

**Contents:**

1	Scope of application	5.3.7	Kinking
1.1	Areas of application	5.4	Proof of the stresses
1.2	Definitions of terms	5.4.1	Proof of the stresses for straight pipe sections
1.2.1	Terms	5.4.2	Proof of the stresses for fittings
1.3	Materials	5.5	Proof of the strains
1.3.1	Material selection	5.5.1	Strain in the X-direction
1.3.2	Material properties	5.5.2	Strain in the Y-direction
2	Regulations and remarks about applications	5.5.3	Safety margin to the limiting strain
2.1	European Pressure Equipment Directive	5.6	Application of Miner's rule
2.2	Fundamental authorisation and construction principles	5.7	Hydraulic calculations
2.2.1	Two-pipes systems for the transport of combustible substances	5.8	Explanation of the designations used in Section 5
2.2.2	Two-pipe systems for the transport of water-polluting substances	6	Structural design
3	Loads on two-pipe systems	6.1	Straight pipe pieces
3.1	Loads caused by internal overpressure or an internal partial vacuum	6.1.1	Spacers
3.1.1	Loads on the internal pipe caused by operating overpressure	6.1.2	Annular gap
3.1.2	Loads on the internal pipe caused by overpressure in the annular space	6.1.3	Locking devices
3.1.3	Loads on the internal pipe caused by a partial vacuum in the annular space	6.1.4	Modification of straight pipe pieces
3.1.4	Loads on the external pipe caused by overpressure or a partial vacuum in the annular space	6.2	Bend pieces
3.1.5	Loads on the external pipe due to overpressure in the annular space in the event of leaks in the internal pipe (failure case)	6.2.1	Bend pieces with fixed points
3.2	Loads caused by the action of the temperature	6.2.2	Bend pieces with supporting shells
3.2.1	Action of the temperature on the internal pipe	6.3	Branch pieces
3.2.2	Action of the temperature on the external pipe	6.3.1	Branch pieces with fixed points on all sides
3.3	Loads caused by effects from the transported substances	6.3.2	Branch pieces without fixed points in the main line
3.3.1	Loads caused by swelling-inducing transported substances	6.3.3	Branch pieces without fixed points in the main or connecting line
4	Designing criteria and system classification	6.3.4	Special fittings
4.1	Calculated loading duration	6.3.5	Stresses at the internal pipe cut-out
4.2	Calculated temperature	6.4	Reducers
4.3	Assumptions for the loads in the event of failure	6.5	Adapters and end pieces
4.4	System classification and loading categories	6.6	Fittings that limit length changes
4.4.1	Application of the loading categories	6.6.1	Fixed point on the internal pipe (Type A length restriction)
4.4.2	Example of a category classification with identification	6.6.2	Supporting shell on the internal pipe (Type B length restriction)
5	Calculation fundamentals	6.6.3	Fixed point on the external pipe (Type C length restriction)
5.1	Strength calculations	6.6.4	Fixed point on the internal and external pipes (Type D length restriction)
5.1.1	Determination of the permissible stress	6.7	Nozzles in the external pipe
5.1.2	Determination the pipe wall thickness	6.8	Flanged joints
5.1.3	Determination of the wall thicknesses of mouldings	6.9	Valves and measuring facilities
5.2	Elasticity calculations	6.10	Special fittings
5.3	Proof of the stability	7	Processing, preassembly and identification
5.3.1	Buckling stress in the circumferential direction	7.1	Initial products
5.3.2	Buckling stress in the longitudinal direction	7.2	Preassembly
5.3.3	Compressive stresses from an internal partial vacuum or external overpressure in the circumferential direction	7.2.1	Prerequisites for preassembly
5.3.4	Compressive stresses from loads in the longitudinal direction	7.3	Transport and storage
5.3.5	Interaction for circumferential and longitudinal compressive loads	7.4	Identification
5.3.6	Critical buckling pressure	8	Installation (laying and assembly)
		8.1	Laying type
		8.2	Laying methods
		8.3	Joining processes
		8.3.1	Welding of piping parts made of PE, PP, PB, PVDF and ECTFE
		8.3.2	Process variants of heated tool butt welding
		8.3.3	Adhesive bonding of piping parts made of ABS and PVC
		8.3.4	Hot gas welding
		8.4	Fastenings
		8.4.1	Pipe spans

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8.4.2	Distances between guides
8.4.3	Fastening of the external pipe in the region of expansion bends
8.4.4	Fixed points
8.5	Modifications and repairs to the two-pipe system
8.5.1	General measures
8.5.2	Replacement of a defective pipe piece
9	Quality management, tests and inspections
9.1	Elements of quality management
9.1.1	Quality requirements on the fabrication
9.1.2	Quality requirements on the installation
9.1.3	Records
9.1.4	Training and education
9.2	Tests and inspections
9.2.1	Visual inspections
9.2.2	Non-destructive test procedures
9.2.3	Destructive test procedures
9.2.4	Inspection of the devices and machines
9.2.5	Internal pressure test
9.2.6	Leak test
10	Leak inspection, checking and indicating equipment
10.1	Leak indicators acting without pressure
10.1.1	Visual inspection equipment
10.1.2	Electrical checking equipment
10.2	Pressure-triggering leak monitoring systems
10.2.1	Differential pressure method
10.2.2	Gas rinsing procedure
10.3	Requirements on inspection, checking and leak monitoring equipment
10.3.1	Monitoring sections
11	Commissioning and inspections
11.1	Initial commissioning
11.2	Initial inspection
11.3	Repeated inspection
12	Documentation
13	Standards, technical codes and regulations
13.1	DVS technical codes and technical bulletins
13.2	Regulations
13.3	Literature references
14	Appendix

## 1 Scope of application

This technical code includes fundamentals for the design, dimensioning and installation of two-pipe systems as well as for the design and manufacture of two-pipe components made of thermoplastics. Prerequisites for the application of the technical code are experience in plastics processing and general piping construction as well as knowledge about the materials used.

The two-pipe systems dealt with in this technical code may be used to transport liquid and gaseous substances. They may be laid not only inside buildings, ducts and shafts but also outdoors. The dimensioning of buried two-pipe systems is not dealt with in this technical code as far as external loads are concerned.

This technical code should be consulted during the installation of two-pipe systems laid both above and below ground, especially whenever the use of a two-pipe system is specified because of particular dangers to people and the environment. Therefore, in the case of piping for the transport of environmentally-hazardous or toxic substances, an explicit agreement does not have to be made between the customer and the company with regard to the application of this technical code.

Two-pipe systems that serve process engineering purposes (e. g. with coolant in the annular space) are not covered by this technical code. With regard to the loads on the internal and external pipes, this application requires a different approach. Separate attention must be paid to any regulations, fundamental construction, testing and authorisation principles or official conditions that

demand, extend or restrict the application of this technical code. Remarks about this are included in Section 2.

## 1.1 Areas of application

Examples of areas of application are:

- installations in waste water engineering
- installations in electroplating technology
- industrial and chemical installations

The scope of application does not exclude the extension of the technical code to areas not listed above. The contracting parties must reach an agreement on any extended application of the technical code.

## 1.2 Definitions of terms

Two-pipe systems within the scope of this technical code are concentric pipe sections that are pushed one inside the other. The annular space between the pipes must be gas-tight and liquid-tight and should only be used for monitoring purposes. Pipe systems that are provided with a splash guard or are operated in a protective pipe are not covered by the term "two-pipe systems".

The "two-pipe system" encompasses all of the elements that are used for constructing a relevant piping installation. Double piping can be erected not only using units prefabricated in the factory (preassembled) but also by assembling the component parts on the building site.

Two-pipe systems are characterised by the fact that the longitudinal mobility of the internal pipe section is restricted in the event of a temperature change. In the region of the bend sections, limited length changes may be accommodated, depending on the type of two-pipe system used.

### 1.2.1 Terms

Internal pipe (piping)	Internal pipe section for the transport of liquid or gaseous substances
External pipe (piping)	External pipe section for the protection of people and the environment in the event of unplanned leaks in the internal pipe
Annular space or monitoring space	Space between the internal and external pipe which, in the event of failure, collects the substances escaping from the internal pipe
Inspection facility	Part of the two-pipe system according to Section 10.1, which offers the possibility of visually inspecting the integrity of the internal pipe
Leak monitoring	Facility according to Section 10.2 which permanently monitors the annular space and automatically signals any leaks in the internal pipe

## 1.3 Materials

With regard to the material selection, consideration must be given to the following:

- area of application
- operating conditions
- the influence of installation and ambient conditions
- chemical resistance to the substances to be conveyed
- compatibility of the materials
- type of joints

If necessary, the suitability of all materials in the system, including adhesives, seal materials, and similar items must be proven.

The scope of application includes the following pipe materials<sup>1)</sup>:

- acrylonitrile butadiene styrene (ABS)
- polybutene (PB)

<sup>1)</sup> It should be understood that the material designations are generic terms for one group of thermoplastics in each case. Thermoplastics with abbreviations according to DIN, EN and ISO standards may be assigned to the material groups according to their properties (e. g. PE includes PE 63, PE 80 and PE 100 types and PVC-U the -HI, -NI and -RI types). The information provided corresponds to the status of the standardisation at the time of printing.