Calculation of the Rosch Buoyancy Plant by A. Schneider

Jan 02, 2014/AS
Jan 07, 2014/AS
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The buoyancy is caused by the cylindrial floats on one side of the paternoster, where compressed air is pumped in on the lowest point.

Used constants

Mathematical Constant Pi	π	3.14159	
Constant of Gravitation	g	9.80620	m/s2
Water density at 22 degree Celsius	ρ_w	998.777	kg/m3
Air density at 20 degress celsius and pressure of 1 bar	ρ_A	1.29	kg/m3

Red: = Calculations made by Rosch AG
see pdf-File "EN Rosch Power Plant-final"

Force calculation from buyoncy

1. Radius of first half cylinder	r_1	0.12	m
1. Length of first half-cyinder	l_1	0.24	m
1. Radius ofsecond half cylinder	r_2	0.12	m
1. Length of second half-cyinder	l_2	0.64	m
1. Volume of first cylinder	V_1	10.86	l
2. Volumen of second cylinder	V_2	29.13	l
Both cylinder together = 1 float	$V=V_1+V_2$	39.99	l
Numer of floats on one side	z	15	
Mean water displacement per float	f	50%	
Total volume of suppressed water	V_w	299.93	l
Total weight of suppressed water	m	**299.57**	**kg**
Air weight in the buoyancy floats	G_L	0.39	kg
Buoyancy force in Newton	K	**2'934**	**N**

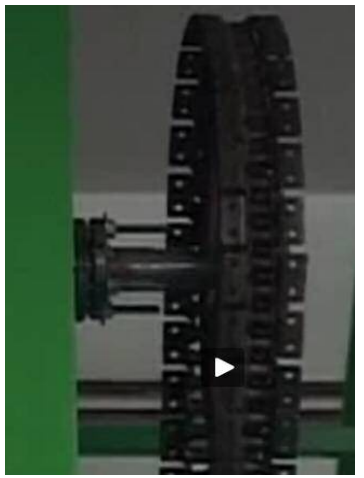
Force calculation **p. 4**

299,63 kg 6th line

2'939 N 7th line

Mechanical output power P calculated via energy gain E per time interval t

Turns per min. of the upper paternoster wheel	n	2	U/min.			
	=	0.033	U/s			
Diameter of the paternoster wheel	d	0.5	m	=	500	mm
Velocity of the chain in m/min	v	3.14159	m/min		Traveled distance	p. 4
	v	**0.05236**	**m/s**		0.052	4th line
Height of the chain with 15 floats	h	8	m			
Needed time for passing the height h	t	152.79	s			
Released energy over the height h	E	23'470.56	Nm		Thrust force calculation	
Generated power	**P_a = E/t**	**0.154**	**kW**		0.154	4th line



Mechanical output power P calculated via torque and rpm

Torque (Radius chain wheel *buoyancy force)	M	733.46	Nm		
Generated power on the chain wheel	P_a = 2*π*M*n	**0.154**	**kW**	corresponding to Rosch	
Transmitted input power to the generator with 3% loss	P_{in} =	**0.149**	**kW**	3% loss 5th line	p.5
Required minimal diameter of axle of the chain wheel					
for haevily loaded short shaft with τ = 78 N/mm					
$(d = 36.5 * (P/n)^{0.33} * (1/\tau)^{0.33})$	d =	**36.31**	mm	corresponding to Rosch	
Reference: http://www.ignou.ac.in/upload/Unit-7-60 p.168f.					

Estimated d diameter of the wheels shaft from photo =1/13 wheel diameter

= 500 mm/13= **38.462**

standard size = **38 mm**

Energy (power) consumption of compressor

Mean volume of compressed air over the heigt h	V_w	299.93	l	Energy consumption	p.5
Correcton factor for decompressed air	k	1.40		calculation	
Effectively needed volume at norm pressure	V_k	419.91	l		
Needed air consumption in l/s		2.75	l/s		
Needed compressor power minimal		164.90	l/min.		
Used Compressor (it is sufficient)		200.00	l/min.		
Nominal power of the used compressor		1.70	kW		
Effectively needed power of the compressor	**P_e**	**1.40**	**kW**	1,40 kW	9th line

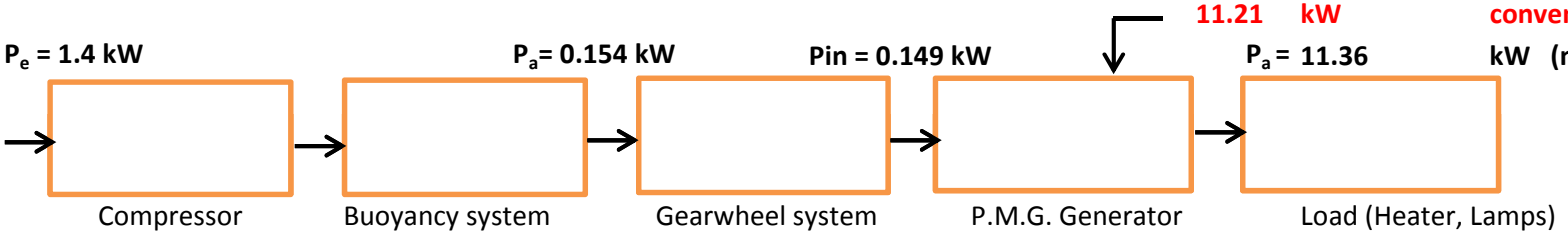
Efficiency buoyancy plant	**P_e/P_a**	**10.96**	**%**	**Relationship of mechanical output to eletrical input**

Electrical output power generator (measured)	P_{out}	**11.36 kW**	Nov. 15, 2013, Dipl.-Ing. Adolf Schneider	
		12,00 kW	Aug. 10, 2013, Dipl.-Phys. Dipl.-Ing. W. Fack	
Generator efficiency		98%	**2%**	**loss 6th line p.5**
Mechanical power in from electrical output power	P_m	**11.59 kW**	derived from the measurement of Nov. 15, 2013	
Transmission efficiency		97%	**3%**	**loss 5th line p.5**

"Calculated mechanical power" of the paternoster from the electrical output power	P_{PN}	**11.71 kW**	**This power cannot be present at the shaft of the upper wheel of the paternoster because the steel of the shaft cannot sustain the torque M as calculated (on the left)**
Theoretical Torque on the wheel's shaft	$M = P_m/(2*\pi*n)$	16'510.06 Nm	
Theoretical tangential force on the wheel	K = M/radius	66'040.22 N	**Also the force K is to high for the tooths of the wheel !!!**

Block diagram of the complete Buoyancy system

Additional mysterious power P_{add} flowing in via "space energy" or other more conventional bypass input !!!



In the case that the additional power is flowing into the generator via special designed magnetic system which converts some space energy via coupling of the elementary magnets to the Quantum Vacuum we can calculate a very high COP by relating the electrical output to the electrical input

Efficiency of the complete system P_a/P_e= **810%**

Such an efficiency would allow that the required input power could be feeded back from the output power which is 8.1 times the input power.
But this is only possible when the mysterious additional input power can be traced down (bypass path from grid or O/U-P.M.G. generator)

Standard P.M.G. generators: see e.g. products from Polen http://pmg-technology.com/o-firmie/
Generators with COP >> 1: see e.g. http://www.borderlands.de/Links/HighEfficientPMGenerators.pdf