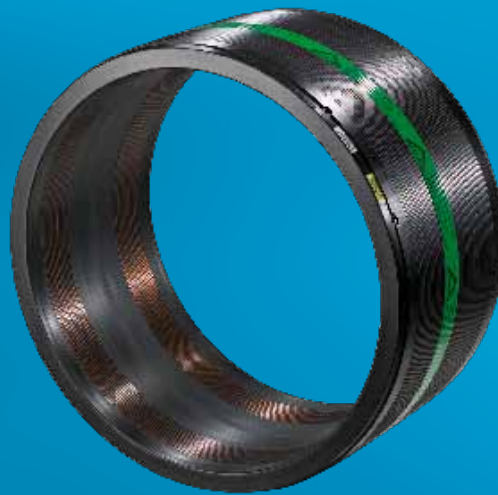


Product Range

ES 30/09



[®]
FRIALEN

Always the right decision:

FRIALEN[®] **Safety Fittings**

The safe jointing techniques for gas, water and industrial piping made of HD-PE and PE-Xa

valid from 1st February 2009



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 (VE) and pallet units (PE). An order in complete VE/PE 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 **DIN 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 are subject to constant quality checks under stringent inspection regulations, which are part of our comprehensive Quality Management System which is certified **to DIN EN ISO 9001:2000.**

The FRIALEN®-Safety Fittings range and the operation of our Technical Equipment FRIATOOLS® are matched to each other. All modifications and additions occurring in the course of continuing technical development are taken into account. Our continuous monitoring of production as part of the Quality Assurance System includes the FRIALEN®-Safety Fittings, the Technical Equipment FRIATOOLS® and the quality of the fused joint as a result of the combination of these two components. The operation and functional safety of fusion units from other manufacturers are not subject to our specifications and checks. When installing fittings please proceed in accordance with our assembly instructions and the operating instructions for the equipment.

DVGW Permit/Fusion capability

FRIALEN®-Safety Fittings are licensed for use with gas and water. They have been registered by **DVGW** in accordance with **VP 607/GW 335-B2** with decisions **DV-8601AU2248, DV-8606AU2249** and **DV-8611AU2250** and **are subjected to regular outside monitoring.** Certain individual registrations apply to some parts; these are listed in the instructions.

FRIALEN®-Safety Fittings can be fused to pipes of SDR stages 17.6 (s min = 2.3 mm) to 11 in accordance with DIN 8074, ISO 4437, EN 1555 and DIN EN 12201. Processing of other SDR levels on request.

FRIALEN® Saddle parts/valves up to d 63 may only be processed using pipes up to SDR 11.

Please also note the information on the fusible SDR classes on the fitting barcode.

Pipes made of raw material types LD-PE, PE 50, PE 63, PE 80, PE 100 with a melt flow rate MFR190/05 between 0.2 - 1.7 g/10 min. can be fused as well as PE-Xa pipes with DVGW certification.

FRIALEN®-Safety Fittings comply with the requirements of DIN 16 963, Part 5 and Part 7, and also EN 1555-3 and 4 and DIN EN 12201-3 and 4. They can be worked with at ambient temperatures between -10 °C and +45 °C.

For case by case restrictions in the installation, and also when working with FRIALEN®-Safety Fittings in general, please read our assembly instructions. Our customer support staff in the sales office will also be glad to answer any questions.

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

Pressure loading capacity

The pressure loading capacity of FRIALEN®-Safety Fittings will be printed in SDR (Standard Dimension Ratio) stages.

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

The authority for this is the latest revised Standards and proposed Standards (DIN EN 1555, DIN EN 12201, DIN 8074 and 8075) taking into account of the new design factor C (calculation coefficient for components made of PE). Depending on the PE material used we get the following pressure stages according to the latest level of knowledge:

Moulding material: PE 100 (FRIALEN® Standard) SDR Stage	Water	Gas
SDR Stage	maximum working pressure in bar for C = 1,25	maximum working pressure in bar for C = 2
17	10	5
11	16	10
7.4	25	-

Cooling times

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

The cooling times given in the barcodes, and identified by additional letters (letter C.T.) are the times during which the fused joint should not be moved.

Longer cooling times should be allowed before pressurisation. Please read our assembly instructions on this.

FRIALEN®-Fittings/Valves/Saddles

The cooling times given in the barcodes (C.T.) are the times before tapping takes place.

After the cooling period for the fused joint has passed a pressure test can be made on the house pipe. Please read our assembly instructions on this.

FRIALEN® saddle parts Top-Loading

The indication of the dimension, including the value in brackets, marks the authorized assembly and fusion range for the saddle part. It is possible that the standard application range is limited by technical restrictions (e.g. length of drill/pipe wall thickness or tapping diameter/diameter of shut-off saddles). Suitability must be checked for other areas of application.

FRIAGRIP® PE-Adapter

For AZ pipes, the tensile strength cannot be guaranteed! For use on PVC gas pipes, see the assembly instructions FRIAGRIP® on PVC gas pipe (HM 401 04). For PVC pipes with wall thicknesses < DIN 8061/62-PN10, an internal supporting sleeve is to be used. For use on stainless steel pipes, see FRIAGRIP® information no. HI 420. FRIAGRIP® component parts can exclusively be used in underground engineering!

Technical Information

This technical Information in this product range is not comprehensive. Please refer to our data sheets for detailed Information. These may also be downloaded from the internet on www.frialen.com.

Technical hints for processing or use could be attached to the product and must be strictly observed.

Update/Technical Progress

All specifications are valid as at time of going to print. We reserve the right to implement changes which serve technical progress. We do not accept liability for printing mistakes.

Brand Names

For a better readability, no identification by ® and ™ was used in the continuous texts of this price list. The following brands are registered: FRIALEN®, FRIAFIT®, FRIAGRIP®, FRIATOOLS®, Sentry GS®, BAIO®, NOVO-Sit®, Rilsan®, Straub® as well as Gas-Stop™.

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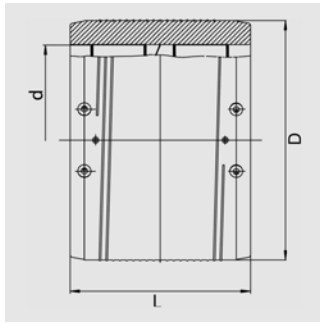
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UB

Slide-over 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. From d 250 with fusion indicators for visual fusion control.

Diameter d 280 and bigger with pre-heating technology (d 280 – d 450 optional use; d 500 – d 800 required).
Special sizes on request

PE 100 SDR 11

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



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
20	612660	1	160	5.120	33	60	0,037
25	612661	1	120	3.840	38	66	0,044
32	612662	1	60	1.920	45	77	0,073
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	0,211
75	612666	1	20	360	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	1,275
160	612671	1	8	64	199	190	1,772
180	612672	1	6	48	220	210	2,088
200	612673	1	2	36	247	220	2,798
225	612674	1	1	36	277	236	3,950
250	612675	1	1	24	315	246	6,700
280	615073①	1	1	18	355	268	9,300
315	612670①	1	1	18	400	300	14,580
355	615074①	1	1	9	450	300	16,700
400	615075①	1	1	4	500	320	20,800
450	615076①	1	1	4	560	340	30,000
500	615124①	1	1	4	630	360	39,800
NEW!	560	616312②	2	1	715	380	56,400
NEW!	630	616269②	2	1	810	420	80,600

PE 100 SDR 17

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



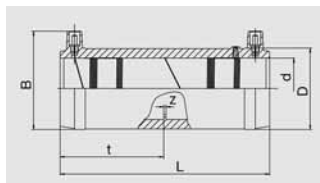
d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
560	615706①	1	1	2	630	380	24,800
630	615726①	1	1	2	710	420	36,800
710	615994①②	1	1	2	800	420	48,600
800	616290①②	1	1	1	900	500	65,900

①separate fusion zones

②processing with pipes SDR 17 / SDR 17.6. Other wall thicknesses on request.

FRIALONG

Long Couplers with removable center stop



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

PE 100 SDR 11

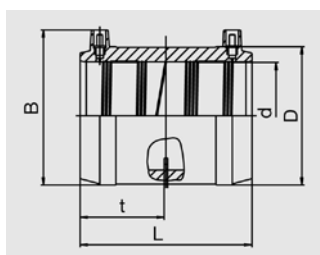
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32	615736	1	40	1280	45	136	0,110
40	615737	1	30	960	54	146	0,160
50	615608	1	16	512	68	175	0,250
63	615738	1	10	320	82	197	0,340

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.

PE 100 SDR 11

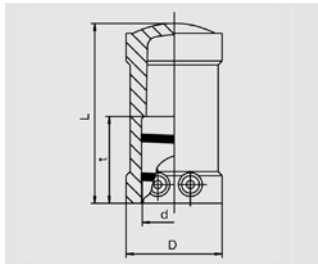
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
20	612680	1	160	5120	33	60	0,040
25	612681	1	120	3840	38	66	0,050
32	612682	1	60	1920	45	78	0,070
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	0,210
75	612686	1	20	360	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	1,280
160	612691	1	8	64	199	190	1,770

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. From d 180 with fusion indicators for visual fusion control.

PE 100 SDR 11

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

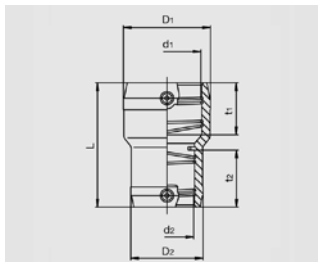


d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
20	612025	2	40	2000	35	72	0,040
25	612026	2	40	2000	40	80	0,060
32	612027 ⓪	1	40	1280	49	91	0,090
40	612028 ⓪	1	25	800	58	98	0,130
50	612029	1	20	640	70	114	0,190
63	612030	1	15	480	84	117	0,270
75	612031	1	20	360	98	133	0,390
90	612032	1	30	240	117	155	0,660
110	612033	1	24	192	142	181	1,130
125	612034	1	16	128	158	186	1,380
160	612035	1	8	64	206	262	2,980
180	616183	1	6	48	225	195	2,800
225	616185	1	4	32	280	230	5,050

⓪also recommended as fused caps for the dome of FRIALEN-Pressure Tapping Tees (see DAA (KIT), DAA, DAP, DAA-TL).

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

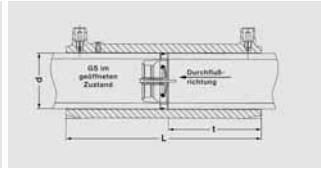
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	D ₁ /D ₂	L	Weight kg/each
32	20	615386	1	80	2560	45/ 32	88	0,060
32	25	615502	1	70	2240	45/ 38	88	0,060
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	0,220
63	40	615390	1	16	512	82/ 54	125	0,220
63	50	612072	1	16	512	82/ 68	125	0,240
90	50	615391	1	15	270	117/ 68	160	0,490
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

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

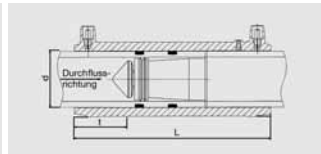
Maximum working pressure type Z: 5 bar (gas), type D: 1 bar (gas)



d	Typ	Order Ref.	Operating pressure-range $p_{min} - p_{max}$	V_N	Stock-status	VE	PE	L	Weight kg/each
32	Z	616187	35 mbar - 5 bar	17 - 40	1	20	1000	136	0,140
40	Z	616188	35 mbar - 5 bar	26 - 62	1	13	650	146	0,220
50	Z	616189	35 mbar - 5 bar	41 - 99	1	8	400	175	0,380
63	Z	616190	35 mbar - 5 bar	66 - 158	1	5	250	197	0,530
32	D	616191	25 mbar - 1 bar	11 - 16	1	20	1000	136	0,140
32	B	616192	100 mbar - 5 bar	26 - 60	1	20	1000	136	0,140
40	D	616193	25 mbar - 1 bar	19 - 27	1	13	650	146	0,220
40	B	616194	100 mbar - 5 bar	39 - 90	1	13	650	146	0,220
50	D	616195	25 mbar - 1 bar	28 - 40	1	8	400	175	0,380
50	B	616196	100 mbar - 5 bar	58 - 135	1	8	400	175	0,380
63	D	616197	25 mbar - 1 bar	51 - 72	1	5	250	197	0,530
63	B	616198	100 mbar - 5 bar	94 - 219	1	5	250	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 and U_{ue} with overflow. DVGW test certificate for Gas-Stop™: DG-4360BP0060

PE 100 SDR 11

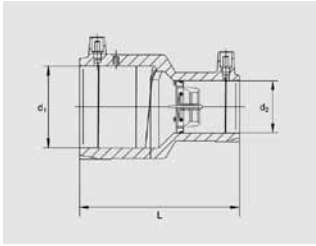
Maximum working pressure type U, U_{ue} , B: 5 bar (gas), Typ A/D: 1 bar (gas)



d	Typ	Order Ref.	Operating pressure-range $p_{min} - p_{max}$	V_N	Stock-status	VE	PE	L	Weight kg/each
32	U	616199	35 mbar - 5 bar	15 - 35	1	40	1280	136	0,140
32	U_{ue}	616200	35 mbar - 5 bar	15 - 35	1	40	1280	136	0,140
50	U	616201	35 mbar - 5 bar	35 - 80	1	20	640	175	0,350
50	U_{ue}	616202	35 mbar - 5 bar	35 - 80	1	20	640	175	0,350
63	U	616203	35 mbar - 5 bar	55 - 120	1	12	384	197	0,560
63	U_{ue}	616204	35 mbar - 5 bar	55 - 120	1	12	384	197	0,560
32	A/D	616205	25 mbar - 1 bar	10 - 14	1	40	1280	136	0,140
32	B	616206	150 mbar - 5 bar	20 - 45	1	40	1280	136	0,140
50	A/D	616207	25 mbar - 1 bar	25 - 35	1	20	640	175	0,350
50	B	616208	150 mbar - 5 bar	48 - 112	1	20	640	175	0,350
63	A/D	616209	25 mbar - 1 bar	40 - 55	1	12	384	197	0,560
63	B	616210	150 mbar - 5 bar	75 - 180	1	12	384	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

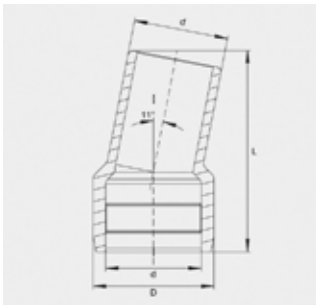
Maximum working pressure Type Z: 5 bar, Type D: 1 bar (gas)



d ₁	d ₂	Typ	Order Ref.	Operating pressure-range p _{min} - p _{max}	V _N	Stock-status	VE	PE	L	Weight kg/each
50	40	Z	616218	35 mbar - 5 bar	26 - 62	1	12	600	110	0,210
50	40	D	616237	25 mbar - 1 bar	19 - 27	1	12	600	110	0,210
63	32	Z	616219	35 mbar - 5 bar	17 - 40	1	10	500	125	0,240
63	32	D	616238	25 mbar - 1 bar	11 - 16	1	10	500	125	0,240
63	40	Z	616220	35 mbar - 5 bar	26 - 62	1	8	400	125	0,290
63	40	D	616239	25 mbar - 1 bar	19 - 27	1	8	400	125	0,290
63	50	Z	616221	35 mbar - 5 bar	41 - 99	1	8	400	125	0,370
63	50	D	616240	25 mbar - 1 bar	28 - 40	1	8	400	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

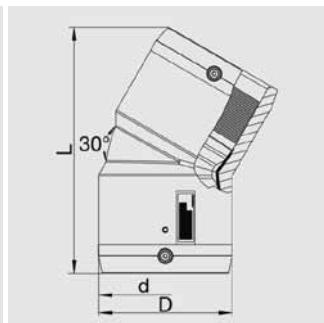
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
110	616139	1	8	144	141	235	0,960
125	616140	1	5	90	160	250	1,300
160	616141	1	8	64	200	295	2,350
180	616142	1	4	32	226	310	3,140
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)

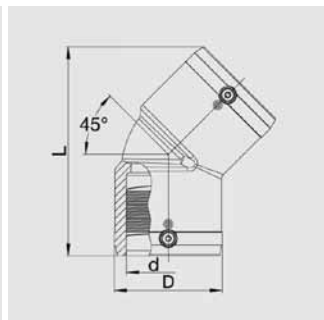


d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
90	615272	1	8	144	115	224	0,780
110	615273	1	6	108	142	252	1,260
125	615274	1	4	72	158	270	1,640
160	615340	1	5	40	199	350	3,870
180	616261	1	3	24	229	390	4,800
200	616262	1	1	18	254	412	6,350
225	616263 Ⓛ	1	1	8	281	456	8,560

Ⓛavailable from january 2009

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

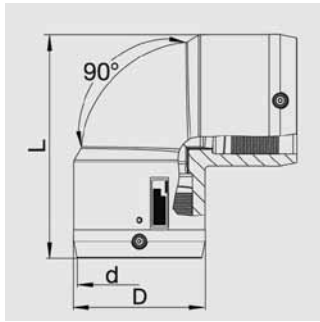
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	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	70	146	0,210
63	612098	1	10	320	84	158	0,300
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

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)

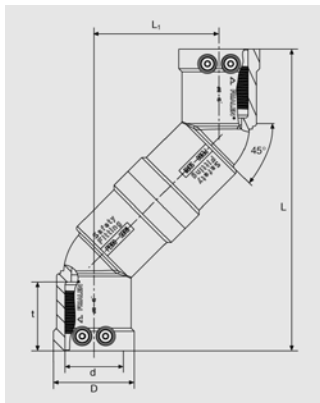


d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
25	612091	1	60	1920	37	73	0,060
32	612093	1	45	1440	43	82	0,070
40	612095	1	25	800	53	96	0,110
50	612097	1	20	640	66	113	0,190
63	612099	1	10	320	83	136	0,340
75	612101	1	12	216	96	170	0,600
90	612103	1	6	108	115	202	0,950
110	612105	1	10	80	138	234	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	1	2	18	254	392	8,560
225	615690	1	1	8	280	430	10,220

^①available from january 2009

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 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

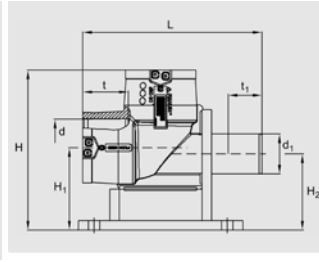
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	L ₁	Weight kg/each
32	616051	1	15	750	49	177	73	0,220
40	616052	1	15	480	58	215	89	0,330
50	616053	1	15	270	70	242	100	0,510
63	616054	1	10	180	84	256	106	0,700

WF 90°

90° Elbow with base unit



Compact part in HD-PE to integrate a hydrant next to the mains. Base unit and elbow make up a homogenous unit, base plate can be mounted onto base. With spigot outlet d 63/SDR 11 for house connections avoiding stagnation at hydrants. 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)

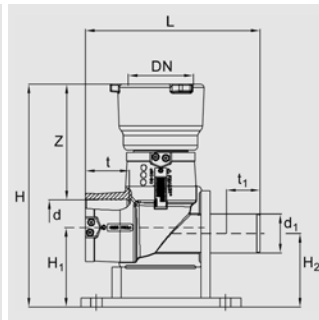


d	d ₁	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
90	63	615989	1	3	54	293	2,170
110	63	615998 ①	1	6	48	346	2,880

①see 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.

PE 100 SDR 11

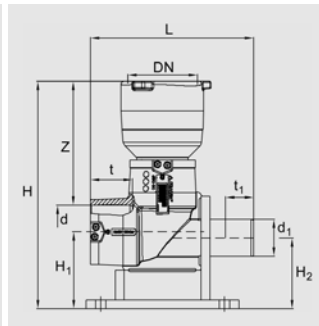
Maximum working pressure 16 bar (water)



d/DN	d ₁	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
110/80	63	616150	2	3	12	346	8,340

WFGN

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



For connection of hydrant with cast spigot. Compact construction part manufactured from FRIALEN 90° elbow with base (see WF 90°) and NOVO-Sit coupler connection made from ductile cast iron including Tyton sealing ring and NOVO-Sit ring for push prevention. NOVO-Sit cast coupler anchored in PE moulded part. Cannot be released or rotated. Please observe specific processing instructions for „NOVO-Sit“ connection system.

PE 100 SDR 11

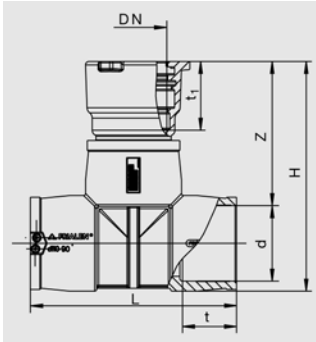
Maximum working pressure 16 bar (water)



d/DN	d ₁	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
110/80	63	616151	2	3	12	346	8,460

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

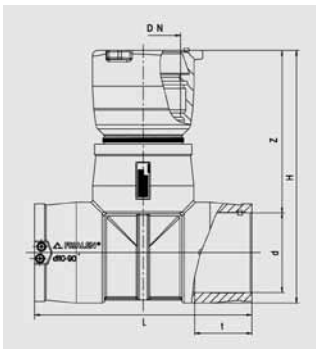
Maximum working pressure 16 bar (water)



d/DN	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
110/80	616147	2	4	16	302	7,530
125/80	616148	2	3	12	314	8,300
160/80	616149	2	2	8	390	12,000

TGN

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



For connection of hydrant or cut-off valves with cast spigot. Compact construction part manufactured from FRIALEN T-piece and NOVO-Sit coupler connection at outlet made from ductile cast iron including Tyton sealing ring and NOVO-Sit ring for push prevention. NOVO-Sit 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 NOVO-Sit connection system.

PE 100 SDR 11

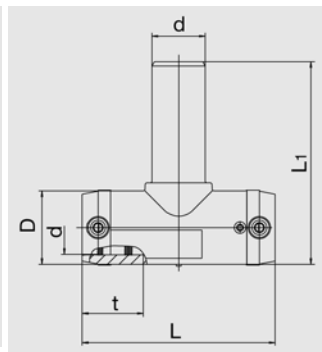
Maximum working pressure 16 bar (water)



d/DN	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
90/80	616300	2	1	50	245	6,610
110/80	616144	2	4	16	302	7,630
125/80	616145	2	3	12	314	8,400
160/80	616146	2	2	8	390	13,640

TA (KIT)

T-Pieces with extra long outlet spigot in kit version



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 (if necessary).

PE 100 SDR 11

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

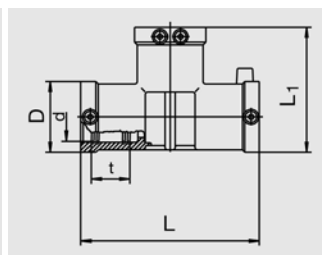


	d	Order Ref.	Stock-status	VE	PE	D	L	L ₁	Weight kg/each
NEW!	25	616335 ①	1	40	720	36	108	110	0,076
	32	612161	1	30	540	44	116	131	0,170
	40	612162	1	20	360	53	146	151	0,300
	50	612163	1	10	180	67	175	186	0,490
	63	612164	1	5	90	81	197	203	0,790

①available from january 2009

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 fusion operations is necessary.

PE 100 SDR 11

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

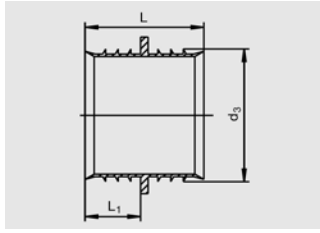
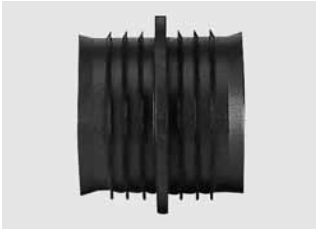


	d	Order Ref.	Stock-status	VE	PE	D	L	L ₁	Weight kg/each
	75	612165	1	8	144	96	278	187	0,980
	90	612166	1	10	80	117	305	211	1,650
	110	612167	1	6	48	142	355	248	2,580
	125	612168	1	5	40	160	384	272	3,520
	160	615277	1	3	24	200	430	315	5,820
	180	615691	1	2	16	228	480	354	7,900
	200	616266 ①	1	1	8	251	550	400	11,060
	225	615692	1	1	8	280	580	430	13,990

①available from january 2009

RW

Repair Sleeves



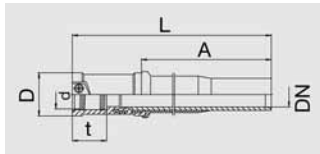
For the repair of house water connection pipes in the depressurised state. Prevents the ingress of water into the fused area of the FRIALEN MB or UB couplers.
Measure d means: Repair Sleeves for pipe d xy.
Suitable only for pipes SDR 11.



d	Order Ref.	Stock-status	VE	PE	d ₃	L	L ₁	Weight kg/each
32	615127	1	50	4500	27	35	16	0,004
40	615128	1	50	4500	34	35	16	0,005
50	615129	1	50	4500	42	35	16	0,007
63	615130	1	40	3600	52,5	47	22	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. 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

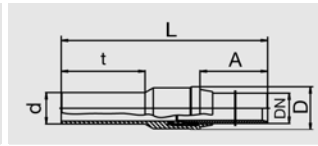
Maximum working pressure 10 bar (gas)



d/DN	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
25/20	612744	1	20	600	40	376	0,840
32/25	612780	1	15	450	47	388	1,190
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	5,230
110/100	612785	1	1	54	143	420	8,380
125/100	612786	1	1	46	158	425	8,800
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. Steel end permanently anchored in the HD-PE. Self sealing patented sealing geometry **without elastomer seal**. Little insulating work due to injection moulded protective tube. For use in gas systems. Steel pipe sockets marked by restrutting (for use with gas up to 10 bar). Registered by DVGW under registration nos. DV-7501AU2256 and DV-7501AU2257.

PE 100 SDR 11

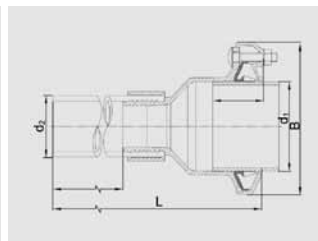
Maximum working pressure 10 bar (gas)



d/DN	Order Ref.	Stock-status	VE	PE	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

FGPA

FRIAGRIP® PE-Adapter



Tension-proof* adapter between pipes of different materials (steel, cast iron, ductile cast iron, fibre cement**, PVC) and HD-PE in civil engineering. Fusion end PE100, SDR11. Housing and second ring made from ductile cast iron, Rilsan corrosion protection. Screws and nuts in stainless steel. A gripping system for all pipe materials: Azetal holding segment, Azetal gripping segment corundum coated. Sealing material NBR. Suitable for **diameter tolerances of max 44 mm**. Possible angling of pipes to max 4°.

*) Tension proof water: ≤ DN 150 PN 16, > DN 150 PN 10/
tension proof gas: PN 4

**) When processing the coupling side on HD-PE pipes our internal supporting sleeve SHVA is required.
For further processing hints see page 3.

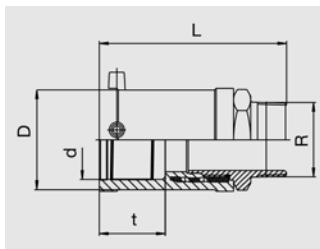
Maximum operating pressure: water up to PN 16*, gas PN 4



DN	d ₁	d ₂	Order Ref.	Stock-status	L ₁	B	L	t _{min}	t _{max}	Weight kg/each
80	85,7-107,0	90	671005	1	420	211	672	70	105	6,800
100	107,2-133,2	110	671007	1	400	280	704	90	120	11,700
100	107,2-133,2	125	671008	2	400	280	697	90	120	12,400
125	132,2-160,2	110	671009	2	390	305	723	90	125	13,300
125	132,2-160,2	125	671010	2	390	305	717	90	125	14,000
150	158,2-192,2	160	671011	1	380	339	726	95	140	19,900
150	158,2-192,2	180	671012	2	380	339	723	95	140	22,400
200	218,1-256,0	225	671015	1	370	417	741	120	155	31,700

USTN

Transition Fittings 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. 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

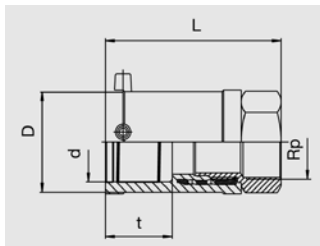
PE 100 SDR 11

Maximum working pressure 5 bar (gas)

d	R	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
20	1/2"	612578	1	40	3600	35	95	0,150
32	1"	612580	1	20	1800	47	119	0,330
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. 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

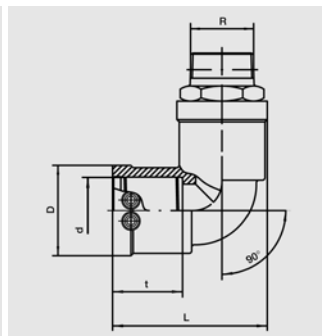
Maximum working pressure 5 bar (gas)



d	Rp	Order Ref.	Stock-status	VE	PE	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. 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

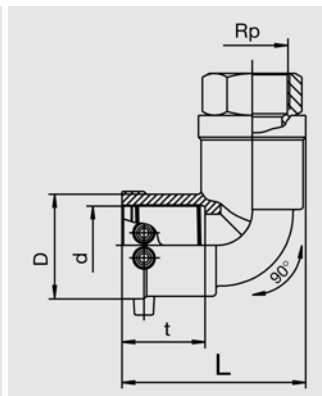
Maximum working pressure 5 bar (gas)



d	R	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
40	1¼"	612602	1	15	750	58	102	0,560
50	1½"	612604	1	10	500	70	118	0,770
63	2"	612606	1	10	320	84	128	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. 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

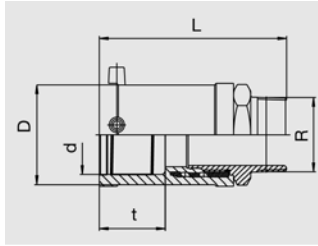
Maximum working pressure 5 bar (gas)



d	Rp	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32	1"	612610	1	20	1000	47	85	0,370
40	1"	612611	2	15	750	58	102	0,650
40	1¼"	612612	1	15	750	58	102	0,540
50	1½"	612614	1	10	500	70	118	0,710
63	2"	612616	1	10	320	84	128	1,120

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. 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. Other materials on request

Other thread sizes on request

PE 100 SDR 11

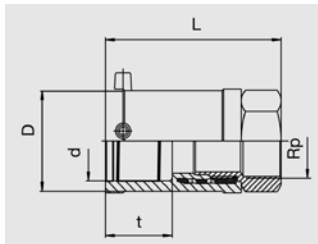
Maximum working pressure 16 bar (water)



d	R	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
20	1/2"	612710	1	40	3600	35	91	0,120
25	3/4"	612711	1	30	2700	40	99	0,210
32	1"	612712	1	20	1800	47	112	0,300
32	1 1/4"	612709	1	20	1800	47	120	0,360
32	1 1/2"	612698	1	15	1350	47	121	0,380
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	0,750
50	1"	612719	1	15	750	70	134	0,580
50	1 1/4"	612716	1	15	750	70	136	0,610
50	1 1/2"	612714	1	15	750	70	137	0,590
50	2"	612706	1	15	750	70	147	0,800
63	1 1/4"	612722	1	10	500	84	138	0,910
63	1 1/2"	612717	1	10	500	84	137	0,940
63	2"	612715	1	10	500	84	142	0,940
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. 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. Other materials on request

Other thread sizes on request

PE 100 SDR 11

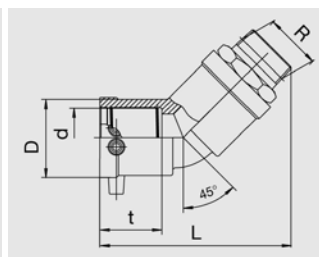
Maximum working pressure 16 bar (water)



d	Rp	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32	1"	612595	1	20	1800	47	112	0,330
40	1 1/4"	612596	1	20	1000	58	121	0,470
50	1 1/2"	612692	1	15	750	70	136	0,690
63	1 1/2"	612708	1	10	500	84	141	1,230
63	2"	612693	1	10	500	84	141	1,050

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. 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. Other materials on request

Other thread sizes on request

PE 100 SDR 11

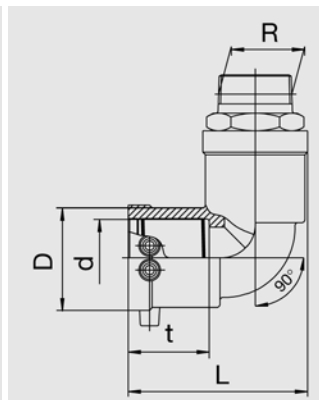
Maximum working pressure 16 bar (water)



d	R	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32	1"	612145	1	20	1000	47	126	0,380
40	1¼"	612149	1	15	750	58	140	0,490
40	1½"	612139	1	15	750	58	142	0,560
50	1½"	612144	1	10	500	70	163	0,640
63	1½"	612147	1	10	320	84	176	0,980
63	2"	612146	1	10	320	84	178	0,990

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. 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. Other materials on request

Other thread sizes on request

PE 100 SDR 11

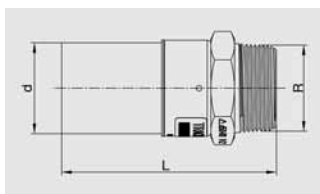
Maximum working pressure 16 bar (water)



d	R	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32	1"	612120	1	20	1000	47	85	0,320
32	1½"	612140	1	20	1000	47	94	0,470
40	1"	612127	1	15	750	58	102	0,480
40	1¼"	612122	1	15	750	58	102	0,520
40	1½"	612121	1	15	750	58	102	0,580
50	1"	612119	1	10	500	70	118	0,640
50	1¼"	612123	1	10	500	70	118	0,670
50	1½"	612124	1	10	500	70	118	0,680
63	1½"	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.

Other thread sizes on request

PE 100 SDR 11

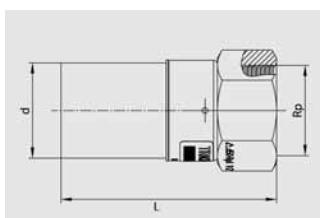
Maximum working pressure 16 bar (water)/5 bar (gas)



d	R	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
32	1"	616152	1	30	2700	122	36	0,230
40	1¼"	616153	1	20	1800	136	44	0,430
50	1½"	616154	1	16	1440	118	54	0,590
63	2"	616155	1	12	600	132	67	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.

Other thread sizes on request

PE 100 SDR 11

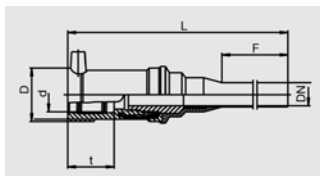
Maximum working pressure 16 bar (water)/5 bar (gas)



d	Rp	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
32	1"	616156	1	30	2700	120,5	41	0,270
40	1¼"	616157	1	20	1800	133,5	50	0,440
50	1½"	616158	1	16	1440	113,0	55	0,530
63	2"	616159	1	12	600	128,0	70	0,910

UFLG

Transition Fitting for liquid gas HD-PE/Copper



Compact part as material reducer in domestic area of liquid gas supply installations for the operating of consumer installations from the gas phase. Copper-side not detachable and anchored in HD-PE with no risk of turning. Self-sealing, patented density geometry **without elastomere sealing**. Copper-side from SF Cu-F25, DIN 1787 can be connected with the copper pipe through hard-soldering (coupler soldering).

Registered by DVGW under registration no. DV-7501AU2256.

PE 100 SDR 11

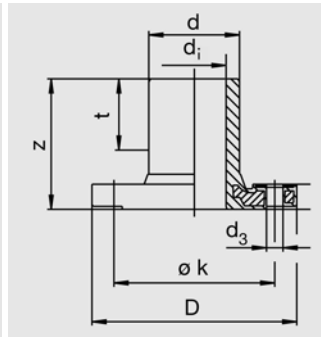
Maximum working pressure 5 bar (gas)



d/DN	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
32/20	615733	1	25	750	48,5	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)

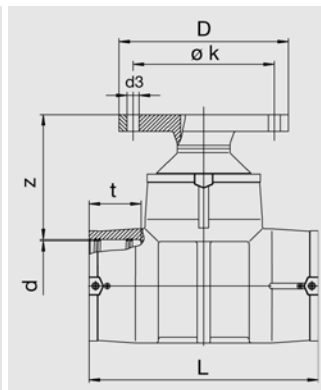


d/DN	Order Ref.	Stock-status	VE	PE	D	di	d ₃	Z	Ø k	Holes for screw	Weight kg/each
63/ 50	615417	1	5	250	169	50,6	16,5	105	125	4	1,500
90/ 80	615418	1	5	160	204	71,5	16,5	130	160	8	2,540
110/100	615419	1	3	96	224	86,8	16,5	150	180	8	3,310
125/100	615605	1	2	64	224	101,0	16,5	160	180	8	3,280
160/150	615421	1	2	36	288	127,0	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	27	343	179,5	20,5	225	295	8	9,100

Ⓢ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	VE	PE	D	d ₃	L	Z	Ø k	Holes for screw	Weight kg/each
110/80	615590	1	4	32	204	16,5	355	190	160	8	4,880
125/80	615591	1	3	24	204	16,5	384	190	160	8	5,550
160/80	615592	1	2	16	204	16,5	430	210	160	8	8,050
180/80	615910	1	1	8	204	16,5	480	210	160	8	10,000

PE 100 SDR 17

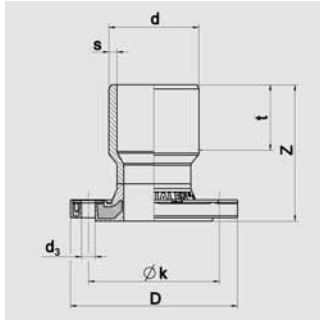
Maximum working pressure 10 bar (water)



d/DN	Order Ref.	Stock-status	VE	PE	D	d ₃	L	Z	Ø k	Holes for screw	Weight kg/each
225/80	616031	1	2	4	204	16,5	580	210	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° 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

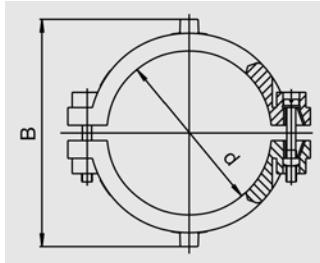
Maximum working pressure 16 bar (water)



d/DN	Order Ref.	Stock-status	VE	PE	D	d ₃	Z	Ø k	Ho-les for screw	Weight kg/each
110/80	616065	1	3	96	204	16,5	161	160	8	3,900
160/100	616241	1	2	64	224	16,5	180	180	8	4,350
225/100	616242	1	2	36	224	16,5	270	180	8	5,750

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

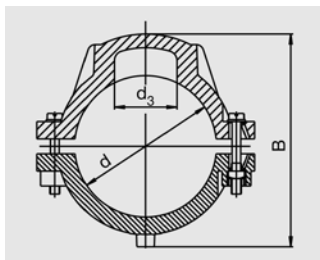
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	Weight kg/each
63	612519	1	20	360	0,260

VVS

Repair and Reinforcing Saddles



Compact part manufactured from 2 HD-PE saddles 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* (≤ d₃). With exposed heating elements for optimal heat transfer.

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

PE 100 SDR 11

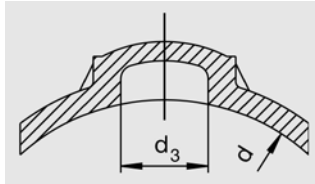
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	d ₃	Weight kg/each
90	615164	1	24	192	50	0,920
110	615165	1	16	128	50	1,190
125	615166	1	15	120	50	1,360
160	615168	1	10	80	50	1,670
180	615169	1	6	48	50	1,810
200	615170	1	5	40	50	1,820
225	615171	1	5	40	50	1,870

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

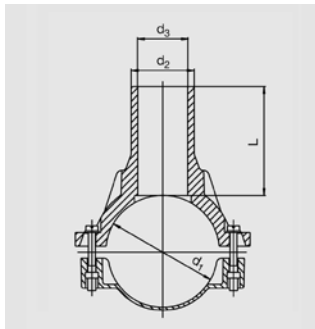
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	d ₃	Weight kg/each
250-560	615397	1	10	180	50	0,600

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

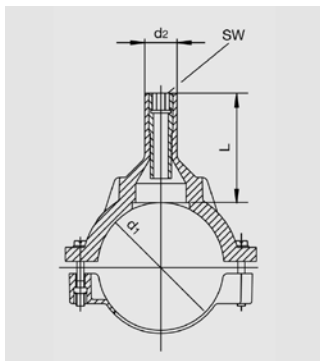
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	d ₃	L	Weight kg/each
63	32	612757	1	20	360	25	100	0,320
63	50	612759	1	20	360	37	113	0,370
75	50	615020	1	15	270	38	115	0,480
90	32	615285	1	20	160	21	103	0,700
90	63	612819	1	20	160	50	103	0,720
110	32	615334	1	12	96	21	109	0,880
110	50	615031	1	12	96	38	109	0,910
110	63	612760	1	12	96	49	109	0,950
110	90	615411	1	12	96	70	115	0,950
125	32	615087	1	12	96	21	109	0,990
125	63	612761	1	12	96	47	109	1,050
125	90	615412	1	12	96	70	116	1,140
125	110	615584	1	10	80	86	116	1,150
160	32	612886	1	8	64	21	126	1,500
160	63	612762	1	6	48	47	140	1,600
160	90	615413	1	2	36	70	140	1,700
160	110	615739	1	2	36	86	140	1,800
160	125	615585	1	2	36	98	140	1,900
180	63	612763	1	6	48	47	109	1,250
180	90	615414	1	2	36	70	116	1,820
180	110	615948	1	2	36	86	136	1,960
180	125	615740	1	2	36	98	141	2,090
200	63	612764	1	5	40	47	109	1,260
225	63	612765	1	5	40	47	109	1,210
225	90	615415	1	5	40	70	116	1,950
225	110	616044	1	5	40	86	140	2,070
225	125	616045	1	4	32	97	146	2,240
225	160	616046	1	4	32	125	157	2,610

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

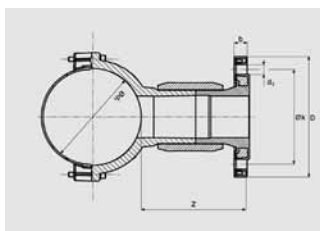
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
63	32	615091	1	20	360	100	17	0,390
90	32	615092	1	20	160	89	17	0,780
110	32	615093	1	12	96	109	17	0,970
125	32	615094	1	12	96	109	17	1,070
160	32	615095	1	6	48	109	17	1,270

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

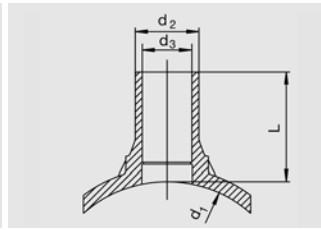
Maximum working pressure 16 bar (water)/10 bar (gas)



d/DN	Order Ref.	Stock-status	VE	PE	D	d ₃	Z	Ø k	Holes for screw	Weight kg/each
110/80	616016	1	3	54	204	16,5	180	160	8	3,740
125/80	616017	1	2	36	204	16,5	180	160	8	3,940
160/80	616018	1	2	36	204	16,5	180	160	8	4,290
180/80	616019	1	2	36	204	16,5	180	160	8	4,570
225/80	616020	1	2	16	204	16,5	180	160	8	4,720
125/100	616021	1	2	36	224	16,5	180	180	8	4,800
160/100	616022	1	2	36	224	16,5	180	180	8	5,270
180/100	616023	1	2	36	224	16,5	180	180	8	5,590
225/100	616024	1	2	16	224	16,5	180	180	8	5,690

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)).

d₃ = maximum tapping diameter in mm

PE 100 SDR 11

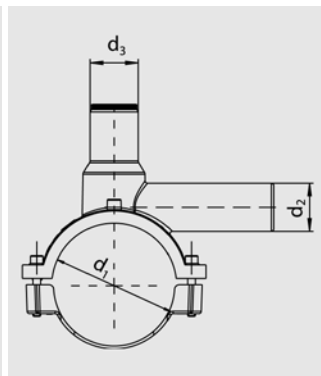
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	d ₃	L	Weight kg/each
250-560	32	615465	1	5	90	20	109	0,620
250-560	63	615466	1	5	90	46	109	0,680
250-560	90	615850	1	5	90	60	111	0,770

DAA (KIT)

Pressure Tapping Tees with extra long outlet spigot in kit version



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 (d₁ 63 and 75 = MV d 40; d₁ ≥ 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 (if necessary).

PE 100 SDR 11

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



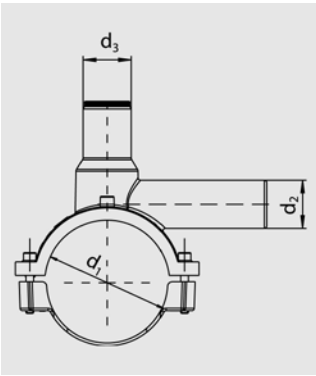
d ₁	d ₂	Order Ref.	Stock-status	VE	PE	d ₃	Weight kg/each
63	32	615649 ②	1	16	288	40	0,590
75	32	615651 ①	1	12	216	40	0,730
90	20	615653 ①	2	12	96	50	1,170
90	25	615654 ①	2	12	96	50	1,170
90	32	615655	1	12	96	50	1,180
90	40	615656 ①	1	12	96	50	1,300
110	32	615661	1	10	80	50	1,360
110	40	615662 ①	1	10	80	50	1,500
110	50	615663	1	10	80	50	1,240
125	32	615667	1	10	80	50	1,530
125	40	615668 ①	1	10	80	50	1,660
160	20	615672 ①	2	6	48	50	1,940
160	25	615673 ①	2	6	48	50	1,940
160	32	615674	1	6	48	50	1,950
160	40	615675 ①	1	6	48	50	2,080

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

② can be also processed with pipes SDR 17 / 17.6

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 (if necessary).

PE 100 SDR 11

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



NEW!

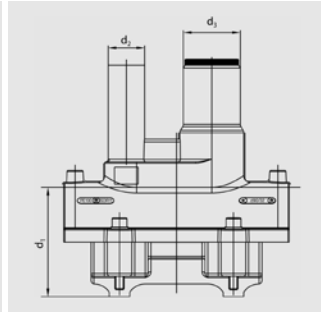
d_1	d_2	Order Ref.	Stock-status	VE	PE	d_3	Weight kg/each
40	20	612630	2	20	640	32	0,300
50	25	612702	2	20	360	40	0,420
50	32	615080	1	20	360	40	0,440
63	20	612631	1	16	288	40	0,500
63	25	612633	1	16	288	40	0,500
63	32	612632 ②	1	16	288	40	0,510
63	40	612623	1	16	288	40	0,530
63	63	616334 ①②	1	20	160	50	1,018
75	40	612813	1	12	216	40	0,650
90	32	612634	1	12	96	50	1,050
90	50	612636	1	12	96	50	1,110
90	63	612701	1	12	96	50	1,230
110	32	612637	1	10	80	50	1,300
110	50	612638	1	10	80	50	1,360
110	63	612624	1	10	80	50	1,510
125	32	612649	1	10	80	50	1,460
125	50	612639	1	10	80	50	1,520
125	63	612309	1	10	80	50	1,620
140	50	615037	2	10	80	50	1,500
160	32	612641	1	6	48	50	1,880
160	50	612642	1	6	48	50	1,940
160	63	612650	1	6	48	50	2,030
180	32	612651	1	5	40	50	1,860
180	50	612644	1	5	40	50	1,920
180	63	612652	1	5	40	50	1,960
200	32	612654	1	5	40	50	1,830
200	50	612645	1	5	40	50	1,800
200	63	612659	1	5	40	50	1,880
225	32	612657	1	5	40	50	1,860
225	50	612646	1	5	40	50	2,040
225	63	612655	1	5	40	50	2,040

①available from 1st quarter 2009

②can be also processed with pipes SDR 17 / 17.6

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 (d₁ 63 see MV d 40; d₁ 90 - 225 see 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 (if necessary).

PE 100 SDR 11

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

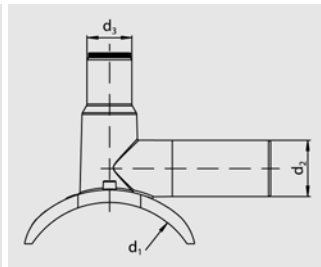


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	d ₃	Weight kg/each
63	32	616042	1	16	288	40	0,550
90	32	616043 ①	1	16	128	50	1,130
110	32	615581	1	12	96	50	1,260
110	50	615606	1	12	96	50	1,310
125	32	615711	1	12	96	50	1,270
125	50	615712	1	12	96	50	1,330
160	32	615713	1	8	64	50	1,540
160	50	615714	1	8	64	50	1,600
180	32	615715	1	6	48	50	1,540
180	50	615716	1	6	48	50	1,600
225	32	615717	1	6	48	50	1,570
225	50	615718	1	6	48	50	1,630

①max. 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 Technical Equipment). 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 (see 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 (if necessary).

Other outlet dimensions with electrofusion reducers MR

PE 100 SDR 11

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

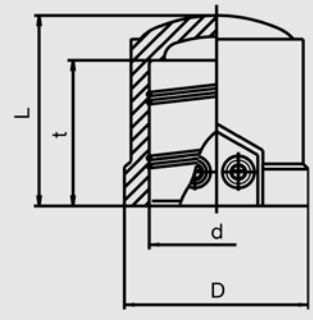


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	d ₃	Weight kg/each
250-315 (400)	63	615339 ①	1	5	90	50	1,420

①d₁: d 250 up to d 315 for pipes SDR 11 and 17; d₁: > 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

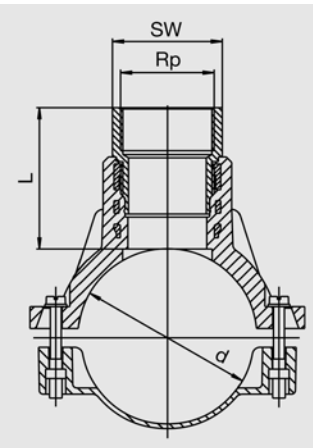
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
50	612310	1	30	960	69	72	0,120

VAM-RG

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



Compact part. In HD-PE, saddle with exposed heating element for optimal heat transfer. Gunmetal adapter permanently anchored in the HD-PE. To accept normal commercial brass valves.

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

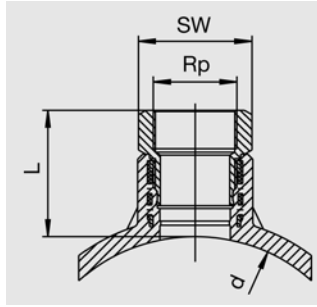
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Rp	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
63	1¼"	612794	2	20	360	73	50	0,770
63	1½"	612743	2	20	360	76	55	0,820
75	1¼"	615213	2	15	270	76	50	0,870
90	1½"	612798	2	16	128	68	70	1,370
90	2"	612778	2	16	128	95	70	1,560
110	1½"	612732	1	12	96	68	70	1,540
110	2"	612733	1	12	96	95	70	1,750
125	1½"	612734	2	12	96	68	70	1,640
125	2"	612735	1	12	96	95	70	1,840
160	1½"	612728	2	8	64	68	70	1,850
160	2"	612729	1	8	64	95	70	2,050
180	1½"	612774	2	7	56	68	70	1,830
180	2"	612776	2	7	56	95	70	2,030
225	2"	612827	2	5	40	95	70	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). HD-PE saddle with exposed heating element for optimal heat transfer. Gunmetal adapter permanently anchored in the HD-PE. To accept normal commercial brass valves. 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

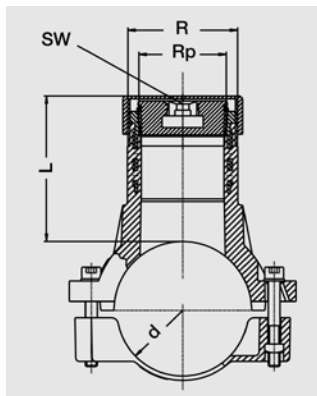
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Rp	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
250-315 (560)	2"	615470	2	10	180	90	70	1,460

SPA

Shut off Saddles



Compact part suitable for normal commercial 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. 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

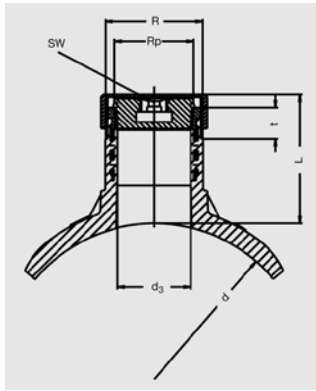
Maximum working pressure 16 bar (water)/10 bar (gas)



d	R	Rp	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
63	G 1 1/2	G 1 1/8	612753	1	20	360	80	19	0,610
90	G 2 1/2	G 2	612677	1	16	128	110	19	1,480
110	G 2 1/2	G 2	612750	1	12	96	110	19	1,650
125	G 2 1/2	G 2	612751	1	12	96	110	19	1,770
160	G 2 1/2	G 2	612752	1	8	64	110	19	1,860
180	G 2 1/2	G 2	612754	1	7	56	110	19	1,940
200	G 2 1/2	G 2	612755	1	6	48	110	19	1,980
225	G 2 1/2	G 2	612756	1	5	40	110	19	1,920

SPA-TL

Shut off Saddles Top-Loading



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 to accept normal commercial bubble setting units. HD-PE saddle with exposed heating element for optimal heat transfer. Brass guide thread permanently anchored in the HD-PE. Includes brass plugs with a square recess. Access protection for dome through screw-cap flap supplied or through welding on of 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

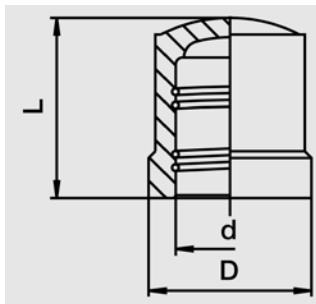
Maximum working pressure 16 bar (water)/10 bar (gas)



d	R	Rp	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
250-315 (560)	G 2 ½	G 2	615395	1	18	144	110	19	1,360

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

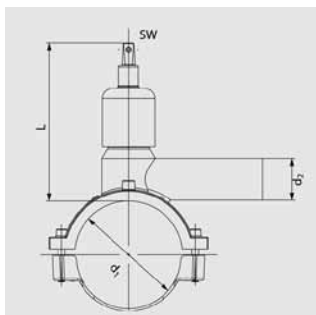
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
75	612311	1	24	768	98,5	84	0,270

DAV (KIT)

Pressure Tapping Valves with extra long outlet spigot in kit version



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. 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 (if necessary). Registered by DVGW under registration no. DV-6611AU2254 and DV-6611AU2255.

PE 100 SDR 11

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

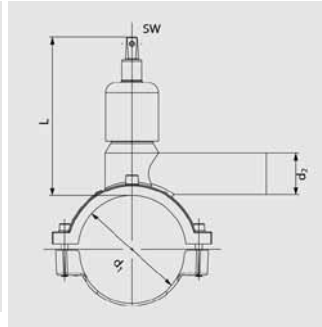


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
63	32	615614	1	16	288	160	14	0,980
63	40	615615	1	16	288	160	14	0,920

continued on next page

DAV (KIT)

Pressure Tapping Valves with extra long outlet spigot in kit version



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. 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 (if necessary). Registered by DVGW under registration no. DV-6611AU2254 and DV-6611AU2255.

PE 100 SDR 11

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

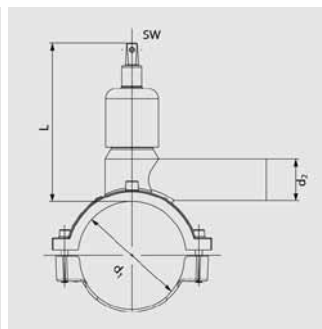


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
90	32	615616	1	12	96	200	14	1,810
90	40	615617 ①	1	12	96	200	14	1,950
110	32	615620	1	10	80	190	14	2,060
110	40	615621 ①	1	10	80	190	14	2,210
110	50	615622	1	10	80	190	14	2,220
110	63	615623	1	10	80	190	14	2,370
125	32	615624	1	10	80	190	14	2,180
125	40	615625 ①	1	10	80	190	14	2,320
125	50	615626	1	10	80	190	14	2,330
125	63	615627	1	10	80	190	14	2,480
160	32	615628	1	6	48	245	14	2,720
160	40	615629 ①	1	6	48	245	14	2,980
160	50	615630	1	6	48	245	14	2,980
160	63	615631	1	6	48	245	14	3,180
180	32	615632	1	5	40	245	14	2,880
180	40	615633 ①	1	5	40	245	14	3,020
225	32	615640	1	5	40	245	14	2,890
225	40	615641 ①	1	5	40	245	14	3,040

①with electrofusion reducers MR d 50/40.

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. 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 (if necessary). Registered by DVGW under registration no. DV-6611AU2254 and DV-6611AU2255.

PE 100 SDR 11

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

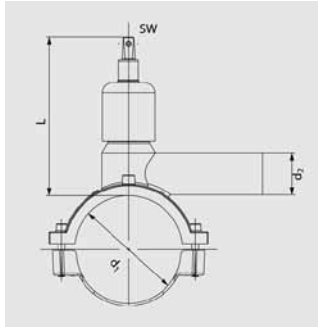


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
50	32	615955	1	16	288	160	14	0,860
63	32	615341	1	16	288	160	14	0,890
63	40	615342	1	16	288	160	14	0,830
75	32	615956	1	12	216	160	14	1,040
90	32	615344	1	12	96	200	14	1,810
90	50	615346	1	12	96	200	14	1,880
90	63	615347	1	12	96	200	14	1,980
110	32	615348	1	10	80	190	14	1,980
110	50	615350	1	10	80	190	14	2,070

continued on next page

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. 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 (if necessary). Registered by DVGW under registration no. DV-6611AU2254 and DV-6611AU2255.

PE 100 SDR 11

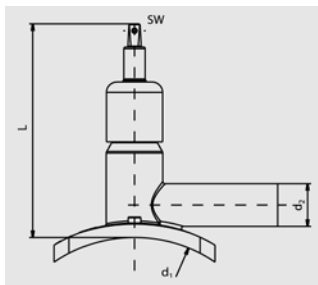
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
110	63	615351	1	10	80	190	14	2,160
125	32	615352	1	10	80	190	14	2,100
125	50	615354	1	10	80	190	14	2,180
125	63	615355	1	10	80	190	14	2,270
140	63	615930	1	10	80	190	14	2,290
160	32	615356	1	6	48	245	14	2,760
160	50	615358	1	6	48	245	14	2,840
160	63	615359	1	6	48	245	14	2,950
180	32	615361	1	5	40	245	14	2,810
180	50	615363	1	5	40	245	14	2,880
180	63	615364	1	5	40	245	14	2,920
200	32	615366	1	5	40	245	14	2,830
200	50	615368	1	5	40	245	14	2,630
200	63	615369	1	5	40	245	14	2,620
225	32	615374	1	5	40	245	14	2,840
225	50	615376	1	5	40	245	14	2,900
225	63	615377	1	5	40	245	14	2,880

DAV-TL

Pressure Tapping Valve Top-Loading with extra long outlet spigot



For flexible adaptation to **all pipe diameters in indicated range** by means of the FRIALEN FRIATOP Clamping device (see Product Range FRIATOOLS Technical Equipment). Stainless steel actuating 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 (if necessary).

PE 100 SDR 11

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

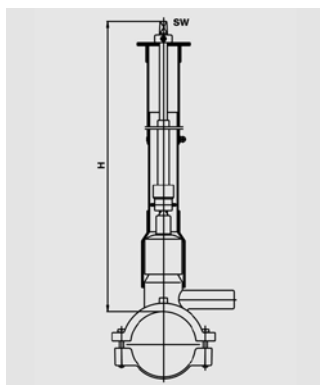


d ₁	d ₂	Order Ref.	Stock-status	VE	PE	L	SW	Weight kg/each
250-315 (400)	50	615589 ①	2	10	80	245	14	2,300

①d₁: d 250 up to d 315 for pipes SDR 11 and 17; d₁: > d 315 up to d 400 for pipes SDR 17

EBS

Installation kits for Pressure Tapping Valves



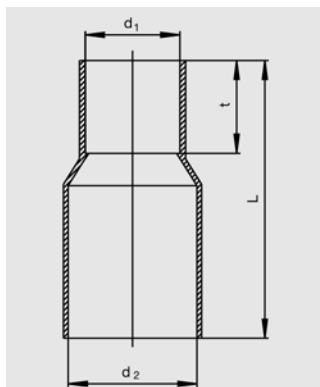
Telescopic actuating linkage for operation of the FRIALEN-DAV from the street cap. Stepless adjustment in the stated range (H) without the use of tools, even in the installed state. Self supporting in any extended position. Corrosion proof.

Dimension H 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)

H in m	Order Ref.	Stock-status	VE	PE	SW	Weight kg/each
0,45-0,6	615866	1	1	42	14	1,740
0,6-0,9	615867	1	1	42	14	2,150
0,8-1,2	615335	1	1	42	14	2,650
1,1-1,8	615325	1	1	42	14	3,600
1,8-2,7	616327	2	1		14	6,000
2,6-3,5	616328	2	1		14	8,500

A

Adapter for Pressure Tapping Valves



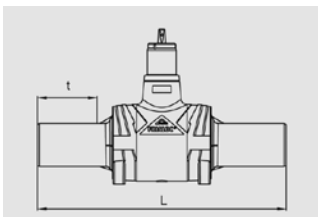
For fitting on the square drive of the FRIALEN-DAV for adaptation to the standard commercial linkage with 50 mm guard tube.

d_1	d_2	Order Ref.	Stock-status	VE	PE	L	Weight kg/each
50	68	615396	1	10	900	147	0,080

NEW!

FRIALOC

FRIALOC® Shut-Off Valve with shut-off mechanism suitable for plastics



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. Each individual FRIALOC PE shut-off valve is subjected to comprehensive tests at the factory. The valve is operated using the installation kit FBS.

PE 100 SDR 11

Maximum working pressure 16 bar (water)



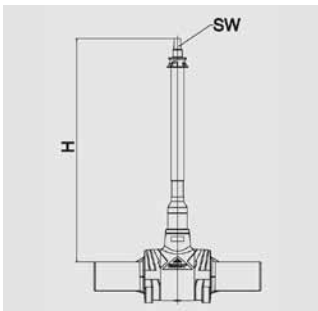
d	Order Ref.	Stock-status	VE	PE	B	L	t	Weight kg/each
90	616293	1	1	8	225	720	158	14,200
110	616294	1	1	8	225	720	164	14,500
125	616295	1	1	8	225	720	174	14,800
160	616296 ①	1	1	2	330	1.010	196	37,900
180	616297 ①	1	1	2	330	1.030	210	38,800

①available from january 2009

NEW!

FBS

Installation kits for FRIALOC® PE shut-off valves

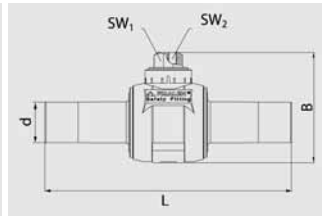


To operate the FRIALOC PE shut-off valve from the surface box. Optimally matched, can be individually extended to the required covering height. With KlickFix coupler for easy installation. Made of galvanised steel or stainless steel.

d	H in m	Order Ref.	Stock-status	VE	PE	SW	Weight kg/each
90-180	0,7 - 1,0	616308	2	1	42	30	3,450
90-180	0,9 - 1,3	616309	1	1	42	30	4,200
90-180	1,2 - 1,8	616310	1	1	42	30	5,400
90-180	1,5 - 2,3	616318	2	1	42	30	6,650
90-180	0,7 - 1,0	616315	2	1	42	30	2,850
90-180	0,9 - 1,3	616316	1	1	42	30	3,100
90-180	1,2 - 1,8	616317	1	1	42	30	3,750
90-180	1,5 - 2,3	616319	2	1	42	30	4,850
NEW! 90-180	2,4 - 3,8	616326	2	1		30	6,350

KHP

Ball Valves in HD-PE, ¼ 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

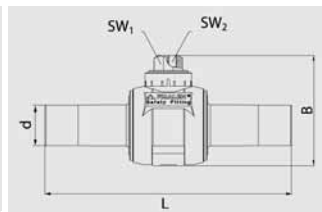
Maximum working pressure 16 bar (water)/10 bar (gas)



d	Order Ref.	Stock-status	VE	PE	B	L	SW ₁	SW ₂	Weight kg/each
32	612490	1	1	170	129	310	50 x 50	19	0,650
40	612497	1	1	170	129	310	50 x 50	19	0,700
50	612492	1	1	170	129	310	50 x 50	19	0,680
63	612494	1	1	50	195	417	50 x 50	25	2,330
90	612495	1	1	24	245	545	50 x 50	25	4,700
110	612493	1	1	24	245	545	50 x 50	25	5,100
125	612496	1	1	24	245	545	50 x 50	25	5,400
160	612483	1	1	8	329	544	50 x 50	25	12,800
180	615309	1	1	8	329	544	50 x 50	25	13,100
200	612480	1	1	8	329	544	50 x 50	25	16,750
225	616186	1	1	8	332	530	50 x 50	25	20,000

KH

Ball valves made from HD-PE, ¼ 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).

PE 100 SDR 11

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

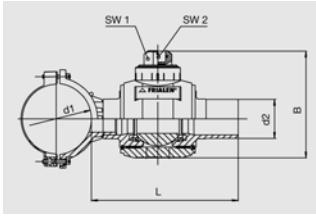


d	Order Ref.	Stock-status	VE	PE	B	L	SW ₁	SW ₂	Weight kg/each
32	616176	1	1	100	153	324	50 x 50	19	0,650
40	616177	1	1	100	153	324	50 x 50	19	0,780
50	616178 ^①	1	1	50	193	404	50 x 50	25	2,220
63	616179	1	1	50	206	412	50 x 50	25	2,420
90	616180	1	1	18	291	576	50 x 50	25	4,700
110	616181	1	1	18	291	576	50 x 50	25	5,100
125	616182	1	1	18	291	576	50 x 50	25	5,400

^①BS d 63 – d 225 required

AKHP

Tapping Ball Valves in HD-PE, ¼ turn, for side tapping under pressure



Compact part in HD-PE. Factory made combination of FRIALEN-Saddle part and FRIALEN-Ball Valve with spigot for space and cost saving horizontal installation. 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

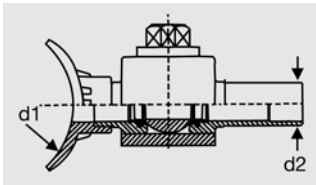
Maximum working pressure 16 bar (water)/10 bar (gas)



d ₁	d ₂	Order Ref.	Stock-status	VE	PE	B	Tapping diameter	L	SW ₁	SW ₂	Weight kg/each
110	63	615427	1	6	48	180	42	330	50 x 50	25	3,070
110	90	615428	1	4	32	240	60	335	50 x 50	25	4,670
125	90	615431	1	4	32	240	60	335	50 x 50	25	4,790
160	63	615433	1	4	32	180	42	330	50 x 50	25	3,300
160	90	615434	1	3	24	240	60	335	50 x 50	25	5,000
180	90	615437	1	4	32	240	60	335	50 x 50	25	5,000
225	63	615439	1	3	24	180	42	330	50 x 50	25	5,000
225	90	615440	1	3	24	240	60	335	50 x 50	25	5,000

AKHP-TL

Tapping Ball Valves in HD-PE, ¼ 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 Technical Equipment). Compact part in HD-PE. Factory made combination of FRIALEN-Saddle part and FRIALEN-Ball Valve with spigot for space and cost saving horizontal installation. 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.

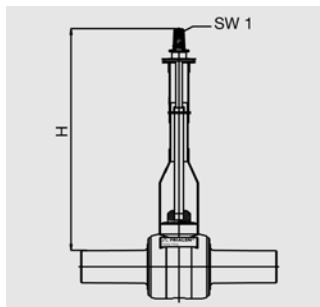
Dimension range d 250 - d 560 fusible as standard using the top-loading method. Please note the maximum permissible wall thickness for tapping.

If required, please contact the manufacturer of the tapping equipment. Registered by DVGW under registration no. DG-8631AU2253.

d ₁	d ₂	Order Ref.	Stock-status	VE	PE	B	Tapping diameter	L	SW ₁	SW ₂	Weight kg/each
250-450 (560)	63	615525	2	4	32	180	42	330	50 x 50	25	2,830
250-450 (560)	90	615526	2	4	32	240	60	335	50 x 50	25	4,500

BS

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

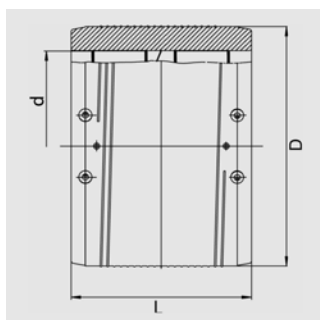


Telescopic actuating linkage for operation of the FRIALEN-KHP, KH, AKHP and AKHP-TL from the valve cover. Stepless adjustment in the stated range (H) without the use of tools, even in the installed state. Self supporting in any extended position. Corrosion proof. **Key width 14 version specially designed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

d	H in m	Order Ref.	Stock-status	VE	PE	SW ₁	Weight kg/each
32-50	0,45-0,7	615741	1	1	42	30	2,400
32-50	0,6-1,0	615957	1	1	42	14	1,700
32-50	0,6-1,0	615328	1	1	42	30	2,850
32-50	1,0-1,5	615330	1	1	42	30	3,800
32-50	1,2-2,0	616068	2	1	42	14	3,300
32-50	1,2-2,0	615329	2	1	42	30	4,600
63-225	0,6-1,0	615958	1	1	42	14	1,700
63-225	0,6-1,0	615310	1	1	42	30	3,650
63-225	1,0-1,5	615331	1	1	42	30	4,760
63-225	1,2-2,0	616069	2	1	42	14	3,450
63-225	1,2-2,0	615311	2	1	42	30	5,990

UB PN25

Slide-over couplers, PN25



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. From d 180 with fusion indicators 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)

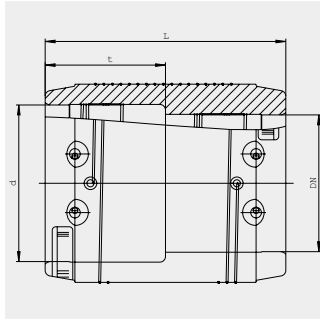


d	Order Ref.	Stock-status	VE	PE	D	L	Weight kg/each
90	616270	1	30	240	117	138	0,530
110	616271	1	24	192	142	159	0,890
125	616272	1	16	128	160	172	1,200
140	616273	1	12	96	181	184	1,620
160	616274	1	8	64	206	203	2,360
180	616282	1	6	48	225	210	2,950
200	616283	1	2	36	250	224	3,870
225	616284	1	1	33	280	240	5,160
250	616285	1	1	24	315	246	6,840
280	616286 ①	1	1	18	355	268	10,700
315	616287 ①	1	1	18	400	285	13,400
355	616288 ①	1	1	9	450	300	17,900

①separate fusion zones

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.

with preheating barcode. For processing refer to the FRIALEN-Fitting Instructions for laying large pipes and relining pipe networks.

With pre-heating barcode

PE 100 SDR 17

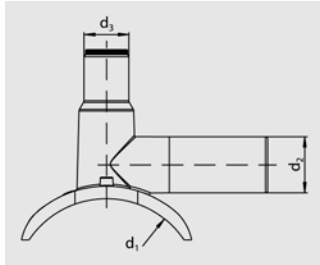
Maximum working pressure 10 bar (water)/5 bar (gas)



d/DN	Order Ref.	Stock-status	VE	PE	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	7,750

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 Technical Equipment). 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 (see 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 (if necessary).

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	VE	PE	d ₃	Weight kg/each
> 98-130	50	615527	2	20	160	50	0,800
> 130-160	50	615528	2	12	96	50	1,040
> 160-210	63	615531	2	5	90	50	1,230
250-315 (400)	63	615339 ①	1	5	90	50	1,420

①d₁: d 250 up to d 315 for pipes SDR 11 and 17; d₁: > d 315 up to d 400 for pipes SDR 17

General conditions of supply and payment of FRIATEC Aktiengesellschaft

Technical Plastics Division

1. Scope

Terms and conditions as listed below apply to all deliveries. Other conditions do not automatically become contractual, even if not expressly contradicted by us.

2. Conclusion of a Contract

Our quotations are not binding. A contract is made only when we confirm an order in writing.

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

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

Delivery dates and deadlines are subject to ourselves being supplied appropriately and in good time. 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. 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

Our prices are ex factory or ex warehouse, plus VAT. Insurance, packaging, shipment and custom-clearance charges are invoiced separately, unless expressly stated otherwise in our current price-list.

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.

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.

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

The customer must immediately check goods received for any defects. Formal complaints must be lodged immediately on receipt of the goods, and no later than a fortnight after receipt, in writing. The same timeframe applies to hidden defects after discovery.

There can be no claims for defects which have not been notified within the appropriate period. When a claim is justified, we will choose either to repair or replace the goods. If we do not rectify the defect or provide a substitute within an appropriate period, or following no more than two attempts, the customer is authorised to rescind the contract or demand a reduction in the purchasing price. It is not possible to rescind if there is only an insignificant violation on our part.

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.

7. Reservation of Ownership

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. 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.

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.

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.

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.

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.

We pledge to release existing securities of our choice up to the point where their value exceeds the claims to be secured by more than 25%.

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

We are liable for any violations of life, body or health for which we are accountable in accordance with legal requirements.

For other damages the following applies:

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.

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.

Claims for other damage on violating subsidiary obligations or inessential obligations based on negligence are excluded.

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.

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.

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

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

January 2006
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Further Product Ranges:

Product Range
AF 14/09



FRIAFIT®

Always the right decision:
**FRIAFIT®
Sewage System**

The safe connection method for HD-PE pipes carrying sewage and foul water.

valid from 1st February 2009



Product Range
EZ 23/09



FRIATOOLS®

Always the right decision:
**FRIATOOLS®
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The correct equipment and tools for simple and safe installation of FRIALEN® safety fittings and FRIAFIT® sewage system.

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