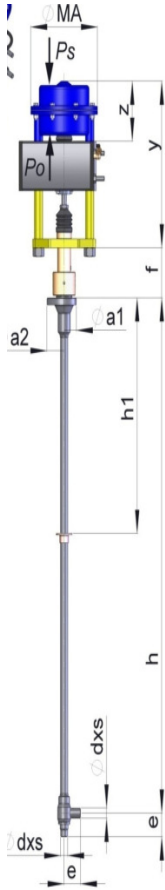


WEKA Specification no. 19930219 - Annexe 1:

Heat Load - for Standard Cryogenic Valve PN25 and PN10, Bellows Sealed

Rev. March 2010 - FHo / Page 1 of 1

- Base assumption for design pressure & temperature for valve only (body, spindle with bellows etc.): 25 barg @ 20°C = PN25.
- For bigger DN sizes, lower PN pressure i.e. PN6, PN10, PN16 or PN20 may be advisable considering heat load! For smaller DN same valve may be used up to PN40 or PN50 respectively.
- PN pressure is also applicable down to -273°C respective -269°C respective up to 50°C. For higher temperature act p-T-diagram as well as sealing materials!
- Dimensions are indicated for valves with pneumatic diaphragm actuator for shut-off pressure as shown.
- Control valves with digital electropneumatic positioner (digital pneumatic with electronic control)
- All Values considering heat load by thermal conductivity for reference only. To consider heat load by thermal radiation you may consider a factor 2 to get the total heat load.
- Q-ring or spring ring sealed valve will have similar heat loads.



Size DN	DN2	DN4	DN6	DN8	DN10	DN15	DN20	DN25	DN32	DN40-rb	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN250-rb	DN300	DN400
Pressure PN	PN25																					
Case aa)	Heat load to 4.2K, valve in standard design as described, cryogenic length h as indicated																					
Cryogenic length h:	875	875	875	875	875	875	875	875	875	875	875	875	875	875	1000	1000	1200	1200	1200	1400	1400	1400
- to T(0)=4.2K (W):	<0.30W	<0.30W	<0.30W	<0.35W	<0.35W	<0.50W	<0.70W	<1.00W	<1.10W	<1.50W	<2.05W	<2.60W	<3.70W	5.30W	<6.50W	<8.80W	<10.40W	on request, see also remarks above				
Pressure PN	PN10																					
Case ab)	Heat load to 4.2K resp. 80K thermal contact, valve in standard design as described, cryogenic length h as indicated, however with thermal contact assumed at T(1)=80K at h1 as indicated, see catalogue no. "WEKA_19930435_ThermalContact"																					
Cryogenic length h:	875	875	875	875	875	875	875	875	875	875	875	875	875	875	1000	1000	1200	1200	1200	1400	1400	1400
Cryogenic length h1:	300	300	300	300	300	300	300	300	400	400	400	400	400	500	500	600	600	on request, see also remarks above				
- to T(0)=4.2K (W):	<0.10W	<0.10W	<0.10W	<0.15W	<0.20W	<0.25W	<0.40W	<0.55W	<0.60W	<0.95W	<1.25W	<1.55W	<2.25W	<3.20W	<3.30W	<4.70W	<9.30W	on request, see also remarks above				
- to T(1)=80K (W):	<0.40W	<0.40W	<0.40W	<0.45W	<0.50W	<0.70W	<0.70W	<1.00W	<1.15W	<1.65W	<1.95W	2.75W	<3.50W	<4.30W	<6.10W	<6.70W	<9.60W	on request, see also remarks above				
Pressure PN	PN10																					
Cryogenic length h:														875	1000	1000	1200	1200	1200	1400	1400	1400
Cryogenic length h1:														500	500	600	600	600	600	600	600	600
- to T(0)=4.2K (W):														<3.80	<3.80	<5.00	<5.10	<8.70	<12.20	<11.50	<12.40	<20.00
- to T(1)=80K (W):														<3.60	<5.10	<5.10	<6.20	<9.00	<11.20	<12.90	<14.60	<23.00
Remarks:	Any other length for h or h1 or any other contact temperature T1 or further thermal contacts at temperature T2, T3 etc. on request.																					
Size DN	DN2	DN4	DN6	DN8	DN10	DN15	DN20	DN25	DN32	DN40-rb	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN250-rb	DN300	DN400
Pressure PN	PN25																					
Case ac)	Heat load to 4.2K, valve in modified design with compound inset 316L-G10 as described, see catalogue no. "WEKA_20090801_G10Insert", cryogenic length h as indicated																					
Cryogenic length h:	875	875	875	875	875	875	875	875	875	875	875	875	875	875	1000	1000	1200	1200	1200	1400	1400	1400
- to T(0)=4.2K (W):	<0.20W	<0.20W	<0.20W	<0.25W	<0.30W	<0.35W	<0.40W	<0.60W	<0.70W	<1.00W	<1.35W	<1.65W	<2.60W	on request, see also remarks above								
Pressure PN	PN10																					
Case ad)	Heat load to 4.2K resp. 80K thermal contact, valve in modified design with compound inset 316L-G10 as described, cryogenic length h as indicated, however with thermal contact assumed at T(1)=80K at h1 as indicated																					
Cryogenic length h:	875	875	875	875	875	875	875	875	875	875	875	875	875	875	1000	1000	1200	1200	1200	1400	1400	1400
Cryogenic length h1:	300	300	300	300	300	300	300	300	400	400	400	400	400	on request, see also remarks above								
- to T(0)=4.2K (W):	<0.05W	<0.05W	<0.05W	<0.06W	<0.08W	<0.10W	<0.12W	<0.15W	<0.25W	<0.30W	<0.40W	<0.50W	<0.80W	on request, see also remarks above								
- to T(1)=80K (W):	<0.40W	<0.40W	<0.40W	<0.45W	<0.50W	<0.70W	<0.70W	<1.00W	<1.15W	<1.65W	<1.95W	<2.70W	<3.50W	on request, see also remarks above								
Pressure PN	PN10																					
Cryogenic length h:														875	1000	1000	1200	1200	1200	1400	1400	1400
Cryogenic length h1:														500	500	600	600	600	600	600	600	600
- to T(0)=4.2K (W):														on request, see also remarks above								
- to T(1)=80K (W):														on request, see also remarks above								
Remarks:	Any other length for h or h1 or any other contact temperature T1 or further thermal contacts at temperature T2, T3 etc. on request.																					

Size DN	DN2	DN4	DN6	DN8	DN10	DN15	DN20	DN25	DN32	DN40-rb	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN250-rb	DN300	DN400
Pressure PN	PN25																					
Case b)	Heat load to 20K, valve in standard design as described, cryogenic length h as indicated																					
Cryogenic length h:	600	600	600	600	600	600	600	600	600	600	600	600	600	800	800	800	1000	1000	1000	1000	1000	1000
- to T(0)=20K (W):	<0.30W	<0.30W	<0.30W	<0.40W	<0.50W	<0.70W	<0.95W	<1.40W	<1.55W	<2.20W	<2.95W	<3.80W	<5.40W	<6.40W	<8.10W	<11.50W	<13.00W	on request, see also remarks above				
Remarks:	To calculate heat load for any other length use formula: Q(T(0), h new) = Q(T(0), h indicated) * h indicated / h new																					

Size DN	DN2	DN4	DN6	DN8	DN10	DN15	DN20	DN25	DN32	DN40-rb	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN250-rb	DN300	DN400
Pressure PN	PN25																					
Case c)	Heat load to 77K, valve in standard design as described, cryogenic length h as indicated																					
Cryogenic length h:	300	300	300	300	300	300	400	400	400	400	500	500	500	600	600	600	800	800	800	800	800	800
- to T(0)=20K (W):	<0.50W	<0.50W	<0.50W	<0.80W	<0.90W	<1.20W	<1.30W	<1.85W	<2.10W	<3.00W	<3.15W	<4.10W	<5.80W	<6.90W	<10.00W	<14.00W	<14.60W	on request, see also remarks above				
Remarks:	To calculate heat load for any other length use formula: Q(T(0), h new) = Q(T(0), h indicated) * h indicated / h new																					