

# DMX - DMAX diaphragm valve technical description

Made entirely of 316L stainless steel,  
**the DEFINOX DMX - DMAX diaphragm valve** is designed for retention-free flow and a full bore to keep pressure loss to a minimum. A NC (Normally Closed) or NO (Normally Open) air-operated version or a manual version with an ergonomic handle can easily be obtained from the same body and diaphragm.



## Design

The DMX - DMAX diaphragm valve consists mainly of three subassemblies:

- **The body**

The solid body, machined from a rolled bar of 316L, guarantees no inclusions and good metallurgical quality. What's more, due to the choice of materials, retort sterilisation is possible up to 140°C.

Various finishes are available on these valves:

- Ra 0,8 µm (180 grit).
- Ra 0,4 µm (240 grit) by mechanical or electro-polishing.
- Ra 0,2 µm (320 grit) by mechanical or electro-polishing.

The operating device is clamp-mounted onto the body allowing the assembly to be quickly dismantled and providing even pressure on the diaphragm.

- **The diaphragm**

It is equipped with a PTFE diaphragm totally inert to cleaning

agents (CIP), solvents, essential oils, etc. It can also be fitted with an EPDM or silicone diaphragm.

The diaphragm is sandwiched between the body and the operating device and a metal core dilates it to the required position between fully open and fully closed.

The valve is equipped with a leak detector in case of diaphragm failure.

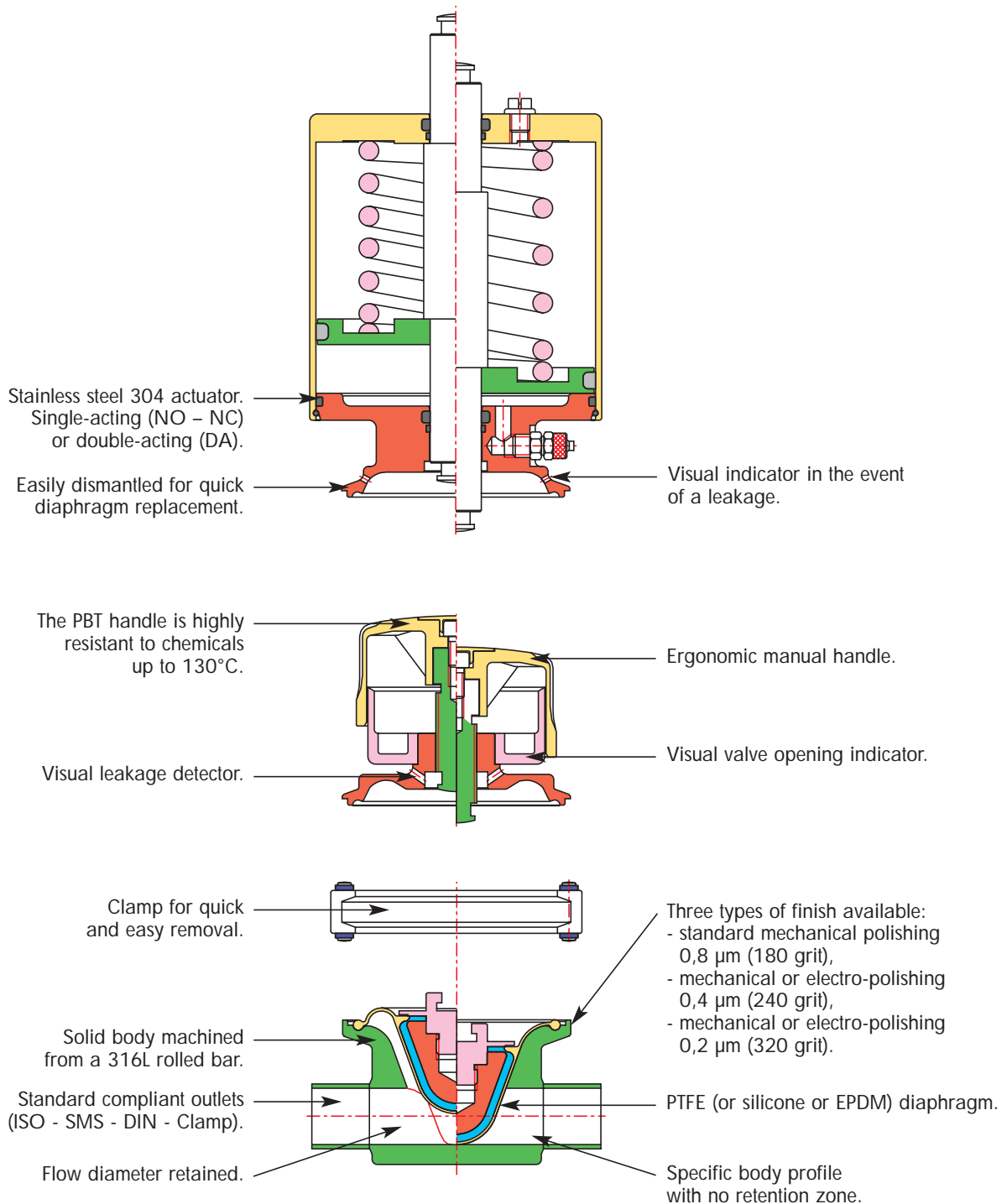
- **Operating device**

With the same body and diaphragm, a pneumatic version or a manual version with an ergonomic handle can easily be obtained.

The automatic version can be used with a NO (Normally Open) or NC (Normally Closed) configuration by applying a return spring.

# DMX - DMAX diaphragm valve technical description

## DMX - DMAX diaphragm valve features



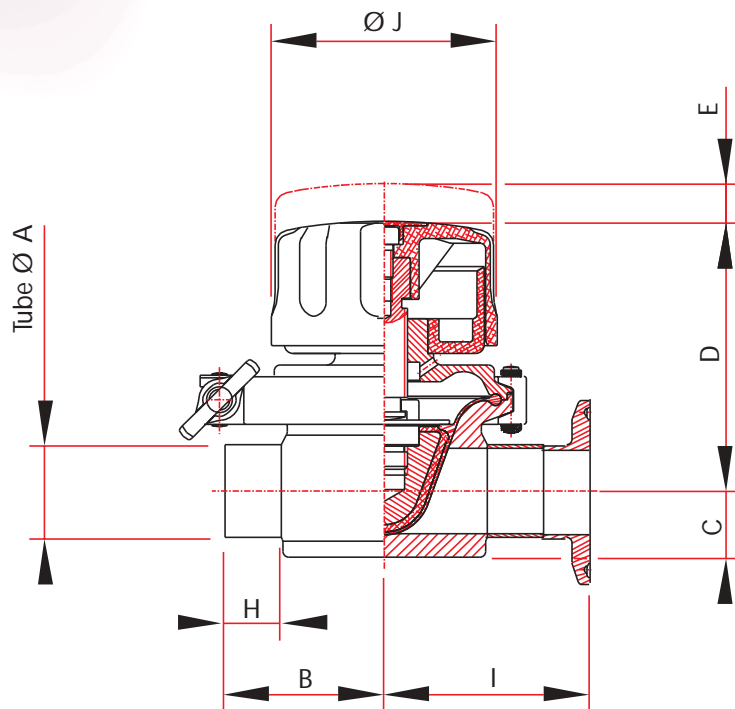
# Manual DMX - automated DMAX diaphragm valve dimensions

## Manual DMX diaphragm valve

The manual operating device consists of an ergonomic plastic handle that opens and closes the valve smoothly and progressively by means of a screw system. This device incorporates an opening indicator and side leakage

indicator in the event of diaphragm rupture. It is clamped onto the valve body.

The device can be fitted with a stainless steel handle as an option.



# Manual DMX - automated DMAX diaphragm valve dimensions

## Manual DMX diaphragm valve

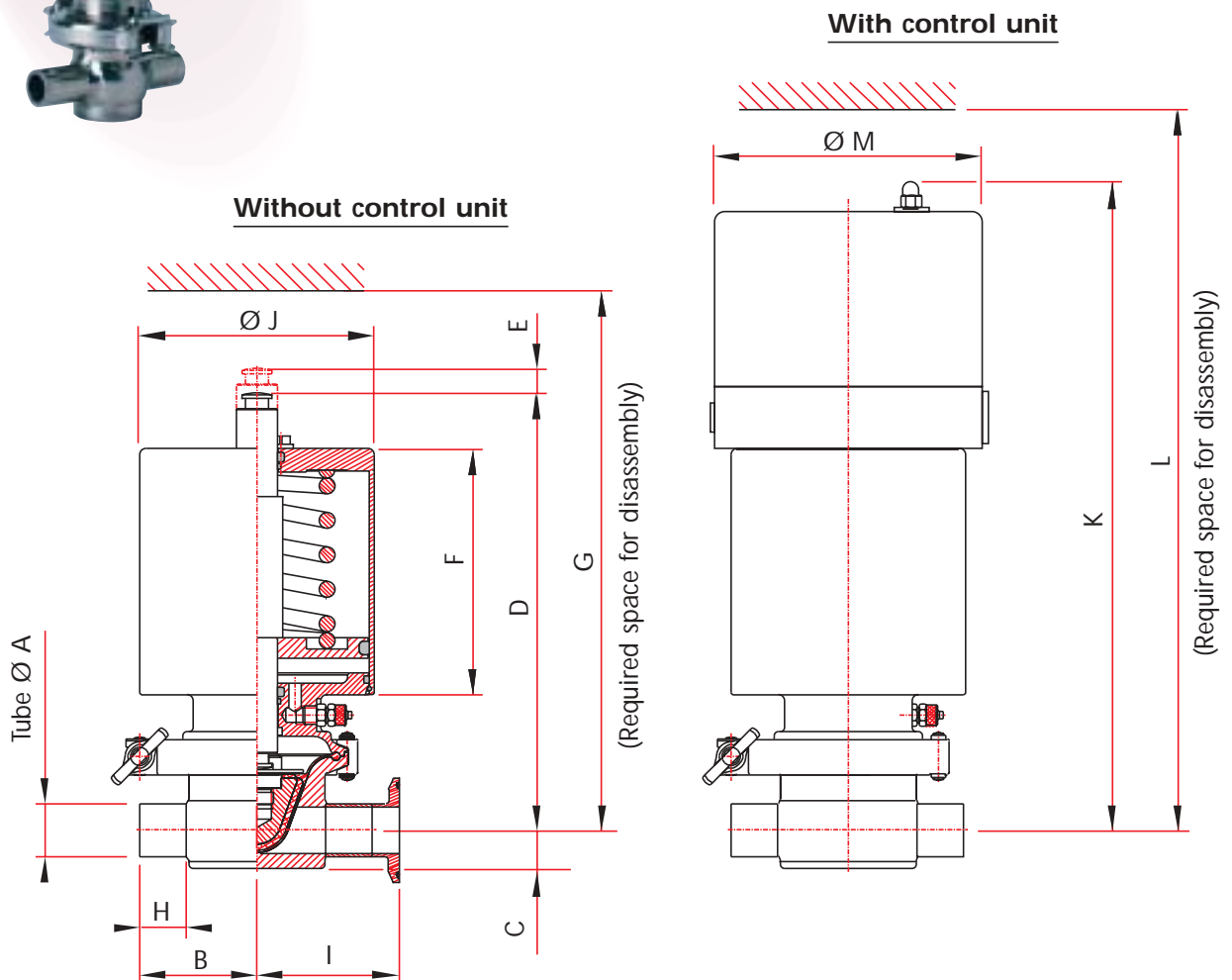
DN		Tube Ø A	B	C	D	E	H	I	Ø J	Weight in kg
SMS	25	25 x 1,2	60	16	97	13	26	72,5	78	2,4
	32	32 x 1	60	23	94	12	25	72,5	78	2,2
	38	38 x 1,2	88,5	25	120	22	41	101	78	4,8
	51	51 x 1,25	88,5	32	114	22	41	101	78	4,9
DIN	10	12 x 1	30	12	56	5	18	42,5	50	0,2
	15	18 x 1	50	14	68	11	29	62,5	50	0,6
	25	28 x 1	60	17	95	12	26	72,5	78	2,4
	32	34 x 1	88,5	20	122	22	43	101	78	2,7
	40	40 x 1	88,5	24	120	22	43	101	78	4,5
	50	53 x 1,5	88,5	32	114	22	42	101	78	4,8
US	1/2"	12,7 x 1,65	30	8	56	6	18	42,5	50	0,16
	3/4"	19,05 x 1,65	50	12	68	10	29	62,5	50	1
	1"	25,4 x 1,65	60	16	98	12	27	72,5	78	1,4
	1"1/2	38,1 x 1,65	88,5	23	121	22	43	101	78	3,3
	2"	50,8 x 1,65	88,5	31	114	22	41	101	78	4,9
STANDARD ISO	13,5	13,5 x 2,25	30	8	56	5	18	42,5	50	0,3
	17,2	17,2 x 2,35	50	10	69	10	29	62,5	50	1
	21,3	21,3 x 2,65	50	12	68	10	30	62,5	50	1
	26,9	26,9 x 2,65	60	16	98	12	26	72,5	78	2,4
	33,7	33,7 x 3,25	60	19	95	12	26	72,5	78	2,5
	42,4	42,4 x 3,25	88,5	24	120	22	43	101	78	4
	48,3	48,3 x 3,25	88,5	27	117	22	42	101	78	4
FOOD ISO	12	12 x 1	30	12	56	5	18	42,5	50	0,2
	17,2	17,2 x 0,85	50	12	68	10	29	62,5	50	1
	21,3	21,3 x 1	50	12	66	10	27	62,5	50	1,1
	25	25 x 1,2	60	16	97	12	26	72,5	78	2,4
	33,7	33,7 x 1,2	88,5	20	122	22	26	101	78	2
	38	38 x 1,2	88,5	25	120	22	41	101	78	4,8
	40	40 x 1,2	88,5	24	119	22	43	101	78	4,5
	51	51 x 1,2	88,5	30	114	22	41	101	78	4,9
CHEMICAL ISO	21,3	21,3 x 2,11	50	12	68	10	29	62,5	50	1
	33,7	33,7 x 2	60	19	94	12	26	72,5	78	2,3
	42,4	42,4 x 2	88,5	24	120	22	43	101	78	4,1
	48,3	48,3 x 2	88,5	29	118	22	42	101	78	4,2

# Manual DMX - automated DMAX diaphragm valve dimensions

## Automated DMAX diaphragm valve

In the automatic version, a reversible pneumatic actuator, fastened in the same way as the manual control device, drives the diaphragm to the required position (NC Normally Closed or NO Normally Open).

The actuator is supplied with dry, filtered air at 4,5 minimum to 8 bar maximum pressure. The actuator air fittings are designed for coupling to 4/6 diameter hoses.



# Manual DMX - automated DMAX diaphragm valve dimensions



## Automated DMAX diaphragm valve

DN	Tube Ø A	B	C	D	Stroke E	F	G	H	I	Ø J	Weight in kg*	K	L	Ø M
25	25 x 1,2	60	16	224	12	120	262	26	72,5	114	7	314	352	130
32	32 x 1	60	23	220	12	120	255	25	72,5	114	5,8	311	346	130
38	38 x 1,2	88,5	25	284	22	147	340	41	101	159	16,1	365	421	130
51	51 x 1,25	88,5	32	277	22	147	326	41	101	159	16,2	358	407	130
10	12 x 1	30	12	173	5	90	190	18	42,5	59	2,4	268	285	104
15	18 x 1	50	14	181	11	90	211	29	62,5	89	2,7	279	309	104
25	28 x 1	60	17	222	12	120	258	26	72,5	114	7	313	349	130
32	34 x 1	88,5	20	285	22	147	342	43	101	159	14	366	423	130
40	40 x 1	88,5	24	282	22	147	336	43	101	159	15,8	363	417	130
50	53 x 1,5	88,5	32	276	22	147	324	42	101	159	16	357	405	130
1/2"	12,7 x 1,65	30	8	173	5	90	190	18	42,5	59	2,4	268	285	104
3/4"	19,05 x 1,65	50	12	185	11	90	214	29	62,5	89	3,1	279	308	104
1"	25,4 x 1,65	60	16	224	12	120	262	27	72,5	114	6	315	353	130
1"1/2	38,1 x 1,65	88,5	23	284	22	147	340	43	101	159	14,6	365	421	130
2"	50,8 x 1,65	88,5	31	278	22	147	328	41	101	159	16,2	359	409	130
13,5	13,5 x 2,25	30	8	173	5	90	191	18	42,5	59	2,5	268	286	104
17,2	17,2 x 2,35	50	10	182	11	90	212	29	62,5	89	3,2	280	310	104
21,3	21,3 x 2,65	50	12	181	11	90	210	30	62,5	89	3,2	279	308	104
26,9	26,9 x 2,65	60	16	224	12	120	263	26	72,5	114	7	315	354	130
33,7	33,7 x 3,25	60	19	222	12	120	257	26	72,5	114	7,2	313	348	130
42,4	42,4 x 3,25	88,5	24	274	22	147	327	43	101	159	13,3	364	419	130
48,3	48,3 x 3,25	88,5	27	271	22	147	320	42	101	159	13,3	361	413	130
12	12 x 1	30	12	173	5	90	190	18	42,5	59	2,4	268	285	104
17,2	17,2 x 0,85	50	12	181	11	90	210	29	62,5	89	3,1	279	308	104
21,3	21,3 x 1	50	12	180	11	90	208	27	62,5	89	2,8	277	305	104
25	25 x 1,2	60	16	224	12	120	262	26	72,5	114	7	314	352	130
33,7	33,7 x 1,2	88,5	20	285	22	147	342	26	101	159	13,3	366	423	130
38	38 x 1,2	88,5	25	284	22	147	340	41	101	159	16,1	364	420	130
40	40 x 1,2	88,5	24	283	22	147	338	43	101	159	15,9	363	418	130
51	51 x 1,2	88,5	30	277	22	147	326	41	101	159	16,2	358	407	130
21,3	21,3 x 2,11	50	12	181	11	90	210	29	62,5	89	3,2	279	308	104
33,7	33,7 x 2	60	19	220	12	120	255	26	72,5	114	7,1	311	346	130
42,4	42,4 x 2	88,5	24	283	22	147	338	43	101	159	13,2	364	419	130
48,3	48,3 x 2	88,5	29	279	22	147	330	42	101	159	13,2	360	411	130

\* Without control unit

# Manual DMX - automated DMAX diaphragm valve working conditions

## Manual DMX diaphragm valve elastomer diaphragm

DN		Pressure drop (Kv)	Pressure drop (Cv)	Sealing pressure (Bar)
SMS	25	47	54,52	12
	32	47	54,52	12
	38	59	68,44	10
	51	59	68,44	10
DIN	10	8	9,28	12
	15	15	17,4	12
	25	47	54,52	12
	32	47	54,52	10
	40	59	68,44	10
	50	59	68,44	10
US	1/2"	8	9,28	12
	3/4"	15	17,4	12
	1"	47	54,52	12
	1"1/2	59	68,44	10
	2"	59	68,44	10
STANDARD ISO	13,5	8	9,28	12
	17,2	8	9,28	12
	21,3	15	17,4	12
	26,9	15	17,4	12
	33,7	47	54,52	10
	42,4	59	68,44	10
	48,3	59	68,44	10
FOOD ISO	12	8	9,28	12
	17,2	15	17,4	12
	21,3	15	17,4	12
	25	47	54,52	12
	33,7	47	54,52	10
	38	59	68,44	10
	40	59	68,44	10
	51	59	68,44	10
CHEMICAL ISO	21,3	15	17,4	12
	33,7	47	54,52	10
	42,4	59	68,44	10
	48,3	59	68,44	10

### FOR ALL DIAMETERS OF THE DMX VALVE WITH ELASTOMER DIAPHRAGM

Maximum temperature: +140 °C	Minimum temperature: 0 °C	Temperature difference: 100 °C
Maximum working pressure: 10 Bar	Vacuum resistance: 10 <sup>-6</sup> mbar	Diaphragm life: 100 000
Sealing under helium (leakage rate): 10 <sup>-6</sup> atm.cm <sup>3</sup> /s		

# Manual DMX - automated DMAX diaphragm valve working conditions

## Manual DMX diaphragm valve PTFE diaphragm

DN		Pressure drop (Kv)	Pressure drop (Cv)	Sealing pressure (Bar)
SMS	25	47	54,52	12
	32	47	54,52	12
	38	59	68,44	10
	51	59	68,44	10
DIN	10	8	9,28	12
	15	15	17,4	12
	25	47	54,52	12
	32	47	54,52	10
	40	59	68,44	10
	50	59	68,44	10
US	1/2"	8	9,28	12
	3/4"	15	17,4	12
	1"	47	54,52	12
	1"1/2	59	68,44	10
	2"	59	68,44	10
STANDARD ISO	13,5	8	9,28	12
	17,2	8	9,28	12
	21,3	15	17,4	12
	26,9	15	17,4	12
	33,7	47	54,52	10
	42,4	59	68,44	10
	48,3	59	68,44	10
FOOD ISO	12	8	9,28	12
	17,2	15	17,4	12
	21,3	15	17,4	12
	25	47	54,52	12
	33,7	47	54,52	10
	38	59	68,44	10
	40	59	68,44	10
	51	59	68,44	10
CHEMICAL ISO	21,3	15	17,4	12
	33,7	47	54,52	10
	42,4	59	68,44	10
	48,3	59	68,44	10

FOR ALL DIAMETERS OF THE DMX VALVE WITH PTFE DIAPHRAGM		
Maximum temperature: +140 °C	Minimum temperature: 0 °C	Temperature difference: 100 °C
Maximum working pressure: 8 Bar	Vacuum resistance: 10 <sup>-3</sup> mbar	Diaphragm life: 40 000
Sealing under helium (leakage rate): 10 <sup>-3</sup> atm.cm <sup>3</sup> /s		



# Manual DMX - automated DMAX diaphragm valve working conditions



## Automated DMAX diaphragm valve elastomer diaphragm

DN		Pressure drop (Kv)	Pressure drop (Cv)	Sealing pressure (Bar)	Opening time (s)	Air consumption (NI)
SMS	25	47	54,52	12	0,9	1
	32	47	54,52	12	0,9	1
	38	59	68,44	10	3	3
	51	59	68,44	10	3	3
DIN	10	8	9,28	12	0,3	0,5
	15	15	17,4	12	0,6	0,5
	25	47	54,52	12	0,9	1
	32	47	54,52	10	3	3
	40	59	68,44	10	3	3
	50	59	68,44	10	3	3
US	1/2"	8	9,28	12	0,3	0,5
	3/4"	15	17,4	12	0,6	0,5
	1"	47	54,52	12	0,9	1
	1"1/2	59	68,44	10	3	3
	2"	59	68,44	10	3	3
STANDARD ISO	13,5	8	9,28	12	0,3	0,5
	17,2	8	9,28	12	0,6	0,5
	21,3	15	17,4	12	0,6	0,5
	26,9	15	17,4	12	0,9	1
	33,7	47	54,52	10	0,9	1
	42,4	59	68,44	10	3	3
	48,3	59	68,44	10	3	3
FOOD ISO	12	8	9,28	12	0,3	0,5
	17,2	15	17,4	12	0,6	0,5
	21,3	15	17,4	12	0,6	0,5
	25	47	54,52	12	0,9	1
	33,7	47	54,52	10	3	3
	38	59	68,44	10	3	3
	40	59	68,44	10	3	3
	51	59	68,44	10	3	3
CHEMICAL ISO	21,3	15	17,4	12	0,6	0,5
	33,7	47	54,52	10	0,9	1
	42,4	59	68,44	10	3	1,5
	48,3	59	68,44	10	3	1,5

FOR ALL DIAMETERS OF THE DMAX VALVE WITH ELASTOMER DIAPHRAGM		
Maximum temperature: +140 °C	Minimum temperature: 0 °C	Temperature difference: 100 °C
Maximum working pressure: 10 Bar	Vacuum resistance: 10 <sup>-6</sup> mbar	Diaphragm life: 100 000
Maximum supply pressure: 8 Bar	Minimum supply pressure: 4,5 Bar	Sealing under helium (leakage rate): 10 <sup>-6</sup> atm.cm <sup>3</sup> /s

# Manual DMX - automated DMAX diaphragm valve working conditions

## Automated DMAX diaphragm valve PTFE diaphragm

DN		Pressure drop (Kv)	Pressure drop (Cv)	Sealing pressure (Bar)	Opening time (s)	Air consumption (NI)
SMS	25	47	54,52	12	0,9	1
	32	47	54,52	12	0,9	1
	38	59	68,44	10	3	3
	51	59	68,44	10	3	3
DIN	10	8	9,28	12	0,3	0,5
	15	15	17,4	12	0,6	0,5
	25	47	54,52	12	0,9	1
	32	47	54,52	10	3	3
	40	59	68,44	10	3	3
	50	59	68,44	10	3	3
US	1/2"	8	9,28	12	0,3	0,5
	3/4"	15	17,4	12	0,6	0,5
	1"	47	54,52	12	0,9	1
	1"1/2	59	68,44	10	3	3
	2"	59	68,44	10	3	3
STANDARD ISO	13,5	8	9,28	12	0,3	0,5
	17,2	8	9,28	12	0,6	0,5
	21,3	15	17,4	12	0,6	0,5
	26,9	15	17,4	12	0,9	1
	33,7	47	54,52	10	0,9	1
	42,4	59	68,44	10	3	3
	48,3	59	68,44	10	3	3
FOOD ISO	12	8	9,28	12	0,3	0,5
	17,2	15	17,4	12	0,6	0,5
	21,3	15	17,4	12	0,6	0,5
	25	47	54,52	12	0,9	1
	33,7	47	54,52	10	3	3
	38	59	68,44	10	3	3
	40	59	68,44	10	3	3
	51	59	68,44	10	3	3
CHEMICAL ISO	21,3	15	17,4	12	0,6	0,5
	33,7	47	54,52	10	0,9	1
	42,4	59	68,44	10	3	1,5
	48,3	59	68,44	10	3	1,5

FOR ALL DIAMETERS OF THE DMAX VALVE WITH PTFE DIAPHRAGM		
Maximum temperature: +140 °C	Minimum temperature: 0 °C	Temperature difference: 100 °C
Maximum working pressure: 8 Bar	Vacuum resistance: 10 <sup>-3</sup> mbar	Diaphragm life: 40 000
Maximum supply pressure: 8 Bar	Minimum supply pressure: 4,5 Bar	Sealing under helium (leakage rate): 10 <sup>-3</sup> atm.cm <sup>3</sup> /s

# Manual DMX - automated DMAX diaphragm valve working conditions



## Diaphragm valve pressure drop

