

# Operating manual Pump Dynamis

BA\_2017\_2\_GB\_DYN





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#### 1. GENERAL

Prior to start up, we recommend to read these operating instructions carefully as we do not assume any liability for damages and operating troubles which result from the nonobservance of these operating instructions! The below described pump is designed for use in centralized lubrication systems or to supply downstream lubrication systems. Any use beyond the applications described in these operating instructions is considered to be not in accordance with the product's intended purposes. The manufacturer is not to be held responsible for any damages resulting from this: the user alone bears the corresponding risk. As to figures and indications in these operating instructions we reserve the right to make technical changes which might become necessary for improvements. The copyright on these operating instructions is kept reserved to the company DELIMON. These operating instructions are intended for the erecting, the operating and supervising personnel. They contain regulations and drawings of technical nature which must not -

completely or partially - be distributed nor used nor communicated to others without authorization for competition purposes.

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## 2. SAFETY

These operating instructions contain fundamental instructions which are to be observed during erection, operation and maintenance. Therefore it is absolutely necessary for the fitter and the competent qualified staff/user to read these operating instructions before installation and start-up. The operating instructions must be available at all times at the place of use of the machine/system. Not only the general safety instructions stated under this main point "safety" are to be observed, but also the other specific safety instructions stated under the other main points.

#### 2.1 Identification of safety warnings in the operating instructions

The safety warnings contained in these operating instructions which, if not observed, may cause dangers to people, are specially marked with general danger symbols



safety sign according to DIN 4844, warning about a danger spot, in case of warning about electric voltage with

safety sign according to DIN 4844, warning about dangerous electric voltage.

In case of safety instructions which, if not observed, may cause damage to the product and its function, the word

### ATTENTION

#### is inserted.

Instructions that are directly attached to the machine, as for example

rotational direction arrow

identifications for fluid connections must be observed at all events and maintained in a fully legible condition.

Note: There is an increased skid risk in case of spilled/leaked out lubricants. They are to be removed at once properly.



Safety sign according to DIN 4844, warning about skid risk.



### 2. SAFETY

2.2 Personnel qualification and training

The operating, maintaining, inspecting and erecting personnel must have the appropriate qualification for such work. Area of responsibility, competence and supervision of the personnel have to be regulated by the user. If the personnel do not have the necessary knowledge, they have to be trained and given instructions. This can be effected, if necessary, by the manufacturer/supplier on behalf of the user of the machine. Furthermore, the user has to make sure that the contents of the operating instructions are fully understood by the personnel.

# 2.3 Dangers in case of nonobservance of the safety instructions

The nonobservance of the safety instructions may result in hazards to persons, to the environment and to the product. The non-observance of the safety instructions may lead to the loss of any claims for damages.

In detail, the nonobservance may for instance lead to the following hazards:

- Failure of important functions of the product/system/machine
- Failure of prescribed methods for maintenance and repair
- Harzard to persons by electrical, mechanical and chemical influences
- Hazard to the environment by the leakage of dangerous substances

#### 2.4 Safety conscious working

The safety instructions stated in these operating instructions, the existing national regulations as to the accident preventation as well as possible internal working, operating and safety rules of the user are to be observed.

# 2.5 Safety instructions for the user/operator

- If hot or cold product or machine parts lead to dangers, these parts have to be protected against touch.
- Protection against touch for moving parts (e. g. coupling) must not be removed when the machine is in operation.
- Leakages (e. g. from the shaft seal) of hazardous goods to be delivered (e. g. explosive, toxic, hot) are to be removed in such a way that there is no danger to persons and environment. Legal rules are to be observed.
- Hazards caused by electrial power are to be excluded (for details please refer

for instance to the rules of the VDE and the local power supply companies).

## 2.6 Safety instructions for maintenance, inspection and installation work

The user has to take care that all the maintenance, inspection and installation work is executed by authorized and qualified skilled personnel who have informed themselves adequately by thoroughly studying the operating instructions. Basically, work on the machine is only to be carried out during shut-down. It is obligatory to observe the shut-down procedure described in the operating instructions.

Pumps or pump aggregates that deliver media being hazardous to health have to be decontaminated. Immediately after completion of the work, all safety and protective equipments have to be reinstalled and/or reactivated.

• Advice: When working with compressed air, do wear glasses.



(DIN 4844 - Use breathing mask)

 Advice: Observe EC-Safety Data Sheet for materials of consumption and additives used and use personal protective equipment.

# 2.7 Unauthorized conversion and manufacture of spare parts

Conversion or modifications to the product are only permitted when agreed with the manufacturer. Original spare parts and accessories authorized by the manufacturer serve to ensure safety. The use of other parts may render the liability for consequencial losses null and void.

#### 2.8 Unacceptable modes of operation

The operational reliability of the product supplied is only guaranteed if the product is used in accordance with its intended purposes as per section 1 - General - of the operating instructions. The limiting values specified in the data sheet must on no account be exceeded.

#### 2.9 Guidelines & standards

1., 2. and 3. guideline (see data sheet: R&N\_2009\_X\_GB)

#### 210 Notes on environmental protection and waste disposal

In correct operation with lubricants, the components are subject to the special requirements set by environmental legislation.

The general requirements for lubricants are specified in the respective safety data sheets.

Used lubricants are hazardous forms of waste and therefore require special supervision in the sense of § 41 paragraph 1 sentence 1 and paragraph 3 no. 1 of KrW-/AbfG (Closed-Loop Waste Management Act).

Used oils must be handled in compliance with AltölV (Waste Oil Ordinance). The devices or components contaminated with lubricant must be disposed of by a certified waste management company. Records of proper waste management must be filed in conformance to NachwV (Ordinance on Waste Recovery and Disposal Records).



#### **GENERAL PRODUCT CHARACTERISTICS**

- Pump for single-line, progressive and spray systems in wind power stations and for industrial applications
- Lubricant: grease, liquid grease up to NLGI class 2
- Discharge pressure max. 160 and 300 bar
- Internal electric control (optional)
- Max. 16 outlets with flanged progressive distributor (optional)
- Filling connection

#### 3. APPLICATION

The DYNAMIS pump was designed and developed to serve as a multi-function automatic lubricant pump. Due to its compact size and modular design, the pump can easily be modified for use in wind turbine power stations, general industry, commercial vehicle and spraying applications.

#### 4. DIMENSIONS AND DESIGN





#### 4. DIMENSIONS AND DESIGN (continued)

The unit consists of a pump housing (Figure 1), a reservoir (Figure 2), a guide rod module with spring loaded piston (Figure 3), gear motor module (Figure 4) and a drive shaft module (Figure 5). A compact electronic control module (Figure 6) is optional. A filling junction (Figure 7) is provided. Adaption of the unit for a variety of applications is accomplished by means of a connection module (Figure 8) consisting of a base plate and one or two pressure relief valves.

A proximity sensor (Figure 9), located on the top side of the housing, provides a signal to the control just prior to the follower piston reaching its low end position; (minimum filling level).

By varying the modules, the pump may be utilized with internal or external progressive distributor(s), single-line injectors with electric reversing, or in spray lubrication applications. Many combinations are possible through mix and match utilization of various functional plates, pump elements and pressure relief valves; making this an extensively flexible modular system.



Fig. 2 (Pump design)



#### 5. SUB-ASSEMBLIES, FUNCTION AND FILLING

The gear motor is attached to the pump housing by means of an adapter plate (Figure 10). It turns the drive shaft in a counterclockwise direction (Figure 11) and in turn, the wobble plate support, which causes the wobble plate (Figure 12) and pivot mounted restoring disc (Figure 13) on the plate support to start wobbling.



Pistons in the various pump elements support themselves against this wobble plate during the pressure stroke. The restoring disc then effects a retracting movement.



Fig. 4 (Pump element with check valve)

Two pump elements are available, each having a different constant delivery. The pump elements utilize non-return valves, which prevent back flow of lubricant. Additional non-return valves are located in the hollow screws which connect the functional plate to the pump elements.

A bevel gear 1 (14) on the drive shaft drives the spreading blade (17) (attached to the bevel gear 2) (15) located beneath the follower piston (16). The guide rod (18) provides an axis for rotation of the bevel gear 2. The rotation of the spreading blade helps move lubricant to the pump chamber.



Fig. 5 (Guiding rod complete with follower piston and stroke plate)



Pressure relief valves are available for the different modules enabling them to function in a variety of pressure ranges. Pressure relief valves of 70, 160 and 300 bar are nearly identical in construction and must be set to the correct pressure before installation. An externally adjustable pressure relief valve completes the range of options, but increases the degree of installation space required. If desired, this valve can be fitted with a sensor for pressure monitoring (see fig. 11).



The two transparent plastic containers serve to accommodate approx. 2.0 I (1.6 I useable volume) or 4.0 I (3.3 I useable volume) of lubricant. For containers with a follower piston, an overflow valve installed on the side of the tank is connected to the tank interior by means of a hole drilled in the vicinity of the tank top. This hole is provided as an overfill protection device and vent.



Fig. 7 (Lubricant reservoir)

The tank is bolted to the pump housing and cover by means of tie rods and sealed with O-rings.

The follower piston moves along a guide rod as a result of the pre-stressing force from a conical compression spring (see figure 2 and figure 5). It is sealed against the wall of the container using a grooved ring and with respect to the guide rod by means of a special lipped ring.

Another drilled hole is incorporated in the cover, which establishes an atmospheric connection to the top of the follower piston and acts as a vent. Furthermore, the compression spring is supported at the container end by means of the aforementioned guide rod.

On account of the special design principle described, the pump can be used in any position and also rotated about any desired axis.



The basic Dynamis pump is equipped with a standard filling connection consisting of a reducing nipple (item 19), plug G ¼ (item 20) and dust cap (item 21). As such, filling is made easy by using an external pump and quick-disconnect coupling. The filling procedure must be monitored closely because the DYNAMIS pump's filling system does not activate automatic disconnection.



Fig. 8 (Refilling connection)

The lubricant tanks can be filled with 2.0 litres (1.6 litres useable volume) or 4.0 litres (3.3 litres useable volume) of lubricant.

The lubricant tank is composed of a UV-resistant plastic tube and a tank cover that is attached by means of three tie rods. In the version with a follower piston, the lubricant is pushed towards the pump elements

by means of a spring-loaded piston.

The pump version with a follower piston permits operation in any position and also rotated about any desired axis.



#### Filling

- 1. The pumps should always be in the normal position for the first filling. The normal position means here that when the pump is being attached to the mounting foot on the pump housing the lubricant container must be placed in an upright position.
- 2. When the lubricant is introduced through the filling connection, it will first fill up the capacity of the pump chamber, thereby pressing the existing volume of air under the follower piston. In the course of further filling this quantity of air will be trapped between the piston and the further flowing lubricant.
- 3. To remove the cushion of air, the lubricant must be topped up until the sealing lip of the follower piston groove ring frees the lower pressure-relief borehole in the grease container wall in the overflow channel.
- 4. If air escapes, lubricant must be filled in until the complete cavity under the piston is filled. The discharge of lubricant from the pressure-relief borehole, mentioned above, can be used as a visible indication of when the cavity has been filled completely with lubricant. To minimise the quantity of overflowing lubricant, be careful about how much lubricant you fill in towards the end of the filling procedure.
- 5. This procedure will not need to be considered any more in subsequent refilling processes because as long as the level sensor is functioning, the pump will be turned off when it reaches the minimum filling level. This prevents another air cushion being sucked onto the underside of the piston. Whenever you are refilling the grease container, top up just as much lubricant as is needed to avoid to overfill the maximum level (see check mark at the reservoir). Otherwise a very small quantity of lubricant will escape in each filling process and this escaping lubricant will be conducted along the channel and contaminate the exterior of the pump accordingly.
- 6. For pumps which operate exclusively in the overhead position, the pump should not be set up at its place of use until it has been filled as described in the above.
- 7. In pumps which operate in an overhead position the functional efficiency of the minimum level sensor is particularly important because air sucked onto the underside of the piston will settle in the pumping chamber in the pump housing. When installed, it is no longer possible to remove this quantity of air through the housing and once a certain quantity of air accumulates, the functional efficiency of the pump elements and in the end the entire pump will be impaired or rendered completely impossible.
- 8. In general, care should be taken not to let any air enter the pump through the filling fittings during the refilling process. In pumps that work in the overhead position this would have the fatal consequences described in point 7. For pumps that operate in the normal position the first filling procedure must be conducted again.

#### ATTENTION

When filling using a filling pump, care must be taken to ensure that the delivery quantity of the pump does not exceed 0.5 l/min.



5.1 Standard filling port - plug-in coupling



#### Filling using a conical lubricating nipple DIN 71412 5.2





Only use clean lubricant to fill the tank! Contamination results in failure of the pump.

Conical lubricating nipple A R1/4 keg, 6kt 14, DIN 71412 Item no. 73683-1713



#### 5.3 Filling using a flat-type lubricating nipple DIN 3404





Only use clean lubricant to fill the tank! Contamination results in failure of the pump.

Flat-type lubricating nipple A M16x1,5, Head 22, DIN 3404 Item no. 73683-1214

## 5.4 Filling from above using an oil feed filter Only for version without follower piston!





Only use clean lubricant to fill the tank! Contamination results in failure of the pump.

Oil feed filter KE1 Item no. 3911-1413



#### 5.5 Filling for the first time - DYNAMIS with follower piston - vent







Follower piston with seal

Only use clean lubricant to fill the tank! Contamination results in failure of the pump. Lubricant must only be pumped free of bubbles Air pockets in the lubricant impair the function of the pumping elements.

In the case of the Dynamis with follower piston, the lubricant is supplied via the ports shown in figures 5.1 / 5.2/5.3.

When the tank is filled for the first time, the lubricant moves the follower piston upwards until the overflow valve is released.

As the tank continues to be filled, the air cushion which has formed beneath the follower piston escapes. Once the air has been discharged by means of the overflow valve, the filling operation must be ended immediately, as otherwise lubricant will leak to the outside or will be conveyed to the space above the follower piston.

Overflow valve

Overfill hole



5.7 Filling – DYNAMIS accessories – grease guns – filling pumps





Filling pumps in various versions:22531P00822531-031122531-051722531P00122531-032722531-051122531P00622531-058322531P02222531P02122531-0563

Cordless grease gun for pull-off system – Item no. 22911P013



Cordless grease gun for lube shuttle system Item no. 22911P012



Manual grease gun for pull-off system Item no. 22911P015

Manual grease gun for lube shuttle system Item no. 22911P014



#### 6. SYSTEM VERSIONS AND EXAMPLES

#### 6.1 Pump version with free outlet

The free outlet model is the simplest of very many possible variations. In this standard version, delivery volumes from two pump elements are connected to feed a common outlet. Protection is provided by an appropriately set pressure relief valve.





Fig. 9 (pump version with free outlet)

However, it is also possible to arrange for the individual discharge volumes to be delivered separately and to use separate pressure relief valves for setting maximum pressures.

The free outlet pump version quite suitable for use with externally mounted progressive distributors or in a variety of spraying applications.

#### 6.2 Pump version for progressive systems (integrated progressive distributor)

When configured with integrated progressive distributor, pump element volumetric output is combined in the functional plate and protected by means of a common pressure relief valve. All available versions of PVB progressive distributors may be utilized in a variety of applications.





Fig. 10 (pump version with progressive distributor integrated in the connection module)

Progressive distributor function is monitored through use of a proximity sensor. Signals generated are also processed by the controller. When necessary, it is possible to use angular connection screw joints with a non-return valve.



#### 6. SYSTEM VERSIONS AND EXAMPLES (continued)

#### 6.3 Pump version for progressive systems (externally located progressive distributors)

Depending on the application, one or two pressure relief valve(s) with adjustable pressure levels of 160 or 300 bar can be used. These valves must be adjusted before they are mounted. If the pressure relief valve is actuated, the lubricant is brought back through the pressure relief valve (23) into the functional plate and directly into the pump chamber. It is also possible to use external pressure relief valves, whereby the lubricant can be fed back into the pump through a free port on the functional plate.



Fig. 11 (pump version with externally connectable progressive distributors)

When the pressure relief valve is actuated, lubricant is brought back directly into the pump chamber through the pressure relief valve and functional plate. It is also possible to use external pressure relief valves for this purpose. They can be connected to a free port on the functional plate to divert lubricant back into the pump.

#### 6.4 Pump design for single line systems

In one possible pump version, a connection plate (24), having a 3/2 way solenoid valve (25), is attached to the functional plate. Two connections serve to hold a pressure switch (26) having 2 independent and adjustable switching points, and a threaded outlet union (27) for connecting the main line. Both connections can be used alternatively.

A pressure relief valve (28) is set to the maximum working pressure and serves to protect the pump or prevent overloading the downstream single-line distributor. An additional pressure relief valve (29), maintains residual line pressure following main line pressure drop, thus preventing the main line from draining.





Fig 12 (Version for single-line system with electric reversing gear)



#### 6. SYSTEM VERSIONS AND EXAMPLES (continued)

#### 6.5 Example of an application use with the SDU spray nozzle

The free outlet system version with external progressive distributor (progressive system) can also be used in combination with the newly developed SDU spray nozzle. The compact construction of the DYNAMIS lubricant pump facilitates easy and economical spraying onto small drive pinions and the tooth flanks of the lubricating pinion.



#### 7. FUNCTION

The lubricant conveyed from the pump through 1 or 2 pump elements is fed to the point(s) of lubricant use through the functional plate (Fig. 2, item 8).

A pressure relief valve can be used at every pump element in order to protect the pump. If a fault arises (e.g. due to dirt in the lubricant) in the downstream lubricant distribution system (distributors, pipelines, screw joints etc.), the pressure relief valve is actuated once the set maximum pressure (160/300 bar) is reached and the lubricant is then fed back into the pump. As the pump continues to run in that case without the relevant lubricating points being supplied with lubricant, the owner/managing operator of the system is obliged to conduct regular checks to ensure that all lubrication points are supplied properly.

When integrated or separate progressive distributors are mounted with function monitoring by means of a proximity sensor, the pump (in the version with a control) can be controlled with this signal.

The lubricant tank's proximity sensor (Fig. 2, item 9) evaluates the pump's "Contents monitoring - Empty" by means of the pump control or as a signal output (in the version without a control).



#### 8. MAINTENANCE AND TROUBLESHOOTING

#### 8.1 Maintenance

The ball bearings used in the drive shaft (Fig. 2, item 5) assembly do not require any separate lubrication because the pump lubricant flows around them.

The gear and the ball bearings in the gear motor (Fig. 1, item 4) assembly are lubricated for life.

The pump assemblies are sealed by means of O rings and copper washers (mostly in the high-pressure range). If lubricant does escape at these points, these sealings must be replaced by new ones.

#### 8.2 Troubleshooting

If the pump was put out of operation by the control (in the event of fault, please refer to the Control Operating Instructions) or if the pressure relief valves return the lubricant, the owner/managing operator must first determine and eliminate the cause of the overloading (e.g. an obstruction or a blockage in the distributor) in the lubrication system.

The control can then be reset (in accordance with the instructions); the pressure relief valves close automatically at normal working pressure.

#### 9. TECHNICAL DATA

#### **General details**

ocher ar accano	
Pressure relief of the pump elemer	s : 160 or 300 bar
Tank size :	
Number of pump elements :	
Lubication outlet :	G 1/4
Output volume (per pump element)	1.1 or - 2.5 cm <sup>3</sup> /min
Temperature range :	- 20° to + 40°C
Lubricants :	to NLGI grade 2 (liquid) grease
Degree of protection :	IP 55
Material :	Steel for pressure loaded parts, aluminium die casting for housing, plastics for reservoir

#### **Electrical Control**

Supply voltage :	option of 12 / 24V DC or 115 / 230V AC, 50 - 60Hz
Rated power :	
Signal connection voltage :	max. 60V / 2A
Operating section:	

- optional  $\mu$ -controller based on pCo
- display with plain text display
- filling level switch empty (standard)
- monitoring of distributors, overpressure, air pressure, oil pressure

The DYNAMIS pump is designed only for intermittent duty - S3 – with a 30% duty cycle! In the pump versions without a control, the rotational direction is assured by a diode fitted into the pump, i.e. the motor will not start if the polarity of the connections is incorrect.



Please observe the separate operating instructions for the pCo electrical switching device (BA\_20XX\_X\_GB\_pCo\_DYN) as well the system-dependent Quickstart instructions (Quickstart-Dynamis-Einleiter\_20XX\_X\_GB, Quickstart-Dynamis-Mehrleiter\_20XX\_X\_GB, Quickstart-Dynamis-Progressiv\_20XX\_X\_GB).



#### 10. CODING / EXAMPLES OF ORDER

						Co	de		 		
	DYN	ML	В	1	1	1	А	Н	2	04	00
Pumptyne		1	1		┍╴└	↑	1	` <b>`</b>	↑	1	
Pump DYNAMIS	DYN										
Lubrication system											
Multi-line / version with free outlet (outlets)		ML									
Version for single-line systems Version for progressive systems		*									
Version for spraying lubrication systems		*									
Version for air-oil systems * results from system selection		*									
Perdeter.											
Status			В								
Version of nump cloment 1			0								
11 cm <sup>3</sup> /min				1	·						
2.5 cm <sup>3</sup> /min (only used up to 160 bar)				2							
Version of summer along and 2											
11 cm <sup>3</sup> /min						1					
2.5 cm <sup>3</sup> /min (only used up to 160 bar)						2					
Version of pressure relief valve / outlet connection											
Pump element connected - 160 bar							А				
Pump element connected - 300 bar							D				
Pump element separated - 160 ban							6				
Pump element separated - 500 bar							J				
Reservoir size											
2.0 liter without follower plate, without level monitoring (only for oil) 2.0 liter with follower plate (only for grease and fluid grease)								A C			
2.0 liter with follower plate, with level monitoring EMPTY (only for grease and f	luid greas	e)						D			
4.0 liter without follower plate, without level monitoring (only for oil) (4.0 liter with follower plate (only for grease and fluid grease)								E			
4.0 liter with follower plate (only for grease and full grease) 4.0 liter with follower plate, with level monitoring EMPTY (only for grease and f	luid greas	e)						Н			
Operating voltage											
12 V DC									1		
24 V DC									2		
230 V AC, 7 15% / 50 - 60 Hz									р f		
Controller / Interface											
internal controller, 1 x plug M 12x1, 5-pole										01	
internal controller, 1 x plug M 12x1, 5-pole + 1 x plug M 12x1, 8-pole										02	
internal controller, 1 x plug M 12x1, 5-pole + cable duct M 20x1.5 internal controller, 1 x plug M 12x1, 5-pole + 1 x plug M12x1, 8-pole + cable duc	t M 20x1.	5								03 04	
internal controller, 1 x plug DIN 43650, 3-pole										05	
internal controller, 1 x plug, DIN 43650, 3-pole + 1 x plug M 12x1, 8-pole internal controller, 1 x plug, DIN 63650, 3-pole + cable duct M 20v1 5										06	
internal controller, 1 x plug_DIN 43650, 3-pole + Calle ddct in 2011.5 internal controller, 1 x plug_DIN 43650, 3-pole + 1 x plug M 12x1, 8-pole + cabl	e duct M 2	20x1.5								08	
Advice: Plug connector M 12x1, S-pole - for 24 V DC pump type only to supply the pump											
Plug connector DIN 43650, 3-pole - for each pump type to supply the pump Plug connector M 12x1, 8-pole - for status signals exchange with the customer											
Cable gland M 20x1.5 with 3-fold seal insert for vonnection of sensors/pressure swit	tches within	the pum	p								
without controller, 1 x plug M 12x1, 5-pole without controller, 1 x plug M 12x1, 5-pole + 1 x plug M 12x1, (i-pole										11	
without controller, 1 x plug IN 43650, 3-pole										15	
without controller, 1 x plug DIN 43650, 3-pole + 1 x plug M 12x1, 4-pole										16	
Advice: Plug connector M 12x1, 5-pole - for 24 V UC pump type only to connect the gear mote Plug connector DIN 43650, 3-pole - for each nump type to connect the gear motor	or										
Plug M 12x1, 4-pole - for level monitoring EMPTY											
Accessories											
without											00
1x cable connector M12x1, 5-pole											03
1x cable connector M12x1, 5-pole + 1x cable connector M12x1, 6-pole											04
1x cable connector DIN43650, 3-pole											06
1x cable connector DIN43650, 3-pole + 1x cable connector M12x1, 8-pole											07
1x cable connector DIN43650, 3-pole + 1x cable connector M12x1, 4-pole											08



## RECOMMENDED ACCESSORIES (must be ordered separately)

1.	Connection to voltage supply Suitable cable: Control line PVC NYSLYÖ-J 3 x 1 mm <sup>2</sup> (Note voltage drop)	769212643
2.	Connection of signals Suitable cable: UNITRONIC® PUR CP 7 x 0.25 mm <sup>2</sup>	769217027
	If the pump is ordered without internal control, the attached electrical devices (valves, pressure switch, monitoring switches) must be wired by the user.	
3.	Connection for valves a. Line socket DIN EN 175 301-803-A (DIN 43650) with protection circuit and status LED (24V DC) b. Suitable cable: Control line PVC NYSLYÖ-J 3 x 1 mm <sup>2</sup>	769289233 769212643
4. E	Connection of pressure switch for a single-line system a. Line socket 4-pole, angular, M 12x1 with 2 m cable	76928E042
э. 6.	a. Selection as per data sheet 66925P1 Counterpart of the filling connection	734142583

#### 11. ELECTRICAL CONNECTIONS

#### Electrical connection plan

Power supply

Male connector DIN EN 175 301-803-A (DIN 43650) 4-pole (max. 1.5 mm<sup>2</sup>)



Male connector M12x1 5-pole A coding (max. 0,75 mm<sup>2</sup>)



Signal interface level monitoring, pump without controller Male connector DIN EN 175 301-803-A (DIN 43650) 3-pole











#### 11. ELECTRICAL CONNECTIONS (continued)

Signal interface, pump with controller



Male connector M12x1 8-pole A coding (max. 0,5 mm<sup>2</sup>)



#### 12. PLATES (Examples)



#### Type plate

Artikelnummer / O DYN	Code no.						
Typ / Type Pumpe Dynamis	Betriebsdruck max. / Operating pressure 300 bar						
Seriennummer / S 0000012345	Fördervolumen / Feed volume 2,50 ccm/min						
Baujahr / Year of 20080901	Hersteller / Manufacturer DELIMON GmbH						
Spannung / Volta 24V DC	ge	1991 1997					
www.bijurdelim	on.com		Tel: +49	211 7774 0			
Artikelry:	Serienn	<i>t</i> :	Fert.:	Datum:			
DYN	0000	0012345	123456	20080901			