Aliaxis
UTILITIES & INDUSTRY

FRIATEC

FRIALEN Safety Fittings

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

Product Range ES 34/14 valid from 1st June 2014

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

Contents

To help you to find specific products easily we have included an alphabetical list arranged in product groups on pages 4-6.

Stocking Status

Please note the following:
- All articles with a stock **Status of 1 are usually available ex-stock**.
- All articles with a stock **Status of 2 are manufactured to order** and hence have a **delivery time of 3 - 4 weeks**.

Packaging and pallet units

The product range shows packaging units (BX) and pallet units (PU). An order in complete BX/PU will simplify the procedure in your goods inwards department as well as your storage and ensures we can pick and deliver your order quickly. The product range will show that we have selected sensible and fair packaging units for you.

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.

Inspection certificates

We charge an administration fee of **€ 15,- per item** for our inspection certificates according to **EN 10204-3.1**. You will be able to request such a certificate at the time of your order. For FRIALEN articles we are able to provide you with a certificate where requested. In this case we would only require the component‘s traceability batch which you will find on the barcode or in the delivery documents. Inspection certification is archived for a period of 10 years.

Component Traceability

Each construction part has an additional barcode for traceability.

Quality/Certification

FRIALEN-Safety Fittings and FRIAFIT Couplers are subject to constant quality checks under stringent inspection guidelines, which are part of our comprehensive Quality Management System which is certified **to EN ISO 9001:2008**.

The FRIALEN/FRIAFIT-Safety Fittings range and our FRIATOOLS hardware are designed to be compatible. We reserve the right to change product details in the catalogue at any time. This is an ongoing commitment with product improvement and product line enhancements taking place continously. Our continuous quality controls cover FRIALEN/FRIAFIT Safety Fittings, our FRIATOOLS equipment and the quality of the fused joint as a result of the combination of these two components. The operation and functional safety of fusion control units devices from other manufacturers are not subject to our specifications and checks. When installing fittings please follow our installation instructions and the operating instructions for the tooling used. FRIALEN-Safety Fittings and FRIAFIT Couplers are subject to constant quality checks under stringent inspection guidelines, which are part of our comprehensive Quality Management System which is certified **to EN ISO 9001:2008**.

DVGW Certification/Fusability

FRIALEN Safety Fittings are authorised for use with gas and water. They are certified in accordance with **DVGW GW335-B2** with notices **DV-8601AU2248**, **DV-8606AU2249** and **DV-8611AU2250** and **are subject to** regular external monitoring. Certain components have individual certifications, which are mentioned in the text for each individual component.

FRIAFIT-Couplers AM SDR 17 are designed for use in drinking water and waste water systems PN10. They are registered according to **DVGW GW335-B2** certified by **DV- 8606BO6114** and **DV-8611BO6115.**

FRIALEN Safety Fittings can be fused with SDR 17.6 pipes (s min = 3 mm) to 11 in accordance with DIN 8074, ISO 4437, ISO 4427, EN 1555 and EN 12201. Other SDR sizes on request. FRIALEN Saddle components/Fittings ≤ d 63 can only be used with pipes ≤ SDR 11.
Please also note the details on the Fitting Barcode and further mandatory markings on the product for each SDR level which can be fused.

FRIALEN Safety Fittings can be used with pipes made of PE 100, PE 80, PE 63, PE 50 in accordance with DIN 8074/75, EN 1555-2, EN 12201-2, ISO 4437 and ISO 4427, PE-Xa in accordance with DIN 16892/93, PE-LD in accordance with DIN 8072/73. A melt flow rate of MFR 190/5 in the range of 0.2 to 1.7 g/10 min applies to PE pipes. For components with MFR < 0.20 then you will need to confirm that it is suitable. We would recommend the use of pipes with a limited diameter tolerance range, tolerance class B. PE-LD pipes can be fused at an ambient temperature of > 0 °C.

Check instructions for compatibility of another SDR or seek our technical advice.

Some FRIALEN Saddle fittings up to d 63 may only be processed using pipes up to SDR 11. Please ask for technical support and note the fusible SDR classes on the fitting barcode if d63 SDR17 pipes are used.

FRIAFIT-Couplers AM SDR 17 may be fused with pipes ranging in SDR from 33 to 17 according to DIN 8074, ISO 4427, and EN 12 201.

FRIALEN-Safety Fittings and FRIAFIT-Couplers are made of PE 100 and fulfil the requirements of EN 1555-3, EN 12201-3, ISO 4427-3 and ISO 4437-3, as well as DVGW test specifications. FRIALEN-Safety Fittings and FRIAFIT-Couplers can be processed with FRIAMAT fusion devices at an ambient temperatures between - 10 °C and + 45 °C.

For connections between different materials, the material or system specific standards and assembly guidelines also apply.

For case by case restrictions when installing, and working with FRIALEN/FRIAFIT Safety Fittings in general, please read our assembly instructions. Our office-based customer support staff will be glad to answer any questions you may have.

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

Pressure loading capacity

The pressure loading capacity of FRIALEN/FRIAFIT-Safety Fittings made of PE 100 dependent on the SDR (Standard Dimension Ratio) marking.

$$SDR = \frac{\text{Pipe outside diameter d}}{\text{Pipe wall thickness s}}$$

The contributory factors for this are the latest revised standards DIN EN 1555, DIN EN 12201, DIN 8074 and DIN 8075, taking the design factor C into account (calculation coefficient for components made of PE). This gives the following pressure stages:

Fitting material: PE 100	Water	Gas
SDR level	maximum operating pressure in bar at C = 1,25	maximum operating pressure in bar at C = 2
17	10	5
11	16	10
9	20	-
7.4	25	-

Fusion process

FRIALEN-Fittings are fuseable by Universal fusion units, e.g. FRIAMAT. The fusion parameter will be transferred automatically from the barcode on the fitting.

39.5V processing

Most of the FRIALEN-Fittings are fusable by electrofusion units with a constant output voltage of 39.5V by manual input of the fusion time. The fusion time is stated on the barcode label. By using older electrofusion units the allowed processing range is limited to an ambient temperature between -5°C and +35°C. The stated fusion time is to be used for the complete temperature range. Please find a list with suitable fittings on our homepage www.frialen.com.

Cooling times

FRIALEN-Couplers/Elbows/T-Pieces/Transition fittings

The cooling times given on the barcode (CT), are the times after fusing for which the fused joint must not be disturbed.

Longer cooling times should be allowed before pressurisation. When doing this please read our assembly instructions.

FRIALEN-Fittings/Valves/Saddles

The cooling times given on the barcode (CT) are the times before which the fused joint should not be tapped.
A pressure test of the saddle joint/outgoing line can be carried out before the end of the cooling period for the fused joint. When doing this please read our assembly instructions.

Processing

Processing must be carried out in accordance with our assembly instructions, which may also be downloaded from www.frialen.com/www.frialen-xl.com. This webpage will also give you further information on products and processes, certificates and publications.

FRIALEN saddle parts Top-Loading

The dimension information, including the value in brackets, shows the authorized assembly and fusion size range for the saddle part. In some cases, the standard application range is limited by technical restrictions (e.g. drill length/pipe wall thickness or tap diameter/diameter of shut-off saddles). For other areas of application, suitability must be assessed.
Technical hints for processing or use may be attached to the product and must be strictly observed.

Technical Information

The technical details in this product guide are not comprehensive. You can find detailed information on our **data sheets**, which can also be downloaded from www.frialen.com/ www.frialen-xl.com.

Update/Technical Progress

All details are valid as at the time to print. We reserve the right to make changes which are in the interests of technical progress. We do not accept liability for any matters arising as a result of printing errors and/or omissions.

Brand Names

For easier reading, the product guide dispenses with the symbols ® and ™ in continuous text. The following trademarks are registered: FRIALEN®, FRIALOC®, FRIAFIT®, FRIATOOLS®, FRIAMAT®, Sentry GS®, BAIO®, Rilsan® as well as Gas-Stop™.

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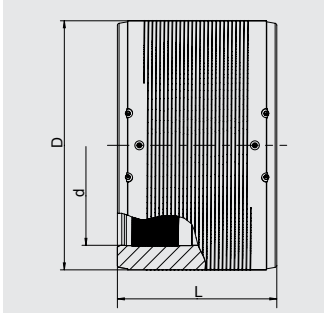


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With one indicator per fusion zone for visual fusion control.

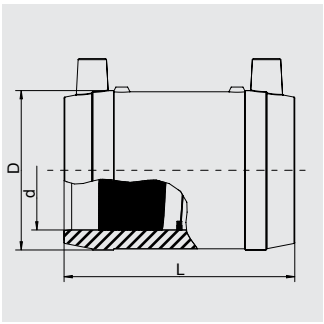
Diameter d 400 and bigger with pre-heating technology (d 400 – d 450 optional use; d 500 – d 900 required).
Special sizes, pressure stages and designs on request

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
20	**612660**	1	110	3.520	33	60	0,037
25	**612661**	1	120	3.840	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	0,322
90	**612667**	1	30	240	114	138	0,436
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	4	630	360	40,000
560	**616312**①	2	1	2	715	380	55,000
630	**616269**①	2	1	2	810	420	79,600
710	**616313**①	2	1	1	900	420	101,000
800	**616314**①	2	1	1	1000	500	138,800
900	**616440**①	2	1	1	1130	600	210,300

① separate fusion zones

MB Couplers with removable stop

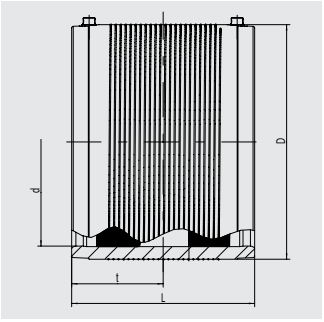


Can also be used as repair couplers. With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With one indicator per fusion zone for visual fusion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

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	3520	33	60	0,040
25	**612681**	1	90	2880	38	66	0,050
32	**612682**	1	60	1920	45	78	0,064
40	**612683**	1	40	1280	54	85	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	0,320
90	**612687**	1	30	240	114	138	0,440
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 Slide-over couplers, SDR 17



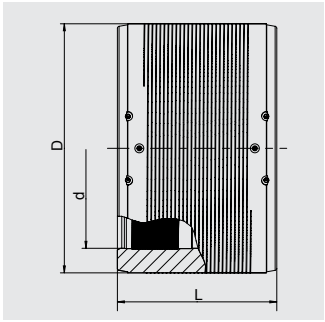
With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material for use without holding devices. With fusion indicator for visual fusion control.

PE 100 SDR 17
Maximum working pressure 10 bar (water)

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	4	562	270	135	14,450

① separate fusion zones

UB Slide-over couplers, SDR 17



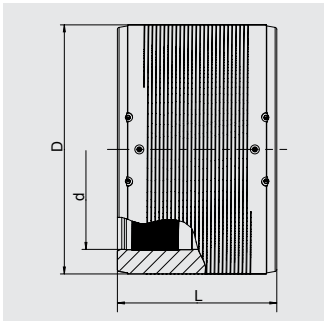
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With separate fusion zone and one indicator per fusion zone for visual fusion control.
The UB d 1000 and above can only be fused with the FRIAMAT XL.

Diameter d 560 - d 900 with pre-heating technology which is required for installation.
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
560	**615706**	1	1	2	630	380	24,800
630	**615726**	1	1	2	710	420	36,800
710	**615994**	1	1	2	800	420	48,600
800	**616290**	1	1	1	900	500	65,900
900	**616345**	1	1	1	1024	500	91,500
1000	**616403**	1	1	1	1130	610	121,000
1200	**616416**	1	1	1	1356	670	205,000

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. With one indicator per fusion zone for visual fusion control. Processing range SDR 11 – SDR 7.4.

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

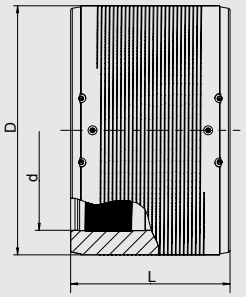
PE 100 SDR 7.4
Maximum working pressure 25 bar (water)

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
90	**616270**	2	30	240	117	138	0,530
110	**616271**	2	24	192	142	159	0,870
125	**616272**	2	16	128	160	172	1,230
140	**616273**	2	12	96	181	184	1,640
160	**616274**	2	8	64	206	203	2,360
180	**616282**	2	6	48	225	210	2,700
200	**616283**	2	2	36	250	224	3,610
225	**616284**	2	1	33	280	240	4,900
250	**616285**	2	1	24	315	246	6,700
280	**616286**①	2	1	18	355	268	9,300
315	**616287**①	2	1	18	400	285	12,100
355	**616288**①	2	1	9	450	300	16,700

① separate fusion zones

UB SDR 9 — Slide-over couplers, SDR 9

NEW!



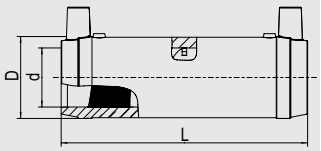
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. With separate fusion zone and one indicator per fusion zone for visual fusion control.

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), 10 bar (gas)

	d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
NEW!	400	**616441**	1	1	4	500	320	20,800
NEW!	450	**616447**	1	1	4	560	340	30,000
NEW!	500	**616445**	1	1	4	630	360	40,000
NEW!	560	**616446**	2	1	2	715	380	55,000
NEW!	630	**616439**	2	1	2	810	420	79,600

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. With one indicator per fusion zone for visual fusion control.

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.

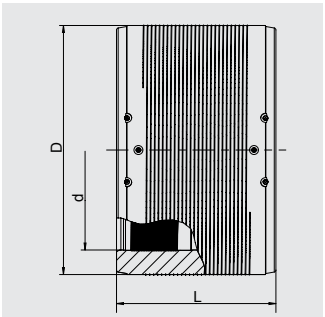
The KM-XL can only be fused with the FRIAMAT XL with Y connector (see Product Range FRIATOOLS).

Other dimensions or permissible fitting operating pressures 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
1000	**616434**	2	1	1	1245	1125	350,000
1200	**616435**	2	1	1	1450	1250	500,000

REM Relining Slide-over couplers



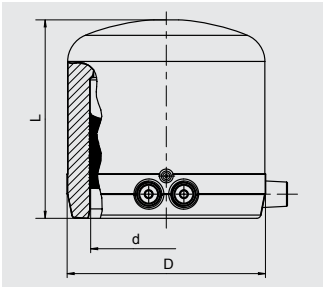
For connection from relining pipe to standard pipe. With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Gap reduction between coupler 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.

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**	2	24	192	127	150	0,680
160/150	**615571**	2	12	96	180	180	1,540
315/300	**615576**	2	1	18	355	285	7,950
400/375	**616344**	2	1	9	450	300	12,315

MV End caps



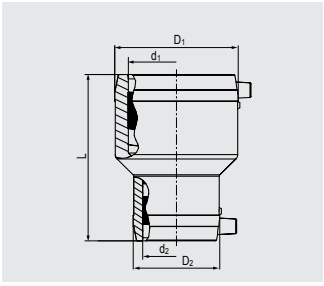
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end to prevent the flow of molten material, for use without holding devices. With fusion indicators for visual fusion control.

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**	2	40	2000	31	62	0,035
25	**612026**	2	40	2000	35	65	0,040
32	**612027**①	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	0,319
90	**612032**	1	16	288	117	155	0,529
110	**612033**	1	12	216	143	125	0,850
125	**612034**	1	8	144	158	186	1,380
160	**612035**	1	10	60	206	262	2,362
180	**616183**	1	6	48	225	195	2,800
200	**616184**	1	4	32	250	210	3,700
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 ≤ d63.

MR Electrofusion reducers



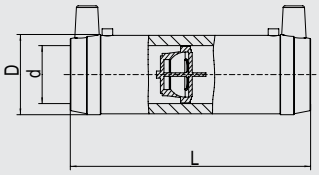
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

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**	2	80	2560	45/ 28	90	0,060
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**	2	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
90	50	**615391**	1	15	270	117/ 68	160	0,470
90	63	**615392**	1	15	270	117/ 82	160	0,510
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
160	110	**615695**	1	8	64	201/140	230	1,990
225	160	**616356**	1	1	36	282/203	270	4,860

FRIASTOPP

Long Couplers with integrated Mertik Maxitrol excess flow valve



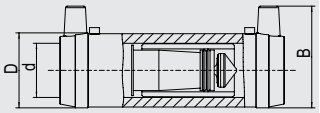
FRIALONG long coupler with integrated SENTRY GS safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or tapping. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten escape 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.
DVGW test certificate for Sentry GS excess flow valve: DG-4360BO0438

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 pmin - pmax	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
32	B	**616192**	100 mbar - 5 bar	26 - 60	1	40	1280	45	136	0,140
40	D	**616193**	25 mbar - 1 bar	19 - 27	1	30	960	54	146	0,220
40	B	**616194**	100 mbar - 5 bar	39 - 90	2	30	960	54	146	0,220
50	D	**616195**	25 mbar - 1 bar	28 - 40	1	16	512	68	175	0,380
50	B	**616196**	100 mbar - 5 bar	58 - 135	2	16	512	68	175	0,380
63	D	**616197**	25 mbar - 1 bar	51 - 72	1	10	320	82	197	0,530
63	B	**616198**	100 mbar - 5 bar	94 - 219	2	10	320	82	197	0,530

FRIASTOPP

Long Couplers with integrated Pipelife Gas-Stop™ system



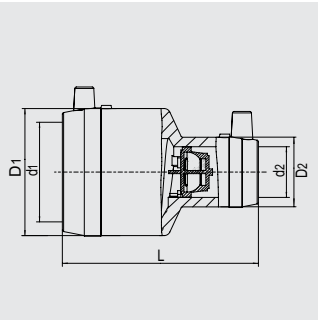
FRIALONG long coupler with integrated Gas-Stop™ safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or tapping. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten escape 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, S and U_{ue} with overflow.
DVGW test certificate for Gas-Stop™: DG-4360BP0060

PE 100 SDR 11
Maximum working pressure type U, Uue, S: 5 bar (gas), Typ A/D: 1 bar (gas)

d	Type	Order Ref.	Operating pressure range pmin - pmax	VN	Stock-status	BX	PU	D	L	Weight kg/each
32	U	**616199**	35 mbar - 5 bar	15 - 35	1	40	1280	45	136	0,140
32	U_{UE}	**616200**	35 mbar - 5 bar	15 - 35	1	40	1280	45	136	0,140
50	U	**616201**	35 mbar - 5 bar	35 - 80	2	20	640	68	175	0,350
50	U_{UE}	**616202**	35 mbar - 5 bar	35 - 80	1	20	640	68	175	0,350
63	U	**616203**	35 mbar - 5 bar	55 - 120	2	12	384	82	197	0,560
63	U_{UE}	**616204**	35 mbar - 5 bar	55 - 120	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 - 35	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**	200 mbar - 5 bar	110 - 240	2	20	640	68	175	0,350
63	S	**616341**	200 mbar - 5 bar	180 - 400	2	12	384	82	197	0,560

MR-STOPP

Electrofusion Reducers with integrated Mertik Maxitrol excess flow valve

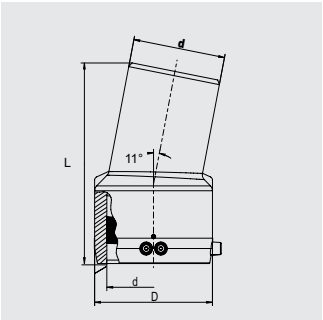


Reducer MR with integrated SENTRY GS safety equipment which automatically shuts down gas flow in the event of pipe damage caused e.g. by digging or tapping. Exposed heating coils for optimum heat transfer, large insertion depth, wide fusion zones as well as cold zones preventing molten escape at the 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.
DVGW test certificate for Sentry GS excess flow valve: DG-4360BO0438

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 pmin - pmax	VN	Stock-status	BX	PU	D_1/D_2	L	Weight kg/each
50	40	Z	**616218**	35 mbar - 5 bar	26 - 62	2	12	600	68/54	110	0,210
50	40	D	**616237**	25 mbar - 1 bar	19 - 27	2	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	32	D	**616238**	25 mbar - 1 bar	11 – 16	2	18	576	82/45	125	0,240
63	40	Z	**616220**	35 mbar - 5 bar	26 - 62	2	16	512	82/54	125	0,290
63	40	D	**616239**	25 mbar - 1 bar	19 - 27	2	16	512	82/54	125	0,290
63	50	Z	**616221**	35 mbar - 5 bar	41 - 99	1	16	512	82/68	125	0,360
63	50	D	**616240**	25 mbar - 1 bar	28 - 40	1	16	512	82/68	125	0,360

WS11° I/A Elbows 11°

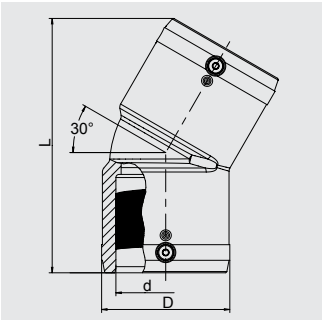


For universal and stress free changes in direction even in restricted spaces. Optimum flexibility through I/A construction type. Elbows of 22°, 33° etc. can be set up thanks to multiple application. Coupler side with exposed heating coils for optimum heat transfer, large insertion depth and wide fusion 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°

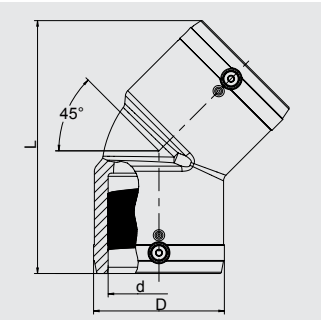


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

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°

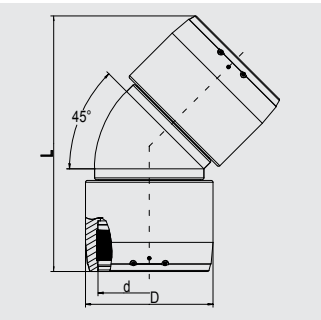


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

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

W45° XL Elbows 45° XL

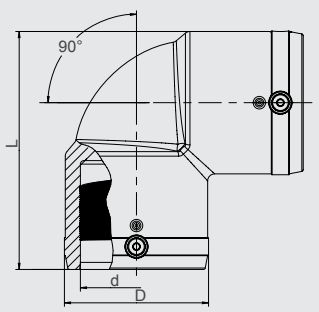


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks to the fused-on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

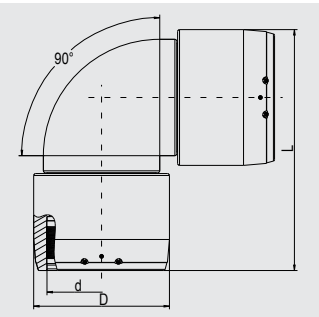


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices.

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

W90° XL Elbows 90° XL

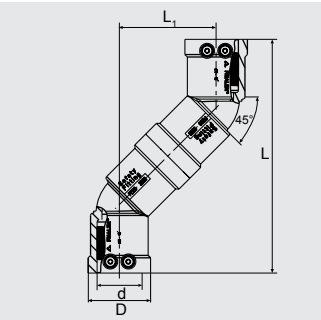


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks to the fused-on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

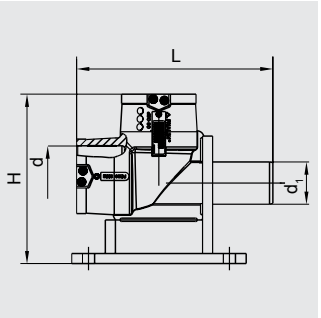


Compact part for the connection of pipes which are not aligned and for the connection of service lines with DAA pressure valves or with DAV presssure tapping valve when parallel-installing two mains with identical overlap height. With exposed heating coils for optimal heat transfer, large insertion depth, 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



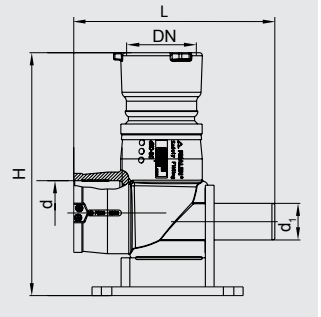
Compact part in HDPE to integrate a hydrant next to the mains. Base unit and elbow make up a homogenous unit, base plate can be mounted onto base. With spigot outlet d 63/SDR 11 for house connections avoiding stagnation at dead ends of hydrant branches. For hydrants with flange connection we recommend 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	6	48	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



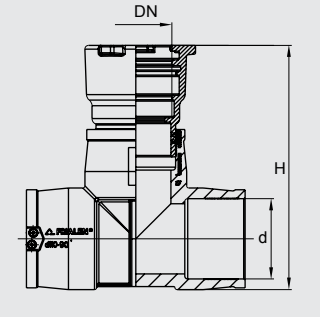
For connection of hydrant with spigot according to BAIO system as alternative to flange connection. Compact construction part manufactured from FRIALEN 90° elbow with base (see WF 90°) and BAIO coupler connection made from ductile cast iron including sealing ring. BAIO cast coupler anchored in PE moulded part. Cannot be released or rotated. Please observe specific processing instructions for „BAIO“ connection system. For below floor hydrants the safety device against dirt and disortion 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**	2	3	12	418	346	8,200

TGB

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



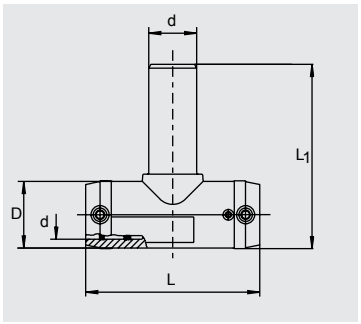
For connection of hydrant or cut-off valves with spigot according to the BAIO system as an alternative to flange connection. Compact construction part manufactured from FRIALEN T-piece and BAIO coupler connection at outlet made from ductile cast iron including sealing ring. BAIO cast coupler anchored 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“ connection system. For below floor hydrants the safety device against dirt and disortion 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	**616147**	2	4	16	337	302	7,530
125/80	**616148**	2	3	12	361	314	8,300
160/80	**616149**	2	2	8	380	390	12,000

TA (KIT)

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



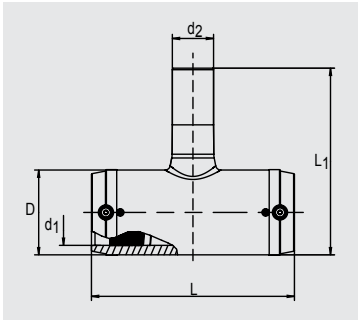
Straight connector with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Extra long outlet spigot dimensioned for 2 fusion operations.

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

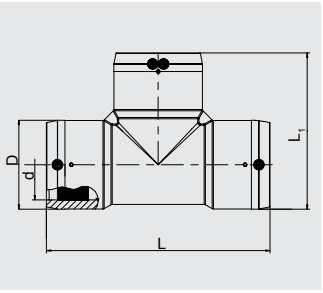


With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Outlet spigot SDR 11 for processing couplers UB/MB.

PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)
Outlet spigot pipe SDR11

	d	Order Ref.	Stock-status	BX	PU	D	L	L_1	Weight kg/each
	32/20	**616417**	1	30	540	45,2	116	116,6	0,110
NEW!	40/32	**616418**	1	20	360	54,3	146	147,6	0,170
NEW!	50/32	**616419**	1	10	180	68,5	175	158	0,295
NEW!	50/40	**616420**	1	10	180	68,5	175	166,5	0,315
	63/32	**616421**	1	10	180	83,1	197	172,6	0,435
	63/40	**616422**	1	10	180	83,1	197	181,5	0,450
	63/50	**616423**	1	10	180	83,1	197	196,6	0,490

T T-Pieces

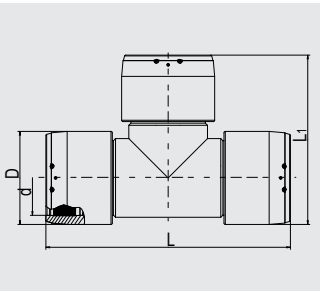


With exposed heating coils for optimal heat transfer on all 3 sides, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Straight passage fusible in one-step, therefore a total of only two fusions 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	280	580	430	13,900

T-XL T-Pieces XL

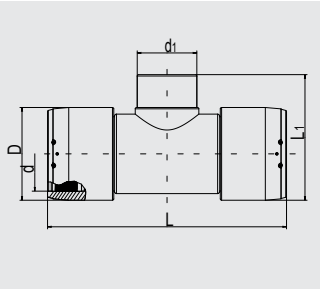


With exposed heating coils for optimal heat transfer on all 3 sides, large insertion depth, wide fusion zones plus cold zones at the end and in the middle to prevent the flow of molten material, for use without holding devices. Separate fusion zones. Handling at the construction site is made easy thanks 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	1	350	905	630	42,200
315	**616414**	1	1	2	396	940	670	55,900

T red-XL T-Pieces XL reduced



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.

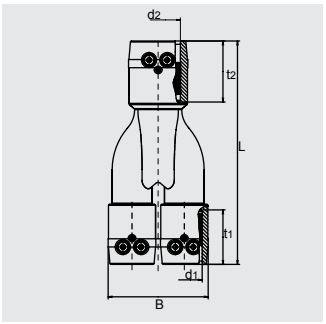
Other dimensions on request.

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.

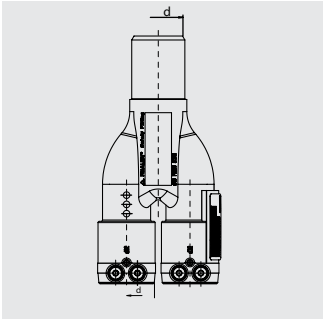
SKZ mark A 500 (SKZ HR 3.26)

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

YS-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°.

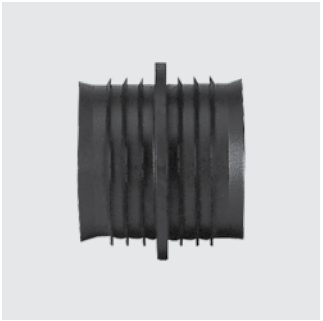
SKZ mark A 500 (SKZ HR 3.26)

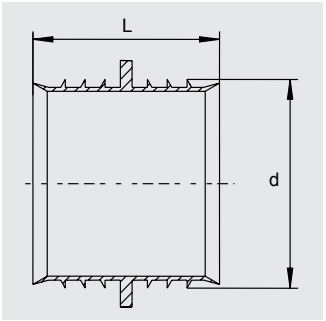
Maximum working pressure 16 bar (water)/10 bar (gas)

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

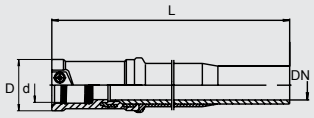




For the repair of house water connection pipes in the depressurised state. Prevents the ingress of water into the fused area of the FRIALEN MB or UB couplers.
Measure d means: Repair Sleeves for **pipe** d xy.
Suitable only for pipes SDR 11.

d	Order Ref.	Stock-status	BX	PU	L	Weight kg/each
32	**615127**	1	50	4500	35	0,004
40	**615128**	1	50	4500	35	0,005
50	**615129**	1	50	4500	35	0,007
63	**615130**	1	40	3600	47	0,012

USTR Transition Fittings HD-PE/Steel

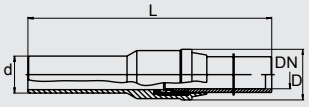


Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material, for use without holding devices. Steel end permanently anchored in the HD-PE. Cannot be released or rotated. 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).
Registered by DVGW under registration nos.
DV-7501AU2256, DV-7501AU2257 and DV-7501AU2258.

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

d/DN	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
25/20	**612744**	1	20	600	40	376	0,840
32/25	**612780**	1	15	450	47	388	1,115
40/32	**612781**	1	10	300	58	396	1,600
50/40	**612782**	1	8	240	70	409	2,100
63/50	**612783**	1	6	180	84	410	2,720
75/65	**612789**	1	4	120	98	425	4,200
90/80	**612784**	1	1	84	118	397	5,310
110/100	**612785**	1	1	54	143	420	8,380
125/100	**612786**	1	1	46	158	425	8,700
160/150	**612787**	1	1	24	197	484	16,830
180/150	**615030**	1	1	18	227	500	21,250
200/200	**612795**	1	1	12	267	481	27,020
225/200	**612370**	1	1	11	282	459	27,350

USTRS Transition Fittings HD-PE/Steel (Spigot fittings)

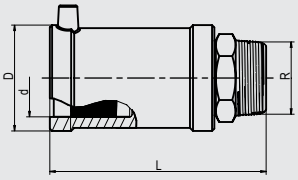


Compact part. HD-PE end with fused on ends for use with FRIALEN-couplers MB or UB without holding devices. Steel end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** Little insulating work due to injection moulded protective tube. For use in gas systems. Steel pipe sockets marked by restrutting (for use with gas up to 10 bar).
Registered by DVGW under registration nos.
DV-7501AU2256 and DV-7501AU2257.

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

d/DN	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32/25	**615475**	1	15	450	48,5	465	1,190
40/32	**615476**	1	9	270	57,5	500	1,600
50/40	**615477**	1	8	240	68,5	520	2,400
63/50	**615478**	1	6	180	82,5	540	2,680

USTN Transition Fittings HD-PE/Steel with male thread



Compact part. HDPE 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 HDPE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in gas systems.

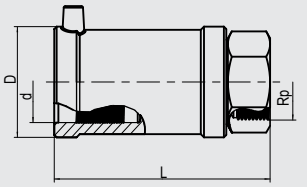
Registered by DVGW under registration nos.
DV-7501AU2256 and DV-7501AU2257.

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
20	1/2´´	**612578**	1	40	3600	35	95	0,150
32	1´´	**612580**	1	20	1800	47	119	0,345
40	1 1/4´´	**612582**	1	20	1000	58	131	0,530
50	1 1/2´´	**612584**	1	15	750	70	146	0,700
63	2´´	**612586**	1	10	500	84	152	1,050

USTM Transition Fittings HD-PE/Steel with female thread



Compact part. 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. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in gas systems.

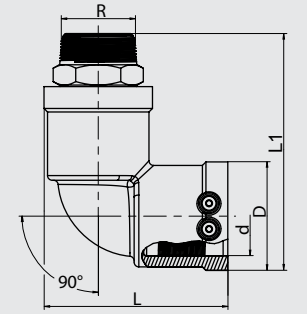
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.

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	1800	47	112	0,340
40	1´´	**612571**	1	20	1000	58	121	0,610
40	1 1/4´´	**612572**	1	20	1000	58	121	0,500
50	1 1/2´´	**612574**	1	15	750	70	136	0,650
63	2´´	**612576**	1	10	500	84	141	1,010

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



Compact part. 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. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in gas systems.

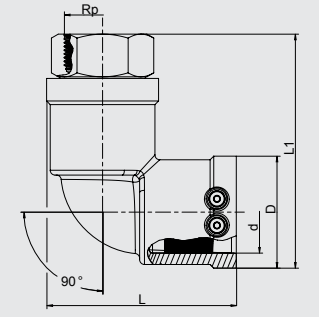
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.

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	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

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



Compact part. 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. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in gas systems.

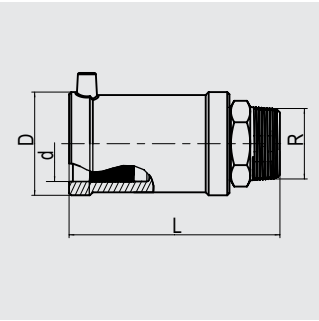
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.

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´´	**612611**	2	15	750	58	102	130	0,650
40	1 1/4´´	**612612**	1	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

MUN Transition Fittings HD-PE/Brass with male thread



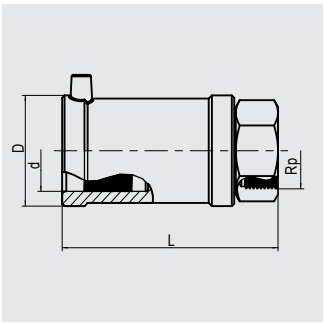
Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Brass end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in water systems.
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.
Standard: Brass. Gunmetal and stainless steel 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
20	1/2´´	**612710**	1	40	3600	35	91	0,160
25	3/4´´	**612711**	1	30	2700	40	99	0,190
32	1´´	**612712**	1	20	1800	47	112	0,310
32	1 1/4´´	**612709**	1	20	1800	47	120	0,390
32	1 1/2´´	**612698**	1	15	1350	47	121	0,450
40	1´´	**612721**	1	20	1000	58	123	0,480
40	1 1/4´´	**612713**	1	20	1000	58	126	0,460
40	1 1/2´´	**612718**	1	20	1000	58	127	0,520
40	2´´	**612725**	1	20	1000	58	132	0,680
50	1´´	**612719**	1	15	750	70	134	0,620
50	1 1/4´´	**612716**	1	15	750	70	136	0,610
50	1 1/2´´	**612714**	1	15	750	70	137	0,620
50	2´´	**612706**	1	15	750	70	147	0,760
63	1 1/4´´	**612722**	1	10	500	84	138	0,910
63	1 1/2´´	**612717**	1	10	500	84	137	0,890
63	2´´	**612715**	1	10	500	84	142	0,920
75	2´´	**612694**	1	10	320	98	165	1,470
75	2 1/2´´	**612695**	1	10	320	98	167	1,490

MUM Transition Fittings HD-PE/Gunmetal with female thread



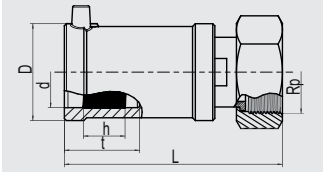
Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Gunmetal end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in water systems.
Registered by DVGW under registration nos. DV-7501AU2256 and DV-7501AU2257.
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	1800	47	112	0,360
40	1 1/4´´	**612596**	1	20	1000	58	121	0,520
50	1 1/2´´	**612692**	1	15	750	70	136	0,650
63	1 1/2´´	**612708**	1	10	500	84	141	1,230
63	2´´	**612693**	1	10	500	84	141	1,050

MUMET Transition Fittings HD-PE/Brass with traveling nut

NEW!



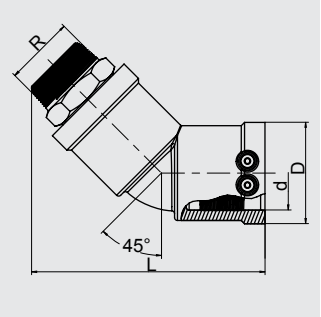
Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material, for use without holding devices. Brass end permanently anchored in the HD-PE and with traveling nut for a simple and fast assembling on a fixed male pipe thread. Sealing gasket is included. For use in water systems.
Registered by DVGW under registration nos. DV-7501AU2256 and DV-7501AU2257.

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
NEW!	25	3/4´´	**616455**	2	40	2000	40	19,5	0,195
NEW!	25	1´´	**616456**	2	40	2000	40	19,5	0,220
NEW!	32	1´	**616457**	2	25	1250	47	23,5	0,305
NEW!	32	1 1/4´´	**616458**	2	25	1250	47	23,5	0,325
NEW!	40	1 1/2´´	**616459**	2	15	1250	58	30	0,490
NEW!	50	1´´	**616460**	2	10	750	70	29,8	0,650
NEW!	50	2´´	**616461**	2	10	500	70	29,8	0,735
NEW!	63	1´´	**616462**	2	15	500	84,5	35	1,000

WUN 45° Transition Elbows 45° HD-PE/Brass with male thread



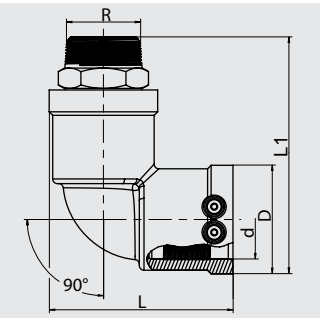
Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Brass end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in water systems.
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.
Standard: Brass. Gunmetal and stainless steal 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´´	**612145**	1	20	1000	47	126	0,340
40	1 1/4´´	**612149**	1	15	750	58	140	0,490
40	1 1/2´´	**612139**	1	15	750	58	142	0,540
50	1 1/2´´	**612144**	1	10	500	70	163	0,660
63	1 1/2´´	**612147**	1	10	320	84	176	0,950
63	2´´	**612146**	1	10	320	84	178	0,980

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



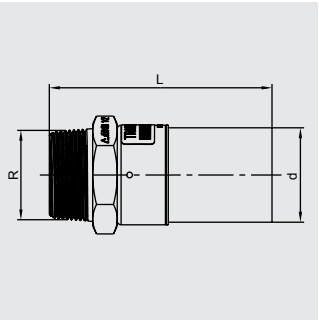
Compact part. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Brass end permanently anchored in the HD-PE. Cannot be released or rotated. Self sealing patented sealing geometry **without elastomer seal.** For use in water systems.
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.
Standard: Brass. Gunmetal and stainless steel 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	1000	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

UAN Universal adapters HD-PE/Brass with male thread



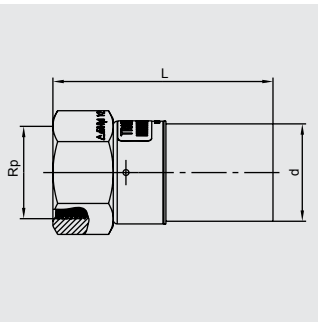
Compact part. HD-PE side as pipe socket allows for assembly independent of length and homogenous fusion connection with all suitable FRIALEN moulded parts. Brass side is connected with PE pipe socket permanently and tightly. Cannot be released or rotated.
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.

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	Weight kg/each
32	1´´	**616152**	1	30	2700	122	0,230
40	1 1/4´´	**616153**	1	20	1800	136	0,430
50	1 1/2´´	**616154**	1	16	1440	118	0,590
63	2´´	**616155**	1	12	600	132	0,940

UAM Universal adapters HD-PE/Brass with female thread



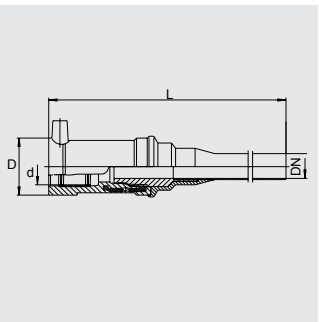
Compact part. HD-PE side as pipe socket allows for assembly independent of length and homogenous fusion connection with all suitable FRIALEN moulded parts. Brass side is connected with PE pipe socket permanently and tightly. Cannot be released or rotated.
Registered by DVGW under registration nos.:
DV-7501AU2256 and DV-7501AU2257.

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	Weight kg/each
32	1´´	**616156**	1	30	2700	121	0,270
40	1 1/4´´	**616157**	1	20	1800	134	0,440
50	1 1/2´´	**616158**	1	16	1440	113	0,530
63	2´´	**616159**	1	12	600	128	0,910

UFLG Transition Fitting for liquid gas HD-PE/Copper

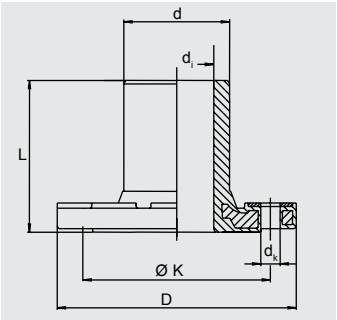


Compact part as transition fitting in domestic area of liquid gas supply installations for the operating of consumer installations from the gas phase. HD-PE end with exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end and in the transition area to prevent the flow of molten material for use without holding devices. Copper-side not detachable and anchored in HD-PE with no risk of turning. Cannot be released or rotated. Self-sealing, patented density geometry **without elastomere sealing.** Copper-side from SF Cu-F25, EN 1057 can be connected with the copper pipe through hard-soldering (coupler soldering).
Registered by DVGW under registration no. DV-7501AU2256.

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

d/DN	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
32/20	**615733**	1	25	750	49	340	0,510

EFL Full Faced Flanges (Spigot fittings)



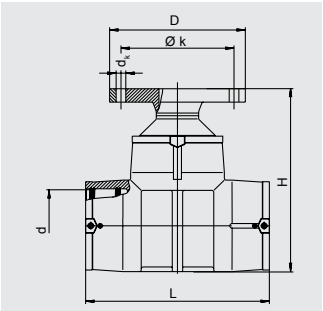
Flange Adaptor and flange as a factory made flange piece. Metal insert in the flange to prevent creep. Spigot end for use with FRIALEN-couplers MB or UB. Flange connection dimensions to DIN 2501, part 1. GST sealing recommended.
Additional washers are necessary.

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	50,6	16,5	105	125	4	1,500
90/ 80	**615418**	1	5	160	204	71,5	16,5	130	160	8	2,540
110/100	**615419**	1	3	96	224	86,8	16,5	150	180	8	3,310
125/100	**615605**	1	2	64	224	101	16,5	160	180	8	3,280
160/150	**615421**	1	2	36	288	127	20,5	190	240	8	6,140
180/150	**615927**	1	2	36	288	122,5	20,5	200	240	8	6,660
225/200	**615607**①	1	1	27	343	179,5	20,5	225	295	8	9,100

① Hole PN 10.

FLT Flange T-Pieces



Compact part 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 inner fusion ridge on the fused seam of the reducer. Flange connection dimensions to DIN 2501, part 1. GST sealing recommended.
Additional washers are necessary for the flange reducer.

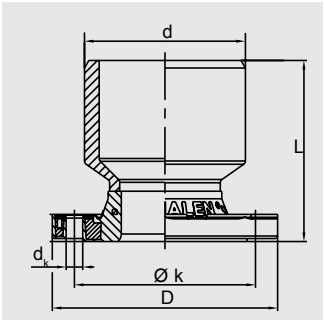
PE 100 SDR 11
Maximum working pressure 16 bar (water)

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	16,5	316	355	160	8	4,920
125/80	**615591**	1	3	24	204	16,5	343	384	160	8	5,480
160/80	**615592**	1	2	16	204	16,5	390	430	160	8	8,050
180/80	**615910**	1	1	8	204	16,5	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	16,5	465	580	160	8	15,420

FLR Flange Reducer

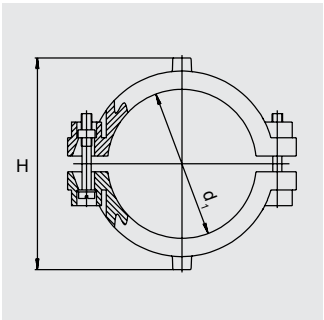


Compact part manufactured by factory from HD-PE reducer and FRIALEN EFL Full Face Flanges. Specially suited for the horizontal connection of flange valves to FRIALEN T-pieces T for reduced branches in DN 80 and DN 100. For the vertical connection of hydrants using our elbow including foot support WF 90° d 110 or the T-piece T, the overlapping height must be taken into consideration. No internal welding bead at the weld seam of the reduction. Flange connection measurements according to DIN 2501, part 1. We recommend GST seals.
Additional washers are necessary.

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	16,5	161	160	8	3,500
160/100	**616241**	1	2	64	224	16,5	180	180	8	4,060
225/100	**616242**	1	2	36	224	16,5	270	180	8	5,390

RS Reinforcing Saddle

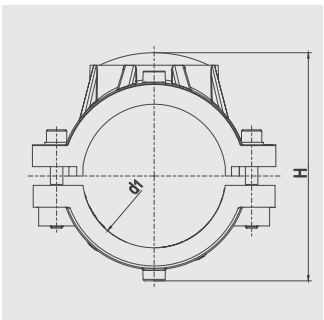


Compact part manufactured from 2 HD-PE saddles for the repair of minor pipe damage **with no** escape of fluid. With exposed heating elements for optimal heat transfer.

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	105,5	0,260

VVS Repair and Reinforcing Saddles



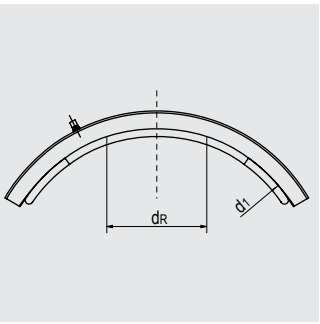
Compact part consisting of one repair saddle and one reinforcing saddle for the repair of minor pipe damage **with or without** escape of fluid. In order to avoid discharge of media the leak has to be sealed with a separate plug* ($\leq d_3$). With exposed heating elements for optimal heat transfer.

*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	H	Weight kg/each
90	**615164**	1	24	192	148	0,920
110	**615165**	1	16	128	168	1,250
125	**615166**	1	15	120	183	1,360
160	**615168**	1	10	80	218	1,670
180	**615169**	1	6	48	238	1,810
200	**615170**	1	5	40	258	1,820
225	**615171**	1	5	40	283	1,900

RS-XL Repair Saddles RS-XL

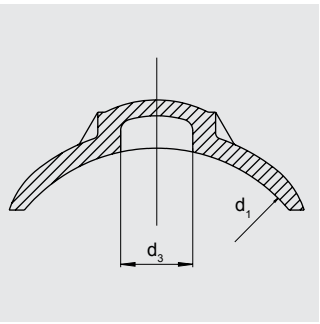


For the repair of damages such as scratches, grooves or pipe penetration. Compact fitting made of HD-PE. Saddle with exposed heating element for optimal heat transfer. For assembly with FRIATOOLS clamping unit VACUSET XL (see Product Range FRIATOOLS). With indicator for visual control of fusion.
The 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
560	**616367**	2	1	4	230	14,300
630	**616368**	2	1	4	230	15,000
710	**616369**	2	1	4	230	18,900
800	**616370**	2	1	4	230	15,800
900	**616371**	2	1	4	230	17,600
1000	**616372**	2	1	4	230	16,400
NEW! 1200	**616379**	2	1	4	230	16,250

VSC-TL Repair Saddle Top-Loading



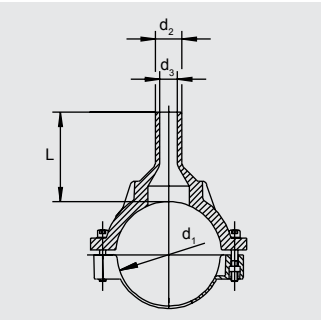
Suitable for **all** pipe diameters in the given range by means of the FRIALEN-FRIATOP Clamping Unit (see Product Range FRIATOOLS). HD-PE saddle for the repair of minor pipe damage **with or without** escape of fluid. In order to avoid discharge of media the leak has to be sealed with a separate plug*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

SA Spigot Saddles

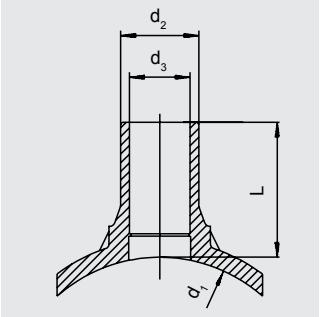


Compact part in HD-PE, saddle with exposed heating element for optimal heat transfer and outlet spigot for use with FRIALEN-couplers MB or UB. Swarfless tapping in the depressurised state by means of commercial drilling units (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)).

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 Ø 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

SA-TL Spigot Saddles Top-Loading



Suitable for **all pipe diameters** in the given range by means of the FRIALEN-FRIATOP Clamping Unit (see Product Range FRIATOOLS). Compact part 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)).

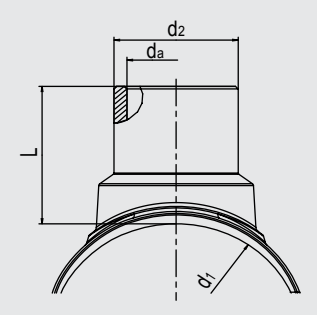
d_3 = maximum tapping diameter in mm

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

d_1	d_2	Order Ref.	Stock-status	BX	PU	Drilling Ø d_a	L	Weight kg/each
250-560	32	**615465**	1	5	90	21	109	0,621
250-560	63	**615466**	1	5	90	47	109	0,676
250-560	90	**615850**	1	5	90	61	111	0,770
250-280	110	**616448**①	1	6	48	85	138	1,682

① For processing with pipe dimension 315 on request

SA-XL Spigot Saddles SA-XL



For integration of a branch line or vent in PE pipelines with large diameters –unpressurised or under operating pressure. Compact component part 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). With indicator for visual control of fusion.

* with MR 225/160 reducible (Order Ref. 616356)

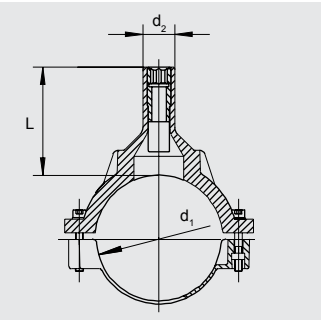
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	Drilling Ø d_a	L	Weight kg/each
315	225 (*160)	**616387**	1	1	4	172	233	9,920
315	250	**616398**	1	1	4	187	233	9,720
355	225 (*160)	**616388**	1	1	4	172	235	9,940
355	250	**616399**	1	1	4	187	235	9,250
450	225 (*160)	**616390**	1	1	4	172	272	10,180
450	250	**616401**	1	1	4	187	272	10,000
500	160	**616381**	2	1	4	123	300	13,550

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
NEW!	500	225	**616391**	2	1	4	172	300	13,600
	560	160	**616373**	2	1	4	123	300	15,300
NEW!	560	225	**616392**	2	1	4	172	300	16,200
	630	160	**616374**	2	1	4	123	300	16,000
NEW!	630	225	**616393**	2	1	4	172	300	17,000
	710	160	**616375**	2	1	4	123	300	19,900
NEW!	710	225	**616394**	2	1	4	172	300	20,750
	800	160	**616376**	2	1	4	123	300	16,800
NEW!	800	225	**616395**	2	1	4	172	300	17,650
	900	160	**616377**	2	1	4	123	300	18,650
NEW!	900	225	**616396**	2	1	4	172	300	19,500
	1000	160	**616378**	2	1	4	123	300	17,350
	1000	225	**616397**	2	1	4	172	300	18,200
	1200	160	**616383**	2	1	4	123	300	17,200
	1200	225	**616384**	2	1	4	172	300	18,100

SAB Spigot Saddles with integral drill



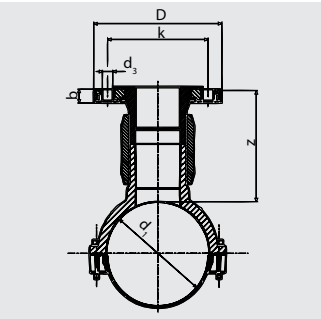
Compact part in HD-PE, saddle with exposed heating element for optimal heat transfer and outlet spigot for use with FRIALEN-couplers MB or UB. Swarfless tapping in the depressurised state by means of the integral drill.

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	0,940
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



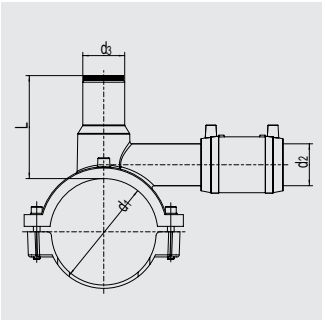
Compact part in HD-PE. Manufactured combination of FRIALEN spigot saddle, coupler and FRIALEN Full Faced Flanges EFL (compact flange). Saddle with exposed heating coil for optimum heat transfer. Tapping in pressure free condition or, using an additional isolating valve, under operating pressure by means of standard tapping equipment (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)). Flange connection measurements according to DIN 2501, part 1. We recommend GST gaskets.
Additional washers are necessary for the flange reducer.

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

d_1/DN	Order Ref.	Stock-status	BX	PU	D	d_k	Drilling Ø d_a	Ø k	Holes for screw	Z	Weight kg/each
110/80	**616016**	1	3	54	204	16,5	65	160	8	180	3,700
125/80	**616017**	1	2	36	204	16,5	65	160	8	180	3,940
160/80	**616018**	1	2	36	204	16,5	65	160	8	180	4,320
180/80	**616019**	1	2	36	204	16,5	65	160	8	180	4,610
225/80	**616020**	1	2	16	204	16,5	65	160	8	180	4,720
125/100	**616021**	1	2	36	224	16,5	84	180	8	180	4,770
160/100	**616022**	1	2	36	224	16,5	84	180	8	180	5,270
180/100	**616023**	1	2	36	224	16,5	84	180	8	180	5,520
225/100	**616024**	1	2	16	224	16,5	84	180	8	180	5,635

DAA (KIT)

Pressure Tapping Tees with extra long outlet spigot in kit version including coupler MB or reducer MR



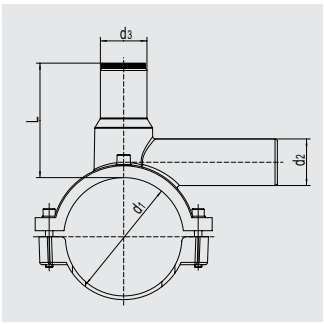
For leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper **and** lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plugs with internal O-ring seal. Fusible dome (d_1 63 and 75 = MV d 40; d_1 ≥ d 90 = K). Pressure 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 Ø d_a	L	Weight kg/each
63	32	**615649**	1	16	288	40	21	100	0,550
75	32	**615651**①	1	12	216	40	21	100	0,780
90	20	**615653**①	2	12	96	50	30	116	1,075
90	25	**615654**①	2	12	96	50	30	116	1,080
90	32	**615655**	1	12	96	50	30	116	1,080
90	40	**615656**①	1	12	96	50	30	116	1,240
110	32	**615661**	1	10	80	50	30	116	1,290
110	40	**615662**①	1	10	80	50	30	116	1,490
110	50	**615663**	1	10	80	50	30	116	1,500
125	32	**615667**	1	10	80	50	30	116	1,490
125	40	**615668**①	1	10	80	50	30	116	1,570
160	20	**615672**①	2	6	48	50	30	162	1,910
160	25	**615673**①	2	6	48	50	30	162	1,920
160	32	**615674**	1	6	48	50	30	162	1,910
160	40	**615675**①	1	6	48	50	30	162	2,081

① with electrofusion reducers d 32/20, d 32/25, d 40/32 or d 50/40.

DAA Pressure Tapping Tees with extra long outlet spigot



For 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 plug with internal O-ring seal. Fusible dome (d_3 32 = MV d 32; d_3 40 = MV d 40; d_3 50 = K). Leakage check possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operation.

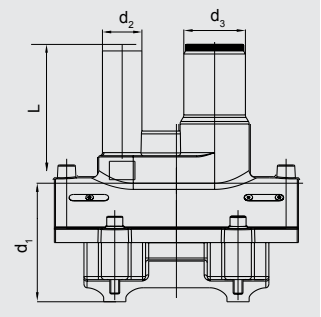
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling Ø d_a	L	Weight kg/each
40	20	**612630**①	1	20	640	32	16	74	0,290
50	25	**612702**	1	20	360	40	21	98	0,450
50	32	**615080**	1	20	360	40	21	98	0,470
63	20	**612631**	1	16	288	40	21	98	0,500
63	25	**612633**	1	16	288	40	21	98	0,505
63	32	**612632**	1	16	288	40	21	98	0,515
63	40	**612623**	1	16	288	40	21	98	0,530
63	63	**616334**	1	20	160	50	30	127	1,060
75	40	**612813**	1	12	216	40	21	97	0,605
90	32	**612634**	1	12	96	50	30	125	1,040
90	50	**612636**	1	12	96	50	30	125	1,110
90	63	**612701**	1	12	96	50	30	125	1,230
110	32	**612637**	1	10	80	50	30	121	1,305
110	50	**612638**	1	10	80	50	30	121	1,375
110	63	**612624**	1	10	80	50	30	121	1,455
125	32	**612649**	1	10	80	50	30	122	1,510
125	50	**612639**	1	10	80	50	30	122	1,545
125	63	**612309**	1	10	80	50	30	122	1,615
140	50	**615037**	2	10	80	50	30	122	1,545
160	32	**612641**	1	6	48	50	30	165	1,765
160	50	**612642**	1	6	48	50	30	165	1,825
160	63	**612650**	1	6	48	50	30	165	1,900
180	32	**612651**	1	5	40	50	30	165	1,775
180	50	**612644**	1	5	40	50	30	165	1,825
180	63	**612652**	1	5	40	50	30	165	1,910
200	32	**612654**	1	5	40	50	30	165	1,830
200	50	**612645**	1	5	40	50	30	165	1,900
200	63	**612659**	1	5	40	50	30	165	1,950
225	32	**612657**	1	5	40	50	30	165	1,850
225	50	**612646**	1	5	40	50	30	165	1,920
225	63	**612655**	1	5	40	50	30	165	1,970

① Length of the outlet spigot dimensioned for 1 fusion operation.

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 dome (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.

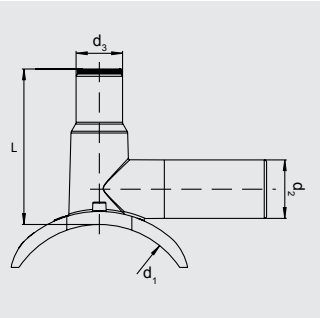
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling Ø 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**	1	6	48	50	30	170	1,570
225	50	**615718**	1	6	48	50	30	170	1,590

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

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 dome (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.

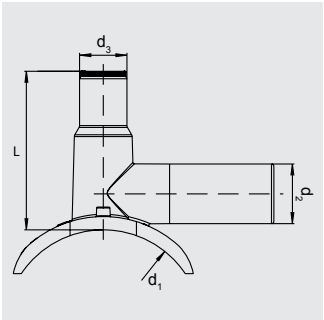
Other outlet dimensions with electrofusion reducers MR

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 Ø 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 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 dome (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.

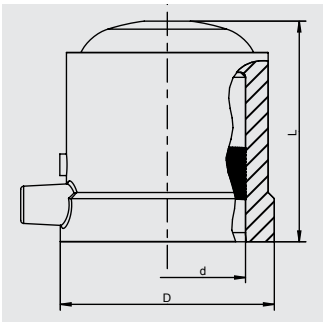
Other outlet dimensions with electrofusion reducers MR

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 Ø d_a	L	Weight kg/each
> 98-130	50	**615527**	2	20	160	50	30	125	0,800
> 130-160	50	**615528**	2	12	96	50	30	121	1,040
> 160-210	63	**615531**	2	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

K Cap for Pressure Tapping Tees



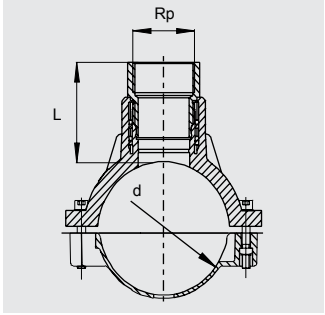
With exposed heating coils for optimal heat transfer, large insertion depth, wide fusion zone plus cold zones at the end to prevent the flow of molten material.

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 part. 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**.

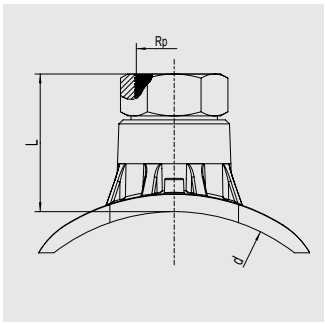
Transition DVGW approved. Reg. Nos.:
DV-7501AU2257 and DV-7501AU2258

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´´	**612794**	2	20	360	146	75	0,730
63	1 1/2´´	**612743**	2	20	360	149	78	0,780
75	1 1/4´´	**615213**	2	15	270	161	76	0,850
90	1 1/2´´	**612798**	2	16	128	172	68	1,370
90	2´´	**612778**	2	16	128	199	95	1,560
110	1 1/2´´	**612732**	1	12	96	183	70	1,490
110	2´´	**612733**	1	12	96	205	92	1,685
125	1 1/2´´	**612734**	2	12	96	207	68	1,610
125	2´´	**612735**	1	12	96	234	95	1,850
160	1 1/2´´	**612728**	2	8	64	242	68	1,800
160	2´´	**612729**	1	8	64	269	95	2,040
180	1 1/2´´	**612774**	2	7	56	250	68	1,780
180	2´´	**612776**	2	7	56	277	95	1,990
225	2´´	**612827**	2	5	40	322	95	1,990

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 part. 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.

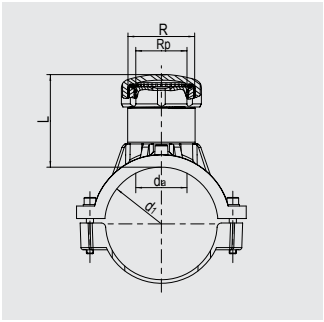
As a **complete solution** we recommend our **Pressure Tapping Valve DAV-TL.**

Transition DVGW approved. Reg. No.: DV-7501AU2258

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**	2	10	180	90	1,505

SPA Shut off Saddles



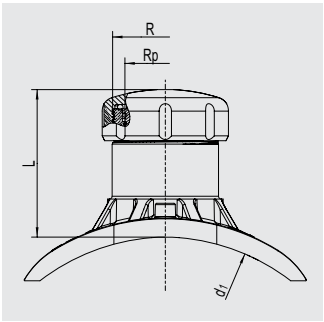
Compact part suitable for available balloon shut-off equipment. HD-PE saddle with exposed heating element for optimal heat transfer. Brass-guide thread permanently and immovably anchored in the HD-PE. Cannot be released or rotated. Includes brass plugs with square recess. Protection against access to the dome by fusing on a FRIALEN-SPAK (when using d 63 through cap K). Thread to DIN ISO 228.

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	1,472
110	G 2 1/2	G 2	**612750**	1	12	96	56,5	217	104	1,630
125	G 2 1/2	G 2	**612751**	1	12	96	56,5	232	104	1,800
160	G 2 1/2	G 2	**612752**	1	8	64	56,5	267	104	1,940
180	G 2 1/2	G 2	**612754**	1	7	56	56,5	287	104	1,950
200	G 2 1/2	G 2	**612755**	1	6	48	56,5	307	104	1,944
225	G 2 1/2	G 2	**612756**	1	5	40	56,5	332	104	1,964

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

SPA-TL Shut off Saddle Top-Loading



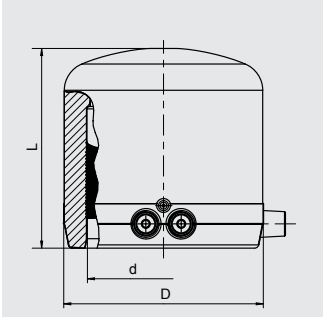
Suitable for **all pipe diameters in the given range** by means of the FRIATOP Clamping Unit (see Product Range FRIATOOLS Technical Equipment). Compact part suitable for available balloon shut-off equipment. HD-PE saddle with exposed heating element for optimal heat transfer. Brass guide thread permanently anchored in the HD-PE. Cannot be released or rotated. Includes brass plugs with square recess. Protection against access to the dome by fusing on a FRIALEN-SPAK.
Thread to DIN ISO 228.

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	Rp	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 Shut off Saddles



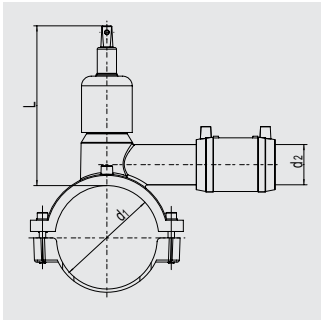
With exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zone plus cold zones at the end to prevent the flow of molten material.

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

DAV (KIT)

Pressure Tapping Valves with extra long outlet spigot in kit version including coupler MB or reducer MR



Compact part 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 linkage (e.g. FRIALEN- EBS). Length of the outlet spigot dimensioned for 2 fusion operations. Four cornered shaft wrench size 14.
Registered by DVGW under registration nos.:
DV-6611AU7039, DV-6611AU2254 and DV-6611AU2255.

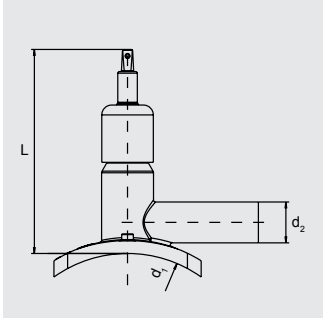
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

d_1	d_2	Order Ref.	Stock-status	BX	PU	Drilling Ø d_a	L	Weight kg/each
63	32	**615614**	1	16	288	20	160	0,980
63	40	**615615**	1	16	288	20	160	1,050
90	32	**615616**	1	12	96	30	200	1,890
90	40	**615617**①	1	12	96	30	200	2,020
110	32	**615620**	1	10	80	30	190	2,140
110	40	**615621**①	1	10	80	30	190	2,230
110	50	**615622**	1	10	80	30	190	2,230
110	63	**615623**	1	10	80	30	190	2,380
125	32	**615624**	1	10	80	30	190	2,150
125	40	**615625**①	1	10	80	30	190	2,300
125	50	**615626**	1	10	80	30	190	2,280
125	63	**615627**	1	10	80	30	190	2,450
160	32	**615628**	1	6	48	30	248	2,750
160	40	**615629**①	1	6	48	30	248	2,825
160	50	**615630**	1	6	48	30	248	2,825
160	63	**615631**	1	6	48	30	248	2,885
180	32	**615632**	1	5	40	30	248	2,760
180	40	**615633**①	1	5	40	30	248	2,835
225	32	**615640**	1	5	40	30	248	2,890
225	40	**615641**①	1	5	40	30	248	3,010

① with electrofusion reducers MR d 50/40.

DAV-TL

Pressure Tapping Valves Top-Loading with extra long outlet spigot

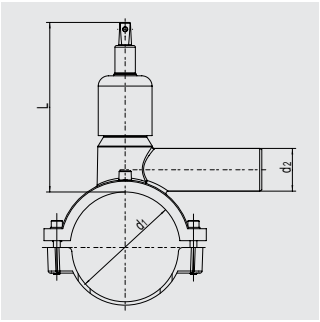


For flexible adaptation to **all pipe diameters in indicated range** by means of the FRIALEN FRIATOP Clamping device (see Product Range FRIATOOLS Technical Equipment). Stainless steel activating spindle 1.4305. No further insulation necessary. Leak and swarf free tapping up to 10 bar (gas) and 16 bar (water). Integrated drill with upper and lower stop, guided in a metal sleeve. With exposed heating coils for optimal heat transfer. Maintenance free, operating isolating valve actuated by a linkage (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 Ø d_a	L	Weight kg/each
NEW! 250-315	63	**616464**	1	10	80	30	245	2,455
NEW! 355-400	63	**616465**	1	10	80	30	245	2,459

DAV Pressure Tapping Valves with extra long outlet spigot

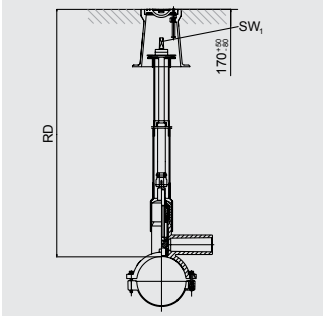


Compact part in HD-PE with **no threaded connections.** Actuating spindle in stainless steel 1.4305. No re-insulating required. Leak free and swarfless tapping up to 10 bar (gas) or 16 bar (water). Integral drill with upper and lower stop, guided in a metal sleeve. Max. 10 turns to activate “OPEN/CLOSE”. With exposed heating element for optimal heat transfer. Maintenance free, operating isolating valve actuated by a linkage (e.g. FRIALEN- EBS). Length of the outlet spigots dimensioned for 2 fusion operations. Four cornered shaft wrench size 14.
Registered by DVGW under registration nos.:
DV-6611AU7039, DV-6611AU2254 and DV-6611AU2255.

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	1,380
63	40	**615342**	1	16	288	20	164	1,390
75	32	**615956**	1	12	216	20	164	1,390
90	32	**615344**	1	12	96	30	200	1,770
90	50	**615346**	1	12	96	30	200	1,830
90	63	**615347**	1	12	96	30	200	1,900
110	32	**615348**	1	10	80	30	200	1,930
110	50	**615350**	1	10	80	30	200	2,020
110	63	**615351**	1	10	80	30	200	2,050
125	32	**615352**	1	10	80	30	200	2,185
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	248	2,750
160	50	**615358**	1	6	48	30	248	2,825
160	63	**615359**	1	6	48	30	248	2,885
180	32	**615361**	1	5	40	30	248	2,760
180	50	**615363**	1	5	40	30	248	2,835
180	63	**615364**	1	5	40	30	248	2,895
200	32	**615366**	1	5	40	30	248	2,850
200	50	**615368**	1	5	40	30	248	2,910
200	63	**615369**	1	5	40	30	248	2,980
225	32	**615374**	1	5	40	30	248	2,870
225	50	**615376**	1	5	40	30	248	2,930
225	63	**615377**	1	5	40	30	248	3,000

EBS Installation kits for Pressure Tapping Valves



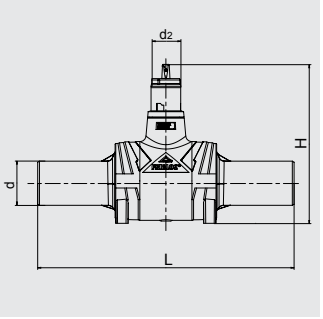
Telescopic actuating linkage for operation of the FRIALEN-DAV from the street cap. Stepless adjustment in the stated range (RD) without the use of tools, even in the installed state. Self supporting in any extended position. Corrosion proof.

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**	2	1		14	3,600
2,6-3,5	**616328**	2	1		14	3,600

FRIALOC

Shut-Off Valve with shut-off mechanism suitable for plastics Application: Water



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. The drive is a very low-wear drive. A forced flushing prevents dead spaces and stagnation. The small sealing area minimises biological growth. The free passage corresponds to the connecting pipe SDR 11 (except d 225). 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. Registered by DVGW under registration no. DW-6210BT0171.

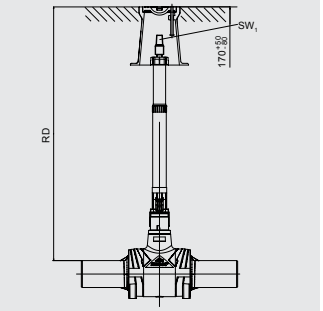
PE 100 SDR 11
Maximum working pressure 16 bar (water)

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	1	1	2	608	1030	44,600
225	80	**616298**①	1	1	2	608	1030	45,500
250	80	**616438**①	1	1	2	608	1030	46,000

① limited passage corresponds to dim. d 180

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.

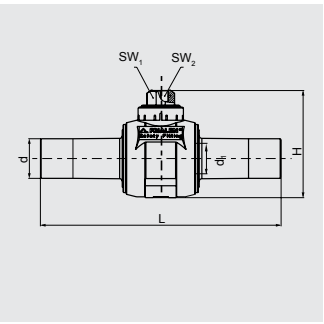
bars of hot zinc dipped steel

RD in m	Order Ref.	Stock-status	BX	PU	SW_1	Weight kg/each
0,75 - 1,0	**616308**	2	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**	2	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**	2	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**	2	1	42	30	4,150
2,4 - 3,5	**616326**	2	1	50	30	6,350

KHP Ball Valves in HD-PE, 1/4 turn

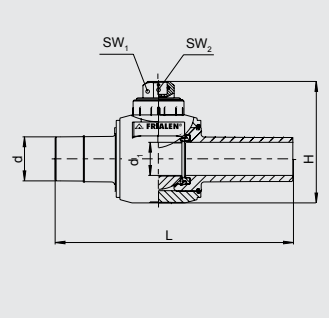


Compact part in HD-PE with spigots for use with FRIALEN-couplers MB or UB. No corrosion proofing required. Open and closed position with definite stop. Maintenance free, with operating isolating valve actuated by a linkage (e.g. FRIALEN-BS).
Registered by DVGW under registration nos.:
DG-8631AU2251, DG-8631AU2252 and DG-8631AU2253.

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

d	Order Ref.	Stock-status	BX	PU	d_1	H	L	SW_1	SW_2	Weight kg/each
32	**612490**	1	1	170	24	129	310	50 x 50	19	0,650
40	**612497**	1	1	170	24	129	310	50 x 50	19	0,700
50	**612492**	1	1	170	24	129	310	50 x 50	19	0,750
63	**612494**	1	1	50	43	195	417	50 x 50	25	2,380
90	**612495**	1	1	24	67	245	545	50 x 50	25	4,700
110	**612493**	1	1	24	67	245	545	50 x 50	25	5,100
125	**612496**	1	1	24	67	245	545	50 x 50	25	5,400
160	**612483**	1	1	8	98	329	544	50 x 50	25	12,800
180	**615309**	1	1	8	98	329	544	50 x 50	25	13,100
200	**612480**	1	1	8	98	329	544	50 x 50	25	14,100
225	**616186**	1	1	8	98	332	530	50 x 50	25	15,000

KH Ball Valves made from HD-PE, 1/4 turn, full port



Compact construction part made from HD-PE with spigots for processing with FRIALEN MB or UB couplers. Valve passage without construction in line with internal diameter of pipe socket. No corrosion prevention measures necessary. Open and closed position at defined stop. Maintenance free shut-off cock activated by lever system (e.g. FRIALEN BS).
Registered by DVGW for gas under registration nos.:
DG-8631AU2251, DG-8631AU2252.

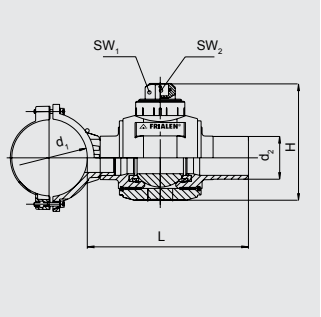
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

d	Order Ref.	Stock-status	BX	PU	d_1	H	L	SW_1	SW_2	Weight kg/each
20	**616470**	1	1	100	24	138	310	50 x 50	20,4	0,500
25	**616471**	1	1	100	24	138	310	50 x 50	20,4	0,550
32	**616176**	1	1	100	33,6	156	324	50 x 50	20,4	0,770
40	**616177**	1	1	100	33,6	156	324	50 x 50	20,4	0,800
50	**616178**①	1	1	50	43	193	405	50 x 50	25,4	2,240
63	**616179**	1	1	50	51	206	410	50 x 50	25,4	2,420
90	**616180**	1	1	18	98	288	577	50 x 50	25,4	6,600
110	**616181**	1	1	18	98	288	577	50 x 50	25,4	6,750
125	**616182**	1	1	18	98	288	577	50 x 50	25,4	6,900

① BS d 63 – d 225 required

AKHP

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



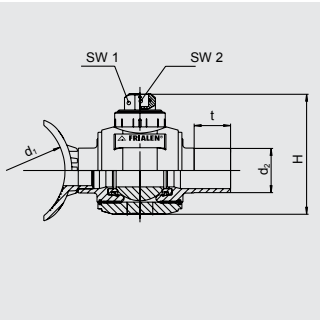
Compact part in HD-PE. Factory made combination of FRIALEN-Saddle Moulding and FRIALEN-Ball Valve with spigot for space and cost saving horizontal installation especially for integration of branches into mains under operating pressure. Leakage and swarf free tapping up to 10 bar (gas) and 16 bar (water) using standard tapping equipment (we recommend Hütz & Baumgarten (www.huetz-baumgarten.de)). With exposed heating element for optimal heat transfer.
Registered by DVGW under registration nos.:
DG-8631AU2252 and DG-8631AU2253.

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**	1	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 part 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.
Registered by DVGW under registration nos.:
DG-8631AU2251 and DG8631AU2252.

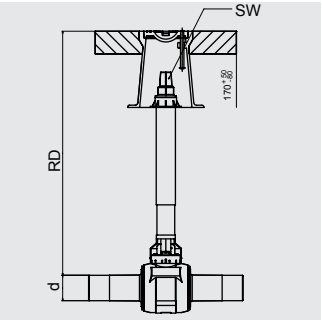
PE 100 SDR 11
Maximum working pressure 16 bar (water)/10 bar (gas)

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	**615525**①	2	4	32	42	180	330	50 x 50	25	2,770
250-450 (560)	90	**615526**①	2	4	32	60	240	335	50 x 50	25	4,470

① d_1: d 250 up to d 450 for pipes SDR 11 and 17;
d_1: > 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 linkage 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_1	Weight kg/each
32– 50	0,45-0,70	**615741**	1	1	42	30	1,800
32– 50	0,60-1,00	**615957**	1	1	42	14	2,700
32– 50	0,60-1,00	**615328**	1	1	42	30	2,000
32– 50	1,00-1,50	**615330**	1	1	42	30	3,400
32– 50	1,20-2,00	**616068**	2	1	42	14	3,450
32– 50	1,20-2,00	**615329**	2	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	**615331**	1	1	42	30	4,150
63–225	1,20-2,00	**616069**	2	1	42	14	3,600
63–225	1,20-2,00	**615311**	2	1	42	30	5,250

General conditions of supply and payment of FRIATEC Aktiengesellschaft
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 heater coil 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.

2.2 Our written order confirmation controls content and size of the order.

2.3 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. 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 2% 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.

6.2 There can be no claims for defects which have not been notified within the appropriate period. 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 pari.

6.3 The limitation period for claims is

5 years for building materials which have been installed and have caused defects within a pipe system.

1 year for delivery of other new goods to contractor

2 years for all others

Limitation period starts on delivery of goods.

6.4 The delivery of second-hand merchandise to corporate customers excludes liability for defects; this does not apply to liability pursuant to Item 9.

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 besecured 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. 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.

July 2012
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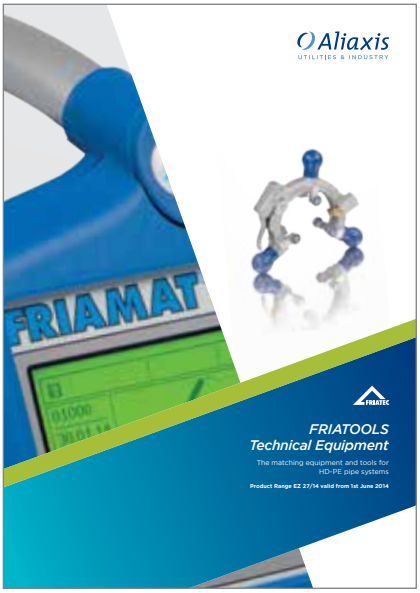
FURTHER PRODUCT RANGES:



Aliaxis
UTILITIES & INDUSTRY

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