

Grundfos Dosing and Disinfection

Price List March 2021

Category 5

➤ **SMART Digital** Breaking the barriers of dosing



PLEASE NOTE THE FOLLOWING FROM OUR TERMS AND CONDITIONS OF SALE:

A copy of our full terms and conditions are available at the back of this price list & all prices are delivered at place (DAP) and subject to VAT at the standard rate.

MINIMUM ORDER VALUE

Our minimum order value is **£55.00 NET**. Orders between the minimum order value and the low order threshold of **£335.00 NET** for pumps or **£130.00 NET** for Category 4, S1,S2,S3,S4 items will be subject to a **£37.00 NET** handling fee.

EXPRESS DELIVERY OPTIONS;

INTERSPEED (PER ITEM) (above 150 Kgs – subject to transport availability and additional cost)

- CR(I)(E), CRN(E) Vertical Multistage
 - Non-stock SP/SPA models (with or without drop cable cut in 5 metre increments. Please note; resin cable joint will take 24 hours to set)
 - Order must be received electronically by **10.45am** – despatch same day, **delivery by Express Carrier Service** – UK (*note restrictions apply)
- £80.00 NET (PER ITEM)**

BOXSPEED (PER ITEM) – (above 100 Kgs – subject to transport availability and additional cost)

- ALPHA, UPS, UPN, UPS3/UPM Circulators
 - Magna (D) Glandless Circulators
 - UP/UPS/Magna Replacement Heads/Terminal boxes
 - TPE(D), NB(E) Glanded
 - CM, CME Horizontal Multistage
 - JP, MQ and Tanks/Vessels (up to 500 Litre)
 - CMB(E), Boosters, Scala
 - AP, KP, CC, SL1, SLV, Unilift, Sololift
 - SQ, SQE, SB(A), SP2A, 3A & 5A >1.5kW (Excluding pumps with cable fitted as well as SP longer than 2.4 metres)
 - Motors, Flanges & Unions, Pump Components, Chamber Stacks
 - Order must be received electronically before **13:30pm** – despatch same day, **delivery by Express Carrier Service** – UK (*note restrictions apply)
- FIRST ITEM - £60.00 NET & ADDITIONAL ITEMS £25.00 EACH (PER ORDER)**

SPARESPEED (PER ITEM)

- Only applies to spares kits, (not chamber stacks, components, pump heads or terminal boxes)
 - Order must be received electronically before **13:30pm** – despatch same day, **delivery by Express Carrier Service** – UK (*note restrictions apply)
- FIRST ITEM - £50.00 NET & ADDITIONAL ITEMS £25.00 EACH (PER ORDER)**

* Express Carrier Service ONLY guaranteed if placed on time via Extranet/EDI. Deliveries to the Highlands, certain mainland post codes and offshore UK may take an extra day. All services are dependent on component and product availability. Grundfos can guarantee despatch or availability for collection same day but cannot guarantee delivery. Grundfos cannot accept any cancellations or amendments once the goods have been despatched. Cancellations are subject to the Product Returns Fee below. **BREXIT - Express delivery cut off times for deliveries into the UK from an EU have changed from 1:30PM to 10:00AM & all deliveries to Northern Ireland will all be despatched from our DC in Sunderland only.**

SPARES STANDARD DELIVERY CHARGE

- A **£30.00 NET** handling fee will be applied, per order, to all orders for spares, pump components, spares kits.
- This charge does NOT apply if **SPARESPEED**, express service or our online ordering system (EDI), and/or Extranet are used for order placement.

PRODUCT RETURNS FEE

- On receipt of written agreement from Grundfos, items can be returned and will be subject to a minimum **35%** restocking fee. Goods must be returned in their original packaging and within **6 months of date of despatch**. All returns will be subject to inspection, to ascertain age, condition and product type and can incur an increased restocking charge. Please contact grundfos-uk@sales.grundfos.com with the original purchase order, to arrange collection. Do not send items to Grundfos as they will be refused delivery, collection will be arranged.

Exclusions to Product Returns apply;

- Items with a NET value of £150.00 or less (per item).
- All Service kits, cable including attached to pump, assembled/engineered to order product and obsolete/phased out product cannot be returned.

STORAGE CHARGE

- There will be a **2%** storage charge of the item invoice value, payable per month, commencing one month from the date the goods were available for delivery from Grundfos.

WARRANTY PERIOD

- Grundfos pumps are warranted for 24 months from installation or 30 months from manufacture; whichever is the sooner.
- There is a five-year warranty that covers manufacturing or material defects on domestic heating circulators: UPS3 15-50/65, UPS2 15-50/60, ALPHA models, Amazon & Amazon Universal shower pumps. From 1st March 2017 SCALA2 booster pumps when used in domestic applications were included and from 1st February 2020 MAGNA3, TPE, NBE and NKE models were added.

SERVICE AND COMMISSIONING

Grundfos offers a wide range of service, repair and commissioning options. Please contact Service on 01525 850000 or email servicesupportuk@grundfos.com

ORDER TRACKING AND PROOF OF DELIVERY

- Order status and Proof of Delivery can be obtained via Grundfos Extranet or MyGrundfos online portals.
- For extranet access contact grundfos-uk@sales.grundfos.com. Self-registration for MyGrundfos can be found here; <https://uk.grundfos.com/mygrundfos>

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		DDA-AR	7.5-30 l/hr	11.
		DDC-AR	6-15 l/hr	12.
		DDC-A	6-15 l/hr	13.
		DDE-PR	6-15 l/hr	14.
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GRUNDFOS DOSING AND DISINFECTION RANGE

DIGITAL DOSING PUMPS

The Grundfos Digital Dosing pump offers smooth continuous dosing thanks to the innovative stepper motor drive technology.

This range provides precision without complication, and features high turndown ratios up to 3000:1 and full PTFE diaphragm for universal chemical resistance.



MECHANICAL DOSING PUMPS

The DMX series of high-quality motor driven diaphragm dosing pumps are a very economic and robust solution for medium to high performance applications.

Optionally available as a duplex headed pump, offer a cost-efficient way of dosing 2 different chemicals or gaining higher flow rates.

The DMX series pumps can be configured with servomotor or ATEX class motors if required.



HYDRAULIC PISTON DIAPHRAGM DOSING PUMPS

The DMH 25x and DMH 28x series are extremely robust, and high-performing for process engineering applications, that offer extended longevity due to an innovative hydraulic actuated piston diaphragm design. Good choice for high pressure applications up to 200 bar with ATEX and API options.

The series guarantees high dosing accuracy and excellent safety functionality to due an integrated diaphragm protection system AMS with internal pressure relief valve and



DOSING SKIDS

Grundfos offer complete dosing cabinets for up to 4 dosing pumps (delivered ready, plug-and-play) or customised engineered to order skids and packages.

Incorporating all required accessories inline with technical requirements of the customer's specifications, fully tested and engineered off-site.

ELECTROCHLORINATION - SELCOPERM

Disinfection by electrochlorination. Selcoperm is used for the make-up of sodium hypochlorite on-site from water and salt with unique safety features enabling installation in a non-ATEX area (with 3rd party accreditation). Safe and reliable source of chlorine.

Production capacity up to 45 kg of chlorine/hour.





CHLORINE DIOXIDE GENERATOR - OXIPERM-PRO

The chlorine dioxide production system is the perfect solution for fighting Legionella found often in water systems (eg. hotels, hospitals, cooling towers,...) and other pathogens in drinking and process water.

The Oxiperm-Pro produces a chlorine dioxide solution using precursor chemicals up to 60 g/hour. A very powerful disinfectant.

CHLORINE GAS - VACCUPERM

The oldest and still the most widely used form of disinfection is by injection of chlorine gas - mainly used for municipal drinking water and waste water applications and also larger scale industrial applications and leisure facilities. Grundfos is a full-line supplier of complete gas systems.



POLYMER MAKE-UP - POLYDOS

Polyelectrolyte preparation system used in flocculation and coagulation processes for water treatment. Fully continuous and automated system controlled by an integral PLC and touch screen. Ergonomic 3-chamber plug-flow design for mixing, aging and dosing. Small footprint with system integration.

Suitable for dry powder, granules or liquid emulsion polymers. Other powder make-up systems also available.

MEASUREMENT & CONTROL INSTRUMENTATION

The DID measurement and control module is the perfect combination of state-of-the-art digital sensor technology - with full system integration and control of any dosing and disinfection process.

The DID system is available as a compact system with bypass flow-cell for up to 3 sensors, pre-assembled on a backboard or as kits for applications with tank-immersed sensors.



Access online information via **Grundfos Product Center (GPC)** portal or contact us for technical support for your project.

LIST OF PUMPED LIQUIDS

The resistance table below is intended as a general guide for material resistance (at room temperature), and does not replace testing of the chemicals and pump materials under specific working conditions. The data shown are based on information from various sources available, but many factors (purity, temperature, abrasive particles, etc.) may affect the chemical resistance of a given material.

Note: Many of these liquids are toxic, corrosive and hazardous. Please be careful when handling these liquids.

Pumped liquid (20 °C)		Material									
		Dosing Head				Gaskets			Balls	Accessories	
Description	Chemical formula	Concentration %	PP	PVDF	SS 1.4401	PVC	FKM (viton)	EPDM	PTFE	Ceramic	PE
Acetic acid	CH ₃ COOH	25	●	●	●	●	-	●	●	●	●
		60	●	●	●	●	-	●	●	●	●
		85	●	●	○	-	-	-	●	●	-
Aluminium chloride	AlCl ₃	40	●	●	-	●	●	●	●	●	●
Aluminium sulphate	Al ₂ (SO ₄) ₃	60	●	●	●	●	●	●	●	☒	●
Ammonia, aqueous	NH ₄ OH	28	●	●	●	●	-	●	●	●	●
Calcium hydroxide *	Ca(OH) ₂	saturated	●	●	●	●	●	●	●	●	●
Calcium hypochlorite	Ca(OCl) ₂	20	○	●	-	●	●	●	●	●	●
Chromic acid	H ₂ CrO ₄	10	●	●	●	●	●	●	●	●	●
		30	-	●	-	●	●	○	●	●	●
		40	-	●	-	●	●	-	●	●	●
		50	-	●	-	●	●	-	●	●	●
Chlorine dioxide	ClO ₂	0.2	-	●	-	●	●	-	●	-	-
Copper sulphate	CuSO ₄	30	●	●	●	●	●	●	●	●	●
Ferric chloride **	FeCl ₃	100	●	●	-	●	●	●	●	●	●
Ferric sulphate **	Fe ₂ (SO ₄) ₃	100	●	●	○	●	●	●	●	●	●
Ferrous chloride	FeCl ₂	100	●	●	-	●	●	●	●	●	●
Ferrous sulphate	FeSO ₄	50	●	●	●	●	●	●	●	●	●
Hydrochloric acid	HCl	< 25	●	●	-	●	●	●	●	●	●
		25-37	●	●	-	●	●	○	●	●	●
Hydrogen peroxide ***	H ₂ O ₂	30	●	●	●	●	●	●	●	●	●
Nitric acid	HNO ₃	10	●	●	●	●	●	●	●	●	●
		30	●	●	●	●	●	●	●	●	●
		40	○	●	●	●	●	-	●	●	○
		70	-	●	●	-	●	-	●	●	○
Peracetic acid	CH ₃ COOOH	5	○	●	○	○	-	○	●	●	●
Potassium hydroxide	KOH	50	●	-	●	●	-	●	●	●	●
Potassium permanganate	KMnO ₄	10	●	●	●	●	○	●	●	●	●
Sodium chlorate	NaClO ₃	30	●	●	●	●	●	●	●	●	●
Sodium chloride	NaCl	30	●	●	-	●	●	●	●	●	●
Sodium chlorite	NaClO ₂	20	●	●	-	○	●	●	●	●	●
Sodium hydroxide	NaOH	30	●	●	●	●	○	●	●	●	●
		50	●	●	●	●	-	●	●	●	●
Sodium hypochlorite ***	NaOCl	12-15	-	●	-	●	●	●	●	●	●
Sodium sulphide	Na ₂ S	30	●	●	●	●	●	●	●	●	●
Sodium sulphite	Na ₂ SO ₃	20	●	●	●	●	●	●	●	●	●
Sodium thiosulfate	Na ₂ S ₂ O ₃	10	●	●	●	●	●	●	●	●	●
Sulphurous acid	H ₂ SO ₃	6	●	●	●	●	●	●	●	●	●
Sulphuric acid ****	H ₂ SO ₄	< 80	●	●	-	●	●	○	●	●	●
		80-96	○	●	-	●	●	-	●	●	-
		98	-	●	●	-	○	-	●	●	-

■ Resistant

○ Limited resistance

- Not resistant

* Once the pump is stopped, calcium hydroxide will sediment rapidly.

** Risk of crystallisation.

*** Highly degassing, DDA-FCM pump recommended.

**** Reacts violently with water and generates much heat.

Pump should be absolutely dry before dosing sulphuric acid.

Typical installation



For further accessories and more details please see data booklet SMART Digital.

SMART Digital S Dosing Pumps - Overview of functions



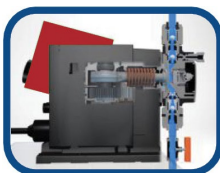
The **SMART DIGITAL** generation DDA, DDC and DDE brings state-of-the art technology to perfection. Combining expert knowledge with new patented solutions, it set future standards. Traditional technologies such as stroke length / stroke frequency adjustment with synchronous motor or solenoid drive become a thing of the past.

DIGITAL DOSING

- Powerful variable-speed stepper motor
- Internal stroke speed control
- Always full stroke length - even at small flow rates
- Smooth, continuous dosing
- Excellent for gaseous chemicals (sodium hypo.)
- SlowMode function for high viscosity liquids

MODULARITY

- Turn-down ratio up to 1:3000 (2.5ml to 30 l/hr)
- Click-stop mounting plate for quick and variable installation
- Control cube can be positioned in 3 ways (left, right, front)



SIMPLICITY

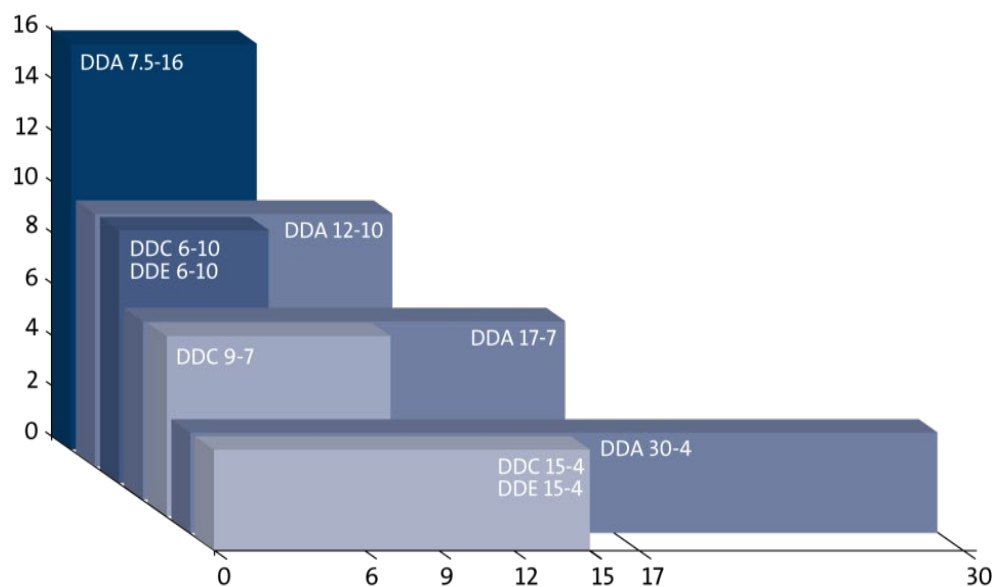
- Big graphical LCD display
- More than 25 languages
- Click wheel (turn and push knob)
- Intuitive and self-explanatory menu
- Background status light in four colours

FLOW INTELLIGENCE

- FlowControl with selective fault diagnosis
- Pressure monitoring
- Flow measurement

Control variant:	DDA			DDC		DDE		
	FCM	FC	AR	AR	A	PR	P	B
General	Click-wheel & LCD flow display					Logarithmic scale		
Digital Dosing: Internal stroke speed and frequency control	•	•	•	•	•	•	•	•
Mounting plate (basic/wall mounting)	•	•	•	•	•	•	•	•
Control panel								
Control cube mountable in three positions: front, left, right	•	•	•	•	•			
Control panel position: front-fitted						•	•	•
Transparent protective cover for control elements	•	•	•	•	•			
Capacity setting in millilitres, litres or US-gallons	•	•	•	•	•			
Background light in 4 colours for status indication: white, green, yellow, red	•	•	•	•	•			
Plain-text menu in different languages	•	•	•	•	•			
Turn-and-push knob (click wheel) for easy navigation	•	•	•	•	•			
Capacity adjustment knob (0.1 - 100 %)						•	•	•
Start/Stop key	•	•	•	•	•			
100 % key (de-aeration)	•	•	•	•	•	•	•	
Operation mode switch (manual/pulse)						•	•	
Operation mode								
Manual speed control	•	•	•	•	•	•	•	•
Pulse control in ml/pulse	•	•	•	•	•			
Pulse control (1:n)						•	•	
Analog control 0/4-20 mA	•	•	•	•				
Batch control (pulse-based)	•	•	•					
Dosing timer cycle	•	•	•					
Dosing timer week	•	•	•					
Fieldbus control	•	•	•					
Functions								
Auto deaeration also during pump standby	•	•	•					
FlowControl system with selective fault diagnosis	•	•						
Pressure monitoring (min/max)	•	•						
Flow measurement	•							
AutoFlowAdapt	•							
SlowMode (anti-cavitation)	•	•	•	•	•			
Calibration mode	•	•	•	•	•			
Scaling of analog input	•	•	•					
Service information display	•	•	•	•	•			
Relay setting: alarm, warning, stroke signal, pump dosing, pulse	•	•	•	•		•		
Relay setting (additionally): timer cycle, timer week	•	•	•					
Inputs/outputs								
Input for external stop	•	•	•	•	•	•	•	
Input for pulse control	•	•	•	•	•	•	•	
Input for analog 0/4-20 mA control	•	•	•	•				
Input for low-level signal	•	•	•	•	•	•	•	
Input for empty tank signal	•	•	•	•	•	•	•	
Output relay (2 relays)	•	•	•	•		•		
Output analog 0/4-20 mA	•	•	•					
Input/Output for GENibus	•	•	•					
Input/Output for E-box (e.g. E-box 150 with Profibus DP)	•	•	•					

SMART Digital S Dosing Pumps



Type key

Example:

DDA 7.5 - 16 AR - PP / V / C - F - 3 1 - U2U2 F G

Type range:

DDA
DDC
DDE

Design

G Grundfos

Maximum flow (l/h)

Maximum pressure (bar)

Control variant

B Basic (DDE)
 P B with pulse mode (DDE)
 A Standard (DDC)
 AR A with alarm relay and analog input
 FC AR with flow control (DDA)
 FCM FC with flow measurement (DDA)

Dosing head variant

PP Polypropylene
 PVC Polyvinyl chloride**
 PV PVDF (polyvinylidene fluoride)
 SS Stainless steel 1.4401

Gasket material

E EPDM
 V FKM
 T PTFE

Valve ball material

C Ceramic
 SS Stainless steel 1.4401

Control cube position

F Front-mounted (change to left and right possible)
 X No control cube (DDE)

Mains plug

F EU
 B USA, Canada
 G UK
 I Australia, New Zealand
 E Switzerland
 J Japan
 L Argentina
 X No plug

Connections, suction/discharge

U2U2 Hose 4/6, 6/9, 6/12, 9/12 [mm]
 U7U7 Hose 1/8" x 1/4", 1/4" x 3/8", 3/8" x 1/2"
 AA Threaded, Rp 1/4" female (SS)
 VV Threaded, NPT 1/4", female (SS)
 XX No connection

Installation set*

I001 Hose 4/6 mm (up to 7.5 l/h, 16 bar)
 I002 Hose 9/12 mm (up to 60 l/h, 13 bar)
 I003 Hose 1/8" x 1/4" (up to 7.5 l/h, 16 bar)
 I004 Hose 3/8" x 1/2" (up to 60 l/h, 10 bar)

Valve type

1 Standard
 2 Spring-loaded:
 0.1 bar suction opening pressure
 0.1 bar discharge opening pressure

Supply voltage

3 1 x 100-240 V, 50/60 Hz

* Including 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose (4/6 mm).

** PVC dosing heads only up to 10 bar.

SMART Digital S Dosing Pumps DDA FCM

Turndown ratio: 1:1000

1:3000 for the DDA 7.5-16

Motor type: Stepper motor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand

Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.

Optional: Material variants => different combinations are available on demand (cf. Data Booklet)

CONTROL VARIANT: FCM



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 FCM-PP/V/C	97722010	2,298	97722011	2,395
			EPDM			DDA 7,5-16 FCM-PP/E/C	97722006	2,298	97722007	2,395
		PVC **	FKM	Ceramic		DDA 7,5-16 FCM-PVC/V/C	97722018	2,330	97722019	2,427
			EPDM			DDA 7,5-16 FCM-PVC/E/C	97722014	2,330	97722015	2,427
		PVDF	PTFE	Ceramic		DDA 7,5-16 FCM-PV/T/C	97722034	2,547	97722035	2,644
		SS		SS		Rp 1/4", female	DDA 7,5-16 FCM-SS/T/SS	97722038	3,168	-
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 FCM-PP/V/C	97722112	2,510	97722113	2,627
			EPDM			DDA 12-10 FCM-PP/E/C	97722108	2,510	97722109	2,627
		PVC	FKM	Ceramic		DDA 12-10 FCM-PVC/V/C	97722120	2,542	97722121	2,659
			EPDM			DDA 12-10 FCM-PVC/E/C	97722116	2,542	97722117	2,659
		PVDF	PTFE	Ceramic		DDA 12-10 FCM-PV/T/C	97722136	2,759	97722137	2,876
		SS		SS		Rp 1/4", female	DDA 12-10 FCM-SS/T/SS	97722140	3,380	-
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 FCM-PP/V/C	97722214	2,510	97722215	2,627
			EPDM			DDA 17-7 FCM-PP/E/C	97722210	2,510	97722211	2,627
		PVC	FKM	Ceramic		DDA 17-7 FCM-PVC/V/C	97722222	2,542	97722223	2,659
			EPDM			DDA 17-7 FCM-PVC/E/C	97722218	2,542	97722219	2,659
		PVDF	PTFE	Ceramic		DDA 17-7 FCM-PV/T/C	97722238	2,759	97722239	2,876
		SS		SS		Rp 1/4", female	DDA 17-7 FCM-SS/T/SS	97722242	3,380	-
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 FCM-PP/V/C	97722317	2,684	97722318	2,801
			EPDM			DDA 30-4 FCM-PP/E/C	97722313	2,684	97722314	2,801
		PVC	FKM	Ceramic		DDA 30-4 FCM-PVC/V/C	97722335	2,717	97722336	2,834
			EPDM			DDA 30-4 FCM-PVC/E/C	97722331	2,717	97722332	2,834
		PVDF	PTFE	Ceramic		DDA 30-4 FCM-PV/T/C	97722351	2,934	97722352	3,051
		SS		SS		Rp 1/4", female	DDA 30-4 FCM-SS/T/SS	97722355	3,555	-

Suction/discharge valves - spring loaded (viscous chemicals)

Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 FCM-PP/V/C	97722012	2,317	97722013	2,415
			EPDM			DDA 7,5-16 FCM-PP/E/C	97722008	2,317	97722009	2,415
		PVC **	FKM	Ceramic		DDA 7,5-16 FCM-PVC/V/C	97722020	2,350	97722021	2,447
			EPDM			DDA 7,5-16 FCM-PVC/E/C	97722016	2,350	97722017	2,447
		PVDF	PTFE	Ceramic		DDA 7,5-16 FCM-PV/T/C	97722036	2,567	97722037	2,664
		SS		SS		Rp 1/4", female	DDA 7,5-16 FCM-SS/T/SS	97722039	3,188	-
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 FCM-PP/V/C	97722114	2,530	97722115	2,647
			EPDM			DDA 12-10 FCM-PP/E/C	97722110	2,530	97722111	2,647
		PVC	FKM	Ceramic		DDA 12-10 FCM-PVC/V/C	97722122	2,562	97722123	2,679
			EPDM			DDA 12-10 FCM-PVC/E/C	97722118	2,562	97722119	2,679
		PVDF	PTFE	Ceramic		DDA 12-10 FCM-PV/T/C	97722138	2,779	97722139	2,896
		SS		SS		Rp 1/4", female	DDA 12-10 FCM-SS/T/SS	97722141	3,400	-
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 FCM-PP/V/C	97722216	2,530	97722217	2,647
			EPDM			DDA 17-7 FCM-PP/E/C	97722212	2,530	97722213	2,647
		PVC	FKM	Ceramic		DDA 17-7 FCM-PVC/V/C	97722224	2,562	97722225	2,679
			EPDM			DDA 17-7 FCM-PVC/E/C	97722220	2,562	97722221	2,679
		PVDF	PTFE	Ceramic		DDA 17-7 FCM-PV/T/C	97722240	2,779	97722241	2,896
		SS		SS		Rp 1/4", female	DDA 17-7 FCM-SS/T/SS	97722243	3,400	-
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 FCM-PP/V/C	97722319	2,704	97722320	2,821
			EPDM			DDA 30-4 FCM-PP/E/C	97722315	2,704	97722316	2,821
		PVC	FKM	Ceramic		DDA 30-4 FCM-PVC/V/C	97722337	2,737	97722338	2,854
			EPDM			DDA 30-4 FCM-PVC/E/C	97722333	2,737	97722334	2,854
		PVDF	PTFE	Ceramic		DDA 30-4 FCM-PV/T/C	97722353	2,954	97722354	3,071
		SS		SS		Rp 1/4", female	DDA 30-4 FCM-SS/T/SS	97722356	3,575	-

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH ** Max. pressure for PVC version: 10 bar

SMART Digital S Dosing Pumps DDA FC

Turndown ratio: 1:1000

1:3000 for the DDA 7.5-16

Motor type: Steppermotor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand

Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.

Optional: Material variants => different combinations are available on demand (cf. Data Booklet)

CONTROL VARIANT: FC



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 FC-PP/V/C	97721976	1,968	97721977	2,066
			EPDM			DDA 7,5-16 FC-PP/E/C	97721972	1,968	97721973	2,066
		PVC **	FKM	Ceramic		DDA 7,5-16 FC-PVC/V/C	97721984	2,001	97721985	2,098
			EPDM			DDA 7,5-16 FC-PVC/E/C	97721980	2,001	97721981	2,098
		PVDF	PTFE	Ceramic		DDA 7,5-16 FC-PV/T/C	97722000	2,218	97722001	2,315
		SS		SS		Rp 1/4", female	DDA 7,5-16 FC-SS/T/SS	97722004	2,839	-
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 FC-PP/V/C	97722078	2,180	97722079	2,298
			EPDM			DDA 12-10 FC-PP/E/C	97722074	2,180	97722075	2,298
		PVC	FKM	Ceramic		DDA 12-10 FC-PVC/V/C	97722086	2,213	97722087	2,330
			EPDM			DDA 12-10 FC-PVC/E/C	97722082	2,213	97722083	2,330
		PVDF	PTFE	Ceramic		DDA 12-10 FC-PV/T/C	97722102	2,430	97722103	2,547
		SS		SS		Rp 1/4", female	DDA 12-10 FC-SS/T/SS	97722106	3,051	-
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 FC-PP/V/C	97722180	2,180	97722181	2,298
			EPDM			DDA 17-7 FC-PP/E/C	97722176	2,180	97722177	2,298
		PVC	FKM	Ceramic		DDA 17-7 FC-PVC/V/C	97722188	2,213	97722189	2,330
			EPDM			DDA 17-7 FC-PVC/E/C	97722184	2,213	97722185	2,330
		PVDF	PTFE	Ceramic		DDA 17-7 FC-PV/T/C	97722204	2,430	97722205	2,547
		SS		SS		Rp 1/4", female	DDA 17-7 FC-SS/T/SS	97722208	3,051	-
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 FC-PP/V/C	97722282	2,355	97722283	2,472
			EPDM			DDA 30-4 FC-PP/E/C	97722278	2,355	97722279	2,472
		PVC	FKM	Ceramic		DDA 30-4 FC-PVC/V/C	97722291	2,387	97722292	2,505
			EPDM			DDA 30-4 FC-PVC/E/C	97722286	2,387	97722288	2,505
		PVDF	PTFE	Ceramic		DDA 30-4 FC-PV/T/C	97722307	2,604	97722308	2,722
		SS		SS		Rp 1/4", female	DDA 30-4 FC-SS/T/SS	97722311	3,226	-

Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 FC-PP/V/C	97721978	1,988	97721979	2,085
			EPDM			DDA 7,5-16 FC-PP/E/C	97721974	1,988	97721975	2,085
		PVC **	FKM	Ceramic		DDA 7,5-16 FC-PVC/V/C	97721986	2,021	97721987	2,118
			EPDM			DDA 7,5-16 FC-PVC/E/C	97721982	2,021	97721983	2,118
		PVDF	PTFE	Ceramic		DDA 7,5-16 FC-PV/T/C	97722002	2,238	97722003	2,335
		SS				SS	Rp 1/4", female	DDA 7,5-16 FC-SS/T/SS	97722005	2,859
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 FC-PP/V/C	97722080	2,200	97722081	2,317
			EPDM			DDA 12-10 FC-PP/E/C	97722076	2,200	97722077	2,317
		PVC	FKM	Ceramic		DDA 12-10 FC-PVC/V/C	97722088	2,233	97722089	2,350
			EPDM			DDA 12-10 FC-PVC/E/C	97722084	2,233	97722085	2,350
		PVDF	PTFE	Ceramic		DDA 12-10 FC-PV/T/C	97722104	2,450	97722105	2,567
		SS				SS	Rp 1/4", female	DDA 12-10 FC-SS/T/SS	97722107	3,071
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 FC-PP/V/C	97722182	2,200	97722183	2,317
			EPDM			DDA 17-7 FC-PP/E/C	97722178	2,200	97722179	2,317
		PVC	FKM	Ceramic		DDA 17-7 FC-PVC/V/C	97722190	2,233	97722191	2,350
			EPDM			DDA 17-7 FC-PVC/E/C	97722186	2,233	97722187	2,350
		PVDF	PTFE	Ceramic		DDA 17-7 FC-PV/T/C	97722206	2,450	97722207	2,567
		SS				SS	Rp 1/4", female	DDA 17-7 FC-SS/T/SS	97722209	3,071
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 FC-PP/V/C	97722284	2,375	97722285	2,492
			EPDM			DDA 30-4 FC-PP/E/C	97722280	2,375	97722281	2,492
		PVC	FKM	Ceramic		DDA 30-4 FC-PVC/V/C	97722293	2,407	97722294	2,525
			EPDM			DDA 30-4 FC-PVC/E/C	97722289	2,407	97722290	2,525
		PVDF	PTFE	Ceramic		DDA 30-4 FC-PV/T/C	97722309	2,624	97722310	2,742
		SS				SS	Rp 1/4", female	DDA 30-4 FC-SS/T/SS	97722312	3,245

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH. ** Max. pressure for PVC version: 10 bar

SMART Digital S Dosing Pumps DDA AR

Turndown ratio: 1:1000

1:3000 for the DDA 7,5-16

Motor type: Stepper motor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand

Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.

Optional: Material variants => different combinations are available on demand (cf. Data Booklet)

CONTROL VARIANT: AR



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 AR-PP/V/C	97721942	1,592	97721943	1,689
			EPDM			DDA 7,5-16 AR-PP/E/C	97721938	1,592	97721939	1,689
		PVC **	FKM	Ceramic		DDA 7,5-16 AR-PVC/V/C	97721950	1,624	97721951	1,721
			EPDM			DDA 7,5-16 AR-PVC/E/C	97721946	1,624	97721947	1,721
		PVDF	PTFE	Ceramic		DDA 7,5-16 AR-PV/T/C	97721966	1,841	97721967	1,938
		SS		SS		DDA 7,5-16 AR-SS/T/SS	97721970	2,462	-	-
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 AR-PP/V/C	97722044	1,804	97722045	1,921
			EPDM			DDA 12-10 AR-PP/E/C	97722040	1,804	97722041	1,921
		PVC	FKM	Ceramic		DDA 12-10 AR-PVC/V/C	97722052	1,836	97722053	1,953
			EPDM			DDA 12-10 AR-PVC/E/C	97722048	1,836	97722049	1,953
		PVDF	PTFE	Ceramic		DDA 12-10 AR-PV/T/C	97722068	2,053	97722069	2,170
		SS		SS		DDA 12-10 AR-SS/T/SS	97722072	2,674	-	-
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 AR-PP/V/C	97722146	1,804	97722147	1,921
			EPDM			DDA 17-7 AR-PP/E/C	97722142	1,804	97722143	1,921
		PVC	FKM	Ceramic		DDA 17-7 AR-PVC/V/C	97722154	1,836	97722155	1,953
			EPDM			DDA 17-7 AR-PVC/E/C	97722150	1,836	97722151	1,953
		PVDF	PTFE	Ceramic		DDA 17-7 AR-PV/T/C	97722170	2,053	97722171	2,170
		SS		SS		DDA 17-7 AR-SS/T/SS	97722174	2,674	-	-
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 AR-PP/V/C	97722248	1,978	97722249	2,095
			EPDM			DDA 30-4 AR-PP/E/C	97722244	1,978	97722245	2,095
		PVC	FKM	Ceramic		DDA 30-4 AR-PVC/V/C	97722256	2,011	97722257	2,128
			EPDM			DDA 30-4 AR-PVC/E/C	97722252	2,011	97722253	2,128
		PVDF	PTFE	Ceramic		DDA 30-4 AR-PV/T/C	97722272	2,228	97722273	2,345
		SS		SS		DDA 30-4 AR-SS/T/SS	97722276	2,849	-	-
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
7.5	16	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 7,5-16 AR-PP/V/C	97721944	1,612	97721945	1,709
			EPDM			DDA 7,5-16 AR-PP/E/C	97721940	1,612	97721941	1,709
		PVC **	FKM	Ceramic		DDA 7,5-16 AR-PVC/V/C	97721952	1,644	97721953	1,741
			EPDM			DDA 7,5-16 AR-PVC/E/C	97721948	1,644	97721949	1,741
		PVDF	PTFE	Ceramic		DDA 7,5-16 AR-PV/T/C	97721968	1,861	97721969	1,958
		SS		SS		DDA 7,5-16 AR-SS/T/SS	97721971	2,482	-	-
12.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 12-10 AR-PP/V/C	97722046	1,824	97722047	1,941
			EPDM			DDA 12-10 AR-PP/E/C	97722042	1,824	97722043	1,941
		PVC	FKM	Ceramic		DDA 12-10 AR-PVC/V/C	97722054	1,856	97722055	1,973
			EPDM			DDA 12-10 AR-PVC/E/C	97722050	1,856	97722051	1,973
		PVDF	PTFE	Ceramic		DDA 12-10 AR-PV/T/C	97722070	2,073	97722071	2,190
		SS		SS		DDA 12-10 AR-SS/T/SS	97722073	2,694	-	-
17.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 17-7 AR-PP/V/C	97722148	1,824	97722149	1,941
			EPDM			DDA 17-7 AR-PP/E/C	97722144	1,824	97722145	1,941
		PVC	FKM	Ceramic		DDA 17-7 AR-PVC/V/C	97722156	1,856	97722157	1,973
			EPDM			DDA 17-7 AR-PVC/E/C	97722152	1,856	97722153	1,973
		PVDF	PTFE	Ceramic		DDA 17-7 AR-PV/T/C	97722172	2,073	97722173	2,190
		SS		SS		DDA 17-7 AR-SS/T/SS	97722175	2,694	-	-
30.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDA 30-4 AR-PP/V/C	97722250	1,998	97722251	2,115
			EPDM			DDA 30-4 AR-PP/E/C	97722246	1,998	97722247	2,115
		PVC	FKM	Ceramic		DDA 30-4 AR-PVC/V/C	97722258	2,031	97722259	2,148
			EPDM			DDA 30-4 AR-PVC/E/C	97722254	2,031	97722255	2,148
		PVDF	PTFE	Ceramic		DDA 30-4 AR-PV/T/C	97722274	2,248	97722275	2,365
		SS		SS		DDA 30-4 AR-SS/T/SS	97722277	2,869	-	-

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH. ** Max. pressure for PVC version: 10 bar

SMART Digital S Dosing Pumps DDC AR

Turndown ratio: 1:1000
Motor type: Stepper motor, 1x100-240 V AC, 50-60 Hz
Plug: Standard EU (Schuko), other plugs on demand
Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.
Optional: Material variants => different combinations are available on demand (cf. Data Booklet)
CONTROL VARIANT: AR



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 6-10 AR-PP/V/C	97721362	1,200	97721363	1,306
			EPDM			DDC 6-10 AR-PP/E/C	97721358	1,200	97721359	1,306
		PVC	FKM	Ceramic		DDC 6-10 AR-PVC/V/C	97721370	1,235	97721371	1,341
			EPDM			DDC 6-10 AR-PVC/E/C	97721366	1,235	97721367	1,341
		PVDF	PTFE	Ceramic		DDC 6-10 AR-PV/T/C	97721387	1,472	97721388	1,578
		SS		SS		Rp 1/4", female	DDC 6-10 AR-SS/T/SS	97721391	2,149	-
9.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 9-7 AR-PP/V/C	97721431	1,200	97721432	1,328
			EPDM			DDC 9-7 AR-PP/E/C	97721427	1,200	97721428	1,328
		PVC	FKM	Ceramic		DDC 9-7 AR-PVC/V/C	97721439	1,235	97721440	1,363
			EPDM			DDC 9-7 AR-PVC/E/C	97721435	1,235	97721436	1,363
		PVDF	PTFE	Ceramic		DDC 9-7 AR-PV/T/C	97721455	1,472	97721456	1,600
		SS		SS		Rp 1/4", female	DDC 9-7 AR-SS/T/SS	97721459	2,149	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 15-4 AR-PP/V/C	97721499	1,407	97721500	1,534
			EPDM			DDC 15-4 AR-PP/E/C	97721495	1,407	97721496	1,534
		PVC	FKM	Ceramic		DDC 15-4 AR-PVC/V/C	97721507	1,442	97721508	1,570
			EPDM			DDC 15-4 AR-PVC/E/C	97721503	1,442	97721504	1,570
		PVDF	PTFE	Ceramic		DDC 15-4 AR-PV/T/C	97721523	1,679	97721524	1,806
		SS		SS		Rp 1/4", female	DDC 15-4 AR-SS/T/SS	97721527	2,356	-
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 6-10 AR-PP/V/C	97721364	1,222	97721365	1,328
			EPDM			DDC 6-10 AR-PP/E/C	97721360	1,222	97721361	1,328
		PVC	FKM	Ceramic		DDC 6-10 AR-PVC/V/C	97721372	1,257	97721373	1,363
			EPDM			DDC 6-10 AR-PVC/E/C	97721368	1,257	97721369	1,363
		PVDF	PTFE	Ceramic		DDC 6-10 AR-PV/T/C	97721389	1,494	97721390	1,600
		SS		SS		Rp 1/4", female	DDC 6-10 AR-SS/T/SS	97721392	2,171	-
9.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 9-7 AR-PP/V/C	97721433	1,222	97721434	1,349
			EPDM			DDC 9-7 AR-PP/E/C	97721429	1,222	97721430	1,349
		PVC	FKM	Ceramic		DDC 9-7 AR-PVC/V/C	97721441	1,257	97721442	1,385
			EPDM			DDC 9-7 AR-PVC/E/C	97721437	1,257	97721438	1,385
		PVDF	PTFE	Ceramic		DDC 9-7 AR-PV/T/C	97721457	1,494	97721458	1,621
		SS		SS		Rp 1/4", female	DDC 9-7 AR-SS/T/SS	97721460	2,171	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 15-4 AR-PP/V/C	97721501	1,428	97721502	1,556
			EPDM			DDC 15-4 AR-PP/E/C	97721497	1,428	97721498	1,556
		PVC	FKM	Ceramic		DDC 15-4 AR-PVC/V/C	97721509	1,464	97721510	1,592
			EPDM			DDC 15-4 AR-PVC/E/C	97721505	1,464	97721506	1,592
		PVDF	PTFE	Ceramic		DDC 15-4 AR-PV/T/C	97721525	1,700	97721526	1,828
		SS		SS		Rp 1/4", female	DDC 15-4 AR-SS/T/SS	97721528	2,378	-

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH

SMART Digital S Dosing Pumps DDC A

Turndown ratio: 1:1000
Motor type: Steppermotor, 1x100-240 V AC, 50-60 Hz
Plug: Standard EU (Schuko), other plugs on demand
Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.
Optional: Material variants => different combinations are available on demand (cf. Data Booklet)
CONTROL VARIANT: A



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 6-10 A-PP/V/C	97721328	936	97721329	1,042
			EPDM			DDC 6-10 A-PP/E/C	97721324	936	97721325	1,042
		PVC	FKM	Ceramic		DDC 6-10 A-PVC/V/C	97721336	971	97721337	1,077
			EPDM			DDC 6-10 A-PVC/E/C	97721332	971	97721333	1,077
		PVDF	PTFE	Ceramic		DDC 6-10 A-PV/T/C	97721352	1,208	97721353	1,314
		SS		SS		Rp 1/4", female	DDC 6-10 A-SS/T/SS	97721356	1,885	-
9.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 9-7 A-PP/V/C	97721397	936	97721398	1,064
			EPDM			DDC 9-7 A-PP/E/C	97721393	936	97721394	1,064
		PVC	FKM	Ceramic		DDC 9-7 A-PVC/V/C	97721405	971	97721406	1,099
			EPDM			DDC 9-7 A-PVC/E/C	97721401	971	97721402	1,099
		PVDF	PTFE	Ceramic		DDC 9-7 A-PV/T/C	97721421	1,208	97721422	1,336
		SS		SS		Rp 1/4", female	DDC 9-7 A-SS/T/SS	97721425	1,885	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 15-4 A-PP/V/C	97721465	1,143	97721466	1,270
			EPDM			DDC 15-4 A-PP/E/C	97721461	1,143	97721462	1,270
		PVC	FKM	Ceramic		DDC 15-4 A-PVC/V/C	97721473	1,178	97721474	1,306
			EPDM			DDC 15-4 A-PVC/E/C	97721469	1,178	97721470	1,306
		PVDF	PTFE	Ceramic		DDC 15-4 A-PV/T/C	97721489	1,415	97721490	1,543
		SS		SS		Rp 1/4", female	DDC 15-4 A-SS/T/SS	97721493	2,092	-
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 6-10 A-PP/V/C	97721330	958	97721331	1,064
			EPDM			DDC 6-10 A-PP/E/C	97721326	958	97721327	1,064
		PVC	FKM	Ceramic		DDC 6-10 A-PVC/V/C	97721338	993	97721339	1,099
			EPDM			DDC 6-10 A-PVC/E/C	97721334	993	97721335	1,099
		PVDF	PTFE	Ceramic		DDC 6-10 A-PV/T/C	97721354	1,230	97721355	1,336
		SS		SS		Rp 1/4", female	DDC 6-10 A-SS/T/SS	97721357	1,907	-
9.0	7	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 9-7 A-PP/V/C	97721399	958	97721400	1,085
			EPDM			DDC 9-7 A-PP/E/C	97721395	958	97721396	1,085
		PVC	FKM	Ceramic		DDC 9-7 A-PVC/V/C	97721407	993	97721408	1,121
			EPDM			DDC 9-7 A-PVC/E/C	97721403	993	97721404	1,121
		PVDF	PTFE	Ceramic		DDC 9-7 A-PV/T/C	97721423	1,230	97721424	1,358
		SS		SS		Rp 1/4", female	DDC 9-7 A-SS/T/SS	97721426	1,907	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDC 15-4 A-PP/V/C	97721467	1,164	97721468	1,292
			EPDM			DDC 15-4 A-PP/E/C	97721463	1,164	97721464	1,292
		PVC	FKM	Ceramic		DDC 15-4 A-PVC/V/C	97721475	1,200	97721476	1,328
			EPDM			DDC 15-4 A-PVC/E/C	97721471	1,200	97721472	1,328
		PVDF	PTFE	Ceramic		DDC 15-4 A-PV/T/C	97721491	1,436	97721492	1,564
		SS		SS		Rp 1/4", female	DDC 15-4 A-SS/T/SS	97721494	2,114	-

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH

SMART Digital S Dosing Pumps DDE PR

Turndown ratio: 1:1000
Motor type: Steppermotor, 1x100-240 V AC, 50-60 Hz
Plug: Standard EU (Schuko), other plugs on demand
Optional: Material variants => different combinations are available on demand (cf. Data Booklet)
CONTROL VARIANT: PR



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 PR-PP/V/C	98147264	642	98147265	741
			EPDM			DDE 6-10 PR-PP/E/C	98147240	642	98147261	741
		PVC	FKM	Ceramic		DDE 6-10 PR-PVC/V/C	98147272	675	98147273	774
			EPDM			DDE 6-10 PR-PVC/E/C	98147268	675	98147269	774
		PVDF	PTFE	Ceramic		DDE 6-10 PR-PV/T/C	98147288	896	98147289	994
		SS				SS	Rp 1/4", female	DDE 6-10 PR-SS/T/SS	98147292	1,527
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 PR-PP/V/C	98147298	824	98147299	944
			EPDM			DDE 15-4 PR-PP/E/C	98147294	824	98147295	944
		PVC	FKM	Ceramic		DDE 15-4 PR-PVC/V/C	98147306	857	98147307	977
			EPDM			DDE 15-4 PR-PVC/E/C	98147302	857	98147303	977
		PVDF	PTFE	Ceramic		DDE 15-4 PR-PV/T/C	98147322	1,078	98147323	1,197
		SS				SS	Rp 1/4", female	DDE 15-4 PR-SS/T/SS	98147326	1,710
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 PR-PP/V/C	98147266	662	98147267	761
			EPDM			DDE 6-10 PR-PP/E/C	98147262	662	98147263	761
		PVC	FKM	Ceramic		DDE 6-10 PR-PVC/V/C	98147274	695	98147275	794
			EPDM			DDE 6-10 PR-PVC/E/C	98147270	695	98147271	794
		PVDF	PTFE	Ceramic		DDE 6-10 PR-PV/T/C	98147290	916	98147291	1,015
		SS				SS	Rp 1/4", female	DDE 6-10 PR-SS/T/SS	98147293	1,548
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 PR-PP/V/C	98147300	845	98147301	964
			EPDM			DDE 15-4 PR-PP/E/C	98147296	845	98147297	964
		PVC	FKM	Ceramic		DDE 15-4 PR-PVC/V/C	98147308	878	98147309	997
			EPDM			DDE 15-4 PR-PVC/E/C	98147304	878	98147305	997
		PVDF	PTFE	Ceramic		DDE 15-4 PR-PV/T/C	98147324	1,098	98147325	1,218
		SS				SS	Rp 1/4", female	DDE 15-4 PR-SS/T/SS	98147327	1,730

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH



SMART Digital S Dosing Pumps DDE P

Turndown ratio:	1:1000
Motor type:	Steppermotor, 1x100-240 V AC, 50-60 Hz
Plug:	Standard EU (Schuko), other plugs on demand
Optional:	Material variants => different combinations are available on demand (cf. Data Booklet)
CONTROL VARIANT: P	

Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 P-PP/V/C	97720953	573	97720954	672
			EPDM			DDE 6-10 P-PP/E/C	97720949	573	97720950	672
		PVC	FKM	Ceramic		DDE 6-10 P-PVC/V/C	97720961	606	97720962	705
			EPDM			DDE 6-10 P-PVC/E/C	97720957	606	97720958	705
		PVDF	PTFE	Ceramic		DDE 6-10 P-PV/T/C	97720977	827	97720978	926
		SS		SS		Rp 1/4", female	DDE 6-10 P-SS/T/SS	97720981	1,459	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 P-PP/V/C	97721021	756	97721022	875
			EPDM			DDE 15-4 P-PP/E/C	97721017	756	97721018	875
		PVC	FKM	Ceramic		DDE 15-4 P-PVC/V/C	97721029	789	97721030	908
			EPDM			DDE 15-4 P-PVC/E/C	97721025	789	97721026	908
		PVDF	PTFE	Ceramic		DDE 15-4 P-PV/T/C	97721045	1,010	97721046	1,129
		SS		SS		Rp 1/4", female	DDE 15-4 P-SS/T/SS	97721049	1,641	-
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 P-PP/V/C	97720955	594	97720956	693
			EPDM			DDE 6-10 P-PP/E/C	97720951	594	97720952	693
		PVC	FKM	Ceramic		DDE 6-10 P-PVC/V/C	97720963	627	97720964	726
			EPDM			DDE 6-10 P-PVC/E/C	97720959	627	97720960	726
		PVDF	PTFE	Ceramic		DDE 6-10 P-PV/T/C	97720979	847	97720980	946
		SS		SS		Rp 1/4", female	DDE 6-10 P-SS/T/SS	97720982	1,479	-
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 P-PP/V/C	97721023	776	97721024	896
			EPDM			DDE 15-4 P-PP/E/C	97721019	776	97721020	896
		PVC	FKM	Ceramic		DDE 15-4 P-PVC/V/C	97721031	809	97721032	928
			EPDM			DDE 15-4 P-PVC/E/C	97721027	809	97721028	928
		PVDF	PTFE	Ceramic		DDE 15-4 P-PV/T/C	97721047	1,030	97721048	1,149
		SS		SS		Rp 1/4", female	DDE 15-4 P-SS/T/SS	97721050	1,662	-

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH

SMART Digital S Dosing Pumps DDE B

Turndown ratio: 1:1000
Motor type: Steppermotor, 1x100-240 V AC, 50-60 Hz
Plug: Standard EU (Schuko), other plugs on demand
Optional: Material variants => different combinations are available on demand (cf. Data Booklet)
CONTROL VARIANT: B



Suction/discharge valves - standard							Pump without installation kit		Pump with installation kit* (no level switch)	
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 B-PP/V/C	97720909	462	97720910	561
			EPDM			DDE 6-10 B-PP/E/C	97720905	462	97720906	561
		PVC	FKM	Ceramic		DDE 6-10 B-PVC/V/C	97720927	495	97720928	594
			EPDM			DDE 6-10 B-PVC/E/C	97720923	495	97720924	594
		PVDF	PTFE	Ceramic		DDE 6-10 B-PV/T/C	97720943	715	97720944	814
		SS				SS	Rp 1/4", female	DDE 6-10 B-SS/T/SS	97720947	1,347
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 B-PP/V/C	97720987	644	97720988	764
			EPDM			DDE 15-4 B-PP/E/C	97720983	644	97720984	764
		PVC	FKM	Ceramic		DDE 15-4 B-PVC/V/C	97720995	677	97720996	797
			EPDM			DDE 15-4 B-PVC/E/C	97720991	677	97720992	797
		PVDF	PTFE	Ceramic		DDE 15-4 B-PV/T/C	97721011	898	97721012	1,017
		SS				SS	Rp 1/4", female	DDE 15-4 B-SS/T/SS	97721015	1,530
Suction/discharge valves - spring loaded (viscous chemicals)										
Q max (l/h)	P max (bar)	Material			Connection	Type	Part number	£	Part number	£
		Dosing Head	Gaskets	Balls						
6.0	10	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 6-10 B-PP/V/C	97720921	482	97720922	581
			EPDM			DDE 6-10 B-PP/E/C	97720907	482	97720908	581
		PVC	FKM	Ceramic		DDE 6-10 B-PVC/V/C	97720929	515	97720930	614
			EPDM			DDE 6-10 B-PVC/E/C	97720925	515	97720926	614
		PVDF	PTFE	Ceramic		DDE 6-10 B-PV/T/C	97720945	736	97720946	835
		SS				SS	Rp 1/4", female	DDE 6-10 B-SS/T/SS	97720948	1,367
15.0	4	PP	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	DDE 15-4 B-PP/V/C	97720989	665	97720990	784
			EPDM			DDE 15-4 B-PP/E/C	97720985	665	97720986	784
		PVC	FKM	Ceramic		DDE 15-4 B-PVC/V/C	97720997	698	97720998	817
			EPDM			DDE 15-4 B-PVC/E/C	97720993	698	97720994	817
		PVDF	PTFE	Ceramic		DDE 15-4 B-PV/T/C	97721013	918	97721014	1,038
		SS				SS	Rp 1/4", female	DDE 15-4 B-SS/T/SS	97721016	1,550

* Installation set includes: 2 pump connections, foot valve, injection unit, 6 m PE discharge hose, 2 m PVC suction hose, 2 m PVC deaeration hose

CAUTION : FOOT VALVE WITHOUT LEVEL SWITCH

Selection

Closer to your needs, now GRUNDFOS offers a complete solution with Smart Digital Sets for your processes. In a new and easier than ever approach, follow the recipe below and select the right product for your dosing application. You are just three steps away. Join in!

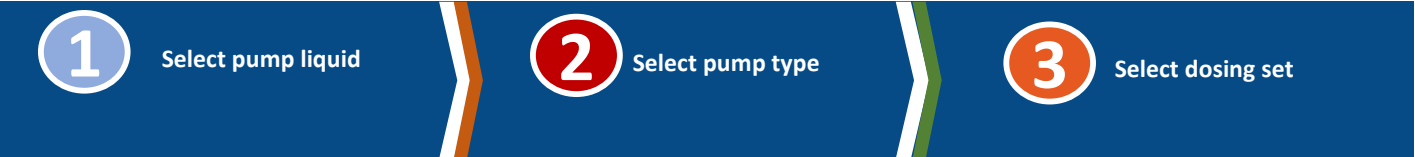


Parts of the dosing sets

- 1 SMART Digital pump
 - 2 Foot valve with 2 level switch
 - 3 Suction hose, PVC*, 2 m
 - 4 Deaeration hose, PE*, 2 m
 - 5 Pressure Valve (only pump type DDA-FC/FCM)
 - 6 Discharge hose, PE*, 6 m
 - 7 Injection unit with spring loaded-non return valve
 - 8 Control cables for all input- and outputs signals, 5 m
- Option Multifunction valve

*Dosing sets in application group 4 (PVDF/T/C) always include ETFE hose

Scheme overview: How to select your dosing set



Select pumped liquid

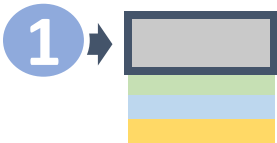


Select suitable pump type (control variant)

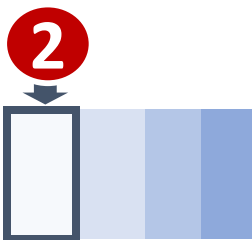


Combine to find your SMART Digital Dosing Set

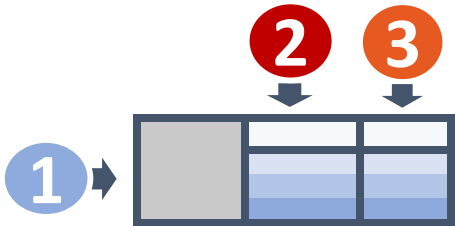
1 + 2



eg. Application group 1



eg. DDA-AR



eg. Application group 1 + DDA-AR 7.5-16 code 97950230

Selection

> Select dosing set



Each dosing set includes the SMART Digital pump and all the dosing accessories required for a complete installation, with level controls.

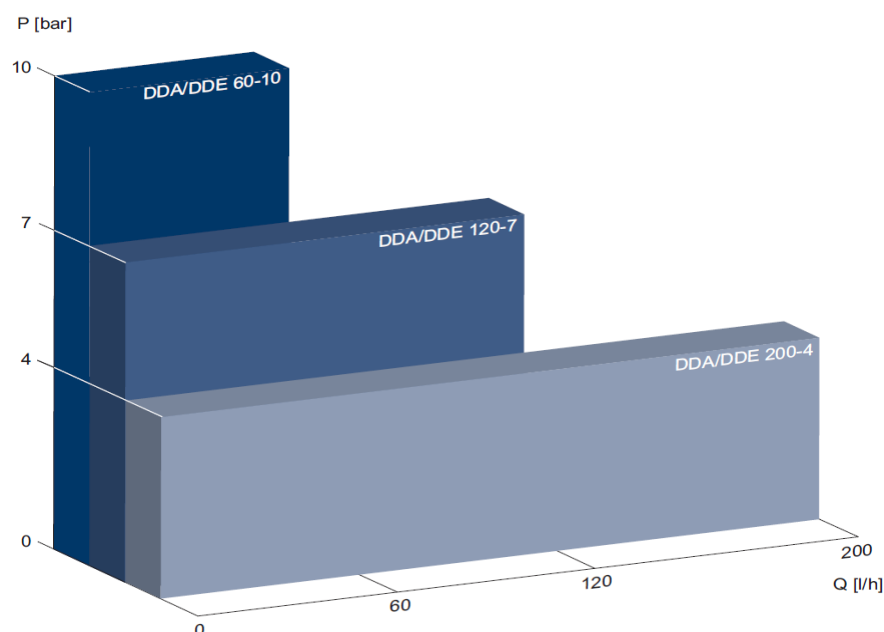
Optional Multifunction Valve (MFV) is available in option.

1	2					3	
Application group	Pump type	Max. flow [l/h]	Max. pressure	Hose size [mm]	Dosing set Part number	£	Optional MFV
1 PP/V/C	DDA-FCM	7.5	16	4/6	98954162	2,663	max relief setting:
		17	7	9/12	98954064	2,914	
		30	4	9/12	98954127	3,091	
	DDA-AR	7.5	16	4/6	97950230	1,987	10 bar : 95704585
		17	7	9/12	97974133	2,213	
		30	4	9/12	97974140	2,389	
	DDC-AR	6	10	4/6	97974061	1,542	16 bar : 95730821
		9	7	9/12	97974066	1,556	
		15	4	9/12	97974070	1,763	
	DDE-P	6	10	4/6	97974041	825	
		15	4	9/12	97974045	1,024	
2 PP/E/C	DDA-FCM	7.5	16	4/6	98954138	2,664	max relief setting:
		17	7	9/12	98954061	2,915	
		30	4	9/12	98954124	3,092	
	DDA-AR	7.5	16	4/6	97974076	1,987	10 bar : 95704591
		17	7	9/12	97974134	2,213	
		30	4	9/12	97974141	2,389	
	DDC-AR	6	10	4/6	97974062	1,542	16 bar : 95730822
		9	7	9/12	97974067	1,556	
		15	4	9/12	97974071	1,763	
	DDE-P	6	10	4/6	97974042	825	
		15	4	9/12	97974046	1,024	
3 PVC/V/C	DDA-FCM	7.5	10	4/6	98954175	2,698	max relief setting:
		17	7	9/12	98954121	2,947	
		30	4	9/12	98954134	3,126	
	DDA-AR	7.5	10	4/6	97974077	2,023	10 bar : 95730807
		17	7	9/12	97974135	2,248	
		30	4	9/12	97974142	2,425	
	DDC-AR	6	10	4/6	97974063	1,577	16 bar : 95730823
		9	7	9/12	97974068	1,591	
		15	4	9/12	97974072	1,798	
	DDE-P	6	10	4/6	97974043	856	
		15	4	9/12	97974047	1,055	
4 PVDF/T/C	DDA-FCM	7.5	16	4/6	98954164	3,295	max relief setting:
		17	7	9/12	98954069	3,911	
		30	4	9/12	98954129	4,074	
	DDA-AR	7.5	16	4/6	97974079	2,497	10 bar : 95730812
		17	7	9/12	97974138	3,058	
		30	4	9/12	97974145	3,234	

MFV Multifunction valve

Function	Type	Part number 10 bar	£	Part number 16 bar	£
 Pressure loading, pressure relief, deaeration and drain	MFV PP/V	95704585	208	95730821	206
	MFV PP/E	95704591	207	95730822	205
	MFV PVC/V	95730807	208	95730823	206
	MFV PVDF/T	95730812	270	95730828	268

SMART Digital XL Dosing Pumps



Type key

Example:

DDA 60 - 10 FCM - PVC / V / C - F - 3 1 - U3U3 F G

Type range:

DDA
DDE

Maximum flow (l/h)

Maximum pressure (bar)

Control variant

B Basic (DDE)
AR Alarm relay & analog input (also pulse)
FCM FC with flow measurement (DDA)

Dosing head variant

PVC Polyvinyl chloride**
PV PVDF (polyvinylidene fluoride)
SS Stainless steel 1.4401
PVC-L PVC } with integrated
PV-L PV } diaphragm
SS-L SS } leakage detection

Gasket material

E EPDM
V FKM
T PTFE

Valve ball material

C Ceramic
SS Stainless steel 1.4401

Control cube position

F Front-mounted (change to left and right possible)

Design

G Grundfos

Mains plug

F EU
B USA, Canada
G UK
I Australia, New Zealand
E Switzerland
J Japan
L Argentina

Connections, suction/discharge

U3U3 2 x union nut G 1 1/4"
 2 x hose connector 19/20 mm
 2 x hose clamp
 2 x pipe connector 25 mm
A7A7 2 x union nut G 1 1/4"
 2 x inlay external thread 3/4" NPT
A1A1 2 x union nut G 1 1/4" SS
 2 x inlay internal thread Rp 3/4" SS
A3A3 2 x union nut G 1 1/4" SS
 2 x inlay internal thread 3/4" NPT SS

Valve type

1 Standard
2 Spring-loaded

Supply voltage

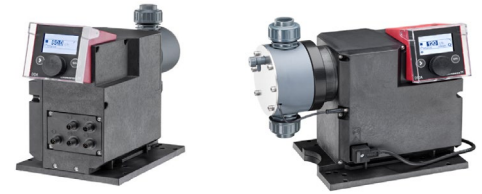
3 1 x 100-240 V, 50/60 Hz

SMART Digital XL Dosing Pumps DDA FCM

Turndown ratio: 1:800

Tension/Motortype: Steppermotor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand



Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.

CONTROL VARIANT FCM

- Identical to control variant AR, but with extra:
- FlowControl system with selective fault diagnosis
- Pressure monitoring (min/max)
- Flow measurement
- AutoFlowAdapt

Suction/discharge valves - standard

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 60-10 FCM-PVC/V/C	99159378	3,325
			EPDM			DDA 60-10 FCM-PVC/E/C	99159377	3,325
		PVDF	FKM	Ceramic		DDA 60-10 FCM-PV/V/C	99159381	3,579
			EPDM			DDA 60-10 FCM-PV/E/C	99159379	3,579
			PTFE			DDA 60-10 FCM-PV/T/C	99159380	3,660
		SS	FKM	SS	Rp 3/4", female	DDA 60-10 FCM-SS/V/SS	99159382	3,698
			PTFE			DDA 60-10 FCM-SS/T/SS	99159383	3,778
120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 120-7 FCM-PVC/V/C	99159392	3,650
			EPDM			DDA 120-7 FCM-PVC/E/C	99159391	3,650
		PVDF	FKM	Ceramic		DDA 120-7 FCM-PV/V/C	99159395	3,904
			EPDM			DDA 120-7 FCM-PV/E/C	99159393	3,904
			PTFE			DDA 120-7 FCM-PV/T/C	99159394	3,985
		SS	FKM	SS	Rp 3/4", female	DDA 120-7 FCM-SS/V/SS	99159396	4,023
			PTFE			DDA 120-7 FCM-SS/T/SS	99159397	4,103
200	4	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 200-4 FCM-PVC/V/C	99159406	3,821
			EPDM			DDA 200-4 FCM-PVC/E/C	99159405	3,821
		PVDF	FKM	Ceramic		DDA 200-4 FCM-PV/V/C	99159409	4,075
			EPDM			DDA 200-4 FCM-PV/E/C	99159407	4,075
			PTFE			DDA 200-4 FCM-PV/T/C	99159408	4,156
		SS	FKM	SS	Rp 3/4", female	DDA 200-4 FCM-SS/V/SS	99159410	4,193
			PTFE			DDA 200-4 FCM-SS/T/SS	99159411	4,274

Suction/discharge valves - spring loaded (viscous chemicals)

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 60-10 FCM-PVC/V/C	99164199	3,366
			EPDM			DDA 60-10 FCM-PVC/E/C	99164198	3,366
		PVDF	FKM	Ceramic		DDA 60-10 FCM-PV/V/C	99164203	3,620
			EPDM			DDA 60-10 FCM-PV/E/C	99164201	3,620
			PTFE			DDA 60-10 FCM-PV/T/C	99164202	3,701
		SS	FKM	SS	Rp 3/4", female	DDA 60-10 FCM-SS/V/SS	99164204	3,739
			PTFE			DDA 60-10 FCM-SS/T/SS	99164205	3,819
120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 120-7 FCM-PVC/V/C	99164215	3,691
			EPDM			DDA 120-7 FCM-PVC/E/C	99164214	3,691
		PVDF	FKM	Ceramic		DDA 120-7 FCM-PV/V/C	99164219	3,945
			EPDM			DDA 120-7 FCM-PV/E/C	99164217	3,945
			PTFE			DDA 120-7 FCM-PV/T/C	99164218	4,026
		SS	FKM	SS	Rp 3/4", female	DDA 120-7 FCM-SS/V/SS	99164220	4,064
			PTFE			DDA 120-7 FCM-SS/T/SS	99164221	4,145
200	4	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 200-4 FCM-PVC/V/C	99164231	3,862
			EPDM			DDA 200-4 FCM-PVC/E/C	99164230	3,862
		PVDF	FKM	Ceramic		DDA 200-4 FCM-PV/V/C	99164235	4,116
			EPDM			DDA 200-4 FCM-PV/E/C	99164233	4,116
			PTFE			DDA 200-4 FCM-PV/T/C	99164234	4,197
		SS	FKM	SS	Rp 3/4", female	DDA 200-4 FCM-SS/V/SS	99164236	4,235
			PTFE			DDA 200-4 FCM-SS/T/SS	99164237	4,315

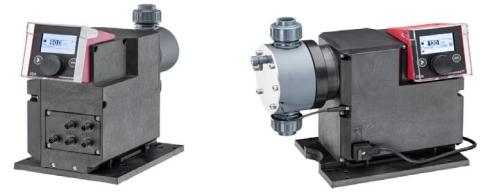
SMART Digital XL Dosing Pumps DDA AR

Turndown ratio: 1:800

Tension/Motortype: Steppermotor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand

Graphical LC display with plain-text menu. Capacity displayed in ml/h or l/h.



CONTROL VARIANT AR

- Manual speed control
- Analog control 0/4-20 mA with scaling
- Input for low-level signal and tank empty signal
- Auto deaeration also during pump standby
- Dosing timer (cycle or week)
- Input for external stop
- Pulse control in ml/pulse
- Batch control (pulse based)
- Fieldbus control
- Output relay (2 relays)
- Output analog 0/4-20 mA

Suction/discharge valves - standard							Standard AR version		AR version with leakage detection	
Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£	Product number	£
		Dosing Head	Gaskets	Balls						
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 60-10 AR-PVC(-L)/V/C	99159371	2,563	99159497	2,987
			EPDM			DDA 60-10 AR-PVC(-L)/E/C	99159370	2,563	99159496	2,987
		PVDF	FKM	Ceramic		DDA 60-10 AR-PV(-L)/V/C	99159374	2,818	99159499	3,241
			EPDM			DDA 60-10 AR-PV/E/C	99159372	2,818	-	-
			PTFE			DDA 60-10 AR-PV(-L)/T/C	99159373	2,898	99159498	3,322
		SS	FKM	SS	Rp 3/4", female	DDA 60-10 AR-SS(-L)/V/SS	99159375	2,936	99159500	3,360
			PTFE			DDA 60-10 AR-SS(-L)/T/SS	99159376	3,017	99159501	3,440
		120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 120-7 AR-PVC(-L)/V/C	99159385	2,889
EPDM	DDA 120-7 AR-PVC(-L)/E/C				99159384			2,889	99159502	3,312
PVDF	FKM			Ceramic	DDA 120-7 AR-PV(-L)/V/C	99159388		3,143	99159505	3,566
	EPDM				DDA 120-7 AR-PV/E/C	99159386		3,143	-	-
	PTFE				DDA 120-7 AR-PV(-L)/T/C	99159387		3,224	99159504	3,647
SS	FKM			SS	Rp 3/4", female	DDA 120-7 AR-SS(-L)/V/SS	99159389	3,262	99159506	3,685
	PTFE					DDA 120-7 AR-SS(-L)/T/SS	99159390	3,342	99159507	3,765
200	4			PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 200-4 AR-PVC(-L)/V/C	99159399	3,059
		EPDM	DDA 200-4 AR-PVC(-L)/E/C		99159398			3,059	99159508	3,483
		PVDF	FKM	Ceramic	DDA 200-4 AR-PV(-L)/V/C	99159402		3,314	99159511	3,737
			EPDM		DDA 200-4 AR-PV/E/C	99159400		3,314	-	-
			PTFE		DDA 200-4 AR-PV(-L)/T/C	99159401		3,394	99159510	3,818
		SS	FKM	SS	Rp 3/4", female	DDA 200-4 AR-SS(-L)/V/SS	99159403	3,432	99159512	3,855
			PTFE			DDA 200-4 AR-SS(-L)/T/SS	99159404	3,513	99159513	3,936
		Suction/discharge valves - standard								
Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£	Product number	£
		Dosing Head	Gaskets	Balls						
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 60-10 AR-PVC(-L)/V/C	99164191	2,605	99266413	3,028
			EPDM			DDA 60-10 AR-PVC(-L)/E/C	99164190	2,605	99266309	3,028
		PVDF	FKM	Ceramic		DDA 60-10 AR-PV(-L)/V/C	99164195	2,859	99266416	3,282
			EPDM			DDA 60-10 AR-PV/E/C	99164193	2,859	POA	-
			PTFE			DDA 60-10 AR-PV(-L)/T/C	99164194	2,939	99266415	3,363
		SS	FKM	SS	Rp 3/4", female	DDA 60-10 AR-SS(-L)/V/SS	99164196	2,977	99266418	3,401
			PTFE			DDA 60-10 AR-SS(-L)/T/SS	99164197	3,058	99266419	3,481
		120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 120-7 AR-PVC(-L)/V/C	99164207	2,930
EPDM	DDA 120-7 AR-PVC(-L)/E/C				99164206			2,930	99266421	3,353
PVDF	FKM			Ceramic	DDA 120-7 AR-PV(-L)/V/C	99164211		3,184	99266456	3,607
	EPDM				DDA 120-7 AR-PV/E/C	99164209		3,184	POA	-
	PTFE				DDA 120-7 AR-PV(-L)/T/C	99164210		3,265	99266433	3,688
SS	FKM			SS	Rp 3/4", female	DDA 120-7 AR-SS(-L)/V/SS	99164212	3,303	99266436	3,726
	PTFE					DDA 120-7 AR-SS(-L)/T/SS	99164213	3,383	99266437	3,807
200	4			PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDA 200-4 AR-PVC(-L)/V/C	99164223	3,100
		EPDM	DDA 200-4 AR-PVC(-L)/E/C		99164222			3,100	99266457	3,524
		PVDF	FKM	Ceramic	DDA 200-4 AR-PV(-L)/V/C	99164227		3,355	99266462	3,778
			EPDM		DDA 200-4 AR-PV/E/C	99164225		3,355	POA	-
			PTFE		DDA 200-4 AR-PV(-L)/T/C	99164226		3,435	99266460	3,859
		SS	FKM	SS	Rp 3/4", female	DDA 200-4 AR-SS(-L)/V/SS	99164228	3,473	99266484	3,897
			PTFE			DDA 200-4 AR-SS(-L)/T/SS	99164229	3,554	99266483	3,977

SMART Digital XL Dosing Pumps DDE AR

Turndown ratio: 1:800

Tension/Motortype: Stepper motor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand



CONTROL VARIANT AR

- Manual speed control
- Pulse control in ml/pulse
- Analog control 0/4-20 mA with scaling
- Input for external stop
- Input for low-level signal and tank empty signal
- Output relay (2 relays)

Suction/discharge valves - standard

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 60-10 AR-PVC/V/C	99159336	2,354
			EPDM			DDE 60-10 AR-PVC/E/C	99159335	2,354
		PVDF	FKM	Ceramic		DDE 60-10 AR-PV/V/C	99159339	2,645
			EPDM			DDE 60-10 AR-PV/E/C	99159337	2,645
			PTFE			DDE 60-10 AR-PV/T/C	99159338	2,737
		SS	FKM	SS	Rp 3/4", female	DDE 60-10 AR-SS/V/SS	99159340	2,780
			PTFE			DDE 60-10 AR-SS/T/SS	99159341	2,872
120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 120-7 AR-PVC/V/C	99159350	2,710
			EPDM			DDE 120-7 AR-PVC/E/C	99159349	2,710
		PVDF	FKM	Ceramic		DDE 120-7 AR-PV/V/C	99159353	3,001
			EPDM			DDE 120-7 AR-PV/E/C	99159351	3,001
			PTFE			DDE 120-7 AR-PV/T/C	99159352	3,093
		SS	FKM	SS	Rp 3/4", female	DDE 120-7 AR-SS/V/SS	99159354	3,136
			PTFE			DDE 120-7 AR-SS/T/SS	99159355	3,228
200	4	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 200-4 AR-PVC/V/C	99159364	2,898
			EPDM			DDE 200-4 AR-PVC/E/C	99159363	2,898
		PVDF	FKM	Ceramic		DDE 200-4 AR-PV/V/C	99159367	3,188
			EPDM			DDE 200-4 AR-PV/E/C	99159365	3,188
			PTFE			DDE 200-4 AR-PV/T/C	99159366	3,280
		SS	FKM	SS	Rp 3/4", female	DDE 200-4 AR-SS/V/SS	99159368	3,324
			PTFE			DDE 200-4 AR-SS/T/SS	99159369	3,416

Suction/discharge valves - spring loaded (viscous chemicals)

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 60-10 AR-PVC/V/C	99262854	2,401
			EPDM			DDE 60-10 AR-PVC/E/C	99262900	2,401
		PVDF	FKM	Ceramic		DDE 60-10 AR-PV/V/C	99266547	2,692
			EPDM			DDE 60-10 AR-PV/E/C	99266532	2,692
			PTFE			DDE 60-10 AR-PV/T/C	99266543	2,784
		SS	FKM	SS	Rp 3/4", female	DDE 60-10 AR-SS/V/SS	99266846	2,827
			PTFE			DDE 60-10 AR-SS/T/SS	99266819	2,919
120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 120-7 AR-PVC/V/C	99266852	2,757
			EPDM			DDE 120-7 AR-PVC/E/C	99266851	2,757
		PVDF	FKM	Ceramic		DDE 120-7 AR-PV/V/C	99266867	3,048
			EPDM			DDE 120-7 AR-PV/E/C	99266856	3,048
			PTFE			DDE 120-7 AR-PV/T/C	99266862	3,140
		SS	FKM	SS	Rp 3/4", female	DDE 120-7 AR-SS/V/SS	99266924	3,183
			PTFE			DDE 120-7 AR-SS/T/SS	99266869	3,275
200	4	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 200-4 AR-PVC/V/C	99266903	2,945
			EPDM			DDE 200-4 AR-PVC/E/C	99266902	2,945
		PVDF	FKM	Ceramic		DDE 200-4 AR-PV/V/C	99266906	3,235
			EPDM			DDE 200-4 AR-PV/E/C	99266909	3,235
			PTFE			DDE 200-4 AR-PV/T/C	99266904	3,327
		SS	FKM	SS	Rp 3/4", female	DDE 200-4 AR-SS/V/SS	99266926	3,371
			PTFE			DDE 200-4 AR-SS/T/SS	99266911	3,463

SMART Digital XL Dosing Pumps DDE B

Turndown ratio: 1:800

Tension/Motortype: Steppermotor, 1x100-240 V AC, 50-60 Hz

Plug: Standard EU (Schuko), other plugs on demand



CONTROL VARIANT B

- Manual speed control

Suction/discharge valves - standard

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 60-10 B-PVC/V/C	99159329	1,879
			EPDM			DDE 60-10 B-PVC/E/C	99159328	1,879
		PVDF	FKM	Ceramic		DDE 60-10 B-PV/V/C	99159332	2,170
			EPDM			DDE 60-10 B-PV/E/C	99159330	2,170
			PTFE			DDE 60-10 B-PV/T/C	99159331	2,262
		SS	FKM	SS		Rp 3/4", female	DDE 60-10 B-SS/V/SS	99159333
			PTFE		DDE 60-10 B-SS/T/SS		99159334	2,398
		120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 120-7 B-PVC/V/C
EPDM	DDE 120-7 B-PVC/E/C				99159342			2,235
PVDF	FKM			Ceramic	DDE 120-7 B-PV/V/C	99159346		2,526
	EPDM				DDE 120-7 B-PV/E/C	99159344		2,526
	PTFE				DDE 120-7 B-PV/T/C	99159345		2,618
SS	FKM			SS	Rp 3/4", female	DDE 120-7 B-SS/V/SS		99159347
	PTFE					DDE 120-7 B-SS/T/SS	99159348	2,753
200	4			PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 200-4 B-PVC/V/C
		EPDM	DDE 200-4 B-PVC/E/C		99159356			2,423
		PVDF	FKM	Ceramic	DDE 200-4 B-PV/V/C	99159360		2,714
			EPDM		DDE 200-4 B-PV/E/C	99159358		2,714
			PTFE		DDE 200-4 B-PV/T/C	99159359		2,806
		SS	FKM	SS	Rp 3/4", female	DDE 200-4 B-SS/V/SS		99159361
			PTFE			DDE 200-4 B-SS/T/SS	99159362	2,941

Suction/discharge valves - spring loaded (viscous chemicals)

Q max (l/h)	P max (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 60-10 B-PVC/V/C	99266488	1,926
			EPDM			DDE 60-10 B-PVC/E/C	99266486	1,926
		PVDF	FKM	Ceramic		DDE 60-10 B-PV/V/C	99266523	2,217
			EPDM			DDE 60-10 B-PV/E/C	99266490	2,217
			PTFE			DDE 60-10 B-PV/T/C	99266492	2,309
		SS	FKM	SS		Rp 3/4", female	DDE 60-10 B-SS/V/SS	99266531
			PTFE		DDE 60-10 B-SS/T/SS		99266528	2,445
		120	7	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 120-7 B-PVC/V/C
EPDM	DDE 120-7 B-PVC/E/C				99266835			2,282
PVDF	FKM			Ceramic	DDE 120-7 B-PV/V/C	99266844		2,573
	EPDM				DDE 120-7 B-PV/E/C	99266840		2,573
	PTFE				DDE 120-7 B-PV/T/C	99259704		2,665
SS	FKM			SS	Rp 3/4", female	DDE 120-7 B-SS/V/SS		99266923
	PTFE					DDE 120-7 B-SS/T/SS	99266847	2,800
200	4			PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	DDE 200-4 B-PVC/V/C
		EPDM	DDE 200-4 B-PVC/E/C		99266872			2,470
		PVDF	FKM	Ceramic	DDE 200-4 B-PV/V/C	99266895		2,760
			EPDM		DDE 200-4 B-PV/E/C	99266879		2,760
			PTFE		DDE 200-4 B-PV/T/C	99266882		2,853
		SS	FKM	SS	Rp 3/4", female	DDE 200-4 B-SS/V/SS		99266925
			PTFE			DDE 200-4 B-SS/T/SS	99266897	2,988

E-Box - SMART Digital -DDA-S

The E-box can be fitted (added or retrofitted) to a SMART DDA-S dosing pump after installation (software version 2.5)
Suitable for harsh environments due to IP65 enclosures and cable inputs.

Supported dosing pumps:

SMART Digital-S dosing pumps DDA 7.5, DDA 12, DDA 17 and DDA 30 control variants FCM, FC or AR

Advantages:

- Remote monitoring and setup of SMART Digital DDA dosing pumps
- Better input signal = higher accurate dosing flow adjustment
- Plain text error messages using the Flow Control System (FC and FCM version)
- Compact design through clickable E-Box, retrofittable



DDA-S dosing pump with E-Box

CIU External controller - SMART Digital - DDA-S & DDA-XL

External CIU 900 box requires power supply and connection cable between controller and dosing pump.

The CIU 900 box can be fitted (added or retrofitted) to a SMART Digital S or XL dosing pump after installation (software version 2.5). Models DDA-AR, DDA-FC or DDA-FCM.

Additional CIM required for different protocol, see below

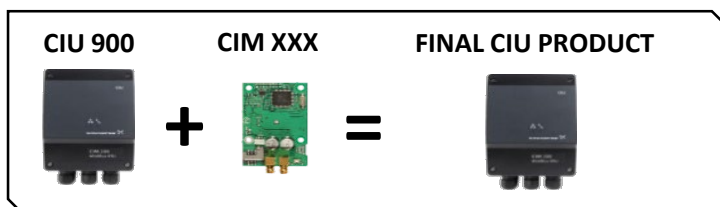


CIU 900 external controller and CIM interface card

E-Box - For Use With SMART Digital-S dosing pumps DDA 7.5, DDA 12, DDA 17 and DDA 30

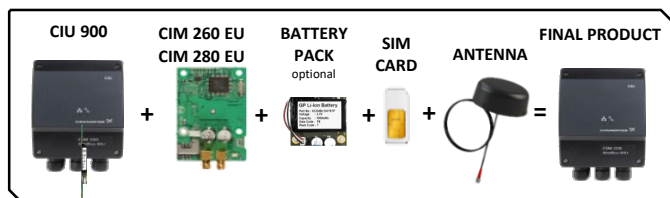
Description	Product number	£
E-Box 150 Profibus DP-V0	97513994	493
E-Box 200 Modbus RTU	98563350	493
E-Box 500 PROFINET IO or Modbus TCP	99171932	493

CIM/CIU - For Use With all SMART Digital DDA dosing pumps



Description *	Product number *	£ *
CIU 900	99448387	236
CIM 150 Profibus DP-V0	96824793	261
CIM 200 Modbus RTU/COMLI	96824796	237
CIM 500 Profinet/Modbus TCP/Ethernet IP	98301408	537
CIU cable Genibus connection cable 3 m, M12 straight connector - necessary for all CIU controllers	98589048	63
PC-Tool PC-Tool link USB including cables	96705378	1,277

Selection Example for GSM or Grundfos Remote Management



Model

2G/3G/4G Roof Antenna	99518079	112
Battery Pack ¹⁾	99499908	38

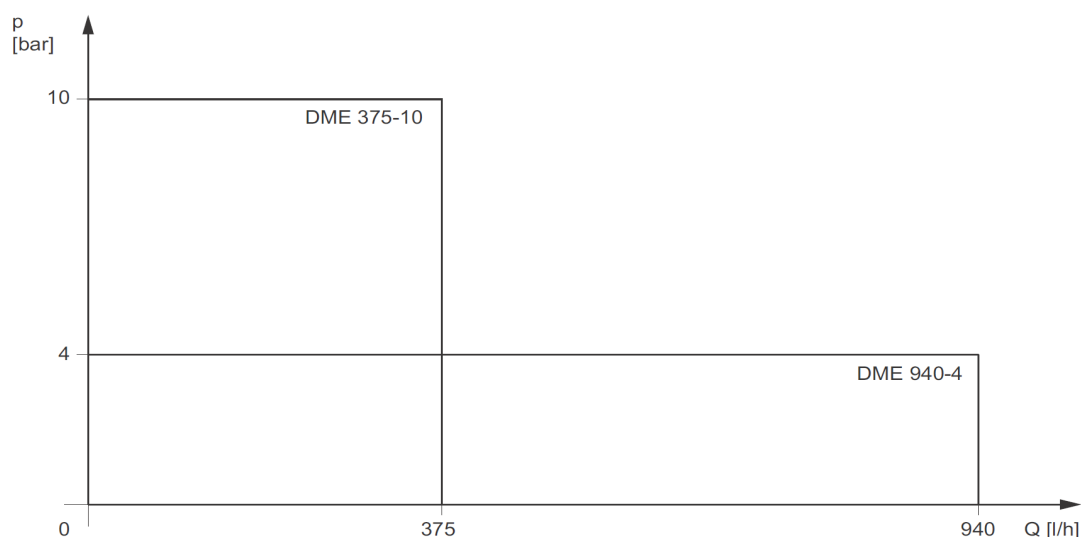
¹⁾ CIM 260 and CIM280 can accommodate a rechargeable battery to allow the CIM card to transmit in the event of power failure.

²⁾ SIM supply optional. Please contact Grundfos.

NOTE -* These items are subject to Price List Category 4 discount terms

Digital dosing pumps

DME : Digital dosing pumps



Type

DME 375-10 AR-PP/E/C-F-31A1F

Maximum capacity [l/h]

DME 375-10 AR-PP/E/C-F-31A1F

375

940

Maximum pressure [bar]

DME 375-10 AR-PP/E/C-F-31A1F

4

10

Control variant

DME 375-10 AR-PP/E/C-F-31A1F

AR Standard

AP Standard + Profibus

B Basic

Dosing head material

DME 375-10 AR-PP/E/C-F-31A1F

PP Polypropylene

PV PVDF

SS Stainless steel 1.4401

Gasket material

DME 375-10 AR-PP/E/C-F-31A1F

E EPDM

T PTFE

V FKM

Valve ball material

DME 375-10 AR-PP/E/C-F-31A1F

C Ceramic

G Glass

SS Stainless steel 1.4401

T PTFE

Control panel

DME 375-10 AR-PP/E/C-F-31A1F

F Front-fitted

S Side-fitted

Voltage

DME 375-10 AR-PP/E/C-F-31A1F

3 1 x 100-240 V, 50/60 Hz

Valve type

DME 375-10 AR-PP/E/C-F-31A1F

1 Standard valve

2 Spring-loaded valve

Connection, inlet/outlet

DME 375-10 AR-PP/E/C-F-31A2F

A2 Threaded, Rp 1 1/4"

A4 Threaded, NPT 1 1/4"

Mains plug

DME 375-10 AR-PP/E/C-F-31A1F

F EU (Schuko)

G UK

I Australia (AU)

B USA

J Japan (JP)

E Switzerland (CH)

L Argentina

AR STANDARD:

Manual: stepless adjustment of the desired capacity on screen

Pulse mode: set the desired amount per pulse

Analogue mode: dosing capacity controlled by a 4-20 mA input

Batch mode: timer or pulse batch control

Remote on/off via external relay

Input for tank empty and empty alarm

Relay alarm output

Digital dosing pumps

Turndown ratio:	1:800, minimum capacity is 1/800 of the maximum capacity
Power supply:	Brushless DC motor, 1 x 100-240 V, 50/60 Hz
Mains plug:	Standard EU (SCHUKO plug with cable)
Optional:	Backlit display with flow available in ml/h and l/h Material variants and piping connections



CONTROL VARIANT: AR STANDARD

Suction/discharge valves - standard

FRONT CONTROL PANEL & DISPLAY

Qmax (l/h)	Pmax (bar)	Material			Connection	Type	Product number	£			
		Dosing Head	Gaskets	Balls							
375	10	PP	EPDM	Glass	Rp 1 1/4"	DME 375-10 AR-PP/E/G-F-31A2A2F	96524941	5,013			
			FKM			DME 375-10 AR-PP/V/G-F-31A2A2F	96524943	5,030			
			EPDM	Ceramic		DME 375-10 AR-PP/E/C-F-31A2A2F	95905003	5,560			
			FKM			DME 375-10 AR-PP/V/C-F-31A2A2F	95905013	5,577			
		PVDF	FKM	Glass		DME 375-10 AR-PV/V/G-F-31A2A2F	96524945	5,634			
			EPDM	Ceramic		DME 375-10 AR-PV/E/C-F-31A2A2F	95905025	6,165			
			PTFE			DME 375-10 AR-PV/T/C-F-31A2A2F	95905047	6,359			
			SS	PTFE		SS	DME 375-10 AR-SS/T/SS-F-31A2A2F	96987377	6,229		
		940	4	PP		EPDM	Glass	Rp 1 1/4"	DME 940-4 AR-PP/E/G-F-31A2A2F	96524958	5,959
						FKM			DME 940-4 AR-PP/V/G-F-31A2A2F	96524960	5,975
EPDM	Ceramic				DME 940-4 AR-PP/E/C-F-31A2A2F	95905191	6,506				
FKM					DME 940-4 AR-PP/V/C-F-31A2A2F	95905201	6,522				
PVDF	FKM			Glass	DME 940-4 AR-PV/V/G-F-31A2A2F	96524962	6,717				
	EPDM			Ceramic	DME 940-4 AR-PV/E/C-F-31A2A2F	95905213	7,248				
	PTFE				DME 940-4 AR-PV/T/C-F-31A2A2F	95905235	7,442				
	SS			PTFE	SS	DME 940-4 AR-SS/T/SS-F-31A2A2F	97503533		7,407		

Suction/discharge valves - spring loaded

375	10	PP	EPDM	Ceramic	Rp 1 1/4"	DME 375-10 AR-PP/E/C-F-32A2A2F	95905004	5,601
		SS	PTFE	SS		DME 375-10 AR-SS/T/SS-F-32A2A2F	97503539	6,270
940	4	PP	EPDM	Ceramic		DME 940-4 AR-PP/E/C-F-32A2A2F	95905192	6,547
		SS	PTFE	SS		DME 940-4 AR-SS/T/SS-F-32A2A2F	97503552	7,448



CONTROL VARIANT: AR STANDARD

Suction/discharge valves - standard

SIDE CONTROL PANEL & DISPLAY

Qmax (l/h)	Pmax (bar)	Material			Connection	Type	Product number	£			
		Dosing Head	Gaskets	Balls							
375	10	PP	EPDM	Glass	Rp 1 1/4"	DME 375-10 AR-PP/E/G-S-31A2A2F	96524942	5,079			
			FKM			DME 375-10 AR-PP/V/G-S-31A2A2F	96524944	5,095			
			EPDM	Ceramic		DME 375-10 AR-PP/E/C-S-31A2A2F	95905005	5,626			
			FKM			DME 375-10 AR-PP/V/C-S-31A2A2F	95905015	5,642			
		PVDF	FKM	Glass		DME 375-10 AR-PV/V/G-S-31A2A2F	96524946	5,699			
			EPDM	Ceramic		DME 375-10 AR-PV/E/C-S-31A2A2F	95905027	6,230			
			PTFE			DME 375-10 AR-PV/T/C-S-31A2A2F	95905049	6,424			
			SS	PTFE		SS	DME 375-10 AR-SS/T/SS-S-31A2A2F	97503530	6,294		
		940	4	PP		EPDM	Glass	Rp 1 1/4"	DME 940-4 AR-PP/E/G-S-31A2A2F	96524959	6,024
						FKM			DME 940-4 AR-PP/V/G-S-31A2A2F	96524961	6,041
EPDM	Ceramic				DME 940-4 AR-PP/E/C-S-31A2A2F	95905193	6,572				
FKM					DME 940-4 AR-PP/V/C-S-31A2A2F	95905203	6,588				
PVDF	FKM			Glass	DME 940-4 AR-PV/V/G-S-31A2A2F	96524963	6,783				
	EPDM			Ceramic	DME 940-4 AR-PV/E/C-S-31A2A2F	95905215	7,314				
	PTFE				DME 940-4 AR-PV/T/C-S-31A2A2F	95905237	7,508				
	SS			PTFE	SS	DME 940-4 AR-SS/T/SS-S-31A2A2F	97503534		7,473		

Suction/discharge valves - spring loaded

375	10	PP	EPDM	Ceramic	Rp 1 1/4"	DME 375-10 AR-PP/E/C-S-32A2A2F	95905006	5,667
		SS	PTFE	SS		DME 375-10 AR-SS/T/SS-S-32A2A2F	97503540	6,335
940	4	PP	EPDM	Ceramic		DME 940-4 AR-PP/E/C-S-32A2A2F	95905194	6,613
		SS	PTFE	SS		DME 940-4 AR-SS/T/SS-S-32A2A2F	97503553	7,514

Digital dosing pumps

Turndown ratio:	1:800, minimum capacity is 1/800 of the maximum capacity
Power supply:	Brushless DC motor, 1 x 100-240 V, 50/60 Hz
Mains plug:	Standard EU (SCHUKO plug with cable)
Optional:	Backlit display with flow available in ml/h and l/h Material variants and piping connections



CONTROL VARIANT: AP (AR + PROFIBUS)

Suction/discharge valves - standard

FRONT CONTROL PANEL & DISPLAY

Qmax (l/h)	Pmax (bar)	Material			Connection	Type	Product number	£
		Dosing Head	Gaskets	Balls				
375	10	PP	EPDM	Glass	Rp 1 1/4"	DME 375-10 AP-PP/E/G-F-31A2A2F	95905121	5,971
			FKM			DME 375-10 AP-PP/V/G-F-31A2A2F	95905133	5,987
			EPDM	Ceramic		DME 375-10 AP-PP/E/C-F-31A2A2F	95905125	6,518
		PVDF	FKM	Glass		DME 375-10 AP-PV/V/G-F-31A2A2F	95905157	6,591
			EPDM	Ceramic		DME 375-10 AP-PV/E/C-F-31A2A2F	95905149	7,122
			PTFE			DME 375-10 AP-PV/T/C-F-31A2A2F	95905173	7,316
		SS	PTFE	SS		DME 375-10 AP-SS/T/SS-F-31A2A2F	98727116	7,131
940	4	PP	EPDM	Glass	Rp 1 1/4"	DME 940-4 AP-PP/E/G-F-31A2A2F	95905309	6,916
			FKM			DME 940-4 AP-PP/V/G-F-31A2A2F	95905321	6,933
			EPDM	Ceramic		DME 940-4 AP-PP/E/C-F-31A2A2F	95905313	7,464
		FKM	DME 940-4 AP-PP/V/C-F-31A2A2F			95905325	7,480	
		PVDF	FKM	Glass		DME 940-4 AP-PV/V/G-F-31A2A2F	95905345	7,675
			EPDM	Ceramic		DME 940-4 AP-PV/E/C-F-31A2A2F	95905337	8,205
			PTFE			DME 940-4 AP-PV/T/C-F-31A2A2F	95905361	8,400
		SS	EPDM	SS		DME 940-4 AP-SS/E/SS-F-31A2A2F	95905369	8,187
			FKM			DME 940-4 AP-SS/V/SS-F-31A2A2F	95905373	8,203

Suction/discharge valves - spring loaded

375	10	PP	EPDM	Ceramic	Rp 1 1/4"	DME 375-10 AP-PP/E/C-F-32A2A2F	95905126	6,559
		SS	FKM	SS		DME 375-10 AP-SS/V/SS-F-32A2A2F	95905186	7,066
940	4	PP	EPDM	Ceramic		DME 940-4 AP-PP/E/C-F-32A2A2F	95905314	7,505
		SS	FKM	SS		DME 940-4 AP-SS/V/SS-F-32A2A2F	95905374	8,244

CONTROL VARIANT: AP (AR + PROFIBUS)

Suction/discharge valves - standard

SIDE CONTROL PANEL & DISPLAY



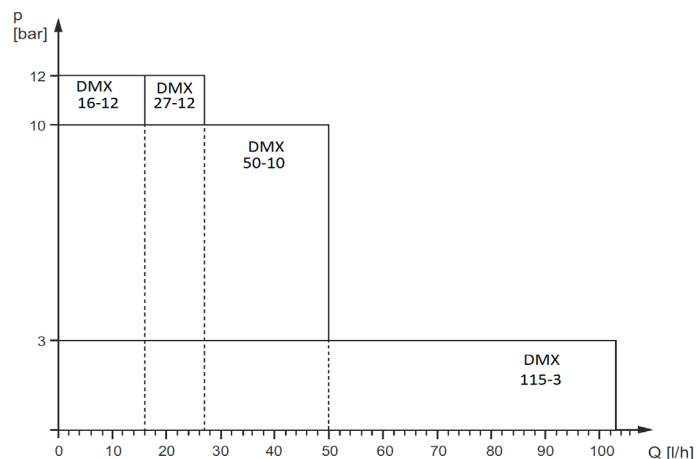
Qmax (l/h)	Pmax (bar)	Material			Connection	Type	Product number	£			
		Dosing Head	Gaskets	Balls							
375	10	PP	EPDM	Glass	Rp 1 1/4"	DME 375-10 AP-PP/E/G-S-31A2A2F	95905123	6,036			
			FKM			DME 375-10 AP-PP/V/G-S-31A2A2F	95905135	6,053			
			EPDM	Ceramic		DME 375-10 AP-PP/E/C-S-31A2A2F	95905127	6,584			
			FKM			DME 375-10 AP-PP/V/C-S-31A2A2F	95905139	6,600			
		PVDF	FKM	Glass		DME 375-10 AP-PV/V/G-S-31A2A2F	95905159	6,657			
			EPDM	Ceramic		DME 375-10 AP-PV/E/C-S-31A2A2F	95905151	7,188			
			PTFE			DME 375-10 AP-PV/T/C-S-31A2A2F	95905175	7,382			
			SS	PTFE		SS	DME 375-10 AP-SS/T/SS-S-31A2A2F	99019300	7,255		
		940	4	PP		EPDM	Glass	Rp 1 1/4"	DME 940-4 AP-PP/E/G-S-31A2A2F	95905311	6,982
						FKM			DME 940-4 AP-PP/V/G-S-31A2A2F	95905323	6,998
EPDM	Ceramic				DME 940-4 AP-PP/E/C-S-31A2A2F	95905315	6,051				
FKM					DME 940-4 AP-PP/V/C-S-31A2A2F	95905327	7,546				
PVDF	FKM			Glass	DME 940-4 AP-PV/V/G-S-31A2A2F	95905347	7,740				
	EPDM			Ceramic	DME 940-4 AP-PV/E/C-S-31A2A2F	95905339	8,271				
	PTFE				DME 940-4 AP-PV/T/C-S-31A2A2F	95905363	8,465				
	SS			PTFE	SS	DME 940-4 AP-SS/T/SS-S-31A2A2F	98484763		8,402		

Suction/discharge valves - spring loaded

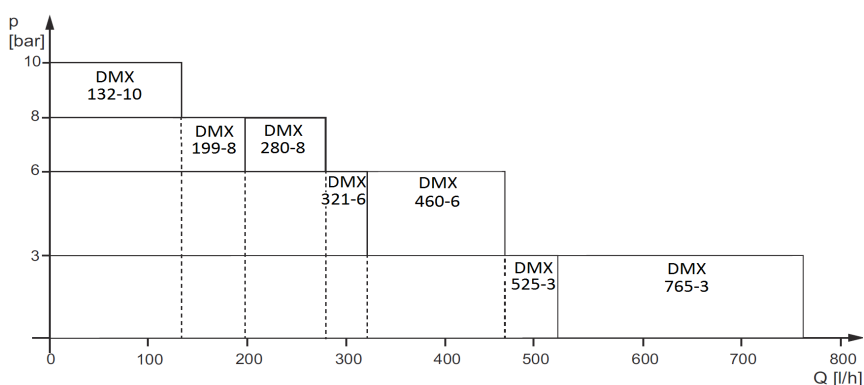
375	10	PP	EPDM	Ceramic	Rp 1 1/4"	DME 375-10 AP-PP/E/C-S-32A2A2F	95905128	6,625
		SS	PTFE	SS		DME 375-10 AP-SS/T/SS-S-32A2A2F	97503551	7,293
940	4	PP	EPDM	Ceramic		DME 940-4 AP-PV/E/C-S-32A2A2F	95905340	8,312
		SS	PTFE	SS		DME 940-4 AP-SS/T/SS-S-32A2A2F	98300528	7,514

DMX pre-selected products

Mechanical diaphragm dosing pumps DMX 221



Mechanical diaphragm dosing pumps DMX 226



Type key

Example: DMX 16-12 B-PVC/V/C-X-E11007

	Code	Description	Remark
Type	DMX	Motor-driven diaphragm dosing pump	
Maximum flow	16	16 l/h maximum capacity of the pump	Example
Maximum pressure	12	Maximum counterpressure 12 bar	Example
Number of dosing heads		Single-head	
Control variant	B	Standard (manual control)	
Dosing head variant	PVC	Polyvinyl Chloride	
Gasket material	E	EPDM	
	V	FKM	
Valve ball material	G	Glass	
	C	Ceramic	
	SS	Stainless steel, 1.4401 (EN 10027-2), 316Ti (AISI)	
Control panel position	X	No control panel (without AR, without VFD)	
	E	3 x 230/400 V, 50/60 Hz; 3 x 440/480 V, 60 Hz	
Supply voltage	G	1 x 220-240 V 50/60 Hz	DMX 221
		1 x 230 V, 50 Hz	DMX 226
Valve type	1	Standard, not spring-loaded (inlet/outlet side)	
Connection, inlet/outlet / Installation set	I007	Installation set Including 2 pump connections, foot valve, injection unit, 6 m PVC outlet hose (6/12 mm), 2 m PVC inlet hose (6/12 mm)	DMX 221 up to 50 l/h
	U2	PVC, G 5/8, for hose 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	DMX 221 up to 50 l/h, DN 8
	U3	PVC, G 5/4, for 19/27 mm hose and Ø25 pipe	DMX 226 up to 460 l/h; DMX 221: 115-3, DN 20
	K	PVC, G 2, for Ø40 pipe	DMX 226: 525-3, 765-3, DN 32
Mains plug	-	No cable, no plug for 3 AC motors	DMX 226
	X	No plug for 1 AC motors and with AR	DMX 221
Motor variant	-	Standard motor	

Mechanical dosing pumps

DMX pre-selected products

Capacity:	1.6 – 765 l/h
Pressure:	3-10 bar
Setting range:	10:1, manual stroke adjustment
Mains supply:	1 x 230 V or 3 x 230/400 V, 50/60 Hz



Get your DMX pump in no time

Select and order you pump between 11 DMX sizes covering a wide performance range from 16 l/h (12 bar) to 765 l/h (3 bar), to benefit quick delivery,*
DMX 221 pre-selected products up to 50 l/h (DN 8) are optionally available with an installation set.

Connections:

- up to 50 l/h: Hose 6/9 mm, 6/12 mm, 9/12 mm (DN 8)
- 460 l/h: Hose 19/27 mm, pipe cementing D25 (DN 20)
- 525 l/h and 765 l/h: Pipe cementing D40 (DN32)

DMX 221 pre-selected products

						1-phase motor		3-phase motor	
Qmax (l/h)	Pmax (bar)	Material			Type	Product number	£	Product number	£
		Dosing Head	Gaskets	Balls					
16	12	PVC	FKM	Ceramic	DMX 16-12 B-PVC/V/C-X-E1U2U2	99206065	972	99205916	863
					DMX 16-12 B-PVC/V/G-X-E1I007*	99206066	972	99205965	863
			EPDM		DMX 16-12 B-PVC/E/C-X-E1U2U2	99206067	972	99205971	863
					DMX 16-12 B-PVC/E/C-X-E1I007*	99206068	972	99205972	863
27	12	PVC	FKM	Ceramic	DMX 27-12 B-PVC/V/C-X-E1U2U2	99206069	995	99205993	886
					DMX 27-12 B-PVC/V/C-X-E1I007*	99206070	995	99205994	886
			EPDM		DMX 27-12 B-PVC/E/C-X-E1U2U2	99206071	995	99205995	886
					DMX 27-12 B-PVC/E/C-X-E1I007*	99206072	995	99205997	886
50	10	PVC	FKM	Ceramic	DMX 50-10 B-PVC/V/C-X-E1U2U2	99206073	1,066	99205998	957
					DMX 50-10 B-PVC/V/C-X-E1I007*	99206075	1,066	99205999	957
			EPDM		DMX 50-10 B-PVC/E/C-X-E1U2U2	99206076	1,066	99206000	957
					DMX 50-10 B-PVC/E/C-X-E1I007*	99206077	1,066	99206001	957
115	3	PVC	FKM	Ceramic	DMX 115-3 B-PVC/V/C-X-E1U3U3	99206078	1,433	99206002	1,324
			EPDM		DMX 115-3 B-PVC/E/C-X-E1U3U3	99206081	1,433	99206003	1,324

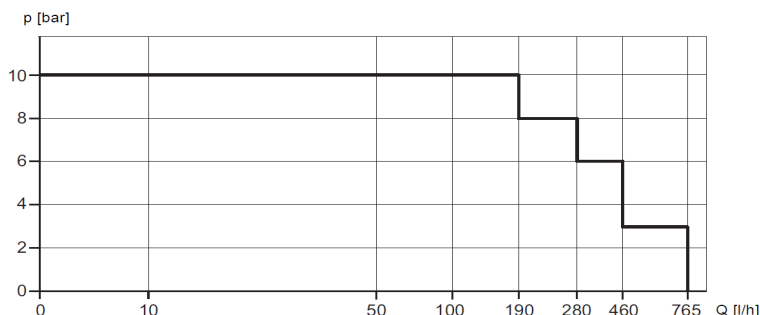
*Installation kit included with pump connections, hoses, foot valve and injection unit.

DMX 226 pre-selected products

						1-phase motor		3-phase motor	
Qmax	Pmax	Material			Type	Product number	£	Product number	£
(l/h)	(bar)	Dosing Head	Gaskets	Balls					
132	10	PVC	FKM	Ceramic	DMX 132-10 B-PVC/V/C-X-E1U3U3	99206047	2,156	99206011	2,013
			EPDM		DMX 132-10 B-PVC/E/C-X-E1U3U3	99206048	2,156	99206033	2,013
199	8	PVC	FKM	Ceramic	DMX 199-8 B-PVC/V/C-X-E1U3U3	99206049	2,074	99206034	1,931
			EPDM		DMX 199-8 B-PVC/E/C-X-E1U3U3	99206050	2,074	99206035	1,931
280	8	PVC	FKM	Ceramic	DMX 280-8 B-PVC/V/C-X-E1U3U3	99206051	2,074	99206036	1,931
			EPDM		DMX 280-8 B-PVC/E/C-X-E1U3U3	99206052	2,074	99206037	1,931
321	6	PVC	FKM	Ceramic	DMX 321-6 B-PVC/V/C-X-E1U3U3	99206063	2,214	99206038	2,071
			EPDM		DMX 321-6 B-PVC/E/C-X-E1U3U3	99206064	2,214	99206039	2,071
460	6	PVC	FKM	Ceramic	DMX 460-6 B-PVC/V/C-X-E1U3U3	-	-	99206040	2,071
			EPDM		DMX 460-6 B-PVC/E/C-X-E1U3U3	-	-	99206042	2,071
525	3	PVC	FKM	Glass	DMX 525-3 B-PVC/V/G-X-E1KK	-	-	99206043	2,468
			EPDM	SS	DMX 525-3 B-PVC/E/SS-X-E1KK	-	-	99206044	2,468
765	3	PVC	FKM	Glass	DMX 765-3 B-PVC/V/G-X-E1KK	-	-	99206045	2,468
			EPDM	SS	DMX 765-3 B-PVC/E/SS-X-E1KK	-	-	99206046	2,468

Mechanical dosing pumps

Mechanical diaphragm dosing pumps DMX



Type key

DMX 221. 226 50 Hz. 4-765 l/h



Example:	DMX 132	-10D	B	-PP / E	/ C - X	E 1	U3U3	X	E M	A G
Type										
DMX										
Maximum Flow [l/h]										
Maximum Pressure [bar]										
Pumps with a "D" after pressure value are double-head versions										
Control variant										
B	Standard - manual control									
D	Without manual control									
D3	Servomotor + 4-20 mA control (1AC 115-230 V, 50/60 Hz supply) without manual control									
AR*	AR control unit (pump mounted) * only for pumps ≤ 0.37 kW									
Dosing head variant										
PP	Polypropylene									
PV	PVDF (polyvinylidene fluoride)									
PVC	Polyvinyl chloride									
SS	Stainless steel (1.4571 / 316Ti)									
PPL	PP + Diaphragm Leakage Detection									
PVL	PVDF + Diaphragm Leakage Detection									
PVCL	PVC + Diaphragm Leakage Detection									
SSL	SS + Diaphragm Leakage Detection									
Gasket material										
E	EPDM									
V	FKM									
T	PTFE									
Valve ball material										
G	Glass (from DN32)									
T	PTFE									
SS	Stainless steel (1.4401 / 316)									
C	Ceramic (up to DN20)									
PP	Polypropylene									
PVC	Polyvinyl chloride									
Terminal box position (also AR control position)										
X	Opposite side of dosing head									
D	Towards dosing head									
S	Towards adjusting knob									
R	Opposite side of adjusting knob									
Pump design										
G	Grundfos									
Pump housing material										
A	Aluminium									
N	Noryl (Plastic)									
Motor variant										
EM*	Standard motor, without certificates									
E0*	With PTC, prepared for operation with frequency converter									
E1*	EX motor, type II 2G EEx e II T3									
E2*	EX type II 2GD EEx de IIC T4, no PTC									
E5*	EX type II 2GD EEx de IIC T4, with PTC									
* respectively with certificates: PM, K0, K1, K2, K5										
Mains plug										
X	No plug									
F	EU (Schuko) only for 1AC motors									
Connection, suction/discharge										
U2	G 5/8 for hoses 4/6, 6/9, 6/12, 9/12 mm (PVC, PP, PVDF)									
A	G 5/8 for internal Rp ¾ threaded SS pipes									
I007	G 5/8, installation set, including 2 pump connections, foot valve, injection unit, 6 m PVC outlet hose (6/12 mm), 2 m PVC inlet hose (6/12 mm)									
U3	G 5/4 for hoses with internal Ø 19 or 20 mm and pipes with external Ø 25 mm									
A1	G 5/4 for internal Rp ¾ threaded SS pipe									
B5	DN32 flange for ext. Ø 40 mm PP/PVDF									
A2	G2 for internal Rp 1 ¼ threaded SS pipes									
K	G2 for pipes with ext. Ø 40 mm PVC									
Valve type										
1	Standard									
2	Spring-loaded 0.05 bar (inlet & outlet)									
Supply voltage										
E	3AC 230/400 V, 50/60 Hz; 3AC 440/480 V, 60 Hz (motors < 0.75 kW) 3AC 230/400 V, 50 Hz, 460 V, 60 Hz (IE3, motors ≥ 0.75 kW)									
G	1AC 230V 50/60Hz (motors ≤ 0.09 kW) 1AC 230 V, 50 Hz (motors 0.18 - 0.37 kW)									
0	Without motor, IEC flange									
4	3AC 230/400 V, 50 Hz (for EX motors)									

Note: Above table displays 95% of all available and most common options for our DMX pumps range. Please consult our data-booklets available online on GPC or reach your Grundfos local contact for additional information on configurations.

Mechanical dosing pumps

Mechanical diaphragm dosing pumps DMX 221

Capacity:	0.4 – 115 l/h
Pressure:	3-10 bar
Setting range:	10:1, manual stroke adjustment
Mains supply:	Control variant B: 3 x 230/400 V, 50/60 Hz - 3 x 440/480 V, 60 Hz



VARIANT B

Basic version WITHOUT electronics
Manual control (stroke-length adjustment)
On/off control via mains supply

Options on request:

- Material models => different combinations
- Control variant AR
- Motor : single phase or ATEX
- Automatic adjustment of the stroke length via a servomotor
- Relief valve integrated in the dosing head (PVC/PVDF)
- Diaphragm leakage detection in combination with control variant AR

Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMX 221-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
4	10	29	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	4	DMX 4-10 B-PVC/V/C-X-E1U2U2XEMNG	99591969	863
				EPDM				DMX 4-10 B-PVC/E/C-X-E1U2U2XEMNG	99919308	863
			PVDF	PTFE	DMX 4-10 B-PV/T/C-X-E1U2U2XEMNG			99591985	1,240	
			SS	FKM	SS			Rp 1/4"	DMX 4-10 B-SS/V/SS-X-E1AAXEMNG	99591986
7.2	16	63	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	7.2	DMX 7,2-16 B-PVC/V/C-X-E1U2U2XEMNG	99882377	863
			SS		SS	Rp 1/4"		DMX 7,2-16 B-SS/V/SS-X-E1AAXEMNG	99919731	1,209
7	10	29	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	7	DMX 7-10 B-PVC/V/C-X-E1U2U2XEMNG	99591987	886
				EPDM				DMX 7-10 B-PVC/E/C-X-E1U2U2XEMNG	99772225	886
			PVDF	PTFE	DMX 7-10 B-PV/T/C-X-E1U2U2XEMNG			99591988	1,268	
			SS	FKM	SS			Rp 1/4"	DMX 7-10 B-SS/V/SS-X-E1AAXEMNG	99591989
13.7	16	120	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	13.7	DMX 13,7-16 B-PVC/V/C-X-E1U2U2XEMNG	99866732	863
			SS		SS	Rp 1/4"		DMX 13,7-16 B-SS/V/SS-X-E1AAXEMNG	99919746	1,209
14	10	63	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	14	DMX 14-10 B-PVC/V/C-X-E1U2U2XEMNG	99591991	886
				EPDM				DMX 14-10 B-PVC/E/C-X-E1U2U2XEMNG	99772385	886
			PVDF	PTFE	DMX 14-10 B-PV/T/C-X-E1U2U2XEMNG			99592003	1,268	
			SS	FKM	SS			Rp 1/4"	DMX 14-10 B-SS/V/SS-X-E1AAXEMNG	99592004
27	10	120	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	27	DMX 27-10 B-PVC/V/C-X-E1U2U2XEMNG	99772687	886
				EPDM				DMX 27-10 B-PVC/E/C-X-E1U2U2XEMNG	99920676	886
			PVDF	PTFE	DMX 27-10 B-PV/T/C-X-E1U2U2XEMNG			99592005	1,268	
			SS	FKM	SS			Rp 1/4"	DMX 27-10 B-SS/V/SS-X-E1AAXEMNG	99592006
35	10	120	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	35	DMX 35-10 B-PVC/V/C-X-E1U2U2XEMNG	99592007	907
				EPDM				DMX 35-10 B-PVC/E/C-X-E1U2U2XEMNG	99772737	907
			PVDF	PTFE	DMX 35-10 B-PV/T/C-X-E1U2U2XEMNG			99592009	1,299	
			SS	FKM	SS			Rp 1/4"	DMX 35-10 B-SS/V/SS-X-E1AAXEMNG	99592010
50	10	120	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	50	DMX 50-10 B-PVC/V/C-X-E1U2U2XEMNG	99205998	957
				EPDM				DMX 50-10 B-PVC/E/C-X-E1U2U2XEMNG	99206000	957
			PVDF	PTFE	DMX 50-10 B-PV/T/C-X-E1U2U2XEMNG			99592012	1,368	
			SS	FKM	SS			Rp 1/4"	DMX 50-10 B-SS/V/SS-X-E1AAXEMNG	99592023
75	4	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	75	DMX 75-4 B-PVC/V/C-X-E1U3U3XEMNG	99592024	1,190
				EPDM				DMX 75-4 B-PVC/E/C-X-E1U3U3XEMNG	99772110	1,190
			PVDF*	PTFE	DMX 75-4 B-PV/T/C-X-E1U3U3XEMNG			99592025	1,944	
			SS	FKM	Glass			Rp 3/4"	DMX 75-4 B-SS/V/SS-X-E1A1A1XEMNG	99592026
115	4	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	115	DMX 115-3 B-PVC/V/C-X-E1U3U3XEMNG	99206002	1,324
				EPDM				DMX 115-3 B-PVC/E/C-X-E1U3U3XEMNG	99206003	1,324
			PVDF*	PTFE	DMX 115-3 B-PV/T/C-X-E1U3U3XEMNG			99592027	2,162	
			SS	FKM	Glass			Rp 3/4"	DMX 115-3 B-SS/V/SS-X-E1A1A1XEMNG	99592028

* PVDF : pipe connection by thermal welding

Mechanical dosing pumps

Mechanical diaphragm dosing pumps DMX 226

Capacity: 0.4 – 765 l/h
 Pressure: 3-10 bar
 Setting range: 10:1, manual stroke adjustment
 Mains supply: Control variant B: 3 x 230/400 V, 50/60 Hz - 3 x 440/480 V, 60 Hz

VARIANT B

Basic version WITHOUT electronics
 Manual control (stroke-length adjustment)
 On/off control via mains supply

Options on request:

- Material models => different combinations
- Control variant AR
- Motor: single phase, ATEX,...
- Automatic adjustment of the stroke length via a servomotor
- Relief valve integrated in the dosing head (PVC/PVDF)
- Diaphragm leakage detection in combination with control variant AR



Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMX 226-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
67	10	57	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	67L	DMX 67-10 B-PVC/V/C-X-E1U3U3XEMAG	99592046	2,013
				EPDM				DMX 67-10 B-PVC/E/C-X-E1U3U3XEMAG	99773451	2,013
			PVDF*	PTFE	SS	Rp 3/4"		DMX 67-10 B-PV/T/C-X-E1U3U3XEMAG	99592048	2,531
			SS	FKM				DMX 67-10 B-SS/V/SS-X-E1A1A1XEMAG	99592049	2,818
100	8	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	100M	DMX 100-8 B-PVC/V/C-X-E1U3U3XEMAG	99592033	1,822
				EPDM				DMX 100-8 B-PVC/E/C-X-E1U3U3XEMAG	99772688	1,822
			PVDF*	PTFE	SS	Rp 3/4"		DMX 100-8 B-PV/T/C-X-E1U3U3XEMAG	99592035	2,294
			SS	FKM				DMX 100-8 B-SS/V/SS-X-E1A1A1XEMAG	99592036	2,551
132	10	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	132L	DMX 132-10 B-PVC/V/C-X-E1U3U3XEMAG	99206011	2,013
				EPDM				DMX 132-10 B-PVC/E/C-X-E1U3U3XEMAG	99206033	2,013
			PVDF*	PTFE	SS	Rp 3/4"		DMX 132-10 B-PV/T/C-X-E1U3U3XEMAG	99592050	2,531
			SS	FKM				DMX 132-10 B-SS/V/SS-X-E1A1A1XEMAG	99592052	2,818
160	5	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	160M	DMX 160-5 B-PVC/V/C-X-E1U3U3XEMAG	99772380	1,812
				EPDM				DMX 160-5 B-PVC/E/C-X-E1U3U3XEMAG	99772398	1,812
			PVDF*	PTFE	SS	Rp 3/4"		DMX 160-5 B-PV/T/C-X-E1U3U3XEMAG	99772409	2,281
			SS	FKM				DMX 160-5 B-SS/V/SS-X-E1A1A1XEMAG	99772415	2,537
199	8	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	199L	DMX 199-8 B-PVC/V/C-X-E1U3U3XEMAG	99206034	1,931
				EPDM				DMX 199-8 B-PVC/E/C-X-E1U3U3XEMAG	99206035	1,931
			PVDF*	PTFE	SS	Rp 3/4"		DMX 199-8 B-PV/T/C-X-E1U3U3XEMAG	99592063	2,432
			SS	FKM				DMX 199-8 B-SS/V/SS-X-E1A1A1XEMAG	99592064	2,706
224	5	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	230M	DMX 224-5 B-PVC/V/C-X-E1U3U3XEMAG	99592040	1,812
				EPDM				DMX 224-5 B-PVC/E/C-X-E1U3U3XEMAG	99772481	1,812
			PVDF*	PTFE	SS	Rp 3/4"		DMX 224-5 B-PV/T/C-X-E1U3U3XEMAG	99592041	2,281
			SS	FKM				DMX 224-5 B-SS/V/SS-X-E1A1A1XEMAG	99592042	2,537
280	8	175	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	280L	DMX 280-8 B-PVC/V/C-X-E1U3U3XEMAG	99206036	1,931
				EPDM				DMX 280-8 B-PVC/E/C-X-E1U3U3XEMAG	99206037	1,931
			PVDF*	PTFE	SS	Rp 3/4"		DMX 280-8 B-PV/T/C-X-E1U3U3XEMAG	99592065	2,432
			SS	FKM				DMX 280-8 B-SS/V/SS-X-E1A1A1XEMAG	99592067	2,706
321	6	120	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	321L	DMX 321-6 B-PVC/V/C-X-E1U3U3XEMAG	99206038	2,071
				EPDM				DMX 321-6 B-PVC/E/C-X-E1U3U3XEMAG	99206039	2,071
			PVDF*	PTFE	SS	Rp 3/4"		DMX 321-6 B-PV/T/C-X-E1U3U3XEMAG	99592068	2,606
			SS	FKM				DMX 321-6 B-SS/V/SS-X-E1A1A1XEMAG	99592069	2,900
525	3	120	PVC	FKM	Glass	Pipe 32/40	525L	DMX 525-3 B-PVC/V/G-X-E1KKXEMAG	99206043	2,468
				EPDM	SS			DMX 525-3 B-PVC/E/SS-X-E1KKXEMAG	99206044	2,468
			PVDF*	PTFE	PTFE	Rp 1 1/4"		DMX 525-3 B-PV/T/T-X-E1B5B5XEMAG	99592073	4,017
			SS	FKM	SS			DMX 525-3 B-SS/V/SS-X-E1A2A2XEMAG	99592074	3,454
765	3	175	PVC	FKM	Glass	Pipe 32/40	800L	DMX 765-3 B-PVC/V/G-X-E1KKXEMAG	99206045	2,468
				EPDM	SS			DMX 765-3 B-PVC/E/SS-X-E1KKXEMAG	99206046	2,468
			PVDF*	PTFE	PTFE	Rp 1 1/4"		DMX 765-3 B-PV/T/T-X-E1B5B5XEMAG	99592076	4,017
			SS	FKM	SS			DMX 765-3 B-SS/V/SS-X-E1A2A2XEMAG	99592077	3,454

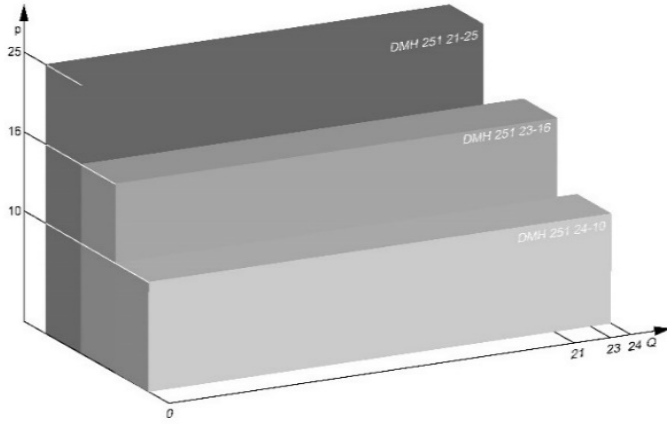
* PVDF : pipe connection by thermal welding

Mechanical dosing pumps

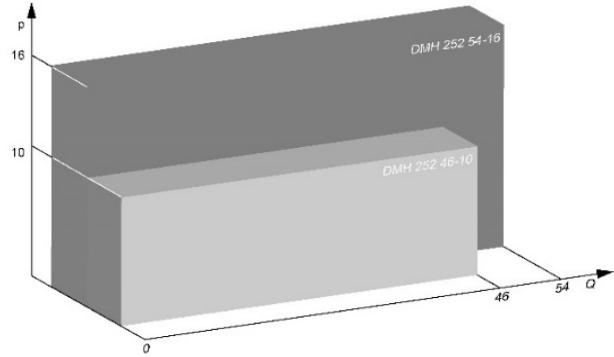
Hydraulic piston diaphragm dosing pumps DMH



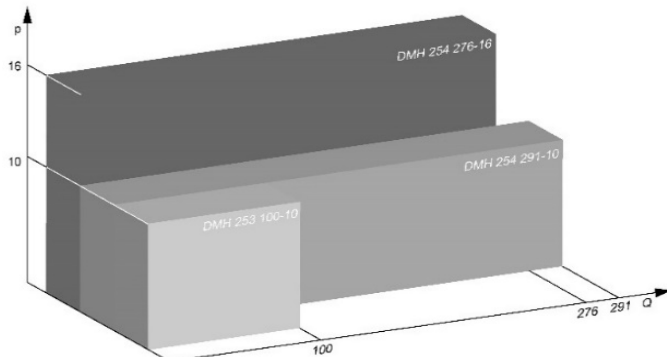
Performance range DMH 25X



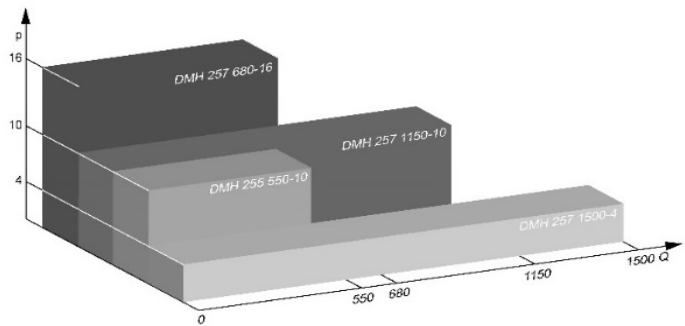
Performance overview DMH model 251



Performance overview DMH model 252

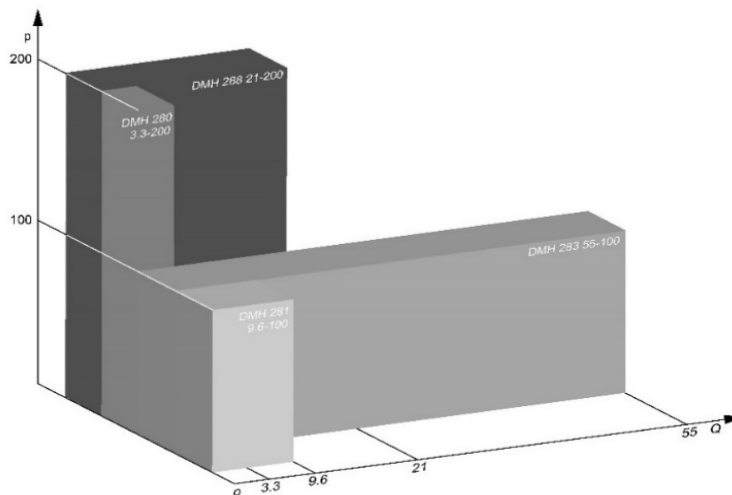


Performance overview DMH models 253 and 254



Performance overview DMH models 255 and 257

Performance range DMH 28X



Performance overview DMH models 280, 282, 283 and 288

Mechanical dosing pumps

Hydraulic piston diaphragm dosing pumps DMH



Example:		DMH 1150	-10D	B	-PP / E	/G -X E	1	B8B8 X EM A G
Type								
DMH								
Maximum Flow [l/h]								
Maximum Pressure [bar]								
Pumps with a "D" after pressure value are double-head versions								
Control variant								
B	Standard - manual control							
AR	AR control unit (1-phase)							
D3	Servomotor + 4-20 mA control (1AC 115-230 V, 50/60 Hz supply)							
D6	EX servomotor + 4-20 mA control (1AC 115-230 V, 50/60 Hz supply)							
	Type EX II 2G Ex db IIB T4							
Dosing head variant								
PP	Polypropylene							
PV	PVDF (polyvinylidene fluoride)							
PVC	Polyvinyl chloride							
SS	Stainless steel (1.4571 / 316Ti)							
Y	Alloy C-4, 2.4610							
PPL	PP + Diaphragm Leakage Detection							
PVL	PVDF + Diaphragm Leakage Detection							
PVCL	PVC + Diaphragm Leakage Detection							
YL	Y + Diaphragm Leakage Detection							
Gasket material								
E	EPDM							
V	FKM							
T	PTFE							
Valve ball material								
G	Glass (from DN32)							
T	PTFE							
SS	Stainless steel (1.4401 / 316)							
C	Ceramic (up to DN20)							
Y	Alloy C-4, 2.4610							
Terminal box position (also AR control position)								
X	Opposite side of dosing head							
D	Towards dosing head							
S	Towards adjusting knob							
R	Opposite side of adjusting knob							
Pump design								
G	Grundfos							
Pump housing material								
A	Aluminium							
Motor variant								
EM*	Standard motor, without certificates							
E0*	With PTC, prepared for operation with frequency converter							
E1*	EX motor, type II 2G EEx e II T3							
E2*	EX type II 2GD EEx de IIC T4, no PTC							
E5*	EX type II 2GD EEx de IIC T4, with PTC							
		* respectively with certificates: PM, K0, K1, K2, K5						
Mains plug								
X	No plug							
F	EU (Schuko) only for 1AC motors							
Connection, suction/discharge								
U2	G 5/8 for hoses 4/6, 6/9, 6/12, 9/12 mm (PVC, PP, PVDF)							
A	G 5/8 for internal Rp ¼ threaded SS pipe							
U3	G 5/4 for hoses with internal Ø 19 or 20 mm and pipes with external Ø 25 mm							
A1*	G 5/4 for internal Rp ¾ threaded SS pipe							
B8	DN32 flange for ext. Ø 40 mm PVC pipe							
B5	DN32 flange for ext. Ø 40 mm PP/PVDF							
C1	DN32 flange for welding 1 ¼" pipe (SS)							
		* Not for DMH 550-10 & DMH 270-10 with PTC (versions using flange DN 32 on inlet side)						
Valve type								
1	Standard							
2	Spring-loaded 0.05 bar (inlet & outlet)							
Supply voltage								
E	3AC 230/400 V, 50/60 Hz; 3AC 440/480 V, 60 Hz (motors < 0.75 kW)							
	3AC 230/400 V, 50 Hz, 460 V, 60 Hz (IE3, motors ≥ 0.75 kW)							
G	1AC 230V 50/60Hz (motors ≤ 0.09 kW)							
	1AC 230 V, 50 Hz (motors 0.18 - 0.37 kW)							
0	Without motor, IEC flange							
4	3AC 230/400 V, 50 Hz (EX motors)							

Note: Above table displays 95% of all available and most common options for our DMH pumps range. Please consult our data-booklets available online on GPC or reach your Grundfos local contact for additional information on configurations (e.g. versions with API 675 certificates).

Mechanical dosing pumps

Hydraulic piston diaphragm dosing pumps DMH 25x

Capacity:	0.5 – 1150 l/h
Pressure:	10 bar
Setting range:	10:1, manual stroke adjustment
Mains supply:	Control variant B: 3 x 230/400 V, 50/60 Hz - 3 x 440/480 V, 60 Hz



VARIANT B

Basic version WITHOUT electronics
Manual control (stroke-length adjustment)
On/off control via mains supply

Options on request:

- Material models => different combinations
- Control variant AR
- Single phase motor
- Automatic adjustment of the stroke length via a servomotor
- Relief valve integrated in the dosing head (PVC/PVDF)
- Diaphragm leakage detection
- Stainless steel dosing head with electrical heating
- ATEX motor version

Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMH 251-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
5	10	29	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	5	DMH 5-10 B-PVC/V/C-X-E1U2U2XEMAG	99587780	2,062
				EPDM				DMH 5-10 B-PVC/E/C-X-E1U2U2XEMAG	99920694	2,062
			PVDF	PTFE				DMH 5-10 B-PV/T/C-X-E1U2U2XEMAG	99587781	2,421
			SS	FKM	SS	Rp 1/4"		DMH 5-10 B-SS/V/SS-X-E1AAXEMAG	99587782	2,578
13	10	63	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	13	DMH 13-10 B-PVC/V/C-X-E1U2U2XEMAG	99587783	2,062
				EPDM				DMH 13-10 B-PVC/E/C-X-E1U2U2XEMAG	99920697	2,062
			PVDF	PTFE				DMH 13-10 B-PV/T/C-X-E1U2U2XEMAG	99587784	2,421

* PVDF : pipe connection by thermal welding

Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMH 252-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
37	10	96	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	37	DMH 37-10 B-PVC/V/C-X-E1U2U2XEMAG	99587792	2,380
				EPDM				DMH 37-10 B-PVC/E/C-X-E1U2U2XEMAG	99920873	2,380
			PVDF	PTFE				DMH 37-10 B-PV/T/C-X-E1U2U2XEMAG	99587793	2,786
			SS	FKM	SS	Rp 1/4"		DMH 37-10 B-SS/V/SS-X-E1AAXEMAG	99587794	2,975
46	10	120	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12	46	DMH 46-10 B-PVC/V/C-X-E1U2U2XEMAG	99587795	2,380
				EPDM				DMH 46-10 B-PVC/E/C-X-E1U2U2XEMAG	99920874	2,380
			PVDF	PTFE				DMH 46-10 B-PV/T/C-X-E1U2U2XEMAG	99587796	2,786
			SS	FKM	SS	Rp 1/4"		DMH 46-10 B-SS/V/SS-X-E1AAXEMAG	99587797	2,975

* PVDF : pipe connection by thermal welding

Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMH 253-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
67	10	96	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	67	DMH 67-10 B-PVC/V/C-X-E1U3U3XEMAG	99587801	2,776
				EPDM				DMH 67-10 B-PVC/E/C-X-E1U3U3XEMAG	99823077	2,776
			PVDF*	PTFE				DMH 67-10 B-PV/T/C-X-E1U3U3XEMAG	99587802	3,210
			SS	FKM	SS	Rp 3/4"		DMH 67-10 B-SS/V/SS-X-E1A1A1XEMAG	99587803	3,471
100	10	144	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	100	DMH 100-10 B-PVC/V/C-X-E1U3U3XEMAG	99587807	2,776
				EPDM				DMH 100-10 B-PVC/E/C-X-E1U3U3XEMAG	99823242	2,776
			PVDF*	PTFE				DMH 100-10 B-PV/T/C-X-E1U3U3XEMAG	99587808	3,210
			SS	FKM	SS	Rp 3/4"		DMH 100-10 B-SS/V/SS-X-E1A1A1XEMAG	99587809	3,471

* PVDF : pipe connection by thermal welding

Mechanical dosing pumps

Hydraulic piston diaphragm dosing pumps DMH 25x

Capacity:	0.5 – 1150 l/h
Pressure:	10 bar
Setting range:	10:1, manual stroke adjustment
Mains supply:	Control variant B: 3 x 230/400 V, 50/60 Hz - 3 x 440/480 V, 60 Hz



VARIANT B

Basic version WITHOUT electronics
Manual control (stroke-length adjustment)
On/off control via mains supply

Options on request:

- Material models => different combinations
- Control variant AR
- Single phase motor
- Automatic adjustment of the stroke length via a servomotor
- Relief valve integrated in the dosing head (PVC/PVDF)
- Diaphragm leakage detection
- Stainless steel dosing head with electrical heating
- ATEX motor version

Q _{max} (l/h)	P _{max} (bar)	Stroke freq. (n/min)	Material			Connection	DMH 254-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
143	10	75	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	143	DMH 143-10 B-PVC/V/C-X-E1U3U3XEMAG	99587813	5,930
				EPDM				DMH 143-10 B-PVC/E/C-X-E1U3U3XEMAG	99920698	5,930
			PVDF*	PTFE				DMH 143-10 B-PV/T/C-X-E1U3U3XEMAG	99587814	6,837
			SS	FKM	SS	Rp 3/4"		DMH 143-10 B-SS/V/SS-X-E1A1A1XEMAG	99587815	7,412
213	10	112	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	213	DMH 213-10 B-PVC/V/C-X-E1U3U3XEMAG	99587819	5,930
				EPDM				DMH 213-10 B-PVC/E/C-X-E1U3U3XEMAG	99892882	5,930
			PVDF*	PTFE				DMH 213-10 B-PV/T/C-X-E1U3U3XEMAG	99587820	6,837
			SS	FKM	SS	Rp 3/4"		DMH 213-10 B-SS/V/SS-X-E1A1A1XEMAG	99587821	7,412

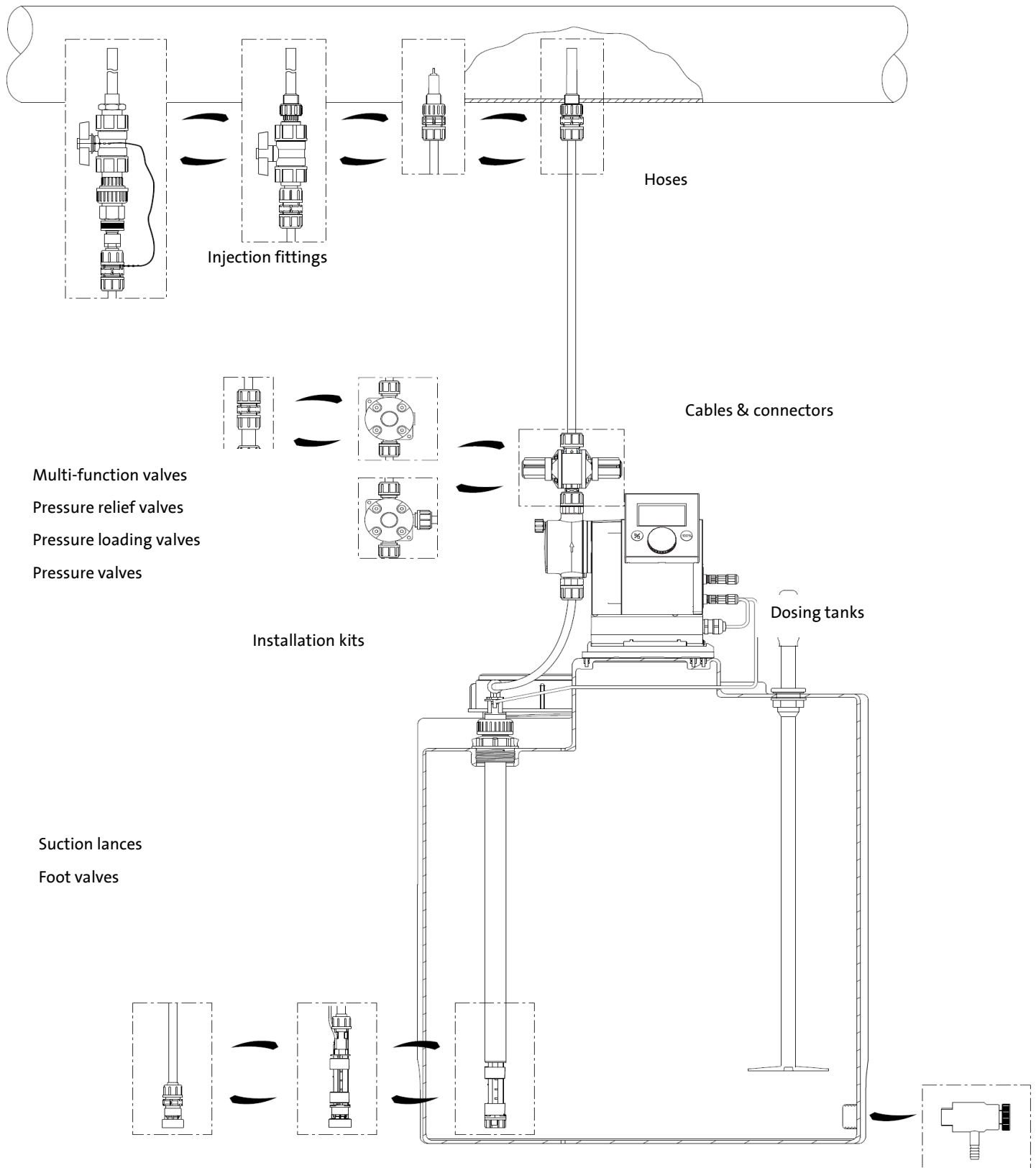
Q _{max} (l/h)	P _{max} (bar)	Stroke freq. (n/min)	Material			Connection	DMH 255-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
332	10	92	PVC	FKM	Ceramic	Hose 19/27 Pipe 20/25	332	DMH 332-10 B-PVC/V/C-X-E1U3U3XEMAG	99587828	6,743
				EPDM				DMH 332-10 B-PVC/E/C-X-E1U3U3XEMAG	99920882	6,743
			PVDF*	PTFE				DMH 332-10 B-PV/T/C-X-E1U3U3XEMAG	99587829	7,836
			SS	FKM	SS	Rp 3/4"		DMH 332-10 B-SS/V/SS-X-E1A1A1XEMAG	99587830	8,429
550	10	153	PVC	FKM	Ceramic	Hose 4/6; 6/9; 9/12; 6/12 & Pipe 32/40	550	DMH 550-10 B-PVC/V/C-X-E7U3B8XEMAG	99587834	6,743
				EPDM	SS			DMH 550-10 B-PVC/E/SS-X-E7U3B8XEMAG	99920877	6,743
			PVDF*	PTFE	PTFE			DMH 550-10 B-PV/T/T-X-E7U3B5XEMAG	99587835	7,836
			SS	FKM	SS	Rp 3/4 & Pipe 1 1/4"		DMH 550-10 B-SS/V/SS-X-E7A1C1XEMAG	99587836	8,429

Qmax (l/h)	Pmax (bar)	Stroke freq. (n/min)	Material			Connection	DMH 257-	Type	Product number	£
			Dosing Head	Gaskets	Balls					
770	10	98	PVC	FKM	Glass	Pipe 32/40	770	DMH 770-10 B-PVC/V/G-X-E1B8B8XEMAG	99587841	9,122
				EPDM	SS			DMH 770-10 B-PVC/E/SS-X-E1B8B8XEMAG	99920878	9,122
			PVDF*	PTFE	PTFE	Pipe 1 1/4"		DMH 770-10 B-PV/T/T-X-E1B5B5XEMAG	99587842	10,640
			SS	FKM	SS	Pipe 1 1/4"		DMH 770-10 B-SS/V/SS-X-E1C1C1XEMAG	99587843	11,404
880	10	112	PVC	FKM	Glass	Pipe 32/40	880	DMH 880-10 B-PVC/V/G-X-E1B8B8XEMAG	99587844	9,122
				EPDM	SS			DMH 880-10 B-PVC/E/SS-X-E1B8B8XEMAG	99920880	9,122
			PVDF*	PTFE	PTFE	Pipe 1 1/4"		DMH 880-10 B-PV/T/T-X-E1B5B5XEMAG	99587845	10,640
			SS	FKM	SS	Pipe 1 1/4"		DMH 880-10 B-SS/V/SS-X-E1C1C1XEMAG	99587846	11,404
1150	10	146	PVC	FKM	Glass	Pipe 32/40	1150	DMH 1150-10 B-PVC/V/G-X-E1B8B8XEMAG	99587847	9,122
				EPDM	SS			DMH 1150-10 B-PVC/E/SS-X-E1B8B8XEMAG	99920881	9,122
			PVDF*	PTFE	PTFE	Pipe 1 1/4"		DMH 1150-10 B-PV/T/T-X-E1B5B5XEMAG	99587848	10,640
			SS	FKM	SS	Pipe 1 1/4"		DMH 1150-10 B-SS/V/SS-X-E1C1C1XEMAG	99587849	11,404

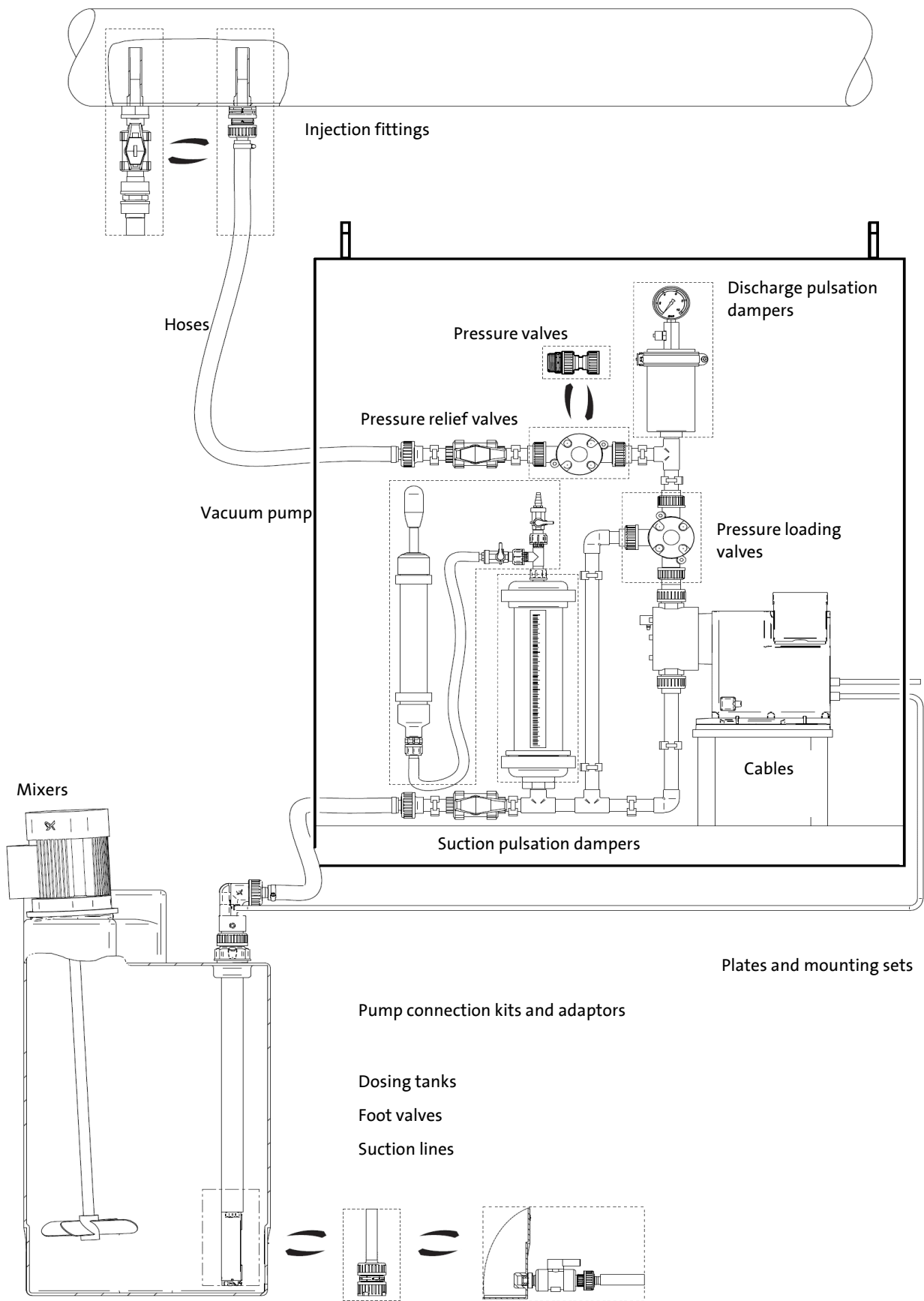
* PVDF : pipe connection by thermal welding

**High Pressure Pumps: DMH 251 to 257 and DMH 280 upon request
(16, 25, 50, 100 and 200 bars)**

Installation overview for small dosing pumps up to 60 l/h

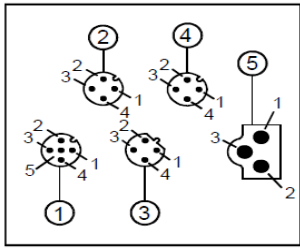


Installation overview for medium-sized dosing pumps up to 460 l/h

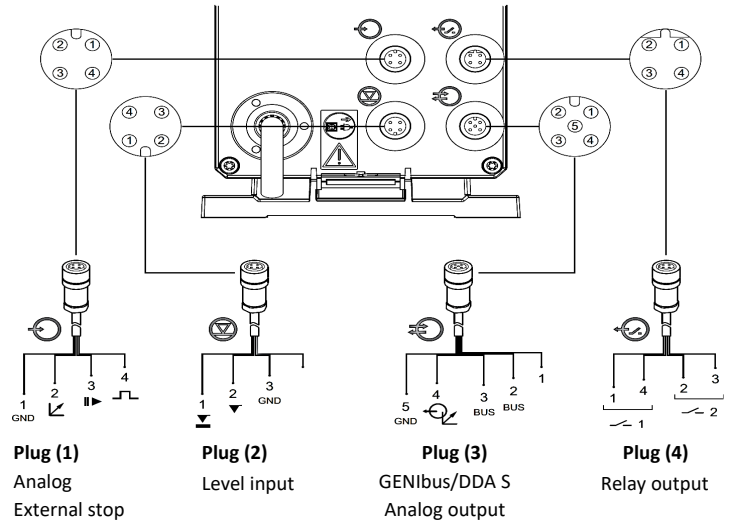
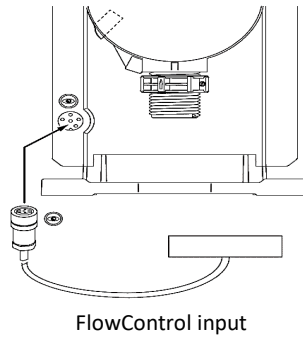


SMART Digital, DDI & DMX/DMH-AR

AR control unit
for DMX/DMH



SMART Digital DDA S

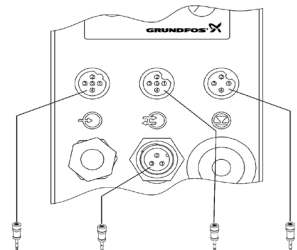


Pump type (Plug N°)		Function	Type	Pins	Info	Cable Length (m)	Product number	£
DDA/DDC/DDE-PR, P, AR plug (1)		Input	Round	4	See drawing	5 m	96609016	42
DDI & DMX/DMH AR plug (4)						Single plug	96698715	29
DDA/DDC/DDE-PR, P, AR plug (4)		Output	Round	4	See drawing	5 m	96609019	42
DDI & DMX/DMH AR plug (3)						Single plug	96696198	29
DDA plug (3)		Output	Round	5	See drawing	5 m	96632922	42
DDI & DMX/DMH AR plug (2)						Single plug	96609031	29
DDI 222 & Flow Monitor plug (2)		Combined	Round	5	To screw (2 cables)	2 m	96645265	274
DDA/DDC/DDE-PR, P, AR plug (2)						Single plug	96609030	74
DDI222 - plug (5)		Input	Round	4	To screw	Single plug	96698715	29
DDA & DDE XL		GENibus Input/Output	Round	5	1 per pump	Single plug	98589048	63
DDI, DDA & DDE XL		Mains connection	Round	3	-	Single plug	96698717	20
DMX/DMH AR connection (5)		Input	Flat	3	Welded wire	Single plug	96630345	31
DDI 222 plug (6)		PROFIBUS® Y-connector	Round	-	1 per pump	Single plug	96693735	380
		PROFIBUS® Terminating resistor		-	Last pump		96693737	57
DMX/DMH AR plug (5)		Adapter, flat-round	-	-	Adaptor	1,5 m	96635010	70

DME

Cable material
Plug type

PUR - Polyurethane (0,34 mm²)
M12



Plug (1) Plug (2) Plug (3) Plug (4)

Pump type (Plug N°)		Function	Pins	Cable Length (m)	Product number	£
Plug (1)		Input	5	5	96440448	45
				Single plug	96440449	28
Plug (2)		Output	3	5	96534215	74
Plug (3)		Input	5	5	96527111	45
				Single plug	96606401	28
Plug (4)		Dual level	4	5	96440451	42
				Single plug	96440452	29

Dosing accessories

Square tank

The closed, square tank has a screw cap and a mounting platform for one pump or two pumps in parallel. The pump mounting platform is higher than the screw cap to protect pumps and connections when filling chemicals into the tank.

- Tank material: MDPE
- Weight: 15 kg
- Wall thickness: 4 mm
- Liquid temperature: -20 °C to +45 °C.

SMART Digital pumps can be fitted directly on the mounting platform by means of brass inserts moulded into the platform. For other pumps a bracket is required. The square tank is prepared for a G 3/4" drain valve. When using a rigid suction lance in the tank, choose the counter nut for fixing (see PE adaptors for containers).



Tank volume [l]	Description	Product number	£
100	Square tank with mounting platform for one pump or two pumps in parallel *	96489271	242

* Only for SMART Digital S range pumps

Cylindrical tanks

Cylindrical tanks are available transparent or black. They have a litre scale and a black screw cap.

- Tank material: LLDPE, UV-stabilised
- Liquid temperature: -20 °C to +45 °C.

All cylindrical tanks are prepared for a G 3/4 opening for a drain valve, and have a screw plug (PE/EPDM).

The cylindrical tanks with volumes of 60, 100, 200, 300 and 500 litres include additionally:

- Threaded M 6 inserts for the assembly of a SMART Digital, a DDI, or a DMX model 221 dosing pump. For other pumps, please use a console.
- A G 2 opening for a suction lance or a foot valve, closed with a screw plug
- A flange for an electric mixer with threaded inserts
- Threaded M 6 inserts at the bottom part for floor mounting with a set of floor-mounting brackets



Tank volume [l]	Prepared for direct assembly of an electric mixer	Transparent		Black	
		Product number	£	Product number	£
40	-	96688081	263	95701166	275
60	-	98148805	208	98149053	239
	yes	98150038	323	98150040	366
100	-	98149057	273	98149082	312
	yes	98150051	413	98150052	472
200	-	98149215	395	98149224	452
	yes	98150053	585	98150054	666
300	-	98149245	483	98149252	551
	yes	98150055	718	98150056	820
500	-	98149266	926	98149269	1,059
	yes	98150057	1,294	98150058	1,479
1000	-	96688086	2,517	95706305	2,895
	Yes, with reinforced beam	98173675	3,427	98173752	3,642

Dosing accessories

Collecting tray

The collecting tray is available in several sizes to suit the respective dosing tank size. It collects chemicals that might leak out of the tank, and protects the environment.

- Material: PE
- Colour: transparent.



For tank vol. [l]	Tray volume [l]	Dimensions [mm] (diameter x height)	Product number	£
60	80	500 x 545	96726831	294
100	120	500 x 700	96726832	363
200	210	770 x 595	98150059	564
300	400	770 x 960	96726834	908
500	500	860 x 980	95701272	1,325
1000	1000	1150 x 1080	96726836	2,287

Accessories for dosing tanks

Description		Material	Product number	£
Screws set for mounting a pump on a dosing tank	100-litre square tank	SS	95730862	18
	60-, 100-, 200-, 300-, or a 500-litre cylindrical tank	SS	98159495	18
	40-litre or a 1000-litre cylindrical tank	PP	95730864	18
Handheld mixer		PE	98133793	93
Drain valve (for installation in the threaded sleeve of the dosing tank)		PVC/EPDM	96689132	123
Ventilation valve (spring-loaded, opening pressure 0.05 bar)		PVC/FKM/glass	96694401	24
Set of floor-mounting brackets		-	98149921	38
Dissolving hopper		PVC	96726979	1,219

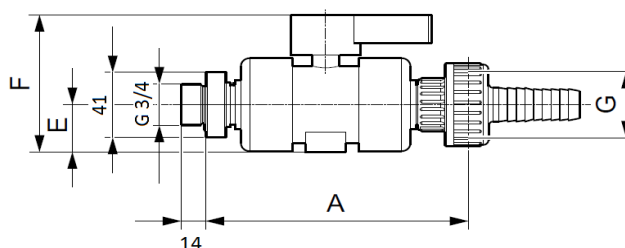
Withdrawal devices for dosing tanks

Designed for installation in the drain opening of a Grundfos tank.

Hose or pipe connection kits are included

- up to 60 l/h: hose 4/6 mm, 6/9 mm, 6/12 mm and 9/12 mm
- up to 460 l/h: 19/27 hose and 20/25 pipe

Max. flow [l/h]	A [mm]	E [mm]	F [mm]	G
60	143	27	75	G 5/8
460	151	30	87	G 5/4



Max. flow [l/h]	Description	Material		Product number	£
		Body	Gaskets		
60	Withdrawal device with ball valve with through-bolt for connection to the dosing tank	PVC	FKM	99226879	194
			EPDM	99226880	194
460			FKM	99226881	257
			EPDM	99226893	257

Dosing accessories

PE adaptors for containers

These adaptors allow the installation of standard suction lances (G2 threaded) and foot valves with level indication (PE cap) on different types of containers.



For container type	Description	Drawing	Product number	£
Containers with 2" NPT threaded opening	PVC, grey		98156690	51
Drums with S 70 x 6 coarse thread (MAUSER 2")	PE, blue		98071171	32
Drums with S 56 x 4 coarse thread (TriSure®)	PE, orange		98071172	32
Jerricans with small opening (approx. 36), according to EN 12713	PE, green		98071173	32
Jerricans with medium-sized opening (approx. 45), according to EN 12713	PE, yellow		98071174	20
Jerricans with large opening (approx. 57), according to EN 12713	PE, brown		98071175	32
US containers with bung hole of 63 mm (ASTM International)	PE, white		98071176	32
IBC (Intermediate Bulk Container) with opening of 150 mm, S 160 x 7	PE, black		98071177	43
Counter nut for tanks without threaded opening, e.g. 100-litre square tank or 1000-litre cylindrical tank	PVC, grey		98071170	15

Vapor emission protection kits

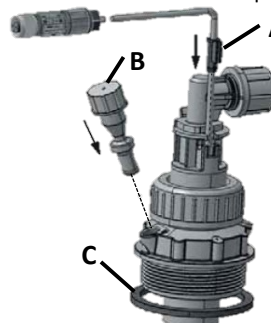
Gas emitted by liquid in a container can cause bad odour and corrosion. Emission protection kits help avoid such problems. Suction lances can be retrofitted with emission protection kits.

Description	Product number	£
Emission protection kit with snifting valve	98071178	128
Emission protection kit for use with filter	98071179	89

A: Gasket for the cable outlet

B: Air valve

C: Gasket for the tank adapter



M12 plug-to-flat plug adaptor

The adaptor allows to connect suction lances or footvalves with level indication to pumps with a level input designed for flat plugs (eg. DMX and DMH with AR control unit).

Description	Product number	£
M12 plug-to-flat plug adaptor	96635010	70

Dosing accessories

Electric mixers

Electric mixers are intended for the mixing and dissolving of non-abrasive, non-inflammable and nonexplosive liquids. They ensure that the liquid in the dosing tank is mixed constantly. With a frequency of 50 Hz they run at approximately 1500 rpm. Electric mixers are suitable for liquids with low to medium viscosity.

Different versions of electric mixers are available:

- Stainless steel version (SS)
- PP version with or without sealing flange
- Versions for various tank sizes from 60 litres up to 1000 litres



Motor data of electric mixers

All motors have an insulation class F. Enclosure class is IP65 for 0,09kW, and IP55 for 0,25kW and 0,55kW versions.

For tank size [l]	Power rating [kW]	Motor phase	Voltage [V]	Frequency [Hz]
60 100	0.09	1	220-240	50/60
		3	220-240 / 380-420 (440-480)	50/60 (60)
200 300 500	0.25	1	220-230	50
		3	220-240 / 380-415	50/60
1000	0.55	1	220-230	50
		3	220-240 / 380-415	50/60

For tank vol. [l] (see p.48)	Nominal shaft length [mm]	Material, type	Motor power [kW]	Single-phase motor		Three-phase motor	
				Product number	£	Product number	£
60	450	SS	0.09	98164569	927	98165309	818
		PP		98164573	1,025	98165310	915
		PP, with sealing flange		98164575	1,440	98165318	1,330
100	690	SS		98164606	952	98165355	842
		PP		98164607	1,049	98165357	940
		PP, with sealing flange		98164609	1,464	98165382	1,354
200	700	SS	0.25	98164987	976	98165385	940
		PP		98164990	1,074	98165386	1,037
		PP, with sealing flange		98165152	1,489	98165391	1,452
300	950	SS		98165172	1,049	98165393	1,013
		PP		98165175	1,147	98165432	1,110
		PP, with sealing flange		98165177	1,562	98165433	1,525
500*	1100	SS		98165253	1,123	98165435	1,086
		PP		98165258	1,220	98165436	1,184
		PP, with sealing flange		98165259	1,635	98165437	1,598
1000*	1150	SS	0.55	98165287	1,245	98165439	1,220
		PP		98165290	1,342	98165440	1,318
		PP, with sealing flange		98165304	1,757	98165451	1,733

Dosing accessories

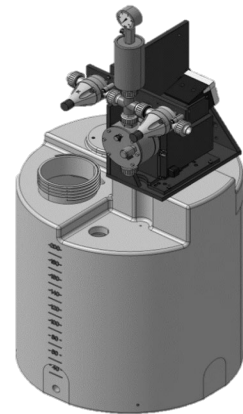
Mounting accessories for easy pump installation

Description	Suitable for pumps	Material	Product number	£
Console for wall mounting	DMX 221 & DDI 222	PP	91836471	290
	DMX 226, DMH 251-253, DME 60-10 / 150-4, SMART Digital XL DDA/DDE	PE	99211245	284
Adapter plate for 2 pumps on 1 tank (tank size 60-500 l)	SMART Digital S DDA/DDC/DDE DMX 221 / DDI	PEHD	98982080	143
Adapter plate for 1 pump on 1 tank (tank size 200-500 l)	DMX 226 DMH 251-253		99211241	156

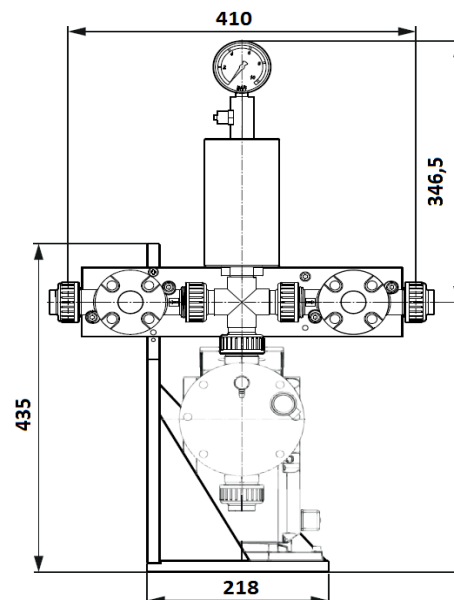
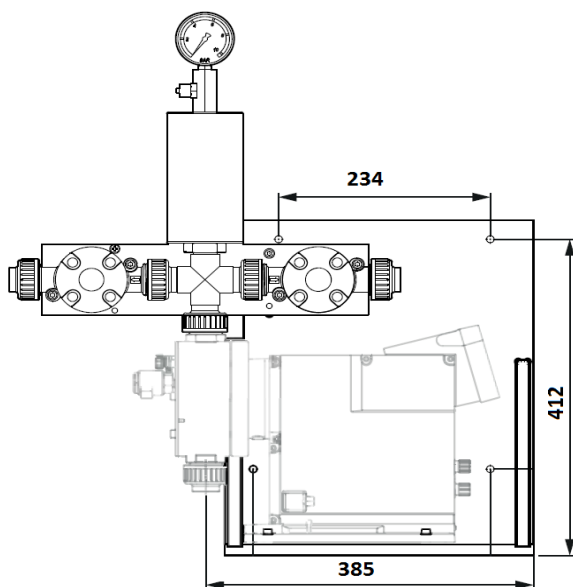
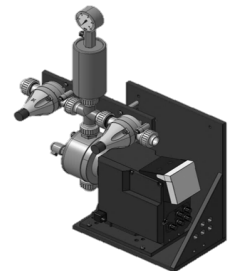
Wall or tank mounting assembly for SMART Digital XL DDA/DDE

The prefabricated outlet-side assembly for wall or tank mounting of SMART Digital XL DDA and DDE pumps includes:

- Bracket with screws and washers for wall-mounting or tank installation of SMART Digital XL (suitable tank sizes 200 l, 300 l, 500 l and 1000 l)
- Pressure loading valve PLV, preset to 3 bar opening pressure (adjustable to up to 10 bar)
- Pressure relief valve PRV, preset to 6 bar opening pressure (adjustable to up to 10 bar)
- Pulsation damper DBG with a volume of 0.35 l, with pressure gauge, preloaded to 2.7 bar (preloadable to up to 8 bar)
- Optionally without pulsation damper (for installation with rigid pipes, pump must be limited to 50 % of its maximum dosing capacity / for installation with hoses, pump must be limited to 75 % of its maximum dosing capacity)



Description	Material		Product number	£
	Body	Gaskets		
With pulsation damper	PVC	FKM	99211372	1,982
		EPDM	99211483	1,982
Without pulsation damper		FKM	99211484	901
		EPDM	99211485	901



Dosing accessories

Installation kits for dosing pumps DDE, DDC, DDA and DDI 60-10

An installation kit includes:

- Injection unit with spring-loaded non-return valve
- PE discharge hose, 6 m
- PVC suction hose, 2 m
- PVC deaeration hose, 2 m
- Foot valve with strainer and weight, without or with level indication



Qmax & Pmax	Hose Ø int./ext. [mm]			Material of foot valve & injection unit			Without level indication		With level indication	
	Suction	Discharge	Deaeration	Housing	Gaskets	Balls	Product number	£	Product number	£
7,5 l/h - 13 bar	PE 4/6	PVC 4/6	PP	FKM	Ceramic		95730440	87	95730464	163
							95730441	87	95730465	163
			PVC	FKM	Ceramic		95730442	87	95730466	163
							95730443	87	95730467	163
							95730444	103	95730468	177
			PVDF	FKM	Ceramic		95730445	114	95730469	199
							95730446	114	95730470	199
							95730447	128	95730471	221
30 l/h - 12 bar	PE 6/9	PVC 4/6	PP	FKM	Ceramic		95730448	98	95730472	174
							95730449	98	95730473	174
			PVC	FKM	Ceramic		95730450	98	95730474	174
							95730451	98	95730475	174
							95730452	117	95730476	199
			PVDF	FKM	Ceramic		95730453	125	95730477	213
							95730454	125	95730478	213
							95730455	141	95730479	235
60 l/h - 9 bar	PE 9/12	PVC 4/6	PP	FKM	Ceramic		95730456	106	95730480	180
							95730457	106	95730481	180
			PVC	FKM	Ceramic		95730458	106	95730482	180
							95730459	106	95730483	180
							95730460	117	95730484	196
			PVDF	FKM	Ceramic		95730461	128	95730485	216
							95730462	128	95730486	216
							95730463	144	95730487	238

* Viscosity similar to water

Rigid suction lances for flow up to 60 l/h

Dosing accessories

Rigid suction lines for flow up to 60 l/h

They are available either without level indication or with low-level and empty-tank indication. Their immersion depth is adjustable.

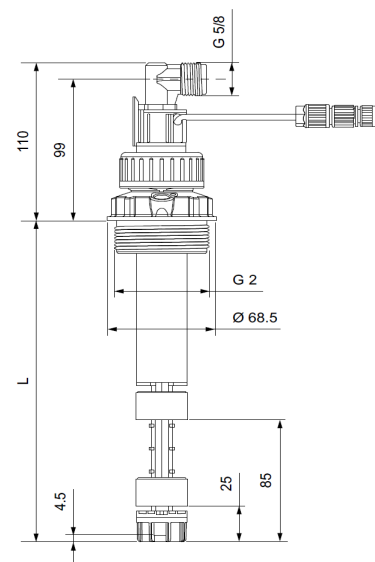
Hose between suction line and dosing pump is to be ordered separately.

Suctions lines without empty level signal include the following items:

- Strainer (mesh size approx. 0.8 mm)
- Non-return valve
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm and 9/12 mm
- Adjustable tank connection with holes for e.g. relief line

Suctions lines with empty level signal include additionally:

- Reed-switch unit with 2 floaters
- 5 metres of cable with PE jacket
- M 12 plug to connect DDA, DDC, DDE or DDI dosing pump



The switch mode of the low-level and empty-tank indication is factory-set to NO. The switch mode can be set to NC by turning the floater upside down.

Selected adaptors allow these suction lines with G2" rods to be installed on trays with different openings.

For tank vol. [l] (see p.48)	Immersion depth [mm]	Material			Without level indication		With level indication	
		Housing	Gaskets	Balls	Product number	£	Product number	£
40	400	PE	FKM, EPDM	Ceramic	98070978	109	98071074	180
			PTFE		98070979	124	98071075	195
		PVDF	FKM, EPDM		98070980	271	98071076	358
			PTFE		98070981	287	98071077	373
60	500	PE	FKM, EPDM		98070990	109	98071086	180
			PTFE		98070991	124	98071087	195
		PVDF	FKM, EPDM		98070992	271	98071088	358
			PTFE		98070993	287	98071089	373
60	570	PE	FKM, EPDM		98071002	109	98071098	180
			PTFE		98071003	124	98071099	195
		PVDF	FKM, EPDM		98071004	271	98071100	358
			PTFE		98071005	287	98071101	373
100	690	PE	FKM, EPDM		98071014	109	98071110	180
			PTFE		98071015	124	98071111	195
		PVDF	FKM, EPDM		98071016	271	98071112	358
			PTFE		98071017	287	98071113	373
200	820	PE	FKM, EPDM		98071026	109	98071122	180
			PTFE		98071027	124	98071123	195
		PVDF	FKM, EPDM		98071028	292	98071124	378
			PTFE		98071029	307	98071125	393
300	980	PE	FKM, EPDM		98071038	109	98071134	180
			PTFE		98071039	124	98071135	195
		PVDF	FKM, EPDM		98071040	292	98071136	378
			PTFE		98071041	307	98071137	393
500*	1100	PE	FKM, EPDM		98071050	109	98071146	180
			PTFE		98071051	124	98071147	195
		PVDF	FKM, EPDM		98071052	312	98071148	398
			PTFE		98071053	327	98071149	414
1000*	1200	PE	FKM, EPDM		98071062	109	98071158	180
			PTFE		98071063	124	98071159	195
		PVDF	FKM, EPDM		98071064	312	98071160	398
			PTFE		98071065	327	98071161	414

*With reinforced beam for stirrer

Rigid suction lines for high flows

Dosing accessories

Rigid suction lines for flow up to 460 l/h

They are available either without level indication or with low-level and empty-tank indication. Their immersion depth is adjustable.

Hose between suction line and dosing pump is to be ordered separately.

Suctions lines without empty level signal include the following items:

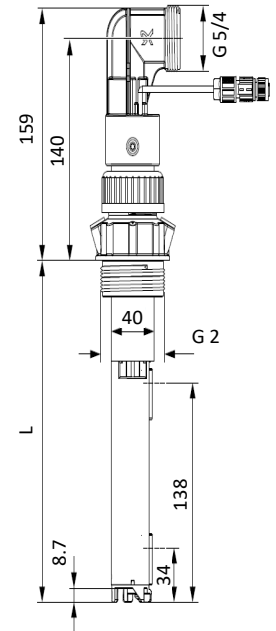
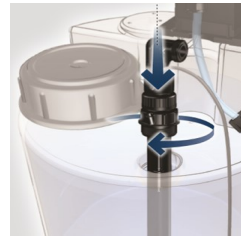
- Strainer (mesh size approx. 2.2 mm)
- Non-return valve
- Connection set for Hose 19/27 and Pipe 20/25
- Adjustable tank connection with holes for e.g. deaeration line

Suctions lines with empty level signal include additionally:

- Reed-switch unit with 2 floaters
- 5 metres of cable with PE jacket
- M 12 plug to connect DDA, DDC, DDE or DDI dosing pump

The switch mode of the low-level and empty-tank indication is factory-set to NO. The switch mode can be set to NC by turning the floater upside down.

Selected adaptors allow these suction lines with G2" rods to be installed on trays with different openings.



For tank vol. [l] (see p.48)	Immersion depth [mm]	Material			Without level indication		With level indication	
		Housing	Gaskets	Balls	Product number	£	Product number	£
60	500	PE	FKM, EPDM	Ceramic	99199363	214	99161410	363
			PTFE		99199364	224	99161411	373
100	690	PE	FKM, EPDM		99199365	219	99161412	367
			PTFE		99199366	229	99161943	377
300	980	PE	FKM, EPDM		99199367	234	99161944	383
			PTFE		99199368	245	99161945	393
1000*	1200	PE	FKM, EPDM		99199369	243	99161946	392
			PTFE		99199370	254	99161947	402

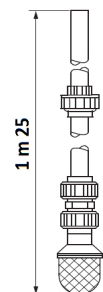
*With reinforced beam for stirrer

Rigid suction lines for stationary tanks

These suction lines are designed for the use with stationary tanks (e.g. Grundfos tanks). The length of the rigid pipe can be adapted to the customer's requirements. Rigid suction lances for stationary tanks have a foot valve with strainer. The pump is usually installed either directly on the tank, on a wall bracket or in a skid.

Rigid suction lines for stationary tanks include:

- Strainer
- Non-return valve



Immersion depth [mm]	Material				Pipe size [mm]	Product number	£
	Housing	Seat	Gaskets	Balls			
125	PVC	PE	FKM	Glass	32/40	96727281	573

Dosing accessories

Foot valves for flow up to 60 l/h

Foot valves are installed at the lower end of the suction hose. They are available either without level indication or with low-level and empty-tank indication. Foot valves include:

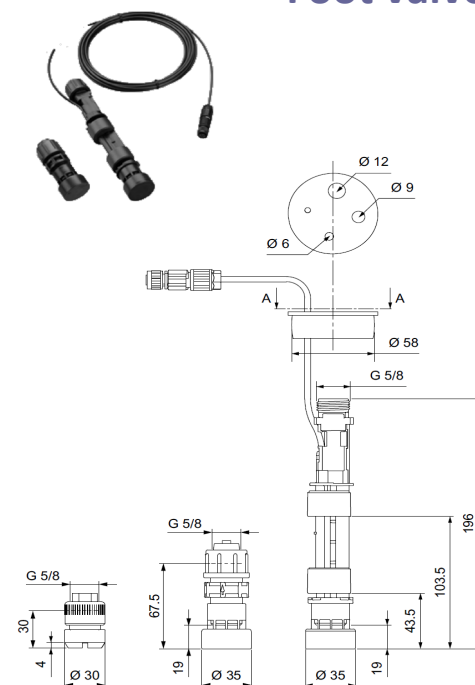
- Weight
- Strainer (mesh size approx. 0.8 mm)
- Non-return valve
- Hose connection set: 4/6 mm, 6/9 mm, 6/12 mm and 9/12 mm
- Pipe connection set: threaded, Rp 1/4", female (stainless steel).

Foot valves with low-level and empty-tank indication include additionally:

- Reed-switch unit with two floaters
- 5 metres of cable with PE jacket
- M 12 plug to connect DDA, DDC, DDE or DDI dosing pump
- PE cap, 58 mm, for assembly in Grundfos cylindrical tanks, or for use with tank adaptors.

Foot valves dimensions (drawings) :

- Left: stainless-steel ;
- Centre & right: PE or PVDF



Q _{max}	Material			Without level indication		With level indication	
	Body	Gaskets	Balls	Product number	£	Product number	£
60 l/h	PE	FKM, EPDM	Ceramic	98070951	46	98070966	132
		PTFE		98070952	61	98070967	147
	PVDF	FKM, EPDM		98070953	71	98070968	188
		PTFE		98070954	86	98070969	203
	SS	PTFE	SS	98070963	190	-	-

Foot valves for flow up to 460 l/h

Foot valves are installed at the lower end of the inlet hose. They have no level indication. Foot valves include:

- Strainer (mesh size approx. 0.8 mm)
- Non-return valve
- Hose and pipe connection set: for hoses 19/27 and pipe 20/25 (PE & PVDF)
- Pipe connection set: threaded, Rp 3/4", female (stainless steel).



Q _{max}	Material			Product number	£
	Body	Gaskets	Balls		
460 l/h	PE	FKM, EPDM	Ceramic	99168633	167
		PTFE		99168635	177
	PVDF	FKM, EPDM		99168636	234
		PTFE		99168649	247
	SS	PTFE	SS	99170593	462

Foot valves for large dosing pumps

Installed at the lower end of the inlet hose, they have no level indication and include :

- Strainer
- Non-return valve
- Hose or pipe connection for large dosing pumps

Q _{max}	Pump connection size	Material			Product number	£
		Body	Gaskets	Balls		
1150 l/h	G2	PP	EPDM	Glass	96731232	225
			FKM		96731233	236
		PVDF	FKM		96731234	312

Dosing accessories

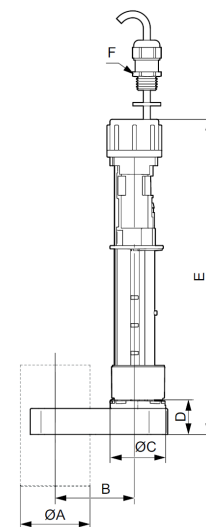
Grundfos level-control units are suitable for dosing pumps with input for level control. The contact type of the reed switch unit is factory-set to NO. The contact type can be set to NC by turning the floater(s).

Level-control unit for electric stirrer protection

Level-control units for electric stirrer protection are used for rigid suction lances for pumps up to 60 or 460 l/h. They are clipped to the rigid suction lances at the required switch-off height above the stirrer propeller. Level-control units can also be used for overflow protection or as an additional tank level indication.

A level-control unit for electric stirrer protection includes:

- Reed switch unit with 1 floater
- 5 m cable with PE jacket and open wire ends
- Clip for diameter 40 mm or 32 mm
- Cable gland for mounting at the tank top



Description	Material	ØA [mm]	Product number	£
Level-control unit for electric stirrer protection	PE	32	98306210	140
		40	99174140	196

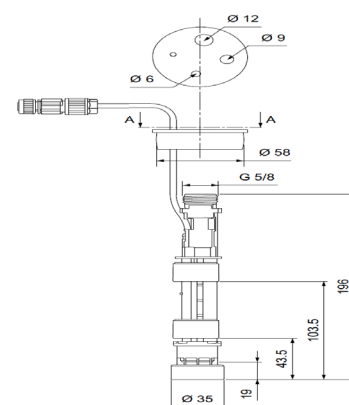
Dimension [mm]	ØA	ØB	ØC	D	E	F
	40	47.5	32	20	182	M 12 x 1.5
	32	43	32	28	190	M 12 x 1.5

Flexible level-control unit

The flexible level-control unit is suitable for dosing pumps with level-control input and provides 2 level switches.

A flexible level-control unit includes:

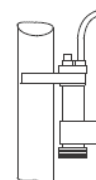
- Reed switch unit with 2 floaters
- 5 m of cable with PE jacket and M 12 plug
- Weight that keeps the level-control unit in an upright position at the tank bottom
- PE cap, 58 mm, for assembly in Grundfos cylindrical tanks, or for use with tank adapters



Description	Material	Product number	£
Flexible level-control unit	PE	98375695	135

Level switch to clip

Level switch available to clip on rigid suction line (G2") for use as tank empty signal or as an additional level indication.



Connection size	Plug	Material	Product number	£
G2"	Flat	PVC	96730129	197

Dosing accessories

Hoses

Hoses are available in various materials, sizes and lengths.



Max. flow rate* [l/h]	Size Ø int./ext. [mm]	Material	Max. pressure at 20 °C [bar]	Length [m]	Product number	£
7.5	4/6	PE	13	3	91835676	15
				10	91836504	18
				50	91835680	74
		PVC	0,5 (suction side only)	3	96701733	15
				10	96702133	18
				50	96727418	74
		ETFE	20	3	95730337	37
				10	95730338	120
				50	95730339	601
17	5/8	PE	13	3	95730888	14
				10	96727393	25
				50	95730889	123
30	6/9	PE	15	3	96727409	15
				10	96727412	26
				50	96727415	130
		PVC	0,5 (suction side only)	3	95730334	14
				10	95730335	26
				50	95730336	130
		ETFE	20	3	95730340	70
				10	95730341	229
				50	95730342	1,146
	6/12	PVC, textile-reinforced	23	3	96693751	14
				10	96653571	49
				50	91835686	249
60	9/12	PE	9	3	96727395	11
				10	96705657	29
				50	96727398	134
		PVC	0,5 (suction side only)	3	96727434	11
				10	95730890	29
				50	95724702	140
		ETFE	13	3	95730343	105
				10	95730344	344
				50	95730345	1,718
200	13/20	PVC, textile-reinforced	15	3	96727423	33
				10	96727420	78
				50	96692592	361
460	19/27	PVC, textile-reinforced	12	3	96727426	45
				10	96696200	126
				50	96695788	595
1500	32/41	PVC, textile-reinforced	9	5	96535077	80
				10	96535079	170

* Viscosity similar to water

Dosing accessories

Pressure relief valves

Pressure relief valves protect the pump and the outleside installations against excessive pressure. All pressurised dosing installations should include a pressure relief valve. They are installed in the discharge line near the pump, using the 2 in-line connections. The side connection leads the relief liquid back into the tank.

Up to 60 l/h

- Relief pressure, adjustable from 5 to 10 bar, is factory-set to 10 bar, or
- Relief pressure, adjustable from 7 to 16 bar, is factory-set to 16 bar.

Up to 460 l/h

- Relief pressure, adjustable from 3 to 10 bar, is factory-set to 10 bar.

Up to 1150 l/h

The valve is fitted in a T-connection with the valve outlet connected to the tank.

- Relief pressure, adjustable from 0 to 10 bar, is factory set to 4 bar.

Up to 4000 l/h

Bypass valve fitted with a connected T-piece and with flange DN65 connections.

- Relief pressure, adjustable from 0 to 10 bar, is factory set to 10 bar.



Diaphragm material is full PTFE

Max. flow rate [l/h]	Max. relief pressure (bars)	Material		Connection	DN	Product number	£
		Housing	Gaskets				
60	10	PP	FKM/EPDM	4/6, 6/9, 6/12 and 9/12 mm	DN4 & DN8	95730757	135
		PVC	FKM/EPDM			95730758	134
			PTFE			95730759	186
		PVDF	FKM/EPDM			95730760	195
			PTFE			95730761	246
		SS	-	Pipe, Rp 1/4"	DN8	95730771	320
	16	PP	FKM/EPDM	4/6, 6/9, 6/12 and 9/12 mm	DN4 & DN8	95730773	135
		PVC	FKM/EPDM			95730774	135
			PTFE			95730775	186
		PVDF	FKM/EPDM			95730776	195
			PTFE			95730777	246
		SS	-	Pipe, Rp 1/4"	DN8	95730783	320
460	10	PP	FKM/EPDM	Hose 19/27 and tube 20/25	DN20	99141197	277
		PVC	FKM/EPDM			99131032	230
			PTFE			99141139	260
		PVDF	FKM/EPDM			99141212	502
			PTFE			99141224	533
		SS	-	Pipe, Rp 3/4"		99141228	451
	1150	10	PP	EPDM	PP pipe cementing diameter, 40 mm	DN32	96295893
FKM					96295894		903
PVC			EPDM	PVC pipe cementing diameter, 40 mm	96295895		776
			FKM		96295896		766
SS			-	Pipe, Rp 1 1/4"	96295897		2,553
4000	10	PP	FKM	Flange DN65 connection	DN65	96727368	2,377
		PVC	EPDM			96635243	1,755
			FKM			96638461	1,862
			SS			FKM	96694452

Dosing accessories

Pressure Loading Valves

Pressure loading valves maintain a constant counterpressure for the dosing pump. They are installed in the discharge line after the pressure relief valve, and after the pulsation damper, if fitted.

Pressure loading valves are used in the following applications:

- Too low counterpressure or no counterpressure at all
- Fluctuating system pressure with outlet-side pulsation damper
- To prevent syphoning, when the inlet pressure is higher than the counterpressure.

Pressure loading valves must not be used as shut-off valves.

Up to 60 l/h

- Loading pressure, adjustable from 1 to 5 bar, is factory-set to 3 bar.
- Maximum system pressure: 16 bar.

Up to 460 l/h

- Opening pressure, adjustable from 3 to 10 bar, is factory-set to 3 bar.
- Maximum system pressure: 10 bar.

Up to 1150 l/h

- Opening pressure, adjustable from 1 to 5 bar, is factory set to 3 bar.

Up to 4000 l/h

- Opening pressure can be adjusted by a spring-loaded screw, and is factory set to 1,5 bar.



Diaphragm material is full PTFE

Max. flow rate [l/h]	Material		Connection	DN	Product number	£
	Housing	Gaskets				
60	PP	FKM/EPDM	4/6, 6/9, 6/12 and 9/12 mm	DN4 & DN8	95730741	118
	PVC	FKM/EPDM			95730742	117
		PTFE			95730743	152
	PVDF	FKM/EPDM			95730744	166
		PTFE			95730745	221
	SS	-	Pipe, Rp 1/4"	DN8	95730751	303
460	PP	FKM/EPDM	Hose 19/27 and tube 20/25	DN20	99140610	237
	PVC	FKM/EPDM			99132186	198
		PTFE			99140593	217
	PVDF	FKM/EPDM			99140646	429
		PTFE			99140651	449
	SS	-	Pipe, Rp 3/4"		99135772	401
1150	PP	EPDM	PP pipe cementing diameter, 40 mm	DN32	96295908	817
		FKM			96295909	811
	PVC	EPDM	PVC pipe cementing diameter, 40 mm		96295910	831
		FKM			96295911	834
	SS	-	Pipe, Rp 1 1/4"		96295912	2,290
4000	PP	FKM	Flange DN65 connection	DN65	96727367	2,703
	PVC	EPDM			96635246	2,067
		FKM			96638486	2,228
	SS	FKM			96694434	3,880

Dosing accessories

Multi-function valves

Multi-function valves combine the functions of pressure relief valves and pressure loading valves. In addition, they allow deaeration of the pump and emptying of the discharge line for maintenance.

A multi-function valve is mounted directly on the pump discharge side. The top connection is for the discharge line, the side connection leads the relief liquid back into the tank.



Diaphragm material is full PTFE

Housing material : PVDF

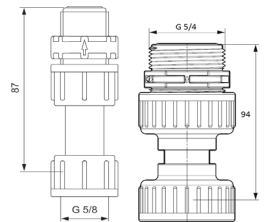
Max. flow rate [l/h]	Max. relief pressure (bars)	Material		Connection	DN	Product number	£
		Connection	Gaskets				
60	10	PP	FKM	4/6, 6/9, 6/12 and 9/12 mm	DN4 & DN8	95704585	208
			EPDM			95704591	207
		PVC	FKM			95730807	208
			EPDM			95730808	207
			PTFE			95730809	263
		PVDF	FKM			95730810	216
			EPDM			95730811	215
			PTFE			95730812	270
	16	PP	FKM	4/6, 6/9, 6/12 and 9/12 mm	DN4 & DN8	95730821	206
			EPDM			95730822	205
		PVC	FKM			95730823	206
			EPDM			95730824	205
			PTFE			95730825	260
		PVDF	FKM			95730826	213
			EPDM			95730827	213
			PTFE			95730828	268

Pressure valves

Pressure valves provide a constant counterpressure of 3 bar. They are particularly required for DDA-FC or DDA-FCM pumps at very small flow rates.

Pressure valves are installed either directly on the pump discharge side, or on the pressure relief valve.

- Loading pressure, 3 bar, is not adjustable.
- Maximum system pressure: 16 bar (for 60 l/h) and 10 bar (for 200 l/h).
- Spring material: Hastelloy alloy C-4 (2.4610).
- No connections included.



Max. flow rate [l/h]	Material			Product number	£
	Connection	Gaskets	Balls		
60	PP	FKM	Ceramic	95730325	89
		EPDM		95730326	89
	PVC	FKM		95730327	89
		EPDM		95730328	89
		PTFE		95730329	124
	PVDF	FKM		95730330	138
		EPDM		95730331	138
		PTFE		95730332	172
	SS	PTFE	SS	95730333	275
200	PVC	FKM	Ceramic	99229033	196
		EPDM		99229021	196
	PVDF	FKM		99229020	351
		EPDM		99229018	351

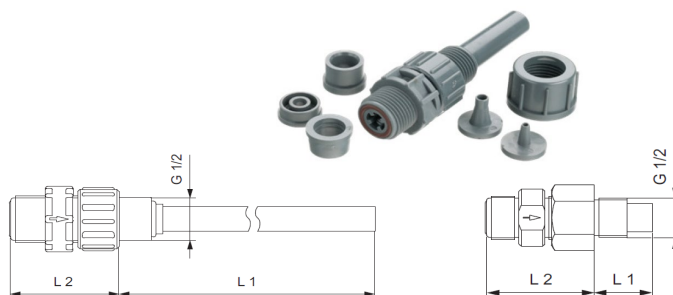
Dosing accessories

Injection valves

Injection units connect the dosing line with the process line. They ensure a minimum counterpressure of 0.7 bar, and avoid backflow of the dosing liquid.

In general, they include:

- Injection pipe. PP, PVC and PVDF versions can be shortened.
- Spring-loaded non-return valve with Tantal spring.



PP, PVC & PVDF version

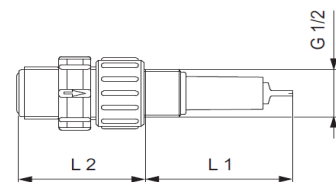
Stainless steel version

Standard injection units

Max. flow rate [l/h]	Pmax [bars]	Material			Hose connection	L1 [mm]	Product number	£
		Housing	Gaskets	Balls				
60	16	PP	FKM	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	100	95730904	55
			EPDM				95730908	55
		PVC	FKM	Ceramic			95730912	49
			EPDM				95730916	49
			PTFE				95730920	83
		PVDF	FKM	Ceramic			95730924	83
			EPDM				95730928	83
			PTFE				95730932	117
	100	SS	PTFE	SS	Pipe, Rp 1/4"	27	95730936	290
	16	PVC	FKM	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	300	95730940	89
			EPDM				95730944	89
			PTFE				95730948	123

Injection unit with lip valve

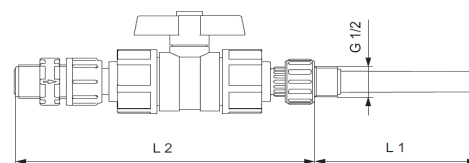
Injection units with lip valve are typically used to add sodium hypochlorite solution to water with a high carbonate content. The FKM lip prevents crystallisation and blocking caused by alkali carbonate reactions at the point of injection.



Max. flow rate [l/h]	Pmax [bars]	Material			Hose connection	L1 [mm]	Product number	£
		Housing	Gaskets	Balls				
60	16	PVC	FKM	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	55	95730964	89

Injection units with ball valve

Injection units with ball valve are used for applications where the injection point must be closable. The ball valve is placed between the injection pipe and the spring-loaded non-return valve. Thus, the dosing line can be completely disconnected from the process. The non-return valve can be disassembled and cleaned without stopping the process and emptying the process line.

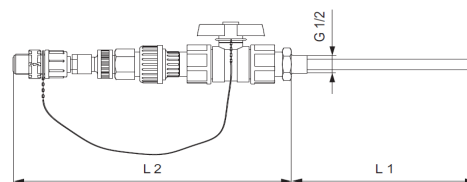


Max. flow rate [l/h]	Pmax [bars]	Material			Hose connection	L1 [mm]	Product number	£
		Housing	Gaskets	Balls				
60	16	PVC	FKM	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	100	95730952	211
			EPDM				95730956	211
	64	SS	PTFE	SS	Pipe, Rp 1/4"	27	95730960	401

Dosing accessories

Injection units, withdrawable for cleaning

These injection units are used where regular cleaning of the injection pipe is required. The construction allows the withdrawal of the injection unit from the process line and the cleaning of it, without stopping the water flow. The injection point can be closed with the integrated ball valve. The immersion depth of the injection pipe can be adjusted.



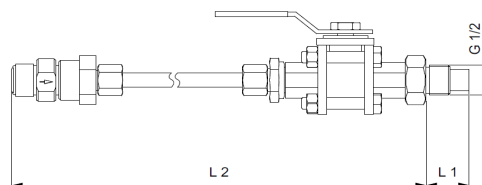
Max. flow rate [l/h]	Pmax [bars]	Material			Hose connection	L1 [mm]	Product number	£
		Housing	Gaskets	Balls				
60	10	PVC	FKM	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	185	95730968	426
			EPDM				95730972	426

Hot-injection units with ball valve

Hot-injection units with ball valve can be used for direct injection of dosing liquid into processes with a temperature of up to 120 °C.

These injection units include:

- Injection pipe, stainless steel.
- Ball valve installed between the injection pipe and the cooling pipe, stainless steel.
- Bendable cooling pipe, stainless steel, length 1 m.



Max. flow rate [l/h]	Pmax [bars]	Material			Hose connection	L1 [mm]	Product number	£
		Housing	Gaskets	Balls				
60	16	PVDF	PTFE	Ceramic	4/6, 6/9, 6/12 and 9/12 mm	27	95730976	319
	64	SS	PTFE	SS		27	95730980	520

Injection units for high flow (up to 460 l/h)

Injection units connect the dosing line with the process line. They ensure a minimum counterpressure of 0.7 bar and avoid backflow of the dosing medium.

In general they include:

- Injection pipe with immersion depth of 120 mm. PP, PVC and PVDF versions can be shortened.
- Spring-loaded non-return valve with 2.4610 (Alloy C-4) spring.
- Hose and pipe connection set (PVC, PP, PVDF): Hose 19/27 and Pipe 20/25
- Pipe connection set (stainless steel): Rp 3/4", female.



Standard injection units

Max. flow rate [l/h]	Material			Hose connection*	Product number	£
	Housing	Gaskets	Balls			
460	PVC	FKM	Ceramic	Hose 19/27 and pipe 20/25	99168657	136
		EPDM			99168658	136
		PTFE			99169217	156
	PP	FKM	Ceramic	Hose 19/27 and pipe 20/25	99169220	163
		EPDM			99169223	163
	PVDF	FKM	Ceramic	Hose 19/27 and pipe 20/25	99169227	297
		EPDM			99169228	297
		PTFE			99169229	317
	SS	PTFE	Ceramic	SS pipe Rp 3/4"	99169230	576

*For replacement in place of an existing installation connected with hose 13/20, order additionally connector #99170747

Dosing accessories

Injection units with ball valve

Injection units with ball valve are used for applications where the injection point must be closable. The ball valve is placed between the injection pipe and the spring-loaded non-return valve. Thus, the dosing line can be completely disconnected from the process. The non-return valve can be disassembled and cleaned without stopping the process and emptying the process line.



Max. flow rate [l/h]	Material			Hose connection	Product number	£
	Housing	Gaskets	Balls			
460	PVC	FKM	Ceramic	Hose 19/27 and pipe 20/25	99206582	257
		EPDM			99206585	257
	SS	PTFE	SS	SS pipe Rp 3/4"	99206586	706

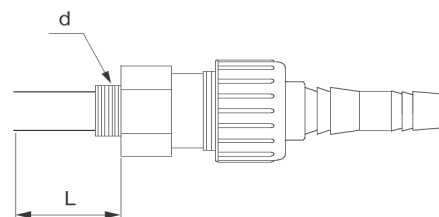
Injection units for very high flow (above 460 l/h)

Injection units connect the dosing line with the process line. They avoid backflow of the dosing liquid.

Injection units for DME pumps

These injection units include:

- Injection pipe
- Spring-loaded non-return valve
- Spring material: Hastelloy alloy C-4 (2.4610)
- Opening pressure 1,1 bar
- Maximum pressure system 10 bar
- Hose or pipe connection



Max. flow rate [l/h]	Pump connection size	Material			Connection	Process Connection size	Product number	£
		Housing	Gaskets	Balls				
1150	G 2"	PP	FKM	Glass	Threaded Rp 1 1/4"	G 1"	96527123	492
			EPDM				96527122	483
		PVDF	FKM				96527124	898
		SS	FKM	SS			96534459	1,173
		PVC	FKM	Glass	Hose 19/27	G 1 1/4"	96688309	144

Injection units with G 2" pump connection thread

Max. flow rate [l/h]	Pump connection size	Material				T / P max	Product number	£
		Housing	Gaskets	Balls	Seat			
1500	G 2"	PVC	FKM	Glass	PE	40°C / 10 bar	96688318	583

Injection units with DN 65 pump connection flange

Max. flow rate [l/h]	Pump connection size	Material				T / P max	Process Connection size	Product number	£
		Housing	Gaskets	Balls	Seat				
4000	Flange DN65 connection	PVC	FKM	PVC	PTFE	40°C / 6 bar	Flange DN80 connection	96688319	1,251
		PP	FKM	PP	PTFE			96688320	1,288

Dosing accessories

Pulsation dampers and calibration columns

Pulsation dampers are used to even out the pulsating flow and pressure produced by positive displacement pumps like diaphragm dosing pumps. They can be installed before and after the pump.

Discharge-side pulsation dampers DB and DBG

Pulsation dampers DB and DBG are especially designed for installations with long outlet lines with a small diameter, or with rigid pipes. The pulsation dampers optimise the dosing accuracy and protect the pump and the outlet line against pressure surges. If the counterpressure in the system is low or fluctuating, the installation of a pressure loading valve PLV after the pulsation damper may be required to optimise its function.

Pulsation dampers DB and DBG have an air or nitrogen cushion inside, which is separated from the dosing medium by a separating diaphragm. This keeps the charging pressure stable for a long time and avoids that air or nitrogen is dissolved in the dosing medium. For proper operation, the pressure in the air or nitrogen cushion must be set to approximately 80 % of the system pressure. In PVC, PP, and stainless steel pulsation dampers, an FKM or EPDM bladder is used as separating diaphragm. In PVDF pulsation dampers a PTFE bellows is used as separating diaphragm.

Grundfos SMART Digital dosing pumps do not require a DB or DBG pulsation damper, if the flow rate is limited to 75 % of the maximum dosing capacity of the pump. In rigid pipe installations, the flow rate without pulsation damper should not exceed 50 % of the maximum dosing capacity of the pump.

Pulsation dampers DBG include a pressure gauge for easy setting of the correct pressure. Pulsation dampers DB have no pressure gauge.



Suction-side pulsation dampers CSD with calibration scale

Pulsation dampers CSD help to ensure the accuracy of dosing pumps, which is highly dependent on proper suction conditions. In installations with long inlet lines or inlet lines with a small diameter, the use of a CSD pulsation damper is recommended. They have a transparent PVC cylinder with a fine volume scale. When combined with a shut-off valve in the inlet line, they can also be used for calibration or flow measurement. In installations without flooded suction, the optional manual vacuum pump kit simplifies the startup of the dosing pump. Pulsation dampers CSD can be used for multiple pumps that are supplied by the same inlet line.

Calibration columns

Calibration columns have a graduated glass cylinder with a fine scale. A shut-off valve on the lower end can disconnect them from the inlet-side installation during normal operation.

One calibration column can be used for multiple pumps that are supplied by the same inlet line. Calibration columns must not be used as pulsation dampers.

Dosing accessories

Pulsation dampers

Pulsation dampers are particularly suitable for long discharge lines and small-diameter lines. Installed in the discharge line, pulsation dampers optimise dosing accuracy and protect the pump and discharge line against pressure surges. Depending on the system pressure, the installation of a counter-pressure valve after the pulsation damper may be required to optimise its function. Special pulsation dampers are available for suction lines.

Pulsation dampers selection

Sizing table for pulsation dampers DB, DBG, CSD and calibration columns.

Look up your pump type in the table. Find the required pulsation damper or calibration column volume in the respective table column.

Pump range	Type	Pump stroke volume [ml]	Required damper volume		Required volume calibration column [l]
			At suction CSD [l]	At discharge DB/DBG [l]	
SMART Digital S Dosing Pumps	DDA 7,5-16	0.74	0.25	0.15	0.25
	DDA 12-10	1.45			
	DDA 17-7	1.55			
	DDA 30-4*	3.1			
	DDC-DDE 6-10	0.81			
	DDC 9-7	0.84			
	DDC-DDE 15-4	1.58			
SMART Digital XL Dosing Pumps	DDA/DDE 60-10	5.56	1.5	0.3 - 0.35	2.0
	DDA/DDE 120-7	11.58			
	DDA/DDE 200-4	19.3			
Mechanical diaphragm dosing pumps DMX	DMX 4-10 / 8-10 / 16-10	2.2	0.5	0.15	0.5
	DMX 7-10 / 14-10 / 27-10	3.8			
	DMX 9-10 / 18-10 / 35-10	4.9			
	DMX 12-10 / 26-10 / 50-10	6.9			
	DMX 17-4 / 39-4 / 75-4	10.4	1.5	0.3 - 0.35	2.0
	DMX 25-3 / 60-3 / 115-3	16			
	DMX 24-8 / 52-8 / 100-8 / 142-8	13.8			
	DMX 67-10 / 132-10 / 190-10	18.5			
	DMX 37-5 / 82-5 / 160-5 / 230-5	22	3.0	0.65 - 0.7	4.0
	DMX 95-8 / 199-8 / 280-8	27.8			
	DMX 60-3 / 130-3 / 255-3 / 380-3	36			
	DMX 152-6 / 321-6 / 460-6	44.6			
Hydraulic piston diaphragm dosing pumps DMH	DMH 5-10 / 13-10 / 24-10	3.5	0.5	0.15	0.5
	DMH 11-10 / 24-10 / 46-10	6.4			
	DMH 21-10 / 43-10 / 67-10 DMH 83-10 / 100-10	11.3	1.5	0.3 - 0.35	2.0
	DMH 50-10 / 102-10 / 143-10 DMH 175-10 / 213-10 / 291-10	31.6	3.0	0.65 - 0.7	4.0

* For discharge lengths higher than 80m, provide a 0,3-0,35l DB/DBG damper.

Dosing accessories

Suction-side pulsation dampers CSD with calibration function

Pulsation dampers CSD are installed on the inlet side of the dosing pump. A pulsation damper CSD can be used for more than one pump at a time. They can handle pressures up to 2 bar.

Calibration is possible by installing a T-piece and a shut-off valve.

Pulsation dampers CSD include:

- Sight glass with calibration scale
- Aeration valve



Damper volume [l]	Max. pump stroke volume [ml]	Max. pumps with max. stroke vol.	Scale division [ml]	Pipe connection D/ d [mm]	Material			Product number	£
					Body	Gaskets	Column		
0.25	2	3	2	16/12	PVC	FKM/EPDM	PVC	99186948	357
						PTFE		99217401	460
0.5	7	3	5	16/12	PVC	FKM/EPDM	PVC	99187777	380
						PTFE		99217402	471
1.5	19	3	20	16/12	PVC	FKM/EPDM	PVC	99188854	681
						PTFE		99217403	720
3	45	2	25	16/12	PVC	FKM/EPDM	PVC	99190807	770
						PTFE		99217406	899

Calibration columns

Calibration columns are intended for flow measurement or calibration of dosing pumps. They must be isolated from the pipework during normal operation. The volume in the calibration column can supply the largest suitable pump for approximately 30 seconds. Calibration columns must not be used as pulsation dampers.

Calibration columns include:

- Glass cylinder with acrylic outer shield
- Aeration valve on top
- Shut-off valve on the bottom

Damper volume [l]	Max. pump stroke volume [ml]	Scale division [ml]	Pipe connection d		Material		Product number	£
			[mm]	[inch]	Body	Gaskets		
0.25	2	2	16	-	PVDF	FKM	99224280	1,582
			-	G 1/2	SS	FKM	99224303	1,183
			-		SS	EPDM	99224304	1,183
0.5	7	5	16	-	PVDF	FKM	99224305	1,886
			-	G 1/2	SS	FKM	99224307	1,233
			-		SS	EPDM	99224308	1,233
2.0	19	20	25	-	PVDF	FKM	99224309	2,921
			-	G 1	SS	FKM	99224310	1,609
			-		SS	EPDM	99224311	1,609
4.0	45	25	25	-	PVDF	FKM	99224312	3,756
			-	G 1	SS	FKM	99224313	2,312
			-		SS	EPDM	99224314	2,312

Manual vacuum pump kit

In installations without flooded suction, the pulsation damper CSD or the calibration column can be filled with the manual vacuum pump kit. This makes the startup of the dosing pump easier and prepares for the calibration of the pump.

A manual vacuum pump kit includes:

- Ball valve, connection G 5/8"
- T-piece, connection G 5/8"
- Hose & vacuum pump
- Holder for wall mounting



Description	Ball valve and T-piece material	Product number	£
Manual vacuum pump kit	PVC	99218131	587
	PVDF	99226934	1,282

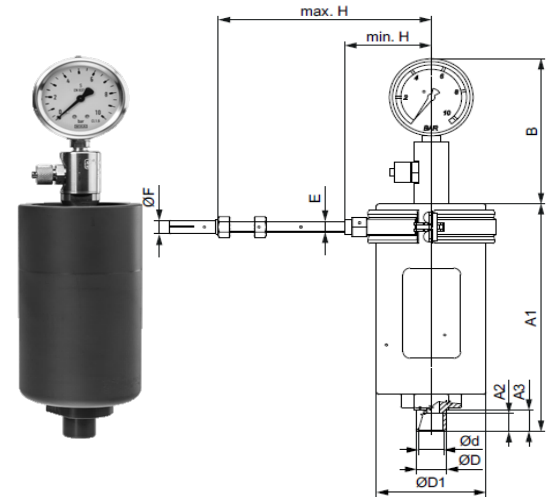
Dosing accessories

Discharge-side pulsation dampers DB and DBG

Pulsation dampers DB and DBG have a separating diaphragm and are intended for the outlet side of the dosing pump. We recommend using one pump per pulsation damper. Preload pressure is set at 2.7 bar.

Pulsation dampers DB and DBG include:

- Material for wall mounting
- PVC versions are prepared for pipe gluing connection with spigot (D) or socket (d).
- PVDF and PP versions are prepared for pipe welding connection with spigot (D) or socket (d).
- Pulsation dampers DBG include a pressure gauge.

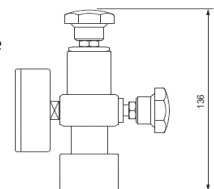


Damper volume [l]	Pmax [bar]	Max. pump stroke volume [ml]	Pipe connection		Material		Type DB (no press. gauge)		Type DBG (with press. gauge)	
			D/ d [mm]	Internal thread	Body	Gaskets	Product number	£	Product number	£
0.15	10	7	16/12	-	PVC	FKM	99202642	636	99202679	977
						EPDM	99202653	636	99202680	977
					PP	FKM	99202654	636	99202681	977
						EPDM	99202657	636	99202682	977
	180		-	G 1/2	SS	FKM	99202660	960	99202684	1,300
						EPDM	99202661	960	99202685	1,300
	20		16/12	-	PVDF	PTFE	99202658	1,774	99202683	2,114
0.35	10	19	25/20	-	PVC	FKM	99202662	730	99202687	1,070
						EPDM	99202663	730	99202688	1,070
						EPDM	99202665	730	99202690	1,070
	130		-	G 1/2	SS	FKM	99202667	1,409	99202692	1,749
						EPDM	99202669	1,409	99202693	1,749
0.30	20	19	25/20	-	PVDF	PTFE	99202666	2,441	99202691	2,782
0.65	10	45	25/20	-	PVC	FKM	99202670	960	99202694	1,300
						EPDM	99202671	960	99202695	1,300
					PP	FKM	99202672	960	99202696	1,300
						EPDM	99202673	960	99202697	1,300
	50		-	G 3/4	SS	FKM	99202675	1,492	99202699	1,832
						EPDM	99202676	1,492	99202700	1,832
0.70	16	45	25/20	-	PVDF	PTFE	99202674	3,088	99202698	3,428

Accessories for pulsation dampers DB and DBG

Filling devices make the adjustment of the preloading pressure of pulsation dampers easy. Available with different pressure gauges, it must be connected to a local compressed-air or nitrogen source and the filling valve of a pulsation damper. It can be removed when the pressure is adjusted.

An additional tyre-valve adapter allows the use of common air pumps with tyre valves for filling the pulsation damper with air.



Description	Connection	Max. operating pressure [bar]	Product number	£
Filling device with pressure gauge	G 1/4	25	96727342	1,725
		60	96727343	1,725
Tyre-valve adapter	-	8	96727332	157

Dosing accessories

Pump connection kits and inlay kits for flow up to 60 l/h

Retrofit pump connection kits and inlay kits for the integration of Grundfos standard dosing pumps into installations with various sizes of hoses or pipes. A pump connection kit includes 1 set of inlays and 1 union nut.

The inlay kits are used to connect pumps and accessories to pipes or hoses that differ from Grundfos standard sizes. An inlay kit includes 2 sets of inlays.



Connection type	Size	Connector type key code	Material	Connection kit		Inlay kit	
				Product number	£	Product number	£
Hose (cone and ring)	4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	U2	PP	97691902	16	-	-
			PVC	97691903	15	-	-
			PVDF	97691904	24	-	-
	0.17" x 1/4", 1/4" x 3/8", 3/8" x 1/2"	U7	PP	97691905	16	-	-
			PVC	97691906	15	-	-
			PVDF	97691907	24	-	-
Hose (cone and ring)	4/6 mm, 0.17" x 1/4"	3	PP	97702474	14	95730984	12
			PVC	97702485	14	95730720	13
			PVDF	97702495	18	95730729	21
	4/9 mm	B9	PP	98153922	10	98153977	POR
			PVC	98153944	11	98154006	POR
			PVDF	98153949	18	98154029	POR
	5/8 mm	A5	PP	97702475	15	95730711	12
			PVC	97702486	14	95730721	13
			PVDF	97702496	18	95730730	24
	6/8 mm	C6	PP	97702476	14	95730712	12
			PVC	97702487	13	95730722	13
			PVDF	97702497	20	95730731	21
	6/9 mm	4	PP	97702477	14	95730713	12
			PVC	97702488	11	95730723	13
			PVDF	97702498	18	95730732	21
	6/12 mm	5	PP	97702478	14	95730714	12
			PVC	97702489	14	95730724	13
			PVDF	97702499	18	95730733	21
	9/12 mm	6	PP	97702479	15	95730715	12
			PVC	97702490	14	95730725	13
			PVDF	97702500	18	95730734	21
	1/4" x 3/8	R	PP	97702482	14	95730718	12
			PVC	97702492	11	95730727	13
			PVDF	97702503	18	95730737	21
	3/8" x 1/2"	S	PP	97702483	15	95730719	12
			PVC	97702493	11	95730728	13
			PVDF	97702504	18	95730738	21
Hose (cutting ring type)	1/8" x 1/4"	C4	PP	97702481	27	95730717	45
			PVDF	97702502	28	95730736	42
Pipe welding	External diameter 16 mm	B3	PP	97702480	11	95730716	16
Pipe cementing	Internal diameter 12 mm		PVDF	97702501	21	95730735	30
Pipe, external thread	1/2" NPT	A9	PVC	97702491	15	95730726	15
			PP	97702484	23	-	-
			PVC	97702494	23	-	-
			PVDF	97702505	56	-	-
			SS	97702508	42	-	-
Pipe, external thread	Rp 1/4"	A	SS	97702472	40	95730739	48
	1/4" NPT	V	SS	97702473	40	95730740	48
Pipe (cutting ring type)	4/6 mm	B6	SS	97702506	85	-	-
	8/10 mm	C2	SS	97702507	89	-	-

Dosing accessories

Pump connection kits and inlay kits for flow up to 460 l/h

Retrofit pump connection kits and inlay kits for the integration of Grundfos standard dosing pumps into installations with various sizes of hoses or pipes. A pump connection kit includes 1 set of inlays and 1 union nut.

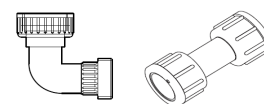


The inlay kits are used to connect pumps and accessories to pipes or hoses that differ from Grundfos standard sizes. An inlay kit includes 2 sets of inlays.

Piping	Connection type	For hose/pipe size		Connector type key code	Material	Connection kit		Inlay kit	
		Internal	External			Product number	£	Product number	£
Hose	Nipple and clamp	19/20 mm	-	U3	PP	99082037	27	-	-
Pipe	Gluing or welding inlay	-	25 mm		PVC	99082038	18	-	-
					PVDF	99082039	71	-	-
Hose	Cone and ring	13 mm	20 mm	A6	PVC	91835696	27	99170747	46
Hose	Nipple and clamp	19/20 mm or 3/4"	-	Q	PP	99169576	15	99169735	17
					PVC	99169603	15	99169740	20
					PVDF	99169728	44	99169738	26
Pipe	Welding inlay	-	25 mm	B4	PP	91835697	21	99171119	39
					PVDF	91835698	58	99171146	83
Pipe	Gluing inlay			B0	PVC	96701989	11	99171177	15
			3/4" pipe (US) or 26.6 mm (BS)	C7	PVC	99170858	16	99171222	25
Pipe	Internal thread	3/4" NPT	-	A7	PVC	99082040	15	99171707	20
					PP	99082041	27	99171776	50
					PVDF	99082042	71	99171793	137
Pipe	External thread	-	RP 3/4"	A1	PP	99082043	30	99182104	49
					PVDF	99082044	84	99182109	129
					SS	99082045	88	99182114	103
					Alloy C-4	99082046	210	99182136	342
		-	3/4" NPT	A3	PP	99082047	39	99174974	63
					PVDF	99082048	84	99175004	129
					SS	99082049	90	99175015	103
Pipe	Cutting-ring type	19 mm	22 mm	C3	SS	96727555	218	-	-

Union nut and elbow adaptors

Union nut adaptors consist of a rigid pipe with union nuts on both ends. They have neither gaskets nor glued or welded connections. Union nut adaptors allow direct assembly of a pressure loading valve or a pressure relief valve on the pump outlet valve. An elbow adapter can be installed, if the space on the inlet side of the pump is confined.

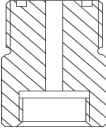
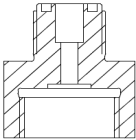
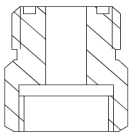
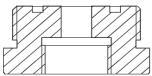
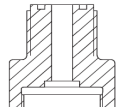
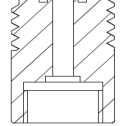
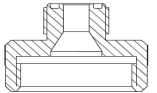
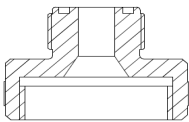
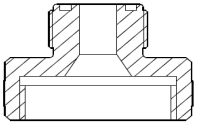


Description	Threaded connection		Material	Product number	£
	Internal thread	External thread	Body		
Union nut adaptors	G 5/8"	G 5/8"	PP	95730437	26
			PVC	95730438	26
			PVDF	95730439	42
	G 5/4"	G 5/4"	PP	99228667	105
			PVC	99228665	156
			PVDF	99228669	230
Elbow adaptors	G 5/4"	G 5/4"	PVDF	99168768	133

Dosing accessories

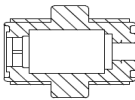
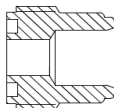
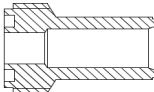
Threaded adaptors

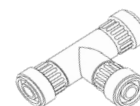
Threaded adaptors are used to convert between different threaded connection sizes.
A threaded adapter kit includes 1 adapter and 1 O-ring.

Type	Threaded connection		Material		Product number	£
	Internal size	External size	Body	Gaskets		
	G 3/8"	G 5/8"	PP	FKM/EPDM	95730407	30
			PVC	FKM/EPDM	95730408	30
				PTFE	95730409	46
			PVDF	FKM/EPDM	95730410	56
				PTFE	95730411	72
	G 5/8"	G 3/8"	PP	FKM/EPDM	95730412	30
			PVC	FKM/EPDM	95730413	30
				PTFE	95730414	46
			PVDF	FKM/EPDM	95730415	56
				PTFE	95730416	72
	G 5/8"	G 3/4"	PP	FKM/EPDM	95730417	30
			PVC	FKM/EPDM	95730418	30
				PTFE	95730419	46
			PVDF	FKM/EPDM	95730420	56
				PTFE	95730421	72
	G 5/8"	G 1 1/4"	PP	FKM/EPDM	95730422	56
			PVC	FKM/EPDM	95730423	56
				PTFE	95730424	78
			PVDF	FKM/EPDM	95730425	83
				PTFE	95730426	105
	G 5/8"	M 20 x 1,5	PP	FKM/EPDM	95730427	30
				PTFE	95730429	46
				FKM/EPDM	95730430	56
			PVDF	PTFE	95730431	72
	G 5/8"	M 30 x 3,5	PVDF	FKM/EPDM	98154048	56
				PTFE	98154054	72
	G 1 1/4"	G 5/8"	PP	FKM/EPDM	95730432	56
			PVC	FKM/EPDM	95730433	56
				PTFE	95730434	72
			PVDF	FKM/EPDM	95730435	83
				PTFE	95730436	72
	G 5/4"	G 3/4"	PP	FKM/EPDM	99227512	79
			PVC	FKM/EPDM	99227511	41
				PTFE	99228197	51
			PVDF	FKM/EPDM	99227829	90
				PTFE	99227533	100
	G 2"	G 5/4"	PP	FKM/EPDM	99227945	89
			PVC	FKM/EPDM	99227943	89
				PTFE	99227960	99
			PVDF	FKM/EPDM	99227953	194
				PTFE	99227948	204

Dosing accessories

Hose-to-hose and hose-to-pipe adaptors

Type	Description	Connections		Material		Product number	£
		Side 1	Side 2	Body and connections	Gaskets		
	Valve body with two external threads G 5/8"	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm		PP	FKM/EPDM	95730367	42
				PVC	FKM/EPDM	95730368	37
					PTFE	95730369	70
				PVDF	FKM/EPDM	95730370	83
					PTFE	95730371	116
		Without		PP	FKM/EPDM	95730356	29
				PVC	FKM/EPDM	95730357	23
					PTFE	95730358	56
				PVDF	FKM/EPDM	95730359	61
					PTFE	95730360	94
		Without	Threaded Rp 1/4	SS	PTFE	95730361	POR
	Pipe cementing end on one side, external thread G 5/8" on the other side	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	Internal Ø12mm	PVC	FKM/EPDM	95730378	23
					PTFE	95730379	34
		Without	Internal Ø12mm	PVC	FKM/EPDM	95730365	15
					PTFE	95730366	26
	Pipe welding end on one side, external thread G 5/8" on the other side	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	External Ø16mm	PP	FKM/EPDM	95730377	40
				PVDF	FKM/EPDM	95730380	61
					PTFE	95730381	78
		Without	External Ø16mm	PP	FKM/EPDM	95730362	31
				PVDF	FKM/EPDM	95730363	48
					PTFE	95730364	64



T-pieces

Description	Connections			Material		Product number	£
	Bottom	Top	Side	Body and connections	Gaskets		
Three external threads G 5/8"	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm			PP	FKM/EPDM	95730387	119
				PVC	FKM/EPDM	95730388	61
					PTFE	95730389	111
				PVDF	FKM/EPDM	95730390	234
					PTFE	95730391	283
	Without			PP	FKM/EPDM	95730346	100
				PVC	FKM/EPDM	95730347	42
					PTFE	95730348	92
				PVDF	FKM/EPDM	95730349	204
					PTFE	95730350	253
Two male threads G 5/8", one internal connection with union nut	Union nut G 5/8"	Without	For hoses 4/6 mm, 6/9 mm, 6/12 mm, 9/12 mm	PP	FKM/EPDM	95730397	108
				PVC	FKM/EPDM	95730398	51
					PTFE	95730399	83
				PVDF	FKM/EPDM	95730400	206
					PTFE	95730401	239
			Without	PP	FKM/EPDM	95730351	100
				PVC	FKM/EPDM	95730352	42
					PTFE	95730353	75
				PVDF	FKM/EPDM	95730354	193
					PTFE	95730355	225

Dosing accessories

Diaphragm leakage sensor for DME 60 up to 940 l/h

Insert the sensor into the drain hole behind the diaphragm to detect diaphragm breakage or leakage. When the liquid gets into contact with the sensor, the light refraction changes, causing the sensor to emit a signal. The signal emitted from the sensor triggers the pump to stop dosing and give pump output alarm.



Pump type	Plug	Description	Cable length [m]	Product number	£
DME (60 - 940 l/h)	M12	Diaphragm leakage sensor	0.5	96534443	195

Dosing monitor (for DME 60-940 l/h)

The dosing monitor is suitable for use in connection with the dosing monitoring function of DME pumps. The monitor surveys the dosing process and sends a signal to the pump if an error occurs.



Pump type	Material	Product number	£
DME (60 - 150 l/h)	PP/EPDM	96655230	not avail.
	PP/FKM	96655231	not avail.
DME (375 - 940 l/h)	PP/EPDM	96655232	not avail.
	PP/FKM	96655233	not avail.

Water meter

The in-line water meter with potential-free pulse signal is suitable for use in flow-proportional dosing applications.

- Qn 1.5 and Qn 2.5 meters are of the multi-jet, dry dial type.
- Qn 15 meters and up are of the helical vane type.

Max. pressure: 16 bar.

Cable length: 3m

If the water meter should be connected directly to the dosing pump, use corresponding plug:

- 96 44 04 49 for DME
- 96 60 90 31 for SMART Digital, DDI, DMX/DMH AR



Qn [m3/h]	Maximum short-period capacity [m3/h]	Pulse rate [l/pulse]	Tmax (water)	Connection to water meter / Installation kit	Product number	£
1.5	3	0.25	30°C	G 3/4" / Rp 1/2	96482640	262
			90°C		96482643	334
		1	30°C		96446846	262
			90°C		96446897	334
2.5	5	0.25	30°C	G 1" / Rp 3/4	96482641	262
			90°C		96482644	334
		2.5	30°C		96446847	262
			90°C		96446898	334
15	30	2.5	30°C	G 2 1/2" / Rp 2	96482642	895
			90°C		96482645	895
		10	50°C		96446848	895
			120°C		96446899	2,279

Dosing tanks selection overview

Dosing accessories

Selection table

Overview of components available for an easy selection to define a complete dosing tank installation.

Identify the column corresponding to the storing tank volume needed and select the desired equipment and options from rows below: collecting tray, electric stirrer and rigid suction lance. Additional accessories can be selected from Section 2 in the present Dosing Price List.



Volume [l] storing tank	60		100		200		300		500		1000	
	Cylindrical tanks											
	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£
White	98150038	323	98150051	413	98150053	585	98150055	718	98150057	1,294	98173675	3,427
Black	98150040	366	98150052	472	98150054	666	98150056	820	98150058	1,479	98173752	3,642

Collecting trays												
Size	Ø 500 x H 545		Ø 500 x H 700		Ø 770 x H 595		Ø 770 x H 960		Ø 860 x H 980		Ø 1150 x H 1080	
	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£
	96726831	294	96726832	363	98150059	564	96726834	908	95701272	1,325	96726836	2,287

Electric stirrers												
L. [mm]	450		690		700		950		1100		1150	
P [W]	90		90		250		250		250		550	
	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£
Material	Single-phase motor											
SS 316L	98164569	927	98164606	952	98164987	976	98165172	1049	98165253	1123	98165287	1245
PP	98164573	1025	98164607	1049	98164990	1074	98165175	1147	98165258	1220	98165290	1342
PP*	98164575	1440	98164609	1464	98165152	1489	98165177	1562	98165259	1635	98165304	1757
Material	Three-phase motor											
SS 316L	98165309	818	98165355	842	98165385	940	98165393	1013	98165435	1086	98165439	1220
PP	98165310	915	98165357	940	98165386	1037	98165432	1110	98165436	1184	98165440	1318
PP*	98165318	1330	98165382	1354	98165391	1452	98165433	1525	98165437	1598	98165451	1733

*PP, with sealing flange

Rigid suction lances												
L. [mm]	570		690		820		980		1100		1200	
	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£	Prod. Nr	£
Gaskets	PE / Without empty level signal											
FKM/EPDM	98071002	109	98071014	109	98071026	109	98071038	109	98071050	109	98071062	109
PTFE	98071003	124	98071015	124	98071027	124	98071039	124	98071051	124	98071063	124
Gaskets	PE / With empty level signal											
FKM/EPDM	98071098	180	98071110	180	98071122	180	98071134	180	98071146	180	98071158	180
PTFE	98071099	195	98071111	195	98071123	195	98071135	195	98071147	195	98071159	195
Gaskets	PVDF / Without empty level signal											
FKM/EPDM	98071004	271	98071016	271	98071028	292	98071040	292	98071052	312	98071064	312
PTFE	98071005	287	98071017	287	98071029	307	98071041	307	98071053	327	98071065	327
Gaskets	PVDF / With empty level signal											
FKM/EPDM	98071100	358	98071112	358	98071124	378	98071136	378	98071148	398	98071160	398
PTFE	98071101	373	98071113	373	98071125	393	98071137	393	98071149	414	98071161	414

Dosing accessories

Bleach disinfection skid

PVC wall mounted dosing kit including:

- SMART Digital dosing pump type DDA 7,5-16 PVC/V/C (AR or FCM version)
 - 1 PVC wall mounting skid & 1 dosing tank of 10 liters
 - Integrated retention basin, to prevent spilling of the chemical
 - Dosing accessories: strainer with level contact, injection nozzle, 3m of 4/6 mm hose, 1 signal input connector.
- Included with FCM version only : pressure relief valve (95730327)



Pump type	Version	Dimension	Product number	£
DDA 7,5-16 AR PVC/V/C	AR	450 mm x 620 mm x 250 mm		POA
DDA 7,5-16 FCM PVC/V/C	FCM			POA

Bleach disinfection skid available on stock

MobileDos

Compact and mobile dosing station for SMART Digital dosing pumps including :

- Black PE skid with compartment sized to hold 30 l containers
- adapter for fixing on trays of 20 to 30l
- mounting plate for SMART Digital dosing pump
- Dosing accessories: suction strainer with two level sensors (low level alert and empty tank), relief and pressure relief valves, 5m cable with contact input connector, injection nozzle, 6m hose 4/6 mm

Note: dosing pump not included, to order in addition



Compatible with standard commercial containers (up to 30 liters) and with integrated retention basin. Ideal for the protection of operators: no manipulation/transfer or risk of chemical projections.

Typical applications : designed for extra bleach disinfection, antiscalant dosing or any temporary treatment.

Dim. 420 x 460 x 650

Dosed chemical / application	Material	Injection unit	Dimension	Product number	£
Bleach	PVC/FKM/Ceramic	Lips seal	420 mm x 460 mm x 650 mm	98394054	2,255
Acids	PVC/FKM/Ceramic	Standard		98394051	2,234
Soda & alkaline products	PVC/EPDM/Ceramic	Standard		98394052	2,234



Other dosing skids and customized solutions available on request

OXIPERM Pro (OCD 162)

Chlorine dioxide generator

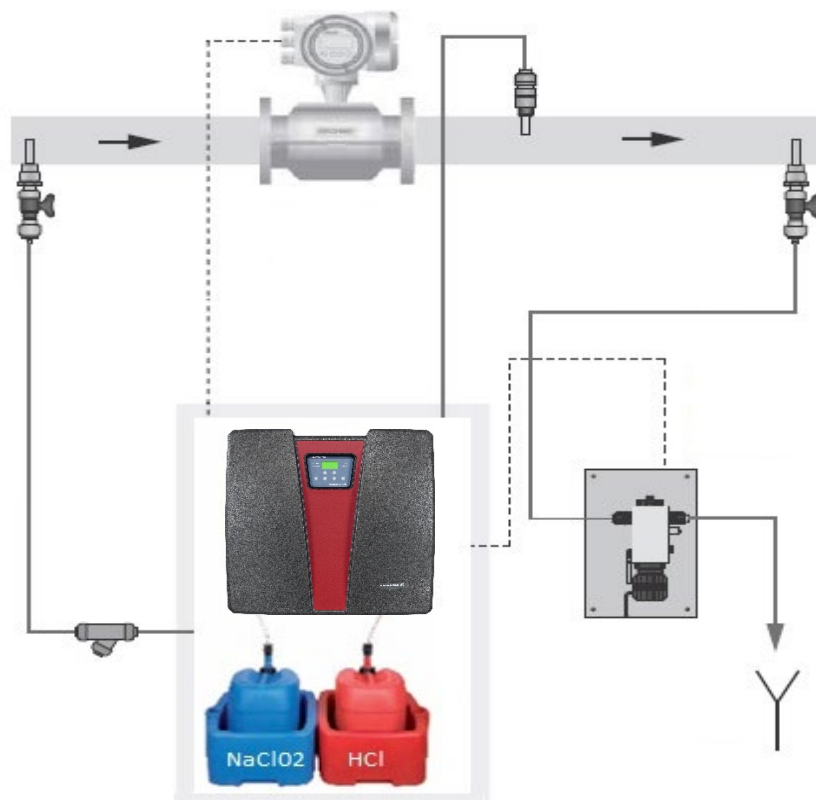
Oxiperm® Pro systems produce chlorine dioxide using diluted solutions of sodium chlorite (NaClO_2 7.5 %) and hydrochloric acid (HCl 9 %). They are available in four capacity levels, producing up to 5, 10, 30 and 60 g/h of chlorine dioxide respectively. This capacity is sufficient to treat up to 150 m^3 of drinking water per hour at a maximum concentration of 0.4 mg/l ClO_2 .

Chlorine dioxide is produced on demand from diluted solutions using the reliable sodium chlorite / hydrochloric acid, in accordance with the German Drinking Water Directive. The chlorine dioxide solution produced is stored in an integrated or external batch tank and is added to the drinking water pipe as required using the integrated dosing pump or an external dosing pump. It is recommended to use a digital dosing pump for continuous dosing of the chlorine dioxide solution.

Oxiperm Pro system produces chlorine dioxide (ClO_2) by mixing two diluted reagents:

- Sodium chlorite (NaClO_2) 7.5 %
- Hydrochloric acid (HCl) 9 %

The chlorine dioxide solution produced is stored in an integrated or external batch tank and is added to the drinking water pipe as required using the integrated digital dosing pump DDA (up to 10 g/h) and DDI (from 30 g/h and above) or an external dosing pump.



Chlorine dioxide production capacity:

from 5 up to 60 g/h

Required concentration of chemicals:

Sodium Chlorite (NaClO_2 -7.5% - EN 938)
and Hydrochloric Acid (HCl - 9% - EN 939)

ClO_2 concentration:

approx. 2 g/l (2000 ppm)

Connection to dosing pumps:

hose 4/6 (5 and 10 g/h), 9/12 (30 and 60 g/h)

Enclosure class:

IP 65

Mains supply:

1X230V - 50 Hz

Power consumption [W]:

50 W for sizes 5 & 10 g/h

180 W for size 30 g/h

320 W for size 60 g/h

Accessories:

Tanks, hoses, measurement modules, flowmeters, external tanks for batch dosing, etc.
See databooklet for more details.

OXIPERM Pro (OCD 162)

Standard Oxiperm Pro with integrated ClO₂ Digital Dosing pump (DDA or DDI)

Capacity [g/h]	Chemicals containers size [l]	Max. counter pressure [bar]	Consumption of chemicals, ± 10 %*			Description	Product number	£
			HCl (l/h)	NaClO ₂ (l/h)	H ₂ O (l/h)			
5	30	9	0.17	0.16	2.7	OCD-162-5-S/G	95735153	11,283
10			0.3	0.28	4.3	OCD-162-10-S/G	95735161	11,903
30	60		0.92	0.86	15.2	OCD-162-30-P/G1	95735171	17,120
60			1.85	1.63	30.4	OCD-162-60-P/G1	95718454	19,790
30	200-1000		0.92	0.86	15.2	OCD-162-30-P/G2	95735175	17,412
60			1.85	1.63	30.4	OCD-162-60-P/G2	95718458	20,049

*When running at maximum capacity

Accessories

Collecting tray for chemical containers, with support for suction lance

Chemical	For container size	Color	Description	Product number	£
Hydrochloric acid (HCl)	30 l	Red	RED TANK 35L	95702451	192
	60 l		RED TANK 71L	96726829	255
Sodium chlorite (NaClO ₂)	30 l	Blue	BLUE TANK 35L	95702450	192
	60 l		BLUE TANK 71L	96726830	255

Installation accessories : injection unit, hose and connections

Description	Size Ø int./ext. [mm]	Length [m]	For OXIPERM	Product number	£
Injection unit DN 8, PVDF, 16 bar, G 1/2, threaded connection G 5/8 for PTFE hose	4/6, 6/9, 6/12 & 9/12	-	All	95730932	117
Hose PTFE 4/6 to connect multifunction valve to ClO ₂ injection point	4/6	5m	OCD-162-5 OCD-162-10	96697911	72
		10m		96692437	139
		25m		96727484	349
Hose PTFE 9/12 to connect multifunction valve to ClO ₂ injection point	9/12	10m	OCD-162-30 OCD-162-60	96727490	464
		25m		96727492	1,163
Hose PE for dilution water inlet to solenoid valve	6/9	10m	All	96727412	26
Hose PVC for measuring water to AQC-D11	6/12	10m	All	96653571	49
Hose PE for measuring water to AQC-D6	6/8	10m	All	95709108	47
Extraction device for dilution water or measuring water, DN10 PVC	6/9 & 6/12	-	All	95707159	290
Dirt trap	6/9 & 6/12	-	All	95709473	244
PVDF T-piece for PTFE hoses for two ClO ₂ dosing pumps	4/6	-	OCD-162-5 OCD-162-10	95714891	58
	6/9, 6/12 & 9/12	-	OCD-162-30 OCD-162-60	95730391	283
Hose connection with adaptor G 1/2 male thread for direct screwing into water supply line and G 5/8 male thread for hose connection (hose adaptor 97691903 to be ordered separately)	G5/8"	-	All	95702448	49
Hose connection with adaptor G 3/4 male thread for direct screwing into water supply line and G 5/8 male thread for hose connection (hose adaptor 97691903 to be ordered separately)	G5/8"	-	All	95702449	61

OXIPERM Pro (OCD 162)**Bypass mixing modules or measuring module pre-assembled with DN20 connections incl. circulator 1x230V 50Hz**

Description	Max. temp.	Panel dim.	For OXIPERM	Product number	£
Bypass mixing module for cold water	30°	550 x 650	All	95703178	4,334
Pre-assembled measuring module for ClO ₂ in hot water (incl. 2m of connection cable for the measuring cell)	70°			95708029	10,396

Panel mounted measuring cell for ClO₂

Description	Max. temp.	Panel dim.	For OXIPERM	Product number	£
AQC-D11, P-AU-X-X, QS-T-G Pressure-proof max. 3bar, with cleaning motor 1x230V 50/60 Hz	40°	250 x 390	All	95737681	2,361
AQC-D12, P-AU-X-X, QS-T-X Pressure-proof max. 3 bar, with hydromechanical cleaning		120 x 40		95737691	1,856
AQC-D6 Pressure-proof max. 8 bar, with hydromechanical cleaning	70°	300 x 395		95708118	7,396

DIT-L photometer with case

Accessories	Description	Product number	£
Photometer to measure: pH, ozone, chlorine dioxide, chlorine	DIT-L	95727743	815
Testing reagents DPD No. 1 tablets	Measurement of chlorine dioxide or free chlorine	95727747	79
Liquid reagents DPD		91835797	107

Conex DIA-G gas warning unit

Accessories	Description	Product number	£
With potentiostatic chlorine dioxide sensor	DIA-G-P, CDP-X-X, W-J	95700854	4,188

*For more detailed information on Conex DIA-G, please see the data booklet Conex DIA-G, DIS-G

Personal protective equipment

Accessories	Product number	£
Protective gloves	96727012	37
Protective apron	96727013	188
Protective goggles	96727014	28
Set of warning signs	95701992	105
Security plate ClO ₂	95706626	30
ClO ₂ neutralizing agent: sodium thiosulphate 5 kg	96729284	238

DID

Compact measuring systems, controllers, sensors and accessories

up to 3 parameters (Cl₂, ClO₂, H₂O₂, PAA, pH, ORP, conductivity)

Monitoring of typical water quality parameters as well as precise control of disinfectant addition or pH adjustment is essential for many water treatment processes. Bus interface as well as data logging functionalities and intuitive user interface are a must for M&C today.

The Grundfos by S::CAN DID systems are the perfect combination of S::CAN's state-of-the-art digital sensor technology and Grundfos' experience in PID controlling of dosing and disinfection processes.

DID systems are designed to match perfectly with Grundfos dosing pumps, gas dosing systems as well as systems for the generation and dosing of chlorine dioxide and hypochlorite.

DID systems are available as pre-assembled systems with bypass flow cell or as kits for applications with tank-immersed sensors.

Variants with bypass flow cell are intended for monitoring and control of disinfectants, pH, ORP, conductivity and temperature. The water flow through the cell is kept at an appropriate level by a flow restrictor. Lack of water is detected by a flow switch and leads to an alarm. A shut-off ball valve and a sampling cock complete the hydraulic installation, which is compatible with Grundfos standard hoses.

System configurations for tank immersion are available with up to 2 sensors for pH, ORP and conductivity, and always include temperature measurement. These variants allow measurement of water parameters directly in the tank or basin without the need for a bypass line and flow cell. The control unit can either be fixed directly at a wall or back plate, or mounted on a DIN rail in a cabinet.

Type key

	Code	Description	Pmax. on outlet [bar]
CU 382 control unit variant	DID-1	CU 382-1 for 1 parameter + temperature, 100-250 VAC, 50-60 Hz	
	DID-3	CU 382-3 for 3 parameters + temperature, 100-250 VAC, 50-60 Hz	
Installation variant	BF1	Bypass flow cell, 1 sensor	
	BF3	Bypass flow cell, 3 sensors	
	TI1	Tank immersion, 1 sensor	
	TI2	Tank immersion, 2 sensors	
Parameters/sensors	FCL2	Free chlorine, 0-2 ppm	3 bar
	FCL20	Free chlorine, 0-20 ppm	
	TCL2	Total chlorine, 0-2 ppm	
	TCL20	Total chlorine, 0-20 ppm	
	CDI2	Chlorine dioxide, 0-2 ppm	1 bar
	CDI20	Chlorine dioxide, 0-20 ppm	
	HP2	Hydrogen peroxide, 0-200 ppm	
	HP2	Hydrogen peroxide, 0-2000 ppm	
	PA2	Peracetic acid, 0-200 ppm	10 bar
	PA20	Peracetic acid, 0-2000 ppm	
	pH	pH 2-12, up to 10 bar, 70 °C	
	ORP	ORP, -2000 mV to +2000 mV, up to 10 bar, 70 °C	
	CND	Conductivity, 1-500000 µS/cm (2-42 PSU), up to 20 bar, 70 °C	

Remarks:

- All sensors include temperature measurement
- Measurement of disinfectant parameters (FCL,TCL, CDI, HP or PA) is only possible with BF1 or BF3 installation variant
- BF1 and BF3 installation variants include flow detection
- BF1 and BF3 installation variants include 1.0 m sensor cable(s)
- TI1 and TI2 installation variants are only possible for parameters pH, ORP or CND
- TI1 and TI2 installation variants include 7.5 m sensor cable(s)
- **Mains cable is not included, please select from accessories list and order separately**

DID

Standard range DID pre-assembled system

DID with bypass flow cell, with flow switch



Description	Parameter 1	Parameter 2	Parameter 3	Product number	£
DID-1 BF1-FCL2 1)	Free chlorine 0-2 ppm			98915656	4,914
DID-1 BF1-CDI2	Chlorine dioxide 0-2 ppm			98915657	5,007
DID-1 BF1-PA2	Peracetic acid 0-200 ppm			98915658	5,109
DID-1 BF1-HP2	Hydrogen peroxide 0-200 ppm			98915659	5,109
DID-3 BF3-FCL2/TCL2	Free chlorine 0-2 ppm	Total chlorine 0-2 ppm		98915660	7,961
DID-3 BF3-FCL2/PH 2)	Free chlorine 0-2 ppm	pH 2-12		98915661	6,398
DID-3 BF3-FCL2/TCL2/PH 2)	Free chlorine 0-2 ppm	Total chlorine 0-2 ppm	pH 2-12	98915662	9,021
DID-3 BF3-FCL2/ORP 1)	Free chlorine 0-2 ppm	ORP -2000 to +2000 mV		98915663	6,687
DID-3 BF3-FCL2/PH/ORP 2)	Free chlorine 0-2 ppm	pH 2-12	ORP -2000 to +2000 mV	98915664	7,747
DID-1 BF-1-PH	pH 2-12			98915665	3,431
DID-3 BF3-ORP/PH	ORP -2000 to +2000 mV	pH 2-12		98915669	5,204
DID-1 BF-1-CND	Conductivity 1-500.000 µS/cm			98915670	4,427
DID-3 BF3				99083725	2,982

1) With internal pH compensation up to pH 8.5

2) Provides additional pH compensation of chlorine measurement for highest accuracy



DID for tank immersion only possible for parameters pH, ORP or CND

Description	Parameter 1	Parameter 3	Product number	£
DID-1 TI1-PH	pH 2-12		98915666	2,916
DID-1 TI1-ORP	ORP -2000 to +2000 mV		98915667	3,204
DID-3 TI2-ORP/PH	ORP -2000 to +2000 mV	pH 2-12	98915668	4,958
DID-1 TI1-CND	Conductivity 1-500.000 µS/cm		98915671	3,912

Accessories

Sensor cables to connect sensor and control unit; extention to bridge long distances between sensor and control unit

Use	Cable length [m]	Product number	£
DID with flow cell : cable for connection of sensor and control unit	1	98915690	66
DID with flow cell and DID for tank immersion: extension cable for long distance connection of sensor and control unit	10	98915691	149
	20	98915692	240

Sensors

Individual sensors for customised solutions or add-on to standard systems. All sensors include temperature measurement in addition to the main parameter.

DID with flow cell: sensor with plug

Parameter	Measuring range	Pmax. on outlet [bar]	Product number	£
Free chlorine (FCI)	0-2 ppm	3 bar	99290639	2,481
	0-20 ppm		99290641	2,481
Total chlorine (TCI)	0-2 ppm		99290664	2,561
	0-20 ppm		99290665	2,561
Chlorine dioxide (CDI)	0-2 ppm	1 bar	98915678	2,574
	0-20 ppm		98915679	2,574
Hydrogen peroxide (HP)	0-20 ppm		98915680	2,676
	0-200 ppm		98915681	2,676
Peracetic acid (PA)	0-20 ppm		98915682	2,676
	0-200 ppm		98915683	2,676
pH	pH 2-12	10 bar	98915684	998
ORP	-2000 mV to +2000 mV		98915686	1,286
Conductivity (CND)	1-500000 µS/cm		98915688	1,994

DID for tank immersion, sensors with 7,5m of fixed cable

Parameter	Measuring range	Product number	£
pH	pH 2-12	98915685	1,183
ORP	-2000 mV to +2000 mV	98915687	1,534
Conductivity (CND)	1-500000 µS/cm	98915689	2,107

CU 382 control unit

Individual control units for customised solutions or as a replacement

Control unit type	Number of sensor connectors	Product number	£
CU 382-1	1	98915672	1,569
CU 382-3	3	98915673	1,976

Hydraulic installation components

Installation type	Components	Product number	£
DID with bypass flow cell	Inlet connection, shut-off valve, strainer, flow restrictor, flow switch, connecting hose	99074484	411
	Flow cell for 1 sensor, sampling cock and outlet, outlet connection	99074485	263
	Flow cell for 3 sensors, sampling cock and outlet, outlet connection	99074486	451
DID for tank immersion	Sensor holder	99074490	118
	Sensor guard	99074487	99

Anti-siphoning pressure-loading valve

Description	Product number	£
Pressure loading valve to prevent siphoning	96609179	110

Sample water extraction devices

Description	Product number	£
Max. 3 bar, PVC	96729302	291
Max. 3 bar, PVC, with filter	96729301	567
Max. 3 bar, brass, with filter	96729300	424
Max. 10 bar, brass, with filter, pressure reducing valve and manometer	96698139	823

Sample water extraction pump, connection DN8, mains voltage and frequency 220 V-50 Hz, power consumption approx. 40 W

Description	Product number	£
Sample water extraction pump, up to 35 l/h	95701524	759

External water filters

Note: all DID systems with bypass flow cell have an integrated water filter

Description	Product number	£
External water filter, with ball valve	96622995	581
External water filter, without ball valve	95709473	244

KCl solution for safe storage of pH and ORP sensors

Description	Product number	£
Bottle of KCl solution for safe storage of pH and ORP sensors, 250 ml	96688696	86

Buffer solutions kit for pH sensor calibration (pH 4.01, pH 7 and pH 9.18)

Description	Product number	£
Buffer solutions kit, 3 x 100 ml	96609165	66

DIT-M, DIT-L, DIT-IR

Photometer for water analysis

The DIT photometer is a measuring device combining the mobility of a portable photometer with the characteristics of a laboratory photometer. The high level of accuracy of the Grundfos reagents and the user-friendly nature of the photometer guarantee rapid and reliable analysis of up to 14 parameters in water treatment applications. An infrared interface permits the transfer of measured data to a computer or a printer (RS-232) via the optional infrared interface module DIT-IR.

Scope of delivery DIT-M and DIT-L

- 1 photometer in a plastic case
- 4 batteries (AAA/LR03)
- 1 manual (installation and operating instructions)
- 1 Certificate of Compliance
- 3 round vials with cap and gasket, 24 mm
- 1 cleaning brush
- 1 plastic stirring rod

Scope of delivery DIT-IR

- 1 DIT-IR in a plastic case
- 4 batteries (AA/LR6)
- 1 USB cable
- 1 screwdriver with clip
- 1 manual (installation and operating instructions)
- 1 Certificate of Compliance
- CD-ROM.



Additionally DIT-L is also delivered with

- 1 Starter kit (100 tablets each: DPD No. 1, DPD No. 3, Glycine, Phenolred Photometer)

Description	Product number	£
DIT-M photometer with case	95727742	1,571
DIT-L photometer with case	95727743	815
DIT-IR infrared interface module with case	95727744	458

Accessories



Reagents for DIT-M

Analysis	Measuring range	Differentiation	Description	Product number	£
Aluminium	0.01 - 0.3 mg/l Al		Combi pack Aluminium No. 1/No. 2	95727755	217
Bromine	0.05 - 13 mg/l Br		DPD No. 1	95727761	38
Free chlorine	0.01 - 6 mg/l Cl ₂	Free chlorine	DPD No. 1	95727747	79
		Free chlorine (high Ca)	DPD No. 1 High Calcium	95727748	88
Total chlorine		Total chlorine differentiated	DPD No. 1	95727747	79
			DPD No. 1 High Calcium	95727748	88
			DPD No. 3	95727750	79
	Total chlorine not differentiated	DPD No. 4	95727751	88	
Chlorine dioxide	0.02 - 11 mg/l ClO ₂	Cl ₂ and ClO ₂ differentiated	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
			ClO ₂ in the absence of Cl ₂	DPD No. 1	95727747
Chlorine dioxide analysis*	0.01 - 6 mg/l ClO ₂ , Cl ₂	Chlorine dioxide, chlorite, free chlorine, combined chlorine	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
			DPD Acidifying	98032751	49
			DPD Neutralising	98032752	46

* The measurements are performed with method "chlorine" and differentiation "free", because the photometer doesn't supply a specific method for the determination of these parameters. The values of tolerance apply to the individual measurement. For calculation with multiple values, be aware of error propagation.

DIT-M, DIT-L, DIT-IR

Accessories



Reagents for DIT-M

Analysis	Measuring range	Differentiation	Description	Product number	£
Chloride	0.5 - 25 mg/l (Cl ⁻)		Combi pack Chloride T 1/T 2	95727754	278
Cyanuric acid	2 - 160 mg/l CyA		CyA-TEST	95727760	40
Iron	0.02 - 1 mg/l Fe		Iron LR	95727756	114
Fluoride	0.05 - 2 mg/l F ⁻		SPADNS reagent	95727757	114
			Fluoride standard	95727758	39
Manganese	0.2 - 4 mg/l Mn		Combi pack Manganese LR1/LR2	95727759	176
Ozone	0.02 - 2 mg/l O ₃	O ₃ in the presence of Cl ₂	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
		O ₃ in the absence of Cl ₂	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
Phosphate	0.05 - 4 mg/l PO ₄		Combi pack Phosphate No. 1 LR/No. 2 LR	95727764	158
pH value	6.5 - 8.4 pH		Phenol red	95727753	88
Acid demand K (S 4.3)	0.1 - 4 mmol/l		Alka-M	95727763	67
Hydrogen peroxide	0.03 - 3 mg/l H ₂ O ₂		Hydrogen peroxide LR	95727762	61

Reagents for DIT-L

Analysis	Measuring range	Differentiation	Description	Product number	£
Free chlorine (high Ca)	0.01 - 6 mg/l Cl ₂	Free chlorine	DPD No. 1	95727747	79
		Free chlorine (high Ca)	DPD No. 1 High Calcium	95727748	88
Total chlorine		Total chlorine differentiated	DPD No. 1 (or) DPD No. 1 High Calcium	95727747	79
				95727748	88
			DPD No. 3	95727750	79
	Total chlorine not differentiated	DPD No. 4	95727751	88	
Chlorine dioxide	0.02 - 11 mg/l ClO ₂	Cl ₂ and ClO ₂ differentiated	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
		ClO ₂ in the absence of Cl ₂	DPD No. 1	95727747	79
Chlorine dioxide analysis*	0.01 - 6 mg/l ClO ₂ , Cl ₂	Chlorine dioxide, chlorite, free chlorine, combined chlorine	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
			DPD Acidifying	98032751	49
			DPD Neutralising	98032752	46
Ozone	0.02 - 2 mg/l O ₃	O ₃ in the presence of Cl ₂	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
			Glycine	95727752	104
		O ₃ in the absence of Cl ₂	DPD No. 1	95727747	79
			DPD No. 3	95727750	79
pH value	6.5 - 8.4 pH		Phenol red	95727753	88

* The measurements are performed with method "chlorine" and differentiation "free", because the photometer doesn't supply a specific method for the determination of these parameters. The values of tolerance apply to the individual measurement. For calculation with multiple values, be aware of error propagation.

DIT-M, DIT-L, DIT-IR



Accessories

Description	Product number	£
Verification Standard for DIT-M (Case with one standard colour solution for each wavelength and zero standard)	95727746	233
Reference standard for DIT-L (Case with 1 mg/l and 4 mg/l chlorine standard and zero standard)	95727745	83

Spare parts for DIT

Description	Quantity	For DIT type	Product number	£
Round vial, 24 mm, with cap and gasket	5	L & M	95727768	82
	12		95727769	188
Plastic stirring rod, length 13 cm	1		95727771	12
Plastic syringe, 5 ml	1	M	95727773	12

CONDITIONS OF SALE AND SERVICE

The Customer's attention is particularly drawn to the provisions of condition 13 (Warranty and Limitation of Liability)

1. INTERPRETATION

- 1.1 The definitions and rules of interpretation in this condition apply in these Conditions.

Agreement: the contract between Grundfos and the Customer for the supply of Equipment and/or Services in accordance with the Order and these Conditions
Business Day: a day other than a Saturday, Sunday or bank or public holiday in England when banks in London are open for non-automated business.

CDM Regulations: the Construction (Design and Management) Regulations 2015
Conditions: these terms and conditions as amended from time to time in accordance with condition 19.

Customer: the person, firm or company who purchases Equipment and/or Services from Grundfos.

Data Protection Legislation: all legislation and regulatory requirements in force from time to time relating to the use of personal data and the privacy of electronic communications, including, without limitation (i) any data protection legislation from time to time in force in the UK including the Data Protection Act 2018 or any successor legislation, as well as (ii) the General Data Protection Regulation (EU) 2016/679 and any other directly applicable European Union regulation relating to data protection and privacy (for so long as and to the extent that the law of the European Union has legal effect in the UK).

Delivery Location: the location set out in the Order for delivery of the Equipment and/or Services or such other location as the parties may agree.

Equipment: all equipment, materials, goods and/or products, or any part or parts thereof, supplied by Grundfos to the Customer under this Agreement or used by Grundfos or its subcontractors in the supply of the Services.

Equipment Specification: any specification for the Equipment, including any relevant plans or drawings, that is agreed in writing by the Customer and Grundfos.

Event of Default: any occurrence of the events set out in condition 17.1 or 17.2.

Force Majeure Event: acts, events, omissions or accidents beyond its reasonable control, including (without limitation) strikes, lock-outs or other industrial disputes (whether involving any supplier, contractor or agent of Grundfos or any other party beyond its reasonable control), failure of a utility service or transport network, act of God, war or threat of war, sabotage, riot, civil commotion, malicious damage, compliance with any law or governmental order, rule, regulation or direction, import or export embargoes, accident, breakdown of plant or machinery, fire, flood, storm or default of suppliers or subcontractors, difficulties in obtaining raw materials, labour, fuel, parts or machinery.

Grundfos: Grundfos Pumps Limited (Company No: 00805960) whose registered office is at Grovebury Road, Leighton Buzzard, Bedfordshire LU7 4TL.

Health and Safety File: the health and safety file required by the CDM Regulations.

In-put Material: all documents, information, tools and materials of the Customer required by Grundfos for the proper provision of the Services.

Intellectual Property Rights: patents, rights to inventions, copyright and related rights, trade marks, business names and domain names, rights in get-up, goodwill and the right to sue for passing off, rights in designs, database rights, rights to use, and protect the confidentiality of, confidential information (including know-how), and all other intellectual property rights, in each case whether registered or unregistered and including all applications and rights to apply for and be granted, renewals or extensions of, and rights to claim priority from, such rights and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world.

Maintenance Schedule: the maintenance schedule attached to the Order setting out the Services to be supplied by Grundfos to the Customer.

Order: the service support agreement or site visit request form in each case on Grundfos' standard terms (whichever is applicable) including any schedules attached to the service support agreement or site visit request form.

Payment Schedule: the payment schedule attached to the Order setting out the charges applicable for the provision of the Services by Grundfos to the Customer.

Premium Service: the service package in accordance with Grundfos' terms as set out in the Agreement.

Quotation: a written quotation issued by Grundfos.

Services: the services to be provided by Grundfos under this Agreement as set out in the Order or site visit request form together with any other services which Grundfos provides, or agrees to provide, to the Customer.

Site visit request form: Grundfos' Site Visit and Commissioning Request Form, or the equivalent internet log, which the Customer completes.

Time and Materials Rate: the rates set out in the Order.

Warranty: (Subject to condition 5.5) the warranty provided by Grundfos in respect of the Services as set out in condition 8.4 and Equipment as set out in condition 5.1 of these Conditions (as applicable).

Warranty Period: for product codes UPS2, UPS3, ALPHA1, ALPHA2, ALPHA3 and SCALIA2 the warranty period shall be 5 years from the date of the manufacture and in all other cases the warranty period shall be 24 months from installation or 30 months from the date of manufacture (whichever expires soonest).

- 1.2 Headings in these conditions shall not affect their interpretation.

- 1.3 A person includes a natural person, corporate or unincorporated body (whether or not having separate legal personality).

- 1.4 The schedules and annexes form part of this Agreement.

- 1.5 A reference to writing or written includes fax and email and electronic chat messages.

- 1.6 Any obligation in this Agreement on a person not to do something includes, without limitation, an obligation not to agree, allow, permit or acquiesce in that thing being done.

- 1.7 References to schedules and annexes are to the schedules and annexes of the Order.

- 1.8 A reference to a statute or statutory provision is a reference to it as amended or re-enacted. A reference to a statutory provision includes all subordinate legislation made under that statute or statutory provision.

2. Basis of Agreement

- 2.1 The Order constitutes an offer by the Customer to purchase Equipment and/or Services in accordance with these Conditions.

- 2.2 The Order shall only be deemed to be accepted on the earlier of:

(a) an authorised representative of Grundfos issues written acceptance of the Order; or

(b) Grundfos delivers the Equipment and/or commences providing Services to the Customer in line with the Order, at which point and on which the date this Agreement shall come into existence.

- 2.3 Any samples, drawings, descriptive matter or advertising issued by Grundfos and any descriptions of the Equipment or illustrations or descriptions of the Services contained in Grundfos' catalogues or brochures are issued or published for the sole purpose of giving an approximate idea of the Services and/or Equipment described in them.

No warranty or guarantee is given for their accuracy and they shall not form part of this Agreement or have any contractual force.

- 2.4 These Conditions shall:

(a) apply to and be incorporated into this Agreement;

(b) prevail over any other terms that the Customer seeks to impose or incorporate; and

(c) prevail over any terms or conditions implied by law, trade custom, practice or course of dealing between Grundfos, the Customer or otherwise.

- 2.5 These Conditions are subject to any terms, conditions and/or provisions set out in the Order. In the event of any conflict between the terms of these Conditions and the terms of the Order, the provisions of the Order shall prevail, but any special terms granted in respect of any one Order are not applicable to any subsequent Order without the express consent in writing by Grundfos.

- 2.6 Quotations shall only be valid if issued in writing.

- 2.7 Any Quotations are given on the basis that no Agreement shall come into existence except in accordance with condition 2.2. Any Quotation is valid for a period of 30 days from its date (unless otherwise agreed by Grundfos), provided that Grundfos has not previously withdrawn it.

- 2.8 All of these Conditions shall apply to the supply of both Equipment and Services except where application to one or the other is specified.

- 2.9 Any special terms agreed to by Grundfos for any Order shall not apply to any subsequent Order without the express agreement of an authorised representative of Grundfos.

- 2.10 The Customer is responsible for ensuring the accuracy of the terms of the Order and for providing to Grundfos in good time any necessary information required by Grundfos to enable Grundfos to perform its obligations under the Agreement.

- 2.11 Grundfos' minimum order value is £55.00. Orders between £55.00 and £335 for pumps or £130 for Category 4 items will be subject to a £37 handling fee.

3. Equipment

- 3.1 The Equipment is described in Grundfos' catalogues as modified in any Equipment Specification.

- 3.2 Unless confirmed in writing by Grundfos, Grundfos makes no representation as to the suitability of the Equipment for the Customer's particular purpose. The Customer will be responsible for ensuring that the Equipment is suitable for its particular purpose and Grundfos shall have no liability to the Customer if the Equipment is not suitable for the Customer's particular purpose (so far as legally possible).

- 3.3 Grundfos (and/or its subcontractors, suppliers or agents) reserves the right to:

(a) change the design, construction or composition of the Equipment or the materials or equipment used in the Equipment as it shall think fit; and

(b) amend the Equipment Specification of the Equipment if required by any applicable statutory requirements, and shall, in any case, notify the Customer of any such changes (if such changes are effected after this Agreement has come into existence but before the Equipment and/or Services have been fully performed).

- 3.4 Samples of Equipment are available for inspection at Grundfos' offices. The samples are ex-stock at the time of viewing and are without guarantee as to colour or dimensions at the time of delivery. The viewing of a sample does not create a sale by sample.

4. Delivery of Equipment

- 4.1 Grundfos shall deliver the Equipment to the Delivery Location.

- 4.2 Delivery of the Equipment shall be completed on:

(a) the completion of unloading of the Equipment at the Delivery Location or (in the absence of any specified Delivery Location by the Customer) upon Grundfos informing the Customer that the Equipment is ready; or

(b) (if the Customer or its agents and/or representatives elect to unload the Equipment themselves) upon Grundfos placing the Equipment at the disposal of the Customer, its agents or representatives at the agreed point.

- 4.3 Grundfos' obligation under condition 4.1 is limited to delivering the Equipment only as near to the Delivery Location as a safe hard road permits. The Customer is to provide to Grundfos, free of charge, reasonable assistance with unloading (unless the Customer elects to unload the Equipment itself).

- 4.4 Any dates quoted for delivery of the Equipment are approximate only, and the time of delivery is not of the essence. Grundfos shall not be liable for any delay (or any additional costs arising out of the delay) in delivery of the Equipment that is caused by a Force Majeure Event or the Customer's failure to provide Grundfos with adequate delivery instructions or any other instructions that are relevant to the supply of the Equipment.

- 4.5 The Equipment may be delivered in advance of the quoted delivery date upon giving reasonable notice to the Customer.

- 4.6 If the Customer fails to take delivery of the Equipment or fails to give Grundfos adequate delivery instructions at the time stated for delivery (otherwise than by reason of Grundfos' sole fault) then, without prejudice to any other right or remedy available to Grundfos:

(a) delivery of the Equipment shall be deemed to have been completed at 9.00am on the next Business Day following the day on which Grundfos notified the Customer that the Equipment was ready; and

(b) Grundfos may:

(i) Charge a re-delivery fee if delivery is rearranged by Grundfos and the Customer;

(ii) store the Equipment until actual delivery takes place, and charge the Customer for all related costs and expenses (including insurance) of such storage;

(iii) apply Grundfos' returns policy as set out in condition 6; or

(iv) sell the Equipment at the best price readily obtainable and (after deducting all reasonable storage and selling expenses) charge the Customer for any shortfall below the price payable by the Customer for the Equipment and Services (as applicable) under this Agreement.

- 4.7 If the parties have agreed on express delivery, the dates quoted for such delivery and agreed delivery dates are approximate only as delivery may vary due to factors not within Grundfos' reasonable control, e.g. leisurely or delayed customs clearance or other import or export obstacles. The parties agree that time of delivery is not of the essence and that Grundfos shall not be liable for any delay (or any additional costs arising out of the delay) in delivery caused by such events.

- 4.8 Grundfos may deliver the Equipment by instalments.

- 4.9 If Equipment is not received by the customer within 7 days of notification of dispatch by Grundfos or if it is received in a damaged condition or the quantity received differs from the quantity advised by Grundfos the Customer shall notify Grundfos in writing. If such written notice is not received by Grundfos within 10 days of the date of Grundfos' dispatch notification, Grundfos will not be liable in respect of any loss or damaged suffered.

- 4.10 If a proof of delivery is required a £10 handling fee will apply.

- 4.11 Proof of delivery shall only be retained by Grundfos for 3 months following delivery. After 3 months it shall be assumed by both parties that delivery successfully took place unless there is evidence to the contrary.

- 4.12 A £20 handling fee will apply per order to all orders for spares, pump components, spares kits and ancillary items such as flanges, unions etc.

5. **Quality of Equipment**
- 5.1 For the duration of the Warranty Period, Grundfos warrants that the Equipment shall:
- (a) (subject to conditions 5.3 and 5.4) conform in all material respects with the Equipment Specification; and
- (b) be free from defects in design, material and workmanship.
- 5.2 Subject to condition 5.3, if:
- (a) the Customer gives notice in writing during the Warranty Period within 14 days of discovery that some or all of the Equipment does not comply with the Warranty set out in condition 5.1;
- (b) Grundfos is given a reasonable opportunity to examine such Equipment; and
- (c) the Customer (if reasonably asked to do so by Grundfos) returns such Equipment to Grundfos (at Grundfos' cost), then Grundfos shall, at its option, repair or replace the defective Equipment, or refund the price of the defective Equipment in full. Repairs shall only be carried out between 8am and 5pm on Business Days agreed between Grundfos and Customer.
- 5.3 Grundfos shall not be liable for the Equipment's failure to comply with the Warranty if:
- (a) the Customer makes any further use of such Equipment after giving a notice in accordance with condition 5.2 unless otherwise approved by Grundfos (such approval not to be withheld unreasonably);
- (b) the defect arises because the Customer failed to follow Grundfos' or manufacturer's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Equipment or (if there are none) good trade practice;
- (c) the defect arises as a result of Grundfos following any drawing, design supplied by the Customer or the Equipment Specification;
- (d) the Customer alters, dismantles or repairs such Equipment without the written consent of Grundfos;
- (e) the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal working conditions; or
- (f) the Equipment differs from its description as a result of changes made to ensure they comply with applicable statutory or regulatory standards.
- 5.4 Except as provided in this condition 5, Grundfos shall have no liability to the Customer in respect of the Equipment's failure to comply with the Warranty.
- 5.5 The terms of these Conditions shall apply to any repaired or replacement Equipment supplied by Grundfos under condition 5.2 but for the avoidance of doubt, the Warranty Period for any repaired or replaced Equipment shall be 12 months from the date of the repair.
6. **Return of Equipment**
- 6.1 Equipment may not be returned to Grundfos except by the prior written permission of an authorised representative of Grundfos. Contact grundfos-uk@sales.grundfos.com with the original purchase order number to arrange a return. Any such return shall be liable for any handling and restocking fees charged by Grundfos.
- 6.2 All Equipment requested to be returned to Grundfos will be subject to a minimum 35% restocking fee (subject to inspection). Equipment must be returned in its original packaging.
- 6.3 Equipment can only be returned within 6 months of the date of dispatch by Grundfos. All returns will be subject to inspection to ascertain age, condition and type.
- 6.4 Equipment returned without prior authorisation will be refused delivery by Grundfos.
- 6.5 The following Equipment cannot be returned for credit in any circumstance:
- (a) items with a net value of less than £125 (per item);
- (b) repair kits, power cable, engineered to order, third party sourced and obsolete items.
- 6.6 Any Equipment that has been in contact with hazardous liquids must be cleaned, sealed in appropriate packaging, clearly labelled and accompanied by a COSHH certification by the Customer. Any carrier used must be licensed to carry to transport the relevant hazardous liquids.
7. **Title and Risk**
- 7.1 The risk in the Equipment shall pass to the Customer on completion of delivery in accordance with condition 4.
- 7.2 Title to the Equipment shall not pass to the Customer until Grundfos receives payment in full (in cash or cleared funds) for the Equipment and any other equipment or goods that Grundfos has supplied to the Customer in respect of which payment has become due in which case title to the Equipment shall pass at the time of payment of all such sums.
- 7.3 Until title to the Equipment has passed to the Customer, the Customer shall:
- (a) hold the Equipment (or any receipts received from the Customer where the Customer has sold the Equipment) on a fiduciary basis as Grundfos' bailee;
- (b) store the Equipment separately from all other goods held by the Customer (where possible) so that they remain readily identifiable as Grundfos' property;
- (c) not remove, deface or obscure any identifying mark or packaging on or relating to the Equipment (unless reasonably required for the functioning use of the Equipment by the Customer);
- (d) maintain the Equipment in satisfactory condition and keep it insured against all risks for their full price on Grundfos' behalf from the date of delivery;
- (e) notify Grundfos immediately if the Customer becomes subject to any Event of Default;
- (f) give Grundfos such reasonable information relating to the Equipment as Grundfos may require from time to time;
- (g) give Grundfos at least 30 days' notice of its intention to move or relocate the Equipment to a new location. Grundfos may (at Grundfos' sole discretion) supervise the dismantling and removal of the Equipment, and inspect and reinstall the Equipment at the new location. Any supervision and work undertaken in respect of the relocation shall be charged at the prevailing Time and Material Rates and is payable by the Customer in accordance with condition 11; and
- (h) give Grundfos at least 14 days' notice of its intention to take any steps to appoint an administrator.
- 7.4 The Customer may incorporate the Equipment into or with any other goods provided that any new goods incorporating the Equipment shall become the sole and exclusive property of Grundfos and shall be separately stored and marked so as to be identifiable as being manufactured by or containing Equipment belonging to Grundfos.
- 7.5 Subject to condition 7.7, the Customer may resell the Equipment in the ordinary course of its business (but not otherwise) before Grundfos receives payment for the Equipment. However, if the Customer resells the Equipment before that time:
- (a) It does so as principal and not as Grundfos' agent;
- (b) Title to the Equipment shall pass from Grundfos to the Customer immediately before the time at which resale by the Customer occurs.
- 7.6 If before title to the Equipment passes to the Customer the Customer becomes subject to an Event of Default, then, without limiting any other right or remedy Grundfos may have, Grundfos may at any time:
- (a) the Customer's right to resell the Equipment or use it in the ordinary course of its business ceases immediately;
- (b) reasonably require the Customer to deliver up all Equipment in its possession; and
- (c) if the Customer fails to do so promptly, enter any premises of the Customer where the Equipment is stored in order to recover them; and
- (d) the Customer shall pay Grundfos' reasonable costs (including legal costs) for any recovery of the Equipment pursuant to condition 7.7(c).
8. **Supply of Services**
- 8.1 Grundfos shall provide the Services to the Customer in accordance with the Maintenance Schedule in all material respects and in accordance with the duration and timescales specified in the Order.
- 8.2 Grundfos shall use all reasonable endeavours to meet any performance dates for the Services specified in this Agreement, but any such dates shall be estimates only and time shall not be of the essence for the performance of the Services.
- 8.3 Grundfos shall have the right to make any changes to the Services which are necessary to comply with any applicable law or safety requirement, or which do not materially affect the nature or quality of the Services, and Grundfos shall notify the Customer in any such event. If Grundfos requests a change for any other reason, the Customer shall not unreasonably withhold or delay consent to it.
- 8.4 Grundfos warrants to the Customer that the Services will be provided using reasonable care and skill.
- 8.5 Grundfos shall use reasonable endeavours to observe all health and safety rules and regulations, and any other reasonable security requirements that apply at the Customer's premises and that have been communicated to it provided that it shall not be liable under this Agreement if, as a result of such observation, it is in breach of any of its obligations under this Agreement.
9. **Maintenance Service Times**
- 9.1 Services will be carried out during the working times as specified in the Maintenance Schedule.
- 9.2 Grundfos' standard daily fee rates for each individual person are calculated on the basis of an eight-hour day between 8.00am and 5.00pm on Business Days. Grundfos shall be entitled to charge for any Services undertaken outside of these hours at the Time and Materials Rate in effect at the relevant time.
- 9.3 Grundfos shall use reasonable endeavours to attend the Delivery Location, but if Grundfos is prevented by any reason outside his control or under the control of the Customer, from installing the Equipment or carrying out the Services at the time of the visit, it shall not constitute a material breach of this Agreement. If additional visits are required to the Delivery Location which are not accounted for in the Maintenance Schedule, Grundfos reserves the right to charge the Customer at the Time and Materials Rate for all additional time incurred.
10. **Customer's obligations**
- 10.1 The Customer shall:
- (a) ensure that the terms of the Order and the Equipment Specification are complete and accurate;
- (b) co-operate with Grundfos in all matters relating to this Agreement;
- (c) provide Grundfos, its employees, agents, consultants and subcontractors, with access to the Customer's premises, office accommodation and other facilities as reasonably required by Grundfos to provide the Services and/or deliver the Equipment;
- (d) prepare the Customer's premises (or the location where the Services are to be performed) for the supply of the Services and/or the Equipment;
- (e) provide adequate lighting, heating, power and ventilation as per Grundfos' reasonable requirements;
- (f) inform Grundfos' engineer or representative on each visit about any unsatisfactory running or irregular performance of the Equipment or equipment in respect of which the Services are undertaken.
- (g) ensure the Equipment is installed and kept in suitable premises and under suitable conditions, permit only trained and competent personnel to use it and follow any operating instructions as Grundfos may give from time to time;
- (h) provide a site visit request form to Grundfos in respect of any Services to be carried out by Grundfos, its agents, subcontractors, consultants or employees (as the case may be);
- (i) provide to Grundfos, in a timely manner, such In-put Material and other information as Grundfos may require and ensure that it is accurate in all material respects;
- (j) be responsible (at its own cost) for preparing and maintaining the relevant premises for the supply of the Services and/or Equipment, including identifying, monitoring, removing and disposing of any hazardous materials from its premises in accordance with all applicable laws, before and during the supply of the Services and/or Equipment at those premises;
- (k) inform Grundfos of all health and safety rules and regulations and any other reasonable security requirements that apply at the Customer's premises;
- (l) ensure that all In-Put Materials are in good working order and suitable for the purposes for which it is used in relation to the Services;
- (m) keep all Grundfos' materials, equipment, documents and other property (Grundfos Property) at the Customer's premises in safe custody at its own risk, keep all Grundfos Property in good condition until returned to Grundfos and not dispose of or use the Grundfos Property other than in accordance with Grundfos' written instructions and authorisations; and
- (n) obtain and maintain all necessary licences and consents and comply with all relevant legislation in relation to the Services, the installation of the Equipment and the use of In-put Material in all cases before the date on which the Services are to start.
- 10.2 If Grundfos' performance of any of its obligations in respect of the Services is prevented or delayed by any act or omission by the Customer (including its agents, subcontractors, consultants or employees) or failure by the Customer to perform any relevant obligation (Customer Default):
- (a) Grundfos shall without limiting its other rights or remedies have the right to suspend performance of the Services until the Customer remedies the Customer Default, and to rely on the Customer Default to relieve it from the performance of any of its obligations under this Agreement to the extent the Customer Default prevents or delays Grundfos' performance of any of its obligations;
- (b) Grundfos shall not be liable for any costs or losses sustained or incurred by the Customer arising directly or indirectly from Grundfos' failure or delay to perform any of its obligations as set out in this condition 10.2; and
- (c) the Customer shall reimburse Grundfos on written demand for any costs or losses sustained or incurred by Grundfos arising directly or indirectly from the Customer Default.
- 10.3 The Customer shall be liable to pay to Grundfos, on demand, all reasonable costs, charges or losses sustained or incurred by Grundfos (including, without limitation, any direct, indirect or consequential losses, loss of profit and loss of reputation, loss or damage to property and those arising from injury to or death of any person and loss of opportunity to deploy resources elsewhere) arising directly or indirectly from the Customer's fraud, negligence, failure to perform or delay in the performance of any of its obligations under this Agreement, subject to Grundfos confirming such costs, charges and losses to the Customer in writing.

10.4	The Customer shall not, without the prior written consent of Grundfos, at any time from the date of this Agreement to the expiry of 12 months after the last date of supply of the Services, solicit or entice away from Grundfos or employ (or attempt to employ) any person who is, or has been, engaged as an employee of Grundfos in the provision of the Services.	
11.	The CDM Regulations	
11.1	The Customer and Grundfos agree that the Customer is to be treated for the purposes of the CDM Regulations as the Client for the purposes of the CDM Regulations.	
11.2	The Customer agrees to ensure that the Works are carried out in accordance with the CDM Regulations.	
11.3	The Customer shall ensure that the Health and Safety File is maintained correctly and is available for inspection in accordance with the CDM Regulations.	
11.4	The Customer shall indemnify and keep the Owner indemnified against liability for any breach of the Customer's obligations under or in connection with this condition 11.	
12.	Charges and Payment	
12.1	The price for the Equipment shall be the price set out in the Order or, if no price is quoted, the price set out in the published price list of Grundfos (or Grundfos as the case may be) as at the date of delivery. Unless otherwise stated in the Order, the price of the Equipment is exclusive of all costs and charges of packaging, insurance, transport of the Equipment, which shall be paid by the Customer when it pays for the Equipment.	13.2
12.2	In the case of Product Services Service contracts, Installation Works and Engineered to Order products Grundfos reserves the right to request a deposit payment and/or payment milestones. The amount or means of calculating such payment shall be set out in the Quotation.	13.3
12.3	Grundfos reserves the right to require (at its option) a parent company guarantee or a personal guarantee from the directors of the Customer at any time in relation to all outstanding amounts due to Grundfos from the Customer from time to time.	13.4
12.4	The charges for Services shall be set out in the Payment Schedule.	13.5
12.5	Unless stated otherwise all prices are given on a DAP (delivered at place) basis.	
12.6	Grundfos reserves the right to: (a) increase its standard daily fee rates for the Services. Grundfos will give the Customer reasonable notice in writing of any such increase before the proposed date of the increase. If such increase is not acceptable to the Customer, it shall notify Grundfos in writing within 14 days of the date of Grundfos' notice and either of Grundfos or the Customer shall have the right, without limiting its other rights or remedies, to terminate this Agreement by giving 14 days' written notice (or any other reasonable notice period if performance of the Order is due to commence within 14 days) to Grundfos or Customer (as applicable); and (b) increase the price of the Equipment, by giving notice to the Customer at any time before delivery, to reflect any increase in the cost of the Equipment to Grundfos that is due to: (i) any factor beyond the control of Grundfos (including foreign exchange fluctuations, increases in taxes and customs' charges and duties, and increases in labour, materials, fuel and other manufacturing costs); (ii) any request by the Customer to change the delivery date(s), quantities or types of Equipment ordered, or the Equipment specification; or (iii) any delay caused by any instructions of the Customer in respect of the Equipment or failure of the Customer to give Grundfos adequate or accurate information or instructions in respect of the Equipment.	14.
12.7	In respect of Equipment, Grundfos shall invoice the Customer on or at any time after completion of delivery. If delivery of the Equipment is made in instalments, Grundfos may invoice the Customer in instalments. In respect of Services, Grundfos shall invoice the Customer in accordance with the Payment Schedule.	14.1
12.8	The Customer shall pay each invoice submitted by Grundfos: (a) within 30 days of the date of the invoice or in accordance with any other payment terms agreed by Grundfos in writing; and (b) in full and in cleared funds to a bank account nominated in writing by Grundfos, and time for payment shall be of the essence of this Agreement.	14.2
12.9	All amounts payable by the Customer under this Agreement are exclusive of amounts in respect of value added tax chargeable from time to time (VAT). The Customer shall pay any VAT which is chargeable on the supply of the Services and/or Equipment at the same time as payment is due for the supply of the Services and/or Equipment.	15.
12.10	Grundfos may in its sole discretion elect to provide a credit facility to the Customer but is not obliged to do so. Any credit facility offered will be on written terms agreed by Grundfos and the Customer.	15.1
12.11	Without prejudice to any other right or remedy that it may have, if the Customer fails to pay Grundfos on the due date, Grundfos may: (a) charge interest on such sum from the due date for payment at an annual rate equal to the set rate of interest provided under the Late Payment of Commercial Debt (Interest) Act 1998 as varied from time to time accruing on a daily basis and being compounded quarterly until payment is made, whether before or after any judgment and the Customer shall pay the interest immediately on demand; (b) charge compensation for late payment at a set rate depending on the size of the debt in accordance with the Late Payment of Commercial Debt Regulations 2002 (SI 2002 No 1674). The minimum charge applicable is £40.00, the maximum applicable is £100.00; (c) appropriate any payment by the Customer to any outstanding invoice as Grundfos may think fit not withstanding any purported appropriation by the Customer; and (d) suspend the provision of further Services until payment has been made in full.	15.2
12.12	The Customer shall pay all amounts due under this Agreement in full without any set-off, counterclaim, deduction or withholding except as required by law. Grundfos may, without limiting its other rights or remedies, set off any amount owing to it by the Customer against any amount payable by Grundfos to the Customer.	15.3
12.13	All sums payable to Grundfos under this Agreement shall become due immediately on its termination, despite any other provision. This condition 12.10 is without prejudice to any right to claim for interest under the law, or any such right under this Agreement.	15.4
12.14	Grundfos shall have a lien on all of the Customer's property in Grundfos' possession for all sums due at any time by the Customer to Grundfos subject to Grundfos giving not less than one month's written notice to the Customer. Grundfos shall be entitled to use, sell and dispose of any such property as agent for the Customer at the Customer's expense. The proceeds of such sale shall be applied towards the payment of monies due to Grundfos and Grundfos shall be discharged of any liability in relation to such property as a result of any sale.	16.
13.	Warranty and Limitation of Liability	16.1
13.1	<i>THE CUSTOMER'S ATTENTION IS SPECIFICALLY DRAWN TO THIS CONDITION</i> Nothing in these Conditions shall limit or exclude Grundfos' liability for: (a) death or personal injury caused by its negligence, or the negligence of its employees, agents or subcontractors; (b) fraud or fraudulent misrepresentation; (c) breach of the terms implied by section 2 of the Supply of Goods and Services Act 1982 (title and quiet possession);	16.2
	(d) breach of the terms implied by section 12 of the Sale of Goods Act 1979 (title and quiet possession); or (e) defective products under the Consumer Protection Act 1987.	16.3
	Subject to condition 13.1: (a) Grundfos shall under no circumstances whatsoever be liable to the Customer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit, turnover, data, business opportunity, anticipated savings, any indirect or consequential loss or any damage to goodwill arising under or in connection with this Agreement; (b) Grundfos' total liability to the Customer where the Customer has provided Grundfos with incorrect weights, dimensions, capacity performance or other information shall in no circumstances exceed the price of the Equipment supplied in accordance with such incorrect information; and (c) Grundfos' total liability to the Customer in respect of all other losses arising under or in connection with this Agreement, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall in no circumstances exceed £1million.	17.
	The terms implied by sections 13 to 15 of the Sale of Goods Act 1979 and the terms implied by sections 3 to 5 of the Supply of Goods and Services Act 1982 are, to the fullest extent permitted by law, excluded from this Agreement.	17.1
	This condition 13 shall survive termination of this Agreement.	
	The Customer shall indemnify Grundfos for any costs suffered by Grundfos for claims from any third party which arise by virtue of the Customer having resold the Equipment (unless such claim arises solely from Grundfos' negligence).	
	Confidentiality and Grundfos' property	
	Each party (receiving party) shall keep in strict confidence all technical or commercial know-how, specifications, inventions, processes or initiatives which are of a confidential nature and have been disclosed to the receiving party by the other party (disclosing party), its employees, agents or subcontractors, and any other confidential information concerning the disclosing party's business, its products and services which the receiving party may obtain. The receiving party shall only disclose such confidential information to those of its employees, agents and subcontractors who need to know it for the purpose of discharging the receiving party's obligations under this Agreement, and shall ensure that such employees, agents and subcontractors comply with the obligations set out in this condition as though they were a party to this Agreement. The receiving party may also disclose such of the disclosing party's confidential information as is required to be disclosed by law, any governmental or regulatory authority or by a court of competent jurisdiction. Neither party shall use the other's confidential information for any purpose other than to perform its obligations under this Agreement.	
	Intellectual Property Rights	
	(Subject to condition 15.2) all Intellectual Property Rights in or arising out of or in connection with: (a) the Equipment; (b) the Services; or (c) any manuals or documentation given by Grundfos to the Customer, shall be owned by Grundfos and nothing in this agreement shall transfer or assign any such Intellectual Property Rights to the Customer.	
	The Customer acknowledges that, in respect of any third party Intellectual Property Rights, the Customer's use of any such Intellectual Property Rights is conditional on Grundfos first obtaining a written licence from the relevant licensor on such terms as will entitle Grundfos to license such rights to the Customer.	
	The Customer grants to Grundfos a fully paid up, non-exclusive, royalty free, non-transferable licence to copy and modify any In-put Material for the purpose of providing the Services to the Customer.	
	The Customer shall indemnify Grundfos against all liabilities, costs, expenses, damages and losses (including any direct, indirect or consequential losses, loss of profit, loss of reputation and all interest, penalties and legal costs (on a full indemnity basis) and all other reasonable professional costs and expenses) suffered or incurred by Grundfos for actual or alleged infringement of a third party's Intellectual Property Rights arising out of or in connection with Grundfos' use of the Equipment Specification.	
	Data protection	
	Both parties will comply with all applicable requirements of the Data Protection Legislation. This condition 16 is in addition to, and does not relieve, remove or replace, a party's obligations under the Data Protection Legislation. In this condition 16 Applicable Laws means (for so long as and to the extent that they apply to the Supplier) the law of the European Union, the law of any member state of the European Union and/or Domestic UK Law; and Domestic UK Law means any Data Protection Legislation from time to time in force in the UK including the Data Protection Act 2018 or any successor legislation.	
	Without prejudice to the generality of condition 16.1 each party shall, in relation to any Personal Data processed in connection with the performance by that party of its obligations under the Agreement: (a) ensure that it has in place appropriate technical and organisational measures to protect against unauthorised or unlawful processing of Personal Data and against accidental loss or destruction of, or damage to, Personal Data, appropriate to the harm that might result from the unauthorised or unlawful processing or accidental loss, destruction or damage and the nature of the data to be protected, having regard to the state of technological development and the cost of implementing any measures (those measures may include, where appropriate, pseudonymising and encrypting Personal Data, ensuring confidentiality, integrity, availability and resilience of its systems and services, ensuring that availability of and access to Personal Data can be restored in a timely manner after an incident, and regularly assessing and evaluating the effectiveness of the technical and organisational measures adopted by it); (b) assist the other party, at the other party's cost, in responding to any request from a Data Subject and in ensuring compliance with its obligations under the Data Protection Legislation with respect to security, breach notifications, impact assessments and consultations with supervisory authorities or regulators; (c) notify the Customer without undue delay on becoming aware of a Personal Data breach; (d) at the written direction of the other party, delete or return Personal Data and copies thereof to the other party on termination of the agreement unless required by Applicable Law to store the Personal Data; and (e) maintain complete and accurate records and information to demonstrate its compliance with this condition 16.	
	Neither party consents to the other appointing any third-party processor of Personal Data under the Contract.	
	Termination	
	Without limiting its other rights or remedies, Grundfos or Customer may terminate this Agreement with immediate effect by giving written notice to the other party if: (a) the other party commits a material breach of its obligations under this Agreement and (if such breach is remediable) fails to remedy that breach within 7 days after receipt of written notice to do so;	

- (b) the other party takes any step or action in connection with its entering administration, provisional liquidation or any composition or arrangement with its creditors (other than in relation to a solvent restructuring), being wound up (whether voluntarily or by order of the court, unless for the purpose of a solvent restructuring), having a receiver appointed to any of its assets or ceasing to carry on business [or, if the step or action is taken in another jurisdiction, in connection with any analogous procedure in the relevant jurisdiction];
- (c) the other party suspends, or threatens to suspend, or ceases or threatens to cease to carry on all or a substantial part of its business; or
- (d) the other party's financial position deteriorates to such an extent that in the terminating party's opinion the other party's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy.
- 17.2 Without limiting its other rights or remedies, Grundfos may terminate this Agreement with immediate effect by giving written notice to the Customer if:
- (a) there is a change of control of the Customer (as defined in section 574 of the Capital Allowances Act 2001);
- (b) the Customer is unable or unwilling to procure any guarantee required by Grundfos in accordance with condition 12.3; or
- (c) the Customer's financial position deteriorates to such an extent that in Grundfos' opinion the Customer's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy or Customer fails to pay any amount due under this Agreement on the due date for payment.
- 17.3 Without limiting its other rights or remedies, Grundfos may suspend the supply of Services or all further deliveries of Equipment under this Agreement or any other agreement between the Customer and Grundfos if the Customer becomes subject to an Event of Default, or Grundfos reasonably believes that the Customer is about to become subject to any of them.
- 17.4 On termination of this Agreement for any reason:
- (a) the Customer shall immediately pay to Grundfos all of Grundfos' outstanding unpaid invoices and interest and, in respect of Services supplied but for which no invoice has yet been submitted, Grundfos shall submit an invoice, which shall be payable by the Customer immediately on receipt;
- (b) the Customer shall return all of Grundfos' materials and any deliverables which have not been fully paid for and which have not been installed as part of a bigger system. If the Customer fails to do so, then Grundfos may enter the Customer's premises and take possession of them. Until they have been returned, the Customer shall be solely responsible for their safe keeping and will not use them for any purpose not connected with this Agreement;
- (c) the accrued rights and remedies of the parties as at termination shall not be affected, including the right to claim damages in respect of any breach of this Agreement which existed at or before the date of termination or expiry;
- (d) conditions which expressly or by implication have effect after termination shall continue in full force and effect; and
- (e) Grundfos shall have a lien over all of the Customer's property in Grundfos' possession in respect of all sums due at any time from the Customer to Grundfos. Provided that Grundfos gives at least 14 days' prior written notice, Grundfos shall be entitled to use, sell and dispose of such property as agent for and at the expense of the Customer and apply the proceeds towards the payment of monies due and outstanding from the Customer to Grundfos. Thereafter, Grundfos shall be discharged of any liability in respect of the Customer's property.
- 17.5 On termination of this Agreement (however arising), any of these Conditions that expressly or by implication is intended to have effect after termination (or expiry) shall survive and continue in full force and effect.
18. **Force majeure**
Grundfos shall have no liability to the Customer under this Agreement if it is prevented from, or delayed in performing, its obligations under this Agreement or from carrying on its business by any Force Majeure Event.
19. **Variation**
Except as provided in these Conditions, no variation of this Agreement or these Conditions or of any of the documents referred to in them shall be valid unless it is in writing and signed by or on behalf of each of the authorised representatives of the parties.
20. **Waiver**
20.1 A waiver of any right under this Agreement is only effective if it is in writing and it applies only to the circumstances for which it is given. No failure or delay by a party in exercising any right or remedy under this Agreement or by law shall constitute a waiver of that (or any other) right or remedy, nor preclude or restrict its further exercise. No single or partial exercise of such right or remedy shall preclude or restrict the further exercise of that (or any other) right or remedy.
- 20.2 Unless specifically provided otherwise, rights arising under this Agreement are cumulative and do not exclude rights provided by law.
21. **Severance**
21.1 If any provision of this Agreement (or part of any provision) is found by any court or other authority of competent jurisdiction to be invalid, illegal or unenforceable, that provision or part-provision shall, to the extent required, be deemed not to form part of this Agreement, and the validity and enforceability of the other provisions of this Agreement shall not be affected.
- 21.2 If a provision of this Agreement (or part of any provision) is found illegal, invalid or unenforceable, the provision shall apply with the minimum modification necessary to make it legal, valid and enforceable.
22. **Entire agreement**
22.1 This Agreement constitutes the whole agreement between the parties and supersedes all previous agreements between the parties relating to its subject matter.
- 22.2 Each party acknowledges that, in entering into this Agreement, it has not relied on, and shall have no right or remedy in respect of, any statement, representation, assurance or warranty (whether made negligently or innocently) (other than for breach of contract), as expressly provided in this Agreement.
- 22.3 Nothing in this condition shall limit or exclude any liability for fraud.
23. **Assignment**
23.1 The Customer shall not, without the prior written consent of Grundfos, assign, transfer, charge, mortgage, subcontract or deal in any other manner with all or any of its rights or obligations under this Agreement.
- 23.2 Grundfos may at any time assign, transfer, charge, mortgage, subcontract or deal in any other manner with all or any of its rights under this Agreement and may subcontract or delegate in any manner any or all of its obligations under this Agreement to any third party or agent.
- 23.3 Each party that has rights under this Agreement is acting on its own behalf and not for the benefit of another person.
24. **No partnership or agency**
Nothing in this Agreement is intended to, or shall be deemed to, constitute a partnership or joint venture of any kind between any of the parties, nor constitute any party the agent of another party for any purpose. No party shall have authority to act as agent for, or to bind, the other party in any way.
25. **Rights of third parties**
A person who is not a party to this Agreement shall not have any rights under or in connection with it.
26. **Notices**
26.1 Any notice required to be given under this Agreement shall be in writing and shall be delivered personally, or sent by pre-paid first-class post, recorded delivery or by commercial courier to the registered office or the address stated in the Order (or as otherwise notified to the other party in writing).
- 26.2 Any notice shall be deemed to have been duly received if delivered personally, when left at the correct address or, if sent by pre-paid first-class post or recorded delivery, at 9.00am on the second Business Day after posting, or if delivered by commercial courier, on the date and at the time that the courier's delivery receipt is signed.
- 26.3 This condition 26 shall not apply to the service of any proceedings or other documents in any legal action.
- 26.4 A notice required to be given under this Agreement shall also be validly served if sent by e-mail.
27. **Governing law and jurisdiction**
27.1 This Agreement, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with, the law of England and Wales.
- 27.2 The parties irrevocably agree that the courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim that arises out of, or in connection with, this Agreement or its subject matter or formation (including non-contractual disputes or claims).

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