

**SIMONA**



## **SIMODUAL<sup>2</sup> Industrial Double- Containment Piping System**

Dual pipes for double the protection

GLOBAL THERMOPLASTIC SOLUTIONS

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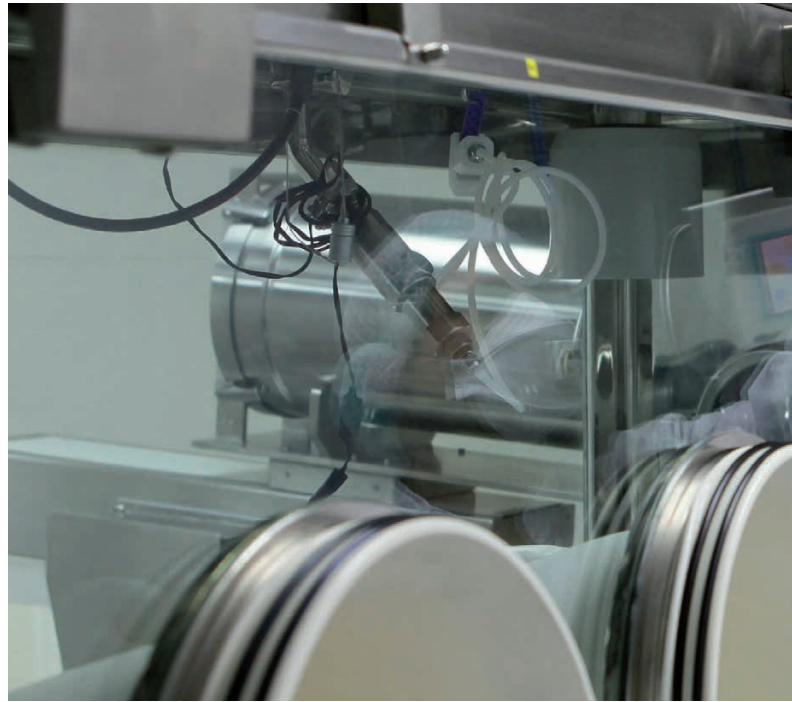
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## SIMODUAL<sup>2</sup> – Dual pipes for double the protection

**SIMONA is acknowledged as one of the leading producers and development partners in the field of thermo-plastics. We are able to offer you best-in-class solutions tailored to your applications: in the chemical processing industry, in the water, energy and commodities supply sector as well as in the field of mobility, construction and environmental technology. What is more, our operations span the globe.**

In almost all areas of industrial product manufacturing, materials are used that, in their concentrated form, present a risk to human health and the environment. For this reason, when it comes to designing any industrial piping system, everything from storage containers to distributor pipes and dosing lines must be designed to meet consistently high safety standards, right from the planning stage.

Double-walled piping systems are recommended for the transport of any hazardous substances. To address this need, SIMONA has developed the SIMODUAL<sup>2</sup> Double-Containment Piping System as an innovative, all-inclusive system with integrated anchor points.



### **Standardised product solution**

The focus in developing this system was to come up with a standardised product solution that would meet the highest safety requirements without the need for complicated, expensive design work. Polyolefins are primarily used as the materials for this system, although customised versions made of other materials are also possible.

### **Certified individual components**

To guarantee the highest possible safety, SIMODUAL<sup>2</sup> Piping Systems consist of an inner pipe that carries the medium and an external protective pipe. They are both fabricated out of quality-certified and independently monitored components.

### **Features of the design**

Instead of a simple splash guard, this piping system features a continuous, monitorable and pressure-resistant leak containment chamber.

### **Maximum safety**

The new, pressure-resistant double-containment piping system known as SIMODUAL<sup>2</sup> offers the maximum degree of safety – even in the event of an emergency. SIMODUAL<sup>2</sup> Double-Containment Piping Systems can be economically joined by applying proven methods such as heated-tool butt welding and electrofusion welding.

# SIMODUAL<sup>2</sup> – Innovative double-containment piping system

Compared to solutions based on conventional production methods, the seamless design of SIMODUAL<sup>2</sup> ensures that the protective pipe can be exposed to full pressure levels regardless of the components used.



## Practicality and versatility

The centrepiece of this system is the innovative anchor point. The benefit of this SIMONA design is that, with no further planning time or effort, the inner pipe remains fixed in place through the mere act of installing the system.

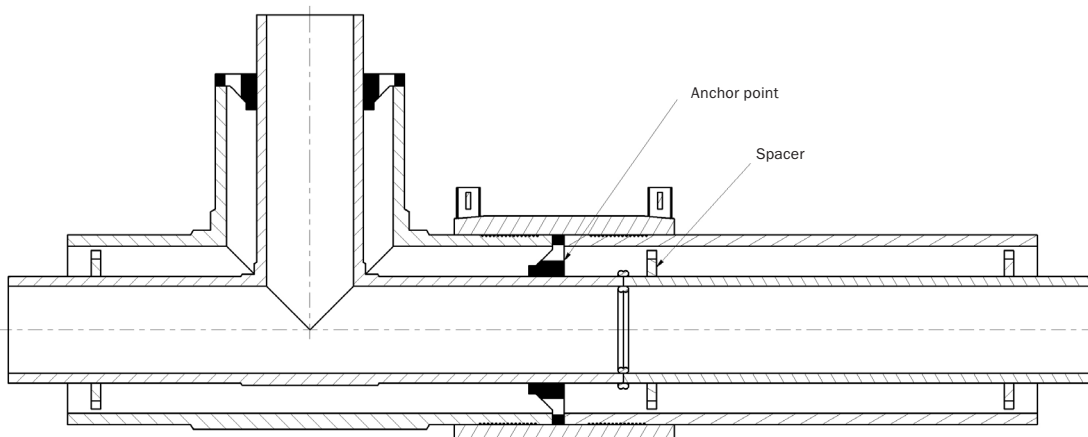
To ensure this, all of the SIMODUAL<sup>2</sup> Fittings include factory-made, integrated anchor points. This simplifies the installation process and significantly reduces the necessary installation time, since no additional welding work is required to secure the fixing points. It also makes it safe to lay or relocate the piping system, which means even further cost savings.

## Totally resilient protective pipe

A unique feature of the SIMODUAL<sup>2</sup> Double-Containment Piping System is the resilient quality of the protective pipe when it comes to pressure exposure. This guarantees process reliability, even in the event of an emergency.

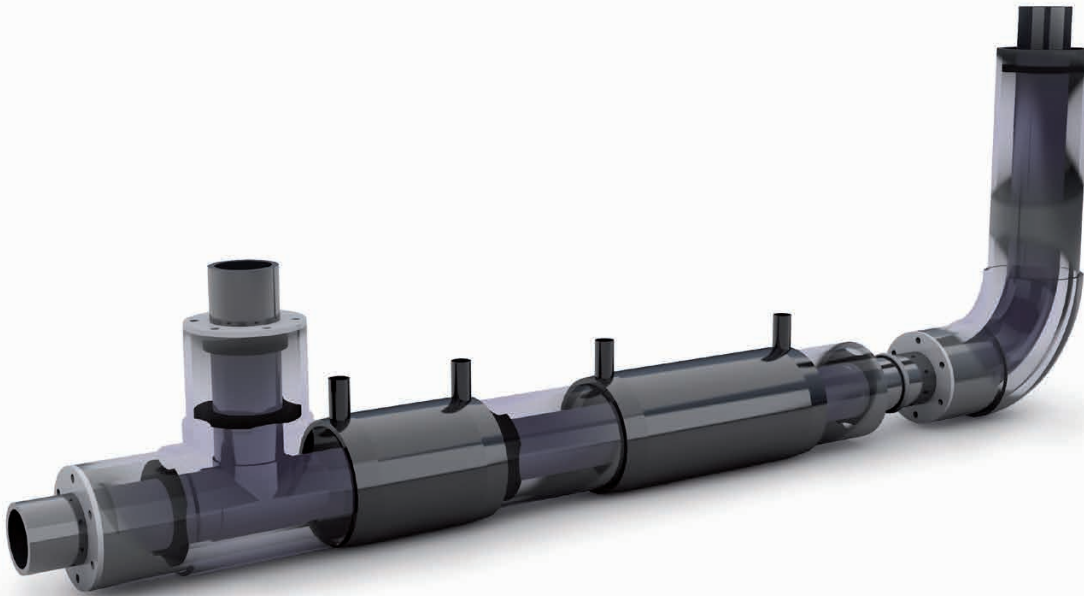
Both the protective pipe and all of the available fittings are produced in such a way that they can withstand the pressure of a substance leaking out of the inner pipe. This means there is ample time to locate the leak and rectify the problem before any damage to human health or the environment and any major disruption to the industrial process can occur.

SIMODUAL<sup>2</sup> Piping Systems thus offer a consistently high level of safety well in excess of any simple splashguard design.



Layout of SIMODUAL<sup>2</sup> double-containment piping system with integrated anchor points

# SIMODUAL<sup>2</sup> – Your benefits at a glance



## Cost-effective and practical

The unique SIMONA laying method facilitates safe and simple installation of the entire piping system. Thanks to the integrated anchor points, there is no need for any costly on-site welding work. That makes it particularly practical and saves time and money.

## High process reliability

Both the medium carrier and the protective pipe of the SIMODUAL<sup>2</sup> Double-Containment Piping System are resilient in terms of exposure to full pressure loads. This means your system remains fully operational, even in the event of an emergency, and also complies with all environmental regulations.

## Standardised, all-inclusive system

SIMODUAL<sup>2</sup> is an easily assembled end-to-end system, including fittings and leak monitoring. The compact design ensures simple handling and installation. Valves and inspection ports are available on request.

## Certified materials

SIMONA AG holds a general accreditation issued by the German Institute for Structural Engineering (DIBT) for water-hazardous liquids in accordance with Section 19 WHG: for pipes and fittings made of PP-H AlphaPlus® (Permit No. Z-40.23-325) and PE 100 (Permit No. Z-40.23-311). Thanks to constant third-party monitoring by the Southern German Technical Inspectorate (TÜV Süddeutschland), a consistently high standard of safety in the use of our materials is guaranteed.

## Excellent monitoring

Double-containment piping systems with built-in leak detection are mandatory when it comes to handling and monitoring the transport of highly aggressive substances. The space between the inner pipe carrying the substance and the protective outer pipe serves as a pressure-resistant containment chamber for any leaks that might occur. In addition a detection system to provide constant monitoring is installed within the system so that, if a leak occurs, the appropriate sensors immediately register the problem.

# SIMODUAL<sup>2</sup> – Material combinations tailored to your requirements

The SIMODUAL<sup>2</sup> Double-Containment Piping System can be engineered in various material combinations of polyethylene and polypropylene, both with regard to the media-carrying pipe and the protective pipe. As a result, the end-to-end system will also be tailored to your specific requirements.

**Maximum service temperature in °C according to service time in years**

Material	1 year	5 years	10 years	20 years	25 years	50 years	100 years
PE	80	60	55	50	45	40	35
PP	120	100	90	80	70	60	

The service life time temperature limit is mainly governed by effects related to thermoxydation. (Source: DVS 2201-1 BB 5)

## Inner pipe PE – Outer pipe PE

As a pipe material, polyethylene (PE) has a proven track record that spans more than fifty years. As the material of choice for the media-carrying pipe, it offers a number of benefits:

- Long operational service life
- Permanently watertight seal
- Good chemical resistance
- Proven creep strength
- Exceptional stability and flexibility
- Very good abrasion resistance
- Excellent corrosion resistance
- Excellent resistance to mechanical loads even at low temperatures
- High notch and crack resistance

In contrast to many other conventional materials, PE boasts an extremely long service life. Thus, the above-average performance of polyethylene pipes is maintained over the entire useful life of the piping system.

Given its high resistance to mechanical and chemical loads, PE is also a perfect choice for the protective pipe. Owing to these properties, operational uptime of the double-containment pipe can be ensured even if a leak occurs within the system.

Due to its permanent UV and weather stability, the double-containment piping system is suitable for outdoor installation. In this context, the wide service temperature range from –20 °C to +50 °C is another key benefit. What is more, the low weight and high flexibility of the components are an added bonus when it comes to assembling and constructing complex piping systems.

## Inner pipe PP – Outer pipe PE

PP-H AlphaPlus<sup>®</sup> is a specially nucleated homopolymeric polypropylene (PP-H) featuring specific properties that offer additional safety reserves for applications in the field of chemical plant engineering.

Therefore, polypropylene is also considered to be a highly suitable material for the media-carrying pipe. This is the case, in particular, when it comes to ensuring continuous operation at substance temperatures of between +10 °C and +80 °C. This corresponds to a mean maximum pipe wall temperature of +60 °C. Temporary temperature peaks in excess of +100 °C are also possible.

**Key operational benefits of polypropylene:**

- High chemical resistance to acids, alkalis and solvents
- Good long-term properties at high temperatures
- Excellent corrosion resistance
- Superior hydraulic properties due to minimal wall roughness
- Less extensive servicing and maintenance work thanks to low level of incrustation

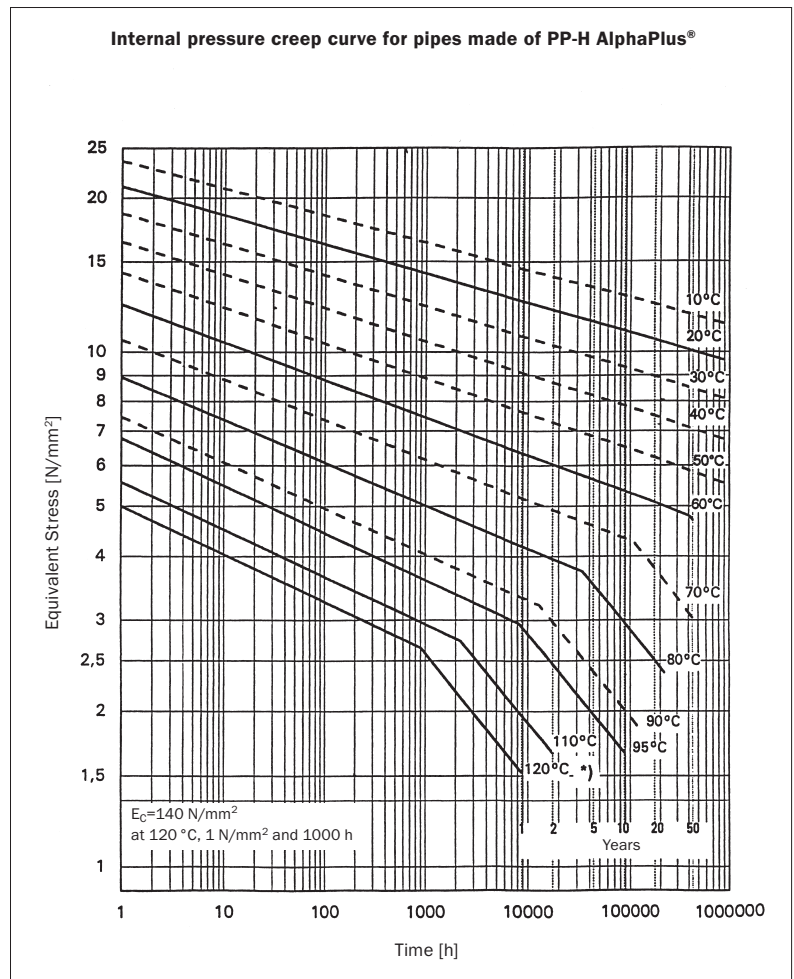
It goes without saying that we also offer other material combinations for specific requirements and applications, such as PVDF or electrically conductive materials.

Our consultants at the Technical Service Centre look forward to advising you on the execution of specific projects:

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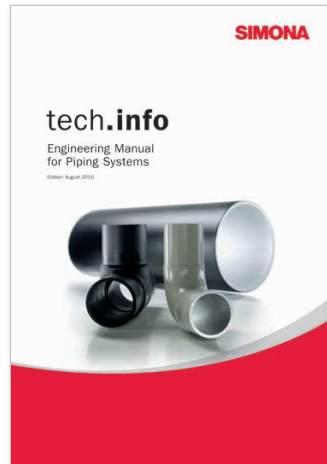
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# SIMODUAL<sup>2</sup> – Planning made simple



SIMCHEM – a database of information on the chemical resistance of SIMONA® materials to more than 4,000 listed substances.



Engineering Manual – your planning aid

No complicated design concepts apply to SIMODUAL<sup>2</sup> Double-Containment Pipes. Instead, they are based on the following simple planning principles.

The materials employed depend on the chemical stresses involved. The SIMONA online database SIMCHEM ([www.simchem.de](http://www.simchem.de)) gives you an initial idea of the available options. This online tool provides information about the chemical resistance of SIMONA materials to almost 4,000 substances and commercially available products. The database can provide a basic estimate of the suitability of a particular material for a specific use and general information on the workability of materials when a particular processing method is applied.

The next step limits the choice of material further, by considering the relevant operating temperatures. The ultimate design choice is determined by the creep curves of the various piping materials. The underlying technical data comes from independent test institutes and is also published in the German Welding Association (DVS) Guidelines.

Once the right piping material has been identified, the necessary wall thickness of the piping system is determined based on the relevant operating pressure. Here the focus is on selecting the right ratio between the external diameter and the wall thickness (SDR) in order to choose the best piping option from the manufacturer's existing product range.

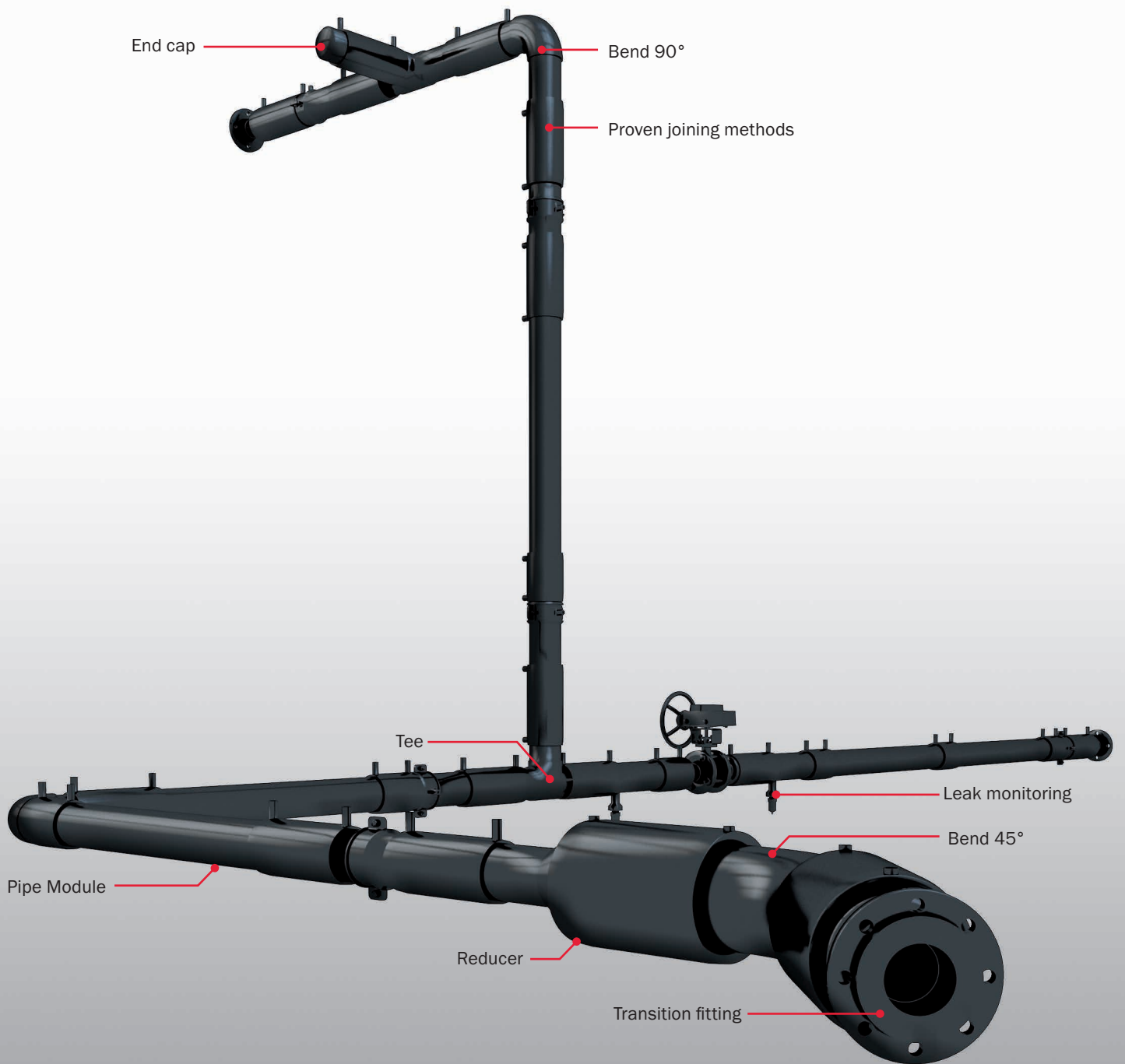
What you end up with are safe, economical double-containment piping systems tailored to a specific purpose.

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**i** The free online version of SIMCHEM is available on:  
[www.simchem.de](http://www.simchem.de)

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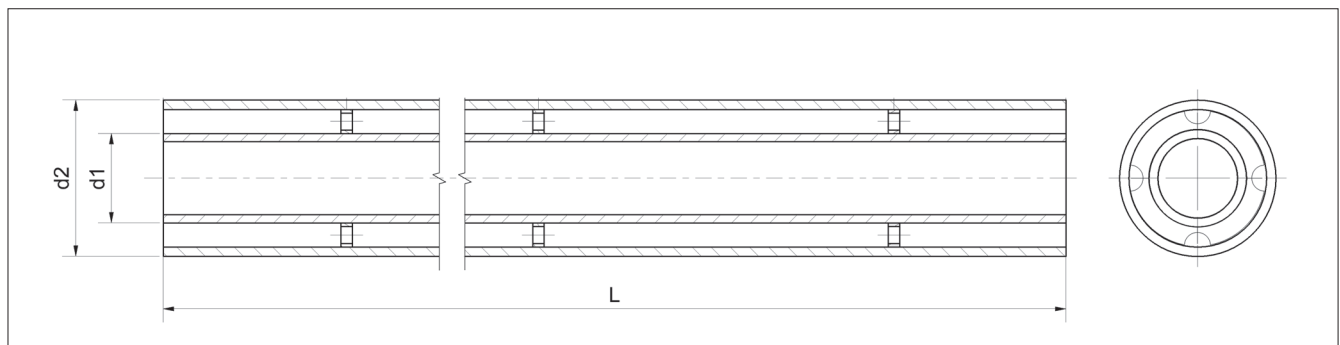
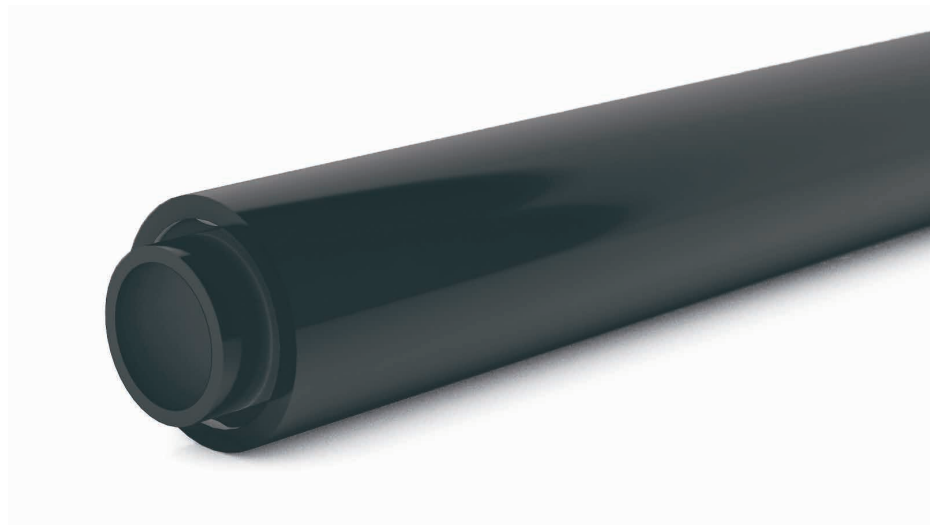


## SIMODUAL<sup>2</sup> Product range

SIMONA offers an extensive range of double-containment pipes and precision fittings as well as elongated fittings for the safe joining of constrained points. SIMODUAL<sup>2</sup> Double-Containment Piping Systems meet the highest safety requirements of any piping systems designed to carry aggressive substances.

# SIMODUAL<sup>2</sup> Pipe Modules PE/PE (SDR 11/17)

<b>Material (interior/exterior)</b>
▪ PE/PE
<b>Dimensions</b>
▪ Individual components in accordance with DIN EN ISO 15494
▪ Standard length 6 m
<b>Colour</b>
▪ PE/PE: black/black
<b>Notes</b>
▪ Cascade welding Inner pipe: Heated-tool butt welding Outer pipe: Electrofusion socket welding
▪ Including spacer



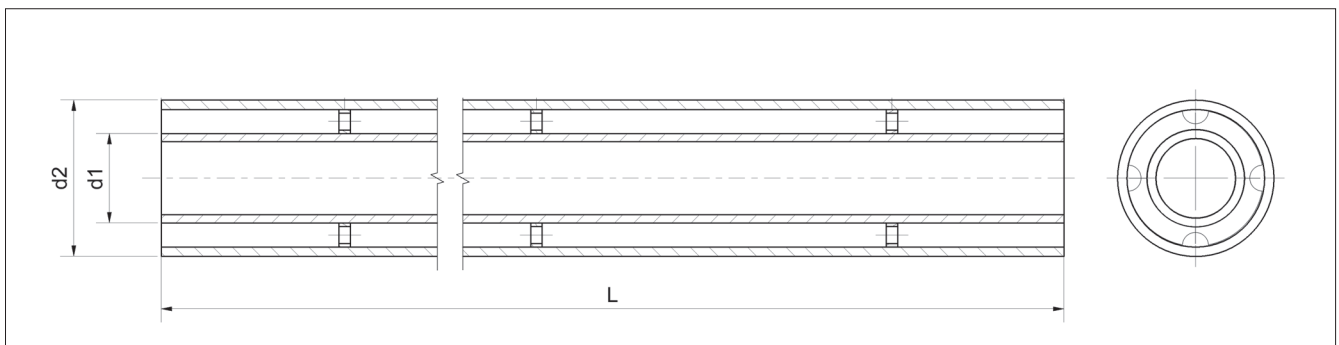
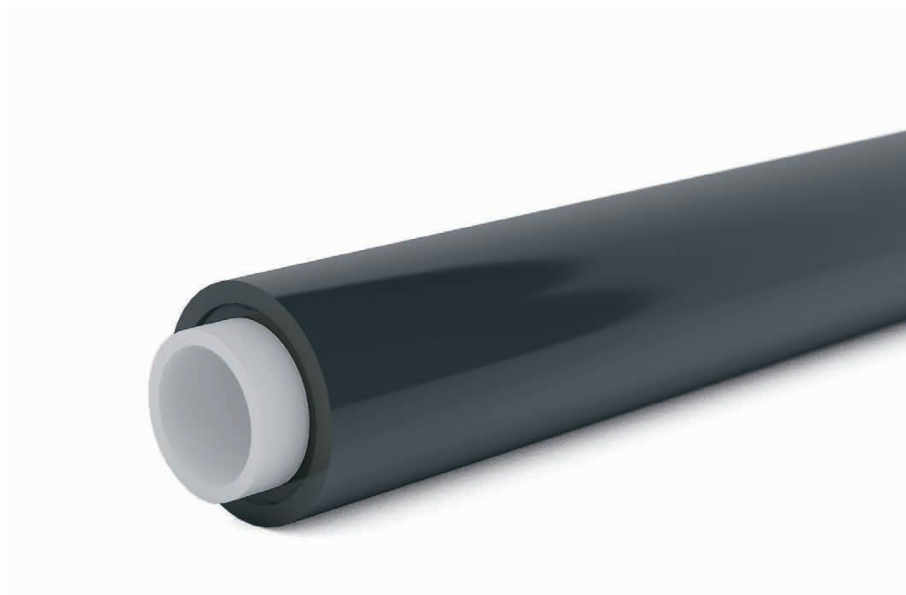
## Product range

### SIMODUAL<sup>2</sup> Pipe Modules PE/PE

Inner pipe: PE 100		Outer pipe: PE 100		PE/PE
d <sub>1</sub> (SDR 11)	e (mm)	d <sub>2</sub> (SDR 17)	e (mm)	Product no.
32	3,0	90	5,4	010025240
63	5,8	110	6,6	010025241
90	8,2	160	9,5	010025242
110	10,0	180	10,7	010025243
160	14,6	250	14,8	010025244
200	18,2	315	18,7	010025245
225	20,5	355	21,1	010025246

# SIMODUAL<sup>2</sup> Pipe Modules PP/PE (SDR 11/17)

<b>Material (interior/exterior)</b>
<ul style="list-style-type: none"> <li>PP/PE</li> </ul>
<b>Dimensions</b>
<ul style="list-style-type: none"> <li>Individual components in accordance with DIN EN ISO 15494</li> <li>Standard length 5 m</li> </ul>
<b>Colour</b>
<ul style="list-style-type: none"> <li>PP/PE: grey/black</li> </ul>
<b>Notes</b>
<ul style="list-style-type: none"> <li>Cascade welding Inner pipe: Heated-tool butt welding Outer pipe: Electrofusion socket welding</li> <li>Including spacer</li> </ul>



## Product range

### SIMODUAL<sup>2</sup> Pipe Modules PP/PE

Inner pipe: PP		Outer pipe: PE 100		PP/PE
d <sub>1</sub> (SDR 11)	e (mm)	d <sub>2</sub> (SDR 17)	e (mm)	Product no.
32	2,9	90	5,4	010025247
63	5,8	110	6,6	010025248
90	8,2	160	9,5	010025249
110	10,0	180	10,7	010025250
160	14,6	250	14,8	010025251
200	18,2	315	18,7	010025252
225	20,5	355	21,1	010025253

# SIMODUAL<sup>2</sup> Bends 45° (SDR 11/17)

## Material (interior/exterior)

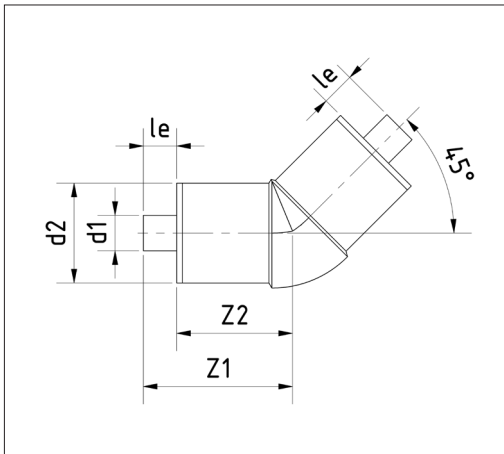
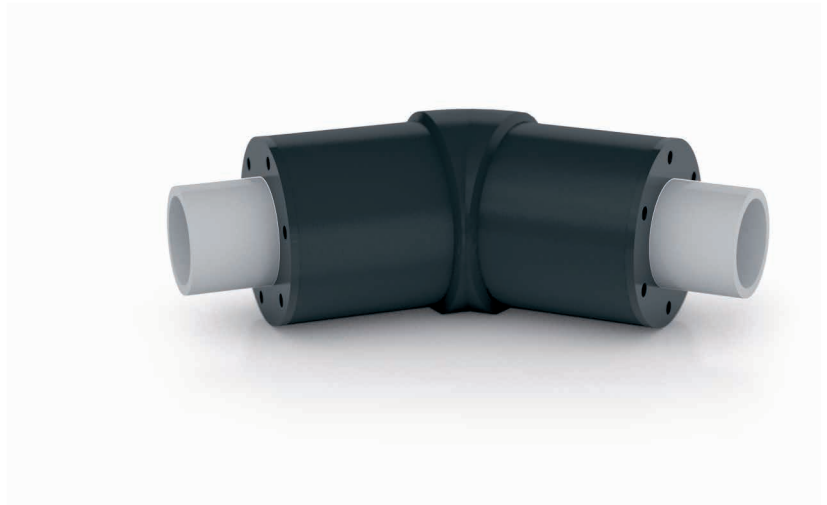
- PE/PE
- PP/PE

## Colour

- PE/PE: black/black
- PP/PE: grey/black

## Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Fitting equipped with anchor points as standard
- Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Bends 45°

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	Z <sub>1</sub> (mm)	Z <sub>2</sub> (mm)	le (mm)	PE/PE Product no.	PP/PE Product no.
32	90	135	105	30	010025268	010025275
63	110	152	122	30	010025269	010025276
90	160	225	185	40	010025270	010025277
110	180	330	190	40	010025271	010025278
160	250	250	210	40	010025272	010025279
200	315	290	250	40	010025273	010025280
225	355	375	325	50	010025274	010025281

# SIMODUAL<sup>2</sup> Bends 45°, elongated (SDR 11/17)

## Material (interior/exterior)

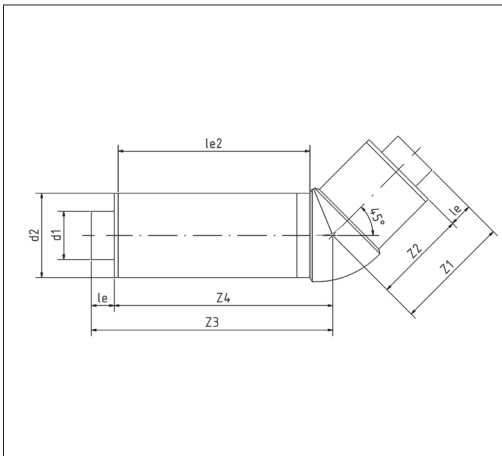
- PE/PE
- PP/PE

## Colour

- PE/PE: black/black
- PP/PE: grey/black

## Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Fitting equipped with anchor points as standard
- Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Bends 45°, elongated

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	Z <sub>1</sub> (mm)	Z <sub>2</sub> (mm)	Z <sub>3</sub> (mm)	Z <sub>4</sub> (mm)	le (mm)	le <sub>2</sub> (mm)	PE/PE Product no.	PP/PE Product no.
32	90	135	105	270	240	30	195	010025756	010025763
63	110	152	122	316	286	30	234	010025757	010025764
90	160	225	185	396	356	40	276	010025758	010025765
110	180	190	230	423	383	40	297	010025759	010025766
160	250	250	210	485	445	40	310	010025760	010025767
200	315	290	250	541	501	40	356	010025761	010025768
225	355	375	325	687	637	50	432	010025762	010025769

# SIMODUAL<sup>2</sup> Bends 90° (SDR 11/17)

### Material (interior/exterior)

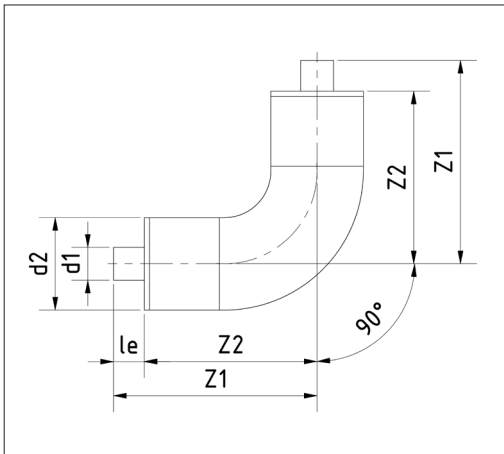
- PE/PE
- PP/PE

### Colour

- PE/PE: black/black
- PP/PE: grey/black

### Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Fitting equipped with anchor points as standard
- Assembly instructions see page 28 f



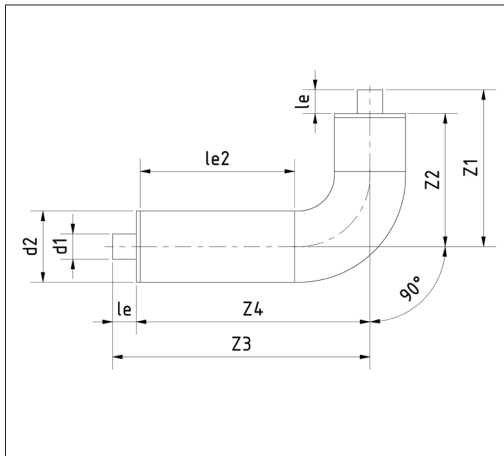
## Product range

### SIMODUAL<sup>2</sup> Bends 90°

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	Z <sub>1</sub> (mm)	Z <sub>2</sub> (mm)	le (mm)	PE/PE Product no.	PP/PE Product no.
32	90	198	168	30	010025254	010025261
63	110	223	193	30	010025255	010025262
90	160	298	258	40	010025256	010025263
110	180	330	290	40	010025257	010025264
160	250	420	380	40	010025258	010025265
200	315	510	470	40	010025259	010025266
225	355	612	562	50	010025260	010025267

# SIMODUAL<sup>2</sup> Bends 90°, elongated (SDR 11/17)

<b>Material (interior/exterior)</b>
<ul style="list-style-type: none"> <li>■ PE/PE</li> <li>■ PP/PE</li> </ul>
<b>Colour</b>
<ul style="list-style-type: none"> <li>■ PE/PE: black/black</li> <li>■ PP/PE: grey/black</li> </ul>
<b>Notes</b>
<ul style="list-style-type: none"> <li>■ Cascade welding Interior: Heated-tool butt welding Exterior: Electrofusion socket welding</li> <li>■ Fitting equipped with anchor points as standard</li> <li>■ Assembly instructions see page 28 f</li> </ul>



## Product range

### SIMODUAL<sup>2</sup> Bends 90°, elongated

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	Z <sub>1</sub> (mm)	Z <sub>2</sub> (mm)	Z <sub>3</sub> (mm)	Z <sub>4</sub> (mm)	le (mm)	le <sub>2</sub> (mm)	PE/PE Product no.	PP/PE Product no.
32	90	198	168	325	295	30	195	010025742	010025749
63	110	223	193	384	354	30	234	010025743	010025750
90	160	298	258	493	453	40	276	010025744	010025751
110	180	330	290	531	791	40	297	010025745	010025752
160	250	420	380	621	581	40	310	010025746	010025753
200	315	510	470	731	691	40	356	010025747	010025754
225	355	612	562	877	827	50	432	010025748	010025755

# SIMODUAL<sup>2</sup> Tees (SDR 11/17)

## Material (interior/exterior)

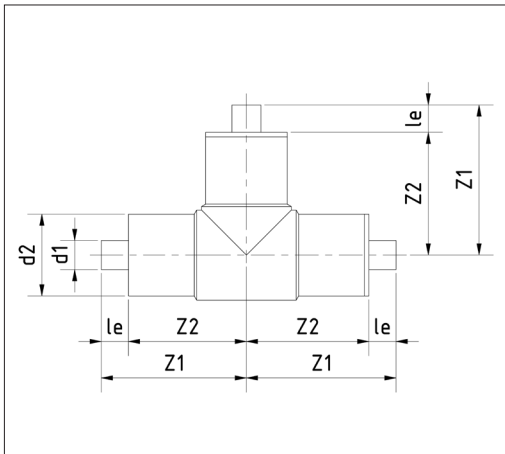
- PE/PE
- PP/PE

## Colour

- PE/PE: black/black
- PP/PE: grey/black

## Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Fitting equipped with anchor points as standard
- Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Tees

$d_1$ (SDR 11)	$d_2$ (SDR 17)	$Z_1$ (mm)	$Z_2$ (mm)	$le$ (mm)	PE/PE Product no.	PP/PE Product no.
32	90	167	137	30	010025282	010025289
63	110	191	161	30	010025283	010025290
90	160	246	206	40	010025284	010025291
110	180	300	260	40	010025285	010025292
160	250	328	288	40	010025286	010025293
200	315	386	346	40	010025287	010025294
225	355	458	408	50	010025288	010025295



# SIMODUAL<sup>2</sup> Tees, elongated (SDR 11/17)

### Material (interior/exterior)

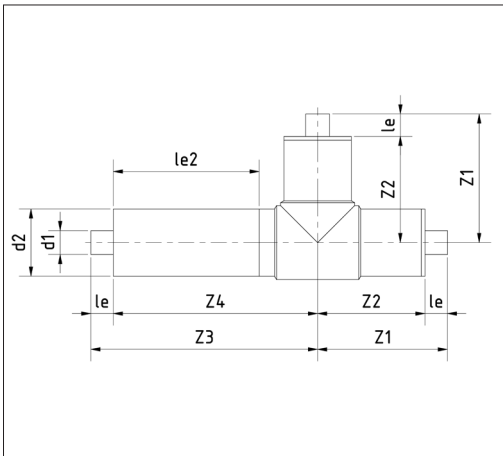
- PE/PE
- PP/PE

### Colour

- PE/PE: black/black
- PP/PE: grey/black

### Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Fitting equipped with anchor points as standard
- Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Tees, elongated

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	Z <sub>1</sub> (mm)	Z <sub>2</sub> (mm)	Z <sub>3</sub> (mm)	Z <sub>4</sub> (mm)	le (mm)	le <sub>2</sub> (mm)	PE/PE Product no.	PP/PE Product no.
32	90	167	137	303	273	30	195	010025770	010025777
63	110	191	161	364	334	30	234	010025771	010025778
90	160	246	206	451	411	40	276	010025772	010025779
110	180	300	260	489	449	40	297	010025773	010025780
160	250	328	288	548	508	40	310	010025774	010025781
200	315	386	346	630	590	40	356	010025775	010025782
225	355	458	408	781	731	50	432	010025776	010025783

## SIMODUAL<sup>2</sup> Reducers, concentric (SDR 11/17)

### Material (interior/exterior)

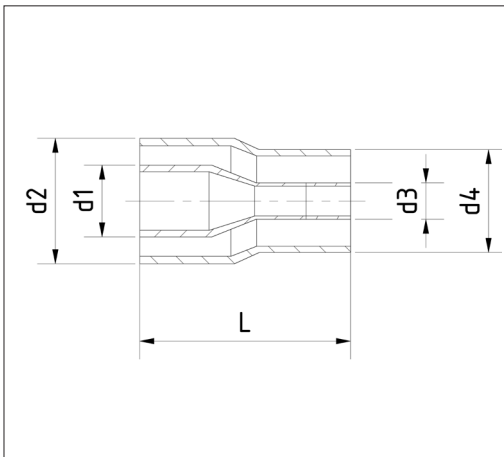
- PE/PE
- PP/PE

### Colour

- PE/PE: black/black
- PP/PE: grey/black

### Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Assembly instructions see page 28 f



### Product range

#### SIMODUAL<sup>2</sup> Reducers, concentric

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	d <sub>3</sub> (SDR 11)	d <sub>4</sub> (SDR 17)	L (mm)	PE/PE Product no.	PP/PE Product no.
63	110	32	90	185	010025296	010025306
90	160	63	110	254	010025297	010025307
110	180	90	160	279	010025299	010025309
160	250	110	180	316	010025301	010025311
200	315	160	250	367	010025303	010025313
225	355	200	315	340	010025305	010025315

# SIMODUAL<sup>2</sup> Fixing Points for Pipe Clamp (SDR 11/17)

## Material (interior/exterior)

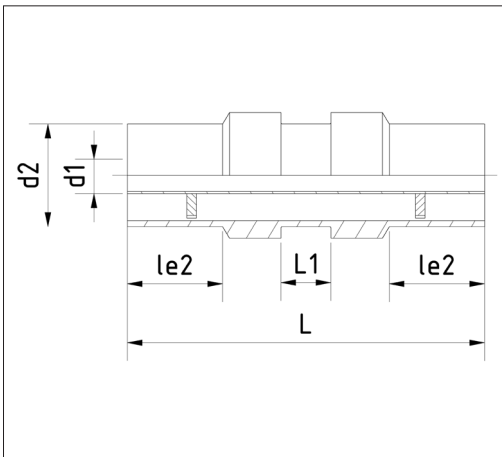
- PE/PE
- PP/PE

## Colour

- PE/PE: black/black
- PP/PE: grey/black

## Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Fixing Points for Pipe Clamp

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	le <sub>2</sub> (mm)	L <sub>1</sub> (mm)	L (mm)	PE/PE Product no.	PP/PE Product no.
32	90	80	42	300	010025359	010025366
63	110	85	52	320	010025360	010025367
90	160	100	52	350	010025361	010025368
110	180	110	52	370	010025362	010025369
160	250	130	62	430	010025363	010025370
200	315	150	62	470	010025364	010025371
225	355	165	62	500	010025365	010025372

# SIMODUAL<sup>2</sup> Electrofusion Sockets (SDR 17)

**Material**

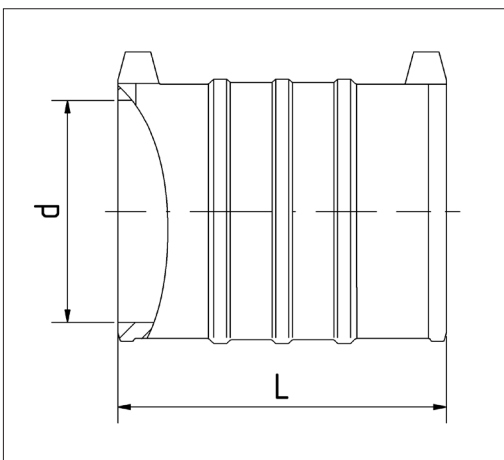
- PE

**Colour**

- black

**Notes**

- Assembly instructions see page 28 f



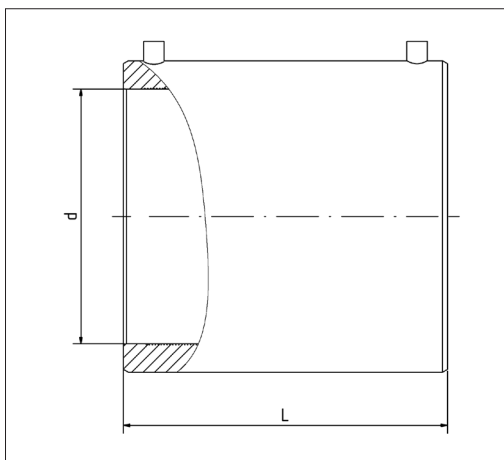
## Product range

**SIMODUAL<sup>2</sup> Electrofusion Sockets**

d (mm)	L (mm)	PE Product no.
90	125	014300125
110	160	014300012
160	185	014300014
180	205	014300015
250	220	014300018
315	265	014300020
355	320	014300021

# SIMODUAL<sup>2</sup> Electrofusion Sockets, elongated (SDR 17)

<b>Material</b>
▪ PE
<b>Colour</b>
▪ black
<b>Notes</b>
▪ Suitable for welding in spaces with constrained points
▪ Assembly instructions see page 28 f



## Product range

### SIMODUAL<sup>2</sup> Electrofusion Sockets, elongated

d (mm)	L (mm)	PE Product no.
90	185	010025373
110	224	010025374
160	266	010025375
180	287	010025376
250	299	010025377
315	346	010025378
355	422	010025379

# SIMODUAL<sup>2</sup> Transition Fitting (SDR 11/17)

### Material (interior/exterior)

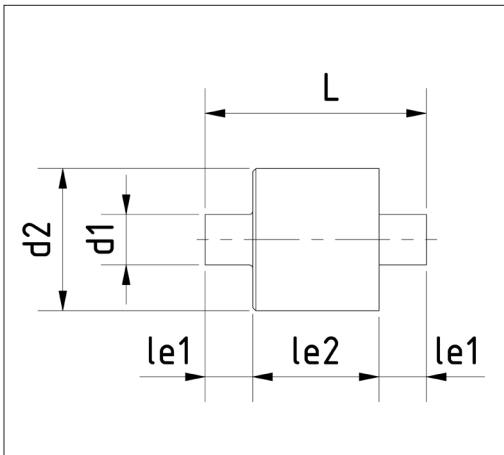
- PE/PE
- PP/PE

### Colour

- PE/PE: black/black
- PP/PE: grey/black

### Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Assembly instructions see page 28 f



## Product range

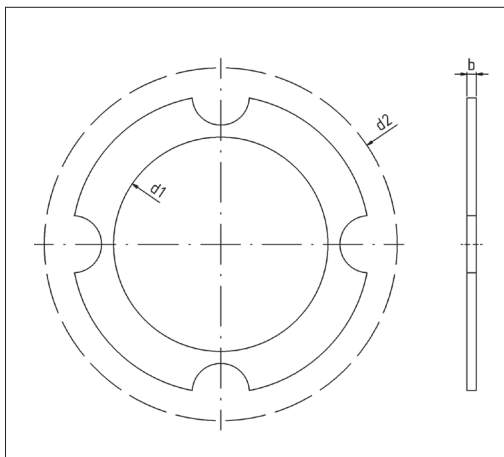
### SIMODUAL<sup>2</sup> Transition Fitting

d <sub>1</sub> (SDR 11)	d <sub>2</sub> (SDR 17)	le <sub>1</sub> (mm)	le <sub>2</sub> (mm)	L (mm)	PE/PE Product no.	PP/PE Product no.
32	90	30	80	140	010025316	010025324
63	110	30	85	145	010025317	010025325
90	160	40	105	185	010025318	010025326
110	180	40	110	190	010025319	010025327
160	250	40	130	210	010025320	010025328
200	315	40	150	230	010025321	010025329
225	355	50	165	265	010025322	010025330

# SIMODUAL<sup>2</sup> Spacers

Suitable for pipe modules PE/PE and PP/PE

<b>Material</b>
▪ PE
<b>Colour</b>
▪ black
<b>Notes</b>
▪ Available separately as spare parts
▪ Integrated in SIMODUAL <sup>2</sup> fitting as standard



## Product range

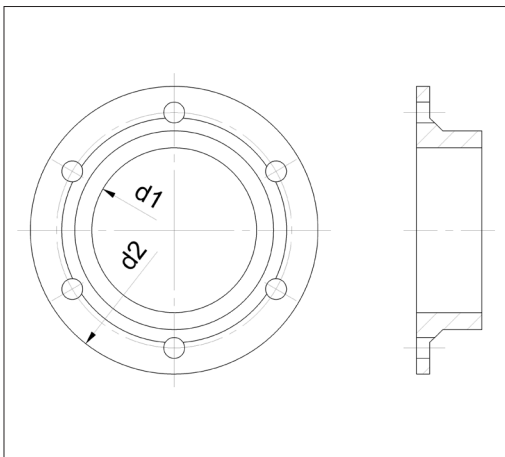
### SIMODUAL<sup>2</sup> Spacers

<b>d<sub>1</sub></b> (mm)	<b>d<sub>2</sub></b> (mm)	<b>e</b> (mm)	<b>PE</b> Product no.
32	90	15,0	010025226
63	110	16,0	010025227
90	160	21,0	010025228
110	180	21,0	010025229
160	250	36,0	010025230
200	315	36,0	010025231
225	355	36,0	010025232

# SIMODUAL<sup>2</sup> Anchor Point

Suitable for pipe modules PE/PE and PP/PE

<b>Material</b>
▪ PE
<b>Colour</b>
▪ black
<b>Notes</b>
▪ Available separately as spare parts
▪ Integrated in SIMODUAL <sup>2</sup> pipe module as standard



## Product range

### SIMODUAL<sup>2</sup> Anchor Point

<b>d<sub>1</sub></b> (mm)	<b>d<sub>2</sub></b> (mm)	<b>PE</b> Product no.
32	90	023700067
63	110	023700068
90	160	023700069
110	180	010024742
110	200	023700070
160	250	023700071
200	315	023700072
225	355	010024743



# SIMODUAL<sup>2</sup> Adapter for Leakage Monitoring (SDR 11/17)

## Material (interior/exterior)

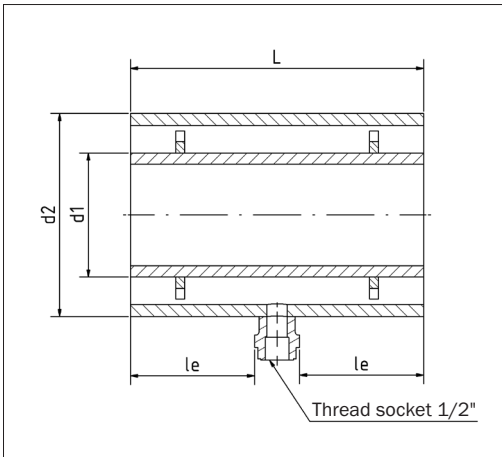
- PE/PE
- PP/PE

## Colour

- PE/PE: black/black
- PP/PE: grey/black

## Notes

- Cascade welding  
Interior: Heated-tool butt welding  
Exterior: Electrofusion socket welding
- Assembly instructions see page 28 f
- Matches leakage monitoring system, see page 29



## Product range

### SIMODUAL<sup>2</sup> Adapter for Leakage Monitoring

$d_1$ (SDR 11)	$d_2$ (SDR 17)	L (mm)	PE/PE Product no.	PP/PE Product no.
32	90	200	010025345	010025352
63	110	220	010025346	010025353
90	160	240	010025347	010025354
110	180	260	010025348	010025355
160	250	280	010025349	010025356
200	315	320	010025350	010025357
225	355	380	010025351	010025358

# Leakage monitoring system

Leakage systems can be based on various designs. The prime objective, however, is to ensure maximum safety in the event of an accident. SIMONA offers an electrically operated leakage system with a liquid level sensor that monitors the leakage containment area between the inner and the outer pipe.

Generally, these systems are deployed at the lowest point of a piping system section. This ensures reliable leakage detection and feedback via a monitor or a control unit.

Other notification and tracking systems are available on request.

## Benefits of electric "Liquiphant" leakage monitoring system:

- Operational safety, reliability and universal deployment thanks to the use of a vibrating fork for liquid detection
- External test option using test magnet
- On-site monitoring of functionality by means of external LED display
- Simple installation even at points that are difficult to access due to compact construction
- Rugged stainless steel housing (316L)
- Service-friendly plug-in connections



### "Liquiphant" leakage monitoring

Liquid sensor for space within double-containment pipe to prevent overfilling (Product supplied by Endress + Hauser Messtechnik GmbH & Co. KG, Germany)

## Technical details "Liquiphant" leakage monitoring

### Liquiphant

	T-FTL31-14F0/0	T-FTL31-13E0/0
Process connection	R 1/2"	R 1/2"
Sensor length	64 mm	64 mm
Output	3 wire PNP 10-35 VDC	3 wire PNP 10-35 VDC
Cable entry	Plug ISO4400 Pg11, IP 65	Plug M12, IP 67
Product no.	010025384	010025385



## Services

As a customer, you always take centre stage: from project development to materials procurement and on-site planning, we are committed to providing the very best assistance and advice. Our long-standing experience is your gain.

# Assembly of SIMODUAL<sup>2</sup> Pipes and Fittings

Welding of piping system components must be performed in accordance with applicable standards and DVS guidelines. SIMODUAL<sup>2</sup> Double-Containment Piping Systems are installed with the help of cascade welding. This refers to a sequential, i. e. stage-by-stage, process of welding the double-containment pipes.

## Cascade welding (according to DVS 2207)

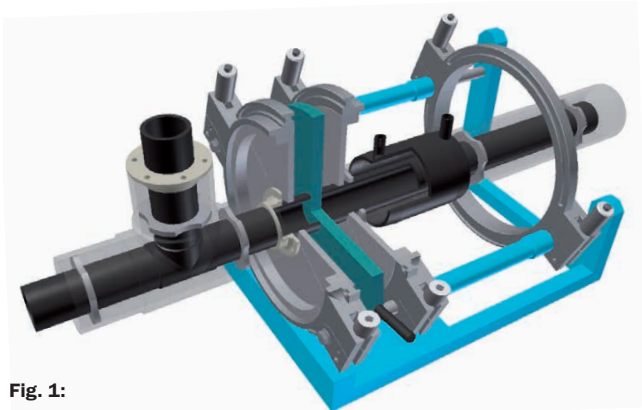
### Welding procedure of media-carrying pipe

- Prepare media-carrying pipe ends for welding
- Slide electrofusion socket onto protective pipe
- Push back protective pipe so that media-carrying pipe protrudes by approx. 50 mm
- Equip butt welding machine with clamping jaw for media-carrying pipe
- Clamp parts to be joined into butt welding machine and perform welding (Fig.1 )
- Perform visual check of weld seam

### Welding procedure of protective pipe

- Prepare protective pipe for welding
- Bring protective pipe into alignment (Fig. 2)
- Position electrofusion socket correctly and perform welding (Fig. 3)

When laying double-containment pipes one often has to contend with so-called constrained points. In this case, the outer pipe can no longer be moved for the purpose of cascade welding due to previous welding procedures. This issue is addressed by means of elongated fittings (Fig. 4). SIMONA offers a range of elongated fittings.



**Fig. 1:**  
Welding of media-carrying pipe



**Fig. 3:**  
Welded protective pipe with standard electrofusion socket



**Fig. 2:**  
Alignment of protective pipe for welding



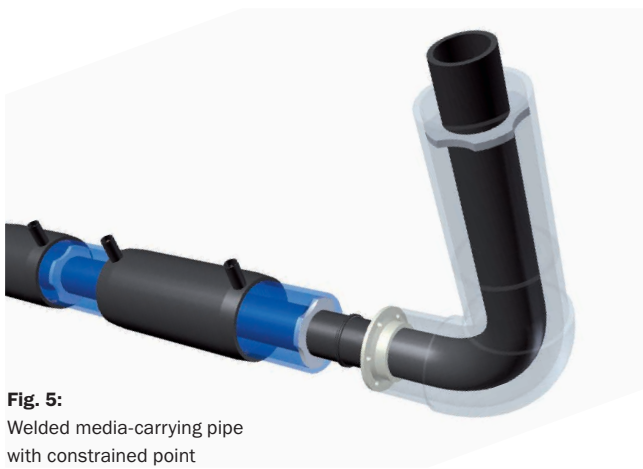
**Fig. 4:**  
Comparison of standard and elongated fittings

## Welding procedure relating to constrained points

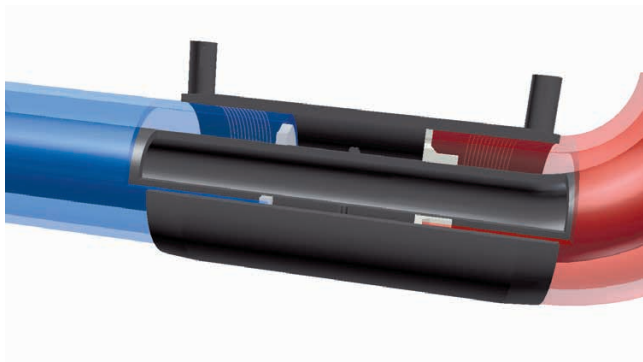
### Constrained point: Pipe – Fitting

When a pipe and a fitting are welded together, the protective pipe can no longer be moved once the media-carrying pipe has been welded (Fig. 5).

To address this problem, an elongated electrofusion socket is used to bridge the gap in the protective pipe (Fig.6).



**Fig. 5:**  
Welded media-carrying pipe  
with constrained point

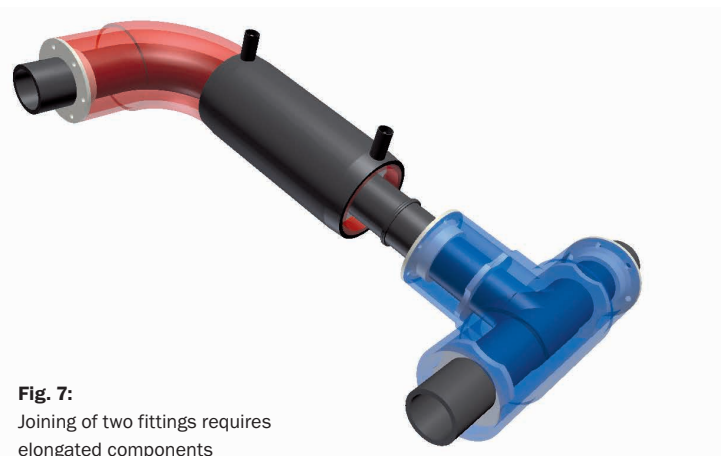


**Fig. 6:**  
Elongated electrofusion socket to bridge gap in protective pipe

### Constrained point: Fitting – Fitting

When joining two fittings none of the components in question can be moved. Here, too, the protective pipe will have a gap (Fig. 7).

In this case, an elongated fitting is used for the purpose of installing the electrofusion socket.



**Fig. 7:**  
Joining of two fittings requires  
elongated components

## Advice and information

### Consulting Service

Our customers benefit from customized solutions that help them compete successfully within the business arena. SIMONA can draw on many years of experience in the manufacture of sheets, pipes and fittings. You will also be able to rely on our extensive know-how and high level of technical expertise in the field of polymer engineering. Our Technical Service Centre team looks forward to assisting you:

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### Information Service

Further information is available in the form of catalogues, brochures, case studies and project reports. We also offer DVDs, technical data sheets and product samples. Please feel free to contact our Marketing department:

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### SIMONA Academy

We organise seminars at our Technology Centre and educational facilities in Kirn for the purpose of providing product training and information on the very latest processing and fabrication methods. On request, we can also provide training at your own premises. Contact details:

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### Delivery Service

Our central warehouse and global distribution centres supply SIMONA standard products from stock, thus guaranteeing speedy and flexible delivery. For further information relating to dimensions and product availability, please contact our sales department:

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