

Neles™ high performance heavy duty gas over oil actuator (scotch yoke type), series N1-GOV/GOA

The N1-GOV/GOA series actuators are hydraulic/gas quarter turn cylinder actuators designed for valves located on gas pipelines in on-off heavy-duty service with high-pressure natural gas. Actuator design is modular which enables an ideal configuration of central block, hydraulic/gas modules, Instrumentation & limit switch modules. Ductile cast iron central block & fabricated carbon steel hydraulic module provides rugged actuator construction.

The valve remains in stay put condition if the air/oil supply is interrupted.

The mounting face dimensions of the N1-GOV/GOA series actuator comply with the ISO 5211 standard.

The N1-GOV is gas-over-oil operated double acting actuator. The linkage mechanism converts linear motion (provided by an oil supply and piston) to rotary motion. The yoke of the actuator rotates clockwise (close) when oil supply is in front port of hydraulic cylinder and counter clockwise (open) when oil supply is in rear port of hydraulic cylinder.

To provide increased safety and reliability, the process gas goes through hydraulic fluid stored in gas-over-oil tanks, creating hydraulic pressure and in turn power the actuator.

Gas-over-oil actuators use high-pressure gas supplied from the pipeline, suspended above a hydraulic fluid in oil tank to move the actuator. It uses natural gas (sour gas) or any other gas containing significant amounts of hydrogen sulphide (H₂S).

The gas supply from main pipeline given for hydraulic cylinder actuation through oil tank is being controlled by different accessories in instrumentation panel, like Air operated valve (AOV), pressure regulator, SOV's, pressure relief valve, etc.

The GOAN1 is direct gas operated double acting actuator. The linkage mechanism converts linear motion (provided by an oil supply and piston) to rotary motion. The yoke of the actuator rotates clockwise (close) when gas supply is in front port of Gas cylinder and counter clockwise (open) when gas supply is in rear port of Gas cylinder.

Gas operated actuators use high-pressure gas supplied from the pipeline, directly connected to gas cylinder to move the actuator. It can be used for sweet gas application only, where hydrogen sulphide (H₂S) presence is less than 4 PPM.

The gas supply from main pipeline given for gas cylinder actuation directly is being controlled by different accessories in instrumentation panel, like Air operated valve (AOV), pressure regulator, SOV's, pressure relief valve, etc ...



The two keyways in the yoke of Neles bore actuator are positioned at an angle of 90° to each other, making it possible to change the position of the actuator in relation to the valve. Refer figure 1 and 2 for basic construction of N1-GOV and N1-GOA.

Features and benefits

- Build over double acting N1 scotch yoke actuator for quarter turn valves
- Storage tank for manual override as well for extra stroke
- Sour gas and sweet gases can be used for Gas Over Oil application
- Gas reservoir for operation of actuator on absence of main line pressure
- Local and remote operation selection option
- Double acting version only available
- Wear and corrosion resistant design
- Safe and easy maintenance
- Wide torque range
- Modular design: Enables ease of maintenance and reduced inventory costs
- Rugged design
- Heavy duty high performance
- Proven product

Technical specifications

Suitable for valves located on gas pipelines in on-off and modulating heavy-duty service with medium as sweet or sour high-pressure gas, nitrogen, or instrument air.

Actuator

- Actuator connections in accordance with ISO5211 and VDI/VDE3845.
- Action: Double acting
- Protection class: IP66 and 67 (IEC 60529)
- Actuator enclosure: IP66 (IEC 60529)
- API-6DX, 2nd Edition
- Pressure containing parts as per ASME SECTION VIII

For N1-GOV/GOA assembly

- Torque output range: Air break at 600000 Nm.
- Temp range: -20 to +85 °C
- Design pressure: Upto 110 bar
- Working pressure: 10 to 100 bar
- External corrosion protection in compliance with ISO 12944-2 and EN 15714-3 class C3; Optionally available class C5M.
- Manufactured and tested as per ISO 9001
- Please consult Valmet for torque details and sizing.
- Minimum hydraulic fluid cleanliness shall be in accordance with SAE AS4059 Tab 2, class 6, or ISO 4406 15/13/10

Material of construction

- Cylinder: Carbon steel (hard chrome plating)
- Central frame and cylinder caps: Nodular cast iron
- Instrumentation enclosure: Carbon steel / Stainless steel

Actuator series N1-GOV/GOA technical data

Stroke volume (@ 90 deg. stroke length), dm³ - Double acting

Cyl.dia.	50	63	80	100	125	160	200	250	300	350	400	450	500
Actuator	Stroke volume, dm ³												
N1X	0.1	0.2	0.3	0.4	0.7	-	-	-	-	-	-	-	-
N1A	-	-	0.6	0.9	1.4	2.3	-	-	-	-	-	-	-
N1B	-	-	0.75	1.2	1.8	3.0	4.7	-	-	-	-	-	-
N1C	-	-	-	1.4	2.2	3.6	5.6	8.8	-	-	-	-	-
N1D	-	-	-	1.7	2.6	4.3	6.8	10.6	-	-	-	-	-
N1E	-	-	-	2	3.2	5.2	8.2	12.8	18.4	25	32.7	-	-
N1G	-	-	-	-	-	6.4	10	15.7	22.6	30.8	40.2	50.9	-
N1H	-	-	-	-	-	-	12.4	19.4	28	38.1	49.8	63	-
N1J	-	-	-	-	-	-	-	-	36.8	50	65.4	82.7	102.1

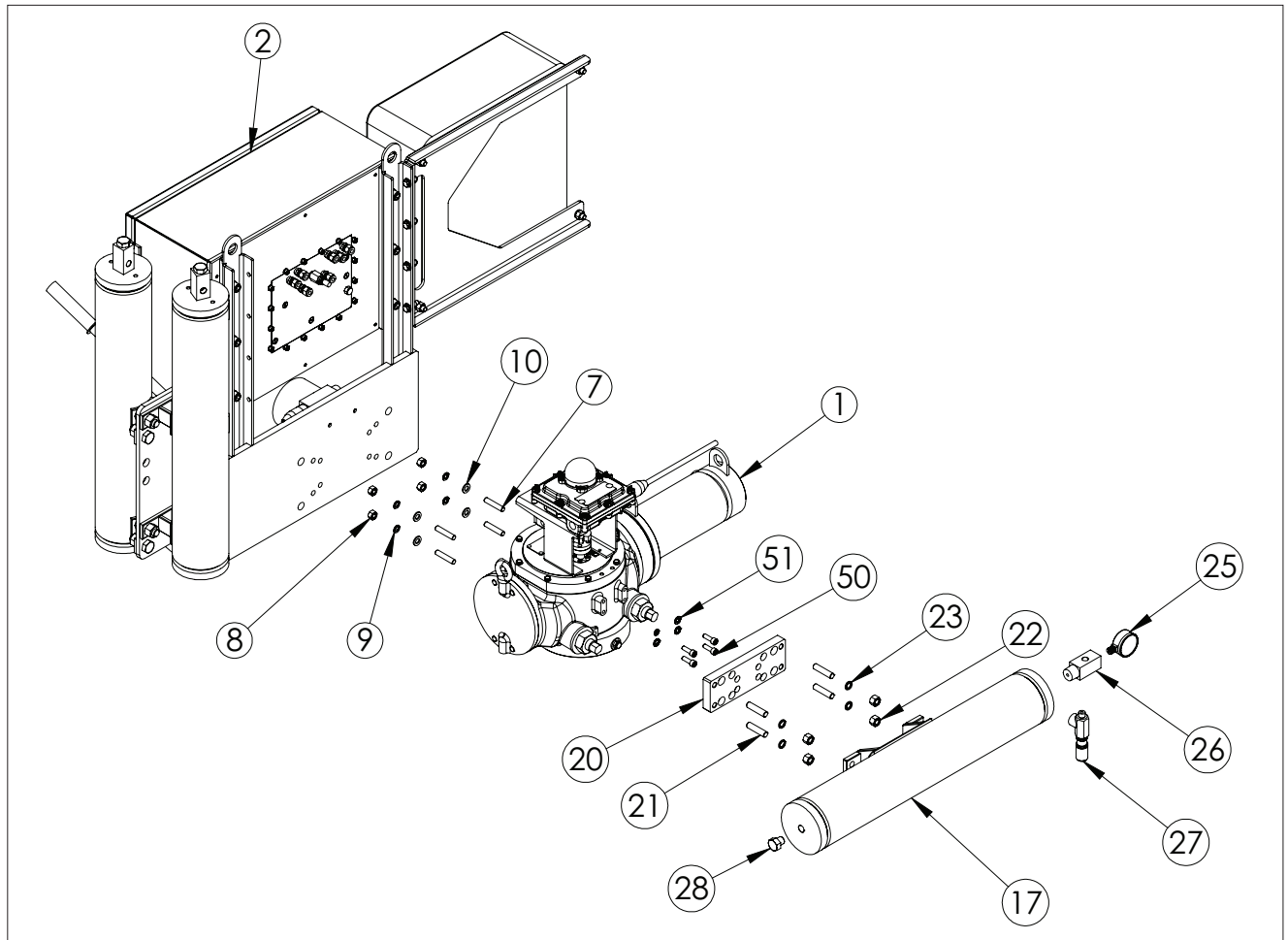
Maximum operating pressure – N1-GOV/GOA Double acting

Cyl. Dia.	50	63	80	100	125	160	200	250	300	350	400	450	500
Actuator	Maximum operating pressure, bar												
N1X	60	40	25	15	10	-	-	-	-	-	-	-	-
N1A	-	-	85	50	30	19	-	-	-	-	-	-	-
N1B	-	-	100	70	45	25	15	-	-	-	-	-	-
N1C	-	-	-	87	49	28	17	10.5	-	-	-	-	-
N1D	-	-	-	100	70	40	24	15	-	-	-	-	-
N1E	-	-	-	100	100	100	75	50	30	25	20	-	-
N1G	-	-	-	-	-	100	95	60	40	30	20	15	-
N1H	-	-	-	-	-	-	100	85	55	40	30	25	-
N1J	-	-	-	-	-	-	-	-	100	75	55	45	35

Weights N1-GOV/GOA actuator

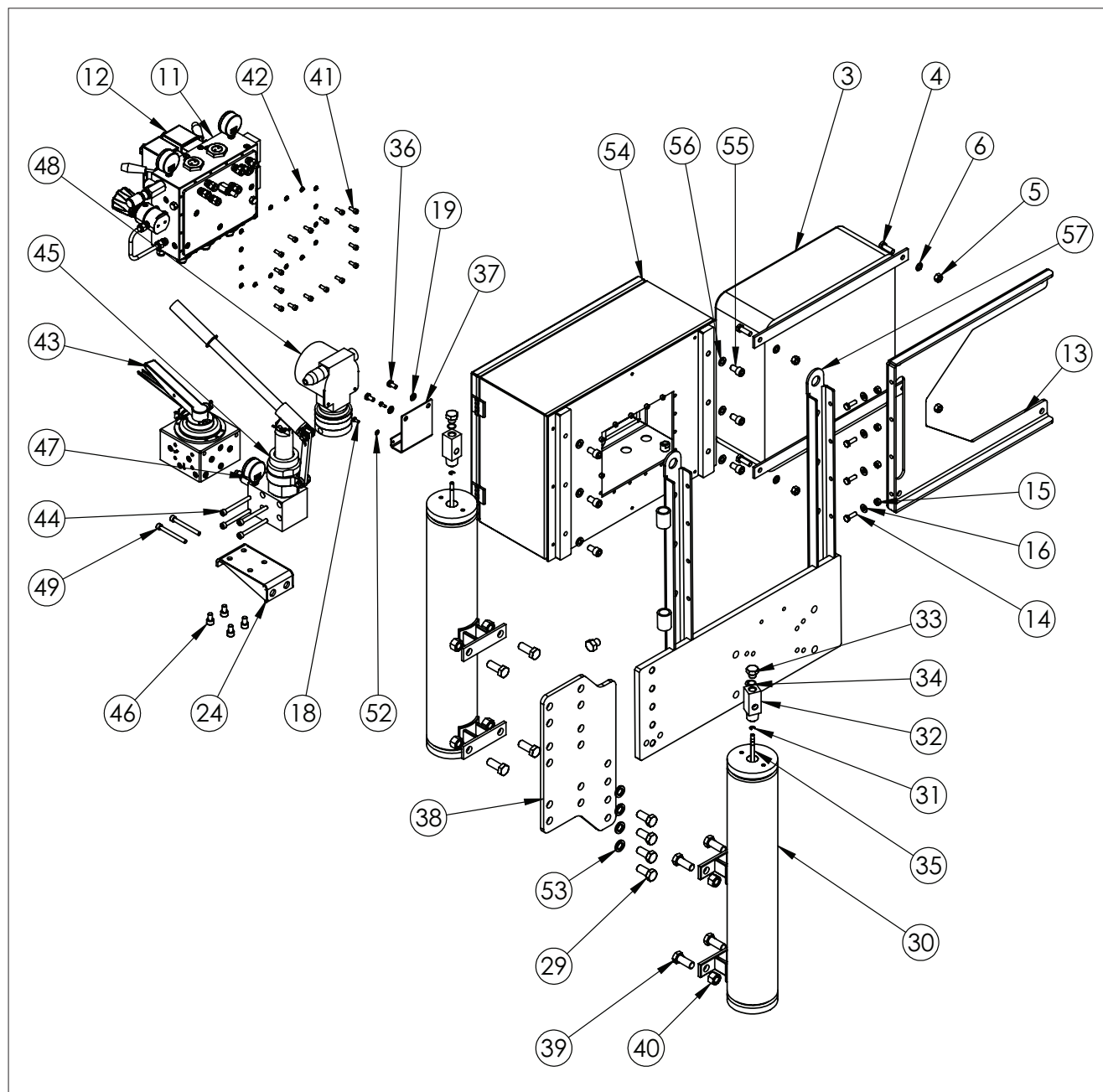
Cyl. dia.	50	63	80	100	125	160	200	250	300	350	400	450	500
Actuator	Weight, kg												
N1X	220	225	230	235	240	-	-	-	-	-	-	-	-
N1A	-	-	245	250	260	270	-	-	-	-	-	-	-
N1B	-	-	270	275	285	295	315	-	-	-	-	-	-
N1C	-	-	-	290	300	315	345	395	445	-	-	-	-
N1D	-	-	-	325	335	360	390	440	490	-	-	-	-
N1E	-	-	-	375	385	410	440	500	580	620	650	-	-
N1G	-	-	-	-	-	500	560	610	700	770	820	900	-
N1H	-	-	-	-	-	-	730	780	880	950	1000	1050	-
N1J	-	-	-	-	-	-	890	940	1030	1100	1155	1230	1280

Exploded view and parts list- GOVN1 with Limit Switch & Instrumentation Assembly



Part no.	Description	Qty.	Material
1	ACTUATOR	1	-
2	GOV ENCLOSURE PANEL ASSEMBLY	1	-
7	STUD BOLT	4	STEEL
8	HEXAGON NUT	4	STEEL
9	SPRING WASHER	4	STEEL
10	PLAIN WASHER	4	STEEL
17	AIR TANK	1	STEEL
20	AIR TANK MOUNTING PLATE	1	STEEL
21	STUD BOLT	4	CARBON STEEL
22	HEXAGON NUT	4	CARBON STEEL
23	SPRING WASHER	4	STEEL
25	PRESSURE GAUGE	1	-
26	HOLDER	1	STAINLESS STEEL
27	PRESSURE RELIEF VALVE	1	STAINLESS STEEL
28	PLUG	1	STAINLESS STEEL
50	SOCKET HEAD CAP SCREW	4	STEEL
51	SPRING WASHER	4	STEEL

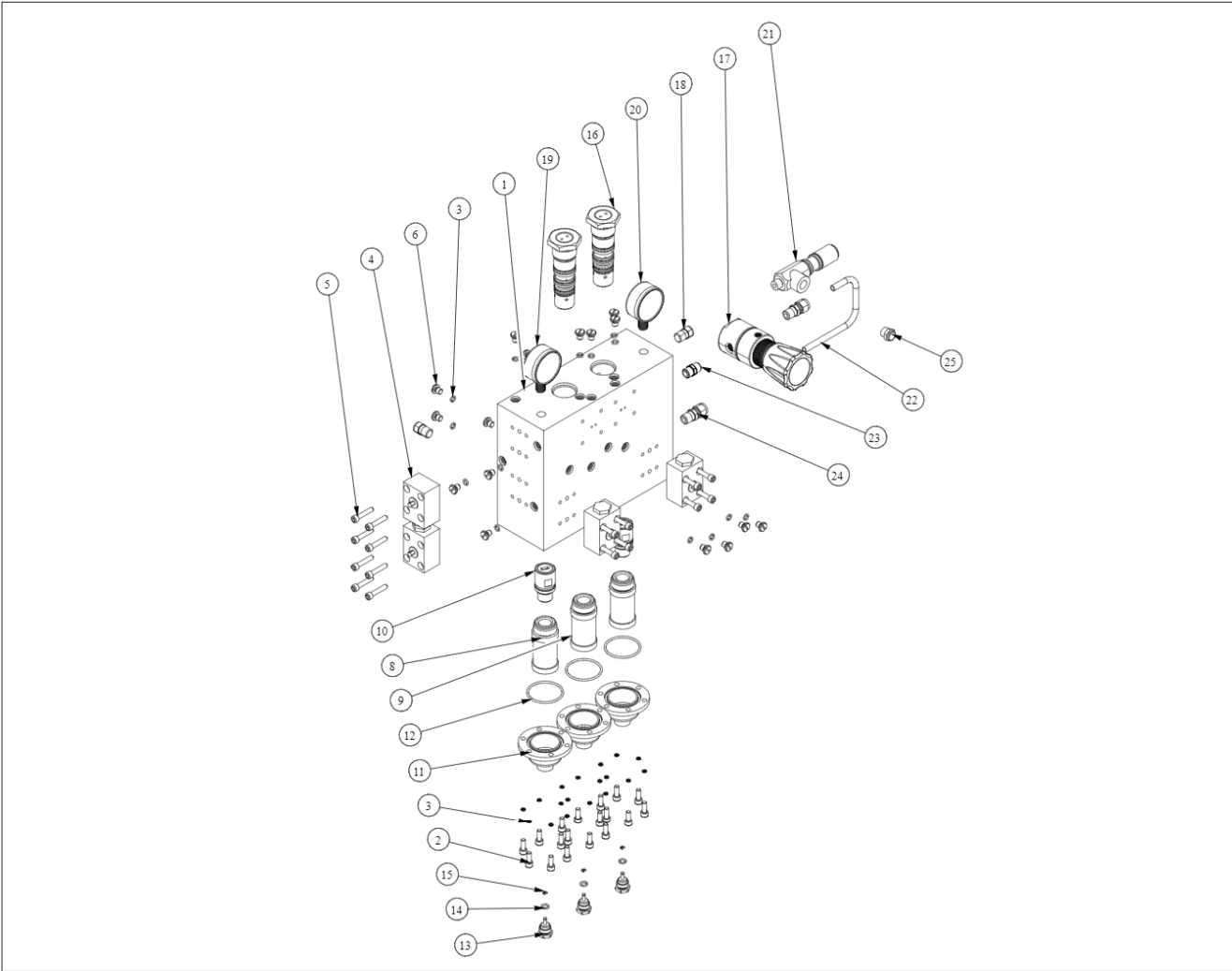
Exploded view and Part list- GOVN1 Controls



Parts list - N1-GOV

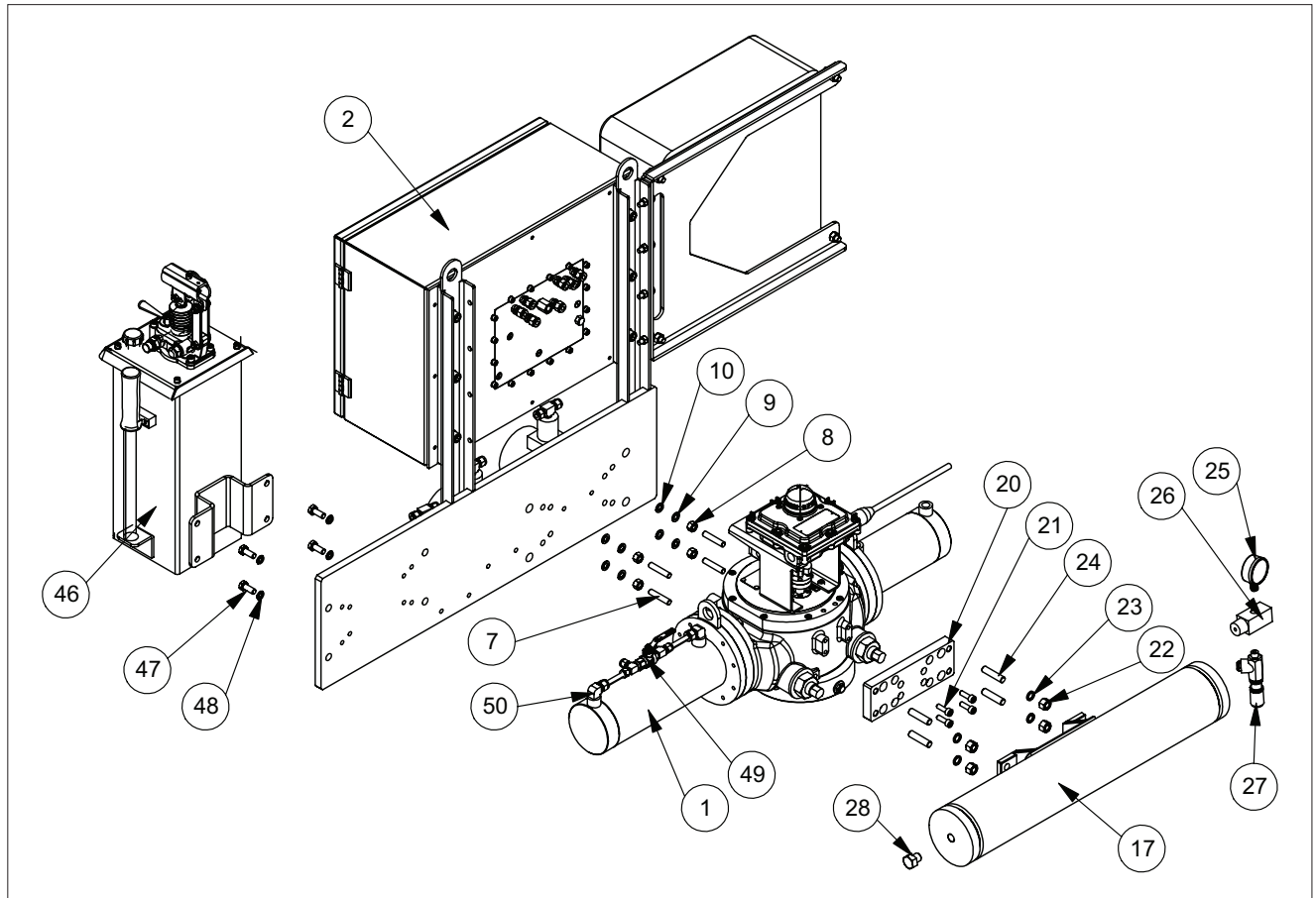
Part no.	Description	Qty.	Material
3	JUNCTION BOX	1	-
4	HEXAGON HEAD SCREW	4	STEEL
5	HEXAGON NUT	4	STEEL
6	SPRING WASHER	4	STEEL
11	MANIFOLD ASSEMBLY	1	STEEL
12	SOLENOID VALVE	2	-
13	JUNCTION BOX MTG BKT	1	STEEL
14	HEXAGON HEAD SCREW	4	STEEL
15	HEXAGON NUT	4	STEEL
16	WASHER	4	STEEL
18	SOCKET HEAD CAP SCREW	2	STEEL
19	SPRING WASHER	2	STEEL
24	HP MOUNTING BRACKET	1	STEEL
29	HEXAGON HEAD SCREW	4	STEEL
30	OIL TANK	2	-
31	RETAINING RING	2	STEEL
32	HOLDER	2	STAINLESS STEEL
33	PLUG	2	STAINLESS STEEL
34	O-RING	2	VITON
35	DIP STICK	2	-
36	HEXAGON HEAD SCREW	2	STEEL
37	PRESSURE SWITCH MTG BRACKET	1	STEEL
38	OIL TANK MOUNTING PLATE	1	STEEL
39	HEXAGON HEAD SCREW	8	STEEL
40	HEXAGON NUT	8	STEEL
41	SOCKET HEAD CAP SCREW	16	STAINLESS STEEL
42	SPRING WASHER	16	STAINLESS STEEL
43	SAK244V2	1	-
44	SOCKET HEAD CAP SCREW	4	STEEL
45	HAND PUMP UNIT	1	-
46	SOCKET HEAD CAP SCREW	4	STEEL
47	PRESSURE GAUGE	1	-
48	PRESSURE SWITCH	1	-
49	SOCKET HEAD CAP SCREW	2	STEEL
52	SPRING WASHER	2	STEEL
53	WASHER	4	STEEL
54	ENCLOSURE ASSEMBLY	1	STEEL
55	HEXAGON HEAD SCREW	6	STEEL
56	SPRING WASHER	6	STEEL
57	PANEL MOUNTING PLATE WITH BRACKET	1	STEEL

Exploded view and parts list - N1-GOV/GOA manifold



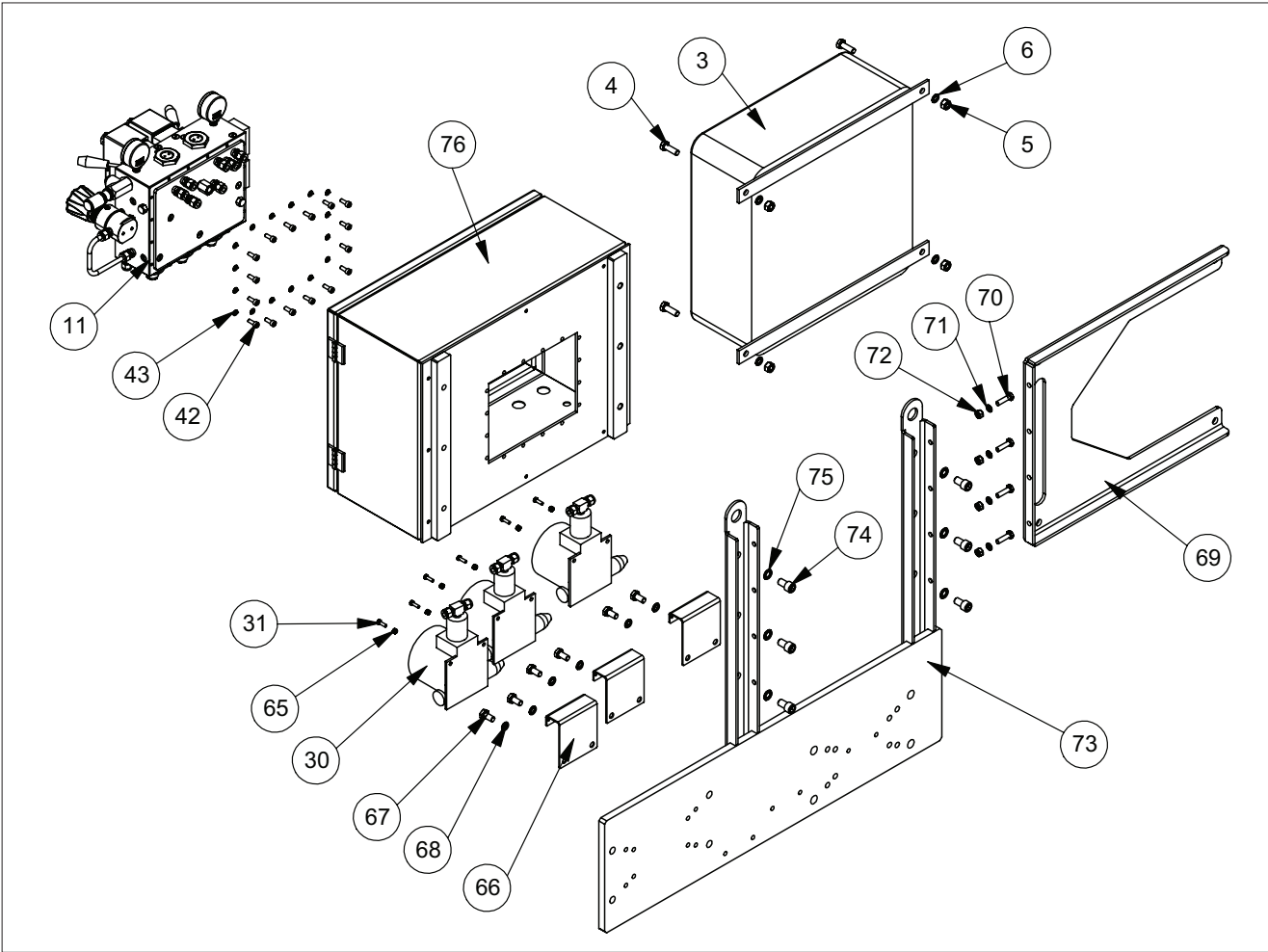
Part no.	Description	Qty.	Material
1	MANIFOLD GOV	1	ALUMINIUM ALLOY
2	SOCKET HEAD CAP SCREW	18	STAINLESS STEEL
3	SPRING WASHER	18	STAINLESS STEEL
4	BALL VALVE	4	STEEL
5	HEX. SOCKET HEAD SCREW.	16	ALLOY STEEL
6	MANIFOLD PLUG	22	STEEL
7	O-RING	22	NBR
8	FILTER-GAS MOSITURE SEPRATOR	2	STAINLESS STEEL
9	FILTER - GAS COALESCER	1	STAINLESS STEEL
10	NON-RETURN VALVE	2	STAINLESS STEEL
11	BOWL FILTER ELEMENT	3	STAINLESS STEEL
12	O-RING	3	NBR
13	LOCKING BOWL BOLT	3	STAINLESS STEEL
14	O-RING	3	NBR
15	RETAINNING RING	3	STEEL
16	AIR OPERATED VALVE	2	-
17	PRESSURE REGULATOR	1	-
18	PLUG	4	STAINLESS STEEL
19	PRESSURE GAUGE	1	-
20	PRESSURE GUAGE	1	-
21	RPRESSURE RELIFE VALVE	1	STAINLESS STEEL
22	TUBE	300 mm	STAINLESS STEEL
23	DOUBLE NIPPLE	1	STAINLESS STEEL
24	TUBE FITTING	2	STAINLESS STEEL
25	SILENCER	1	BRASS

Exploded view and part list -GOAN1 with limit switch, instrumentation assembly & hydraulic manual override



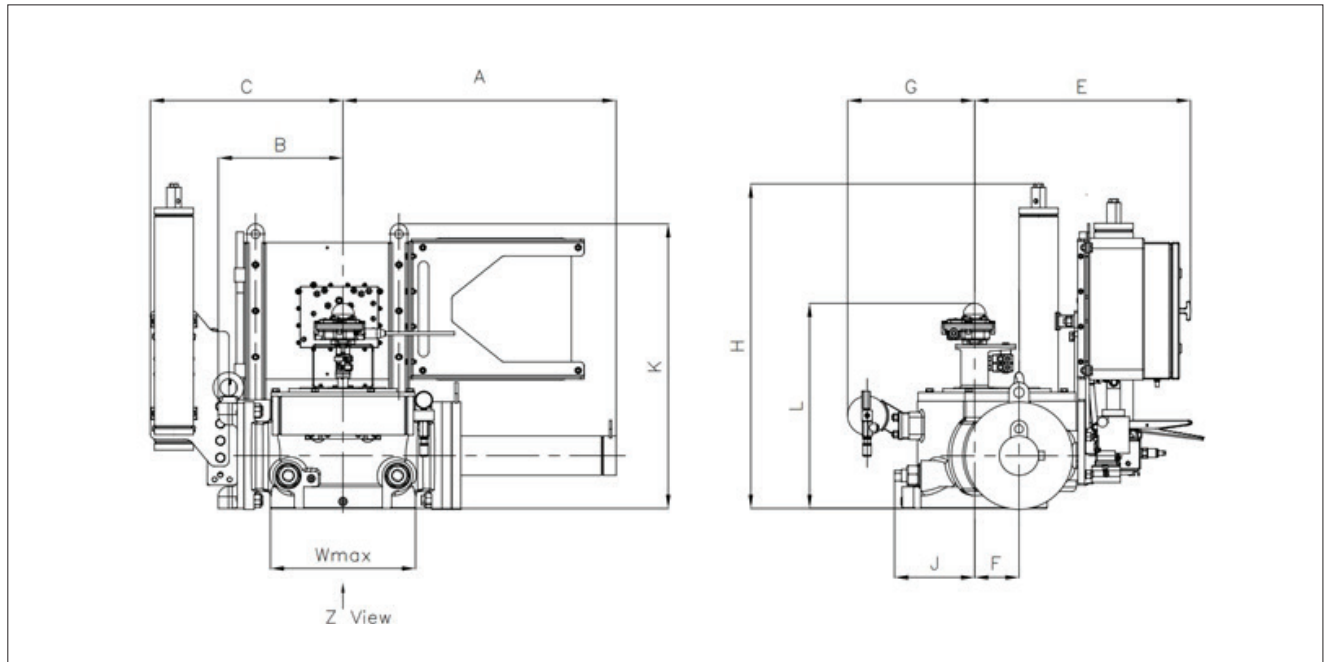
Part no.	Description	Qty.	Material
1	ACTUATOR	1	-
2	GOA ENCLOSURE PANEL ASSEMBLY	1	-
7	STUD BOLT	4	STEEL
8	HEXAGON NUT	4	STEEL
9	SPRING WASHER	4	STEEL
10	PLAIN WASHER	4	STEEL
17	AIR TANK	1	STEEL
20	AIR TANK MOUNTING PLATE	1	STEEL
21	SOCKET HEAD CAP SCREW	4	CARBON STEEL
22	HEXAGON NUT	4	CARBON STEEL
23	SPRING WASHER	4	STEEL
24	STUD BOLT	4	STEEL
25	PRESSURE GUAGE	1	-
26	HOLDER	1	STAINLESS STELL
27	PRESSURE RELEIF VALVE	1	STAINLESS STELL
28	PLUG	1	STAINLESS STEEL
46	HYDRAULIC PUMP UNIT	1	-
47	HEXAGON HEAD CAP SCREW	4	CARBON STEEL
48	SPRING WASHER	4	STEEL
49	BALL VALVE	1	-
50	ELBOW FITTING	2	STAINLESS STEEL

Exploded view and part list- GOAN1 controls



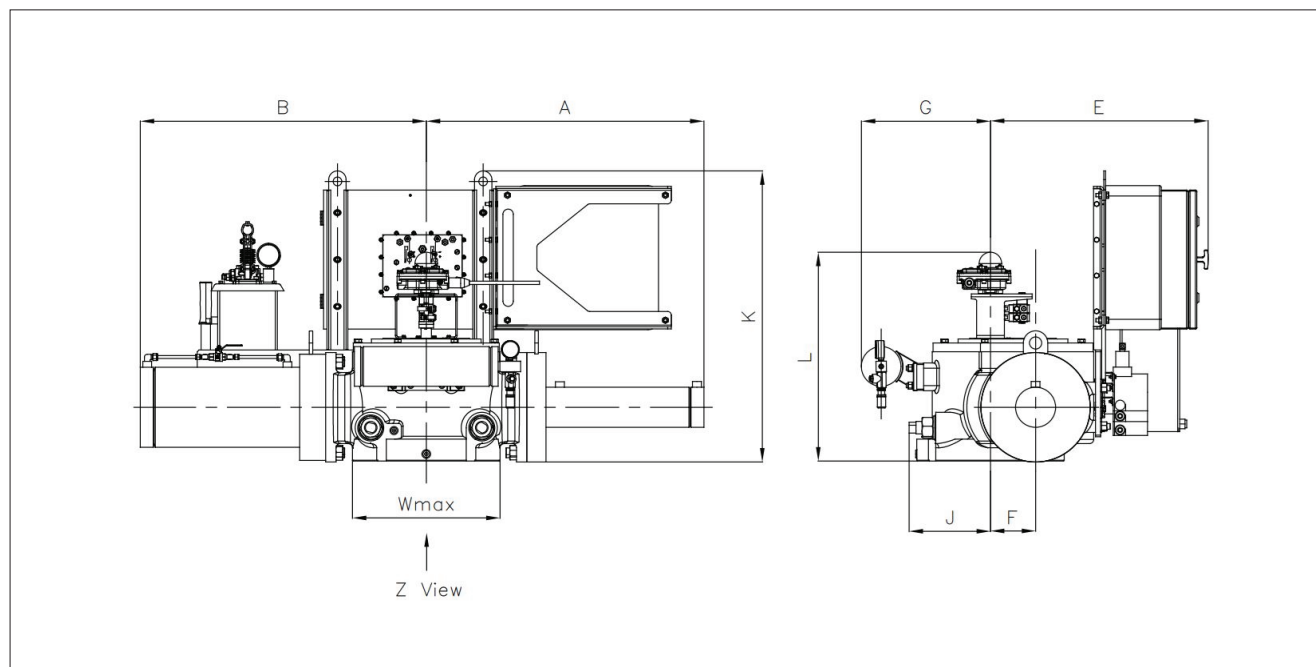
Part no.	Description	Qty.	Material
3	JUNCTION BOX	1	-
4	HEXAGON HEAD SCREW	4	STEEL
5	HEXAGON NUT	4	STEEL
6	SPRING WASHER	4	STEEL
11	MANIFOLD ASSEMBLY	1	STEEL
30	PRESSURE SWITCH	3	-
31	SOCKET HEAD CAP SCREW	6	STEEL
42	SOCKET HEAD CAP SCREW	16	STAINLESS STEEL
43	SPRING WASHER	16	STAINLESS STEEL
65	SPRING WASHER	6	STEEL
66	PRESSURE SWITCH BRACKET	3	CARBON STEEL
67	HEXAGON HEAD SCREW	6	STEEL
68	SPRING WASHER	6	STEEL
69	BRACKET FOR JUNCTION BOX	1	CARBON STEEL
70	HEXAGON HEAD SCREW	4	STEEL
71	SPRING WASHER	4	STEEL
72	HEXAGON NUT	4	STEEL
73	PANEL MOUNTING PLATE WITH BRACKET	1	CARBON STEEL
74	SOCKET HEAD CAP SCREW	6	STEEL
75	SPRING WASHER	6	STEEL
76	ENCLOSURE ASSEMBLY	1	-

Dimensions: N1-GOV actuator



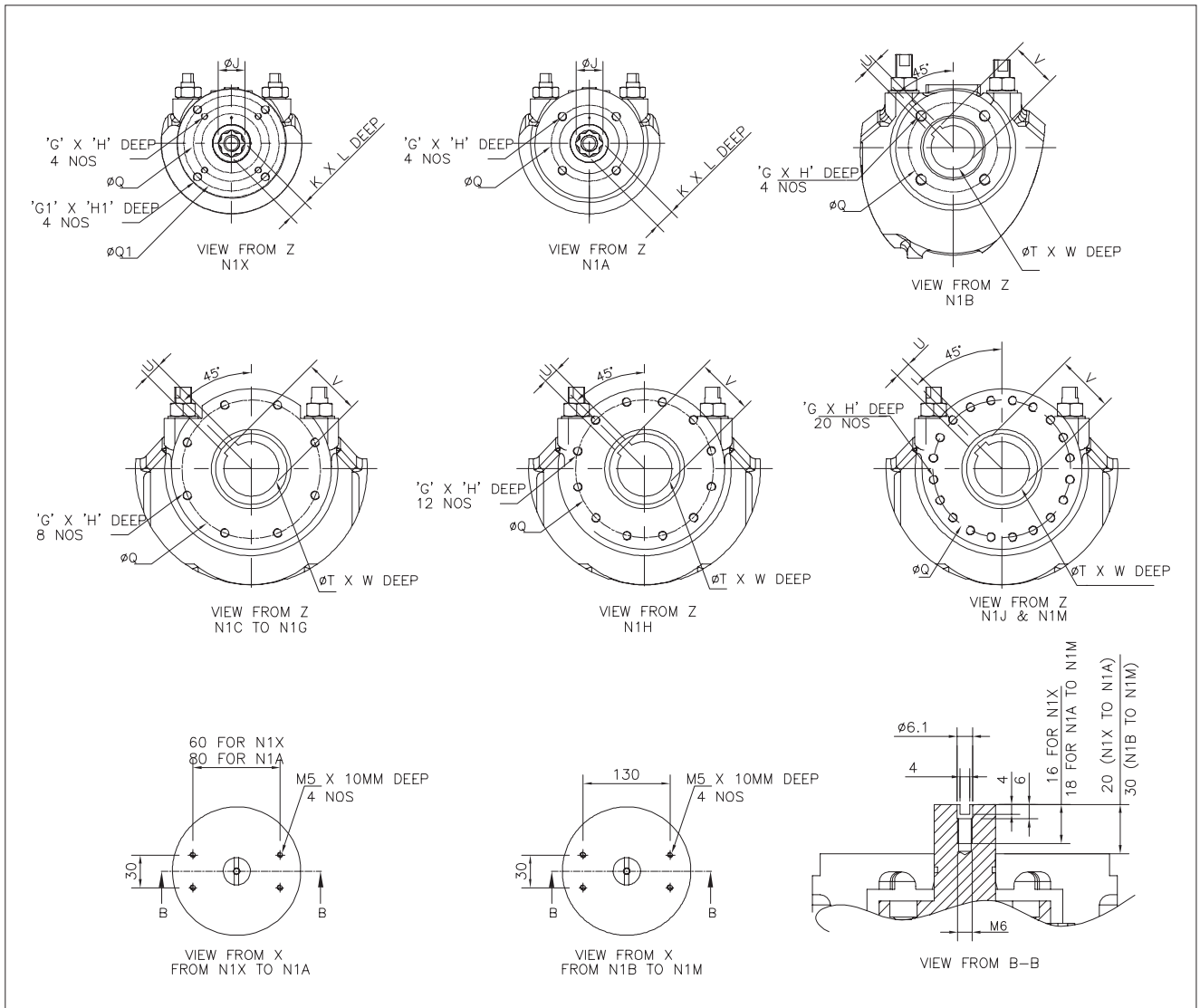
SR NO	MODEL	A	B	C	E	F	G	H max	J	K	L	W max	S
1	N1AH080	456	171	596	491	58	276	512	131	765	420	200	3/8" NPT
2	N1AH100	456	171	596	491	58	276	512	131	765	420	200	3/8" NPT
3	N1AH125	473	171	596	491	58	386	632	131	765	420	200	3/8" NPT
4	N1AH160	496	171	596	491	58	386	882	131	765	420	200	3/8" NPT
5	N1BH080	574	230	635	534	75	295	527	165	785	460	210	3/8" NPT
6	N1BH100	574	230	635	534	75	406	647	165	785	460	210	3/8" NPT
7	N1BH125	589	230	635	534	75	406	897	165	785	460	210	3/8" NPT
8	N1BH160	589	230	705	534	75	406	634	165	785	460	210	3/8" NPT
9	N1BH200	595	230	705	534	75	406	634	165	785	460	294	3/8" NPT
10	N1CH100	653	248	596	559	90	426	652	157	785	480	294	3/8" NPT
11	N1CH125	653	248	596	559	90	426	902	157	785	480	294	3/8" NPT
12	N1CH160	653	248	666	559	90	426	634	157	785	480	294	3/8" NPT
13	N1CH200	698	248	666	559	90	426	799	157	785	480	294	3/8" NPT
14	N1CH250	698	248	666	559	90	426	979	157	785	500	350	3/8" NPT
15	N1DH100	718	328	635	595	108	456	913	203	801	500	350	3/8" NPT
16	N1DH125	741	328	705	595	108	456	650	203	801	500	350	3/8" NPT
17	N1DH160	741	328	705	595	108	456	650	203	801	500	350	3/8" NPT
18	N1DH200	780	328	705	595	108	514	995	203	801	500	350	3/8" NPT
19	N1DH250	780	328	705	595	108	456	1140	203	801	500	350	3/8" NPT
20	N1EH100	800	365	596	632	130	483	951	235	834	600	425	3/8" NPT
21	N1EH125	800	365	666	632	130	483	682	235	834	600	425	3/8" NPT
22	N1EH160	880	365	666	632	130	483	846	235	834	600	425	3/8" NPT
23	N1EH200	826	365	666	632	130	540	1027	235	834	600	425	3/8" NPT
24	N1EH250	826	365	666	632	130	540	1172	235	834	600	425	3/8" NPT
25	N1EH300	880	365	771	632	130	540	1193	235	834	600	425	3/8" NPT
26	N1EH350	880	365	771	632	130	540	1403	235	834	600	425	3/8" NPT
27	N1EH400	880	365	771	632	130	540	1613	235	834	600	425	3/8" NPT
28	N1GH160	1036	450	705	725	160	512	871	286	857	670	475	3/8" NPT
29	N1GH200	1036	450	705	725	160	570	1051	286	857	670	475	3/8" NPT
30	N1GH250	1036	450	705	725	160	570	1520	286	857	670	475	3/8" NPT
31	N1GH300	1036	450	810	725	160	570	1317	286	857	670	475	3/8" NPT
32	N1GH350	1036	450	810	725	160	570	1527	286	857	670	475	3/8" NPT
33	N1GH400	1050	450	810	725	160	570	1377	286	857	670	475	3/8" NPT
34	N1GH450	1050	450	810	725	160	570	1367	286	857	670	475	3/8" NPT

Dimensions: N1-GOA actuator



SR NO	MODEL	A	B	E	F	G	J	K	L	W max	S
1	GOAN1AG080	456	465	491	58	276	131	766	412	200	3/8" NPT
2	GOAN1AG100	456	465	491	58	276	131	766	412	200	3/8" NPT
3	GOAN1AG125	473	465	491	58	386	131	766	412	200	3/8" NPT
4	GOAN1AG160	496	465	491	58	386	131	766	412	200	3/8" NPT
5	GOAN1BG080	574	574	534	75	295	165	760	455	210	3/8" NPT
6	GOAN1BG100	574	574	534	75	406	165	760	455	210	3/8" NPT
7	GOAN1BG125	589	574	534	75	406	165	760	455	210	3/8" NPT
8	GOAN1BG160	589	574	534	75	406	165	760	455	210	3/8" NPT
9	GOAN1BG200	595	574	534	75	406	165	760	455	210	3/8" NPT
10	GOAN1CG100	653	643	559	90	426	157	786	483	294	3/8" NPT
11	GOAN1CG125	653	643	559	90	426	157	786	483	294	3/8" NPT
12	GOAN1CG160	653	643	559	90	426	157	786	483	294	3/8" NPT
13	GOAN1CG200	698	643	559	90	426	157	786	483	294	3/8" NPT
14	GOAN1CG250	698	643	559	90	426	157	786	483	294	3/8" NPT
15	GOAN1DG100	718	733	595	108	456	203	776	507	350	3/8" NPT
16	GOAN1DG125	741	733	595	108	456	203	776	507	350	3/8" NPT
17	GOAN1DG160	741	733	595	108	456	203	776	507	350	3/8" NPT
18	GOAN1DG200	780	733	595	108	514	203	776	507	350	3/8" NPT
19	GOAN1DG250	780	733	595	108	456	203	776	507	350	3/8" NPT
20	GOAN1EG100	800	826	632	130	483	235	835	601	425	3/8" NPT
21	GOAN1EG125	800	826	632	130	483	235	835	601	425	3/8" NPT
22	GOAN1EG160	880	826	632	130	483	235	835	601	425	3/8" NPT
23	GOAN1EG200	826	826	632	130	540	235	835	601	425	3/8" NPT
24	GOAN1EG250	826	826	632	130	540	235	835	601	425	3/8" NPT
25	GOAN1EG300	880	826	632	130	540	235	835	601	425	3/8" NPT
26	GOAN1EG350	880	826	632	130	540	235	835	601	425	3/8" NPT
27	GOAN1EG400	880	826	632	130	540	235	835	601	425	3/8" NPT
28	GOAN1GG160	1036	1036	725	160	512	286	832	675	475	3/8" NPT
29	GOAN1GG200	1036	1036	725	160	570	286	832	675	475	3/8" NPT
30	GOAN1GG250	1036	1036	725	160	570	286	832	675	475	3/8" NPT
31	GOAN1GG300	1036	1036	725	160	570	286	832	675	475	3/8" NPT
32	GOAN1GG350	1036	1036	725	160	570	286	832	675	475	3/8" NPT
33	GOAN1GG400	1050	1036	725	160	570	286	832	675	475	3/8" NPT
34	GOAN1GG450	1050	1036	725	160	570	286	832	675	475	3/8" NPT

Mounting face dimensions with iso bore



Actuator	Dimensions, mm													Mounting face
	G	G1	H	H1	OJ	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	170	309	F35
N1G	M36	-	54	-	-	-	-	406	-	178	45	188.4	383	F40
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-GOV series type coding

GOV/GOA actuator

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
GOVN1	B	H250	S	1	G	D00	D	D	/	* (NIL)

1. sign	Series
GOVN1	Neles gas over oil heavy duty actuator
GOAN1	Neles gas operated heavy duty actuator
	For GOV select H series cylinder For GOA select G series cylinder

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

3. sign	Cylinder size
G/H250	050
	063
	080
	100
	125
	160
	200
	250
	300
	350
	400
	500
	H = Hydraulic version for GOV: H050...H500
	G = Gas operated version for GOA: G050...G500

4. sign	Link type
S	symmetric

5. sign	Cylinder type
1	Single cylinder

6. sign	Temperature range
G	-20°...+80 °C

7. sign	Single / Double acting
D00	Double acting

8. sign	Spring action
D	Double acting

9. sign	Shaft bore-key type
D	According to ISO bore keyway.

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

11. sign	Options
HP	Manual hydraulic pump operation (for GOA only).

N1-GOV/GOA actuator controls

1. sign	Basic series
	GOC

2. sign	Sub category
1	GOV
2	GOA

3. sign	Mounting type
M1	A / C / E - N1 frame mounting
M2	B / D / G - N1 frame mounting

4. sign	Manifold pressure gauges ranges
P1	Manifold assembly < 30 bar (PG40)
P2	Manifold assembly ≥ 30 bar (PG60)

5. sign	Pressure switch kit
S	SPDT differential pressure switch
D	DPDT differential pressure switch
A	Pressure switch for GOA auto-closure
N	None

6. sign	Air tank
02	2 LITRE
03	3 LITRE
05	5 LITRE
10	10 LITRE
15	15 LITRE
20	20 LITRE
30	30 LITRE
35	35 LITRE
40	40 LITRE
45	45 LITRE
50	50 LITRE
55	55 LITRE
60	60 LITRE
99	NO Air Tank

7. sign	Oil tank
02	2 LITRE
03	3 LITRE
05	5 LITRE
10	10 LITRE
15	15 LITRE
20	20 LITRE
25	25 LITRE
30	30 LITRE
35	35 LITRE
40	40 LITRE
45	45 LITRE
50	50 LITRE
55	55 LITRE
60	60 LITRE
99	Select this if GOA (No oil tank)

8. sign	Break
/	Double acting

9. sign	Special construction
xx	Two running digits to define the approval / special construction To be left blank if not needed

Note: More detailed information refers document S389 for GOC controls.

Sizing and selection guidelines: Actuator

Digit 1

Actuator: GOVN1 (Neles gas over oil heavy duty actuator) or GOAN1 (Neles gas operated heavy duty actuator)

Digit 2

Frame size: To be selected based on the torque requirements (refer torque chart for N1-GOV/GOA actuators) available from factory.

Digit 3

Cylinder size: For N1-GOV select H series cylinder and for N1-GOA select G series cylinder. The frame and cylinder combination can be selected based on the torque (refer torque chart for N1-GOV/GOA actuators)

Possible frame – Cylinder combination

Hydraulic/Gas cylinder size	Available frame
050	X
063	X
080	X, A, B
100	X, A, B, C, D, E
125	X, A, B, C, D, E
160	A, B, C, D, E, G
200	B, C, D, E, G, H
250	C, D, E, G, H
300	E, G, H, J
350	E, G, H, J
400	E, G, H, J
450	G, H, J
500	H, J

Digit 4

Link type: Symmetric option only available for selection currently.

Digit 5

Cylinder type: Single cylinder construction available currently.

Digit 6

Temperature range: G = -20°C...+80°C (general temp range with NBR seals available for selection). For high temp option with Viton seals please contact factory (High temp: H = -20°C...+125°C). Currently available as ETO.

Digit 7

Single/Double acting: Only double acting version available for GOV currently. Single acting versions are not design ready, hence not available for selection.

Digit 8

Spring action: Only double acting version available for GOV currently.

Digit 9

Shaft bore key type: D = According to ISO bore keyway, for more info refer mounting face dimensions on page 15.

Digit 10

Break : / = Type code break to be left blank if no options specified.

Digit 11

Options : HP = Manual hydraulic pump operation (for GOA only). To be selected when there is a requirement from customer with GOA. For GOV hydraulic pump is available as default unit (no need for selection). The hydraulic pump can be operated by hand for open or close position.

Digit 12

Special construction: Two running digits to define the approval / special construction. Select YY for any special construction.

Sizing and selection guidelines: GOV/GOA controls

Digit 1

Controls: To be selected as GOC (controls for GOV and GOA actuator)

Digit 2

Subcategory:

1= GOV

2= GOA

These 2 options can be selected based on customer requirements.

Digit 3

Mounting Type:

Can be selected from 2 options.

1 = **M1**: Applicable for A / C / E frame

2 = **M2**: Applicable for B / D / G frame

Digit 4

Manifold Pressure Gauge & Pressure regulator:

Can be selected from 2 options.

1 = **P1**: Applicable for Pressure regulator less than 30 bar
(With pressure gauge PG40)

2 = **P2**: Applicable for Pressure regulator more than 30 bar
(With pressure gauge PG60)

Digit 5

Pressure Switch:

Can be selected from 4 options.

1 = **S**: SPDT Differential Pressure Switch
(To be selected with GOV)

2 = **D**: DPDT Differential Pressure Switch
(To be selected with GOV)

3 = **A**: Pressure Switch for GOA Auto closure
(To be selected with GOA, when Auto closure option required)

4 = **N**: No Pressure Switch
(To be selected when there is no Pressure switch requirement)

Digit 6

Air Tank:

Can be selected from options shown besides.

If no Air tank required select last option.

Digit 7

Oil Tank:

Can be selected from options shown besides.

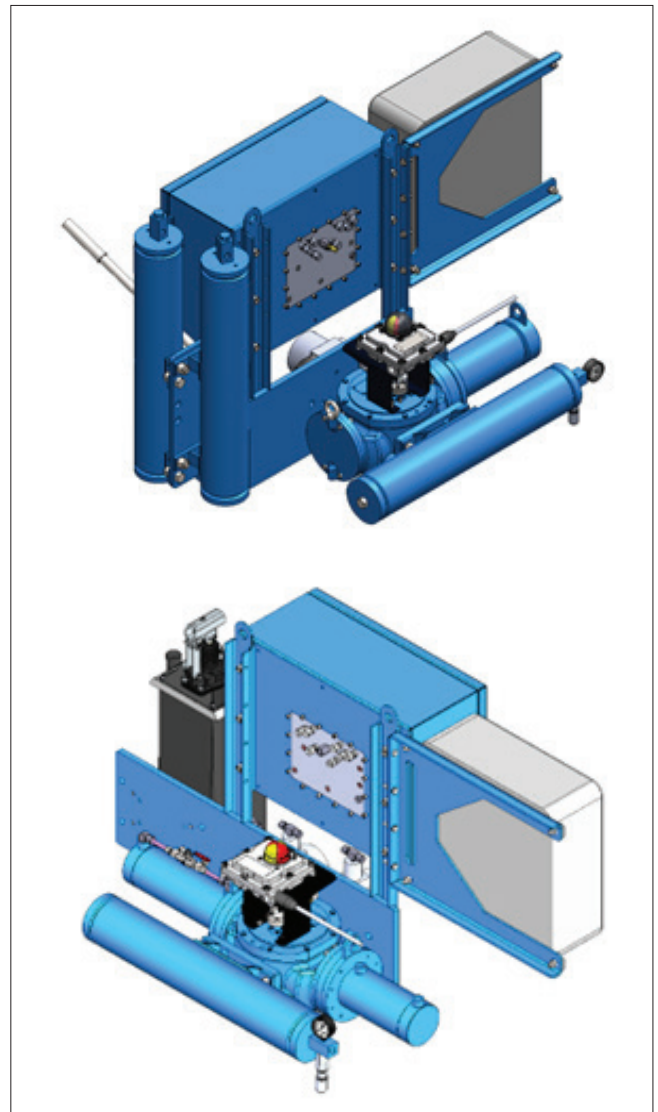
If no Oil tank required select last option.

Digit 8

Break : / = Type code break to be left blank if no options specified.

Digit 9

Special construction: Two running digits to define the approval / special construction. Select YY for any special construction.



6. sign	Air / oil tank
02	2 LITRE
03	3 LITRE
05	5 LITRE
10	10 LITRE
15	15 LITRE
20	20 LITRE
30	30 LITRE
35	35 LITRE
40	40 LITRE
45	45 LITRE
50	50 LITRE
55	55 LITRE
60	60 LITRE
99	No Air / Oil Tank

Basic GOV Construction and accessories

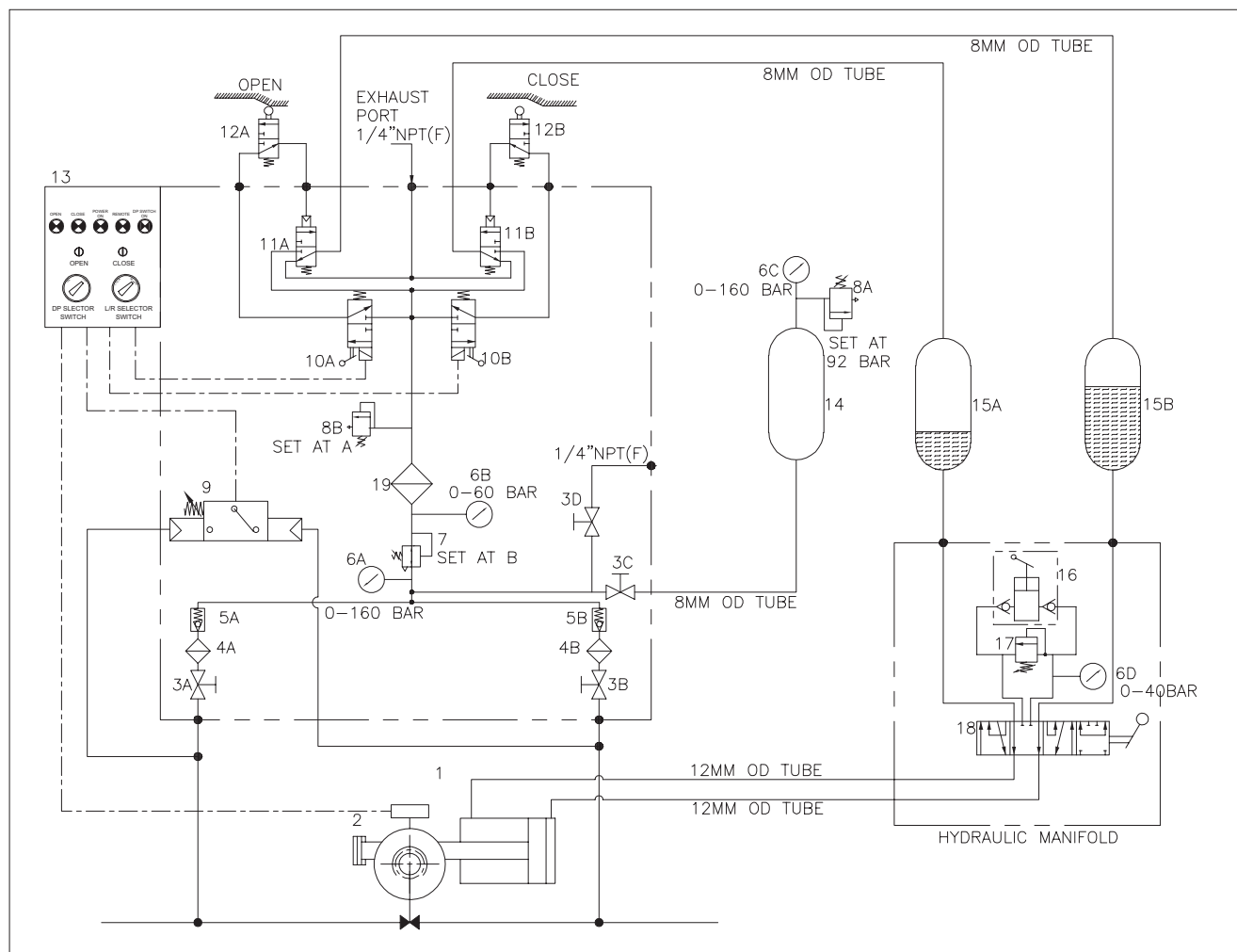


Fig. 1.

BILL OF MATERIALS		
SR no.	DESCRIPTION	TAG no.
1	LIMIT SWITCH	1
2	ROTARY AC'TUATOR	2
3	BALL VALVE (1/4")	3A, 3B, 3C, 3D
4	GAS MOISTURE SEPRATOR	4A, 4B
5	NRV	5A, 5B
6	PRESSURE GAUGE	6A, 6B, 6C, 6D
7	PRESSURE REGULATOR	7
8	PRESSURE RELIEF VALVE	8A, 8B
9	DIFFERENTIAL PRESSURE SWITCH	9
10	SOLENOID VALVE	10A, 10B
11	PILOT OPERATED VALVE	11A, 11B
12	PNEUMATIC LIMIT VALVE	12A, 12C
13	JUNCTION BOX	13
14	GAS TANK	14
15	GAS + OIL TANK	15A, 15B
16	HAND PUMP	16
17	PRESSURE RELIEF VALVE	17
18	6/4 HAND OPERATED VALVE	18
19	GAS COALESCER FILTER	19

Basic N1-GOA construction and accessories

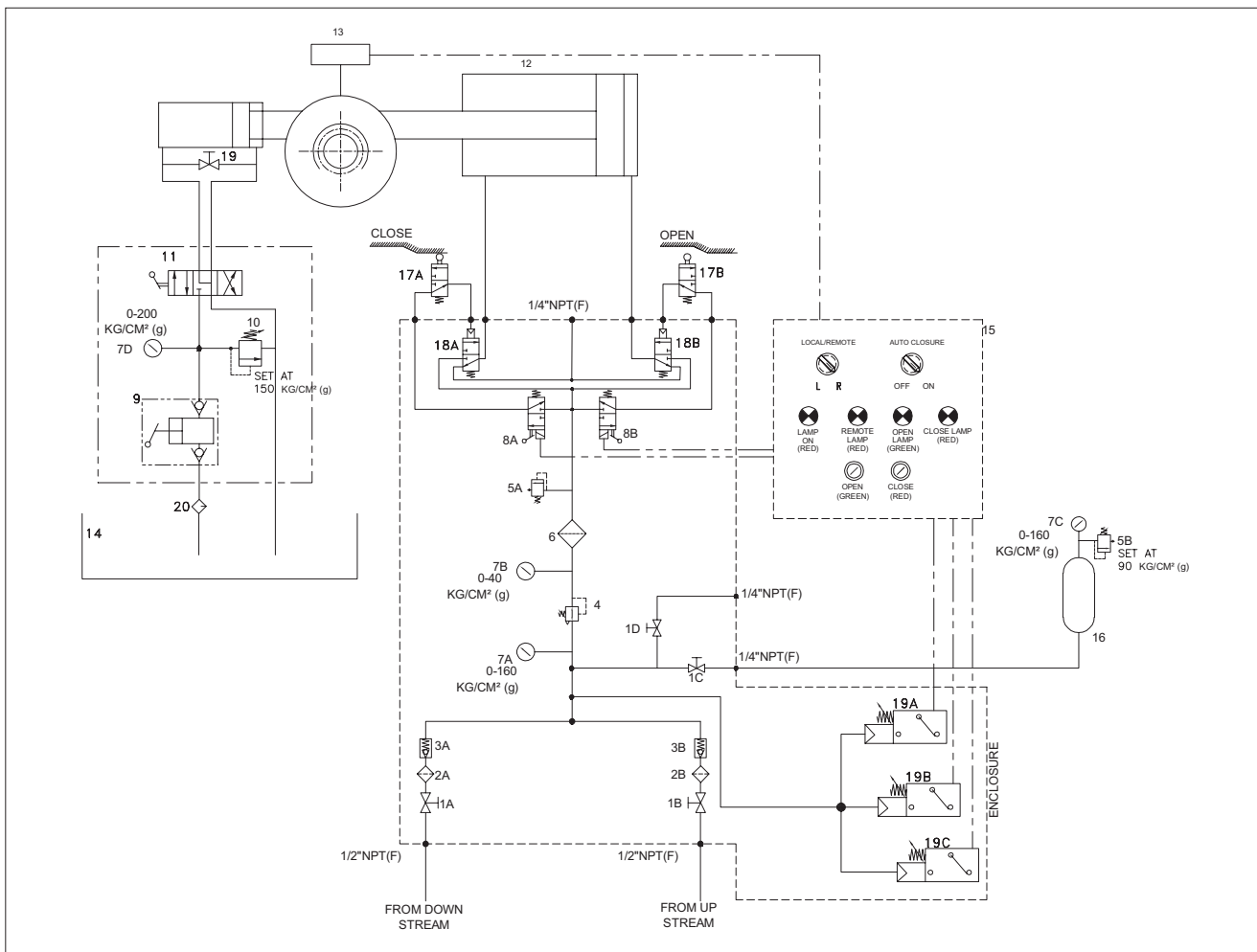


Fig. 2.

BILL OF MATERIALS		
SR no.	DESCRIPTION	TAG no.
1	BALL VALVE	1A, 1B, 1C, 1D
2	GAS MOISTURE SEPARATOR	2A, 2B
3	NON RETURN VALVE	3A, 3B
4	PRESSURE REGULATOR	4
5	PRESSURE RELIEF VALVE	5A, 5B
6	GAS COALESCER FILTER	6
7	PRESSURE GAUGE	7A, 7B, 7C, 7D
8	SOLENOID VALVE	8A, 8B
9	HYDRAULIC HAND PUMP	9
10	PRV	10
11	4/3 WAY MANUAL	11
12	ROTARY ACTUATOR	12
13	LIMIT SWITCH	13
14	OIL TANK	14
15	JUNCTION BOX	15
16	AUXILLARY AIR TANK	16
17	PNEUMATIC LIMIT VALVE	17
18	PILOT OPERATED VALVE	18A, 18B
19	EQUALISING BALL VALVE	19
20	OIL FILTER	20

Neles™ high performance heavy duty gas over oil actuator (scotch yoke type), series N1-GOV/GOA

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