KLINGER FLUID CONTROL

Meeting highest standards – EN 488:2015

Over the years the requirements towards buried insulation valves have been continually increased in order to ensure operational safety. This can only be achieved by using particularly robust and deformation-free valves. The EN 488 defines the technical requirements as well as the testing procedure for fully welded valves used in district heating networks. In February 2016 the latest version EN 488:2015 entered into force.

Already in the previous version of the norm (EN 488:2011) enhanced compressive forces as well as bending moments for valves have been defined, tensile forces however remained unchanged. In the current version the following requirements have been intensified in comparison to 2011:

- Duration of bending test has been defined,
- Number of actuations during the type test has been increased,
- Torque values after testing may not exceed the manufacturer specifications,
- All tests must be carried out on the same valve,
- Actuating must be carried out with differential pressure (inlet: design pressure; outlet: 0 bar),
- The upper 100 mm of the spindle or shaft construction have to be corrosion protected.

Attention – valves, which have been tested "in accordance to the EN 488" may not fully comply with the requirements of the latest version. Furthermore, law requires that without indication of the year together with the norm, the latest version has to be fulfilled.

KLINGER Ballostar® KHSVI-VVS as well as Monolith KHO ball valves have been successfully tested and TÜV certified in consideration of the extended requirements of EN 488:2015. The in-house multifunctional test bench is indeed unique in Europe.

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Technical details of EN 488:2015

Comparison of defined forces and moments of EN 488:2003 to EN 488:2011/ EN 488:2015

DN	Compressive Force [kN]		Tensile Force [kN]		Bending Moments [Nm]	
	2003	2011/2015	2003	2011/2015	2003	2011/2015
20	23	41	26	26	n.a.*	350
25	33	60	37	37	n.a.	650
32	47	86	53	53	n.a.	1 200
40	54	99	61	61	n.a.	1 600
50	75	139	85	85	n.a.	2 800
65	96	177	109	109	n.a.	4 600
80	124	228	140	140	n.a.	6 950
100	180	332	204	204	n.a.	13 100
125	222	408	251	251	n.a.	19 900
150	297	547	337	337	n.a.	32 300
200	437	804	495	495	n.a.	62 200
250	606	1 116	686	686	n.a.	108 100
300	806	1 484	913	913	n.a.	120 200
350	887	1 632	1 004	1 004	n.a.	132 200
400	1 140	2 098	1 291	1 291	n.a.	144 300
500	1 430	2 423	1 619	1 619	n.a.	168 500
600	1 936	3 087	2 192	2 192	n.a.	192 600
700	2 544	3 926	2 880	2 880	n.a.	314 600
800	3 202	4 761	3 624	3 624	n.a.	476 400
1 000	5 006	7 439	5 661	5 661	n.a.	878 800

*n.a. = not available in previous versions

Comparison of test procedure with compressive-, tensile force and bending moments of EN 488:2011 to EN 488:2015

	Compressive Force [kN]		Tensile Force [kN]		Bending Moments [Nm]	
	2011	2015	2011	2015	2011	2015
Temperature	140±2°C	90±5°C	23±2°C	25±10°C	23±2°C	25±10°C
Water pressure	PN of the valve	PN of the valve	PN of the valve	PN of the valve	n.a.*	PN of the valve
Test duration	48 h	48 h	48 h	48 h	n.a.	2x 8h
Actuations	4x in 48 h	24x in 48 h	4x in 48 h	16x in 48 h	n.a.	16x in 16 h
Comments	n.a.	Reduce pressure on one side of valve to approx. 0 before ope-ning again	n.a.	Reduce pressure on one side of valve to approx. 0 before ope-ning again	n.a.	Reduce pressure on one side of valve to approx. 0 before ope-ning again

*n.a. = not available in previous versions

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