+GF+ INSTAFLEX®
Technical Manual

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GEORGE FISCHER +GF+
Piping Systems

George Fischer – Company Profile

Inventiveness and enterprise, a thirst for knowledge and a sound understanding of his craft, these were characteristics of Johann Conrad Fischer, who began producing cast steel in crucibles in a former herb mill in Schaffhausen in 1802. This was the beginning of a new era of iron processing on the European continent as well as the cornerstone of a large industrial enterprise now operating worldwide.

Actual industrial production began in the second half of the last century with the development of malleable iron foundries in Schaffhausen and Singen, as well as the large steel foundry in Schaffhausen. The first diversification into areas other than casting occurred in the 1920s, when the largest engineering factory in Schaffhausen was incorporated into the George Fischer Works. This factory manufactured copying lathes and subsequently fully automatic turning machines.

A major step towards diversification into other materials was taken some 45 years ago. The diversity and especially the aggressiveness of media conveyed in pipelines led to the extension of the product range in the early fifties to include fittings and valves made of high-grade plastics.

George Fischer now employs a work-force of over 14,000 in numerous factories in Europe and elsewhere.

Its activities are combined in four divisions: the **automotive products**, which handle a wide range of materials and focus mainly on the automotive and power engineering sectors; metal and plastic **piping systems** with the increasingly important measurement and control technology; **manufacturing technology**, with the emphasis on automated and system-integrated metal processing machines; and finally, **plant engineering and construction**, which is concerned with solving process engineering problems in the chemical industry, plastics production and processing, food production and casting.

George Fischer is a company which has earned a worldwide reputation through the high technological standard of its products and their outstanding quality. The applied engineering know-how which George Fischer has acquired and keeps up-to-date via its extensive consulting activities, is utilized for the benefit of users in the design of products for maximum practicality and ease of installation.

A whole series of innovative new developments, such as a bead and crevice free fusion jointing system, or a secondary containment piping system, highlight the pioneering role played by George Fischer in the field of **piping systems**.

Plant engineers in particular appreciate the product consistency and accuracy of tolerances, maintained over many years.

Products from George Fischer bearing the **+GF+** trademark have become a byword with professionals and cover a large part of the range of metal and plastic products necessary for pipeline construction in industry, building services and communal supply networks.

George Fischer Piping Systems, Schaffhausen.

George Fischer Distribution Centre Coventry (DCC)

Introduction

The technical data given in this publication are for general information purposes only and is liable to change. They imply no warranty of whatever kind. Please consult our General Conditions of Supply.

This manual contains all the essential information on the George Fischer plastic piping system **INSTAFLEX** for use in commercial, industrial and domestic hot and cold water installations.

It has been written for use in the UK market taking into account current standards and regulations. Since these are under regular review the reader should ensure that their application complies with the current legislation.

The manual has been subdivided into three main sections:

- **general,**
- **materials,**
- **technical.**

The **general section** at the beginning of the manual is an introduction to hot and cold water, potable water distribution in domestic, industrial and commercial installations as well as plastic materials technology.

In the **materials section** the plastic polybutylene (PB) and other materials used in the system are discussed.

In the **technical section** you will find all the essential data for planning, processing, installing and operating.

Overview

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Abbreviations

The following is a list of abbreviations
used in this catalogue:

ABS	Acrylonitrile-Butadiene-Styrene
ASA	American Standards Association
BSP	British Standard Pipe (Thread)
CSM	Chlorine Sulphonyl Polyethylene (e.g. Hypalon)
CR	Chloroprene Rubber (e.g. Neoprene*)
DIN	Deutsche Industrie Normen (German Industrial Standards)
DN	Nominal Bore (of pipe)
EPDM	Ethylene Propylene Rubber
FPM	Fluorine Rubber (e.g. Viton*)
g	Weight in grammes
GP	Carton (Gross Pack)
GRP	Unsaturated Polyester resin glass-fibre reinforced
IIR	Butyl Rubber
ISO	International Standardisation Organisation
kg	Weight in kilogrammes
NBR	Nitrile Rubber
NP	Nominal Pressure
NR	Natural Rubber
PB	Polybutylene
PE	Polyethylene
POM	Polyoxymethylene (e.g. Kematal**)
PP	Polypropylene
PTFE	Polytetrafluoroethylene (e.g. Teflon*)
PVDF	Polyvinyliden Fluoride
PVC-C	Chlorinated Polyvinylchloride
PVC-U	Unplasticised Polyvinyl Chloride
R	Taper Thread
Rp	Parallel Thread
SP	Standard Pack

* Dupont's registered trade name
** ICI's registered trade name

INSTAFLEX

The modern versatile piping system

A full range of pipe and fittings makes the INSTAFLEX system highly versatile.

Allowing prefabrication and being lightweight make the installation of an INSTAFLEX system highly cost effective.

+GF+ INSTAFLEX – the plastic piping system for complete services installations in one material

The efficient distribution of services in buildings is a demanding undertaking. The plastic piping system INSTAFLEX from George Fischer meets these high requirements.

Suitable for:

Application	Temp	Working pressure
Heating systems	85°C	10bar
Hot water services	70°C	10bar
Cold water services	20°C	15bar
Chilled water systems	-5°C	10bar
Compressed Air	20°	15bar