Conex® DIA-G, DIS-G

Gas warning systems

For Cl_2, ClO_2, O_3, NH_3, HCl

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1. Product features

Conex DIA-G gas warning systems

The Conex DIA-G safety system monitors gas dosing installations and storage rooms.

Features

- Monitoring of two different storage rooms or two different gases at the same time.
- Simultaneous display of both measured values.
- Optimum safety thanks to permanent sensor monitoring, alarm relay and optional backup operation (uninterrupted power supply) by connection of an external buffer battery.
- Very short response time in case of a sudden change of the gas concentration.
- Long and maintenance-free sensor service life.
- Sensor recognition and auto-calibration as well as monitoring of sensor life.
- Separate sensor interface for one potentiostatic sensor. When using the separate sensor interface, Conex DIA-G can be installed in a control room at a distance of up to 500 m from the sensor interface.
- Connection of potentiostatic sensors via CAN-bus.
- Connection with AquaVision software or PLC via CAN-Bus.
- Optional audible and visual alarm device.
- Wide-range power supply unit 110-240 V - 10 %/+ 10 % (50/60 Hz) or 24 V DC.
- Display languages: German, English, French, Spanish, Polish and Russian.

Monitoring parameters

- Chlorine
- Chlorine dioxide
- Ozone
- Ammonia
- Hydrochloric acid.

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Fig. 1 Conex DIA-G gas warning system with sensor interfaces and potentiostatic sensors

Conex DIS-G gas warning systems

The Conex DIS-G safety system monitors gas dosing installations and storage rooms.

Features

- Monitoring of two gases at the same time
- Simultaneous display of both measured values
- Optimum safety thanks to the automatic sensor test function
- Very short response time in case of a sudden change of the gas concentration
- Long and maintenance-free sensor service life
- Optional audible and visual alarm device
- Display languages: German, English and French.

Monitoring parameters

- Chlorine
- Chlorine dioxide
- Ozone.

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Fig. 2 Conex DIS-G gas warning system with amperometric sensors

2. Identification

Type key: Gas warning controllers

Example: DIA-G, 1-D/A/HC 2-D/A/HC, W-J

Example:	DIA-G	1-D/A/HC	2-D/A/HC	W	-J
Conex gas warning system					
DIS-G	Dosing Instrumentation Standard, with gas detection				
DIA-G	Dosing Instrumentation Advanced, with gas detection				
Sensor 1					
D	Chlorine gas/chlorine dioxide gas/ozone gas				
A	Ammonia gas				
HC	Hydrochloric acid gas				
Sensor 2					
D	Chlorine gas/chlorine dioxide gas/ozone gas				
A	Ammonia gas				
HC	Hydrochloric acid gas				
X	No sensor				
Mounting					
W	Wall-mounting				
Voltage					
G	1 x 230-240 V, 50/60 Hz				
H	1 x 115-120 V, 50/60 Hz				
J	110-240 V, 50/60 Hz, 24 V DC				

Type key: Gas warning systems, prepacked

Example: DIA-G-P, CLP-OP-B, W-J

Example:	DIA-G	-P,	CLP-	OP-	B,	W	-J
Conex gas warning system							
DIS-G	Dosing Instrumentation Standard, with gas detection						
DIA-G	Dosing Instrumentation Advanced, with gas detection						
P	Prepacked						
Sensor 1							
CCA	Chlorine gas/chlorine dioxide gas, amperometric						
OA	Ozone gas, amperometric						
CLP	Chlorine gas, potentiostatic						
CDP	Chlorine dioxide gas, potentiostatic						
OP	Ozone gas, potentiostatic						
AP	Ammonia gas, potentiostatic						
HCP	Hydrochloric acid gas, potentiostatic						
Sensor 2							
CCA	Chlorine gas/chlorine dioxide gas, amperometric						
OA	Ozone gas, amperometric						
CLP	Chlorine gas, potentiostatic						
CDP	Chlorine dioxide gas, potentiostatic						
OP	Ozone gas, potentiostatic						
AP	Ammonia gas, potentiostatic						
HCP	Hydrochloric acid gas, potentiostatic						
X	No sensor						
Option							
B	Battery backup						
X	No battery backup						
Mounting							
W	Wall-mounting						
Voltage							
G	1 x 230-240 V, 50/60 Hz						
H	1 x 115-120 V, 50/60Hz						
J	110-240 V, 50/60 Hz, 24 V DC						

3. Technical data

Conex DIA-G gas warning systems

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Fig. 3 Conex DIA-G

Technical data

Electronics	16-bit microprocessor technology
Display	Backlit plain-text display
Display languages	German, English, French, Spanish, Russian and Polish
Indication mode	in ppm for measured values of both sensors
Relay outputs	Five potential-free relay outputs, per software switchable to NO (normally open) or NC (normally closed), fail-safe; max. 250 V/6 A, max. 550 VA • two relays for the limit values of each of both sensors • one alarm relay; free assignment to the limit values or to sensor test.
Signal inputs	• two measured value inputs (for amperometric sensors 1 and 2) • internal CAN bus, including connections for two interfaces, each for the operation of one potentiostatic sensor.
Signal outputs	• two (0)4-20 mA outputs, max. load 500 Ohm, with wire breakage monitoring; free assignment to the measuring range of the sensors. • external CAN bus interface.
Safety functions	• permanent sensor monitoring or automatic sensor test, interval between tests adjustable from every 0.5 to 30 days • wire breakage monitoring of all current outputs • optional backup battery with backup indication on the display, allowing Conex DIA-G to work for at least one hour after mains failure • automatic adjustment of data specific to the sensor (for example calibration data) • display of the sensor exchange intervals with a plain-text message.
Permissible temperature [°C]	Conex DIA-G and sensor interface (without sensor): Operation: 0 to +50 Storage: -20 to +65
Permissible relative humidity [%]	Max. 90 (non-condensing)
Power supply	110-240 V - 10 %/+ 10 % (50/60 Hz), or 24 VDC
Power consumption [VA]	Approx. 20
Material (enclosure)	ABS, resistant to chemicals
Enclosure class	Conex DIA-G enclosure and sensor interface: IP65
Weight [kg]	Approx. 1.5

Dimensions

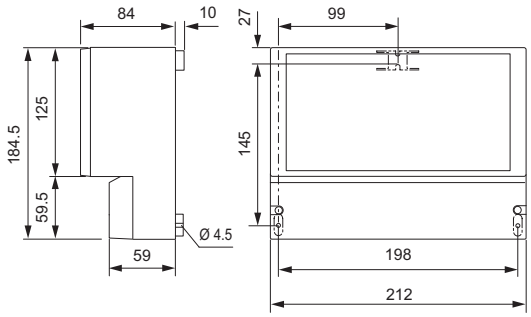

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Fig. 4 Conex DIA-G controller

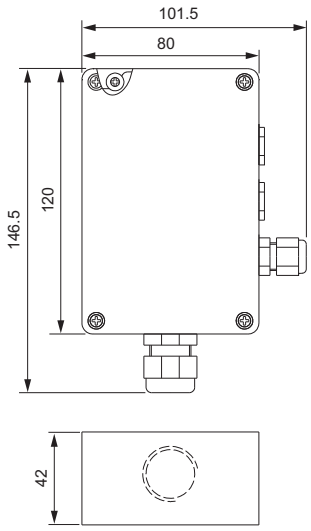

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Fig. 5 Sensor interface

Conex DIS-G gas warning systems

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Fig. 6 Conex DIS-G

Technical data

Electronics	I2C bus technology
Accuracy [%]	± 1
Display	LCD, 2 lines, 2 x 16 characters
Display languages	English, German, French
Indication mode	in ppm for measured values of both sensors
Relay outputs	Five potential-free relay outputs; max. 250 V/6 A, max. 550 VA ohmic load • two relays for the limit values of each of both sensors • one alarm relay; free assignment to the limit values or to sensor test
Signal inputs	Two measured value inputs (sensors 1 and 2)
Signal outputs	Two analog outputs, (0) 4-20 mA, max. load 400 Ohm, assigned to the 0-5 ppm range
Sensor test	Interval between automatic sensor tests adjustable from every 0.5 to 14 days
Permissible temperature [°C]	Operation: 0 to +45 Storage: -20 to +65
Permissible relative air humidity [%]	Max. 90 (non-condensing)
Power supply	230/240 V -1 0 %/+ 10 % (50/60 Hz), or 115/120 V - 10 %/+ 10 % (50/60 Hz)
Power consumption [VA]	approx. 5
Material (enclosure)	ABS, resistant to chemicals
Enclosure class	IP65
Weight [kg]	Approx. 0.8

Dimensions

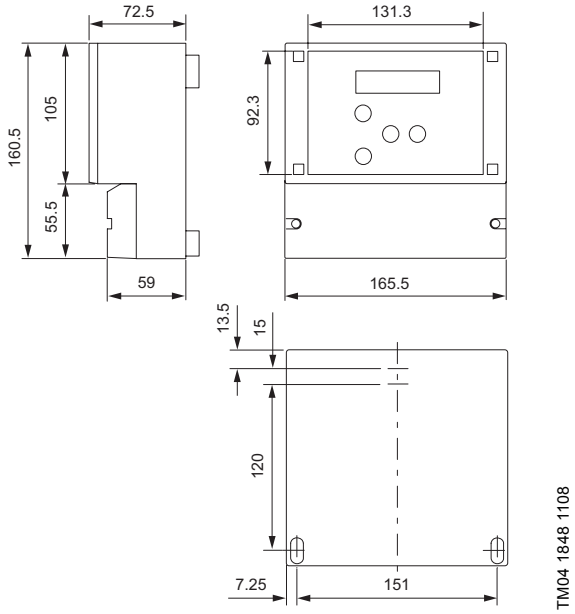

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Fig. 7 Conex DIS-G controller

Amperometric gas sensors for chlorine, chlorine dioxide, ozone

Features

- Rugged, low-budget gas sensors.
- Monitoring of chlorine, chlorine dioxide or ozone in the air of dry rooms.
- Complete with wall installation kit.

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Fig. 8 Amperometric sensor

Dimensions

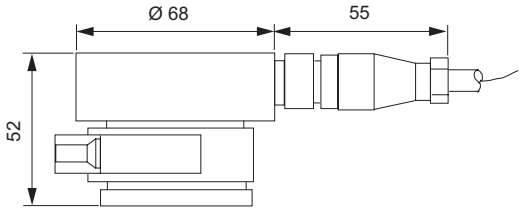

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Fig. 9 Amperometric sensor

Technical data

Measured parameter	Chlorine and chlorine dioxide	Ozone
Measuring range [ppm]	0.00 - 5.00	0.00 - 5.00
Accuracy [%]	± 10	± 10
Response time t_{90} [s]	2 (at 20 °C)	2 (at 20 °C)
Recovery time [min]	10-15	10-15
Expected life [months]	12	12
Permissible operating temperature [°C]	5-45	5-45
Permissible storage temperature [°C]	5-30	5-30
Permissible relative humidity (non-condensing) [%]	max. 90 at 40 °C	max. 90 at 40 °C
Installation	wall-mounting	wall-mounting
Max. distance between sensor and measuring amplifier [m]	100	100
Max. storage time [months]	9	9
Weight [g]	260	260

Potentiostatic gas sensors for chlorine, chlorine dioxide, ozone, ammonia, hydrochloric acid

Features

- Membrane-covered gas sensors with integrated RAM for challenging measuring tasks. Sensor type, production number, manufacturing date and slope are stored in the memory.
- Monitoring of chlorine, chlorine dioxide, ozone, ammonia, and hydrochloric acid in the air of dry rooms.
- Sensor recognition, auto-calibration, and monitoring of sensor life.
- A sensor is plugged directly into a sensor interface.

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Fig. 10 Sensor interface

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Fig. 11 Potentiostatic sensor

Dimensions

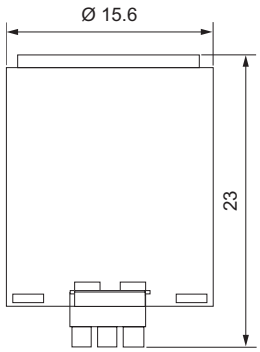

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Fig. 12 Potentiostatic sensor

Technical data

Measured parameter	Chlorine	Chlorine dioxide	Ozone	Ammonia	Hydrochloric acid
Measuring range [ppm]	0.00 - 20.00	0.00 - 1.00	0.00 - 1.00	0 - 100	0.0 - 30.0
Resolution (at 20 °C) [ppm]	< 0.05	< 0.03	< 0.02	< 1	< 0.7
Linearity (of full scale) [%]	< 5	< 10	< 10	< 10	< 5
Sensitivity drift [%]	< 10 per 6 months	< 10 per 6 months	< 10 per 6 months	< 5 per 6 months	< 3 per 6 months
Response time, t_{90} (at 20 °C) [s]	< 30	< 120	< 60	< 60	< 70
Recovery time [min]	1	1	1	1	1
Expected life [months]	24	24	18	24	24
Permissible operating temperature [°C]	-20 to +40	-20 to +40	-20 to +40	-20 to +40	-20 to +40
Storage temperature [°C]	+4 to +10	+4 to +10	+4 to +10	+4 to +10	+4 to +10
Max. storage time [months]	3	3	3	3	3
Weight [g]	150	150	150	150	150
Max. distance to Conex DIA-G (bus line length) [m]	500	500	500	500	500
Permissible relative humidity (non-condensing) [%]	max. 90 at 40 °C	max. 90 at 40 °C	max. 90 at 40 °C	max. 90 at 40 °C	max. 90 at 40 °C

4. Product selection

Conex DIA-G gas warning systems

Controller Conex	Prepacked (with sensors)	Sensor 1							Sensor 2								Battery backup	Voltage			Type designation	Product number
		Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	No sensor		110-240 V, 50/60 Hz, 24 V	230 V, 50/60 Hz	115 V, 50/60 Hz		
DIA-G																		•			DIA-G. 1-D/A/HC 2-D/A/HC. W-J	96732266
	•	•														•		•			DIA-G-P. CCA-X-X. W-J	95700081
	•	•							•									•			DIA-G-P. CCA-CCA-X. W-J	96735209
	•	•														•	•	•			DIA-G-P. CCA-X-B. W-J	95700964
	•	•							•								•	•			DIA-G-P. CCA-CCA-B. W-J	95700965
	•		•													•		•			DIA-G-P. OA-X-X. W-J	95700966
	•		•							•								•			DIA-G-P. OA-OA-X. W-J	95700967
	•		•							•							•	•			DIA-G-P. OA-OA-B. W-J	95700968
	•			•												•		•			DIA-G-P. CLP-X-X. W-J	95700080
	•			•							•							•			DIA-G-P. CLP-CLP-X. W-J	95700483
	•			•							•						•	•			DIA-G-P. CLP-CLP-B. W-J	95700969
	•			•								•						•			DIA-G-P. CLP-CDP-X. W-J	95700970
	•			•								•					•	•			DIA-G-P. CLP-CDP-B. W-J	95700971
	•			•										•				•			DIA-G-P. CLP-AP-X. W-J	95700972
	•			•										•			•	•			DIA-G-P. CLP-AP-B. W-J	95700973
	•				•											•		•			DIA-G-P. CDP-X-X. W-J	95700854
	•				•											•	•	•			DIA-G-P. CDP-X-B. W-J	95700976
	•				•							•						•			DIA-G-P. CDP-CDP-X. W-J	95700977
	•				•							•					•	•			DIA-G-P. CDP-CDP-B. W-J	95700978
	•				•										•			•			DIA-G-P. CDP-HCP-X. W-J	95700979
	•				•										•		•	•			DIA-G-P. CDP-HCP-B. W-J	95700980
	•					•										•		•			DIA-G-P. OP-X-X. W-J	95700981
	•					•							•					•			DIA-G-P. OP-OP-X. W-J	95700982
	•					•							•				•	•			DIA-G-P. OP-OP-B. W-J	95700983
	•						•									•		•			DIA-G-P. AP-X-X. W-J	96697849
	•						•									•	•	•			DIA-G-P. AP-X-B. W-J	95700974
	•						•							•				•			DIA-G-P. AP-AP-X. W-J	96725667
	•						•							•			•	•			DIA-G-P. AP-AP-B. W-J	95700975
	•							•								•		•			DIA-G-P. HCP-X-X. W-J	95700984
	•							•								•	•	•			DIA-G-P. HCP-X-B. W-J	95700985
	•							•							•			•			DIA-G-P. HCP-HCP-X. W-J	95700986
	•							•							•		•	•			DIA-G-P. HCP-HCP-B. W-J	95700987

Conex DIS-G gas warning systems

Controller	Prepacked (with sensors)	Sensor 1							Sensor 2								Battery backup	Voltage			Type designation	Product number
		Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	No sensor		110-240 V, 50/60 Hz, 24 V	230 V, 50/60 Hz	115 V, 50/60 Hz		
DIS-G																			•		DIS-G. 1-D 2-D. W-G	96736238
																				•	DIS-G. 1-D 2-D. W-H	95701378
	•	•														•			•		DIS-G-P. CCA-X-X. W-G	96703835
	•	•														•				•	DIS-G-P. CCA-X-X. W-H	95701170
	•	•							•										•		DIS-G-P. CCA-CCA-X. W-G	96734178
	•	•							•											•	DIS-G-P. CCA-CCA-X. W-H	95706182
	•		•													•			•		DIS-G-P. OA-X-X. W-G	95700018
	•		•													•				•	DIS-G-P. OA-X-X. W-H	95706183
	•		•							•									•		DIS-G-P. OA-OA-X. W-G	95701231
	•		•							•										•	DIS-G-P. OA-OA-X. W-H	95706184

Amperometric gas sensors for chlorine, chlorine dioxide, ozone

Description	Product No
Amperometric gas sensor for chlorine and chlorine dioxide, complete with installation set	91835237
Amperometric gas sensor for ozone, complete with installation set	96687714
Spare sensor disc for chlorine and chlorine dioxide	91835823
Spare sensor disc for ozone	96688728

Potentiostatic gas sensors for chlorine, chlorine dioxide, ozone, ammonia, hydrochloric acid

Description	Product No
Potentiostatic gas sensor for chlorine, without sensor interface	96732268
Potentiostatic gas sensor for chlorine, with sensor interface	95700843
Potentiostatic gas sensor for chlorine dioxide, without sensor interface	95700837
Potentiostatic gas sensor for chlorine dioxide, with sensor interface	95700844
Potentiostatic gas sensor for ozone, without sensor interface	95700838
Potentiostatic gas sensor for ozone, with sensor interface	95700845
Potentiostatic gas sensor for ammonia, without sensor interface	95700839
Potentiostatic gas sensor for ammonia, with sensor interface	95700846
Potentiostatic gas sensor for hydrochloric acid, without sensor interface	95700840
Potentiostatic gas sensor for hydrochloric acid, with sensor interface	95700842

5. Accessories

Cables for amperometric sensors

Description		Product No
2-wire cable with screening	1 metre	96687719
	2 metres	96725671
	10 metres	96725670
	20 metres	96725672
	50 metres	96725673

Cables for potentiostatic sensors

Description		Product No
4-wire cable with screening for CAN connection with sensor interface	10 metres	96725684
	20 metres	96725685
	50 metres	96725686

Interface adapter

Description	Product No
CAN bus/RS232 interface adaptor for connection of Conex DIA-G to a PLC or to the AquaVision software	95702009

Sensor interface

Description	Product No
A potentiostatic sensor is plugged directly into the sensor interface. Conex DIA-G can be installed in a control room at a distance of up to 500 m from the sensor interface. For simultaneous measurement of two values, please order two sensor interface units.	96725668

Battery backup, horn and flashlight

Designation	Description	Product No
Battery backup	Integrated battery charging unit with I/U charging characteristic, battery management with microcontroller, temperature regulation of charging voltage by sensor module, input voltage of the battery controller 115/230 V (50/60 Hz), input current, 0.84 A/115 V to 0.42 A/230 V, max. switch-on current, 2 A/2 ms, maintenance-free lead-acid battery, 24 V/7 Ah, buffer time for operation with two sensor interfaces > 1 h	96725709
Horn in grey ABS enclosure, IP55	230 V (50/60 Hz), nominal current, 100 mA	96696421
	115 V (50/60 Hz), nominal current, 200 mA	96726994
Red flashlight in grey ABS enclosure, IP54, for outdoor and indoor installation	230 V (50/60 Hz), nominal current, 50 mA	96694063
	115 V (50/60 Hz), nominal current, 60 mA	96726995

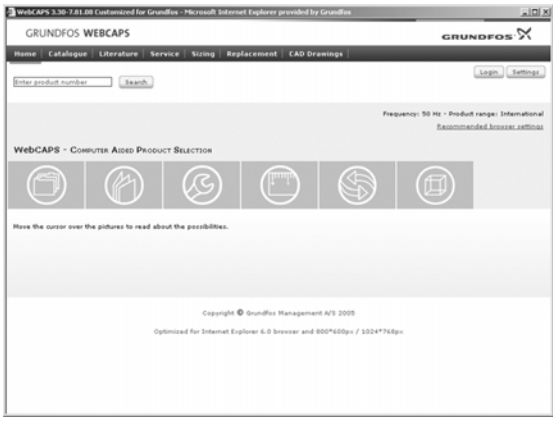
AquaVision

AquaVision is a bidirectional visualisation software for up to four Conex DIA-G controllers. The software allows also large systems to be monitored and controlled centrally.

For more information, please see the separate data booklet "Measurement and control accessories".

6. Further product documentation

WebCAPS

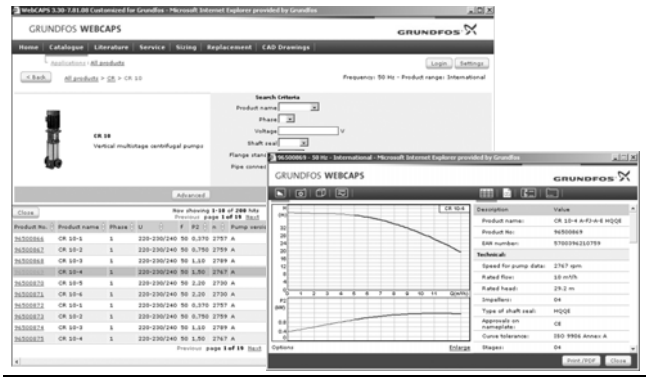


WebCAPS is a **Web**-based **C**omputer **A**ided **P**roduct **S**election program available on www.grundfos.com.

WebCAPS contains detailed information on more than 220,000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

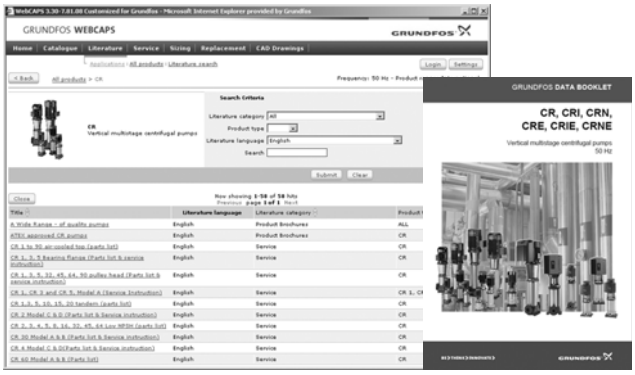
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

Based on fields of application and pump types, this section contains the following:

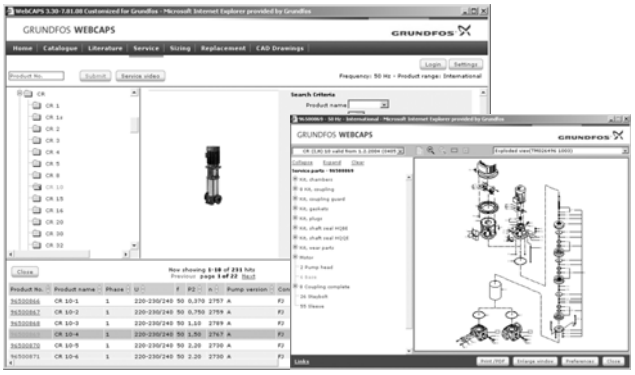
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

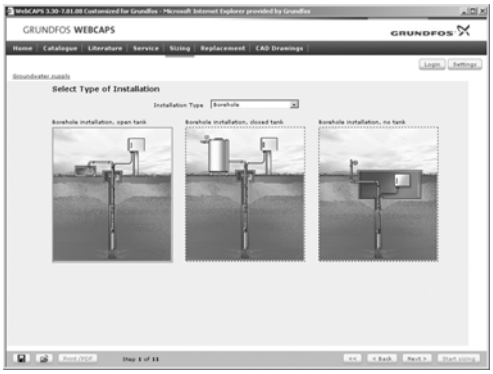
This section contains all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.
Furthermore, the section contains service videos showing you how to replace service parts.



Sizing

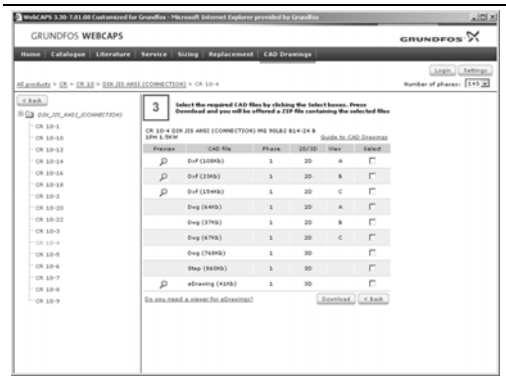
This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

- Select the most suitable and efficient pump for your installation.
- Carry out advanced calculations based on energy, consumption, payback periods, load profiles, life cycle costs, etc.
- Analyse your selected pump via the built-in life cycle cost tool.
- Determine the flow velocity in wastewater applications, etc.

Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.
The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section, it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

2-dimensional drawings:

- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings:

- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS

Fig. 13 WinCAPS DVD

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election program containing detailed information on more than 220,000 Grundfos products in more than 30 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no internet connection is available.

WinCAPS is available on DVD and updated once a year.

Subject to alterations.

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ECM: 1100245

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