

STANDARD TYPE NS

Material 1.4435 (AISI 316L)

Nominal diameter		Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius
DN	Ø	ID	OD	t	lc	lf	z ₀	le ₀	EA	SRCz	Θ ₀	R ₀
		6	13	0.08	0.35	0.55	0.25	0.60	0.7	130	1.10	24.7
		6.6	16	0.05	0.20	0.56	0.47	0.67	1.1	21	1.68	14.8
		8	16	0.08	0.35	0.60	0.40	0.75	1.2	80	1.43	22.0
DN	10	9	20	0.10	0.40	0.80	0.60	1.00	1.7	87	1.72	23.3
		10	20	0.10	0.40	0.85	0.60	1.00	1.8	79	1.72	23.3
		13	26	0.10	0.34	0.86	0.86	1.20	3.1	88	1.90	23.3
DN	16	16	31.5	0.13	0.43	1.18	1.21	1.64	4.6	50	2.20	26.9
		19	37	0.13	0.45	1.60	1.70	2.15	6.4	91	2.63	28.3
		21	41	0.13	0.48	1.83	1.80	2.28	7.8	54	2.52	31.4
DN	25	26	46	0.13	0.40	1.75	1.90	2.30	10.4	62	2.37	32.7
		31	51	0.13	0.50	2.20	1.90	2.40	13.5	39	2.13	38.9
		36	56	0.13	0.50	1.90	1.95	2.45	16.9	40	2.00	42.4
DN	40	39	59	0.13	0.44	2.19	2.00	2.44	19.1	41	1.94	42.5
		46	62.5	0.13	0.50	1.60	1.50	2.00	23.3	90	1.38	52.1
		46	71	0.13	0.50	2.50	2.30	2.80	27.3	44	1.86	50.9
DN	50	51	76	0.13	0.50	2.75	2.40	2.90	32.1	38	1.81	53.8
		60	88	0.15	0.51	2.50	2.80	3.31	43.5	65	1.82	60.0
DN	63	65	90	0.15	0.70	2.70	2.70	3.40	47.6	72	1.72	68.3
		70.5	95	0.15	0.75	2.50	2.65	3.40	54.2	81	1.60	74.4
		75	100	0.15	0.60	2.80	2.90	3.50	60.5	69	1.66	70.7
		77	107	0.15	0.74	2.60	2.86	3.60	67.1	50	1.53	81.2
		83.5	108	0.15	0.66	2.11	2.53	3.19	72.4	77	1.34	82.2
		90	120	0.15	0.65	2.87	2.80	3.45	87.2	55	1.34	87.9
DN	100	102	132	0.15	0.51	2.91	3.10	3.61	108.1	60	1.35	87.7
		127	157	0.20	0.75	2.96	3.20	3.95	159.0	130	1.17	115.3
		132.5	165	0.20	0.75	3.10	3.25	4.00	174.0	120	1.13	120.6
DN	160	150	185	0.20	0.75	3.40	3.40	4.15	221.2	112	1.05	133.3
		162.5	195	0.20	0.75	3.10	3.00	3.75	251.6	144	0.88	146.3
		170	200	0.20	0.75	3.00	3.20	3.95	269.0	140	0.92	146.9
		180	215	0.20	0.75	2.90	3.40	4.15	307.0	124	0.91	154.9
DN	200	200	235	0.20	0.75	3.30	3.40	4.15	372.3	120	0.83	169.3
DN	250	250	285	0.20	0.80	3.30	3.20	4.00	562.8	180	0.64	213.8
		270	310	0.20	0.75	3.50	3.70	4.45	661.6	140	0.68	217.8
DN	320	320	360	0.20	0.80	3.80	3.80	4.60	909.0	145	0.60	255.8
		335	360	0.20	1.00	2.30	1.90	2.90	948.0	450	0.30	370.0

Technical changes are reserved!

The data are valid under the following conditions:

Differential pressure Δp = 1bar

Lifetime Nz = 10'000 Zyklen

Operating temperatur OT = Raumtemperatur 20°C

Heating temperature HT = 80°C

Other sizes, materials and specifications are available on request.

For more informations please see enclosed pages or contact us.

STANDARD TYPE NS

Material AM 350 (AISI 633)

Nominal diameter		Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius
DN	Ø	ID	OD	t	lc	lf	z ₀	le ₀	EA	SRCz	Θ ₀	R ₀
		6	13	0.08	0.40	0.75	0.50	0.90	0.7	130	2.20	16.9
		6.6	16	0.05	0.20	0.56	0.47	0.67	1.1	21	1.68	14.8
		8	16	0.08	0.45	0.90	0.50	0.95	1.2	99	1.79	22.4
DN	10	9	20	0.08	0.40	1.05	1.30	1.70	1.7	59	3.72	16.2
		10	20	0.08	0.30	1.00	1.00	1.30	1.8	80	2.86	16.0
		11	24	0.08	0.40	1.40	1.60	2.00	2.5	40	3.82	18.0
		13	26	0.08	0.40	1.45	1.70	2.10	3.1	42	3.75	19.1
DN	16	16	31.5	0.10	0.34	1.52	1.72	2.06	4.6	37	3.13	22.0
		19	37	0.10	0.40	1.90	2.30	2.70	6.4	68	3.56	24.9
		21	41	0.10	0.40	2.24	2.50	2.90	7.8	36	3.49	27.1
DN	25	25.4	44.45	0.10	0.45	2.00	2.55	3.00	9.8	50	3.29	30.0
		26	46	0.10	0.50	2.10	2.90	3.40	10.4	49	3.61	30.9
		31	51	0.10	0.50	2.40	3.10	3.60	13.5	39	3.48	33.7
		36	56	0.10	0.50	2.40	3.20	3.70	16.9	49	3.27	36.8
DN	40	39	59	0.10	0.50	2.55	3.30	3.80	19.1	37	3.20	38.4
		46	62.5	0.10	0.40	2.00	2.70	3.10	23.3	77	2.48	40.5
		46	71	0.13	0.55	2.90	4.00	4.55	27.3	54	3.23	45.3
DN	50	51	76	0.13	0.60	2.95	3.18	3.78	32.1	41	2.40	52.3
		60	88	0.13	0.55	2.85	3.70	4.25	43.5	57	2.25	58.0
DN	63	65	90	0.13	0.75	2.72	3.90	4.65	47.6	63	2.48	62.3
		70.5	95	0.13	0.80	2.70	3.20	4.00	54.2	52	1.93	71.3
		75	100	0.13	0.60	2.60	4.10	4.70	60.5	50	2.35	64.6
		77	107	0.13	0.73	3.05	4.27	5.00	67.1	42	2.29	71.8
		90	120	0.13	0.76	3.30	3.74	4.50	87.2	43	1.79	84.4
DN	100	102	132	0.13	0.70	2.81	3.85	4.55	108.1	46	1.67	90.0
		127	157	0.15	0.75	3.40	4.20	4.95	159.0	94	1.53	106.5
		132.5	165	0.20	0.75	3.60	3.80	4.55	175	80	1.32	115.1
DN	160	150	185	0.15	0.75	3.60	4.40	5.15	221.2	166	1.36	124.0
		162.5	195	0.15	0.70	3.30	4.00	4.70	251.6	140	1.18	131.6
		180	215	0.15	0.70	3.85	4.40	5.10	307.2	142	1.17	141.7
DN	200	200	235	0.15	0.70	3.80	4.40	5.10	372.3	71	1.07	154.9
DN	250	250	285	0.15	0.70	3.80	4.40	5.10	562.8	78	0.88	187.8
		270	310	0.20	0.80	3.50	4.60	5.40	661.6	90	0.85	208.9
DN	320	320	360	0.20	0.80	4.20	4.80	5.60	909.0	95	0.76	240.0

Technical changes are reserved!

The data are valid under the following conditions:

Differential pressure Δp = 1bar

Lifetime Nz = 10'000 Zyklen

Operating temperatur OT = Raumtemperatur 20°C

Heating temperature HT = 80°C

Other sizes, materials and specifications are available on request.

For more informations please see enclosed pages or contact us.

WIDE TYPE BS

Material 1.4435 (AISI 316L)

Shaft diameter	Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius	
W	Ø	ID	OD	t	lc	lf	z ₀	le ₀	EA	SRCz	Θ ₀	R ₀
8	1/4"	9	31.5	0.13	0.48	1.90	1.40	1.88	3.60	52	2.55	26.6
20	3/4"	21	49	0.13	0.50	1.75	2.10	2.60	10.1	47	2.46	36.2
35	1 3/8"	36.8	72	0.15	0.60	3.05	3.00	3.60	24.1	72	2.39	50.4
40	1 5/8"	41.5	81	0.20	0.70	3.06	3.40	4.10	30.5	97	2.41	57.2
45	1 3/4"	47	88	0.20	0.70	3.95	3.40	4.10	36.9	86	2.21	62.1
50	2"	52	95	0.20	0.80	3.65	3.60	4.40	43.6	88	2.17	68.6
55	2 1/4"	56	102	0.20	0.75	4.20	3.70	4.45	50.4	81	2.08	71.7
70	2 3/4"	72	115	0.20	0.75	4.10	3.60	4.35	69.9	77	1.79	81.5
75	3"	77.5	120	0.20	0.75	3.60	3.40	4.15	77.8	88	1.62	86.5
80	3 1/8"	82	125	0.20	0.85	3.71	3.45	4.30	85.3	70	1.58	93.3
90	3 1/2"	90.5	135	0.20	0.83	3.80	3.77	4.60	101	73	1.60	97.2
91	3 1/2"	92	142	0.20	1.10	4.42	3.90	5.00	109.0	53	1.57	111.1
100	4"	102.5	150	0.20	1.25	4.70	4.35	5.60	127	60	1.66	118.1
105	4 1/8"	107.5	155	0.20	1.10	5.10	4.90	6.00	130.0	65	1.81	112.3
130	5"	132.5	165	0.20	0.75	3.10	3.25	4.00	174	120	1.13	120.6
150	6"	162.5	210	0.20	1.00	5.15	5.00	6.00	273.9	49	1.36	147.0
275	10"	280	329.4	0.20	1.28	4.60	5.00	6.28	731	55	0.87	249.0
400	15"	403	460.9	0.30	1.00	3.70	5.00	6.00	1468.0	200	0.62	322.6
500	19"	506	564.3	0.30	1.00	3.80	5.20	6.20	2251	250	0.53	390.7

WIDE TYPE BS

Material AM 350 (AISI 633)

Shaft diameter	Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius	
W	Ø	ID	OD	t	lc	lf	z ₀	le ₀	EA	SRCz	Θ ₀	R ₀
8	1/4"	9	31.5	0.13	0.45	1.90	2.10	2.55	3.6	51	3.82	22.5
20	3/4"	21	49	0.13	0.60	3.40	3.50	4.10	10.1	43	4.09	32.9
35	1 3/8"	36.8	72	0.13	0.60	3.90	3.80	4.40	24.1	68	3.02	47.4
40	1 5/8"	41.5	81	0.13	0.60	3.60	4.20	4.80	30.5	45	2.97	52.1
45	1 3/4"	47	88	0.13	0.60	4.70	4.40	5.00	36.9	75	2.86	56.0
50	2"	52	95	0.13	0.60	4.70	4.40	5.00	43.6	80	2.65	60.5
55	2 1/4"	56	102	0.15	0.68	5.10	5.10	5.78	50.4	75	2.86	64.6
70	2 3/4"	72	115	0.15	0.68	4.60	4.80	5.48	69.9	55	2.39	73.8
75	3"	77.5	120	0.15	0.68	4.30	4.00	4.68	77.8	72	1.91	80.4
80	3 1/8"	82	125	0.15	0.75	4.50	4.60	5.35	85.3	100	2.11	82.9
90	3 1/2"	90.5	135	0.15	0.75	4.20	4.10	4.85	101.0	80	1.74	92.2
100	4"	102.5	150	0.20	1.25	5.00	5.55	6.80	126.7	55	1.91	111.0
105	4 1/8"	107.5	155	0.20	1.20	5.50	5.00	6.20	136.8	65	1.85	114.7
130	5"	132.5	165	0.20	0.75	3.60	3.80	4.55	174.5	80	1.32	115.1
150	6"	162.5	210	0.20	1.10	5.15	7.00	8.10	273.9	85	1.91	138.0

Technical changes are reserved!

Datas under the following conditions:

Differential pressure Δp = 1bar, lifetime Nz = 10'000 cycles,

Operating temperature OT = 20°C, Heating temperature HT = 80°C

Other sizes, materials and specifications are available on request

For more informations please see enclosed pages or contact us

SMALL TYPE DS

Material 1.4435 (AISI 316L)

Shaft diameter	Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius
W	Ø	ID	OD	t	lc	lf	le ₀	EA	SRCz	Θ ₀	R ₀
18	5/8"	19	31.7	0.13	0.43	1.00	1.43	5.2	175	1.81	29.5
20	3/4"	21.3	34	0.10	0.40	0.90	1.50	6.1	100	1.26	35.1
22	7/8"	23.8	36.5	0.10	0.40	0.90	1.15	7.2	116	1.18	37.7
24	7/8"	25.4	38.1	0.10	0.40	0.90	1.35	8.0	102	1.13	39.4
25	1"	27	39.7	0.10	0.40	1.15	1.55	8.8	98	1.15	39.7
28	1 1/8"	30.2	42.9	0.10	0.40	1.15	1.20	10.6	109	1.07	42.9
30	1 1/8"	31.8	44.5	0.10	0.40	1.15	1.25	11.5	96	1.09	43.2
32	1 1/4"	33.3	46	0.10	0.40	1.15	1.25	12.5	126	1.06	44.6
33	1 1/4"	34.3	47	0.10	0.40	1.15	1.25	13.1	91	1.04	45.6
35	1 3/8"	36.5	49.2	0.10	0.40	1.15	1.25	14.5	106	0.99	47.8
38	1 1/2"	39.7	52.4	0.10	0.40	1.15	1.30	16.8	137	0.98	49.5
40	1 5/8"	42.8	55.5	0.13	0.44	1.20	1.34	19.1	194	0.93	54.9
45	1 3/4"	46	57	0.13	0.44	1.10	1.24	20.9	197	0.80	59.9
45	1 3/4"	46	58.7	0.13	0.44	1.20	1.34	21.6	179	0.88	58.0
48	1 7/8"	49.2	61.9	0.13	0.44	1.20	1.34	24.3	198	0.83	61.2
50	2"	52.4	65.1	0.13	0.40	1.10	1.65	27.2	236	0.79	64.4
53	2 1/8"	55	67	0.13	0.44	1.10	1.24	29.3	232	0.68	70.4
55	2 1/4"	58.7	71.4	0.13	0.44	1.20	1.39	33.3	230	0.76	68.8
60	2 3/8"	61.9	74.6	0.13	0.44	1.20	1.39	36.7	321	0.73	71.9
63	2 1/2"	65.1	81	0.13	0.44	1.40	1.39	42.1	150	0.67	78.0
65	2 5/8"	68.3	84.1	0.13	0.44	1.40	1.44	45.8	226	0.68	79.1
70	2 3/4"	70.5	84.1	0.13	0.44	1.25	1.29	47.1	213	0.58	85.6
75	2 7/8"	76.2	92.1	0.13	0.44	1.60	1.64	55.8	142	0.75	79.8
80	3 1/8"	84	98.4	0.13	0.44	1.40	1.34	65.5	205	0.52	97.3
85	3 3/8"	88.9	104.8	0.13	0.44	1.50	1.10	73.8	174	0.60	94.3
90	3 1/2"	92.1	108	0.13	0.40	1.45	1.90	78.8	175	0.61	95.3
95	3 3/4"	98.4	114.3	0.13	0.44	1.45	1.54	89.0	197	0.55	102.9
100	3 7/8"	101.6	117.5	0.13	0.44	1.45	1.59	94.4	203	0.56	103.7
105	4 1/8"	107.9	123.8	0.13	0.44	1.45	1.15	105.6	216	0.53	109.3
110	4 1/4"	111.1	127	0.13	0.44	1.45	1.15	111.5	210	0.52	112.1
125	4 7/8"	127	143	0.13	0.44	1.45	1.15	143.3	246	0.46	126.2

Technical changes are reserved!

The data are valid under the following conditions:

Differential pressure Δp = 1bar

Lifetime Nz = 10'000 Zyklen

Operating temperatur OT = Raumtemperatur 20°C

Heating temperature HT = 80°C

Other sizes, materials and specifications are available on request.

For more informations please see enclosed pages or contact us.

SMALL TYPE DS

Material AM 350 (AISI 633)

Shaft diameter	Inside diameter	Outside diameter	Standard wall thickness of membrane	Compressed length per convolution	Free length per convolution	Working stroke per convolution	Extended length per convolution	Effective area of differential pressure (cm ²)	Spring constant per convolution [N/mm]	Largest bending angle per convolution [°]	Smallest bending radius	
W	Ø	ID	OD	t	lc	lf	le ₀	EA	SRCz	Θ ₀	R ₀	
13	1/2"	14	26.7	0.10	0.35	1.45	1.35	1.70	3.4	60	2.90	20.3
18	5/8"	19	31.7	0.10	0.40	1.40	1.20	1.60	5.2	120	2.17	26.4
20	3/4"	21.3	34	0.10	0.40	1.40	1.00	1.40	6.1	125	1.69	30.6
22	7/8"	23.8	36.5	0.10	0.40	1.40	1.00	1.40	7.2	129	1.57	32.9
24	7/8"	25.4	38.1	0.10	0.40	1.45	1.20	1.60	8.0	135	1.80	31.8
25	1"	27	39.7	0.10	0.40	1.45	1.10	1.50	8.8	140	1.59	34.3
28	1 1/8"	30.2	42.9	0.10	0.40	1.40	1.05	1.45	10.6	157	1.40	37.8
30	1 1/8"	31.8	44.5	0.10	0.40	1.45	1.20	1.60	11.5	113	1.55	37.1
32	1 1/4"	33.3	46	0.10	0.35	1.38	1.65	2.00	12.5	134	2.06	32.8
33	1 1/4"	34.3	47	0.10	0.40	1.50	1.20	1.60	13.1	107	1.46	39.2
35	1 3/8"	36.5	49.2	0.10	0.40	1.55	1.20	1.60	14.5	112	1.40	41.0
38	1 1/2"	39.7	52.4	0.10	0.40	1.40	1.20	1.60	16.8	164	1.31	43.7
40	1 5/8"	42.8	55.5	0.10	0.33	1.55	1.60	1.93	19.1	105	1.65	39.2
45	1 3/4"	46	57	0.10	0.40	1.30	1.10	1.50	20.9	146	1.11	49.2
45	1 3/4"	46	58.7	0.10	0.40	1.40	1.25	1.65	21.6	178	1.22	48.1
48	1 7/8"	49.2	61.9	0.10	0.40	1.40	1.25	1.65	24.3	192	1.16	50.8
50	2"	52.4	65.1	0.10	0.40	1.50	1.25	1.65	27.2	131	1.10	53.4
53	2 1/8"	55	67	0.10	0.40	1.40	1.20	1.60	29.3	167	1.03	55.8
55	2 1/4"	58.7	71.4	0.10	0.40	1.40	1.30	1.70	33.3	167	1.04	57.7
60	2 3/8"	61.9	74.6	0.13	0.44	1.40	1.30	1.74	36.7	371	1.00	62.5
63	2 1/2"	65.1	81	0.13	0.50	1.80	1.50	2.00	42.1	170	1.06	67.5
65	2 5/8"	68.3	84.1	0.13	0.44	1.45	1.30	1.74	45.8	266	0.89	70.5
70	2 3/4"	70.5	84.1	0.13	0.44	1.42	1.71	2.15	47.1	281	0.89	70.5
75	2 7/8"	76.2	92.1	0.13	0.44	1.95	1.55	1.99	55.8	171	0.96	72.2
80	3 1/8"	84	98.4	0.13	0.44	1.90	1.50	1.94	65.5	234	0.87	78.1
85	3 3/8"	88.9	104.8	0.13	0.44	1.70	1.40	1.84	73.8	205	0.77	85.3
90	3 1/2"	92.1	108	0.13	0.44	1.95	1.55	1.99	78.8	201	0.82	84.7
95	3 3/4"	98.4	114.3	0.13	0.44	1.85	1.50	1.94	89.0	219	0.75	90.7
100	3 7/8"	101.6	117.5	0.13	0.44	1.70	1.40	1.84	94.4	226	0.68	95.7
105	4 1/8"	107.9	123.8	0.13	0.43	1.68	1.97	2.40	105.6	261	0.91	88.9
110	4 1/4"	111.1	127	0.13	0.44	1.70	1.40	1.84	111.5	249	0.63	103.4
120	4 3/4"	123	139	0.15	0.51	1.80	1.30	1.81	134.9	424	0.54	124.0
125	4 7/8"	127	143	0.13	0.50	1.75	1.90	2.40	143.3	450	0.56	116.4
330	13"	335	360	0.15	0.90	2.76	2.90	3.80	948.0	288	0.46	292.0

Technical changes are reserved!

The data are valid under the following conditions:

Differential pressure $\Delta p = 1 \text{ bar}$

Lifetime $N_z = 10'000 \text{ Zyklen}$

Operating temperatur OT = Raumtemperatur 20°C

Heating temperature HT = 80°C

Other sizes, materials and specifications are available on request.

For more informations please see enclosed pages or contact us.