



**GE Power Systems**  
*Oil & Gas*

*A-C Compressor*



# Positive Displacement Compressors

**Ro-Flo<sup>®</sup> Rotary Sliding Vane**

# Ro-Flo® Compressors: The Low-Cost, Low-Maintenance Answer to Tough Gas Applications



Two (2) A-C Compressor model 19S Ro-Flo® Rotary Vane Compressors, boosting Landfill Gas at BFGSI Sunset Farms Facility in Austin, TX. Each unit is compressing 1.855 MMSCFD of Landfill Gas from 11.1 psia to 27.7 psia.

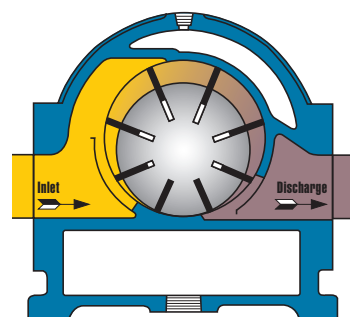
Designed to provide low-cost, low-maintenance advantages in dirty or corrosive gas applications, Ro-Flo® compressors can meet your specifications. Ro-Flo® compressors are engineered and built to give you years of reliable, continuous service with no loss of volume or pressure. Because the only wearing parts are the bearings, blades and seals, maintenance costs are minimal. When routine maintenance is required, the simplicity of the Ro-Flo® design makes this process easy — on-site, without removing the compressor from the system.

## **Dependable and Cost-Effective Ro-Flo® Rotary Compressors Offer:**

- Smooth, continuous flow: no reciprocating motion or pulsation. Foundation requirements are minimal.
- Ease of maintenance: normal maintenance can be done in field. Blades, seals and gaskets can be inspected and replaced without removing compressor from the system.
- Available in low- and high-pressure configurations.
- Pressures to 175 psig and flows to 6200 acfm (8900 Mscfd) with a  $\pm 5\%$  guarantee on performance.
- Constant efficiency: centrifugal force keeps blades in contact with cylinder as they wear.

# Ro-Flo® Compressors Cut Your Operating Costs and Maintain Constant Efficiency

Ro-Flo® sliding-vane, positive-displacement-type compressors feature a solid, one-piece rotor eccentrically mounted inside a water-jacketed cylinder. Gas is compressed by being trapped between vanes, which form compartments that become smaller as the gas moves closer to the discharge port. As the volume in these compartments is reduced, the pressure is comparably increased until it is equal to the pressure in the discharge port area. Vanes are kept in contact with the cylinder as they wear by centrifugal force, and move in and out of the rotor slots during each revolution. This results in constant efficiency.



## Rugged, Long-Life Rotor Vanes

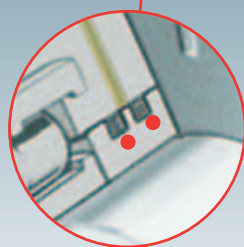
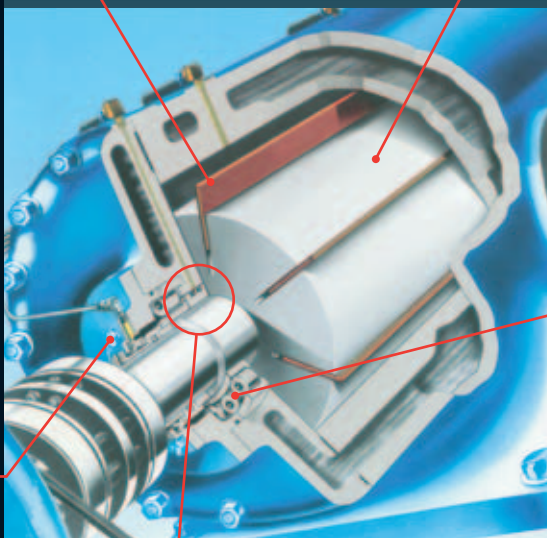
Durable Ro-Flo® rotor blades are the key component in ensuring continuous, reliable compressor service. Years of research and testing resulted in a sliding vane that stands up to the toughest applications. Rotor blade features:

- Self-adjusting, radially sliding vanes maintain constant pressure and flow rates
- Constructed of durable laminated cloth impregnated with phenolic resin, heat-treated to minimize wear at elevated temperatures

## Quality High-Performance Seals

- Ro-Flo® custom-engineered shaft seals are crafted to perform consistently under the dirtiest and most corrosive conditions. "Double bellows" zero-leakage shaft seals are available. Single face mechanical seals are fully field rebuildable.
- Balanced design and proper selection of seal face materials minimize heat build-up and maximize seal life.

## Ro-Flo® Design Features Include:



Detail view of dual, oil-buffered seal rings which prevent bearing and seal contamination in corrosive, dirty gas applications.

## Durable, Precision-Engineered Rotor Shaft

Our standard ASTM 1144 rotor shaft provides years of continuous, worry-free service. Rotor shaft features:

- Resistant to acid gas and solvents, ideal for vapor recovery service
- Radially machined blade slots are hand finished and fully dressed to ensure longer blade life

## Oversized, Corrosion-Resistant Bearings

Ro-Flo® rotor shafts are supported by two identical cylindrical roller bearings. These bearings offer the following special features not found in other bearings:

- Special cage material for corrosion resistance
- Custom-designed internal clearances for high temperature operation
- We use 400 Series roller bearings with higher load capacity than standard 300 Series bearings

# Installations



Five (5) model 8DB Ro-Flo® compressors, each unit compressing 220 acfm of municipal digester gas from 14.3 psia to 55 psig at the Cedar Creek WWTP in Nassau County, NY. The compressors are direct driven by 60-hp electric motors at 1182 rpm.



One (1) model 8DE Ro-Flo® vacuum compressor, boosting 340 Mscfd of wellhead gas from 10 psia to 45 psia for Exxon's Hershey Lease, Bakersfield, CA. A 50-hp electric motor drives the compressor at 1465 rpm through a V-belt drive.



Two (2) model 10GB Ro-Flo® compressors recovering 500 Mscfd of hydrocarbon vapors from 0 psig to 46 psig for Thums-Long Beach, CA offshore unloading station. The compressors are direct driven by 60-hp electric motors at 865 rpm.



One (1) model 19L Ro-Flo® compressor compressing 1979 acfm of landfill gas from 0.5 psig to 25 psig for LFG Specialities at National Serv-All Landfill in Fort Wayne, IN.



Two (2) model 23D Ro-Flo® vacuum compressors recovering propylene oxide for a confidential user in Italy. 2513 acfm of gas is being compressed from 8.9 psia to 36.7 psia using a 250-hp motor at 495 rpm.



Four (4) model 19L Ro-Flo® compressors, each compressing 2300 Mscfd of wet CO<sub>2</sub> and H<sub>2</sub>S from a tank battery at Aera Energy LLC (formerly Shell Oil Co.) in Kern Ridge, CA. The gas is being compressed from 12.0 psia to 43 psia using 250-hp electric motor with a variable-frequency drive.

# Ro-Flo® Rotary Compressors – Typical Performance – Discharge Pressure (PSIA)

Model	Speed	20		25		30		35		40		45		50		55		60		65		70		75		80		85		90		95		100	
		ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP	ACFM	BHP
4CC	865 (min)	25	2	24	2	22	3	21	3	20	3	18	4	17	4	16	5	14	5	13	5	12	6	11	6	9	6	8	7	7	6	7	5	8	15
	1740	61	4	59	5	57	6	55	7	53	8	51	9	49	9	47	10	45	11	44	11	42	12	40	12	38	13	36	13	35	14	33	15	31	8
	2200 (max)	81	5	78	6	75	8	73	9	70	10	68	11	65	12	62	13	60	13	57	14	55	15	53	16	50	16	48	17	46	18	43	18	–	–
5CC	865 (min)	36	2	35	3	34	3	33	4	32	4	31	5	30	5	29	6	28	6	27	6	26	7	25	7	24	8	23	8	22	8	26	9	–	–
	1740	84	5	82	6	80	7	78	8	77	9	75	10	73	11	71	12	69	13	68	13	66	14	64	15	63	16	–	–	–	–	–	–	–	–
	2200 (max)	111	6	108	7	106	9	103	10	101	11	99	13	96	14	94	15	92	16	89	17	87	18	85	19	–	–	–	–	–	–	–	–	–	–
7D	690 (min)	75	4	73	6	71	7	69	8	67	9	65	10	64	11	62	12	60	13	58	14	56	15	55	16	53	17	51	17	49	18	48	19	46	20
	1160	148	7	145	10	142	12	139	14	136	16	133	18	130	20	127	21	124	23	121	24	118	26	115	27	112	29	109	30	–	–	–	–	–	–
	1465 (max)	198	9	194	12	189	15	185	18	181	20	177	23	173	25	169	27	165	29	161	30	158	32	154	34	150	36	–	–	–	–	–	–	–	–
8D	600 (min)	114	7	112	9	109	11	106	12	103	14	100	16	98	18	95	19	92	21	89	22	87	24	–	–	–	–	–	–	–	–	–	–	–	–
	1160	263	13	257	17	251	21	246	25	240	28	235	32	230	35	225	37	219	40	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	1465 (max)	343	16	336	22	328	27	321	31	314	36	307	40	300	44	293	47	286	51	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8DE	600 (min)	141	9	138	12	135	14	131	17	128	19	125	21	122	23	119	24	116	26	113	28	110	30	107	31	–	–	–	–	–	–	–	–	–	–
	1160	338	17	331	23	323	28	315	32	308	36	300	40	293	44	285	47	277	51	271	54	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	1465 (max)	446	22	436	29	425	35	415	40	405	46	395	51	385	56	376	60	366	64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10G	450 (min)	165	10	162	13	158	16	155	19	152	22	148	24	145	27	142	29	139	31	135	33	132	35	129	37	126	39	123	41	–	–	–	–	–	–
	1160	595	27	583	36	570	44	558	51	546	58	535	66	523	72	512	77	500	83	488	89	477	94	–	–	–	–	–	–	–	–	–	–	–	–
	1300 (max)	674	31	660	41	646	49	633	57	619	65	606	74	593	80	579	87	566	93	554	99	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11S	400 (min)	262	16	257	20	252	25	247	29	242	33	237	37	232	40	227	43	223	46	218	49	213	52	209	55	204	28	200	61	195	64	191	67	183	70
	865	727	34	713	44	699	54	686	63	672	71	658	80	645	87	632	94	619	100	606	106	593	113	580	119	567	125	–	–	–	–	–	–	–	–
	1000 (max)	862	39	846	51	829	62	813	72	797	82	781	93	765	101	749	108	734	116	718	123	703	130	688	138	673	145	–	–	–	–	–	–	–	–
11L	400 (min)	299	18	293	24	288	29	282	33	276	38	270	42	265	47	259	50	254	53	248	56	243	59	238	62	232	65	227	68	–	–	–	–	–	–
	865	831	39	815	51	799	62	783	72	767	82	751	93	736	101	721	108	705	115	690	121	675	128	660	134	–	–	–	–	–	–	–	–	–	–
	1000 (max)	986	45	967	59	948	72	929	83	910	94	891	106	873	117	855	125	836	132	819	140	801	148	–	–	–	–	–	–	–	–	–	–	–	–
12S	380 (min)	326	18	319	24	313	30	306	35	300	40	294	45	288	50	282	54	276	57	270	61	264	64	258	68	252	71	246	75	241	78	–	–	–	–
	865	953	41	934	56	916	67	897	79	879	90	861	102	843	114	825	122	807	130	790	138	772	146	755	154	738	162	–	–	–	–	–	–	–	
	920 (max)	1024	44	1004	59	984	71	964	84	946	96	925	108	905	121	886	130	866	138	848	147	830	155	811	164	–	–	–	–	–	–	–	–	–	
12L	380 (min)	368	22	360	29	353	35	345	40	338	46	330	51	323	57	316	61	308	65	301	68	294	72	287	76	280	80	–	–	–	–	–	–	–	–
	865	1078	60	1056	66	1033	77	1011	92	988	104	967	117	946	130	924	138	903	147	882	156	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	920 (max)	1159	53	1134	70	1110	84	1086	97	1063	111	1040	124	1016	138	993	147	971	156	948	166	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17S	310 (min)	424	25	416	33	407	40	399	47	390	53	382	60	374	66	365	71	357	76	349	80	341	85	333	90	325	95	318	99	–	–	–	–	–	–
	690	1229	56	1204	74	1179	90	1155	105	1130	119	1106	134	1082	148	1058	158	1035	169	1012	179	989	190	966	200	943	210	919	220	895	230	871	240	847	250
	760 (max)	1378	62	1349	81	1322	99	1294	115	1267	131	1240	147	1213	162	1186	174	1160	186	1134	197	1108	209	–	–	–	–	–	–	–	–	–	–	–	–
17L	310 (min)	491	32	482	41	473	49	463	57	454	64	445	72	437	79	428	85	419	90	410	95	402	100	393	106	–	–	–	–	–	–	–	–	–	
	690	1423	71	1396	92	1369	110	1343	127	1316	143	1290	159	1264	176	1239	189	1214	200	1188	212	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	760 (max)	1594	78	1564	101	1534	121	1504	139	1475	157	1446	175	1417	193	1388	208	1360	221	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19S	275 (min)	629	37	617	48	606	59	594	69	583	79	572	89	561	99	550	106	539	114	528	121	518	129	507	137	497	144	486	152	476	159	–	–	–	–
	865	1669	77	1639	101	1608	123	1578	144	1548	166	1518	187	1489	206	1460	222	1431	238	1402	254	1374	270	1346	286	–	–	–	–	–	–	–	–	–	–
	640 (max)	1895	85	1860	112	1825	136	1791	160	1757	184	1724	208	1690	230	1657	247	1624	265	1592	283	1560	300	–	–	–	–	–	–	–	–	–	–	–	–
19L	275 (min)	718	41	705	54	691	67	677	78	664	89	650	100	637	111	624	120	611	129	598	138														

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## Industries

We offer a broad range of experience earned through meeting the needs of a diverse customer base including:

- Chemical and petrochemical
- Oil and gas production
- Refining
- Vapor recovery
- Cogeneration
- Coal bed methane
- Power plants/utilities
- Synthetic fuels production
- Waste water treatment
- Solid waste facilities
- Offshore drilling
- Industrial refrigeration

## Applications

We have a proven record of performance in applications as tough as:

- Hydrocarbon vapors
- Natural gas/fuel gas
- Coal bed methane
- Landfill gas
- Digester gas
- Acid gas
- Sour gas (up to 90% H<sub>2</sub>S)
- Refrigeration
- Condenser vacuum
- Wellhead pressure reduction
- Process vacuum
- Polymerizing gas



The information contained herein is general in nature and is not intended for specific construction, installation or application purposes. GE Power Systems Oil & Gas A-C Compressor reserves the right to make changes in specifications shown herein or add improvements at any time without notice or obligation.



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