



**HYDRAULIC QUARTER TURN
ACTUATOR
GAS OVER OIL**

series GOOR

SERVOVALVE spa

Via Quasimodo 27 - 20010 S.STEFANO TICINO (MI)

PHONE: 0039 - 029748461

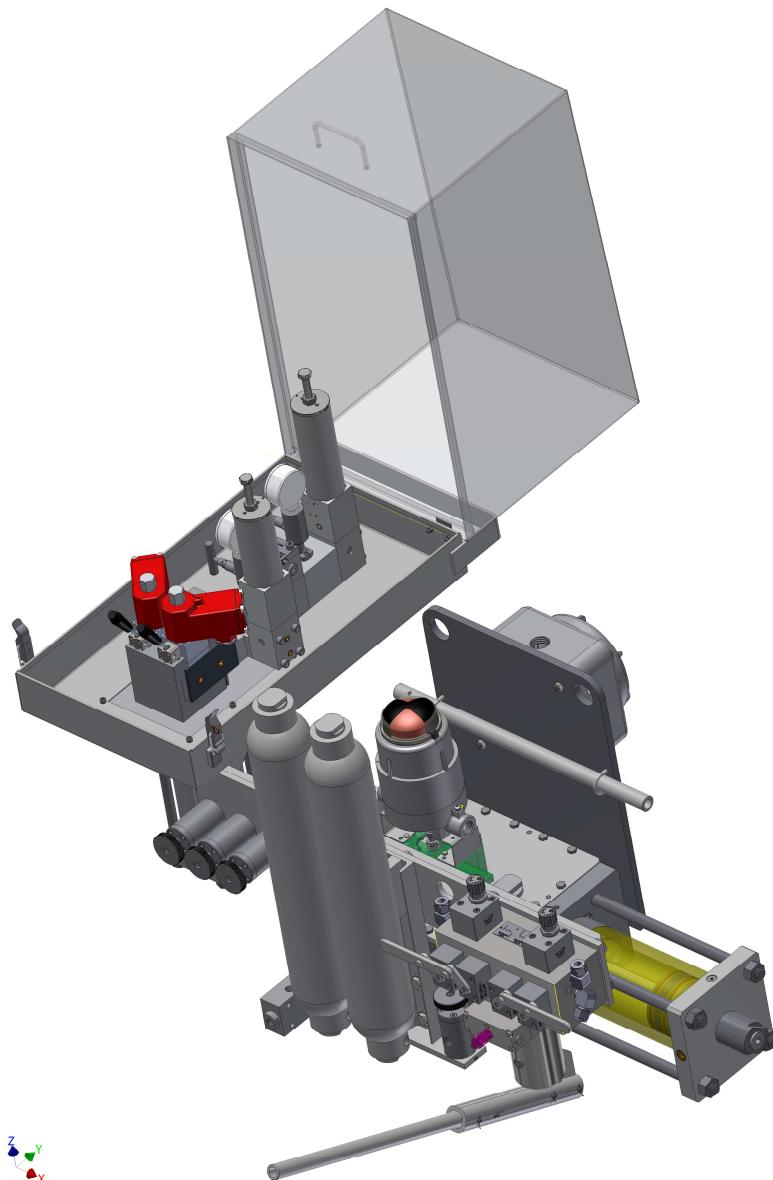
FAX: 0039 - 0297484646

E-mail: servovalve@servovalve.it

HYDRAULIC QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

INDEX

<i>SINGLE ACTING – DOUBLE ACTING</i>		
EXECUTION	TYPE	PAGE
TECHNICAL DESCRIPTION		1
TECHNICAL STANDARD PERFORMANCE		2
SCOTCH-YOKE ACTUATOR CODE MODE		3
ACTUATOR TORQUE	GOO SERIES	4-5
OVERALL DIMENSION	GOO SERIES	6



GAS-OVER-OIL QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

TECHNICAL DESCRIPTION

Servo valve Gas-Over-Oil actuators serie GOOR have been specifically designed for actuation of pipeline valve in any kind of environmental and are available in different configurations in order to satisfy any kind of technical requirement for such critical application.

Based on the experience of more than 40 years in manufacture of heavy duty actuators, quarter turn scotch yoke hydraulic actuators are equipped with internally designed and widely tested high pressure pneumatic components , so to control the oil flow to cylinder and operate the valve.

The design, engineering and materials used in construction ensure optimum performances in the heaviest work condition in every environment according to the international standard specifications.

Main features of GOOR actuators are the following :

Scotch Yoke Actuator frame

Servo valve heavy duty scotch yoke actuators are designed with all moving parts totally enclosed in a weather-proof housing, minimizing the possibility of injury to operating personnel and avoid ingress of dust inside actuator ensuring long life and avoiding any corrosion of internal sliding parts .

Housing is realized in fabricated carbon steel to reduce corrosion phenomenon and provide a heavy duty execution; chromium plated shaft is driven by special PTFE charged bushings to guarantee a perfect alignment, a uniform and smooth movement reducing friction and ensuring long life cycle.

Scotch yoke is complete of a second support bar to reduce at minimum transversal friction and assure a smooth and regular rotation avoiding any vibration and providing optimum performances and precise positioning even in the most critical control application.

Actuators are available in execution with symmetric or canted scotch yoke so to provide the best optimal sizing based on valve torques requirement

Hydraulic cylinders are in chromium plated carbon steel to avoid environmental corrosion and to reduce the gaskets wear and stick-slip effects.

Field adjustable end travel-stop are available in both open and close directions to optimize the required valve stroke.

The central cover is equipped with a standard valve position indicator.

Gas-Over-Oil tank

Gas-Over-Oil tanks are used for separation of pipeline gas medium from hydraulic fluid forced actuator cylinder under pressure

Tanks are complete of superior oil level measure shaft and in the bottom part of oil filters , so to avoid any contamination to cylinder and damage to actuator gaskets.

Tanks are available in different execution so to comply to various environmental temperature and design code as :

- ASME VIII div. 1
- PED directive 97/23/CE
- Other codes available on request

Executions with additional tanks for linebreak service or for local storage in ESD function, can be added to standard configuration and assembled on actuator

GAS-OVER-OIL QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

Manual emergency override

Actuators are equipped with local manually operated hydraulic handpump. Acting on this device is possible to manually operate the valve in lack of main power supply. Acting on lever operated valves is possible to move from by-pass standard position to open or close the valve.

Local & Remote operation

Actuator can be provided with two solenoid valve for command of opening or closing. solenoid valves are complete of manually operated lever so to control actuator also in lack of electric power supply. Electrical execution can be provided complete of certification according to various standards.

Gas filter

Actuators are provided with gas filter dehydrator suitable to remove humidity and particles from pipeline gas and protect pneumatic circuit components. Filter is complete of manual drain valve and allow dismantling for removal of dehydrator cartridge for his regeneration or substitution.

Emergency Shutdown (ESD)

Control circuit can be provided with pressure switch so to achieve an emergency action in case of pressure excessive low or high level or both condition. Setting point is adjustable and combination with suitable control circuit and optional local tank can assure to achieve the desired valve failure action.

Differential pressure switch

Control circuit can be provided with high pressure differential switch so to protect valve and pipeline from consequences of operating in case of excessive difference of pressure between upstream and downstream. In that case device inhibit valve opening protecting valve itself and pipeline. Different setting rates available

Torque limiting device

Gas tank can be equipped with torque limiting device so to control actuator output torque acting on inlet gas pressure to tank. Device is composed of two adjustable pressure piloted valves that can be set to the desired value so to avoid excess in output torque and damage to valve shaft or allowing reduction of actuator size in case of sizing with wide pressure range between minimum and maximum gas supply pressure.

Linebreak

Actuators can be equipped also with linebreak system so to provide an automatic valve action to safety position in case of pressure drop in main pipeline. Linebreak system is available in different executions depending on pressure drop rates, environmental temperatures or customer specifications. In particular are available:
Pneumatic linebreak
Liquid linebreak
Electronic linebreak (EExd IIB)

TECHNICAL PERFORMANCE

Pressure range

- minimum working pressure: 10 barg
- maximum working pressure: 105 barg
- design pressure: 150 bar

Executions for higher pressure available on request

Angular stroke

- 90° +/-4°

Environmental temperature range

- min: - 20°C
- max: + 80°C
- Available execution for lower environmental temperature (up to -60°C)
- Available execution for higher environmental temperature

Supply medium

- Sweet natural gas
- Sour gas – contact our sales with detailed gas composition for confirmation
- Available out of standard execution for different medium supply

Certification

All finished actuators are tested and certified by the quality department before being released according to Servovalve quality system and procedures in compliance with ISO 9001 standard.

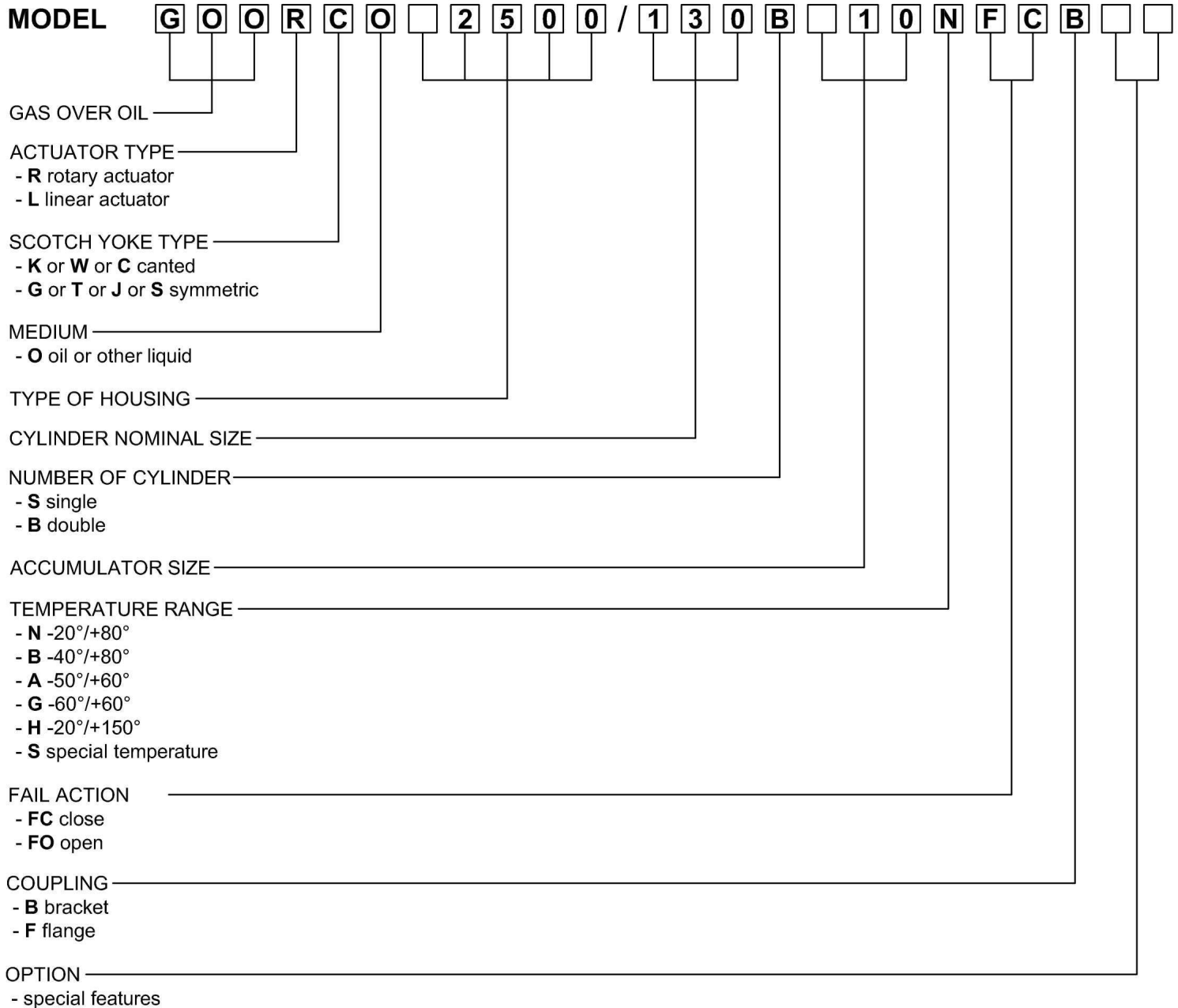
Actuators are according to European directives 97/23/CE (PED) and 94/9/CE (ATEX).

Maintenance

The inner parts of the actuator are life-lubricated, therefore only replacement of the rubber gaskets may become necessary after a long working time as pointed out in the operating book

HYDRAULIC QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

GAS OVER OIL ACTUATOR CODE MODE



GAS-OVER-OIL QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

ACTUATORS TORQUE - CANTED SKOTCH YOKE

SERIES **GOOR**

Double Acting Canted

Model	TORQUE per Bar OPEN			TORQUE per Bar CLOSE			MAX Work Press Bar	Oil Displ. Lt
	Break	Run	End	Break	Run	End		
GOORKO 310/050	22	10	14	8	6	12	150	0.2
GOORKO 310/060	31	14	19	12	9	20	100	0.2
GOORKO 310/070	42	19	26	19	13	31	75	0.3

GOORKO 610/060	36	17	23	12	9	19	150	0.4
GOORKO 610/080	65	29	40	30	22	49	95	0.7
GOORKO 610/090	82	37	51	41	30	66	70	0.9

GOORWO 900/040	18	8	11	0	0	0	150	0,2
GOORWO 900/060	40	19	26	14	10	22	150	0,5
GOORWO 900/080	71	33	46	34	25	54	125	0,9
GOORWO 900/090	90	42	58	46	34	72	95	1,1

GOORWO 1400/080	86	40	55	38	27	59	150	1,1
GOORWO 1400/090	108	50	69	52	38	81	125	1,4
GOORWO 1400/100	134	62	86	68	49	107	100	1,7

GOORCO 2500/090	138	64	88	66	48	104	150	1,7
GOORCO 2500/100	171	79	109	87	63	136	145	2,1
GOORCO 2500/110	206	95	132	110	80	172	120	2,6
GOORCO 2500/125	266	123	171	149	107	232	90	3,3

GOORCO 4500/100	223	103	143	107	77	167	150	2,8
GOORCO 4500/110	270	125	173	137	99	214	150	3,4
GOORCO 4500/125	348	161	223	188	135	293	125	4,3
GOORCO 4500/140	437	202	280	244	176	381	100	5,4

GOORCO 7500/110	357	165	229	172	124	268	150	4,4
GOORCO 7500/125	461	213	295	238	172	372	150	5,7
GOORCO 7500/140	578	268	371	313	226	489	125	7,2
GOORCO 7500/160	755	350	484	427	308	666	95	9,4

GOORCO 10500/140	617	286	395	334	242	522	150	7,7
GOORCO 10500/160	806	373	516	455	329	711	130	10,0
GOORCO 10500/180	1020	472	653	592	428	925	100	12,7

GOORCO 20500/160	907	420	581	470	339	733	150	11,3
GOORCO 20500/180	1147	531	735	624	451	974	150	14,3
GOORCO 20500/200	1417	656	908	796	575	1243	140	17,6
GOORCO 20500/220	1714	793	1098	987	713	1540	115	21,4
GOORCO 20500/240	2040	944	1307	1196	864	1866	100	25,4

NOTES: ABOVE TORQUE TABLE IS A SELECTION OF POSSIBLE MODELS.
DUE TO WIDE RANGE OF POSSIBLE GAS SUPPLY PRESSURE RANGE , DIFFERENT MODELS WITH DIFFERENT OUTPUT TORQUES ARE AVAILABLE.
FOR PROPER SIZING PLEASE CONTACT OUR SALES

GAS-OVER-OIL QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

ACTUATORS TORQUE - SYMMETRIC SKOTCH YOKE

SERIES **GOOR**

Double Acting Symmetric

Model	TORQUE per Bar OPEN - Nm			TORQUE per Bar CLOSE - Nm			MAX Work Press Bar	Oil Displ. Lt
	Break	Run	End	Break	Run	End		
GOORTO 310/060	23	15	23	20	12	20	150	0.3
GOORTO 310/070	31	20	31	26	15	26	100	0.5
GOORTO 310/080	38	23	38	33	20	33	80	0.7

GOORTO 610/080	45	26	45	37	22	37	150	0.9
GOORTO 610/100	70	41	70	63	37	63	140	1.2
GOORTO 610/110	84	49	84	75	44	75	75	1.3

GOORJO 900/060	31	19	31	17	11	170	290	0.5
GOORJO 900/080	55	34	55	41	26	41	160	0.9
GOORJO 900/090	69	43	69	56	35	56	130	1.1
GOORJO 900/100	85	53	85	72	45	72	105	1.3

GOORJO 1400/080	66	41	66	45	28	45	210	1.0
GOORJO 1400/090	83	52	83	62	39	62	165	1.3
GOORJO 1400/100	103	64	103	82	51	82	135	1.6
GOORJO 1400/110	124	78	124	103	65	103	110	1.9

GOORSO 2500/090	106	66	106	79	50	79	235	1.7
GOORSO 2500/100	131	82	131	104	65	104	190	2.0
GOORSO 2500/110	158	99	158	132	82	132	155	2.5
GOORSO 2500/125	204	128	204	178	111	178	120	3.2
GOORSO 2500/140	256	160	256	230	144	230	95	4.0

GOORSO 4500/100	171	107	171	128	80	128	260	2.7
GOORSO 4500/110	207	129	207	164	103	164	215	3.2
GOORSO 4500/125	267	167	267	224	140	224	165	4.2
GOORSO 4500/140	335	209	335	292	183	292	130	5.2
GOORSO 4500/160	438	273	438	395	247	395	100	6.8

GOORSO 7500/110	274	171	274	205	128	205	270	4.3
GOORSO 7500/125	353	221	353	285	178	285	210	5.5
GOORSO 7500/140	443	277	443	375	234	375	165	6.9
GOORSO 7500/160	579	362	579	511	319	511	125	9.0
GOORSO 7500/180	733	458	733	664	415	664	100	11.5

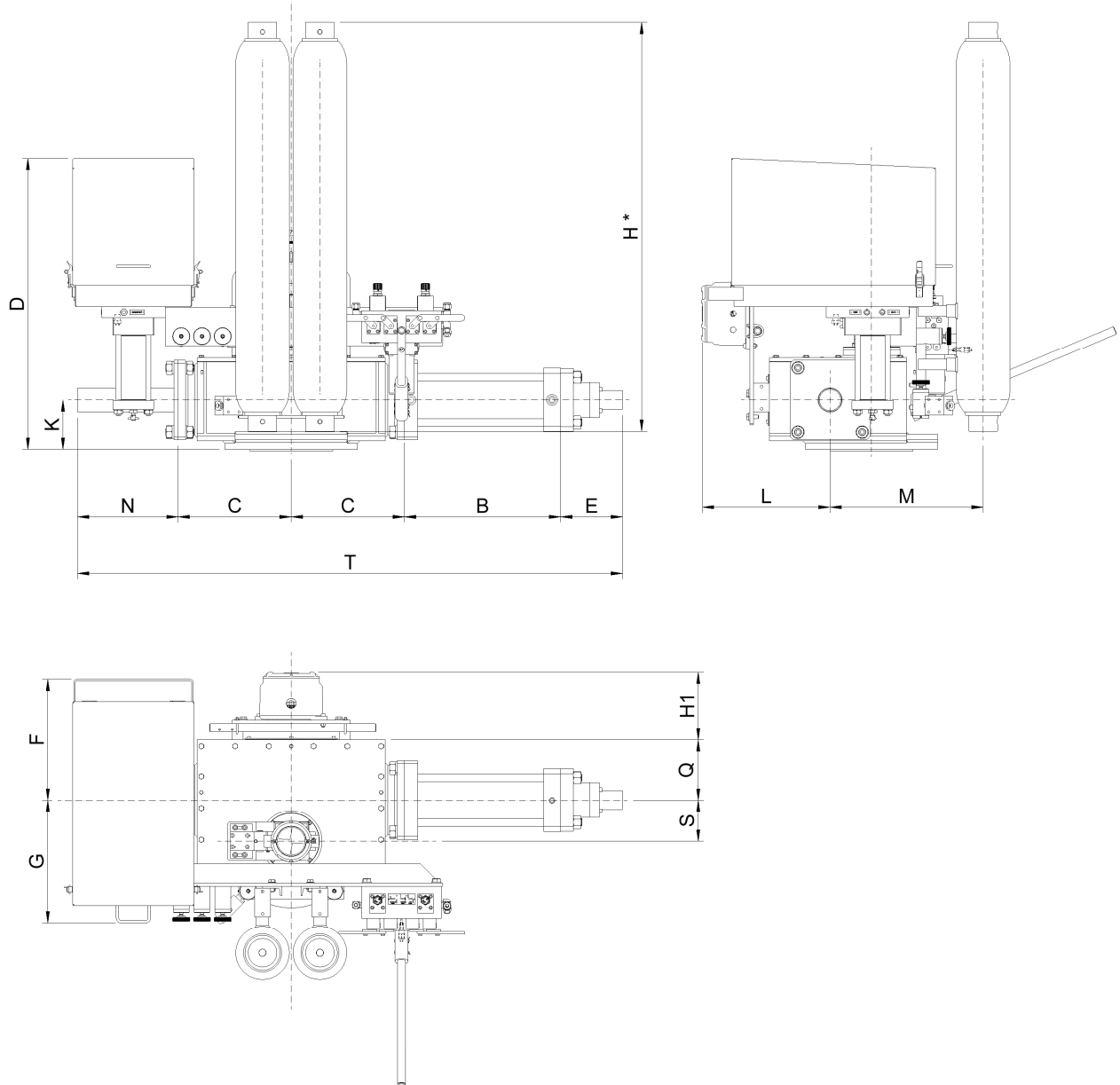
GOORSO 10500/140	473	296	473	400	250	400	220	7.4
GOORSO 10500/160	618	386	618	545	340	545	165	9.7
GOORSO 10500/180	782	489	782	709	443	709	130	12.2
GOORSO 10500/200	965	603	965	892	558	892	105	15.1

GOORSO 20500/160	695	434	695	562	351	562	295	10.9
GOORSO 20500/180	879	550	879	746	467	746	230	13.7
GOORSO 20500/200	1086	679	1086	953	595	953	185	17.0
GOORSO 20500/220	1314	821	1314	1181	738	1181	155	20.5
GOORCO 20500/240	1563	977	1563	1430	894	1430	130	24.4
GOORSO 20500/260	1835	1147	1835	1702	1064	1702	110	28.7
GOORCO 20500/280	2128	1330	2128	1995	1247	1995	95	33.3

NOTES: ABOVE TORQUE TABLE IS A SELECTION OF POSSIBLE MODELS.
DUE TO WIDE RANGE OF POSSIBLE GAS SUPPLY PRESSURE RANGE , DIFFERENT MODELS WITH DIFFERENT OUTPUT TORQUES ARE AVAILABLE.
FOR PROPER SIZING PLEASE CONTACT OUR SALES

HYDRAULIC QUARTER TURN ACTUATOR SCOTCH-YOKE - GOOR

DOUBLE ACTING



ACTUATOR TYPE	B	C	D	E	F	G	H	H1	K	L	M	N	Q	S	T
GOOR* 310/.....	250	135	840	60	470	300	660 *	220	90	440	280	60	120	60	640
GOOR* 610/.....	275	160	840	60	460	310	660 *	220	90	460	290	60	140	70	720
GOOR* 900/.....	360	240	835	//	340	430	865 *	220	120	370	420	360	145	85	1200
GOOR* 1400/.....	400	285	830	//	375	395	865 *	220	125	290	460	360	165	100	1330
GOOR* 2500/.....	490	355	800	190	385	385	830 *	220	155	400	480	390	180	130	1705
GOOR* 4500/.....	610	465	815	220	330	430	1160 *	220	170	475	535	470	255	170	2230
GOOR* 7500/.....	740	610	880	300	240	530	1320 *	220	235	545	625	590	325	225	2850

NOTE * : PRELIMINARY - ABOVE DIMENSION ARE FOR INFORMATION ONLY

SERVOVALVE RESERVE THE RIGHT TO MODIFY ACTUATOR AND RELEVANT DIMENSION DEPENDING ON TECHNICAL REQUIREMENT