



# the system

## FRIALEN®-Safety Fittings:

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

Product Range ES  
25/04

Safety  
in pipe system installation  
... leading worldwide



innovative  
cost efficient  
excellent

## 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 4/5.

### 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.

### Factory certificates

For factory certificates to **DIN EN 10 204-3.1** there will be a processing charge of **D 13,- per item**. The factory certificates **must be ordered at the same time as the order is placed**; it is not possible to supply them retrospectively.

### 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 9002**.

The FRIALEN®-Safety Fittings range and the operation of our Technical Equipment 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 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 in question.

### 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** 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 to 11 in accordance with DIN 8074, ISO 4437, EN 1555 and DIN EN 12201.

Pipes made of raw material types PE-LD, PE 50, PE 63, PE 80, PE 100 and PE-Xa in melt index groups 003 to 020 can be fused (PE-Xa pipes presently available to d 180).

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.

**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)	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

**Cooling times**

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

The cooling times given in the bar codes, 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 bar codes (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.

**Component Traceability**

Each construction part has an additional barcode for traceability.

**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.de](http://www.frialen.de).

**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.



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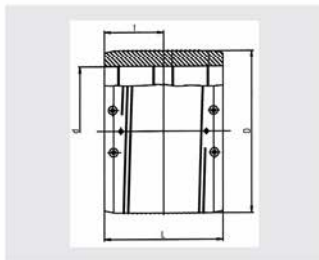
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NEW!  
NEW!

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.

**Diameter d 280 and bigger with pre-heating technology (d 280 – d 450 optional use; d 500 – d 710 required).**

<sup>2</sup>: separate fusion zones

PE 100 SDR 11

Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
20	T-612 660	1	1	80	4.000	33	60	30	0,037
25	T-612 661	1	1	60	3.000	38	66	33	0,044
32	T-612 662	1	1	30	1.500	45	77	39	0,073
40	T-612 663	1	1	20	1.000	54	86	43	0,096
50	T-612 664	1	1	15	750	68	98	49	0,151
63	T-612 665	1	1	10	500	82	112	56	0,211
75	T-612 666	1	1	20	360	98	122	62	0,322
90	T-612 667	1	1	30	240	118	138	69	0,522
110	T-612 668	1	1	24	192	142	158	79	0,863
125	T-612 669	1	1	16	128	160	172	86	1,199
140	T-615 001	1	1	12	96	181	184	92	1,632
160	T-612 671	1	1	8	64	206	202	101	2,336
180	T-612 672	1	1	1	72	227	210	105	2,950
200	T-612 673	1	1	1	42	252	224	112	3,950
225	T-612 674	1	1	1	33	282	240	120	5,150
250	T-612 675	1	1	1	24	315	246	123	7,100
280 <sup>2</sup>	T-615 073	1	1	1	18	355	268	134	10,300
315 <sup>2</sup>	T-612 670	1	1	1	18	400	285	142	13,750
355 <sup>2</sup>	T-615 074	1	1	1	9	450	300	150	18,500
400 <sup>2</sup>	T-615 075	1	1	1	4	500	320	160	23,200
450 <sup>2</sup>	T-615 076	1	1	1	4	560	340	170	30,400
500 <sup>2</sup>	T-615 124	1	1	1	4	630	360	180	42,500

PE 100 SDR 17

Maximum working pressure 10 bar (Water)/5 bar (Gas)

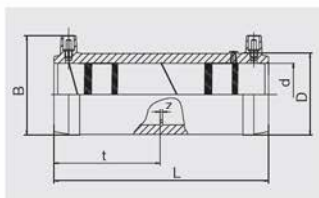


560 <sup>2</sup>	T-615 706	-	1	1	4	630	370	185	25,800
630 <sup>2</sup>	T-615 726	1	1	1	2	710	400	200	36,800
710 <sup>2</sup>	T-615 994	1	1	1	2	800	400	200	38,500

For dimensions d 110 to d 500 please refer to our product range FRIAFIT® page 4.

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

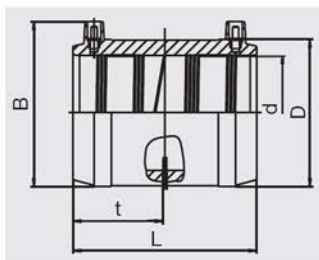
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	B	L	t	Weight kg/each
32	T-615 736	1	1	30	960	45	62	136	67	0,114
40	T-615 737	1	1	20	640	54	71	146	72	0,160
50	T-615 608	1	1	10	320	68	82	175	86	0,250
63	T-615 738	1	1	8	256	82	96	197	97	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**

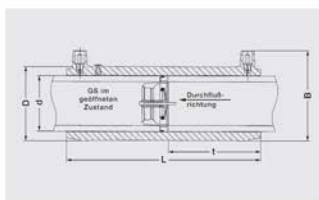
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	B	L	t	Weight kg/each
20	T-612 680	1	80	4.000	33	49	60	29	0,037	
25	T-612 681	1	60	3.000	38	55	66	32	0,045	
32	T-612 682	1	30	1.500	45	61	78	38	0,073	
40	T-612 683	1	20	1.000	54	71	86	42	0,096	
50	T-612 684	1	15	750	68	82	98	48	0,151	
63	T-612 685	1	10	500	82	96	112	55	0,212	
75	T-612 686	1	20	360	98	110	122	60	0,324	
90	T-612 687	1	30	240	117	128	138	68	0,523	
110	T-612 688	1	24	192	142	152	158	78	0,865	
125	T-612 689	1	16	128	161	171	172	85	1,203	
140	T-612 690	1	12	96	181	188	184	91	1,639	
160	T-612 691	1	8	64	206	213	202	100	2,342	

**FRIASTOPP**

**Long Couplers with integrated Mertik Maxitrol gas flow monitor system**



FRIALONG long coupler with integrated Sentry GS. Safety device which automatically shuts off gas flow in the event of pipe damage e.g. caused by excavation or drilling (depending on nominal flow (VN) and closed flow (VS)). 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. Three different types can be supplied:

- Type A: for 15 – 100 mbar mains pressure, with bypass outlet
- Type B: for 0.1 – 4 bar mains pressure, without bypass outlet
- Type BÜ: for 0.1 – 4 bar mains pressure, with bypass outlet

DVGW test certificate for gas flow monitor Sentry GS: DG-4360AS0598

<sup>2</sup>: values for air in standard form

**PE 100 SDR 11**

Maximum working pressure 4 bar (Gas)



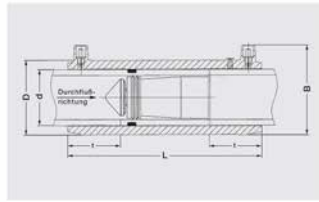
d	Typ	Order Ref.	Quantity	Stock-status	VE	PE	VN m <sup>3</sup> /h	VS m <sup>3</sup> /h	D	B	L	t	Weight kg/each
32	A (GS25 AM10H)	T-616 000	1	30	960	9 <sup>2</sup>	12 <sup>2</sup>	45	62	136	65	0,140	
32	B (GS25 BM10H)	T-616 001	1	30	960	20 <sup>2</sup>	24 <sup>2</sup>	45	62	136	65	0,140	
32	BÜ (GS25 BM19H)	T-616 032	1	30	960	20 <sup>2</sup>	24 <sup>2</sup>	45	62	136	65	0,140	
40	A (GS32 AM10H)	T-616 014	1	20	640	15 <sup>2</sup>	19 <sup>2</sup>	54	71	146	70	0,218	
40	B (GS32 BM10H)	T-616 015	1	20	640	30 <sup>2</sup>	37 <sup>2</sup>	54	71	146	70	0,218	
40	BÜ (GS32 BM19H)	T-616 033	1	20	640	30 <sup>2</sup>	37 <sup>2</sup>	54	71	146	70	0,218	
50	A (GS40 AM10H)	T-616 002	1	10	320	22 <sup>2</sup>	29 <sup>2</sup>	68	82	175	85	0,375	
50	B (GS40 BM10H)	T-616 003	1	10	320	45 <sup>2</sup>	54 <sup>2</sup>	68	82	175	85	0,375	
50	BÜ (GS40 BM19H)	T-616 034	1	10	320	45 <sup>2</sup>	54 <sup>2</sup>	68	82	175	85	0,375	
63	A (GS50 AM10H)	T-616 004	1	8	256	40 <sup>2</sup>	49 <sup>2</sup>	82	96	197	96	0,530	
63	B (GS50 BM10H)	T-616 005	1	8	256	73 <sup>2</sup>	88 <sup>2</sup>	82	96	197	96	0,530	
63	BÜ (GS50 BM19H)	T-616 035	1	8	256	73 <sup>2</sup>	88 <sup>2</sup>	82	96	197	96	0,530	

Due to changes to the technical specification at the time of this pricelist going to print, a change to the available types of gas flow monitor is anticipated in Q1 2004.



**FRIASTOPP**

**Long Couplers with integrated Pipelife gas stop system**



FRIALONG long coupler with integrated gas stop. Safety device which automatically shuts off gas flow in the event of pipe damage e.g. caused by excavation or drilling (depending on nominal flow (VN) and closed flow (VS)).

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. Two different types can be supplied:

Type A: for 25 – 100 mbar mains pressure, with bypass outlet  
 Type B: for 0.15 – 5 bar, without bypass outlet

DVGW test certificate for gas stop type A: DG-4360AS0274; type B: DG-4360AS0275

<sup>2</sup>: values for natural gas in standard form



**PE 100 SDR 11**

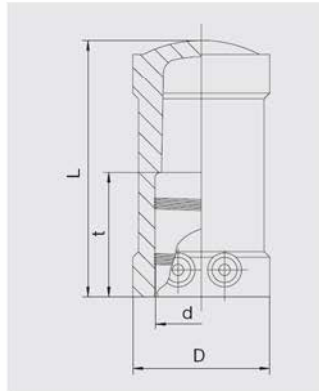
**Maximum working pressure 5 bar (Gas)**

d	Typ	Order Ref.	Quantity	Stock-status	VE	PE	VN m <sup>3</sup> /h	VS m <sup>3</sup> /h	D	B	L	t	Weight kg/each
32	A	T-616 036	1	30	960	10 <sup>2</sup>	15 <sup>2</sup>	45	62	136	38	0,140	
32	B	T-616 037	1	30	960	22 <sup>2</sup>	27 <sup>2</sup>	45	62	136	38	0,140	
50	A	T-616 038	1	10	320	25 <sup>2</sup>	37 <sup>2</sup>	68	82	175	54	0,351	
50	B	T-616 039	1	10	320	57 <sup>2</sup>	74 <sup>2</sup>	68	82	175	54	0,353	
63	A	T-616 040	1	8	256	40 <sup>2</sup>	60 <sup>2</sup>	82	96	197	59	0,556	
63	B	T-616 041	1	8	256	85 <sup>2</sup>	110 <sup>2</sup>	82	96	197	59	0,558	

Due to changes to the technical specification at the time of this pricelist going to print, a change to the available types of gas flow monitor is anticipated in Q1 2004.

**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.

<sup>2</sup>: also recommended as fused caps for the dome of FRIALEN® - Pressure Tapping Tees (see pages 26, 27 and 28 of this product range).

**PE 100 SDR 11**

**Maximum working pressure 16 bar (Water)/10 bar (Gas)**

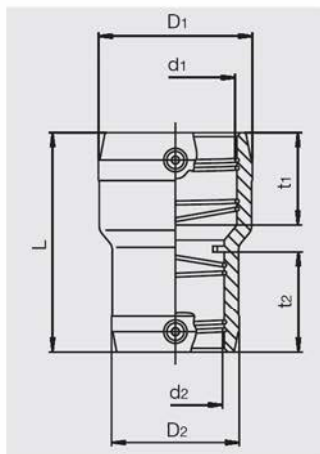


d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
20	T-612 025	2	40	2.000	35	72	33	0,044	
25	T-612 026	2	40	2.000	40	80	36	0,059	
32 <sup>2</sup>	T-612 027	1	40	1.280	49	91	42	0,089	
40 <sup>2</sup>	T-612 028	1	25	800	58	98	45	0,125	
50	T-612 029	1	20	640	70	114	53	0,190	
63	T-612 030	1	15	480	84	117	55	0,266	
75	T-612 031	1	28	504	98	133	61	0,394	
90	T-612 032	1	30	240	117	155	71	0,655	
110	T-612 033	1	24	192	142	181	83	1,132	
125	T-612 034	1	16	128	158	186	85	1,375	
160	T-612 035	1	8	64	206	262	119	2,846	
180	T-616183	1			225	175	100	2,500	
225	T-616185	1			280	220	115	4,850	

NEW!  
NEW!

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)

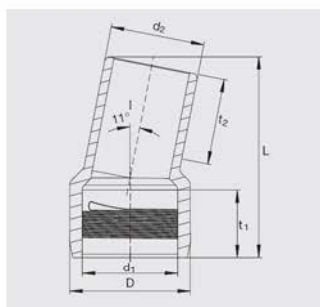


d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	D <sub>1</sub> /D <sub>2</sub>	L	t <sub>1</sub>	t <sub>2</sub>	Weight kg/each
32	20	T-615 386	1	1	40	2.000	45/ 32	88	39	30	0,055
32	25	T-615 502	1	1	40	2.000	45/ 38	88	39	33	0,060
40	20	T-615 387	1	1	30	1.500	54/ 32	98	43	30	0,075
40	32	T-615 388	1	1	25	1.250	54/ 45	98	43	39	0,093
50	20	T-612 069	2	2	20	1.000	68/ 32	110	49	37	0,133
50	32	T-612 070	1	1	20	1.000	68/ 45	110	49	39	0,143
50	40	T-612 071	1	1	15	750	68/ 54	110	49	43	0,142
63	32	T-615 389	1	1	10	500	82/ 45	125	55	44	0,217
63	40	T-615 390	1	1	10	500	82/ 54	125	55	43	0,224
63	50	T-612 072	1	1	10	500	82/ 68	125	55	48	0,237
90	50	T-615 391	1	1	15	270	117/ 68	160	69	49	0,485
90	63	T-615 392	1	1	15	270	117/ 82	160	69	55	0,510
110	63	T-615 393	1	1	10	180	142/ 82	160	79	55	0,729
110	90	T-615 693	1	1	8	144	140/115	180	79	69	0,900
125	90	T-615 694	1	1	8	144	155/115	200	86	69	1,280
160	110	T-615 695	1	1	8	64	201/140	230	98	79	1,850

NEW!

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 broad fusion zone. Spigot for processing with FRIALEN® MB or UB couplers (see pages 6 and 7).

PE 100 SDR 11

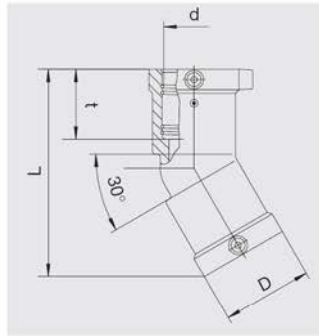
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub> /d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t <sub>1</sub>	t <sub>2</sub>	Weight kg/each
110	T-616 139	1	1	8	144	141	235	79	82	0,960
125	T-616 140	1	1			160	250	84	87	1,300
160	T-616 141	1	1	8	64	200	295	93	98	2,350
180	T-616 142	1	1			226	310	100	105	3,140
225	T-616 143	1	1			280	350	114	120	5,440

**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**

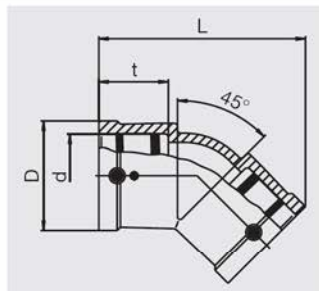
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
90	T-615 272	1	1	8	144	115	205	71	0,714
110	T-615 273	1	1	8	144	142	240	83	1,272
125	T-615 274	1	1	5	90	158	252	85	1,639
160	T-615 340	1	1	6	48	199	302	96	2,842

**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)

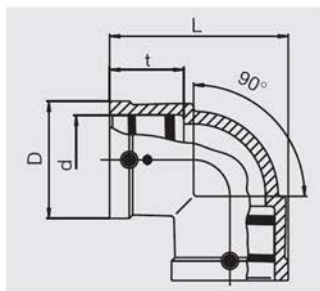


d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	T-612 092	1	1	30	960	49	108	42	0,093
40	T-612 094	1	1	20	640	58	125	45	0,143
50	T-612 096	1	1	15	480	70	145	53	0,210
63	T-612 098	1	1	15	270	84	153	55	0,297
75	T-612 100	1	1	15	270	98	174	61	0,516
90	T-612 102	1	1	8	144	117	208	71	0,751
110	T-612 104	1	1	10	80	142	252	83	1,287
125	T-612 106	1	1	10	80	158	260	85	1,642
160	T-615 275	1	1	4	32	199	300	96	2,794
180	T-615 687	1	1	3	24	228	382	103	4,500
225	T-615 688	1	1	1	8	283	460	118	10,000



**W90°**

**Elbows 90°**



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

**PE 100 SDR 11**

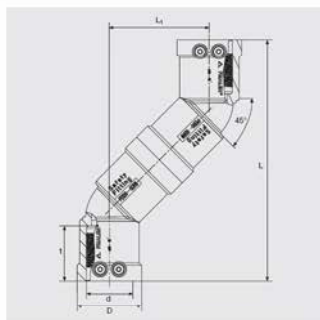
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
25	T-612 091	1	1	40	1.280	40	75	36	0,066
32	T-612 093	1	1	30	960	49	85	42	0,104
40	T-612 095	1	1	20	640	58	102	45	0,159
50	T-612 097	1	1	15	480	70	118	53	0,212
63	T-612 099	1	1	15	270	84	128	55	0,313
75	T-612 101	1	1	15	270	98	151	61	0,560
90	T-612 103	1	1	6	108	117	180	71	0,836
110	T-612 105	1	1	10	80	142	222	83	1,489
125	T-612 107	1	1	8	64	158	240	85	1,932
160	T-615 276	1	1	3	24	199	295	96	3,605
180	T-615 689	1	1	3	24	228	354	103	5,600
225	T-615 690	1	1	1	8	283	430	118	12,000

**WET**

**Swan Neck Bend**



Compact part for the connection of pipes which are not aligned and for the connection of service lines with DAA pressure valves (see page 14) 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.

Registered by DVGW under registration no. DV-8601AU2248 and DV-8606AU2249.

**PE 100 SDR 11**

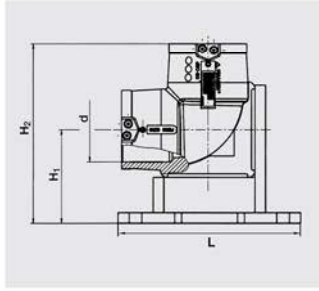
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	L <sub>1</sub>	Weight kg/each
32	T-616 051	1	1	15	750	49	177	42	73	0,220
40	T-616 052	1	1	15	480	58	215	49	89	0,330
50	T-616 053	1	1	15	270	70	242	53	100	0,505
63	T-616 054	1	1	10	180	84	256	55	106	0,695

**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. For hydrants with flange connection we recommend our Full Faced Flanges EFL (see page 34 of this product range). 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.

<sup>2</sup>: FLR flange reducer for connection to DN80 on request (see page 22 of this product range).

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)

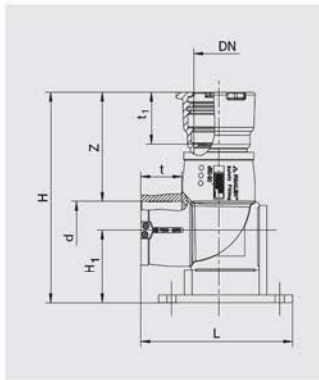


d	Order Ref.	Quantity	Stock-status	VE	PE	H <sub>1</sub>	H <sub>2</sub>	L	Weight kg/each
90	<b>T-615 989</b>		1	3	54	132	225	260	2,000
110 <sup>2</sup>	<b>T-615 998</b>		1	4	32	145	295	295	2,718

NEW!

**WFGB**

**90° Elbow with base and HD-PE/GGG adapter for connection of BAI0 spigot hydrant**



For connection of hydrant with spigot according to BAI0 system as alternative to flange connection. Compact construction part manufactured from FRIALEN® 90° elbow with base and BAI0 coupler connection made from ductile cast iron including sealing ring. BAI0 cast coupler anchored in PE moulded part. Cannot be released or rotated. 90° elbow with exposed heating coils for optimum heat transfer, large insertion depth, broad fusion zone as well as cold zone preventing smelt flow for processing without supporting equipment. Possible to mount floor plate on foundations. Please observe specific processing instructions for "BAI0" connection system.

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)

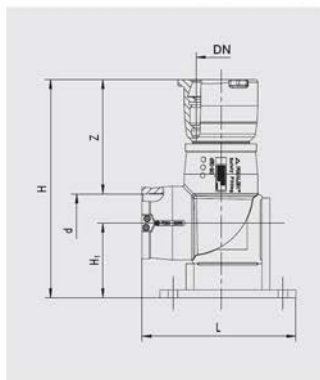


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	L	H <sub>1</sub>	H	t	t <sub>1</sub>	Z	Weight kg/each
110/80	<b>T-616 150</b>		1			294	142	410	83	110	212	8,200

NEW!

**WFGN**

**90° Elbow with base and PE-HD/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 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. 90° elbow with exposed heating coils for optimum heat transfer, large insertion depth, broad fusion zone as well as cold zone preventing smelt flow for processing without supporting equipment. Possible to mount floor plate on foundations. Please observe specific processing instructions for "NOVO-SIT" connection system.

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)

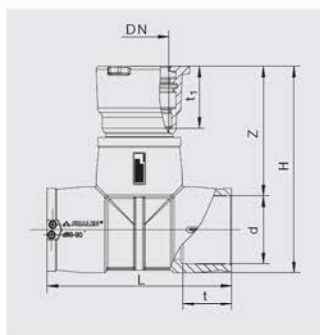


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	L	H <sub>1</sub>	H	t	t <sub>1</sub>	Z	Weight kg/each
110/80	<b>T-616 151</b>		1			294	142	416	83	112	218	8,300

NEW!

**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, broad fusion zone as well as cold zone at the front and in the centre preventing smelt flow for processing without supporting equipment. Please observe specific processing instructions for "BAIO" connection system.

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)



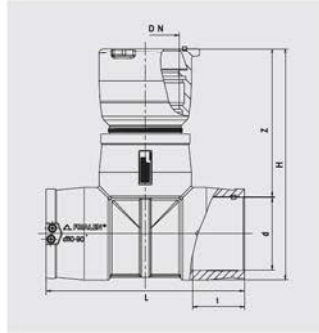
d/DN	Order Ref.	Quantity	Stock-status	VE	PE	L	H	t	t <sub>1</sub>	Z	Weight kg/each
110/80	<b>T-616 147</b>		1	4		302	346	83	110	220	7,530
125/80	<b>T-616 148</b>		1			314	361	85	110	219	8,300
160/80	<b>T-616 149</b>		1	2	8	390	380	96	110	200	12,000



NEW!

**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, broad fusion zone as well as cold zone at the front and in the centre for processing without supporting equipment. Please observe specific processing instructions for NOVO-Sit connection system.

**PE 100 SDR 11**

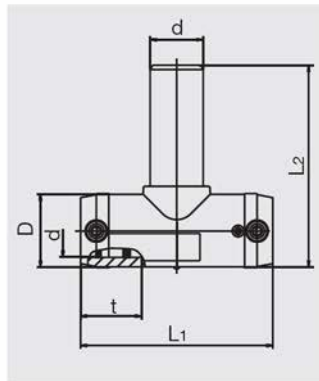
Maximum working pressure 16 bar (Water)



d/DN	Order Ref.	Quantity	Stock-status	VE	PE	L	H	t	t <sub>1</sub>	Z	Weight kg/each
110/80	<b>T-616 144</b>	1	4			302	352	83	112	226	7,630
125/80	<b>T-616 145</b>	1				314	367	85	112	225	8,400
160/80	<b>T-616 146</b>	1	2	8		390	422	96	112	242	13,600

**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**

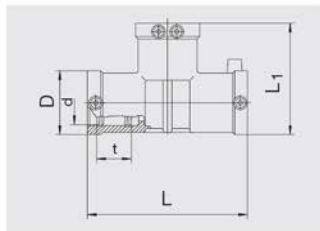
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L <sub>1</sub>	L <sub>2</sub>	t	Weight kg/each
32	<b>T-612 161</b>	1	30	540	44	116	131	39	0,173	
40	<b>T-612 162</b>	1	20	360	53	146	151	43	0,299	
50	<b>T-612 163</b>	1	10	180	67	175	186	49	0,494	
63	<b>T-612 164</b>	1	5	90	81	197	203	56	0,790	

T

T-Pieces



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

PE 100 SDR 11

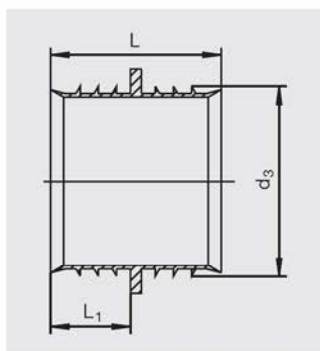
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	L <sub>1</sub>	t	Weight kg/each
75	T-612 165	1	1	10	180	98	205	151	61	0,800
90	T-612 166	1	1	10	80	117	305	211	79	1,125
110	T-612 167	1	1	6	48	142	355	248	87	2,162
125	T-612 168	1	1	5	40	158	384	272	87	2,721
160	T-615 277	1	1	3	24	199	430	315	96	4,893
180	T-615 691	1	1	2	16	228	480	354	103	7,800
225	T-615 692	1	1	1	8	283	580	432	118	13,000

RW

Repair Sleeves



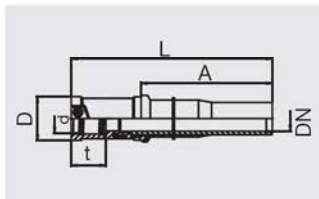
For the repair of house water connection pipes in the depressurised state. Prevents the ingress of water into the fused area of the FRIALEN® MB or UB couplers (see pages 6 and 7 of this product range). Measure d means: Repair Sleeves for pipe d xy. **Suitable only for pipes SDR 11.**



d	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	L	L <sub>1</sub>	Weight kg/each
32	T-615 127	1	1	50	14.400	27,0	35	16	0,004
40	T-615 128	1	1	50	4.500	34,0	35	16	0,005
50	T-615 129	1	1	50	4.500	42,0	35	16	0,007
63	T-615 130	1	1	40	3.600	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**

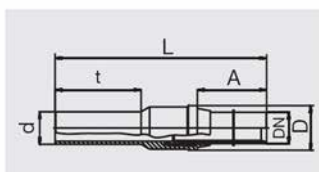
**Maximum working pressure 10 bar (Gas)**



d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	A	Weight kg/each
25/20	T-612 744	1	1	20	600	40	376	36	300	0,835
32/25	T-612 780	1	1	15	450	47	388	42	300	1,185
40/32	T-612 781	1	1	10	300	58	396	45	300	1,604
50/40	T-612 782	1	1	8	240	70	409	53	300	2,100
63/50	T-612 783	1	1	6	180	84	410	53	300	2,720
75/65	T-612 789	1	1	4	100	98	425	61	300	4,200
90/80	T-612 784	1	1	1	84	118	397	71	250	5,225
110/100	T-612 785	1	1	1	54	143	420	83	250	7,750
125/100	T-612 786	1	1	1	46	158	425	84	250	8,800
160/150	T-612 787	1	1	1	24	197	484	119	250	16,500
180/150	T-615 030	1	1	1	18	227	500	115	250	21,450
200/200	T-612 795	1	1	1	12	267	481	116	225	25,100
225/200	T-612 370	1	1	1	11	282	459	120	225	29,500

**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 (see pages 6 and 7 of this product range). 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)**

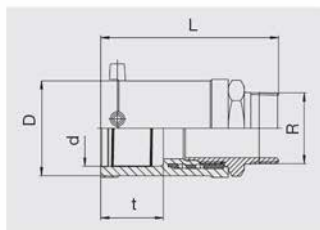


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	A	Weight kg/each
32/25	T-615 475	1	1	15	450	48,5	465	100	300	1,185
40/32	T-615 476	1	1	9	270	57,5	500	133	300	1,604
50/40	T-615 477	1	1	8	240	68,5	520	133	300	2,400
63/50	T-615 478	1	1	6	180	82,5	540	153	300	2,684



**USTN**

**Transition Fittings HD-PE/Steel with external 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. 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.

<sup>2</sup>: Other thread sizes on request

**PE 100 SDR 11**

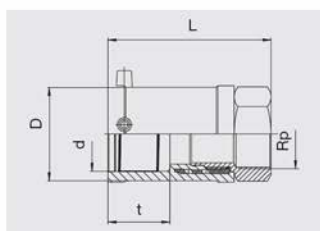
Maximum working pressure 5 bar (Gas)



d	R <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
20	1/2"	T-612 578	1	1	40	3.600	35	95	33	0,150
32	1"	T-612 580	1	1	20	1.800	47	119	42	0,330
40	1 1/4"	T-612 582	1	1	20	1.000	58	131	45	0,530
50	1 1/2"	T-612 584	1	1	15	750	70	146	53	0,700
63	2"	T-612 586	1	1	10	500	84	152	53	1,050

**USTM**

**Transition Fittings HD-PE/Steel with internal 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.

<sup>2</sup>: Other thread sizes on request

**PE 100 SDR 11**

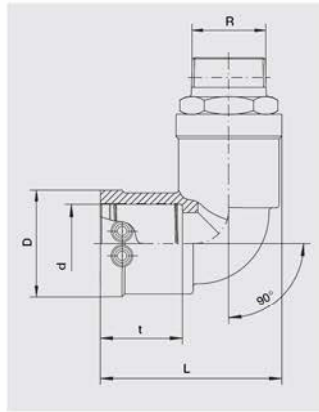
Maximum working pressure 5 bar (Gas)



d	Rp <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	1"	T-612 570	1	1	20	1.800	47	112	42	0,337
40	1"	T-612 571	1	1	20	1.000	58	121	45	0,605
40	1 1/4"	T-612 572	1	1	20	1.000	58	121	45	0,500
50	1 1/2"	T-612 574	1	1	15	750	70	136	53	0,650
63	2"	T-612 576	1	1	10	500	84	141	53	1,010

**WUSTN 90°**

**Transition Elbows 90° HD-PE/Steel with external 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.

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

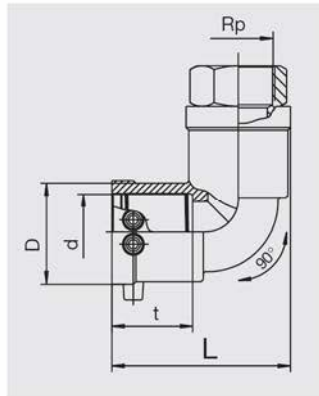
Maximum working pressure 5 bar (Gas)



d	R <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
40	1 1/4"	<b>T-612 602</b>	1	1	15	750	58	102	45	0,560
50	1 1/2"	<b>T-612 604</b>	1	1	10	500	70	118	53	0,770
63	2"	<b>T-612 606</b>	1	1	10	320	84	128	53	1,130

**WUSTM 90°**

**Transition Elbows 90° HD-PE/Steel with internal 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.

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

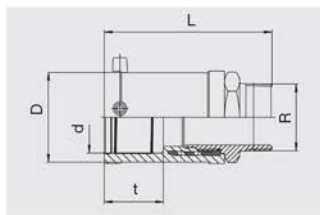
Maximum working pressure 5 bar (Gas)



d	Rp <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	1"	<b>T-612 610</b>	1	1	20	1.000	47	85	42	0,368
40	1"	<b>T-612 611</b>	2	1	15	750	58	102	45	0,650
40	1 1/4"	<b>T-612 612</b>	1	1	15	750	58	102	45	0,540
50	1 1/2"	<b>T-612 614</b>	1	1	10	500	70	118	53	0,705
63	2"	<b>T-612 616</b>	1	1	10	320	84	128	53	1,115

**MUN**

**Transition Fittings HD-PE/Brass with external 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

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

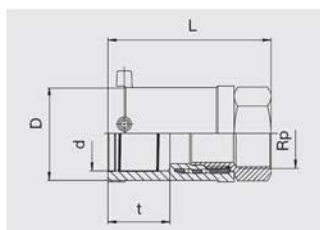
Maximum working pressure 16 bar (Water)



d	R <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
20	1/2"	T-612 710	1	1	40	3.600	35	91	33	0,120
25	3/4"	T-612 711	1	1	30	2.700	40	99	36	0,210
32	1"	T-612 712	1	1	20	1.800	47	112	42	0,300
32	1 1/4"	T-612 709	1	1	20	1.800	47	120	42	0,360
32	1 1/2"	T-612 698	1	1	15	1.350	47	121	42	0,380
40	1"	T-612 721	1	1	20	1.000	58	123	45	0,480
40	1 1/4"	T-612 713	1	1	20	1.000	58	126	45	0,460
40	1 1/2"	T-612 718	1	1	20	1.000	58	127	45	0,520
40	2"	T-612 725	1	1	20	1.000	58	132	45	0,750
50	1"	T-612 719	1	1	15	750	70	134	53	0,580
50	1 1/4"	T-612 716	1	1	15	750	70	136	53	0,610
50	1 1/2"	T-612 714	1	1	15	750	70	137	53	0,590
50	2"	T-612 706	1	1	15	750	70	147	53	0,800
63	1 1/4"	T-612 722	1	1	10	500	84	138	53	0,910
63	1 1/2"	T-612 717	1	1	10	500	84	137	53	0,940
63	2"	T-612 715	1	1	10	500	84	142	53	0,940
75	2"	T-612 694	1	1	10	320	98	165	61	1,360
75	2 1/2"	T-612 695	1	1	10	320	98	167	61	1,370

**MUM**

**Transition Fittings HD-PE/Gunmetal with internal 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

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)

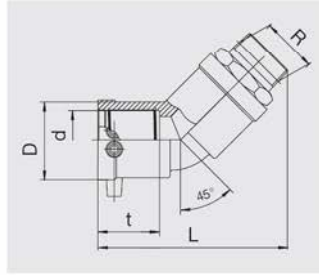


d	Rp <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	1"	T-612 595	1	1	20	1.800	47	112	42	0,330
40	1 1/4"	T-612 596	1	1	20	1.000	58	121	45	0,470
50	1 1/2"	T-612 692	1	1	15	750	70	136	53	0,690
63	1 1/2"	T-612 708	1	1	10	500	84	141	53	1,030
63	2"	T-612 693	1	1	10	500	84	141	53	1,050



**WUN 45°**

**Transition Elbows 45° HD-PE/Brass with external 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

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

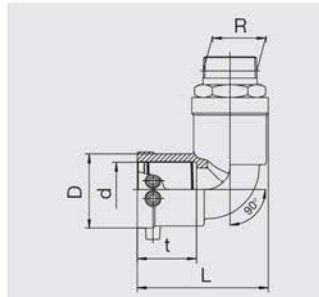
**Maximum working pressure 16 bar (Water)**



d	R <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	1"	<b>T-612 145</b>	1	1	20	1.000	47	126	42	0,380
40	1 1/4"	<b>T-612 149</b>	1	1	15	750	58	140	45	0,490
40	1 1/2"	<b>T-612 139</b>	1	1	15	750	58	142	45	0,560
50	1 1/2"	<b>T-612 144</b>	1	1	10	500	70	163	53	0,640
63	1 1/2"	<b>T-612 147</b>	1	1	10	320	84	176	53	0,980
63	2"	<b>T-612 146</b>	1	1	10	320	84	178	53	0,990

**WUN 90°**

**Transition Elbows 90° HD-PE/Brass with external 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

<sup>2</sup> : Other thread sizes on request

**PE 100 SDR 11**

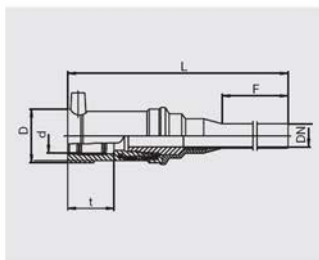
**Maximum working pressure 16 bar (Water)**



d	R <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
32	1"	<b>T-612 120</b>	1	1	20	1.000	47	85	42	0,320
32	1 1/2"	<b>T-612 140</b>	1	1	20	1.000	47	94	42	0,350
40	1"	<b>T-612 127</b>	1	1	15	750	58	102	45	0,480
40	1 1/4"	<b>T-612 122</b>	1	1	15	750	58	102	45	0,520
40	1 1/2"	<b>T-612 121</b>	1	1	15	750	58	102	45	0,580
50	1"	<b>T-612 119</b>	1	1	10	500	70	118	53	0,640
50	1 1/4"	<b>T-612 123</b>	1	1	10	500	70	118	53	0,670
50	1 1/2"	<b>T-612 124</b>	1	1	10	500	70	118	53	0,680
63	1 1/2"	<b>T-612 125</b>	1	1	10	320	84	128	53	0,980
63	2"	<b>T-612 126</b>	1	1	10	320	84	128	53	1,000

**UFLG**

**Transition Fittings 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**

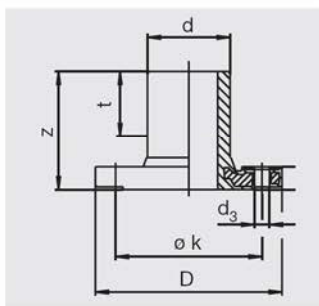
Maximum working pressure 5 bar (Gas)



d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	F	Weight kg/each
32/20	T-615 733	1	25	750	48,5	340	44	200	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 (see pages 6 and 7 of this product range). Flange connection dimensions to DIN 2501, part 1. GST sealing recommended. Additional washers are necessary.

<sup>2</sup>: hole PN 10.

**PE 100 SDR 11**

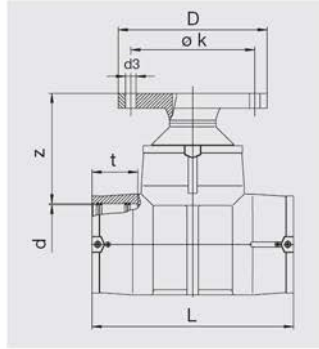
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	d <sub>3</sub>	t	z	Diameter	Holes for screw	Weight kg/each
63/ 50	T-615 417	1	5	160	169	16,5	53	105	125	4	1,300	
90/ 80	T-615 418	1	5	160	204	16,5	71	130	160	8	2,300	
110/100	T-615 419	1	3	96	224	16,5	83	150	180	8	3,200	
125/100	T-615 605	1	2	64	224	16,5	85	160	180	8	3,500	
160/150	T-615 421	1	2	36	288	20,5	120	190	240	8	6,700	
180/150	T-615 927	1	2	36	288	20,5	120	200	240	8	6,900	
225/200 <sup>2</sup>	T-615 607	1	1	27	343	20,5	120	225	295	8	9,100	

**FLT**

**Flange T-Piece**



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.	Quantity	Stock-status	VE	PE	D	d <sub>3</sub>	t	L	z	Diameter	Holes for screw	Weight kg/each
110/80	T-615 590	1	4	32	204	16,5	87	355	180	160	8	4,880	
125/80	T-615 591	1	3	24	204	16,5	87	384	180	160	8	5,550	
160/80	T-615 592	1	2	16	204	16,5	96	430	210	160	8	8,100	
180/80	T-615 910	1	1	8	204	16,5	103	480	210	160	8	10,000	

**PE 100 SDR 17**

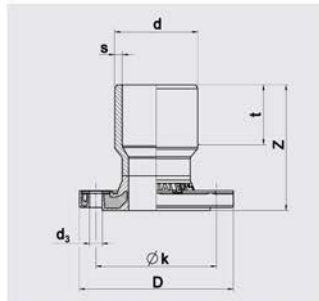
Maximum working pressure 16 bar (Water)



225/80	T-616 031	1	1	8	204	16,5	118	580	210	160	8	15,300
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**FLR**

**Flange Reducer**



Compact part manufactured by factory from HD-PE reducer and FRIALEN® EFL Full Face Flanges. Especially suited as reducer to DN80 combined with our 90° elbow with WF 90° elbow with base unit (see also page 12 of this product range). 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)

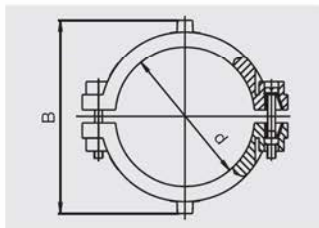


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	d <sub>3</sub>	t	z	Diameter	Holes for screw	Weight kg/each
110/80	T-616 065	1	3	96	204	16,5	82	166	160	8	3,500	



**RS**

**Reinforcing Saddles**



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**

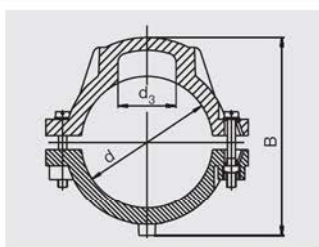
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	B	Weight kg/each
63	T-612 519	1		20	360	105,5	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, using a separate plug. With exposed heating elements for optimal heat transfer.

**PE 100 SDR 11**

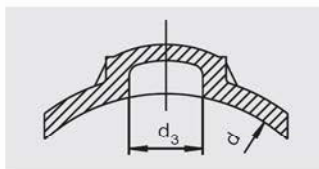
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	B	Weight kg/each
90	T-615 164	1		24	192	50	148	0,920
110	T-615 165	1		16	128	50	168	1,193
125	T-615 166	1		15	120	50	183	1,363
160	T-615 168	1		10	80	50	218	1,666
180	T-615 169	1		12	96	50	238	1,805
200	T-615 170	1		5	40	50	258	1,823
225	T-615 171	1		5	40	50	283	1,874

**VSC-TL**

**Repair Saddle Top-Loading**



Suitable for **all** pipe diameters in the given range by means of the FRIALEN®-FRIATOP Clamping Unit (see Technical Equipment Price List). HD-PE saddle for the repair of minor pipe damage **with or without** escape of fluid, using a separate plug. With exposed heating element for optimal heat transfer.

**PE 100 SDR 11**

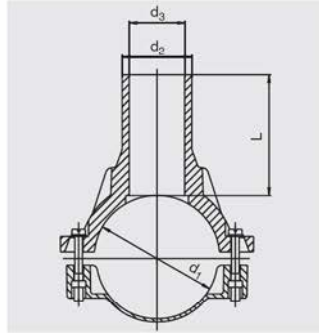
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	Weight kg/each
250-560	T-615 397	1		10	80	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 (see pages 6 and 7 of this product range). Swarfless tapping in the depressurised state by means of commercial drilling units (we recommend Hütz & Baumgarten).

PE 100 SDR 11

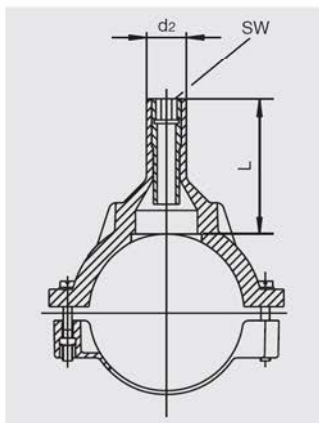
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	L	Weight kg/each
63	32	T-612 757		1	20	360	21	78	0,297
63	50	T-612 759		1	20	360	38	78	0,321
75	50	T-615 020		1	15	270	38	80	0,429
90	32	T-615 285		1	20	160	21	103	0,695
90	63	T-612 819		1	20	160	50	103	0,715
110	32	T-615 334		1	12	96	21	109	0,880
110	50	T-615 031		1	12	96	38	109	0,905
110	63	T-612 760		1	12	96	49	109	0,945
110	90	T-615 411		1	12	96	70	115	0,950
125	32	T-615 087		1	12	96	21	109	0,990
125	63	T-612 761		1	12	96	47	109	1,050
125	90	T-615 412		1	12	96	70	116	1,140
125	110	T-615 584		1	10	80	86	116	1,295
160	32	T-612 886		1	6	48	21	109	1,165
160	63	T-612 762		1	6	48	47	109	1,245
160	90	T-615 413		1	10	80	69	116	1,340
160	110	T-615 739		1	2	36	86	136	1,630
160	125	T-615 585		1	2	36	98	141	1,755
180	63	T-612 763		1	6	48	47	109	1,245
180	90	T-615 414		1	2	36	69	116	1,340
180	110	T-615 948		1	2	36	86	136	1,960
180	125	T-615 740		1	2	36	98	141	2,087
200	63	T-612 764		1	5	40	47	109	1,264
225	63	T-612 765		1	5	40	47	109	1,330
225	90	T-615 415		1	10	80	70	116	1,420
225	110	T-616 044		1	5	40	86	136	2,070
225	125	T-616 045		1	5	40	97	141	2,615
225	160	T-616 046		1	4	32	126	157	2,615

**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 (see pages 6 and 7 of this product range). Swarfless tapping in the depressurised state by means of the integral drills.

**PE 100 SDR 11**

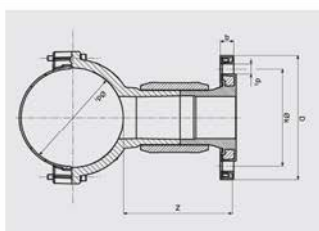
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
63	32	T-615 091	1	1	20	360	78	17	0,387
90	32	T-615 092	1	1	20	160	89	17	0,775
110	32	T-615 093	1	1	12	96	109	17	0,972
125	32	T-615 094	1	1	12	96	109	17	1,070
160	32	T-615 095	1	1	6	48	109	17	1,265

**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). Spigot saddle with exposed heating coil for optimum heat transfer. May be drilled pressure free using standard drilling equipment. 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)

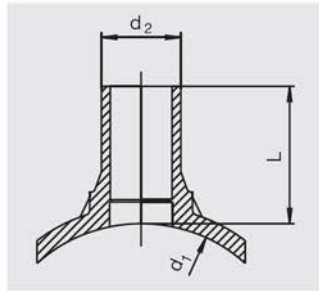


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	d <sub>3</sub>	z	Diameter	Holes for screw	Weight kg/each
110/ 80	T-616 016	1	1	3	54	204	16,5	180	160	8	3,735
125/ 80	T-616 017	1	1	2	36	204	16,5	180	160	8	3,825
160/ 80	T-616 018	1	1	2	36	204	16,5	180	160	8	4,290
180/ 80	T-616 019	1	1	2	36	204	16,5	180	160	8	4,570
225/ 80	T-616 020	1	1	2	16	204	16,5	180	160	8	4,610
125/100	T-616 021	1	1	2	36	224	16,5	180	180	8	4,800
160/100	T-616 022	1	1	2	36	224	16,5	180	180	8	5,270
180/100	T-616 023	1	1	2	36	224	16,5	180	180	8	5,585
225/100	T-616 024	1	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 (s. Technical Equipment Price List). 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 (see pages 6 and 7 of this product range). Swarfless tapping in the depressurised state by means of commercial drilling units (we recommend Hütz & Baumgarten).

<sup>2</sup>: Tapping diameter max. 60 mm

PE 100 SDR 11

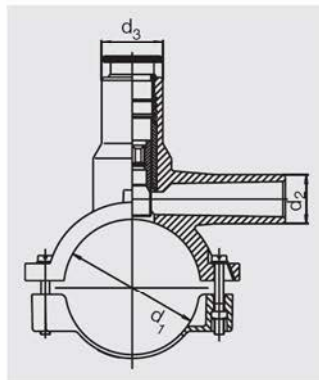
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	Weight kg/each
250-560	32	T-615 465	1	1	5	90	109	0,621
250-560	63	T-615 466	1	1	5	90	109	0,676
250-560	90 <sup>2</sup>	T-615 850	1	1	5	90		0,920

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 (d<sub>1</sub> 63 and 75 = MV d40 (page 8); d<sub>1</sub> >-75 = K (page 29)). Pressure test possible before tapping. For pressure test adapter and actuating key see Technical Equipment Price List. Length of the outlet spigots dimensioned for 2 fusion operations (if necessary).

<sup>2</sup>: with electrofusion reducers d32/20, d32/25, d40/32 or d50/40.

PE 100 SDR 11

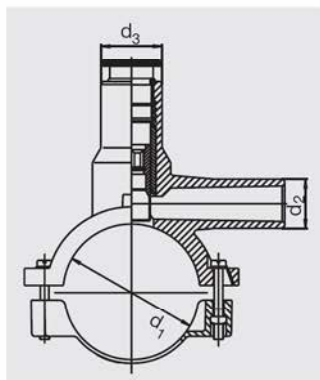
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	Weight kg/each
63	32	T-615 649	1	1	16	288	40	0,527
75	32 <sup>2</sup>	T-615 651	1	1	12	216	40	0,728
90	20 <sup>2</sup>	T-615 653	2	2	12	96	50	1,166
90	25 <sup>2</sup>	T-615 654	2	2	12	96	50	1,171
90	32	T-615 655	1	1	12	96	50	1,184
90	40 <sup>2</sup>	T-615 656	1	1	12	96	50	1,304
110	20 <sup>2</sup>	T-615 659	2	2	16	128	50	1,145
110	25 <sup>2</sup>	T-615 660	2	2	16	128	50	1,150
110	32	T-615 661	1	1	16	128	50	1,163
110	40 <sup>2</sup>	T-615 662	1	1	16	128	50	1,285
110	50 <sup>2</sup>	T-615 663	1	1	16	128	50	1,294
125	32	T-615 667	1	1	10	80	50	1,534
125	40 <sup>2</sup>	T-615 668	1	1	10	80	50	1,657
160	20 <sup>2</sup>	T-615 672	2	2	6	48	50	1,936
160	25 <sup>2</sup>	T-615 673	2	2	6	48	50	1,941
160	32	T-615 674	1	1	6	48	50	1,954
160	40 <sup>2</sup>	T-615 675	1	1	6	48	50	2,081

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 ( $d_1$ -40 = MV d32 (page 8);  $d_1$  50, 63 and 75 = MV d40 (page 8);  $d_1 > 75$  = K (page 29)).

Leakage check possible before tapping. For pressure test adapter and actuating key see Technical Equipment Price List. Length of the outlet spigots dimensioned for 2 fusion operation (if necessary).

PE 100 SDR 11

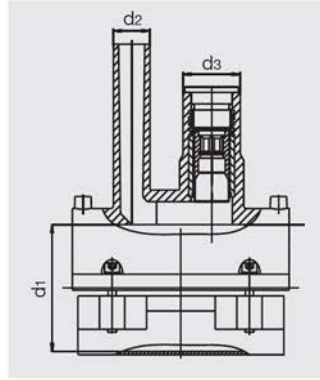
Maximum working pressure 16 bar (Water)/10 bar (Gas)



$d_1$	$d_2$	Order Ref.	Quantity	Stock-status	VE	PE	$d_3$	Weight kg/each
40	20	T-612 630	2	20	640	32	0,300	
50	25	T-612 702	2	20	360	40	0,420	
50	32	T-615 080	1	20	360	40	0,443	
63	20	T-612 631	1	16	288	40	0,444	
63	25	T-612 633	1	16	288	40	0,449	
63	32	T-612 632	1	16	288	40	0,454	
63	40	T-612 623	1	16	288	40	0,491	
75	40	T-612 813	1	12	216	40	0,650	
90	32	T-612 634	1	12	96	50	1,110	
90	50	T-612 636	1	12	96	50	1,160	
90	63	T-612 701	1	12	96	50	1,310	
110	32	T-612 637	1	16	128	50	1,090	
110	50	T-612 638	1	16	128	50	1,150	
110	63	T-612 624	1	10	80	50	1,505	
125	32	T-612 649	1	10	80	50	1,460	
125	50	T-612 639	1	10	80	50	1,515	
125	63	T-612 309	1	10	80	50	1,615	
140	50	T-615 037	2	10	80	50	1,495	
160	32	T-612 641	1	6	48	50	1,880	
160	50	T-612 642	1	6	48	50	1,940	
160	63	T-612 650	1	6	48	50	2,030	
180	32	T-612 651	1	5	40	50	1,855	
180	50	T-612 644	1	5	40	50	1,920	
180	63	T-612 652	1	5	40	50	1,960	
200	32	T-612 654	1	5	40	50	1,825	
200	50	T-612 645	1	5	40	50	1,960	
200	63	T-612 659	1	5	40	50	2,020	
225	32	T-612 657	1	5	40	50	1,945	
225	50	T-612 646	1	5	40	50	2,040	
225	63	T-612 655	1	5	40	50	2,140	

**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 (see K, page 29). Pressure test possible before tapping. For pressure test adapter and actuating key see Technical Equipment Price List. Length of the outlet spigots dimensioned for 2 fusion operations (if necessary).

**PE 100 SDR 11**

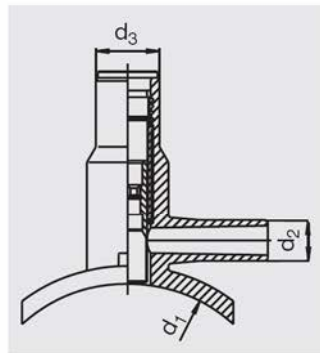
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	Weight kg/each
63	32	T-616 042	1	1	16	288	40	0,550
90	32	T-616 043	1	1	16	128	50	1,131
110	32	T-615 581	1	1	12	96	50	1,255
110	50	T-615 606	1	1	12	96	50	1,310
125	32	T-615 711	1	1	12	96	50	1,270
125	50	T-615 712	1	1	12	96	50	1,330
160	32	T-615 713	1	1	8	64	50	1,710
160	50	T-615 714	1	1	8	64	50	1,765
180	32	T-615 715	1	1	6	48	50	1,675
180	50	T-615 716	1	1	6	48	50	1,740
225	32	T-615 717	1	1	6	48	50	1,765
225	50	T-615 718	1	1	6	48	50	1,820

**DAA-TL**

**Pressure Tapping Tees Top-Loading**



Suitable for **all** pipe diameters in the given range by means of the FRIALEN® FRIATOP clamping unit (see Technical Equipment Price List). 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, page 29). Pressure test possible before tapping. For pressure test adapter and actuating key see Technical Equipment Price List.

<sup>2</sup>: Other outlet dimensions with electrofusion reducers MR (see page 9 of this product range)

<sup>1</sup>: d<sub>1</sub> to 400 to pipes SDR 17

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)/10 bar (Gas)

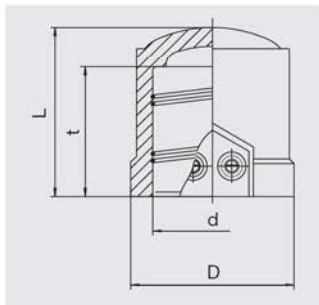


d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	Weight kg/each
250 – 315 <sup>1</sup>	63 <sup>2</sup>	T-615 339	1	1	5	90	50	1,229



**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**

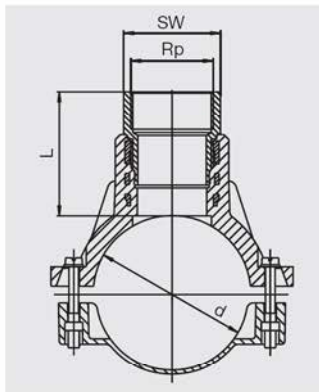
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
50	T-612 310	1	30	960	69	70	55	0,120	

**VAM-RG**

**Valve Tapping Saddles with HD-PE/Gunmetal adapter, internal 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. Thread to DIN 2999.

\* As a **complete solution** we recommend our **pressure tapping valve DAV**, pages 32/33 of this product range.

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

**PE 100 SDR 11**

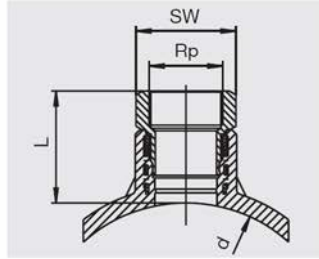
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Rp	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
63	1 1/4"	T-612 794	2	20	360	73	50	0,732	
63	1 1/2"	T-612 743	2	20	360	76	55	0,780	
75	1 1/4"	T-615 213	2	15	270	76	50	0,871	
90	1 1/2"	T-612 798	2	16	128	68	70	1,374	
90	2"	T-612 778	2	16	128	95	70	1,730	
110	1 1/2"	T-612 732	1	12	96	68	70	1,540	
110	2"	T-612 733	1	12	96	95	70	1,751	
125	1 1/2"	T-612 734	2	12	96	68	70	1,640	
125	2"	T-612 735	1	12	96	95	70	1,838	
160	1 1/2"	T-612 728	2	8	64	68	70	1,850	
160	2"	T-612 729	1	8	64	95	70	2,049	
180	1 1/2"	T-612 774	2	7	56	68	70	1,830	
180	2"	T-612 776	2	7	56	95	70	2,030	
225	2"	T-612 827	2	5	40	95	70	2,480	

**VAM-RG-TL**

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



Suitable for **all** pipe diameters in the given range by means of the FRIALEN®-FRIATOP Clamping Unit (see Technical Equipment Price List). 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. Thread to DIN-2999. Transition DVGW approved. Reg. No. DV-7501AU2258

**PE 100 SDR 11**

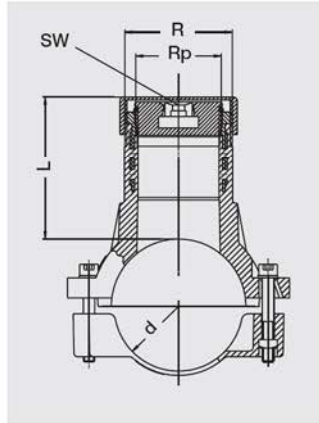
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Rp	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
250-315	2"	T-615 470	2		10	180	90	70	1,463

**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 (see page 31). Thread to DIN ISO 228.

<sup>2</sup>: Dome only screwed type, external thread in PE

**PE 100 SDR 11**

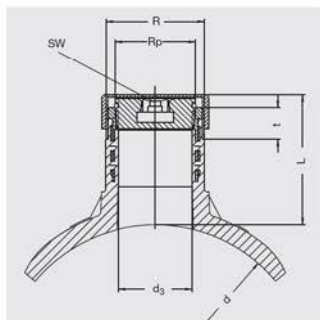
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	R	Rp	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
63 <sup>2</sup>	G 1 3/4"		T-612 753	1		20	360	48		0,349
90	G 2 1/2"	G 2"	T-612 677	1		16	128	110	19	1,480
110	G 2 1/2"	G 2"	T-612 750	1		12	96	110	19	1,651
125	G 2 1/2"	G 2"	T-612 751	1		12	96	110	19	1,766
160	G 2 1/2"	G 2"	T-612 752	1		8	64	110	19	1,966
180	G 2 1/2"	G 2"	T-612 754	1		7	56	110	19	1,942
200	G 2 1/2"	G 2"	T-612 755	1		6	48	110	19	1,984
225	G 2 1/2"	G 2"	T-612 756	1		5	40	110	19	2,064

**SPA-TL**

**Shut off Saddles Top-Loading**



Suitable for **all** pipe diameters in the given range by means of the FRIALEN®-FRIATOP Clamping Unit (s. Technical Equipment Price List). 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 (see-page 31). Thread to DIN ISO 228.

**PE 100 SDR 11**

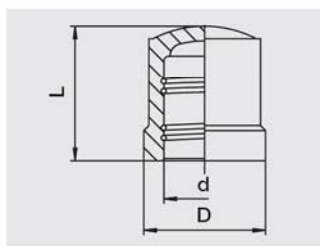
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	R	Rp	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
250-315	G 2 1/2"	G 2"	<b>T-615 395</b>	1	18	144	110	19	1,358	

**SPAK**

**Cap for Shut off Saddles**



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

**PE 100 SDR 11**

Maximum working pressure 16 bar (Water)/10 bar (Gas)

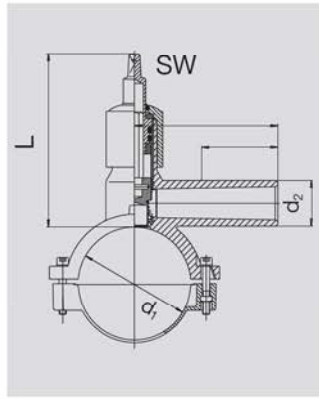


d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	Weight kg/each
75	<b>T-612 311</b>	1	24	768	97	84	0,270	



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, page 34). Length of the outlet spigot dimensioned for 2 fusion operations (if necessary). Registered by DVGW under registration no. DV-6611AU2254 and DV-6611AU2255.

<sup>2</sup>: with electrofusion reducers MR d50/40.

PE 100 SDR 11

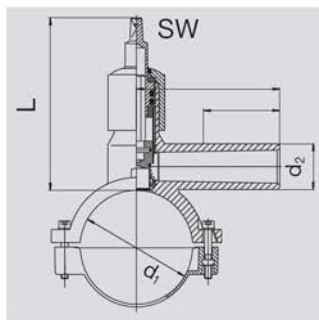
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
63	32	T-615 614	1	1	16	288	160	14	0,857
63	40	T-615 615	1	1	16	288	160	14	0,924
90	32	T-615 616	1	1	12	96	190	14	1,886
90	40 <sup>2</sup>	T-615 617	1	1	12	96	190	14	2,024
110	32	T-615 620	1	1	10	80	190	14	2,056
110	40 <sup>2</sup>	T-615 621	1	1	10	80	190	14	2,214
110	50	T-615 622	1	1	10	80	190	14	2,223
110	63	T-615 623	1	1	10	80	190	14	2,368
125	32	T-615 624	1	1	10	80	190	14	2,176
125	40 <sup>2</sup>	T-615 625	1	1	10	80	190	14	2,322
125	50	T-615 626	1	1	10	80	190	14	2,331
125	63	T-615 627	1	1	10	80	190	14	2,476
160	32	T-615 628	1	1	6	48	245	14	2,722
160	40 <sup>2</sup>	T-615 629	1	1	6	48	245	14	2,857
160	50	T-615 630	1	1	6	48	245	14	2,866
160	63	T-615 631	1	1	6	48	245	14	3,018
180	32	T-615 632	1	1	5	40	245	14	2,613
180	40 <sup>2</sup>	T-615 633	1	1	5	40	245	14	2,763
225	32	T-615 640	1	1	5	40	245	14	2,710
225	40 <sup>2</sup>	T-615 641	1	1	5	40	245	14	2,930

## 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, page 34). 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

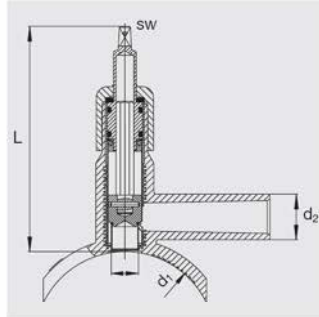
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
50	32	T-615 955	1	1	16	288	160	14	0,750
63	32	T-615 341	1	1	16	288	160	14	0,785
63	40	T-615 342	1	1	16	288	160	14	0,830
75	32	T-615 956	1	1	16	288	160	14	0,850
90	32	T-615 344	1	1	12	96	190	14	1,810
90	50	T-615 346	1	1	12	96	190	14	1,880
90	63	T-615 347	1	1	12	96	190	14	1,980
110	32	T-615 348	1	1	10	80	190	14	1,980
110	50	T-615 350	1	1	10	80	190	14	2,070
110	63	T-615 351	1	1	10	80	190	14	2,155
125	32	T-615 352	1	1	10	80	190	14	2,100
125	50	T-615 354	1	1	10	80	190	14	2,180
125	63	T-615 355	1	1	10	80	190	14	2,270
140	63	T-615 930	1	1	10	80	190	14	2,290
160	32	T-615 356	1	1	6	48	245	14	2,650
160	50	T-615 358	1	1	6	48	245	14	2,715
160	63	T-615 359	1	1	6	48	245	14	2,805
180	32	T-615 361	1	1	5	40	245	14	2,540
180	50	T-615 363	1	1	5	40	245	14	2,620
180	63	T-615 364	1	1	5	40	245	14	2,775
200	32	T-615 366	1	1	5	40	245	14	2,575
200	50	T-615 368	1	1	5	40	245	14	2,629
200	63	T-615 369	1	1	5	40	245	14	2,800
225	32	T-615 374	1	1	5	40	245	14	2,635
225	50	T-615 376	1	1	5	40	245	14	2,790
225	63	T-615 377	1	1	5	40	245	14	2,875

**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 Price List Technical Equipment). Stainless steel activating spindle 1.4305. No further insulation necessary. Leak and swarf free tapping up to 5 bar (gas) and 10 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 17**

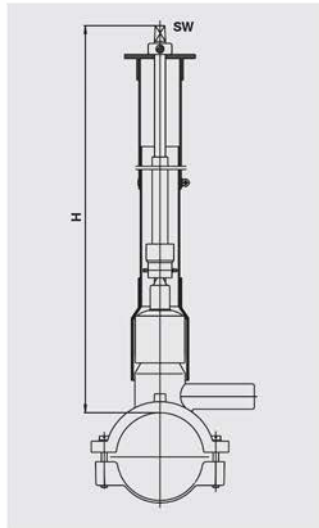
Maximum working pressure 10 bar (Water)/5 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	SW	Weight kg/each
250-315	50	<b>T-615 589</b>	2		10	80	245	14	2,300

**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.

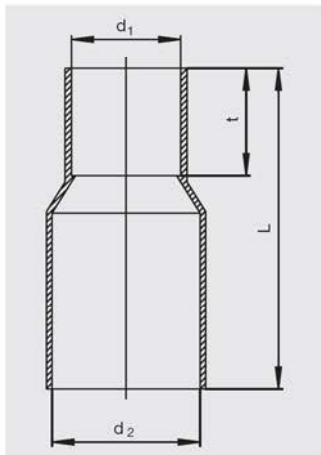
Dimension H valid for DAV d<sub>1</sub> = 90 – 125.  
For DAV d<sub>1</sub> < 90 please deduct 50 mm and for d<sub>1</sub> > 125 please add 50 mm.  
(See also dimension "L" of the DAV)

H in m	Order Ref.	Quantity	Stock-status	VE	PE	SW	Weight kg/each
0,45 – 0,6	<b>T-615 866</b>	1	1	1	42	14	2,200
0,6 – 0,9	<b>T-615 867</b>	1	1	1	42	14	2,500
0,8 – 1,2	<b>T-615 335</b>	1	1	1	42	14	3,000
1,1 – 1,8	<b>T-615 325</b>	1	1	1	42	14	4,200



**A**

**Adapter for Pressure Tapping Valves**

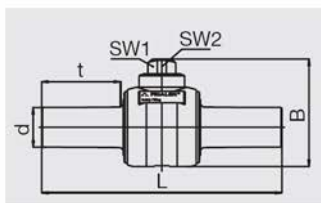


For fitting on the square drive of the FRIALEN®-DAV for adaptation to the standard commercial linkage with 50 mm guard tube.

d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	L	t	Weight kg/each
50	68	<b>T-615 396</b>		1	10	900	147	50	0,077

**KHP**

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



Compact part in HD-PE with fused on ends for use with FRIALEN®-couplers MB or UB (see pages 6 and 7 of this product range). 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, page 37).

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)



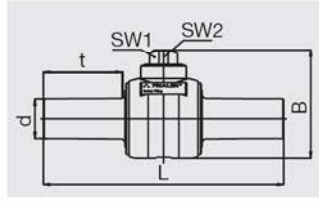
d	Order Ref.	Quantity	Stock-status	VE	PE	B	L	t	SW <sub>1</sub>	SW <sub>2</sub>	Weight kg/each
32	<b>T-612 490</b>	-	1	1	171	129	310	107	50 x 50	19	0,535
40	<b>T-612 497</b>	-	1	1	171	129	310	107	50 x 50	19	0,580
50	<b>T-612 492</b>	-	1	1	171	129	310	107	50 x 50	19	0,680
63	<b>T-612 494</b>	-	1	1	50	195	417	125	50 x 50	25	2,330
90	<b>T-612 495</b>	-	1	1	24	245	545	178	50 x 50	25	4,700
110	<b>T-612 493</b>	-	1	1	24	245	545	178	50 x 50	25	4,900
125	<b>T-612 496</b>	-	1	1	24	245	545	178	50 x 50	25	5,200
160	<b>T-612 483</b>		1	1	8	329	544	154	50 x 50	25	13,400
180	<b>T-615 309</b>		1	1	8	329	544	154	50 x 50	25	14,200
200	<b>T-612 480</b>		1	1	8	329	544	154	50 x 50	25	15,100
225	<b>T-616 186</b>		1	1	8	332	530	154	50 x 50	25	

NEW!

NEW!

**KH**

**Ball valves made from HD-PE, 1/4 turn, full port**



Compact construction part made from HD-PE with spigots for processing with FRIALEN® MB or UB couplers (see also pages 6 and 7 of this pricelist). 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, page 37).

<sup>2</sup>: BS d 63 – d 225 required

**PE 100 SDR 11**

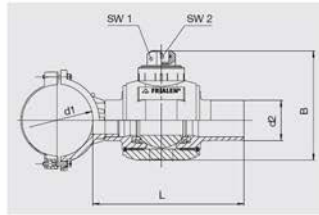
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d	Order Ref.	Quantity	Stock-status	VE	PE	B	L	SW <sub>1</sub>	SW <sub>2</sub>	Weight kg/each
32	T-616 176	1	1	1		153	324	50 x 50	19	
40	T-616 177	1	1	1		153	324	50 x 50	19	
50 <sup>2</sup>	T-616 178	1	1	1		193	404	50 x 50	25	
63	T-616 179	1	1	1		206	412	50 x 50	25	
90	T-616 180	1	1	1		291	576	50 x 50	25	
110	T-616 181	1	1	1		291	576	50 x 50	25	
125	T-616 182	1	1	1		291	576	50 x 50	25	

**AKHP**

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



Compact part in HD-PE. Factory made combination of FRIALEN®-Saddle Moulding and FRIALEN®-Ball Valve with fused on ends for space and cost saving horizontal installation. Leak free and swarfless tapping up to 10 bar (Gas) or 16 bar (Water) by means of the FRIALEN®-FWAB Tapping Unit (see Technical Equipment Price List). With exposed heating element for optimal heat transfer. Registered by DVGW under registration nos. DG-8631AU2252 and DG-8631AU2253.

**PE 100 SDR 11**

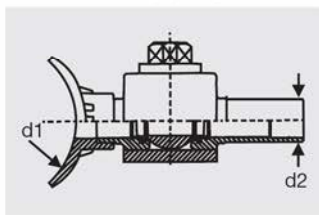
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	B	Tapping diameter	L	SW <sub>1</sub>	SW <sub>2</sub>	Weight kg/each
110	63	T-615 427	1	1	6	48	180	42	330	50 x 50	25	2,900
110	90	T-615 428	1	1	4	32	240	60	335	50 x 50	25	5,150
125	90	T-615 431	1	1	4	32	240	60	335	50 x 50	25	5,250
160	63	T-615 433	1	1	4	32	180	42	330	50 x 50	25	3,500
160	90	T-615 434	1	1	3	24	240	60	335	50 x 50	25	5,400
180	90	T-615 437	1	1	4	32	240	60	335	50 x 50	25	5,400
225	63	T-615 439	1	1	3	24	180	42	330	50 x 50	25	3,500
225	90	T-615 440	1	1	3	24	240	60	335	50 x 50	25	5,500

**AKHP-TL**

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



Suitable for **all** pipe diameters in the given range by means of the FRIALEN®-FRIATOP Clamping Unit (see Technical Equipment Price List). Compact part in HD-PE. Factory made combination of FRIALEN®-Saddle Moulding and FRIALEN®-Ball Valve with fused on ends for space and cost saving horizontal installation. Leak free and swarfless tapping up to 10 bar (Gas) or 16 bar (Water) by means of the FRIALEN®-FWAB Tapping Unit (see Technical Equipment Price List). With exposed heating element for optimal heat transfer.

Registered by DVGW under registration no. DG-8631AU2253.

<sup>2</sup>: d<sub>1</sub> to 560 for pipes SDR 17

**PE 100 SDR 11**

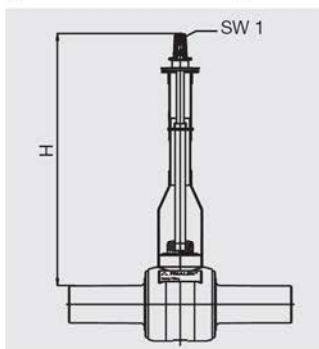
Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub>	Order Ref.	Quantity	Stock-status	VE	PE	B	Tapping diameter	L	SW <sub>1</sub>	SW <sub>2</sub>	Weight kg/each
250-450 <sup>2</sup>	63	<b>T-615 525</b>		2	4	32	180	42	330	50 x 50	25	2,600
250-450 <sup>2</sup>	90	<b>T-615 526</b>		2	4	32	240	60	335	50 x 50	25	5,000

**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.**

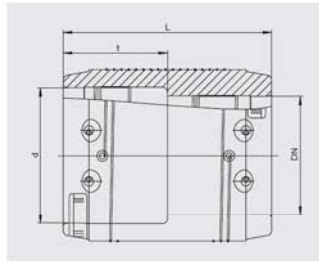
d	H in m	Order Ref.	Quantity	Stock-status	VE	PE	SW <sub>1</sub>	Weight kg/each
32- 50	0,45-0,7	<b>T-615 741</b>		1	1	42	30	2,400
32- 50	0,6 -1,0	<b>T-615 957</b>		1	1	42	<b>14</b>	1,700
32- 50	0,6 -1,0	<b>T-615 328</b>		1	1	42	30	2,850
32- 50	1,0 -1,5	<b>T-615 330</b>		1	1	42	30	3,800
32- 50	1,2 -2,0	<b>T-615 329</b>		2	1	42	30	4,600
63-225	0,6 -1,0	<b>T-615 958</b>		1	1	42	<b>14</b>	1,700
63-225	0,6 -1,0	<b>T-615 310</b>		1	1	42	30	3,650
63-225	1,0 -1,5	<b>T-615 331</b>		1	1	42	30	4,760
63-225	1,2 -2,0	<b>T-615 311</b>		2	1	42	30	5,990



Pipeline-Relining

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.

<sup>2</sup>: Separate fusion zones

PE 100 SDR 17

Maximum working pressure 16 bar (Water) / 4 bar (Gas)

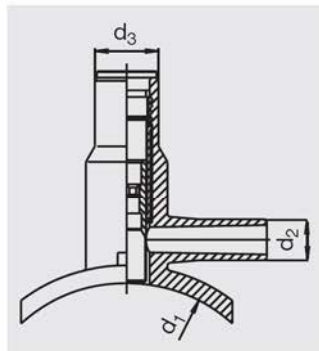


d/DN	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
110/100 <sup>2</sup>	T-615 569	2	24	192	127	150	75	0,675	
160/150 <sup>2</sup>	T-615 571	2	12	96	180	180	90	1,540	
315/300 <sup>2</sup>	T-615 576	2	1	18	355	285	143	7,950	

For all other dimensions it is possible to use our couplers UB (see page 6).

DAA-TL/RE

Pressure Tapping Tees Top-Loading/Relining



For the flexible adaptation to **all** pipe diameters in indicated range by means of the FRIALEN® FRIATOP Clamping Device (see Product Range Technical Equipment). 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. End plug with internal O-ring seal. Fusible dome (see K, page 29). Leakage check possible before tapping. For pressure test adapter and actuating key see Product Range Technical Equipment.

<sup>2</sup>: Other outlet dimensions with MR Electrofusion Reducers (see page 9)

<sup>1</sup>: d<sub>1</sub> up to 400 for SDR 17 pipes

PE 100 SDR 11

Maximum working pressure 16 bar (Water)/10 bar (Gas)



d <sub>1</sub>	d <sub>2</sub> <sup>2</sup>	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	Weight kg/each
> 98 - 130	50	T-615 527	2	20	160	50	0,930	
>130 - 160	50	T-615 528	2	12	96	50	1,041	
>160 - 210	63	T-615 531	2	5	90	50	1,229	
>250 - 315 <sup>1</sup>	63 <sup>1</sup>	T-615 339	1	5	90	50	1,229	



# the system

## FRIAFIT®-Sewage System:

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

Product Range AF  
9/04

### Safety

in pipe system installation  
... leading worldwide

innovative  
cost efficient  
excellent





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

### Contents

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

### 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.

### Factory certificates

For factory certificates to **DIN EN 10204-3.1** there will be a processing charge of **M 13,- per item**. The factory certificates **must be ordered at the same time as the order is placed**; it is not possible to supply them retrospectively.

### Quality Certification

FRIAFIT®-Sewage System 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 FRIAFIT®-Sewage System and the operation of our Technical Equipment 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 FRIAFIT®-Sewage System, the Technical Equipment and the quality of the fused joint as a result of the combination of these two components. With the expansion of the scope of FRIAFIT® products due to new developments, but also due to the reworking of components in our product range, the FWS-225 fusion units are no longer included in suitability tests. 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 in question.

### Norm Conformity/Fusion capability

The FRIAFIT®-Sewage System complies with DIN 19 537 and thus counts as a regulated building product. As such it does not require a general building supervision approval. A certificate of conformity from DIBT Berlin is available.

The FRIAFIT®-Sewage System (without sewage sleeves AM) can be fused to pipes of SDR stages 33 to 11 in accordance with DIN 8074, DIN 19 537 and pr EN 12 666.

FRIAFIT® sewage sleeves AM SDR 17 are designed for use with water. They are registered according to DVGW – VP 607 certified by DV-8606AU2249 and DV-8611AU2250 and are subject to regular external checks.

FRIAFIT® sewage sleeves AM SDR 17 may be welded with pipes ranging in SDR from 33 to 17 according to DIN 8074, ISO 4437, EN 12 201 and EN 13 244.

Pipes made of raw material types PE 63, PE 80 and PE 100 in melt index groups 003 to 020 can be fused.

It is possible to work with the FRIAFIT®-Sewage System at ambient temperatures of between -10 °C and +45 °C. **It is always necessary to use an adapter ADFIT (see Technical Equipment product range FRIALEN®, FRIAFIT®) for the fusion except ASA-TL.**



### Pressure loading capacity

It is designed for **unpressurised pipes (gravity pipes)**.  
The test pressure for this type of system in accordance with DIN EN 1610 is a maximum of 0,5 bar.

### Pressure load limits

FRIAFIT® sewage sleeves made from PE 100 SDR 17 are designed according to EN 12 201 and EN 13 244 for pressure load limits of 10 bar for water and sewage pipes with a design factor C = 1.25.

### Static

The static calculation for the PE sewer pipe must in each individual case be carried out by the relevant pipe manufacturer or engineering office depending on the ambient conditions which prevail.

The annular rigidity of the pipe joint fused with FRIAFIT® sewage sleeves will in all cases be higher than the annular rigidity of the pipe used.

### Cooling times

#### FRIAFIT® sewage sleeves (AM) and FRIAFIT® sewage insert sleeves (AEM)

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

#### FRIAFIT® sewage saddle top loading

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

You can get further details from our assembly instruction.

### Technical Details

The technical details in this product range are not comprehensive. Please refer to our data sheets for detailed information. These may also be downloaded from the internet on [www.friafit.de](http://www.friafit.de).

### Update/Technical Progress

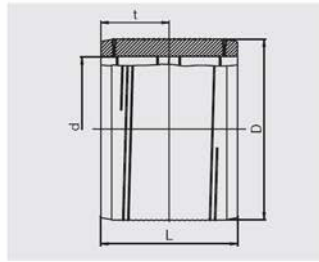
All specifications are valid as at time of going to print. We reserve the right to implement changes which serve technical progress. We do not accept liability for printing mistakes.

## Contents

Article	Page	Brief Description
<b>Basic programme</b>		
Sewage insert sleeve	4	AEM
Sewage inspection chamber adapter	5	ASF
Sewage inspection chamber adapter for masoned canals L = 250 mm	6	ASFL
Sewage saddle top loading	6	ASA-TL
Sewage sleeve SDR 17	4	AM
Transition piece PE – PVC	7	UKG
Water swelling sealing rin	5	Q
<b>Additional fittings (suitable for SDR 17,6)</b>		
Equal branch 45° (spigot fittings)	8	ATS 45°
Equal branch 60° (spigot fittings)	9	ATS 60°
Reducers eccentric (spigot fittings)	10	RES
Sewage elbows 30° (spigot fittings)	7	ABS 30°
Sewage elbows 45° (spigot fittings)	7	ABS 45°
Sewage elbows 60° (spigot fittings)	8	ABS 60°
Sewage elbows 90° (spigot fittings)	8	ABS 90°
Unequal branch 45° (spigot fittings)	9	ATSR 45°
Unequal branch 60° (spigot fittings)	10	ATSR 60°

AM

Sewage sleeve SDR 17



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

**When using the AM sewage sleeve and the AEM sewage insert sleeve, the ADFIT adapter will always be needed (see Technical Equipment product range FRIALEN®/FRIAFIT®).**

<sup>2</sup>: separate fusion zones

PE 100 SDR 17

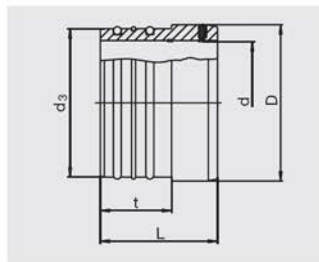
Maximum working pressure 10 bar (Water, Sewage)

NEW!

d	Order Ref.	Quantity	Stock-status	VE	PE	D	L	t	Weight kg/each
110	T-680 001	1	1	24	192	128	160	80	0,600
125	T-680 013	1	1						
160	T-680 002	1	1	12	96	184	180	90	1,100
180	T-680 003	1	1	8	64	206	180	90	1,700
200	T-680 004	1	1	1	56	250	180	90	3,200
225	T-680 005	1	1	4	32	250	200	100	2,000
250	T-680 006	1	1	4	32	280	200	100	2,650
280	T-680 007	1	1	1	32	315	200	100	3,450
315	T-680 008	1	1	1	24	355	220	110	4,900
355	T-680 009	1	1	1	20	400	220	110	6,100
400	T-680 010	1	1	1	12	450	220	110	7,850
450	T-680 011	1	1	1	8	500	220	110	8,400
500 <sup>2</sup>	T-680 012	1	1	1	4	560	270	135	14,900

AEM

Sewage insert sleeve



For connecting HD-PE pipes into concrete inspection chambers to DIN 4034 with the FRIAFIT® inspection chamber adapter. The FRIAFIT® inspection chamber acts as a connecting element between the prefabricated inspection chamber and the FRIAFIT® sewage insert sleeve with resilient sealing allows optimal anchoring to the FRIAFIT® inspection chamber adapter. A water swelling sealing ring Q is available if required. The connection side to the HD-PE pipe with exposed heating coils for optimal heat transfer, large insertion depth, extra wide fusion zones plus cold zones at the end to prevent the flow of molten material, for use without holding devices.

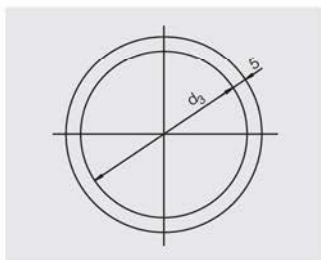
PE 100

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

d	Order Ref.	Quantity	Stock-status	VE	PE	D	d <sub>3</sub>	L	t	Weight kg/each
110	T-680 201	1	1	8	144	133	131	165	135	0,690
160	T-680 202	1	1	8	64	193	187	220	135	1,720
180	T-680 203	1	1	1	54	225	215	220	135	2,640
200	T-680 204	1	1	1	56	250	247	220	135	3,640
225	T-680 205	1	1	1	32	280	277	220	135	4,600
250	T-680 206	1	1	1	32	280	277	220	135	2,640
280	T-680 207	1	1	1	24	315	313	220	135	3,500
315	T-680 208	1	1	1	24	355	354	220	135	4,540
355	T-680 209	1	1	1	20	400	399	220	135	5,800
400	T-680 210	1	1	1	12	450	449	220	135	7,500
450	T-680 211	1	1	1	8	500	499	220	135	8,100

**Q**

**Water swelling sealing ring**

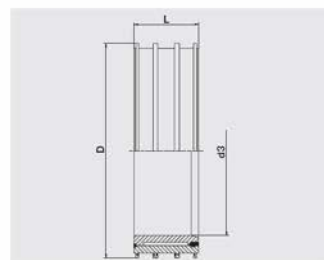


If required a water swelling sealing ring can be used as an option for connecting FRIAFIT® sewage insert sleeve (AEM) into sewage inspection chamber adapter (ASF/ASFL).

d	Order Ref.	Quantity	Stock-status	VE	d <sub>3</sub>	Weight kg/each
110	T-680 261	1	1	1	123	0,005
160	T-680 262	1	1	1	179	0,010
180	T-680 263	1	1	1	207	0,015
200	T-680 264	1	1	1	239	0,020
225	T-680 265	1	1	1	269	0,025
250	T-680 266	1	1	1	269	0,025
280	T-680 267	1	1	1	305	0,035
315	T-680 268	1	1	1	345	0,040
355	T-680 269	1	1	1	390	0,045
400	T-680 270	1	1	1	440	0,050
450	T-680 271	1	1	1	490	0,055

**ASF**

**FRIAFIT® sewage inspection chamber adapter**



Connection unit between the ready made concrete inspection chamber and the FRIAFIT® sewage insert sleeve (AEM). With anchoring ribs across the whole width of the diameter for a secure seat in the concrete. Resilient centre section serves to take up the stresses when the pipes are under load. Stable inside diameter due to high wall thickness giving a good connection to the AEM in accordance with DIN 4034.

**PE 100**

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

d	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	D	L	Weight kg/each
110	T-680 401	1	12	96	134	200	135	1,450	
160	T-680 402	1	8	64	190	250	135	1,650	
180	T-680 403	1	6	48	218	280	135	1,950	
200	T-680 404	1	4	32	250	315	135	1,800	
225	T-680 405	1	4	32	280	355	135	3,150	
250	T-680 406	1	4	32	280	355	135	3,350	
280	T-680 407	1	4	32	316	400	135	4,200	
315	T-680 408	1	1	18	357	450	135	5,400	
355	T-680 409	1	1	18	402	500	135	6,400	
400	T-680 410	1	1	12	452	560	135	8,200	
450	T-680 411	1	2	8	502	630	135	11,450	



ASFL

Sewage inspection chamber adapter for masoned canals

L = 250 mm



Joining element between masoned canal and FRIAFIT® AEM sewage insert sleeve. Fixing supports across the entire width for proper fit in canal with retrospective installation. Elastomere central piece to counterbalance stresses. Solid internal diameter due to large wall thickness.

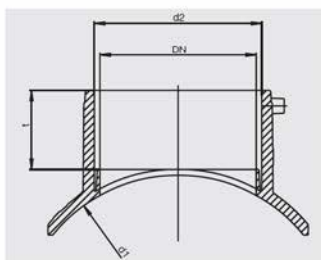
PE 100

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

d	Order Ref.	Quantity	Stock-status	VE	PE	d <sub>3</sub>	D	L	Weight kg/each
160	T-680 502	2	2	36	190	250	250	2,910	
225	T-680 505	2			280	355	250		
280	T-680 507	2			316	400	250		
315	T-680 508	2			357	450	250		
355	T-680 509	2	1	6	402	500	250	11,050	
450	T-680 511	2	1	4	502	630	250	19,260	

ASA-TL

Sewage saddle top loading



The FRIAFIT® sewage saddle top loading is a compact component consisting of a fusion saddle with an integral fusion coupler at its outlet (d 160). The FRIAFIT® sewage saddle top loading can be used to connect sewer pipes to an existing main sewer system made of HD-PE. With exposed heating element for optimal heat transfer. Tapping area free of heating wires. **The FRIAFIT® sewage saddle top loading will be fixed on the pipe by a clamping and drilling unit FWFIT (see Technical Equipment FRIALEN®/ FRIAFIT® product range) and tapping takes place after the cooling time.**

<sup>2</sup>: available 2nd quarter 2004

<sup>1</sup>: New: Installation d 500/560 using FRIALEN® FRIATOP clamping device (see product range Technical Equipment).

PE 100

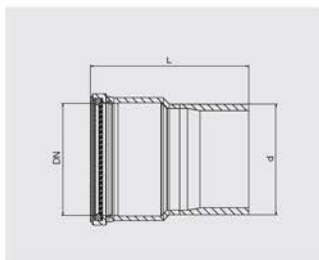
Maximum test pressure in accordance with DIN EN 1610 0,5 bar

d <sub>1</sub>	d <sub>2</sub>	DN	Order Ref.	Quantity	Stock-status	VE	PE	t	Weight kg/each
200	160	150	T-682 618	1	8	64	76	1,000	
225	160	150	T-682 613	1	8	64	76	1,046	
250	160	150	T-682 619	1	10	80	76	0,986	
280	160	150	T-682 614	1	10	80	76	0,986	
315	160	150	T-682 615	1	10	80	76	0,986	
355	160	150	T-682 620	1	10	80	76	0,986	
400 <sup>2</sup>	160	150	T-682 621	1			76		
450	160	150	T-682 616	1	10	80	76	1,016	
500/560 <sup>1</sup>	160	150	T-682 622	1	10	80	76	1,016	

NEW!

UKG

## Transition piece PE – PVC/PP



Flexible material transition in domestic range between PE-HD pipes SDR 33-SDR 17.6) and PVC (KG) pipes. PE-HD side can be fused with FRIAFIT® AM sewage coupler (see page 4 of this product range) or with the outlet of the FRIAFIT® ASA-TL sewage saddle. PVC side acts as push-fit coupler with SBR lip seal gasket. POM centering ring and large insertion depth. Transition to clay is possible with extra transition piece.

## PE 80

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

d/DN	Order Ref.	Quantity	Stock-status	VE	PE	L	Weight kg/each
160/150	T-682 617	1	1	2	64	230	1,070



# the system

## Technical Equipment **FRIALEN®/FRIAFIT®**

The correct equipment and tools for the simple and safe installation of FRIALEN® safety fittings and FRIAFIT® sewage system.

Product Range EZ  
21/03

### Safety

in pipe system installation  
... leading worldwide

**innovative**  
**cost efficient**  
**excellent**





## Things worth knowing about FRIALEN® Technical Equipment and this Product Range

### Contents

To help you to find specific products easily we have included an alphabetical list arranged in product groups on page 3.

### 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 20% inspection costs.

### Factory certificates

For factory certificates to **DIN EN 10 204-3.1.B** there will be a processing charge of **D 13,- per item**. The factory certificates **must be ordered at the same time as the order is placed**; it is not possible to supply them retrospectively.

### Quality/Certification

FRIALEN® safety fittings and FRIAIFIT® sewage system are subject to ongoing quality control procedures using strict guidelines. These are part of our comprehensive quality management system **according to DIN EN ISO 9001 : 2000**.

FRIALEN® safety fittings, FRIAIFIT® sewage system and our equipment technology are all compatible. Any changes and additions arising from technical progress are taken into account. Our ongoing quality control procedures comprise FRIALEN® safety fittings, FRIAIFIT® sewage system, our equipment technology and the quality of the welded joint as a result of the components working together efficiently.

Efficiency and operational safety of fusion units by outside manufacturers do not come under our specifications and checks. Please observe our installation instructions and individual operating instructions for each piece of the equipment during installation.

### 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.

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To help you find your way around we have added an index within each product group in alphabetical order. This should facilitate your search for particular equipment or tools.

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**1. Fusion units and fusion unit accessories**

NEW!

**FRIAMAT basic**

**Universal fusion unit without reporting function**



**Weight 11 kgs**

Order No    Quantity

**Protection class II**

**613 102**

**Processing of all dimensions from d 20 to d 710**

Robust plastic housing, extra long fusion and power cable, large storage shelf for accessories, simple handling, serial interface, use of weather and corrosion resistant materials (plastic, aluminium, stainless steel), with reader wand for barcode recognition, clearly laid-out keyboard, language selection, adjustable buzzer volume, manual emergency programming, operational temperature range -20° to +50°, fusion cable with replaceable 4.0 mm connection sockets.

Supplied in practical aluminium carrying case.

NEW!

**FRIAMAT memo**

**Universal fusion unit with traceability and reporting functions**



**Weight 11 kgs**

Order No    Quantity

**Protection class II**

**613 101**

**Processing of all dimensions from d 20 to d 710**

Spec as for FRIAMAT® basic, plus:

- extremely simple handling and information via new maxi display
- parallel interface for printer connection or memory box (able to store 500 fusion processes)
- reporting of fusion and traceability data according to ISO 12176-4
- additional keys for operating in comfort

Supplied in practical aluminium carrying case.

NEW!

**FRIAMAT prime**

**Universal fusion unit with traceability and reporting function as well as state of the art interface and memory technology**



**Weight 11 kgs**

Order No    Quantity

**Protection class II**

**613 100**

**Processing of all dimensions from d 20 to d 710**

Spec as for FRIAMAT® memo, plus:

- inspection chamber for PCMCIA memory card (able to store 30,000 fusion processes)
- USB interfaces (2)
- Supervisor card for individual settings of equipment functions

Supplied in practical aluminium carrying case.



NEW!

**R-CONTROL III**

**Infrared Remote Control**



Programming and transfer of order number and information as well as operating and controlling all the functions of the fusion unit.

Order No	Quantity
<b>624 020</b>	

	Series	Option	Not available
FRIAMAT® prime		o	
FRIAMAT® memo		o	
FRIAMAT® basic			-

NEW!

**MC-STATION**

**Memory-Card Station**



For connection to the PC. Integration of PCMCIA card and transfer of fusion data to a FRIATOOL (minimum version IV) PC

Order No	Quantity
<b>624 021</b>	

	Series	Option	Not available
FRIAMAT® prime		o	
FRIAMAT® memo			-
FRIAMAT® basic			-

NEW!

**MEMCARD**

**Memory-Card**



For the storage of fusion data. Can be used to stay inside the equipment or universally for units with PCMCIA inspection chamber. Transfer of fusion data via PCMCIA station (see above) to FRIATOOL (minimum version IV).

Order No	Quantity
<b>624 022</b>	

	Series	Option	Not available
FRIAMAT® prime		o	
FRIAMAT® memo			-
FRIAMAT® basic			-

NEW!

**SUPER-P**

**Supervisor Pass**



For individual settings of menu functions of your equipment (e.g. barring of functions, setting of compulsory processes etc.)

Order No	Quantity
<b>623 101</b>	

	Series	Option	Not available
FRIAMAT® prime	•	o	
FRIAMAT® memo		o	
FRIAMAT® basic			-

**FRIAMAT E**

**Universal fusion unit without reporting function**



**Weight 19 kgs**

**Processing of all dimensions from d 20 to d 710**

Including reader wand for barcode recognition, clearly laid out keyboard, language selection, adjustable buzzer volume, manual emergency setting, moveable housing, operating temperature range -20° to +50°, fusion cable with easily replaceable 4.0 mm connection sockets, storage bag for accessories, simple handling.

Supplied in practical aluminium carrying case.-----

Order No	Quantity
613 111	

**FRIAMAT T**

**Universal fusion unit with traceability and reporting function**



**Weight 19 kgs**

**Processing of all dimensions from d 20 to d 710**

Spec as for FRIAMAT® E, plus:

- Reporting of fusion data and traceability data according to ISO 12176-4
- Parallel interface for printer or memory box connection.

Supplied in practical aluminium carrying case.

Order No	Quantity
613 108	

**FRIAMAT BAT**

**Battery operated universal fusion unit with traceability and reporting function**



**For service and distributor lines up to d 110 as well as saddle construction parts in all dimensions**

**Operating via a rechargeable battery, no mains supply or generator is necessary**

With reader wand for barcode recognition, reporting of traceability data according to ISO 12176-4, clearly laid out keyboard, language selection, adjustable buzzer volume, manual emergency setting, operating temperature range -20° to +50°, fusion cable with easily replaceable 4.0 mm connection sockets, large storage area for accessories, simple handling, parallel printer interface, including transformer and charging station. Replacement transformers on request.

Order No	Quantity
613 106	

**R-CONTROL II**

**Infrared Remote Control**



Programming and transfer of order number and information as well as operating and controlling of all functions of the fusion unit.

Order No	Quantity
624 004	

	Series	Option	Not available
FRIAMAT® T		°	
FRIAMAT® E			-
FRIAMAT® BAT		°	

**MEMBOX**

**Memory Box**



For output and transfer of fusion data from FRIAMAT® fusion units (reporting units only) and FWA 315 (from 1991) via parallel printer interface to a PC with FRIATOOL (version VI) software.

- Consisting of:
- Memory box
  - Connection cable PC – memory box

Order No	Quantity
<b>613 233</b>	

Series	Option	Not available
FRIAMAT® prime	o	
FRIAMAT® memo	o	
FRIAMAT® basic		-
FRIAMAT® T	o	
FRIAMAT® E		-
FRIAMAT® BAT	o	

NEW!

**FRIATOOL-D**

**Software FRIATOOL IV**



Software for processing of fusion data from FRIAMAT® fusion units (reporting units only) and FWA 315 (from 1991) on the PC, including processing of traceability data. Suitable for operating systems Windows 95/98/2000, Windows NT 4.0 and Windows XP. With database function (all fusion data in one database) for individual evaluation, copying, sorting, searching, formatting, editing, and much more.

- Consisting of:
- CD-ROM
  - Connection cable PC – fusion unit
  - Programme description

Order No	Quantity
<b>613 280</b>	

Series	Option	Not available
FRIAMAT® prime	o	
FRIAMAT® memo	o	
FRIAMAT® basic		-
FRIAMAT® T	o	
FRIAMAT® E		-
FRIAMAT® BAT	o	

NEW!

**KOMB-DATA**

**Combination Package**



- Package 1 (for FRIAMAT® prime)
- Consisting of:
- CD-ROM
  - Memory box
  - Connection cable PC – memory box
  - Connection cable PC – fusion unit
  - Programme description

Order No	Quantity
<b>624 025</b>	



- Package 2 (for FRIAMAT® prime, memo, T, BAT)
- Consisting of:
- Memory box
  - CD-ROM (Software FRIATOOL IV)
  - Connection cable PC – memory box
  - Connection cable PC – fusion unit
  - Programme description

Order No	Quantity
<b>613 290</b>	



**SPASS**

**Welding Pass**



For the identification of the person carrying out the fusion and for the protection of fusion units with reporting function from being illegitimately accessed. Data stored in fusion pass (name and number of person carrying out of fusion) is transferred to the fusion report.

To order please request form.

	Order No	Quantity	
	<b>623 100</b>		
	Series	Option	Not available
FRIAMAT® prime		°	
FRIAMAT® memo		°	
FRIAMAT® basic			-
FRIAMAT® T		°	
FRIAMAT® E			-
FRIAMAT® BAT		°	

**FPASS**

**Remote start pass**



Additional equipment for remote FRIAMAT® fusion unit start-up from the trench via reader wand or manual scanner.

	Order No	Quantity	
	<b>624 003</b>		
	Series	Option	Not available
FRIAMAT® prime		°	
FRIAMAT® memo		°	
FRIAMAT® basic		°	
FRIAMAT® T		°	
FRIAMAT® E		°	
FRIAMAT® BAT		°	

**CONTACT 4**

**Connecting plug for 4.0 mm socket contacts**



Connecting plug for 4.0 mm socket contacts. Can be used for all FRIAMAT® fusion units.

	Order No	Quantity	
	<b>624 530</b>		
	Series	Option	Not available
FRIAMAT® prime		•	
FRIAMAT® memo		•	
FRIAMAT® basic		•	
FRIAMAT® T		•	
FRIAMAT® E		•	
FRIAMAT® BAT		•	

**ADFL**

**Adapter for flat contacts**



For slipping onto connection socket of all FRIAMAT® fusion units.

	Order No	Quantity	
	<b>613 236</b>		
	Series	Option	Not available
FRIAMAT® prime		°	
FRIAMAT® memo		°	
FRIAMAT® basic		°	
FRIAMAT® T		°	
FRIAMAT® E		°	
FRIAMAT® BAT		°	

**ADFIT**

**FRIAFIT® Adapter**



For slipping onto connection socket of all FRIAMAT® fusion units. Required for FRIAFIT® sewage system fusion.

Order No	Quantity
<b>613 235</b>	

Series	Option	Not available
FRIAMAT® prime	°	
FRIAMAT® memo	°	
FRIAMAT® basic	°	
FRIAMAT® T	°	
FRIAMAT® E	°	
FRIAMAT® BAT	°	

**ADBK**

**Adapter for 4.7 mm socket contacts**



For slipping onto connection socket of all FRIAMAT® fusion units.

Order No	Quantity
<b>613 237</b>	

Series	Option	Not available
FRIAMAT® prime	°	
FRIAMAT® memo	°	
FRIAMAT® basic	°	
FRIAMAT® T	°	
FRIAMAT® E	°	
FRIAMAT® BAT	°	

**SCAN**

**Manual Scanner**



Alternative to serial reader wand. Supplied in practical storage bag.

Order No	Quantity
<b>624 002</b>	

Series	Option	Not available
FRIAMAT® prime	°	
FRIAMAT® memo	°	
FRIAMAT® basic	°	
FRIAMAT® T	°	
FRIAMAT® E	°	
FRIAMAT® BAT	°	

NEW!

**ALTK**

**Aluminium Carrying Cases**



For the transport and storage of all FRIAMAT® fusion-units.

Article	Order No	Quantity
FRIAMAT® prime	<b>627 001</b>	
FRIAMAT® memo	<b>627 001</b>	
FRIAMAT® basic	<b>627 001</b>	
FRIAMAT® T	<b>624 727</b>	
FRIAMAT® E	<b>624 727</b>	
Older FRIAMAT® units	<b>on request</b>	

## 2. Scraper tools and scraper tool accessories

### FWSG 63



#### Scraper tool for pipes d 20 – 63

For the safe removal of the oxidic layer on HD-PE and PE-X pipes. Scraper tool made from hard metal (long service life). Includes one replacement blade.

Supplied in practical aluminium carrying case.

Order No	Quantity
613 305	

### FWSG 225



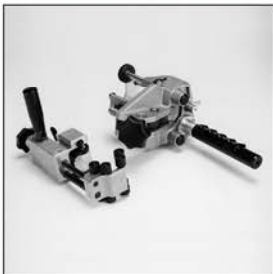
#### Scraper tool for pipes d 75 – 225

For the safe removal of the oxidic layer on HD-PE and PE-X pipes. Scraper tool made from hard metal (long service life). Includes one replacement blade and oil based care spray.

Supplied in practical aluminium carrying case.

Order No	Quantity
613 311	

### FWSG 63/225



#### Scraper tool set for pipes d 20 – 225

For the safe removal of the oxidic layer on HD-PE and PE-X pipes. Scraper tool made from hard metal (long service life). Includes one replacement blade and oil based care spray.

Supplied in practical aluminium carrying case.

Order No	Quantity
613 316	

### FWSG 710 S



#### Scraper tool for spigot fittings and pipes d 250 – 710 (half of coupler length)

For the safe removal of the oxidic layer on spigot fittings. In addition, it is possible to scrape HD-PE and PE-X pipes (up to a maximum half of coupler length). Scraper tool made from hard metal (long service life). Includes one replacement blade and oil based care spray.

Supplied in practical aluminium carrying case.

Order No	Quantity
613 639	



**FWSG 710 L**

**Scraper tool for pipes d 250 – 710 (entire length of coupler)**



For safe removal of oxidic layer on HD-PE and PE-X pipes across the entire length of the coupler. Scraper tool made from hard metal (long service life). Includes replacement scraper blade and oil based care spray.

Supplied in practical aluminium carrying case.

Order No	Quantity
<b>613 642</b>	

NEW!

**FWSGS**

**Saddle scraper tools for pipes d 50 – 225**



For safe removal of oxidic layer in saddle area on HD-PE and PE-X pipes. Scraping all around not necessary. Extra wide scraper tool made from hard metal. Dimension setting with fast catch. Moveable blade mount to compensate for unevenness of pipe. Includes replacement scraper blade and oil based care spray.

Supplied in practical aluminium carrying case.

Article	Dimension	Order No	Quantity
FWSGS 110	<b>d 50–110</b>	<b>613 631</b>	
FWSGS 180	<b>d 110–180</b>	<b>613 632</b>	
FWSGS 225	<b>d 180–225</b>	<b>613 633</b>	

NEW!

**FWSGA**

**Scraper tools for pipes and outlets d 32 to d 63**



For safe removal of oxidic layer on HD-PE and PE-X pipes and on DAA, DAV, SA, TA T-pieces outlets etc. (see also FRIALEN price list). Guidance/rotation on adjustable extension pins (d32, d40, d50, d63). Scraper tool made from hard metal. Dimension adjustment with fast catch. Sprung blade mount to compensate for pipe ovality. Includes replacement blade and oil based care spray.

Supplied in practical aluminium carrying case.

Order No	Quantity
<b>613 538</b>	

**FWSGE**

**Replacement blade for scraper tools**



Replacement blade for scraper tools made from hard metal (long service life).

Article	Equipment Type	Marking	Order No	Quantity
FWSGE 3*	for FWSG 225/FWSG 315/FWSGA	red	<b>613 322</b>	
FWSGE 4*	for FWSG 63	green	<b>613 323</b>	
FWSGE 5*	for FWSG 710 S/FWSG 710 L	blue	<b>613 324</b>	

\*: consisting of 3 replacement blades, a torx screw and 1 torx wrench



Article	Equipment Type	Order No	Quantity
FWSGE 6**	for FWSGS 110/FWSGS 180	<b>613 325</b>	
FWSGE 7**	for FWSGS 225	<b>613 326</b>	

\*\* : consisting of 1 replacement blade, 2 torx screw and 1 torx wrench

NEW!

**PFSP**

**Oil based care spray**



For cleaning and maintenance of scraper tools.  
Content: 200 ml. Please observe safety and application instructions on the container and on scraper tool instruction leaflets.

Order No	Quantity
<b>613 301</b>	

NEW!

**ALTK**

**Aluminium carrying cases**



For the transport and storage of scraper tools.

Article	Order No	Quantity
FWSG 63	<b>613 307</b>	
FWSG 225	<b>613 309</b>	
FWSG 63/225	<b>613 309</b>	
FWSG 710 S	<b>613 308</b>	
FWSG 710 L	<b>613 314</b>	
FWSGS 110	<b>613 306</b>	
FWSGS 180	<b>613 312</b>	
FWSGS 225	<b>613 313</b>	
FWSGA	<b>613 317</b>	

### 3. Other tools and installation accessories

#### FWZ

#### Hand scraper



For removal of oxidic layer on HD-PE pipes and construction not suited to scraper tools. Equally suited for deburring of cut edges.

Replacement blades: 5 per package.

Article	Order No	Quantity
Hand scraper	<b>613 300</b>	
Replacement blades	<b>613 270</b>	

#### FRIATOP

#### Clamping unit (Top Loading)



For compressing and providing the required joint pressure. For flexibly matching all FRIALEN® Saddle Components of the TL type to all pipe diameters in the stated range.

Supplied in a practical carrying case.

Order No	Quantity
<b>613 350</b>	

#### FWFIT

#### Clamping and drilling unit for FRIAFIT® ASA-TL sewage saddles



Combined clamping and drilling unit, universally designed for all FRIAFIT® ASA-TL sewage saddles (see also FRIAFIT® price list). For clamping and creation of required joining pressure for fusion. For pressure free tapping through outlet socket on completion of prescribed cooling time.

Order No	Quantity
<b>613 480</b>	

#### FWXR

#### Manual rounding clamps for pipes



For rerounding of HD-PE and PE-X pipes. Covering of several dimensions by application of reducer spherical shells.

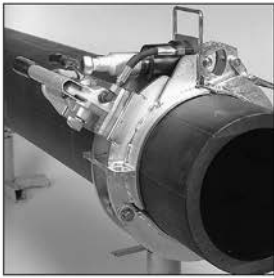
Article	Basic Size	Reducer half shells	Order No	Quantity
FWXR-S1	d 63	for d 32, 40 and 50	<b>613 416</b>	
FWXR-S2	d 110	for d 90	<b>613 431</b>	
FWXR-S3	d 160	for d 125	<b>613 439</b>	

Other dimensions on request.



**FWXRH**

**Hydraulic rounding clamps for pipes d 280 – 710**



For rerounding of HD-PE and PE-X pipes. We also provide these hydraulic rounding clamps for hire. Prices on request.

Dimension	Order No
d 280	613 452
d 315	613 461
d 355	613 462
d 400	613 463
d 450	613 464
d 500	613 465
d 560	613 467
d 630	613 466
d 710	613 468

**FWSS**

**Actuator key for pressure tapping valves**



For tapping activation, according to diameter of DAA, DAA-TL and DAA-TL/RE (see FRIALEN® price-list). SW 17 also suitable for tapping activation of all SAB (see FRIALEN® price list).

d <sub>1</sub>	SW	Order No	Quantity
40	10	<b>613 242</b>	
50-75	17	<b>613 248</b>	
90-315	19	<b>613 250</b>	

**FWSR**

**Actuator key for pressure tapping valves with parallel dome**



For DAP tapping activating (see FRIALEN® price list), consisting of ratchet 1/2" and socket wrench attachment.

Article	Order No	Quantity
1/2" Ratchet	<b>613 610</b>	
Socket SW 19	<b>613 605</b>	
Socket SW 17	<b>613 606</b>	

**FWDPA**

**Pressure test adapter**



For connection of pressure gauge to carry out pressure check on FRIALEN® pressure tapping valves DAA, DAP, DAA-TL, DAA-TL/RE d1=61-315 (see FRIALEN® price list). Connection dimension female thread = R 1/4".

Order No	Quantity
<b>613 595</b>	

**FWPM**

**Pipe Marker (silver)**



For marking of HD-PE and PE-X pipes. Colour silver. Contents: 10 per package.

Order No	Quantity
<b>613 069</b>	