

Technical Rule – Standard **DVGW W 400-1** February 2015

Technical Rules for Water Supply Systems; Part 1: Design

WATER

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Foreword

This code of practice has been revised by a Project Group in the Technical Committee "Water Transport and Distribution" (cf. the changes below regarding the reasons for and contents of the revision). It serves as basis for the design of water supply systems in the drinking water supply.

As far as possible, the code of practice makes reference to existing bodies of rules and regulations, among others DVGW Code of Practice W 300-1 for drinking water reservoirs and DVGW Code of Practice W 610 for pumping stations and dispenses as far as possible with own definitions in this regard. With the exception of unpressurised as well as raw water applications, the code of practice in conjunction with DVGW Codes of Practice W 400-2/3 and the set of rules cited therein furthermore claims to fully consider, supplement as required, and substantiate DIN EN 805.

Provided no separate technical rules are on hand for pressure pipelines of adjacent areas (for instance in drinking water reservoirs and pumping systems and for raw, process or waste water), the code of practice can be applied analogously, where necessary taking into consideration the specific requirements for these areas. However, these specific requirements shall not form the subject matter of this code of practice. Thus, it shall not be possible to directly infer from the suitability of components and service providers, which are specifically qualified for buried pressure pipelines in the drinking water supply according to this code of practice, that they are also suitable for these adjacent areas.

DVGW Codes of Practice W 400-1:2004-10, W 400-2:2004-09 and W 400-3:2006-09 as well as DIN EN 805:2000-03 have already replaced:

- DVGW Code of Practice W 403:1988-01 "Design rules for water pipelines and water pipeline networks"
- DIN 4279 "Testing of Pressure Pipelines for Water by Internal Pressure"
 - Part 1:1975-11 "General information"
 - Part 2:1975-11 "Pressure Pipes Made of Ductile Cast Iron"
 - Part 3:1990-06 "Ductile cast iron pressure pipes and steel pipes with cement mortar lining"
 - Part 4:1975-11 "Steel Pipes with and without Bitumen Lining"
 - Part 5:1975-11 "Reinforced Concrete Pressure Pipes and Prestressed Concrete Pressure Pipes"
 - Part 6:1975-11 "Asbestos-cement Pressure Pipes"
 - Part 7 (pre-standard):1994-12 "Pressure pipes of low-density polyethylene PE-LD, pressure pipes of high density polyethylene PE-HD (PE 80 and PE 100), pressure pipes of cross-linked polyethylene PE-X and pressure pipes of unplasticized polyvinylchloride PVC-U"

- Part 9:1975-11 "Specimen Pages for Test Reports"
- Part 10:1977-11 "Synopsis"

This code of practice will replace:

- DVGW Code of Practice W 400-1:2004-10
- DVGW Technical Standard W 404:1998-03 "Water service lines". As remaining aspects with regard to construction, testing and commissioning are already adequately considered in DVGW Code of Practice W 400-2:2004-09, DVGW Technical Standard W 404:1998-03 shall be withdrawn in full.
- DVGW Guideline W 409:2007-01 "Consequences of design procedures and methods on the economic efficiency of operation and maintenance (operational pipe net costs) for water supply systems"

Amendments

Compared to DVGW Code of Practice W 400-1:2004-10, the following amendments were in particular made, in addition to a complete editorial revision:

- a) Full provision for the design of service lines (replaces W 404:1998-03), including new information on their dimensioning and on building waterproofing
- b) Incorporation of a description of the security of supply
- c) Update of the information on stagnation or rather its avoidance
- d) Clarification of the basic service pressure parameters, with the omission of the distinction between new and existing networks
- e) Update of the information on pipes, fittings, valves and joints
- f) Update of the information on the layout of valves and hydrants
- g) Update of the information on spacing and covering
- h) Update of the information on the joint use of traffic routes, etc., including wider working strips
- i) Enhancement of the information on above ground pipelines, following DVGW Code of Practice G 414 "Above ground gas lines" and W 400-2:2004-09, section 15 (so that this section shall be dispensed with when DVGW Code of Practice W 400-2 is revised)
- j) Description of the consequences of design and construction on operation and maintenance (replaces W 409:2007-01)
- k) Deletion of the information on water requirement, instead reference to DVGW Code of Practice W 410, which was revised in the meantime
- l) Deletion of the information on delivery points, instead reference to DVGW Code of Practice W 365, which was newly introduced in the meantime

Earlier editions

DVGW W 401-1:2004-10

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