ITT

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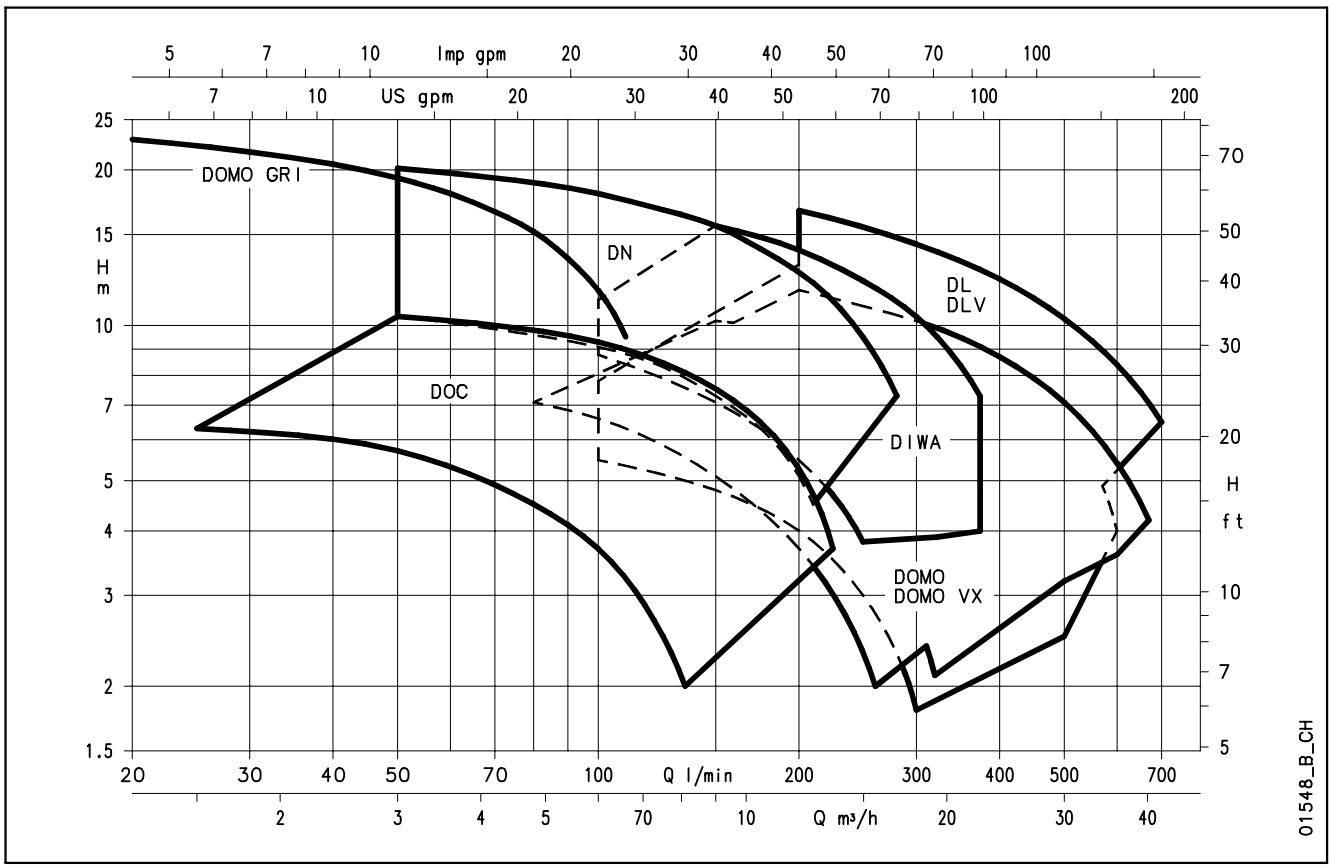
DOC - DIWA - DOMO
DOMO GRI - DN - DL
Series

Drainage and Sewage
Electric Pumps

50 Hz

Engineered for life

DOC - DIWA - DOMO - DOMO GRI - DN - DL SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz



WEB 06-2009

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ITT

Lowara

Submersible Electric Pumps for clean and dirty water

DOC pumps are versatile, corrosion-resistant and compact. Three basic versions are available with 0,25 to 0,55 kW power.
A DOC 7VX version with Vortex impeller is available.

DOC Series

APPLICATIONS

- Emptying of residential sump pits, rainwater tanks or laundry drainage.
- Garden and lawn irrigation, with suction from rainwater tanks.
- Emergency draining of flooded basements and garages.
- Transfer of water from tanks, cistems and swimming pools.

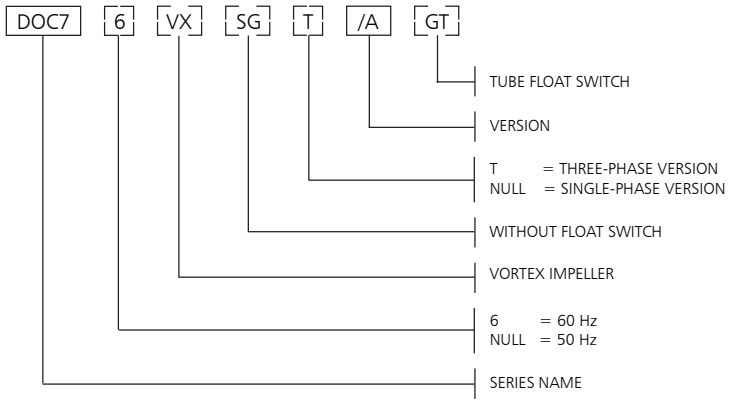
SPECIFICATIONS

- **Maximum liquid temperature: 40°C** with partially submerged pump.
- **Dry motor.**.
- Maximum immersion depth: 5 m.
- **Class B insulation**.
- The **DOC 3** pump has a delivery of **135 l/min**, head up to **7 m**, and passes **suspended solids up to 10 mm** in diameter. Only available in single-phase version.
- The **DOC 7** pump has a delivery of **225 l/min**, head up to **11 m**, and passes **suspended solids up to 10 mm** in diameter.
- The **DOC 7VX** pump has a delivery of **175 l/min**, head up to **7 m**, and can handle liquids with **suspended solids up to 20 mm** in diameter.
- A "**shallow-suction device**", that can be mounted on both the DOC3 and DOC7 models, is available on request. It ensures complete drainage of flooded floors (to 3 mm from floor).
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz
    2 poles.
  - Three-phase: 220-240 V, 50 Hz
    380-415 V, 50 Hz
    2 poles.
- 60 Hz and without floats (SG) models are available on request or tube float switch.
- **The single-phase versions** features:
  Pre-assembled float for automatic pump operation (version without float available on request).
  Built-in capacitor.
  Thermal overload protection to stop pump supply in case of overheating.

LAB-LIP SEAL SYSTEM

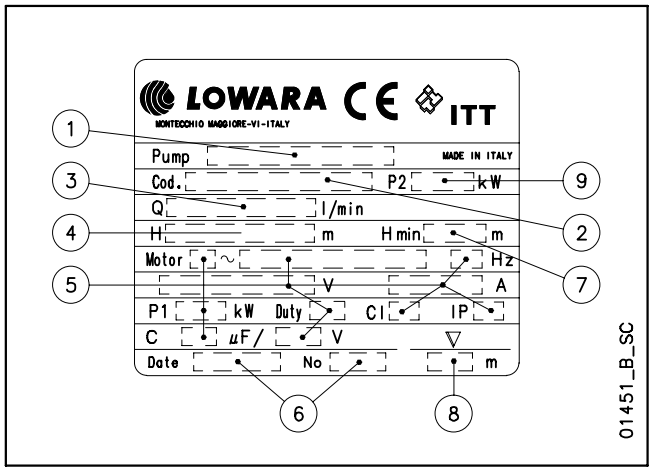
- The electric motor is protected by **three lip seals**.
  An **impeller counterblade** system keeps solid particles away from the seal unit to prevent damage to the lip seals and ensure their long-lasting efficiency.
  A double **Labyrinth** and a **V-ring** on the shaft have also been provided.

DOC SERIES
IDENTIFICATION CODE

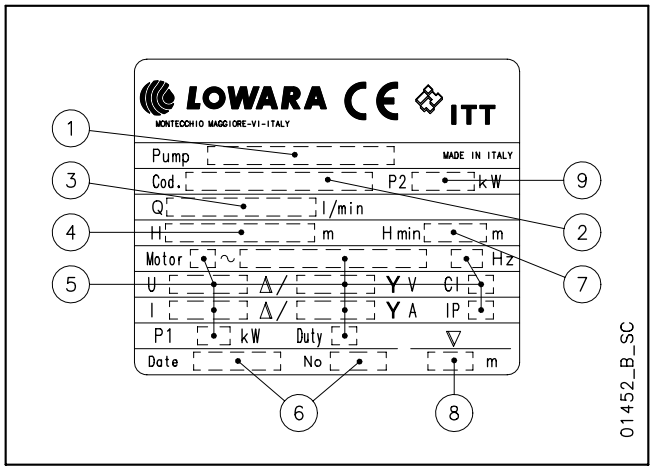


EXAMPLE : DOC 7VX/A
DOC 7 Series Electric pump, 50 Hz version,
Vortex impeller, single-phase, /A version.

SINGLE-PHASE RATING PLATE



THREE-PHASE RATING PLATE



LEGEND

1 - Electric pump type

2 - Code

3 - Delivery range

4 - Head range

5 - Motor type

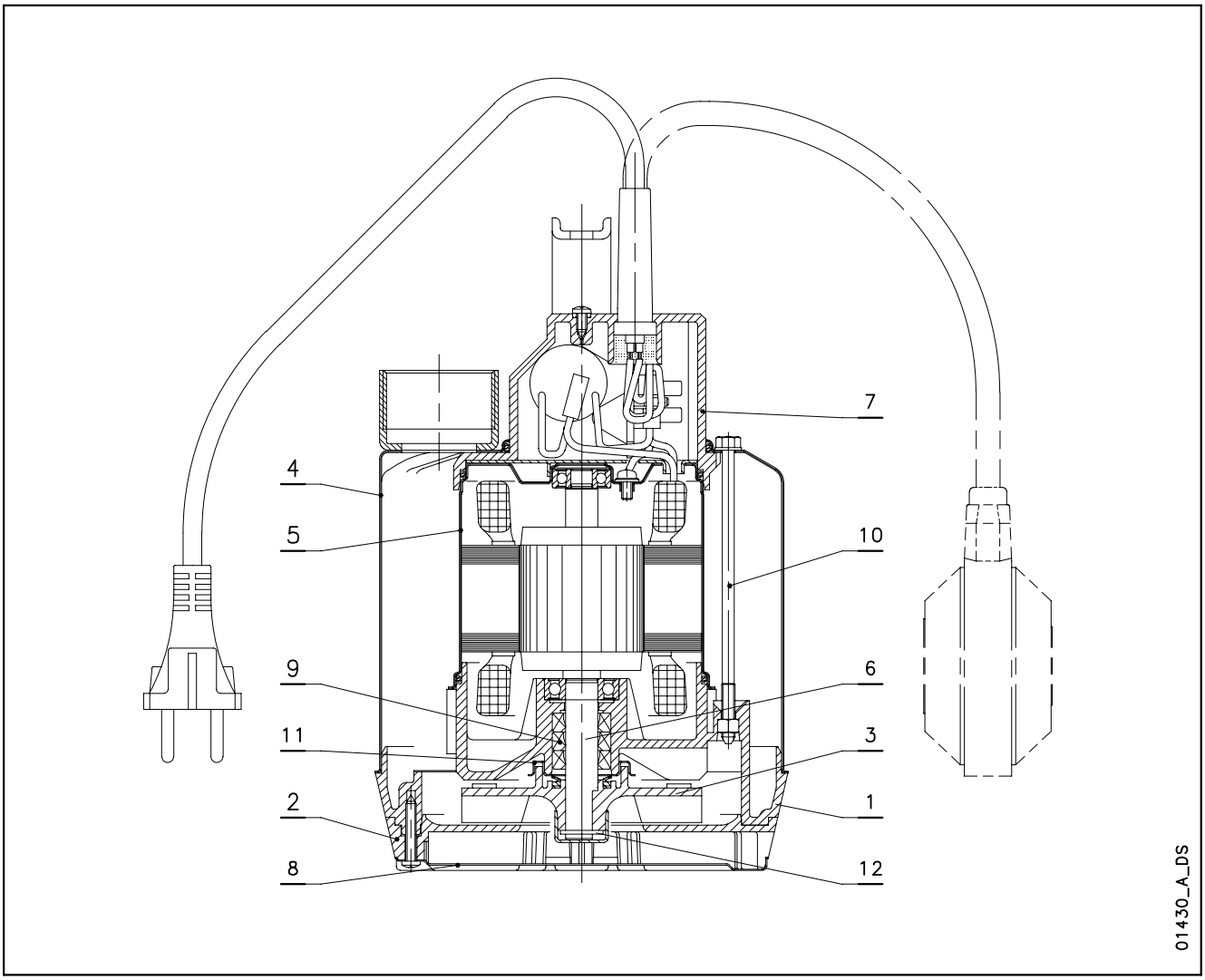
6 - Date of manufacture and serial number

7 - Minimum head

8 - Maximum immersion depth

9 - Rated output

DOC SERIES
LIST OF MODELS AND TABLE OF MATERIALS

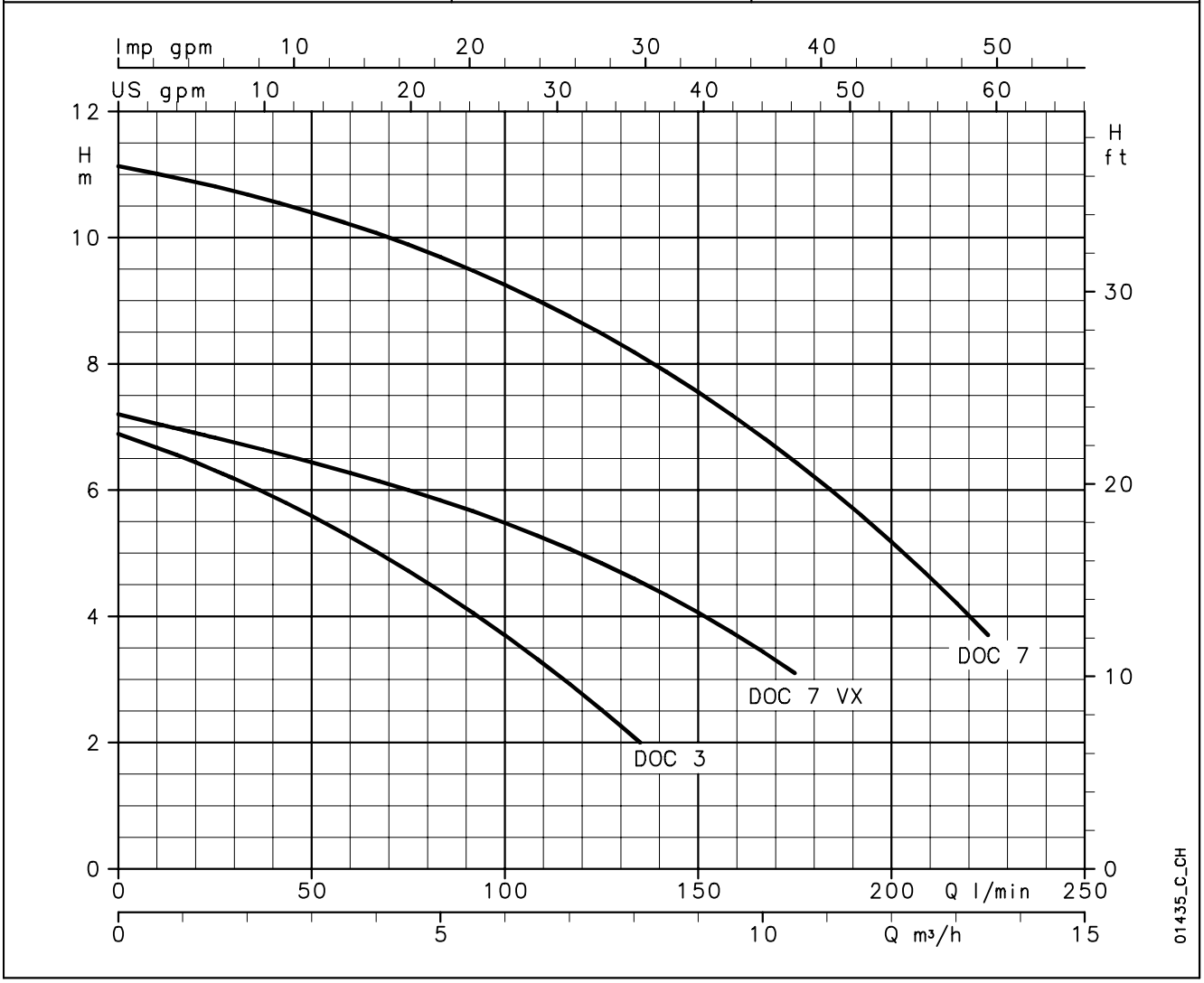


REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	NORYL GFN 2V		
2	Suction strainer	NORYL GFN 2V		
3	Impeller	Technopolymer		
4	External case	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Internal motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Shaft	Stainless steel	EN 10088-1-X12CrS13 (1.4005)	AISI 416
7	Head	NORYL GFN 2V		
8	Lower cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
9	Elastomers	NBR		
10	Tie-rod and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
11	Double wear ring	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
12	Impeller fixing ring	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

doc-en_a_tm

DOC SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DOC	~ 2850 rpm	ISO 9906-Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY								
			l/min	0	25	50	75	100	125	135	175	225
			m³/h	0	1,5	3	4,5	6	7,5	8,1	10,5	13,5
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER									
DOC3	0,25	0,33	6,9	6,3	5,6	4,7	3,7	2,5	2,0		
DOC7(T)	0,55	0,75	11,1	10,8	10,4	9,9	9,3	8,5	8,1	6,5	3,7
DOC7VX(T)	0,55	0,75	7,2	6,8	6,4	6,0	5,5	4,8	4,5	3,1	

These performances are valid for liquids with density ρ = 1,0 kg/dm³ and kinematic viscosity ν = 1 mm²/s.

doc-2p50-en_b_th

ELECTRICAL DATA TABLE

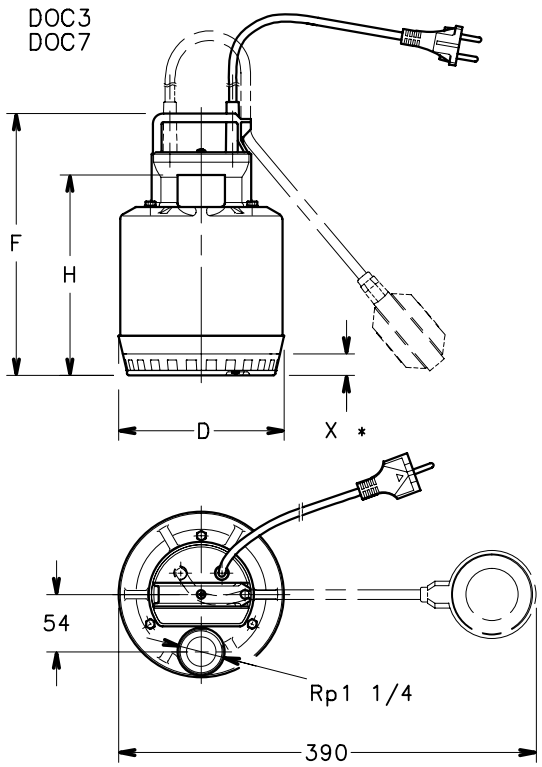
PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DOC 3	0,31	1,43	6,3
DOC 7	0,78	3,47	16
DOC 7VX	0,66	2,96	16

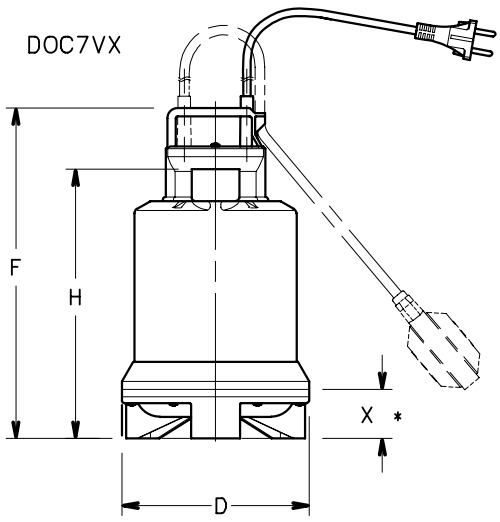
PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
-	-	-	-
DOC 7T	0,79	2,82	1,63
DOC 7VXT	0,66	2,68	1,55

*Maximum values within operating range

doc-2p50-en_a_te

DOC SERIES
DIMENSIONS AND WEIGHTS





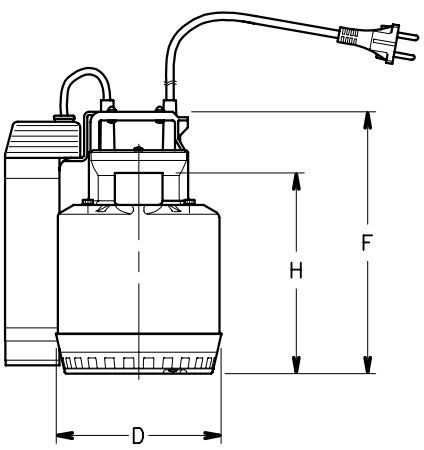
01433_D_DD

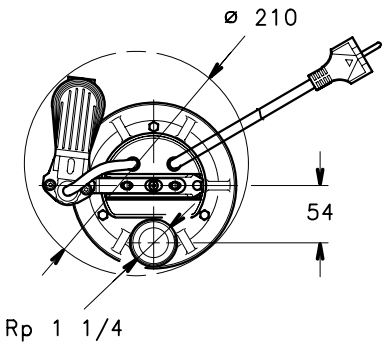
PUMP TYPE		DIMENSIONS (mm)				WEIGHT
		F	H	D	X*	kg
DOC3	DOC3 GT	245	188	155	20	4
DOC7(T)	DOC7(T) GT	285	228	155	20	6
DOC7VX(T)	-	310	252	175	45	6

* Minimum liquid level.

doc-2p50-en_b_td

DOC3 GT
DOC7 GT

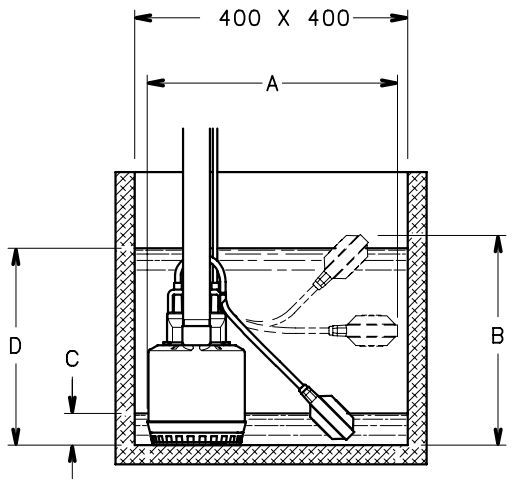




01434_A_DD

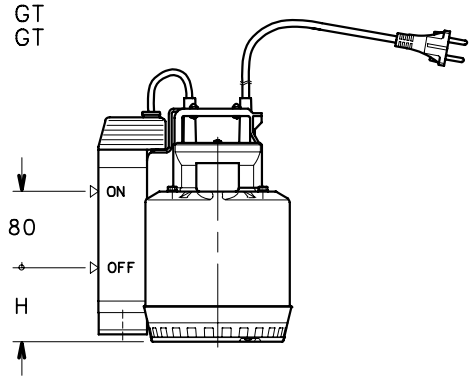
DOC SERIES
INSTALLATION EXAMPLES

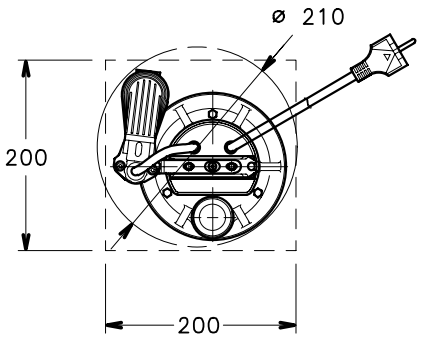
DOC3
DOC7
DOC7VX



01444_B_DD

DOC3 GT
DOC7 GT





01445_B_DD

PUMP TYPE		DIMENSIONS (mm)		MINIMUM WATER LEVEL	MAXIMUM WATER LEVEL	MINIMUM WATER LEVEL
		A	B	C	D	H
DOC3	DOC3 GT	390	330	50	310	90
DOC7	DOC7 GT	390	370	90	350	90
DOC7VX	-	390	395	115	375	-

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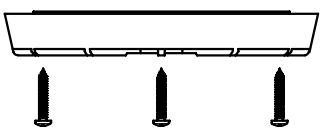
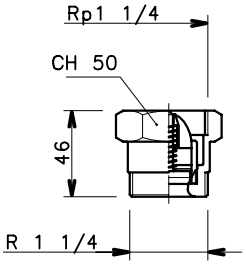
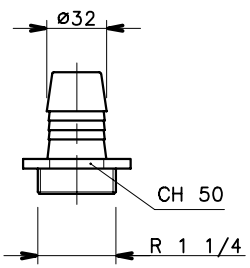
ACCESSORIES



Lower suction device (3 mm)



VRD check valve



RPG pipe fitting

01448_A_DD

ITT

Lowara

Submersible Electric Pumps for clean and slight dirty water

Submersible pumps for clean and slight dirty water manufactured in AISI 304 stainless steel.
Head up to 20 metres, delivery up to 420 l/min (25,2 m^3/h).
Four basic models with 0,55 to 1,5 kW.
DRIVELUB SEAL SYSTEM.
Diffuser plate coated with polyurethane for maximum resistance to abrasion.

DIWA Series

APPLICATIONS

- Draining of cellars, garages, basements.
- Draining of construction sites.
- Emptying of tanks and reservoirs.
- Lawn and garden irrigation.
- Fountains.
- Pumping of domestic wastewater washing machines, showers, sinks.
- Emptying of tanks in industrial and ecological applications.

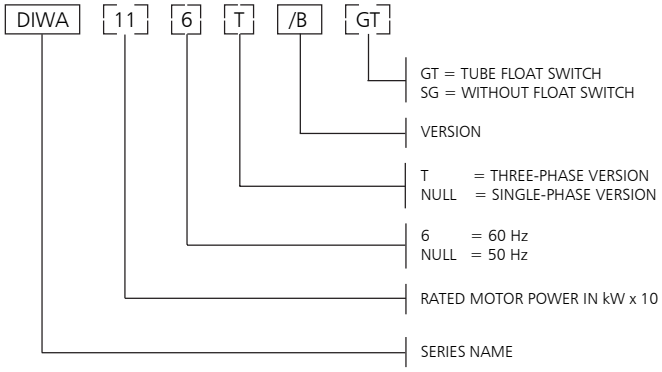
SPECIFICATIONS

- Liquid **temperature** up to **50°C**.
- **Open impeller**.
- Minimum level of pumped liquid: **25 mm**.
- **Suspended solids handled up to 8 mm in diameter**.
- **Maximum** immersion **depth**: **7 m**.
- **10 metres of H07RN-F** type neoprene power **cord**.
- **Dry motor** (class F insulation) cooled by pumped liquid.
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz 2 poles with built-in thermal protector.
  - Three-phase: 220-240 V, 50 Hz 380-415 V, 50 Hz 2 poles.
- **Motor power**:
  - **0,55 to 1,1 kW** for single-phase version.
  - **0,55 to 1,5 kW** for three-phase version.
- The single-phase versions features: **Pre-assembled float** (version without float available on request). **Built-in capacitor** (except DIWA 11 model with control box on cable). **Thermal protector**.
- 60 Hz and versions without float (SG) available.

DRIVELUB SEAL SYSTEM

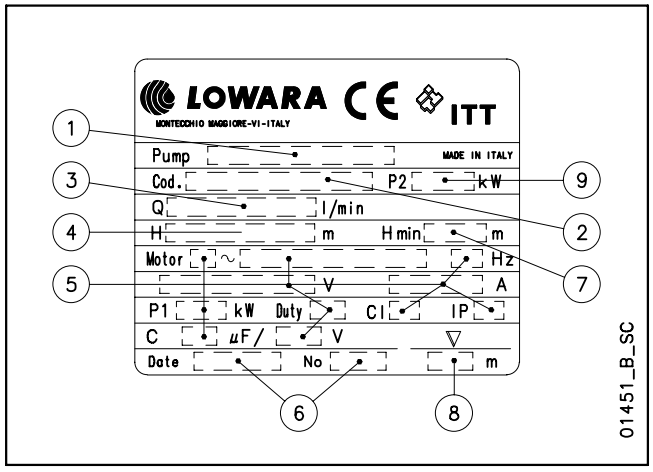
- Waterlight electric motor protected by multiple seal system with **oil chamber**.
  A **V-ring** and **silicon carbide mechanical seal** (extremely resistant to wear and abrasion), as well as a **lip seal** which is continuosly lubricated by the **DRIVELUB system**, provide an extremely barrier against infiltration.

DIWA SERIES
IDENTIFICATION CODE

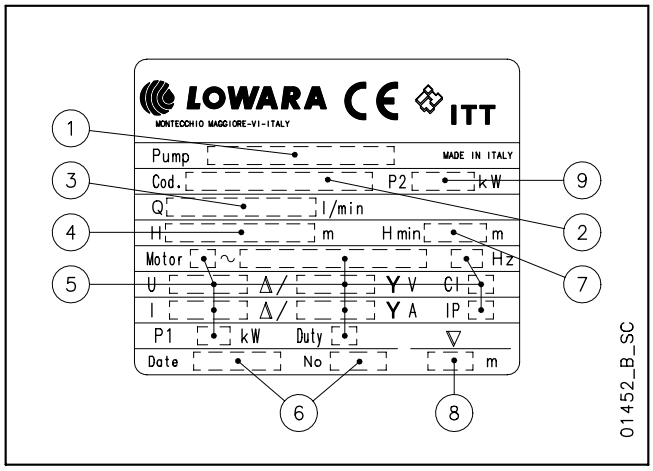


EXAMPLE : DIWA 11/B
DIWA Series Electric pump, rated motor power 1,1 kW,
50 Hz version, single-phase, /B version.

SINGLE-PHASE RATING PLATE



THREE-PHASE RATING PLATE



LEGEND

1 - Electric pump type

2 - Code

3 - Delivery range

4 - Head range

5 - Motor type

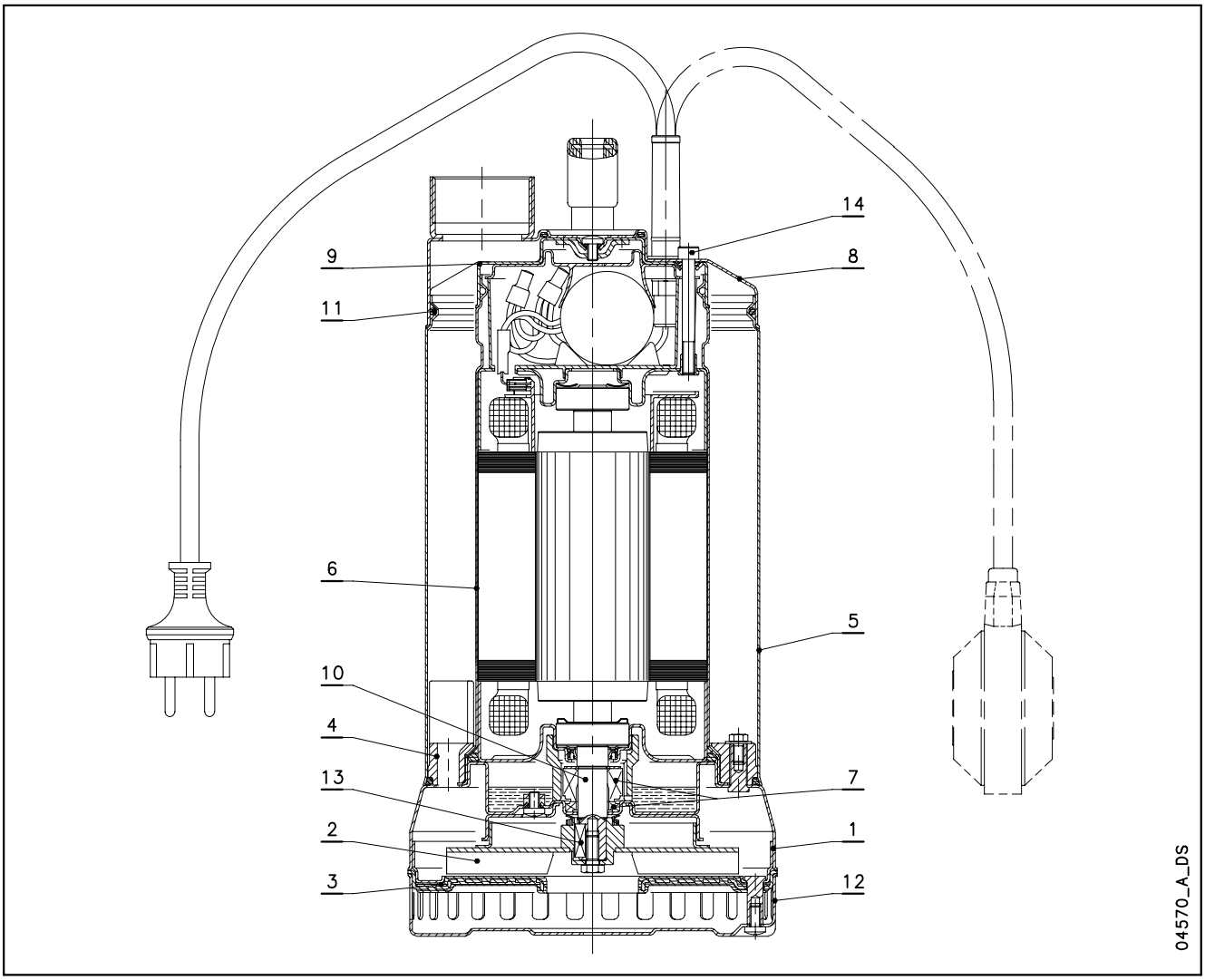
6 - Date of manufacture and serial number

7 - Minimum head

8 - Maximum immersion depth

9 - Rated output

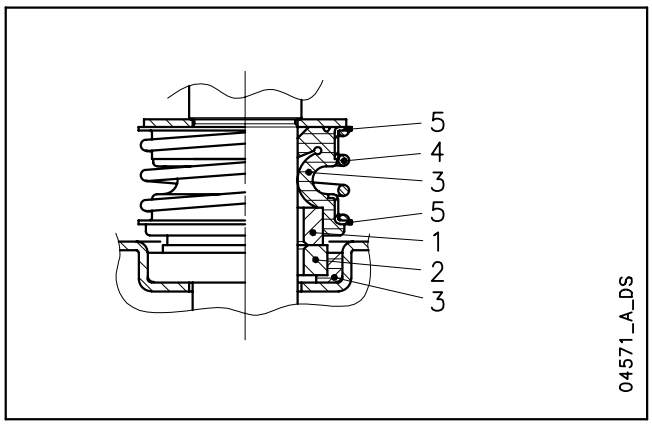
DIWA SERIES
LIST OF MODELS AND TABLE OF MATERIALS



REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
2	Impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Suction flange	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
		Polyurethane (LARIPUR 9060)		
4	Diffuser	ZITEL 70G30		
5	Sleeve	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
7	Mechanical seal	Silicon carbide / Silicon carbide / NBR (standard version)		
8	Cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
9	Upper cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
11	Elastomers	NBR (standard version)		
12	Strainer	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
13	Key	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
14	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

diwa-en_a_tm

DIWA SERIES
MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
Q1 : Silicon carbide	P : NBR	G : AISI 316
	V : FPM	

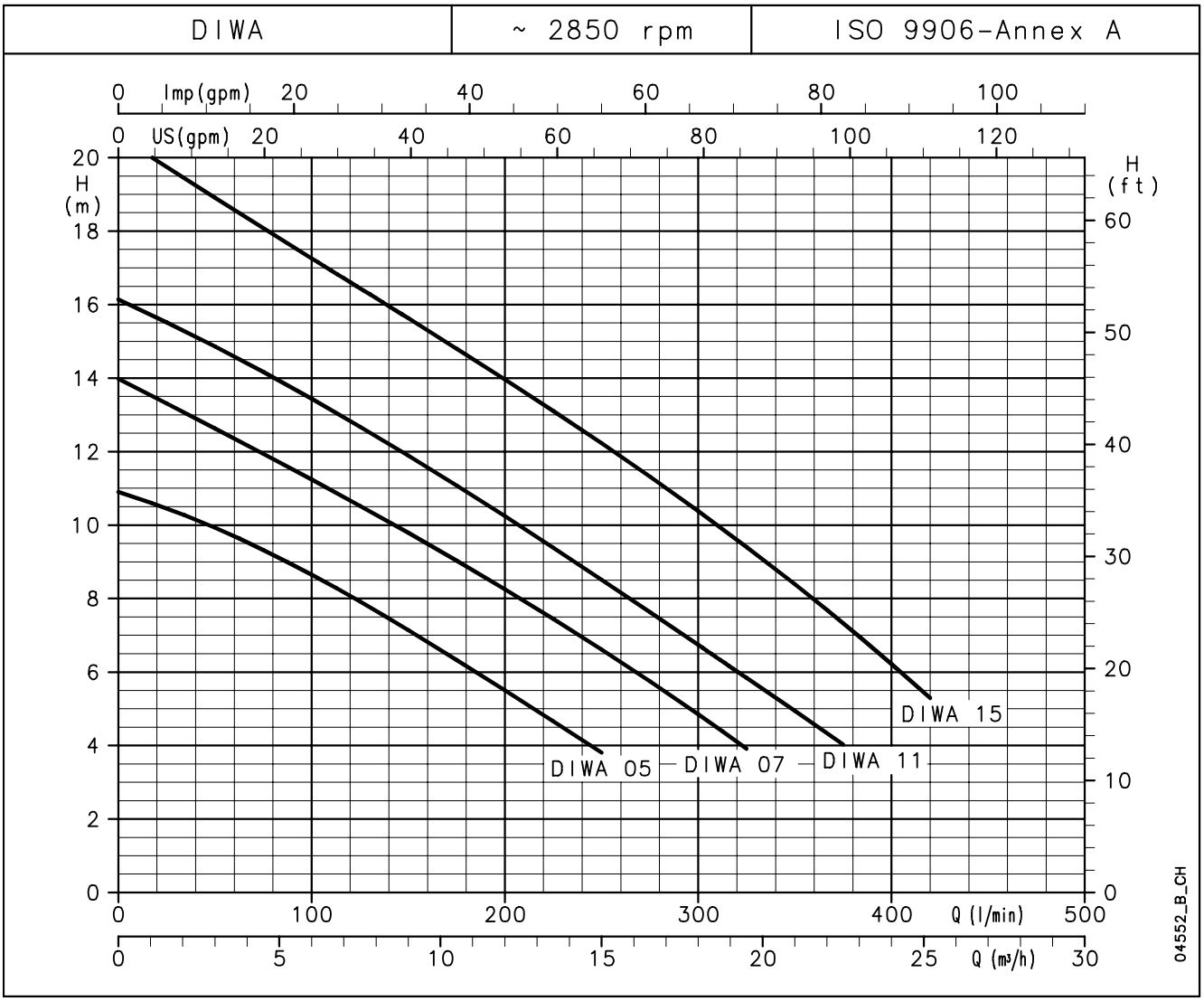
diwa_ten-mec-en_a_tm

SEAL TYPES

TYPE	POSITION					TEMPERATURE (°C)
	1	2	3	4	5	
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
Q_1Q_1PGG	Q_1	Q_1	P	G	G	-5 +50
OTHER MECHANICAL SEAL TYPES						
Q_1Q_1VGG	Q_1	Q_1	V	G	G	-5 +50

diwa_tipi-ten-mec-en_a_tc

DIWA SERIES
OPERATING CHARACTERISTICS AT 50 Hz



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min	0	100	125	150	175	200	225	250	300	325	375	420
			m^3/h	0	6	7,5	9	10,5	12	13,5	15	18	19,5	22,5	25,2
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
DIWA 05(T)	0,55	0,75	10,9	8,6	7,9	7,1	6,3	5,5	4,7	3,8				
DIWA 07(T)	0,75	1	14,0	11,2	10,5	9,8	9,0	8,3	7,4	6,6	4,8	3,9		
DIWA 11(T)	1,1	1,5	16,1	13,4	12,7	11,9	11,1	10,2	9,4	8,5	6,7	5,8	4,0	
DIWA 15T	1,5	2	20,6	17,3	16,4	15,6	14,8	14,0	13,1	12,2	10,4	9,4	7,3	5,3

These performances are valid for liquids with density r = 1,0 kg/dm³ and kinematic viscosity n = 1 mm²/s.

diwa-2p50-en_a_th

ELECTRICAL DATA TABLE

PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DIWA 05	0,79	3,92	16
DIWA 07	1,25	6,20	22
DIWA 11	1,53	6,83	30
-	-	-	-

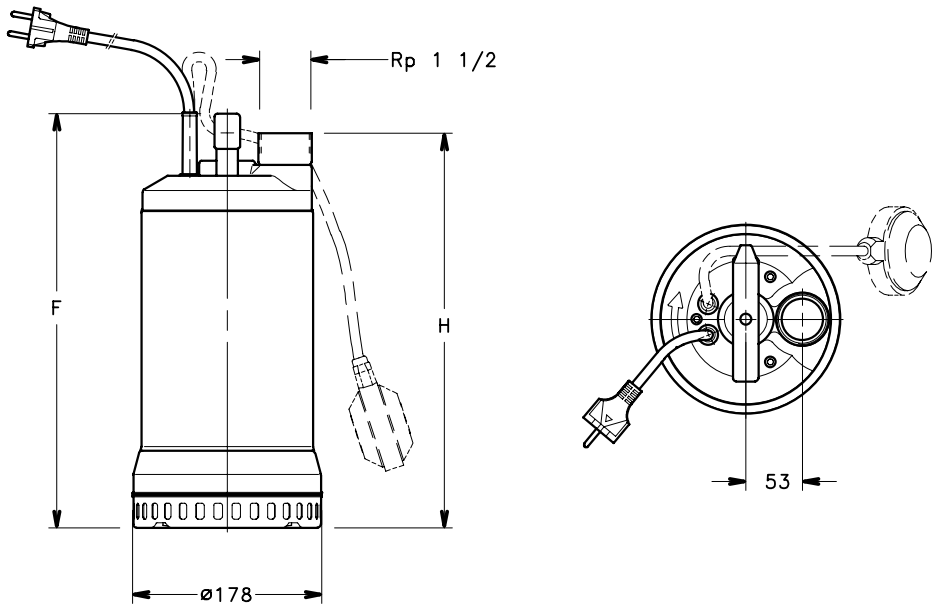
PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DIWA 05T	0,72	2,56	1,48
DIWA 07T	1,2	4,26	2,46
DIWA 11T	1,44	4,64	2,68
DIWA 15T	2,05	6,74	3,89

*Maximum values within operating range

diwa-2p50-en_a_te

DIWA SERIES
DIMENSIONS AND WEIGHTS

DIWA

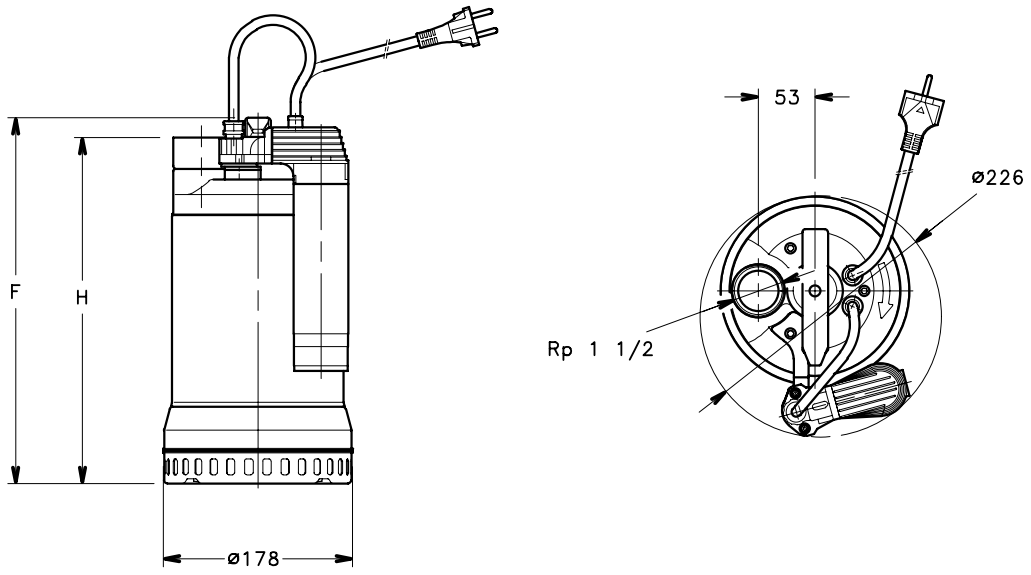


PUMP TYPE SINGLE-PHASE		DIMENSIONS (mm)		WEIGHT
		F	H	kg
DIWA05	DIWA05 GT	348	330	12
DIWA07	DIWA07 GT	393	375	14,3
DIWA11	DIWA11 GT	393	375	17
-	-	-	-	-

PUMP TYPE THREE-PHASE	DIMENSIONS (mm)		WEIGHT
	F	H	kg
DIWA05T	348	330	11
DIWA07T	363	345	13
DIWA11T	393	375	15
DIWA15T	393	375	16,5

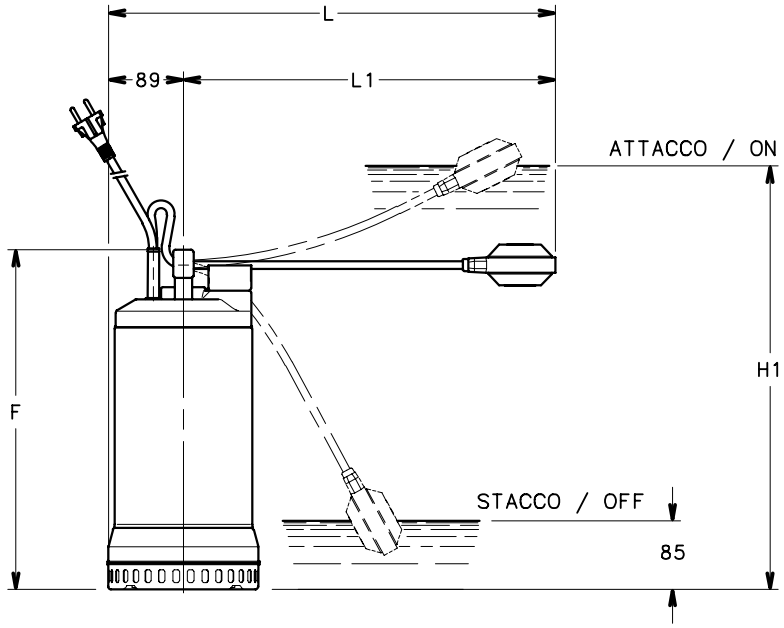
diwa-2p50-en_b_td

DIWA GT



DIWA SERIES
INSTALLATION EXAMPLES

DIWA



PUMP TYPE		DIMENSIONS (mm)				
		F	L	L1	H1	H2
DIWA05	DIWA05 GT	348	459	370	430	180
DIWA07	DIWA07 GT	393	514	425	490	180
DIWA11	DIWA11 GT	393	514	425	490	180

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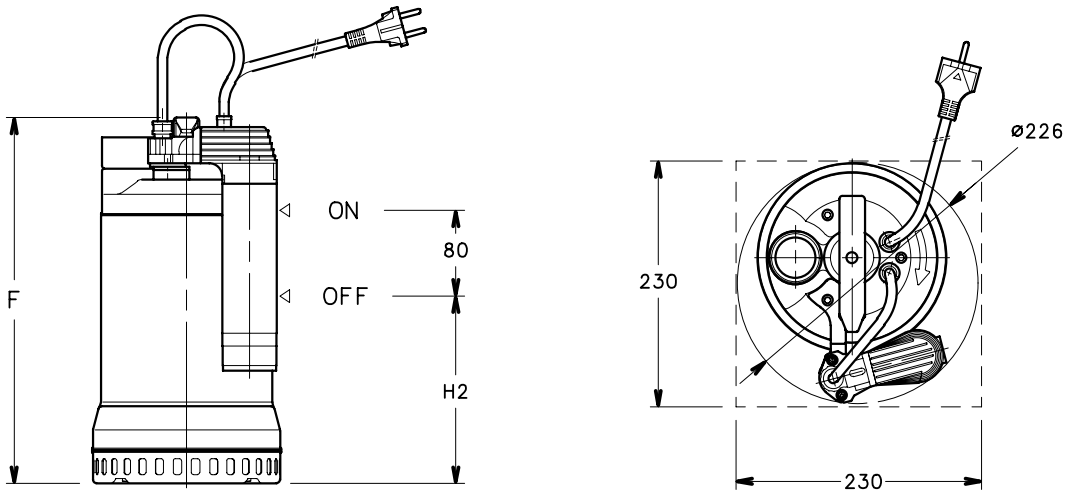
DIWA GT



ITT

Lowara

Submersible Electric Pumps for dirty water

The DOMO series electric pumps are available with **twin-channel** or **vortex** impeller (DOMO VX). Designed to handle suspended solids up to 50 mm in diameter (35 mm for DOMO 7 and DOMO 7VX). Four basic models with 0,55 to 1,5 kW.
DRIVELUB SEAL SYSTEM.

DOMO Series

APPLICATIONS

- Pumping of effluent (VX model handles also suspended filaments).
- Emptying of septic tanks and residential sumps.
- Draining of flooded basements and garages.

SPECIFICATIONS

- **Continuos duty** with **35°C** liquids and fully submerged pump.
- **Dry motor** (class F insulation).
- **H07RN-F** type neoprene power **cord**.
- **Maximum** immersion **depth**: **5 m**.
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz 2 poles.
  - Three-phase: 220-240 V, 50 Hz 380-415 V, 50 Hz 2 poles.
- **Motor power**:
  - **0,55 to 1,1 kW** for single-phase versions.
  - **0,55 to 1,5 kW** for three-phase versions.

- The single-phase versions feature:
  - **Pre-assembled float** (version without float available on request).
  - **Built-in capacitor** (except for DOMO 15 and DOMO 15VX models with control box on cable).
  - **Thermal overload protection**.
- The **DOMO 7** and **DOMO 7VX** versions feature:
  - **Rp 1"1/2 delivery port** (female gas).
  - Handling of suspended **solids up to 35 mm** in diameter.
  - **Fiberglass-reinforced nylon impeller** (stainless steel impeller also available).
- The **DOMO 10-15-20** and **DOMO 10-15-20 VX** versions feature:
  - **Rp 2" delivery port** female gas (can be turned into a flanged version if an optional accessory is installed).
  - Handling of suspended **solids up to 50 mm** in diameter.
  - **Stainless steel twin-channel or vortex impeller**.

DRIVELUB SEAL SYSTEM

- Waterlight electric motor protected by multiple seal system with **oil chamber**.
  A **V-ring** and **silicon carbide mechanical seal** (extremely resistant to wear and abrasion), as well as a **lip seal** which is continuosly lubricated by the **DRIVELUB system**, provide an extremely barrier against infiltration.

Submersible Electric Pumps for dirty water equipped with grinder system

DOMO GRI Series

The DOMO GRI series electric pumps are equipped with a completely new, extremely efficient and highly reliable grinder system.
The grinder is able to macerate all the solids and the filaments present in the sewage and to pass through smaller discharge pipes (25 mm diameter).
DOMO GRI is available in the 1,1 kW (P2) version.
DRIVELUB SEAL SYSTEM.

APPLICATIONS

- Pumping of sewage with suspended solids and filaments.
- Emptying of septic tanks and residential sumps.
- Draining of flooded areas.
- Pumping water from a pressurized sewer network.

SPECIFICATIONS

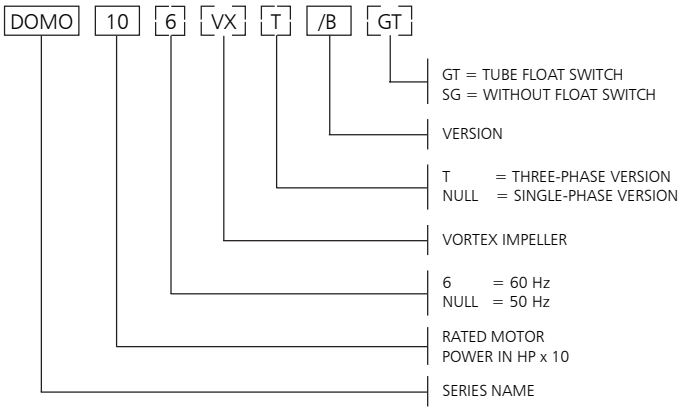
- **Continuos duty** with **35°C** liquids and fully submerged pump.
- **Dry motor** (class F insulation).
- **H07RN-F** type neoprene power **cord**.
- **Maximum** immersion **depth**: **5 m**.
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz 2 poles.
  - Three-phase: 220-240 V, 50 Hz 380-415 V, 50 Hz 2 poles.
- **Motor power**:
  - **1,1 kW** (P2) for single and three-phase versions.

- The single-phase versions feature:
  - **Pre-assembled float** (version without float available on request).
  - **Built-in capacitor**.
  - **Thermal overload protection**.
- **DOMO GRI** are equipped with:
  - **Rp 1**" **delivery port** (female gas).
  - Technopolymer PBT **Impeller**.
  - Stainless steel and high resistance **Grinder**.

DRIVELUB SEAL SYSTEM

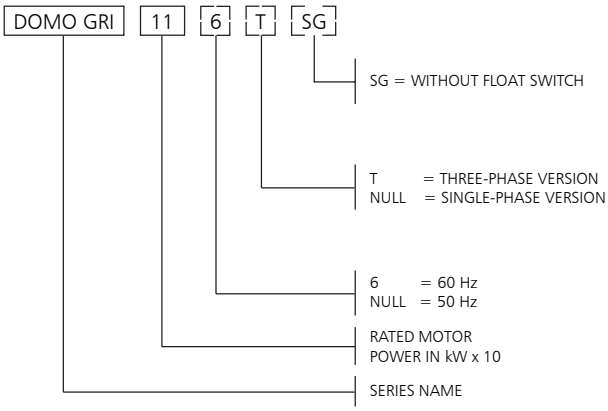
- Waterlight electric motor protected by multiple seal system with **oil chamber**.
  A **V-ring** and **silicon carbide mechanical seal** (extremely resistant to wear and abrasion), as well as a **lip seal** which is continuosly lubricated by the **DRIVELUB system**, provide an extremely barrier against infiltration.

DOMO SERIES IDENTIFICATION CODE



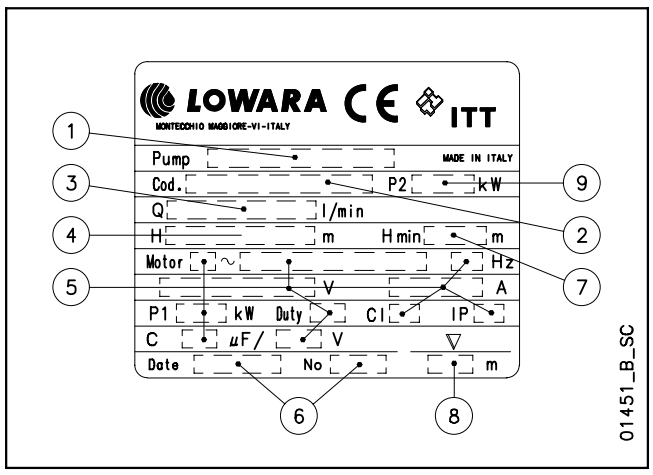
EXAMPLE : DOMO 10/B
DOMO Series Electric pump, rated motor power 1 HP,
50 Hz version, single-phase, /B version.

DOMO GRI SERIES IDENTIFICATION CODE

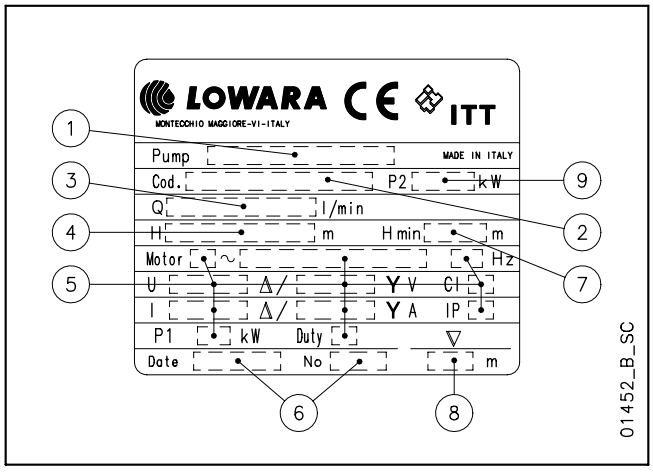


EXAMPLE : DOMO GRI 11
DOMO GRI (grinder) Series Electric pump,
rated motor power 1,1 kW, 50 Hz version, single-phase.

SINGLE-PHASE RATING PLATE



THREE-PHASE RATING PLATE



LEGEND

1 - Electric pump type

2 - Code

3 - Delivery range

4 - Head range

5 - Motor type

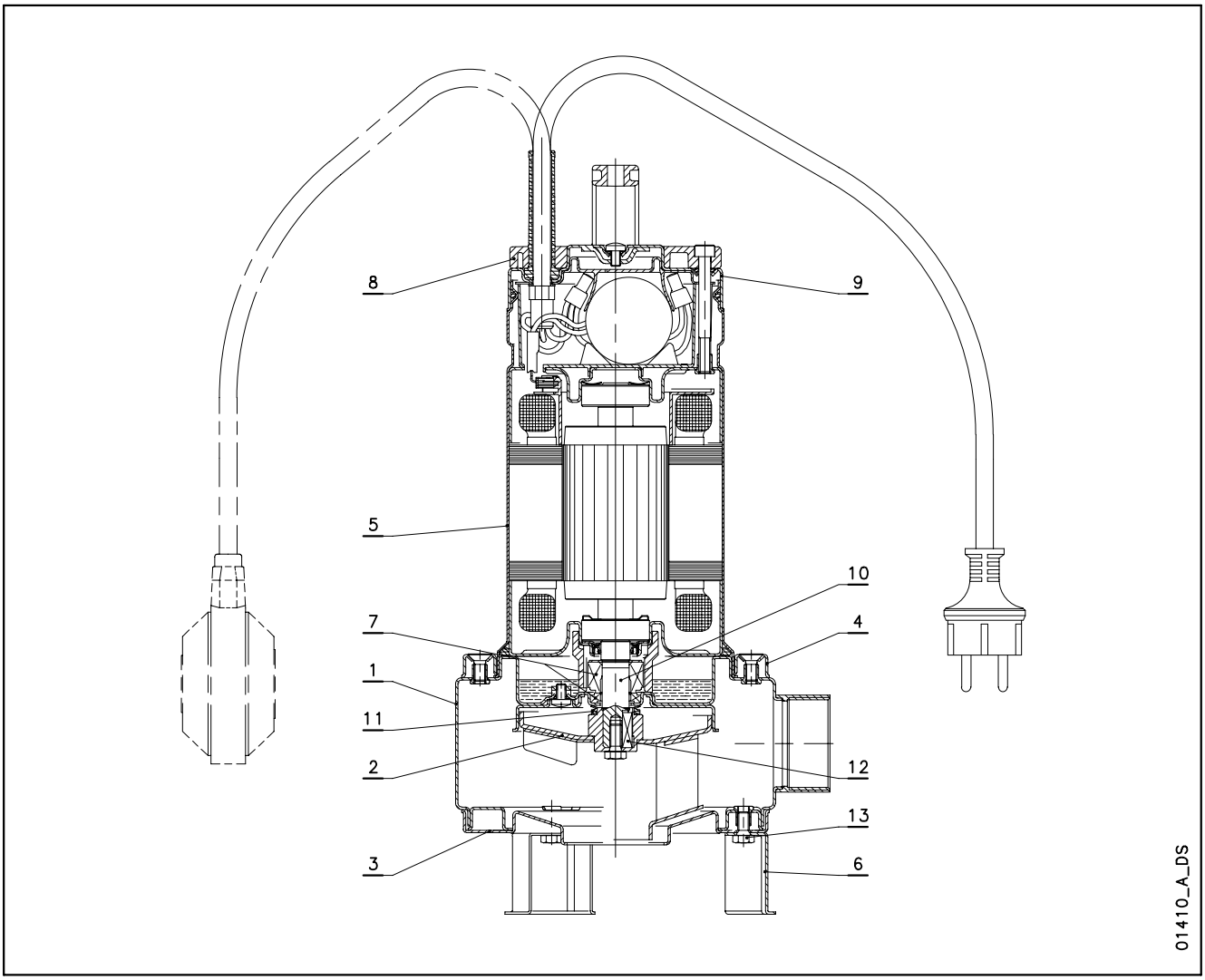
6 - Date of manufacture and serial number

7 - Minimum head

8 - Maximum immersion depth

9 - Rated output

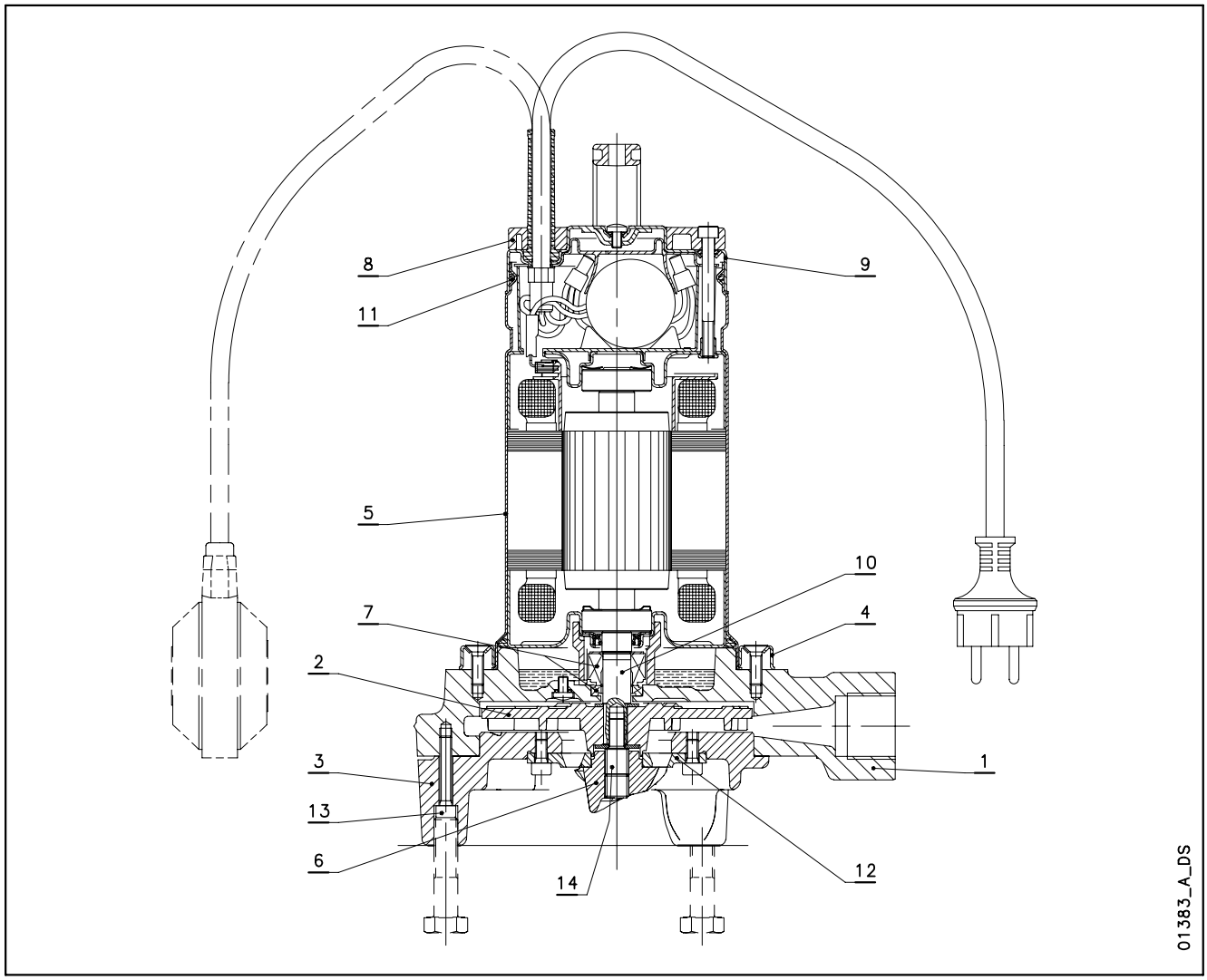
DOMO SERIES
LIST OF MODELS AND TABLE OF MATERIALS



REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
2	Impeller	NYLON 66 + 30% F.V.		
		Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Suction flange	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Fixing ring	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Support foot	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
7	Mechanical seal	Silicon carbide / Silicon carbide / NBR (standard version)		
8	Handle	NYLON 66 + 30% F.V.		
9	Upper cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
11	Elastomers	NBR (standard version)		
12	Key	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

domo-en_a_tm

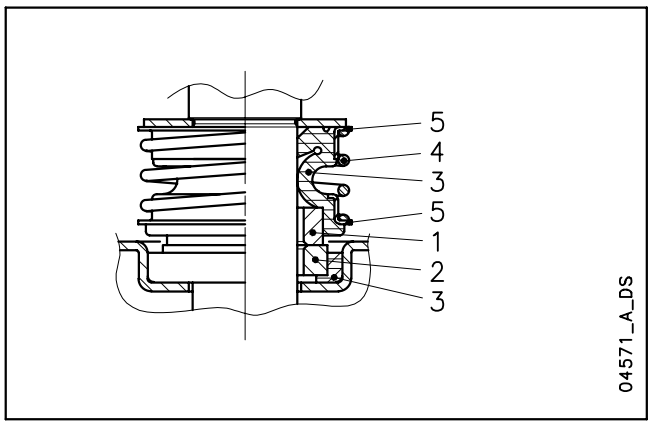
DOMO GRI SERIES
LIST OF MODELS AND TABLE OF MATERIALS



REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Impeller	PBT		
3	Suction cover	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
4	Fixing ring	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Cutter wheel	Stainless steel	X95CrMoV17 (DIN 1.4535)	-
7	Mechanical seal	Silicon carbide / Silicon carbide / NBR (standard version)		
8	Handle	NYLON 66 + 30% F.V.		
9	Upper cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
11	Elastomers	NBR (standard version)		
12	Cutter ring	Stainless steel	X95CrMoV17 (DIN 1.4535)	-
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
14	Impeller fixing screw + wheel	Stainless steel	EN 10088-1-X17CrNi16-2 (1.4057)	AISI 431

domo-gri-en_b_tm

DOMO - DOMO GRI SERIES
MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
Q1 : Silicon carbide	P : NBR	G : AISI 316
	V : FPM	

diwa_ten-mec-en_a_tm

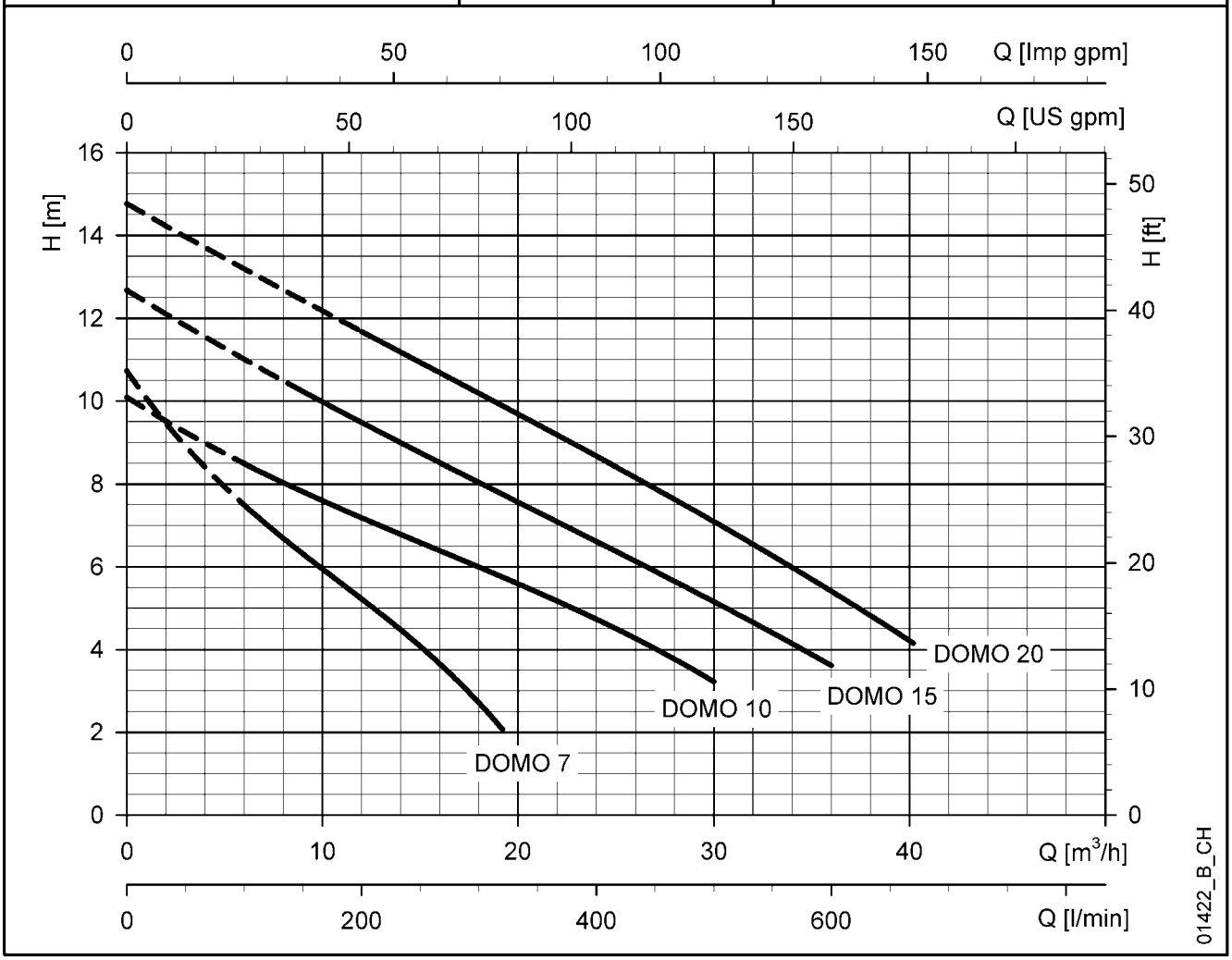
SEAL TYPES

TYPE	POSITION					TEMPERATURE (°C)
	1	2	3	4	5	
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
Q_1Q_1PGG	Q_1	Q_1	P	G	G	-5 +35
OTHER MECHANICAL SEAL TYPES						
Q_1Q_1VGG	Q_1	Q_1	V	G	G	-5 +35

domo_tipi-ten-mec-en_a_tc

DOMO SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DOMO	~ 2850 [rpm]	ISO 9906 - Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY										
			l/min	0	100	150	200	250	300	320	400	500	600	670
			m³/h	0	6	9	12	15	18	19,2	24	30	36	40,2
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER											
DOMO 7(T)	0,55	0,75	10,7	7,5	6,3	5,2	4,1	2,7	2,1				
DOMO 10(T)	0,75	1	10,1	8,5	7,8	7,2	6,6	6,0	5,8	4,7	3,2		
DOMO 15(T)	1,1	1,5	12,7	11,0	10,2	9,5	8,8	8,0	7,8	6,6	5,2	3,6	
DOMO 20T	1,5	2	14,8	13,2	12,4	11,7	10,9	10,2	9,9	8,7	7,1	5,4	4,2

These performances are valid for liquids with density ρ = 1,0 kg/dm³ and kinematic viscosity ν = 1 mm²/s.

domo-2p50-en_a_th

ELECTRICAL DATA TABLE

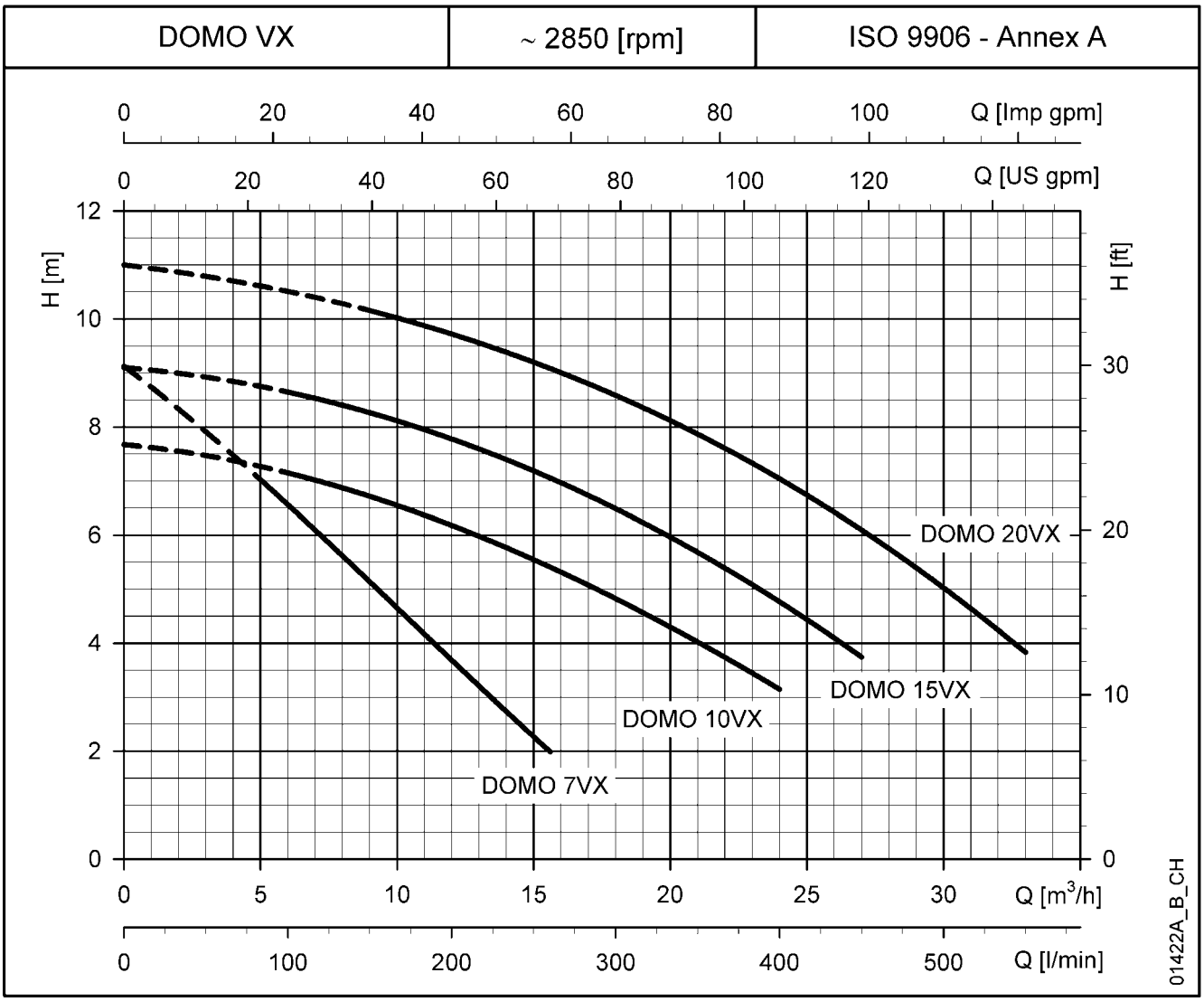
PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DOMO 7	0,80	3,94	16
DOMO 10	1,14	5,84	22
DOMO 15	1,58	7,02	30
-	-	-	-

PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DOMO 7T	0,73	2,58	1,49
DOMO 10T	1,09	4,09	2,36
DOMO 15T	1,49	4,73	2,73
DOMO 20T	1,96	6,6	3,81

*Maximum values within operating range

domo-2p50-en_a_te

DOMO VX SERIES
OPERATING CHARACTERISTICS AT 50 Hz



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min	0	80	100	150	175	200	225	260	300	400	450	550
			m³/h	0	4,8	6	9	10,5	12	13,5	15,6	18	24	27	33
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
DOMO 7VX(T)	0,55	0,75	9,1	7,1	6,6	5,1	4,4	3,7	3,0	2,0				
DOMO 10VX(T)	0,75	1	7,7	7,3	7,1	6,7	6,5	6,2	5,9	5,4	4,8	3,1		
DOMO 15VX(T)	1,1	1,5	9,1	8,8	8,6	8,3	8,0	7,8	7,5	7,1	6,5	4,8	3,7	
DOMO 20VXT	1,5	2	11,0	10,6	10,5	10,2	9,9	9,7	9,5	9,1	8,6	7,0	6,1	3,8

These performances are valid for liquids with density $\rho = 1{,}0$ kg/dm³ and kinematic viscosity $\nu = 1$ mm²/s.

domovx-2p50-en_a_th

ELECTRICAL DATA TABLE

PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DOMO 7VX	0,79	3,91	16
DOMO 10VX	1,15	5,88	22
DOMO 15VX	1,36	6,11	30
-	-	-	-

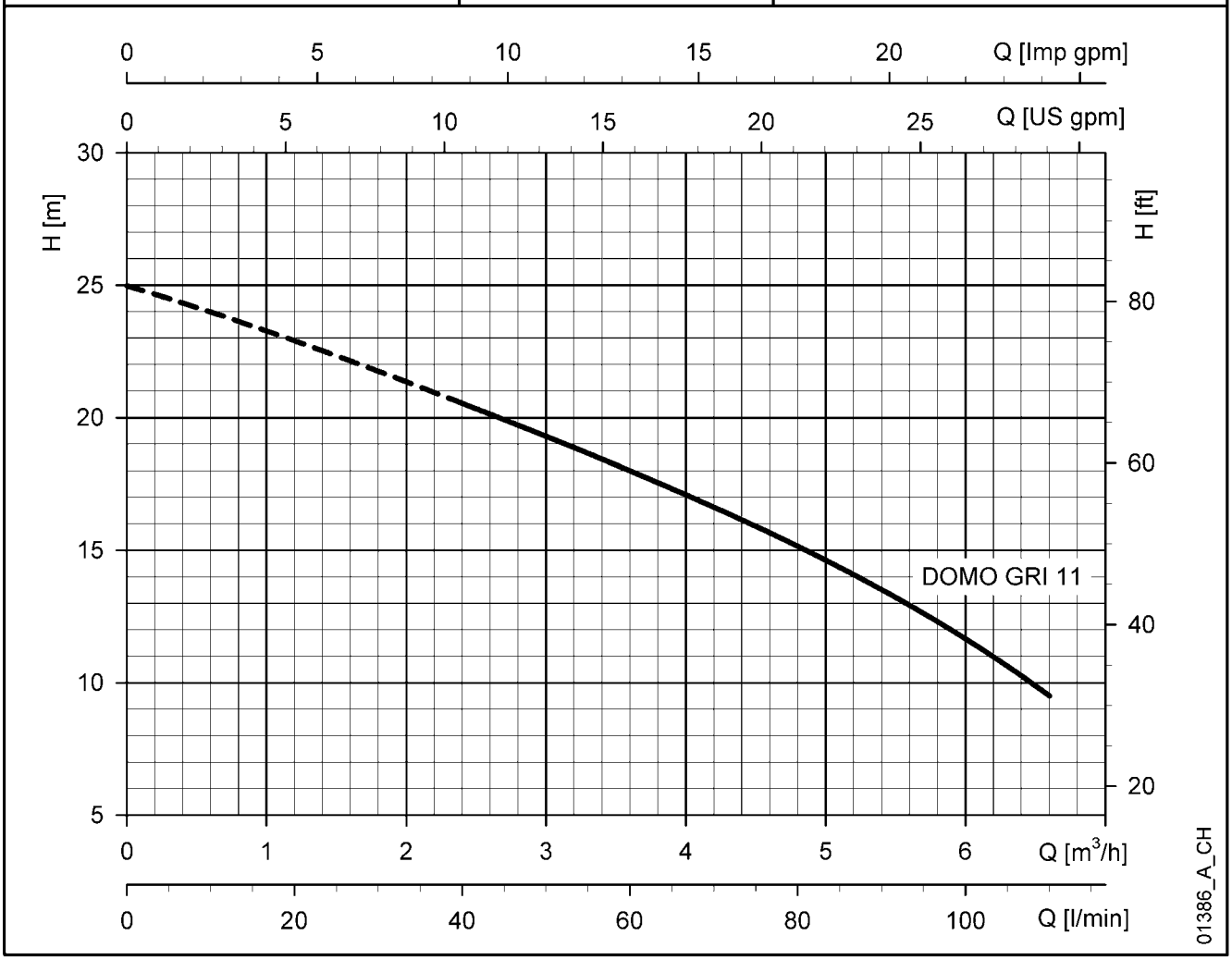
PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DOMO 7VXT	0,71	2,56	1,48
DOMO 10VXT	1,10	4,09	2,36
DOMO 15VXT	1,26	4,31	2,49
DOMO 20VXT	1,74	6,22	3,59

*Maximum values within operating range

domovx-2p50-en_a_te

DOMO GRI SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DOMO GRI 11	~ 2900 [rpm]	ISO 9906 - Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY										
			l/min	0	15	30	40	50	60	70	80	90	100	110
			m³/h	0	0,9	1,8	2,4	3	3,6	4,2	4,8	5,4	6	6,6
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER											
DOMO GRI 11 (SG)	1,1	1,5	25,0		23,5	21,7	20,5	19,3	18,0	16,6	15,2	13,5	11,7	9,5
DOMO GRI 11 T														

These performances are valid for liquids with density ρ = 1,0 kg/dm³ and kinematic viscosity ν = 1 mm²/s.

domo-gri-2p50-en_a_th

ELECTRICAL DATA TABLE

PUMP TYPE SINGLE-PHASE	RATED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DOMO GRI 11 (SG)	1,50	6,84	30

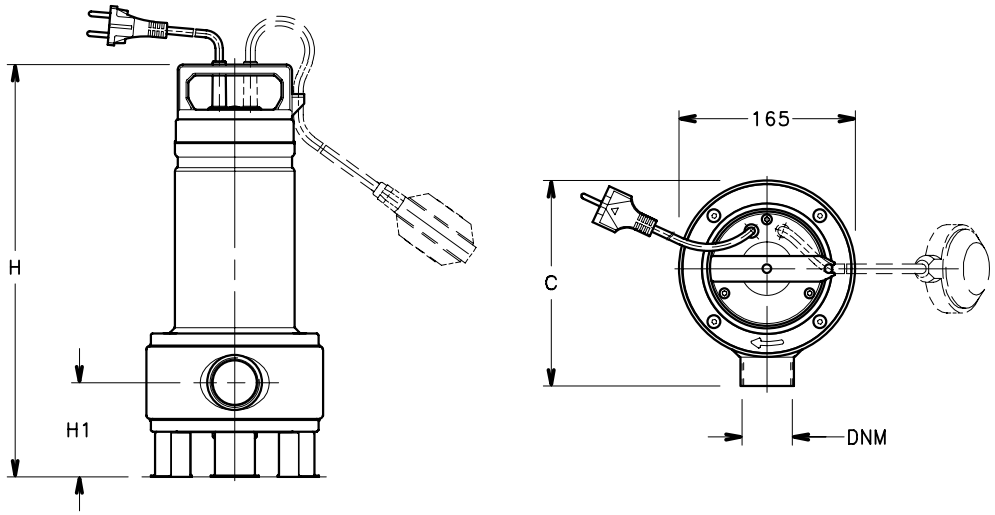
PUMP TYPE THREE-PHASE	RATED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DOMO GRI 11 T	1,39	4,55	2,63

* Maximum value in specified range

domo-gri-2p50-en_b_te

DOMO SERIES
DIMENSIONS AND WEIGHTS

DOMO



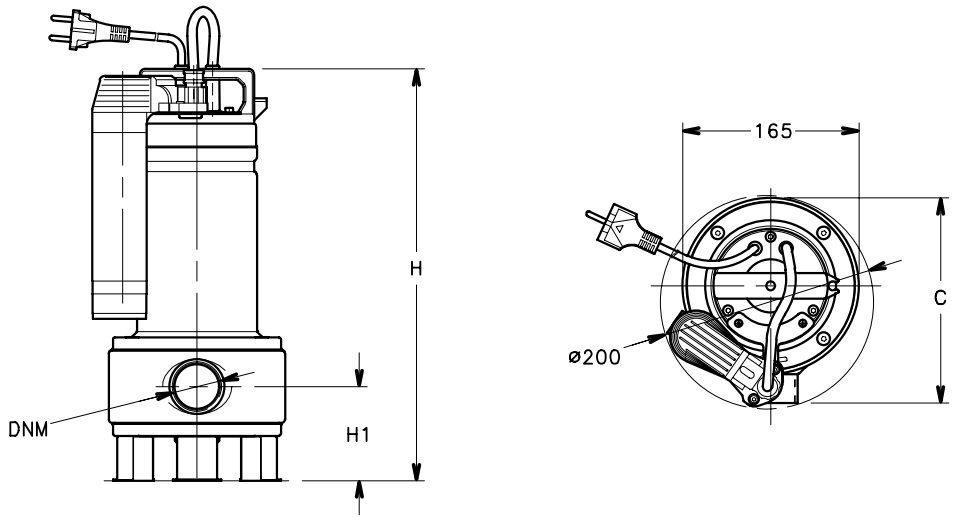
01421_D_DD

PUMP TYPE SINGLE-PHASE		DIMENSIONS (mm)			DNM	WEIGHT
		H	H1	C		kg
DOMO 7 DOMO 7VX	DOMO 7 GT DOMO 7VX GT	391	88	193	Rp1½	10,2
DOMO10 DOMO10VX	DOMO10 GT DOMO10VX GT	468	111,5	198	Rp2	13,6
DOMO15 DOMO15VX	DOMO15 GT DOMO15VX GT	468	111,5	198	Rp2	15,3
-	-	-	-	-	-	-

PUMP TYPE THREE-PHASE	DIMENSIONS (mm)			DNM	WEIGHT
	H	H1	C		kg
DOMO 7T DOMO 7VXT	391	88	193	Rp1½	8,9
DOMO10T DOMO10VXT	438	111,5	198	Rp2	11,6
DOMO15T DOMO15VXT	468	111,5	198	Rp2	13,6
DOMO20T DOMO20VXT	468	111,5	198	Rp2	14,6

domo-2p50-en_c_td

DOMO GT



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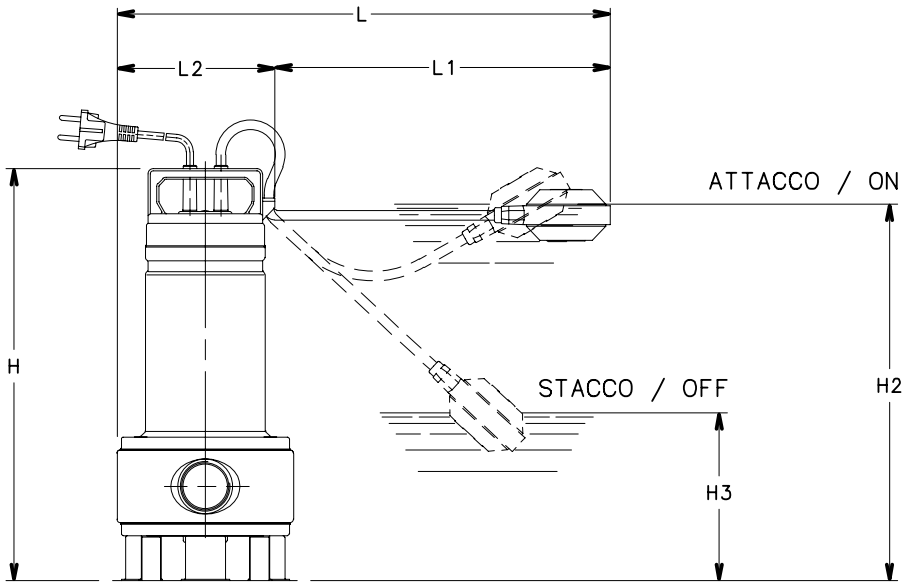
DOMO - DOMO GRI SERIES
INSTALLATION EXAMPLES

DOMO
DOMO GR I



PUMP TYPE		DIMENSIONS (mm)						
		H	H2	H3	L	L1	L2	A
DOMO 7 - DOMO 7 GT	DOMO 7VX - DOMO 7VX GT	391	375	155	420	275	145	225
DOMO10 - DOMO10 GT	DOMO10VX - DOMO10VX GT	468	420	155	495	350	145	255
DOMO15 - DOMO15 GT	DOMO15VX - DOMO15VX GT	468	420	155	495	350	145	255
DOMO GRI 11	-	446	400	135	508	350	158	-

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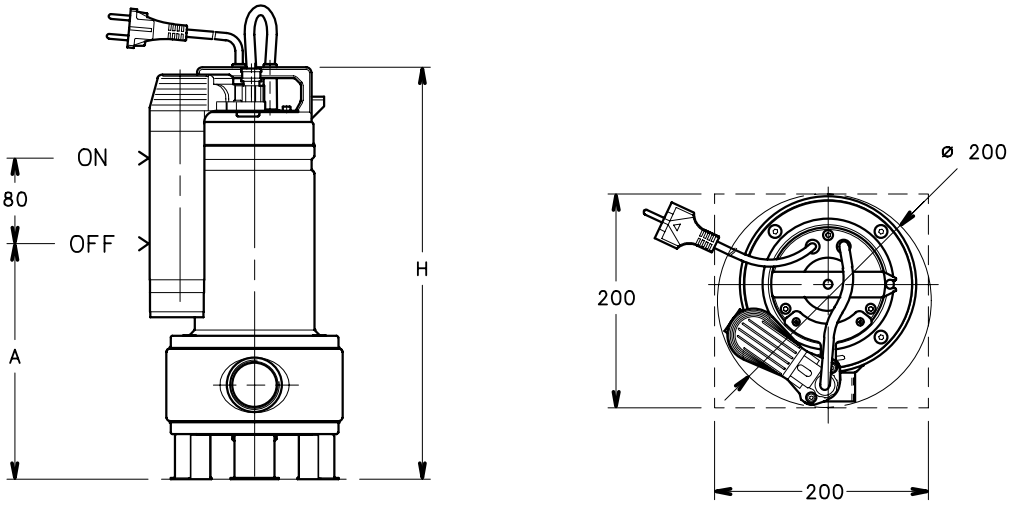
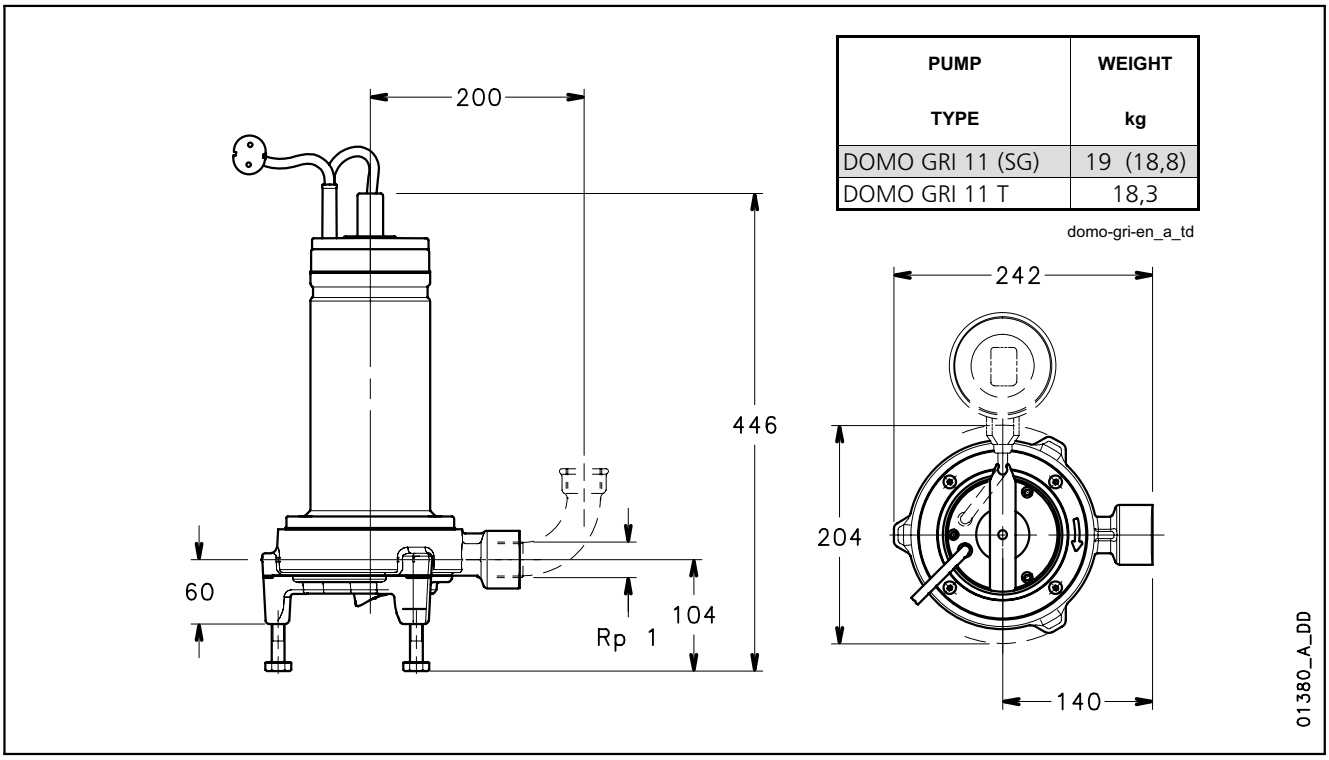
DOMO GT



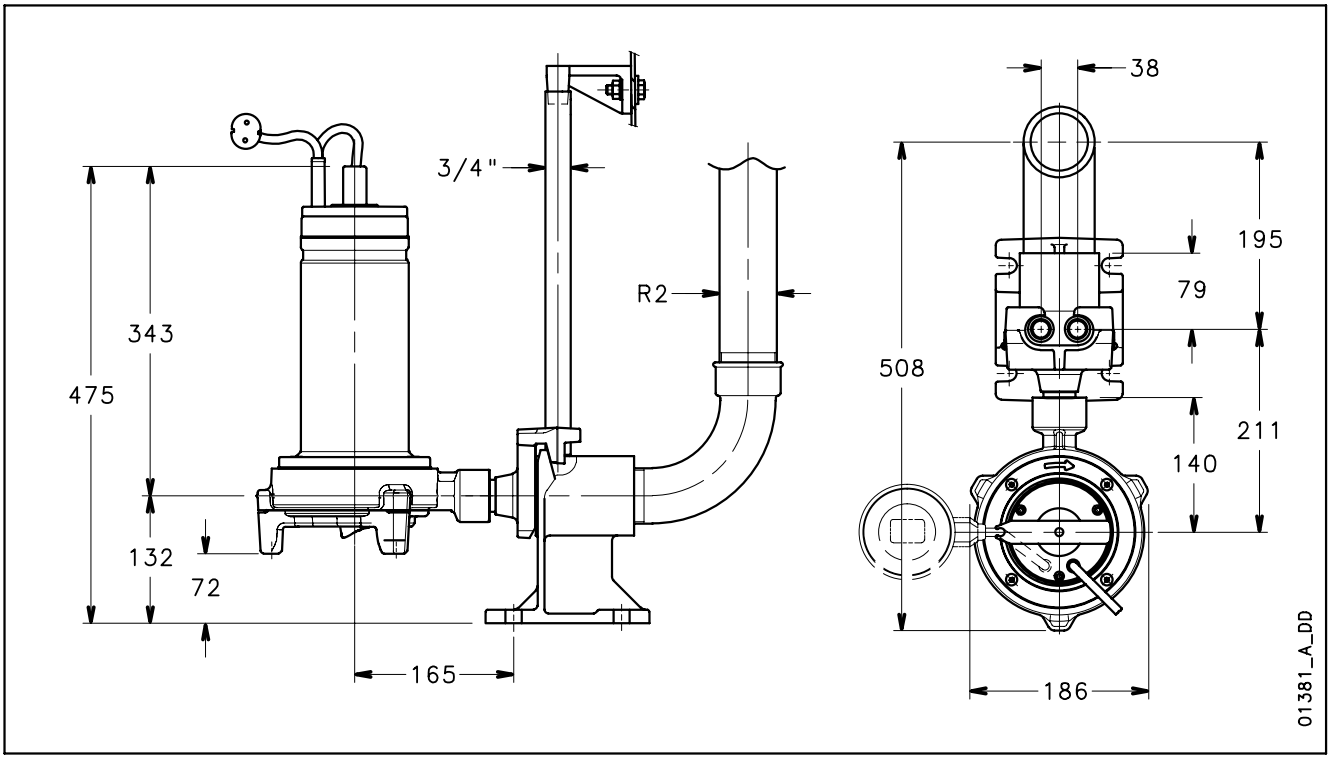
DOMO GRI SERIES
DIMENSIONS AND WEIGHTS



PUMP TYPE	WEIGHT kg
DOMO GRI 11 (SG)	19 (18,8)
DOMO GRI 11 T	18,3

domo-gri-en_a_td

INSTALLATION WITH LIFTING AND LOWERING SYSTEM DEVICE



ITT

Lowara

Submersible Electric Pumps for clean and slight dirty water

Drainage pumps with up to 22 metres head and up to 280 l/min (16,8 m^3/h) delivery.
This range consists of three pumps with up to 0,75 kW rated power.

DN Series

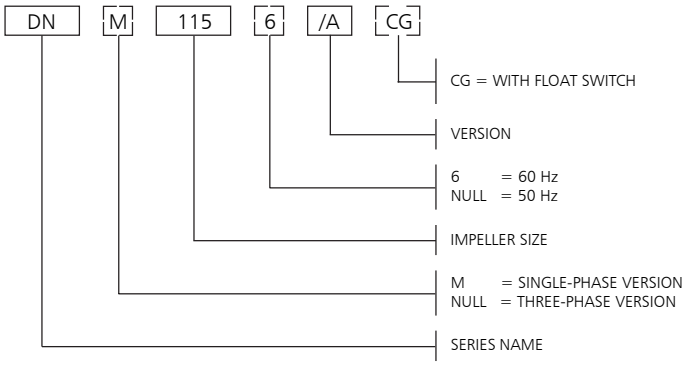
APPLICATIONS

- Draining of flooded excavations and marshy ground.
- Irrigation from rainwater resevoirs, ditches, ponds and watercourses.

SPECIFICATIONS

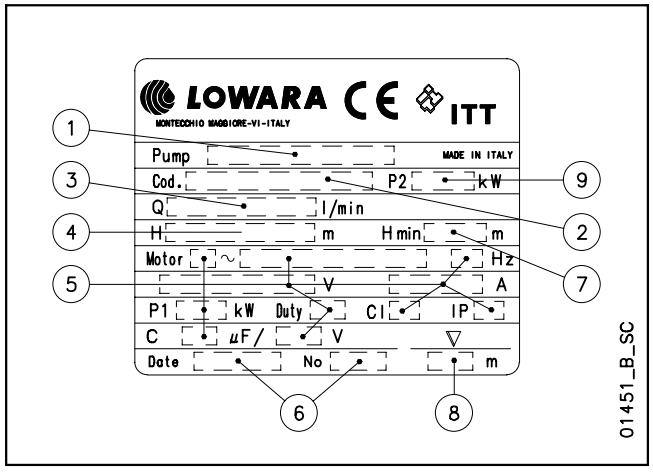
- Open **impeller** with **abrasion-resistant** rubber coating.
- Handles suspended solids up to 5 mm in diameter.
- Squirrel cage **motor** (2 poles - 2850 rpm) in a dielectric non-toxic **oil bath**, which ensures the lubrification of the ball bearings and more efficient cooling.
- **Mechanical seal** protected by **sand labyrinth**.
- Maximum **immersion depth**: **5 m**.
- **Maximum** liquid **temperature**: **50°C** with **fully submerged pump**.
  25°C with **partially submerged pump**.
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz
    2 poles
    with built-in automatic reset overload protection and capacitor housed in a control panel on the cable.
  - Three-phase: 220-240 V, 50 Hz
    380-415 V, 50 Hz
    2 poles.
    Overload protection to provided by user and installed in the control panel. The control panel is available on request.
- **5 metres** of **H07RN-F** cable (the single-phase versions are also equipped with a control panel housing the capacitor + 1,5 m cord with plug).
- Motor insulation: class F.
- 60 Hz versions available on request.
- Pre-assembled float available on request (CG version).
- Clockwise rotation when looking at pump from above.

DN SERIES
IDENTIFICATION CODE

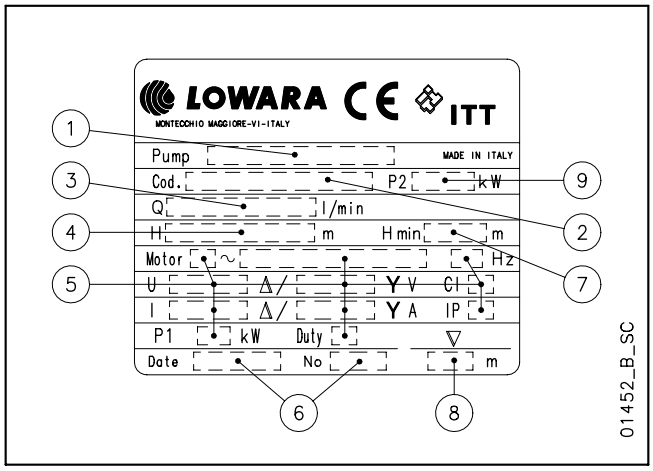


EXAMPLE : DNM 115/A
DN Series Electric pump, impeller size 115,
50 Hz version, single-phase, /A version.

SINGLE-PHASE RATING PLATE



THREE-PHASE RATING PLATE



LEGEND

1 - Electric pump type

2 - Code

3 - Delivery range

4 - Head range

5 - Motor type

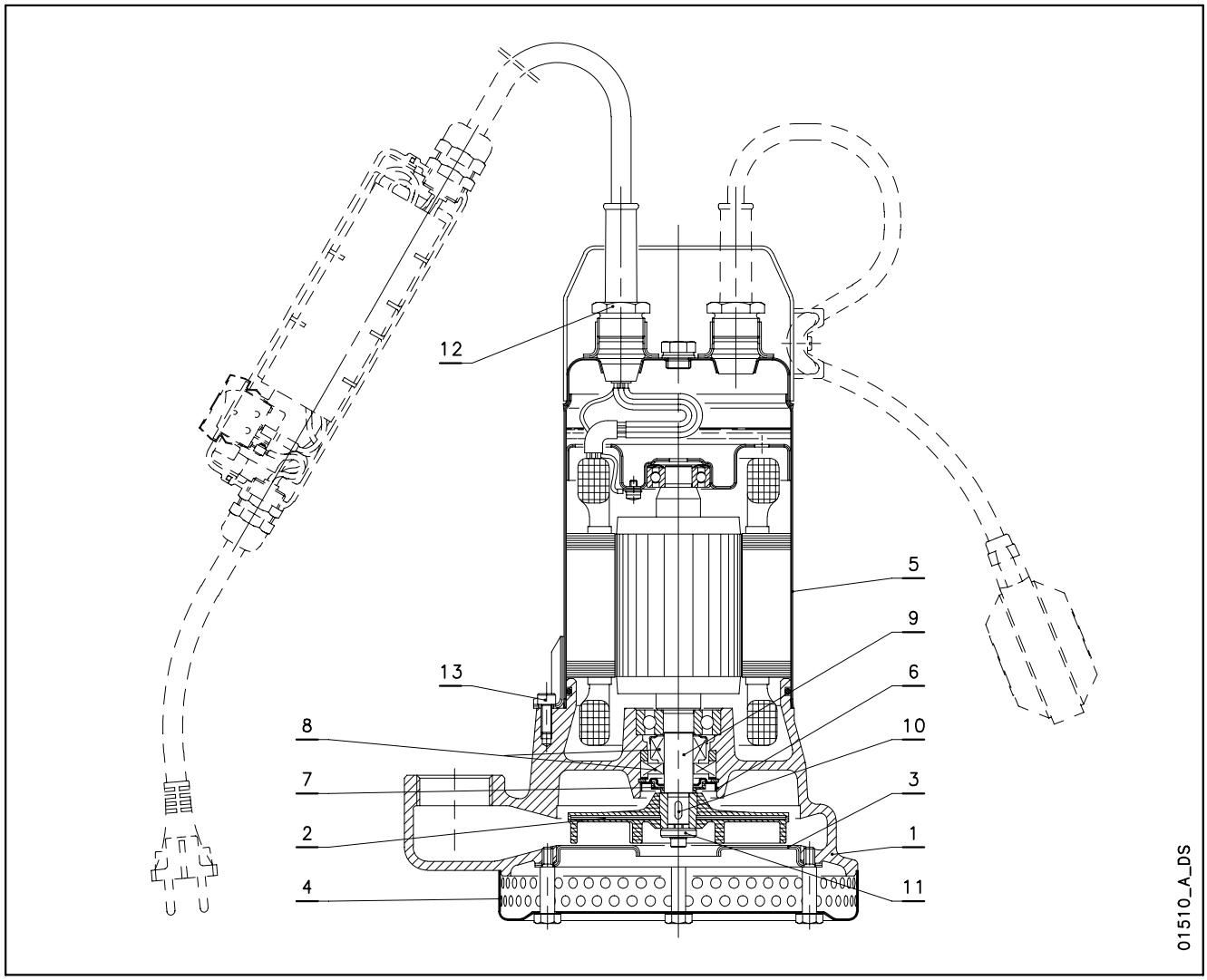
6 - Date of manufacture and serial number

7 - Minimum head

8 - Maximum immersion depth

9 - Rated output

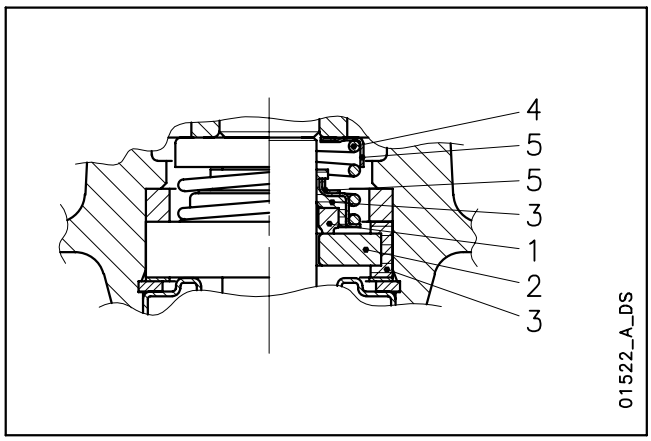
DN SERIES
LIST OF MODELS AND TABLE OF MATERIALS



REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200(JL1030)	ASTM Class 25
2	Impeller	Steel + Nitrile Rubber XNBR		
3	Wearing flange	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Suction strainer	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Labyrinth cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
7	Labyrinth insert	NBR (standard version)		
8	Mechanical seal	Carbon / Ceramic Alumina / NBR (standard version)		
9	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Key	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Washer	Stainless steel		AISI 303
12	Cable gland	Brass		
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

dn-en_b_tm

DN SERIES
MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Carbon	P : NBR	F : AISI 304
V : Ceramic Alumina	V : FPM	
U_3 : Tungsten Carbide		

dn-dl-dlv_ten-mec-en_b_tm

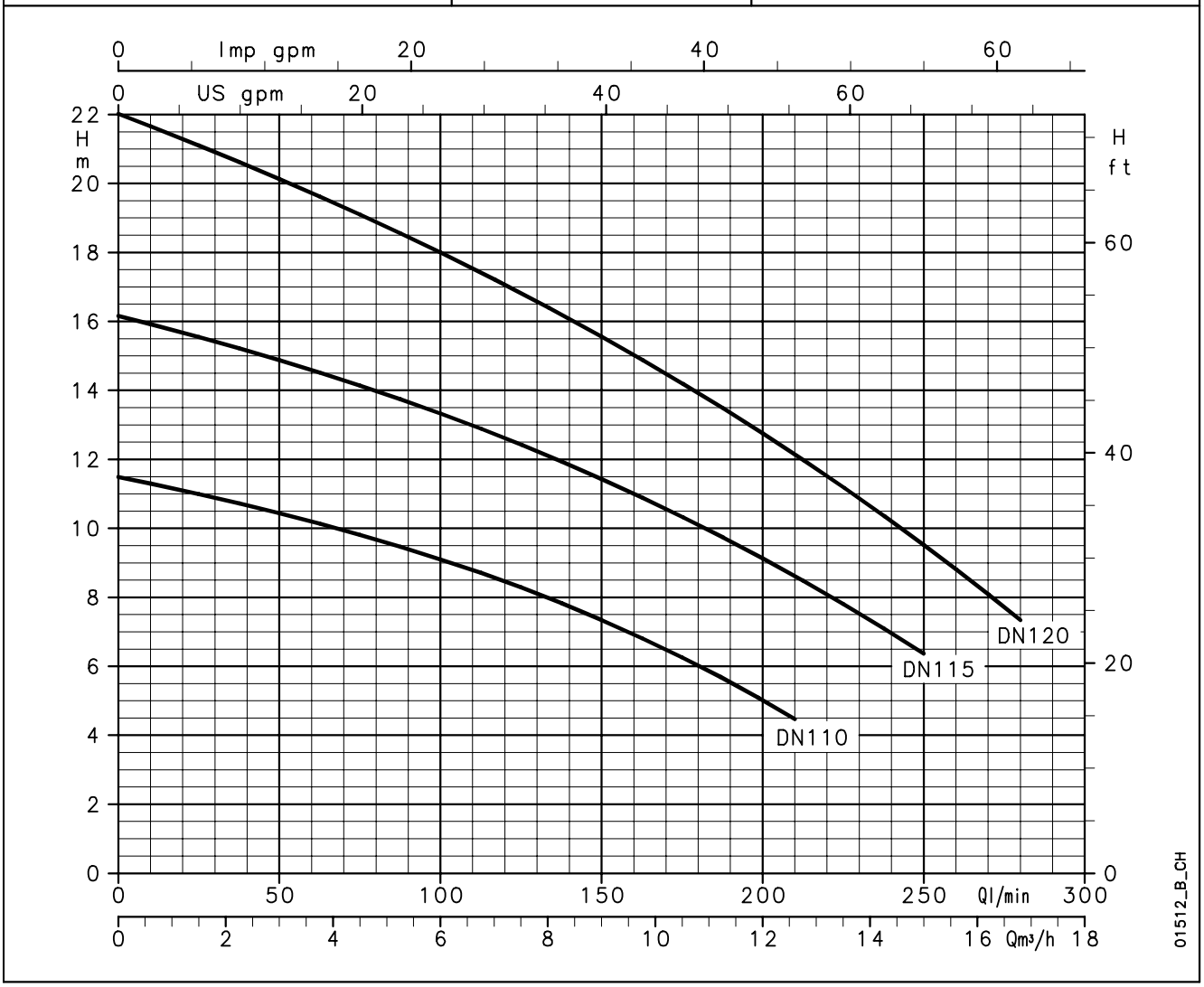
SEAL TYPES

TYPE	POSITION					TEMPERATURE (°C)
	1	2	3	4	5	
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
BVPFF	B	V	P	F	F	-5 +50
OTHER MECHANICAL SEAL TYPES						
U_3U_3VFF	U_3	U_3	V	F	F	-5 +50

dn-dl-dlv_tipi-ten-mec-en_a_tc

DN SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DN – DNM	~ 2850 rpm	ISO 9906–Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min	0	25	50	75	100	125	150	175	210	225	250	280
			m^3/h	0	1,5	3	4,5	6	7,5	9	10,5	12,6	13,5	15	16,8
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
DN(M) 110	0,6	0,8	11,5	11,0	10,4	9,8	9,1	8,3	7,3	6,3	4,5			
DN(M) 115	0,6	0,8	16,2	15,6	14,9	14,1	13,3	12,4	11,4	10,3	8,6	7,8	6,4	
DN(M) 120	0,75	1	22,0	21,1	20,1	19,1	18,0	16,8	15,6	14,2	12,1	11,2	9,5	7,3

These performances are valid for liquids with density ρ = 1,0 kg/dm³ and kinematic viscosity ν = 1 mm²/s.

dn-2p50-en_a_th

ELECTRICAL DATA TABLE

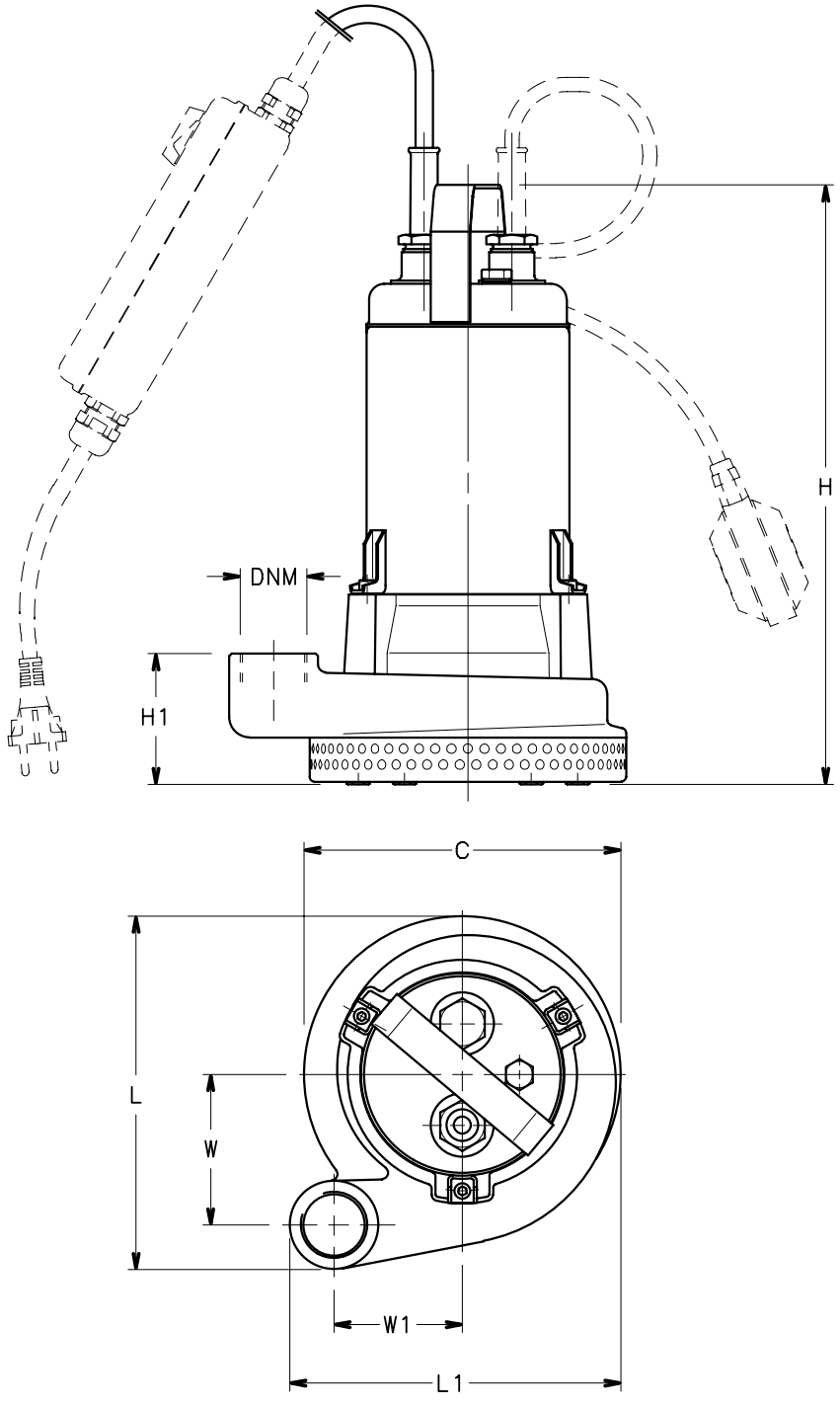
PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DNM 110	0,68	3,56	25
DNM 115	0,90	4,28	25
DNM 120	1,03	4,77	25

PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DN 110	0,66	3,46	2,00
DN 115	0,93	3,81	2,20
DN 120	1,09	4,05	2,34

*Maximum values within operating range.

dn-2p50-en_b_te

DN SERIES
DIMENSIONS AND WEIGHTS



PUMP TYPE	DIMENSIONS (mm)							DNM	WEIGHT
	C	H	H1	L	L1	W	W1		kg
DNM110-DN110	Ø 200	380	81	223	209	95	81	Rp 1¼	18,5
DNM115-DN115	Ø 200	380	81	223	209	95	81	Rp 1¼	18,5
DNM120-DN120	Ø 200	380	81	223	209	95	81	Rp 1¼	19,5

dn-2p50-en_b_td

ITT

Lowara

Submersible Electric Pumps for pumping sewage

The DL series electric pumps come with single-channel or Vortex impeller (DLV), and are designed to handle solids-laden wastewater, with up to 22 m head and 42 m^3/h delivery.
0,6 kW to 1,5 kW rated power.
Solid handled up to 50 mm in diameter.

DL Series

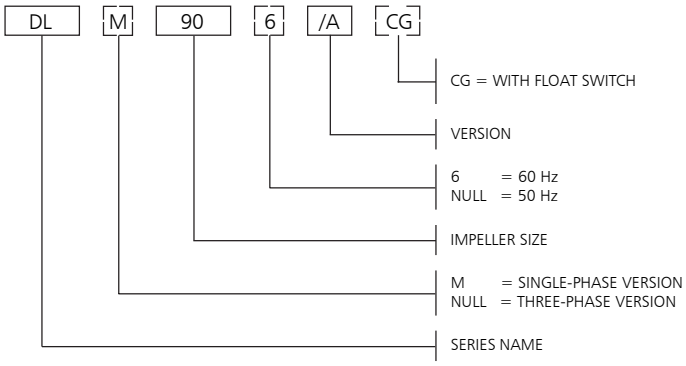
APPLICATIONS

- Pumping of sewage with suspended solids and filaments.
- Emptying of sumps, septic tanks and wastewater discharge tanks.
- Draining of flooded excavations and marshy ground.

SPECIFICATIONS

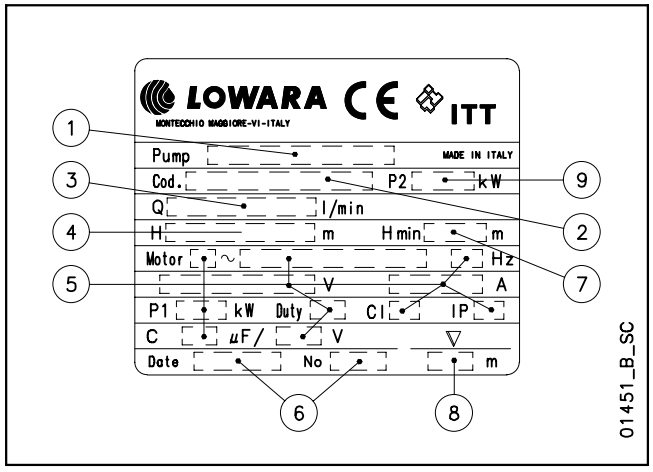
- Maximum **immersion depth**: **5 m**.
- **Maximum** liquid **temperature**:
  50°C with **fully submerged pump**.
  25°C with **partially submerged pump**.
- **Passes solids** up to:
  45 mm (**DL 80, 90, 105 Minivortex, Vortex**).
  50 mm (**DL 109, 125 DLV 100, 115**).
- Squirrel cage **motor** in a dielectric non-toxic **oil bath**, which ensures the lubrification of the ball bearings and more efficient cooling.
- Motor insulation: class F.
- **2 pole** (0,6 to 1,5 kW) motor.
- **Mechanical seal** protected by **sand labyrinth**.
- **Versions**:
  - Single-phase: 220-240 V, 50 Hz
    2 poles
    with built-in thermal protector and capacitor box with on/off switch.
  - Three-phase: 220-240 V, 50 Hz
    380-415 V, 50 Hz
    2 poles.
    Overload protection to provided by user (in the control panel).
- **5 metres** of **H07RN-F** cable (the single-phase versions are also equipped with a control panel housing the capacitor + 1,5 m cord with plug).
- 60 Hz versions available on request.
- Pre-assembled float available on request (DL...CG, DLV...CG).

DL - DLV SERIES
IDENTIFICATION CODE

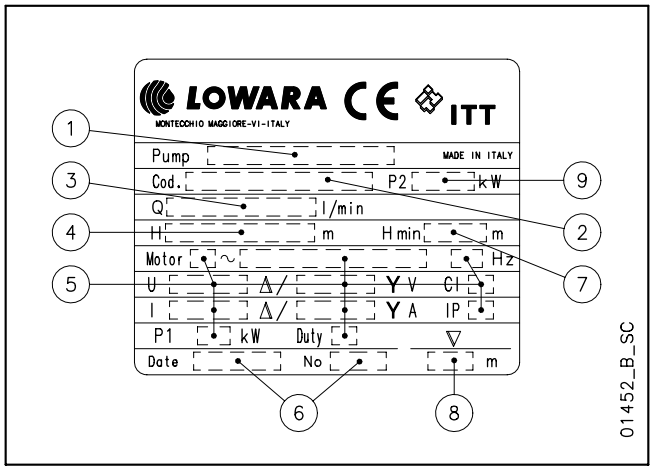


EXAMPLE : DLM 90/A
DL Series electric pump, impeller size 90,
50 Hz version, single-phase, /A version.

SINGLE-PHASE RATING PLATE



THREE-PHASE RATING PLATE



LEGEND

1 - Electric pump type

2 - Code

3 - Delivery range

4 - Head range

5 - Motor type

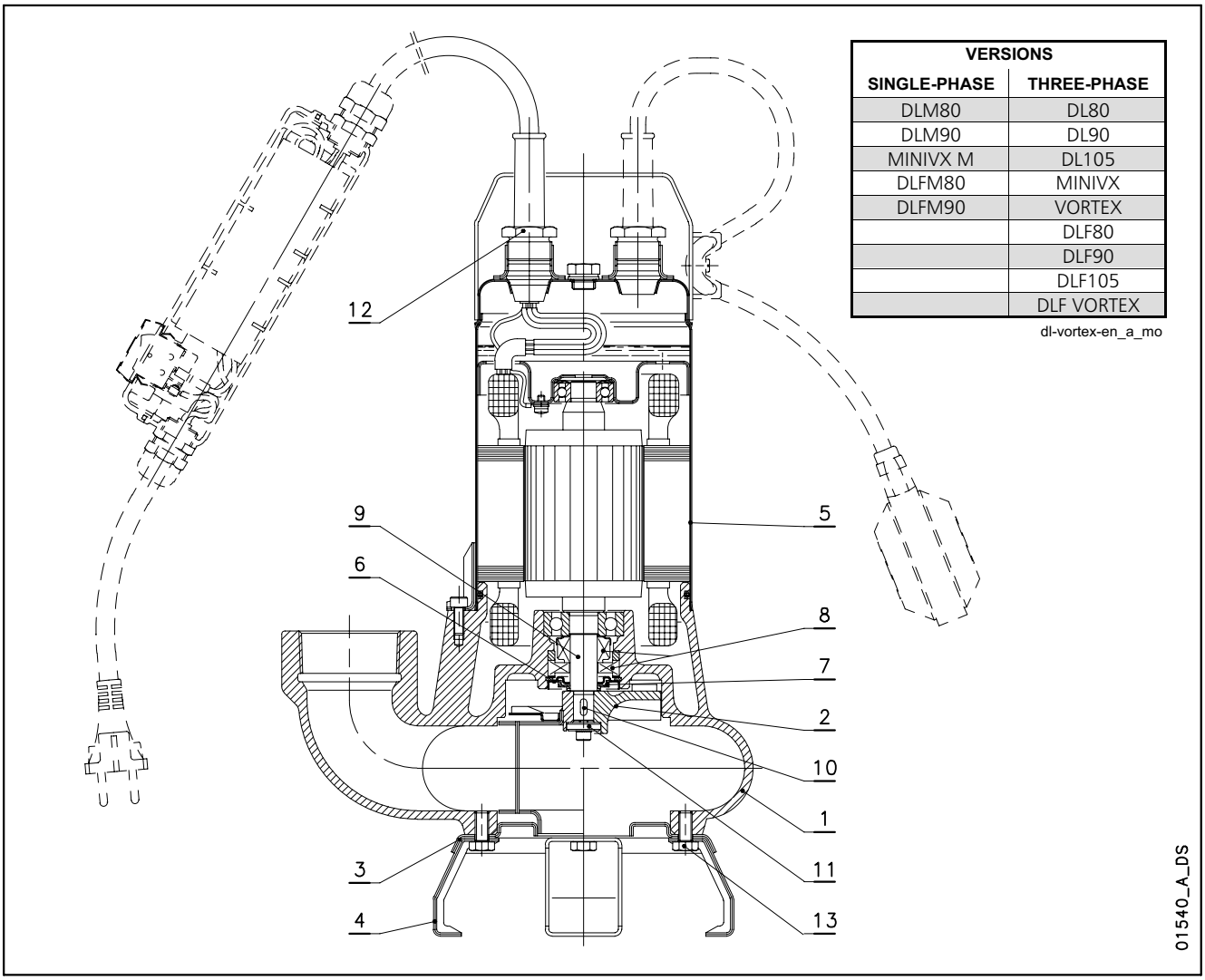
6 - Date of manufacture and serial number

7 - Minimum head

8 - Maximum immersion depth

9 - Rated output

DL-VORTEX SERIES
LIST OF MODELS AND TABLE OF MATERIALS



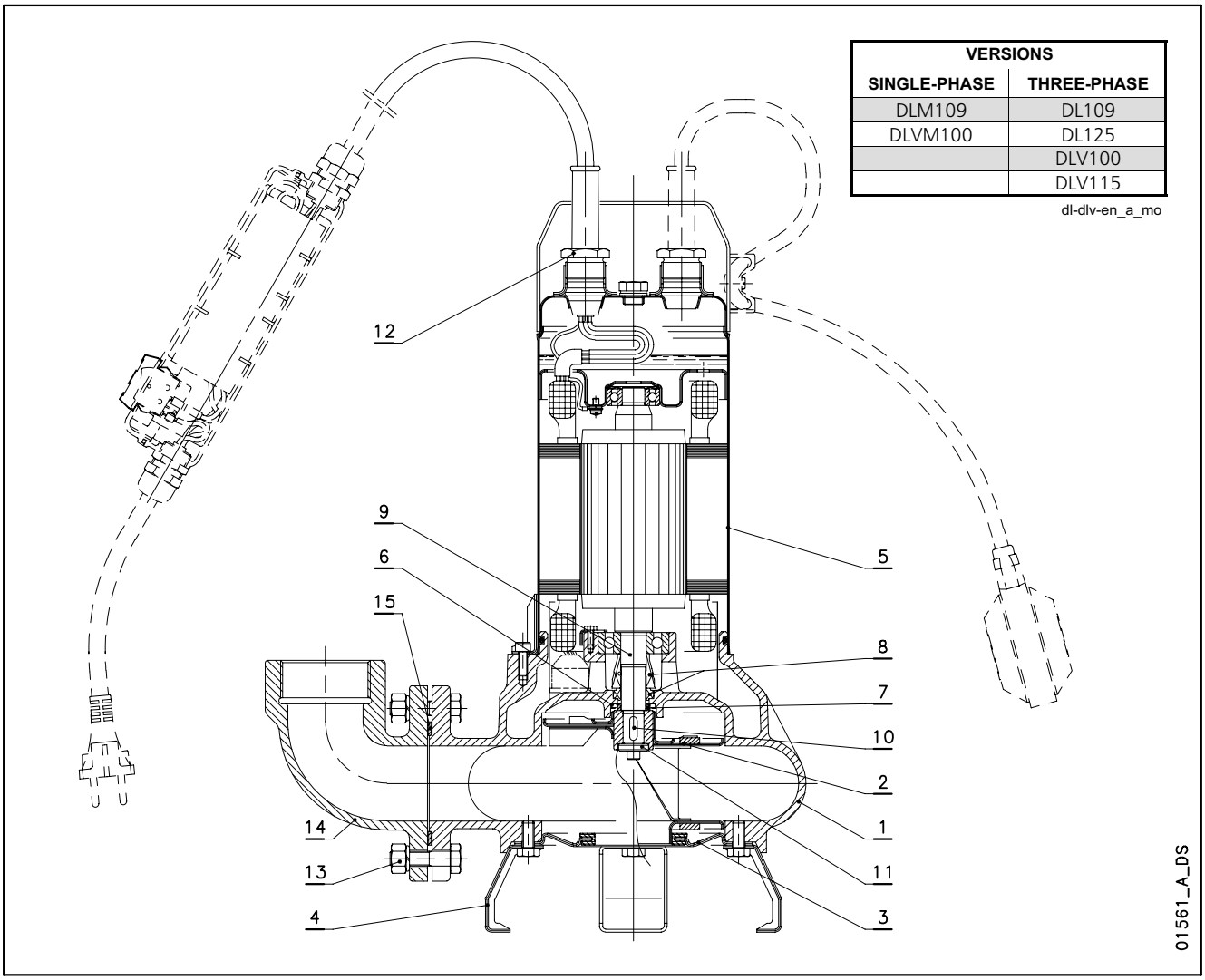
VERSIONS	
SINGLE-PHASE	THREE-PHASE
DLM80	DL80
DLM90	DL90
MINIVX M	DL105
DLFM80	MINIVX
DLFM90	VORTEX
	DLF80
	DLF90
	DLF105
	DLF VORTEX

dl-vortex-en_a_mo

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200(JL1030)	ASTM Class 25
2	Vortex impeller	Cast iron	EN 1561-GJL-200(JL1030)	ASTM Class 25
	Single-channel impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Suction flange	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Support foot	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Labyrinth cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
7	Labyrinth insert	NBR (standard version)		
8	Mechanical seal	Carbon / Ceramic Alumina / NBR (standard version)		
9	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Key	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Washer	Stainless steel		AISI 303
12	Cable gland	Brass		
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

dl-vortex-en_b_tm

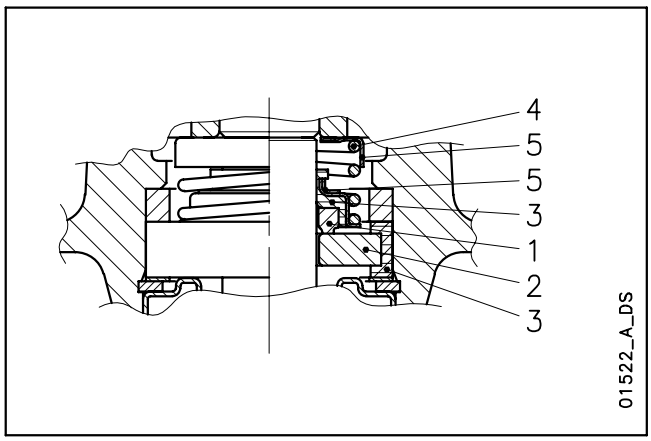
DL-DLV SERIES
LIST OF MODELS AND TABLE OF MATERIALS



REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-200(JL1030)	ASTM Class 25
2	Vortex impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
	Single-channel impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Suction flange	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Support foot	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Motor casing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	V-RING Cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
7	V16A Seal ring	NBR (standard version)		
8	Mechanical seal	Carbon / Ceramic Alumina / NBR (standard version)		
9	Shaft end	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Key	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
11	Washer	Stainless steel		AISI 303
12	Cable gland	Brass		
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
14	Delivery connection	Cast iron	EN 1561-GJL-200(JL1030)	ASTM Class 25
15	Delivery connction gasket	Nitrile rubber		

dl-dlv-en_b_tm

DL80-90-105 - MINIVORTEX-VORTEX SERIES MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Carbon	P : NBR	F : AISI 304
V : Ceramic Alumina	V : FPM	
U_3 : Tungsten Carbide		

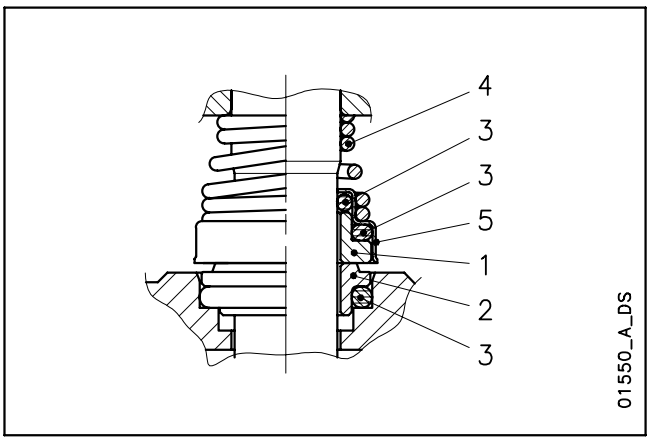
dn-dl-dlv_ten-mec-en_b_tm

SEAL TYPES

TYPE	POSITION					TEMPERATURE (°C)
	1	2	3	4	5	
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
BVPFF	B	V	P	F	F	-5 +50
OTHER MECHANICAL SEAL TYPES						
U_3U_3VFF	U_3	U_3	V	F	F	-5 +50

dn-dl-dlv_tipi-ten-mec-en_a_tc

DL109-125 - DLV100-115 SERIES
MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Carbon	P : NBR	G : AISI 316
U_3 : Tungsten Carbide	V : FPM	F : AISI 304
V : Ceramic Alumina		

dl-dlv_ten-mec-en_a_tm

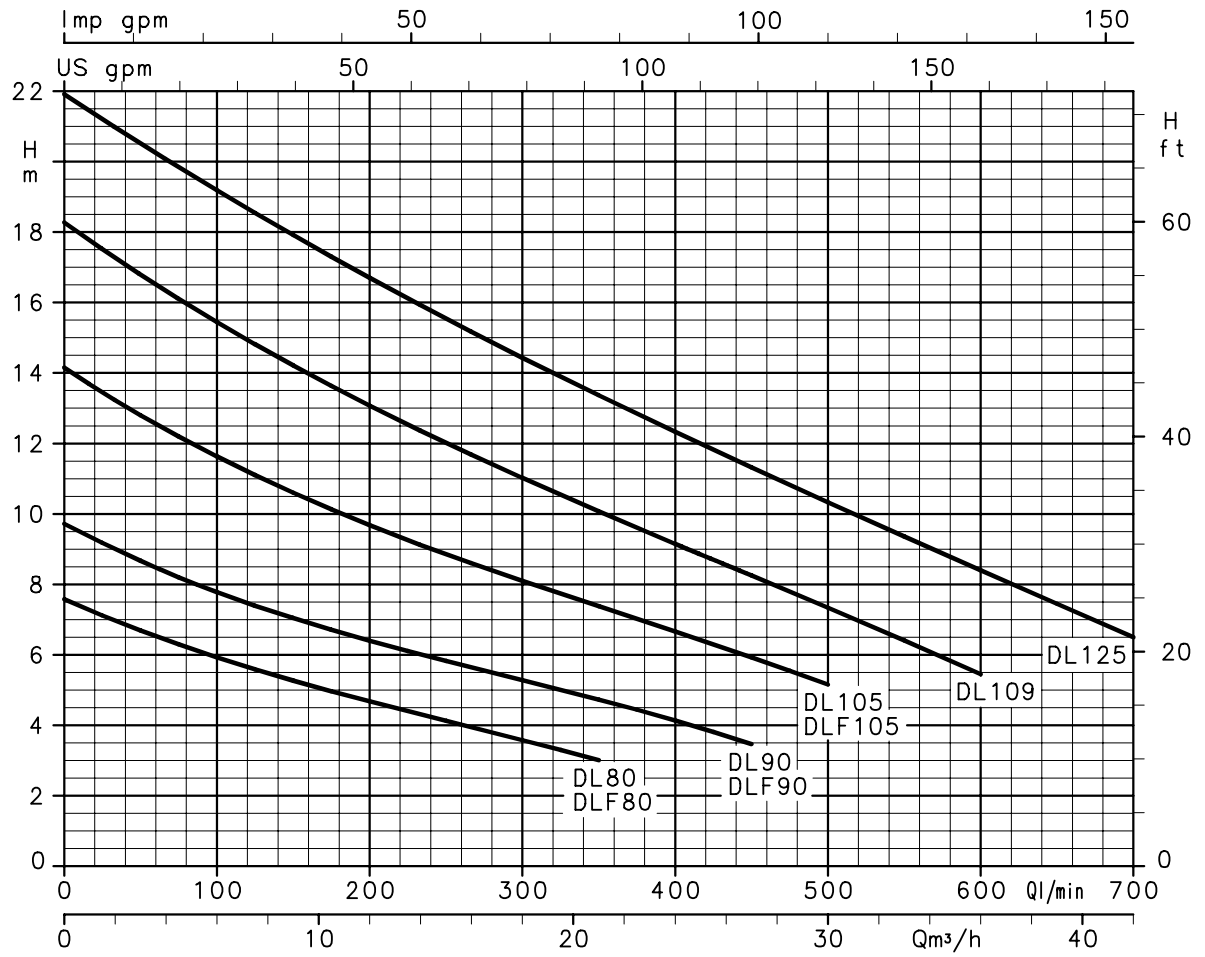
SEAL TYPES

TYPE	POSITION					TEMPERATURE (°C)
	1	2	3	4	5	
	ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
VBPGF	V	B	P	G	F	-5 +50
OTHER MECHANICAL SEAL TYPES						
U_3U_3VFF	U_3	U_3	V	F	F	-5 +50

dl-dlv_tipi-ten-mec-en_a_tc

DL SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DL	~ 2850 rpm	ISO 9906-Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min	0	100	150	200	250	300	350	400	450	500	600	700
			m³/h	0	6	9	12	15	18	21	24	27	30	36	42
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
DL(M) 80-DLF(M) 80	0,6	0,8	7,6	5,9	5,3	4,7	4,1	3,6	3,0						
DL(M) 90-DLF(M) 90	0,6	0,8	9,7	7,8	7,0	6,4	5,8	5,3	4,7	4,1	3,5				
DL 105 - DLF105	1,1	1,5	14,1	11,6	10,6	9,7	8,9	8,1	7,4	6,7	5,9	5,2			
DL(M) 109	1,1	1,5	18,3	15,4	14,2	13,1	12,0	11,0	10,1	9,2	8,2	7,3	5,4		
DL 125	1,5	2	21,9	19,2	17,9	16,7	15,5	14,4	13,4	12,3	11,3	10,3	8,4	6,5	

These performances are valid for liquids with density ρ = 1,0 kg/dm³ and kinematic viscosity ν = 1 mm²/s.

dl-2p50-en_b_th

ELECTRICAL DATA TABLE

PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
DLM80-DLFM80	0,79	3,91	25
DLM90-DLFM90	0,89	4,27	25
-	-	-	-
DLM109	1,55	6,87	35
-	-	-	-

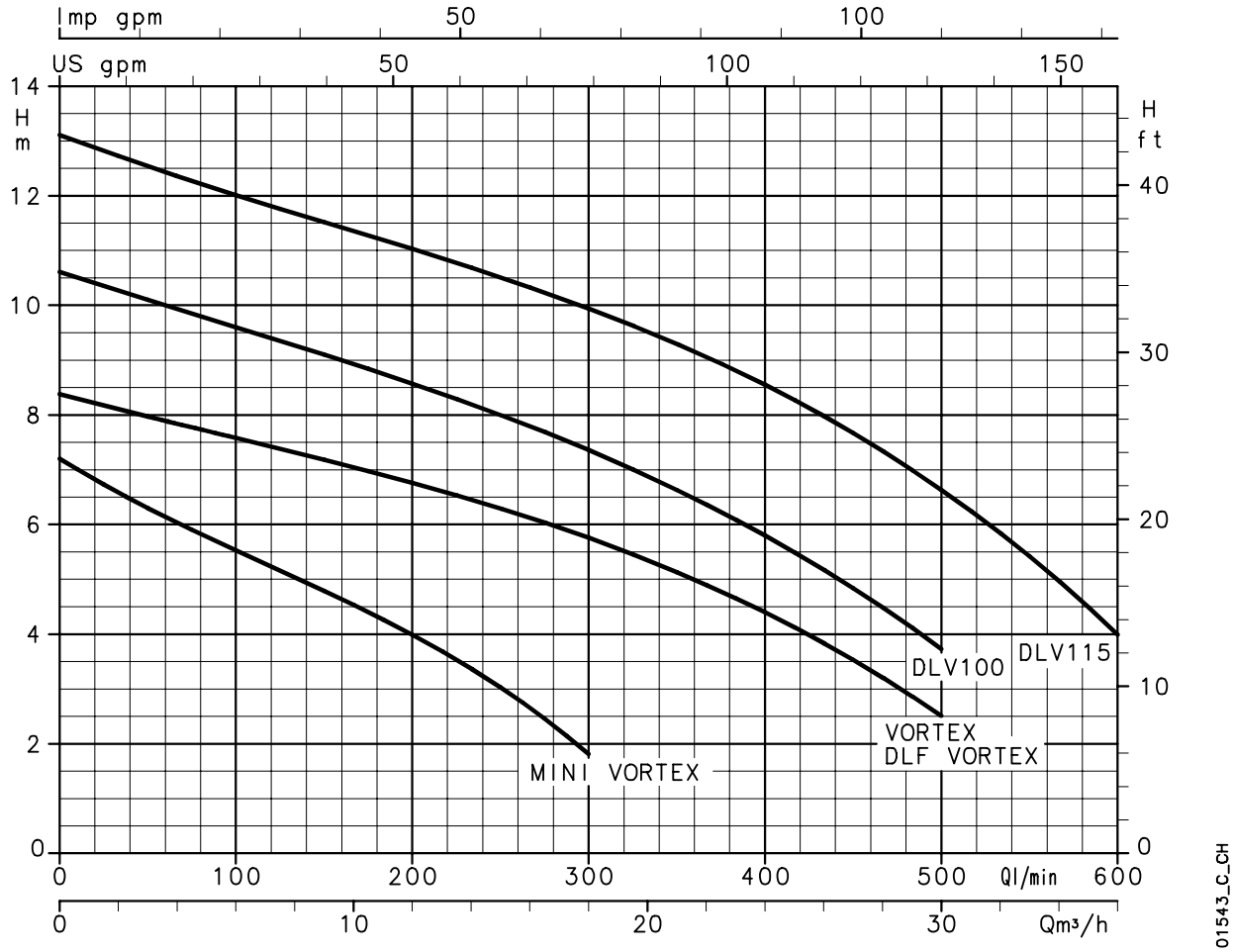
PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
DL80-DLF80	0,8	-	2,09
DL90-DLF90	0,92	3,81	2,2
DL105-DLF105	1,43	4,66	2,69
DL109	1,54	5,44	3,14
DL125	2,14	6,58	3,8

*Maximum values within operating range.

dl-2p50-en_b_te

DLV SERIES
OPERATING CHARACTERISTICS AT 50 Hz

DLV	~ 2850 rpm	ISO 9906-Annex A



HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min	0	50	100	150	200	250	300	350	400	450	500	600
			m^3/h	0	3	6	9	12	15	18	21	24	27	30	36
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
MINI VORTEX(M)	0,6	0,8	7,2	6,3	5,5	4,8	4,0	3,0	1,8						
VORTEX-DLF VORTEX	1,1	1,5	8,4	8,0	7,6	7,2	6,8	6,3	5,8	5,1	4,4	3,5	2,5		
DLV(M) 100	1,1	1,5	10,6	10,1	9,6	9,1	8,6	8,0	7,4	6,6	5,8	4,8	3,7		
DLV 115	1,5	2	13,1	12,5	12,0	11,5	11,0	10,5	9,9	9,3	8,5	7,7	6,6	4,0	

These performances are valid for liquids with density $\rho = 1{,}0$ kg/dm³ and kinematic viscosity $\nu = 1$ mm²/s.

dlv-2p50-en_b_th

ELECTRICAL DATA TABLE

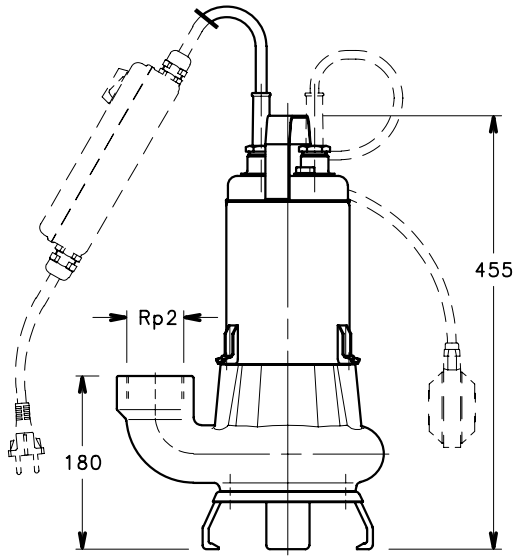
PUMP TYPE SINGLE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	CAPACITOR µF / 450 V
MINI VORTEX M	1,05	4,82	25
-	-	-	-
DLVM100	1,64	7,30	35
-	-	-	-

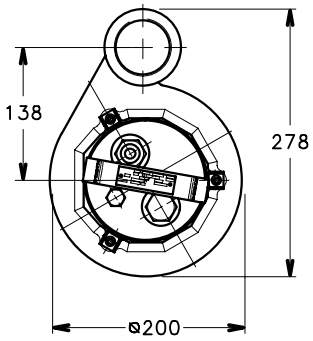
PUMP TYPE THREE-PHASE	ABSORBED POWER* kW	ABSORBED CURRENT* 220-240 V A	ABSORBED CURRENT* 380-415 V A
MINI VORTEX	1,10	-	2,36
VORTEX-DLF VORTEX	1,66	5,11	2,95
DLV 100	1,65	5,63	3,25
DLV 115	2,25	6,81	3,93

*Maximum values within operating range.

dlv-2p50-en_b_te

DL - VORTEX SERIES
DIMENSIONS AND WEIGHTS



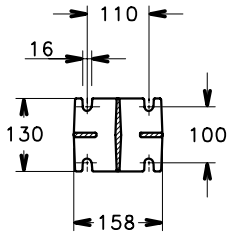


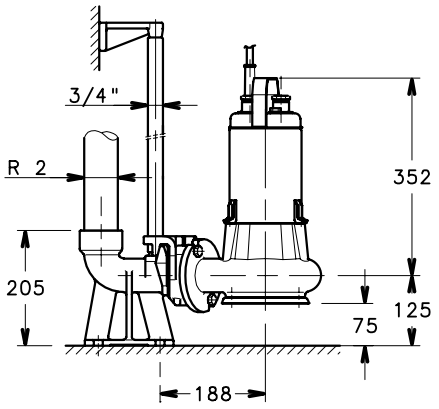
PUMP TYPE	WEIGHT kg
DL80-DLM80	19,5
DL90-DLM90	20
DL105	21
MINIVORTEX (M)	19
VORTEX	19

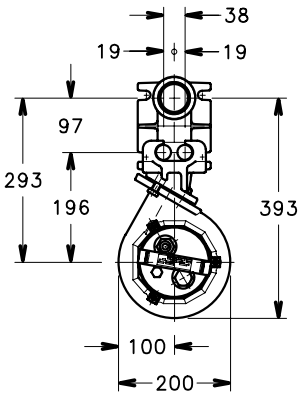
dl-vortex-2p50-en_a_td

01541_C_DD

DLF SERIES
DS2







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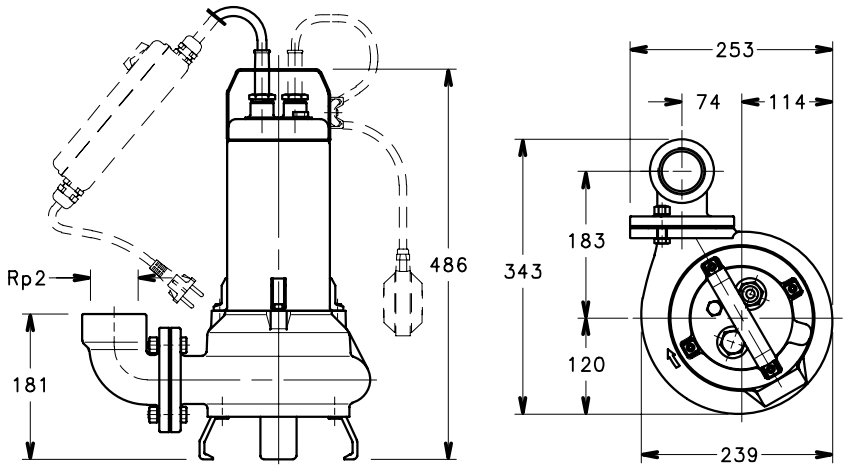
DL - DLV SERIES
DIMENSIONS AND WEIGHTS

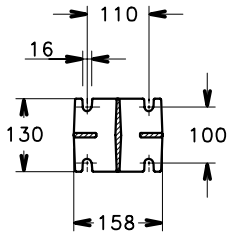


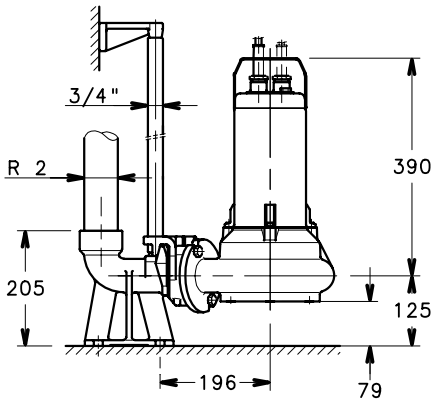
PUMP TYPE	WEIGHT kg
DL109-DLM109	27
DL125	27
DLV100-DLVM100	27
DLV115	27

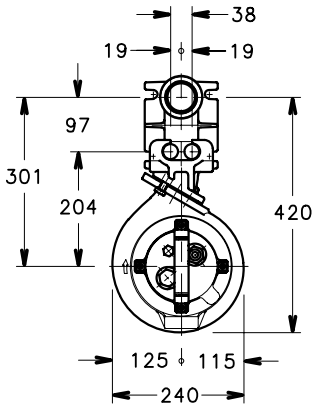
dl-dlv-2p50-en_a_td

01562_C_DD

DL-DLV SERIES
DS2







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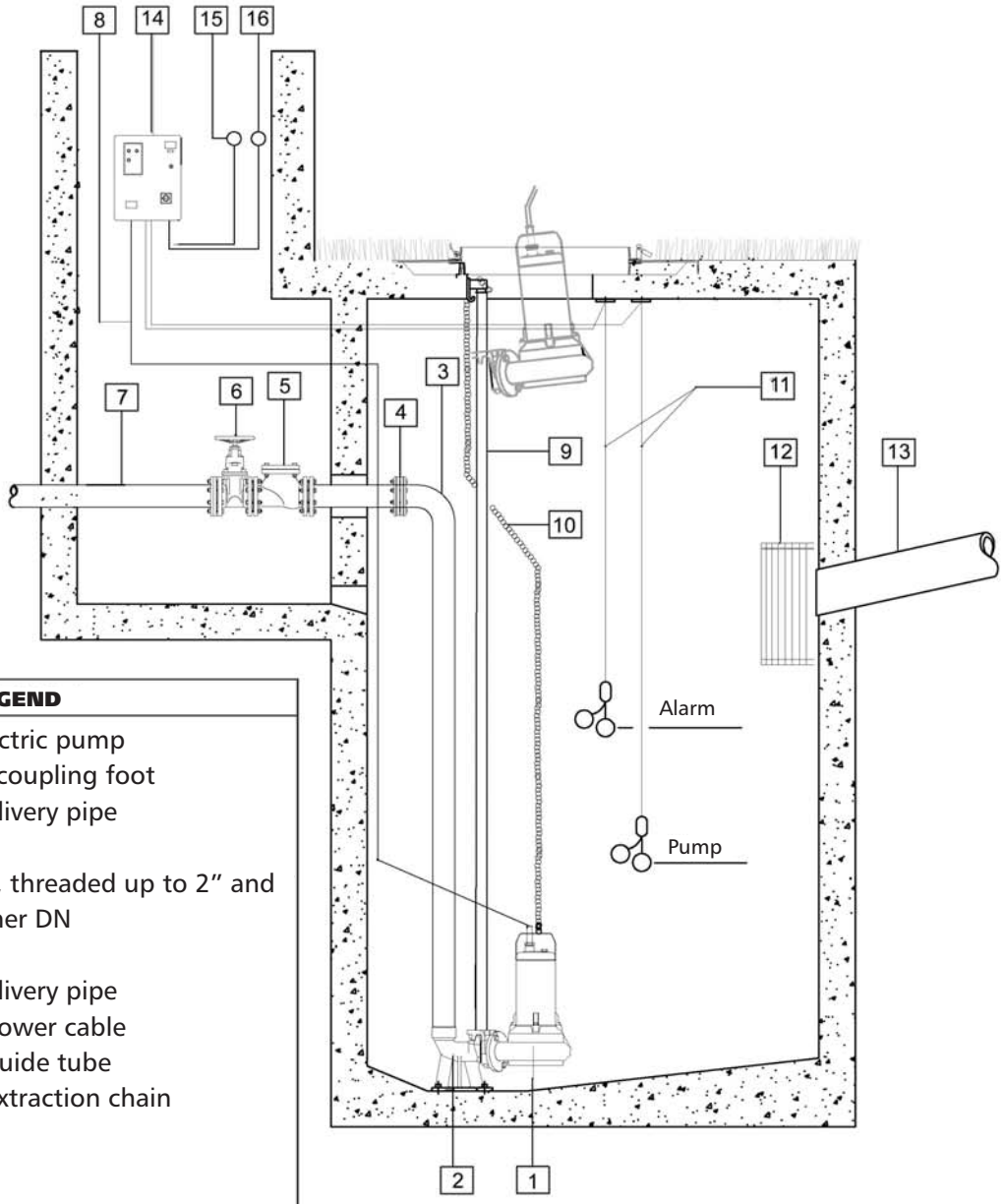
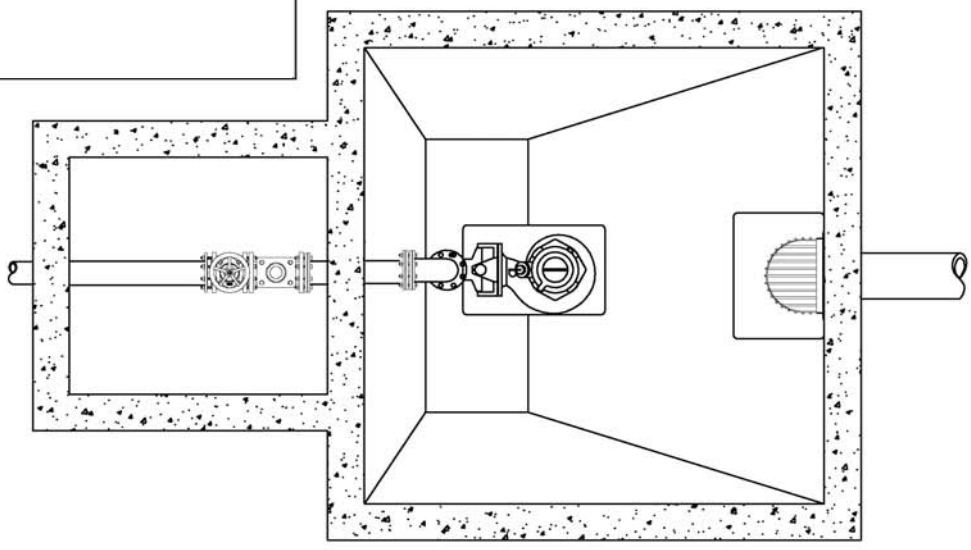
TECHNICAL APPENDIX

EXAMPLE OF INSTALLATION OF SINGLE-PUMP SYSTEM

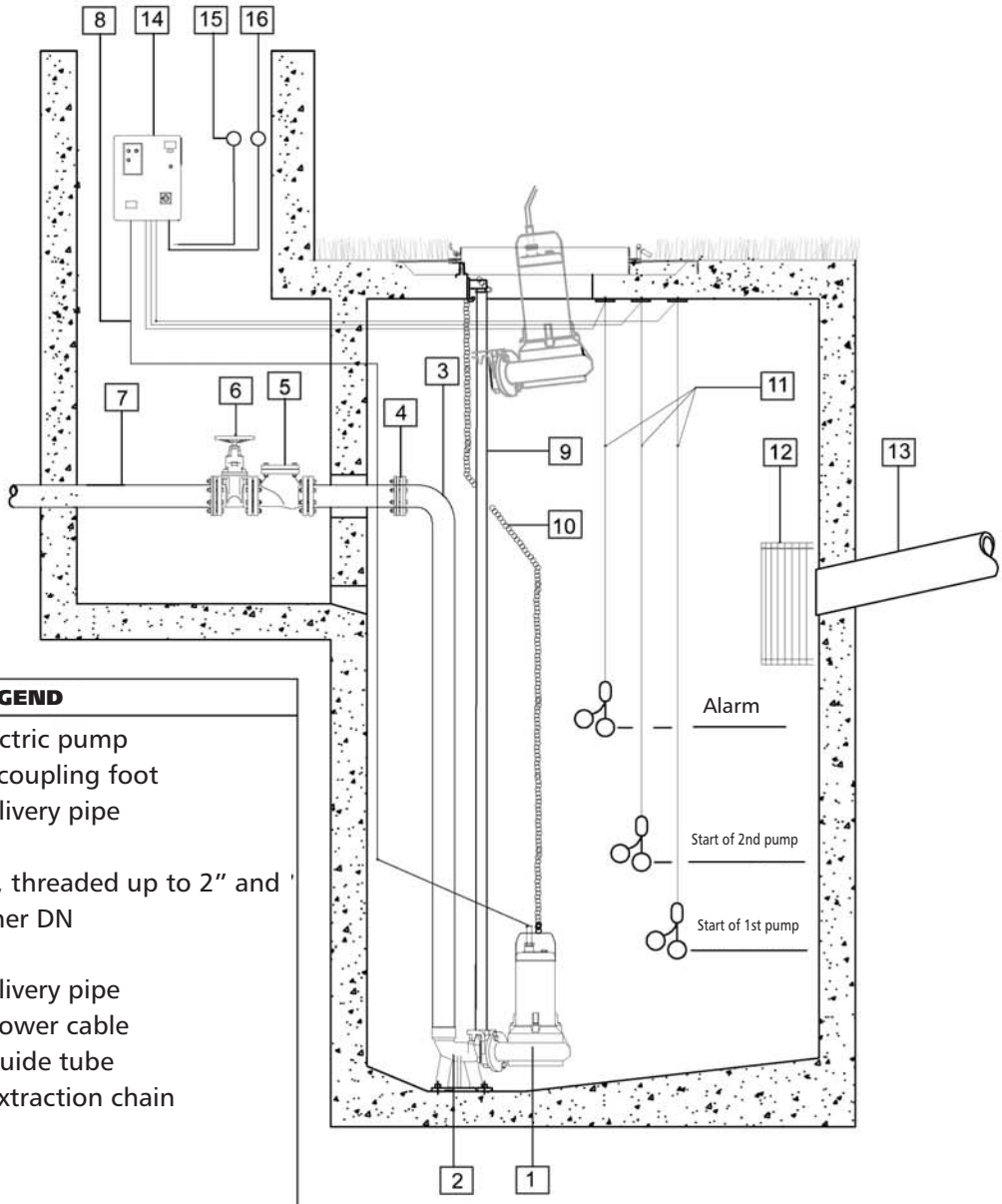


LEGEND

1. Submersible electric pump
2. Cast iron quick coupling foot
3. Polyethylene delivery pipe
4. Counterflange
5. Ball check valve, threaded up to 2" and flanged for higher DN
6. Gate valve
7. Polyethylene delivery pipe
8. Electric pump power cable
9. Stainless steel guide tube
10. Stainless steel extraction chain
11. Level floats
12. Inlet sluice gate
13. Inlet pipe
14. Electric panel
15. Alarm siren
16. Alarm light



EXAMPLE OF INSTALLATION OF TWO-PUMP SYSTEM WITH THREE FLOATS



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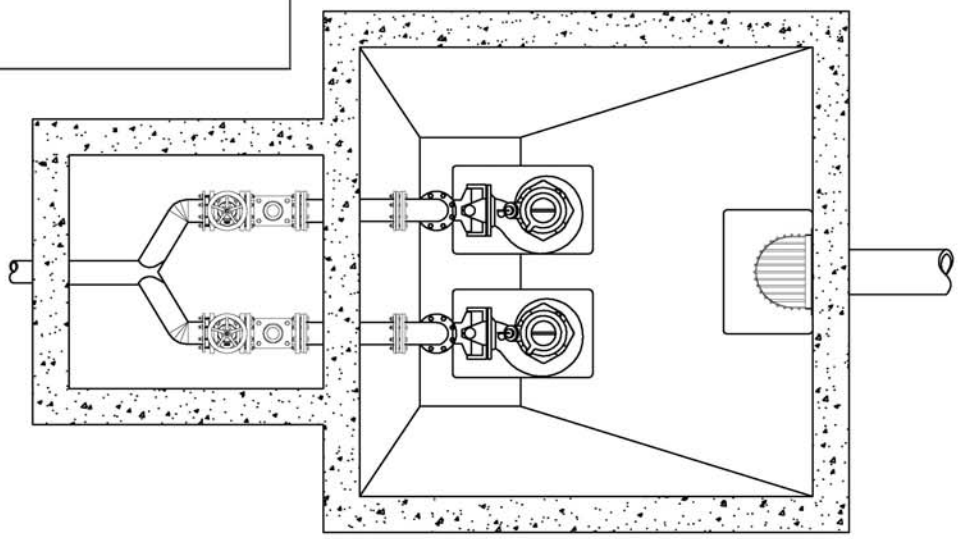
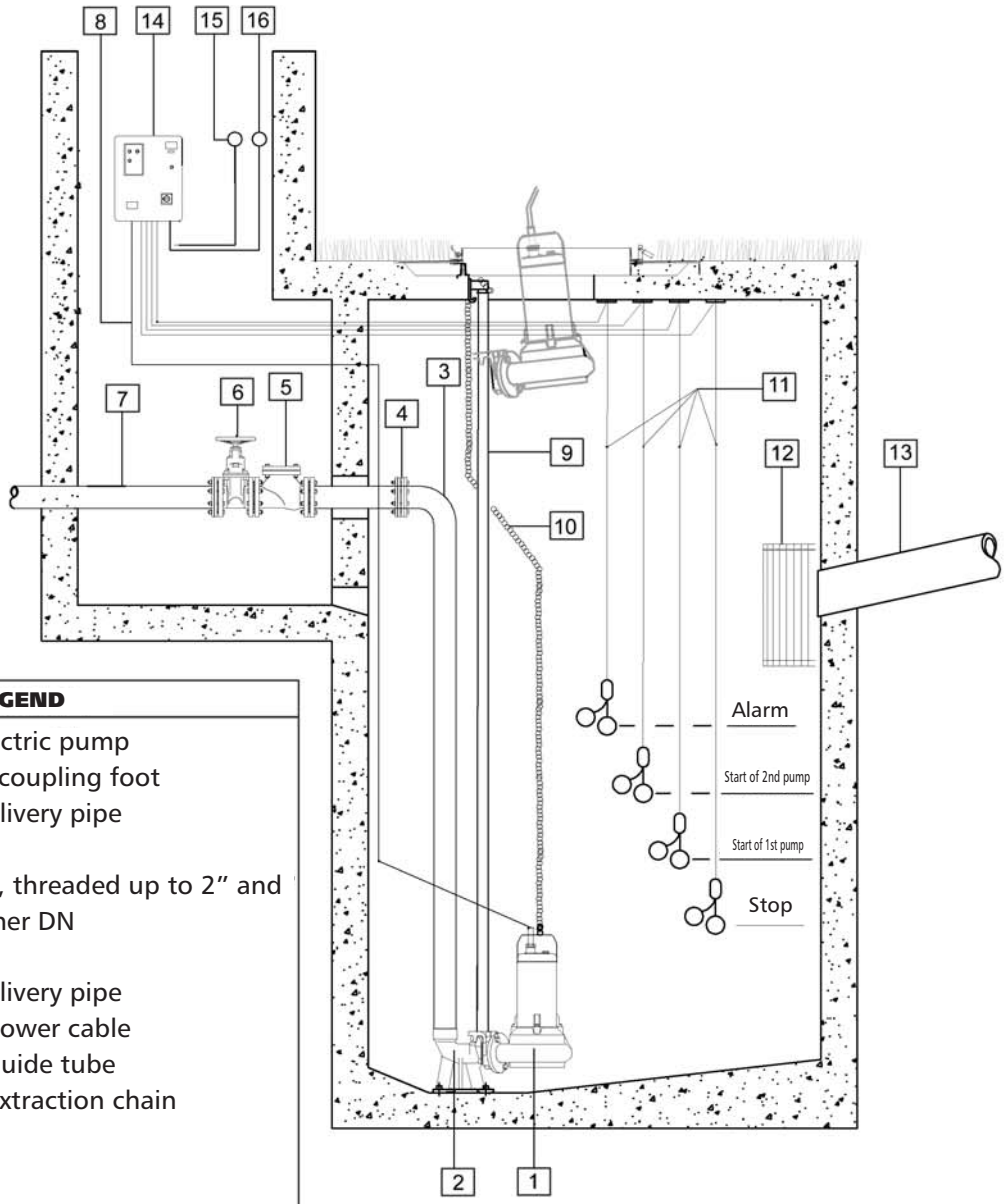


EXAMPLE OF INSTALLATION OF TWO-PUMP SYSTEM WITH FOUR FLOATS



LEGEND

1. Submersible electric pump
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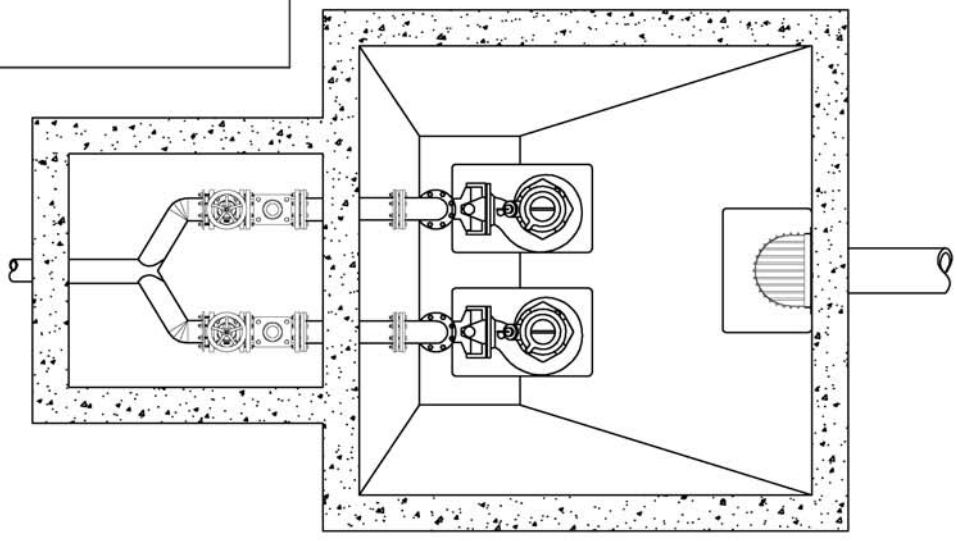
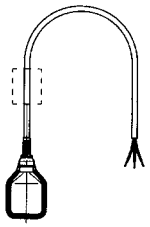


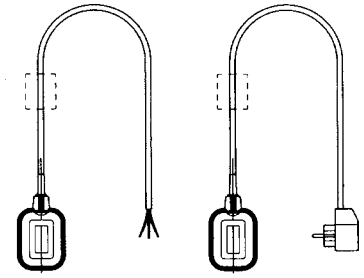
LEVEL CONTROL FLOAT

SMALL MODEL



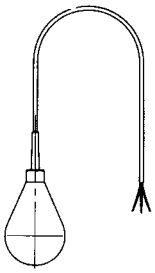
For single function (draining)
cable lenght 1.5, 5, 10 m.
Counterweight available on request for version with 5, 10 m cable.

KEY MODEL



For dual function (draining/filling)
cable lenght 1.5, 5, 10, 20 m.
Counterweight available on request for version with 5, 10 m cable.
Version with plug and socket for single-phase pumps up to 1 kW.

RDN-10 MODEL



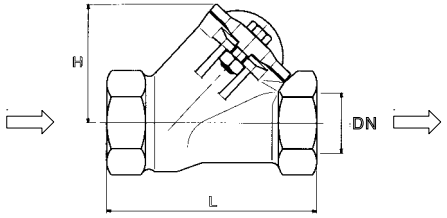
For solids-laden water.
Cable lenght: 15 m. (PVC)

BALL CHECK VALVE FOR SOLIDS-LADEN WATER

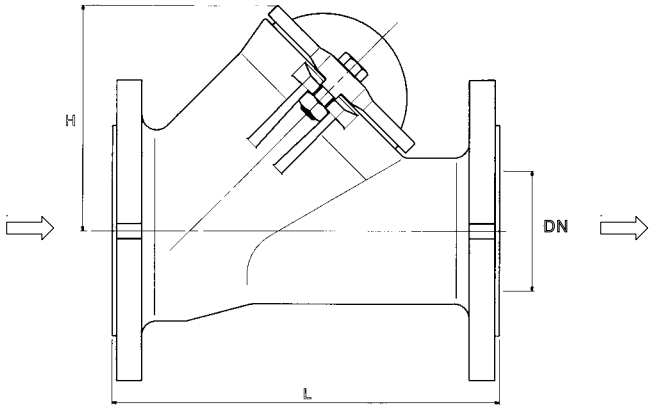
No-clog, maximum reliability, low flow resistance.
Maximum operating pressure: 10 bar.
Maximum temperature: 85°C.
Horizontal or vertical operating position.

MODEL	DIMENSIONS (mm)			WEIGHT
	Ø BALL	L	H	kg
Rp 1 1/4	48	140	80	2
Rp 1 1/2	50	140	80	4
Rp 2	60	200	98	5,5
DN 65	95	230	148	12
DN 80	95	260	148	13
DN 100	120	300	182	18
DN 150	175	400	251	37,5
DN 200	240	500	333	70
DN 250	300	600	406	128

Valv-palla-en_a_td



Rp 1 1/4 - 1 1/2 - 2 MODEL



65 - 80 - 100 - 150 - 200 - 250 MODEL

FLOW RESISTANCE

TABLE OF FLOW RESISTANCE IN 100 m OF A NEW AND STRAIGHT CAST IRON PIPELINE

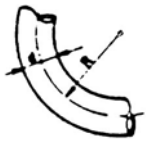
FLOW RATE			NOMINAL DIAMETER IN mm AND INCHES																
m³/h	l/min.		15 ½"	20 ¾"	25 1"	32 1 ¼"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	175 7"	200 8"	250 10"	300 12"	350 14"	400 16"
0,6	10	V	0,94	0,53	0,34	0,21													
		hr	11,8	2,82	1	0,25													
0,9	15	V	1,42	0,8	0,51	0,31													
		hr	25,1	6,04	2,16	0,55													
1,2	20	V	1,89	1,06	0,68	0,41	0,27												
		hr	43,1	10,4	3,72	0,95	0,31												
1,5	25	V	2,36	1,33	0,85	0,52	0,33												
		hr	64,5	15,8	5,68	1,47	0,47												
1,8	30	V	2,83	1,59	1,02	0,62	0,4												
		hr	92	22,3	8	2,09	0,66												
2,1	35	V	3,3	1,86	1,19	0,73	0,46	0,3											
		hr	123	29,8	10,8	2,81	0,89	0,31											
2,4	40	V	3,77	2,12	1,36	0,83	0,53	0,34											
		hr	164	38,2	13,8	2,65	1,15	0,4											
3	50	V	4,72	2,65	1,7	1,04	0,66	0,42											
		hr	246	58,2	21,5	5,6	1,75	0,61											
3,6	60	V		3,18	2,04	1,24	0,8	0,51											
		hr		82	30	8	2,48	0,86											
4,2	70	V		3,72	2,38	1,45	0,93	0,59											
		hr		110	40	10,8	3,33	1,14											
4,8	80	V		4,25	2,72	1,66	1,06	0,68											
		hr		141	51,5	13,9	4,3	1,46											
5,4	90	V			3,06	1,87	1,19	0,76	0,45										
		hr			64	17,5	5,4	1,82	0,46										
6	100	V			3,4	2,07	1,33	0,85	0,5										
		hr			79	21,4	6,6	2,22	0,56										
7,5	125	V			4,25	2,59	1,66	1,06	0,63										
		hr			120	33	10	3,4	0,86										
9	150	V				3,11	1,99	1,27	0,75	0,5									
		hr				47	14,2	4,74	1,21	0,43									
10,5	175	V				3,63	2,32	1,49	0,88	0,58									
		hr				63	19	6,3	1,63	0,57									
12	200	V				4,15	2,65	1,7	1,01	0,66									
		hr				82	24,5	8,1	2,1	0,74									
15	250	V				5,18	3,32	2,12	1,26	0,83	0,53								
		hr				126	37,5	12,3	3,2	1,12	0,36								
18	300	V					3,98	2,55	1,51	1	0,64								
		hr					53	17,3	4,5	1,58	0,51								
24	400	V					5,31	3,4	2,01	1,33	0,85								
		hr					92	29,5	7,8	2,7	0,89								
30	500	V					6,63	4,25	2,51	1,66	1,06	0,68							
		hr					140	44,8	12	4,13	1,36	0,48							
36	600	V						5,1	3,02	1,99	1,27	0,82							
		hr						63	16,9	5,8	1,93	0,68							
42	700	V						5,94	3,52	2,32	1,49	0,95							
		hr						84	22,6	7,8	2,6	0,9							
48	800	V						6,79	4,02	2,65	1,70	1,09	0,75						
		hr						108	29	10	3,35	1,16	0,43						
54	900	V						7,64	4,52	2,99	1,91	1,22	0,85						
		hr						134	36	12,5	4,2	1,45	0,54						
60	1000	V							5,03	3,32	2,12	1,36	0,94						
		hr							44,5	15,2	5,14	1,76	0,66						
75	1250	V							6,28	4,15	2,65	1,70	1,18	0,87					
		hr							68	23	7,9	2,68	1	0,48					
90	1500	V							7,54	4,98	3,18	2,04	1,42	1,04					
		hr							96	32,6	11,2	3,77	1,42	0,68					
105	1750	V							8,79	5,81	3,72	2,38	1,65	1,21	0,93				
		hr							129	43,5	15	5,04	1,9	0,91	0,45				
120	2000	V								6,63	4,25	2,72	1,89	1,39	1,06	0,68			
		hr								56	19,4	6,5	2,43	1,18	0,58	0,16			
150	2500	V								8,29	5,31	3,40	2,36	1,73	1,33	0,85			
		hr								85	30	9,8	3,75	1,79	0,89	0,25			
180	3000	V								9,95	6,37	4,08	2,83	2,08	1,59	1,02	0,71		
		hr								120	42	13,8	5,3	2,53	1,25	0,35	0,15		
300	5000	V									10,62	6,79	4,72	3,47	2,65	1,70	1,18	0,87	0,66
		hr									124,9	41,3	16,74	7,81	4,03	1,34	0,54	0,25	0,13
600	10000	V										13,59	9,44	6,93	5,31	3,4	2,36	1,73	1,33
		hr										161	65	30,2	15,6	5,16	2,09	0,97	0,5
1200	20000	V														6,79	4,72	3,47	2,65
		hr														20,1	8,13	3,8	1,95
1800	30000	V															7,7	5,2	4,0
		hr															18,07	8,39	4,32
3000	50000	V															11,8	8,67	6,63
		hr															49,5	23	11,8
4500	75000	V															17,7	13	9,9
		hr															110,5	51,3	26,4
6000	100000	V																17,33	13,27
		hr																90,6	46,6

THE FLOW RESISTANCE MUST BE MULTIPLIED BY:
- 0.8 for stainless steel pipes
- 1.25 for slightly rusted steel pipes
- 1.7 for pipes with deposits that reduce the flow section
- 0.7 for aluminium pipes
- 1.3 for fibre-cement pipes

Hr = FLOW RESISTANCE (m/100 m OF PIPELINE)

V = WATER SPEED (m/sec)

FLOW RESISTANCE IN BENDS, VALVES AND GATES IN cm OF COLUMN OF WATER

WATER SPEED	SHARP BENDS 					SMOOTH BENDS 					STANDARD GATE VALVES	FOOT VALVES	CHECK VALVES
m/ ec	a = 30°	a = 40°	a = 60°	a = 80°	a = 90°	$\frac{d}{R}$ = 0,4	$\frac{d}{R}$ = 0,6	$\frac{d}{R}$ = 0,8	$\frac{d}{R}$ = 1	$\frac{d}{R}$ = 1,s			
0,10	0,03	0,04	0,05	0,07	0,08	0,007	0,008	0,01	0,0155	0,027	0,030	30	30
0,15	0,06	0,07	0,10	0,14	0,17	0,016	0,019	0,024	0,033	0,06	0,033	31	31
0,2	0,11	0,13	0,18	0,26	0,31	0,028	0,033	0,04	0,058	0,11	0,058	31	31
0,25	0,17	0,21	0,28	0,4	0,48	0,044	0,052	0,063	0,091	0,17	0,090	31	31
0,3	0,25	0,30	0,41	0,6	0,7	0,063	0,074	0,09	0,13	0,25	0,13	31	31
0,35	0,33	0,40	0,54	0,8	0,93	0,085	0,10	0,12	0,18	0,33	0,18	31	31
0,4	0,43	0,52	0,71	1,0	1,2	0,11	0,13	0,16	0,23	0,43	0,23	32	31
0,5	0,67	0,81	1,1	1,6	1,9	0,18	0,21	0,26	0,37	0,67	0,37	33	32
0,6	0,97	1,2	1,6	2,3	2,8	0,25	0,29	0,36	0,52	0,97	0,52	34	32
0,7	1,35	1,65	2,2	3,2	3,9	0,34	0,40	0,48	0,70	1,35	0,70	35	32
0,8	1,7	2,1	2,8	4,0	4,8	0,45	0,53	0,64	0,93	1,7	0,95	36	33
0,9	2,2	2,7	3,6	5,2	6,2	0,57	0,67	0,82	1,18	2,2	1,20	37	34
1,0	2,7	3,3	4,5	6,4	7,6	0,7	0,82	1,0	1,45	2,7	1,45	38	35
1,5	6,0	7,3	10	14	17	1,6	1,9	2,3	3,3	6	3,3	47	40
2,0	11	14	18	26	31	2,8	3,3	4,0	5,8	11	5,8	61	48
2,5	17	21	28	40	48	4,4	5,2	6,3	9,1	17	9,1	78	58
3,0	25	30	41	60	70	6,3	7,4	9	13	25	13	100	71
3,5	33	40	55	78	93	8,5	10	12	18	33	18	123	85
4,0	43	52	70	100	120	11	13	16	23	42	23	150	100
4,5	55	67	90	130	160	14	21	26	37	55	37	190	120
5,0	67	82	110	160	190	18	29	36	52	67	52	220	140

1) Flow resistance in bends is due to the contraction of the liquid threads resulting from the change of direction: the development of the bends must therefore be included in the length of the pipeline.
2) Flow resistance in valves and gates was determined on the basis of practical tests.

VOLUMETRIC CAPACITY

Litres per minute l/min	Cubic metres per hour m^3/h	Cubic feet per hour ft^3/h	Cubic feet per minute ft^3/min	Imp. gal. per minute Imp. gal/min	US gal. per minute Us gal./min
1,0000	0,0600	2,1189	0,0353	0,2200	**0,2640**
16,6667	**1,0000**	35,3147	0,5886	3,6660	4,4030
0,4720	0,0283	**1,0000**	0,0167	0,1040	**0,1250**
28,3170	1,6990	60,0000	**1,0000**	6,2290	7,4800
4,5460	0,2728	9,6326	0,1605	**1,0000**	1,2010
3,7850	0,2271	8,0209	0,1337	0,8330	**1,0000**

PRESSURE AND HEAD

Newton per square metre N/m^2	kilo Pascal kPa	bar bar	Pound force per square inch psi	metre of water m H_2O	millimetre di mercury mm Hg
1,0000	0,0010	1×10^{-5}	$1,45 \times 10^{-4}$	$1,02 \times 10^{-4}$	**0,0075**
1000,0000	**1,0000**	0,0100	0,1450	0,1020	7,5000
1×10^5	100,0000	**1,0000**	14,5000	10,2000	**750,1000**
6895,0000	6,8950	0,0690	**1,0000**	0,7030	**51,7200**
9789,0000	9,7890	0,0980	1,4200	**1,0000**	**73,4200**
133,3000	0,1333	0,0013	0,0190	0,0140	**1,0000**

LENGHT

millimetre mm	centimetre cm	metre m	inch in	foot ft	yard yd
1,0000	0,1000	0,0010	0,0394	0,0033	**0,0011**
10,0000	**1,0000**	0,0100	0,3937	0,0328	0,0109
1000,0000	100,0000	**1,0000**	39,3701	3,2808	**1,0936**
25,4000	2,5400	0,0254	**1,0000**	0,0833	0,0278
304,8000	30,4800	0,3048	12,0000	**1,0000**	**0,3333**
914,4000	91,4400	0,9144	36,0000	3,0000	**1,0000**

VOLUME

cubic metre m^3	litre litro	millilitre ml	imp. gallon imp. gal.	US gallon US gal.	cubic foot ft^3
1,0000	1000,0000	1×10^6	220,0000	264,2000	**35,3147**
0,0010	**1,0000**	1000,0000	0,2200	0,2642	0,0353
1×10^{-6}	0,0010	**1,0000**	$2,2 \times 10^{-4}$	$2,642 \times 10^{-4}$	**$3,53 \times 10^{-5}$**
0,0045	4,5460	4546,0000	**1,0000**	1,2010	0,1605
0,0038	3,7850	3785,0000	0,8327	**1,0000**	**0,1337**
0,0283	28,3170	28317,0000	6,2288	7,4805	**1,0000**

G-at_pp-en_a_sc