

IntegriFuse Electrofusion Flex Restraint

Type of Fitting	Surface Mounted on Pipe OD
Item Code	200400
Application Size Range	6" thru 63" (160 mm - 1600 mm)
(For Use on SDR 's 7 thru 17 on pipes 6" – 10" OR on SDR 's 7 thru 26 on pipes 12" – 63")	
Axial Load Restraint Capacity	9,500 LBS (based on a 2.0 Safety factor)



Length	Height	Base Width
7.5" (190.5 mm)	1.56" (39.62 mm)	2.45" (62.2 mm)
Type of Circuit	Connector Diameter	Fusion Voltage
Single	4.0 mm	25.0

The IntegriFuse EF Flex Restraint is a uniquely designed electrofusion side wall fitting specifically designed using an innovative "next generation" fusion coil pattern.

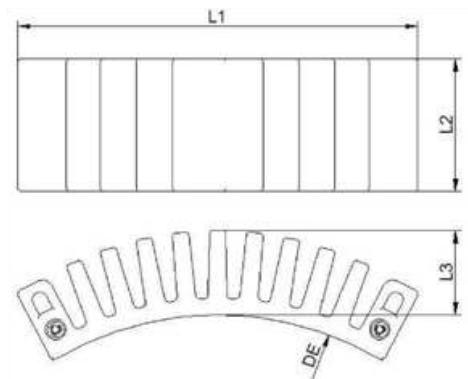
Instead of simply using the outside edges of the Flex Restraint to serve as the fittings cold zone; the design of the IntegriFuse Electrofusion Flex Restraint incorporates an innovative fusion coil pattern that includes built in cold zones that results in more consistent melt pools and interfacial pressures being generated in the fusion zone. This unique fusion coil design results in higher axial resistance performance than others in the marketplace.



IntegriFuse EF Fittings are manufactured from the highest quality black high density bimodal polyethylene copolymer resin that has a PPI listing of PE4710, which complies with ASTM D1248 and ASTM D3350. The pre-blended virgin resin has a PPI listing of PE4710 that meets or exceeds the requirements of NSF Standard 61.

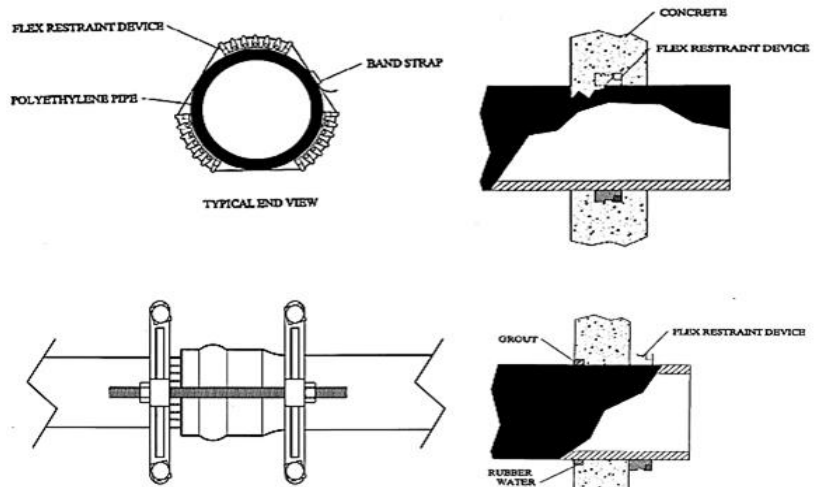
This fitting is designed for use in, but not limited to, potable water, natural gas, industrial, landfill, oil & gas, and mining applications.

- Engineered for use on HDPE Pipe
- Manufactured to work on all solid wall polyethylene pipes 6" and larger.
- PE4710 resin complies with ASTM D3350
- Designed to restrain Polyethylene pipe movement.
- Axial resistance rated at 9,5000 lbf. per saddle
- Permanently attached to pipe surface by electrofusion
- Quick and easy installation
- Needs no cumbersome equipment.



The data provided in this table is for use only as a guideline for the designer. The maximum number of restraints per pipe OD only reflects the total number of Flex Restraints that can be installed in a straight line around the circumference of a specified pipe OD. The designer is responsible for determining all expansion/contraction forces in their specific application and for calculating the appropriate number of flex restraints to be used for restraining those forces. The designer should consider all other additional affecting factors.

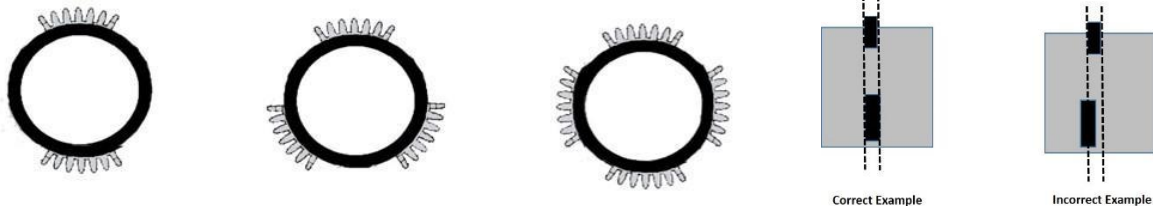
Pipe OD	Max. # of Restraints**	Pipe OD	Max. # of Restraints**
6"	3	32"	16
8"	4	34"	17
10"	5	36"	18
12"	6	38"	19
14"	7	40"	20
16"	8	42"	21
18"	9	44"	23
20"	10	46"	24
22"	11	48"	25
24"	12	--	--
26"	13	--	--
28"	14	--	--
30"	15		
32"	16		
34"	17		



(A minimum of 2 Flex Restraints must always be used to equally distribute the forces being resisted. The maximum # of restraints shown in this chart indicates how many Flex Restraints can be placed on the pipe surface, end-to-end around its circumference. If the anticipated axial forces require more Flex Restraints to be used than can be placed in a single line, place another line of equidistantly spaced Flex Restraints with approx. 9 in. between lines.)

Important Note:

- **A design engineer must calculate the amount of thrust force that will result from expansion & contraction in order to determine the proper quantity of Flex Restraints required for each application.**
- **Flex Restraints must be placed equally spaced and equally sectored on the surface of the pipe.**
- **Flex Restraints must be equally aligned around the circumference of the pipe.**



Installation Procedure:

Step 1 - Identify the desired location for the Flex Restraints. Keep Flex Restraints in their original packaging until ready to place and secure it.

Step 2 - Remove all sources of contamination from the surface of the pipe using clean water & dry with clean cloth.

Step 3 – Using an approved marking pen, clearly mark the location where each flex restraint is to be installed. Also highlight the complete fusion area with the pen, as this will provide a visual guide while scraping.



Step 4 – Scrape the area where the Flex Restraint is to be placed making sure to remove the thin layer of oxidation from the pipe surface (.007” minimum) using an approved scraper/peeler tool. Scrape/peel the marked area until the required amount of material is removed, and all of the pen marks are no longer visible. (Rasps, grinders & wire brushes/wheels are NOT allowed)



Step 5 – Clean the scraped area using a 90% or greater solution of Isopropyl Alcohol and a clean lint free rag making sure that the surface area of the pipe where the Flex Restraints are to be applied are free of contaminants. Remove the Flex Restraint from its packaging and clean the fitting base of the Flex Restraint in order to remove any accidental contamination of these areas. (NO other cleaning agent is allowed). Do not touch pipe surface or fitting base after cleaning.



Step 6 – Place the Flex Restraint immediately on the prepared surface where it is to be fused and secure it in place with a 2” ratchet strap. 2” Ratchet straps are the required application tool due to the ease of use and more reliable distribution of clamping pressures.

Step 7 – While holding the Flex Restraint in place, tighten the 2” ratchet strap until the Flex Restraints are conformed to the pipe wall. If installing just one Flex Restraint, make sure the ratchet buckle is 180 degrees/opposite the flex restraint before tightening. It is critical to ensure that the base of the Flex Restraint makes contact with the pipe over the entire fusion area, and no gap can be seen between fitting and the pipe. If more than one Flex Restraint is to be fused, make sure that all fittings are in place before completely securing the ratchet straps, ensuring the ratchet buckle is equidistant between two of the Flex Restraints before tightening.



Step 8 – Start generator, connect the processor leads to the Flex Restraint and enter the fusion data by scanning the bar-code or entering the fusion data in manual mode. Due to the location and/or the number of flex restraints being used; it may be necessary to scan a separate fitting to input the fusion data.



Step 9 – After the fusion cycle has completed, leave the Flex Restraint strapped in place until ALL the fittings have cooled.



***** Note: This abbreviated version of our Electrofusion Instructions is for reference and a reminder. For more complete details concerning job site and installation requirements please refer to our Electrofusion Training and Installation Manual.**