FRIALEN Full Faced Flanges EFL (compact flange). Saddle with exposed heating coil for optimum heat transfer. Tapping in pressure free condition or, using an additional shut-off valve, under operating pressure by means of standard tapping equipment (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)). We recommend steel-reinforced elastomeric gaskets. Additional washers are necessary for the flange reducer.

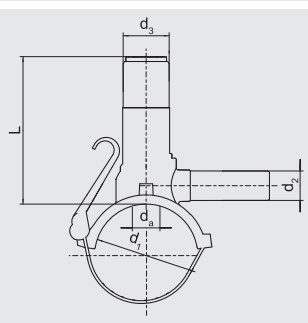
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d _i /DN	Order Ref.	Stock-status	BX	PU	D	d _k	Drilling Ø d _a	H	L	Ø k	Holes for screw	Weight kg/each
110/80	616016	1	3	54	204	16.5	65	296	190	160	8	3.700
125/80	616017 ①	3	2	36	204	16.5	65	311	205	160	8	3.940
160/80	616018	1	2	36	204	16.5	65	346	245	160	8	4.320
180/80	616019	1	2	36	204	16.5	65	366	285	160	8	4.610
225/80	616020	1	2	16	204	16.5	65	411	284	160	8	4.720
125/100	616021 ①	3	2	36	224	16.5	84	311	205	180	8	4.770
160/100	616022	1	2	36	224	16.5	84	346	245	180	8	5.270
180/100	616023 ①	3	2	36	224	16.5	84	366	285	180	8	5.520
225/100	616024	1	2	16	224	16.5	84	411	284	180	8	5.635

① minimum order quantity = 1 packaging unit



For leak-free and swarf-free tapping up to 10 bar (gas) or 16 bar (water). Integrated drill with solid upper and lower stop, incl. integrated torque limiter for protection against overcharge. A complete tool-free mounting of the saddle because of the new and innovative fast clamping system. With exposed heating element for optimal heat transfer. End plug with internal O-Ring seal. Optional protection against any access with fusion of the FRIALEN cap K d 50. Only one hexagonal wrench key with wrench size 17 (FWSS) for tapping all dimensions and for installing the end plug (see Product Range FRIATOOLS). Length of the outlet spigots dimensioned for two fusion operations.

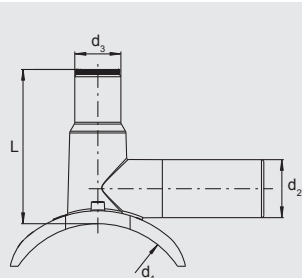
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	BX	PU	d ₃	Drilling Ø d _a	L	Weight kg/each
40	20	612630	1	30	240	50	25	120	0.370
40	25	616473	1	30	240	50	25	120	0.380
40	32	616474	1	30	240	50	25	120	0.385
50	20	616475	1	28	224	50	25	120	0.385
50	25	612702	1	28	224	50	25	120	0.390
50	32	615080	1	28	224	50	25	120	0.400
63	20	612631	1	20	160	50	25	130	0.450
63	25	612633	1	20	160	50	25	130	0.460
63	32	612632	1	20	160	50	25	130	0.465
63	40	616472①	1	20	160	50	30	160	0.855
63	63	616334	1	20	160	50	30	160	0.635
75	32	616482	1	24	192	50	25	130	0.485
90	20	616483	3	14	112	50	30	160	0.600
90	25	616484	1	14	112	50	30	160	0.610
90	32	612634	1	14	112	50	30	160	0.615
90	40	615656①	1	14	112	50	30	160	0.950
90	50	616476①	1	14	112	50	30	160	0.960
90	63	612701	1	14	112	50	30	160	0.730
110	20	616487	3	14	112	50	30	160	0.620
110	25	616488	3	14	112	50	30	160	0.625
110	32	612637	1	14	112	50	30	160	0.630
110	40	615662①	1	14	112	50	30	160	1.000
110	50	616477①	1	14	112	50	30	160	1.010
110	63	612624	1	14	112	50	30	160	0.780
125	20	616491	3	12	96	50	30	160	0.650
125	25	616492	3	12	96	50	30	160	0.655
125	32	612649	1	12	96	50	30	160	0.670
125	40	615668①	1	12	96	50	30	160	1.020
125	50	616478①	1	12	96	50	30	160	1.030
125	63	612309	1	12	96	50	30	160	0.800
140	32	616495	1	12	96	50	30	160	0.700
140	50	616479①	1	12	96	50	30	160	1.060
140	63	616496	1	12	96	50	30	160	0.830
160	20	616497	1	10	80	50	30	160	0.730
160	25	616498	1	10	80	50	30	160	0.735
160	32	612641	1	10	80	50	30	160	0.745
160	40	615675①	1	10	80	50	30	160	1.095
160	50	616480①	1	10	80	50	30	160	1.105
160	63	612650	1	10	80	50	30	160	0.875
180	20	616501	3	10	80	50	30	190	0.785
180	25	616502	3	10	80	50	30	190	0.790
180	32	612651	1	10	80	50	30	190	0.790
180	50	616481①	1	10	80	50	30	190	1.170
180	63	612652	1	10	80	50	30	190	0.940
200	32	612654	1	8	64	50	30	190	0.810
200	50	616485①	1	8	64	50	30	190	1.180
200	63	612659	1	8	64	50	30	190	0.950
225	32	612657	1	8	64	50	30	190	0.835
225	50	616486①	1	8	64	50	30	190	1.210
225	63	612655	1	8	64	50	30	190	0.980

① with electrofusion reducers MR d 63/40 or d 63/50

DAA TL**Pressure Tapping Tee Top-Loading with extra long outlet spigot**

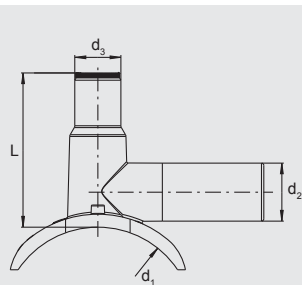
Suitable for all pipe diameters in the given range by means of the FRIALEN FRIATOP clamping unit (see Product Range FRIATOOLS). Leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper and lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plugs with internal O-ring seal. Fusible stack ($d_3/50 = K$). Pressure test possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operations.

Other outlet dimensions with electrofusion reducers MR

PE 100 SDR 11**Maximum working pressure 16 bar (water)/10 bar (gas)**

d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
250-315 (400)	63	615339 ①	1	5	90	50	30	167	1.360

- ① d_1 : d 250 up to d 315 for pipes SDR 11 and 17;
 d_1 : $> d$ 315 up to d 400 for pipes SDR 17

DAA TL RE**Pressure Tapping Tee Top-Loading / Relining with extra long outlet spigot**

Suitable for all pipe diameters in the given range by means of the FRIALEN FRIATOP clamping unit (see Product Range FRIATOOLS). Leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper and lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plugs with internal O-ring seal. Fusible stack ($d_3/50 = K$). Pressure test possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operations.

Other outlet dimensions with electrofusion reducers MR

PE 100 SDR 11**Maximum working pressure 16 bar (water)/10 bar (gas)**

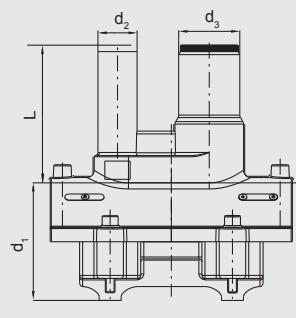
d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
$> 98-130$	50	615527 ①②	3	20	160	50	30	125	0.800
$> 130-160$	50	615528 ①②	3	12	96	50	30	121	1.040
$> 160-210$	63	615531 ①②	3	5	90	50	30	167	1.230
250-315 (400)	63	615339 ①	1	5	90	50	30	167	1.360

- ① d_1 : d 250 up to d 315 for pipes SDR 11 and 17;
 d_1 : $> d$ 315 up to d 400 for pipes SDR 17

- ② minimum order quantity = 1 packaging unit

DAP

Pressure Tapping Tees with parallel dome and extra long outlet spigot



For space saving horizontal installation. Leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper and lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plugs with internal O-ring seal. Fusible stack (d_3 40 = MV d 40; d_3 50 = K). Pressure test possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operations.



PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

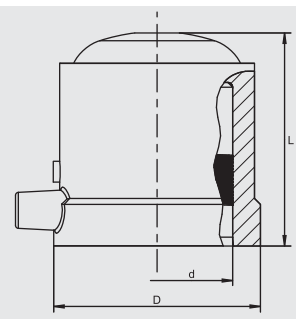
d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
63	32	616042	1	16	288	40	21	125	0.630
90	32	616043 ①	1	16	128	50	30	115	1.100
110	32	615581	1	12	96	50	30	158	1.280
110	50	615606	1	12	96	50	30	158	1.380
125	32	615711	1	12	96	50	30	158	1.310
125	50	615712	1	12	96	50	30	158	1.360
160	32	615713	1	8	64	50	30	170	1.540
160	50	615714	1	8	64	50	30	170	1.560
180	32	615715	1	6	48	50	30	170	1.540
180	50	615716	1	6	48	50	30	170	1.560
225	32	615717 ②	3	6	48	50	30	170	1.570
225	50	615718 ②	3	6	48	50	30	170	1.590

① max. working pressure 10 bar (water)/5 bar (gas)

② minimum order quantity = 1 packaging unit

K

Cap for Pressure Tapping Tees



With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end to prevent the flow of molten material.



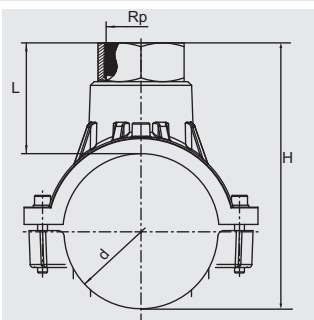
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
50	612310	1	30	960	69	72	0.110

VAM RG

Valve Tapping Saddles with HD-PE/Gunmetal adapter, female thread



Compact transition fitting. HD-PE-saddle with exposed heating element for optimal heat transfer. Gunmetal adapter permanently anchored in the HD-PE. Cannot be released or rotated. To accept normal commercial brass valves. Metallic materials in contact with drinking water acc. to the recommendation of Umweltbundesamt, Germany.

As a complete solution we recommend our Pressure Tapping Valve DAV.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

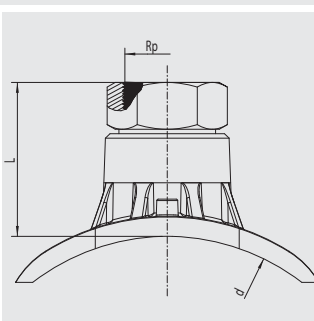


d	Rp	Order Ref.	Stock-status	BX	PU	H	L	Weight kg/each
63	1 1/4"	612794①	3	20	360	146	75	0.730
63	1 1/2"	612743	1	20	360	149	78	0.780
75	1 1/4"	615213	1	15	270	161	76	0.850
90	1 1/2"	612798	1	16	128	172	68	1.370
90	2"	612778①	3	16	128	199	95	1.560
110	1 1/2"	612732	1	12	96	182	70	1.488
110	2"	612733	1	12	96	205	92	1.684
125	1 1/2"	612734①	3	12	96	207	68	1.610
125	2"	612735	1	12	96	234	95	1.850
160	1 1/2"	612728①	3	8	64	242	68	1.800
160	2"	612729	1	8	64	269	95	2.040
180	1 1/2"	612774	1	7	56	250	68	1.780
180	2"	612776	1	7	56	277	95	1.990
225	2"	612827	1	5	40	322	95	1.990

① minimum order quantity = 1 packaging unit

VAM RG TL

Valve Tapping Saddle Top-Loading with HD-PE/Gunmetal adapter, female thread



Suitable for all pipe diameters in the given range by means of the FRIALEN FRIATOP Clamping Unit (see Product Range FRIATOOLS Technical Equipment). Compact transition fitting. HD-PE saddle with exposed heating element for optimal heat transfer. Gunmetal adapter permanently anchored in the HD-PE. Cannot be released or rotated. To accept normal commercial brass valves. Metallic materials in contact with drinking water acc. to the recommendation of Umweltbundesamt, Germany. Dimension range d 250 – d 560 fusible as standard using the top-loading method. Please note the maximum permissible wall thickness for tapping in the dimension range > d 315 - d 560. If required, please contact the manufacturer of the tapping equipment.

As a complete solution we recommend our Pressure Tapping Valve DAV-TL.

PE 100 SDR 11

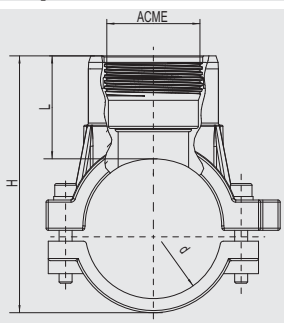
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Rp	Order Ref.	Stock-status	BX	PU	L	Weight kg/each
250-315 (560)	2"	615470	1	10	180	90	1.505

VAM P

Valve Tapping Saddles for irrigation systems, female thread for adaption to PVC-U fittings



Compact saddle fitting with threaded outlet for the jointing of irrigation systems for green fields, e.g. playing fields or golf courses. HD-PE saddle with exposed heating element for optimal heat transfer. Integrated threaded brass sleeve for safe adaption of PVC-ACME fittings.

ACME - Thread

PE 100 SDR 11

Maximum working pressure 10 bar (water)



d	Thread	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	H	L	Weight kg/each
63	ACME 1"	616544	1	20	360	20	117	48	0.430
63	ACME 1 1/4"	616543 ^①	3	20	360	30	117	48	0.450
63	ACME 1 1/2"	616551 ^①	3	20	360	30	117	48	0.460

^① minimum order quantity = 1 packaging unit

BSP - Thread

PE 100 SDR 11

Maximum working pressure 10 bar (water)

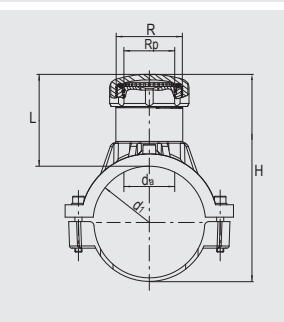


d	Thread	Rp	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	H	L	Weight kg/each
NEW 63	BSP	1 1/4"	616463 ^①	3	20	360	28	117	48	0.450

^① minimum order quantity = 1 packaging unit

SPA

Balloon Shut off Saddles



Compact fitting suitable for available balloon shut-off equipment. HD-PE saddle with exposed heating element for optimal heat transfer. Brass-guide thread permanently and immovably anchored in the HD-PE. Cannot be released or rotated. Includes brass plugs with square recess. Protection against access to the stack by fusing on a FRIALEN-SPAK (when using d 63 through cap K).

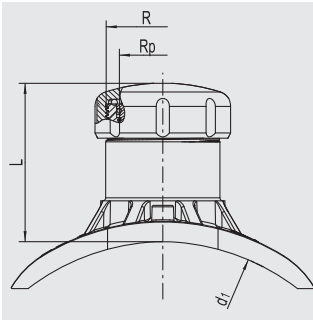
PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	R	Rp	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	H	L	Weight kg/each
63	G 1 1/2	G 1 1/8	612753 ^①	1	20	360	31,0	151	80	0.610
90	G 2 1/2	G 2	612677	1	16	128	56,5	197	104	1.380
110	G 2 1/2	G 2	612750	1	12	96	56,5	217	104	1.540
125	G 2 1/2	G 2	612751	1	12	96	56,5	232	104	1.710
160	G 2 1/2	G 2	612752	1	8	64	56,5	267	104	1.860
180	G 2 1/2	G 2	612754	1	7	56	56,5	287	104	1.860
200	G 2 1/2	G 2	612755	1	6	48	56,5	307	104	1.830
225	G 2 1/2	G 2	612756	1	5	40	56,5	332	104	1.850

^① Shut off Saddles d 63 may only be processed using pipes up to SDR 11.

SPA TL**Balloon Shut off Saddles Top-Loading**

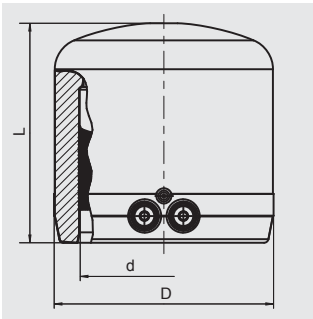
Suitable for all pipe diameters in the given range by means of the FRIATOP Clamping Unit (see Product Range FRIATOOLS Technical Equipment). Compact saddle fitting suitable for available balloon shut-off equipment. HD-PE saddle with exposed heating element for optimal heat transfer. Brass guide thread permanently anchored in the HD-PE. Cannot be released or rotated. Includes brass plugs with square recess. Protection against access to the stack by fusing on a FRIALEN-SPAK.

Dimension range d 250 – d 560 fusible as standard using the top-loading method. Please note the maximum permissible wall thickness for tapping in the dimension range > d 315 - d 560.

If required, please contact the manufacturer of the tapping equipment. Please note indications by shut-off saddles manufacturer.

PE 100 SDR 11**Maximum working pressure 16 bar (water)/10 bar (gas)**

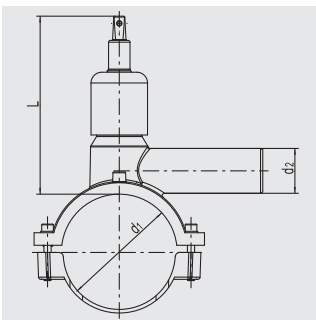
d ₁	R	R _p	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	L	Weight kg/each
250-315 (560)	G 2 1/2	G 2	615395	1	18	144	56,5	115	1.358

SPAK**Cap for Balloon Shut off Saddles**

With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zone plus cold zones at the end to prevent the flow of molten material.

PE 100 SDR 11**Maximum working pressure 16 bar (water)/10 bar (gas)**

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
75	612311	1	20	640	99	99	0.280



Compact fitting in HD-PE with no threaded connections. Actuating spindle in stainless steel 1.4305. No re-insulating required. Leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper and lower stop, guided in a metal sleeve. Max. 10 turns to activate "OPEN/CLOSE". With exposed heating element for optimal heat transfer. Maintenance free, operating isolating valve actuated by a rod (e.g. FRIALEN- EBS). Length of the outlet spigots dimensioned for 2 fusion operations. Four cornered shaft wrench size 14.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)



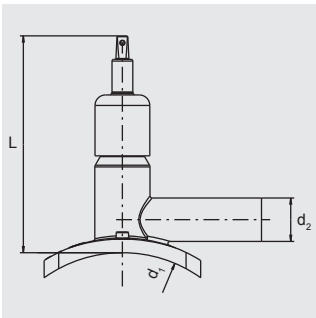
d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	L	Weight kg/each
50	32	615955	1	16	288	20	164	1.310
63	32	615341	1	16	288	20	164	0.950
63	40	615342	1	16	288	20	164	0.970
75	32	615956	1	12	216	20	164	1.390
90	32	615344	1	12	96	30	200	1.750
90	40	615617 ^①	1	12	96	30	200	1.970
90	50	615346	1	12	96	30	200	1.800
90	63	615347	1	12	96	30	200	1.870
110	32	615348	1	10	80	30	200	1.990
110	40	615621 ^①	1	10	80	30	200	2.160
110	50	615350	1	10	80	30	200	2.060
110	63	615351	1	10	80	30	200	2.120
125	32	615352	1	10	80	30	200	2.185
125	40	615625 ^①	1	10	80	30	200	2.385
125	50	615354	1	10	80	30	200	2.245
125	63	615355	1	10	80	30	200	2.320
140	63	615930	1	10	80	30	200	2.290
160	32	615356	1	6	48	30	251	2.670
160	40	615629 ^①	1	6	48	30	251	2.965
160	50	615358	1	6	48	30	251	2.750
160	63	615359	1	6	48	30	251	2.810
180	32	615361	1	5	40	30	251	2.680
180	40	615633 ^①	1	5	40	30	251	2.975
180	50	615363	1	5	40	30	251	2.760
180	63	615364	1	5	40	30	251	2.820
200	32	615366 ^②	3	5	40	30	251	2.770
200	50	615368 ^②	3	5	40	30	251	2.830
200	63	615369	1	5	40	30	251	2.900
225	32	615374	1	5	40	30	251	2.790
225	40	615641 ^①	1	5	40	30	251	3.070
225	50	615376	1	5	40	30	251	2.850
225	63	615377	1	5	40	30	251	2.920

① with electrofusion reducers MR d 50/40.

② minimum order quantity = 1 packaging unit

DAV TL

Pressure Tapping Valve Top-Loading with extra long outlet spigot



For flexible adaptation to all pipe diameters in indicated range by means of the FRIALEN FRIATOP Clamping device (see Product Range FRIATOOLS Technical Equipment). Stainless steel activating spindle 1.4305. No further insulation necessary. Leak and swarf free tapping up to 10 bar (gas) and 16 bar (water). Integrated drill with upper and lower stop, guided in a metal sleeve. With exposed heating coils for optimal heat transfer. Maintenance free, operating shut-off valve actuated by a rod (e.g. FRIALEN-EBS). Length of the outlet spigot dimensioned for 2 fusion operations. Four cornered shaft wrench size 14.

PE 100 SDR 11

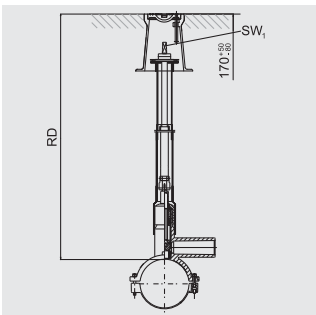
Maximum working pressure 16 bar (water)/10 bar (gas)



d_1	d_2	Order Ref.	Stock-status	BX	PU	Drilling $\varnothing d_a$	L	Weight kg/each
250-315	63	616464	1	7	56	30	251	2.455
355-400	63	616465	1	7	56	30	251	2.459

EBS

Installation kits for Pressure Tapping Valves

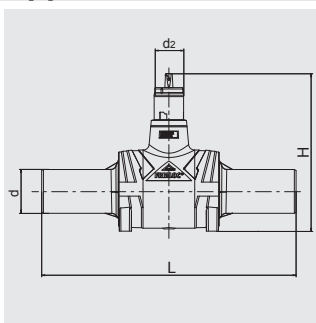


Telescopic actuating rod for operation of the FRIALEN-DAV from the street cap. Stepless adjustment in the stated range (RD) without the use of tools, even in the installed state. Self supporting in any extended position. Corrosion proof.

Dimension RD valid for DAV $d_1 = 90 - 125$.

For DAV $d_1 < 90$ please deduct 50 mm and for $d_1 > 125$ please add 50 mm. (See also dimension L of the DAV)

RD in m	Order Ref.	Stock-status	BX	PU	SW ₁	Weight kg/each
0,45-0,7	615866	1	1	42	14	1.500
0,7-1,0	615867	1	1	42	14	1.950
0,9-1,3	615335	1	1	42	14	2.450
1,2-1,8	615325	1	1	42	14	3.350
1,8-2,7	616327	3	1		14	3.600
2,6-3,5	616328	3	1		14	4.500



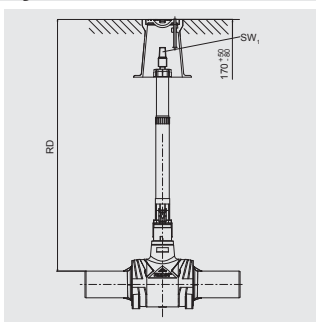
Facilitates the completely fused and homogeneous PE piping. Thanks to the innovative mechanism, a reliable shut-off can be achieved with only 9 or 14 turns and without major force. Very low-wear drive. A forced flushing prevents dead spaces and stagnation. The small sealing area minimises biological growth. The free passage corresponds up to d180 mm to the connecting pipe SDR 11. Each individual FRIALOC PE shut-off valve is subjected to comprehensive tests at the factory. The valve is operated using the installation kit FBS. Four cornered shaft wrench size 19.

PE 100 SDR 11
Maximum working pressure 16 bar (water)


d	d ₂	Order Ref.	Stock-status	BX	PU	H	L	Weight kg/each
90	80	616293	1	1	8	450	720	13.900
110	80	616294	1	1	8	450	720	14.200
125	80	616295	1	1	8	450	720	14.500
160	80	616296	1	1	2	608	1010	37.900
180	80	616297	1	1	2	608	1030	39.000
200	80	616453 ① ②	3	1	2	608	1030	44.600
225	80	616298 ①	1	1	2	608	1030	45.500
250	80	616438 ① ②	3	1	2	608	1030	46.000

① limited passage corresponds to dim. d 180

② minimum order quantity = 1 palette unit

FBS
Installation kits FBS for FRIALOC® PE shut-off valves with KlickFix® system.


To operate the FRIALOC PE shut-off valve from the surface box. Optimally matched, can be individually extended to the required covering height. With KlickFix coupler for easy installation. Made of galvanised steel or stainless steel.

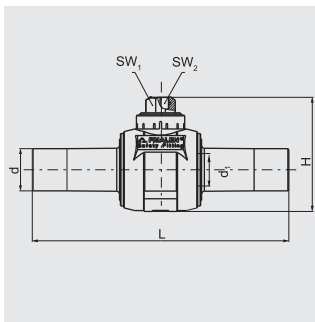
bars of hot zinc dipped steel

RD in m	Order Ref.	Stock-status	BX	PU	SW ₁	Weight kg/each
0,75 - 1,0	616308	1	1	42	30	2.500
0,9 - 1,3	616309	1	1	42	30	2.950
1,2 - 1,8	616310	1	1	42	30	3.850
1,5 - 2,3	616318	1	1	42	30	4.400

bars of stainless steel

RD in m	Order Ref.	Stock-status	BX	PU	SW ₁	Weight kg/each
0,75 - 1,0	616315	3	1	42	30	2.400
0,9 - 1,3	616316	1	1	42	30	2.800
1,2 - 1,8	616317	1	1	42	30	3.450
1,5 - 2,3	616319	3	1	42	30	4.150
2,4 - 3,5	616326	3	1		30	6.350

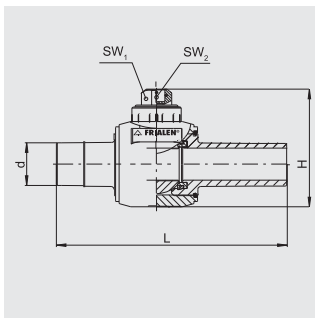
Please note: For FRIALOC from d 160 RD - 0.1 m.

KHP**Ball Valves, 1/4-Turn**

Compact ball valve in HD-PE with spigots for use with FRIALEN-couplers MB or UB. No corrosion proofing required. Open and closed position with definite stop. Maintenance free ball valve, operated by a rod (e.g. FRIALEN-BS).
Passage in shut-off part d_i .

PE 100 SDR 11**Maximum working pressure 16 bar (water)/10 bar (gas)**

d	d ₁	Order Ref.	Stock-status	BX	PU	H	L	SW ₁	SW ₂	Weight kg/each
32	24	612490	1	1	170	136	310	50 x 50	20	0.650
40	24	612497	1	1	170	136	310	50 x 50	20	0.700
50	24	612492	1	1	170	136	310	50 x 50	20	0.750
63	43	612494	1	1	50	193	410	50 x 50	25	2.380
90	67	612495	1	1	24	241	553	50 x 50	25	4.700
110	67	612493	1	1	24	241	553	50 x 50	25	5.100
125	67	612496	1	1	24	241	553	50 x 50	25	5.400
160	98	612483	1	1	8	332	539	50 x 50	25	12.800
180	98	615309	1	1	8	332	539	50 x 50	25	13.100
200	98	612480	3	1	8	332	539	50 x 50	25	14.100
225	98	616186	1	1	8	332	530	50 x 50	25	15.000

KH**Ball Valves made from HD-PE, 1/4-Turn, full port passage**

Compact ball valve made from HD-PE with spigots for processing with FRIALEN MB or UB couplers. Full port valve passage in line with internal diameter of pipe socket. No corrosion prevention measures necessary. Open and closed position at defined stop. Maintenance free shut-off valve activated by a rod (e.g. FRIALEN BS).

PE 100 SDR 11**Maximum working pressure 10 bar (gas)**

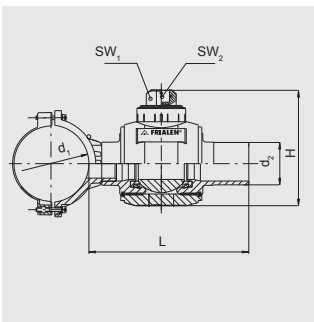
d	Order Ref.	Stock-status	BX	PU	d _i	H	L	SW ₁	SW ₂	Weight kg/each
20	616470	1	1	170	24	138	310	50 x 50	20	0.500
25	616471	1	1	170	24	138	310	50 x 50	20	0.550
32	616176	1	1	100	34	156	324	50 x 50	20	0.770
40	616177	1	1	100	34	156	324	50 x 50	20	0.800
50	616178	1	1	50	43	193	405	50 x 50	25	2.240
63	616179	1	1	50	51	206	410	50 x 50	25	2.420
90	616180	1	1	18	98	288	577	50 x 50	25	6.600
110	616181	1	1	18	98	288	577	50 x 50	25	6.750
125	616182	1	1	18	99	288	577	50 x 50	25	6.900

PE 100 SDR 11**Maximum working pressure 16 bar (water)**

	d	Order Ref.	Stock-status	BX	PU	d _i	H	L	SW ₁	SW ₂	Weight kg/each
NEW	32	616656	1	1	100	34	156	324	50 x 50	20	0.770
NEW	40	616657	1	1	100	34	156	324	50 x 50	20	0.800
NEW	50	616658	1	1	50	43	193	405	50 x 50	25	2.240
NEW	63	616659	1	1	50	51	206	410	50 x 50	25	2.420

AKHP

Tapping Ball Valves in HD-PE, 1/4 turn, for side tapping under pressure



Compact tapping ball valve in HD-PE. Factory made combination of FRIALEN-Saddle Moulding and FRIALEN-Ball Valve with spigot for space and cost saving horizontal installation especially for integration of branches into mains under operating pressure. Leakage and swarf free tapping up to 10 bar (gas) and 16 bar (water) using standard tapping equipment (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)). With exposed heating element for optimal heat transfer.

FRIALEN®

PE 100 SDR 11

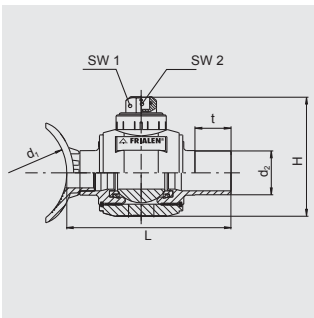
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	H	L	SW ₁	SW ₂	Weight kg/each
110	63	615427	1	6	48	42	180	330	50 x 50	25	3.070
110	90	615428	1	4	32	60	240	335	50 x 50	25	4.670
125	90	615431	1	4	32	60	240	335	50 x 50	25	4.790
160	63	615433	1	4	32	42	180	330	50 x 50	25	3.300
160	90	615434	1	4	32	60	240	335	50 x 50	25	5.000
180	90	615437	1	4	32	60	240	335	50 x 50	25	5.000
225	63	615439	3	4	32	42	180	330	50 x 50	25	5.000
225	90	615440	1	4	32	60	240	335	50 x 50	25	5.000

AKHP TL

Tapping Ball Valves in HD-PE, 1/4 turn, Top-Loading for side tapping under pressure



Suitable for all pipe diameters in the given range by means of the FRIALEN FRIATOP Clamping Unit (see Product Range FRIATOOLS). Compact tapping ball valve in HD-PE. Factory made combination of FRIALEN-Saddle Moulding and FRIALEN-Ball Valve with spigot for space and cost saving horizontal installation especially for integration of branches into mains under operating pressure. Leakage and swarf free tapping up to 10 bar (gas) and 16 bar (water) using standard tapping equipment (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)). With exposed heating element for optimal heat transfer. Please note the maximum permissible wall thickness for tapping.

If required, please contact the manufacturer of the tapping equipment.

PE 100 SDR 11

Maximum working pressure 16 bar (water)/10 bar (gas)

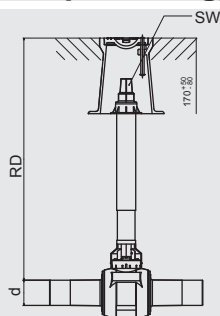


d ₁	d ₂	Order Ref.	Stock-status	BX	PU	Drilling Ø d _a	H	L	SW ₁	SW ₂	Weight kg/each
250-450 (560)	63	615525①	3	4	32	42	180	330	50 x 50	25	2.770
250-450 (560)	90	615526①	1	4	32	60	240	335	50 x 50	25	4.470

- ① d1: d 250 up to d 450 for pipes SDR 11 and 17;
d1: > d 450 up to d 560 for pipes SDR 17

BS

Installation kits for Ball Valves and Tapping Ball Valves (Standard and Top-Loading)



Telescopic actuating rod for operation of the FRIALEN-KHP, KH, AKHP and AKHP-TL from the valve cover. Stepless adjustment in the stated range (RD) without the use of tools, even in the installed state. Self supporting in any extended position. Corrosion proof. Wrench size 14 specially designed for domestic connection.

d	RD in m	Order Ref.	Stock-status	BX	PU	SW _i	Weight kg/each
20-50	0,45-0,70	615741	1	1	42	30	1.800
20-50	0,60-1,00	615957	1	1	42	14	2.700
20-50	0,60-1,00	615328	1	1	42	30	2.000
20-50	1,00-1,50	616466	1	1	42	14	3.400
20-50	1,00-1,50	615330	1	1	42	30	3.400
20-50	1,20-2,00	616068	1	1	42	14	3.450
20-50	1,20-2,00	615329	1	1	42	30	3.650
63-225	0,60-1,00	615958	1	1	42	14	2.050
63-225	0,60-1,00	615310	1	1	42	30	3.050
63-225	1,00-1,50	616467	1	1	42	14	4.150
63-225	1,00-1,50	615331	1	1	42	30	4.150
63-225	1,20-2,00	616069	1	1	42	14	3.600
63-225	1,20-2,00	615311	1	1	42	30	5.250



FRIAFIT®
SEWAGE SYSTEM

Things worth knowing about FRIAFIT® Sewage System and this Product Range

Contents

The following pages present a list of keywords that are to help you find your way through our range to the products you are looking for.

Stocked status

Please note when planning your material requirements:

- Articles with stocked status 1 are generally available from stock.
- Articles with stocked status 3 are custom products and therefore have a delivery time of 3–4 weeks. These articles cannot be returned or exchanged.

Packaging and pallet units

Packaging (BX) and pallet units (PU) are given on the price list. Orders for complete BXs/PUs simplify your incoming goods and warehousing processes. In addition, they promote fast order picking and delivery at our locations. The price list shows that the units we have chosen are fair and practicable.

Returns

We must first approve all returns of goods before they are entered as credit items. Please inform us of your wish to return goods. Following approval, we shall send you a return slip bearing a unique number. Your return cannot be processed without this number. Our quality management requires in addition that the goods fulfil certain criteria. If you wish, we shall be pleased to send you details under separate cover. If the goods fulfil the criteria and the return has been approved, a credit entry is made with a 28% deduction for the examination costs.

Inspection test certificates

We charge a processing fee of €15.00/item for inspection test certificates as set down under DIN EN 10204 – 3.1. The inspection test certificate must be included in the order, and cannot be issued at a later date.

Quality

FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, and our FRIATOOLS technical equipment are subjected to continuous quality control and strict testing regulations that form part of our extensive quality management system certified under DIN EN ISO 9001:2008.

FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, and our FRIATOOLS technical equipment are all matched to each other. All modifications and supplements arising from our continued developments are treated accordingly. Our continuous quality control extends to FRIALEN safety fittings, FRIALEN XL large pipe technique, the FRIAFIT sewage system, our FRIATOOLS technical equipment, and the quality of fusion joins as a result of these components' interactions. The operation and functional reliability of equipment provided by other manufacturers (third party equipment) are not subjected to our specifications and control procedures. When installing pipe systems, please proceed in accordance with the fitting instruction manuals and equipment operating instructions.

Norm Conformity

The FRIAFIT sewage system of PE 100 complies with EN 12666 and hence is deemed a regulated construction product. It therefore does not need general approval from the building authorities. A certificate of conformity issued by DIBt® of Berlin has been submitted.

The FRIAFIT connecting spigot ASA MULTI has been granted general approval from the building authorities. The approval certificate can be found at www.friafit.de in the download area.

Moreover, FRIAFIT couplers AM SDR17 comply with the requirements under EN 12201 and ISO 4427.

FRIAFIT couplers AM SDR17 have been certified under DVGW GW 335-B2 (certificates DV-8606BO6114 and DV-8611BO6115) and are subjected to regular monitoring by external agencies.



Fusability

FRIAFIT safety fittings can be fused.

- Generally to SDR33–SDR11 pipes
- FRIAFIT couplers AM and sewage elbows ABM/ABMS to SDR33–SDR17 pipes

Please also note the details for each of the fusable SDR sizes given on the fitting's barcode label as well as all other binding codes affixed directly to the product.

Please consult our application engineering department before processing thin walled pipes > SDR33.

FRIAFIT safety fittings can be processed with pipes of PE 100 and PE 100RC, PE 80 under EN 12666, DIN 8074/75, EN 1555-2, EN 12201-2, ISO 4437, and ISO 4427, PE-Xa under DIN 16892/93. For PE pipes, the melt flow rate 190/5 is 0.2–1.7 g / 10 min.

Components with an MFR < 0.20 require confirmation of suitability. FRIAFIT safety fittings can be processed with FRIAMAT fusion units at ambient temperatures from -10 °C to +45 °C.

Material transition fusions must comply in addition with the standards and assembly guidelines specific to these materials or this system.

On restrictions in certain cases affecting the installation and processing of FRIAFIT safety fittings in general, please read our assembly instructions. Also our inhouse customer advisers will be pleased to answer any questions you may have.

Pressure bearing capacity

The FRIAFIT sewage system is designed for unpressurised pipes (open conduits). Under DIN EN 1610, the maximum test pressure is 0.5 bar.

FRIAFIT couplers AM SDR17 are also approved for use in drinking water and PN 10 pressurised pipe systems.

FRIAFIT sewage elbows ABM/ABMS and the sewage saddles ASA-TL and ASA-VL are designed for pressurised pipe systems under a constant operating pressure of max 2.5 bar.

Details on pressure bearing capacities can be found in the product descriptions.

Things worth knowing about FRIAFIT® Sewage System and this Product Range

Fusion process

FRIAFIT safety fittings can be processed with universal fusion units, e.g. the FRIAMAT series. The fusion parameters are transferred automatically from the fitting's barcode.

FRIAFIT safety fittings can also be processed with fusion units delivering a fixed output voltage of 39.5 V following the manual entry of the fusion time. The fusion parameters entered manually require the fusion time on the barcode.

PLEASE NOTE! Fixed voltage fusion units can be used to process our products at ambient temperatures of -5 °C to +35 °C.

The fusion time given on the fitting's barcode applies to the whole temperature range.

The list of suitable components can be found on our website. Simply enter the webcode ft10001 in the search field.

Statics

The static calculations on the HDPE sewer pipe must take into account the ambient conditions in each and every case provided by the pipe manufacturer or engineering office.

In all cases, the annular rigidity of the pipe join fused with FRIAFIT couplers is greater than the annular rigidity of the inserted pipe.

Cooling times

FRIAFIT couplers, sewage insert couplers, sewage elbows ABM/ABMS, and transition fittings:

The cooling times (CT) given on the barcodes specify the times until the fused join can be moved.

FRIAFIT sewage saddle and transition saddle:

The cooling time given on the saddle's barcode specifies the time until the tap.

Further details can be taken from our assembly instructions.

Processing

Processing is described in our assembly instructions, which is also available for download on the internet at www.friafit.com. This address also provides further details on the products and their processing, approvals, publications, seminar dates, and contacts.

Technical details

The technical details presented on this price list are incomplete. Details can be taken from our data sheets that are also available in the download section at www.friatec.com. Technical instructions for processing and use may be delivered with the product and, in this case, must be observed without fail.

Up-to-dateness / technical progress

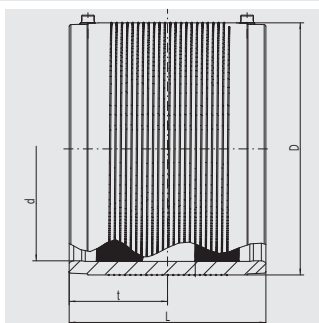
All details were up to date at the time of printing. Changes serving the advancement of our technologies may be made without prior announcement. We accept no liability for printing errors.

Brand names

For easier reading, this price list dispenses with the symbols® and™ in continuous text. The following trademarks are registered: FRIALEN®, FRIAFIT®, FRIAGRIP®, FRIATOOLS®, Philmac®, MAGNUM 3G®, FRIALOC®, FRIAMAT®, Sentry GS®, BAIO®, Rilsan®, and Gas-Stop™.

Contents

Article	Brief Description	Page
FRIAFIT BASIC PROGRAMM		
Couplers SDR 17	AM	57
Sewage insert sleeve	AEM	58
Sewage inspection chamber adapter	ASF	58
Sewage inspection chamber adapter for masoned canals L = 250 mm	ASFL	59
Sewage saddle top loading	ASA TL	59
Transition saddle top loading	ASA TL KG	60
Sewage Saddle Vacuum-Loading	ASA VL	60
Connecting Spigot to clay and concrete pipes	ASA MULTI	61
Assembly key	ASA MULTI MS	61
Sewage bends (coupler/coupler)	ABM	61
Sewage bends (coupler/pipe spigot)	ABMS	62
Transition coupler PE - PVC/PP	AMKG	62
Transition piece PE – PVC/PP	UKG	62
Transition piece PE - stoneware	USTZ	63
FRIAFIT ADDITIONAL FITTING		
Sewage bends 15° (spigot fittings)	ABS 15	63
Sewage bends 30° (spigot fittings)	ABS 30	63
Sewage bends 45° (spigot fittings)	ABS 45	64
Sewage bends 60° (spigot fittings)	ABS 60	64
Sewage bends 90° (spigot fittings)	ABS 90	65
Equal branch 45° (spigot fittings)	ATS 45	65
Unequal branch 45° (spigot fittings)	ATSR 45	66
Unequal branch 60° (spigot fittings)	ATSR 60	66
Sewage end cap (spigot fittings)	AES	67
Reducers excentric (spigot fittings)	RES	67



For the jointing of HD-PE pipes in non-pressure and pressure systems for sewerage, wastewater or drinking water pipes. With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material for use without holding devices. With pin indicator for visually checking fusion.

PE 100 SDR 17

Maximum working pressure 10 bar (water, sewage)

d	Order Ref.	Stock-status	BX	PU	D	L	t	Weight kg/each
110	680001	1	24	192	130	160	80	0.600
125	680013	1	22	176	146	160	80	0.650
160	680002	1	12	96	184	180	90	1.100
180	680003	1	8	64	207	180	90	1.450
200	680004	1	1	75	236	180	90	2.070
225	680005	1	1	52	263	200	100	2.723
250	680006	1	1	44	282	220	110	2.200
280	680007	1	1	32	316	220	110	3.800
315	680008	1	1	24	355	220	110	4.750
355	680009	1	1	24	400	220	110	5.900
400	680010	1	1	12	450	220	110	7.300
450	680011	1	1	6	506	270	135	11.200
500	680012 ①	1	1	3	562	270	135	14.450
560	680018 ①②	1	1	2	630	380	190	24.350
630	680019 ①②	1	1	2	710	420	210	35.000
710	680021 ①②	1	1	2	800	420	210	48.600
800	680022 ①②	1	1	1	900	500	250	65.900
900	680023 ①②	1	1	1	1024	500	250	91.500

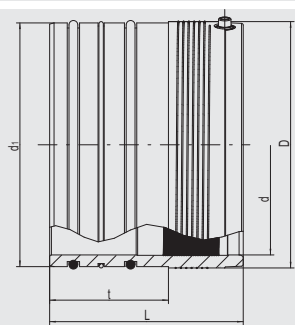
① separate fusion zones.

② with pre-heating barcode for compensation of a larger annular gap.

For couplers PE 100 SDR 17 in the dimensions d 315 - d 1200 please see FRIALEN UB SDR 17.

AEM

Sewage insert sleeve



For flexible integration of HD-PE pipes in concrete inspection manholes per DIN V 4034 and ATV-DVWK-A 157 in conjunction with the FRIAFIT adapter ASF/ASFL. Connection side to ASF/ASFL has 2 elastomer sealing rings as sealant joint and for optimal press fit. For extra safety, the water absorbent Q sealing ring is included. The jointing side to the HD-PE pipe has exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end to prevent the flow of molten material, for use without holding devices.

Also available with sealing material NBR: Stock status 3

PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

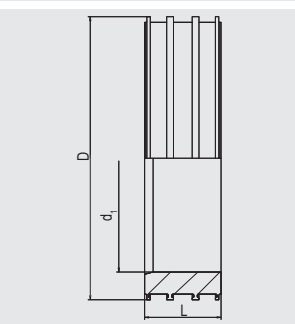
d	d ₁	Order Ref.	Stock-status	BX	PU	D	L	t	Weight kg/each
110	131	680201	1	8	144	133	165	135	0.700
160	187	680202	1	8	64	193	225	135	1.900
180	215	680203	1	1	54	225	220	135	3.100
200	247	680204	1	1	56	250	220	135	3.500
225	277	680205	1	1	32	280	220	135	4.600
250	277	680206	1	1	32	280	220	135	2.500
280	313	680207	1	1	32	315	220	135	3.600
315	354	680208	1	1	24	355	220	135	4.350
355	399	680209	1	1	20	400	220	135	5.800
400	449	680210	1	1	12	450	220	135	8.300
450	499	680211	1	1	8	500	220	135	8.900
500	559	680214	1	1	8	562	220	135	11.050
560	624	680212 ^②	1	1	4	630	220	135	13.400
630	709	680213 ^{①②}	1	1	3	710	270	135	22.400

① for HD PE pipes SDR 17 - 33

② with pre-heating barcode for compensation of a larger annular gap

ASF

Sewage inspection chamber adapter



Connecting element between precast concrete manhole and the FRIAFIT sewage insert sleeve AEM. Relieved anchoring webs (T section) around the entire width for a secure seat in the concrete. Defined inner surface for reliable system seal with AEM. Stable inside diameter due to large wall thickness. Flush connection (inside and outside) at bottom of concrete manhole (DIN V 4034).

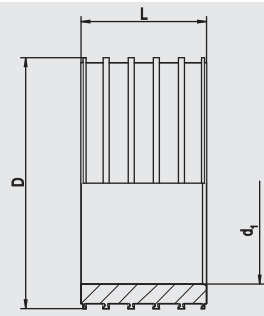
PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

Ø Pipe	d ₁	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
110	134	680401	1	12	96	200	135	1.600
160	190	680402	1	8	64	250	135	1.900
180	218	680403	1	6	48	280	135	2.300
200	250	680404	1	4	32	315	135	2.700
225	280	680405	1	4	32	355	135	3.700
250	280	680406	1	4	32	355	135	4.000
280	316	680407	1	4	32	400	135	4.800
315	357	680408	1	1	18	450	135	6.200
355	402	680409	1	1	18	500	135	7.400
400	452	680410	1	1	12	560	135	9.300
450	502	680411	1	2	8	630	135	12.700
500	562	680414	1	3	6	670	135	11.300
560	628	680412	1	3	6	710	135	8.800
630	713	680413	1	1	6	800	135	10.700

ASFL

Sewage inspection chamber adapter for masoned canals L = 250 mm



Connecting element between masonry manhole and the FRIAFIT sewage insert sleeve AEM. Relieved anchoring webs (T section) around the entire width for firm and secure fit in manhole with retrospective installation. Defined inner surface for reliable system seal with AEM. Stable inside diameter due to large wall thickness.

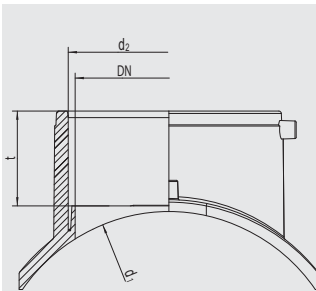
PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

Ø Pipe	d ₁	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
160	190	680502	1	2	36	250	250	2.900
225	280	680505	1	2	16	355	250	4.670
280	316	680507	1	2	16	400	250	6.650
315	357	680508	1	1	12	450	250	8.750
355	402	680509	1	1	6	500	250	11.050
450	502	680511	1	1	4	630	250	23.400
560	628	680512	1	1	2	710	250	16.400
630	713	680513	1	1	2	800	250	20.300

ASA TL

Sewage saddle top loading



The FRIAFIT sewage saddle ASA-TL is a compact component consisting of a fusion saddle with an integral fusion coupler at its outlet (d 160). The FRIAFIT sewage saddle can be used to join sewer pipes to an existing main sewer system made of HD-PE. With exposed heating element for optimal heat transfer. Tapping area free of heating wires. The FRIAFIT sewage saddle is fixed onto the pipe using the FWFIT clamping and drilling unit, and tapping takes place after the specified cooling time.

When processing d 200 with pipes SDR 11 - 33 and d 225 - d 315 with pipes SDR 26 - 33 please take care of special assembly instructions.

PE 100

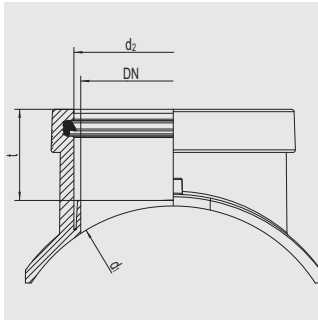
Maximum operating pressure 2,5 bar

d ₁	d ₂	DN	Order Ref.	Stock-status	BX	PU	t	Weight kg/each
200	160	150	682618	1	8	64	76	1.000
225	160	150	682613	1	8	64	76	1.050
250	160	150	682619	1	10	80	76	0.990
280	160	150	682614	1	10	80	76	0.990
315	160	150	682615	1	10	80	76	0.990
355	160	150	682620	1	10	80	76	0.990
400	160	150	682621	1	10	80	76	0.890
450	160	150	682616	1	10	80	76	1.020
500/560/630	160	150	682622	1	10	80	76	1.020

For the assembly on Close-Fit-Inliner and d 560 and d 630 please contact our hotline +49 621/486-1896.

ASA TL KG

Transition saddle top loading



The FRIAFIT transition saddle ASA-TL/KG is a compact component consisting of a fusion saddle with an integral fusion coupler at its outlet (d 160). The FRIAFIT transition saddle is used to connect PVC/PP DN 150 sewer pipes to an existing HD-PE main sewer. With exposed heating element for optimal heat transfer. Tapping area free of heating wires. The FRIAFIT transition saddle is fixed onto the pipe using the FWFIT clamping and drilling unit and tapping takes place after the specified cooling time.

When processing d 225 - d 315 with pipes SDR 26 - 33 please take care of special assembly instructions.

PE 100

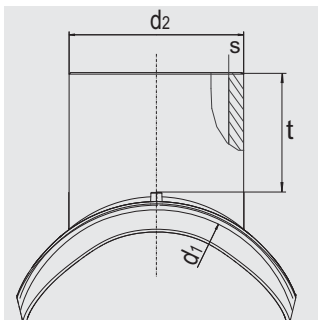
Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d ₁	d ₂	DN	Order Ref.	Stock-status	BX	PU	t	Weight kg/each
225	160	150	682624	1	8	64	76	1.192
280	160	150	682625	1	10	80	76	1.106
315	160	150	682626	1	10	80	76	1.106
355	160	150	682627	1	10	80	76	1.106
450	160	150	682628	1	10	80	76	1.136
500/560/630	160	150	682629	1	10	80	76	1.136

For the assembly on Close-Fit-Inliner and d 560 and d 630 please contact our hotline +49 621/486-1896.

ASA VL

Sewage Saddle Vacuum-Loading



For jointing of large branches at HD-PE main pipes with less effort, minimal underground work and without interrupting the operation. HD-PE saddles with exposed heating element for optimal heat transfer. Outlet spigot d 225 for use with FRIAFIT-Coupler AM or transition coupler AMKG d225 on PVC/PP DN 200. Innovative vacuum clamping unit for safe bridging of even large pipe out-of-roundnesses and pipe shape deviations.

Installation with clamping unit VACUSET XL.
Flush tapping with drilling equipment FWAB ASA

PE 100

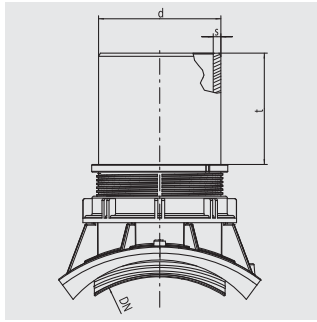
Maximum working pressure 2,5 bar

d ₁	d ₂	Order Ref.	Stock-status	BX	PU	t	s	Weight kg/each
355	225	682640	1	1	4	144	13,4	3.080
450	225	682641	1	1	6	144	13,4	2.900
560	225	682642	1	1	6	144	13,4	3.065
630	225	682643	1	1	6	144	13,4	3.080

Cross-dimensional processing

ASA MULTI

Connecting Spigot to clay and concrete pipes



For the connection of fused HD-PE service pipes or side branches to clay or concrete mains. For new installations as well as rehabilitation - without separating or completely exposing the main sewer. The outlet spigot d 160 offers a levelled passage when using pipes SDR17/17.6. Its bright inner surface facilitates an optimal view during camera inspection. Fusible with FRIAFIT coupler AM or FRIAFIT bends ABM/ABMS.

For the assembly of the FRIAFIT connecting spigot the assembly key ASA-MULTI-MS is required



PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	DN	Order Ref.	Stock-status	BX	PU	H	t	s	Weight kg/each
160	250	682650 ①	1	5	40	250	146	9,5	2.700
160	250/300	682651 ②③	1	5	40	250	146	9,5	2.800
160	300/350	682651 ②③	1	5	40	250	146	9,5	2.800

① Suitable for connection to clay pipes DN 250 N and DN 250 H (standard and high-performance series EN 295)

② Suitable for connection to concrete pipes DN 250/DN 300 (EN1916)

③ Suitable for connection to clay pipes DN 300/350 N and DN 300/DN 350 H (standard and high-performance series EN 295)

ASA MULTI MS

Assembly key



For the safe and quick installation of the FRIAFIT connecting spigot ASA-MULTI.

Order Ref.

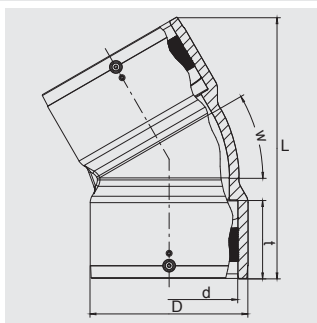
682660

Stock-status

1

ABM

Sewage bends (coupler/coupler)



Little space required thanks to compact design as well as angle spacings of 15°, 30°, 45° facilitate a comfortable pipeline routing. Fusion couplers integrated on both ends to reduce the assembly time with exposed heating coils for an optimal heat transfer. The smooth, hydraulically optimised internal contour offers a level passage when pipes SDR 17/17.6 are used. The bright surface facilitates an optimal view during camera inspection. With pin indicator for visually checking fusion

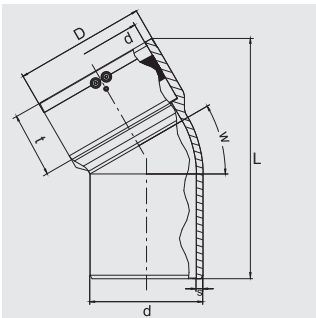
PE 100

Maximum working pressure 2,5 bar

d	w	Order Ref.	Stock-status	BX	PU	D	L	t	Weight kg/each
160	15°	681100	1	6	48	185	279	92	1.870
160	30°	681101	1	6	48	185	306	92	2.100
160	45°	681102	1	6	48	185	320	92	2.060

ABMS

Sewage bends (coupler/pipe spigot)



Little space required thanks to compact design as well as angle spacings of 15°, 30°, 45° facilitate a comfortable pipeline routing. Coupler end with exposed heating coil for optimal heat transfer. Pipe spigots specifically suited for direct fusion into the FRIAFIT sewage saddle ASA-TL. Angles of 60°, 90° etc. can be produced by using ABM repeatedly. The smooth, hydraulically optimised internal contour offers a level passage when pipes SDR 17/17.6 are used. The bright surface facilitates an optimal view during camera inspection. With pin indicator for visually checking fusion.

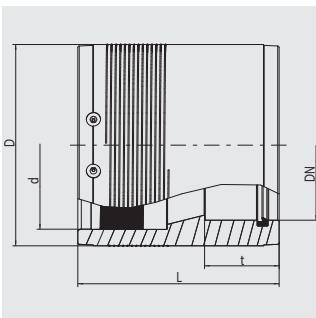
PE 100

Maximum working pressure 2,5 bar

d	w	Order Ref.	Stock-status	BX	PU	D	L	t	s	Weight kg/each
160	15°	681103	1	6	48	185	286	92	9,5	1.510
160	30°	681104	1	6	48	185	329	92	9,5	1.680
160	45°	681105	1	6	48	185	325	92	9,5	1.730

AMKG

Transition coupler PE - PVC/PP



Smooth material transition of HD-PE pipes (SDR 33 - SDR 17) to PVC/PP pipes in house service connections. HD-PE end with integrated coupler. PVC/PP end as slip-on coupler with SBR lip seal and a large insertion depth.

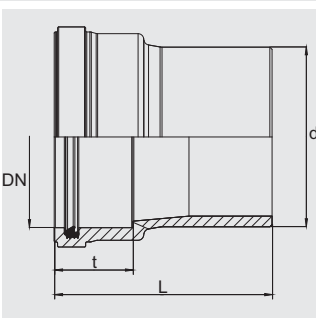
PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d/DN	Order Ref.	Stock-status	BX	PU	D	L	t	Weight kg/each
160/150	682630	1	1	120	193	183.5	80	1.780
225/200	682631	1	1	32	270	270	100	5.820

UKG

Transition piece PE – PVC/PP



Smooth material transition in domestic range between HD-PE pipes (SDR 33 - SDR 17) and PVC/PP pipes. HD-PE side can be fused with FRIAFIT AM sewage coupler, bends ABM/ABMS or with the outlet of the FRIAFIT ASA-TL sewage saddle. PVC/PP side as socket coupler with SBR lip seal gasket and large insertion depth.

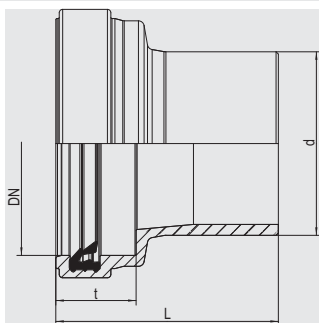
PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d/DN	Order Ref.	Stock-status	BX	PU	L	t	Weight kg/each
160/150	682617	1	12	96	194	70	1.070

USTZ

Transition piece PE - stoneware



Smooth material transition in domestic range between HD-PE pipes (SDR 33 - SDR 17) and stoneware pipes (spigot ends). HD-PE side can be fused with FRIAFIT AM sewage coupler, ABM/ABMS bends, or with the outlet of the FRIAFIT ASA-TL sewage saddle. Stoneware side as socket coupler with SBR lip seal gasket and large insertion depth.

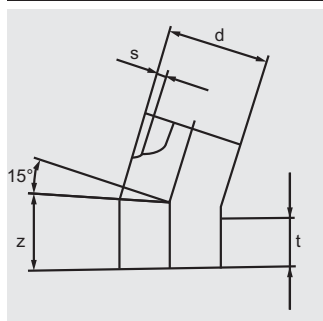
PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d/DN	Order Ref.	Stock-status	BX	PU	L	t	Weight kg/each
160/150	682623	1	2	36	194	70	1.250

ABS 15

Sewage bends 15° (spigot fittings)



HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

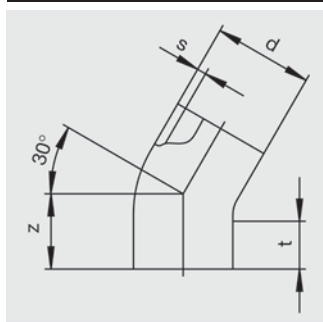
PE 80/PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	Z	t	s	Weight kg/each
110	681004	3	1	230	170	6,6	1.050
125	681005	3	1	250	170	7,4	1.450
160	681006	3	1	280	170	9,1	2.780
180	681007	3	1	315	250	10,2	3.770
225	681008	3	1	370	250	12,8	6.870

ABS 30

Sewage bends 30° (spigot fittings)



HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

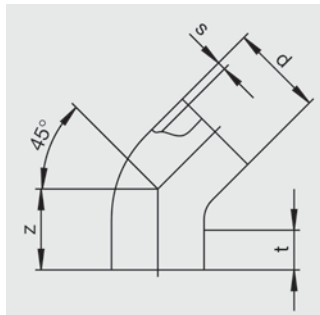
PE 80/PE 100

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	Z	t	s	Weight kg/each
110	681009	3	1	230	170	6,6	1.050
125	681010	3	1	250	170	7,4	1.450
160	681001	3	1	280	170	9,1	2.780
180	681002	3	1	317	250	10,2	3.770
225	681003	3	1	371	250	12,8	6.870
355	681019	3	1	520	300	20,1	22.100

ABS 45**Sewage bends 45° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

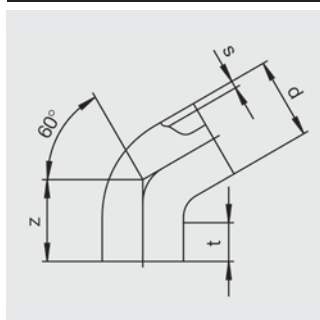
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	Z	t	s	Weight kg/each
110	681011	3	3	235	170	6,6	1.050
125	681012	3	3	250	170	7,4	1.450
160	681201	3	1	280	170	9,1	2.780
180	681202	3	1	320	250	10,2	3.770
200	681203	3	1	349	250	11,4	5.000
225	681204	3	1	380	250	12,8	6.870
250	681205	3	1	411	250	14,2	9.210
280	681206	3	1	448	300	15,9	12.500
315	681207	3	1	491	300	17,9	17.400
355	681208	3	1	541	300	20,1	24.300

ABS 60**Sewage bends 60° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

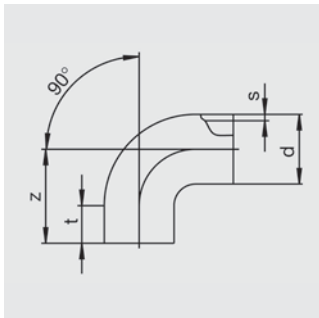
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	Z	t	s	Weight kg/each
160	681401	3	1	308	170	9,1	2.780
180	681402	3	1	334	250	10,2	3.770
225	681403	3	1	392	250	12,8	6.870

ABS 90**Sewage bends 90° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices

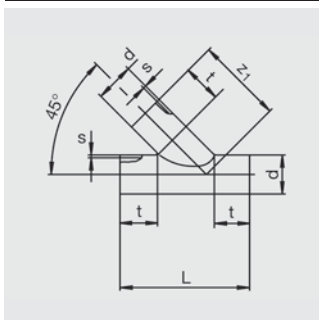
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	Z	t	s	Weight kg/each
160	681601	3	1	390	100	9,1	3.230
180	681602	3	1	420	150	10,2	4.370
225	681603	3	1	488	150	12,8	7.440

ATS 45**Equal branch 45° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

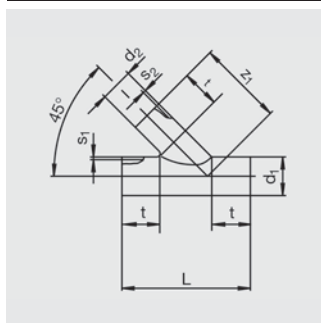
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d	Order Ref.	Stock-status	BX	L	t	s	z ₁	Weight kg/each
110	682001	3	1	510	170	6,6	340	1.700
125	681013	3	1	530	190	7,4	340	2.400
160	682002	3	1	600	150	9,1	450	4.100
180	682003	3	1	680	230	10,2	450	5.400
200	682004	3	1	750	260	11,4	490	8.000
225	682005	3	1	800	270	12,8	530	10.500
250	682006	3	1	940	330	14,2	610	15.100
280	682007	3	1	1000	350	15,9	650	19.700
315	682008	3	1	1100	400	17,9	700	28.800
355	682009	3	1	1280	430	20,1	850	38.300

ATSR 45**Unequal branch 45° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

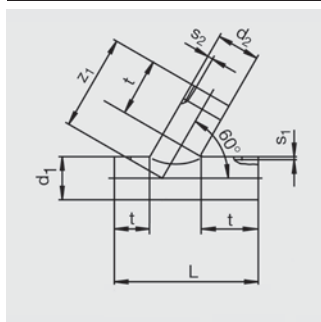
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d ₁	d ₂	Order Ref.	Stock-status	BX	L	t	z ₁	s ₁	s ₂	Weight kg/each
160	110	682201	3	1	471	150	263	9,1	6,6	2.700
225	160	682203	3	1	626	200	359	12,8	9,1	7.200
280	160	682204	3	1	626	200	398	15,9	9,1	10.400
280	225	682205	3	1	718	200	398	15,9	12,8	13.400
315	160	682206	3	1	626	200	423	17,9	9,1	12.800
315	225	682207	3	1	718	200	423	17,9	12,8	16.300
355	160	682208	3	1	626	200	451	20,1	9,1	15.900
355	225	682209	3	1	718	200	451	20,1	12,8	19.900
450	160	682210	3	1	666	220	538	26,7	9,5	26.000

ATSR 60**Unequal branch 60° (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

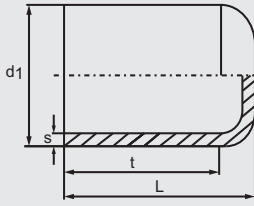
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d ₁	d ₂	Order Ref.	Stock-status	BX	L	t	z ₁	t ₁	s ₁	s ₂	Weight kg/each
160	110	682601	3	1	471	150	263	324	9,1	6,6	2.700
225	160	682603	3	1	626	200	359	426	12,8	9,1	7.200
280	160	682604	3	1	626	200	398	508	15,9	9,1	10.400
280	225	682605	3	1	718	200	398	527	15,9	12,8	13.400
315	160	682606	3	1	626	200	423	578	17,9	9,1	12.800
315	225	682607	3	1	718	200	423	597	17,9	12,8	16.300
355	160	682608	3	1	626	200	451	601	20,1	9,1	14.700
355	225	682609	3	1	718	200	451	620	20,1	12,8	19.900

AES**Sewage end cap (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

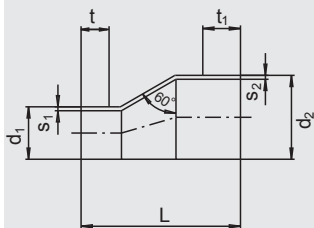
**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d_1	Order Ref.	Stock-status	BX	L	t	s	Weight kg/each
110	681014	3	1	115	85	6,6	0.366
125	681015	3	1	125	95	7,4	0.450
160	681016	3	1	140	105	9,5	0.850
225	681017	3	1	145	127	13,4	2.000

RES**Reducers excentric (spigot fittings)**

HD-PE fitting for use with FRIAFIT sewage sleeve AM without holding devices.

**PE 80/PE 100**

Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d_1	d_2	Order Ref.	Stock-status	BX	L	t	t_1	s_1	s_2	Weight kg/each
110	125	681018	3	1	264	85	85	6,6	7,4	1.000
110	160	681801	3	1	310	90	95	6,6	9,5	1.200
160	225	681802	3	1	404	100	150	9,5	13,4	2.530
225	280	681810	3	1	540	150	250	13,4	16,6	5.460



FRIATOOLS® TECHNICAL EQUIPMENT

The matching equipment and tools
for HD-PE pipe systems

Product Range EZ 30/17

Things worth knowing about FRIATOOLS® Technical Equipment and this Product Range

Returns

Goods returned for credit must comply with certain criteria under our Quality Management System. We shall be glad to inform you about this separately on request. If the goods meet the criteria and their return is approved by us in advance they will be credited less 25% inspection costs.

Update/Technical Progress

All specifications are valid as at time of going to print. The technical data of the FRIAMAT electrofusion units is based on ISO standard 12176-2. We reserve the right to implement changes which serve technical progress. We do not accept liability for printing mistakes.

FRIAMAT area of application

For electrofusion units the area of application is dependent from the power requirements of the fitting and the respective processing temperature. FRIAMAT prime and FRIAMAT basic can process FRIALIN XL fittings up to d 900, the FRIAMAT prime eco as well as FRIAMAT basic eco up to d 710 and the FRIAMAT XL up to d 1200. Observe the respective performance requirements and manufacturer's specifications when processing fittings from other manufacturers.

Contents

Article	Brief Description	Page
UNIVERSAL FUSION UNITS WITH TRACEABILITY AND DOCUMENTATION FUNCTION		
Universal fusion unit with traceability and documentation function	FRIAMAT prime	73
Universal fusion unit with traceability and documentation function	FRIAMAT prime eco	73
Large pipe fusion unit with traceability and documentation function	FRIAMAT XL	73
UNIVERSAL FUSION UNITS WITHOUT DOCUMENTATION FUNCTION		
Universal fusion unit without documentation function	FRIAMAT basic	73
Universal fusion unit without documentation function	FRIAMAT basic eco	74
UNIVERSAL FUSION UNIT WITH DOCUMENTATION FUNCTION		
Electrofusion unit with documentation function	FRIAMAT geo print	74
FUSION UNITS - ACCESSORIES		
Adapter for flat contacts	ADFL	77
Adapter for 4.7 mm socket contacts	ADBK	77
Aluminium transport boxes	ALTK FMT	76
Barcode scanner	SCAN	74
Socket contacts 4.0 mm	CONTACT4	77
NEW Remote Start Pass	FPASS	76
Database software FRIATRACE	FRIATRACE	75
Reader wand	FWLESST	75
Memory-Stick	MEMSTICK	75
NEW Mini barcode scanner	MINISCAN	74
FRIAMAT Parallel-USB-Adapter	PA USB	75
Fusion-Pass	SPASS	76
Supervisor-Pass	SUPER P	76
SCRAPER TOOLS AND SCRAPER TOOL ACCESSORIES		
Aluminium transport boxes	ALTK FWSG	82
Replacement blades for scraper tools	FWSGE	81
Large pipe scraper tool for pipes d 800 to d 1200	FWSG XL	79
Hand scraper	FWZ	82
FRIATEC maintenance spray	PFSP	81
Compact scraper tool for pipes and outlets d 32 - d 63	FWSG RA	77
Scraper tools for pipes d 20 – d 63	FWSG 63	78
Scraper tool for pipes d 75 – d 225	FWSG 225	78
Scraper tool for pipes d 250 – d 710	FWSG 710 L	78
Scraper tool for pipes d 250 – d 710 and spigot fittings	FWSG 710 S	79
Scraper tool for pipes d 630 - d 900	FWSG 900 L	79
Scraper tools for pipe ends and saddle areas d 63 – d 315	FWSG SE	80
Scraper tool set for pipes d 20 – d 225	FWSG 63/225	78
Hand scraper for large pipes	FWZ XL	82
OTHER TOOLS AND INSTALLATION AIDS		
Drilling equipment	FWAB	84
Clamping unit for Close-Fit-Inliner DN 200 - DN 500	ASATOP	84
Clamping and drilling unit for FRIAFIT-Sewage saddles (ASA-TL) and transition saddles (ASA-TL/KG)	FWFIT	84
Clamping unit (Top Loading)	FRIATOP	82
NEW Clamping unit for FRIALEN spigot saddles SA-UNI	UNITOP	83
NEW Vacuum pump for building site operation	VACUPUMP	83
Clamping unit (Vacuum)	VACUSET XL	83
Activating key for pressure tapping tees	FWSS	88
Activating key for pressure tapping tees with parallel dome	FWSR	88
Pressure test adapter	FWDPA	89
FRIALEN-/FRIAFIT-Marker (silver)	FWPM	88
Hydraulic squeeze-off tool	SQH	86
Hydraulic rounding clamps for pipes d 280 - d 900	FWXRH	87
Manual squeeze-off tool for pipes d 20 – d 125	SQM	86
Manual rounding clamps for pipes d 800 - d 1200	FWXRB	87
Manual rounding clamps for pipes d 63 - d 250	FWXR	87
Plunger for VACUSET XL clamping unit	PRESSKO	83

Contents

Article	Brief Description	Page
Repair set	RPS	85
Pipe cutter for d 20 – d 140	PCUT	87
Alignment clamp d 20 – d 63	CLAMP 63	85
Pipe shears for d 20 – d 63	PCUT S	88
Alignment clamp d 63 – d 180	CLAMP 180	85
Re-rounding clamps for reinstating round cross section of squeezed-off pipes d 63 – d 180	RRC	86

FRIAMAT prime

Universal fusion unit with traceability and documentation function



Powerful electrofusion unit with state-of-the-art converter technology and active cooling.

Graphical maxi display for very easy operator guidance. USB interface for data transfer via FRIATEC memory stick (included). Data output formatted in FRIATRACE database, as pdf- or as csv-document.

Supervisor pass for the individual setting of unit functions (e.g. locking of functions, defaults for forced processes etc.).

With reader wand or optional with scanner for barcode reading, adapter bag, entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) and extra-long fusion cable (5 m). Weight approx 12,8 kg.

This unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with reader wand	613103	1
with mini barcode scanner	611103	1
with barcode scanner	614103	3

FRIAMAT prime eco

Universal fusion unit with traceability and documentation function



Modern electrofusion unit with reader wand or optional with barcode scanner.

USB interface for data transfer via FRIATEC memory stick (included). Data output formatted in FRIATRACE database, as pdf- or as csv-document. With storage space for accessories, entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) and extra-long fusion cable (5 m). Weight approx 20,5 kg.

The unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with reader wand	613090	1
with mini barcode scanner	611090	1
with barcode scanner	614090	3

FRIAMAT XL

Large pipe fusion unit with traceability and documentation function



Extra powerful FRIAMAT XL electrofusion unit for the processing of the FRIALEN XL product range. Also universally usable for the entire FRIALEN and FRIAFIT range.

Graphical maxi display for easy operator guidance. USB interface for data transfer via FRIATEC memory stick (included). Data output formatted in FRIATRACE database, or as pdf-document. With scanner for barcode reading, accessories bag on the rear. Entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) with CEE connector 400 V. Extra-long fusion cable (4 m). Weight approx 50 kg.

The unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with barcode scanner	613091	3

FRIAMAT basic

Universal fusion unit without documentation function



Powerful electrofusion unit with state-of-the-art converter technology and active cooling.

With reader wand or optional with scanner for barcode reading, adapter bag, clear display for very easy operator guidance, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) and extra-long fusion cable (5 m). Weight approx 12,8 kg.

This unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with reader wand	613104	1
with mini barcode scanner	611104	1
with barcode scanner	614104	3

FRIAMAT basic eco

Universal fusion unit without documentation function



Modern electrofusion unit with reader wand or optional with barcode scanner.

With storage space for accessories, easy operator guidance, clear display, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) and extra-long fusion cable (5 m). Weight approx 20,5 kg.

This unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with reader wand	613092	1
with mini barcode scanner	611092	1
with barcode scanner	614092	3

FRIAMAT geo print

Electrofusion unit with documentation function



Modern electrofusion unit for dimensions up to d 75.

Data output possible via USB interfaces as pdf document. With reader wand, storage space for accessories, easy operator guidance, clear display, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (4 m) and extra-long fusion cable (5 m). Weight approx 15,5 kg.

This unit is delivered in a handy aluminium transport box.

Version	Order Ref.	Stock-status
with reader wand	613099	3

SCAN

Barcode scanner



FRIAMAT barcode scanner designed for rough use at construction sites. For a quick reading of fusion and traceability barcodes. With handy scanner bag for storage. Can be used for all current FRIAMAT electrofusion units in this product range, elderly units on request.

Order Ref.	Stock-status
624002	1

MINISCAN

Mini barcode scanner

NEW



Handy and robust FRIAMAT mini scanner for reliable reading of fusion and traceability barcodes. With handy scanner bag for storage. Can be used for all current FRIAMAT electrofusion units in this product range, elderly units on request.

Order Ref.	Stock-status
NEW 624005	1

FWLESST

Reader wand



FRIAMAT reader wand for reading of fusion- and traceability barcodes.
Can be used for all FRIAMAT electrofusion units.

Order Ref.

623645

Stock-
status

1

MEMSTICK

Memory-Stick



Memory-Stick for the storage of fusion data in FRIATRACE database, as pdf- or csv-data Transfer of fusion data from FRIAMAT electrofusion units (only documentation units) for processing to the PC.

Order Ref.

624023

Stock-
status

1

FRIATRACE

Database software FRIATRACE



Software for processing of fusion data including traceability data from FRIAMAT fusion units with traceability- and documentation function. Suitable for operating systems Windows 2000/ XP / Windows 7. With database function (all fusion data in one database) for individual evaluation, copying, sorting, searching, formatting, editing etc.

Available as:

- FRIATRACE database software consisting of FRIATRACE CD-Rom, connecting cable PC – fusion unit and programme description or
- FRIATRACE combi-package consisting of FRIATRACE CD-Rom, Memory-Stick and programme description.

Article
description

Order Ref.

Stock-
status

FRIATRACE database software

613280

1

FRIATRACE combi-package

624026

1

PA USB

FRIAMAT Parallel-USB-Adapter



For the connection of a printer with USB Type-B port to FRIAMAT fusion units, manufactured from 2000 with parallel interface. It allows direct printing of fusion data to a USB printer (GDI printers are not supported). The power is supplied via the included power supply. Adapters included.

Order Ref.

613263

Stock-
status

1

SUPER P

Supervisor-Pass



For individual adjustment of menu functions of FRIAMAT XL and FRIAMAT prime (e.g. blocking of functions, defaults for forced processes, etc.).

For ordering, please request a form.

Order Ref.	Stock-status
623101	3

SPASS

Fusion-Pass



Serves the identification of the welder and the protection of the FRIAMAT electrofusion units (only documentation units) against unauthorised access. The data stored in the fusion pass (welder number or welder's name) are transmitted to the fusion record.

For ordering, please request a form.

Order Ref.	Stock-status
623100	1

FPASS

Remote Start Pass



Additional equipment for starting all FRIAMAT Fusion Units.

Order Ref.	Stock-status
NEW 624003	1

ALTK FMT

Aluminium transport boxes



For transport and storage of FRIAMAT fusion units.
Transport boxes for older FRIAMAT types on request.

Version	Order Ref.	Stock-status
FRIAMAT prime / basic	627600	1
FRIAMAT prime eco / basic eco / geo print	627001	1
FRIAMAT XL	613302	1

CONTACT4

Socket contacts 4.0 mm



Socket contacts 4.0 mm.
Can be used for all FRIAMAT fusion units.

Order Ref.	Stock-status
624530	1

ADFL

Adapter for flat contacts



For sliding onto socket contacts of all FRIAMAT fusion units.

Order Ref.	Stock-status
613236	1

ADBK

Adapter for 4.7 mm socket contacts



For sliding onto socket contacts of all FRIAMAT fusion units.

Order Ref.	Stock-status
613237	1

FWSG RA

Compact scraper tool for pipes and outlets d 32 - d 63



Dimension-bound compact scraper tool for the reliable removal of the oxide layer of HD-PE and PE-Xa pipes and at the outlets of FRIALEN safety fittings. Super long scraping length, in the diameter d 32 also for FRIALONG long couplers. Scraper blade made of carbide with 2 edges (twice the service life). Automatic compensation of pipe out-of-roundness and tolerances. Manual operation, with hand crank or cordless screwdriver.

Article description	Dimension	SDR	Order Ref.	Stock-status
FWSG RA 32	d 32	SDR 11	613580	1
FWSG RA 40	d 40	SDR 11	613581	1
FWSG RA 50	d 50	SDR 11	613582	1
FWSG RA 63	d 63	SDR 11	613583	1
Hand crank	alle Dimensionen		613579	1
NEW	alle Dimensionen		613586	1

FWSG 63**Scraper tools for pipes d 20 – d 63**

For the reliable removal of the oxide layer of HD-PE and PE-Xa pipes. Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Inclusive of a replacement scraper blade.

The tool is delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613305	1

FWSG 225**Scraper tool for pipes d 75 – d 225**

For the reliable removal of the oxide layer of HD-PE and PE-Xa pipes. Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Inclusive of a replacement scraper blade and FRIATEC maintenance spray.

The tool is delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613311	1

FWSG 63/225**Scraper tool set for pipes d 20 – d 225**

For the reliable removal of the oxide layer of HD-PE and PE-Xa pipes. Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Inclusive of a replacement scraper blade for each tool and FRIATEC maintenance spray.

The tools are delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613316	1

FWSG 710 L**Scraper tool for pipes d 250 – d 710**

For the reliable removal of the oxide layer of HD-PE and PE-Xa pipes for half or entire coupler length. Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Inclusive of a replacement scraper blade and FRIATEC Maintenance Spray.

The tool is delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613642	1

FWSG 710 S**Scraper tool for pipes d 250 – d 710 and spigot fittings**

For the reliable removal of the oxide layer on spigot fittings. Additionally it is also possible to scrape HD-PE and PE-Xa-pipes (maximum along half length of couplers d 710). Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Includes replacement blade and FRIATEC Maintenance Spray.

The tool is delivered in a handy aluminium transport box.

Order Ref.

613639

Stock-
status

1

FWSG 900 L**Scraper tool for pipes d 630 - d 900**

For the reliable removal of the oxide layer of HD-PE pipes for half or entire coupler length. Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Includes replacement blade and FRIATEC maintenance spray.

The tool is delivered in a handy aluminium transport box.

Order Ref.

613644

Stock-
status

1

FWSG XL**Large pipe scraper tool for pipes d 800 to d 1200**

For the reliable removal of the oxide layer of large pipes made of HD-PE in the diameter range d 800 to d 1200, SDR11-SDR33. Modular design for easy handling and quick assembly. Diameter adjustment through quick setting. Center-supported drive via hand crank. Automatic compensation of pipe out-of-roundness and tolerances through spring-supported adjustable blade unit. Scraper blade designed as turning blade with 2 cutting edges (twice the service life).

Order Ref.

613645

Stock-
status

3



Dimension-bound scraper tool for the reliable removal of the oxide layer of HD-PE and PE-Xa pipe ends and in the saddle area. Scraper blade designed as turning blade with 2 blades (twice the service life). Easy clamping thanks to the open design of the scraper tool.

The tool is delivered in a handy aluminium transport box.

Article description	Dimension	Order Ref.	Stock-status
FWSG SE 63	d 63	613562	1
FWSG SE 75	d 75	613563	1
FWSG SE 90	d 90	613564	1
FWSG SE 110	d 110	613565	1
FWSG SE 125	d 125	613566	1
FWSG SE 140	d 140	613567	1
FWSG SE 160	d 160	613568	1
FWSG SE 180	d 180	613569	1
FWSG SE 200	d 200	613570	1
FWSG SE 225	d 225	613571	1
FWSG SE 250	d 250	613572	1
FWSG SE 280	d 280	613573	1
FWSG SE 315	d 315	613574	1

FWSGE

Replacement blades for scraper tools

Replacement blades made of carbide (long storage and service life).

(Fig. shows FWSGE 3)

Article description	Unit type	Marking	Order Ref.	Stock-status
FWSGE 3	FWSG 225	coloured red	613322 ①	1
FWSGE 4	FWSG 63	coloured green	613323 ①	1
FWSGE 5	FWSG 710 L/S / FWSG 900 L	coloured blue	613324 ①	1
FWSGE 6	FWSGS 110 / FWSGS 180		613325 ②	1

① consisting of 3 pieces replacement blades, 1 piece torx screw and 1 piece torx wrench.

② consisting of 1 pieces replacement blades, 2 piece torx screw and 1 piece torx wrench.

Replacement blade, designed as turning blade (twice the service life).

(Fig. shows FWSGE 8)

Article description	Unit type	Order Ref.	Stock-status
FWSGE 8	FWSG SE (all types)	613327 ①	1

① consisting of 1 piece replacement blade, 1 piece allen screw and 1 piece allen wrench.

Replacement blade, designed as turning blade (twice the service life).

(Fig. shows FWSGE 10)

Article description	Unit type	Order Ref.	Stock-status
FWSGE 10	FWSG RA 32 and 40	613329 ①	1
FWSGE 11	FWSG RA 50 and 63	613330 ①	1

① consisting of 1 piece replacement blade, 1 piece torx screw and 1 piece torx wrench.

Replacement blade and guide plate designed for large pipe processing; designed as turning blade and turning plate (twice the service life).

(Fig. shows FWSGE 12)

Article description	Unit type	Order Ref.	Stock-status
FWSGE 12	FWSG XL	613331 ①	1

① consisting of 1 piece replacement blade and guide plate, 2 pieces torx screws and 1 piece torx wrench.

PFSP

FRIATEC maintenance spray

For cleaning and caring for scraper tools. Content: 100 ml.

Please observe appropriate safety and application instructions on the agent container and on operating instructions included with scraper tools.

Order Ref.	Stock-status
613301	1

ALTK FWSG**Aluminium transport boxes**

For the transport and storage of scraper tools.

Unit type	Order Ref.	Stock-status
FWSG 63	613307	1
FWSG 225 and FWSG 63/225	613309	1
FWSG 710 S	613308	1
FWSG 710 L	613314	1
FWSG 900 L	613304	1
FWSG SE 63	613303	1
FWSG SE 75 - 140	613319	1
FWSG SE 160 - 225	613318	1
FWSG SE 250 - 315	613320	1

FWZ**Hand scraper**

To remove oxidic layer on HD-PE pipes or fittings which are unable to treat using appropriate scraper tools. Also suitable for deburring cut edges. Replacement blades: 5 pieces per package.

Article description	Order Ref.	Stock-status
Hand scraper	613300	1
Replacement blades	613270	1

FWZ XL**Hand scraper for large pipes**

For removing oxide layers on large HD-PE pipes which are unable to treat using appropriate scraper tools. Ideal for preparing surfaces for the processing of FRIALEN XL saddle fittings. Also suitable for deburring cut edges.

Article description	Order Ref.	Stock-status
Hand scraper for large pipes	613299	1

FRIATOP**Clamping unit (Top Loading)**

For the assembly of FRIALEN XL Top Loading saddle parts without lower clamp for all pipe diameters in the appropriate range of dimensions with extra elastic pneumatic spring system and for the optimum build-up of jointing pressure during fusion process.

Order Ref.	Stock-status
613350	1

UNITOP

Clamping unit for FRIALEN spigot saddles SA-UNI

NEW



For the assembly of FRIALEN spigot saddles SA-UNI d 250 – d 800 with outlet d 90, d 110, d 125 and d160.

The tool is delivered in a handy aluminum transport box.

For the processing of FRIALEN spigot saddles SA-UNI with UNITOP clamping unit but without using FRIAMAT fusion units ADWL angled fusion adapters for socket contacts 4,0 mm (Order Ref. 613241) may be required.

Article description	Order Ref.	Stock-status
NEW UNITOP clamping unit	613385	1
NEW ADWL angled adapters for socket contacts 4,0 mm	613241	1

VACUPUMP

Vacuum pump for building site operation

NEW



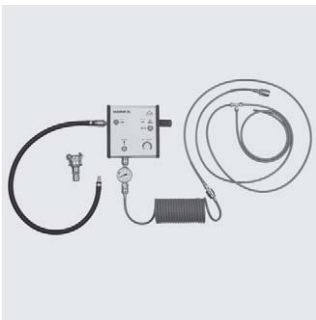
For the assembly of FRIALEN XL spigot saddles SA XL, FRIALEN repair saddles RS XL as well as FRIAFIT sewage saddles ASA VL. Consisting of vacuum pump (110V/230V), manometer, and hose connections. No additional construction site compressor required for operation The tool is delivered in a handy aluminium transport box .

For the assembly of FRIALEN XL spigot saddles SA XL and FRIAFIT sewage saddles ASA VL, plungers (PRESSKO) are required.

Article description	Order Ref.	Stock-status
NEW Vacuum pump 230V	613827	1
NEW Vacuum pump 110V	613828	1

VACUSET XL

Clamping unit (Vacuum)



For the assembly of FRIALEN XL spigot saddles SA-XL with outlet d 160, d 225 and d 250, FRIAFIT sewage saddles ASA-VL with outlet d 225 as well as for the assembly of FRIALEN XL repair saddles RS-XL. Consisting of VACUBOX XL, manometer, and hose connections. Plug connection NW 7.2 or claw coupling for connection to a construction site compressor.

The tool is delivered in a handy aluminium transport box.

For the assembly of FRIALEN XL spigot saddles SA-XL and FRIAFIT sewage saddles ASA-VL plungers (PRESSKO) are required.

Order Ref.	Stock-status
613820	3

PRESSKO

Plunger for VACUSET XL clamping unit



Nominal width-related plunger with stop plate and plug connection NW 7.2 for assembly on the FRIALEN XL spigot saddle SA-XL with outlet d 160, d 225 or d 250 or the FRIAFIT sewage saddle ASA-VL with outlet d 225 and for the connection of the VACUSET XL.

Version	Order Ref.	Stock-status
FRIALEN SA XL d 160	613821	1
FRIALEN SA XL d 225	613822	1
FRIALEN SA XL d 250 / FRIAFIT ASA VL d225	613823	1

FWAB

Drilling equipment



Drilling equipment FWAB for drilling HD-PE pipes in unpressurised condition through the outlet spigot of FRIALEN XL spigot saddles SA-XL, FRIALEN spigot saddles SA-UNI as well as FRIAFIT sewage saddles ASA-VL. Drive with drilling machine. Consisting of hole saw (nomi-nal width-related), hole saw adapter SDS max, extension for hole saw adapter, centre drill with ejector and retaining shell, and 1 x hexagon wrench.

The tool is delivered in a handy aluminium transport box.

(Fig. shows FWAB XL 160)

	Article description	Outlet dimension	Order Ref.	Stock-status
NEW	FWAB XL 90 for SA UNI	d 90	613832	1
NEW	FWAB XL 110 for SA UNI	d 110	613833	1
NEW	FWAB XL 125 for SA UNI	d 125	613834	1
	FWAB XL 160 for FRIALEN SA UNI / SA XL	d 160	613829	1
	FWAB XL 225 for FRIALEN SA XL	d 225	613830	1
	FWAB XL 250 for FRIALEN SA XL	d 250	613831	1
	FWAB ASA 225 for FRIAFIT ASA VL	d 225	613835	2

FWFIT

Clamping and drilling unit for FRIAFIT-Sewage saddles (ASA-TL) and transition saddles (ASA-TL/KG)



Combined clamping and drilling unit, universally designed for all FRIAFIT sewage saddles ASA-TL and FRIAFIT transition saddles ASA-TL/KG. For clamping and creating the necessary joining pressure during fusion. For pressure free tapping through outlet socket on completion of prescribed cooling time.

The tool is delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613480	2

ASATOP

Clamping unit for Close-Fit-Inliner DN 200 - DN 500



Clamping unit designed for FRIAFIT sewage saddles ASA-TL and FRIAFIT transition saddles ASA-TL/KG, specifically for HD-PE Close Fit Inliners DN 200 to DN 500 and for HD-PE pipes d 630. For clamping and creating the necessary joining pressure during fusion. Comprising ASATOP clamping unit with toggle anchor, hole saw (Ø 95 mm) with hole saw adapter SDS, centre drill and extension, and compressed air pump.

For drilling through the outlet fitting in unpressurised state, the FWFIT clamping and drilling unit (Order Ref. 613480) is required.

The tool is delivered in a handy aluminium transport box.

Order Ref.	Stock-status
613370	2

RPS

Repair set



Repair kit for containing residual water during repair and installation work on d 90 - d 900 HD-PE water pipes. Consisting of a universal repair set with pump, pressure gauge, drill, connecting hose, and additionally repair balloons for each pipe dimensions. Optional extension set for the connection of an additional repair balloon, consisting of additional connection hose of 3m and pressure gauge.

From pipe dimensions d 355 the drilling equipment FWAB XL 225 (Order-Nr. 613830) is required.

The repair set up to d 225 requires VVS repair and reinforcing saddles. Pipe dimensions from d 250 require VSC-TL or RS-XL repair saddles.

Prices and availability on request.

Article description	Dimension	Order Ref.	Stock-status
Repair set	all dimensions	613701	1
Extension set	all dimensions	613715	1
Repair balloon type 1	d 90 - d 180	613702	1
Repair balloon type 2	d 200 - d 315	613703	1
Repair balloon type 3	d 355 - d 450	613704	1
Repair balloon type 4	d 500 - d 560	613705	1
Repair balloon type 5	d 630	613706	3
Repair balloon type 6	d 710	613707	3
Repair balloon type 7	d 800	613708	3
Repair balloon type 8	d 900	613709	3
Aluminium transport box		613700	1

CLAMP 63

Alignment clamp d 20 – d 63



Universal alignment clamp with angle adjustment (45°/90°) for heating coil fusion couplers, reducers, 45° and 90° elbows, and outlets on saddle fittings d 20–d 63.

Optional version CLAMP63L also applicable for long couplers FRIALONG.

Article description	Order Ref.	Stock-status
CLAMP63	613020	1
NEW CLAMP63L	613034	1

CLAMP 180

Alignment clamp d 63 – d 180



Alignment clamp with angle adjustment (45°/90°) and two clamping elements for heating coil fusion couplers, reducers, and 45° and 90° elbows d 63, d 90, d 125, and d 180. Reduction shells can be inserted for various sizes. Delivered in a practical carrier bag.

Alignment clamp can be expanded with additional clamping element modules for use as fourfold alignment clamp for d 63, d 90, d 125, and d 180. This needs two additional clamping elements.

T-piece extension kit for alignment clamp. Variant with one clamping element. Additional clamping elements can be attached for a twofold alignment clamp on the branching pipe.

Reduction shell set for d 110 and d 160. One reduction shell set is needed for each clamping element.

(Figure shows fourfold alignment clamp)

Article description	Dimension	Order Ref.	Stock-status
Alignment clamp with two clamping elements	d 63, d 90, d 125 and d 180	613021	1
Additional clamping element	d 63, d 90, d 125 and d 180	613022	1
Reduction shell set d 110/d 160	d 110 and d 160	613023	1
T-piece extension kit	d 63, d 90, d 125 and d 180	613024	1

SQM**Manual squeeze-off tool for pipes d 20 – d 125**

Manual squeeze-off tool for the temporary shutoff of HD-PE and PE-Xa pipes d 63–d 125 in SDR 11 and SDR 17.6. Complies with DVGW GW 332.

Article description	Dimension	SDR	Order Ref.	Stock-status
SQM63	d 20 - d 63	SDR 11	613025	1
SQM125	d 63 - d 90, d 90 - d 125	SDR 11, SDR 17,6	613026	1

SQH**Hydraulic squeeze-off tool**

Hydraulic squeeze-off tool for the temporary shutoff of HDPE and PE-Xa pipes d 63–d 180 in SDR 11 and SDR 17.6. Complies with DVGW GW 332.

Article description	Dimension	SDR	Order Ref.	Stock-status
SQH180	d 63 - d 180	SDR 11/ SDR 17,6	613028	1

RRC**Re-rounding clamps for reinstating round cross section of squeezed-off pipes d 63 – d 180**

For re-rounding squeezed-off HD-PE and PE-Xa pipes d 63–d 180.

RRC90 as universal re-rounding clamp for d 63, d 75, and d 90. Reduction shells can be inserted for various sizes. Key for activating the universal re-rounding clamps included.

RRC110–RRC180 as re-rounding clamps for each nominal diameter of d 110, d 125, d 160, and d 180.

Fig. 1 shows RRC90, Fig. 2 shows RRC180



Article description	Dimension	Order Ref.	Stock-status
RRC90	d 63, d 75, d 90	613029	1
RRC110	d 110	613030	1
RRC125	d 125	613031	1
RRC160	d 160	613032	1
RRC180	d 180	613033	1

FWXR**Manual rounding clamps for pipes d 63 - d 250**

For retrospective rounding of HD-PE and PE-Xa-pipes. Covering several dimensions due to the use of reducer spherical shells.

(Fig. shows FWXR-S1)

Article description	Dimension	Order Ref.	Stock-status
FWXR-S1	d 32, d40, d50, d63	613416	1
FWXR-S2	d 90, d 110	613431	1
FWXR-S3	d 125, d 160	613439	1
FWXR-S4	d 180, d 200	613443	1
FWXR-S5	d 225, d 250	613444	1

FWXRH**Hydraulic rounding clamps for pipes d 280 - d 900**

For the retrospective rounding of HD-PE pipes. These rounding clamps are also available for hire.

Prices and availability of dimensions on request.

(Fig. shows hydraulic rounding clamp d 800)

Dimension	Order Ref.	Stock-status
d 280	613452	3
d 315	613461	3
d 355	613462	3
d 400	613463	3
d 450	613464	3
d 500	613465	3
d 560	613467	3
d 630	613466	3
d 710	613468	3
d 800	613460	3
d 900	613458	3

FWXRB**Manual rounding clamps for pipes d 800 - d 1200**

For the retrospective rounding of HD-PE pipes. These rounding clamps are also available for hire.

Prices and availability on request.

Dimension	Order Ref.	Stock-status
d 800 - d 1200	613457	3

PCUT**Pipe cutter for d 20 – d 140**

Pipe cutter with rapid adjustment for HD-PE pipes d 20–d 63 in SDR 11.

Article description	Dimension	Order Ref.	Stock-status
Pipe cutter d 63	d 20 - d 63	613040	1
Pipe cutter d 140	d 50 - d 140	613041	1
Replacement cutting wheel d 63	d 20 - d 63	613042	1
Replacement cutting wheel d 140	d 50 - d 140	613043	1

PCUT S**Pipe shears for d 20 – d 63**

Lever action pipe shears for HD-PE pipes d 20–d 63 in SDR 11.

Article description	Dimension	Order Ref.	Stock-status
Pipe shears d 40	d 20 - d 40	613044	1
Pipe shears d 63	d 20 - d 63	613046	1

FWPM**FRIALEN-/FRIAFIT-Marker (silver)**

For the marking of HD-PE and PE-Xa-pipes.
Colour silver. 10 pieces per package.

Order Ref.	Stock-status
613069	1

FWSS**Activating key for pressure tapping tees**

For drill activation subject to diameter (d_1) of the FRIALEN pressure tapping tees DAA, DAA TL and DAA TL RE.

Wrench size 17 can also be used for drill activation of all dimensions of SAB.

	d_1	WS in mm	Order Ref.	Stock-status
NEW	40-225	17	613246 ①	1
	40	10	613242 ②	1
	50-75	17	613248 ②	1
	90-315	19	613250 ③	1

① An activating key wrench size 17 for all DAA (new model with lever), SAB and DAA d 50 - 75

② Usable for DAA old version.

③ Usable for DAA TL, DAA TL RE and DAA d 90 - d 225 old version.

FWSR**Activating key for pressure tapping tees with parallel dome**

For drill activation of FRIALEN pressure tapping tees with parallel dome DAP, consisting of ratchet and box spanner attachment.

Article description	Order Ref.	Stock-status
Ratchet 1/2"	613610	1
Socket SW 19	613605	1
Socket SW 17	613606	1

FWDPA

Pressure test adapter



Pressure test adapter for the use on FRIALEN pressure tapping tees DAA, DAP, DAA-TL, DAA-LT/RE d₁ = 61-315. Connection measurements internal thread = R 1/4".

Pressure test adapter for use on FRIALEN spigot saddles SA-UNI; with with connetcion nipple Ø 1/2" (see figure 2).

Article description	Order Ref.	Stock-status
FWDPA for FRIALEN DAA, DAP, DAA TL, DAA TL RE	613595	1
NEW FWDPA für FRIALEN SA UNI	613596	1



General conditions of supply and payment of FRIATEC AG - Technical Plastics Division

1. Scope

- 1.1 Terms and conditions as listed below apply to all deliveries. Other conditions do not automatically become contractual, even if not expressly contradicted by us.
- 1.2 Our special General Leasing Terms for electrofusion units, scraper tools and accessories apply for all leasing services.

2. Conclusion of a Contract

- 2.1. Our quotations are not binding. A contract is made only when we confirm an order in writing. Our written order confirmation controls content and size of the order.
- 2.2. Alterations to the technical execution of ordered goods are acceptable unless they constitute essential functional changes or the customer proves that the alterations are unacceptable.
- 2.3. We will accept liability for the quality of an item only if this has been expressly stated in our order confirmation or in our advertisements.

3. Delivery

- 3.1. Delivery dates and deadlines are subject to ourselves being supplied appropriately and in good time.
- 3.2. Delivery deadlines are determined by the date of our order confirmation. They are regarded as fulfilled once the goods have left the factory or been released for shipment.
- 3.3. The deadline is extended if the customer desires changes retrospectively or if events occur for which we are not responsible.

4. Prices and Payment Conditions

- 4.1. Our prices are ex factory or ex warehouse, plus VAT. Insurance, packaging, shipment and customclearance charges are invoiced separately, unless expressly stated otherwise in our current pricelist.
- 4.2. Our invoices are payable net within 30 days from the invoice date. We offer 0.25% discount for payments within 14 days, but only if all other outstanding invoices have been paid.
- 4.3. We reserve the right to accept bills of exchange and cheques in individual cases. No discount is offered when paying by bill of exchange. Bills of exchange and cheques are accepted only on account of performance. The claim is regarded as fulfilled only once payment has been cashed or credited. All expenses which may arise must be met by the customer.
- 4.4. We are authorised to demand immediate cash payment for all deliveries, if payment conditions are not adhered to, or in circumstances causing the credit worthiness of a customer to be questioned. A possible deferral caused by the acceptance of bills of exchange becomes null and void. The customer is obliged to pay cash immediately on returning the bill of exchange. In addition we are authorised to carry out any remaining deliveries against advance or warranty payment or to rescind the contract and demand compensation. We are furthermore authorised to stop the onward sale of goods to be delivered and to retrieve the goods at the customer's expense if we have rescinded the contract.

5. Passage of Risk

The risk is transferred to the customer at the moment of the goods being ready for shipment and the notification thereof. This applies even if shipment is delayed due to circumstances not in our control. If there is no notification of readiness for shipment, the risk is passed to the transport company, and on to the customer no later than at the point of the goods leaving the factory or warehouse. This applies also if our own transport is used or carriage is paid.

6. Formal Complaints, Claims, Limitation Period

- 6.1. The customer must immediately check goods received for any defects. Formal complaints must be lodged immediately on receipt of the goods, and no later than a fortnight after receipt, in writing. The same timeframe applies to hidden defects after discovery. There can be no claims for defects which have not been notified within the appropriate period.
- 6.2. When a claim is justified, we will choose either to repair or replace the goods. If we do not rectify the defect or provide a substitute within an appropriate period, or following no more than two attempts, the customer is authorised to rescind the contract or demand a reduction in the purchasing price. It is not possible to rescind if there is only an insignificant violation on our part.
- 6.3. The limitation period for claims is
 - a) 5 years for building materials which have been installed and have caused defects within a pipe system.
 - b) 1 year for delivery of other new goods to contractor
 - c) 2 years for all others
 - d) For delivery of second-hand goods to companies, there is no liability for defects.
 - e) By way of derogation from b) - d) the statutory periods shall apply for claims for compensation due to a defect for which we are responsible for- damages due to physical injury to life, body or health, which are based on gross negligence by us or deliberate or gross negligence by one of our legal representatives or one of our agents or
- damages, which are based on gross negligence by us or deliberate or gross negligence by one of our legal representatives or one of our agents.
- 6.4. The limitation period for claims for compensation commences on delivery of the goods; where an acceptance is required, then from acceptance.
- 6.5. The statutory period of limitation for replaced or subsequently rectified merchandise does not recommence even in cases of goodwill. Should defects be acknowledged in exceptional cases, such acknowledgments shall only apply to those defects that were the subject of a request for subsequent fulfilment.

7. Reservation of Ownership

- 7.1. Our deliveries are all subject to reservation of ownership. The goods remain in our ownership until payment of all claims arising from our business relationship with the customer is made. With an account current the reserved ownership constitutes the security for our balance claim.
- 7.2. The customer is authorised to resell delivered goods within the framework of his or her ordinary business procedures. He or she may not however pledge or transfer the conditional commodity by way of security.
- 7.3. In the event of resale the customer assigns to us all claims including all subsidiary rights which arise from the resale. This applies without taking into consideration whether he or she resells the conditional commodity unaltered, unprocessed, or in conjunction with other items. If the resale takes place including goods not owned by us, the assigning applies only up to the value of the conditional commodity. The value is determined according to our sales prices.
- 7.4. Processing of the conditional commodity always occurs according to § 950 BGB for us as manufacturers, but without obligation. The processed goods constitute the conditional commodity as part of these conditions. If the conditional commodity is processed together or is irretrievably mixed up with other items not owned by us, we will gain co-ownership of the new item at a ratio of conditional commodity invoice value to the invoice value of other used goods at the time of processing and mixing. The co-ownership rights thus created apply as conditional commodity in the context of these conditions. The customer is obliged, if requested by us, to point out our ownership rights to the prospective buyer.
- 7.5. The customer is authorised to collect the claim from the resale notwithstanding our own collection authorisation. While the customer meets his payment obligations appropriately, we will not put the claim into force. The customer has to inform us of the debtors of the assigned claims and to notify the assignment to them. Our right of informing third-party debtors of the assignment will not be affected by this. The customer is not allowed to assign the claim against third-party debtors to third parties or to negotiate an assignment ban with the third-party debtor.
- 7.6. The customer is obliged to notify us immediately and in the quickest way possible about a pledge or any other infringement of our security rights by third parties. The customer is obliged to hand over to us all documents required to preserve our rights, and to compensate us for any costs arising from a possible Intervention.
- 7.7. We pledge to release existing securities of our choice up to the point where their value exceeds the claims to be secured by more than 25%.
- 7.8. The customer is obliged to insure the goods for the duration of our reservation of ownership.

8. Acts of God - Right to Rescind

If we are prevented from fulfilling our terms of delivery by acts of God or other circumstances not within our control, or if the fulfilment of our obligations becomes too great a burden for these reasons, we are authorised to rescind the contract. Compensation claims by the customer in such circumstances are not permitted. The right to rescind is effective also if the delivery period was initially extended.

9. Other Limitations of Liability

- 9.1. We are liable for any violations of life, body or health for which we are accountable in accordance with legal requirements.
- 9.2. For other damages the following applies:
 - a) We are liable for damages based on gross negligence by us or deliberate or gross negligence by our legal representatives or assistants in accordance with legal requirements.
 - b) For damages based on the violation of essential contractual obligations based on negligence by us, our legal representatives or assistants, our liability is limited to the predictable contractual damage up to a maximum of the value of the delivered item.
 - c) Claims for other damage on violating subsidiary obligations or inessential obligations based on negligence are excluded.
 - d) Claims for damages for delay caused by negligence are excluded. The customer's legal rights on completion of an appropriate period of time remain unaffected.
- 9.3. Liability exclusions or limitations do not apply if a defect has been deliberately concealed by us or if we have offered warranty on the quality of the item.
- 9.4. A customer's claim for compensation of time or costs invested in vain instead of compensation in place of time or costs, and the liability according to the product liability law remain unaffected.

10. Non-assignment clause

Unless something different has been expressly agreed with the customer, the customer is not authorised to transfer rights from the contract to third parties without our agreement.

11. Applicable rights, Place of Jurisdiction

- 11.1. Only German law applies under the exclusion of UN purchasing rights.
- 11.2. Exclusive place of jurisdiction for disagreements between contract parties is Mannheim, if the customer is a merchant, a legal person of public law or a special asset, or if the customer does not have a place of jurisdiction in Germany. We do however reserve the right to proceed against a customer who does not have a general place of jurisdiction in Germany within other courts of our choice.

January 2015

FRIATEC Aktiengesellschaft
Technical Plastics Division
POB 71 02 61
D-68222 Mannheim
Telephone +49 621-4 86-1431



FRIATEC Aktiengesellschaft
Technical Plastics Division
P.O.B. 710261 - 68222 Mannheim - Germany
Tel +49 621 486 1431
www.friatec.com

