



Certificate of Compliance

This certificate is issued for the following:

Polyethylene (PE) Fittings for Underground Fire Protection Service
(see details on following pages)

Prepared for:

AGRU Kunststofftechnik GmbH
Ing Pesendorfer Str 31
Bad Hall, A-4540
Austria

Manufactured at:

AGRU Kunststofftechnik GmbH
Ing Pesendorfer Str 31
Bad Hall, A-4540
Austria

FM Approvals Class: 1613

Approval Identification: 0003058544

Approval Granted: June 28, 2017

Report Revised: July 21, 2017

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

A handwritten signature in black ink, appearing to read 'D. B. Fuller', written over a horizontal line.

David Fuller
VP - Manager of Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062 USA



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| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|--|--|----------------------------------|----------------|
| Spigot Fittings for electro socket and/or heated tool butt welding, PE 100, SDR 11 | | | |
| 90° Elbow long spigot (Multibend) | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225 | 15 (218) | a, b, c |
| 90° Elbow long spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315 | 15 (218) | a, b, c |
| 45° Elbow, long spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315 | 15 (218) | a, b, c |
| 90° Elbow, short spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500 | 15 (218) | a, b, c |
| Equal Tee, long spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400 | 15 (218) | a, b, c |
| Reducing Tee, long spigot | 63 x 50, 73 x 63 90 x (63, 75) 110 x (63, 75, 90) 125 x (75, 90, 110) 160 x (63, 75, 90, 110) 180 x (90, 110, 160) 200 x (63, 90, 110, 125, 160) 225 x (75, 90, 110, 160, 180) 250 x (75, 110, 160, 180, 200) 315 x (90, 110, 125, 160, 180, 200, 225, 250) 500 x 200 | 15 (218) | a, b, c |
| Equal Tee, short spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500 | 15 (218) | a, b, c |
| Reducing Tee, short spigot | 125 x 63 140 x (63, 75, 90, 110) 160 x 125 180 x (63, 75, 125), 225 x 125 250 x (110, 160) | 15 (218) | a, b, c |
| Stub Flange, long spigot (DIN Standard) | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 315, 355, 400 | 15 (218) | a, b, c |
| Stub Flange, short spigot, (DIN Standard) | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630 | 15 (218) | a, b, c |



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| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|--|---|----------------------------------|----------------|
| Stub Flange, short spigot, (ANSI Standard) | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630 | 15 (218) | a, b, c |
| Stub Flange, Special Dimensions | 110, 125, 180, 250 | 15 (218) | a, b, c, d |
| Backing Ring - DIN | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630 | 15 (218) | a, b |
| Backing Ring - ANSI | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630 | 15 (218) | a, b |
| Blind Flange | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500 | 15 (218) | a, b, c |
| Concentric Reducer, long spigot | 90 x 63 110 x (63,90) 125 x (63, 90,110) 140 x 125 160 x (90,110,125,140) 180 x (125,160) 200 x 160 225 x 160 250 x (160,225) 280 x 250 315 x (225,250) | 15 (218) | a, b, c |
| Concentric Reducer, short spigot | 75 x 63 90 x (63, 75) 110 x (63, 75, 90) 125 x (63, 75, 90, 110) 140 x (75, 90, 110, 125) 160 x (90, 110, 125,140) 180 x (90,110,125, 140, 160, 180) 200 x (140, 160, 180) 225 x (140, 160, 180, 200) 250 x (160,180, 200, 225) 280 x (200, 225, 250) 315 x (200, 225, 250, 280) 355 x (200, 225, 250, 280, 315) 400 x (225, 250, 315, 355) 450 x (400, 355, 315) 500 x (280, 315, 355, 400, 450) 560 x (225, 500) 630 x (315, 400, 450, 500, 560) | 15 (218) | a, b, c |



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| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|---|---|----------------------------------|----------------|
| End Cap, long spigot | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400 | 15 (218) | a, b, c |
| End Cap, short spigot | 450, 500, 560, 630 | 15 (218) | a, b, c |
| Spigot Fittings for electro socket and/or heated tool butt welding, PE 100, SDR 9 | | | |
| 90° Elbow Long Spigot Segmented | 140, 250, 280, 315, 355, 400, 450, 500 | 17.5 (250) | a, b |
| 90° Elbow Long Spigot, molded, SDR7.4 with ends machined to SDR9 | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| 45° Elbow, long spigot Segmented | 140, 250, 280, 315, 355, 400, 450, 500 | 17.5 (250) | a, b, c |
| Equal Tee, long spigot, Socket Weld, SDR7.4 with ends machined to SDR9 | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| Equal Tee, long spigot, Butt Fusion, SDR7.4 with ends machined to SDR9 | 250, 280, 315, 355, 400, 450, 500, 560, 630 | 17.5 (250) | a, b, c |
| Reducing Tee, short spigot, machined- welded | 90 x (63, 75) 110 x (63, 75, 90) 125 x (63, 75, 90) 140 x (75, 90, 110, 125) 160 x (63, 75, 90, 110, 125) 180 x (63, 75, 90, 110, 125) 200 x (63, 75, 90, 110, 125, 140, 160) 225 x (63, 75, 90, 110, 125, 140) 250 x (63, 75, 90, 110, 125, 140, 160, 180) 280 x (63, 75, 90, 110, 125, 140, 160, 180, 200) 315 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225) 355 x (63, 75, 90, 110, 140, 160, 180, 200, 225, 250) 400 x (63, 75, 90, 110, 160, 180, 200, 225, 250, 280, 315) 450 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280) 500 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280) 560 x (140, 160, 180, 225, 250, 315) 630 x (140, 160, 180, 225, 250, 315) | 17.5 (250) | a, b, c |



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| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|---|---|----------------------------------|----------------|
| Stub Flange, long spigot – DIN, SDR7.4 with ends machined to SDR9 | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| Stub Flange, short spigot, (DIN Standard) | 140, 180, 250, 280, 315, 355, 400, 450, 500 | 17.5 (250) | a, b, c |
| Stub Flange, short spigot - ANSI | 63, 75, 90, 110, 160, 180, 200, 225, 250, 315, 355, 400, 450, 500 | 17.5 (250) | a, b, c, d |
| Backing Ring – DIN, PP-FRP Encased | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500, 560, 630 | 17.5 (250) | a, b, c |
| Backing Ring – ANSI, PP-FRP Encased | 63, 75, 90, 110/125, 160, 200/225, 250/280, 315 | 17.5 (250) | a, b, c |
| Backing Ring – ANSI, Galvanized Steel | 355, 400, 450, 500, 560, 630 | 17.5 (250) | a, b, c |
| Blind Flange, DIN PP-FRP Encased | 63, 90, 110/125, 140, 160/180, 200/225, 250/280, 315, 355, 400 | 17.5 (250) | a, b, c |
| Blind Flange, DIN, Galvanized Steel | 450/500 | 17.5 (250) | a, b, c |
| Blind Flange, ANSI, PP-FRP Encased | 63, 75, 90, 110/125, 160, 200/225, 250, 315 | 17.5 (250) | a, b, c |
| Blind Flange, ANSI, Galvanized Steel | 355, 400, 450, 500 | 17.5 (250) | a, b, c |
| Concentric Reducer, short spigot | 75 x (63) 90 x (63, 75) 110 x (50, 63, 75, 90) 125 x (63, 75, 90, 110) 140 x (75, 90, 110, 125) 160 x (90, 110, 125, 140) 180 x (90, 110, 125, 140, 160) 200 x (140, 160, 180) 225 x (140, 160, 180, 200) 250 x (160, 180, 200, 225) 280 x (160, 180, 200, 225, 250) 315 x (160, 180, 200, 225, 250, 280) 355 x (180, 200, 225, 250, 280, 315) 400 x (180, 225, 250, 315, 355) 450 x (225, 250, 280, 315, 355, 400) 500 x (315, 355, 400, 450) 560 x (315, 355, 400, 450) | 17.5 (250) | a, b, c |





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| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|---|--|----------------------------------|----------------|
| | 630 x (355, 400, 450, 500, 560) | | |
| Concentric Reducer, Long Spigot, Butt Fusion, SDR7.4 with ends machined to SDR9 | 110 x (63, 90) 125 x (63, 90, 110) 160 x (90, 125) 200 x 160 225 x 160 250 x (160, 225) | 17.5 (250) | a, b, c |
| End Cap, short spigot | 250, 280, 315, 355, 400, 450, 500 | 17.5 (250) | a, b, c |
| End Cap, long spigot, SDR7.4 with ends machined to SDR9 | 63, 75, 90, 110, 125, 160, 200, 225 | 17.5 (250) | a, b, c |

Remarks:

- a. Dimensions refer to the pipe outside diameter. Pipe and fittings are directly connected by the butt fusion process.
- b. The manufacturer's fusion welding instructions must be strictly adhered to for a proper joint. The fittings may also be joined to other FM Approved flanged fittings with the above flange adapters.
- c. The fittings are manufactured of injection molded PE100.
- d. The fittings are Approved when used with an EPDM Gasket supplied by AGRU Kunststofftechnik.

| Product Designation | O.D., Pipe Size, mm | Pressure Rating Bar (psi) | Remarks |
|--|--|----------------------------------|----------------|
| | | | |
| Fittings, Electro-socket, PE 100 | | | |
| 90° Elbow | 63, 75, 90, 110, 125, 160, 180, 225 | 15 (218) | a, b, c |
| 45° Elbow | 63, 75, 90, 110, 125, 160, 180, 225 | 15 (218) | a, b, c |
| Equal Tee | 63, 75, 90, 110, 125, 160, 180, 225 | 15 (218) | a, b, c |
| Spigot Saddle, bottom part screwable, molded | 90 x 63 110 x 63 125 x 63 140 x 63 160 x (63, 90, 110) 180 x (63, 90, 110) 225 x (63, 90, 110) | 15 (218) | a, b, c |





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| <i>Product Designation</i> | <i>O.D., Pipe Size, mm</i> | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|-------------------------------|--|----------------------------------|----------------|
| | 250 x (63, 75, 90, 110) 280 x (63, 90, 110) 315 x (63, 90, 110) 355 x (63, 90, 110) | | |
| Spigot Saddle System, Topload | 355 x (90, 110, 125) 400 x (90, 110, 125) 450 x (90, 110, 125) 500 x (90, 110, 125) 560 x (90, 110, 125) 630 x (90, 110, 125) | 15 (218) | a, b, c |
| Concentric Reducer | 75 x 63 90 x 63 110 x (63, 90) 125 x 90 160 x (90, 110) 180 x 125 225 x 160 | 15 (218) | a, b, c |
| Equal Coupling | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500, 560, 630 | 15 (218) | a, b, c |
| End Cap | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315 | 15 (218) | a, b, c |
| 90° Elbow | 63, 75, 90, 110, 125, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| 45° Elbow | 63, 75, 90, 110, 125, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| Equal Tee | 63, 90, 110, 125, 140, 160, 180, 200, 225 | 17.5 (250) | a, b, c |
| Spigot Saddle System, Topload | 355 x (90, 110, 125) 400 x (90, 110, 125) 450 x (90, 110, 125) 500 x (90, 110, 125) 560 x (90, 110, 125) 630 x (90, 110, 125) | 17.5 (250) | a, b, c |
| Concentric Reducer | 75 x 63 90 x 63 110 x (63, 90) 125 x (90, 110) | 17.5 (250) | a, b, c |



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| <i>Product Designation</i> | <i>O.D., Pipe Size, mm</i> | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|----------------------------|--|----------------------------------|----------------|
| | 160 x (90, 110) 180 x 125 225 x 160 | | |
| Equal Coupling | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500 | 17.5 (250) | a, b, c |
| Equal Coupling | 2, 3, 4, 5, 8, 10, 12 inch | 17.5 (250) | a, b, c |
| End Cap | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315 | 17.5 (250) | a, b, c |

Remarks:

- a. Dimensions refer to the pipe outside diameter. The pipe fits into a socket in the fitting, and when electrical current is applied to the terminal, which is integral with the fitting, the joint is completed.*
- b. The manufacturer's electro-fusion welding instructions must be strictly adhered to for a proper joint.*
- c. The fittings are manufactured of injection molded PE100.*



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