



ISO 9001 - Cert. n. 1835



MAPRO BioGas Technology



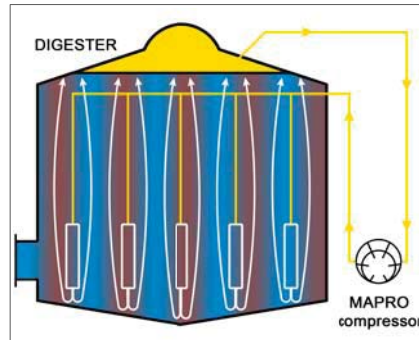
SLIDING VANE ROTARY COMPRESSORS for BIOGAS

Biogas recirculation into anaerobic digesters

Anaerobic digestion is a biological process in which microorganisms break down biodegradable material in the absence of oxygen. It is used as part of the process to treat effluents, sewage sludge, and almost any organic material. It takes place into digesters where the process produces a biogas, mainly consisting of methane and carbon dioxide.

MAPRO® sliding vane rotary compressors are widely used for the agitation of the digester contents.

MAPRO® compressor sucks the biogas from the digester dome and re-injects it at the bottom of the digester, thus providing uniform conditions of the organic material inside.



Main advantages of using MAPRO® compressors

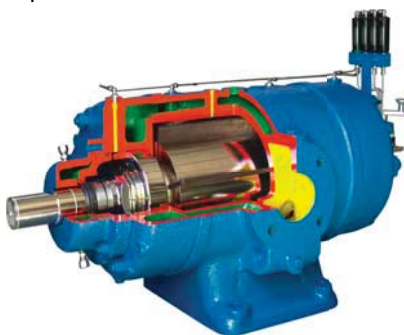
Unchangeable and high efficiency. The power needed for the biogas compression is well lower than that required from other types of compressors with consequent lower operating costs

Simple and economic maintenance

Gas flow without pulsations

Internal protection during compression of biogas. The thin film of lubricating oil, constantly renewed, used for purely mechanical purposes, plays also two important roles:

- protection of the compressor internal surfaces from attack of acids contained in the biogas. Due to this very satisfactory corrosion strength, the sliding vane rotary compressor is the only machine made of common materials such as cast iron and ordinary steel which do not need any protection coat for biogas compression
- removal of the impurities which are in the biogas in the form of solid or liquid particles, with an effect of internal cleaning of the compression chamber



Conformity with 94/9/EC Directive (ATEX)

All MAPRO® biogas compressors are designed in accordance with the 94/9/EC Directive, Equipment-Group II, Category 2, for use in hazardous places, classified as Zone 1, where an explosive atmosphere, consisting of a mixture of air and flammable gases, is likely to occur.



For the mixtures of combustible gases, such as biogas, MAPRO® has chosen to feature the specific technology used for the manufacturing of the compressors, with the trademark:

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SLIDING VANE ROTARY COMPRESSORS for BIOGAS

Performance

Outlet pressure [bar g]		0,5		1		1,2		1,5		1,8		2		2,3		2,5		2,8		3		3,2			
Flow rate		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h		m ³ /h			
Absorbed power		kW		kW		kW		kW		kW		kW		kW		kW		kW		kW		kW		kW	
rpm	Compressor type																								
1450	RF4 G	33	1,3	30,3	1,6	29,3	1,7	27,6	1,9	26	2	25	2,2	22	2,4										
	RF6 G	53	1,9	49	2,5	47,4	2,7	45	3	42,6	3,3	41	3,5	37	3,8										
	RF9 G	83	2,4	78	3,3	76	3,6	73	4	70	4,4	68	4,6	65	5										
	RF12 G	104	3,1	99	4,2	97	4,6	94	5,1	91	5,6	89	5,9	85	6,4										
	RFL15 G	124	4	118	5,2	115	5,6	112	6,2	108	6,8	105	7,2	101	7,8	98	8,2								
	RFL20 G	174	4,9	166	6,7	162	7,3	158	8,2	153	9,1	149	9,7	144	10,6	141	11,2								
	RFL25 G	218	5,7	208	8,2	204	9	198	10,2	192	11,4	188	12,2	182	13,4	176	14,2								
	RFL30 G	273	7,2	262	10	257	11,1	250	12,5	242	13,9	236	14,9	227	16,6	220	17,7								
	RFL40 G	385	10,4	365	14,4	357	15,6	345	17,4	332	19,2	323	20,4	310	22,2	300	23,4								
	RFL50 G	465	12,2	440	17	430	18,4	415	20,5	400	22,6	390	24	372	26,2	360	27,7								
	RFL60 G	550	14	524	19,4	512	21,4	494	24,1	476	26,8	464	28,6	446	31,3										
	RFL65 G	590	14,9	560	20,8	548	22,7	530	25,7	512	28,6	500	30,6	482	33,6										
	R15 G	144	4,9	138	5,8	135	6,3	132	6,9	128	7,6	125	8	122	8,7	119	9,1	115	9,8	111	10,2	107	10,7		
	R20 G	181	5,5	174	6,9	171	7,5	166	8,4	158	9,4	155	9,9	151	10,7	148	11,2	143	12	140	12,6				
	R25 G	242	6,9	232	8,8	228	9,6	222	10,8	216	11,9	212	12,7	206	13,8	202	14,6	196	15,7	192	16,5	188	17,3		
	R30 G	302	8,4	290	10,7	285	11,8	278	13,3	266	15	261	15,8	254	17,2	249	18	242	19,3	237	20,2				
	R40 G	385	11,4	370	14,2	364	15,4	355	17,2	346	18,9	340	20	331	21,5	325	22,5	316	24	310	25	304	26		
	R48 G	448	12,8	432	16,1	426	17,5	416	19,7	406	21,6	400	22,9	382	25,8	375	27	364	28,8	357	30	350	31,2		
R52 G	507	14,2	488	17,7	480	19,7	469	22,3	458	24,3	450	25,6	439	27,9	431	29,2	420	31,3	412	32,7	404	34			
R61 G	580	16,2	559	20,4	550	22,2	537	24,9	524	27,4	516	29,2	494	32,7	485	34,2	473	36,5	464	38	456	39,5			
975	R60 G	587	17,2	565	21,8	556	23,8	543	26,5	530	28,9	521	30,5	508	33	499	34,7	486	37	477	38,4	468	40		
	R70 G	677	20	652	24,5	642	26,8	627	29,7	612	32,6	588	35,6	573	39	563	41	548	43,8	538	45,8	528	47,5		
	R80 G	832	23,5	802	29,5	790	32,4	772	36	754	39,5	742	41,9	724	45,4	712	47,8	694	51,3	682	53,3	670	55,2		
	R100 G	960	27	926	33,5	912	36,7	892	40,9	872	45	839	49	819	54	805	56,7	785	60,7	771	63,4	757	66		
	R121 G	1145	30,5	1105	39	1089	43	1064	48,3	1040	53	1002	58	978	63,7	963	67	939	71,8	923	75	907	78		
735	R140 G	1293	35	1248	45	1230	49,5	1203	56	1176	61,5	1158	65	1131	70,5	1113	74	1086	79,5	1068	83	1050	86,5		
	R160 G	1430	39	1380	49	1360	54	1330	61	1300	67	1280	71	1250	77	1230	81	1200	87	1180	91	1160	95		
	R180 G	1690	47	1630	58	1606	64	1570	72	1534	79,5	1510	84	1474	91	1450	95	1414	102	1390	107	1366	111		
	R190 G	1920	51	1852	65	1824	72	1782	81	1740	90	1690	97	1651	105	1625	111	1586	119	1560	125	1534	130		
585	R250 G	2325	64	2250	79	2219	86	2140	100	2095	110	2065	116	2020	125	1990	131	1945	141	1915	146	1885	153		
	R300 G	2980	78	2880	98	2840	107	2750	126	2690	138	2650	146	2590	158	2550	166	2490	178	2450	186	2410	194		

Flow rates and absorbed power refer to biogas with specific weight 1.14kg/Nm³ and at the suction conditions of: 35°C and 1033 mbar abs.
Tolerance on the given values in accordance with the Standard ISO 1217



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