



GF Piping Systems Indonesia
Water Distribution



We are industrial pioneers



GF was founded more than **200 years** ago and has taken quite a few steps to arrive where it is today. Since 1903, GF is listed on the Swiss Stock Exchange.



Johann Conrad
Fischer 1773–1854



Georg Fischer I
1804–1888



Georg Fischer II
1834–1887



Georg Fischer III
1864–1925



GF history



Georg Fischer comprises three core businesses:
GF Piping Systems, GF Automotive, and GF AgieCharmilles.



Founded in 1802, the Corporation is headquartered in Switzerland and has 125 companies, 48 of them production facilities, in 30 countries. Its approximately 13,500 employees generated sales of CHF 3.6 billion in 2012.



Georg Fischer is the preferred partner of its customers for the safe transport of liquids and gases, vehicle weight reduction, and high-precision manufacturing technologies.

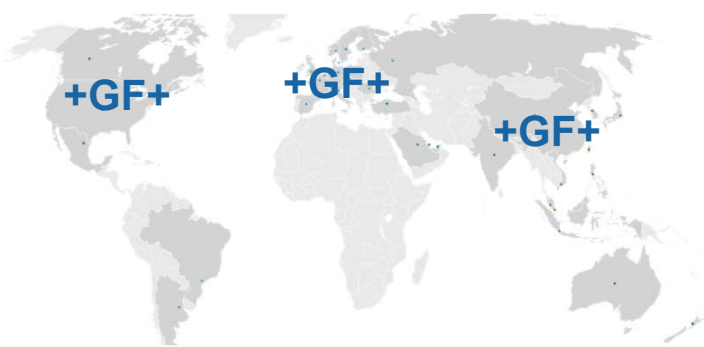


GF Piping Systems supports research and development also in the energy-saving, use of raw materials and resources.
GF research and development sites are located in Europe, Asia & America

GF will continue to focus on the implementation of its strategic thrusts



Widen presence in growth markets, adapt portfolio & footprint in Europe

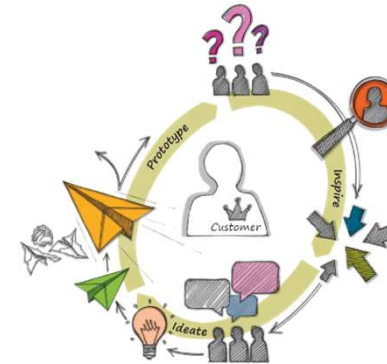


Shift divisions' portfolio to higher margin businesses



Drive innovation excellence and sales proficiency

Design Thinking
Customer-centered innovation



Understand customers
Quick prototypes
Agile implementation

Objectives

- ROIC 20-24%
- ROS 9-10%
- Annual Growth 3-5%

Worldwide for our customers



To get a balanced global footprint that supports its growth, GF invests in new markets in Asia, the Americas and the rest of the World.

33

countries

142

companies

14'678

employees

3'720

million (CHF) sales in 2019

Our diversified profile



We offer three times premium expertise and service to match our customers' needs:

48%

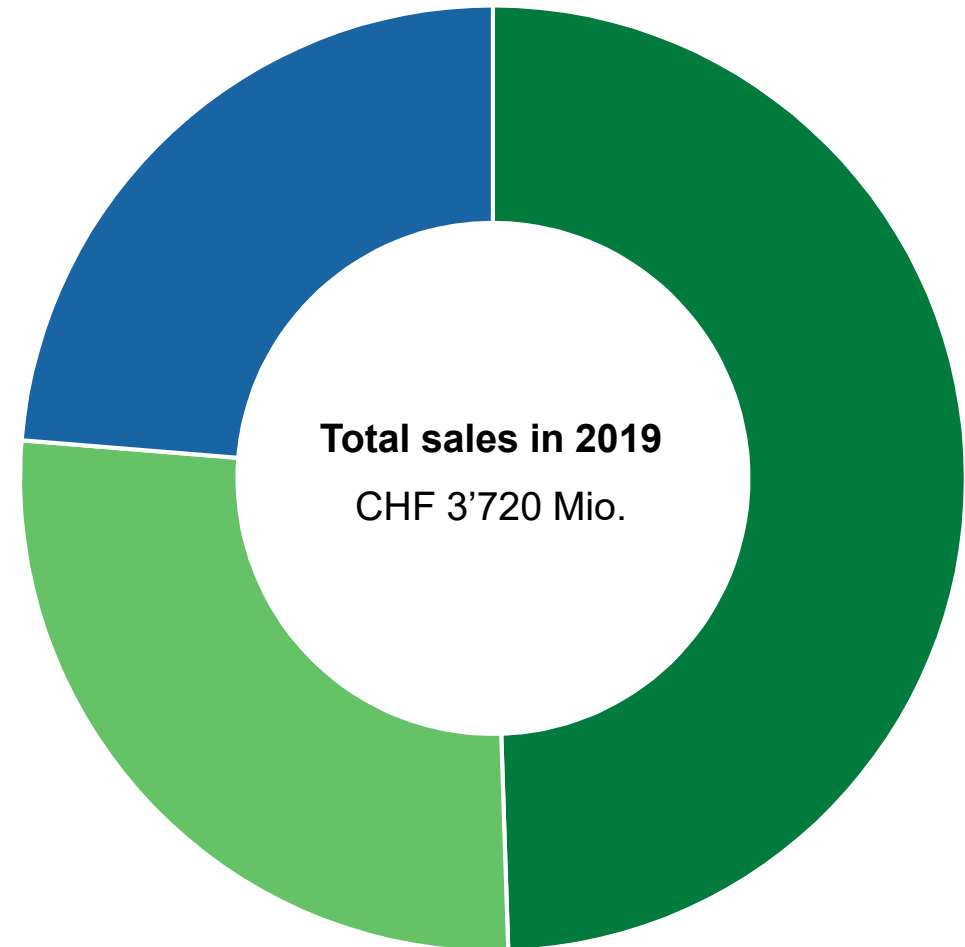
GF Piping Systems
CHF 1'802 million

26%

GF Casting Solutions
CHF 949 million

26%

GF Machining Solutions
CHF 972 million



+GF+

GF Piping Systems

GF Indonesia

History of GF Piping Systems Indonesia



PT. Kujang Eurapipe Indonesia (1992 – 2001)



PT. Tyco Eurapipe Indonesia (2001 – 2012)



PT. Pentair Eurapipe Indonesia (2012 – 2015)



PT. Eurapipe Solutions Indonesia (2015 - 2016)



PT. Georg Fischer Indonesia (2016 - Now)

Part of a strong corporation



GF Piping Systems, a division of GF, has acquired PT Eurapipe Solutions Indonesia. It offers a unique platform for further growth in this important country.

PT Eurapipe has a strong reputation as high-quality producer of pipes and fittings made from Polyethylene (PE). The company, located in Karawang, 80 kilometers east of Jakarta, holds a leading position in the mining business and other water related market segments. The acquisition strengthens GF Piping Systems' position in South East Asia in line with the strategy of the division to expand in growth markets.

GF Piping Systems is one of three divisions of GF, a Corporation founded in 1802 and headquartered in Switzerland. The division is present in Europe, Asia, and the Americas with more than 30 manufacturing sites and research and development and supports its customers in over 100 countries through its own sales companies and representatives. The product portfolio includes pipes, fittings, valves and the corresponding automation and jointing technology for industry, building technology as well as water and gas utilities.



Location



- **Head office, factory & service :**
Dusun Sukamulya RT 019/RW 006
Anggadita Klari, Kab. Karawang
Jawa Barat 41371

Fabrication Shop / Area

Area Covered : 5377.6 sq. metres
Uncovered Area : 3886 sq. metres

- **Marketing and Sales office :**
Wisma 77 tower 2, 5th floor Zone 2
Jl. Letjen S. Parman kav. 77
Jakarta Barat 11410

GF Indonesia

Connected to your needs



Why choose PE Pipes?

PE has excellent surface characteristics and as a result the frictional losses are lower than with most other pipe materials, leading to a lower energy requirement to pump water through the pipes.

The roughness coefficients for PE used by customer in hydraulic calculations are :

- Colebrook - white equation, $k = 0,007$ mm
- Hazen William equation, $c = 150$ (dimensionless coefficient)

Source : PE100+ Association

➤ Smooth bore

Why choose PE Pipes?

+GF+

PE pipe systems are usually designed by our customers based on empirical and actual test data on the basis of a 50 year service life.

Under normal operating conditions the actual life is expected to be considerably greater.

Plastic pipes are made from visco-elastic material which means the tensile or hoop stress capacity varies with time. Long term strength is determined by the results of long-term pressure testing and performing regression analysis on the test data. This gives the design stress of the material for the service life, and hence maximum operating pressure.

Source : PE100+ Association

- Smooth bore
- **Long lifetime**

Why choose PE Pipes?

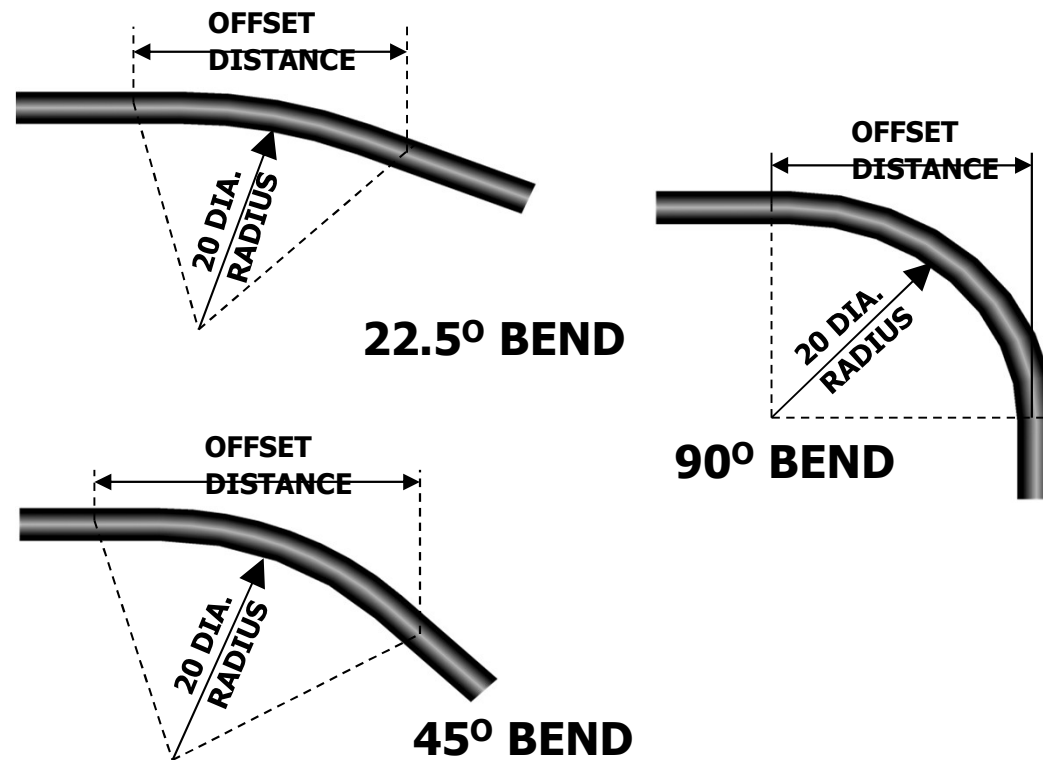
+GF+

PE is basically chemically inert and therefore, unlike iron or cement, will be unaffected by acidic soil conditioner or other corrosion inducing conditions. No protective layers or finishing processes are required, thus avoiding additional expense and further potential risk of failure.

- Smooth bore
- Long lifetime
- **Chemical resistance**

Why choose PE Pipes?

Coiled lengths and long strings of pipe may be cold bend in the Field. The allowable bend radius shall be determined by the pipe diameter.



- Smooth bore
- Long lifetime
- Chemical resistance
- **Material flexibility**

Why choose PE Pipes?

+GF+

The formulation of GF PE resins contains no harmful metallic stabilizers and it has been widely used for many years in piping systems for high water purity, medical preparations, food products and soft drinks.

PE systems are ideal for potable cold water and conform to World Health Organization and EEC requirements.

"Preparation to your next step to deliver drinking water"

- Smooth bore
- Long lifetime
- Chemical resistance
- Material flexibility
- **Non toxic / Taint free**

Why choose PE Pipes?

+GF+

All GF PE systems contain antioxidants, stabilizers and pigments to provide stability from ultraviolet radiation.

Customer benefit

- Applicable for above ground installation
- Moss on hold due to the inner surface can be used in drinking water systems.

- Smooth bore
- Long lifetime
- Chemical resistance
- Material flexibility
- Non toxic / Taint free
- **Weather resistance**

Why choose PE Pipes?

+GF+

PE pipe has a lighter weight compared to other type of pipe, making it very easy for handling process at site and connection process using butt fusion and electrofusion methods can be done easily and quickly.

- Smooth bore
- Long lifetime
- Chemical resistance
- Material flexibility
- Non toxic / Taint free
- Weather resistance
- **Light weight (easy handling and installation)**

Why choose PE Pipes?

+GF+

PE pipes is maintenance free and will be unaffected by acidic soil conditioner or other corrosion inducing conditions.

- Smooth bore
- Long lifetime
- Chemical resistance
- Material flexibility
- Non toxic / Taint free
- Weather resistance
- Light weight (easy handling and installation)
- **Maintenance free**

Why choose PE Pipes?

The pressure wave created by water hammers causes the piping system to expand and contract. In the process the propagation speed of the pressure wave is limited by the speed of sound in the corresponding medium.

$$V_w = \sqrt{\frac{K}{\rho \cdot \left(1 + \frac{K \cdot d_i}{e \cdot E}\right)}}$$

V_w	Velocity of pressure wave (m/s)
K	Bulk modulus of elasticity of fluid (Pa)
ρ	Fluid density (kg/m ³)
E	Modulus of elasticity of pipe wall (Pa)
d_i	Inner diameter of pipe (mm)
e	Pipe wall thickness (mm)

E HDPE Pipe 0.8 GPa
E Steel Pipe 180-200 GPa

Joukowsky Equation

$$\Delta p = V_w \cdot \Delta v \cdot \rho / 10000$$

Δp	Maximum pressure change (bar)
V_w	Pressure wave velocity (m/s) (see step 1)
Δv	Change in fluid velocity (m/s) = (v1-v2)
$v1$	Velocity of fluid before change (m/s)
$v2$	Velocity of fluid after change (m/s)
ρ	Fluid density (kg/m ³)

- Smooth bore
- Long lifetime
- Chemical resistance
- Material flexibility
- Non toxic / Taint free
- Weather resistance
- Light weight (easy handling and installation)
- Maintenance free
- **Reduce Velocity of pressure wave**

GF Indonesia

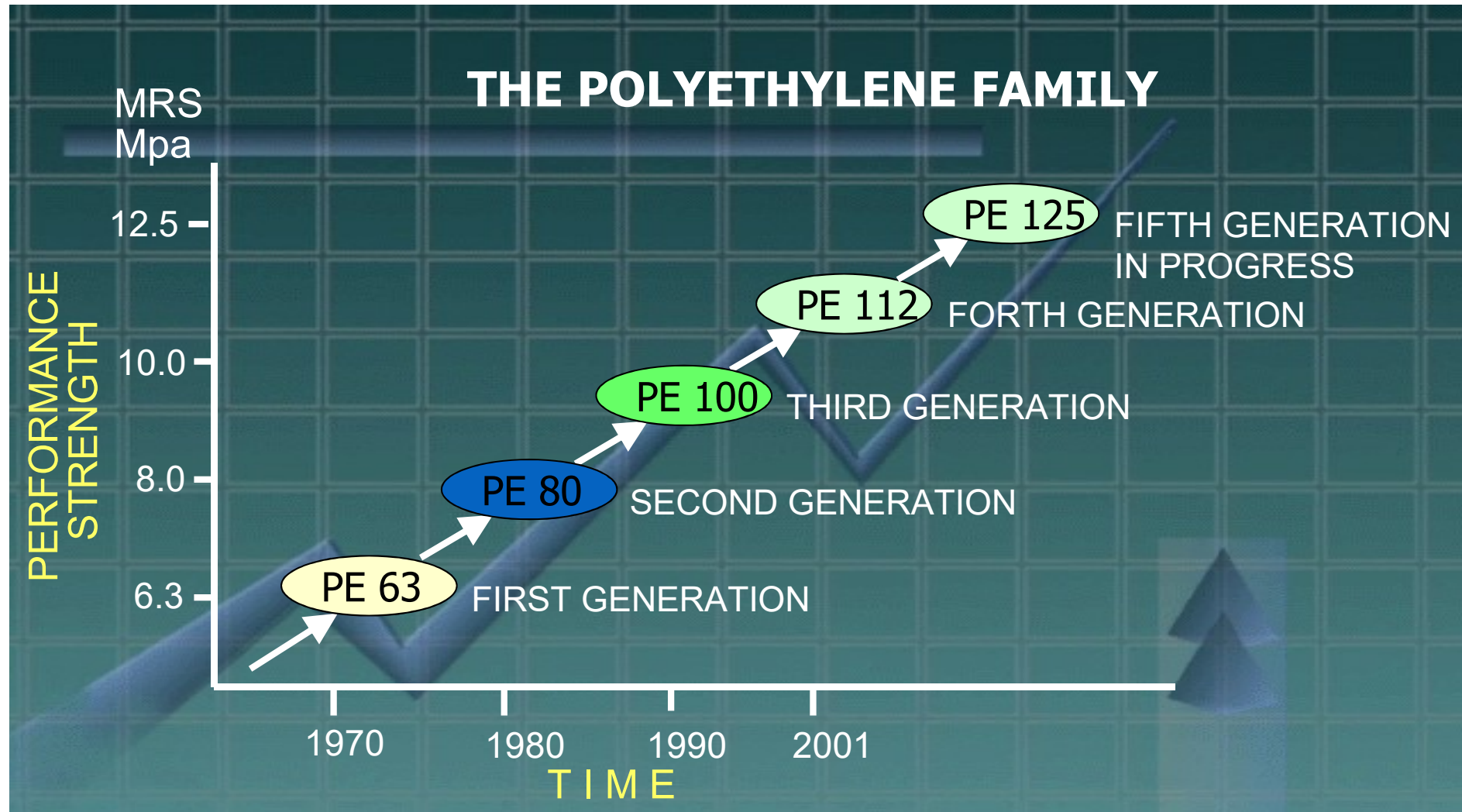
Products and materials

Polyethylene (PE) for piping systems

- Polyethylene (PE) is a well-known plastic which is found in many everyday applications.
- GF Indonesia using HDPE (PE 100 compound) and MDPE (PE80 compound) to manufacture piping systems.
- PE provides a long-term secure piping systems unmatched by most other plastic, metallic and composite piping systems and engineered for a 100 years design life.
- PE has out-standing impact resistance, abrasion resistance and UV stability. While being strong & robust it is also flexible and forgiving compared to other materials.



Polyethylene Family



Polyethylene Material



COMPOUND

VS

Natural + Master Batch

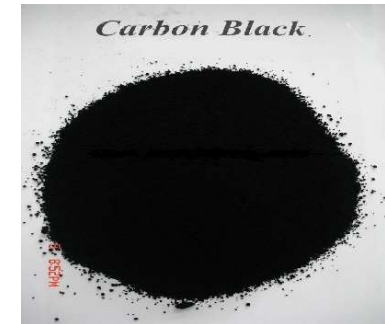
PE compounds for pipe production provides a high level of consistency in pipe quality and performance with lowest effort on the pipe producer's side



+GF+



The simplest way for any polymer producer to operate is to produce **natural** pellets for a wide range of applications (including pressure pipes) and ship them to the transformers (pipe manufactures) who **add the coloured masterbatch** during the manufacture of the products.



Polyethylene Material

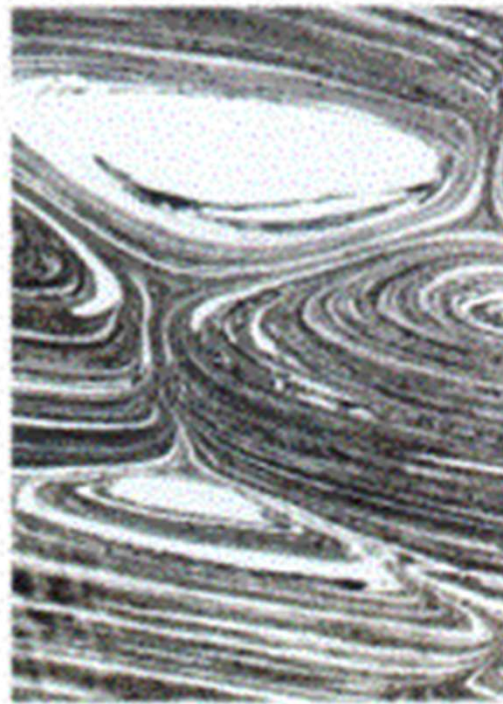
COMPOUND

64 x magnification

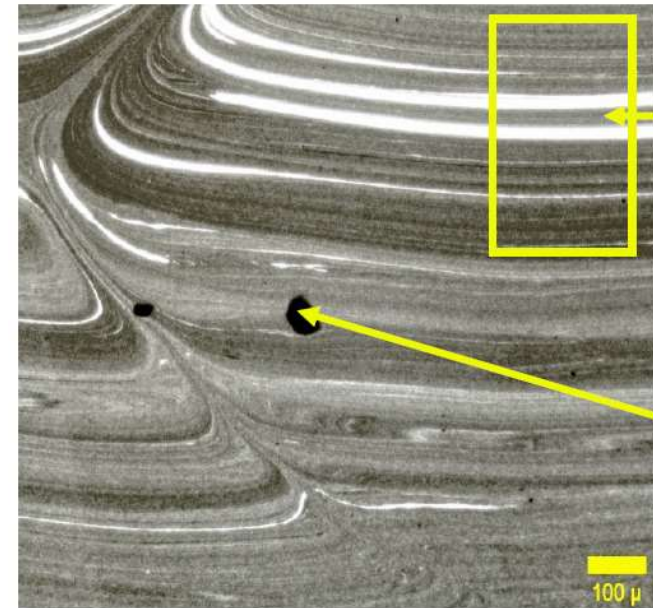


Good dispersion
Typical for ready-made compound

Natural + Master Batch



Bad dispersion
Typical for Carbon Black
addition to natural base
material during pipe
extrusion process



**Poor dispersion
of additive**

**Agglomeration
of carbon black**

Polyethylene Material



DUCTILE FAILURES



BRITTLE FAILURES



Product range

<u>Type</u>	<u>Size Range</u>
■ PE 100	20 – 1200 mm
■ PE 80	20 – 1200 mm
■ Sweep Bend	32 – 355 mm
■ Segmented Fittings	63 – 450 mm; 500 – 800 mm; 90- 120
■ Stub Flange	63 – 450 mm; 500 – 630 mm

Long coil length up to 100 meters reduces system leakage and significantly reduces the site installation time

Colour standard (sheath pipe)

- **Solid**
- **4 stripes**
- **Double layer**

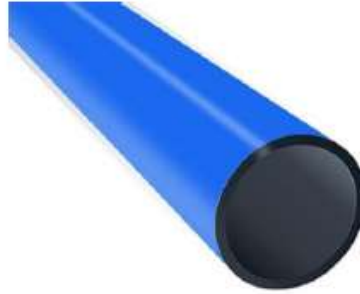


Products

Colouring code type



- Blue



- Yellow



- Red



Product range - Fitting



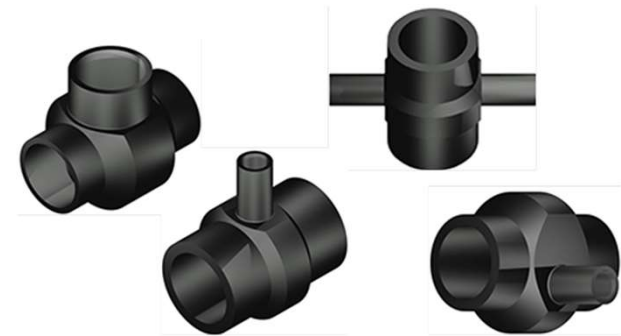
SEGMENTED BEND



SWEEP BEND



STUB FLANGE SHORT SPIGOT



TEE SPECIAL



REDUCER



SHOULDER END



REDUCING TEE



SEGMENTED TEE

Product range - Fitting



MOULDED FITTINGS



ELECTROFUSION FITTINGS



COMPRESSION FITTINGS

Product range - Multijoint

MULTI / JOINT



MULTI / CLAMP



Machine capacity

- 4 extruder machines with total capacity 1.100 ton/month



Jointing tools



BUTT WELDING MACHINE



ELECTROFUSION WELDING MACHINE

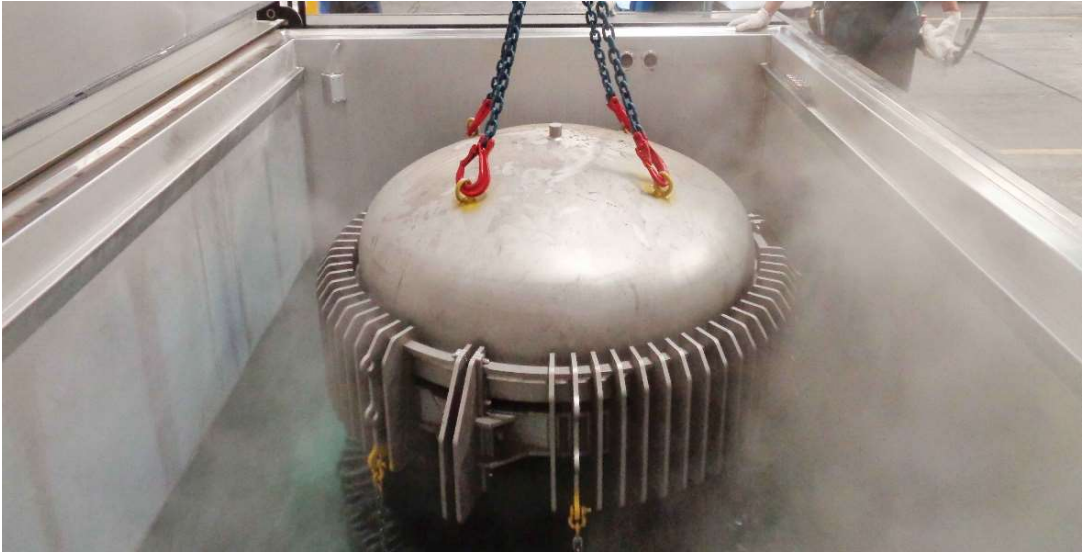


Quality Control



Hydro Pressure Test

Hydrostatic strength at 80 °C 165 hour with requirement No failure of any test piece during test period



PT Eurapipesolutions Indonesia
Desa Anggadita St., Klari East Karawang
West Java - Indonesia
Phone: +62 267 432044

Product details

Test number	476923
Description	TEI 110 PN12.5 PE100 170116
Production no.	602/ISO (8G 520971)
Test type	Test Peneltitan
Customer	Batch Test SNI 4829.2.2005, AS/NZS4130, ISO4427

Pressure Test Details

Operator	AG
Station	13
Set Pressure	8,76 [Bar]
Hysteresis	0,09 [Bar]
Alarm limit	0,18 [Bar]
Max. Pressure	8,89 [Bar]
Leak rate	8

Pressure Test Results

Total test time	165:00 hours
OK time	165:00 hours
Current test time	166:06 hours
Out of tolerance time	1:06 hours
Power failure time	0:00 hours

Pressure Test Temperature

Tank no.	2
Max. temp.	83,10 [°C]
Min. temp.	77,90 [°C]
Set temperature	80,00 [°C]
Hysteresis	2,00 [°C]

Test comments

Cond : @80C-1Bar-05:53H
No Leackaged. Passed

Dates

Start date of test	19-01-2016 21:19
End date of test	26-01-2016 19:26
Date of print	27-01-2016 10:43:33

Complete Test View

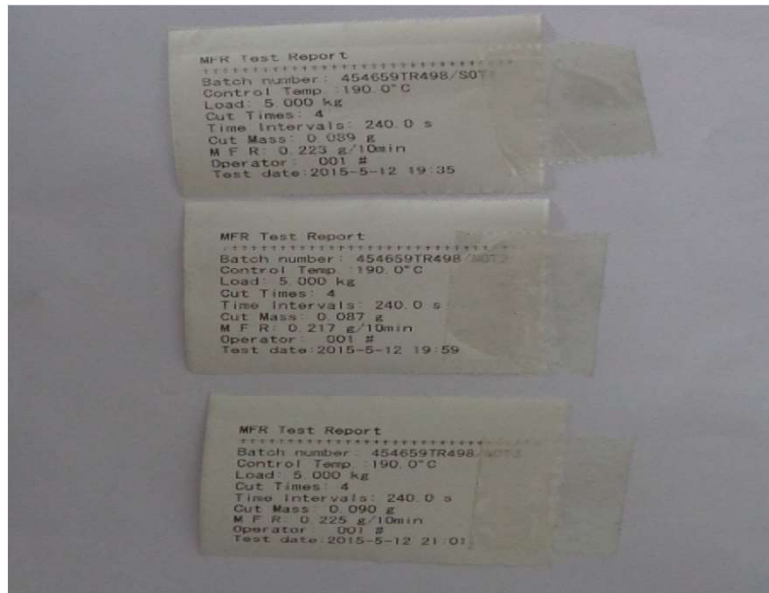
Pc version = 11 08 2014 8.68 Test approved by : _____ Date : .. / .. / ..
0 version = 07-08-2014

Quality Control



MFR Test

Melt mass-flow rate processing $\pm 20\%$ to COA (certificate of analysis)



Quality Control



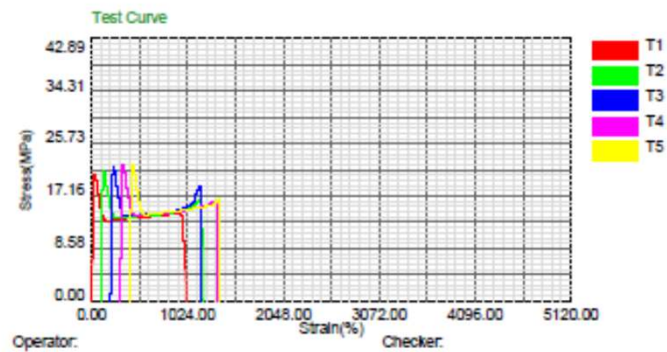
Tensile Test

Elongation at break ≥ 350 %



Test Report

Average	1014.70	10351.40	21.61
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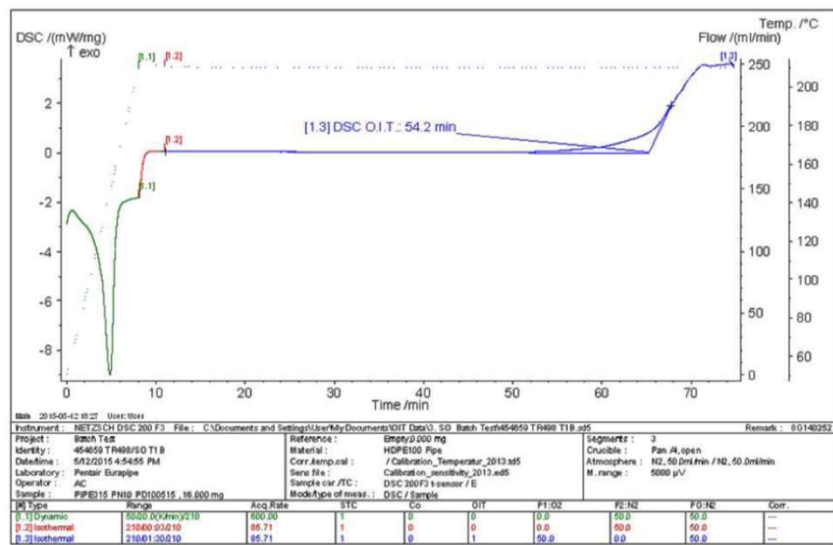


Quality Control



OIT (Oxidation Induction Time) Test

Test temperature at 200 °C with result ≥ 20 min



GF Indonesia

Your solution

Your solution



We are dedicated to designing, manufacturing and marketing piping systems for the safe and secure conveyance of liquids and gases.



Pipes



Fittings



Jointing Technologies



Valves



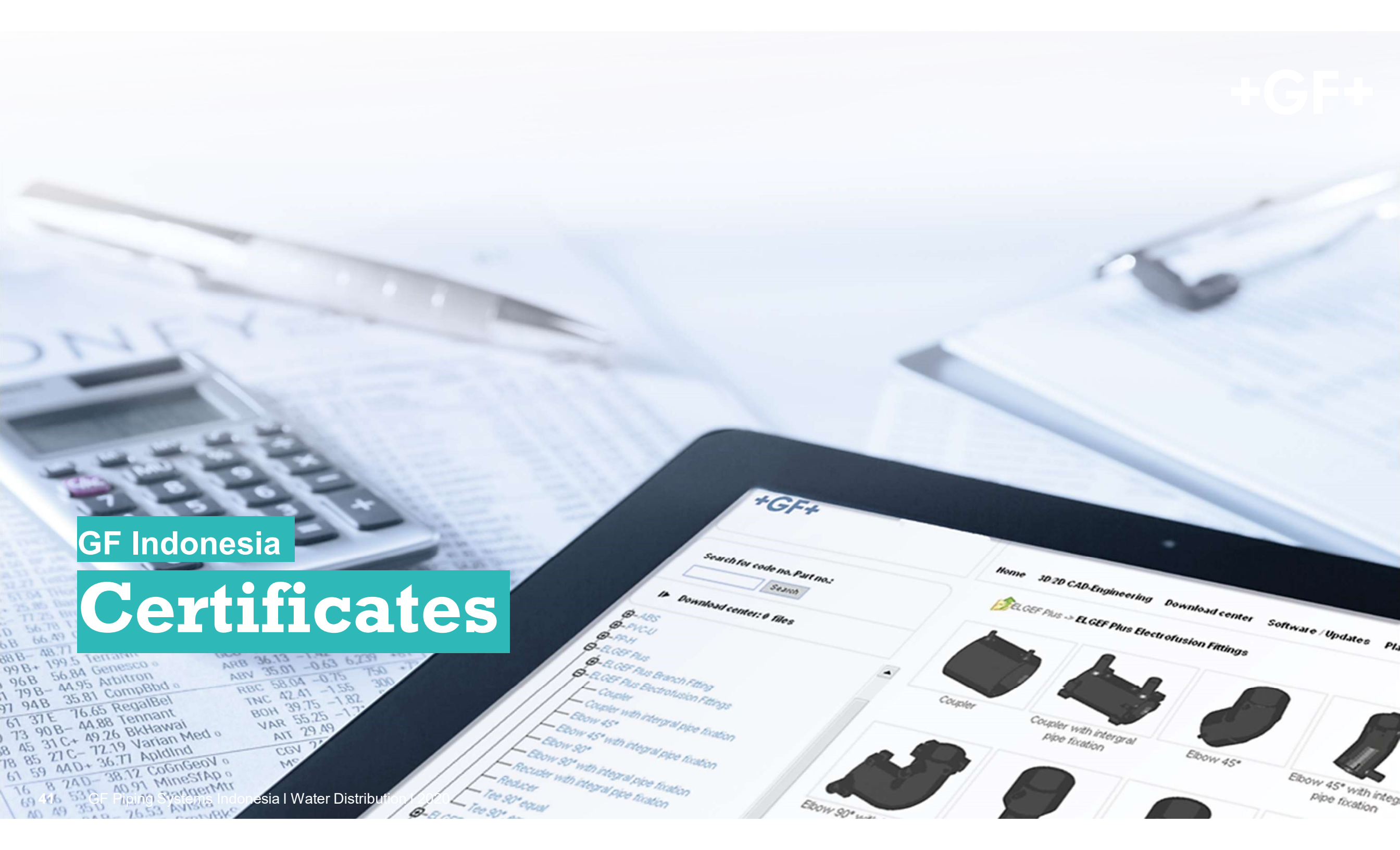
Automation



Measurement & Control

GF Indonesia

Certificates



Certificates



- ISO 9001



This is to certify that:

PT.GEORG FISCHER INDONESIA

Dusun Sukamulya RT 019 RW 006 Anggadita Klari Kabupaten Karawang West Java 41371 INDONESIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

Manufacture of Thermoplastic Piping System.

Certificate No: QEC26322

Issued: 29 January 2018

Originally Certified: 11 March 2009

Expires: 13 January 2021

Current Certification: 29 January 2018

Nicole Grantham
General Manager SAI Global Certification Services



ISO 9001

WWW.JAS-ANZ.COM/REGISTER

Registered by:
SAI Global Certification Services Pty Ltd (ACN 105 216 029) (SAI Global) Sydney, Australia with SAI Global
No. Licensed SAI Global Street Sydney NSW 2000 Australia (SAI Global) - www.sai-global.com
SAI Global certifies that PT GEORG FISCHER INDONESIA is carrying out this certification only. SAI Global accepts no responsibility
for any claims or requirements. This certificate is valid only for the scope of work shown and must be returned to SAI Global upon the
expiry of the certificate. To view full details please refer to SAI Global On-line Certification register at
<http://www.sai-global.com>



- FM Approved

Certificate of Compliance

This certificate is issued for the following:

Polyethylene Pipe and Fittings for Underground Fire Service
(See Attached Listing)

Prepared for:

PT Georg Fischer Indonesia
JL Desa Anggadita Klari
Karawang Timur, Jawa Barat 41371
Indonesia

FM Approvals Class: 1613 (February 2017)

Approval Identification: PR449535 Approval Granted: February 6, 2019
Report Reissued: February 22, 2019

To verify the product continues to be Approved 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.

Member of the FM Global Group

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

Page 1 of 3

Certificates



■ SNI

 **Kementerian Perindustrian**
REPUBLIK INDONESIA

KA 02683 **BALAI SERTIFIKASI INDUSTRI**
INSTITUTE for INDUSTRIAL CERTIFICATION

SERTIFIKAT PRODUK

Nomor : 344/S/RV/B/IX/2017

diberikan kepada:

PT. GEORG FISCHER INDONESIA
Dusun Sukamulya RT. 019 RW. 006 Anggadita Klari (41371), Kab. Karawang,
Jawa Barat

Berdasarkan sistem sertifikasi 5, dinyatakan bahwa perusahaan telah menerapkan Sistem Manajemen Mutu SNI ISO 9001:2015 dan mutu produknya telah memenuhi persyaratan :

- SNI 4829.2:2015 *Sistem Perpipaan Plastik-Pipa Polietilena (PE) dan Fiting untuk Sistem Penyediaan Air Minum-Bagian 2: Pipa*

untuk alamat pabrik:
Dusun Sukamulya RT. 019 RW. 006 Anggadita Klari (41371), Kab. Karawang,
Jawa Barat

Tempat dan tanggal terbit :
Jakarta, 13 Februari 2019

Disahkan oleh:


ANTO GIRSANG
Kepala

Terbitan kedua
Tersertifikasi sejak : 02 Maret 2017

Sertifikat ini berlaku sampai dengan tanggal **12 Pebruari 2023** selama perusahaan masih memenuhi ketentuan dan peraturan yang ditetapkan Balai Sertifikasi Industri dan hanya berlaku jika diperlihatkan bersamaan dengan lampirannya.

Jl. Cikini IV No. 15 Jakarta Pusat 10330, Indonesia
Keabsahan sertifikat ini dapat dilihat di
Validity of this certificate can be viewed at
<http://bsi.kemenperin.go.id>

 **KAA**
Komite Akreditasi Nasional
I CD-ANU/STW

 **Kementerian Perindustrian**
REPUBLIK INDONESIA

LA 05279 **BALAI SERTIFIKASI INDUSTRI**
INSTITUTE for INDUSTRIAL CERTIFICATION


Halaman 1 dari 1

Lampiran
Appendix

Merek :
+GF+

Tipe/Jenis :
PE 100 : PN 6,3; PN 8; PN10; PN 12,5; PN 16; PN 20; PN 25
Diameter: (16 - 1200) mm

Tempat dan tanggal terbit :
Jakarta, 13 Februari 2019

Disahkan oleh:

ANTO GIRSANG
Kepala

Revisi 1, tanggal : 02 April 2019

Lampiran ini hanya berlaku bila diperlihatkan bersamaan dengan Sertifikat nomor **344/S/RV/B/IX/2017** tanggal **13 Pebruari 2019** terbitan kedua.
Lampiran ini menggantikan lampiran sertifikat 344/S/RV/B/IX/2017 tanggal 13 Pebruari 2019 dengan nomor seri LA 05142.

Jl. Cikini IV No. 15 Jakarta Pusat 10330, Indonesia
Keabsahan sertifikat ini dapat dilihat di
Validity of this certificate can be viewed at
<http://bsi.kemenperin.go.id>

Certificates



■ ISO 4427



Certificate No: N-0118-670-1

CERTIFICATE OF COMPLIANCE

This Certificate is issued to confirm that SGS Australia Pty. Ltd. Industrial Division has certified that the Product manufactured and Quality Management System described here under is in compliance with the requirements for which the application has been made by:

PT GEORG FISCHER INDONESIA
Dusun Sukamulya RT. 019 RW. 006 Anggadita, Klari, Karawang, Jawa Barat, Indonesia

The Manufacturing process, the Quality Control facility, Quality Assurance and Traceability Documentation was audited for Product Certification (PE 100) to fulfill the requirement of **ISO 4427:2007, EN 12201:2013 and AS/NZS 4130:2009**

ISO 4427:2007 - Plastics piping systems — Polyethylene (PE) pipes and fittings for water supply.
EN 12201:2013 Plastics piping systems for water supply, and for drainage and sewerage under pressure
AS/NZS 4130:2009- Polyethylene (PE80 and PE100) pipes for pressure applications - Water

This was found to comply with the standards and scope of audit as above.

Issued: 10 July 2018
Expires: 10 July 2021
Remains valid subject to satisfactory annual surveillance audits by the undersigned.



For and on behalf of SGS Australia Pty. Ltd.
Xavier Fernandes
Technical Manager (Industrial)
10/585 Blackburn Road, Notting Hill,
Victoria 3168, Australia
Tel: +61 3 9574 3200



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■ ISO 4437



Certificate No: N-0118-670-2

CERTIFICATE OF COMPLIANCE

This Certificate is issued to confirm that SGS Australia Pty. Ltd. Industrial Division has certified that the Product manufactured and Quality Management System described here under is in compliance with the requirements for which the application has been made by:

PT GEORG FISCHER INDONESIA
Dusun Sukamulya RT. 019 RW. 006 Anggadita, Klari, Karawang, Jawa Barat, Indonesia

The Manufacturing process, the Quality Control facility, Quality Assurance and Traceability Documentation was audited for Product Certification (PE 80 and PE 100) to fulfill the requirement of **ISO 4437:2014, EN 1555:2010, and AS/NZS 4130:2009.**

ISO 4437:2014-Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE80 and PE100)
EN 1555:2010 -Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE80 and PE100)
AS/NZS 4130:2009- Polyethylene (PE80 and PE100) pipes for pressure applications - gaseous fuels.

This was found to comply with the standards and scope of audit as above.

Issued: 10 July 2018
Expires: 10 July 2021
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For and on behalf of SGS Australia Pty. Ltd.
Xavier Fernandes
Technical Manager (Industrial)
10/585 Blackburn Road, Notting Hill,
Victoria 3168, Australia.
Tel: +61 3 9574 3200



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Certificates



- ISO 14001

- OHSAS 18001



Certificates



- Lemigas



Thank you!

M. Gigih Gulanang
Sales Manager – Water distribution
GF Piping Systems Indonesia

Dusun Sukamulya
41371
Indonesia

Phone number : +62 811 1310 5678
E-mail : mohamad.gigihgulanang@georgfischer.com

