

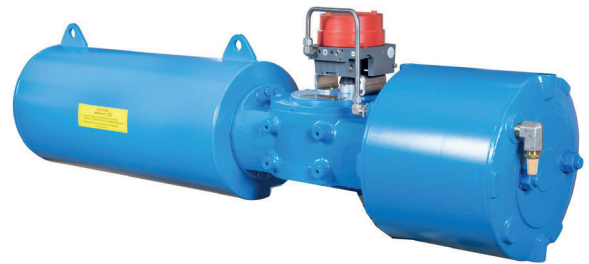
Neles™ high performance heavy duty scotch yoke actuator

Series N1

The Neles scotch yoke N1 series actuator is designed for use with quarter turn valves in both modulating control and on-off service. Its modular design allows for easy field modification of the actuator. The yoke construction creates high end of stroke torques for reliable use in tight shut-off service and ESD applications up to SIL 3. The N1 actuator's robust design ensures a long life in harsh environments due to unique features such as its internal tie-rod mechanism. This heavy duty actuator has all major approvals to easily meet industry standards and customer process requirements.

Features and benefits

- Suitable for on/off, modulating and control valve applications in general service, protective service and safety applications eg. ESD or HIPPS.
- Ductile cast iron center body, fabricated carbon steel power cylinder and spring module provides rugged actuator construction.
- Suitable for safety integrated systems up to and including SIL 3 accordance with IEC 61508.
- Modular design allows the flexibility of configuring the actuator in either fail open or fail close functions. In case of need an easy on-site modification can be done by interchanging the spring and pneumatic modules..
- Ball bearing, flexi joint and the hardened yoke thrust pin bearing are all incorporated into the actuator for longer life time, smoother operation.
- Internal tie rods providing highest corrosion protection and the best performance.
- The vent valve has built in non-return function for IP67.
- Secondary vent valve for detecting possible leakages in the rod seal area of pneumatic cylinder.
- Springs are non buckling, lifetime lubricated and epoxy coated.
- Full range of accessories: switchboxes, positioners, safety solenoids (ESD, PST) and customized control panels.



Technical specification

- Pneumatic scotch yoke quarter turn actuator.
- Spring return and double acting models
- Supply medium: Air, natural gas (sweet), nitrogen
- Maximum operating pressure depends on model
- Torque output range
 - Spring return model:
 - Spring nominal: 25 Nm - 147425 Nm, 18 lb ft - 108735 lb ft
 - Air break @ 4.0 barg / 58 psi: 26 Nm - 218765 Nm, 19 lb ft - 161353 lb ft
 - Double acting model:
 - Air break @ 4.0 barg / 58 psi: 71 Nm - 311333 Nm, 52 lb ft - 229627 lb ft
 - Temperature range: Normal -20°...+80 °C, High -20°...+125 °C
- Mounting face in compliance with ISO 5211/1 and VDI/VDE 3845
- Ingress protection class: IP66M & IP 67M
- ATEX 94/9/EC Ex 2G IIC T6 / Ex 2D IIC T80°C.
- Other approvals and certificates:
 - SIL3 capable
 - PED 2014/68/EN for Unfired Pressure Vessels
 - CE
 - EAC, TR CU
 - API6DX, 2nd edition
- External corrosion protection in compliance with ISO 12944-2 and EN 15714-3 class C3; optionally available class C5-I & C5M
- Manufactured and tested in compliance with ISO 9001
- Please consult factory for torque details and sizing

Actuator, series N1 technical data

Stroke volume, dm³ - Single acting for 90° stroke

Cyl. Diam	63	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000	800-2	900-2	1000-2	1100	1200	1300	1100-2	1200-2	1300-2	
Actuator	Stroke volume, dm ³																									
N1X	0.2	0.3	0.4	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1A	-	-	0.9	1.4	2.0	3.6	5.7	8.2	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1B	-	-	-	-	-	-	7.4	10.6	14.4	18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1C	-	-	-	-	-	-	-	13	17	23	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1D	-	-	-	-	-	-	-	-	21	27	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1E	-	-	-	-	-	-	-	-	-	-	51	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1H	-	-	-	-	-	-	-	-	-	-	-	-	152	199	-	-	-	-	-	-	-	-	-	-	-	-
N1J	-	-	-	-	-	-	-	-	-	-	-	-	200	261	331	408	-	-	-	-	-	-	-	-	-	-
N1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	526	-	-	-	-	637	758	-	-	-	-

Stroke volume, dm³ - Double acting for 90° stroke

Cyl. Diam	63	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000	800-2	900-2	1000-2	1100	1200	1300	1100-2	1200-2	1300-2	
Actuator	Stroke volume, dm ³																									
N1X	0.3	0.6	0.9	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1A	-	-	1.7	2.7	4.0	7.1	11.2	16.2	22.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1B	-	-	-	-	-	-	14.3	20.7	28.4	37.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1C	-	-	-	-	-	-	-	25	34	45	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1D	-	-	-	-	-	-	-	-	41	53	84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1E	-	-	-	-	-	-	-	-	-	-	101	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1H	-	-	-	-	-	-	-	-	-	-	-	-	302	395	-	-	-	-	-	-	-	-	-	-	-	-
N1J	-	-	-	-	-	-	-	-	-	-	-	-	396	518	657	811	-	-	-	-	-	-	-	-	-	-
N1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1044	-	-	-	-	1265	1505	-	-	-	-

Note: Actuator output torques - consult factory.

Maximum operating pressure

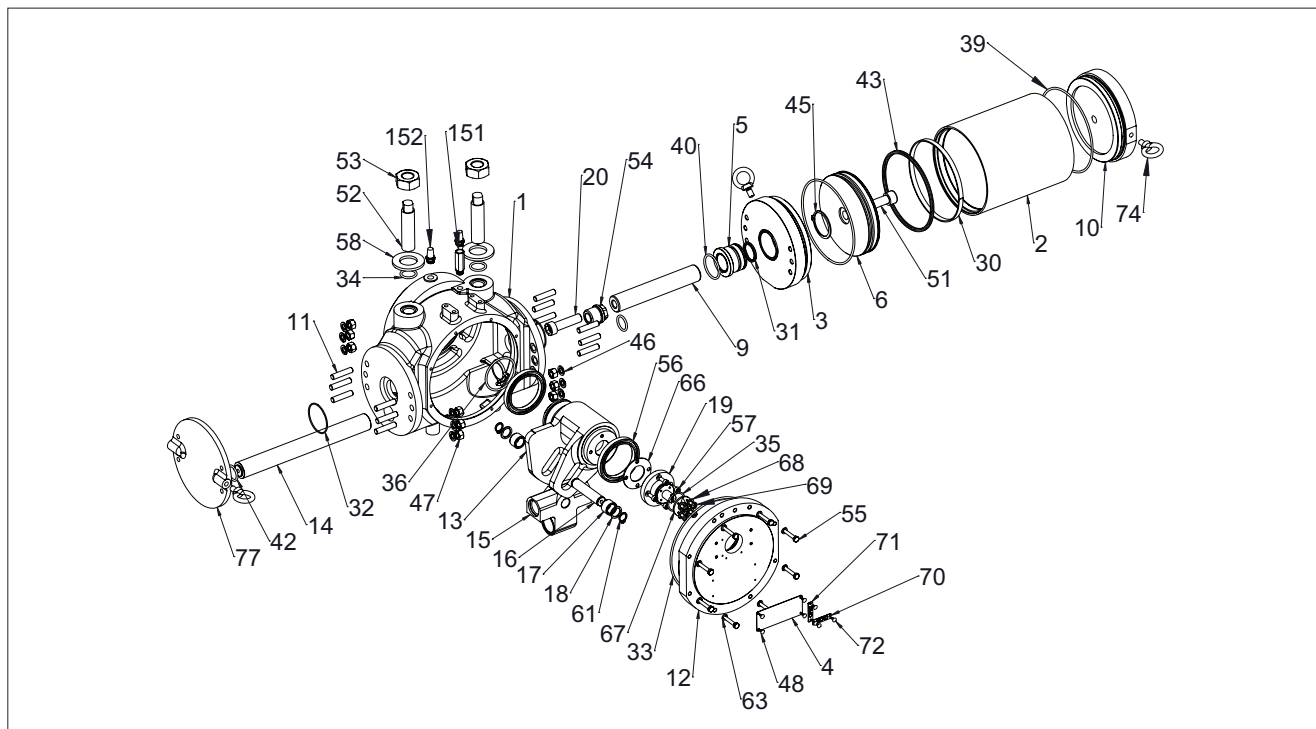
Cyl. Diam	63	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000	800-2	900-2	1000-2	1100	1200	1300	1100-2	1200-2	1300-2	
Actuator	maximum operating pressure, barg																									
N1X	8.0	8.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1A	-	-	8.0	8.0	8.0	8.0	8.0	6.5	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1B	-	-	-	-	-	-	8.0	8.0	6.0	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1C	-	-	-	-	-	-	-	8.0	8.0	7.0	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1D	-	-	-	-	-	-	-	-	8.0	8.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1E	-	-	-	-	-	-	-	-	-	-	6.0	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1H	-	-	-	-	-	-	-	-	-	-	-	-	5.5	5.5	-	-	-	-	-	-	-	-	-	-	-	-
N1J	-	-	-	-	-	-	-	-	-	-	-	-	5.5	5.5	5.5	5.5	-	-	-	-	-	-	-	-	-	-
N1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	-	-	5.5	5.5	-	-	-	-

Note: Actuator output torques - consult factory.

Exploded views and parts list

Double acting actuators N1_D00

Cylinder sizes from 63 to 150

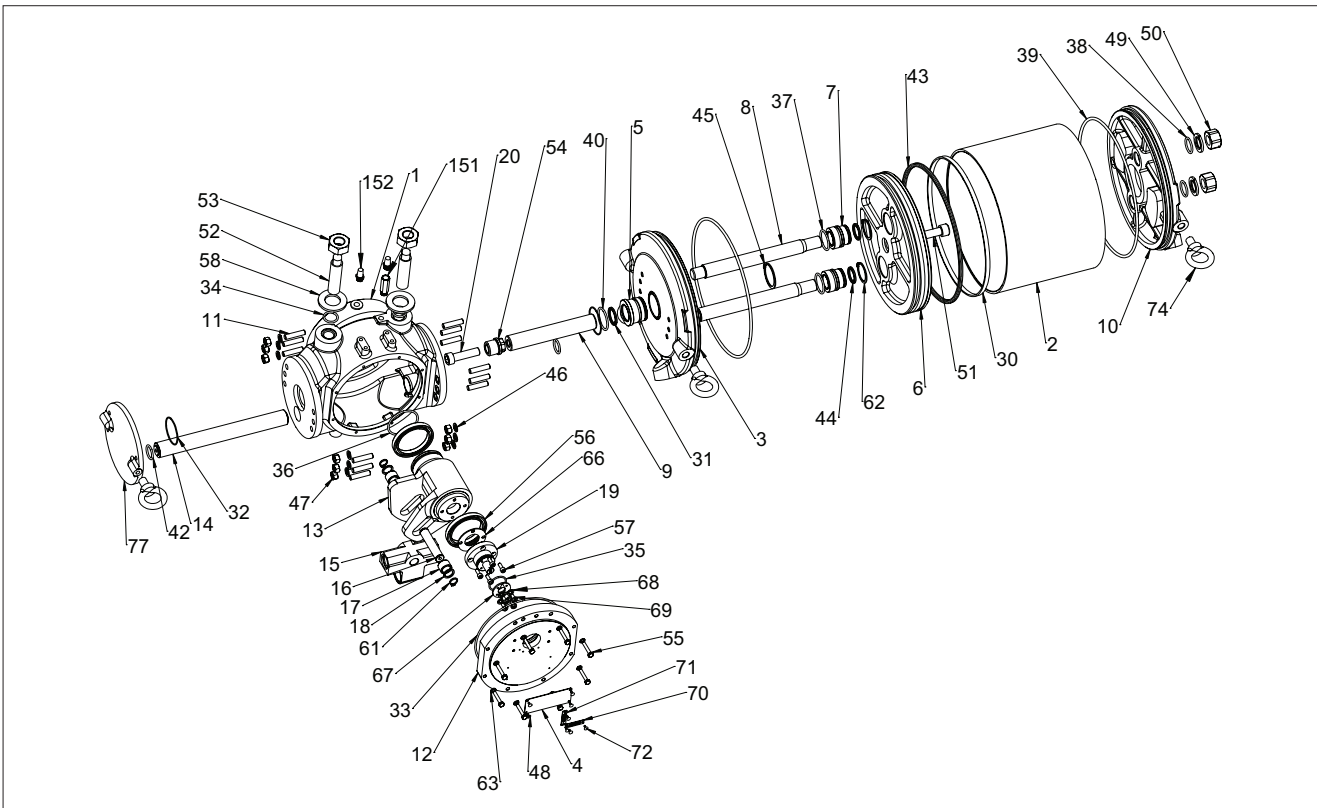


ITEM NO.	DISCRIPTION	QTY.	MATERIAL
1	CENTRAL BLOCK	1	DUCTILE IRON
2	CYLINDER	1	CARBON STEEL / CHROME PLATED
3	CYLINDER FRONT COVER	1	CARBON STEEL / DUCTILE IRON
4	NAME PLATE	1	STAINLESS STEEL
5#	BEARING BUSH	1	CARBONSTEEL + PHOSPHOR BRONZE
6	PISTON	1	CARBON STEEL / DUCTILE IRON
9	PISTON ROD	1	STAINLESS STEEL
10	CYLINDER REAR COVER	1	CARBON STEEL / DUCTILE IRON
11	STUD BOLT	12	ALLOY STEEL
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	ALLOY STEEL
18	WASHER	2	STAINLESS STEEL
19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT PNEUMATIC SIDE	1	ALLOY STEEL
30#	PISTON STRIP	1	DELTRIN / PTFE
31*	ROD SEAL	1	NBR
32*	O-RING	2	NBR
33*	O-RING	1	NBR
34*	O-RING	2	NBR
35*	O-RING	1	NBR
36*	O-RING	1	NBR
39*	O-RING	2	NBR
40*	O-RING	1	NBR

ITEM NO.	DISCRIPTION	QTY.	MATERIAL
42*	O-RING	2	NBR
43*	QUAD SEAL	1	NBR
45	EXTERNAL CIRCLIP	1	DIN 471
46	SPRING WASHER	12	DIN 128
47	HEX. NUT	12	DIN 934
48	RIVET	4	-
51	HEX. SOC. HEAD CAP SCREW	1	DIN 912
52	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
53	HEX. NUT	2	DIN 934
54	CONNECTING NUT	1	ALLOY STEEL
55	HEX. SOC. HEAD CAP SCREW	8	DIN 912
56#	RADIAL BALL BEARING	2	-
57	HEX. SOC. HEAD CAP SCREW	4	DIN 912
58	WASHER	2	CARBON STEEL
61	EXTERNAL CIRCLIP	2	DIN 471
63	SPRING WASHER	8	DIN 128
66*	GASKET FOR COVER	1	NBR
67	POSITION INDICATOR	1	ALUMINIUM ALLOY
68	SPRING WASHER	4	DIN 128
69	SLOTTED HEAD CAP SCREW	4	IS 6101
70	CLOSE POSITION INDICATOR	1	STAINLESS SHEEL
71	OPEN POSITION INDICATOR	1	STAINLESS STEEL
72	RIVET	4	-
74	EYEBOLT	3	STD
77	REAR CAP	1	DUCTILE IRON
151	CHECK VALVE	1	STD
152	SILENCER	2	BRASS

1) * Marked components are the parts of the seal kit
2) # Marked components are the parts of the repair kit

Cylinder sizes from 200 to 1000



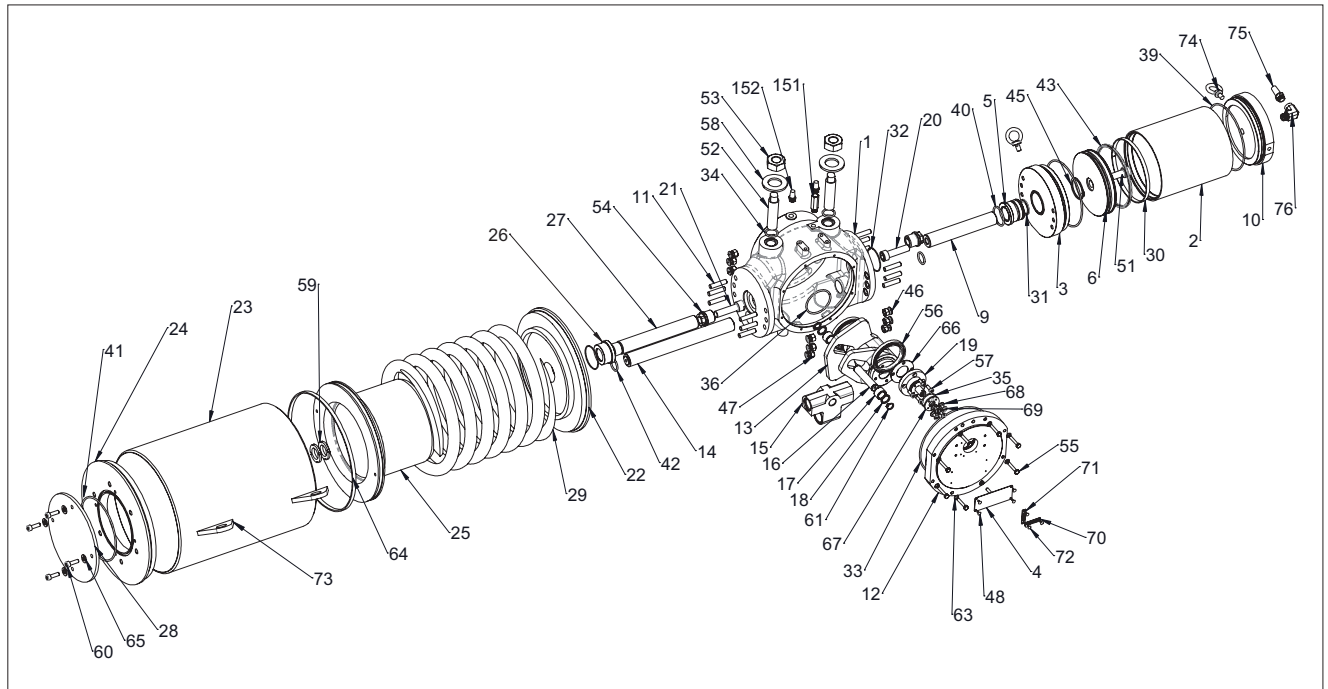
ITEM NO.	DISCRIPTION	QTY.	MATERIAL
1	CENTRAL BLOCK	1	DUCTILE IRON
2	CYLINDER	1	CARBON STEEL / CHROME PLATED
3	CYLINDER FRONT COVER	1	CARBON STEEL / DUCTILE IRON
4	NAME PLATE	1	STAINLESS STEEL
5#	BEARING BUSH	1	CARBONSTEEL + PHOSPHOR BRONZE
6	PISTON	1	CARBON STEEL / DUCTILE IRON
7#	GUIDE BUSH	2	CARBONSTEEL + PHOSPHOR BRONZE
8	TIE ROD	2	STAINLESS STEEL
9	PISTON ROD	1	STAINLESS STEEL
10	CYLINDER REAR COVER	1	CARBON STEEL / DUCTILE IRON
11	STUD BOLT	12	ALLOY STEEL
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	ALLOY STEEL
18	WASHER	2	STAINLESS STEEL
19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT PNEUMATIC SIDE	1	ALLOY STEEL
30#	PISTON STRIP	1	DELRIN / PTFE
31*	ROD SEAL	1	NBR
32*	O-RING	2	NBR
33*	O-RING	1	NBR
34*	O-RING	2	NBR
35*	O-RING	1	NBR
36*	O-RING	1	NBR
37*	O-RING	2	NBR
38*	O-RING	2	NBR

ITEM NO.	DISCRIPTION	QTY.	MATERIAL
39*	O-RING	2	NBR
40*	O-RING	1	NBR
42*	O-RING	2	NBR
43*	QUAD SEAL	1	NBR
44*	QUAD SEAL	2	NBR
45	EXTERNAL CIRCLIP	1	DIN 471
46	SPRING WASHER	12	DIN 128
47	HEX. NUT	12	DIN 934
48	RIVET	4	-
49	SPRING WASHER	2	DIN 934
50	HEX. NUT	2	DIN 934
51	HEX. SOC. HEAD CAP SCREW	1	DIN 912
52	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
53	HEX. NUT	2	DIN 934
54	CONNECTING NUT	1	ALLOY STEEL
55	HEX. HEAD SCREW	8	DIN 912
56#	RADIAL BALL BEARING	2	-
57	HEX. SOC. HEAD CAP SCREW	4	DIN 912
58	WASHER	2	CARBON STEEL
61	EXTERNAL CIRCLIP	2	DIN 471
62	EXTERNAL CIRCLIP	2	DIN 471
63	SPRING WASHER	8	DIN 128
66*	GASKET FOR COVER	1	NBR
67	POSITION INDICATOR	1	ALUMINIUM ALLOY
68	SPRING WASHER	4	DIN 128
69	SLOTTED HEAD CAP SCREW	4	IS 6101
70	CLOSE POSITION INDICATOR	1	STAINLESS STEEL
71	OPEN POSITION INDICATOR	1	STAINLESS STEEL
72	RIVET	4	-
74	EYEBOLT	3	STD
77	REAR CAP	1	DUCTILE IRON
151	CHECK VALVE	1	STD
152	SILENCER	2	BRASS

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Single acting actuators N1_E_C and N1_E_A

Cylinder sizes from 63 to 150

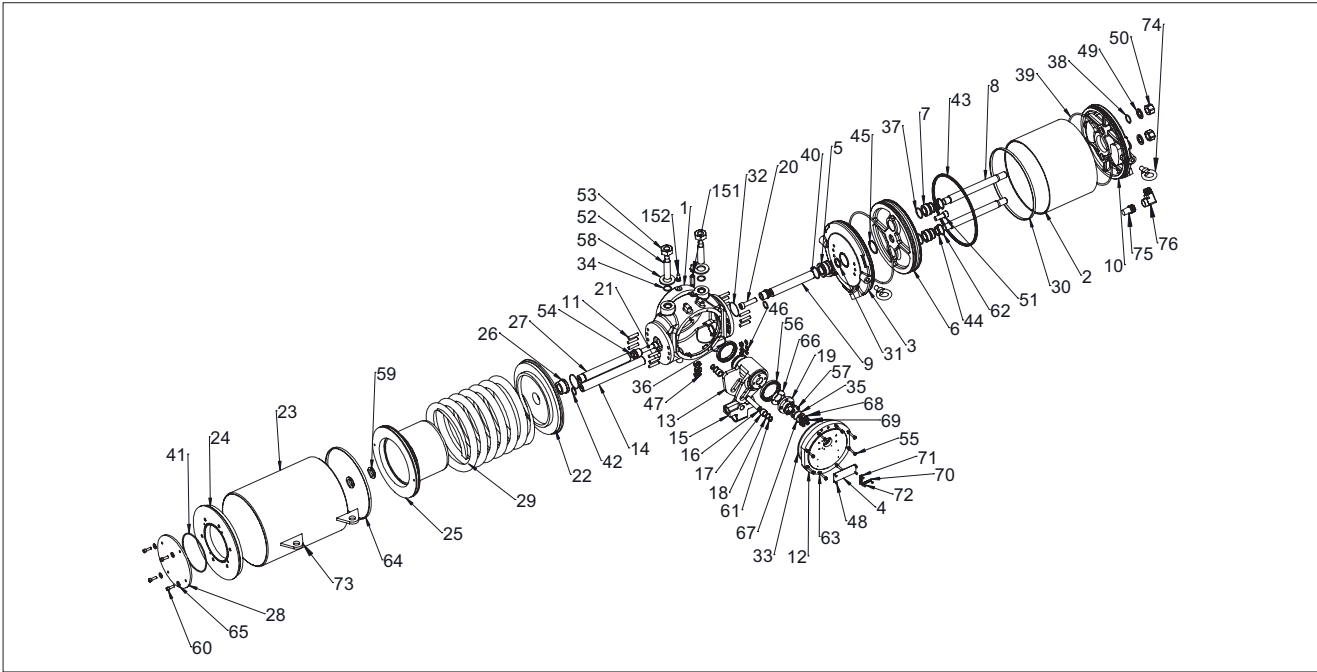


ITEM NO.	DESCRIPTION	QTY.	MATERIAL
1	CENTRAL BLOCK	1	DUCTILE IRON
2	CYLINDER	1	CARBON STEEL / CHROME PLATED
3	CYLINDER FRONT COVER	1	CARBON STEEL / DUCTILE IRON
4	NAME PLATE	1	STAINLESS STEEL
5#	BEARING BUSH	1	CARBONSTEEL + PHOSPHOR BRONZE
6	PISTON	1	CARBON STEEL / DUCTILE IRON
9	PISTON ROD	1	STAINLESS STEEL
10	CYLINDER REAR COVER	1	CARBON STEEL / DUCTILE IRON
11	STUD BOLT	12	ALLOY STEEL
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	ALLOY STEEL
18	WASHER	2	STAINLESS STEEL
19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT PNEUMATIC SIDE	1	ALLOY STEEL
21	CONNECTING BOLT SPRING SIDE	1	ALLOY STEEL
22	SPRING COVER FRONT END	1	CARBON STEEL
23	E- TUBE	1	CARBON STEEL
24	SPRING COVER REAR END	1	CARBON STEEL
25	SPRING RETAINER	1	DUCTILE IRON
26#	BEARING BUSH	1	CARBONSTEEL+PHOSPHOR BRONZE
27	CONNECTING ROD	1	STAINLESS STEEL
28	E-COVER REAR CAP	1	CARBON STEEL
29	SPRING	1	ALLOY STEEL / SPRING STEEL
30#	PISTON STRIP	1	DELRIN / PTFE
31*	ROD SEAL	1	NBR
32*	O-RING	2	NBR
33*	O-RING	1	NBR
34*	O-RING	2	NBR
35*	O-RING	1	NBR

ITEM NO.	DESCRIPTION	QTY.	MATERIAL
36*	O-RING	1	NBR
39*	O-RING	2	NBR
40*	O-RING	1	NBR
41*	O-RING	1	NBR
42*	O-RING	2	NBR
43*	QUAD SEAL	1	NBR
45	EXTERNAL CIRCLIP	1	DIN 471
46	SPRING WASHER	12	DIN 128
47	HEX. NUT	12	DIN 934
48	RIVET	4	-
51	HEX. SOC. HEAD CAP SCREW	1	DIN 912
52	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
53	HEX. NUT	2	DIN 934
54	CONNECTING NUT	2	ALLOY STEEL
55	HEX. HEAD SCREW	8	DIN 912
56#	RADIAL BALL BEARING	2	-
57	HEX. SOC. HEAD CAP SCREW	4	DIN 912
58	WASHER	2	CARBON STEEL
59	SLOTTED ROUND NUT	2	-
60	HEX. SOC. HEAD CAP SCREW	4	DIN 912
61	EXTERNAL CIRCLIP	2	DIN 471
63	SPRING WASHER	8	DIN 128
64	RETAINER GUIDE STRIP	1	PTFE
65	SPRING WASHER	4	DIN 128
66*	GASKET FOR COVER	1	NBR
67	POSITION INDICATOR	1	ALUMINIUM ALLOY
68	SPRING WASHER	4	DIN 128
69	SLOTTED HEAD CAP SCREW	4	IS 6101
70	CLOSE POSITION INDICATOR	1	STAINLESS STEEL
71	OPEN POSITION INDICATOR	1	STAINLESS STEEL
72	RIVET	4	-
73	LIFTING LUG	2	MILD STEEL
74	EYEBOLT	2	STD
75	SILENCER	1	BRASS
76	ELBOW FITTING	1	STAINLESS STEEL
151	CHECK VALVE	1	STD
152	SILENCER	2	BRASS

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Cylinder sizes from 200 to 1000



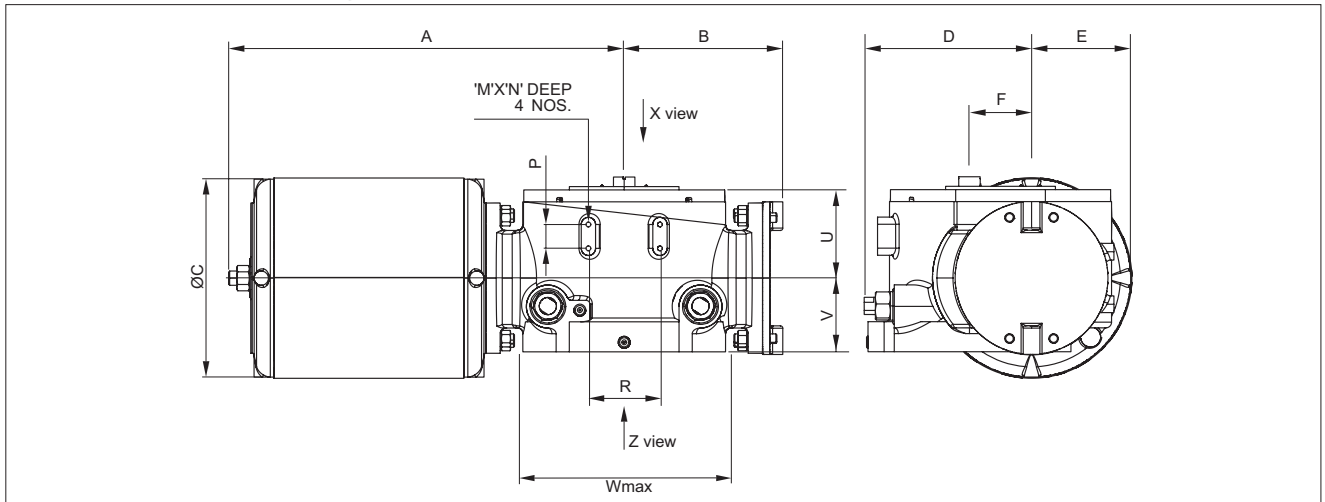
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7#	GUIDE BUSHING	2	CARBONSTEEL + PHOSPHOR BRONZE
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10	CYLINDER REAR COVER	1	CARBON STEEL / DUCTILE IRON
11	STUD BOLT	12	ALLOY STEEL
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	ALLOY STEEL
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19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT PNEUMATIC SIDE	1	ALLOY STEEL
21	CONNECTING BOLT SPRING SIDE	1	ALLOY STEEL
22	SPRING COVER FRONT END	1	CARBON STEEL
23	E- TUBE	1	CARBON STEEL
24	SPRING COVER REAR END	1	CARBON STEEL
25	SPRING RETAINER	1	DUCTILE IRON
26#	BEARING BUSH	1	CARBONSTEEL + PHOSPHOR BRONZE
27	CONNECTING ROD	1	STAINLESS STEEL
28	E-COVER REAR CAP	1	CARBON STEEL
29	SPRING	1	ALLOY STEEL / SPRING STEEL
30#	PISTON STRIP	1	DELFIN / PTFE
31*	ROD SEAL	1	NBR
32*	O-RING	2	NBR
33*	O-RING	1	NBR
34*	O-RING	2	NBR
35*	O-RING	1	NBR

ITEM NO.	DESCRIPTION	QTY.	MATERIAL
36*	O-RING	1	NBR
37*	O-RING	2	NBR
38*	O-RING	2	NBR
39*	O-RING	2	NBR
40*	O-RING	1	NBR
41*	O-RING	1	NBR
42*	O-RING	2	NBR
43*	QUAD SEAL	1	NBR
44*	QUAD SEAL	2	NBR
45	EXTERNAL CIRCLIP	1	DIN 471
46	SPRING WASHER	12	DIN 128
47	HEX. NUT	12	DIN 934
48	RIVET	4	-
49	SPRING WASHER	2	DIN 934
50	HEX NUT	2	DIN 934
51	HEX. SOC. HEAD CAP SCREW	1	DIN 912
52	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
53	HEX. NUT	2	DIN 934
54	CONNECTING NUT	2	ALLOY STEEL
55	HEX. HEAD SCREW	8	DIN 912
56#	RADIAL BALL BEARING	2	-
57	HEX. SOC. HEAD CAP SCREW	4	DIN 912
58	WASHER	2	CARBON STEEL
59	SLOTTED ROUND NUT	2	-
60	HEX. SOC. HEAD CAP SCREW	4	DIN 912
61	EXTERNAL CIRCLIP	2	DIN 471
62	EXTERNAL CIRCLIP	2	DIN 471
63	SPRING WASHER	8	DIN 128
64	RETAINER GUIDE STRIP	1	PTFE
65	SPRING WASHER	4	DIN 128
66*	GASKET FOR COVER	1	NBR
67	POSITION INDICATOR	1	ALUMINIUM ALLOY
68	SPRING WASHER	4	DIN 128
69	SLOTTED HEAD CAP SCREW	4	IS 6101
70	CLOSE POSITION INDICATOR	1	STAINLESS STEEL
71	OPEN POSITION INDICATOR	1	STAINLESS STEEL
72	RIVET	4	-
73	LIFTING LUG	2	MILD STEEL
74	EYEBOLT	2	STD
75	SILENCER	1	BRASS
76	ELBOW FITTING	1	STAINLESS STEEL
151	CHECK VALVE	1	STD
152	SILENCER	2	BRASS

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Dimensions and weights

Dimensions double acting

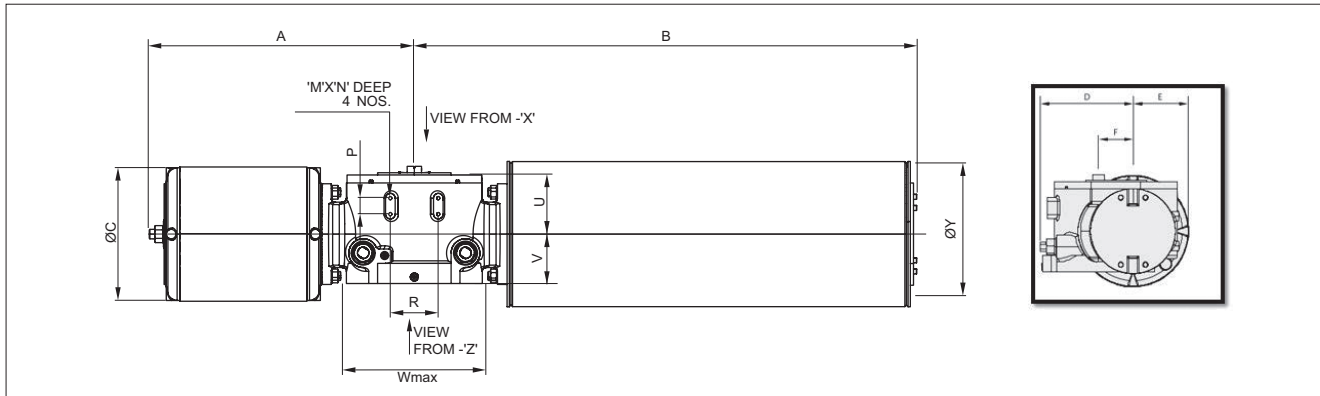


DIMENSION- DOUBLE ACTING ACTUTOR														
MODEL	A	B	Øc	D	E	F	M	N	P	R	W max	U	V	S
N1X0063	239	365	84	116	73	28	M6	9	20	30	125	67	58	1/4" NPT
N1X0080	237	365	100	116	73	28	M6	9	20	30	125	67	58	1/4" NPT
N1X0100	257	365	122	116	73	28	M6	9	20	30	125	67	58	1/4" NPT
N1X0125	285	365	150	116	73	28	M6	9	20	30	125	67	58	1/4" NPT
N1A0100	385	171	122	194	88	58	M8	12	25	60	200	94	86	1/4" NPT
N1A0125	411	171	150	194	88	58	M8	12	25	60	200	94	86	1/4" NPT
N1A0150	395	171	175	194	88	58	M8	12	25	60	200	94	86	3/8" NPT
N1A0200	476	171	210	194	88	58	M8	12	25	60	200	94	86	1/2" NPT
N1A0250	413	171	260	194	130	58	M8	12	25	60	200	94	86	1/2" NPT
N1A0300	456	171	310	194	155	58	M8	12	25	60	200	94	86	3/4" NPT
N1A0350	459	171	360	194	180	58	M8	12	25	60	200	94	86	3/4" NPT
N1B0250	568	230	260	245	130	75	M10	15	25	80	210	102	105	1/2" NPT
N1B0300	548	230	308	245	155	75	M10	15	25	80	210	102	105	3/4" NPT
N1B0350	551	230	360	245	180	75	M10	15	25	80	210	102	105	3/4" NPT
N1B0400	596	230	416	245	208	75	M10	15	25	80	210	102	105	3/4" NPT
N1C0300	599	248	308	252	155	90	M10	15	50	90	294	130	112	3/4" NPT
N1C0350	583	248	360	252	180	90	M10	15	50	90	294	130	112	3/4" NPT
N1C0400	660	248	416	252	208	90	M10	15	50	90	294	130	112	3/4" NPT
N1C0500	675	248	522	252	257	90	M10	15	50	90	294	130	112	3/4" NPT
N1D0300	786	328	308	321	180	108	M12	15	50	150	350	138	121	3/4" NPT
N1D0350	789	328	366	321	180	108	M12	15	50	150	350	138	121	3/4" NPT
N1D0400	736	328	416	321	208	108	M12	15	50	150	350	138	121	3/4" NPT
N1D0500	739	328	522	321	257	108	M12	15	50	150	350	138	121	3/4" NPT
N1E0500	832	365	522	368	257	130	M12	15	50	150	425	199	155	3/4" NPT
N1E0600	849	365	624	368	312	130	M12	15	50	150	425	199	155	1" NPT
N1H0700	1228	566	724	549	404	198	M12	15	50	150	600	222	213	1" NPT
N1H0800	1253	566	824	549	458	198	M12	15	50	150	600	222	213	1" NPT
N1J0700	1498	676	724	677	404	260	M16	32	100	300	686	299	247	1" NPT
N1J0800	1517	676	824	677	458	260	M16	32	100	300	686	299	247	1" NPT
N1J0900	1570	676	926	677	558	260	M16	32	100	300	686	299	247	1 1/2" NPT
N1J1000	1529	676	1040	677	549	260	M16	32	100	300	686	299	247	1 1/2" NPT
N1M1000	1865	851	1040	884	520	335	M20	40	100	300	1164	300	270	1 1/2" NPT
N1M1100	1935	851	1150	884	575	335	M20	40	100	300	1164	300	270	2" NPT
N1M1200	1945	851	1250	884	625	335	M20	40	100	300	1164	300	270	2" NPT

Weights double acting

Cyl. Diam	63	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000	800-2	900-2	1000-2	1100	1200	1300	1100-2	1200-2	1300-2	
Actuator	weight, kg																									
N1X	18	20	22	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1A	-	-	52	57	63	65	68	90	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1B	-	-	-	-	-	-	106	122	135	245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1C	-	-	-	-	-	-	-	145	165	207	274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1D	-	-	-	-	-	-	-	-	245	276	342	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1E	-	-	-	-	-	-	-	-	-	-	450	541	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1H	-	-	-	-	-	-	-	-	-	-	-	-	1138	1345	-	-	-	-	-	-	-	-	-	-	-	-
N1J	-	-	-	-	-	-	-	-	-	-	-	-	1610	1800	2041	3300	-	-	-	-	-	-	-	-	-	-
N1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4500	-	-	-	-	5644	6273	-	-	-	-

Dimensions single acting



DIMENSION- SINGLE ACTING ACTUTOR																
MODEL	A	B	Øc	D	E	F	M	N	P	R	W max	U	V	ØY	S	
N1X0063-E1-E5	239	365	84	116	73	28	M6	9	20	30	125	67	58	170	1/4" NPT	
N1X0080-E1-E5	237	365	100	116	73	28	M6	9	20	30	125	67	58	170	1/4" NPT	
N1X0100-E1-E4	257	365	122	116	73	28	M6	9	20	30	125	67	58	170	1/4" NPT	
N1X0125-E1-E2	285	365	150	116	73	28	M6	9	20	30	125	67	58	170	1/4" NPT	
N1A0100-E7	385	573	122	194	88	58	M8	12	25	60	200	94	86	310	1/4" NPT	
N1A0100-E8-E11	385	498	122	194	88	58	M8	12	25	60	200	94	86	255	1/4" NPT	
N1A0125-E7	411	573	150	194	88	58	M8	12	25	60	200	94	86	310	1/4" NPT	
N1A0125-E8-E11	411	498	150	194	88	58	M8	12	25	60	200	94	86	255	1/4" NPT	
N1A0150-E5-E7	395	573	175	194	88	58	M8	12	25	60	200	94	86	310	3/8" NPT	
N1A0150-E8-E11	395	498	175	194	88	58	M8	12	25	60	200	94	86	255	3/8" NPT	
N1A0200-E2-E4	476	612	210	194	88	58	M8	12	25	60	200	94	86	360	1/2" NPT	
N1A0200-E5-E6	476	573	210	194	88	58	M8	12	25	60	200	94	86	310	1/2" NPT	
N1A0250-E1-E4	413	612	260	194	130	58	M8	12	25	60	200	94	86	360	1/2" NPT	
N1A0250-E5-E6	413	573	260	194	130	58	M8	12	25	60	200	94	86	310	1/2" NPT	
N1A0300-E1-E4	456	612	310	194	155	58	M8	12	25	60	200	94	86	360	3/4" NPT	
N1A0300-E5	456	573	310	194	155	58	M8	12	25	60	200	94	86	310	3/4" NPT	
N1A0350-E1-E4	459	612	360	194	180	58	M8	12	25	60	200	94	86	360	3/4" NPT	
N1B0250-E1-E6	568	955	260	245	130	75	M10	15	25	80	210	102	105	321	1/2" NPT	
N1B0300-E1-E6	548	955	308	245	155	75	M10	15	25	80	210	102	105	321	3/4" NPT	
N1B0350-E1-E6	551	955	360	245	180	75	M10	15	25	80	210	102	105	321	3/4" NPT	
N1B0400-E1-E6	596	955	416	245	208	75	M10	15	25	80	210	102	105	321	3/4" NPT	
N1C0300-E1-E4	599	1060	308	252	155	90	M10	15	50	90	294	130	112	379	3/4" NPT	
N1C0350-E1-E4	583	1060	360	252	180	90	M10	15	50	90	294	130	112	379	3/4" NPT	
N1C0400-E1-E4	660	1060	416	252	208	90	M10	15	50	90	294	130	112	379	3/4" NPT	
N1C0500-E1-E4	675	1060	522	252	257	90	M10	15	50	90	294	130	112	379	3/4" NPT	
N1D0300-E4	786	1287	308	321	180	108	M12	15	50	150	350	138	121	434	3/4" NPT	
N1D0350-E3-E4	789	1287	366	321	180	108	M12	15	50	150	350	138	121	434	3/4" NPT	
N1D0400-E1-E4	736	1287	416	321	208	108	M12	15	50	150	350	138	121	434	3/4" NPT	
N1D0500-E1-E4	739	1287	522	321	257	108	M12	15	50	150	350	138	121	434	3/4" NPT	
N1E0500-E3-E4	832	1573	522	368	257	130	M12	15	50	150	425	199	155	454	3/4" NPT	
N1E0600-E1-E4	849	1573	624	368	312	130	M12	15	50	150	425	199	155	454	1" NPT	

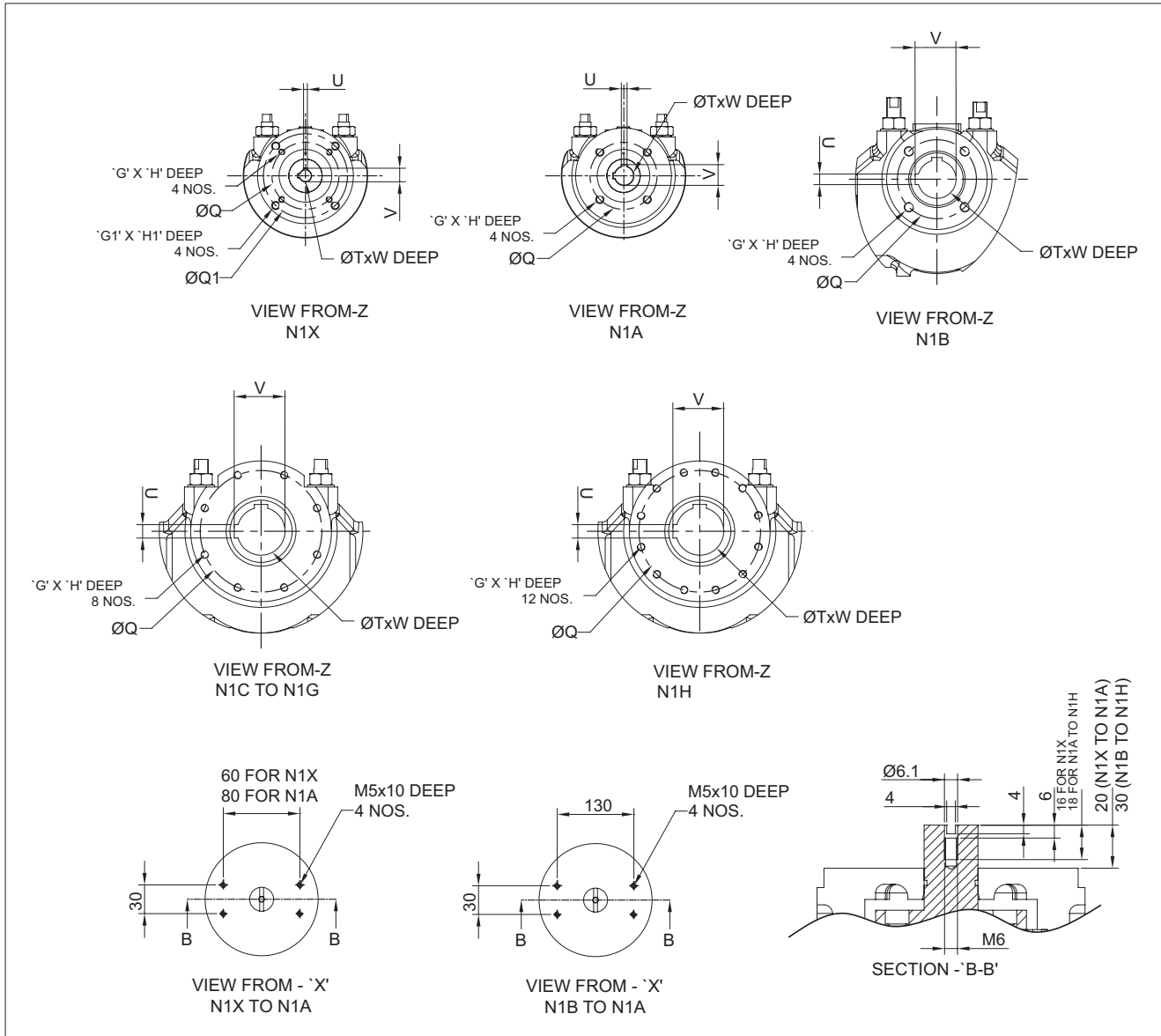
DIMENSION- SINGLE ACTING ACTUTOR															
MODEL	A	B	Øc	D	E	F	M	N	P	R	W max	U	V	ØY	S
N1H0700-E1	1228	2615	724	549	404	198	M12	15	50	150	600	222	213	684	1" NPT
N1H0700-E2	1228	2382	724	549	404	198	M12	15	50	150	600	222	213	628	1" NPT
N1H0700-E3	1228	1942	724	549	404	198	M12	15	50	150	600	222	213	605	1" NPT
N1H0800-E1	1253	2615	824	549	458	198	M12	15	50	150	600	222	213	684	1" NPT
N1H0800-E2	1253	2382	824	549	458	198	M12	15	50	150	600	222	213	628	1" NPT
N1H0800-E3	1253	1942	824	549	458	198	M12	15	50	150	600	222	213	605	1" NPT
N1J0800-E4	1517	2868	824	677	458	260	M16	32	100	300	686	299	247	782	1" NPT
N1J0900-E2-E4	1570	2868	926	677	558	260	M16	32	100	300	686	299	247	782	1 1/2" NPT
N1J1000-E2-E4	1529	2868	1040	677	549	260	M16	32	100	300	686	299	247	782	1 1/2" NPT
N1M1100E4	1935	3380	1150	884	620	335	M20	40	100	300	1164	300	270	1240	2" NPT
N1M1200 E3-E4	1945	3380	1250	884	625	335	M20	40	100	300	1164	300	270	1240	2" NPT

Weights single acting

Cyl. Diam	63	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000	800-2	900-2	1000-2	1100	1200	1300	1100-2	1200-2	1300-2	
Actuator	weight, kg																									
N1X	35	38	40	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1A	-	-	138	143	148	174	180	200	207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1B	-	-	-	-	-	-	271	286	298	348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1C	-	-	-	-	-	-	-	413	426	475	542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1D	-	-	-	-	-	-	-	-	622	652	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1E	-	-	-	-	-	-	-	-	-	-	961	1054	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N1H	-	-	-	-	-	-	-	-	-	-	-	-	3530	3730	-	-	-	-	-	-	-	-	-	-	-	-
N1J	-	-	-	-	-	-	-	-	-	-	-	-	-	5100	5580	6680	-	-	-	-	-	-	-	-	-	-
N1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14108	14716	-	-	-	-

Attachment dimensions

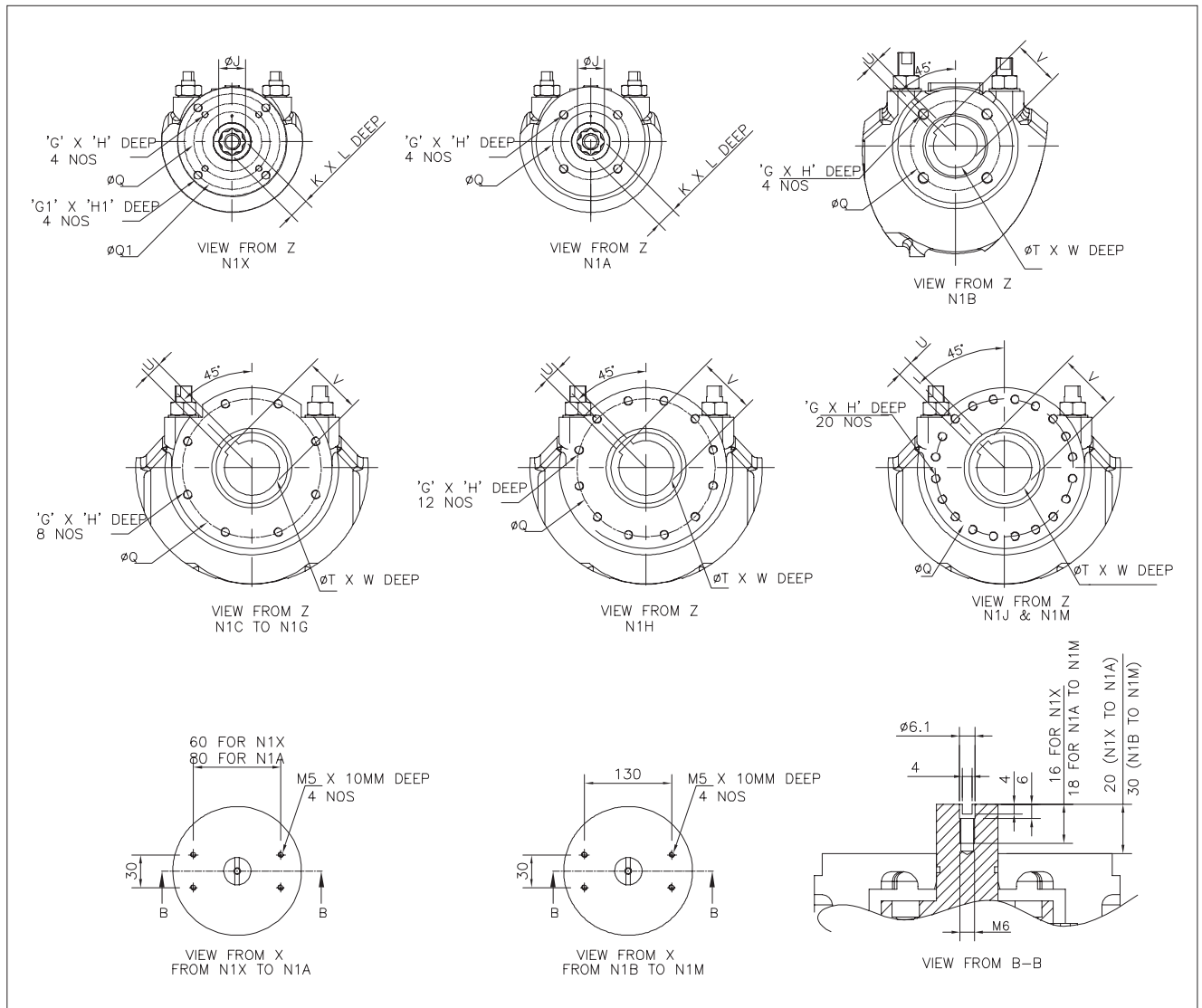
Mounting face dimensions with Neles bore



Actuator	Dimensions, mm										Mounting face
	G	G1	H	H1	Q	Q1	T	U	V	W	
N1X	M8	-	12	-	70	-	20	4.76	22.3	35	F07
	-	M10	-	15	-	102	20	4.76	22.3	35	F10
N1A	M16	-	24	-	140	-	40	9.53	44.4	68	F14
N1B	M20	-	30	-	165	-	70	19.05	78.3	173	F16
N1C	M16	-	24	-	254	-	95	22.23	105.0	202	F25
N1D	M20	-	30	-	298	-	105	25.40	116.3	217	F30
N1E	M30	-	45	-	356	-	135	31.75	149.0	309	F35
N1H	M36	-	54	-	483	-	200	50.80	222.1	385	F48

Note: More detailed dimensions with tolerances available in document F102307

Mounting face dimensions with iso bore

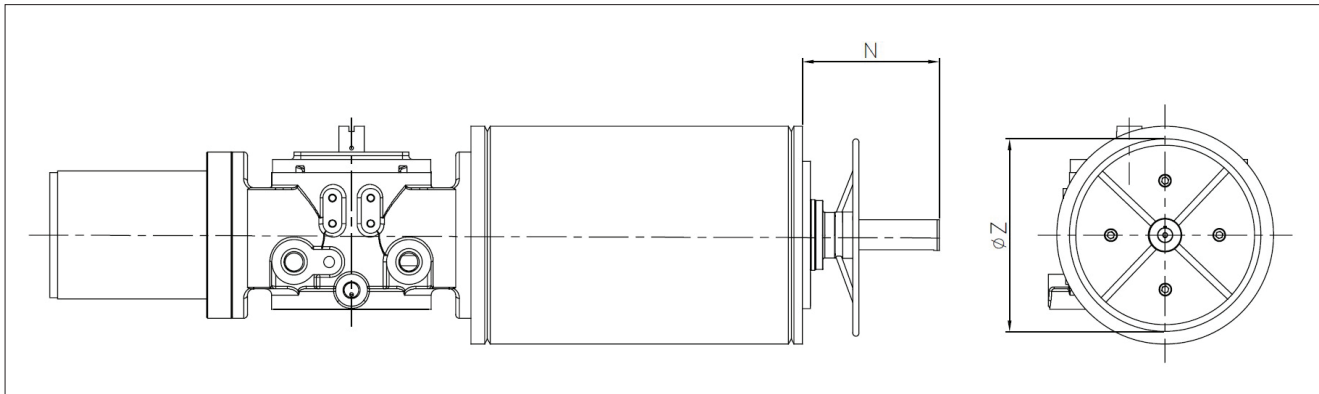


Actuator	Dimensions, mm												Mounting face	
	G	G1	H	H1	ØJ	K	L	Q	Q1	T	U	V		W
N1X	M8	-	12	-	30.5	22	25	70	-	-	-	-	-	F07
	-	M10	-	15	-	-	-	-	102	-	-	-	-	F10
N1A	M16	-	24	-	48.2	36	45	140	-	-	-	-	-	F14
N1B	M20	-	30	-	-	-	-	165	-	80	22	85.4	173	F16
N1C	M16	-	24	-	-	-	-	254	-	100	28	106.4	202	F25
N1D	M20	-	30	-	-	-	-	298	-	120	32	127.4	217	F30
N1E	M30	-	45	-	-	-	-	356	-	160	40	169.4	309	F35
N1H	M36	-	54	-	-	-	-	483	-	220	50	231.4	385	F48
N1J	M36	-	54	-	-	-	-	603	-	280	63	292.4	483	F60
N1M	M42	-	75	-	-	-	-	724	-	336	80	351.4	556	-

Note: More detailed dimensions with tolerances available in document F102307.

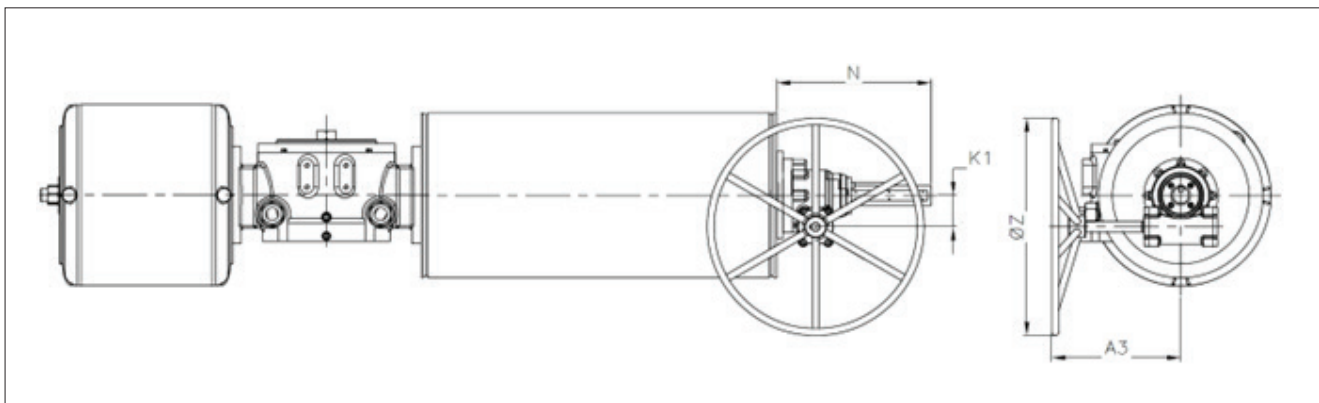
N1 Actuator Details with Manual Overrides

N1 Actuator with Straight Handwheel Dimension details:



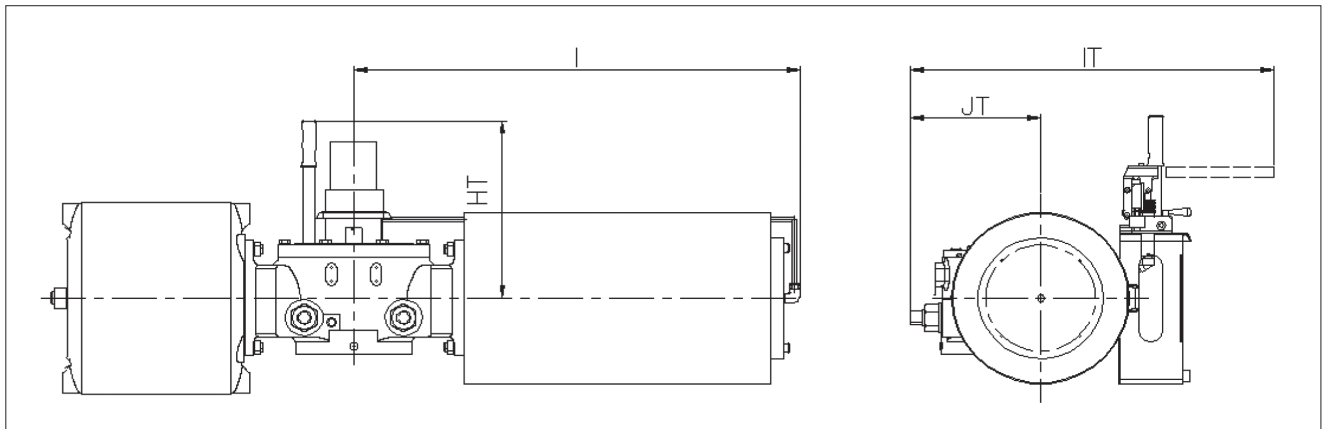
MODEL	N	Z
N1X0063 - 0125	142.5	300
N1A0100 - 0125	219	300

N1 Actuator with Side Handwheel Dimension details:



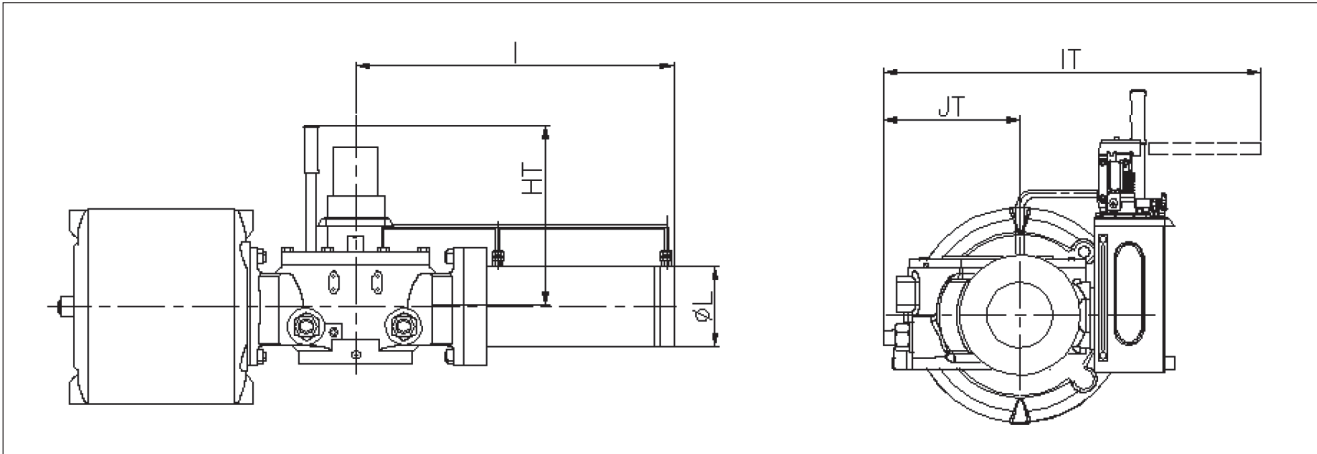
MODEL	N	Z	K1	A3
N1A0150 - 0250	299	290	51	222
N1A0300 - 0350	351.5	500	72	297.5
N1B0250	337	290	51	222
N1B0300 - 0400	389.5	500	72	297.5
N1C0300 - 0400	425	500	72	297.5
N1C0500	471	650	118.3	296.7

N1 Actuator with Spring Return Manual Override



MODEL	I	IT	JT	HT
N1C0300 - 0500	1110	891	252	574
N1D0350 - 0500	1337	975	321	559
N1E0500 - 0600	1623	993	368	525.5
N1H0700 - 0800-E1	2683	1301	549	530
N1H0700-0800-E2	2450	1301	549	530
N1H0700 - 0800-E3	2010	1301	549	530
N1J0800 - 01000	2948	1637	677	565
N1M1000 - 1200	3475	850	899	750

Actuator with Double Acting Manual Override:



MODEL	I	IT	JT	L	HT
N1C0300 - 0500	635	891	252	150	574
N1D0350-0500	818	975	321	150	559
N1E0500-0600	866	801	368	200	525,5
N1H0700-0800	1293	1299	549	200	530
N1J0800 - 1000	1631	1637	677	250	565
N1M1000-1200	2082	1637	899	300	565

N1-series type code

Heavy duty scotch yoke actuator

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
N1	B	0250	S	1	G	E03	C	N	/	* (NIL)

1.	Series
N1	Neles heavy duty actuator

4.	Link type
S	Symmetric

2.	Frame size
B	X
	A
	B
	C
	D
	E
	H
	J
M	

5.	Cylinder type
1	Single cylinder

6.	Temperature range
G	-20...+80 °C
H	-20...+125 °C

7.	Single / Double acting
E01...E11	Single acting
D00	Double acting

3.	Cylinder size	Available frame
0250	0063	X
	0080	X
	0100	X, A
	0125	X, A
	0150	A
	0200	A
	0250	A, B
	0300	A, B, C
	0350	A, B, C, D
	0400	B, C, D
	0500	C, D, E
	0600	E
	0700	H, J
	0800	H, J
	0900	H, J
	1000	J, M

8.	Spring action
C	Spring to close
A	Spring to open
D	Double acting

9.	Shaft bore-key type
N	Neles bore, female double key way
D	ISO bore, female keyway.

10.	Break
	Type code break to be left blank if no options specified

11.	Options
HW	Handwheel, manual override
HP	Hydraulic, manual override

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www.valmet.com/flowcontrol

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