



Imperial Product Range FRIALEN Safety Fittings & FRIATOOLS Technical Equipment

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

Imperial Product Range 1/14 valid from 1st June 2014

Things worth knowing about FRIALEN®-Safety Fittings, FRIATOOLS® 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 pages 4-6.

Stocking Status

Please note the following:

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

Packaging and pallet units

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

Returns

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

Inspection certificates

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

Component Traceability

Each construction part has an additional barcode for traceability.

Quality/Certification

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

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

DVGW Certification/Fusability

FRIALEN Safety Fittings are authorised for use with gas and water. They are certified in accordance with **DVGW GW335-B2** and are **subject to** regular external monitoring.

FRIALEN Safety Fittings can be fused with pipes SDR 17.6 to SDR 11 with a minimum wall thickness of $s_{min} = 0.118''$ (3.0 mm) in accordance with ISO 4437, ISO 4427, EN 1555 and EN 12201. Other SDR sizes on request.

FRIALEN Saddle components/Fittings $\leq 2''$ (63 mm) can only be fused with pipes \leq SDR 11.

FRIALEN Safety Fittings can be fused with pipes made of PE 100, PE 80, PE 63, PE 50 in accordance with ISO 4437, ISO 4427, ASTM D2513, EN 1555-2 and EN 12201-2, PE 2406/2708/3408/3608/4710 in accordance with ASTM.

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

Some FRIALEN Saddle fittings up to 2'' (63 mm) may only be processed using pipes up to SDR 11. Please ask for technical support and note the fusible SDR classes on the fitting barcode if 2'' (63 mm) SDR17 pipes are used.

FRIALEN Safety Fittings are made of PE 100 and fulfil the requirements of ASTM F1055 and the performance requirements according to EN 1555-3, EN 12201-3, ISO 4427-3 and ISO 4437-3, as well as DVGW test specifications. FRIALEN-Safety Fittings can be processed with FRIAMAT fusion devices at an ambient temperatures between 14°F - 120°F (- 10 °C - + 45 °C).

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

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

Things worth knowing about FRIALEN®-Safety Fittings, FRIATOOLS® Technical Equipment and this Product Range

Pressure loading capacity

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

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

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

Fitting material: PE 100	Water		Gas	
	maximum operating pressure at C = 1,25		maximum operating pressure at C = 2	
	in psi	in bar	in psi	in bar
SDR level				
17	145	10	72	5
13.5	180	12.5	100	6.8
11	232	16	145	10

National regulations may require other safety factors which reduce the maximum operation pressure of PE pipe systems.

Fusion process

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

39.5V processing

Most of the FRIALEN-Fittings are fusable by electrofusion units with a constant output voltage of 39.5V by manual input of the fusion time. The fusion time is stated on the barcode label. By using older electrofusion units the allowed processing range is limited to an ambient temperature between 23°F - 95°F (5°C - 35°C). The stated fusion time is to be used for the complete temperature range. Please find a list with suitable fittings on our homepage www.frialen.com.

Cooling times

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

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

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

FRIALEN-Fittings/Valves/Saddles

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

Processing

Processing must be carried out in accordance with our assembly instructions, which may also be downloaded from www.frialen.com/www.frialen-xl.com. This webpage will also

give you further information on products and processes, certificates and publications.

FRIALEN saddle parts Top-Loading

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

Technical Information

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

Update/Technical Progress

All details are valid as at the time to print. The technical data of the FRIAMAT electrofusion units is based on ISO-standard 12176-2. We reserve the right to make changes which are in the interests of technical progress. We do not accept liability for any matters arising as a result of printing errors and/or omissions.

FRIAMAT area of application

For electrofusion units the area of application is dependent from the power requirements of the fitting and the respective processing temperature. FRIAMAT prime and FRIAMAT basic can process FRIALEN XL fittings up to 36 IPS and FRIAMAT prime eco as well as FRIAMAT basic eco up to 28 IPS. Observe the respective performance requirements and manufacturer's specifications when processing fittings from other manufacturers.

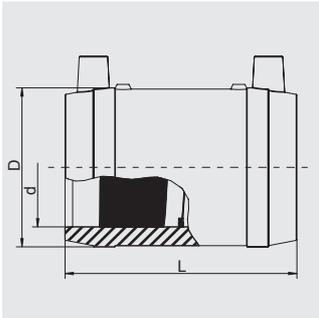
Brand Names

For easier reading, the product guide dispenses with the symbols ® and ™ in continuous text. The following trademarks are registered: FRIALEN®, FRIATOOLS® and FRIAMAT®.

For metric product range see www.frialen.com and www.friatools.com.

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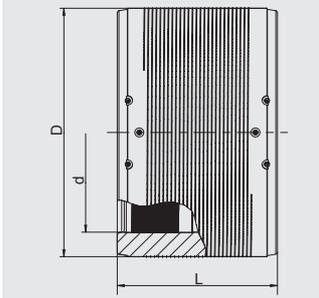
MBI**Couplers with removable stop**

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

PE 3408/4710 SDR 11**Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)**

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
3/4 IPS	612860	1	100	3200	1.575	2.598	0.048
1 IPS	612863	1	60	1920	1.850	3.071	0.070
1 1/4 IPS	612862	1	40	1280	2.205	3.346	0.090
1 1/2 IPS	612871	1	30	960	2.480	3.858	0.115
2 IPS	612864	1	16	512	3.110	4.449	0.215
3 IPS	612865	1	30	240	4.449	5.433	0.460
4 IPS	612866	1	24	192	5.591	6.860	0.770
6 IPS	612868	1	1	80	8.150	7.480	1.900

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
1/2 CTS	612867	1	135	4320	1.102	2.362	0.030
1 CTS	612861	1	60	1920	1.654	3.071	0.060

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

Couplers UBI 10" and above with pre-heating technology (10" - 14" optional use; 16" - 32" required).

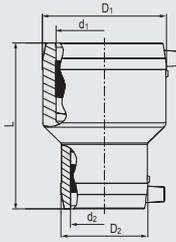
Special sizes, pressure stages and designs on request

PE 3408/4710 SDR 11/ SDR 17*/ **SDR 13.5**Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)***** Maximum working pressure 145 psi/10 bar (water)/72 psi/5 bar (gas)****** Maximum working pressure 180 psi/12.5 bar (water)/100 psi/6.8 bar (gas)**

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
8 IPS	615398	2	1	36	10.724	9.252	4.111
10 IPS	615399 ①	2	1	18	14.031	11.811	12.330
12 IPS	615400 ①	2	1	18	15.803	11.220	12.470
14 IPS	615516 ①	2	1	9	17.772	11.811	18.050
16 IPS	615511 ①	2	1	4	19.740	12.598	21.360
18 IPS	615517 ①	2	1	4	22.102	13.386	27.800
20 IPS	615515 ①	2	1	4	24.858	14.173	38.670
22 IPS*	615727 ①	2	1	4	24.858	14.567	24.600
24 IPS**	615728 ①	2	1	2	28.008	15.748	41.550
28 IPS*	615997 ①	2	1	2	31.551	15.748	42.790
30 IPS	616454 ①	2	1	1	37.063	19.685	116.100

d	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
4 DIP**	616059	2	22	176	5.709	6.378	0,680
20 DIP**	615734	2	1	4	24.858	11.417	21.900
24 DIP	616291	2	1	2	32.055	16.535	75.600

① separate fusion zones



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.

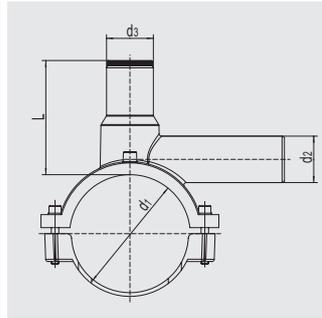
PE 3408/4710 SDR 11

Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)



d_1	d_2	Order Ref.	Stock-status	BX	PU	D_1/D_2	L	Weight kg/each
3/4 IPS	1/2 CTS	on request ①					3.190	0.070
1 CTS	1/2 CTS	616254	2	75	2490	1.661/1.110	3.465	0.050
1 CTS	3/4 IPS	on request ①					3.270	0.070
1 IPS	1/2 CTS	616253	2	70	2240	1.858/1.110	3.465	0.065
1 IPS	1 CTS	on request ①					3.190	0.070
1 1/4 CTS	1 CTS	on request ①					3.190	0.090
1 1/4 IPS	1 CTS	616252	2	25	1250	2.213/1.661	3.858	0.090
2 IPS	1 CTS	616251	2	18	576	3.118/1.661	4.921	0.190
2 IPS	1 1/4 IPS	on request ①					5.060	0.210

① Innogaz branded



For leak free and swarfless tapping up to 145 psi/10 bar (gas) or 232 psi/16 bar (water). Integral drill with upper **and** lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plug with internal O-ring seal. Fusible dome (d_3 40 = MV d 40; d_3 50 = K). Leakage check possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operation.

PE 3408 SDR 11

Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)

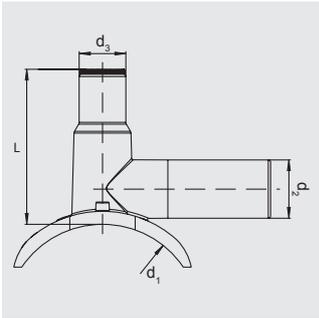


d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3 in mm	L	Drilling \varnothing	Weight kg/each
2 IPS	1/2 CTS	612878	2	16	288	40	3.88	0.85	0.612
2 IPS*	3/4 IPS	612850	2	16	288	40	3.88	0.85	0.627
2 IPS*	1 CTS	612854	2	16	288	40	3.88	0.85	0.622
2 IPS*	1 IPS	612853	2	16	288	40	3.88	0.85	0.627
2 IPS	2 IPS	616243	2	20	160	50	5.00	1.18	1.062
3 IPS	1/2 CTS	612879	2	16	128	50	4.69	1.18	0.940
3 IPS*	3/4 IPS	612851	2	16	128	50	4.69	1.18	0.950
3 IPS*	1 CTS	612852	2	16	128	50	4.69	1.18	0.980
3 IPS*	1 IPS	612880	2	16	128	50	4.69	1.18	0.970
3 IPS	2 IPS	616101	2	12	96	50	4.76	1.18	1.340
4 IPS	1/2 CTS	612881	2	10	80	50	4.76	1.18	1.254
4 IPS	3/4 IPS	612855	2	10	80	50	4.76	1.18	1.268
4 IPS	1 CTS	612856	2	10	80	50	4.76	1.18	1.276
4 IPS	1 IPS	612882	2	10	80	50	4.76	1.18	1.302
4 IPS	2 IPS	616102	2	10	80	50	4.76	1.18	1.506
4 DIP	1/2 CTS	616113	2	16	128	50	4.76	1.18	1.254
4 DIP	3/4 IPS	616114	2	16	128	50	4.76	1.18	1.268
4 DIP	1 CTS	616115	2	10	80	50	4.76	1.18	1.276
4 DIP	2 IPS	616116	2	10	80	50	4.76	1.18	1.506
6 IPS	1/2 CTS	612883	2	6	48	50	6.50	1.18	1.876
6 IPS*	3/4 IPS	612859	2	6	48	50	6.50	1.18	1.883
6 IPS*	1 CTS	612869	2	6	48	50	6.50	1.18	1.885
6 IPS*	1 IPS	612884	2	6	48	50	6.50	1.18	1.898
6 IPS	2 IPS	616103	2	6	48	50	6.50	1.18	1.990
6 DIP	1/2 CTS	616117	2	6	48	50	6.50	1.18	1.842
6 DIP*	3/4 IPS	616118	2	6	48	50	6.50	1.18	1.848
6 DIP*	1 CTS	616119	2	6	48	50	6.50	1.18	1.852
6 DIP	2 IPS	616121	2	6	48	50	6.50	1.18	1.952
8 IPS	1/2 CTS	616104	2	5	40	50	6.50	1.18	1.876
8 IPS*	3/4 IPS	616105	2	5	40	50	6.50	1.18	1.882
8 IPS*	1 CTS	612874	2	5	40	50	6.50	1.18	1.886
8 IPS*	1 IPS	612873	2	5	40	50	6.50	1.18	1.896
8 IPS	2 IPS	616106	2	5	40	50	6.50	1.18	1.986
8 DIP	1/2 CTS	616122	2	5	40	50	6.50	1.18	2.020
8 DIP*	3/4 IPS	616123	2	5	40	50	6.50	1.18	2.030
8 DIP*	1 CTS	616124	2	5	40	50	6.50	1.18	2.030
8 DIP	2 IPS	616126	2	5	40	50	6.50	1.18	2.150

* not suitable for 2 fusion operations

DAAI-TL

Pressure Tapping Tee Top-Loading with extra long outlet spigot



Suitable for **all pipe diameters in the given range** by means of the FRIALEN FRIATOP clamping unit (see Product Range FRIATOOLS). Leak free and swarfless tapping up to 145 psi/10 bar (gas) or 232 psi/16 bar (water). Integral drill with upper **and** lower stop, guided in a metal sleeve. With exposed heating element for optimal heat transfer. End plugs with internal O-ring seal. Fusible dome (d_3 50 = K). Pressure test possible before tapping. For pressure test adapter and actuating key see Product Range FRIATOOLS. Length of the outlet spigots dimensioned for 2 fusion operations.

Other outlet dimensions with electrofusion reducers MR

PE 3408 SDR 11

Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)



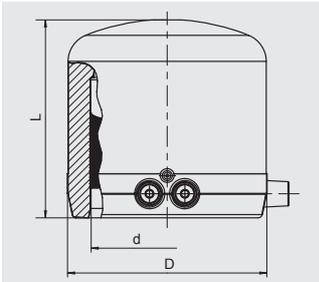
d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3 in mm	Drilling $\varnothing d_a$	L	Weight kg/each
10-16 IPS	2 IPS	616130	2	5	90	50	1.18	6.57	1.418

d_1 : 10 IPS up to 12 IPS for pipes SDR 11 and 17;

d_1 : > 12 IPS up to 16 IPS for pipes SDR 17

MV/K

Caps 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, for use without holding devices. With fusion indicators for visual fusion control.

PE 3408 SDR 11

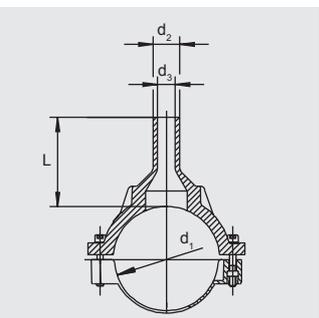
Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)



d in mm	Order Ref.	Stock-status	BX	PU	D	L	Weight kg/each
40	612028	1	25	800	2.165	2.953	0,087
50	612310	1	30	960	2.736	2.835	0,115

SAI

Spigot Saddles



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

PE 3408/4710 SDR 11

Maximum working pressure 232 psi/16 bar (water)/145 psi/10 bar (gas)



d_1	d_2	Order Ref.	Stock-status	BX	PU	d_3	Drilling $\varnothing d_a$	L	Weight kg/each
3 IPS	2 IPS	615551	2	20	160	1.89		4.10	0.738
4 IPS	2 IPS	615552	2	12	96	1.89		4.33	0.828
4 IPS*	3 IPS	615725	2	12	96	2.76		4.53	0.952
6 IPS	4 IPS	616248	2	6	48	3.54		5.51	1.860
8 IPS	4 IPS	616249	2	5	40	3.54		5.51	2.296

* SDR 13.5

NEW!

FRIAMAT prime

Universal fusion unit with traceability- and documentation function



Electrofusion unit for the processing of all dimensions.*

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

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

With reader wand or with scanner for barcode reading, adapter bag, entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (13.1 ft / 4 m) and extra-long fusion cable (16.4 ft / 5 m). Weight approx 28.2 lb (12,8 kg).

This unit is delivered in a handy aluminium transport box.

Version		Order Ref.
with reader wand	NEW!	613103
with barcode scanner	NEW!	614103

FRIAMAT prime eco

Universal fusion unit with traceability- and documentation function



Electrofusion unit for the processing of all dimensions.*

USB interface for data transfer via FRIATEC memory stick (included). Data output formatted in FRIATRACE database, as pdf- or as csv-document. With reader wand or with scanner for barcode reading, storage space for accessories, entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (13.1 ft / 4 m) and extra-long fusion cable (16.4 ft / 5 m). Weight approx 45.2 lb (20,5 kg).

The unit is delivered in a handy aluminium transport box.

Version		Order Ref.
with reader wand		613090
with barcode scanner		614090

NEW!

FRIAMAT basic

Universal fusion unit without documentation function



Electrofusion unit for the processing of all dimensions.*

With reader wand or with scanner for barcode reading, adapter bag, clear display for very easy operator guidance, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (13.1 ft / 4 m) and extra-long fusion cable (16.4 ft / 5 m). Weight approx 28.2 lb (12,8 kg).

This unit is delivered in a handy aluminium transport box.

Version		Order Ref.
with reader wand	NEW!	613104
with barcode scanner	NEW!	614104

FRIAMAT basic eco

Universal fusion unit without documentation function



Electrofusion unit for the processing of all dimensions.*

With reader wand or with scanner for barcode reading, storage space for accessories, easy operator guidance, clear display, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (13.1 ft / 4 m) and extra-long fusion cable (16.4 ft / 5 m). Weight approx 45.2 lb (20,5 kg).

This unit is delivered in a handy aluminium transport box.

Version		Order Ref.
with reader wand		613092
with barcode scanner		614092

* look at "Things worth knowing" at page 3

FRIAMAT XL

Large pipe fusion unit with traceability and documentation function



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

Graphic maxi display for easy operator guidance. USB interface for data transfer via FRIATEC memory stick (included). Data output formatted in FRIATRACE database, or as pdf-document. With scanner for barcode reading, accessories bag on the rear. Entry of GPS coordinates, entry of info texts via barcode, language selection, adjustable buzzer volume, manual emergency entry. Extra-long power cable (13.1 ft / 4 m) with CEE connector 400 V. Extra-long fusion cable (13.1 ft / 4 m). Weight approx 110.2 lb (50 kg).

The unit is delivered in a handy aluminium transport box.

Version	Order Ref.
with barcode scanner	613091

SCAN

Barcode scanner



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

Order Ref.
624002

FWLESST

Reader wand



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

Order Ref.
623645

MEMSTICK

Memory-Stick



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

Order Ref.
624023

* look at "Things worth knowing" at page 3

FRIATRACE

Database software FRIATRACE



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

Available as:

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

Article description	Order Ref.
FRIATRACE database software	613280
FRIATRACE combi-package	624026

NEW!

PA-USB

FRIAMAT Parallel-USB-Adapter



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

	Order Ref.
	NEW! 613263

SUPER-P

Supervisor-Pass



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

For ordering, please request a form.

	Order Ref.
	623101

SPASS

Fusion-Pass



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

For ordering, please request a form.

	Order Ref.
	623100

ALTK (FMT)

Aluminium transport boxes

For transport and storage of FRIAMAT fusion units of the relevant product range FRIATOOLS.
Transport boxes for older FRIAMAT types on request.



Article description		Order Ref.
FRIAMAT prime / basic	NEW!	627600
FRIAMAT prime / basic (to Q2/2014)		627001
FRIAMAT prime eco / basic eco / geo print		627001
FRIAMAT XL		613302

CONTACT4

Socket contacts 4.0 mm

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



Order Ref.
624530

ADBK

Adapter for 4.7 mm socket contacts

For sliding onto socket contacts of all FRIAMAT fusion units.



Order Ref.
613237

FWSG 63**Scraper tool for pipes 1/2 IPS - 2 IPS (d 20 - d 63)**

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

The tool is delivered in a handy aluminium transport box.

Order Ref.

613305

FWSG 225**Scraper tool for pipes 3 IPS - 8 IPS (d 75 - d 225)**

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

The tool is delivered in a handy aluminium transport box.

Order Ref.

613311

FWSG 63/225**Scraper tool set for pipes 1/2 IPS - 8 IPS (d 20 - d 225)**

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

The tools are delivered in a handy aluminium transport box.

Order Ref.

613316

FWSG 710 L**Scraper tool for pipes 10 IPS - 28 IPS (d 250 - d 710)**

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

The tool is delivered in a handy aluminium transport box.

Order Ref.

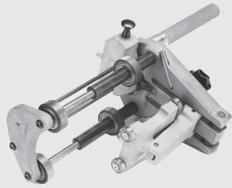
613642

FWSG 710 S

Scraper tool for pipes 10 IPS - 28 IPS (d 250 - d 710) and spigot fittings

For the reliable removal of the oxide layer on spigot fittings. Additionally it is also possible to scrape HD-PE and PE-Xa-pipes (maximum along half length of couplers 28 IPS). Scraper blade made of carbide for a long life. Even swarf removal thanks to a spring-loaded scraper blade and automatic feed. Includes replacement blade and FRIATEC maintenance spray.

The tool is delivered in a handy aluminium transport box.



Order Ref.

613639

FWSG 900 L

Scraper tool for pipes 24 IPS - 36 IPS (d 630 - d 900)

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

The tool is delivered in a handy aluminium transport box.



Order Ref.

613644

NEW!

FWSGE

Replacement blades for scraper tools

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

Article description	Unit type	Marking	Order Ref.
FWSGE 3	FWSG 225	coloured red	613322 ①
FWSGE 4	FWSG 63	coloured green	613323 ①
FWSGE 5	FWSG 710 L/S / FWSG 900 L	coloured blue	613324 ①

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



(Fig. shows FWSGE 3)

PFSP**FRIATEC maintenance spray**

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

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

Order Ref.

613301

NEW!

ALTK (FWSG)**Aluminium transport boxes**

For the transport and storage of scraper tools.

Unit type

Order Ref.

FWSG 63

613307

FWSG 225 and FWSG 63/225

613309

FWSG 710 S

613308

FWSG 710 L

613314

FWSG 900 L

613304

NEW!

FWZ**Hand scraper**

To remove oxidic layer on HD-PE pipes or fittings which are unable to treat using appropriate scraper tools. Also suitable for deburring cut edges.

Replacement blades: 5 pieces per package.

Article description

Order Ref.

Hand scraper

613300

Replacement blades

613270

FWZXL**Hand scraper for large pipes**

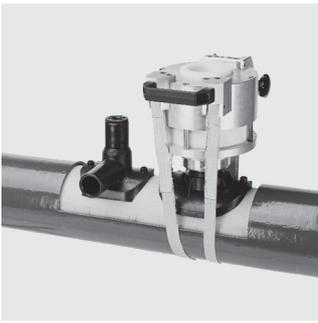
For removing oxide layers on large HD-PE pipes which are unable to treat using appropriate scraper tools. Ideal for preparing surfaces for the processing of FRIALEN XL saddle fittings. Also suitable for deburring cut edges.

Order Ref.

613299

FRIATOP

Clamping unit (Top Loading)



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

Order Ref.

613350

FWXRB

Manual rounding clamps for pipes 30 IPS - 48 IPS (d 800 - d 1200)



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

Smaller sizes on request

Dimension

30 IPS - 48 IPS (d 800 - d 1200)

Order Ref.

613457

FWPM**FRIALEN-Marker (silver)**

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

Order Ref.
613069

FWSS**Activating key for pressure tapping tees**

For drill activation subject to diameter (d_1) of the DAA, DAA-TL and DAA-TL/RE (see product range FRIALEN).
SW 17 also suitable for drill activation of all SAB (see product range FRIALEN).

d_1

Order Ref.

2 IPS main DAA tapping tees

613248

2 x 2 IPS and 3 IPS - 16 IPS main DAA tapping tees

613250

FWDPA**Pressure test adapter**

For the connection of a pressure gauge for pressure check on use of FRIALEN DAA, DAP, DAA-TL, DAA-TL/RE
 $d_1 = 2 \text{ IPS} - 16 \text{ IPS}$ (see product range FRIALEN). Connection measurements internal thread = R 1/4".

Order Ref.
613595

General conditions of supply and payment of FRIATEC Aktiengesellschaft

Technical Plastics Division

1. Scope

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

2. Conclusion of a Contract

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

3. Delivery

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

4. Prices and Payment Conditions

- 4.1 Our prices are ex factory or ex warehouse, plus VAT. Insurance, packaging, shipment and custom-clearance charges are invoiced separately, unless expressly stated otherwise in our current pricelist.
- 4.2 Our invoices are payable net within 30 days from the invoice date. We offer 2% discount for payments within 14 days, but only if all other outstanding invoices have been paid.
- 4.3 We reserve the right to accept bills of exchange and cheques in individual cases. No discount is offered when paying by bill of exchange. Bills of exchange and cheques are accepted only on account of performance. The claim is regarded as fulfilled only once payment has been cashed or credited. All expenses which may arise must be met by the customer.
- 4.4 We are authorised to demand immediate cash payment for all deliveries, if payment conditions are not adhered to, or in circumstances causing the credit worthiness of a customer to be questioned. A possible deferral caused by the acceptance of bills of exchange becomes null and void. The customer is obliged to pay cash immediately on returning the bill of exchange. In addition we are authorised to carry out any remaining deliveries against advance or warranty payment or to rescind the contract and demand compensation. We are furthermore authorised to stop the onward sale of goods to be delivered and to retrieve the goods at the customer's expense if we have rescinded the contract.

5. Passage of Risk

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

6. Formal Complaints, Claims, Limitation Period

- 6.1 The customer must immediately check goods received for any defects. Formal complaints must be lodged immediately on receipt of the goods, and no later than a fortnight after receipt, in writing. The same timeframe applies to hidden defects after discovery.
- 6.2 There can be no claims for defects which have not been notified within the appropriate period. When a claim is justified, we will choose either to repair or replace the goods. If we do not rectify the defect or provide a substitute within an appropriate period, or following no more than two attempts, the customer is authorised to rescind the contract or demand a reduction in the purchasing price. It is not possible to rescind if there is only an insignificant violation on our part.
- 6.3 The limitation period for claims is
 - 5 years for building materials which have been installed and have caused defects within a pipe system.
 - 1 year for delivery of other new goods to contractor
 - 2 years for all othersLimitation period starts on delivery of goods.
- 6.4 The delivery of second-hand merchandise to corporate customers excludes liability for defects; this does not apply to liability pursuant to Item 9.
- 6.5 The statutory period of limitation for replaced or subsequently rectified merchandise does not recommence even in cases of goodwill. Should defects be acknowledged in exceptional cases, such acknowledgments shall only apply to those defects that were the subject of a request for subsequent fulfilment.

7. Reservation of Ownership

- 7.1 Our deliveries are all subject to reservation of ownership. The goods remain in our ownership until payment of all claims arising from our business relationship with the customer is made. With an account current the reserved ownership constitutes the security for our balance claim.
- 7.2 The customer is authorised to resell delivered goods within the framework of his or her ordinary business procedures. He or she may not however pledge or transfer the conditional commodity by way of security.
- 7.3 In the event of resale the customer assigns to us all claims including all subsidiary rights which arise from the resale. This applies without taking into consideration whether he or she resells the conditional commodity unaltered, unprocessed, or in conjunction with other items. If the resale takes place including goods not owned by us, the assigning applies only up to the value of the conditional commodity. The value is determined according to our sales prices.

- 7.4 Processing of the conditional commodity always occurs according to § 950 BGB for us as manufacturers, but without obligation. The processed goods constitute the conditional commodity as part of these conditions. If the conditional commodity is processed together or is irretrievably mixed up with other items not owned by us, we will gain co-ownership of the new item at a ratio of conditional commodity invoice value to the invoice value of other used goods at the time of processing and mixing. The co-ownership rights thus created apply as conditional commodity in the context of these conditions. The customer is obliged, if requested by us, to point out our ownership rights to the prospective buyer.

- 7.5 The customer is authorised to collect the claim from the resale notwithstanding our own collection authorisation. While the customer meets his payment obligations appropriately, we will not put the claim into force. The customer has to inform us of the debtors of the assigned claims and to notify the assignment to them. Our right of informing third-party debtors of the assignment will not be affected by this. The customer is not allowed to assign the claim against third-party debtors to third parties or to negotiate an assignment ban with the third-party debtor.

- 7.6 The customer is obliged to notify us immediately and in the quickest way possible about a pledge or any other infringement of our security rights by third parties. The customer is obliged to hand over to us all documents required to preserve our rights, and to compensate us for any costs arising from a possible intervention.

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

- 7.8 The customer is obliged to insure the goods for the duration of our reservation of ownership.

8. Acts of God - Right to Rescind

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

9. Limitations of Liability

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

10. Non-assignment clause

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

11. Applicable rights, Place of Jurisdiction

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

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