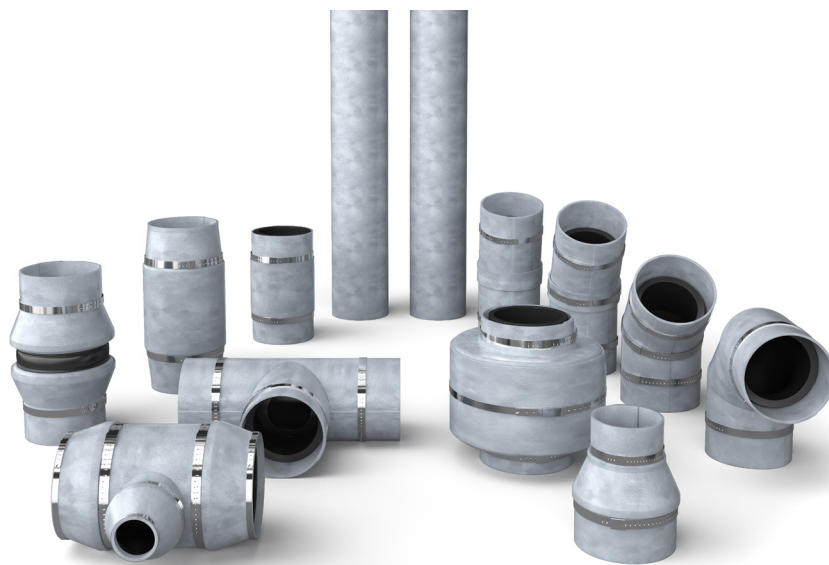


HEAT-FIT Jackets – Ultimate Fire Protection

The HEAT-FIT Jacket System is designed for applications in the maritime industry and makes the thermoplastic piping system ecoFIT resistant to temperatures up to 1.000°C or 1832°F for at least 30 minutes under pressure.

HEAT-FIT is a fire retardant system for ecoFIT pipes and fittings, consisting of pipe sleeves, jackets and accessories. All HEAT-FIT jackets and sleeves from GF Piping Systems are made of high temperature (HT) fiberglass fabric, intumescent coating, special adhesive and thermoplastic polyurethane (TPU).



HEAT-FIT system overview

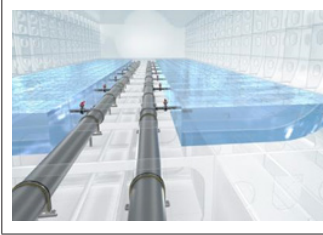
Features & Advantages

- Based on intumescent technology, HEAT-FIT is designed to cope with the harshest marine environmental conditions
- Easy installation: No hot work and no special skills required
- Up to 30% lighter than alternative materials (metal or Glass Reinforced Plastic)
- Fire Resistant code L3 according to IMO 753 – Meets the guidelines for applications of plastic pipes on ships
- Impact resistant, deformation can be absorbed
- Made of water-based, non-toxic, and environmental friendly material
- Reliable, sustainable and long lasting solution
- 100% corrosion free

Most important market segments

- Marine

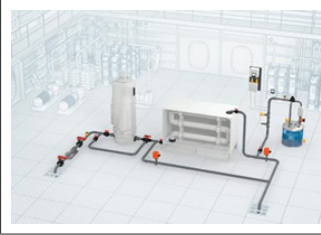
Marine applications



Ballast system

Ballast system ensures the stability of a vessels

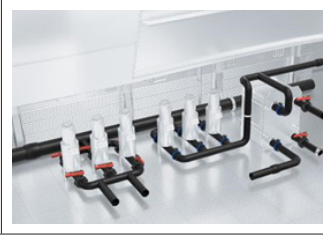
- Media: Sea water
- Temperature: up to +35°C



Ballast water treatment Management

Regulates the discharge

- Media: Sea water
- Temperature: up to +35°C



Seawater and freshwater cooling

Provide cooling to engine or other equipment

- Media: Sea and fresh water
- Temperature: up to +60°C

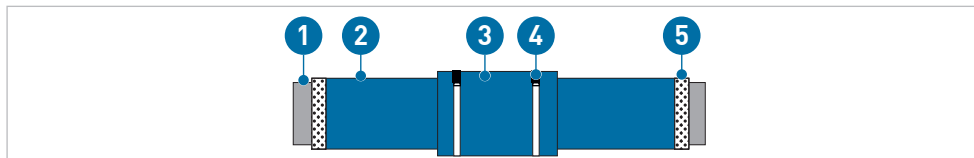


Exhaust gas scrubber

Remove Sulphur oxides from ship's exhaust gas by scrubbing it with sea water or fresh water.

- Media: Sea water - low PH and very aggressive
- Temperature: up to +60°C

Technical data



- ① ecoFIT piping system
- ② HEAT-FIT Pipe Sleeve
- ③ HEAT-FIT Jacket
- ④ Metal band
- ⑤ TPU sealing tape

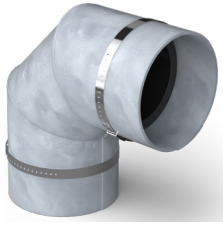



Dimensions	d110, d160, d225, d315	
Materials	Base fabric	High Temp. Fiberglass
	Finished weight	3400 g/m ²
	Thickness	3.5 mm
	Finishing	TPU film
	Coating	Fire Retardant (FR)
Fire resistant	At least 30 minutes up to 1.000°C / 1832° Fahrenheit	
Density	0.93 g/cm ³ (Acc. EN ISO 1183-1)	
Impact resistance	No damage (Acc. ISO 3127/15493, ISO 3127)	
Salt spray resistance	3% (Acc. ISO 9227 NSS)	
Vibration	2'000'000 load cycle (5 Hz)	
Diesel resistance	15% 24h, ambient temperature	
Humidity / climate resistance	20% 24h, ambient temperature	
Color	Grey RAL 7035	
Service life	25 years	

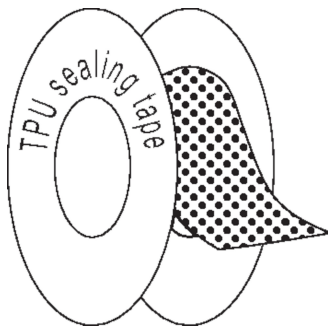
Order information

All components must be ordered separately. The required information, such as the required length of metal straps, quantity of metal closures and corresponding ecoFIT inner pipe code numbers are listed in the datasheets.

i For further information see www.gfps.com/heat-fit

Example – ecoFIT Bend 90° with HEAT-FIT Jacket

HEAT-FIT Jacket Bend 90°	HEAT-FIT Metal Strap	HEAT-FIT Metal Closure	ecoFIT Bend 90° PE100
			
756 100 114	756 170 302	756 170 303	753 018 744
1x	1x 110cm	2x	1x



HEAT-FIT - Jacket Sealing Tape

- Necessary for the installation of the HEAT-FIT Jacket system on the ecoFIT piping system
- Consists of thermoplastic polyurethane (TPU)
- Sealing tape has to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

Code	Weight (kg)	Length (m)
756 170 301	0.20	20



HEAT-FIT - Jacket Metal Strap

- Necessary for the installation of the HEAT-FIT Jacket system on the ecoFIT piping system
- Use as indicated in the installation manual
- Metal straps have to be ordered separately

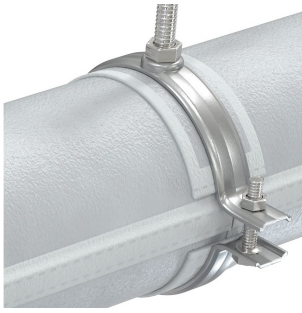
Code	SP	Weight (kg)	Length (m)	Width (mm)	Thickness (mm)	Material
756 170 302	1	1.50	30	9	0.6mm	Stainless Steel



HEAT-FIT - Metal Closure

- Necessary for the installation of the HEAT-FIT Jacket system on the ecoFIT piping system
- Use as indicated in the installation manual
- One metal closure is required for each metal strap

Code	Quantity
756 170 303	50 pcs.



HEAT-FIT - Jacket Insert for Pipe Clamps for ecoFIT PE piping systems

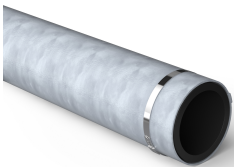
- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)
110	125	756 170 314	0.03	70
160	175	756 170 317	0.04	70
225	240	756 170 320	0.06	70
315	330	756 170 323	0.40	70

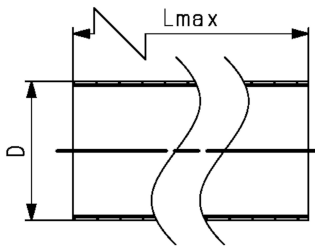


HEAT-FIT - Jacket Pipe Sleeve for ecoFIT PE piping systems

- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA



d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)	for ecoFIT article
110	122	756 170 114	6.90	4960	193 017 164
160	172	756 170 117	9.90	4960	193 017 167
225	237	756 170 120	14.91	4960	193 017 170
315	327	756 170 123	19.73	4960	193 017 173

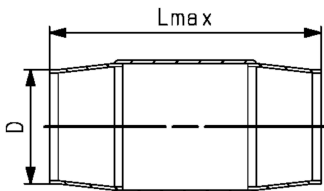




HEAT-FIT - Jacket Electrofusion Coupler for ecoFIT PE piping systems

- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ELGEF Plus article
110	124	756 910 114	0.80	285	240	4	753 911 614
160	174	756 910 117	1.00	320	330	4	753 911 617
225	239	756 910 120	1.50	425	460	4	753 911 620
315	329	756 910 123	3.25	507	640	4	753 911 623

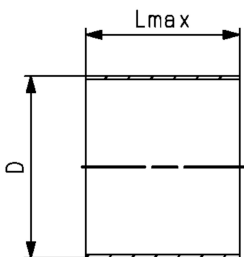


HEAT-FIT - Jacket Weld Bead Cover for ecoFIT PE piping systems

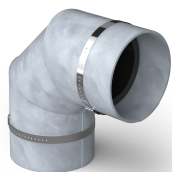
- Consists of intumescent fire retardant material
- ecoFIT articles have to be ordered separately
- Valid for standard and long spigot bends
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA



d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]
110	132	756 170 334	0.30	152	110	2
160	182	756 170 337	0.30	152	140	2
225	247	756 170 330	0.50	152	210	2
315	337	756 170 333	0.76	152	290	2

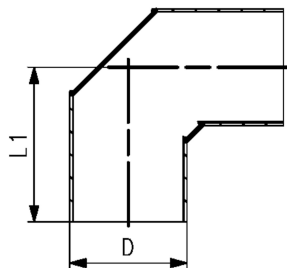


HEAT-FIT - Jacket 90° Bend for ecoFIT PE piping systems

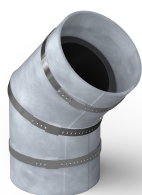


- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	L1 (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ecoFIT article
110	124	756 100 114	0.60	180	110	2	753 018 744
160	174	756 100 117	1.10	230	140	2	753 018 717
225	239	756 100 120	1.50	320	315	3	753 018 720
315	329	756 100 123	3.05	441	435	3	753 018 623

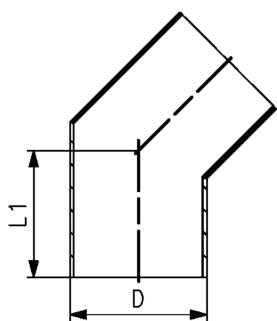


HEAT-FIT - Jacket 45° Elbow for ecoFIT PE piping systems



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	L1 (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ecoFIT and ELGEF Plus article
110	124	756 150 114	0.50	140	110	2	753 158 614
160	174	756 150 117	0.80	170	140	2	753 158 617
225	239	756 150 120	1.10	240	315	3	753 158 620
315	329	756 150 123	3.72	366	435	3	753 150 923

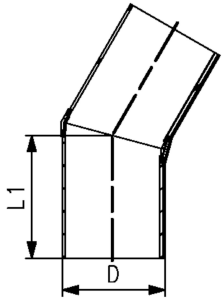


HEAT-FIT - Jacket 30° Elbow



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	L1 (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ELGEF Plus article
110	124	756 120 114	0.70	185	110	2	753 120 914
160	174	756 120 117	1.10	210	210	3	753 120 917
225	239	756 120 120	1.50	270	315	3	753 120 920
315	329	756 120 123	3.00	320	435	3	753 120 923

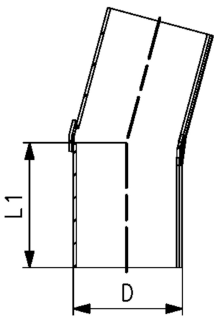


HEAT-FIT - Jacket 15° Elbow



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	L1 (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ELGEF Plus article
110	124	756 130 114	0.70	190	110	2	753 141 014
160	174	756 130 117	1.00	216	210	3	753 141 017
225	239	756 130 120	1.50	281	315	3	753 141 020
315	329	756 130 123	3.51	339	435	3	753 141 023

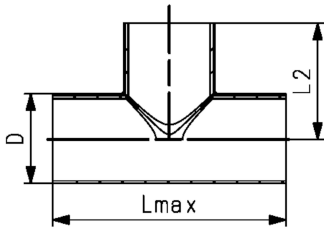




HEAT-FIT - Jacket Tee 90° Equal for ecoFIT PE piping systems

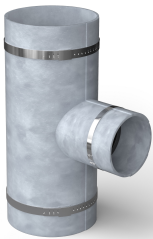
- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)
110	124	756 200 114	0.80
160	174	756 200 117	1.30
225	239	756 200 120	2.10
315	329	756 200 123	4.80



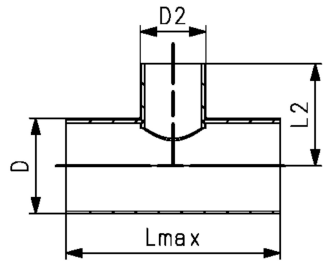
L2 (mm)	Lmax (mm)	Required length metal strap per piece [cm]	Required quantity closures per piece [pieces]	for ecoFIT article
181	362	165	3	753 208 614
231	462	210	3	753 208 617
323	586	315	3	753 208 620
468	836	435	3	753 208 623

HEAT-FIT - Jacket Tee 90° Reduced



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	d2 (mm)	D (mm)	Code	Weight (kg)
160	110	174	756 200 174	1.20
225	110	239	756 200 189	1.60
225	160	239	756 200 191	1.60
315	160	329	756 200 152	4.02
315	225	329	756 200 153	4.02



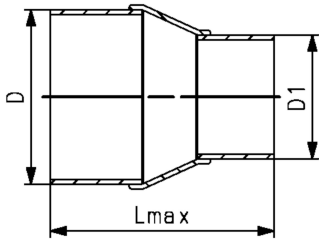
D2 (mm)	L2 (mm)	Lmax (mm)	Required length metal strap per piece [cm]	Required quantity closures per piece [pieces]	for ecoFIT and ELGEF Plus article
124	204	424	195	3	753 208 374
124	235	506	265	3	753 208 389
174	235	506	280	3	753 208 391
174	416	935	430	4	753 201 052
239	455	890	500	4	753 201 053

HEAT-FIT - Jacket Reducer for ecoFIT PE piping systems



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	d2 (mm)	D (mm)	Code	Weight (kg)
160	110	174	756 900 190	0.60
225	160	239	756 900 196	0.90
315	225	329	756 900 176	2.00



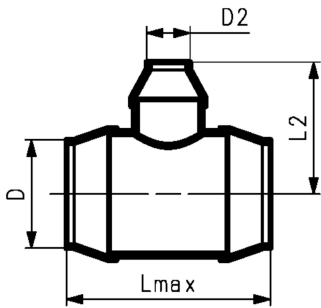
D1 (mm)	Lmax (mm)	Required length metal strap per piece [cm]	Required quantity closures per piece [pieces]	for ecoFIT article
124	260	125	2	753 908 690
174	330	175	2	753 908 696
239	457	250	2	753 908 176

HEAT-FIT - Jacket Branch Saddle to d63



- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	d2 (mm)	D (mm)	Code	Weight (kg)
110	63	124	756 110 114	1.10
160	63	174	756 110 117	1.10
225	63	239	756 110 120	2.00
315	63	329	756 110 123	2.64



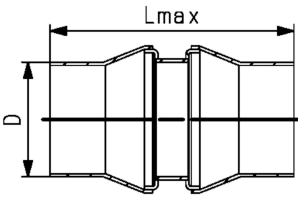
D2 (mm)	L2 (mm)	Lmax (mm)	Required length metal strap per piece [cm]	Required quantity closures per piece [pieces]	for ecoFIT article
71	199	354	180	4	193 137 067
71	212	328	210	4	193 137 097
71	257	475	490	6	193 137 127
71	302	566	650	6	193 137 157



HEAT-FIT - Jacket Fix Point for ecoFIT PE piping systems

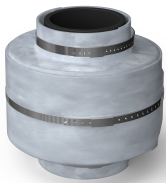
- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- Valid for standard and long spigot bends
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA

d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ecoFIT article
110	124	756 660 114	0.80	362	110	2	753 665 561
160	174	756 660 117	1.10	362	140	2	753 665 564
225	239	756 660 120	1.90	473	210	2	753 665 567
315	329	756 660 123	2.32	513	290	2	753 665 570

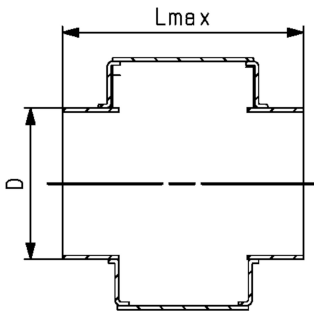


HEAT-FIT - Jacket Flange Connection for ecoFIT PE piping systems

- Consists of intumescent fire retardant material
- Accessories have to be ordered separately
- ecoFIT articles have to be ordered separately
- No hazardous materials
- Type approved for marine application by ABS, BV, DNV, LR and RINA



d (mm)	D (mm)	Code	Weight (kg)	Lmax (mm)	Required length met- al strap per piece [cm]	Required quantity clo- sures per piece [pieces]	for ecoFIT article
110	124	756 700 114	1.40	283	190	3	753 798 314 & Steel Backing Flange
160	174	756 700 117	1.80	299	240	3	753 798 317 & Steel Backing Flange
225	239	756 700 120	2.50	480	365	3	753 798 320 & Steel Backing Flange
315	329	756 700 123	3.26	513	495	3	753 798 323 & Steel Backing Flange



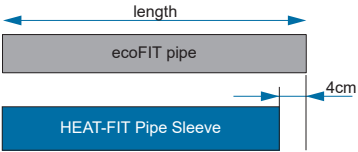
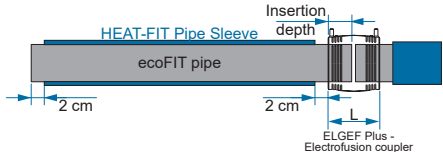



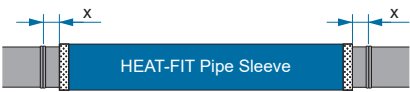



Training

Planners and installer, involved with HEAT-FIT, ELGEF-Plus and ecoFIT planning and installation, must undergo training and certification from GF Piping Systems prior to performing any operations on site. For further information and training please contact GF support.

Installation

HEAT-FIT pipe sleeves are installed on the straight pipe runs prior to welding the ecoFIT piping system components.

HEAT-FIT Jackets are hand-fitted to the ecoFIT piping system components using HEAT-FIT metal straps and HEAT-FIT fasteners after welding the ecoFIT inner pipe.

<p>1</p> <p>Cutting</p>	<p>Butt fusion After cutting the ecoFIT pipe to the required length, cut the HEAT-FIT Pipe Sleeve 4 cm shorter than the ecoFIT pipe.</p> 	<p>Electrofusion (Pipe-pipe connections only!) After cutting the ecoFIT pipe to the required length, cut the HEAT-FIT Pipe Sleeve according to the formula below.</p> <p>Calculation HEAT-FIT Pipe Sleeve length Pipe Sleeve Length = ecoFIT Pipe Length – (Insertion depth + 2cm). Insertion depth ELGEF Plus = $L / 2$</p> 
<p>2</p> <p>Sealing</p>	<p>1. To prevent moisture penetration, apply TPU sealing tape around the cut edge of the HEAT-FIT material and press on by hand.</p>  <p>2. Align HEAT-FIT Pipe Sleeve centered on the ecoFIT pipe.</p> 	
<p>3</p> <p>Fusion process</p>	<p>1. Carry out the butt fusion process for ecoFIT piping system according to separate instructions. For free access to the welding point, the HEAT-FIT Pipe Sleeve must be pushed away from the welding site.</p>  <p>2. Following the welding process and after the cooling time has elapsed, the HEAT-FIT Pipe Sleeve is pushed into the center of the two welding beads.</p> 	
<p>4</p> <p>HEAT-FIT Jacket installation</p>	<p>1. Position HEAT-FIT Jacket on the fitting: Ensure >5cm overlap from HEAT-FIT Jacket to Pipe Sleeve according to illustration.</p>  <p>2. Refer to the product catalog for the number of metal straps/closures required and hand-tighten accordingly. It is mandatory to place the metal strap over each overlapping surface. Caution: Do not overtighten.</p>  <p>3. Final inspection: The ecoFIT piping system must be completely covered with the HEAT-FIT.</p> 	

Approvals & Testing

- Fire Resistant Pipe sleeves to IMO Res. A753 fire endurance L3 Code
- Fire Resistant Pipe Accessories to IMO Res. A753 L3 Code
- Surface Flammability, Smoke and Toxicity to IMO A653 2010 FTP Code Part 5 and Part 2
- Waterproof testing for 24h in seawater, diesel-fuel contaminated water and salt-water spray

IMO 753 - Fire endurance requirements matrix

Piping Systems	Location						
	A	B	C	D	J	K	
	Machinery spaces of category A	Other machinery spaces and pump rooms	Cargo pump rooms	RO/RO cargo holds	Accommodation service and control spaces	Open decks	
Sea water							
Sprinkler system							
Ballast sea water (include BWT lines)	L3	L3	L3	L3	L2		L2
Cooling water, essential services	L3	L3					L2
Tank cleaning services fixed machines			L3				
Fresh water							
Cooling water, essential services	L3	L3			L3		L3
Condensate return	L3	L3	L3				
Exhaust gas cleaning effluent line	L3	L3			L3		

L2 : Fire Resistant code L2 according to IMO 753

L3 : Fire Resistant code L3 according to IMO 753

Approvals

	ABS (20-1958/14-1-PDA 20-4336831)	LR (LR2227/45TA)	DNV (TAK00001B2)	RINA (Q4/2022)	BV (10132/F1)
HEAT-FIT - Pipe Sleeves	X	X	X	Q4/2022	X
HEAT-FIT - Jackets	X	X	X	Q4/2022	X
HEAT-FIT - Flanges	X	X	X	Q4/2022	X

X : Available

Product range HEAT-FIT

The following table uses metric units of measure.

Products	d (mm)	50	50	63	75	90	110	125	140	160	180	200	225	280	315
Pipe – Pipe Sleeves							■			■			■		■
Jacket – 90° Bend							■			■			■		■
Jacket – 45° Elbow							■			■			■		■
Jacket – 30° Elbow Long Spigot							■			■			■		■
Jacket – 15° Elbow Long Spigot							■			■			■		■
Jacket – Tee 90° Equal							■			■			■		■
Jacket – Tee 90° Reduced							■			■			■		■
Jacket – Reducer							■			■			■		■
Jacket – Flange Connection							■			■			■		■
Jacket – Fix Point							■			■			■		■
Jacket – Branch Saddle (to d63)							■			■			■		■
Jacket – Electrofusion coupler							■			■			■		■
Jacket – Weld Bead Cover							■			■			■		■
Insert for pipe clamps							■			■			■		■
Sealing Tape							■			■			■		■
Metal Strap							■			■			■		■
Metal Closure							■			■			■		■

i For further information see www.gfps.com/heat-fit

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