





Issued

2017-04-15

Replaces

K7347/07

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Flexible metallic pipes

STATEMENT BY KIWA

With this product certificate, issued in accordance with the Kiwa Regulations for Product Certification, Kiwa declares that legitimate confidence exists that the products supplied by

Brugg Rohrsysteme GmbH

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-K780/04 "Flexible metallic pipes" dated 2003-01-15 inclusive amendment sheets dated 2010-10-01 and 2015-09-01.

Stry

Luc Leroy Kiwa

Publication of this certificate is allowed.

Advice: consult www.kiwa.nl in order to ensure that this certificate is still valid.

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Certification process consists of initial and regular assessment of:

- quality system
- product

Product certificate

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Flexible metallic pipes

TECHNICAL SPECIFICATION

General: Flexible Metallic Pipes for the transport of flammable and chemical fluids, in accordance with evaluation guideline BRL-K780/04 "Flexible Metallic Pipes" dated 2003-01-15

Additional specification for flexible single walled metallic pipes: Type Petrex CNT consists of stainless steel internal pipe with a PE cover.

Pressure range for underground application: -0.7 bar / +4 bar. Pressure range for above ground application: -0.7 bar / +2 bar.

Temperature range: limited to 60 C.

Diameters: Petrex CNT 22/31, Petrex CNT 30/39, Petrex CNT 48/60, Petrex CNT 60/71 and Petrex CNT 98/120.

Additional specification for flexible double walled metallic pipes: Type FSR consists of a stainless steel internal pipe and a secondary stainless steel pipe with a PE cover.

Pressure range for underground and above ground application: -0.7 bar (vacuum) / maximum pressure is indicated on the pipe.

Temperature range: -20 C / +60 C.

Diameters: FSR 13/25, FSR 30/48, FSR 39/60, FSR 48/71, FSR 60/83, FSR 75/107, FSR 83/120, FSR 98/134 en FSR 127/175.

Additional specification for flexible single walled metallic pipes for LPG transport: Type LPG consists of a stainless steel internal pipe with a wrapped steel band and a PE cover.

Pressure range for underground and above ground application: -0.7 bar (vacuum) / +25 bar.

Temperature range: -50 C / + 60 C.

Diameters: LPG 22/33, LPG 30/40, LPG 39/50, LPG 48/61 and LPG 60/74.

Additional specification for flexible double walled pipes, with a stainless steel internal pipe and a PE external pipe: Type: SECON-

X consists of a stainless steel internal pipe and a PE external pipe.

Pressure range for underground application: -0.7 bar (vacuum) / +3.5 bar

Temperature range: -20 C / +60 C.

Diameters: SEC 30/44, SEC 48/63, SEC 60/75 en SEC 98/120,

Connections, fittings etc.: The relevant connections, fittings etc. are detailed in the attachment of this product certificate. This is a overview of the connections which belong to the above mentioned types of pipes. See previously issued product certificates for connections etc. which belong to types of pipes (for example copper pipes) which are not in production anymore.

APPLICATION AND USE

The products are suitable for application for the transport of flammable fuels type K1, K2 and K3, compressed gasses (potentially in liquid form) like LPG, and all other liquids from which the suitability of the internal pipe is declared by the producer.

MARKING

The products are marked with the Kiwa-mark, Method of marking: non erasable "Kiwa" "KK",

Location of the marking: On the outside of the pipe and on the main body of the connection.

Compulsory information:

Pipe: Diameter, type, name of manufacturer and maximum pressure.

Connection: Diameter and type...

RECOMMENDATIONS FOR CUSTOMERS

Check at the time of delivery whether:

- · the supplier has delivered in accordance with the agreement;
- the mark and the marking method are correct;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:

Supplier

and, if necessary.

the mark and the marking method are correct; Kiwa Nederland B.V.

Consult the supplier's processing guidelines for the proper storage and transport methods.

Product certificate

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Flexible metallic pipes



Standard-connection + St 1325 with cutting ring.	Arb. Page number:	Description:
Att: 282 35.05 0 Standard-connection FSR 1325 GHAPA; Att 023 30.01 FSR 4,21105.12 Att. 282 35.01		
Att. 88 35.05 il. 80 35.05 il.		Art.: 829.350.50
Att. 1923;55:19.1; (2013)55:81; (2013)55:81; (2013)56:91;	FSR 4,202/05,12:	
FSR 4.21105.12 Standard-connection (1.4404 or 1.4571) with shared loose sited flarge, welded (TG weldingshard soldering); Att. 989 355.15, 189.355.51; 89.355.51;	FSR 4.211/05.12:	
## 1920.55.51; 283.95.6.11; 283.95.6.11; 283.95.75; 282.95.61; 283.95.91; 283.95.00; 282.95.05.15 ## 1920.51.2	FSR 4.211/05.12:	Standard-connection (1.4404 or 14571) with shared loose steel flange, welded (TIG welding/hard
Ant. 289.346.91; 829.346.91; 829.347.91; 829.347.91. Shandard-connection (1.439.93 with shared loses teel flarings, veiced (T.G. weldingshard soldering); Art. 829.346.51; 829.347.02; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.347.51; 829.348.63; 829.349.63; 829.347.51; 829.348.63; 829.349.63; 829.347.51; 829.348.63; 829.349.63; 82		Art.: 829.355,51; 829.356,51; 829.354,50; 829.357,51; 829.358,51; 829.359,51; 829.360,02; 829.360,51.
FSR 4.21705.12. Sinnaturd connection (1.4539) with shared loose steel flamps, veleted (TIG wetdingshard soldering).	FSR 4.211/05.12:	
Standard - Connection (1.4404 of 1.4571) with shared loose flange (steel), welded (TIG welding/hard soldering); Art. 829.385.58, 829.380.00.	FSR 4.211/05.12:	Standard-connection (1.4539) with shared loose steel flange, welded (TIG welding/hard soldering);
Art. 829.384.58, 829.380.05, Standard-connection (1.4440) with shared loase flange (steet), welded (TIG weldinghrard soldering); Art. 829.354.58, 829.380.06, Standard-connection (1.4440 or 1.4571) with loase flange (steet) for leakdetection, part 1, welded (TIG weldinghrard soldering); Art. 829.481.96, 829.482.05, 829.483.95, 829.484.95, 829.485.05, 829.486.05, 829.486.95, 829.486.05, 829.486.95, 829.486.95, 829.486.95, 829.486.95, 829.486.95, 829.486.05, 829.486.95, 829.486.95, 829.486.95, 829.486.95, 829.486.05, 829.486.05, 829.486.95, 829.486.95, 829.486.95, 829.486.05, 829.486.05, 829.486.95,	FSR 4.212/05 12:	Standard-connection (1.4404 of 1.4571) with shared loose flange (steel), welded (TIG welding/hard
Art. 829,368,54,829,360,06 Standard-connection (1,4440 or 1,4571) with loose flange (steel) for leakdetaction, part 1, welded (TIG wolding/hard solidering). Art. 828,481,96,829,482,95,829,483,95,829,484,95,829,485,05,829,485,95,829,486,95,829,486,95. FSR 4,216/05,12: Standard-connection (1,444,0 or 1,4571) with shared loose flange (steel) for leakdetection, part 1, welded (TIG welding/hard solidering): Art. 828,481,88,829,482,95,829,483,86,829,484,94,829,482,945,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,94,829,486,96,829,489,97,829,484,97. FSR 4,216/05,12: Standard-connection (1,459) with loose flange (steel) for leakdetection, part 1, welded (TIG welding/hard solidering): Art. 829,481,98,829,482,97,829,483,96,829,484,97. FSR 4,217/05,12: Standard-connection (1,4404 or 1,4571) with loose flange (steel) for leakdetection, part 2, welded (TIG welding/hard solidering): Art. 829,481,98,829,482,96,829,483,96,829,484,96,829,485,06,829,486,96,829,486,06,829,486,96. FSR 4,217/05,12: Standard-connection (1,4404 or 1,4571) with loose flange (steel) for leakdetection, part 2, welded (TIG welding/hard solidering): Art. 829,481,98,829,482,96,829,483,96,829,484,96,829,485,06,829,485,86,98,2486,96,829,486,06,829,486,96		
Standard-connection (1.4440 or 1.4571) with loose flange (steel) for leakdotection, part 1, welded (TIG welding/hard soldering); Art. 829.481.96; 829.482.95; 829.484.95; 829.484.95; 829.485.06; 829.485.06; 829.486.05;	FSR 4.212/05.12:	
Art. 829 481 98, 829 482 95, 829 483 98, 829 484 95, 829 485 95, 829 485 95, 829 485 95, 829 486 95, 829 486 95, 829 485 95, 8	FSR 4.216/05.12:	Standard-connection (1.4440 or 1.4571) with loose flange (steel) for leakdetection, part 1, welded (TIG
(TIG welding/hard soldering); Art. 829.481.94, 829.482.94, 829.483.84; 829.485.04; 829.485.04; 829.486.04; 829.486.94 Standard-connection (1,4539) with loose flange (steel) for leakdetection, part 1, welded (TIG welding/hard soldering); Art. 829.481.97; 829.482.97; 829.483.97; 829.		
Art. 628.481.84, 829.482.84; 829.483.84; 829.485.04; 829.485.04; 829.485.84; 829.485.04; 829.486.04; 829.486.84; 829.485.04; 829.486.84; 829.485.04; 829.486.84; 829.485.04; 829.486.84; 829.485.04; 829.486.84; 829.485.84; 829.485.04; 829.485.84; 829.485.04; 829.485.84; 829.485.04; 829.485.84; 829.485.04; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.84; 829.485.86; 8	FSR 4.216/05.12:	
Soldering); Art.: 829 481.97; 829.482.97; 829.483.97; 829.483.97. FSR 4.216/05.12: Standard-connection (1.45.39) with shared loose flange (steel) for leakdetection, part 1, welded (TIG welding/hard soldering); Art.: 829.481.88; 829.482.98; 829.482.98; 829.484.88. Standard-connection (1.4404 or 1.4571) with loose flange (steel) for leakdetection, part 2, welded (TIG welding/hard soldering); Art.: 829.481.96; 829.482.96; 829.483.96; 829.484.96; 829.485.06; 829.485.96; 829.486.06; 829.486.96. FSR 4.217/05.12: Standard-connection (1.4404 or 1.4571) with shared loose flange (steel) for leakdetection, part 2, welded (TIG welding/hard soldering); Art.: 829.481.95; 829.482.96; 829.483.96; 829.488.96; 829.485.07; 829.485.96; 829.486.07; 829.486.07;	ESD 4 016/05 10:	Art.: 829.481,84; 829.482,84; 829.483.84; 829.484.84; 829.485,04; 829.485,84; 829.486,04; 829.486,84.
Standard-connection (1,4539) with shared loose flange (steel) for leak/detection, part 1, welded (TIG welding/hard soldering); Art. 829, 481, 88; 829, 482, 88; 829, 488, 88, 829, 484, 88, 829, 484, 88, 829, 481, 88, 829, 481, 88; 829, 482, 88, 829, 483, 88, 829, 484, 88, 829, 483, 96; 829, 485, 96; 829, 486, 96; 829, 489, 489; 829, 488, 89; 829, 488, 89; 829, 488, 89; 829, 488, 89; 829, 488, 89; 829, 488, 89; 829, 488, 89; 829, 489, 89; 829, 489, 89; 829, 489; 829, 489, 89; 829, 489; 829, 489, 89; 829, 489, 89; 829, 489; 489; 489; 489; 489; 489; 489; 489;	13114.210/03.12.	soldering);
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Standard-connection with welding and (1 4404 or 1.4571), welded (TIG welding/hard soldering); Art. 829.355.96, 829.359.96, 829.359.96, 829.359.56, 829.359.56, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.96, 829.359.97, 829.347.61. Standard-connection with welding and (1.4539), welded (TIG welding/hard soldering); Art. 829.355.597, 829.356.97, 829.357.97; 829.358.97. Standard-connection with thread (1.4404/ or 1.4571), welded (TIG welding/hard soldering); Art. 829.355.97, 829.356.97, 829.357.97; 829.358.97. Standard-connection with thread (1.4599), welded (TIG welding/hard soldering); Art. 829.345.41, 829.346.41, 829.347.40, 829.347.41. Standard-connection GRAPA with welding and (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art. 829.355.72, 829.356.72, 829.357.72, 829.358.72, 829.358.55, 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with hiread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art. 829.355.73, 829.356.73, 829.357.73, 829.358.73, 829.358.57, 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art. 829.355.75, 829.356.75, 829.357.75, 829.358.75, 829.358.60, 829.360.10, 829.360.12. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art. 829.355.76, 829.356.76, 829.357.76, 829.358.76, 829.358.95, 829.358.62, 829.360.11, 829.360.13. FSR 4.231/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art. 829.355.98, 829.356.98, 829.357.98, 829.358.99. FSR 4.231/05.12: Standard-connection GRAPA with hiread (1.4404/1.4301), pressed- screw connection; Art. 829.355.98, 829.355.98, 829.357.98, 829.358.99. FSR 4.231/05.12: Standard-connection GRAPA with hiread (1.4404/1.4301), pressed- screw		
FSR 4.219/05.12: Standard-connection with welding end (1.4539), welded (TIG welding/hard soldering); FSR 4.221/05.12: Standard-connection with thread (1.4404 or 1.4571), welded (TIG welding/hard soldering); FSR 4.221/05.12: Standard-connection with thread (1.4404 or 1.4571), welded (TIG welding/hard soldering); Art.: 829.355.97; 829.356.97; 829.357.97; 829.358.97. FSR 4.222/05.12: Standard-connection With thread (1.4539), welded (TIG welding/hard soldering); Art.: 829.345.41; 829.345.41; 829.347.40; 829.347.41. FSR 4.222/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.72; 829.356.72; 829.357.72; 829.358.72; 829.358.55; 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.75; 829.356.75; 829.357.75; 829.358.75; 829.358.60; 829.360.10; 829.360.12. FSR 4.231/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.357.76; 829.358.92. S89.89.89.360.11; 829.360.11; 829.360.13. <t< td=""><td>FSR 4.219/05.12:</td><td>Standard-connection with welding end (1.4404 or 1.4571), welded (TIG welding/hard soldering);</td></t<>	FSR 4.219/05.12:	Standard-connection with welding end (1.4404 or 1.4571), welded (TIG welding/hard soldering);
FSR 4.221/05.12: Standard-connection with thread (1.4404 or 1.4571), welded (TIG welding/hard soldering): Art.: 829.355.97; 829.355.97; 829.357.97; 829.358.97. FSR 4.221/05.12: Standard-connection with thread (1.4539), welded (TIG welding/hard soldering); Art.: 829.345.41; 829.346.41; 829.347.40; 829.347.41. FSR 4.222/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.72; 829.356.72; 829.357.72; 829.358.72; 829.358.55; 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.73; 829.356.73; 829.357.73; 829.358.73; 829.358.56; 829.360.08. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.350.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.75; 829.357.75; 829.358.75; 829.358.60; 829.358.60; 829.360.10; 829.360.12. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.357.76; 829.358.76; 829.358.59; 829.358.62; 829.358.60; 829.360.11; 829.360.13. FSR 4.231/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed-screw connection; Art.: 829.355.99; 829.356.99; 829.356.99; 829.358.995.	FSR 4.219/05.12:	Standard-connection with welding end (1.4539), welded (TIG welding/hard soldering);
FSR 4.221/05.12: Standard-connection with thread (1.4539), welded (TIG welding/hard soldering); Art.: 829.345.41; 829.346.41; 829.347.40; 829.347.41. FSR 4.222/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.72; 829.356.72; 829.357.72; 829.358.72; 829.358.55; 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.73; 829.356.73; 829.357.73; 829.358.73; 829.358.56; 829.360.08. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.77; 829.358.57; 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.75; 829.356.75; 829.357.76; 829.358.59; 829.358.60; 829.360.10; 829.360.12, 829.356.76; 829.355.76; 829.357.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.355.98; 829.355.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.356.98; 829.357.79; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed-screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.232/05.12: Standard-connection GRAPA with NPT threa	FSR 4.221/05.12:	
Art.: 829.345.41; 829.346.41; 829.347.40; 829.347.41. FSR 4.222/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.72; 829.356.72; 829.358.72; 829.358.55; 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.73; 829.356.73; 829.357.73; 829.358.73; 829.358.66; 829.360.08. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.75; 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.75; 829.358.75; 829.358.58; 829.358.60; 829.360.10; 829.360.12, FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.358.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13, FSR 4.231/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.95; 829.356.98; 829.357.99; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.358.95.	FSR 4.221/05.12:	
hardsoldered; Art.: 829.355.72; 829.356.72; 829.358.72; 829.358.55; 829.360.07. FSR 4.223/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.73; 829.356.73; 829.357.73; 829.358.73; 829.358.56; 829.360.08. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.75; 829.356.75; 829.357.75; 829.358.75; 829.358.60; 829.358.60; 829.360.10; 829.360.12. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.357.75; 829.358.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.: 829.355.92; 829.356.98; 829.357.92; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.232/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.232/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98.		Art.: 829,345,41; 829,346,41; 829,347,40; 829,347,41.
FSR 4.223/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; FSR 4.223/05.12: Art.: 829.355.73; 829.356.73; 829.357.73; 829.358.73; 829.358.56; 829.360.08. FSR 4.224/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; FSR 4.230/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; FSR 4.231/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed- screw connection; FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed- screw connection; FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed- screw connection; FSR 4.232/05.12: Standard-connection GRAPA with hVT thread (1.4404/1.4301), pressed- screw connection; FSR 4.232/05.12: Standard-connection GRAPA with hVT thread (1.4404/1.4301), pressed- screw connection; FSR 4.232/05.12: <td< td=""><td>1 311 4.22203 12.</td><td>hardsoldered;</td></td<>	1 311 4.22203 12.	hardsoldered;
Art.: 829,355.73; 829,356.73; 829.357.73; 829.358.73; 829.358.56; 829,360.08. FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered;	FSR 4.223/05.12:	
FSR 4.223/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed connection/external pipe hardsoldered; Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.360.09. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.: 829.355.76; 829.356.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.355.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.		
Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.360.09. Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.75; 829.356.75; 829.358.75; 829.358.58; 829.358.60; 829.360.10; 829.360.12. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.357.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.: 829.355.92; 829.356.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.	FSR 4.223/05-12:	Standard-connection GRAPA with NPT thread (1,4404/1,4301), pressed connection/external pipe
hardsoldered; Art.: 829.355.75; 829.356.75; 829.357.75; 829.358.75; 829.358.58; 829.358.60; 829.360.10; 829.360.12. FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.358.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.: 829.355.92; 829.356.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with hread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.		Art.: 829.355.74; 829.356.74; 829.357.74; 829.358.74; 829.358.57; 829.360.09.
FSR 4.224/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose stainless steel flange, pressed connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.358.76; 829.358.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.:829.355.92; 829.355.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.355.95; 829.357.95; 829.358.95.	FSR 4.224/05.12:	
connection/external pipe hardsoldered; Art.: 829.355.76; 829.356.76; 829.357.76; 829.358.76; 829.358.59; 829.358.62; 829.360.11; 829.360.13. FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.:829.355.92; 829.356.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.	ESR 4 224/05.12	
FSR 4.230/05.12: Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection; Art.:829.355.92; 829.356.92; 829.357.92; 829.358.92. FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.	TOTT TELEVISION TOTAL	connection/external pipe hardsoldered;
FSR 4.231/05.12: Standard-connection GRAPA with thread (1.4404/1.4301), pressed- screw connection; Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.	FSR 4.230/05.12:	Standard-connection GRAPA with welding end (1.4404/1.4301), pressed- screw connection;
Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98. FSR 4.231/05.12: Standard-connection GRAPA with NPT thread (1.4404/1.4301), pressed- screw connection; Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.	FSR 4.231/05.12:	
Art.: 829.365.98; 829.366.98; 829.367.98; 829.368.98. FSR 4.232/05.12: Standard-connection GRAPA (1.4404/1.4301) with loose steel flange, pressed- screw connection; Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.		Art.: 829.355.98; 829.356.98; 829.357.98; 829.358.98.
Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.		Art.: 829,365,98; 829,366,98; 829,367,98; 829,368,98.
FSR 4.232/05.12: Standard-connection GRAPA (1.4404 or 1.4571/1.4301) with loose stainless steel flange, pressed-screw		Art.: 829.355.95; 829.356.95; 829.357.95; 829.358.95.
	FSR 4.232/05.12:	Standard-connection GRAPA (1.4404 or 1.4571/1.4301) with loose stainless steel flange, pressed-screw

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Flexible metallic pipes

	connection;
FSR 4.401/05.12;	Art.: 829.355.85; 829,356.85; 829,357.85; 829,358.85. Standard-through connection with flange connection for leakdetection, welded (TIG welding/hard
. S. C. II TO II OV. II.	soldering); Art.: 829.491.91; 829.492.91; 829.493.91; 829.494.91; 829.495.51; 829.495.91; 829.496.51; 829.496.91.
FSR 4.403/05,12:	Standard-through connection with smooth internal and external pipe, welded (TIG welding/hard soldering); Art.: 829,350.49
FSR 4,404/05.12:	Standard-through connection, welded (TIG welding/hard soldering);
FSR 4,405/05,12:	Art.; 829,403.90; 829,404.90; 829,405.50; 829,405.90; 829,406.50; 829,406.90; 829,407.50; 829,407.90. Standard-through connection GRAPA, pressed-screw connection; Art.; 829,355,77; 829,356.77; 829,357,77; 829,358.77.
FSR 4.406/05.12:	Standard-through connection GRAPA, cutting ring connections / graphite gasket; Art.: 829.350.53.
FSR 4,410/05.12:	Standard-curve with flange connection for leakdetection; Art.: 829.461.91; 829.462.91; 829.463.91 (+ DN); 829.465.91(+ DN); 829.466.91.
FSR 4,413/05.12:	Standard-curve, welded (TIG welding/hard soldering); Art.: 829.461.96; 829.462.96; 829.463.96; 829.464.96; 829.465.56; 829.465.96; 829.466.56; 829.466.96.
FSR 4,420/05.12:	Standard-T-joint with flange connection for leakdetection; Art.: 829,471,91; 829,472.91; 829,473.91 (+ DN); 829,475.91 (+ DN); 829,476.91.
FSR 4.421/05.12:	Welding neck flange for leakdetection;
FSR 4.433/05.12;	Art.: 829.491.96; 829.492.96; 829.494.96 (+ DN); 829.495.96 (+ DN); 829.496.96. Standard-T-joint welded (TIG welding/hard soldering);
	Art.: 829.471.96; 829.472.96; 829.473.96; 829.474.96; 829.475.66; 829.475.96; 829.476.56; 829.476.96.
LPG 5.201/11.12:	Mechanical connection with graphite gasket and carbon steel welding end; Art.: 711.011.54; 711.012.54; 711.013.54; 711.014.54; 711.015.54
LPG 5.201/11,12:	Mechanical connection with graphite gasket and stainless steel welding end; Art.: 711.011.55; 711.012.55; 711.013.55; 711.014.55; 711.015.55.
LPG 5.211/11.12:	Mechanical connection with graphite gasket and NPT thread; Art.: 711.011.94; 711.012.94; 711.012.95; 711.013.94; 711.013.95; 711.014.94; 711.015.94.
LPG 5,221/11.12:	Mechanical connection with graphite gasket and shared flange in accordance with ANSI B 16.5; Art.: 711,011.31; 711,012.31; 711,013.31.
LPG 5.221/11.12:	Mechanical connection with graphite gasket and shared flange in accordance with EN 1092-1; Art.: 711.011.32; 711.012.32; 711.013.32; 711.014.32; 711.015.32
LPG 5,401/11,12:	Mechanical connection screwed with graphite gasket; Art.: 711.012.00; 711.013.00; 711.014.00; 711.015.00; 711.016.00.
SECON - X SEC 5 _* 01.15/12.14:	Connection with profile and O-ring gasket, screwed;
SECON - X SEC 5.01,16/02.05:	Art.: 701.102.04; 701.102.03; 701.103.06; 701.104.14; 701.105.14. Connection with loose flange;
SECON - X SEC 5,01.16/02,05:	Art.: 701.103.02; 701.104.02 Connection with shared loose flange;
SECON - X SEC 5.01.17/02.05:	Art.: 701,103, 03; 701.104.03. Connection with BSP thread;
SECON - X SEC 5.01.17/02.05:	Art.: 701.103.01; 701.104.01, Connection with welding end;
SECON - X SEC 5:01:18/02.05:	Art.: 701.103.00; 701.104.00. End seal for monitoring area and (test) connection for leakdetection;
SECON - X SEC 5.01,21/11,12:	Art.: 989.488.00; 989.488.01. Connection for SECON - X 100;
SECON - X SEC 5.02.01/08.12:	Art.: 703.303.06; 701.105.07; 701.303.05. Standard-through connection, mechanical connection with graphite gasket:
SECON - X SEC 5,02,03/11,12:	Art.: 701.401.01; 701.401.02. Standard-through connection double walled, DN 100 short and long;
SECON - X SEC 5.04.01/11.12:	Art.: 703.401.05. Standard double walled T-joint with graphite gasket DN 40-40-40, DN 50-50-50, DN 50-40-50, DN 50-40-
W	40; Art.: 989.493.02; 989.494.01; 989.495.01; 989.496.01; 701.501.05; 701.501.06
SECON - X SEC 5.04.02/11.12:	Standard double walled T-joint with graphite gasket DN 80-50-80, DN 80-50-50; Art.: 989.498.02; 989.498.01; 701.501.07; 701.501.06.
PETREX CNT 5,01.02/06,12	End connections with mechanical connection with graphite gasket, type with external thread;
PETREX CNT 5.01.02/06.12	Art.: 703.202.01; 703.203.01; 703.204.01; 703.206.01. End connections with mechanical connection with graphite gasket, type with welding end;
PETREX CNT 5.01.02/06.12:	Art.: 703.203.00; 703.204.00. End connections with mechanical connection with graphite gasket, type with loose flange:
PETREX CNT 5.01.02/06.12	Art.: 703,203,02; 703,204,02, End connections with mechanical connection with graphite gasket, type with shared loose flange;
PETREX CNT 5.02.01/08.12	Art.: 703,202,03; 703.203.03; 703.204.03; 703.206.03. Standard-through connection, mechanical connections with graphite gasket;
PETREX CNT 5 04.01/08 12	Art.: 728.054.06; 728.056.06; 728.057.06; 728.060.06. Standard T-joint, mechanical connection with graphite gasket;
I CITIEN ON I OUTO 1100 12	Art.: 703.300.01; 703.300.02; 703.300.03; 703.300.04.