

Brussels, November 2023

Sustainability & Circular Economy Workshop

Dominik Roth, Global Sustainability Business Development Manager



Agenda

Part 1: the sustainability & net zero journey

- Our sustainability strategy and initiatives
- Transparency on the environmental impact of our products
- *Discussion: how do you evaluate sustainability?*

Part 2: the circular economy journey

- Circular vision and innovation at GF
- Ongoing pilot projects
- *Discussion: what options for joint projects and innovation are there?*





Part 1:

The sustainability & net zero journey

+ Sustainability as essential element of our strategy



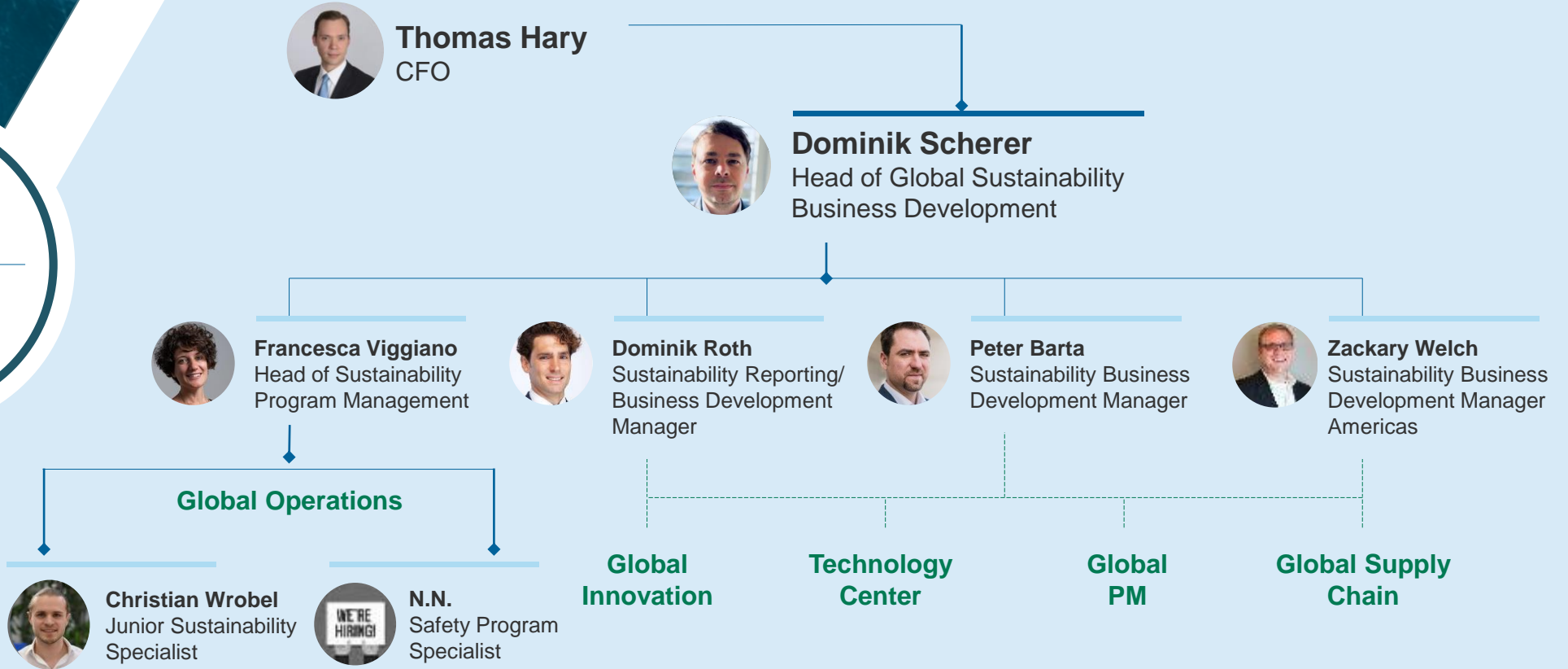
In the next five years, GF wants to become a sustainability leader through

- + offering high-value sustainable products and solutions
- + driving circular economy
- + fostering a diverse, engaging and safe working environment
- + collaborating with stakeholders along the value chain

+ Sustainability in the organization

+GF+

**Piping
Systems**



+ Our sustainability targets



Product Portfolio

Innovate products and solutions for a sustainable lifecycle



Product portfolio

70% of sales with social or environmental benefits



Innovation

100% of innovations in products and solutions deliver sustainability improvements



Climate & Resources

Decouple resource consumption from growth



SBT CO₂e emissions

Scope 1 + 2: -30% by 2026
Scope 3: -34.6% by 2030



Water

Reduce **water intensity** by **20%** in high stress areas



Waste

Reduce **waste intensity** by **20%** sent to landfill or incineration



Supply chain

Perform **sustainability assessments** for **80%** of procurement spend



People & Well-being

Pursue a diverse, engaging and safe work place



Diversity and inclusion

25% of newly appointed managers are female



Employee engagement

At least **80% recommend GF** as an employer of choice



Health and safety

Reduce **accident rate** by **30%**

SUSTAINABLE DEVELOPMENT GOALS



SUSTAINABLE DEVELOPMENT GOALS

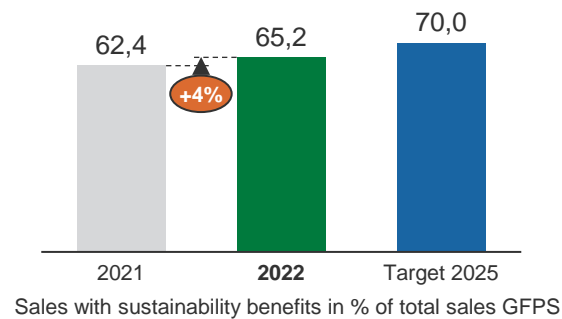


SUSTAINABLE DEVELOPMENT GOALS

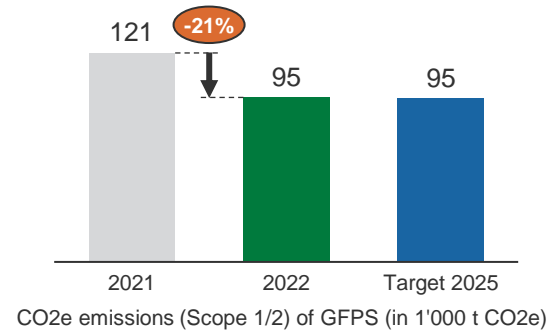


+ Results by the end of 2022: we increased sales with sustainable solutions – and reduced our CO2 footprint!

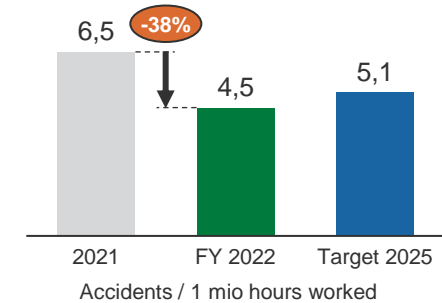
65% (1.4bn CHF) of our 2022 sales deliver social or environmental benefits



We further reduced our CO2 Footprint by 21% in 2022



Increasing awareness for safety resulted in a reduction of our accident rate by 38%



+ Continuous reduction of our environmental impact

Clean & renewable energy

- Purchase green electricity from external sources (e.g. hydro)
- Increase own renewable power generation capacities (e.g. PV)



Energy efficiency

- Retrofit / replace inefficient machines
- Efficient compressed air, vacuum and HVAC systems
- Building renovation
- Efficient cooling & lighting (LED)



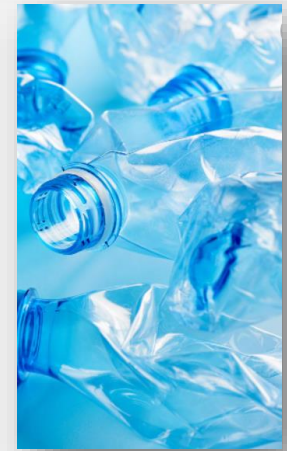
Water

- Reduction programs:
 - Efficient cooling systems
 - Rainwater harvesting
 - Awareness programs
 - Analysis of machines

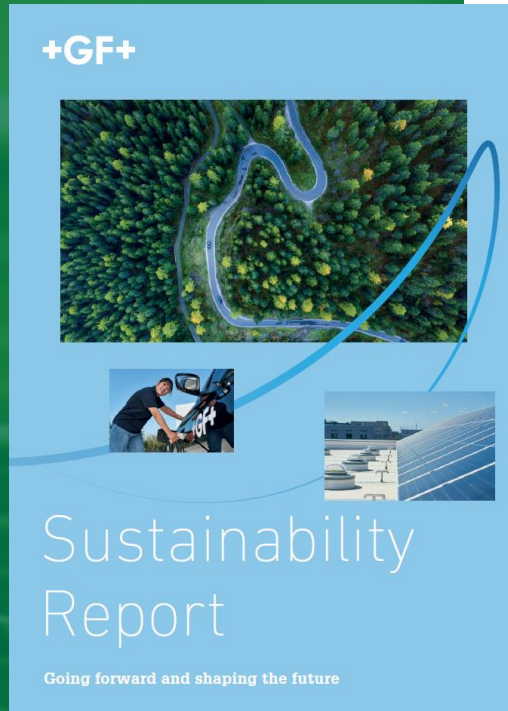


Waste

- Reduction programs:
 - Recycle / reuse plastic scrap
 - Recycle foundry sand
 - Recycle aluminum plates
 - Waste flows optimization
 - Centralize feeding systems



+ Comprehensive sustainability report



Independent Limited Assurance Report

on the selected data and information of Georg Fischer Sustainability Report 2020

To the Board of Directors of Georg Fischer Ltd, Schaffhausen

We have been engaged to perform assurance procedures to provide assurance on the aspects of the 2020 Sustainability Reporting of Georg Fischer Ltd, Schaffhausen and its consolidated subsidiaries ("Georg Fischer Corporation") published in the Sustainability Report 2020.

Scope and subject matter

Our assurance engagement relates to limited level of assurance focused on the data and information for the year ended on 31 December 2020 disclosed in the Sustainability Report of Georg Fischer Corporation.

We have not carried out any work on data reported for prior reporting periods.

The following specified data and information published in the Sustainability Report is within the scope of our limited assurance engagement:

- Selected sustainability indicators: "GHG emissions – Scope 1" on page 114, "GHG emissions – Scope 2 – location-based" on page 114, "GHG emissions – Scope 2 – market-based" on page 114, "GHG emission intensity index" on page 114, "Total water consumption" on page 114, "Total water" on page 115, "Hazardous waste" on page 115, "Accident rate" on page 113, "Fatalities – work-related" on page 113, "Total Employee fluctuation" on page 112.
- The management and reporting processes to collect and aggregate the data as well as the control environment in relation to the data aggregation of these sustainability indicators.

Criteria

The management reporting processes with respect to the sustainability reporting process and sustainability indicators were prepared by Georg Fischer Corporation based on the Georg Fischer sustainability reporting guidelines in accordance with the "GRI Standards" published in October 2016 by the Global Reporting Initiative and on the Greenhouse Gas Protocol initiative of the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) (hereafter referred to as the "Sustainable Criteria").

Inherent limitations

The accuracy and completeness of sustainability indicators are subject to inherent limitations given their nature and methods for determining, calculating and estimating such data. GHG quantification is subject to inherent uncertainty, because of incomplete scientific knowledge used to determine GHG emission factors and the values needed to combine emissions of different gases. Our assurance report should therefore be read in connection with the "GRI Standards" published in October 2016 by the Global Reporting Initiative and on the Greenhouse Gas Protocol initiative of the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

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PricewaterhouseCoopers AG is a member of the global PricewaterhouseCoopers network of firms, each of which is a separate and independent legal entity.



Externally assured by PwC



Follows international sustainability standards, such as GRI and SASB



Summarizes progress in the environmental and social sphere of GF's operations



Based on consolidated environmental and social data that are reported on site level



Publication during the first quarter of the following year on the GF website

+ GF's sustainability leadership reflected in ratings



MSCI ESG
RESEARCH LLC



AA

Updated: May 2023



SUSTAINALYTICS

117 out of 548

22nd percentile

Updated: March 2023

WSJ
100

MOST
SUSTAINABLY
MANAGED
COMPANIES 2020

No. 9

GF was rated as **number 9** of the world's 5'500 most sustainably managed companies 2020 by the Wall Street Journal.



A- Climate

A- Water

Updated: December 2022

ISS ESG

B-

Updated: August 2023



Climate Leader 2023

GF was named **one of Europe's climate leaders** for the third year in a row (2021, 2022 & 2023).



Gold

Gold for GF Piping Systems in 2023

Updated: July 2023

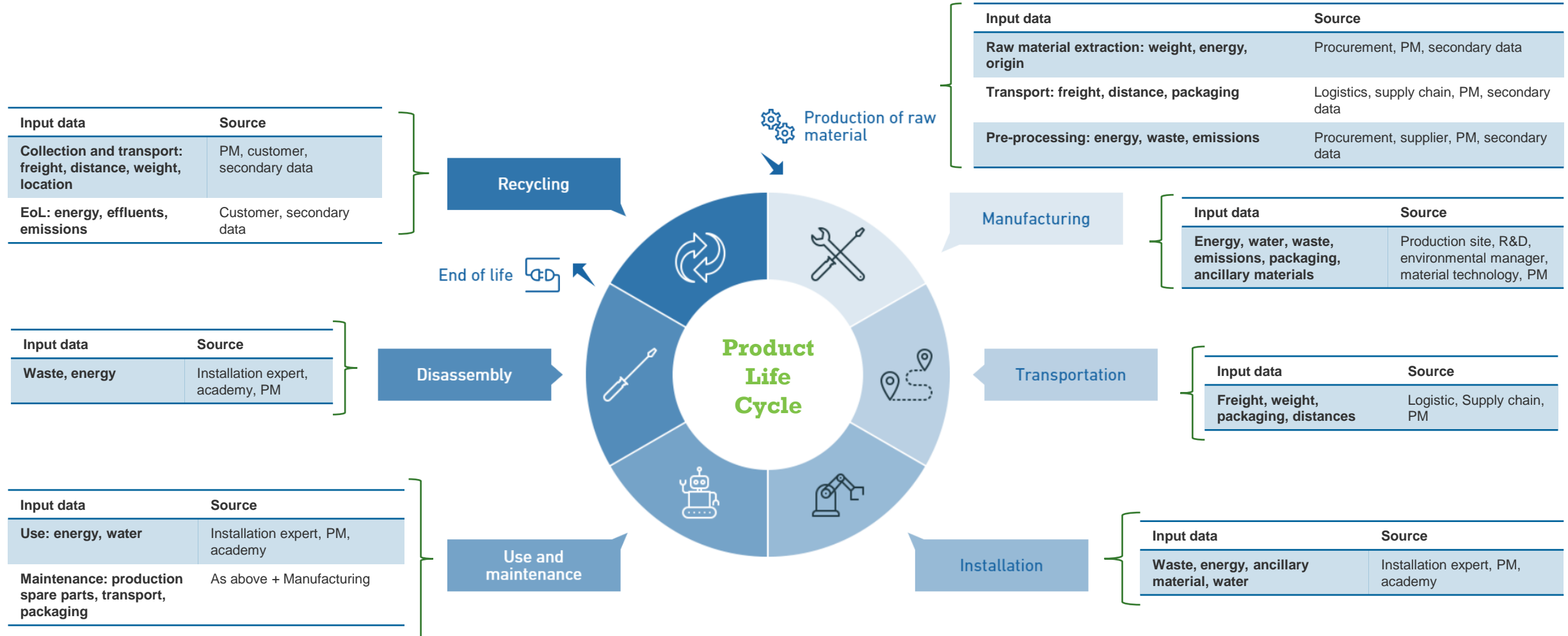


Swiss Sustainability Index

GF is member of SXI **Switzerland Sustainability 25® index** of the Swiss Stock Exchange since 2014.



+ Sustainability data: Life Cycle Assessment (LCA)



+ Sustainability data: Environmental Product Declaration (EPD)

Internal LCA calculation project



External verification



EPD


EPD **+GF+**

Environmental Product Declaration

in accordance with ISO 14025 and EN 15804

Butterfly Valve 565

1. Declaration of general information



- 1. Lockable expansion joint
- 2. Ball-Matrix-Gate
- 3. Standard for Butterfly Valves (EN 1071)
- 4. Standard EN 1071-1
- 5. Standard EN 1071-2
- 6. PDF file
- 7. Filter, reinforced housing and cover plate
- 8. EPDM or PTFE sleeve
- 9. Short installation length
- 10. Water design

Sweden
www.environdec.com

EPD registration number	S-P-05782
Published	2022-03-20
Valid until	2027-03-20
Geographical scope	Global

EPD Type: Cradle to gate with options
Data calculated by: Swiss Climate AG
Third party verifier: Dr. Ingrid Minzky, grenzero.me GmbH
Life Cycle Inventory (LCI) source for generic background processes:ecoinvent 3.7
Software: SimaPro (Version 9.2.0.2)

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TUV SUD
ISO 9001
ISO 14001
EPD PLATFORM
EPD VERIFIED

+ Vision: provide carbon footprint data of our products on article level

Configure

Products

gfa04app023v.ps.gf18443/sales/quote

gf+

Add product from catalog

Cancel Add product by material

Butterfly Valve Type 567/578

Ball Valve Type 546/542

Cone Check Valve Type 561/562

Modular butterfly valve type 567/578

• Excellent corrosion resistance

• Simple operation

• Extended service life

• Flexible and versatile

Diaphragm Valve Type 51x

• Configure your individual diaphragm valve

• Manual, pneumatic and electric operation

• 2-Way and T-Body

Ventilating & Bleed Valves Type 591/51

Ventilating & Bleed Valves type 591/51

easy and quick configuration

Code

161567002

CAD

BIM

EPDM

d (mm)

63

Measurements

CAD

BIM

Spare parts

Accessories

H3

H2

H1

H

DN

d2

D1 min.

D1 max.

D

L

L1

L2

H

H1

H2

H3

D1 min.

D1 max.

d2

Q1

Q2

Data sheet

valid from: 5/20/21

gf+

Wafer-style, intermediate installation butterfly valve type 567 PVC-U

With hand lever

Flange standard metric/ANSI/BS/JIS

Model:

• Up to DN 300: Overall length according to EN558 (DN 50-200: line 25, DN250, 300 line 16), ISO 5752

• Connecting dimension: ISO 7005 PN 10, EN 1092 PN 10, DIN 2501 PN 10, ANSI/ASME B 16.5 Class 150, BS 1560: 1989, BS 4504, JIS B 2220

• We recommend for the dimensions DN250 and DN300 only 6 bar maximum system pressure for the hand lever version

d

Size

DN

PN

kv-value

EPDM

FKM

Weight

(mm)

(inch)

(mm)

(bar)

(Δp=1 bar)

Code

Code

(kg)

63

2

50

10

740

161 567 002

161 567 022

1.259

75

2 1/2

65

10

1500

161 567 003

161 567 023

1.799

90

3

80

10

2400

161 567 004

161 567 024

1.531

110

4

100

10

3800

161 567 005

161 567 025

2.235

140

5

125

10

8600

161 567 006

161 567 026

2.799

160

6

150

10

11400

161 567 007

161 567 027

3.791

225

8

200

10

19900

161 567 008

161 567 028

6.570

280

10

250

10

34000

161 567 009

161 567 029

12.998

315

12

300

10

50000

161 567 010

161 567 030

19.139

d

D

D1 min.

D1 max.

d2

H

H1

H2

H3

L

L1

L2

Q1

Q2

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

(mm)

63

19

120.0

125.0

104

265

77

134

54

45

106

26

40

54

40

75

19

139.7

145.0

115

268

83

140

45

46

106

209

54

54

40

90

19

150.0

160.0

131

289

89

146

54

49

106

26

67

67

40

110

19

175.0

190.5

161

326

104

167

55

56

106

26

88

74

40

140

23

210.0

215.9

187

353

117

181

55

64

106

255

97

97

40

160

24

241.3

241.3

215

374

130

189

55

72

106

255

123

123

40

225

23

290.0

295.0

267

435

158

210

67

73

106

268

178

169

40

280

25

353.0

362.0

329

554

205

264

85

111

106

268

210

207

40

315

25

400.0

432.0

379

598

228

285

85

113

149

408

256

253

40

Carbon footprint (kg CO2e)

X

Y

Z

...

L1

L2

L

D1

D2

L2

35 mm

gf+

+ Sustainability calculators, e.g. for NeoFlow

Frontpage

Introduction

Settings

Calculations

Results

1. Input

2. Pressure management

3. Pipe bursts

Pressure management - Input

	%-change	Value
Baseline leakage level		206
New pressure level	-35%	3.0
N3-factor		2.0
Unavoidable annual real losses (UARL) after pressure reduction		529
Unavoidable background leakage (UBL) after pressure reduction		676

Leakage level, water consumption and energy consumption

		Value
? Leakage level after change in pressure		133
Reduction in real losses	-34%	73
Expected water consumption after change in pressure		459
Reduction in water consumption	-58%	639
Reduction in energy consumption	-56%	1'283

Effects on revenue, costs & CO₂-emissions

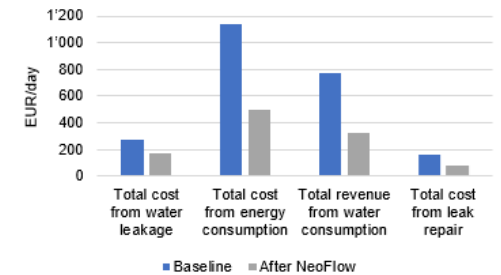
	Value
Customer retail unit cost of water	0.7
Variable production cost of water	1.3
Energy cost	0.5
Savings from reduction in real losses of water	95

[Create PDF](#)

Total effects on revenue, cost and CO₂-e emissions from NeoFlow

Table 2 - Effect on finances and CO₂-e emissions

Cost savings from reduced water losses	99	EUR/day
Cost savings from reduced energy consumption	645	EUR/day
Effect on revenue from water consumptions	-447	EUR/day
Reduction in leak repair costs	81	EUR/day
Total reduction in cost	378	EUR/day
Reduction in CO ₂ -e emissions	1'092	Kg. CO ₂ /day



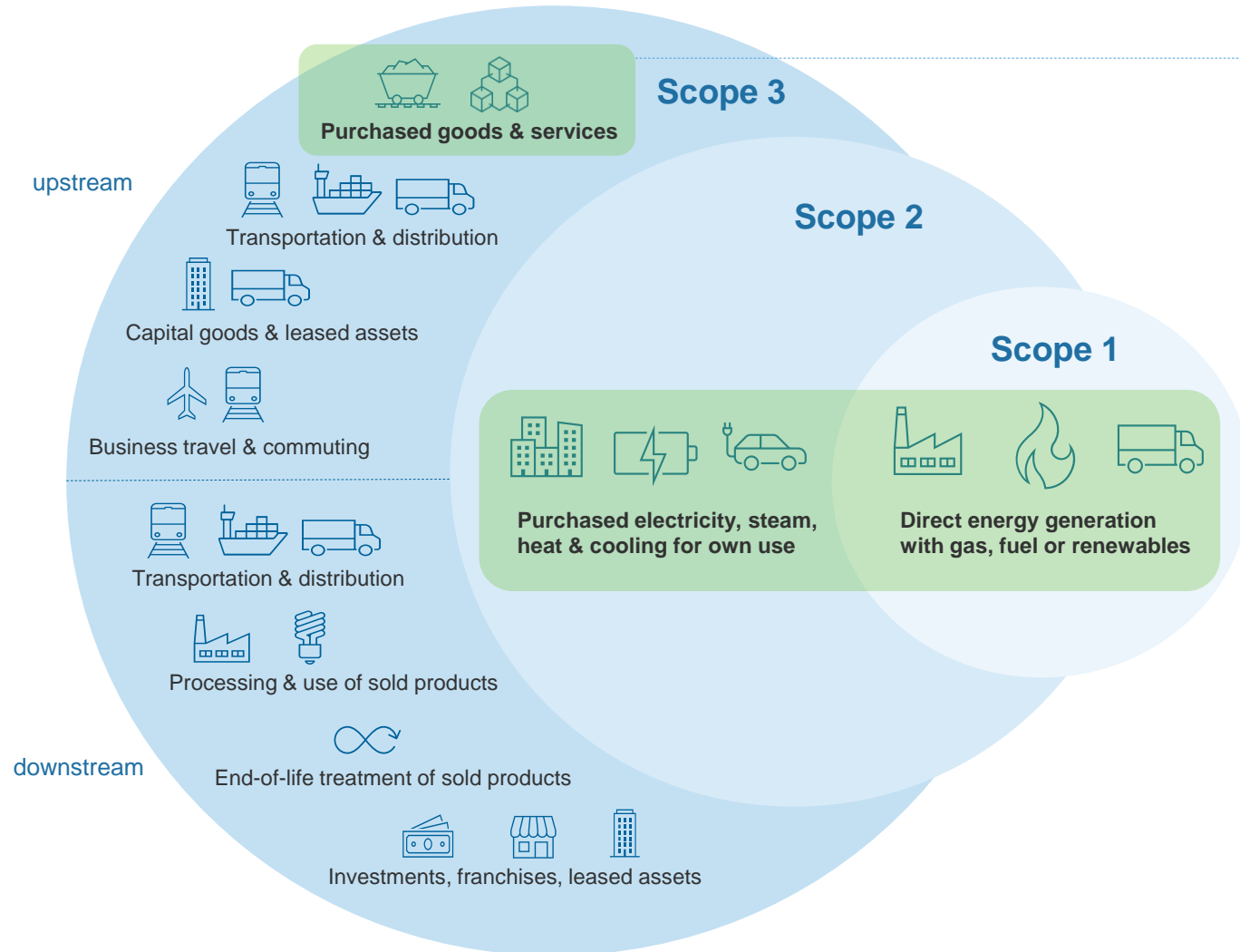
Effects from pressure management

Table 3 - Pressure management

New pressure level	3.0	mwc
Percentage reduction in pressure	-35%	%
Reduction in real losses	73 (-34%)	m3/day
Reduction in water consumption	639 (-58%)	m3/day
Reduction in energy consumption	1.283 (-56%)	m3/day
Cost savings from reduced real losses	95	EUR/day
Effect on revenue from water consumption	-447	EUR/day
Reduction in energy costs	641	EUR/day
Reduction in CO ₂ -e emissions	1'087	Kg. CO ₂ /day



+ GFPS: your partner on the net zero journey



Scope 3 emissions:

- For most companies, emissions related to **purchased goods & services** represent the largest part of their scope 3 emissions.

Due to a **lower embodied carbon footprint** of plastic, GF can contribute to supply chain emission reduction at customer.



Scope 1 & 2 emissions:

- Improving **operational energy & carbon efficiency** is one of the key levers to reduce scope 1 & 2 emissions.
- Some GF systems have a proven ability to **reduce operational energy consumption and related carbon emissions**.



Source: [GHG protocol](#)

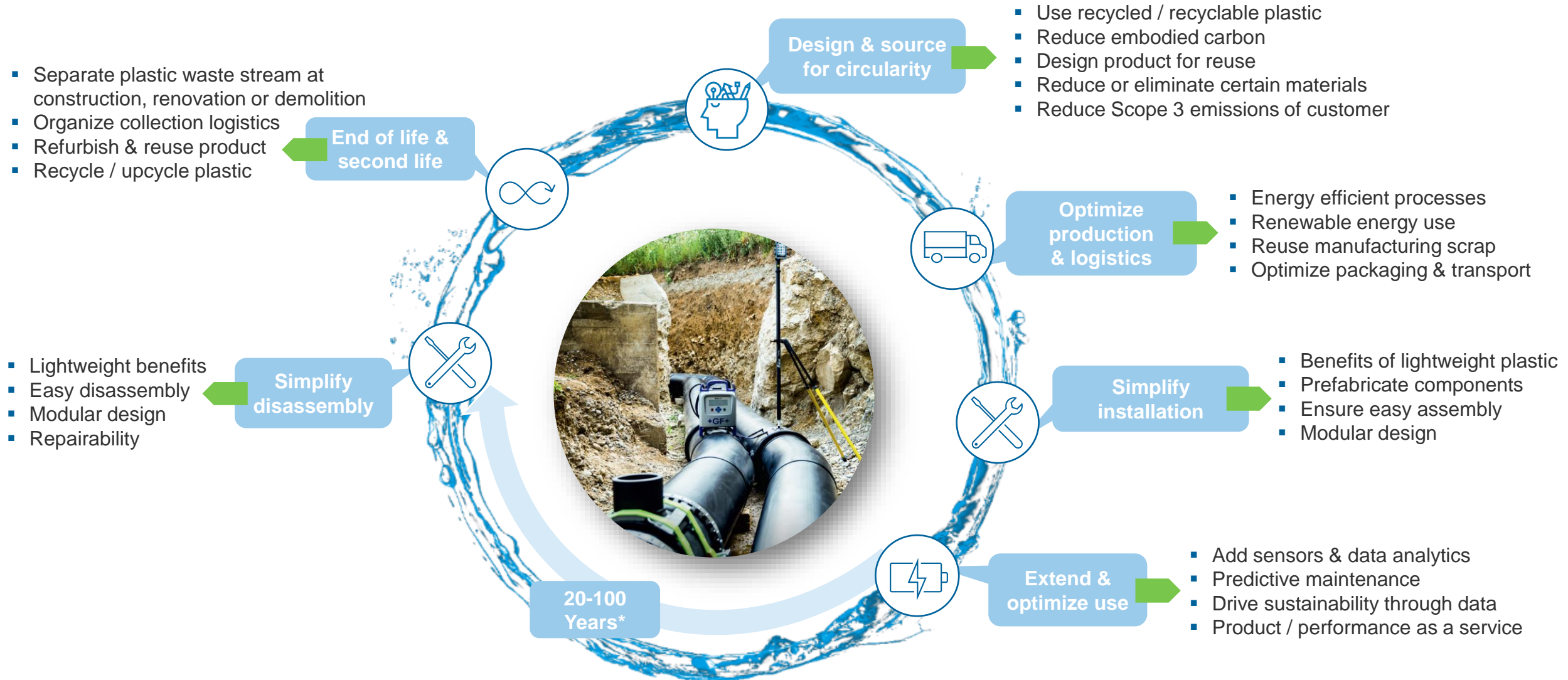
Discussion

- What are key elements & targets of your sustainability strategy?
- How are targets broken down to project and product level?
- How do you evaluate sustainability impact on project and product level?
- How can GF contribute to your target achievement?
- What kind of data do you need in your evaluation processes?

Part 2: The circular economy journey



+Circular economy @GF: a wide range of opportunities



*depending on industry segment and GF system.

+ Circular economy @GF: from strategy to action



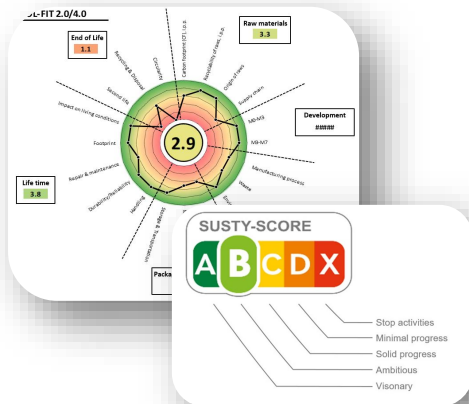
In the next five years, GF wants to become a sustainability leader through

- + offering high-value sustainable products and solutions
- + driving circular economy
- + fostering a diverse, engaging and safe working environment
- + collaborating with stakeholders along the value chain

GF sustainability strategy 2025

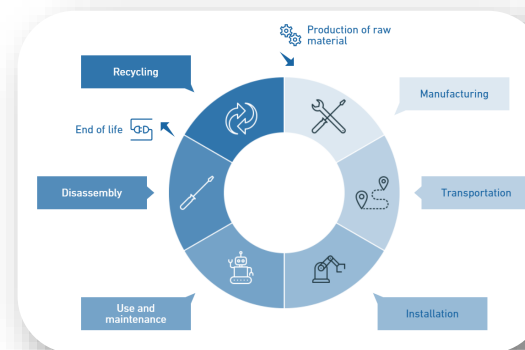
- ✓ Circular economy is an integral part of GF's corporate sustainability strategy.

Incremental innovation



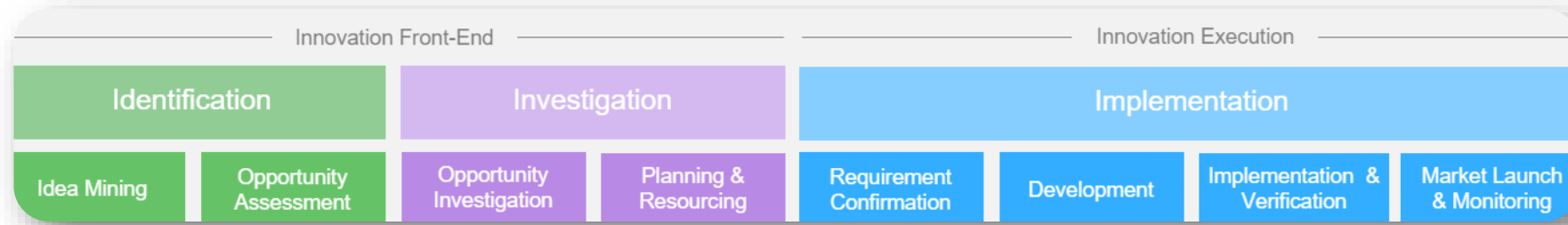
- ✓ Every new GF product has to undergo a two-tier **sustainability & circular economy assessment** as part of the innovation gate process.

Adjacent and transformational innovation

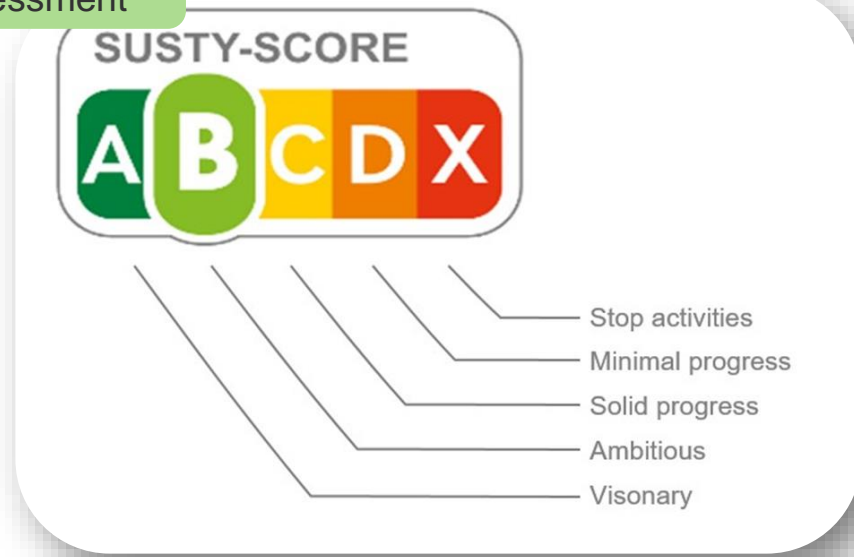


- ✓ Within our **Circular Innovation Framework**, we are exploring new, transformational materials, products and business models.

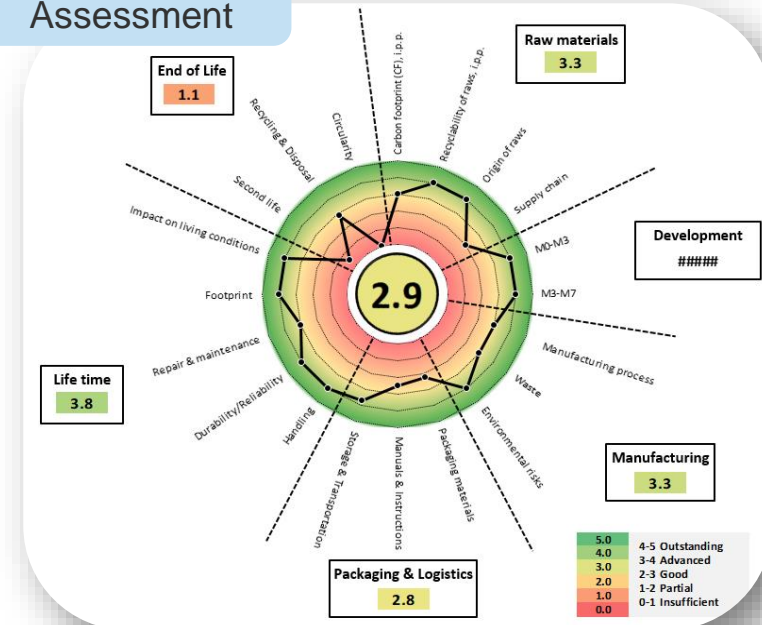
+ Sustainability & circular economy assessment



Basic Assessment



Advanced Assessment

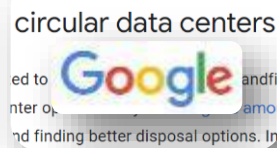


+ GF Circular Innovation Framework

➤ Integrating circular economy principles within Global Innovation and Product Management

Circular Economy

- Due to looming **resource scarcity**, **regulators and customers** around the world embrace this paradigm
- GF PS as responsible producer aims to **increase its circular offering**



Support for Innovation + PM

Circular design criteria
1. Circular materials
2. Resource-efficient design
3. Circular use
4. Second life

Circularity guide

- The **Circularity Guide** outlines circular design principles and business model opportunities
- Innovations will be assessed along **circular design criteria**

Structured process

- Every year, R&D heads receive a **circular innovation target**
- In 2023, **five circular explorer projects** in different business segments were initiated and embedded in the innovation process

Building Technology



Industry



Utility



Process Automation



Cooling



+GF+

+ Circular economy @GF: recycled materials limitation

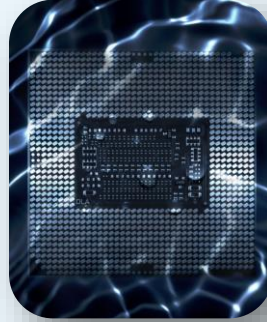


*depending on industry segment and GF system.

+ Circular economy @GF: pilot projects

Microelectronics Eternal PVDF

- **Customer:** major US microelectronics company
- **Project:** take-back and reuse scenario for PVDF components after 20+ years of service
- **Circular value:** Re-use of material
→ Scope 3 emission reduction



Industry & Utility Bio-attributed PVC

- **Customer:** various industries & applications
- **Project:** All GF metric PVC-U pipes, fittings and valves are made of up to 20% bio-PVC content
- **Circular value:** Low carbon footprint material
→ Scope 3 emission reduction



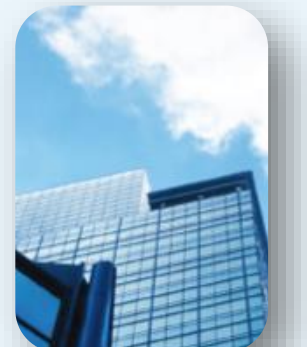
Marine Water360

- **Customer:** major US cruise company
- **Project:** digitalized potable water management system with enhanced sensor architecture
- **Circular value:** Predictive maintenance
→ prolonged pipe life



Building Technology #TakingForward

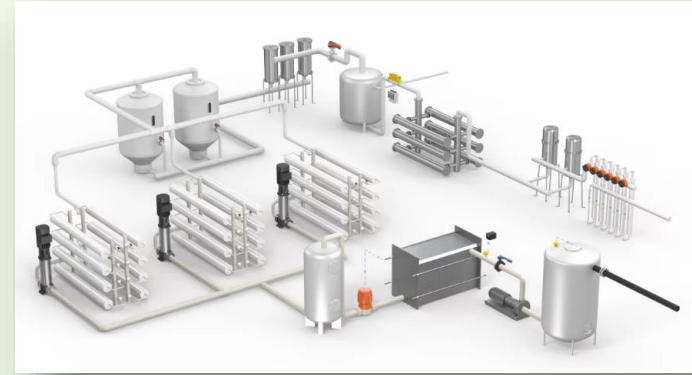
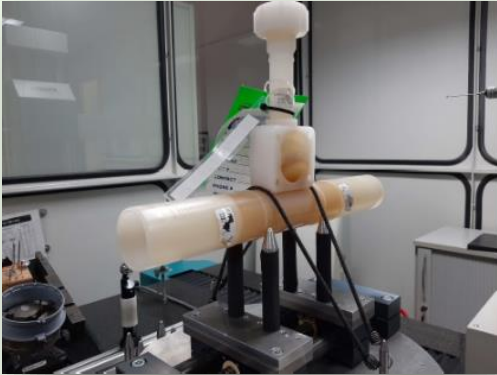
- **Customer:** construction & real estate industry
- **Project:** cross-industry initiative establishing a Swiss construction pipe waste recovery network
- **Circular value:** New, circular source of material
→ Scope 3 emission reduction



+Eternal PVDF



End of life & second life

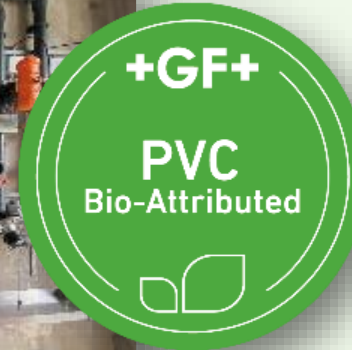


- **Revaluing used PVDF piping components from UPW applications**
- **Tests performed with a system in use for 23 years:**
 - pipe stress modelling, optical inspection, transmitted light & 3D digital microscopy, mechanical tests, infrared spectroscopy, test diaphragms, leak tightness testing, measuring dimensions in critical areas
- **Result: no compromise in performance** → the used products comply with relevant EN, DIN and ASTM standards, as well as GF internal requirements for new products

+ Bio-attributed PVC



Design & source for
circularity



- **Crude oil** partially replaced with **bio-based tall oil** → a waste product from the paper industry is upcycled to replace fossil resources
- **Up to 20% bio-based PVC-U** content in all pipes, metric fittings, and valves
- **Up to 90% lower CO₂ footprint** of resin compared to fossil PVC
- All **technical** and **chemical capabilities** of current PVC-U systems are guaranteed
- All existing **certifications** and **approvals** (drinking water, food contact, etc.) remain valid
- Feedstock does not compete with food production



Circular use phase

Water360



Customer comfort

- Optimum temperature
- Optimum pressure
- Smell & taste neutral water

Hygiene & health

- Safe & secure water
- Legionella prevention
- Legal compliance

Pipe life

- Predictive maintenance
- Leakage prevention
- Smart chlorine control

Sustainability

- Energy savings of pumps
- Energy savings of chillers
- Water savings



Temperature



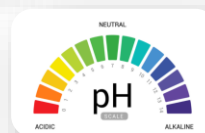
Flow



Chlorine

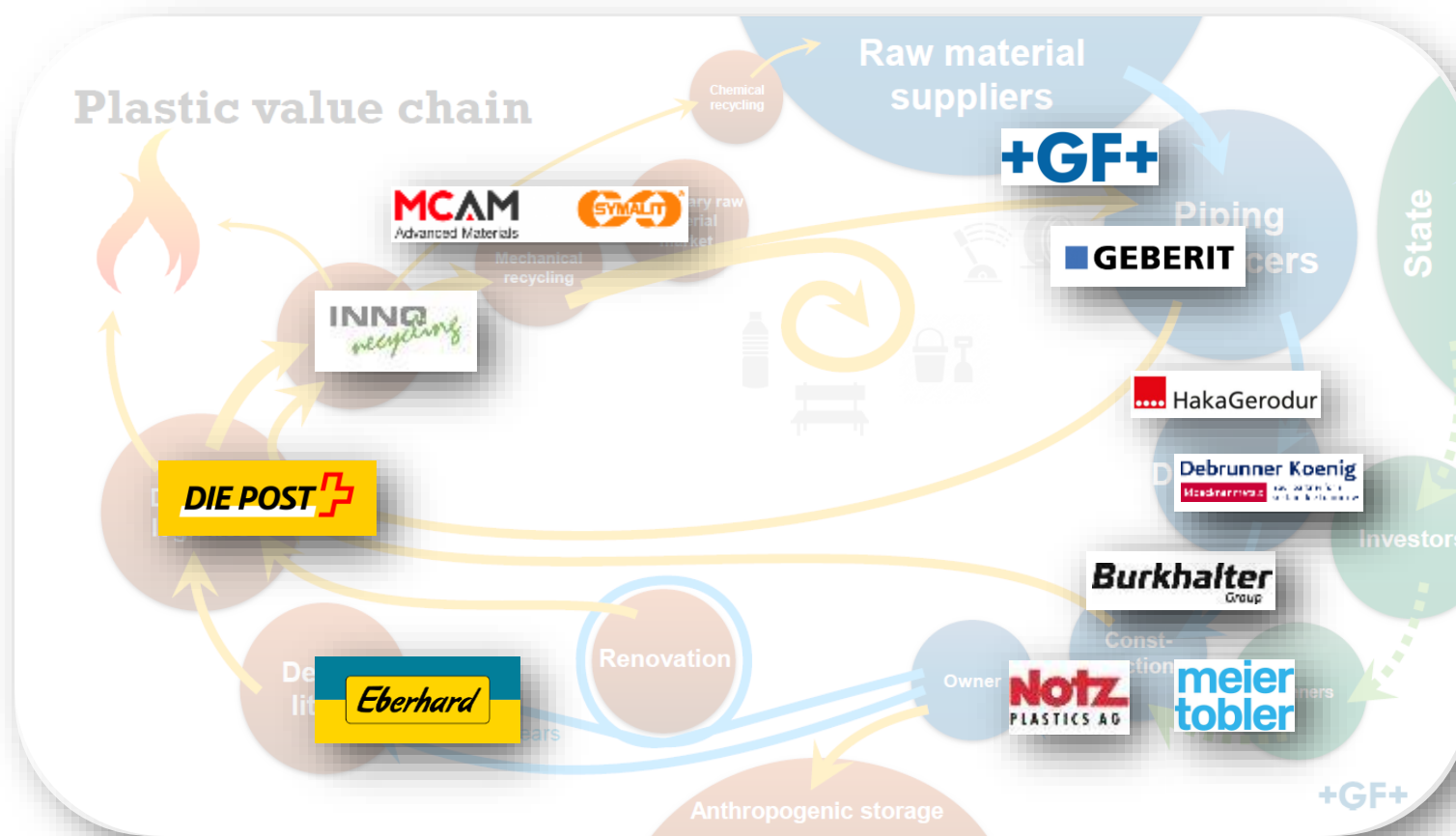


Pressure



pH

+ #TakingForward: Swiss plastic pipe waste recovery network



End of life & second life



Discussion

- How is circular economy integrated...
 - into your sustainability strategy?
 - into your innovation process?
 - Into your project and product evaluation process?
- What could be areas of co-operation and co-innovation?

+ Thank you for the attention and collaboration.



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+GF+

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