

EloFIT

REPAIR SYSTEMS Catalog



**Polyethylene Repair Systems
for pressure pipelines**



CATALOG: REPAIR SLEEVE 2019 USA

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Registered Office and Headquarters - Busto Arsizio (VA)



Production Facility - Castel Guelfo di Bologna (BO)



Production Facility - Imola (BO)

Nupi Americas Inc. was founded in 2001 and is based in Houston, TX where it established a warehouse and production facility. Another warehouse is located in New England.

Nupi Americas has its roots in NUPI S.p.A. and GECO System S.p.A. – two Italian companies both founded **in the early 1970s** – that merged to become NUPIGECO S.p.A. in 2008. In October 2015, NUPIGECO S.p.A. changed its name to NUPI INDUSTRIE ITALIANE S.p.A., an 'all-Italian' company that exports its products worldwide.

NUPI INDUSTRIE ITALIANE and Nupi Americas together **develop and manufacture piping systems for use in industrial, sanitary (plumbing), HVAC, waterworks, gas and irrigation markets.** Relying on experience and constant growth, our companies have proven to be cutting edge manufacturers, ready to meet the needs of the market while also protecting the environment.

In 1995, following the completion of an extensive Research and Development program, we introduced a new range of **revolutionary piping systems specifically designed for petroleum, chemical and petrochemical applications.** Since then, two special piping systems made of **High Density Polyethylene (HDPE)** have been marketed worldwide: **SMARTFLEX for the downstream and OILTECH for the upstream.**

ELOFIT is the High Density Polyethylene system of electrofusion fittings and special components for the conveyance of water and gas under pressure. It is suitable for the conveyance and distribution of drinking water and alimentary fluids, fuel and inert gases and for water treatment plants, centralised irrigation and sewage systems, fire protection systems and pipe relining.

NIRON is a complete Polypropylene pipe and fitting system for the distribution of hot and cold water in plumbing and air conditioning systems, for the conveyance of drinking water and alimentary fluids, industrial plants and for the transport of compressed air and chemical substances.

The pipes and fittings that compose the NIRON range are manufactured using **Random Copolymer Polypropylene (PPRCT), a plastic material with a special molecular structure ensuring high mechanical resistance and duration, even at high temperatures and pressures.**

THE COMPANY



Production, Operations & Administration Center - NUPI AMERICAS INC. - Early Branch (SC)



Production, Operations & Administration Center - NUPI AMERICAS INC. - Houston (TX)

More product ranges marketed by Nupi Americas are **ELOPRESS - a complete range of PP fittings for the distribution of drinking water and alimentary fluids, ELAMID - a complete piping system made of Polyamide 12** that satisfies **high performance requirements in gas supply applications and SMARTCONDUIT - designed to contain electrical and communication cables in high groundwater or hydrocarbon- rich environments.**

Our trademarked systems are real **system solutions**, covering a wide range of applications, reducing costs, avoiding waste and increasing productivity. Thanks to their quality, these products have passed many different tests and have **obtained the most prestigious certificates** and listings, in line with the regulations of the five continents for the construction of water and gas networks and systems for the transport of fuels.

Producing better quality and being cost effective is the goal, which is made easier everyday by new technology.

Our companies are **continuously investing in research and development programs**, while strengthening our production systems, operated by a sophisticated technology that guarantees the highest quality of products. Our facilities use modern, state-of-the-art computer controlled production equipment and methods that **guarantee products of the highest quality together with continuous quality control systems.**

On these solid foundations NUPI INDUSTRIE ITALIANE and Nupi Americas demonstrate leadership throughout the thermoplastic piping industry.

Our customers can rely on the best quality materials and precise manufacture, obtained through completely automated production systems and continuous on-time deliveries, resulting in timely deliveries which allow planning to be done in real time.

Customer satisfaction is pursued through high quality products and the constant attention to our customers' needs and requirements and by means of an effective team of people in post-sales service, effective and precise technical assistance and intensive training of installers.

ACTIVITY



*Industrial avant-garde
in the transport of liquid
and gaseous fluids using
systems made of plastic
material*

*Sanitary systems
Heating systems
Water pipelines
Gas pipelines
Irrigation
Transport of food fluids
Air conditioning
Cooling
Industrial installations
Petroleum industry
Chemical industry
Petrochemical industry*

WHO WE ARE

Our numbers

- *Present in the market for more than 45 years*
- *300 employees*
- *3 production plants in Italy and 2 in the U.S.*
- *8 warehouses in Europe and the rest of the world (Germany, France, Spain, Belgium, UK, U.S., U.A.E.)*
- *5% of turnover invested in R & D*
- *150,000 square meters of surface area occupied by Nupi companies in the world*

Our strengths

- *Exports established in more than 70 countries in 5 continents*
- *Worldwide after-sales assistance*
- *R & D department dedicated to Internal Development, Technical Support, After-Sales Service*
- *Production of pipes and fittings from ø12 to ø1000*
- *Training center for each authorized distributor*

1

REPAIR SYSTEMS



1.1. POLYETHYLENE REPAIR SYSTEMS FOR PRESSURE PIPELINES

Every year, more than 45,000 leaks in polyethylene pipes are repaired in the USA with over 350,000 miles of plastic pipelines already used by the natural gas industry.

These leaks can be the result of damaged pipes, defects at the joints or in any case of a damage caused by external factors (e.g. excavators, lack of tension during welding, etc.).

NUPI Americas Inc., in collaboration with the main US gas distribution companies, **has developed several POLYETHYLENE REPAIR SYSTEMS** based on the electrofusion joining system.

NUPI Americas Inc. repair systems can repair joints with potential leaks showing signs of deterioration or damage caused by external factors.

Flow interruption, a process that is typically required to remove the joint, is a costly and time-consuming operation that requires additional excavation, specialized equipment, and sometimes the interruption of gas or water service.

The use of ELOFIT Repair Systems avoids the interruption of the service to customers, caused by the stopping of the pipeline, as well as costly bypass, plugging, removal and replacement of the damaged part.



ELOFIT Repair Systems offer a permanent repair option at lower costs, improving overall safety for operators of supply companies and for the general public.

All joints are made of HDPE 100 and can be used on medium and high-density pipes in PE 80 and PE 100.

■ APPLICATIONS

- Drinking water distribution
- Natural gas distribution
- Waste water pipelines
- Industrial pipelines

■ BENEFITS

- Quick, safe and simple installation
- Suitable for pressure and pressure-free repairs
- Resistance to corrosion and long life

1.2. THE SOLUTION FOR EVERY TYPE OF REPAIR

Depending on the dimensions and gravity of the damage/leak, **NUPI Americas Inc.** proposes 2 types of systems for the restoration of the pipeline.

a. BUTT FUSION REPAIR SLEEVE (EIBFRS)

Unreliable butt fusion welds that cannot guarantee tightness

b. VARIABLE LENGTH REPAIR SLEEVE (EIVLRS)

Damages to the pipeline extending along the pipe axis





1.3. THE SYSTEMS IN DETAIL

1.3.1 BUTT FUSION REPAIR SLEEVE (EIBFRS)

It is a safe repair system that guarantees total coverage of the area in case of butt fusion welding that does not conform to the standard or in all those cases where the damages to the pipes would no longer guarantee its durability. The fitting consists of two semi-shells with a total length of approximately 8,66".

At the center of the fitting there is a circular containment area that shall be positioned on the welding curb of the pipes to ensure good encapsulation.

The containment area located at the center of the butt fusion fitting to ensure good encapsulation.

BUTT FUSION REPAIR SLEEVE can be welded at different temperatures ranging from 0°F to 120°F and with the pipe under pressure.

Maximum operating pressure in PE4710 pipes during welding

RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIBFRS02	2"	-	-	Y	60 psi	Y	60 psi
12EIBFRS04	4"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS06	6"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS08	8"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS12	12"	Y	40 psi	Y	124 psi	Y	124 psi

Maximum operating pressure in PE3608 pipes during welding

RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIBFRS02	2"	-	-	Y	40 psi	Y	60 psi
12EIBFRS04	4"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS06	6"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS08	8"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS12	12"	Y	20 psi	Y	60 psi	Y	124 psi



1.3. THE SYSTEMS IN DETAIL

1.3.2. VARIABLE LENGTH REPAIR SLEEVE (EIVLRS)

It is a modular and safe electrofusion repair system that guarantees total coverage of the area in case of damages extending along the pipe axis, such as the sliding of a bucket along the pipe's backbone. The total coverage of the damaged area is guaranteed by the application of two or more fittings/modules that are applied in succession, without any interruption.

The minimum assembly consists of 2 modules (initial and terminal); between them it is possible to add as many intermediate modules as necessary to completely cover the damaged area (modular). The maximum allowed network pressure to weld the fitting on the pipe depends on the type of polyethylene and on the pipe SDR.



BUTT FUSION REPAIR SLEEVE can be welded at different temperatures ranging from 0°F to 120°F and with the pipe under pressure.

Maximum operating pressure in PE4710 pipes during welding

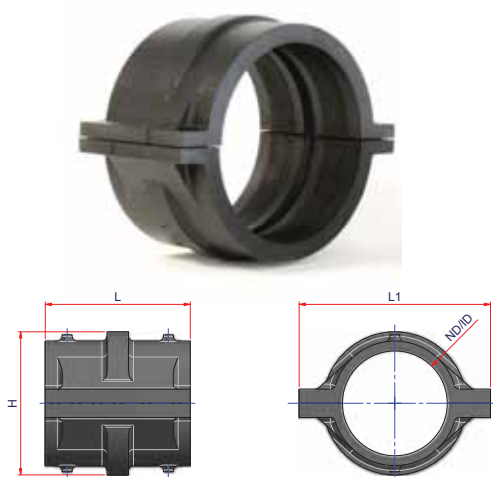
RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIVLRS02180	2"	-	-	Y	60 psi	Y	60 psi
12EIVLRS04180	4"	-	10 psi	Y	124 psi	Y	124 psi
12EIVLRS06180	6"	-	10 psi	Y	124 psi	Y	124 psi

Maximum operating pressure in PE3608 pipes during welding

RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIVLRS02180	2"	-	-	Y	40 psi	Y	60 psi
12EIVLRS04180	4"	-	7.5 psi	Y	40 psi	Y	60 psi
12EIVLRS06180	6"	-	7.5 psi	Y	40 psi	Y	60 psi



2 TECHNICAL INFORMATION



2.1. EIBFRS- TECHNICAL DATA SHEET

BUTT FUSION REPAIR SLEEVE

ELOFIT INCHES BUTT FUSION REPAIR SLEEVE (EIBFRS) is a safety repair system to be used when, in service, butt-welding cannot be guaranteed, or to repair minor damages on pipe.

EIBFRS can be installed on pressurized pipe made out of PE4710, PE3408, PE2708 and PE2406.

EIBFRS must be installed on pipes without fluid leakage.

The maximum network pressure allowed to weld the EIBFRS on the pipe depends of the polyethylene grade and SDR of pipe.

Maximum operating pressure in **PE4710** pipes during welding

RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIBFRS114	1"¼	Item available from December 2019					
12EIBFRS02	2"	-	-	Y	40 psi	Y	60 psi
12EIBFRS04	4"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS06	6"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS08	8"	Y	40 psi	Y	124 psi	Y	124 psi
12EIBFRS12	12"	Y	40 psi	Y	124 psi	Y	124 psi

Table 1

Maximum operating pressure in **PE3608** pipes during welding

RANGE	Ø IPS	DR 17	Max Pressure	DR 11	Max Pressure	DR 7	Max Pressure
12EIBFRS114	1"¼	Item available from December 2019					
12EIBFRS02	2"	-	-	Y	40 psi	Y	60 psi
12EIBFRS04	4"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS06	6"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS08	8"	Y	20 psi	Y	60 psi	Y	124 psi
12EIBFRS12	12"	Y	20 psi	Y	60 psi	Y	124 psi

Table 2

PE4710 SDR11 • IPS

Code	Nominal Diameter ø (ND)	Fusion range Max DR	Pack.	Q.ty pallet	Weight lb/p.	Volume ft³/p.	ND (IPS)	ID	L	L1	H	Price Each
12EIBFRS114	1"¼ IPS	Item available from December 2019										
12EIBFRS02	2" IPS	see tables 1-2	1	90	5.500	0.3800	2"	2.385	9.25	8.29	4.20	\$789.00
12EIBFRS04	4" IPS	see tables 1-2	1	52	5.500	0.6689	4"	4.500	8.76	9.84	6.57	\$919.00
12EIBFRS06	6" IPS	see tables 1-2	1	52	7.040	0.5925	6"	6.625	9.25	12.20	9.13	\$1,182.00
12EIBFRS08	8" IPS	see tables 1-2	1	27	17.930	1,2713	8"	8.625	9.45	15.25	11.50	\$2,232.00
12EIBFRS10	10" IPS	see tables 1-2	1	-	-	-	10"	-	-	-	-	\$2,682.00
12EIBFRS12	12" IPS	see tables 1-2	1	12	25.476	2,8252	12"	12.750	9.45	20.00	15.93	\$3,020.00

For the installation use the clamping system device (00KITSALDERP) and jumper cables (00KITCAVERP) supplied on request.

Installation on pipes with max angle 1.5° and max misalignment 0.08".



2.2. EIVLRS- TECHNICAL DATA SHEET

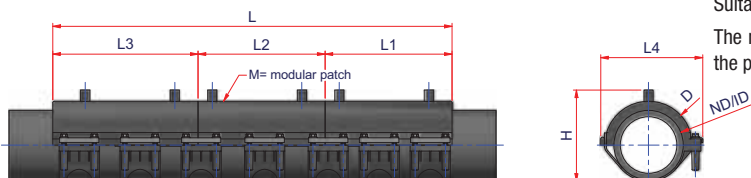
180° VARIABLE LENGTH REPAIR SLEEVE

The **ELOFIT INCHES 180° VARIABLE LENGTH REPAIR SLEEVE (EIVLRSxx180)** is a modular system of electrofusion shells that can be installed contiguously and welded on pipes that have notches, scrapes or damage along the axis.

The standard assembly has 2 modules (**12EIVLRSxx180**); between them it is possible to add the necessary number of additional middle modules (**12EIVLRSxx180M** - also separately available).

Suitable to repair minor damages on pipe without fluid leakage.

The maximum network pressure allowed to weld the fitting on the pipe depends of the polyethylene grade and SDR of the pipe.



Maximum operating pressure in **PE4710** pipes during welding

RANGE	Ø IPS	DR 11	Max Pressure	DR 7	Max Pressure
12EIVLRS114180	1"¼	Item available from December 2019			
12EIVLRS02180	2"	Y	40 psi	Y	60 psi
12EIVLRS04180	4"	Y	124 psi	Y	124 psi
12EIVLRS06180	6"	Y	124 psi	Y	124 psi

Table 1

Maximum operating pressure in **PE3608** pipes during welding

RANGE	Ø IPS	DR 11	Max Pressure	DR 7	Max Pressure
12EIVLRS114180	1"¼	Item available from December 2019			
12EIVLRS02180	2"	Y	40 psi	Y	60 psi
12EIVLRS04180	4"	Y	40 psi	Y	60 psi
12EIVLRS06180	6"	Y	40 psi	Y	60 psi

Table 2

PE4710 SDR11 • IPS

Code	Nominal Diameter Ø (ND)	Fusion range Max DR	Pack.	Weight lb/p.	Volume ft³/p.	ND (IPS)	ID	D	L	L1	L2	L3	L4	H	Notes	Price Each
12EIVLRS114180	1"¼" IPS	Item available from December 2019														
12EIVLRS02180	2" IPS	see tables 1-2	1+1	-	-	2"	2.375	3.01	16.93	7.87	-	9.06	4.06	3.50	T	\$525.00
12EIVLRS02180M	2" IPS	see tables 1-2	1	-	-	2"	2.375	3.01	24.80	7.87	7.87	9.06	4.06	3.50	M	\$264.00
12EIVLRS04180	4" IPS	see tables 1-2	1+1	4.840	0.5590	4"	4.500	5.67	16.93	7.87	-	9.06	6.60	5.91	T	\$657.00
12EIVLRS04180M	4" IPS	see tables 1-2	1	2.420	0.2758	4"	4.500	5.67	24.80	7.87	7.87	9.06	6.60	5.91	M	\$394.00
12EIVLRS06180	6" IPS	see tables 1-2	1+1	5.000	-	6"	6.625	7.60	16.93	7.87	-	9.06	8.46	7.78	T	\$789.00
12EIVLRS06180M	6" IPS	see tables 1-2	1	3.000	-	6"	6.625	7.60	24.80	7.87	7.87	9.06	8.46	7.78	M	\$525.00

(•) Length for installation of terminal fittings (2 pieces).

(◊) Length for installation of terminal fittings + modular patch (3 pieces). Other modular patches can be added depending of damage.

For the installation use a pair of triple cables (00KITCAVI3VIE) supplied on request (page 30).

T=TERMINAL FITTINGS M= MODULAR PATCH

3

INSTALLATION INSTRUCTIONS

3.1. INSTALLATION INSTRUCTION FOR BUTT FUSION REPAIR PATCH



STEP 1

Identify the butt fusion area to be repaired.



STEP 2

Identify the welding area with a marker.



STEP 3

Scrape with a rotary scraper the part of the pipe where the repair sleeve will be welded without removing the bead.



STEP 4

Clean the pipe surface with isopropyl alcohol (minimum concentration 91%).



STEP 5

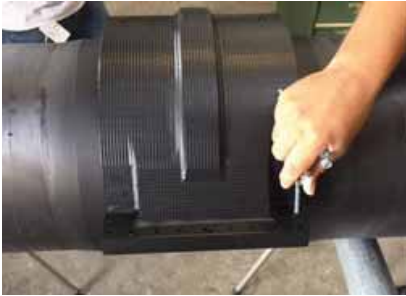
Clean the inner surface of the fitting with isopropyl alcohol (minimum concentration 91%).



STEP 6

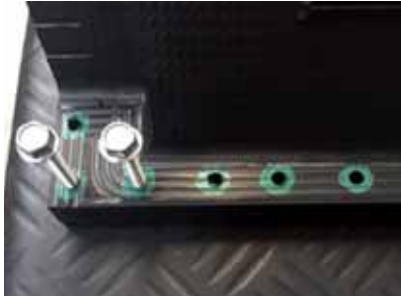
Install the two half shells on the pipe. Keeping the bead in the center.

3.1. INSTALLATION INSTRUCTIONS FOR BUTT FUSION REPAIR PATCH



STEP 7

Insert the 22 self tapping screws into the holes marked in green.



STEP 8

Using a screw driver tight the two shell together.



STEP 9

Using the jumper cable connect the two pins marked with yellow of the lateral welding zone.



STEP 10

Connect the welding unit with the other two pins of the lateral zones.

3.1. INSTALLATION INSTRUCTIONS FOR BUTT FUSION REPAIR PATCH



STEP 11

Scan the barcode of the lateral zones and start the welding.



STEP 12

Wait 30 minutes to allow the welded parts to cool down.



STEP 13

Using the jumper cable connect the two white pins of the central zones.



STEP 14

Connect the welding unit with the other two pins of the central zones.



STEP 15

Scan the barcode of the central part and start the welding.



STEP 16


Wait 30 minutes to allow the welded parts to cool down.


STEP 17

Restart with a new welding of the lateral zone repeating to the point 9 - 10 - 11-12.

3.2. INSTALLATION INSTRUCCION FOR VARIABLE LENGTH REPAIR SLEEVE: 2 MODULES

The standard assembly has **2 MODULES** (identified as EIVLRS **I** and EIVLRS **T**): between them it's possible to add the necessary number of additional middle modules (identified as EIVLRS **M** - also separately available).


 If you need to repair a damage smaller than 2.76" (70 mm), you can use 'Butt Fusion Repair Sleeve - EIBFRS' (check Elofit catalogue for reference).

 The network pressure allowed to weld the fitting on the pipe depends of the polyethylene grade and SDR of the pipe (see table on page 20).



STEP 1

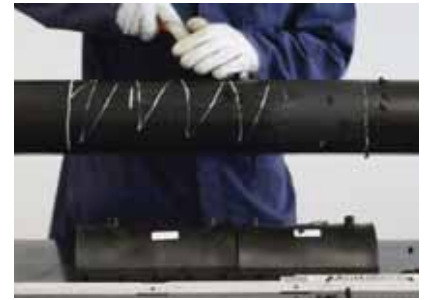
Measure and mark the length of the damage of the pipe and calculate the appropriate number of sleeve modules to completely cover it.

 **IN CASE OF THREE OR MORE MODULES NEEDED, PLEASE FOLLOW INSTRUCTIONS RACC MOD36B INCLUDED WITH EIVLRS M ADDITIONAL MODULES.**



STEP 2

Measure the total length of the sleeve modules and mark it on the pipe, near the damage. Minimum distance required for the fitting to extend beyond the damaged area: 2.36" (60mm).




STEP 3

Scrape the part of the pipe where the variable length repair sleeve will be welded, over and all along the damage to be repaired.

Use a hand scraper: scrape the pipe at 180° across the damage. Scrape 0.4" beyond the marked line.

Mechanical scrapers can be used provided there is no risk to extend the damage further.

 **TAKE CARE NOT TO DAMAGE THE PIPE FURTHER.**

3.2. INSTALLATION INSTRUCTIONS FOR VARIABLE LENGTH REPAIR SLEEVE: 2 MODULES



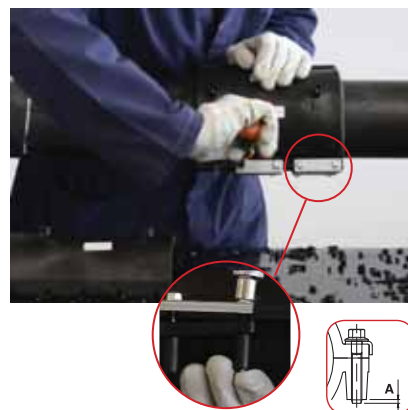
STEP 4

Scan the barcode of the central part and start the welding.



STEP 5

Mark on the scraped pipe a distance equal to the whole length of the assembled sleeves, so that the damage is well centered and surrounded. Take care not to contaminate the previously cleaned surfaces.



STEP 6

Install each single module separately on the pipe, starting from one end of the scraped area: place the EIVLRS I module first on the pipe and align it to the marked line.

Place the first underclamp on the very end of the assembly: hook the square holes of the underclamp to the teeth on the side of the module; align the two screws to the corresponding holes, line up the metal spacer and use a wrench to tighten the two screws until they are in position A in the lower part (feel the screws sticking out of the bottom - see figure in the circle below).

Repeat the operation with the second underclamp in the consecutive position.

3.2. INSTALLATION INSTRUCCION FOR VARIABLE LENGTH REPAIR SLEEVE: 2 MODULES



STEP 7

Place the terminal module EIVLRS T on the scraped pipe, adjacent to the previous one just installed: the lip at the end of the module must overlap the protruding edge of the previous one. Install the first underclamp across the two adjacent modules (follow the instruction on Step 6).

Then install the second and third underclamps in the consecutive positions (follow the instruction on Step 6).

The terminal module EIVLRS T must always be the final module installed.



STEP 8

Before proceeding to Step 11 verify that all the underclamps are properly tightened (feel the screws sticking out of the bottom); eventually use a wrench to tighten the screws if necessary.

TOOLS (not included):

RED TRIPLE CABLE



BLACK TRIPLE CABLE



✓ **BEFORE BEGINNING THE WELDING SEQUENCE, ALWAYS CHECK THE RELIABILITY OF THE POWER SUPPLY SYSTEM, TO MAKE SURE THERE ARE NO INTERRUPTIONS DUE TO LACK OF POWER.**

✓ **THE FITTINGS REQUIRE 4.0mm CONNECTORS.**

⚠ **DON'T WELD IN CASE OF GAS OR WATER LEAKAGE**

⚠ **KEEP AT A SAFE DISTANCE DURING WELDING.**

⚠ **PERFORM WELDING ONLY IN AUTOMATIC MODE THROUGH BARCODE SCAN: DO NOT PERFORM WELDING IN MANUAL MODE.**

⚠ **ALWAYS CHECK THE WELDING PARAMETERS ON THE DISPLAY.**

⚠ **IF TEMPERATURE IS LOWER THAN 60°F (15°C), FIRST PERFORM PRE-HEATING BY SCANNING THE SPECIAL BARCODE REPORTED BELOW. AT THE END OF PRE-HEATING CYCLE, IMMEDIATELY PERFORM WELDING BY SCANNING THE WELDING BARCODE ON THE FITTING (FOLLOW POINT 12).**

3.2. INSTALLATION INSTRUCTIONS FOR VARIABLE LENGTH REPAIR SLEEVE: 2 MODULES



WELDING PROCEDURE

STEP 9

Connect one cable of the electrofusion machine to the connector slot of the black triple cable.



STEP 10

Connect 2 connectors of the black triple cable to the first pin marked "A" of each module. The third connector doesn't need to be used.



STEP 11

Connect the other cable of the electrofusion machine to the connector slot of the red triple cable.



STEP 12

Connect 2 connectors of the red triple cable to the second pin marked "B" of each module. The third connector doesn't need to be used.



STEP 13

Perform welding: scan with the optical pen the barcode on EIVLRS I module and proceed with welding.

STEP 14

After the welding cycle is positively completed, mark the actual time on the modules and disconnect all the cables.


⚠ IN CASE OF WELDING INTERRUPTION DUE TO LACK OF POWER, WAIT FOR THE FITTINGS TO COOL DOWN FOR NOT LESS THAN 1 HOUR, THEN RE-START THE WELDING CYCLE FROM THE BEGINNING.

STEP 15

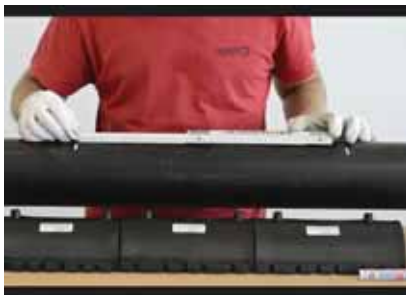
Wait for the completion of the cooling time indicated on the barcode; then it's possible to move and bury the pipeline.

⚠ DON'T STRESS OR BURY THE PIPELINE BEFORE THE COMPLETION OF THE COOLING TIME INDICATED ON THE BARCODE.

3.3. INSTALLATION INSTRUCCION FOR VARIABLE LENGTH REPAIR SLEEVE: 3 MODULES

 The network pressure allowed to weld the fitting on the pipe depends of the polyethylene grade and SDR of the pipe (see table on page 20).

The standard assembly has 2 modules (identified as **EIVLRS I** and **EIVLRS T**): between them it's possible to add the necessary number of additional middle modules (identified as **EIVLRS M** - also separately available). Use this instruction in case of **3 or MORE MODULES NEEDED**.



STEP 1

Measure and mark the length of the damage of the pipe and calculate the appropriate number of sleeve modules to completely cover it.



STEP 2

Measure the total length of the sleeve modules and mark it on the pipe, near the damage. Minimum distance required for the fitting to extend beyond the damaged area: 2,36" (60mm).



STEP 3

scrape the part of the pipe where the variable length repair sleeve will be welded, over and all along the damage to be repaired.

Use a hand scraper: scrape the pipe at 180° across the damage. Scrape 0.4" beyond the marked line.

Mechanical scrapers can be used provided there is no risk to extend the damage further.

 **TAKE CARE NOT TO DAMAGE THE PIPE FURTHER.**

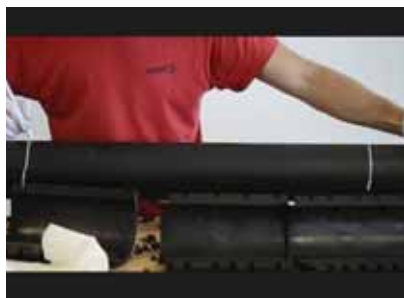
3.3. INSTALLATION INSTRUCTIONS FOR VARIABLE LENGTH REPAIR SLEEVE: 3 MODULES



STEP 4

Clean the scraped part of the pipe and the welding areas of the sleeve modules with isopropanol and a soft wiping cotton cloth with no printing; wait until the clean parts are completely dry.

⚠ DO NOT USE ALCOHOL OR ACETONE.



STEP 5

Mark on the scraped pipe a distance equal to the whole length of the assembled sleeves, so that the damage is well centered and surrounded. Take care not to contaminate the previously cleaned surfaces.



STEP 6

Install each single module separately on the pipe, starting from one end of the scraped area; place the EIVLRS I module on the pipe and align it to the marked line.

Place the first underclamp on the very end of the assembly: hook the square holes of the underclamp to the teeth on the side of the module; align the two screws to the corresponding holes, line up the metal spacer and use a wrench to tighten the two screws until they are in position **A** in the lower part (feel the screws sticking out of the bottom - see figure in the circles below).

Repeat the operation with the second underclamp in the consecutive position.



3.3. INSTALLATION INSTRUCCION FOR VARIABLE LENGTH REPAIR SLEEVE: 3 MODULES

STEP 7

If the middle modules EIVLRS **M** aren't necessary, skip to Step 10, otherwise proceed to the following Step 8.

STEP 8

Place the middle module EIVLRS **T** on the scraped pipe, next to the previous one just installed: the lip at the end of the module must overlap the protruding edge of the previous one (see figure in the circles below). Install the first underclamp across the two adjacent modules (follow the instruction on Step 6).

Then install the second underclamp in the consecutive position (follow the instruction on Step 6).



STEP 9

Repeat the instructions on Step 8 for all the necessary middle modules EIVLRS **M**.

⚠ IN CASE OF 4 OR MORE MODULES, PLEASE CONTACT THE SUPPLIER FOR WELDING ASSISTANCE.



STEP 10

Place the terminal module EIVLRS **T** on the scraped pipe, adjacent to the previous one just installed: the lip at the end of the module must overlap the protruding edge of the previous one. Install the first underclamp across the two adjacent modules (follow the instruction on Step 6).

Then install the second and third underclamps in the consecutive positions (follow the instruction on Step 6).

The terminal module EIVLRS **T** must always be the final module installed.

Before proceeding to Step 11 verify that all the underclamps are properly tightened (feel the screws sticking out of the bottom); eventually use a wrench to tighten the screws if necessary.

950705308603300006050226



PRE-HEATING BARCODE 30V – 50 s.

TOOLS (not included):

RED TRIPLE CABLE



BLACK TRIPLE CABLE



✓ **BEFORE BEGINNING THE WELDING SEQUENCE, ALWAYS CHECK THE RELIABILITY OF THE POWER SUPPLY SYSTEM, TO MAKE SURE THERE ARE NO INTERRUPTIONS DUE TO LACK OF POWER.**

✓ **THE FITTINGS REQUIRE 4.0 mm CONNECTORS.**

⚠ DON'T WELD IN CASE OF GAS OR WATER LEAKAGE

⚠ KEEP AT A SAFE DISTANCE DURING WELDING.

⚠ PERFORM WELDING ONLY IN AUTOMATIC MODE THROUGH BARCODE SCAN: DO NOT PERFORM WELDING IN MANUAL MODE.

⚠ ALWAYS CHECK THE WELDING PARAMETERS ON THE DISPLAY.

3.3. INSTALLATION INSTRUCCION FOR VARIABLE LENGTH REPAIR SLEEVE: 3 MODULES

⚠ IF TEMPERATURE IS LOWER THAN 60°F (15°C), FIRST PERFORM PRE-HEATING BY SCANNING THE SPECIAL BARCODE REPORTED BELOW. AT THE END OF PRE-HEATING CYCLE, IMMEDIATELY PERFORM WELDING BY SCANNING THE WELDING BARCODE ON THE FITTING (FOLLOW POINT 15).



STEP 11

Connect one cable of the electrofusion machine to the connector slot of the black triple cable.



STEP 12

Connect each connector of the black triple cable to the first pin marked "A" of each module.



STEP 13

Connect the other cable of the electrofusion machine to the connector slot of the red triple cable.



STEP 14

Connect each connector of the red triple cable to the second pin marked "B" of each module.



STEP 15

Perform welding: scan with the optical pen the barcode on **EIVLRS I** module and proceed with welding.

⚠ IN CASE OF 4 OR MORE MODULES, PLEASE CONTACT THE SUPPLIER FOR WELDING ASSISTANCE.

STEP 16

After the welding cycle is positively completed, mark the actual time on the modules and disconnect all the cables.

⚠ IN CASE OF WELDING INTERRUPTION DUE TO LACK OF POWER, WAIT FOR THE FITTINGS TO COOL DOWN FOR NOT LESS THAN 1 HOUR, THEN RESTART THE WELDING CYCLE FROM THE BEGINNING.

STEP 17

Wait for the completion of the cooling time indicated on the barcode; then it's possible to move and bury the pipeline.

⚠ DON'T STRESS OR BURY THE PIPELINE BEFORE THE COMPLETION OF THE COOLING TIME INDICATED ON THE BARCODE.



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