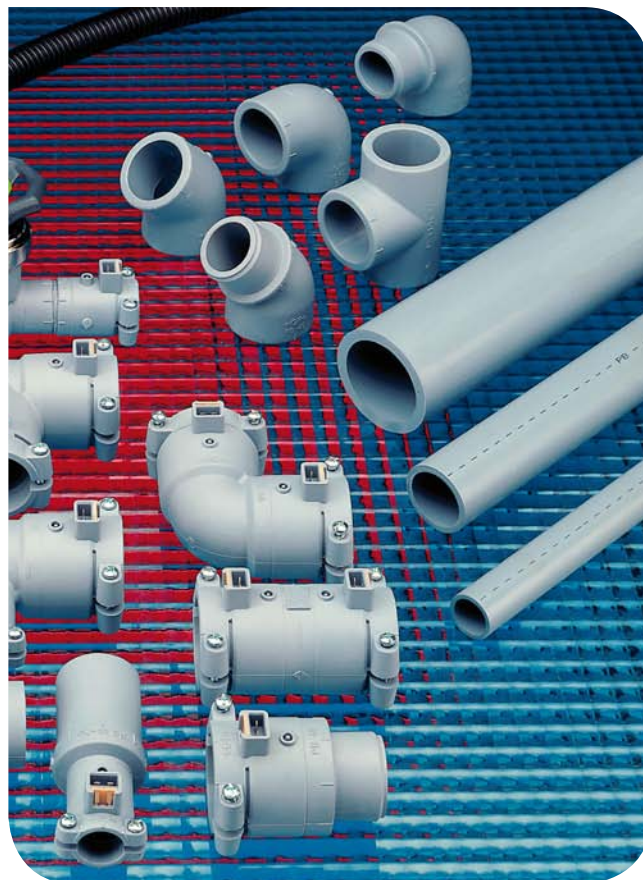
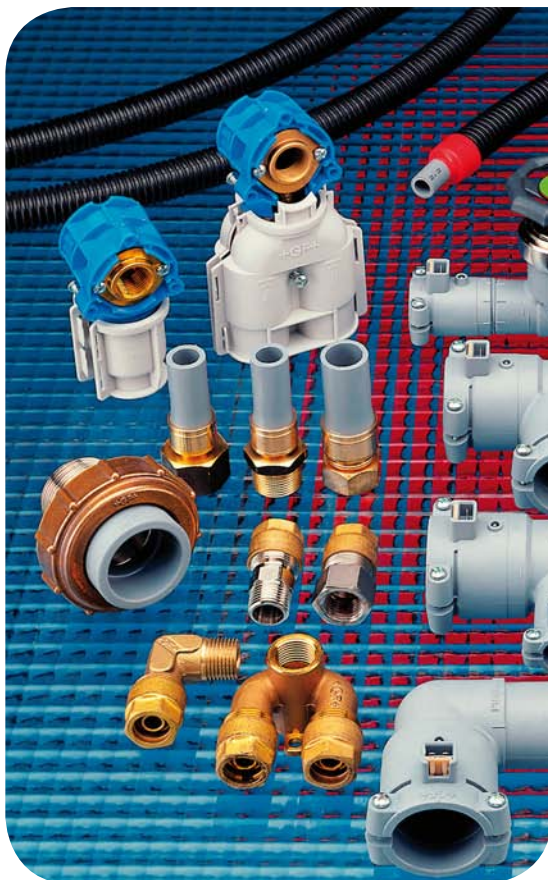


Product Range
2009

INSTAFLEX



+GF+

GEORG FISCHER
PIPING SYSTEMS

General Information

Explanation of signs

PB	Polybutylene
PE	Polyethylene
PP	Polypropylene
d	Pipe outside diameter
EPDM	Ethylene propylene rubber
s	Wall thickness of the pipe
dCu	Copper pipe outside diameter
DN	Nominal bore
Ø	Diameter
LK	Hole circle
SW	Dimension across flats (A/F)
G	Pipe thread, not pressure tight in the thread (with flat seat) to ISO 228
R	Taper male thread, pressure tight in the thread to ISO 7
Rp	Parallel female thread, pressure tight in the thread to ISO 7
M	Metric thread to ISO 261
m	Meter
SP	Items per standard pack
g	Gram

Inch - Metric Equivalents

n.b. inch	o.d. metric	n.b. metric
$\frac{3}{8}$	16	10
$\frac{1}{2}$	20	15
$\frac{3}{4}$	25	20
1	32	25
$1\frac{1}{4}$	40	32
$1\frac{1}{2}$	50	40
2	63	50
$2\frac{1}{2}$	75	65
3	90	80
4	110	100
4	125	110
5	140	125
6	160	150
6	200	180
8	225	200

Dimensions

All dimensions are given in mm and are intended as nominal or average sizes. Subject to alteration resulting from modifications in design.

For compressed air applications with air containing mineral oil, EPDM gaskets must be replaced by NBR gaskets.

This mainly concerns unions and flange connections.

Note: For systems containing oil, INSTAFLEX is not suitable.

NBR gaskets are not contained in this Product Range. Please contact the GF sales consultant or sales support office assigned to your sales area.



Always protect plastic pipes and fittings from external influences. Direct sunlight and the effects of impact and pressure should be avoided. Always leave the pipes and fittings in its packaging until ready to use. Do not store outside.

GF and **INSTAFLEX** are registered trademarks.

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.

What is INSTAFLEX?

The versatile pressure piping system for building services

For use on:

- Hot & cold water services
- Heating systems
- Chilled water
- Compressed airlines

The INSTAFLEX system has been designed for use as a complete building services piping system which provides a solution to the problems faced by traditional materials namely:

- No corrosion
- No encrustation/limescale
- No noise emission
- Long service life
- High flexibility
- Fast assembly
- Lightweight

Launched in 1980 into mainland Europe and into the UK in 1995 this system has provided installers and designers with a flexible system which meets the stringent demands of modern building design and construction.

Material

Manufactured from polybutylene (PB), a high performance plastics material, which was specifically developed for use in piping systems for potable water. Its inherent characteristics make it ideal for this purpose and for other building services applications.

Range

A full range of pipe and fittings are available with adaptors to join onto other piping system components.



- Pipe & fittings 16 -225mm
- Pipe-in-sleeve
- Accessories & jointing equipment
- Valves

Jointing & installation

The INSTAFLEX system utilises three complimentary jointing techniques:

- socket fusion
- electrofusion
- compression fittings
- butt fusion

Each of which have advantages depending on the installation in question. Most installations tend to incorporate more than one type of jointing method.

Due to the flexibility of the system and the material's lightweight, significant savings can be made on installation time and costs.

Technical advice & support

George Fischer's expertise and technical knowledge in the piping system field is recognised worldwide. In order to assist designers and installers in the optimum use of the INSTAFLEX system the following support is available :

- On-site support & advice
- Design take-offs
- Certificated jointing training courses
- Technical support
- CAD
- Custom products
- Off site prefabrication

What is Polybutylene (PB)?

Polybutylene is a thermoplastic from the polyolefine family. It is a semi-crystalline material. Its density is in the range of other thermoplastics such as PE or PP. It has good mechanical properties and chemical resistance making polybutylene an important material for piping systems.

PB is created by polymerizing butylene (C_4H_8) and is, therefore, an ecologically safe hydrocarbon product.

The material which we use, may be used with foodstuffs due to its safe stabilizing agent. The fittings and pipes are odourless and tasteless as well as physiologically safe. It is perfect for use in drinking water installations.

Like PE and PP, PB belongs to the group of co-valent materials, whose surfaces do not swell and are not soluble. Solvent cementing is, therefore, not possible without special surface treatment. PB is, however, easily fused. Compression, socket fusion and electrofusion jointing can be used.

Flexibility, even at low temperatures, high thermal stability make polybutylene a modern material. Not only for hot and cold water distribution but also in industrial applications and compressed air.

GF are able to supply metric socket, butt and electro fusion pipe, fittings and valves as well as mechanical joints in the following size range.

socket fusion 16mm - 110mm o.d.
electro fusion 16mm - 225mm o.d.
butt fusion 125mm - 225mm o.d.

The physical values shown in the table below are to be treated as guide values.

Properties of Polybutylene

Property	PB	Unit
Density	0.93	g/cm ³
Melt flow index MFI @90/5	0.4	g/@0 min
Yield strength	17	N/mm ²
Elongation at fracture	>125	%
Bending-creep modulus (@ min.)	800	N/mm ²
Impact strength 23 °C 0 °C	no failure 40	mJ/mm ² mJ/mm ²
Crystalline fusion temperature	0.013	°C
Coefficient of linear expansion	0.13	mm/m°C
Thermal conductivity at 20 °C	0.32	W/m · K
Surface resistance	0.007	W
Normal working temperature range	-15 to 95	°C

Temperature/Pressure rating

The GF INSTAFLEX system is manufactured from polybutylene which is a thermoplastic material. As the name thermoplastic suggests, it is affected by temperature. When the temperature of the liquid in the pipeline rises the material will soften and its ability to withstand pressure reduces correspondingly. To calculate the pressure rating at any given temperature the well known "vessel" formula is used in conjunction with the long term regression curves of the material.

SF for non-dangerous liquids = 1.5
SF for dangerous liquids = 2.0

Design life 50 years.

Safety Factor 1.5

$$P = \frac{\sigma \times 20 \times s}{SF \times (d-s)}$$

or $SF = \frac{\sigma \times 20 \times s}{P \times (d-s)}$

where P = pressure in bar
 σ = hoop stress of material at any given temp. in M Pa
s = pipe wall thickness in mm
d = pipe o.d. in mm
SF = safety factor

Example

What is the maximum pressure for a 110mm pipe carrying water at 70°C with a working life of 50 years

s = for 110mm INSTAFLEX pipe is 10mm

SF = 1.5

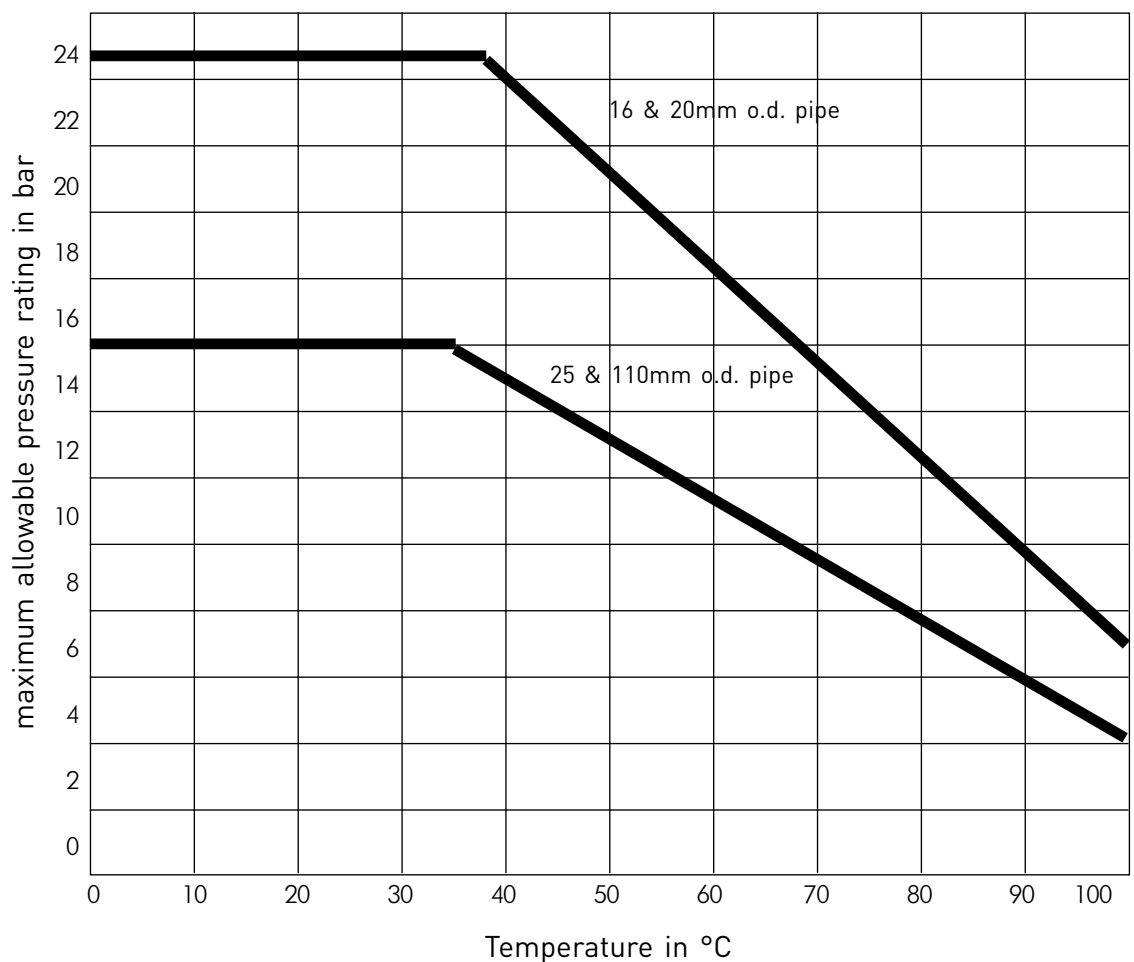
d = 7.5 MPa taken from long term regression curve opposite.

$$P = \frac{\sigma \times 20 \times s}{SF \times (d-s)}$$

$$P = \frac{7.5 \times 20 \times 10}{1.5 \times (110-10)}$$

P = 10 bar

Temperature/Pressure chart



Note:
Size 16 & 20mm is 25 bar
25 to 110mm is 16 bar.

INSTAFLEX (PB) Specification

General

The Polybutylene system shall be supplied by George Fischer, Telephone 024 76 535535, Fax 024 76 530450. (Available from appointed distributors, contact the above for your nearest distributor.)

Requirements specific to the design of PB pipework systems are contained in this section.

Polybutylene (PB) pipework fittings shall be used for the conveyance of heating LTHW and potable cold water, for use in all domestic cold water services, chilled water, hot water services and compressed air should comply with the requirements specified in BS 7291 (Parts 1 and 2) class 'S'; DIN 16968/DIN 16969 or EN ISO 15876-1.

The whole of the PB pipework installations should be tested in accordance with the requirements as set out in BS Code of Practice 312: and installed in accordance with BS6700 and the relevant manufacturer's instructions.

Care should be exercised whilst off-loading, storing, transporting about the site and whilst installing the pipework and fittings to ensure that no accidental damage occurs to the pipework or fittings. Also, the pipework and fittings should not be stored where they may be exposed to the effects of ultra violet radiation including daylight.

Pipes

All PB piping should be to BS 7291: Part 1&2; DIN 16968/DIN 16969 or EN ISO 15876-2.

Pipe Fittings and Valves

Unless specified otherwise, all associated pipe fittings (viz. Manifolds, unions and flanges) should be of PB manufactured generally in accordance with BS 7291: Parts 1 and 2 and brass fittings manufactured generally in accordance with BS 864, Part 2; or EN ISO

15876-3 and be fully compatible with the pipe system they are to be installed with. Valves for PB pipework should be fully compatible with the pipework system to which they are to be connected, comprising variously:

(i) PB gate valves for pipe sizes up to and including 63mm outside diameter, allowing bi-directional flow with direct sealing of slide in valve body operating at 90° to direction of pump flow with non raising valves spindle.

(ii) PVC-C ball valves, for pipe sizes up to and including 63mm outside diameter, meeting the resistance to pressure requirement of DIN 3441, allowing bi-directional flow with floating ball, and complete with double socket disconnecting ends and removable seals.

(iii) PVDF flanged butterfly valves, for pipe sizes over 63mm outside diameter, allowing bi-directional flow, or overall dimensions complying with DIN 3441: Part 5 or ISO 7508 and having valve body holes to allow connection to flanges drilled in accordance with BS 8063: Part 4, ISO 2536 or BS 10; Table D or E.

(iv) Brass valves should be suitable for connection with PB pipe directly, or with adaptors to flanged or threaded connectors.

(v) Only pipe cleaner and sealant specifically approved by the pipe and fittings manufacturer should be used. The above valves should be used for balancing and regulations purposes. Unless otherwise indicated on the drawings, draw-off isolating valves should be of approved construction with female threaded ends suitable for PB threaded adaptors.

Selection of PB Pipe Systems

The selection is based on the following diameters:

The installed system shall be the GF PB pipework system and shall have the following diameter pipework.

Outer Diameter	Inner Diameter
16	11.6
20	14.4
25	20.4
32	26.0
40	32.6
50	40.8
63	51.4
75	61.4
90	73.6
110	90.0
125	102.2
160	130.8
225	184.0

All PB pipework sizes stated on the drawings refer to outside diameters.

Workmanship, Finish and Appearance

The finished tube shall be smooth, free of internal and external mechanical imperfections and internally shall have a smooth appearance.

Packaging and Transportation

The pipes should be delivered in coils or straight lengths, and the tubes shall be bundled by size in suitable bags or cardboard boxes, clearly marked with the purchase order number, material designation, size, total length or piece count and name of supplier.

Pipe Joints

The pipes and fittings should be entirely compatible with each other and the jointing should be carried out in strict accordance with the manufacturer's printed instructions. Unless indicated otherwise, the pipe joints in PB pipework should be made by socket fusion, butt fusion, electrofusion or compression. The assembly of these should be carried out in strict accordance with the manufacturer's instructions. **Only fully trained installers should be used for assembling PB pipe systems. Trained and Certified by George Fischer or by George Fischer appointed trainers.**

(i) Socket fusion

Utilising the correct tools for assembly, heating and jointing times in accordance with the manufacturer's instructions. This shall only be carried out at a work bench, with the heating element securely fixed to the work bench.

(ii) Electrofusion

Utilising correct tools for assembly, heating and jointing times in accordance with the manufacturer's instructions.

(iii) Butt fusion

Utilising the correct tools for assembly, heating and jointing times in accordance with the manufacturer's instructions. This shall only be carried out at a work bench, with the heating element securely fixed to the work bench.

(iiii) Brass Compression

Fittings to include internal pipe sleeve as integral part of fitting with grip ring to hold pipe in place. Assembly in accordance with manufacturer's instructions. This method shall only be used to connect to items of plant or to metallic pipework sections. Where directed, to enable disconnections to be undertaken, socket unions should be fitted on pipes up to and including 63mm outside diameter. Above 63mm outside diameter, flanged joints should be used. Note: Locations for de-mountable unions and flanges shall be as shown on the drawings. Screwed adaptor fittings should be used at screwed joints to appliances up to 2" normal bore. PB flange adapters having dimensions in accordance with BS 4504, should be provided for connections to pumps, tanks or equipment above 2" nominal bore.

Pipework System

The piping contractor should provide samples of the following for approval:

- PB piping
- PB pipework regulation and isolation valves
- PB pipework bends, tees and tap connectors
- PB cleaner and jointing equipment or (if applicable) compression fittings for use with PB

Orders for the pipework system should not be confirmed, nor should the construction of the installation of the system proceed until these samples have been approved in writing.

The approved samples should be retained on-site for comparison with the work as actually installed.

The connections to taps on sinks worktops etc should be installed with the manufacturer's suitable brass outlets connectors. Arrangements should be made to ensure that the fittings and the PB pipe to which it is joined are guarded and secured in such a way as to be protected from undue impact or excessive torque.

PB pipework can be connected to any heat source (for example domestic hot water storage calorifier or direct gas fire water heater).

Cleaning

In general the pipe should be flushed with mains cold water after finishing the installation.

Disinfection

Disinfection shall be carried out in accordance with Section 218 and the manufacturer's guidelines.

Fire Sleeves

Fire sleeves should be used where single PB pipes of 20mm outside diameter and above or multiple banks of pipes penetrate fire barriers. They should generally comply with the requirements of the local fire authority.

- (i) They should be constructed with an intumescent lining.
- (ii) Casings should accommodate the expansion of intumescent linings during fire conditions.

(iii) Intumescent linings should expand inwards at a temperature of about 140°C and completely seal the openings against the passage of flames, fumes and smoke. Such linings should also be in accord with the pipe manufacturer's requirements.

Note: The pressure of the expanding intumescent lining may crush PB pipes.

(iv) Individual sleeves mounted on vertical pipework should:

- be of construction suitable for surface mounting
- be installed on the pipe immediately below the barrier (the collar should be securely fixed to the sleeves, the sleeve and the flanged collar butted up against the fire barrier and the flange bolted into position) or similar.

Installing the pipework system

The contractor should:

(i) Check that the exterior of the piping is marked at intervals not exceeding one metre with the manufacturer's name, type of material, pipe size and standard with which it complies.

(ii) Check that all the piping and fittings supplied are uniform in colour density.

(iii) Exercise particular care in their storage, handling and installation to avoid deterioration due to ultraviolet light and impact damage.

The piping manufacturer's printed instructions should be rigidly adhered to in all respects of storage, stacking, handling and installation. The pipework should be supported as indicated upon the drawings and as detailed within the contract documents. It is essential that cleaners are correctly applied to the pipe ends and sockets prior to fusion and electrofusion jointing with cleaning pads changed regularly in accordance with manufacturer's instructions. After fusion jointing, a ring of Polybutylene will be visible on the outside of the pipe as evidence that a joint has been completed. After electrofusion an indicator pip will raise above the surface of the fitting as evidence that a joint has been completed.

Great care should be taken to ensure that only the manufacturer's installation procedures are followed and, in particular, that the full cooling period is maintained before any joint is considered to be complete.

No pipework, or section thereof, shall have water pressure applied until the manufacturer's stipulated setting period has elapsed (a minimum of at least one hour after the last fusion point).

Where an existing heat source has to be maintained, with pipes either running parallel or crossing each other, thermal insulation should be applied. On no account should ladders scaffold or other building items be propped up against the PB pipework installation.

Changes in direction can be achieved using the pipes flexibility, in accordance with the manufacturer's instructions. No thermally induced bending of PB pipes through the application of local heating should be permitted.

All PB pipes should be supported by pipe clips or support brackets, the spacing of which should not exceed the maximum intervals as advised and confirmed by the pipe manufacturer.

Where a pipe clip or support bracket is being used to support a number of pipes of different materials and sizes, the spacing interval between such clips and brackets should not exceed the smallest of the 'maximum intervals' stated or advised for each of the pipes being supported.

PB pipework in exposed positions (or where distortion is likely to occur) should be supported using the piping manufacturer's standard pipe clip or support pipe carriers. Where PB piping is supported using other than standard PB pipe clips, the supports should comprise steel split pipe rings with rubber insert, nipping rod nuts and washers with backplate as required, either fixed to rail support or building fabric.

The test pressure should be maintained throughout the period of time of not less than one hour and not less than one and a half times working pressure.

There should be no loss of pressure above that detailed in the manufacturer's handbook, to allow for the expansion and the setting in period of PB pipes, during the period the test is being carried out. The results of the pressure test should be recorded on a log sheet.

Expansion

Expansion loops or changes in pipe direction should be allowed for at regular intervals in accordance with manufacturer's guidelines. Where expansion loops and changes in direction are impractical fixed point assembly may be used on pipes up to 75mm diameter to prevent the PB pipes from expanding or contracting, in accordance with manufacturer's guidelines.

Warning: Not all PB piping systems are suitable for fixed point assembly to resist the effects of expansion. Please consult the manufacturer before considering the use of this method.

If fixed point brackets are being used to avoid longitudinal expansion of PB pipes, the installation instructions of both the pipe and bracket manufacturer's should be adhered to.

Fixed point brackets should be located at fittings and must grip the pipe on both sides of the fittings, or according to manufacturer's instructions.

Fixed point supports should be located at fusion or electrofusion fittings and meet with the manufacturer's requirements, to absorb forces and transfer them to the structure. Fixed points should not be located more than a maximum of 6m apart.

Pipe support carriers must be used to support the pipes between fixed points, to prevent buckling. Normal supports for the pipes and carrier, between fixed points should not be more than 1.5m apart, in accordance with the manufacturer's guide lines.

Pipe support carriers shall be of semi-circular shape to closely match the pipes outside diameter. Manufactured from galvanised or size plated steel. The coating inside and outside are to be of the same standard. The finish is to be smooth along the surfaces and edges to prevent damage to the pipes. When cut the edges of the carrier are to be filed smooth. The carrier is to be attached to the pipe by approved cable ties suitable to support the forces, at intervals recommended by the manufacturer (never more than 500mm). The carrier is not to be run over fittings, but to terminate 10-15mm short both sides with adequate support through cable ties and brackets.

Only installers carrying a GF training certificate shall be used for assembling GF Polybutylene pipe systems.

Water Treatment

On completion of installation, the whole of the heating and primary hot water system is to be filled and after a satisfactory pressure and heat test is achieved emptied and flushed clean of all foreign matter.

When a clean water condition is proven, the system is to be dosed with an approved and recognised chemical scale and corrosion inhibiting agent.

The dosing operation is to be carried out by an approved specialist and on completion, certificates are to be submitted indicating the chemical used (and its characteristics) the percentage dosage introduced and all other relevant details required to maintain satisfactory protection.

Immediately upon completion of the dosing process, notices are to be posted in plant rooms indicating that the system has been treated, the chemical used, the percentage concentration, etc and particularly relevant information required by the Health and Safety at Work regulations.

Prior to the dosing process commencing, the Contractor is to submit details of the company it is proposing to engage to perform the operation, complete with all relevant information regarding the type of chemicals to be used and the method.

Dosing by the mechanical contractor or any other organisation not a specialist will not be permitted.

George Fischer's INSTAFLEX Technical Guide is available on request Tel:024 7653 5535 or on-line at www.georgefischer.co.uk

Flange connections/unions

Connection: plastic/plastic

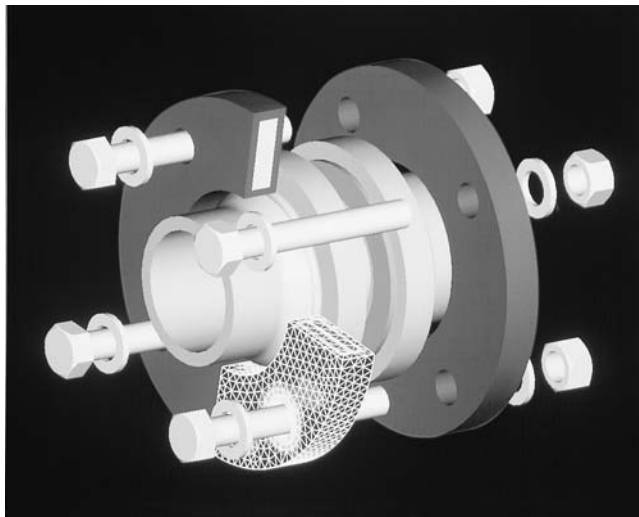
O-ring sealing unions or flange connections should be used in principle for detachable connection of plastic pipes or adaptors between plastic pipes and metal pipes or metal fittings (valves, pumps).

- Unions up to d 63
- Flange connections up to d 110

High screw tightening forces are not required for making flange connections with O-rings. It is recommended to use torque wrenches to prevent excessive tightening of screws.

Nominal values for the screw fixing of flange connections with O-Ring:

Pipe external diameter	mm	16	20	25	32	40	50	63	75	90	110
Torque	Nm	3	3	4	5	10	12	15	18	20	22



Commercially available screws, nuts, washers. Washers should be used in general

Connection: plastic/metal

- **Flange seals** are normally used in flange connections for the transition from plastic to metal, since the jointing faces of the metal flange are usually serrated.
- The screws should also be tightened with a torque wrench

for flange connections with flange seals, in order to prevent damage to flanges or flange adaptors. The table below shows nominal values of torques required for the various pipe diameters.

Pipe external diameter	mm	16	20	25	32	40	50	63	75	90	110
Nominal internal diameter DN	mm	10	15	20	25	32	40	50	65	80	100
Torque	Nm	6	7	9	10	20	25	30	35	40	45



GF FIRESTOP Firesleeves

Product Specification

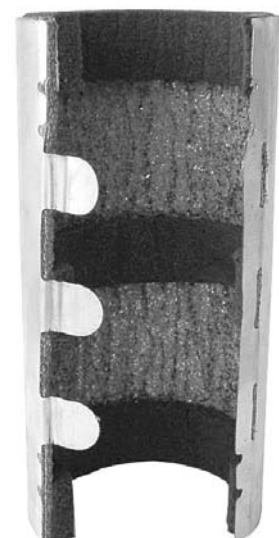
GF FIRESTOP is a one piece, one length stainless steel sleeve complete with closure tabs and slots, having an intumescent lining running the full length of the unit with 3 bands of Acoustic Foam adhered to the bore. The units are wrapped around the plastic pipes by hand and slid into the walls/partitions.

In the event of a close proximity Firestop fire sleeve lining of intumescent activates at 140°C and expands to over 16 times its own volume to create a fire proof seal between the pipe and the wall which prevents the spread of the fire between building compartments.

The foam, whilst creating a smoke and acoustic seal against the pipe, allows for pipe expansion and building movement and is also an anti-vibratory material.

FIRESTOPS can be fitted to either horizontal or vertical pipework and although they can be freely moved into position, they will remain in place even on vertical pipework.

- FIRESTOPS do not give off toxic fumes or smoke in the event of a fire
- FIRESTOPS are asbestos free and do not contain any hazardous materials and there are no special precautions required for handling or installing the units.



INSTAFLEX® Installation

Quick Reference Guide

For full details refer to full INSTAFLEX Training Manual

Socket Fusion Jointing

1. Chamfer pipe ends
2. Clean pipe & fittings
3. Check heater bushes temperature
4. Check and clean heater bushes
5. Set timer to correct heating time
6. Mark fusion depth with gauge
7. Make joint but Do Not Twist after insertion only
adjust for squareness
8. Hold pipe & fitting together for required holding time
9. Carefully put pipe and fitting down for cooling time

For 16 to 110mm Pipe & Fittings Polybutylene (PB) Socket Fusion Jointing

Pipe outside diameter o.d. (mm)	Wall thickness minimum mm	Welding length L (mm)	Heating time t (sec)	Holding time t ₁ (sec)	Cooling time t ₂ (min)
16	2.0	15	6	15	4
20	2.0	15	7	15	4
25	2.3	18	7	15	4
32	3.0	20	10	20	4
40	3.7	22	14	20	4
50	4.6	25	18	30	4
63	5.8	28	22	30	6
75	6.8	31	26	60	6
90	8.2	36	30	75	6
110	10.0	42	35	90	6

INSTAFLEX® Installation

Quick Reference Guide

For full details refer to full INSTAFLEX Training Manual

Electrofusion Jointing

1. Cut pipe ends square using correct tool
2. Clean pipe & fittings with PB cleaning fluid
3. Mark insertion depth on pipe
4. Remove electrofusion fitting from bag and insert pipe
5. Tighten fitting ensuring screw head is level with the plastic
6. Check electrofusion leads for damage, if ok connect lead ends onto the terminal on fitting
7. When joint cycle is complete remove electrofusion leads from fitting
8. Check for fusion indicators pips rising close to the terminal

For 16 to 110mm Pipe & Fittings Polybutylene (PB) Electrofusion Jointing

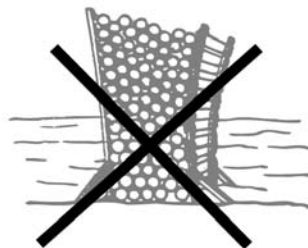
Pipe outside diameter o.d. (mm)	Wall thickness minimum mm	Welding length L (mm)	Heating time t (sec)	Cooling time t ₂ (sec)
16	2.0	27	45	4
20	2.0	30	50	4
25	2.3	34	65	4
32	3.0	37	75	4
40	3.7	40	85	4
50	4.6	44	105	4
63	5.8	50	120	6
75	6.8	67	105	6
90	8.2	73.5	110	6
110	10.0	80	120	6

Working with plastic pipes and fittings

Transport and storage of plastic pipes

W R O N G

R I G H T



Plastics are materials sensitive to impact and crushing at low temperatures.

The temperature limit depends on the relevant material.

PP-R	+5 °C
PVC-C	+5 °C
PB	-10 °C
VPE	-20 °C

Below these temperatures pipes and fittings would have to be protected particularly from impacts, crushing and other external mechanical stresses.



Safety instruction

Plastic pipes and plastic fittings must be protected in principle from external influences. Direct sunlight, impacts and compressive stresses should be avoided. The pipes and fittings must be left in their packing until used. They should not be stored out of doors.

Pipes in coils

3700

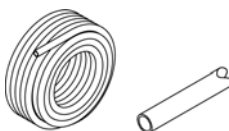


PB pipe in protective pipe in coils

- packed in cardboard boxes

d [mm]	s [mm]	Code	SP	GP	kg/m	D [mm]
16	2.2	760 853 387	60	0	0.162	25
20	2.8	760 853 388	60	0	0.235	30
25	2.3	760 854 910	30	0	0.270	34

3710



PB pipe in coils

- packed in cardboard boxes
- *packed in protective wrap

* on request

d [mm]	s [mm]	Code	SP	GP	kg/m
16	2.2	760 853 389	60	0	0.100
20	2.8	760 853 390	60	0	0.150
25	2.3	760 854 946	30	0	0.165

3720



Protective pipe PE in coils

- packed in cardboard boxes

* on request

d [mm]	Colors	Code	SP	GP	kg/m	D [mm]
16	black	760 853 393	60	0	0.062	25
* 16	blue	760 856 616	60	0	0.062	25
* 16	red	760 856 617	60	0	0.062	25
20	black	760 853 394	60	0	0.085	30
* 20	blue	760 856 618	60	0	0.085	30
* 20	red	760 856 619	60	0	0.085	30

PB pipe in straight lengths

3714



PB pipe in straight lengths of 5.8m

- packed in cardboard boxes

d [mm]	s [mm]	Code	GP	kg/m	SP [m]	
16	2.2	760 856 606	0	0.097	52.2	
20	2.8	760 856 607	0	0.151	52.2	
25	2.3	760 856 608	0	0.165	58.0	
32	2.9	760 856 609	0	0.270	23.2	
40	3.7	760 856 610	0	0.416	17.4	
50	4.6	760 856 611	0	0.645	17.4	
63	5.8	760 856 612	0	1.020	5.8	
75	6.8	760 856 613	0	1.440	5.8	
90	8.2	760 856 614	0	2.060	5.8	
110	10.0	760 856 615	0	3.050	5.8	

5200



PB Pipe in straight lengths 5.8m

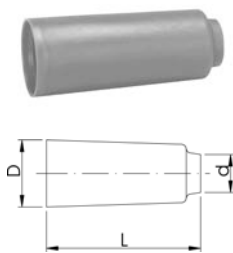
- packed in PE-Bag

d [mm]	s [mm]	Code	SP	GP	kg/m	Length [m]	
125	11.4	761 065 290	6	0	3.950	5.80	
160	14.6	761 065 291	6	6	6.460	5.80	
225	20.5	761 065 292	6	6	12.700	5.80	

Accessories

3921

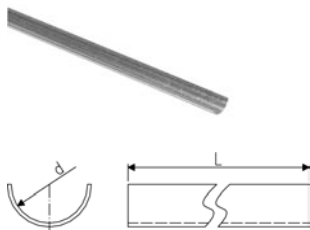
Cap for protective pipe



d [mm]	Colors	Code	SP	GP	kg	L [mm]	D [mm]	
16	red	760 854 986	10	0	0.005	70	25	
16	green	760 854 987	10	0	0.005	70	25	
20	red	760 854 988	10	0	0.007	70	30	
20	green	760 854 989	10	0	0.007	70	30	

3929

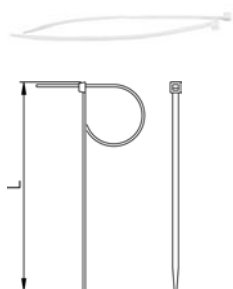
Pipe support tray



d [mm]	Code	SP	GP	kg/m	L [mm]	
40	760 854 928	30	0	0.360	3000	
50	760 854 929	30	0	0.450	3000	
63	760 854 930	30	0	0.570	3000	
75	760 854 985	30	0	0.680	3000	

3930

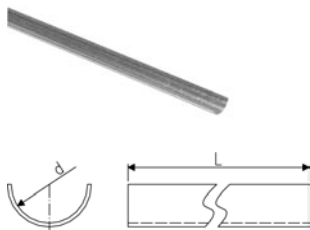
Pipe binder



d-d [mm]	Code	SP	GP	kg	L [mm]	
16 - 40	760 853 283	100	0	0.001	200	
50 - 75	760 853 284	100	0	0.003	300	
90 - 110	760 854 984	100	0	0.001	430	

3931

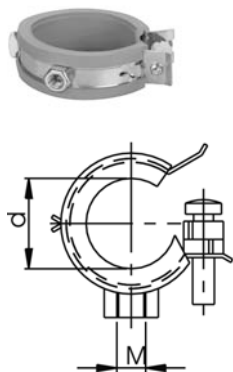
Clip pipe support tray



d [mm]	Code	SP	GP	kg/m	L [mm]	
16	760 856 602	30	0	0.270	3000	
20	760 856 603	30	0	0.320	3000	
25	760 856 604	30	0	0.480	3000	
32	760 856 605	30	0	0.600	3000	

5091

Pipe clamp



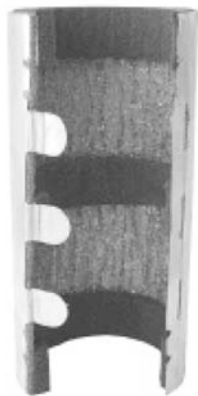
d [mm]	Code	SP	GP	kg	M [mm]	
16	761 066 296	50	0	0.040	8	
20	761 066 297	50	0	0.050	8	
25	761 066 298	50	0	0.051	8	
32	761 066 299	50	0	0.060	8	
40	761 066 300	50	0	0.081	8	
50	761 066 301	50	0	0.091	8	
63	761 066 302	50	0	0.132	8	
75	761 066 303	50	0	0.152	8	
90	761 066 304	25	0	0.191	10	
110	761 066 305	25	0	0.232	10	

60 30 50



Armaflex Insulation 13mm Insulation Tube

d [mm]	Code	SP	kg	Length [mm]	
16	760 305 010	20	0.095	2000	
20	760 305 011	20	0.123	2000	
25	760 305 012	20	0.154	2000	
32	760 305 013	20	0.220	2000	
40	760 305 014	20	0.230	2000	
50	760 305 015	20	0.275	2000	
63	760 305 016	20	0.417	2000	
75	760 305 017	20	0.455	2000	
90	760 305 018	20	0.500	2000	
110	760 305 019	20	0.667	2000	



Firestops Fire Protection Sleeves

Outer stainless steel sleeve, inner intumescent lining and three acoustic foam seals.

Fire protection up to 120 minutes.

Tested to BS476:Part 20

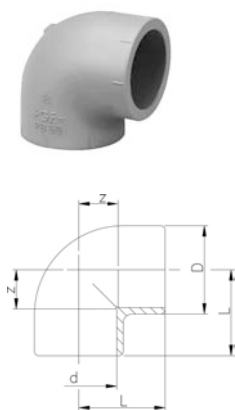
On contact with fire, the FIRESTOP's intumescent lining expands to over 16 times its original volume, thereby crushing the plastic pipe and forming a smoke and flame barrier.

d [mm]	Code	SP	kg	Length [mm]	
16	PIL008199	12	0.059	205	
20	PIL008200	12	0.065	205	
25	PIL008201	12	0.124	205	
32	PIL008202	12	0.141	205	
40	PIL008203	12	0.167	205	
50	PIL008204	12	0.194	205	
63	PIL008205	12	0.237	205	
75	PIL008206	8	0.272	205	
90	PIL008207	8	0.315	205	
110	PIL008208	8	0.368	205	
160	PIL008209		0.450	205	
225	PIL008210		0.800	205	

Fittings for socket fusion jointing

5005

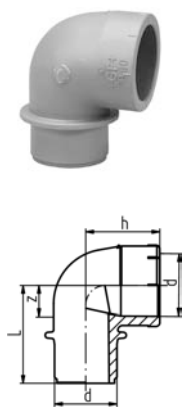
Elbow 90°



d [mm]	Code	SP	kg	L [mm]	D [mm]	z [mm]	
16	761 066 600	10	0.014	25	22	10	
20	761 066 601	10	0.015	28	26	13	
25	761 066 602	10	0.026	32	32	14	
32	761 066 603	10	0.035	38	40	18	
40	761 066 604	5	0.076	44	51	22	
50	761 066 605	5	0.116	51	64	26	
63	761 066 606	2	0.239	62	81	34	
75	761 066 607	2	0.310	75	91	44	
90	761 066 608	2	0.500	88	108	52	
110	761 066 609	2	0.900	105	132	63	

5008

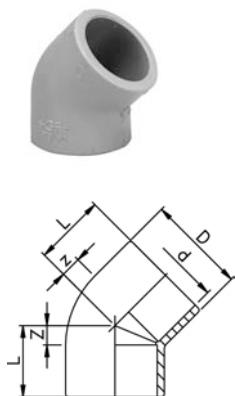
Elbow 90°, socket-spigot



d [mm]	Code	SP	kg	L [mm]	D [mm]	h [mm]	z [mm]	
16	761 066 900	10	0.009	25	22	34	10	
20	761 066 901	10	0.012	28	26	36	13	
25	761 066 902	10	0.021	32	32	44	14	
32	761 066 903	10	0.037	38	40	50	18	
40	761 066 904	5	0.067	44	51	58	22	
50	761 066 905	5	0.122	51	64	70	26	
63	761 066 906	2	0.233	62	81	82	34	

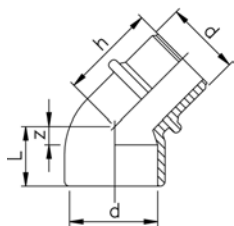
5010

Elbow 45°



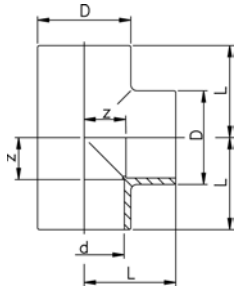
d [mm]	Code	SP	kg	L [mm]	D [mm]	z [mm]	
16	761 066 610	10	0.008	21	22	6	
20	761 066 611	10	0.016	22	26	7	
25	761 066 612	10	0.026	25	32	7	
32	761 066 613	10	0.030	30	40	10	
40	761 066 614	5	0.064	34	51	12	
50	761 066 615	5	0.090	39	64	14	
63	761 066 616	2	0.145	45	81	17	
75	761 066 617	2	0.210	51	92	20	
90	761 066 618	2	0.430	58	109	22	
110	761 066 619	2	0.640	68	134	26	

5018

Elbow 45°, socket-spigot

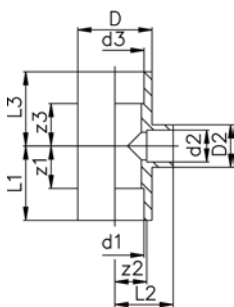
d [mm]	Code	SP	kg	L [mm]	D [mm]	h [mm]	z [mm]	
16	761 066 907	10	0.008	21	22	29	6	
20	761 066 908	10	0.011	22	26	30	7	
25	761 066 909	10	0.017	25	32	35	7	
32	761 066 910	10	0.032	30	40	40	10	
40	761 066 911	5	0.055	34	51	46	12	
50	761 066 912	5	0.099	39	64	53	14	
63	761 066 913	2	0.180	45	81	62	17	

5015

Tee 90° equal

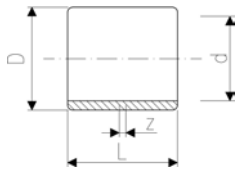
d [mm]	Code	SP	kg	L [mm]	D [mm]	z [mm]	
16	761 066 620	10	0.017	25	22	10	
20	761 066 621	10	0.025	28	26	13	
25	761 066 622	10	0.036	32	32	14	
32	761 066 623	10	0.045	38	40	18	
40	761 066 624	5	0.105	44	51	22	
50	761 066 625	5	0.145	51	64	26	
63	761 066 626	2	0.315	62	81	34	
75	761 066 627	2	0.430	75	91	44	
90	761 066 628	2	0.750	88	112	52	
110	761 066 629	2	1.120	105	132	63	

5020

Tee 90° reduced

d1 [mm]	d2 [mm]	d3 [mm]	Code	SP	kg	D [mm]	D2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	z1 [mm]	z2 [mm]	z3 [mm]	
20	16	20	761 066 914	10	0.015	26	22	28	28	28	13	13	13	
20	16	16	761 066 915	10	0.016	26	22	28	28	28	13	13	13	
20	20	16	761 066 916	10	0.017	26	26	28	28	28	13	13	13	
25	16	25	761 066 917	10	0.025	32	26	32	32	32	14	17	14	
25	20	25	761 066 918	10	0.023	32	26	32	32	32	14	17	14	
25	20	20	761 066 919	10	0.026	32	26	32	32	32	14	17	17	
25	25	20	761 066 920	10	0.027	32	32	32	32	32	14	14	17	
32	16	32	761 066 921	10	0.041	40	26	38	38	38	18	23	18	
32	20	32	761 066 922	10	0.039	40	26	38	38	38	18	23	18	
32	25	32	761 066 923	10	0.040	40	32	38	38	38	18	20	18	
40	16	40	761 066 295	5	0.083	51	34	44	44	44	22	29	22	
40	25	40	761 066 924	5	0.077	51	34	44	44	44	22	26	22	
50	16	50	761 066 309	5	0.135	64	34	51	51	51	26	36	26	
50	25	50	761 066 925	5	0.130	64	34	51	51	51	26	33	26	
63	16	63	761 066 310	2	0.257	81	35	62	62	62	34	47	34	
63	25	63	761 066 926	5	0.252	81	35	62	62	62	34	44	34	

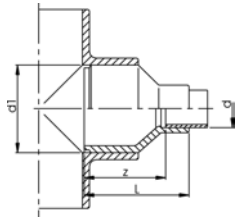
5040



Socket

d [mm]	Code	SP	kg	L [mm]	D [mm]	z [mm]	
16	761 066 660	10	0.009	33	22	3	
20	761 066 661	10	0.014	33	26	3	
25	761 066 662	10	0.020	39	32	3	
32	761 066 663	10	0.033	43	40	3	
40	761 066 664	10	0.048	48	51	4	
50	761 066 665	10	0.069	54	64	4	
63	761 066 666	2	0.120	60	81	4	
75	761 066 667	2	0.150	69	91	7	
90	761 066 668	2	0.250	80	110	8	
110	761 066 669	2	0.440	94	133	10	

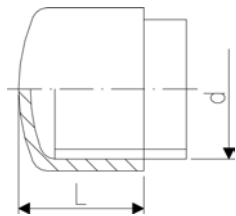
5045



Reducing bush

d [mm]	d1 [mm]	Code	SP	kg	L [mm]	z [mm]	
16	20	761 066 670	10	0.005	30	15	
16	25	761 066 671	10	0.010	33	18	
20	25	761 066 672	10	0.015	33	18	
20	32	761 066 674	10	0.018	40	25	
25	32	761 066 675	10	0.022	40	22	
20	40	761 066 677	10	0.024	42	27	
25	40	761 066 678	10	0.028	42	24	
32	40	761 066 679	10	0.034	42	22	
20	50	761 066 681	10	0.035	55	40	
25	50	761 066 682	10	0.038	55	37	
32	50	761 066 683	10	0.042	55	35	
40	50	761 066 684	10	0.050	55	33	
20	63	761 066 686	5	0.055	58	43	
25	63	761 066 687	5	0.060	58	40	
32	63	761 066 688	5	0.066	58	38	
40	63	761 066 689	5	0.074	58	36	
50	63	761 066 690	5	0.079	58	33	
63	75	761 066 742	2	0.115	67	39	
63	90	761 066 746	2	0.149	74	46	
75	90	761 066 745	2	0.160	74	43	
63	110	761 066 747	2	0.229	86	58	
75	110	761 066 749	2	0.234	86	55	
90	110	761 066 748	2	0.270	86	50	

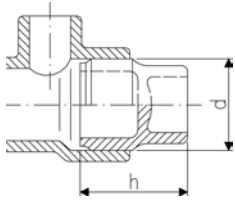
5050



Cap

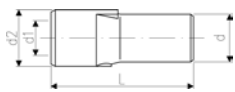
d [mm]	Code	SP	kg	L [mm]	
16	761 066 650	10	0.006	22	
20	761 066 651	10	0.010	24	
25	761 066 652	10	0.014	28	
32	761 066 653	10	0.022	32	
40	761 066 654	10	0.024	38	
50	761 066 655	10	0.050	44	
63	761 066 656	5	0.079	50	

5051

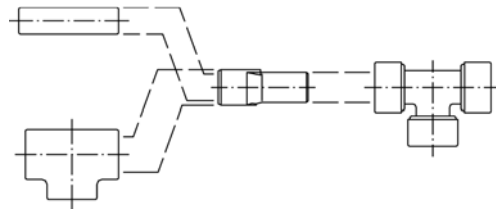
**Plug**

d [mm]	Code	SP	kg	h [mm]	
25	761 066 938	10	0.008	33	

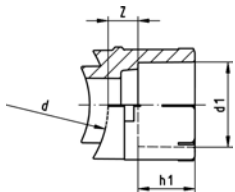
5053

**Adaptor INSTAFLEX-Hepworth**

d1 [mm]	d2 [mm]	Code	SP	kg	d [mm]	L [mm]	
16	20	761 066 326	10	0.005	15	54	



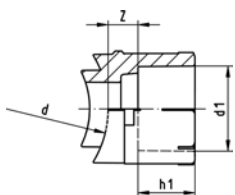
5054

**Weld-in-Saddle**

* on request

d - d1 [mm]	Code	SP	kg	h1 [mm]	z [mm]	
* 40 - 20	761 068 000	5	0.011	15	11	
50 - 20	761 068 003	5	0.011	15	11	
50 - 25	761 068 004	5	0.014	18	11	
50 - 32	761 068 005	5	0.020	20	11	
63 - 20	761 068 006	5	0.012	15	11	
63 - 25	761 068 007	5	0.016	18	11	
63 - 32	761 068 008	5	0.022	20	11	
75 - 20	761 068 009	5	0.014	15	12	
75 - 25	761 068 010	5	0.017	18	12	
75 - 32	761 068 011	5	0.022	20	12	
90 - 20	761 068 012	5	0.018	15	13	
90 - 25	761 068 013	5	0.021	18	13	
90 - 32	761 068 014	5	0.027	20	13	
110 - 20	761 068 015	5	0.019	15	14	
110 - 25	761 068 016	5	0.022	18	14	
110 - 32	761 068 017	5	0.020	20	14	

5054

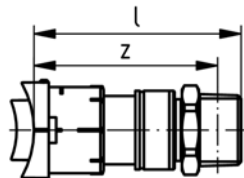
**Weld-in-Saddle**

d - d1 [mm]	Code	SP	kg	h1 [mm]	z [mm]	
125 - 32	761 068 018	5	0.035	20	16	
125 - 40	761 068 019	5	0.056	22	16	
125 - 50	761 068 020	5	0.072	25	16	
160 - 32	761 068 021	5	0.045	20	16	
160 - 40	761 068 022	5	0.061	22	16	
160 - 50	761 068 023	5	0.077	25	16	
225 - 32	761 068 024	5	0.076	20	16	
225 - 40	761 068 025	5	0.076	22	16	
225 - 50	761 068 026	5	0.092	25	16	

5058

Weld-in-Saddle with male thread

* on request

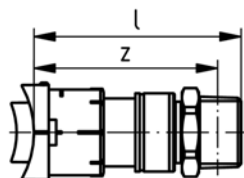


d - d1 [mm]	R [inch]	Code	SP	kg	l [mm]	z [mm]
* 50 - 25	3/4	761 068 041	2	0.147	91	66
* 63 - 32	1	761 068 042	2	0.220	95	70
* 75 - 32	1	761 068 043	2	0.220	96	71
* 90 - 32	1	761 068 044	2	0.224	97	72
* 110 - 32	1	761 068 045	2	0.244	98	73

5058

Weld-in-Saddle with male thread

* on request



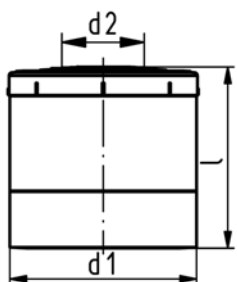
d - d1 [mm]	R [inch]	Code	SP	kg	l [mm]	z [mm]
* 125 - 32	1	761 068 046	2	0.232	100	90
* 160 - 32	1	761 068 047	2	0.232	100	90
* 225 - 32	1	761 068 048	2	0.261	100	90

6227

Special reducer with hole

- Drilled hole d16 to d50

* on request

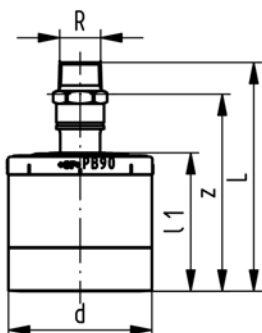


d1 [mm]	d2 [mm]	Code	SP	kg	l [mm]
* 75	16	761 069 500	1	0.200	88
* 75	20	761 069 501	1	0.200	88
* 75	25	761 069 502	1	0.200	88
* 75	32	761 069 503	1	0.200	88
* 75	40	761 069 504	1	0.200	88
* 75	50	761 069 505	1	0.200	88
* 90	16	761 069 506	1	0.250	87
* 90	20	761 069 507	1	0.250	87
* 90	25	761 069 508	1	0.250	87
* 90	32	761 069 509	1	0.250	87
* 90	40	761 069 510	1	0.250	87
* 90	50	761 069 511	1	0.250	87
* 110	16	761 069 512	1	0.400	94
* 110	20	761 069 513	1	0.400	94
* 110	25	761 069 514	1	0.400	94
* 110	32	761 069 515	1	0.400	94
* 110	40	761 069 516	1	0.400	94
* 110	50	761 069 517	1	0.400	94

6229

Special reducer with transition on male thread

* on request

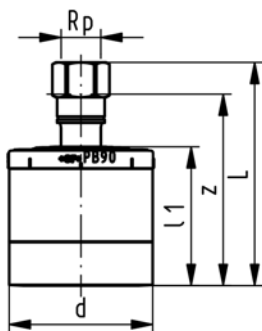


d-d [mm]	R [inch]	Code	SP	kg	l [mm]	l1 [mm]	z [mm]	
* 75 - 20	1/2	761 069 583	1	0.280	146	88	131	
* 75 - 25	3/4	761 069 584	1	0.325	150	88	130	
* 75 - 32	1	761 069 593	1	0.385	152	88	127	
* 90 - 20	1/2	761 069 585	1	0.340	145	87	130	
* 90 - 25	1/2	761 069 586	1	0.385	149	87	129	
* 90 - 32	1	761 069 594	1	0.445	151	87	126	
* 110 - 20	1/2	761 069 587	1	0.480	150	94	135	
* 110 - 25	3/4	761 069 588	1	0.525	151	94	131	
* 110 - 32	1	761 069 595	1	0.585	155	94	130	

6219

Special reducer with transition on female thread

* on request



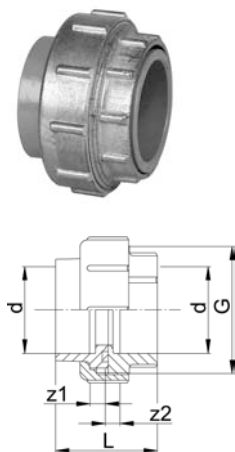
d-d [mm]	Rp [inch]	Code	SP	kg	l [mm]	l1 [mm]	z [mm]	
* 75 - 20	1/2	761 069 577	1	0.284	144	88	129	
* 75 - 25	3/4	761 069 578	1	0.336	145	88	125	
* 75 - 32	1	761 069 596	1	0.385	149	88	124	
* 90 - 20	1/2	761 069 579	1	0.344	143	87	128	
* 90 - 25	3/4	761 069 580	1	0.396	144	87	124	
* 90 - 32	1	761 069 597	1	0.445	148	87	123	
* 110 - 20	1/2	761 069 581	1	0.484	152	94	137	
* 110 - 25	3/4	761 069 582	1	0.536	156	94	136	
* 110 - 32	1	761 069 598	1	0.585	158	94	133	

Union

5035

Union, socket-socket

- including O-Ring, EPDM quality for potable water

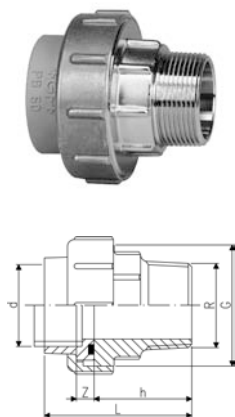


d [mm]	Code	SP	kg	L [mm]	z1 [mm]	z2 [mm]	G [inch]	
16	761 066 691	10	0.135	43	8	5	1	
20	761 066 692	10	0.150	43	8	5	11/4	
25	761 066 693	10	0.200	49	8	5	11/2	
32	761 066 694	5	0.295	53	8	5	2	
40	761 066 695	5	0.450	59	10	5	21/2	
50	761 066 696	2	0.560	65	10	5	23/4	
63	761 066 697	2	0.900	71	10	5	31/2	

5036

Adaptor union, socket-male thread

- including O-Ring, EPDM quality for potable water

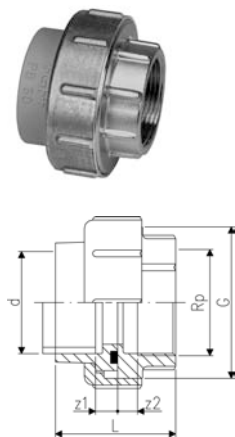


d [mm]	R [inch]	Code	SP	kg	L [mm]	h [mm]	z [mm]	G [inch]	
16	1/2	761 066 698	10	0.262	61	38	8	1	
20	1/2	761 066 699	10	0.150	63	40	8	11/4	
25	3/4	761 066 700	10	0.320	67	41	8	11/2	
32	1	761 066 701	5	0.340	73	45	8	2	
40	1 1/4	761 066 702	5	0.560	80	48	10	21/2	
50	1 1/2	761 066 703	2	0.800	83	48	10	23/4	
63	2	761 066 704	2	0.900	92	54	10	31/2	

5037

Adaptor union, socket-female thread

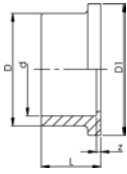
- including O-Ring, EPDM quality for potable water



d [mm]	Rp [inch]	Code	SP	kg	L [mm]	z1 [mm]	z2 [mm]	G [inch]	
16	1/2	761 066 705	10	0.207	45	8	9	1	
20	1/2	761 066 706	10	0.120	47	8	10	11/4	
25	3/4	761 066 707	10	0.280	50	8	9	11/2	
32	1	761 066 708	5	0.270	53	8	8	2	
40	1 1/4	761 066 709	5	0.600	58	10	7	21/2	
50	1 1/2	761 066 710	2	0.700	61	10	7	23/4	
63	2	761 066 711	2	0.720	66	10	5	31/2	

Flange jointing

5030

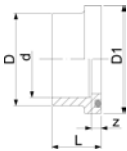


Flange adaptor flat

- suitable for flange or union nut

d [mm]	Code	SP	kg	L [mm]	h [mm]	D [mm]	D1 [mm]	z [mm]	
20	761 066 631	10	0.007	20	6	27	34	5	
25	761 066 632	10	0.010	23	7	33	41	5	
32	761 066 633	10	0.016	25	7	41	50	5	
40	761 066 634	10	0.025	27	8	50	61	5	
50	761 066 635	10	0.034	30	8	61	73	5	
63	761 066 636	2	0.060	33	9	76	90	5	
75	761 066 637	2	0.090	35	10	90	106	4	
90	761 066 638	2	0.130	42	11	109	125	6	
110	761 066 639	2	0.230	49	12	131	150	7	

5031



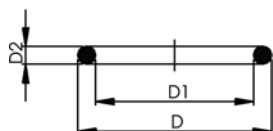
Flange adaptor with groove

- suitable for flange or union nut
- including O-Ring, EPDM quality for potable water

d [mm]	Code	SP	kg	L [mm]	D [mm]	D1 [mm]	z [mm]	
16	761 066 640	10	0.006	23	22	29	8	
20	761 066 641	10	0.008	23	27	34	8	
25	761 066 642	10	0.012	26	33	41	8	
32	761 066 643	10	0.018	28	41	50	8	
40	761 066 644	10	0.030	32	50	61	10	
50	761 066 645	10	0.040	35	61	73	10	
63	761 066 646	2	0.071	38	76	90	10	
75	761 066 647	2	0.090	40	90	106	9	
90	761 066 648	2	0.130	47	109	125	11	
110	761 066 649	2	0.230	55	131	150	13	

Seals

EPDM 48 41 00
FPM 49 41 00



O-Ring Gasket

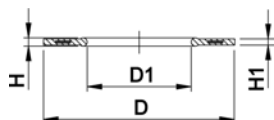
Model:

- For Flange Adaptors
- Hardness approx. 65° Shore

d [mm]	DN [mm]	EPDM Code	
16	10	748 410 000	
20	15	748 410 001	
25	20	748 410 007	
32	25	748 410 002	
40	32	748 410 003	
50	40	748 410 012	
63	50	748 410 013	
75	65	748 410 014	
90	80	748 410 015	
110	100	748 410 016	
125	100	748 410 017	
140	125	748 410 018	
160	150	748 410 019	
200	200	748 410 163	
225	200	748 410 022	
250	250	748 410 182	
280	250	748 410 173	
315	300	748 410 174	

d [mm]	DN [mm]	FPM Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	
16	10	749 410 000	0	0	0.002	0.002	1	0	0	
20	15	749 410 001	100	0	0.002	0.002	1	0	0	
25	20	749 410 007	100	1400	0.002	0.002	1	10080	960	
32	25	749 410 002	100	0	0.003	0.003	1	0	0	
40	32	749 410 003	0	0	0.007	0.007	1	0	0	
50	40	749 410 012	100	1000	0.008	0.008	1	36000	960	
63	50	749 410 013	100	600	0.011	0.011	1	21600	960	
75	65	749 410 014	100	600	0.012	0.012	1	21600	960	
90	80	749 410 015	100	600	0.015	0.015	1	21600	960	
110	100	749 410 016	50	200	0.031	0.031	1	7200	960	
125	100	749 410 017	200	0	0.036	0.036	1	7200	960	
140	125	749 410 018	200	0	0.039	0.039	1	7200	960	
160	150	749 410 019	200	0	0.044	0.044	1	7200	960	
200	200	749 410 163	0	0	0.056	0.056	1	0	0	
225	200	749 410 022	150	0	0.060	0.060	1	2700	960	
250	250	749 410 182	0	0	0.003	0.003	3	0	0	
280	250	749 410 173	0	0	0.044	0.044	1	0	0	
315	300	749 410 174	0	0	0.051	0.051	3	0	0	

d [mm]	D [mm]	D1 [mm]	D2 [mm]	closest inch	
16	26	19	3.53	3/8	
20	31	23	3.53	1/2	
25	35	28	3.53	3/4	
32	43	36	3.53	1	
40	55	44	5.34	1 1/4	
50	64	53	5.34	1 1/2	
63	80	69	5.34	2	
75	93	82	5.34	2 1/2	
90	112	101	5.34	3	
110	134	120	6.99	4	
125	150	136	6.99		
140	166	152	6.99	5	
160	191	177	6.99	6	
200	236	222	6.99	8	
225	255	241	6.99	8	
250	280	266	6.99	9	
280	306	292	6.99	10	
315	356	342	6.99	12	



Profile Flange Gasket metric for flange adaptors without chamfer

Model:

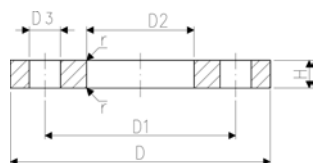
- for flange adaptor No. 27 79 85 PP-H SDR11 without chamfer
- Profile Gasket with steel insert (type G-ST-P/K)
- Hardness: 70° Shore **EPDM**, 75° Shore **FPM**

d [mm]	EPDM Code	FPM Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	
20	748 440 706	749 440 706	0	0	0.008	0.008	1	0	0	
25	748 440 707	749 440 707	0	0	0.011	0.011	1	0	0	
32	748 440 708	749 440 708	0	0	0.014	0.014	1	0	0	
40	748 440 709	749 440 709	0	0	0.021	0.021	1	0	0	
50	748 440 710	749 440 710	0	0	0.022	0.022	1	0	0	
63	748 440 711	749 440 711	0	0	0.041	0.041	1	0	0	
75	748 440 712	749 440 712	0	0	0.055	0.055	1	0	0	
90	748 440 713	749 440 713	0	0	0.062	0.062	1	0	0	
110	748 440 309	749 440 309	0	0	0.112	0.112	1	0	0	
125	748 440 310	749 440 310	0	0	0.110	0.110	1	0	0	
140	748 440 311	749 440 311	0	0	0.146	0.146	1	0	0	
160	748 440 312	749 440 312	0	0	0.207	0.207	1	0	0	
180	748 440 313	749 440 313	0	0	0.260	0.260	1	0	0	
200	748 440 314	749 440 314	0	0	0.430	0.430	1	0	0	
225	748 440 315	749 440 315	0	0	0.365	0.365	1	0	0	
250	748 440 316	749 440 316	0	0	0.520	0.520	1	0	0	
280	748 440 317	749 440 317	0	0	0.496	0.496	1	0	0	
315	748 440 318	749 440 318	0	0	0.600	0.600	1	0	0	
355	748 440 319	749 440 319	0	0	0.750	0.750	3	0	0	
400	748 440 320	749 440 320	0	0	0.750	0.750	3	0	0	

d [mm]	D [mm]	D1 [mm]	H [mm]	H1 [mm]	
20	51	20	4	3	
25	61	22	4	3	
32	71	28	4	3	
40	82	40	4	3	
50	92	46	4	3	
63	107	58	5	4	
75	127	69	5	4	
90	142	84	5	4	
110	162	93	6	5	
125	162	105	6	5	
140	192	117	6	5	
160	218	135	8	6	
180	218	151	8	6	
200	273	168	8	6	
225	273	188	8	6	
250	328	208	8	6	
280	328	233	8	6	
315	378	262	8	6	
355	438	294	8	6	
400	489	331	8	6	

Backing Flanges, Steel

24 70 16



Backing Flange, Galvanised Steel for Socket Systems

Model:

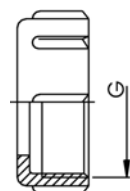
- Galvanised steel, suitable for laying underground
- Connecting dimension: ISO 7005, EN 1092, BS 4504, DIN 2501
- Bolt circle PN10/16

AL: number of holes

*Bolt circle PN16

d [mm]	DN [mm]	d [inch]	PN	Code	kg	D [mm]	D1 [mm]	D2 [mm]	D3 [mm]	H [mm]	AL	SC	
20	15	1/2	16	724 701 606	0.220	95	65	28	14	7	4	M12x55	
25	20	3/4	16	724 701 607	0.320	105	75	34	14	7	4	M12x60	
32	25	1	16	724 701 608	0.410	115	85	42	14	7	4	M12x60	
40	32	1 1/4	16	724 701 609	0.820	140	100	51	18	8	4	M16x70	
50	40	1 1/2	16	724 701 610	1.040	150	110	62	18	8	4	M16x75	
63	50	2	16	724 701 611	1.220	165	125	78	18	8	4	M16x80	
75	65	2 1/2	16	724 701 612	1.440	185	145	92	18	8	4	M16x85	
90	80	3	16	724 701 613	1.530	200	160	110	18	8	4	M16x90	
110	100		16	724 700 014	1.840	220	180	133	18	8	8	M16x95	
	100	4	16	724 701 615	1.620	220	180	138	18	8	8	M16x95	
140	125	5	16	724 701 616	2.250	250	210	167	18	8	8	M16x110	
	150	6	16	724 701 617	2.510	285	240	200	22	8	8	M20x120	
* 225	200	8	6	724 701 720	3.000	340	295	250	22	8	12	M20x150	

5081



Union nut

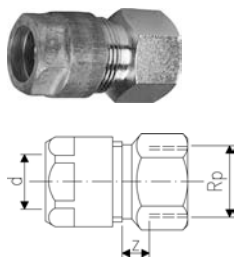
- suitable for flange adaptor and union

d [mm]	G [inch]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	
16	1	761 066 188	0	130	0.092	0.092	3	4680	960	
20	1 1/4	761 066 100	0	140	0.090	0.090	3	5040	960	
25	1 1/2	761 066 101	0	80	0.110	0.110	3	2880	960	
32	2	761 066 102	0	0	0.144	0.144	1	0	0	
40	2 1/2	761 066 103	0	0	0.230	0.230	3	0	0	
50	2 3/8	761 066 104	0	0	0.261	0.261	1	0	0	
63	2 3/4	761 066 105	0	0	0.328	0.328	1	0	0	

Fittings for Compression Joints

3301

Transition with female thread

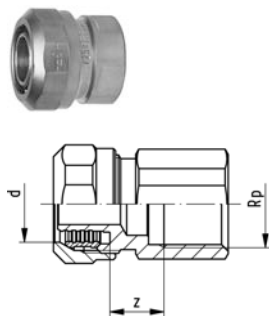


d [mm]	Rp [inch]	Code	SP	kg	z [mm]	
16	1/2	760 853 104	5	0.078	12	
16	3/4	760 853 105	5	0.105	15	
20	1/2	760 853 194	5	0.077	14	
20	3/4	760 853 153	5	0.118	15	

3301

Transition with female thread

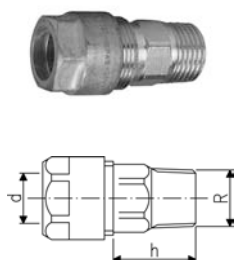
* on request



d [mm]	Rp [inch]	Code	SP	kg	z [mm]	Remarks	
25	3/4	760 856 231	10	0.165	7		
25	1	760 856 232	10	0.209	13		
32	1	760 856 233	10	0.317	7		
40	1 1/4	760 856 234	10	0.453	7		
50	1 1/2	760 856 235	5	0.625	7		
63	2	760 856 236	1	1.570	9		
75	2 1/2	760 856 248	1	1.976	10	without approval	
* 90	3	760 856 261	1	0.800	9	without approval	
* 110	4	760 856 262	1	5.800	38	without approval	

3310

Transition with male thread

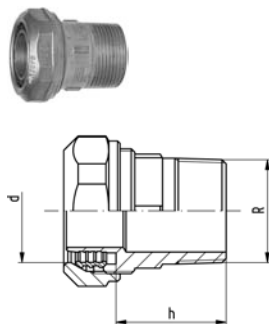


d [mm]	R [inch]	Code	SP	kg	h [mm]	
16	1/2	760 853 107	5	0.105	30	
16	3/4	760 853 108	5	0.086	34	
20	1/2	760 853 195	5	0.090	38	
20	3/4	760 853 138	5	0.098	36	

3310

Transition with male thread

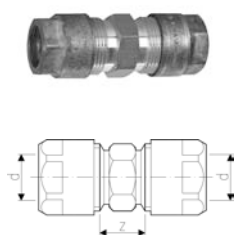
* on request



d [mm]	R [inch]	Code	SP	kg	h [mm]	Remarks	
25	3/4	760 856 241	10	0.149	35		
25	1	760 856 242	10	0.175	41		
32	1	760 856 243	10	0.256	42		
40	1 1/4	760 856 244	10	0.343	44		
50	1 1/2	760 856 245	5	0.490	47		
63	2	760 856 246	1	0.812	32		
75	2 1/2	760 856 247	1	1.127	37	without approval	
* 90	3	760 856 263	1	0.800	32	without approval	
* 110	4	760 856 264	1	1.000	38	without approval	

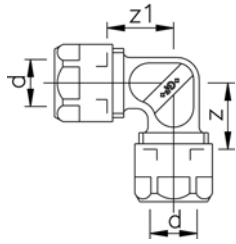
3330

Socket



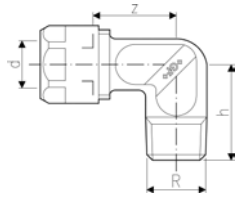
d [mm]	Code	SP	kg	z [mm]	
16	760 853 124	2	0.073	26	
20	760 853 151	2	0.294	28	

3363

**Elbow 90°**

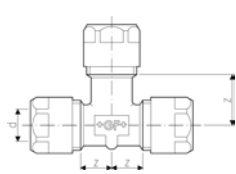
d [mm]	Code	SP	kg	z [mm]	z1 [mm]	
16	760 854 842	5	0.199	22	22	
20	760 854 843	5	0.262	24	24	

3364

**Transition elbow 90° with male thread**

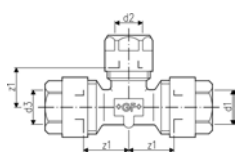
d [mm]	R [inch]	Code	SP	kg	h [mm]	z [mm]	
16	1/2	760 854 838	5	0.171	35	27	
16	3/4	760 854 839	2	0.184	35	27	
20	1/2	760 869 991	5	0.190	35	29	
20	3/4	760 854 840	5	0.208	35	29	
25	3/4	760 854 819	2	0.500	40	29	

3350

**Tee 90°, equal**

d [mm]	Code	SP	kg	z [mm]	
16	760 853 125	2	0.259	22	
20	760 853 131	2	0.388	24	

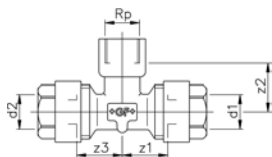
3355/3356/3357

**Tee 90°, reduced**

d3 [mm]	d1 [mm]	d2 [mm]	Code	SP	kg	z1 [mm]	z2 [mm]	z3 [mm]	
20	20	16	760 853 136	2	0.360	24	23	23	
16	20	16	760 853 140	2	0.330	24	23	23	
16	20	20	760 853 137	2	0.319	24	24	23	

3359

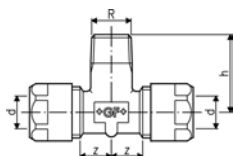
Transition Tee with female thread



d [mm]	Rp [inch]	Code	SP	kg	z1 [mm]	z2 [mm]	z3 [mm]	
20	1/2	760 854 841	5	0.320	24	22	24	

3358

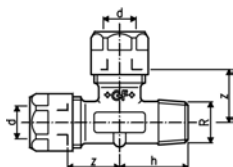
Transition Tee with male thread



d [mm]	R [inch]	Code	SP	kg	z [mm]	h [mm]	
16	1/2	760 854 711	2	0.225	19	38	
20	1/2	760 856 211	2	0.327	24	39	

3360

Transition Tee with male thread



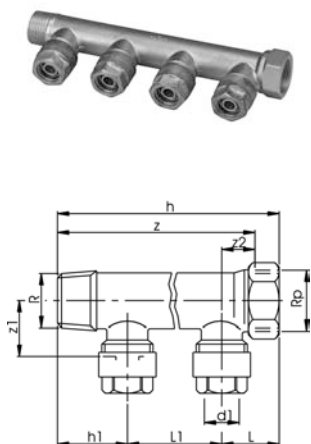
d [mm]	R [inch]	Code	SP	kg	z [mm]	h [mm]	
16	1/2	760 869 987	2	0.200	22	30	

Manifolds in nonferrous metal

3270

Manifold 90°, 3/4" (DN 20)

- Metal with compression connections

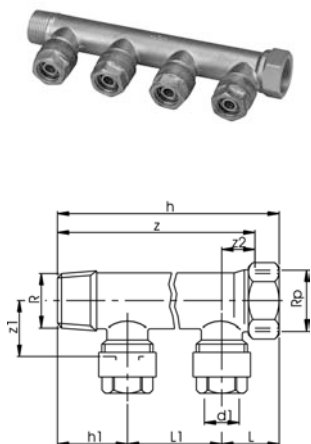


d [mm]	Rp [inch]	R [inch]		Code	SP	kg	h [mm]	h1 [mm]	L [mm]	L1 [mm]	z [mm]	z1 [mm]	z2 [mm]	
16	3/4	3/4	1-fold	760 853 189	5	0.207	59	31	28	0	45	24	14	
20	3/4	3/4	1-fold	760 853 190	5	0.264	69	36	33	0	55	26	19	
16	3/4	3/4	2-fold	760 853 180	5	0.383	104	31	28	45	90	24	14	
16	3/4	3/4	3-fold	760 853 181	5	0.560	149	31	28	45	135	24	14	
16	3/4	3/4	4-fold	760 853 182	5	0.470	194	31	28	45	180	24	14	

3250

Manifold 90°, 1" (DN 25)

- Metal with compression connections

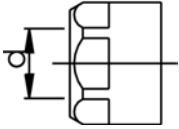


d [mm]	Rp [inch]	R [inch]		Code	SP	kg	h [mm]	h1 [mm]	L [mm]	L1 [mm]	z [mm]	z1 [mm]	z2 [mm]	
16	1	1	1-fold	760 854 860	5	0.210	62	34	28	0	45	29	11	
20	1	1	1-fold	760 854 855	5	0.260	75	42	33	0	58	29	16	
16	1	1	2-fold	760 854 861	1	0.460	107	34	28	45	90	29	11	
20	1	1	2-fold	760 854 892	5	0.640	135	42	33	60	118	29	16	
16	1	1	3-fold	760 854 862	1	0.670	152	34	28	45	135	29	11	
16	1	1	4 fold	760 854 863	1	0.860	197	34	28	45	180	29	11	

Accessories

3800

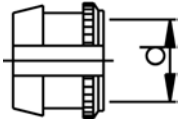
Union nut



d [mm]	Code	SP	kg	
16	760 853 018	5	0.032	
20	760 853 071	2	0.043	

3801

Clamping ring

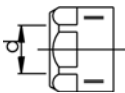


d [mm]	Code	SP	kg	
16	760 853 019	5	0.014	
20	760 853 072	2	0.020	

3211

Cap

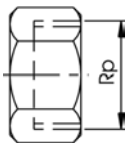
- including seal



d [mm]	Code	SP	kg	
16	760 853 110	5	0.051	
20	760 853 150	5	0.094	

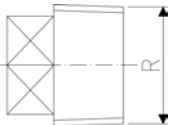
3266

Cap



Rp [inch]	Code	SP	kg	
3/4	760 853 794	5	0.084	
1	760 853 706	5	0.134	

3267



Plug

R [inch]	Code	SP	kg	
3/4	760 853 792	5	0.050	
1	760 853 793	5	0.084	



Manifold Plus range

Fittings for Compression Joints



Equal Tee

Body only - adaptor fitting required per inlet/ outlet
e.g. use 15mm or 16mm adaptor fittings to reduce on a branch

d [mm]	Code	kg	
15 / 16 / 20	760 305 102	0.118	



Elbow 90°

Body only - adaptor fitting required per inlet/ outlet
e.g. use 15mm or 16mm adaptor fittings to reduce

d [mm]	Code	kg	
15 / 16 / 20	760 305 104	0.118	



Radiator Duckfoot Bend

Body only - adaptor fitting required per inlet/ outlet
e.g. for use with 15mm Cu or 16/20mm PB

d [mm]	Code	kg	
15 / 16 / 20	760 305 127	0.118	

Back Plate Elbow

Body only - adaptor fitting required for PB/Cu connection
e.g. right angle connection of either 15mm Cu or 16/20mm PB to 1/2 BSP

d-d [inch]	Code	kg	
RBM x 1/2	760 305 148	0.118	

Adaptors for Compression Joints

Manifold Adaptor



Body only - adaptor fitting required for PB/Cu connection

d [mm]	d [inch]	Code	kg	
15 / 16 / 20	3/4	760 305 151	0.272	
22 / /	3/4	760 305 153	0.150	
25 / /	3/4	760 305 152	0.150	

Instaflex Female Adaptor BSP



Body only - adaptor fittings required for Instaflex side
e.g. use 16mm adaptor fittings to reduce on a branch

d [mm]	d [inch]	Code	kg	
15 / 16 / 20	1/2	760 305 138	0.118	
25 / /	3/4	760 305 146	0.150	

Instaflex Male Adaptor BSP



Body only - adaptor fittings required for Instaflex side
e.g. use 16mm adaptor fittings to reduce on a branch

d [mm]	d [inch]	Code	kg	
15 / 16 / 20	1/2	760 305 140	0.118	

Instaflex to Copper Connectors



Body only - adaptor fittings required for PB/Cu connection
e.g. use to connect PB pipe to Cu pipe

* Available until stocks last

d [mm]	d [mm]	Code	kg	
16 / 20	15	762 856 387	0.118	
16 / 20	22	760 305 150	0.118	
* 25	22	760 305 147	0.118	

Tap Connector



Body only - adaptor fittings required for Instaflex side
e.g. use to connect 16mm or 20mm PB pipe tp BSP male thread tap connection

d [mm]	d [inch]	Code	kg	
15 / 16 / 20	1/2	760 305 132	0.272	
15 / 16 / 20	3/4	760 305 133	0.272	



Adaptor Fittings for Copper Pipe

Size	Code	kg	
15 x Cu	760 305 126	0.118	
22 x Cu	760 305 149	0.118	



Adaptor Fittings for Copper, Chromed Brass, etc (universal)

Size	Code	kg	
15 x Cu	760 305 144	0.118	



Adaptor Fittings for Flexalino thin wall PB pipe

* Available until stocks last

d x e [mm]	Code	kg	
16 x 1.5	761 856 384	0.058	
* 20 x 1.9	761 305 126	0.118	



Adaptor Fittings for Instaflex PB pipe

* Available until stocks last

d x e [mm]	Code	kg	
16 x 2.2	760 856 382	0.079	
20 x 2.8	760 856 383	0.056	
* 25 x 2.3	760 856 390	0.058	

Manifolds & Valves for Compression Joints



Manifolds

For connection from manifold ports to services in either 15mm, 16mm or 20mm.
10 bar pressure rating

d [inch]	d [mm]	Type	Code	kg	
3/4	15 / 16 / 20	2-port	760 856 380	0.480	
3/4	15 / 16 / 20	3-port	767 856 393	0.704	



Ball Valves (1/4 turn)

Body only - adaptor fittings required for Instaflex side.

d [mm]	Code	kg	
15 / 16 / 20	761 856 385	0.272	
25 / /	769 856 398	0.408	

Accessories for Compression Joints

Brackets for Manifolds



Set of two

d [inch]	Code	kg	
3/4	760 305 130	0.301	



Plugs and Caps for Manifolds

d [inch]	Type	Code	kg	
3/4	Plug	760 305 124	0.118	
3/4	Cap	760 305 125	0.118	



Caps for Manifold Outlets

Type	Code	kg	
RBM Thread	PIL008301	0.118	



Spanners for RBM fittings

e.g. to allow tightening of fittings onto manifold

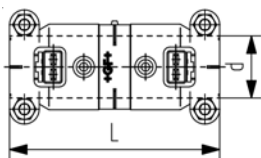
Size	Code	kg	
RBM	760 305 143	0.300	

Fittings for electrofusion jointing

6200

Electrofusion coupler

- middle stop can be broken out

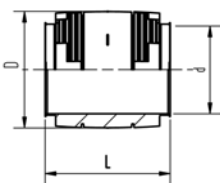


d [mm]	Code	SP	kg	L [mm]	
16	761 069 200	1	0.023	76	
20	761 069 201	1	0.027	80	
25	761 069 202	1	0.041	85	
32	761 069 203	1	0.053	85	
40	761 069 204	1	0.084	95	
50	761 069 205	1	0.121	99	
63	761 069 206	1	0.184	102	
75	761 069 265	1	0.310	134	
90	761 069 266	1	0.474	147	
110	761 069 267	1	0.716	160	

6240

Electrofusion coupler

- PN 16

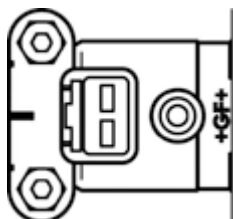


d [mm]	Code	SP	kg	L [mm]	
125	761 069 555	1	1.500	186	
160	761 069 556	1	1.700	190	
225	761 069 557	1	1.700	220	

6235

Bracket clamp

on request

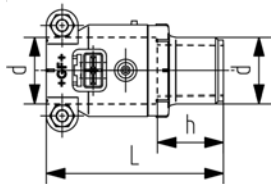


d [mm]	Code	SP	kg	
16	761 069 490	10	0.016	
20	761 069 491	10	0.019	
25	761 069 492	10	0.025	
32	761 069 493	6	0.032	
40	761 069 494	6	0.050	
50	761 069 495	6	0.073	
63	761 069 496	6	0.102	
75	761 069 497	6	0.166	
90	761 069 498	4	0.252	
110	761 069 499	4	0.380	

6201

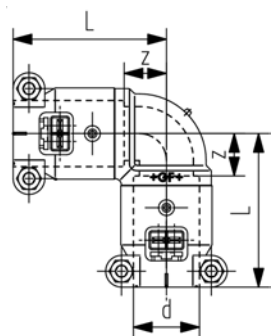
Electrofusion adaptor

- Spigot for socket fusion



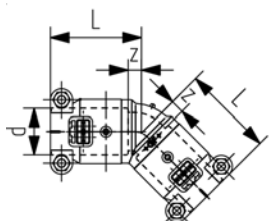
d [mm]	Code	SP	kg	L [mm]	h [mm]
16	761 069 207	1	0.014	60	23
20	761 069 208	1	0.017	61	22
25	761 069 209	1	0.026	67	25
32	761 069 210	1	0.037	71	29
40	761 069 211	1	0.060	79	32
50	761 069 212	1	0.095	85	36
63	761 069 213	1	0.151	94	43

6202

Electrofusion elbow 90°

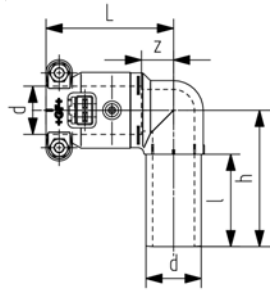
d [mm]	Code	SP	kg	L [mm]	z [mm]
16	761 069 214	1	0.023	47	10
20	761 069 215	1	0.027	54	14
25	761 069 216	1	0.039	58	16
32	761 069 217	1	0.079	60	18
40	761 069 218	1	0.128	69	22
50	761 069 219	1	0.206	78	29
63	761 069 220	1	0.328	86	36
75	761 069 221	1	0.325	112	45
90	761 069 222	1	0.593	127	54
110	761 069 223	1	0.980	146	66

6203

Electrofusion elbow 45°

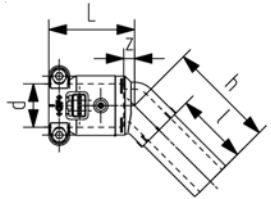
d [mm]	Code	SP	kg	L [mm]	z [mm]
16	761 069 227	1	0.023	44	6
20	761 069 228	1	0.027	46	7
25	761 069 229	1	0.039	50	8
32	761 069 230	1	0.059	51	9
40	761 069 231	1	0.070	58	11
50	761 069 232	1	0.147	63	14
63	761 069 233	1	0.328	68	17
75	761 069 234	1	0.325	88	21
90	761 069 235	1	0.593	98	25
110	761 069 236	1	0.880	111	31

6222

Elbow 90° socket-spigot

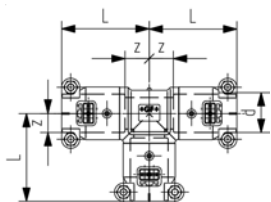
d [mm]	Code	SP	kg	L [mm]	h [mm]	l [mm]	z [mm]	
16	761 069 434	1	0.025	47	53	40	10	
20	761 069 435	1	0.035	54	58	40	14	
25	761 069 436	1	0.047	58	62	42	16	
32	761 069 437	1	0.064	60	66	42	18	
40	761 069 438	1	0.113	69	77	47	22	
50	761 069 439	1	0.181	78	85	49	29	
63	761 069 440	1	0.290	86	96	51	36	

6223

Elbow 45° socket-spigot

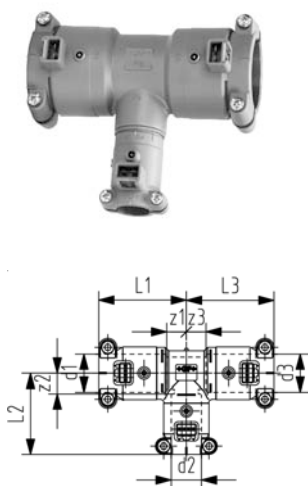
d [mm]	Code	SP	kg	L [mm]	h [mm]	l [mm]	z [mm]	
16	761 069 447	1	0.014	44	50	38	6	
20	761 069 448	1	0.030	46	54	40	7	
25	761 069 449	1	0.042	50	57	42	8	
32	761 069 450	1	0.059	51	60	42	9	
40	761 069 451	1	0.098	58	67	47	11	
50	761 069 452	1	0.156	63	75	49	14	
63	761 069 453	1	0.242	68	79	51	17	

6204

Electrofusion Tee 90° equal

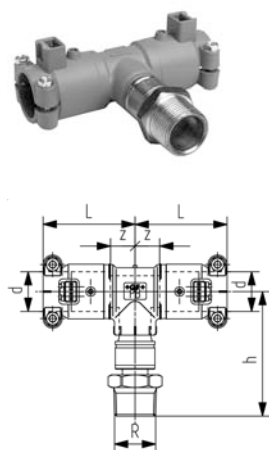
d [mm]	Code	SP	kg	L [mm]	z [mm]	
16	761 069 237	1	0.053	47	10	
20	761 069 238	1	0.067	54	14	
25	761 069 239	1	0.089	58	16	
32	761 069 240	1	0.116	60	18	
40	761 069 241	1	0.185	69	22	
50	761 069 242	1	0.290	78	29	
63	761 069 243	1	0.452	86	36	
75	761 069 244	1	0.487	112	45	
90	761 069 245	1	0.890	127	54	
110	761 069 246	1	1.320	146	66	

6205

Electrofusion Tee 90° reducer

d1 [mm]	d2 [mm]	d3 [mm]	Code	SP	kg	L1 [mm]	L2 [mm]	L3 [mm]	z1 [mm]	z2 [mm]	z3 [mm]	
20	16	16	761 069 249	1	0.058	54	47	47	14	10	10	
20	16	20	761 069 250	1	0.041	54	49	54	14	11	14	
25	16	25	761 069 251	1	0.079	58	54	58	16	16	16	
25	20	20	761 069 256	1	0.079	58	54	54	16	14	14	
25	20	25	761 069 252	1	0.078	58	54	58	16	14	16	
25	25	20	761 069 257	1	0.081	58	58	54	16	16	14	
32	20	32	761 069 253	1	0.088	60	58	60	18	18	18	
32	25	25	761 069 258	1	0.098	60	58	58	18	16	16	
32	25	32	761 069 254	1	0.095	60	58	60	18	16	18	
40	20	40	761 069 259	1	0.157	69	63	69	22	23	22	
40	25	40	761 069 255	1	0.115	69	63	69	22	21	22	
40	32	40	761 069 260	1	0.168	69	63	69	22	21	22	
50	25	50	761 069 261	1	0.246	78	72	78	29	30	29	
50	32	50	761 069 262	1	0.360	78	72	78	29	30	29	
63	25	63	761 069 263	1	0.360	86	81	86	36	39	36	
63	40	63	761 069 264	1	0.384	86	85	86	36	38	36	

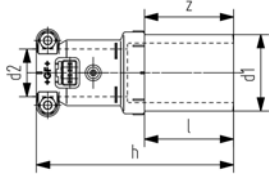
6224

Electrofusion adaptor Tee 90° with male thread

d [mm]	R [inch]	Code	SP	kg	L [mm]	h [mm]	z [mm]	
25	3/4	761 069 430	1	0.176	58	78	15	
32	1	761 069 431	1	0.225	60	86	17	

6207

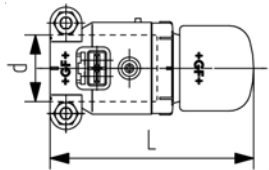
Electrofusion reducer



d1 [mm]	d2 [mm]	Code	SP	kg	h [mm]	l [mm]	z [mm]
20	16	761 069 277	1	0.023	83	40	45
25	16	761 069 278	1	0.026	83	42	46
25	20	761 069 279	1	0.026	86	42	47
32	16	761 069 457	1	0.033	86	42	48
32	20	761 069 280	1	0.030	84	42	45
32	25	761 069 281	1	0.038	89	42	47
40	20	761 069 458	1	0.055	102	47	62
40	25	761 069 459	1	0.060	104	47	62
40	32	761 069 282	1	0.060	95	47	53
50	20	761 069 460	1	0.070	102	49	62
50	25	761 069 461	1	0.075	104	49	62
50	32	761 069 462	1	0.075	95	49	53
50	40	761 069 283	1	0.091	103	49	56
63	20	761 069 463	1	0.096	102	51	62
63	25	761 069 464	1	0.103	104	51	62
63	32	761 069 284	1	0.101	95	51	53
63	40	761 069 465	1	0.121	103	51	56
63	50	761 069 285	1	0.141	106	51	57
75	63	761 069 286	1	0.232	129	67	78
90	63	761 069 287	1	0.289	128	74	77
90	75	761 069 288	1	0.362	143	74	76
110	63	761 069 289	1	0.414	135	80	84
110	75	761 069 290	1	0.460	150	80	83
110	90	761 069 291	1	0.491	165	80	92

6206

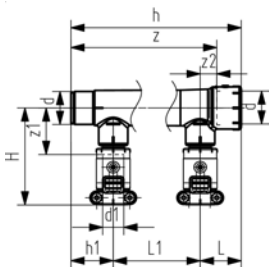
Electrofusion cap



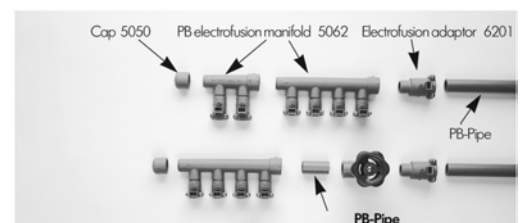
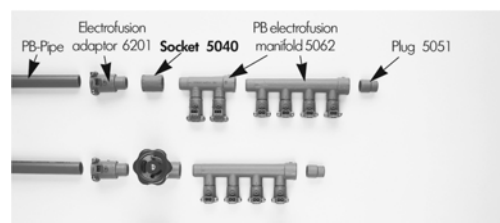
d [mm]	Code	SP	kg	L [mm]
16	761 069 270	1	0.022	67
20	761 069 271	1	0.025	70
25	761 069 272	1	0.036	77
32	761 069 273	1	0.054	83
40	761 069 274	1	0.095	95
50	761 069 275	1	0.153	104
63	761 069 276	1	0.265	116

5062

ELS Manifold PB



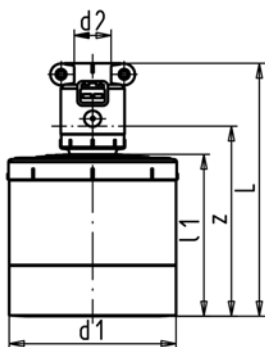
d [mm]	d1 [mm]		Code	SP	kg	L [mm]	L1 [mm]	h [mm]	h1 [mm]	H [mm]	z [mm]	z1 [mm]	z2 [mm]
25	16	single	761 066 250	1	0.031	31	0	63	32	60	45	36	13
25	20	single	761 066 251	1	0.041	39	0	78	39	64	60	35	21
25	16	double	761 066 252	1	0.062	31	45	108	32	60	90	36	13
25	16	triple	761 066 253	1	0.092	31	45	153	32	60	135	36	13
25	16	4 fold	761 066 254	1	0.121	31	45	198	32	60	180	36	13



6239

Electrofusion special reducer with adaptor

* on request

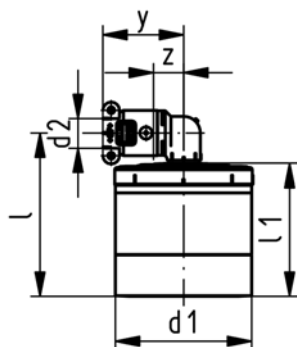


d1 [mm]	d2 [mm]	Code	SP	kg	l [mm]	l1 [mm]	z [mm]	
* 75	16	761 069 604	1	0.201	134	88	97	
* 75	20	761 069 605	1	0.204	134	88	95	
* 75	25	761 069 606	1	0.213	137	88	95	
* 75	32	761 069 607	1	0.224	139	88	97	
* 75	40	761 069 608	1	0.247	145	88	98	
* 75	50	761 069 609	1	0.282	148	88	99	
* 90	16	761 069 610	1	0.254	133	87	96	
* 90	20	761 069 611	1	0.257	133	87	94	
* 90	25	761 069 612	1	0.266	136	87	94	
* 90	32	761 069 613	1	0.277	138	87	96	
* 90	40	761 069 614	1	0.300	144	87	97	
* 90	50	761 069 615	1	0.335	147	87	98	
* 110	16	761 069 518	1	0.405	140	94	103	
* 110	20	761 069 519	1	0.405	140	94	101	
* 110	25	761 069 520	1	0.415	143	94	101	
* 110	32	761 069 521	1	0.425	145	94	103	
* 110	40	761 069 522	1	0.450	151	94	104	
* 110	50	761 069 523	1	0.480	154	94	105	

6238

Electrofusion special reducer with transition on elbow

* on request

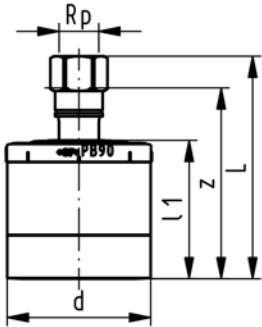


d1 [mm]	d2 [mm]	Code	SP	kg	l [mm]	l1 [mm]	y [mm]	z [mm]	
* 75	16	761 069 616	1	0.213	107	88	47	10	
* 75	20	761 069 619	1	0.223	109	88	54	14	
* 75	25	761 069 524	1	0.235	111	88	58	16	
* 75	32	761 069 525	1	0.300	115	88	60	18	
* 75	40	761 069 526	1	0.300	121	88	96	22	
* 75	50	761 069 527	1	0.365	127	88	78	29	
* 90	16	761 069 617	1	0.260	106	87	47	10	
* 90	20	761 069 620	1	0.270	108	87	54	14	
* 90	25	761 069 528	1	0.283	110	87	58	16	
* 90	32	761 069 529	1	0.300	114	87	60	18	
* 90	40	761 069 530	1	0.350	120	87	69	22	
* 90	50	761 069 531	1	0.415	126	87	78	29	
* 110	16	761 069 618	1	0.413	113	94	47	10	
* 110	20	761 069 621	1	0.423	115	94	54	14	
* 110	25	761 069 532	1	0.435	117	94	58	16	
* 110	32	761 069 533	1	0.453	121	94	60	18	
* 110	40	761 069 534	1	0.500	127	94	69	22	
* 110	50	761 069 535	1	0.565	183	94	78	29	

6219

Special reducer with transition on female thread

* on request

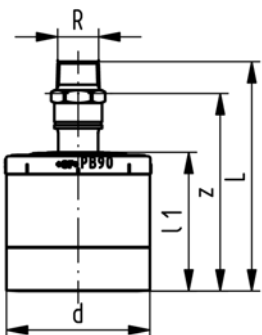


d-d [mm]	Rp [inch]	Code	SP	kg	l [mm]	l1 [mm]	z [mm]	
* 75 - 20	1/2	761 069 577	1	0.284	144	88	129	
* 75 - 25	3/4	761 069 578	1	0.336	145	88	125	
* 75 - 32	1	761 069 596	1	0.385	149	88	124	
* 90 - 20	1/2	761 069 579	1	0.344	143	87	128	
* 90 - 25	3/4	761 069 580	1	0.396	144	87	124	
* 90 - 32	1	761 069 597	1	0.445	148	87	123	
* 110 - 20	1/2	761 069 581	1	0.484	152	94	137	
* 110 - 25	3/4	761 069 582	1	0.536	156	94	136	
* 110 - 32	1	761 069 598	1	0.585	158	94	133	

6229

Special reducer with transition on male thread

* on request



d-d [mm]	R [inch]	Code	SP	kg	l [mm]	l1 [mm]	z [mm]	
* 75 - 20	1/2	761 069 583	1	0.280	146	88	131	
* 75 - 25	3/4	761 069 584	1	0.325	150	88	130	
* 75 - 32	1	761 069 593	1	0.385	152	88	127	
* 90 - 20	1/2	761 069 585	1	0.340	145	87	130	
* 90 - 25	1/2	761 069 586	1	0.385	149	87	129	
* 90 - 32	1	761 069 594	1	0.445	151	87	126	
* 110 - 20	1/2	761 069 587	1	0.480	150	94	135	
* 110 - 25	3/4	761 069 588	1	0.525	151	94	131	
* 110 - 32	1	761 069 595	1	0.585	155	94	130	

6227

Special reducer with hole

- Drilled hole d16 to d50

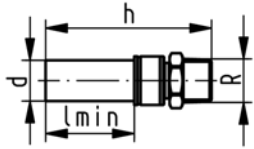
* on request



d1 [mm]	d2 [mm]	Code	SP	kg	l [mm]	
* 75	16	761 069 500	1	0.200	88	
* 75	20	761 069 501	1	0.200	88	
* 75	25	761 069 502	1	0.200	88	
* 75	32	761 069 503	1	0.200	88	
* 75	40	761 069 504	1	0.200	88	
* 75	50	761 069 505	1	0.200	88	
* 90	16	761 069 506	1	0.250	87	
* 90	20	761 069 507	1	0.250	87	
* 90	25	761 069 508	1	0.250	87	
* 90	32	761 069 509	1	0.250	87	
* 90	40	761 069 510	1	0.250	87	
* 90	50	761 069 511	1	0.250	87	
* 110	16	761 069 512	1	0.400	94	
* 110	20	761 069 513	1	0.400	94	
* 110	25	761 069 514	1	0.400	94	
* 110	32	761 069 515	1	0.400	94	
* 110	40	761 069 516	1	0.400	94	
* 110	50	761 069 517	1	0.400	94	

Adaptors with threads

6214



Adaptor with male thread

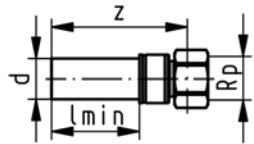
- Spigot for electrofusion and socket fusion - male thread

SF = socket fusion

ELF = electrofusion

d [mm]	R [inch]	Code	SP	kg	h [mm]	L min. SF [mm]	L min. ELF [mm]
16	1/2	761 069 385	1	0.082	91	30	47
20	1/2	761 069 386	1	0.093	93	30	49
20	3/4	761 069 387	1	0.115	96	30	49
25	3/4	761 069 388	1	0.134	103	33	55
25	1	761 069 389	1	0.171	105	33	55
32	1	761 069 390	1	0.207	105	35	55
40	1 1/4	761 069 391	1	0.615	145	27	50
50	1 1/2	761 069 392	1	0.930	158	30	52
63	2	761 069 393	1	1.387	173	33	54

6215



Adaptor with female thread

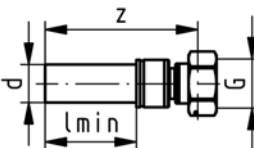
- Spigot for electrofusion and socket fusion - female thread

SF = socket fusion

ELF = electrofusion

d [mm]	Rp [inch]	Code	SP	kg	z [mm]	L min. SF [mm]	L min. ELF [mm]
16	1/2	761 069 360	1	0.086	75	30	47
20	1/2	761 069 361	1	0.099	77	30	49
20	3/4	761 069 362	1	0.136	78	30	49
25	3/4	761 069 363	1	0.145	83	33	55
25	1	761 069 364	1	0.184	85	33	55
32	1	761 069 365	1	0.209	85	35	55
40	1 1/4	761 069 366	1	0.615	118	27	50
50	1 1/2	761 069 367	1	0.930	124	30	52
63	2	761 069 368	1	1.387	133	33	55

6216



Adaptor with loose union nut, flat seal

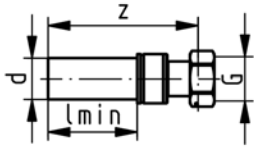
- Spigot for electrofusion and socket fusion - female thread
- including flat seal EPDM

SF = socket fusion

ELF = electrofusion

d [mm]	G [inch]	Code	SP	kg	z [mm]	L min. SF [mm]	L min. ELF [mm]
16	3/4	761 069 370	1	0.093	78	30	47
20	3/4	761 069 369	1	0.126	88	30	49
20	1	761 069 371	1	0.154	82	30	49
25	3/4	761 069 372	1	0.146	95	33	55
25	1	761 069 373	1	0.230	99	33	55
25	1 1/4	761 069 374	1	0.231	89	33	55
32	1	761 069 375	1	0.210	99	35	55
32	1 1/4	761 069 377	1	0.292	100	35	55
32	1 1/2	761 069 376	1	0.292	89	35	55
40	1 1/4	761 069 378	1	0.510	138	27	50
40	1 1/2	761 069 379	1	0.598	138	27	50
40	2	761 069 381	1	0.824	140	27	50
50	1 3/4	761 069 384	1	0.898	147	30	53
50	2 1/4	761 069 383	1	0.820	126	30	53
63	2 3/8	761 069 394	1	1.421	158	33	53
63	2 3/4	761 069 395	1	0.854	135	33	54

6217



Adaptor with loose union nut, flat seal, with centering

- Spigot for electrofusion and socket fusion - female thread
- including gasket, tesnit blue free of asbestos, according to DIN 3754

SF = socket fusion

ELF = electrofusion

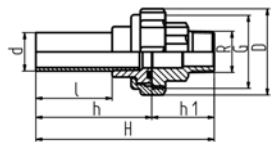
d [mm]	G [inch]	Code	SP	kg	z [mm]	L min. SF [mm]	L min. ELF [mm]	
16	1/2	761 069 380	1	0.086	83	30	47	
20	3/4	761 069 382	1	0.128	85	30	49	

Unions

6220

Adaptor union

- Spigot for electrofusion and socket fusion - male thread
- including O-Ring, EPDM quality for potable water

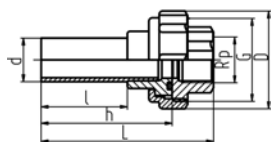


d [mm]	G [inch]	Code	SP	kg	H [mm]	h [mm]	h1 [mm]	l [mm]	G [inch]	D [mm]	
16	1/2	761 069 400	1	0.260	106	68	38	45	1	41	
20	1/2	761 069 401	1	0.280	110	70	40	47	11/4	46	
25	3/4	761 069 402	1	0.325	117	76	41	50	11/2	52	
32	1	761 069 403	1	0.465	123	78	45	50	2	64	
40	1 1/4	761 069 404	1	0.700	136	88	48	56	21/2	79	
50	1 1/2	761 069 405	1	0.830	141	93	48	58	23/4	85	
63	2	761 069 406	1	1.205	152	98	54	60	31/2	104	

6221

Adaptor union

- Spigot for electrofusion and socket fusion - female thread
- including O-Ring, EPDM quality for potable water

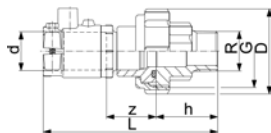


d [mm]	Rp [inch]	Code	SP	kg	L [mm]	h [mm]	l [mm]	z [mm]	G [inch]	D [mm]	
16	1/2	761 069 407	1	0.210	90	68	45	9	1	41	
20	1/2	761 069 408	1	0.235	94	70	47	10	11/4	46	
25	3/4	761 069 409	1	0.295	100	76	50	9	11/2	52	
32	1	761 069 410	1	0.405	103	78	50	8	2	64	
40	1 1/4	761 069 411	1	0.600	114	88	56	7	21/2	79	
50	1 1/2	761 069 412	1	0.730	119	93	58	7	23/4	85	
63	2	761 069 413	1	1.055	126	98	60	5	31/2	104	

6225

Electrofusion Adaptor union

- including O-Ring, EPDM quality for potable water

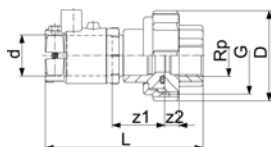


d [mm]	R [inch]	Code	SP	kg	L [mm]	h [mm]	z [mm]	G [inch]	D [mm]	
16	1/2	761 069 475	1	0.270	106	38	31	1	41	
20	1/2	761 069 476	1	0.284	109	40	30	11/4	50	
25	3/4	761 069 477	1	0.332	116	41	33	11/2	56	
32	1	761 069 478	1	0.476	124	45	37	2	69	
40	1 1/4	761 069 479	1	0.711	137	48	42	21/2	83	
50	1 1/2	761 069 480	1	0.840	143	48	46	23/4	90	
63	2	761 069 481	1	1.232	158	54	53	31/2	110	

6226

Electrofusion Adaptor union

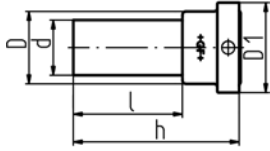
- including O-Ring, EPDM quality for potable water



d [mm]	Rp [inch]	Code	SP	kg	L [mm]	z1 [mm]	z2 [mm]	G [inch]	D [mm]	
16	1/2	761 069 482	1	0.220	90	31	9	1	41	
20	1/2	761 069 483	1	0.244	93	30	10	11/4	50	
25	3/4	761 069 484	1	0.302	99	33	9	11/2	56	
32	1	761 069 485	1	0.416	104	37	8	2	69	
40	1 1/4	761 069 486	1	0.611	115	42	7	21/2	83	
50	1 1/2	761 069 487	1	0.740	121	46	7	23/4	90	
63	2	761 069 488	1	1.082	132	53	5	31/2	110	

Flange connections

6209



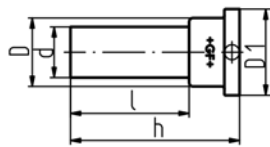
Flange adaptor flat with groove and spigots for electrofusion

- suitable for flange or union nut
- including O-Ring, EPDM quality for potable water

* on request

d [mm]	Code	SP	kg	h [mm]	l [mm]	D [mm]	D1 [mm]
* 20	761 069 307	5	0.017	70	47	27	34
* 25	761 069 308	5	0.023	76	50	33	41
* 32	761 069 309	1	0.036	78	50	41	50
* 40	761 069 310	1	0.061	88	56	50	61
* 50	761 069 311	1	0.099	93	58	61	73
* 63	761 069 312	1	0.155	98	60	76	90
* 75	761 069 313	1	0.309	158	118	90	106
* 90	761 069 314	1	0.496	172	125	109	125
* 110	761 069 315	1	0.783	186	131	131	150

6210



Flange adaptor flat with spigot for electrofusion

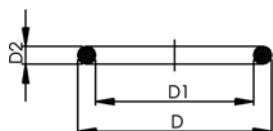
- suitable for flange or union nut

* on request

d [mm]	Code	SP	kg	h [mm]	l [mm]	D [mm]	D1 [mm]
* 20	761 069 321	1	0.017	67	45	27	34
* 25	761 069 322	1	0.023	73	50	33	41
* 32	761 069 323	1	0.036	75	50	41	50
* 40	761 069 324	1	0.060	83	56	50	61
* 50	761 069 325	1	0.092	88	58	61	73
63	761 069 326	1	0.146	93	60	76	90
75	761 069 327	1	0.292	153	118	90	106
90	761 069 328	1	0.471	167	125	109	125
110	761 069 329	1	0.745	180	131	131	150

Seals

EPDM 48 41 00
FPM 49 41 00



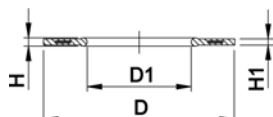
O-Ring Gasket

Model:

- For Flange Adaptors
- Hardness approx. 65° Shore

d [mm]	DN [mm]	EPDM Code	FPM Code	SP	kg	D [mm]	D1 [mm]	D2 [mm]	closest inch
16	10	748 410 000	749 410 000	0	0.002	26	19	3.53	3/8
20	15	748 410 001	749 410 001	100	0.002	31	23	3.53	1/2
25	20	748 410 007	749 410 007	100	0.002	35	28	3.53	3/4
32	25	748 410 002	749 410 002	100	0.003	43	36	3.53	1
40	32	748 410 003	749 410 003	0	0.007	55	44	5.34	1 1/4
50	40	748 410 012	749 410 012	100	0.008	64	53	5.34	1 1/2
63	50	748 410 013	749 410 013	100	0.011	80	69	5.34	2
75	65	748 410 014	749 410 014	100	0.012	93	82	5.34	2 1/2
90	80	748 410 015	749 410 015	100	0.015	112	101	5.34	3
110	100	748 410 016	749 410 016	50	0.031	134	120	6.99	4
125	100	748 410 017	749 410 017	200	0.036	150	136	6.99	
140	125	748 410 018	749 410 018	200	0.039	166	152	6.99	5
160	150	748 410 019	749 410 019	200	0.044	191	177	6.99	6
200	200	748 410 163	749 410 163	0	0.056	236	222	6.99	8
225	200	748 410 022	749 410 022	150	0.060	255	241	6.99	8
250	250	748 410 182	749 410 182	0	0.003	280	266	6.99	9
280	250	748 410 173	749 410 173	0	0.044	306	292	6.99	10
315	300	748 410 174	749 410 174	0	0.051	356	342	6.99	12

EPDM 48 44 07
FPM 49 44 07



Profile Flange Gasket

metric

EPDM / FPM

Model:

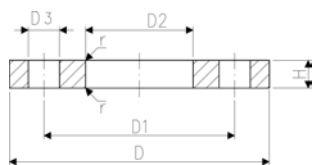
- For all metric GF Flange Adaptors
- Profile Gasket with steel insert (type G-ST-P/K)
- Hardness: 70° Shore **EPDM**, 75° Shore **FPM**
- Centering on the inner diameter of the screw crown
- material steel insert: carbon steel

di FA are the suitable inner diameters of flange adaptors

d [mm]	DN [mm]	PN	EPDM Code	FPM Code	kg	D [mm]	D1 [mm]	H [mm]	H1 [mm]	di FA [mm]
16	10	16	748 440 705	749 440 705	0.007	46	16	4	3	6 - 16
20	15	16	748 440 706	749 440 706	0.008	51	20	4	3	10 - 20
25	20	16	748 440 707	749 440 707	0.011	61	22	4	3	12 - 22
32	25	16	748 440 708	749 440 708	0.014	71	28	4	3	18 - 28
40	32	16	748 440 709	749 440 709	0.021	82	40	4	3	30 - 40
50	40	16	748 440 710	749 440 710	0.022	92	46	4	3	36 - 46
63	50	16	748 440 711	749 440 711	0.041	107	58	5	4	48 - 58
75	65	16	748 440 712	749 440 712	0.055	127	69	5	4	59 - 69
90	80	16	748 440 713	749 440 713	0.062	142	84	5	4	73 - 84
110	100	16	748 440 714	749 440 714	0.085	162	104	6	5	94 - 104
125	100	16	748 440 715	749 440 715	0.158	162	123	6	5	113 - 123
140	125	16	748 440 716	749 440 716	0.118	192	137	6	5	127 - 137
160 / 180	150	16	748 440 717	749 440 717	0.153	218	160	8	6	150 - 160
200	200	16	748 440 719	749 440 719	0.263	273	203	8	6	192 - 203
225	200	16	748 440 720	749 440 720	0.181	273	220	8	6	207 - 220
250	250	16	748 440 721	749 440 721	0.410	328	252	8	6	238 - 252
280	250	16	748 440 722	749 440 722	0.226	328	274	8	6	264 - 274
315	300	16	748 440 723	749 440 723	0.334	378	306	8	6	296 - 306
355	350	16	748 440 724	749 440 724	0.410	438	355	10	7	340 - 355
400	400	16	748 440 725	749 440 725	0.513	489	400	10	7	385 - 400
450	500	16	748 440 726	749 440 726	0.718	594	403	10	7	393 - 403
500	500	16	748 440 727	749 440 727	0.718	594	447	10	7	437 - 447
560	600	16	748 440 728	749 440 728	0.923	695	494	10	7	484 - 494
630	600	16	748 440 729	749 440 729	0.923	695	555	10	7	545 - 555

Backing Flanges, Steel

24 70 16



Backing Flange, Galvanised Steel for Socket Systems

Model:

- Galvanised steel, suitable for laying underground
- Connecting dimension: ISO 7005, EN 1092, BS 4504, DIN 2501
- Bolt circle PN10/16

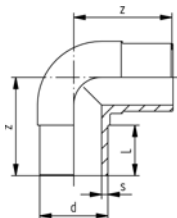
AL: number of holes

*Bolt circle PN16

d [mm]	DN [mm]	d [inch]	PN	Code	kg	D [mm]	D1 [mm]	D2 [mm]	D3 [mm]	H [mm]	AL	SC	
20	15	1/2	16	724 701 606	0.220	95	65	28	14	7	4	M12x55	
25	20	3/4	16	724 701 607	0.320	105	75	34	14	7	4	M12x60	
32	25	1	16	724 701 608	0.410	115	85	42	14	7	4	M12x60	
40	32	1 1/4	16	724 701 609	0.820	140	100	51	18	8	4	M16x70	
50	40	1 1/2	16	724 701 610	1.040	150	110	62	18	8	4	M16x75	
63	50	2	16	724 701 611	1.220	165	125	78	18	8	4	M16x80	
75	65	2 1/2	16	724 701 612	1.440	185	145	92	18	8	4	M16x85	
90	80	3	16	724 701 613	1.530	200	160	110	18	8	4	M16x90	
110	100		16	724 700 014	1.840	220	180	133	18	8	8	M16x95	
	100	4	16	724 701 615	1.620	220	180	138	18	8	8	M16x95	
140	125	5	16	724 701 616	2.250	250	210	167	18	8	8	M16x110	
	150	6	16	724 701 617	2.510	285	240	200	22	8	8	M20x120	
* 225	200	8	6	724 701 720	3.000	340	295	250	22	8	12	M20x150	

Fittings for electrofusion and butt fusion

5202

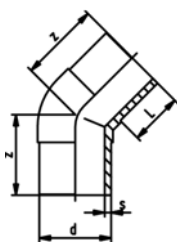


Elbow 90°

- PN 10

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	z [mm]	L [mm]	
125	761 065 258	1	6	1.600	1.600	1	72	960	182	93	
160	761 065 259	1	5	3.150	3.150	1	40	960	213	104	
225	761 065 260	1	0	6.500	6.500	1	12	960	270	122	

5203

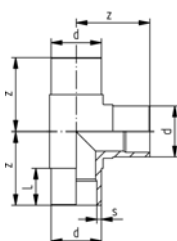


Elbow 45°

- PN 10

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	z [mm]	L [mm]	
125	761 065 261	1	6	1.600	1.600	1	72	960	140	92	
160	761 065 262	1	6	2.500	2.500	1	48	960	162	102	
225	761 065 263	1	2	5.500	5.500	1	16	960	200	122	

5201

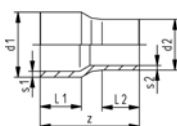


Tee 90° equal

- PN 10

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	z [mm]	L [mm]	
125	761 065 255	1	4	2.440	2.440	1	48	960	183	93	
160	761 065 256	1	4	4.400	4.400	1	32	960	210	102	
225	761 065 257	1	0	11.500	11.500	1	12	960	270	122	

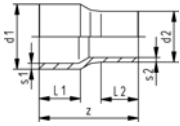
5205



Reducer

- PN 10

d1 [mm]	d2 [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	
125	110	761 065 267	1	8	0.750	0.750	1	96	960	
160	125	761 065 268	1	8	1.300	1.300	1	96	960	
225	160	761 065 269	1	4	2.800	2.800	1	48	960	

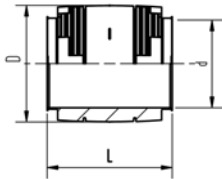


d1 [mm]	z [mm]	L1 [mm]	L2 [mm]
125	215	92	85
160	245	102	92
225	280	122	102

6240

Electrofusion coupler

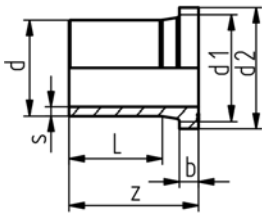
• PN 16



d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	L [mm]
125	761 069 555	1	5	1.500	1.500	1	100	960	186
160	761 069 556	1	5	1.700	1.700	1	48	960	190
225	761 069 557	1	2	1.700	1.700	1	24	960	220

5204

Flange adaptor flat

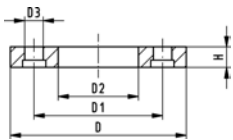


d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.
125	761 065 264	1	4	0.900	0.900	1	156	960
160	761 065 265	1	6	1.800	1.800	1	72	960
225	761 065 266	1	2	2.200	2.200	1	42	960

d [mm]	z [mm]	d1 [mm]	d2 [mm]	L [mm]	b [mm]
125	170	132	160	123	25
160	200	176	216	147	25
225	200	235	268	122	32

5085

Backing flanges

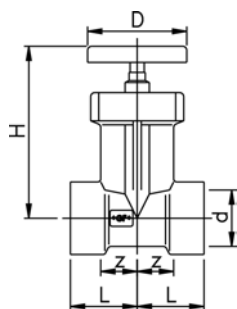


d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.
125	761 065 279	2	0	1.500	1.500	1	0	0
160	761 065 280	2	0	2.500	2.500	1	0	0
225	761 065 281	2	0	3.600	3.600	1	0	0

d [mm]	d [mm]	D [mm]	D1 [mm]	D2 [mm]	D3 [mm]	H [mm]	AL	Screws	Tightening torque [N/mm²]
125	125	226	180	135	18	23	8	M16 x 130	50
160	160	296	240	178	22	28	8	M20 x 140	60
225	225	350	295	238	22	31	8	M20 x 160	75

Valves in Polybutylene

5070



Valve PB

Range of use

- for socket fusion
- Gasket: EPDM quality for potable water

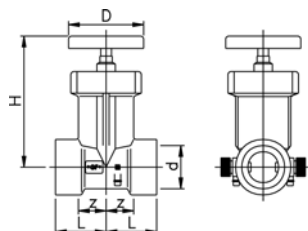
Attention:

- (do not use as drain valve)
- (do not use for compressed air)

Handwheel anthracite with green/red changeover disk

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	H [mm]	L [mm]	z [mm]	D [mm]
20	761 066 284	1	8	0.270	0.270	1	560	960	86	40	25	70
25	761 066 958	8	10	0.340	0.340	1	560	960	86	40	22	70
32	761 066 959	10	10	0.350	0.350	1	0	0	91	43	23	70
40	761 066 289	4	4	1.000	1.000	1	288	960	155	55	33	90
50	761 066 290	4	4	1.050	1.050	1	288	960	155	60	35	90
63	761 066 291	3	3	1.235	1.235	1	216	960	155	75	47	90

5073



Valve PB with spigot G 1/4" for drain

Range of use

- for socket fusion
- Gasket: EPDM quality for potable water

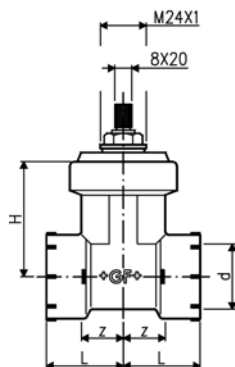
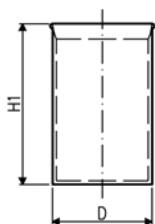
Attention:

- (do not use as drain valve)
- (do not use for compressed air)
- **Drain valve must be ordered separately**

Handwheel anthracite with green/red changeover disk

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	H [mm]	L [mm]	z [mm]	D [mm]
20	761 066 272	1	6	0.395	0.395	1	360	960	86	40	25	70
25	761 066 273	6	6	0.388	0.388	1	360	960	86	40	22	70
32	761 066 274	6	6	0.402	0.402	1	360	960	91	43	23	70
40	761 066 275	4	4	1.020	1.020	1	288	960	155	55	33	90
50	761 066 276	4	4	1.070	1.070	1	288	960	155	60	35	90
63	761 066 277	3	3	1.260	1.260	1	216	960	155	75	47	90

5075



Valve PB concealed

Range of use

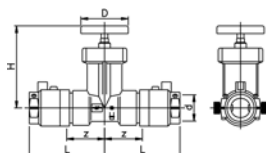
- for finished mounting set (e.g. GROHE / KLUDI / a. o.)
- for socket fusion
- Gasket: EPDM quality for potable water

Attention:

- (do not use as drain valve)
- (do not use for compressed air)

d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	
20 (15)	761 066 286	1	10	0.350	0.350	1	0	0	
25 (20)	761 066 955	8	8	0.340	0.340	1	0	0	
32 (25)	761 066 956	8	10	0.360	0.360	1	0	0	

6208



Valve PB with spigot G1/4" for drain

Range of use

- for electrofusion
- Gasket: EPDM quality for potable water

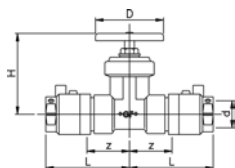
Attention:

- (do not use as drain valve)
- (do not use for compressed air)
- **Drain valve must be ordered seperately**

Handwheel anthracite with green/red changeover disk

d [mm]	Code	SP	GP	kg	SID	pcs.-Pal.	Vol.-Pal.	H [mm]	L [mm]	z [mm]	D [mm]	
20 (15)	761 069 294	6	6	0.445	1	360	960	86	86	47	70	
25 (20)	761 069 295	6	6	0.452	1	0	0	86	89	47	70	
32 (25)	761 069 296	6	6	0.494	1	198	960	91	94	52	70	
40 (32)	761 069 297	2	2	1.160	1	0	0	155	112	65	90	
50 (40)	761 069 298	2	2	1.290	1	0	0	155	120	71	90	
63 (50)	761 069 299	1	1	1.624	1	0	0	155	141	90	90	

6211



Valve PB

Range of use

- for electrofusion
- Gasket: EPDM quality for potable water

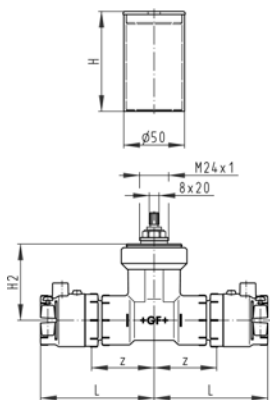
Attention:

- (do not use as drain valve)
- (do not use for compressed air)

Handwheel anthracite with green/red changeover disk

d [mm]	Code	SP	GP	kg	SID	pcs.-Pal.	Vol.-Pal.	H [mm]	L [mm]	z [mm]	D [mm]	
20 (15)	761 069 330	6	6	0.396	1	0	0	86	86	47	70	
25 (20)	761 069 331	1	6	0.410	1	0	0	86	89	47	70	
32 (25)	761 069 332	1	6	0.440	1	198	960	91	94	52	70	
40 (32)	761 069 333	2	2	1.140	1	0	0	155	112	65	90	
50 (40)	761 069 334	2	2	1.270	1	0	0	155	120	71	90	
63 (50)	761 069 335	1	1	1.599	1	0	0	155	141	90	90	

6212



Valve PB concealed

Range of use

- for finished mounting set (e.g. GROHE / KLUDI / a. o.)
- for electrofusion
- Gasket: EPDM quality for potable water

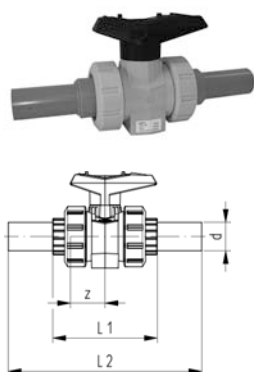
Attention:

- (do not use as drain valve)
- (do not use for compressed air)

d [mm]	Code	SP	GP	kg	SID	pcs.-Pal.	Vol.-Pal.	
20 (15)	761 069 342	6	6	0.396	1	0	0	
25 (20)	761 069 343	1	6	0.410	1	198	960	
32 (25)	761 069 344	6	6	0.450	1	0	0	

Ball valves

5083



Ball valve type 546 PVC-C / PB-Spigots

Range of use

- for electrofusion

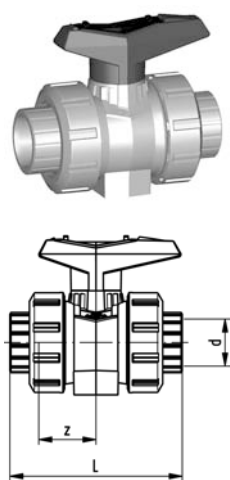
Attention:

- non approval for potable water installation
- working temperature max. +70°C
- (do not use for compressed air)

* on request

d [mm]	DN [mm]	PN	EPDM Code	SP	GP	kg	SID	pcs.-Pal.	Vol.-Pal.	L1 [mm]	L2 [mm]	z [mm]
* 20	15	10	761 066 343	1	0	0.178	3	0	0	95	190	33
* 25	20	10	761 066 344	1	0	0.267	3	0	0	108	208	38
* 32	25	10	761 066 345	1	0	0.403	3	0	0	118	218	39
* 40	32	10	761 066 346	1	0	0.724	3	0	0	137	250	47
* 50	40	10	761 066 347	1	0	0.988	3	0	0	147	263	49
* 63	50	10	761 066 348	1	0	1.828	3	0	0	168	288	46

5082



Ball valve type 546 PVC-C / PB-Flange Adaptor

Range of use

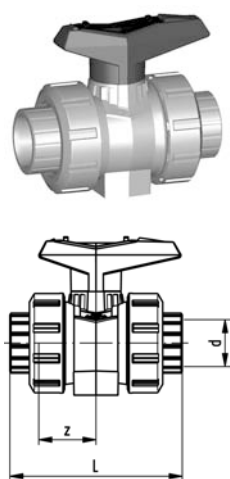
- for socket fusion

Attention:

- non approval for potable water installation
- (do not use for compressed air)

d [mm]	DN [mm]	PN	EPDM Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	L [mm]	z [mm]
20	15	16	761 066 337	1	10	0.160	0.160	1	0	0	95	33
25	20	16	761 066 338	1	10	0.245	0.245	1	0	0	108	38
32	25	16	761 066 339	1	10	0.365	0.365	1	0	0	118	39
40	32	16	761 066 340	1	6	0.660	0.660	1	0	0	137	47
50	40	16	761 066 341	1	6	0.890	0.890	1	0	0	147	49
63	50	16	761 066 342	1	4	1.650	1.650	1	0	0	168	46

5088



Ball valve type 546 PP / PB-Flange Adaptor

Range of use

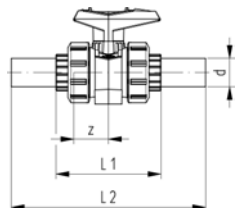
- for socket fusion
- applicable for compressed air till 6 bar

Attention:

- non approval for potable water installation

d [mm]	DN [mm]	PN	EPDM Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.	L [mm]	z [mm]
20	15	16	760 000 337	1	10	0.115	0.115	1	0	0	95	33
25	20	16	760 000 338	1	10	0.180	0.180	1	0	0	108	38
32	25	16	760 000 339	1	10	0.255	0.255	1	0	0	118	39
40	32	16	760 000 340	1	6	0.440	0.440	1	0	0	137	47
50	40	16	760 000 341	1	6	0.610	0.610	1	0	0	147	49
63	50	16	760 000 342	1	4	1.145	1.145	1	0	0	168	46

5089

Ball valve type 546 PP / PB-Spigots**Range of use**

- for electrofusion
- applicable for compressed air till 6 bar

Attention:

- non approval for potable water installation
- working temperature max. +70°C

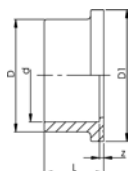
* on request

d [mm]	DN [mm]	PN	EPDM Code	SP	GP	kg	SID	pcs.-Pal.	Vol.-Pal.	L1 [mm]	L2 [mm]	z [mm]
* 20	15	10	760 000 343	1	0	0.133	3	0	0	95	190	33
* 25	20	10	760 000 344	1	0	0.202	3	0	0	108	208	38
* 32	25	10	760 000 345	1	0	0.293	3	0	0	118	218	39
* 40	32	10	760 000 346	1	0	0.504	3	0	0	137	250	47
* 50	40	10	760 000 347	1	0	0.718	3	0	0	147	263	49
* 63	50	10	760 000 348	1	0	1.323	3	0	0	168	288	46

5084

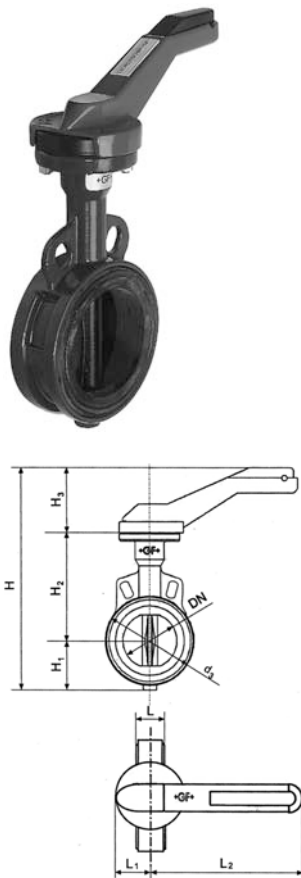
PB flange adaptor

- suitable to ball valve 546



d [mm]	Code	SP	GP	kg	kg/m	SID	pcs.-Pal.	Vol.-Pal.
20	761 066 940	2	0	0.007	0.007	1	0	0
25	761 066 941	2	0	0.011	0.011	1	0	0
32	761 066 942	2	0	0.017	0.017	1	0	0
40	761 066 943	2	0	0.027	0.027	1	0	0
50	761 066 944	2	10	0.041	0.041	1	0	0
63	761 066 945	2	0	0.074	0.074	1	0	0

d [mm]	L [mm]	h [mm]	D [mm]	D1 [mm]	z [mm]
20	20	6	27	34	5
25	23	7	33	44	5
32	25	7	41	50	5
40	27	8	50	61	5
50	30	8	61	73	5
63	33	9	76	90	5



Metal - butterfly valve type 037M With hand lever

Model:

- Housing: Aluminium ASTM S 12A, Rilsan® coated
- Seatliner available in EPDM and FPM

d [mm]	DN [mm]	Inch	PN	kv-value ($\Delta p=1$ bar) [l/min]	Cv value ($\Delta p=1$ psi) [gal (US) /min]	Disc: ductile iron/Rilsan® coated EPDM Code	Disc: ductile iron/Rilsan® coated FPM Code
63	50	2	10	3140	220	199 037 000	199 037 013
75	65	2 ½	10	4570	320	199 037 001	199 037 014
90	80	3	10	7140	500	199 037 002	199 037 015
110	100	4	10	11710	800	199 037 003	199 037 016
140	125	5	10	18570	1300	199 037 004	199 037 017
160	150	6	10	27130	1900	199 037 005	199 037 018
225	200	8	10	47130	3330	199 037 006	199 037 019

d [mm]	DN [mm]	Inch	PN	kv-value ($\Delta p=1$ bar) [l/min]	Cv value ($\Delta p=1$ psi) [gal (US) /min]	Disc: stainless steel EPDM Code
63	50	2	10	3140	220	199 037 200
75	65	2 ½	10	4570	320	199 037 201
90	80	3	10	7140	500	199 037 202
110	100	4	10	11710	800	199 037 203
140	125	5	10	18570	1300	199 037 204
160	150	6	10	27130	1900	199 037 205
225	200	8	10	47130	3330	199 037 206

d [mm]	DN [mm]	Inch	PN	kv-value ($\Delta p=1$ bar) [l/min]	Cv value ($\Delta p=1$ psi) [gal (US) /min]	Disc: stainless steel FPM Code	SID	pcs.-Pal.	Vol.-Pal.
63	50	2	10	3140	220	199 037 213	3	0	0
75	65	2 ½	10	4570	320	199 037 214	3	0	0
90	80	3	10	7140	500	199 037 215	3	0	0
110	100	4	10	11710	800	199 037 216	3	0	0
140	125	5	10	18570	1300	199 037 217	3	0	0
160	150	6	10	27130	1900	199 037 218	3	0	0
225	200	8	10	47130	3330	199 037 219	3	0	0

d [mm]	DN [mm]	d3 [mm]	L [mm]	L1 [mm]	L2 [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]
63	50	95	43	45	220	290	53	140	95
75	65	114	46	45	220	312	63	152	95
90	80	131	46	45	220	327	71	159	95
110	100	152	52	45	220	360	87	178	95
140	125	182	56	45	320	388	102	191	95
160	150	209	56	45	320	416	118	203	95
225	200	262	60	45	320	489	149	245	95

General Tools

3908



Pipe shears

d-d [mm]	Code	SP	kg	
16 - 25	760 853 279	1	0.269	

3911



Cutter for protective pipe

d	Code	SP	kg	
16/20	760 853 273	1	0.087	



PPC Plastic pipe cutter

- For cutting plastic pipes d10 - d160

d-d [mm]	Article	Code	SP	kg	Closest inch	
10 - 63	PPC 63, s max. = 7.2mm	790 109 001	0	0.710	$\frac{1}{8}$ - 2	
50 - 110	PPC 110, s max. = 12.7mm	790 109 002	0	1.400	1 $\frac{1}{2}$ - 4	
110 - 160	PPC 160, s max. = 19.0mm	790 109 003	0	2.220	4 - 6	



Replacement cutting wheels

- for plastic pipe cutter

d-d [mm]	Article	Code	SP	kg	
10 - 63	SR 63 max. s=7,2 mm	790 109 011	0	0.004	
50 - 110	SR 110/160 max. s=12,7 mm	790 109 012	0	0.017	
110 - 160	SR 160 max. s=19,0 mm	790 109 013	0	0.023	



KS Cleaner & Blue Paper

	Code	kg	
1 litre	799 298 923	0.890	
1 roll	790 099 175	1.000	

Machines and tools for socket fusion jointing



SG 125 Socket fusion machine for fusion of PP, PE, PB and PVDF pipes and fittings

- Portable heating element - socket fusion machine for use in the workshop and on job sites.
- Dimension 20 - 125 mm
- **Base machine**
- Compact, sturdy design, distortion-free machine bed
- Handwheel with torque locking mechanism for the slide movement
- **Heater**
- Electronic temperature control
- High temperature accuracy over the entire heating surface
- **Additional standard equipment on the basic model**
- Universal, left and right prismatic clamping devices, complete, for clamping pipe and fittings. Additional set of prismatic clamping devices for outer clamping of pipes available as an option.
- Depth stop
- V-shaped pipe support d 20 - 125 mm
- Back stop
- Machine specific tool set
- Timer to clock fusion times

d-d [mm]	Performance	Code	kg	
20 - 125	115 V/1500 W	790 310 036	65.000	



MSE 63/MSE 110 Socket fusion tools

- For fusion jointing of PP, PE, PB and PVDF
- Size range d 16-110 mm
- Choice of electronic or thermostatic temperature control
- Support for heating bushes and spigots of d 16 to 63 mm (110 mm)
- Pick up for floor stand or table clamp
- High-quality, non-stick PTFE-coating with long service life
- Monitoring and setting of heating element temperature
- High temperature accuracy over the entire heating surface
- T = thermostatic temperature control / E = electronic temperature control

d-d [mm]	Type	Performance	Code	SP	kg	
16 - 63	MSE 63 T	115 V/800 W	790 105 096	0	2.075	
16 - 63	MSE 63 E	115 V/800 W	790 105 097	0	2.145	
16 - 110	MSE 110 T	115 V/1500 W	790 105 126	0	3.200	
16 - 110	MSE 110 E	115 V/1500 W	790 105 127	0	3.200	

5102



Support

- as a storage possibility for Handheld heating element

Code	SP	kg	
761 066 801	1	0.970	

5130



Heating bushes

- The INSTAFLEX heating bushes used for jointing Polybutene d75, d90, d110 are also available at +GF+

d [mm]	Code	SP	kg	
16	761 066 756	1	0.080	
20	761 066 757	1	0.120	
25	761 066 758	1	0.150	
32	761 066 759	1	0.210	
40	761 066 760	1	0.295	
50	761 066 761	1	0.450	
63	761 066 762	1	0.600	

Heating spigots and bushes



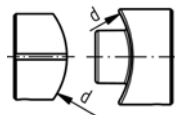
d [mm]	Code	SP	kg	
75	790 101 093	0	1.157	
90	790 101 094	0	1.697	
110	790 101 095	0	2.090	

5056



Heating bushes for weld-in-saddle PB

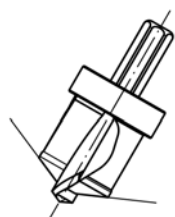
d = Pipe dim.



d [mm]	Code	SP	kg	Remarks	
40	761 068 027	1	0.132	Drill bitt d20-d32	
50	761 068 028	1	0.161	Drill bitt d20-d32	
63	761 068 029	1	0.200	Drill bitt d20-d32	
75	761 068 030	1	0.213	Drill bitt d20-d32	
90	761 068 031	1	0.272	Drill bitt d20-d32	
110	761 068 032	1	0.298	Drill bitt d20-d32	

5057

Drill bit for weld-in-saddle



d [mm]	Code	SP	kg	
20 - 32	761 068 039	1	0.120	
40 - 50	761 068 040	1	0.130	

5302

Chamfering tool



d-d [mm]	Code	SP	kg	
25 - 63	761 066 794	1	0.650	
75 - 110	761 066 836	1	0.830	

5303

Spare blades for Chamfering tool



d-d [mm]	Code	SP	kg	
25 - 110	761 066 795	1	0.016	



Tempil Stick

Temperature [°C]	Code	SP	kg	
253	799 496 008	0	0.014	
274	799 496 009	0	0.018	

5312



Timer

Code	SP	kg	
761 066 798	1	0.042	

5320



Gloves

Code	SP	kg	
761 066 799	1	0.115	

3948



Spanner

- Tool to change the heating bushes

SW [mm]	Code	SP	kg	
6	760 854 906	1	0.070	

5314



Template, compression and fusion joints

- to mark the clamp and coupler

d-d [mm]	Code	SP	kg	
16 - 63	761 066 800	1	0.040	

Tools for Compression Joints

3905



Assembly tongs

d [mm]	Code	SP	kg	
16 - 20	760 853 743	1	0.420	
25	760 869 950	1	0.418	

3954



Ratched spanner

- for tightening and loosening of compression fittings d16 and d20

SW [mm]	d [mm]	Code	SP	kg	
24	16	760 854 916	1	0.280	
27	20	760 854 917	1	0.586	

Machines and Tools for Electro Fusion

6000



Electrofusion control unit Type HWSG-3-110V

- including welding cable for fittings without tool case, primary cable 110V, primary cable 230V
- Primary cable (3m) with Euro standard plug
- Technical data: voltage 110V and 230V variable, power output max. 1500W,
- Technical specifications
- Frequency 47/65Hz, protection rate IP54, incl. power-supply cable 110V and 230V (3m) with euroconnector

on request

d-d [mm]	Code	SP	kg	Dimensions [mm]	Size [mm]
16 - 110	761 069 015	0	11.500	294	324

6001



Welding cable angle PUR, for electrofusion fittings for HWSG-3 110V

- matches to HWSG 3 - 110V

on request

d [mm]	Code	SP	kg	Length [m]
16 - 110	761 069 016	1	0.300	3.00

6001



Welding cable PUR straight, for electrofusion fittings for HWSG-3 110V

- matches to HWSG 3 - 110V

on request

d-d [mm]	Code	SP	kg	Length [m]
16 - 110	761 069 011	1	0.300	3.00

6005



Primary cable 110V

on request

Code	SP	kg	Length [m]
761 069 012	1	0.400	3.00

6005



Primary cable 230V

on request

Code	SP	kg	Length [m]
761 069 013	1	0.380	3.00

5314



Template, electrofusion jointing

d-d [mm]	Code	SP	kg
16 - 110	761 069 602	1	0.065

Tools for INSTAFLEX BIG

6008



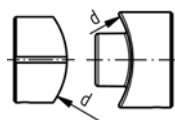
MSA 250 EX MULTI PLUS Automatic Electrofusion Unit

Configuration:

- only available in 230V
- INSTAFLEX BIG/ELGEF/FUSEAL
- including transportation case
- including Barcodescanner

d-d [mm]	Code	SP	kg	Type	
125 - 225	761 069 007	0	16.800	MSA 250 EX MULTI	

5056



Heating bushes for weld-in-saddle PB

- for heating element straight and 30°

d = Pipe dim.

d [mm]	Code	SP	kg	Remarks	
125	761 068 033	1	0.371	Drill bitt d20-d32	
125	761 068 034	1	0.504	Drill bitt d40-d50	
160	761 068 035	1	0.568	Drill bitt d20-d32	
160	761 068 036	1	0.653	Drill bitt d40-d50	
225	761 068 037	1	1.008	Drill bitt d20-d32	
225	761 068 038	1	1.018	Drill bitt d40-d50	



Rotary Peeler RS

This innovative Rotary Peeler RS is designed to use for universal peeling at the pipe end for electrofusion couplings, tees and elbows and as well as for electrofusion saddles.

Suitable for peeling of pipes made out of PE80, PE100, PEX, PP.

Feature and your advantage:

Spring loaded peeling blade:Independent peeling quality of pipe ovality or tolerances

Pivoted mounted peeling blade:To compensate the shape of coiled pipe

Optimized cutting geometry:Defined chip thickness with cutting width overlap

One tool per dimension:Minimized swivel radius for peeling in narrow locations

Divisible tool:Peeling for saddles with the same tool

Peeling length:No limitation of peeling length

Guidance rolls:3 point support for dimensional optimized cutting feed, time saving

Time saving:Tool is always ready to use, it can be used for the next peeling without setting the peeling blade back in its origin position

Your advantage:Time saving and highest repeatable peeling quality at smallest rotation radius. No operator errors possible for change of dimension

Included:1 x Rotary Peeler RS, Transport case, Operating manual, Spare parts list

Article	d [mm]	Code	SP	kg	
RS 125	125	790 136 007	0	1.650	
RS 160	160	790 136 009	0	1.650	
RS 225	225	790 136 012	0	1.850	



TM 250 Basic machine

- Tubular frame providing increased rigidity and easy movement of the machine on the ground
- 4 lifting lugs
- Metal shield providing protection of the main welding area
- The movable (sliding) 3rd clamp allows easy and time saving fixing of bends or tees without need of additional tools
- Double-sided heating element pull-off mechanism to optimise the change-over phase
- Clamps are hinged on the top side and tilting, whenever necessary the four clamps can be quickly removed
- Quick-action and drip-proof oil connections located in protected position
- By rotating of the base machine a second operating position available

Type	d-d [mm]	Code	SP	kg	
TM 250	75 - 250	790 151 001	0	50.000	

GEORGE FISCHER SALES LIMITED (“George Fischer”) CONDITIONS OF SALE (FOR GOODS AND SERVICES)

GEORGE FISCHER SALES LIMITED (“George Fischer”) CONDITIONS OF SALE (FOR GOODS AND SERVICES)

1 INTERPRETATION

- 1.1 In these conditions of sale the following words will (unless the context otherwise requires) have the following meanings: “Conditions” means the conditions set out below and overleaf. “Contract” means any contract between George Fischer and the Customer for the sale of any Works. “Customer” means the company, firm, body or person purchasing the Works. “Customer’s Property” means any dies, tools, patterns, drawings, specifications, designs, packagings and any other equipment, goods, materials, instructions or information supplied by or on behalf of the Customer to George Fischer in connection with the Works. “Goods” means any goods agreed in the Contract to be provided by George Fischer to the Customer (including but not limited to the whole or any part or parts of them, any raw materials, finished or semi-finished materials, machinery, parts, spares, commodities and any materials, articles and commodities supplied in connection with the Services). “Services” means any services agreed in the Contract to be provided by George Fischer to the Customer (including but not limited to the whole or any part or parts of them). “Works” means the Goods and/or the Services (as appropriate).
- 1.2 Any reference in these Conditions to any statute or statutory provision will (unless the context otherwise requires) be construed as a reference to that statute or statutory provision as may be amended, consolidated, modified, extended, re-enacted or replaced from time to time.
- 1.3 The headings in these Conditions are for reference only and will not affect the interpretation of these Conditions.
- 1.4 In these Conditions the words “unless otherwise agreed in writing” will mean unless otherwise agreed in writing and signed by a director or commercial manager of George Fischer.
- 1.5 George Fischer reserves the right at anytime to correct any clerical, typographical or other similar errors made by its employees.

2 QUOTATIONS

- 2.1 Any quotation (whether written or oral) is given on the basis that no contract will come into existence otherwise than in accordance with the provisions of clauses 3.5 and 3.6.
- 2.2 Unless otherwise agreed in writing any quotation is valid only for a period of 45 days from its date of issue provided that George Fischer has not previously withdrawn it by written or oral notice to the Customer.
- 2.3 Any quotation is based on the instructions and information provided by the Customer and George Fischer reserves the right to amend the quotation at any time to cover any increase in price which may arise as a result of additional or incomplete instructions or information.

3 APPLICATION OF TERMS

- 3.1 [Subject to clause 3.4] these Conditions are the only conditions on which George Fischer is prepared to deal with the Customer and they will apply to all Contracts to the exclusion of any other terms and conditions including but not limited to those which the Customer purports to apply.
- 3.2 No terms or conditions endorsed upon, delivered with, referred to or stipulated or contained in any purchase order or other similar document delivered or sent by the Customer to George Fischer will form part of the Contract.
- 3.3 Any reference overleaf to the Customer’s purchase order or other similar document will not be deemed to imply that any terms or conditions endorsed upon, delivered with, referred to or stipulated or contained in such purchase order or other similar document will have effect to the exclusion or amendment of these Conditions.
- 3.4 Any variation to these Conditions and any representation about the Works will only be effective if it is agreed in writing, contains a specific reference to these Conditions and is signed by a director or commercial manager of both parties.
- 3.5 Each purchase order for Works issued by the Customer will be deemed to be an offer by the Customer to purchase Works subject to these Conditions.
- 3.6 No purchase order placed by the Customer will be deemed to be accepted by George Fischer until a written acknowledgement of order is issued by George Fischer or (if earlier) George Fischer commences the Works or supplies the Works to the Customer.
- 3.7 The Customer must ensure that the content of its order and any applicable specification are complete and accurate.
- 3.8 Unless otherwise agreed in writing all drawings, illustrations, descriptions, specifications, technical data, advertising and other similar information issued by George Fischer or contained in George Fischer’s catalogues, brochures, trade literature, price lists or other similar published materials are issued or published only for the purpose of giving an approximate idea of the Works described in them and will not form part of the Contract.
- 3.9 Any purchase order which has been accepted by George Fischer in accordance with clause 3.5 and 3.6 may only be amended, cancelled, postponed or varied by the Customer with the prior written consent of George Fischer and on terms that the Customer will indemnify George Fischer in full against all losses (including but not limited to loss of profit), costs, damages, charges and expenses incurred (directly or indirectly) by George Fischer as a result of such amendment, cancellation, postponement or variation.

4 DELIVERY

- 4.1 Any times specified or agreed by George Fischer for the delivery of the Works are given in good faith but are an estimate only. If no time is specified or agreed by George Fischer delivery will take place within a reasonable time. Unless otherwise agreed in writing time for the delivery of the Works will not be of the essence of the Contract.
- 4.2 George Fischer will use its reasonable endeavours to deliver the Works within the times set out in clause 4.1 but George Fischer will not be liable for the consequences of any delay or failure to deliver if the duration of the delay is not substantial or if the delay or failure is due to any circumstances beyond George Fischer’s reasonable control or of an unexpected or exceptional nature.
- 4.3 [Subject to the provisions of clause 4.4 delivery will be deemed to take place when the Works are delivered to the Customer at such place as the parties may agree except that delivery to a carrier for the purpose of transmission to the Customer will be deemed to be delivery to the Customer and sections 32[2] and [3] of the Sale of Goods Act 1979 will not apply.
- 4.4 If George Fischer agrees to permit the Customer to collect the Works from George Fischer’s place of business then delivery will be deemed to take place when George Fischer notifies the Customer that the Works are ready for collection and unless otherwise agreed in writing the Customer will collect the Works within 3 working days of the issue of such notice.
- 4.5 George Fischer will use its reasonable endeavours to ensure where necessary that the Works will be packed so as to be adequately protected against damage in normal conditions of transit of usual duration. George Fischer will make such arrangements for the carriage and insurance of the Works as it agrees with the Customer.
- 4.6 George Fischer may deliver the Works in instalments. Deliveries of further instalments may be withheld until the Works comprised in earlier instalments have been paid for in full. Default by George Fischer (howsoever caused) in respect of one or more instalments will not entitle the Customer to terminate the relevant Contract as a whole.
- 4.7 In the event of any delay in the delivery of any Goods and/or the performance of any Services which are attributable to the Customer’s acts or omissions then:
(a) delivery of the Goods and/or performance of the Services will be deemed to have taken place at the time at which but for such delay or delays such delivery or performance would have taken place and any extra costs incurred as a result of such delay or delays will be added to the Contract price and will be payable by the Customer; and
(b) George Fischer may sell such Goods 28 days after such delay and deduct any monies payable to George Fischer by the Customer from the sale proceeds and account to the Customer for any excess or charge the Customer for any shortfall.
- 4.8 Where the Works are to be supplied from stock such supply is subject to the availability of the stock at the date of delivery.
- 4.9 On delivery to the Customer all Works should be examined. [Subject to clause 8.2] George Fischer will not be liable for any shortages in or non-delivery of the Works (even if caused by George Fischer’s negligence) unless the same is notified in writing by the Customer to George Fischer (together with all relevant details) within 14 days of the actual or anticipated date of delivery (as appropriate). Subject to such notice being provided George Fischer will, if it is reasonably satisfied that any Works have not been delivered as a result of George Fischer’s fault (in its sole discretion) either arrange for delivery as soon as reasonably possible or give credit (at the pro rata Contract price) to the Customer for such Works. Any shortages in or non-delivery of part of the Works will not affect the Contract in respect of the other parts of the Works.
- 4.10 If George Fischer complies with clause 4.9 it will (subject to clause 8.2) have no further liability (in contract, tort (including but not limited to negligence) or otherwise) for such shortages or non-delivery.

- 4.11 Whilst George Fischer will use reasonable endeavours to supply the exact quantity of the Works ordered by the Customer, George Fischer may supply and the Customer will accept up to 10% more or less than the exact quantity ordered. A pro rata charge or allowance at the Contract price will be made to cover any such variation.
- 4.12 The Customer (at its own expense) will ensure that the place where delivery of the Goods or performance of the Services is to take place is adequate and appropriate for such delivery or performance and will provide such access, equipment, facilities, protection, manual labour and information as may be required to enable George Fischer to perform its obligations under the Contract.
- 5 RISK AND OWNERSHIP**
- 5.1 Unless otherwise agreed in writing the Works are at the risk of the Customer from the time of delivery or deemed delivery to the Customer (as appropriate) and loading and off loading (as appropriate) will be at the Customer’s risk. Section 20[2] of the Sale of Goods Act 1979 will not apply.
- 5.2 [Notwithstanding that risk in the Works will pass to the Customer in accordance with the provisions of clause 5.1] ownership of the Works (both legal and equitable) will only pass to the Customer (other than when ownership is properly vested in some other person by the operation of any statute) when George Fischer has received in full (in cash or cleared funds) all monies due to it from the Customer:
(a) in respect of the Works; and
(b) all other sums which are or which become due to George Fischer from the Customer on any account.
- 5.3 Until ownership of the Works has passed to the Customer under clause 5.2, the Customer will:
(a) hold the Works on a fiduciary basis as George Fischer’s bailee;
(b) keep the Works free from any charge, lien or other encumbrance;
(c) store the Works (at no cost to George Fischer) separately from all other materials of the Customer or any third party in such a way that they remain readily identifiable as George Fischer’s property;
(d) not destroy, deface or obscure any identifying mark on the Works or their packaging;
(e) maintain the Works in a satisfactory condition, insured on George Fischer’s behalf for their full price against all risks to the reasonable satisfaction of George Fischer and on request produce such policy of insurance to George Fischer;
(f) hold all proceeds of the insurance referred to in clause 5.3
(g) on trust for George Fischer and not mix it with any other money or pay the proceeds into any overdrawn bank account; and
(g) not attach the Works to any real property without George Fischer’s consent.
- 5.4 The Customer may resell, use or otherwise dispose of the Works before ownership has passed to it only if any such sale, use or disposition will be effected in the ordinary course of the Customer’s business and will be a sale, use or disposition of George Fischer’s property on the Customer’s own behalf and the Customer will deal as principal.
- 5.5 George Fischer may while the owner of the Works (and without prejudice to any other rights it may have under or by virtue of these Conditions) demand the immediate return of the Works at any time and the Customer will forthwith comply with such demand and bear the expenses for such return.
- 5.6 The Customer grants to George Fischer (or its successors in title for the Works) and their respective employees and agents an irrevocable licence to enter at any time any premises where the Works are or may be situated for the purpose of inspecting or removing any such Works the ownership in which has remained with George Fischer.
- 5.7 George Fischer will be entitled to recover payment for the Works notwithstanding that ownership of any of the Works has not passed from George Fischer.
- 5.8 The Works will be deemed sold or used in the order delivered to the Customer.
- 6 PRICE AND PAYMENT**
- 6.1 The price stated in the Contract is based on the cost to George Fischer of materials, fuel, power, transport, taxes, duties, services, labour and all other costs at the date of George Fischer’s quotation, acknowledgement of order or supply (whichever is earlier). If at the date of delivery or deemed delivery of the Works there has been any increase in all or any of such costs, the price payable for the Works may be increased by George Fischer accordingly.
- 6.2 Quotations given in a currency other than sterling are based on the rate of exchange at the time of quoting and (unless otherwise agreed in writing between the parties) the price may be subject to revision if any different rate of exchange is ruling at the date of invoice.
- 6.3 [Unless otherwise agreed] the price for the Works is exclusive of any value added tax (and any other tax or duty relating to the manufacture, transportation, sale or delivery of the Works) and any costs or charges in relation to export and/or import, packaging, loading, unloading, carriage and insurance. Such costs and expenses will be paid by the Customer in addition to the price for the Works at the same time that it is due to pay for the Works.
- 6.4 Where George Fischer agrees (in its discretion) to bring forward the date of delivery of the Works at the Customer’s request any overtime or other additional costs reasonably incurred by George Fischer shall be charged to the Customer in addition to the Contract price.
- 6.5 George Fischer may invoice the Customer for the Works at any time after the delivery of the Works or the delivery of any instalment (as appropriate). If any delivery is postponed at the request or by the default of the Customer then George Fischer may submit its invoice at any time after the Works are ready for delivery or would have been ready in the ordinary course but for the request or default on the part of the Customer.
- 6.6 Customers who have been granted by George Fischer (in its sole discretion) a credit account facility will pay the price within 30 days of the end of the month in which the Works are despatched. George Fischer may (in its sole discretion) amend the terms of or withdraw such credit account facility at any time without notice with immediate effect and on such withdrawal all amounts due or accruing to George Fischer under the Contract will become immediately payable despite any other provision of these Conditions.
- 6.7 Customers who have not been granted a credit account facility will pay the price 5 working days prior to delivery of the Works.
- 6.8 No payment will be deemed to have been received until George Fischer has received cleared funds.
- 6.9 Time for payment will be of the essence of the Contract and the Customer will indemnify George Fischer against all expenses and legal costs incurred by George Fischer in recovering overdue amounts.
- 6.10 All payments payable to George Fischer under the Contract will become due immediately on termination of this Contract despite any other provision of these Conditions.
- 6.11 The Customer will make all payments due under the Contract without any deduction whether by way of set-off, counterclaim, discount, abatement or otherwise unless the Customer has a valid court order requiring an amount equal to such deduction to be paid by George Fischer to the Customer.
- 6.12 If the Customer fails to pay George Fischer any sum due pursuant to the Contract the Customer will be liable to pay interest to George Fischer on such sum from the due date for payment at an annual rate of 4% above the base lending rate of HSBC Bank plc from time to time accruing on a daily basis until payment is made in full (whether before or after any judgement). In the alternative, George Fischer in its absolute discretion, reserves the right to claim interest and compensation payments under the Late Payment of Commercial Debts (Interest) Act 1998.
- 6.13 Without prejudice to the provisions of clause 6.12 if the Customer fails or George Fischer reasonably believes that the Customer will fail to pay for the Work when due George Fischer may demand payment of all outstanding balances whether due or not, treat the Contract as repudiated by the Customer or suspend any future performance of the Contract or any other contract with the Customer until all overdue sums have been paid.
- 7 QUALITY**
- 7.1 George Fischer warrants (subject to the provisions of this clause 7) that:
(a) on delivery of the Goods and for a period of 12 months from the date of delivery, the Goods will:
(i) be of satisfactory quality, within the meaning of the Sale of Goods Act 1979 (as amended); and
(ii) be reasonably fit for any particular purpose for which the Works are commonly supplied or are being bought (if the Customer has made known that purpose to George Fischer in writing and George Fischer has confirmed in writing that it is reasonable for the Customer to rely on the skill and judgement of George Fischer);
(b) and the Services will be performed with reasonable skill and care by properly qualified and experienced persons.

The above Terms of Business effective from 29th June 2007

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GEORGE FISCHER SALES LIMITED ("George Fischer")

CONDITIONS OF SALE (FOR GOODS AND SERVICES) (Continued)

- 7.2 George Fischer will not be liable for any breach of any of the warranties in clause 7.1 unless:
- (a) the Customer gives written notice of the defect to George Fischer within 28 days of the date when the Customer discovers or ought reasonably to have discovered the defect;
 - (b) (if the defect is as a result of damage in transit) the Customer gives written notice of the defect to the carrier in the manner and within the appropriate time limit as set out in the carrier's terms of business; and George Fischer is given a reasonable opportunity after receiving such notice to examine such Works and the Customer (if requested to do so by George Fischer) returns such Works to George Fischer's place of business (at the Customer's cost) for the examination to take place there.
- 7.3 George Fischer will not be liable for a breach of any of the warranties in clause 7.1 where and to the extent that:
- (a) the defect arises from the Customer's Property or as a result of the Customer's negligence;
 - (b) the defect arises as a result of fair wear and tear, misuse, wilful damage, or abnormal working conditions;
 - (c) the defect arises as a result of any parts, materials or equipment not manufactured or workmanship not performed by George Fischer;
 - (d) the Customer makes any further use of such Works after giving written notice of the defect;
 - (e) the defect arises because the Customer has failed to follow George Fischer's instructions (whether oral or in writing) as to the storage, assembly, installation, commissioning, use, processing, handling or maintenance of the Works or (if there are none) good trade practice;
 - (f) the defect arises as a result of any installation, testing or commissioning of the Works performed by the Customer or any third party; or
 - (g) the defect arises as a result of any alteration, servicing or repair of the Works not made by George Fischer and without the written consent of George Fischer.
- 7.4 (Subject to clauses 7.2 and 7.3) if any of the Works do not conform with any of the warranties set out in clause 7.1 George Fischer will at its option and cost repair or replace such Goods (or the defective part), re-perform such Services or refund the price of such Works at the pro rata Contract rate.
- 7.5 If George Fischer complies with clause 7.4 it will (subject to clause 8.2) have no further liability (in contract, tort (including but not limited to negligence) or otherwise) for breach of any of the warranties in clause 7.1 in respect of such Works.
- 7.6 Any Goods replaced by George Fischer in accordance with the provisions of clause 7.4 will belong to George Fischer and any repaired or replacement Goods will be guaranteed on these terms for the unexpired portion of the original 12 month warranty period.
- 8 LIMITATION OF LIABILITY**
- THE PRICES CHARGED FOR THE WORKS ARE BASED STRICTLY ON THE UNDERSTANDING OF ACCEPTANCE BY THE CUSTOMER OF THE PROVISIONS IN THE CONTRACT FOR THE LIMITATION OF GEORGE FISCHER'S LIABILITY. SHOULD THE CUSTOMER WISH GEORGE FISCHER TO ACCEPT ADDITIONAL LIABILITY THIS MAY BE DISCUSSED BETWEEN THE PARTIES AND THE PRICE MAY BE INCREASED ACCORDINGLY.
- 8.1 All warranties, conditions and other terms implied by statute or common law (except for the conditions implied by section 12 of the Sale of Goods Act 1979 and section 2 of the Supply of Goods and Services Act 1982) are, to the fullest extent permitted by law, excluded from the Contract.
- 8.2 Nothing in these Conditions excludes or limits the liability of George Fischer for fraudulent misrepresentation or for any death or personal injury caused by George Fischer's negligence or for any breach of the conditions implied by section 12 of the Sale of Goods Act 1979 and section 2 of the Supply of Goods and Services Act 1982.
- THE CUSTOMER'S ATTENTION IS IN PARTICULAR DRAWN TO THE PROVISIONS OF CLAUSES 8.3 AND 8.4
- 8.3 (Subject to clause 8.1 and 8.2) George Fischer will not be liable to the Customer in contract, tort (including but not limited to negligence), misrepresentation or otherwise for any:
- (a) economic loss of any kind (including but not limited to direct or indirect loss of profit, business, contracts, revenue or anticipated savings);
 - (b) damage to the Customer's reputation or goodwill;
 - (c) product recall costs; or
 - (d) any special, indirect or consequential loss or damage (even if George Fischer has been advised of such loss or damage) arising out of or in connection with the Contract.
- 8.4 (Subject to the provisions of clause 8.2 and 8.3
- 9 THE CUSTOMER'S PROPERTY**
- 9.1 While George Fischer will take reasonable care of the Customer's Property whilst it is in George Fischer's possession, control or custody the Customer's Property will (unless otherwise agreed in writing) remain at the Customer's risk and all replacements and alterations of and repairs to the Customer's Property will be the Customer's responsibility.
- 9.2 George Fischer will not be liable for any loss or damage to the Customer's Property unless such loss or damage arises as a direct result of George Fischer's negligence. Where George Fischer is liable under this clause 9.2 George Fischer's liability to the Customer will be limited to the actual cost of the replacement or repair of the loss or damage to the Customer's Property.
- 9.3 The Customer will ensure that the Customer's Property is in good condition and suitable for use by George Fischer in the performance of the Contract and while George Fischer will use reasonable endeavours to verify any relevant aspects of the Customer's Property no responsibility is accepted by George Fischer for its accuracy.
- 9.4 Any defect in the Works which is due in whole or in part to the Customer's Property will not entitle the Customer to terminate the Contract, reject the Works, make any deductions from the Contract price or claim damages in respect of such defect.
- 9.5 The Customer will keep George Fischer indemnified in full against all liability, loss, damage, injury, claim, action, demand, expense or proceeding awarded against or incurred by George Fischer as a result of or in connection with the use by George Fischer of the Customer's Property unless such liability, loss, damage, injury, claim, action, demand, expense or proceeding is the result of George Fischer's negligent acts or omissions.
- 10 TOLERANCES AND TESTS**
- 10.1 Unless otherwise agreed in writing gauges, weights, chemical composition and analysis, quantities and sizes will, so far as possible, be adhered to but reasonable excesses and deficiencies will be accepted by the Customer, who will not be entitled to reject any Works on the ground that they are not precisely as specified.
- 10.2 Unless otherwise agreed in writing, all tests, test pieces and inspections required by the Customer and agreed by George Fischer will be charged extra. All tests and inspections will take place under George Fischer's standard testing arrangements, and such tests will be final (except in the case of manifest error). All tests are subject to analytical tolerances.
- 10.3 The Customer may attend (at its own cost) all tests provided that it notifies George Fischer in writing of its intention to do so. The Customer will then be given not less than 5 working day's prior notice of the proposed date and time of any test and, if the Customer fails to attend, the test will proceed in its absence although it will be deemed to have been made in its presence.
- 11 OWNERSHIP OF TOOLING**
- 11.1 Where patterns, dies, tools, drawings and equipment are not supplied by the Customer, only those which are specially made by George Fischer and separately charged to the Customer in full, will, when paid for by the Customer, become the property of the Customer.
- 11.2 George Fischer reserves the right to destroy or otherwise dispose of patterns, dies, tools, drawings and equipment in its possession, control or custody (whether or not the property of the Customer) from which the Customer has not required any Works to be made for a period of 12 months or more.
- 12 PACKING CASES AND PACKING MATERIALS**
- 12.1 Unless otherwise agreed in writing packing cases and packing materials will not be charged extra but, where stated to be returnable, will be returned to George Fischer in good condition, within one month of receipt by the Customer. Where not returnable, the Customer will dispose of all packing in accordance with all regulations (whether statutory or otherwise) relating to the protection of the environment.
- 13 CONFIDENTIALITY**
- 13.1 The Customer will keep confidential all technical data, commercial information, know how, specifications, inventions, processes, initiatives and other information which is of a confidential nature and which has been disclosed to the Customer by George Fischer and/or any member of the George Fischer group and/or its agents and any other confidential information concerning the business of George Fischer and/or any member of the George Fischer group or its products which the Customer may obtain ("Confidential Information").
- 13.2 The Customer will restrict disclosure of the Confidential Information to such of its employees, agents or subcontractors as need to know the same and will ensure that such employees, agents or subcontractors are subject to equivalent obligations of confidentiality as bind the Customer.

- 13.3 The Customer will not without the prior written consent of George Fischer publish or disclose the Confidential Information to any third party or make any use of the Confidential Information except to the extent necessary to implement the Contract.
- 14 INTELLECTUAL PROPERTY**
- 14.1 The Customer will keep George Fischer indemnified in full against all liability, loss, damage, injury, claim, action, demand, expense or proceeding in respect of any infringement or alleged infringement of any patent, registered design, unregistered design, design copyright, trademark or other industrial or intellectual property rights resulting from any use by George Fischer of the Customer's Property or any compliance by George Fischer with the Customer's instructions, whether express or implied.
- 14.2 (Unless otherwise agreed in writing) ownership in all intellectual property rights subsisting in, resulting from or relating to the Works or any associated plans, descriptions, blue prints, designs, technical information, drawings, documents or specifications (except where these relate solely to the Customer's Property) will vest in or be assigned to George Fischer. If the Customer in any way acquires any such rights it will promptly inform George Fischer and take such steps as George Fischer may reasonably require to assign such rights or vest such title in George Fischer.
- 14.3 Nothing in these Conditions will be construed as any representation or warranty by George Fischer that the design, manufacture, use or sale of the Works is not an infringement of any third party intellectual property rights.
- 15 TERMINATION**
- 15.1 George Fischer may terminate the Contract (and all other contracts between George Fischer and the Customer) immediately if:
- (a) the Customer fails to pay the price on the due date;
 - (b) the Customer is in breach of any term of the Contract and has failed to remedy such breach within 28 days of receipt of written notice specifying the breach and requiring it to be remedied;
 - (c) there is a material change in the ownership or control of the Customer; or
 - (d) the Customer is wound up or becomes insolvent or has a receiver or administrative receiver appointed or suffers the appointment or the presentation of a petition for the appointment of an administration or any equivalent or analogous event occurs in any relevant jurisdiction.
- 15.2 The termination of the Contract (howsoever arising) will be without prejudice to any rights and remedies which may have accrued to either party.
- 15.3 Any Conditions which imply have effect after termination or expiry will continue to be enforceable notwithstanding termination or expiry.
- 16 EXPORT SALES**
- 16.1 Where the Works are supplied for export from the United Kingdom the provisions of this clause 16 will (subject to any special terms agreed in writing between the parties) apply despite any other provision of these Conditions.
- 16.2 The Uniform Laws on International Sales Act 1967 will not apply.
- 16.3 Unless otherwise agreed in writing the currency will be pounds sterling. The Customer will establish and maintain in favour of George Fischer an irrevocable and confirmed letter of credit in English with a UK clearing bank payable on drafts drawn at sight on presentation to the bank by George Fischer of a certified copy of George Fischer's invoice. All bank charges and other expenses in relation to the letter of credit will be borne by the Customer.
- 16.4 Unless otherwise agreed in writing Works will be sold C.I.F [as defined in INCOTERMS 2000 Edition].
- 16.5 The Customer will be responsible for complying with and shall comply with any legislation or regulation governing the export of the Works:
- (a) from the United Kingdom; and/or
 - (b) (where the Works are sourced from a country other than the United Kingdom) from such country and the importation of the Works into the country of destination and for payment of any relevant duties or taxes whether payable by the Customer or George Fischer.
- 16.6 Unless otherwise agreed in writing packing cases and packing materials will be charged extra but, where stated to be returnable, will be credited in full on return to George Fischer's place of business (carriage paid) in good condition, within one month of receipt by the Customer. Where not returnable, the Customer will dispose of all packing in accordance with all regulations (whether statutory or otherwise) relating to the protection of the environment.
- 17 LIEN**
- George Fischer will have in respect of unpaid debts due to it from the Customer a general lien on all property of the Customer which is in George Fischer's possession for whatever reason and whether worked upon or not.
- 18 ASSIGNMENT AND SUBCONTRACTING**
- 18.1 The Customer will not without the prior written consent of George Fischer assign or transfer the Contract or any part of it to any other person.
- George Fischer may without the prior written consent of the Customer assign, transfer or subcontract the Contract or any part of it to any other person.
- 19 GENERAL**
- 19.1 Each right or remedy of George Fischer under these Conditions is without prejudice to any other right or remedy which George Fischer may have under these Conditions or otherwise.
- 19.2 Any notice or document shall be deemed served, if delivered by hand, at the time of delivery, if posted, 48 hours after posting and if sent by facsimile transmission, at the time of transmission. George Fischer may also send a notice or document by electronic communication in an e-mail address notified to George Fischer by the Customer. Such notice or document shall be deemed served if sent by e-mail transmission 48 hours after the time of transmission.
- 19.3 The illegality, invalidity or unenforceability of any provision of these Conditions will not affect the legality, validity or unenforceability of any other provisions of these Conditions.
- 19.4 Failure or delay by either party in exercising any right or remedy provided by the Contract or by law will not be construed as a waiver of such right or remedy or a waiver of any other right or remedy.
- 19.5 A person who is not a party to the Contract will have no right under the Contracts (Rights of Third Parties) Act 1999 to enforce any term of the Contract. This clause 19.5 does not affect any right or remedy of any person which exists or is available otherwise than pursuant to that Act.
- 19.6 The Customer agrees that it will have no remedy in respect of any untrue statement innocently or negligently made by or on behalf of George Fischer prior to the Contract upon which the Customer relied in entering into the Contract whether such statement was made orally or in writing unless the statement has been expressly agreed in writing by a director of George Fischer and/or the statement has been expressly incorporated in writing into the Contract.
- 19.7 George Fischer shall not be in breach of these Conditions or otherwise liable to the Customer by reason of any delay in performance or non-performance of any of its obligations due to any circumstances outside George Fischer's reasonable control.
- 19.8 The Contract will be governed by English law and the parties submit to the non-exclusive jurisdiction of the English courts.



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The above Terms of Business effective from 29th June 2007

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