

AGRU – Frank has become the first European manufacturer to achieve Factory Mutual (FM) Approval for High Density Polyethylene (PE100) pipes and fittings for underground fire protection service. The FM approval means that the pipes and fittings correspond to the highest requirements - ensuring consistent quality of the product range - achieved by means of a third party audit undertaken by FM.

PE100 piping is ideal for buried applications. It has exceptional ductility and will withstand very unfavourable ground conditions. It is also very easy to install using a simple butt fusion or electro-fusion welding technique.

Many industrial and automotive groups require FM approval for infrastructure piping systems within their factories. This need can now be satisfied with a comprehensive range of approved pipes and fittings. The FM approval has been issued for the dimension range 63mm to 400mm, and it includes a wide and diverse range of fittings. The system is approved for use at a service pressure of up to 12 bar.

IPS can supply the complete range of FM approved AGRU piping systems together with documentation, as well as welding equipment for butt or electro fusion jointing. Comprehensive welder training is readily available on request.

### PE100

### PN12

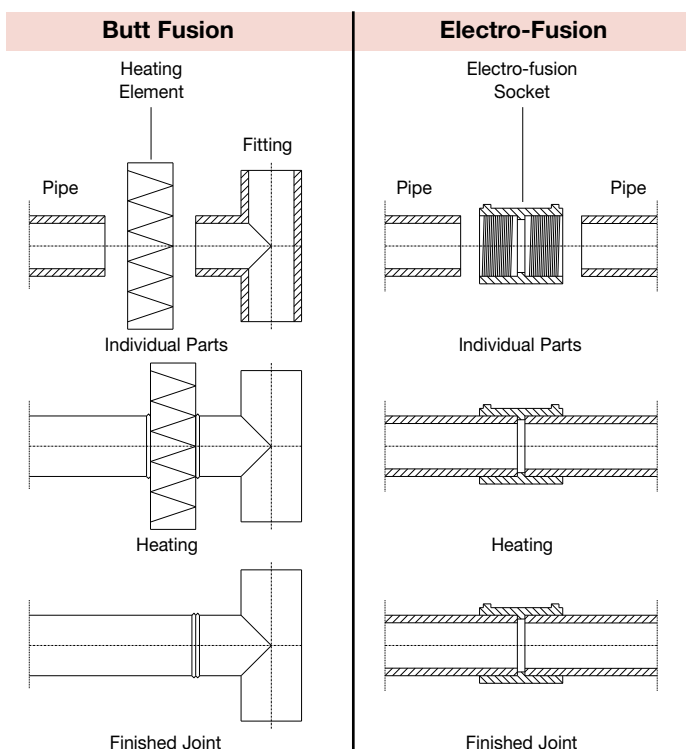
Size	Code	Price/m
63	25 705 0063 11FM	8.76
75	25 705 0075 11FM	12.20
90	25 705 0090 11FM	17.50
110	25 705 0110 11FM	26.11
125	25 705 0125 11FM	33.61
140	25 705 0140 11FM	42.07
160	25 705 0160 11FM	55.36
180	25 705 0180 11FM	69.60
200	25 705 0200 11FM	102.39
225	25 705 0225 11FM	108.52
250	25 705 0250 11FM	134.18
280	25 705 0280 11FM	167.48
315	25 705 0315 11FM	212.68
355	25 705 0355 11FM	269.72
400	25 705 0400 11FM	341.68

Standard lengths 6m and 12 m

Please note that a transportation surcharge may be applied on pipe diameters 250mm or larger - please enquire for details.

## Jointing FM Approved Polyethylene Systems

PE pipe to pipe and pipe to fitting joints are easy to make, using butt fusion or electrofusion welds.



Welding equipment is available for sale or hire - see Tools and Installation Equipment. Detailed installation instructions, as well as free training, is available on request.



## Electrofusion Coupling



Size	Code	Price
63	25 173 0063 11FM	12.54
75	25 173 0075 11FM	17.88
90	25 173 0090 11FM	23.84
110	25 173 0110 11FM	28.67
125	25 173 0125 11FM	40.29
140	25 173 0140 11FM	45.38
160	25 173 0160 11FM	55.56
180	25 173 0180 11FM	79.70
200	25 173 0200 11FM	94.14
225	25 173 0225 11FM	121.26
250	25 173 0250 11FM	178.70
280	25 173 0280 11FM	241.46
315	25 173 0315 11FM	291.28
355	25 173 0355 11FM	532.50
400	25 173 0400 11FM	667.70

## Electrofusion Tee 90°

Fusion Spigot Branch



Size	Code	Price
63	25 176 0063 11FM	29.79
75	25 176 0075 11FM	41.93
90	25 176 0090 11FM	53.11
110	25 176 0110 11FM	85.10
125	25 176 0125 11FM	107.16
160	25 176 0160 11FM	198.49
180	25 176 0180 11FM	on application
225	25 176 0225 11FM	541.32

## Electrofusion Elbow 90°



Size	Code	Price
63	25 171 0063 11FM	29.79
75	25 171 0075 11FM	42.64
90	25 171 0090 11FM	53.11
110	25 171 0110 11FM	85.10
125	25 171 0125 11FM	107.16
160	25 171 0160 11FM	198.49
180	25 171 0180 11FM	on application
225	25 171 0225 11FM	541.32

## Electrofusion Elbow 45°



Size	Code	Price
63	25 170 0063 11FM	29.79
75	25 170 0075 11FM	42.64
90	25 170 0090 11FM	53.11
110	25 170 0110 11FM	85.17
125	25 170 0125 11FM	107.16
160	25 170 0160 11FM	198.49
180	25 170 0180 11FM	357.30
225	25 170 0225 11FM	541.32

## Electrofusion Reducer



Size	Code	Price
90x63	25 177 9063 11FM	40.03
110x63	25 177 1163 11FM	65.25
110x90	25 177 1190 11FM	65.25
125x90	25 177 1290 11FM	on application
160x90	25 177 1690 11FM	113.78
160x110	25 177 1611 11FM	116.68
180x125	25 177 1812 11FM	on application
225x160	25 177 2216 11FM	264.83

## Electrofusion Cap



Size	Code	Price
63	25 174 0063 11FM	25.85
75	25 174 0075 11FM	40.88
90	25 174 0090 11FM	57.75
110	25 174 0110 11FM	74.11
125	25 174 0125 11FM	91.07
140	25 174 0140 11FM	119.53
160	25 174 0160 11FM	127.93
180	25 174 0180 11FM	167.98
200	25 174 0200 11FM	198.61
225	25 174 0225 11FM	234.12
250	25 174 0250 11FM	376.58
280	25 174 0280 11FM	517.41
315	25 174 0315 11FM	643.57

## Automatic Electrofusion Welding Machine

- Barcode or manual entry
  - Welding is fully monitored throughout
  - Illuminated display
  - Fault messages displayed plus warning signal
  - Memory records weld information
  - USB Port for data output
  - 110v (230v available on request)
- Available for sale or hire



# FM approved fusion spigot fittings

## Tee 90°



### PN12

Size	Code	Price
63	25 006 0063 11FM	12.11
75	25 006 0075 11FM	24.37
90	25 006 0090 11FM	36.39
110	25 006 0110 11FM	53.46
125	25 006 0125 11FM	73.59
140	25 006 0140 11FM	93.26
160	25 006 0160 11FM	156.89
180	25 006 0180 11FM	201.04
200	25 006 0200 11FM	288.21
225	25 006 0225 11FM	342.68
250	25 006 0250 11FM	435.97
280	25 006 0280 11FM	587.27
315	25 006 0315 11FM	837.33
355	25 006 0355 11FM	978.59
400	25 006 0400 11FM	1461.17

## Reducing Tee 90°



### PN12

Size	Code	Price
125x63	25 016 1263 11FM	71.10
125x90	25 016 1290 11FM	89.20
140x63	25 016 1463 11FM	90.66
140x90	25 016 1490 11FM	90.66
140x110	25 016 1411 11FM	150.42
160x125	25 016 1612 11FM	186.76
180x63	25 016 1863 11FM	186.76
180x110	25 016 1811 11FM	192.76
180x125	25 016 1812 11FM	325.20
225x125	25 016 2212 11FM	429.21
250x110	25 016 2511 11FM	438.07
250x160	25 016 2516 11FM	

## Tee 90°

Elongated



Size	Code	Price
63	25 066 0063 11FM	16.30
75	25 066 0075 11FM	27.08
90	25 066 0090 11FM	38.50
110	25 066 0110 11FM	56.34
125	25 066 0125 11FM	77.34
140	25 066 0140 11FM	124.29
160	25 066 0160 11FM	161.28
180	25 066 0180 11FM	211.64
200	25 066 0200 11FM	303.31
225	25 066 0225 11FM	360.31
250	25 066 0250 11FM	465.23
280	25 066 0280 11FM	695.70
315	25 066 0315 11FM	893.42

## Reducing Tee 90°

Elongated



Size	Code	Price
63x50	25 065 6350 11FM	17.02
90x63	25 065 9063 11FM	37.97
110x63	25 065 1163 11FM	56.31
110x90	25 065 1190 11FM	57.12
125x90	25 065 1290 11FM	78.33
125x110	25 065 1211 11FM	78.33
160x63	25 065 1663 11FM	153.98
160x90	25 065 1690 11FM	155.30
160x110	25 065 1611 11FM	159.21
180x90	25 065 1890 11FM	213.47
180x110	25 065 1811 11FM	208.37
180x160	25 065 1816 11FM	213.47
225x90	25 065 2290 11FM	360.89
225x110	25 065 2211 11FM	362.33
225x160	25 065 2216 11FM	363.63
225x180	25 065 2218 11FM	364.88
315x110	25 065 3111 11FM	982.76
315x160	25 065 3116 11FM	982.76
315x225	25 065 3122 11FM	1027.40
315x250	25 065 3125 11FM	1027.40



### Pressure Ratings

FM approved polyethylene fittings are suitable for use handling fluids at pressures up to 12 bar at 20°C.

# FM approved fusion spigot fittings

## Reducer

Concentric



### PN12

Size	Code	Price
90x63	25 009 9063 11FM	19.81
110x63	25 009 1163 11FM	25.17
110x90	25 009 1190 11FM	25.17
125x63	25 009 1263 11FM	32.35
125x90	25 009 1290 11FM	32.35
125x110	25 009 1211 11FM	32.35
140x90	25 009 1490 11FM	39.15
140x110	25 009 1411 11FM	39.15
140x125	25 009 1412 11FM	45.77
160x90	25 009 1690 11FM	45.77
160x110	25 009 1611 11FM	45.77
160x125	25 009 1612 11FM	45.77
160x140	25 009 1614 11FM	45.77
180x90	25 009 1890 11FM	71.87
180x110	25 009 1811 11FM	67.67
180x125	25 009 1812 11FM	62.40
180x140	25 009 1814 11FM	59.25
180x160	25 009 1816 11FM	56.52
225x140	25 009 2214 11FM	193.41
225x160	25 009 2216 11FM	166.02
225x180	25 009 2218 11FM	158.08
250x160	25 009 2516 11FM	221.64
250x180	25 009 2518 11FM	205.09
250x225	25 009 2522 11FM	178.94
280x200	25 009 2820 11FM	258.22
280x225	25 009 2822 11FM	240.75
280x250	25 009 2825 11FM	231.81
315x225	25 009 3122 11FM	278.69
315x250	25 009 3125 11FM	254.74

## Cap

Elongated



### PN12

Size	Code	Price
63	25 064 0063 11FM	12.08
75	25 064 0075 11FM	18.61
90	25 064 0090 11FM	28.39
110	25 064 0110 11FM	38.50
125	25 064 0125 11FM	41.60
140	25 064 0140 11FM	52.03
160	25 064 0160 11FM	58.30
180	25 064 0180 11FM	75.78
200	25 064 0200 11FM	94.86
225	25 064 0225 11FM	112.73
250	25 064 0250 11FM	168.88
280	25 064 0280 11FM	239.24
315	25 064 0315 11FM	322.56

## Cap

Short Spigot

Size	Code	Price
355	25 004 0355 11FM	239.90
400	25 004 0400 11FM	322.56

## Reducer

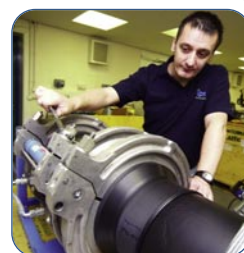
Concentric - Elongated



Size	Code	Price
90x63	25 067 9063 11FM	20.22
110x63	25 067 1163 11FM	27.21
110x90	25 067 1190 11FM	27.21
125x63	25 067 1263 11FM	32.67
125x90	25 067 1290 11FM	32.67
125x110	25 067 1211 11FM	32.72
140x125	25 067 1412 11FM	47.02
160x90	25 067 1690 11FM	62.77
160x110	25 067 1611 11FM	62.96
160x125	25 067 1612 11FM	62.96
160x140	25 067 1614 11FM	60.88
180x125	25 067 1812 11FM	81.59
180x160	25 067 1816 11FM	81.58
225x160	25 067 2216 11FM	143.83
250x160	25 067 2516 11FM	194.49
250x225	25 067 2522 11FM	203.44
280x250	25 067 2825 11FM	271.11
315x225	25 067 3122 11FM	348.82
315x250	25 067 3125 11FM	348.82

## Machine Hire

Don't have the tools?  
We have a dedicated fleet of  
welding equipment available to  
hire on a weekly basis.



# FM approved fusion spigot fittings

## Bend 90°



### PN12

Size	Code	Price
250	25 001 0250 11FM	322.00
280	25 001 0280 11FM	417.13
315	25 001 0315 11FM	577.96
355	25 001 0355 11FM	845.43
400	25 001 0400 11FM	1161.02

## Bend 60°

Elongated



### PN12

Size	Code	Price
90	25 398 0090 11FM	
110	25 398 0110 11FM	
125	25 398 0125 11FM	
140	25 398 0140 11FM	
160	25 398 0160 11FM	
180	25 398 0180 11FM	on application
200	25 398 0200 11FM	
225	25 398 0225 11FM	
250	25 398 0250 11FM	
280	25 398 0280 11FM	
315	25 398 0315 11FM	

## Multi-Bend 90°

Elongated



Size	Code	Price
63	25 068 0063 11FM	10.70
75	25 068 0075 11FM	14.73
90	25 068 0090 11FM	21.39
110	25 068 0110 11FM	40.70
125	25 068 0125 11FM	57.34
140	25 068 0140 11FM	76.69
160	25 068 0160 11FM	93.43
180	25 068 0180 11FM	110.64
200	25 068 0200 11FM	164.85
225	25 068 0225 11FM	196.61

## Bend 45°

Elongated



Size	Code	Price
90	25 397 0090 11FM	76.94
110	25 397 0110 11FM	146.44
125	25 397 0125 11FM	on application
140	25 397 0140 11FM	on application
160	25 397 0160 11FM	217.19
180	25 397 0180 11FM	262.53
200	25 397 0200 11FM	on application
225	25 397 0225 11FM	336.34
250	25 397 0250 11FM	526.07
280	25 397 0280 11FM	on application
315	25 397 0315 11FM	on application

## Elbow 90°

Elongated



Size	Code	Price
250	25 061 0250 11FM	340.97
280	25 061 0280 11FM	513.41
315	25 061 0315 11FM	644.21

## Bend 30°

Elongated



Size	Code	Price
90	25 396 0090 11FM	76.94
110	25 396 0110 11FM	146.44
125	25 396 0125 11FM	on application
140	25 396 0140 11FM	on application
160	25 396 0160 11FM	232.31
180	25 396 0180 11FM	262.53
200	25 396 0200 11FM	on application
225	25 396 0225 11FM	336.34
250	25 396 0250 11FM	511.31
280	25 396 0280 11FM	on application
315	25 396 0315 11FM	on application

## Elbow 45°

Elongated



Size	Code	Price
63	25 060 0063 11FM	17.71
75	25 060 0075 11FM	22.85
90	25 060 0090 11FM	27.57
110	25 060 0110 11FM	52.86
125	25 060 0125 11FM	65.29
140	25 060 0140 11FM	85.42
160	25 060 0160 11FM	98.75
180	25 060 0180 11FM	108.09
200	25 060 0200 11FM	147.74
225	25 060 0225 11FM	176.05
250	25 060 0250 11FM	340.97
280	25 060 0280 11FM	513.39
315	25 060 0315 11FM	644.21

## Bend 22°

Elongated



Size	Code	Price
90	25 395 0090 11FM	76.94
110	25 395 0110 11FM	146.44
125	25 395 0125 11FM	on application
140	25 395 0140 11FM	on application
160	25 395 0160 11FM	217.19
180	25 395 0180 11FM	262.53
200	25 395 0200 11FM	on application
225	25 395 0225 11FM	336.34
250	25 395 0250 11FM	526.07
280	25 395 0280 11FM	on application
315	25 395 0315 11FM	on application

## Bend 11°

Elongated



Size	Code	Price
90	25 394 0090 11FM	76.94
110	25 394 0110 11FM	146.44
125	25 394 0125 11FM	on application
140	25 394 0140 11FM	on application
160	25 394 0160 11FM	217.19
180	25 394 0180 11FM	262.53
200	25 394 0200 11FM	on application
225	25 394 0225 11FM	336.34
250	25 394 0250 11FM	526.07
280	25 394 0280 11FM	on application
315	25 394 0315 11FM	on application

# FM approved fusion spigot fittings

## Stub Flange



### PN12

Size	Code	Price
63	25 012 0063 11FM	7.09
75	25 012 0075 11FM	8.36
90	25 012 0090 11FM	11.99
110	25 012 0110 11FM	15.42
125	25 012 0125 11FM	18.61
140	25 012 0140 11FM	21.75
160	25 012 0160 11FM	27.41
180	25 012 0180 11FM	42.59
200	25 012 0200 11FM	46.87
225	25 012 0225 11FM	52.22
250	25 012 0250 11FM	79.25
280	25 012 0280 11FM	86.37
315	25 012 0315 11FM	102.03
355	25 012 0355 11FM	181.11
400	25 012 0400 11FM	356.79

## Backing Ring

Polypropylene with Steel Core



### PN10

Size	Code	Price
63	14 014 0063 11*	18.98
75	14 014 0075 11*	21.07
90	14 014 0090 11*	24.90
110	14 014 0110 11*	29.60
125	14 014 0125 11*	29.60
140	14 014 0140 11*	45.59
160	14 014 0160 11*	52.20
180	14 014 0180 11*	52.20
200	14 014 0200 11*	74.32
225	14 014 0225 11*	74.32
250	14 014 0250 11*	118.68
280	14 014 0280 11*	118.68
315	14 014 0315 11*	149.13
355	14 014 0355 11*	314.12
400	14 014 0400 11*	355.87

\*Black

## Stub Flange

Elongated



Size	Code	Price
63	25 062 0063 11FM	9.56
75	25 062 0075 11FM	12.41
90	25 062 0090 11FM	16.13
110	25 062 0110 11FM	20.59
125	25 062 0125 11FM	25.06
140	25 062 0140 11FM	32.33
160	25 062 0160 11FM	36.95
180	25 062 0180 11FM	56.93
200	25 062 0200 11FM	64.95
225	25 062 0225 11FM	69.94
250	25 062 0250 11FM	107.55
280	25 062 0280 11FM	162.37
315	25 062 0315 11FM	206.72

## Blind Flange

Polypropylene with steel insert



### PN10

Size	Code	Price
63	14 045 0063 11	75.86
75	14 045 0075 11	89.55
90	14 045 0090 11	97.74
110	14 045 0110 11	133.42
125	14 045 0125 11	133.42
140	14 045 0140 11	163.96
160	14 045 0160 11	206.85
180	14 045 0180 11	206.85
200	14 045 0200 11	229.94
225	14 045 0225 11	229.94
250	14 045 0250 11	300.83
280	14 045 0280 11	300.83
315	14 045 0315 11	438.73
355	14 045 0355 11	856.80
400	14 045 0400 11	982.34

## Stub Flange

To adapt to cast iron flanges



Size	Code	Price
63	25 912 0063 11FM	
90	25 912 0090 11FM	
110	25 912 0110 11FM	
125	25 912 0125 11FM	
140	25 912 0140 11FM	
160	25 912 0160 11FM	
180	25 912 0180 11FM	
225	25 912 0225 11FM	on application
250	25 912 0250 11FM	
280	25 912 0280 11FM	
315	25 912 0315 11FM	
355	25 912 0355 11FM	
400	25 912 0400 11FM	

## Backing Ring

Polypropylene with Steel Core



### PN16

Size	Code	Price
200	14 014 1200 11	114.86
225	14 014 1225 11	114.86
250	14 014 1250 11	168.28
280	14 014 1280 11	168.28
315	14 014 1315 11	213.32
355	14 014 1355 11	388.27
400	14 014 1400 11	429.10



### Connection to other materials

Connecting to metal pipe systems, particularly cast or ductile iron, requires care as the pipe diameters differ widely. We can advise on the selection of the correct flange components.