

Technical Specifications

- Three speed pumps.
- Close coupled, non-sealed, wet rotor type construction.
- **Flange connection:** PN 6/PN 10, inline type available for pipe connection. (DIN 2531 & EN 1092-2)
- **Permitted temp for the liquid:** TF 110 Class (EN 60335-2-51) Maximum 110°C
- **Motor protection class:** IP 44 (EN 60259)
- **Isolation class:** H
- **Environment Temperature:** 0 / +40°C
- Noise Level < 43

Materials

- **Pump body:** Cast iron GG-25
- **Shaft:** Stainless Steel
- **Impeller:** Polyethylene reinforced with glass fibers.

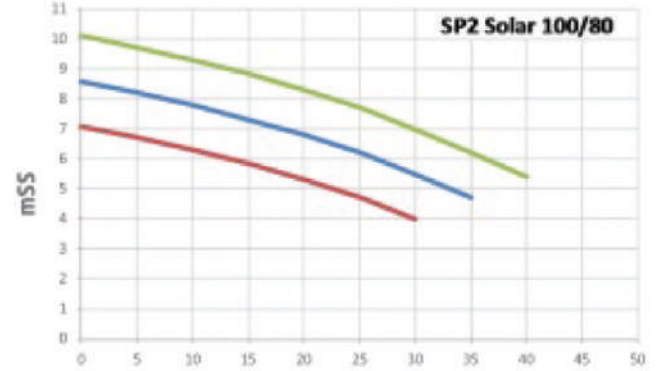
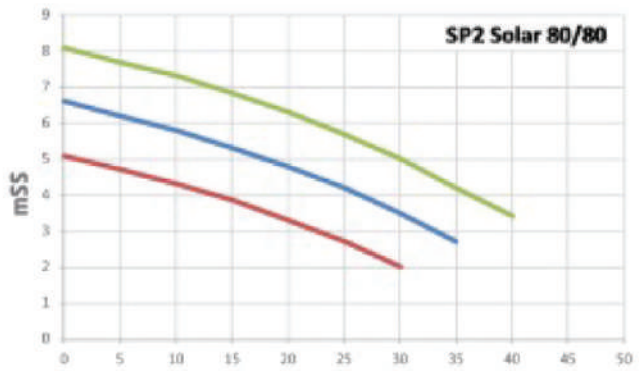
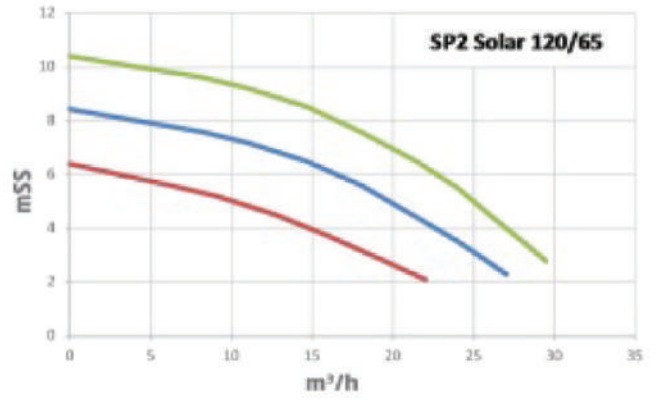
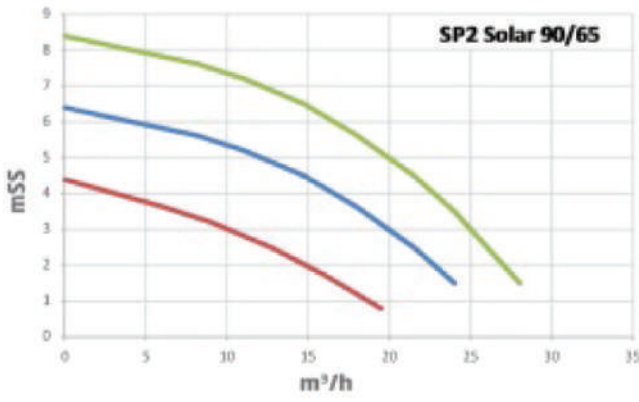
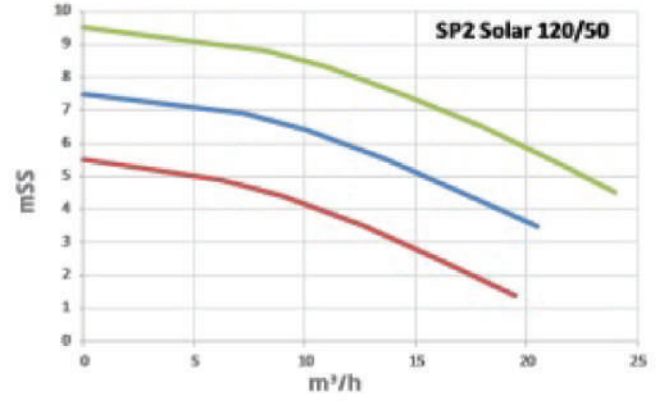
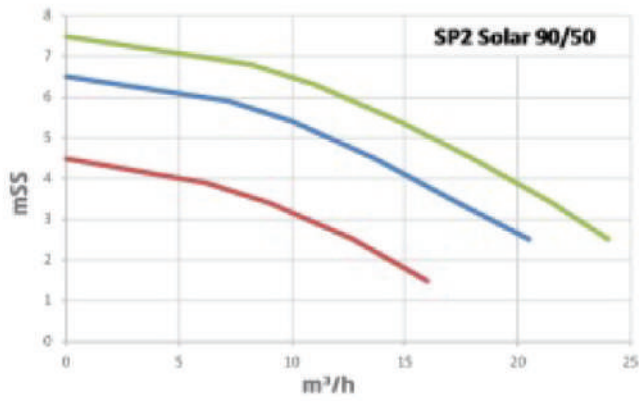
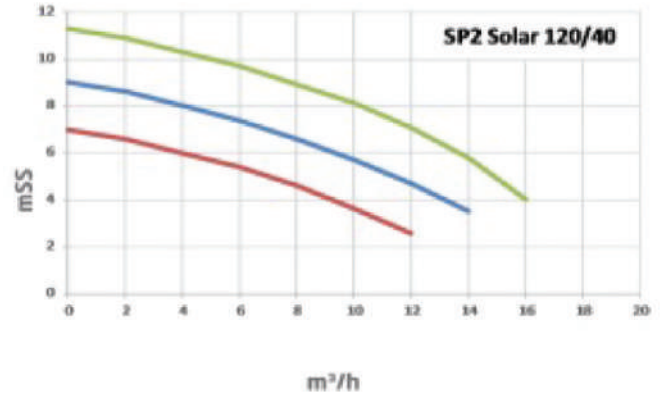
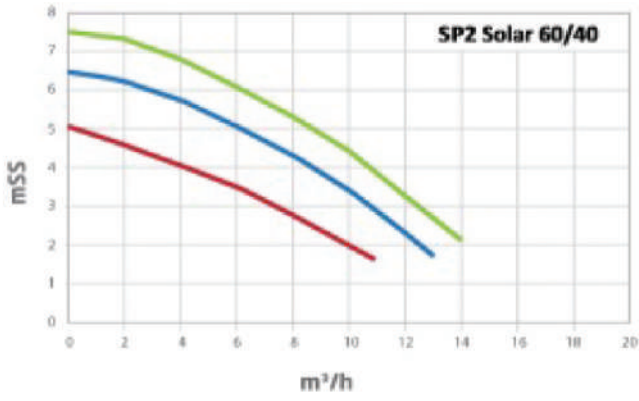
Electronic Cart

- Current protection
- Motor blokage protection
- Voltage protection



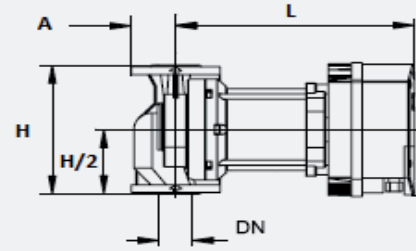
Three Speed Wet Rotor Solar Energy Circulation Pumps

Pump Type	Speed Stage	Power (Watt)	Power Input	Inlet/Outlet	H (mm)	Weight (kg)	WxLxH (cm)
SP2-Solar 60/40 M	3 2 1	320 195 160	220 V Monophase	DN 40	250	20	40x20x43
SP2-Solar 60/40 T	3 2 1	400 330 250	380 V Triphase	DN 40	250	20	40x20x43
SP2-Solar 120/40 T	3 2 1	490 340 295	380 V Triphase	DN 40	250	20	40x20x43
SP2-Solar 90/50 T	3 2 1	550 490 400	380 V Triphase	DN 50	280	22	40x20x43
SP2-Solar 120/50 T	3 2 1	800 710 620	380 V Triphase	DN 50	280	22	40x20x43
SP2-Solar 90/65 T	3 2 1	1300 1100 950	380 V Triphase	DN 65	340	34	47x24x47
SP2-Solar 120/65 T	3 2 1	1550 1300 1100	380 V Triphase	DN 65	340	34	47x24x47
SP2-Solar 80/80 T	3 2 1	1450 1250 1100	380 V Triphase	DN 80	360	37	47x24x47
SP2-Solar 100/80 T	3 2 1	1700 1520 1350	380 V Triphase	DN 80	360	37	47x24x47



Technical Specifications

- New generation circulation pumps for reducing energy consumption with permanent magnet motor technologies.
- With integrated inverter on the motor the pump works according to;
 - ΔP -Constant
 - Preset limited current value
 - Preset limited motor power value
- Close coupled, non-sealed, wet rotor type construction.
- Union connection: inline type available for pipe connection.
- Permitted temp for the liquid: 110°C max.
- Motor protection class: IP 44
- Isolation class: H



Materials

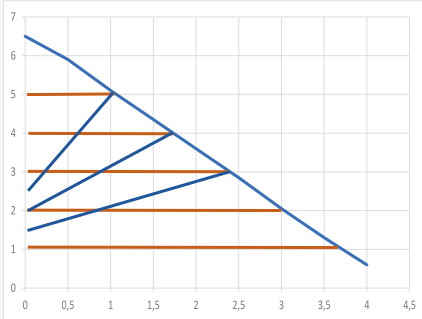
- Pump body: Cast iron GG-25
- Shaft: Stainless Steel
- Impeller: Polyethylene reinforced with glass fibers



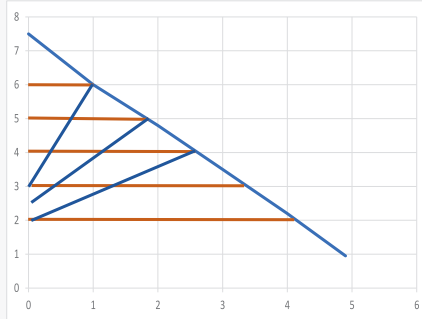
High Efficiency Variable Speed Circulation Pump with Union Connection

Pump Type	Power (Watt)	Power Input	H (mm)	Weight (kg)	Inlet/ Outlet	WxLxH (mm)
alfaMAG 70/25	37	220 V Monophase	180	6	11/2"-1"	19x15x19
alfaMAG 80/25	56			6.5		
alfaMAG 80/32	66			8	2"-11/4"	20x16x20
alfaMAG 90/32	99					
alfaMAG 100/32	163					
alfaMAG 110/32	173					
alfaMAG 120/32	195			18	40x20x43	

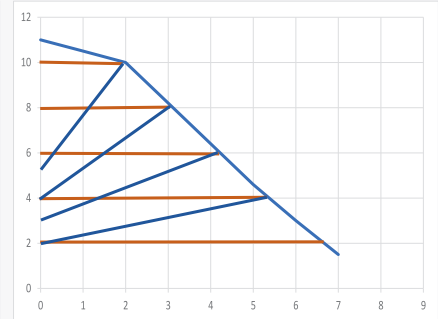
alfaMAG 70/25



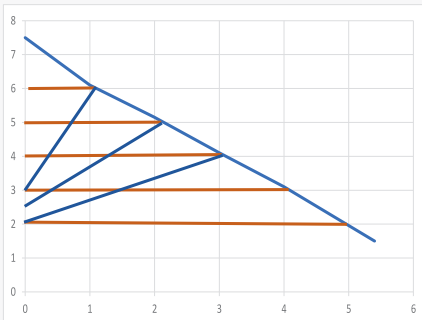
alfaMAG 80/25



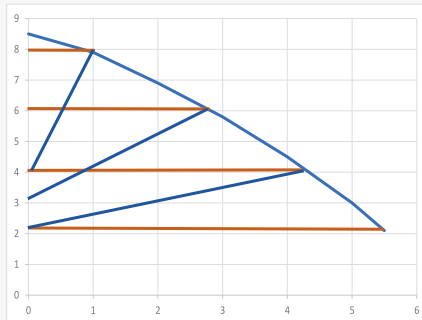
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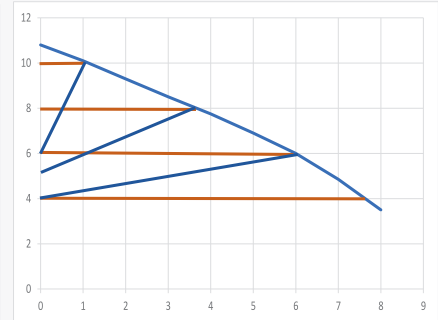
alfaMAG 80/32



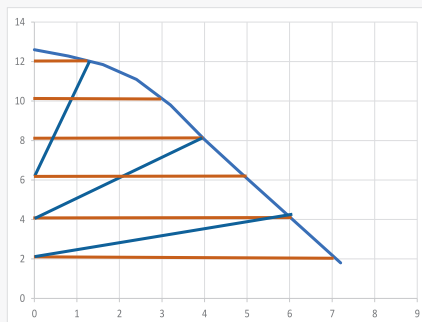
alfaMAG 90/32



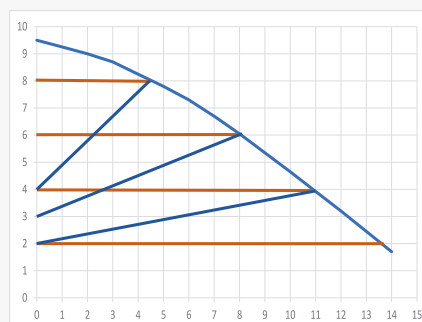
alfaMAG 100/32



alfaMAG 110/32



alfaMAG 120/32

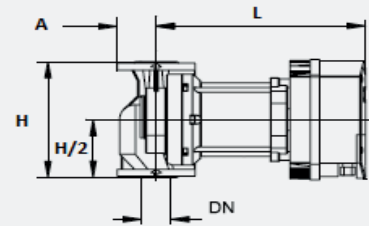


Technical Specifications

- New generation circulation pumps for reducing energy consumption with permanent magnet motor technologies.
- With integrated inverter on the motor the pump works according to;
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- Flange connection: PN 6/PN 10, inline type available for pipe connection.
- Permitted temp for the liquid: 110°C max.
- Motor protection class: IP 44
- Isolation class: H

Materials

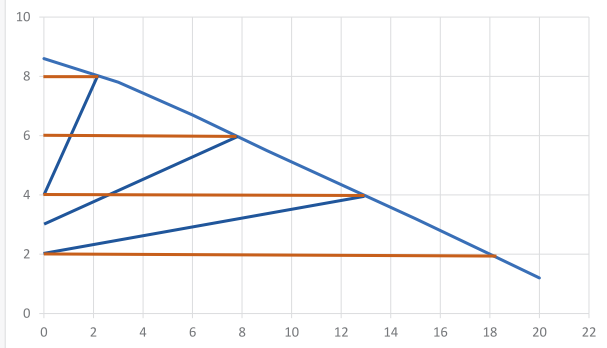
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- Shaft: Stainless Steel
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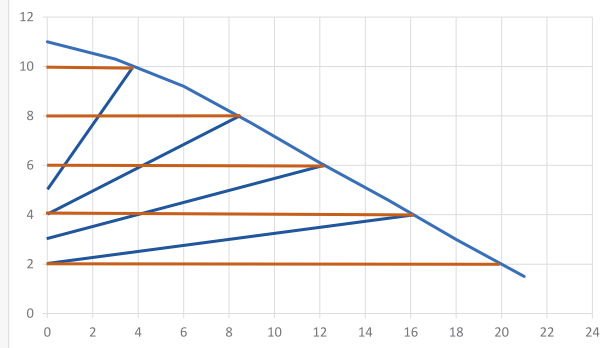
High Efficiency Variable Speed Circulation Pump with Flanged Connection

Pump Type	Power (Watt)	Power Input	H (mm)	Weight (kg)	Inlet/Outlet	WxLxH (mm)
alfaMAG 80/40 F	280	220 V Monophase	250	25	DN 40	40x20x43
alfaMAG 100/40 F	395					
alfaMAG 120/40 F	490		280	27	DN 50	40x20x43
alfaMAG 150/40 F	550					
alfaMAG 80/50 F	540		340	31	DN 65	47x24x47
alfaMAG 100/50 F	635					
alfaMAG 120/50 F	750		360	32	DN 80	47x24x47
alfaMAG 150/50 F	830					
alfaMAG 80/65 F	1200		360	36	DN 80	47x24x47
alfaMAG 100/65 F	1300					
alfaMAG 120/65 F	1400		360	37	DN 80	47x24x47
alfaMAG 150/65 F	1500					
alfaMAG 80/80 F	1450		360	43	DN 80	47x24x47
alfaMAG 100/80 F	1650					
alfaMAG 120/80 F	1700		360	44	DN 80	47x24x47
alfaMAG 150/80 F	1650					

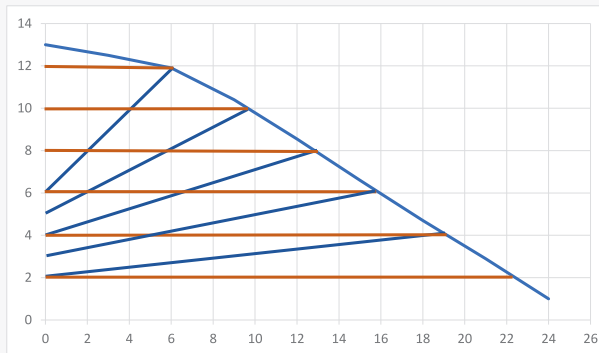
alfaMAG 80/40 F



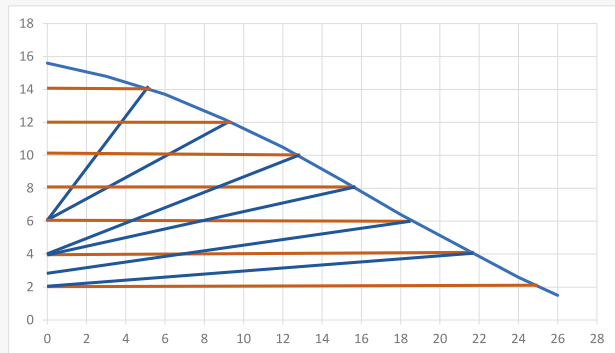
alfaMAG 100/40 F



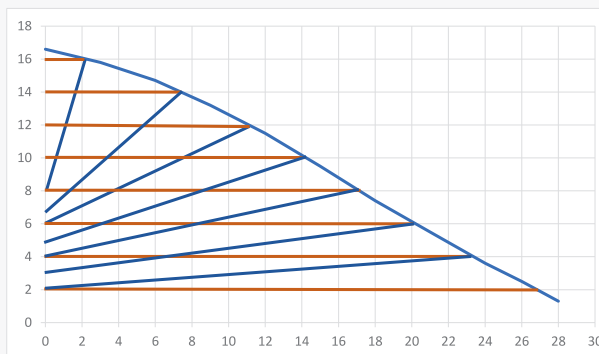
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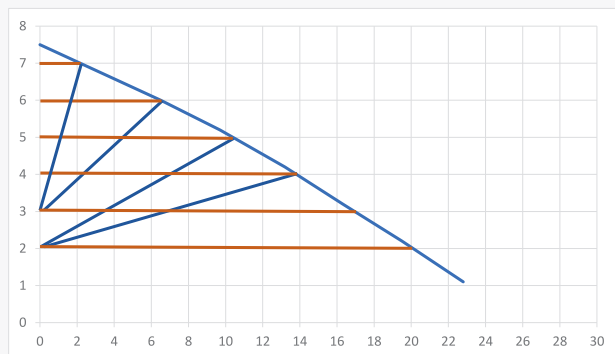
alfaMAG 150/40 F



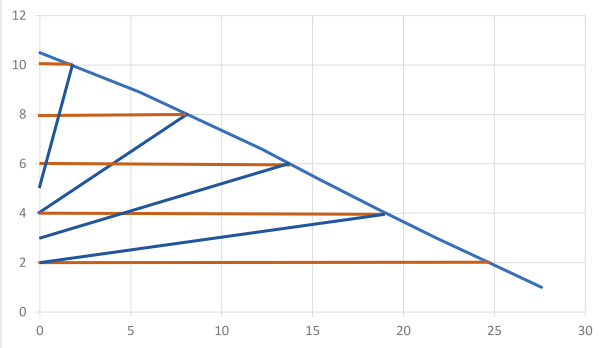
alfaMAG 180/40 F



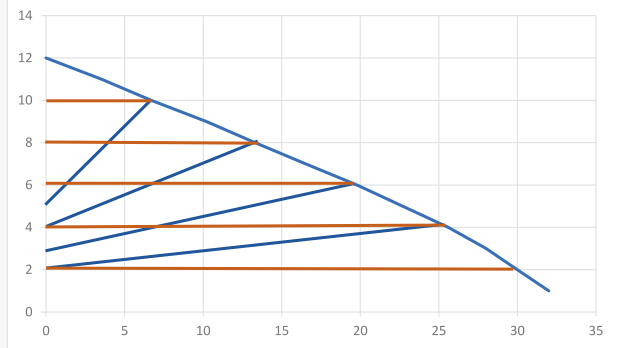
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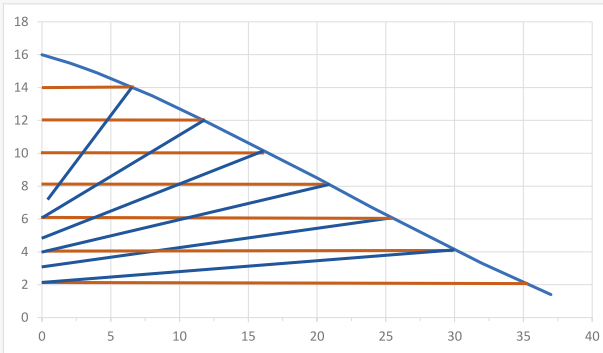
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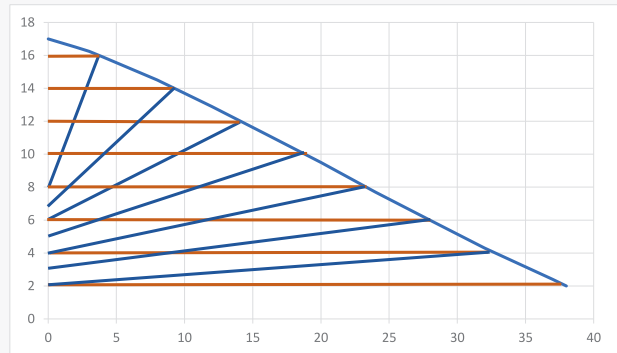
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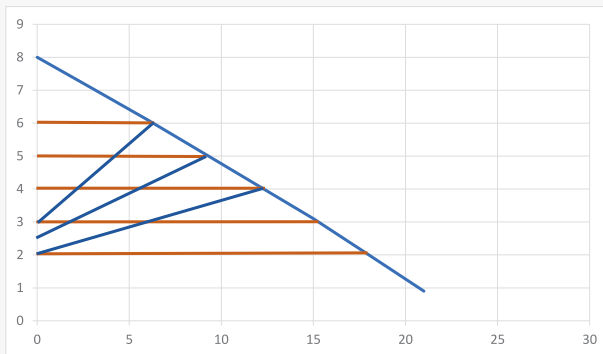
alfaMAG 150/50 F



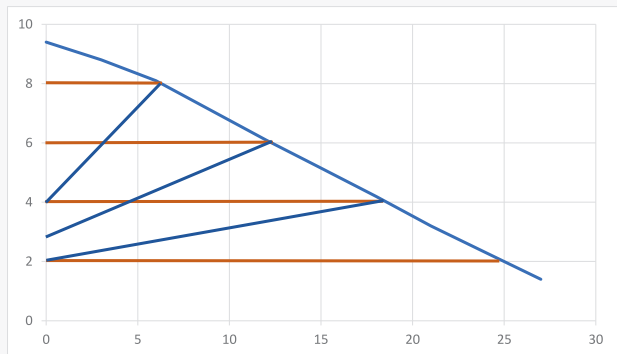
alfaMAG 180/50 F



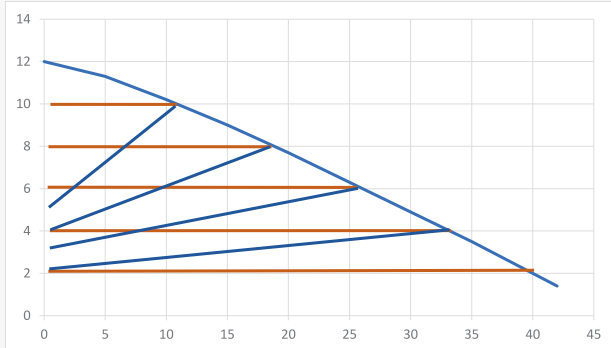
alfaMAG 80/65 F



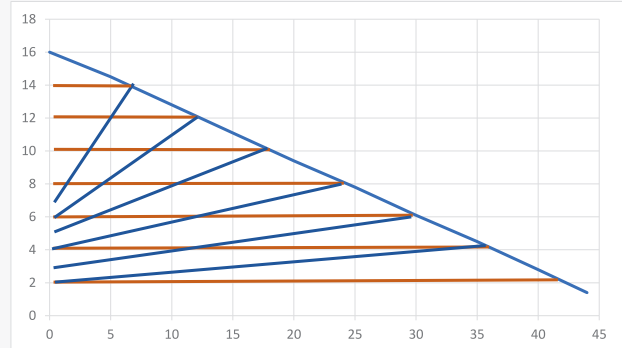
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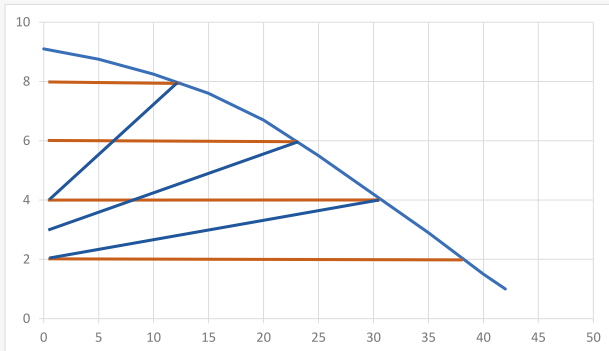
alfaMAG 120/65 F



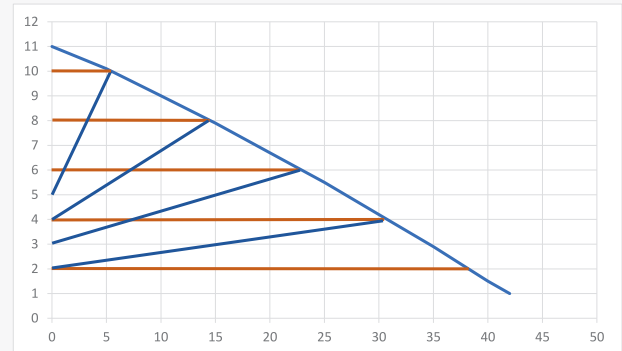
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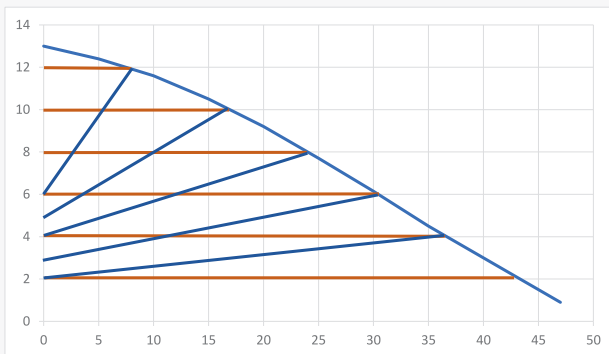
alfaMAG 80/80 F



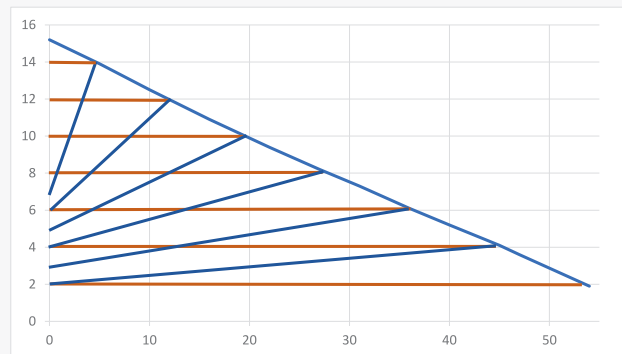
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alfaMAG 120/80 F

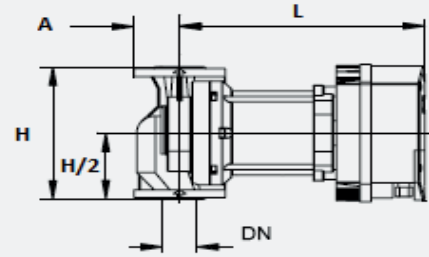


alfaMAG 150/80 F



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- Flange connection: PN 6/PN 10 , inline type.
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- Motor protection class: IP 44
- Isolation class: H



Materials

- Pump body: Cast iron GG-25
- Shaft: Stainless Steel
- Impeller: Polyethylene reinforced with glass fibers



High Efficiency Variable Speed Circulation Pump with Flanged Connection

Pump Type	Power (Watt)	Power Input	H (mm)	Weight (kg)	Inlet/Outlet	WxLxH (mm)
alfaMAG-D 80/40 F	2x280	220 V Monophase	250	50	DN 40	80x20x43
alfaMAG-D 100/40 F	2x395					
alfaMAG-D 120/40 F	2x490			54		
alfaMAG-D 150/40 F	2x550					
alfaMAG-D 80/50 F	2x540		280	62	DN 50	80x20x43
alfaMAG-D 100/50 F	2x635					
alfaMAG-D 120/50 F	2x750					
alfaMAG-D 150/50 F	2x830					
alfaMAG-D 80/65 F	2x1200		340	72	DN 65	94x24x47
alfaMAG-D 100/65 F	2x1300					
alfaMAG-D 120/65 F	2x1400					
alfaMAG-D 150/65 F	2x1500					
alfaMAG-D 80/80 F	2x1450		360	86	DN 80	94x24x47
alfaMAG-D 100/80 F	2x1650					
alfaMAG-D 120/80 F	2x1700					
alfaMAG-D 150/80 F	2x1650					

[illegible]

The graph shows the relationship between the number of nodes (n) and the number of edges (m) for a graph with a given degree sequence. The x-axis represents the number of nodes (n) from 0 to 28, and the y-axis represents the number of edges (m) from 0 to 18. A blue curve represents the upper bound, and several orange lines represent the lower bounds for different degree sequences.

Number of Nodes (n)	Upper Bound (m)	Lower Bound 1 (m)	Lower Bound 2 (m)	Lower Bound 3 (m)	Lower Bound 4 (m)	Lower Bound 5 (m)	Lower Bound 6 (m)	Lower Bound 7 (m)
0	15.5	7.5	6.5	5.5	4.5	3.5	2.5	1.5
4	14.5	13.5	12.5	11.5	10.5	9.5	8.5	7.5
8	13.5	12.5	11.5	10.5	9.5	8.5	7.5	6.5
12	12.5	11.5	10.5	9.5	8.5	7.5	6.5	5.5
16	11.5	10.5	9.5	8.5	7.5	6.5	5.5	4.5
20	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5
24	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
28	8.5	7.5	6.5	5.5	4.5	3.5	2.5	1.5

The graph illustrates the evolution of the number of nodes in the network over time. The x-axis represents time from 0 to 30, and the y-axis represents the number of nodes from 0 to 18. A blue line shows the total number of nodes, which starts at 18 and decreases linearly to 2 at time 28. Orange lines represent individual nodes, each starting at a different time and decreasing linearly to 0 at a different time. The nodes are labeled with their initial number of nodes at the start of their evolution.

Node Label	Start Time	End Time	Start Value	End Value
18	0	28	18	2
16	0	16	16	0
14	0	12	14	0
12	0	8	12	0
10	0	4	10	0
8	0	0	8	0
6	0	0	6	0
4	0	0	4	0
2	0	0	2	0

The graph illustrates the network's structure over time. The total number of nodes (blue line) decreases linearly from 12 at time 0 to 2 at time 45. The number of nodes in different clusters (orange lines) remains constant over time. The clusters are represented by horizontal lines at y=2, y=4, y=6, y=8, y=10, and y=12.

Time (t)	Total Nodes (Blue)	Cluster 1 (Orange)	Cluster 2 (Orange)	Cluster 3 (Orange)	Cluster 4 (Orange)	Cluster 5 (Orange)	Cluster 6 (Orange)
0	12	2	4	6	8	10	12
10	10	2	4	6	8	10	12
20	8	2	4	6	8	10	12
30	6	2	4	6	8	10	12
40	4	2	4	6	8	10	12
45	2	2	4	6	8	10	12

The graph illustrates the relationship between the number of nodes (x-axis, 0 to 50) and the number of edges (y-axis, 0 to 10) for a graph with 5 nodes. The x-axis is labeled 'Number of nodes' and the y-axis is labeled 'Number of edges'. A blue curve represents the maximum number of edges for a given number of nodes. Horizontal orange lines indicate the number of edges for each node count. The data points are as follows:

Number of nodes	Number of edges
1	0
2	1
3	3
4	6
5	10

Time (t)	n (alpha=0.1)	n (alpha=0.2)	n (alpha=0.3)	n (alpha=0.4)	n (alpha=0.5)
0	4	4	4	4	4
5	3.2	3.8	3.6	3.4	3.2
10	2.4	3.2	3.0	2.8	2.6
15	1.6	2.6	2.4	2.2	2.0
20	0.8	2.0	1.8	1.6	1.4
25	0	1.4	1.2	1.0	0.8
30	0	0.8	0.6	0.4	0.2
35	0	0.2	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0