ADAC
INVERTER

CE

PRESSURE PUMPS

ADAC is the leading edge of the Dab Inverters family.
Are ideal for **HEAVY DUTY APPLICATIONS**
They can drive pumps of up to 15 kW. These units combine the simplicity with the robust design and power of an inverter drive. They can be installed in a control panel and must be supplied with external pressure.
The use of a flow sensor (OPTIONAL), allows a better pressure regulation.
The **ADAC** can easily be set up in booster sets,thanks to a standard wire cable connection.

Comfort, energy saving, protections and simplicity are the keywords of this professional series.
The ADAC units are air cooled. These extremely robust panel-mounting inverters feature a metal body and are suitable for heavy-duty applications.
ADAC ensure the utmost practicality and increase the average workinglife of the system, permitting also signifi cant savings in power consumption.

ACCESSORIES
PAG. 19

TECHNICAL DATA

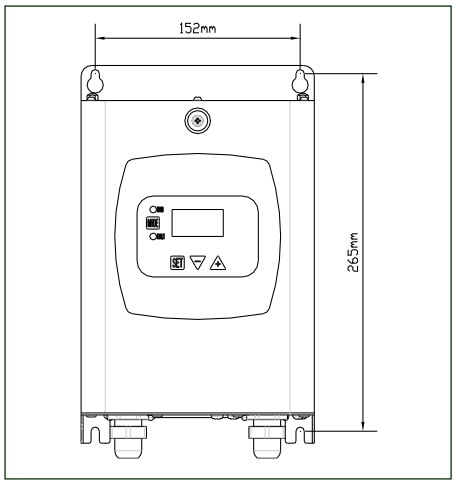
MODEL	CODE	NOMINAL MOTOR POWER kW	MAX NOMINAL MOTOR CURRENT A	MIN NOMINAL MOTOR CURRENT A	VOLTAGE 50 Hz	PUMP VOLTAGE 50 - 200 Hz
AD M/T 1.0 AC	60145522	1,0	6.5	1	1x230	3x230
AD M/T 1.5 AC	60145523	1,5	9,0	1	1x230	3x230
AD M/T 2.2 AC	60145524	2.2	11,5	1	1x230	3x230
AD T/T 3.0 AC	60145525	3,0	9,0	2	3x400	3x400
AD T/T 4.0 AC	60145526	4,0	11	2	3x400	3x400
AD T/T 5.5 AC	60145527	5,5	15	2	3x400	3x400
AD T/T 7.5 AC	88002773	7,5	22	2	3x400	3x400
AD T/T 11.0 AC	88002774	11	31	2	3x400	3x400
AD T/T 15.0 AC	88002775	15	41	2	3x400	3x400

PRODUCTS SUPPLIED WITH ADAC

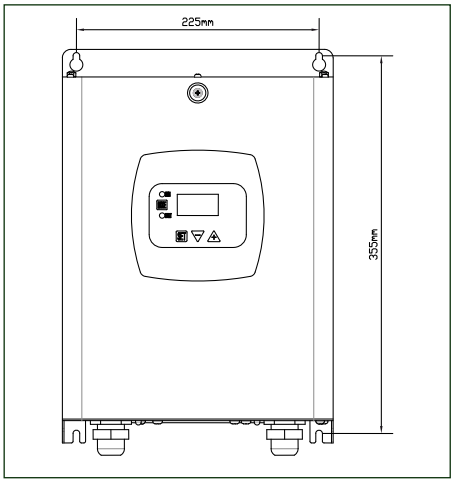
PRESSURE UNITS	
2 NKVE 10-15-20 ADAC	pag. 636

DIMENSIONS AND WEIGHTS

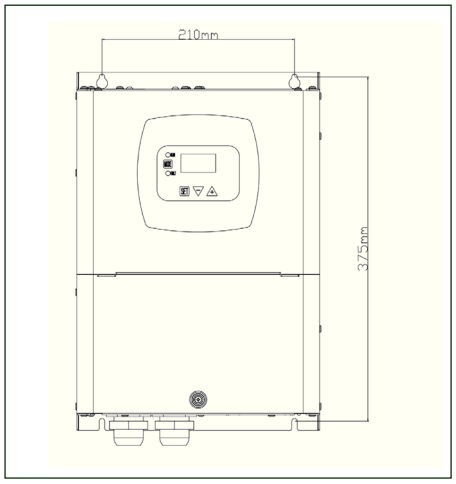
AD M/T 1.0 AC – AD M/T 1.5 AC
AD M/T 2.2 AC



AD T/T 3.0 AC – AD T/T 4.0 AC
AD T/T 5.5 AC



AD T/T 7.5 AC – AD T/T 11.0 AC
AD T/T 15.0 AC



MODEL	L	H	D	PACKAGING DIMENSIONS			WEIGHT KG	Q.TY x PALLET
				L/D	L/L	H		
AD M/T 1.0 AC	200	199	262	300	350	250	5	24
AD M/T 1.5 AC	200	199	262	300	350	250	5	24
AD M/T 2.2 AC	200	199	262	300	350	250	5	24
AD T/T 3.0 AC	267	196	352	350	570	250	7,6	12
AD T/T 4.0 AC	267	196	352	350	570	250	7,6	12
AD T/T 5.5 AC	267	196	352	350	570	250	7,6	12
AD T/T 7.5 AC	343	244	425	380	520	300	12	12
AD T/T 11.0 AC	343	244	425	380	520	300	12	12
AD T/T 15.0 AC	343	244	425	380	520	300	12	12

ENERGY SAVING

Reducing motor speed, even marginally, can lead to an appreciable reduction in power consumption because the absorbed power of an electric motor is proportional to the rpm cubed. For example, a pump powered by the mains that runs at approximately 2950 rpm, will run approximately 20% slower (i.e. at 2360 rpm) when fed with a 40 Hz supply, leading to a saving of 40% in terms of absorbed power. The motor speed reduction increases pump life signifi cantly, thanks to the reduction of mechanical stress.

Pump performance in relation to variations in rpm
Pump rpm n has a very signifi cant infl uence on pump performance.
In the absence of cavitation phenomena the law of similarity is applicable, as shown in equation 1.

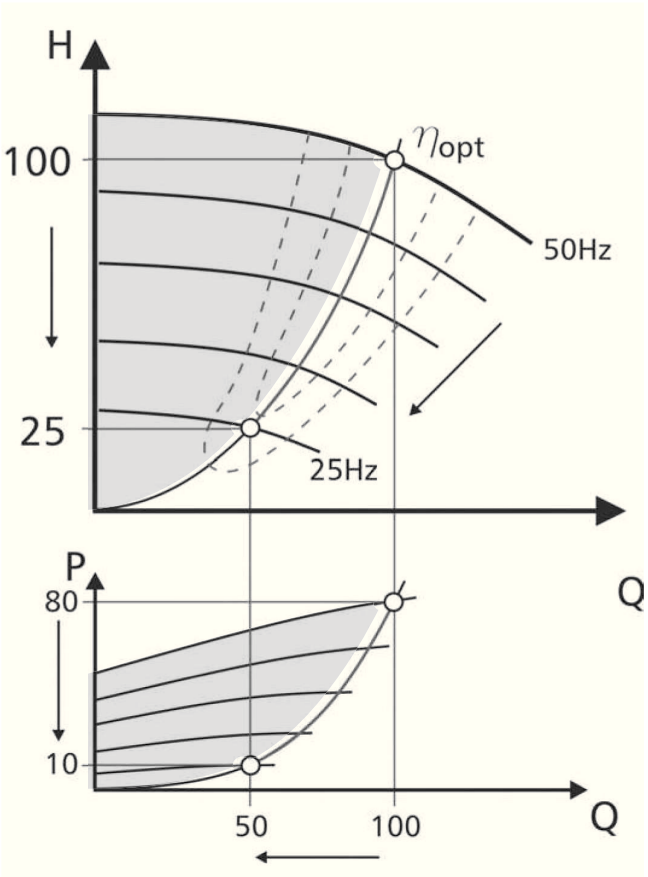
- Flow rate changes in a linear manner with changes in speed.
- Pressure changes in a squared relationship with changes in rpm.
- Power changes in a cubed relationship with changes in rpm.
- A small change in rpm produces a very large change in power.

Equation 1

$$\frac{Q_x}{Q} = \frac{n_x}{n} \qquad Q_x = Q \times \frac{n_x}{n}$$

$$\frac{H_x}{H} = \left(\frac{n_x}{n}\right)^2 \qquad H_x = Hx \left(\frac{n_x}{n}\right)^2$$

$$\frac{P_x}{P} = \left(\frac{n_x}{n}\right)^3 \qquad P_x = Px \left(\frac{n_x}{n}\right)^3$$



- a lowering of the fl ow acc. to the linear function.
- a reduction of the head according to a quadratic function.
- a reduction of the power consumption acc. to a cubic function!

POWER ECONOMY TABLE

AD M/T 1.0 AC – AD M/T 1.5 AC - AD M/T 2.2 AC

Example showing use of a 2,2 kW pump for 10 hours/day *

Performance required of the pump	Minutes/ day	Instantaneous power (ON/OFF)	Power with MCE/P	kWh (ON/OFF)	kWh (INVERTER)	kWh saved
0% - 20%	30	1,32	0,50	0,66	0,25	0,41
20% - 30%	30	1,32	0,50	0,66	0,25	0,41
30% - 40%	60	1,37	0,55	1,37	0,55	0,82
40% - 50%	240	1,41	0,60	5,66	2,39	3,27
50% - 60%	120	1,54	0,69	3,08	1,38	1,70
60% - 70%	54	1,82	0,94	1,64	0,85	0,79
70% - 80%	30	2,04	1,30	1,02	0,65	0,37
80% - 90%	24	2,17	1,76	0,87	0,70	0,16
90% - 100%	12	2,20	2,07	0,44	0,41	0,03
			TOT.	**15,39**	**7,44**	**7,95**

YEARLY SAVING
7,95 kWh X 365 = **2902 kWh**
2902 kWh X 0,2 €/ kWh =
€ 580,34

As we will see, in an average day of operation the ADAC unit provides a **saving of 7,95 kWh**, equivalent to 60%, with respect to the consumption of a conventional on/off pump.

AD T/T 3.0 AC – AD T/T 4.0 AC - AD T/T 5.5 AC

Example showing use of a5,5 kW pump for 10 hours/day *

Performance required of the pump	Minutes/ day	Instantaneous power (ON/OFF)	Power with MCE/P	kWh (ON/OFF)	kWh (INVERTER)	kWh saved
0% - 20%	30	3,30	1,26	1,65	0,63	1,02
20% - 30%	30	3,30	1,26	1,65	0,63	1,02
30% - 40%	60	3,42	1,38	3,42	1,38	2,04
40% - 50%	240	3,54	1,49	14,14	5,97	8,17
50% - 60%	120	3,85	1,73	7,70	3,46	4,24
60% - 70%	54	4,56	2,36	4,10	2,12	1,98
70% - 80%	30	5,11	3,26	2,55	1,63	0,92
80% - 90%	24	5,42	4,40	2,17	1,76	0,41
90% - 100%	12	5,50	5,19	1,10	1,04	0,06
			TOT.	**38,48**	**18,61**	**19,87**

YEARLY SAVING
19,87 kWh X 365 = **7254 kWh**
7254 kWh X 0,2 €/ kWh =
€ 1.450,85

As we will see, in an average day of operation the ADAC unit provides a **saving of 19,87 kWh**, equivalent to 60%, with respect to the consumption of a conventional on/off pump.

AD T/T 7.5 AC - AD T/T 11.0 AC - AD T/T 15.0 AC

Example showing use of a 15 kW pump for 10 hours/day *

Performance required of the pump	Minutes/day	Instantaneous power (ON/OFF)	Power with PWM	kWh (ON/OFF)	kWh (INVERTER)	kWh saved
0% - 20%	30	9,00	3,43	4,50	1,71	2,79
20% - 30%	30	9,00	3,43	4,50	1,71	2,79
30% - 40%	60	9,32	3,75	9,32	3,75	5,57
40% - 50%	240	9,64	4,07	38,57	16,29	22,29
50% - 60%	120	10,50	4,71	21,00	9,43	11,57
60% - 70%	54	12,43	6,43	11,19	5,79	5,40
70% - 80%	30	13,93	8,89	6,96	4,45	2,52
80% - 90%	24	14,79	12,00	5,91	4,80	1,11
90% - 100%	12	15,00	14,14	3,00	2,83	0,17
			TOT.	**104,96**	**50,75**	**54,20**

As we will see, in an average day of operation the ADAC unit provides a **saving of 54,20 kWh**, equivalent to 60%, with respect to the consumption of a conventional on/off pump.

YEARLY SAVING
54,20 kWh X 365 = **19784 kWh**
19784 kWh X 0,2 €/ kWh =
€ 3.956,86

*The table shows a comparison of **daily consumption** of a standard pump driven by an On/Off system and a pump driven by a ADAC inverter.