



ITT

Lowara

SV Series

SV 2, 4, 8, 16

SV 33, 46, 66, 92

Vertical Multistage
Electric Pumps
equipped with high
efficiency PLM motors

60 Hz



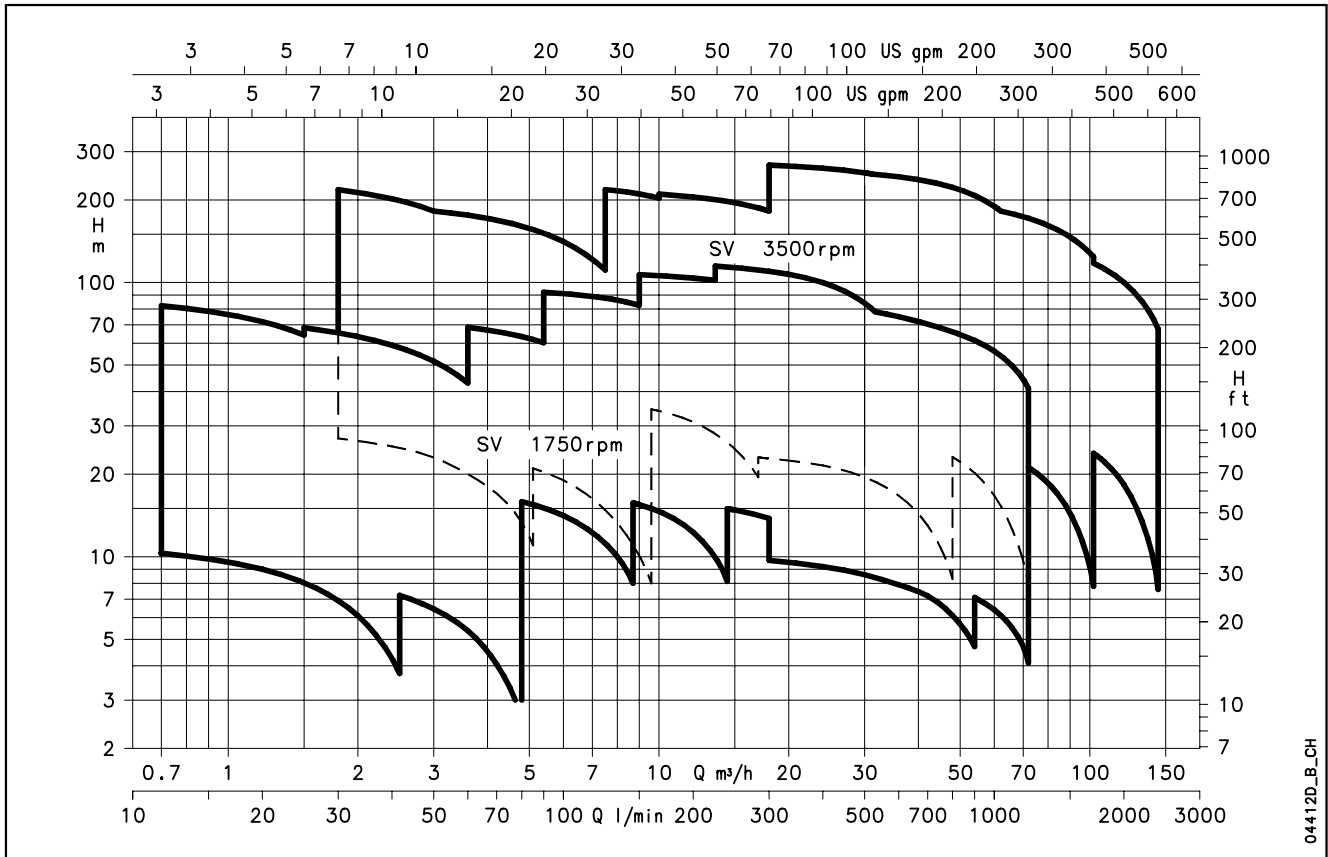
Engineered for life



ITT

Lowara

SV SERIES HYDRAULIC PERFORMANCE RANGE AT 60 Hz



04412D_B_CH



CONTENTS

Specifications	5
Characteristics of SV 2, 4, 8, 16 Series	6
Characteristics of SV 33, 46, 66, 92 Series	6
General Characteristics	7
Typical Applications of SV Pumps	8
SV 2, 4, 8, 16 Series, Electric Pump Cross Section and Main Components	10
SV 33, 46, 66, 92 Series, Electric Pump Cross Section and Main Components	11
SV Mechanical Seals	12
Motors	13
SVH Series Pumps with Hydrovar® Control System	15
Hydraulic Performance Overview, SV Series 60 Hz, 2 poles (~3500 rpm)	17
Hydraulic Performance Overview, SV Series 60 Hz, 4 poles (~1750 rpm)	18
Table of Hydraulic Performances at 3500 rpm	19
Table of Hydraulic Performances at 1750 rpm	22
Operating Characteristics at 3500 rpm, 60 Hz	25
Operating Characteristics at 1750 rpm, 60 Hz	41
Horizontal Version	58
Technical Appendix	61



Lowara

Vertical Multistage Electric Pumps

SV Series with high efficiency PLM motors



MARKET SECTORS

CIVIL, AGRICULTURAL, LIGHT INDUSTRY, WATER TREATMENT, HEATING AND AIR CONDITIONING.

APPLICATIONS

- Handling of water, free of suspended solids, in the civil, industrial and agricultural sectors.
- Pressure boosting and water supply systems.
- Irrigation systems.
- Wash systems.
- Water treatment plants.
- Handling of moderately aggressive liquids, demineralized water, water and glycol, etc.
 - Circulation of hot and cold water for heating, cooling and conditioning systems.
 - Boliler feed.
- Tested in compliance with ISO 9906 - Annex A.
- Direction of rotation: clockwise looking at the pump from the top down (marked with an arrow on the adapter and on the coupling).

SPECIFICATIONS

PUMP

The SV pump is a non-self priming vertical multistage pump coupled to a standard motor.

The liquid end, located between the upper cover and the pump casing, is held in place by tie rods. The pump casing is available with different configurations and connection types.

- Delivery: up to **144 m³/h**.
- Head: up to **280 m**.
- Temperature of pumped liquid:
 - 30°C to +120°C for SV 2, 4, 8, 16, standard version.
 - 30°C to +120°C for SV 33, 46, 66, 92, standard version.
- Maximum operating **pressure**:
 - SV 2, 4, 8 with oval flanges: 16 bar (PN 16).
 - SV 2, 4, 8, 16 with round flanges or Victaulic®: 25 bar (PN 25).
 - SV 2, 4, 8, 16 with Clamp connections: 16 or 25 bar (PN 16 or PN 25) depending on the number of stages.
 - SV 33, 46: 16, 25, 40 bar (PN 16, PN 25 or PN 40).
 - SV 66, 92: 16, 25 bar (PN 16, PN 25).

MOTOR

- Squirrel cage in short circuit, aluminium casing, enclosed construction with external ventilation.
- Standard supply Lowara motors up to 15 kW (included) for the 4-pole version, and up to 22 kW (included) for the 2-pole version. Other motor brands for higher powers.
- **The Lowara PLM surface motors have efficiency values that fall within the range normally referred to as efficiency class 1.**
- IP55 protection.
- Class F insulation.
- Performances according to EN 60034-1.
- Standard voltage:
 - Single-phase version: 220-230 V, 60 Hz.
 - Three-phase version, 2 pole: 220 V Δ, 380 V Y, 60 Hz up to 45 kW.
 - Three-phase version, 4 pole: 220 V Δ, 380 V Y, 60 Hz up to 15 kW.

MATERIALS

- **Materials in contact are suitable for use with potable water (WRAS certified).**

LIQUID END MADE ENTIRELY OF STAINLESS STEEL IN THE 2-4-8-16 m³/h STANDARD VERSION

STANDARD MECHANICAL SEAL CAN BE REPLACED WITHOUT REMOVING THE MOTOR FROM THE PUMP (FOR SV33, 46, 66, 92)

STANDARD MOTOR

CAN BE USED WITH THE HYDROVAR® CONTROL SYSTEM IN ORDER TO MANAGE THE OPERATION OF THE PUMP BASED ON THE SYSTEM CONDITIONS AND SAVE ENERGY

CHARACTERISTICS OF SV 2, 4, 8, 16 SERIES

- Vertical multistage centrifugal pump. All metal parts in contact with the pumped liquid are made of stainless steel.
- The following versions are available:
 - F: round flanges, in-line delivery and suction ports, AISI 304.
 - T: oval flanges, in-line delivery and suction ports, AISI 304.
 - R: round flanges, delivery port above the suction port, with four adjustable positions, AISI 304.
 - N: round flanges, in-line delivery and suction ports, AISI 316.
 - V: Victaulic® couplings, in-line delivery and suction ports, AISI 316.
 - N: Clamp couplings, in-line delivery and suction ports, AISI 316.
- Reduced axial thrusts enable the use of **standard motors** that are easily found in the market. **The Lowara PLM surface motors have efficiency value that fall within the range normally referred to as efficiency class 1.**
- Seal housing chamber designed to prevent the accumulation of air in the critical area next to the mechanical seal.
- Mechanical seal according to EN 12756 (ex DIN 24960) and ISO 3069.
- Versions with round flanges that can be coupled to counter-flanges, according to EN 1092.
- Threaded, round or oval counter-flanges made of zinc-plated steel are standard supply for the F, T and R versions.
- Round counter-flanges made of stainless steel are standard supply for the N version.
- Easy maintenance. No special tools required for assembly or disassembly.
- **Materials are suitable for handling potable water (WRAS certified).**
- Standard version for temperatures ranging from -30°C to +120°C.

CHARACTERISTICS OF SV33, 46, 66, 92 SERIES

- Vertical multistage centrifugal pump with impellers, diffusers and outer sleeve made entirely of stainless steel, and with pump casing and motor adaptor made of cast iron in the standard version.
- N version made entirely of AISI 316 stainless steel.
- High heads and capacities **four sizes: SV 33, 46, 66 and 92 (replacing the previous models SV 30 and 60).**
- Re-designed liquid end provides improved efficiency and energy savings.
- Innovative axial load compensation system on pumps with higher head. This ensures reduced axial thrusts and enable the use of **standard motors** that are easily found in the market. **The Lowara PLM surface motors have efficiency value that fall within the range normally referred to as efficiency class 1.**
- **Balanced mechanical seal** according to EN 12756 (ex DIN 24960) and ISO 3069, which **can be replaced without removing the motor from the pump.**
- Seal housing chamber designed to prevent the accumulation of air in the critical area next to the mechanical seal.
- **Materials are suitable for handling potable water (WRAS certified).**
- Standard version for temperatures ranging from -30°C to +120°C.
- Pump body fitted with couplings for installing pressure gauges on both suction and delivery flanges.
- In-line ports with round flanges that can be coupled to counter-flanges, in compliance with EN 1092.
- Mechanical sturdiness and easy maintenance. No special tools required for assembly or disassembly.

OPTIONAL FEATURES

- Horizontal version.
- Special voltages, 50 Hz frequency.
- Special materials for the mechanical seal, gaskets and elastomers.
- "DPS" sets consisting of two "SV" electric pumps made of AISI 316, connected in series to obtain a total head equal to the sum of the single heads of the two electric pumps.
- Tropicalized motors.
- SVH version with Hydrovar® control system.
- Eff. 1 motors.
- ATEX 94/9/CE, Group II, Category 3, Gas Group (G).



GENERAL CHARACTERISTICS

2-POLE SV

	SV2	SV4	SV8	SV16	SV33	SV46	SV66	SV92
Max efficiency flow (m³/h)	3,5	6,5	13	20	40	50	87	108
Flow range (m³/h)	1.8÷5.1	3÷9.6	7.5÷17	10÷27	18÷48	27÷72	36÷102	54÷144
Maximum pressure (bar)	24	21	24	22	28	28	22	17
Motor power (kW)	0.55÷4	0.55÷4	2.2÷11	4÷15	3÷37	5.5÷45	7.5÷45	11÷45
Max η (%) of pump	44	57,5	63,5	66,5	76,5	79	78	79,5
Standard temperature (°C)	-30 +120							

sv_2p60-en_a_tg

4-POLE SV

	SV2	SV4	SV8	SV16	SV33	SV46	SV66	SV92
Max efficiency flow (m³/h)	1,7	3,3	6,5	10,4	19	25	43	55
Flow range (m³/h)	0.7÷2.5	1.5÷4.8	3.6÷8.7	5.4÷14.4	9÷24	13.5÷36	18÷54	27÷72
Maximum pressure (bar)	9,5	8,5	8	10	12	13	8,5	9,5
Motor power (kW)	0.25÷0.75	0.25÷0.75	0.37÷1.5	0.75÷4	1.1÷7.5	1.5÷11	1.5÷11	1.5÷15
Max η (%) of pump	42	57,5	64,5	66	75	77	76,5	77
Standard temperature (°C)	-30 +120							

sv_4p60-en_a_tg

SV 2, 4, 8, 16 VERSIONS

TYPE	2 POLES				4 POLES			
	SV2	SV4	SV8	SV16	SV2	SV4	SV8	SV16
SV F AISI 304, PN25. IN-LINE PORTS, ROUND FLANGES	•	•	•	•	•	•	•	•
SV T AISI 304, PN16. IN-LINE PORTS, OVAL FLANGES	•	•	•					
SV R AISI 304, PN25. DISCHARGE PORT ABOVE SUCTION, ROUND	•	•	•					
SV N AISI 316, PN25. IN-LINE PORTS, ROUND FLANGES	•	•	•	•	•	•	•	•
SV V AISI 316, PN25. VICTAULIC® COUPLINGS	•	•	•	•				
SV C AISI 316, PN16 or PN25 DEPENDING ON NO. OF STAGES AND MODEL, CLAMP COUPLINGS (DIN 32676)	•	•	•	•				

sv-16_2p60_a_tc

* = Available. Other versions on request.

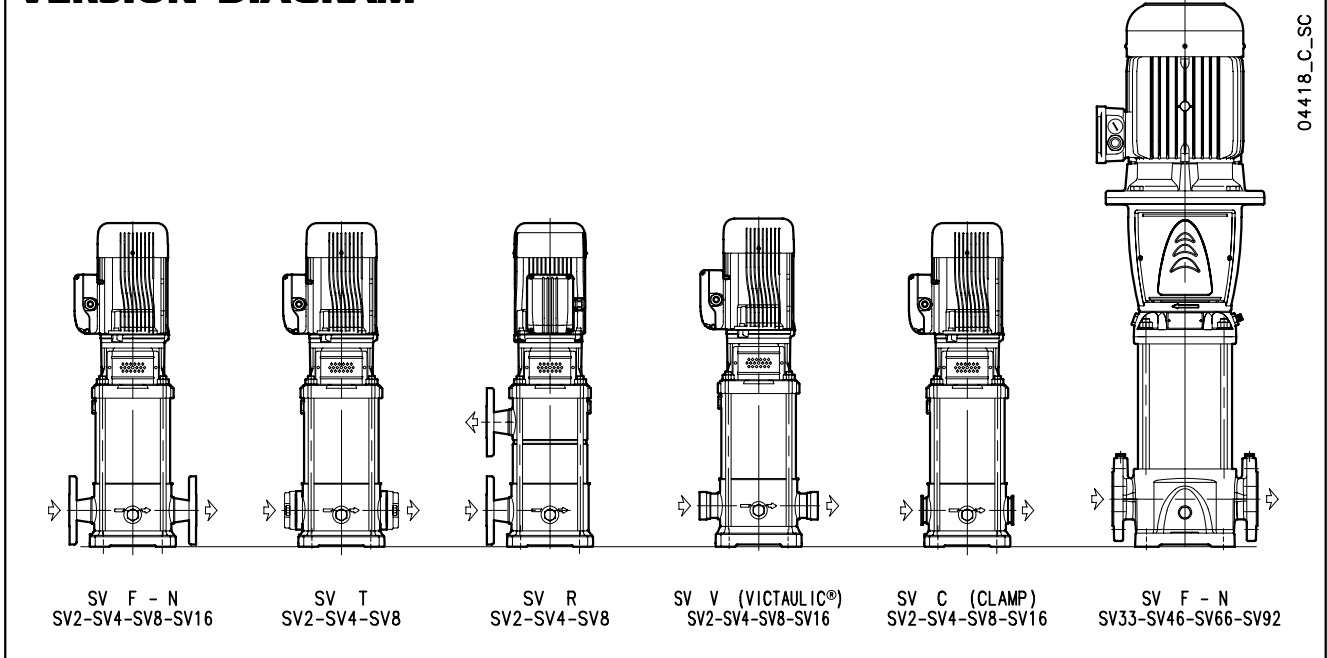
SV 33, 46, 66, 92 VERSIONS

TYPE	2 POLES				4 POLES			
	SV33	SV46	SV66	SV92	SV33	SV46	SV66	SV92
SV F CAST IRON PUMP CASING, LIQUID END MADE OF STAINLESS STEEL, IN-LINE ROUND FLANGES PN16, PN25 OR PN40 DEPENDING ON NO. OF STAGES AND MODEL.	•	•	•	•	•	•	•	•
SV N ALL AISI 316 STAINLESS STEEL, IN-LINE ROUND FLANGES, PN16, PN25 OR PN40 DEPENDING ON NO. OF STAGES AND MODEL.	•	•	•	•	•	•	•	•

sv33-92_2p60_a_tc

* = Available. Other versions on request.

VERSION DIAGRAM



TYPICAL APPLICATIONS OF SV SERIES ELECTRIC PUMPS

WATER SUPPLY AND PRESSURE BOOSTING

- Pressure boosting in building, hotel, residential complexes.
- Pressure booster stations, supply of water networks.
- Booster packages.

WATER TREATMENT

- Ultrafiltration systems.
- Reverse osmosis systems.
- Water softeners and de-mineralization.
- Distillation systems.
- Filtration.

LIGHT INDUSTRY

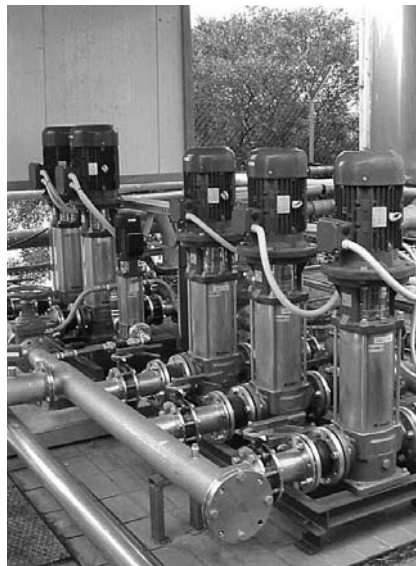
- Washing and cleaning plants (washing and degreasing of mechanical parts, car and truck wash tunnels, washing of electronic industry circuits).
- Commercial washers.
- Firefighting system pumps.

IRRIGATION AND AGRICULTURE

- Greenhouses.
- Humidifiers.
- Sprinkler irrigation.

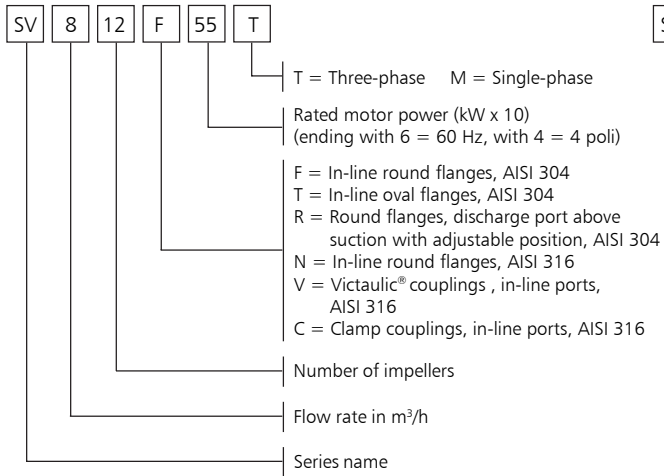
HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

- Cooling towers and systems.
- Temperature control systems.
- Refrigerators.
- Induction heating.
- Heat exchangers.
- Boilers.
- Water recirculation and heating.

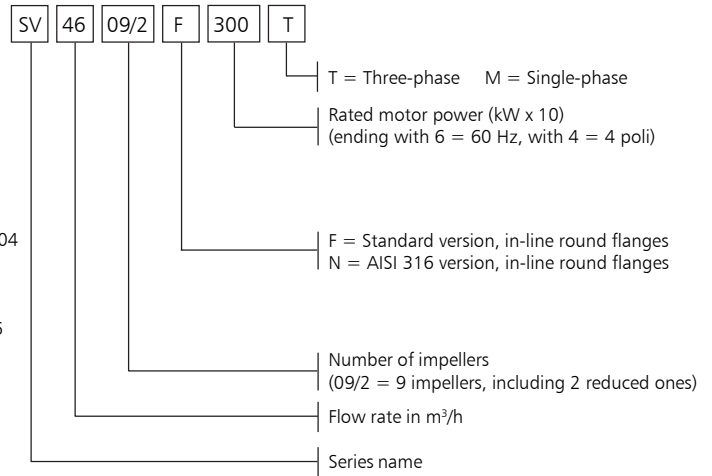


ELECTRIC PUMP IDENTIFICATION CODE

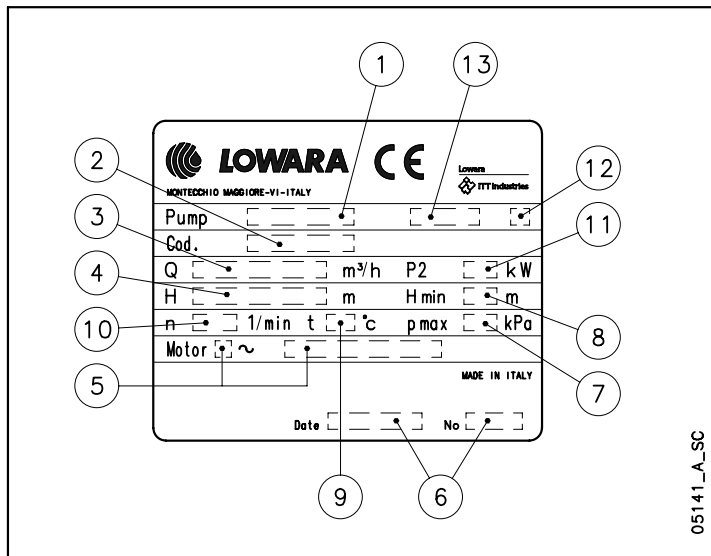
SV 2, 4, 8, 16



SV 33, 46, 66, 92



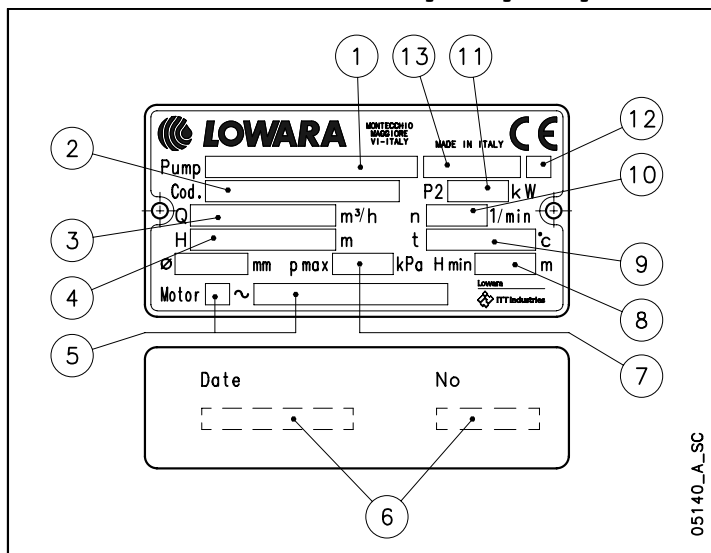
RATING PLATE SV 2, 4, 8, 16



LEGEND

- 1 - Electric pump type
- 2 - Code
- 3 - Capacity range
- 4 - Head range
- 5 - Motor type
- 6 - Manufacturing data and serial number
- 7 - Maximum operating pressure *
- 8 - Minimum head
- 9 - Maximum operating temperature *
- 10 - Speed
- 11 - Rated power
- 12 - O-ring material identification code
- 13 - Mechanical seal material identification code

RATING PLATE SV 33, 46, 66, 92



* To be verified on pressure/temperature limit diagrams (pag. 12)

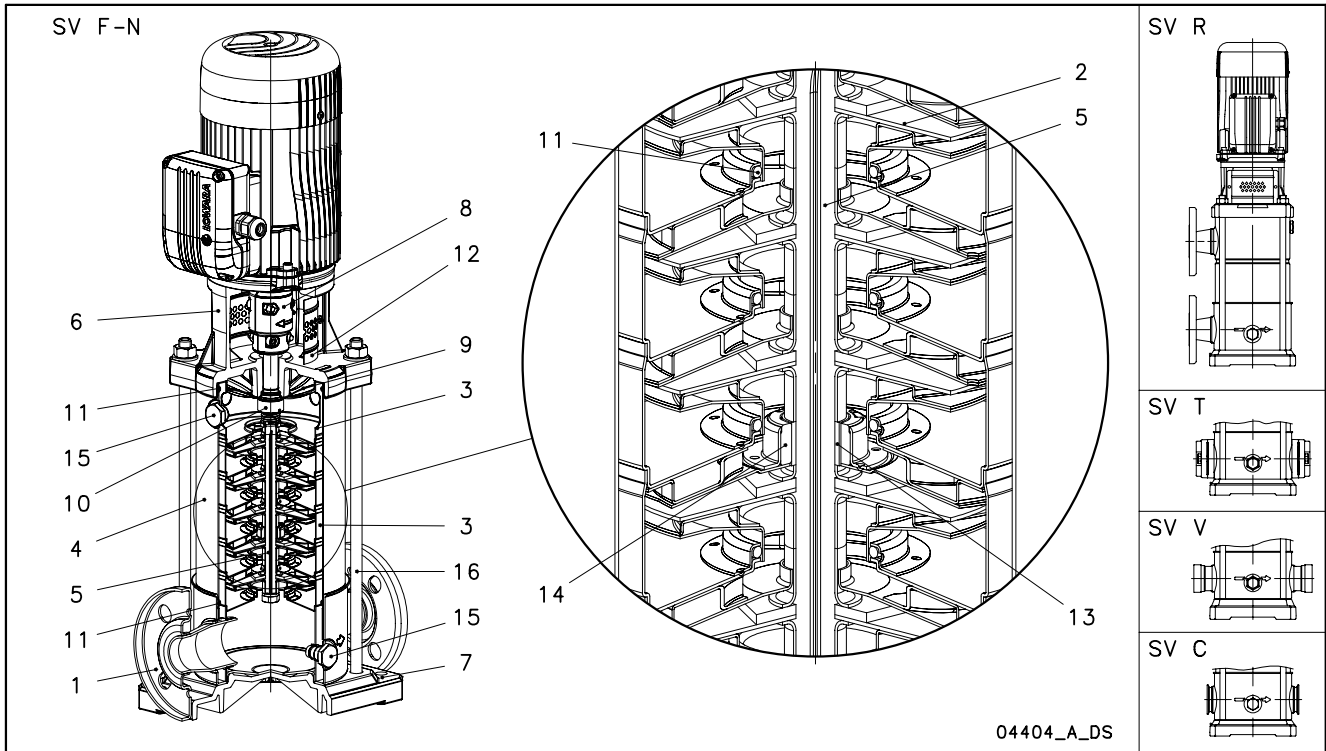


ITT

Lowara

SV 2, 4, 8, 16 SERIES

ELECTRIC PUMP CROSS SECTION AND MAIN COMPONENTS



SV 2, 4, 8, 16 F, T, R VERSIONS

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	Diffuser and upper spacer	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Outer sleeve	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Shaft	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
7	Base	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
8	Coupling (up to 4 kW)	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Coupling (for higher powers)	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Seal housing	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
10	Mechanical seal	Silicon carbide / Carbon / EPDM		
11	Elastomers	EPDM		
12	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
13	Shaft sleeve	Tungsten carbide		
14	Bushing	Ceramic (Alumina)		
15	Fill / drain plugs	Galvanized steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
16	Tie rods	Acciaio zincato	EN 10277-3-36SMnPb14 (1.0765)	-

sv2-16-frm-en_b_tm

SV 2, 4, 8, 16 N, V, C VERSIONS

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
3	Diffuser and upper spacer	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Outer sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Shaft	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
7	Base	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
8	Coupling (up to 4 kW)	Aluminium	EN 1706-AC-AISI11Cu2 (Fe) (AC46100)	-
	Coupling (for higher powers)	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal	Silicon carbide / Carbon / EPDM		
11	Elastomers	EPDM		
12	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
13	Shaft sleeve	Tungsten carbide		
14	Bushing	Ceramic (Alumina)		
15	Fill / drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
16	Tie rods	Stainless steel	EN 10088-1-X17CrNi16-2 (1.4057)	AISI 431

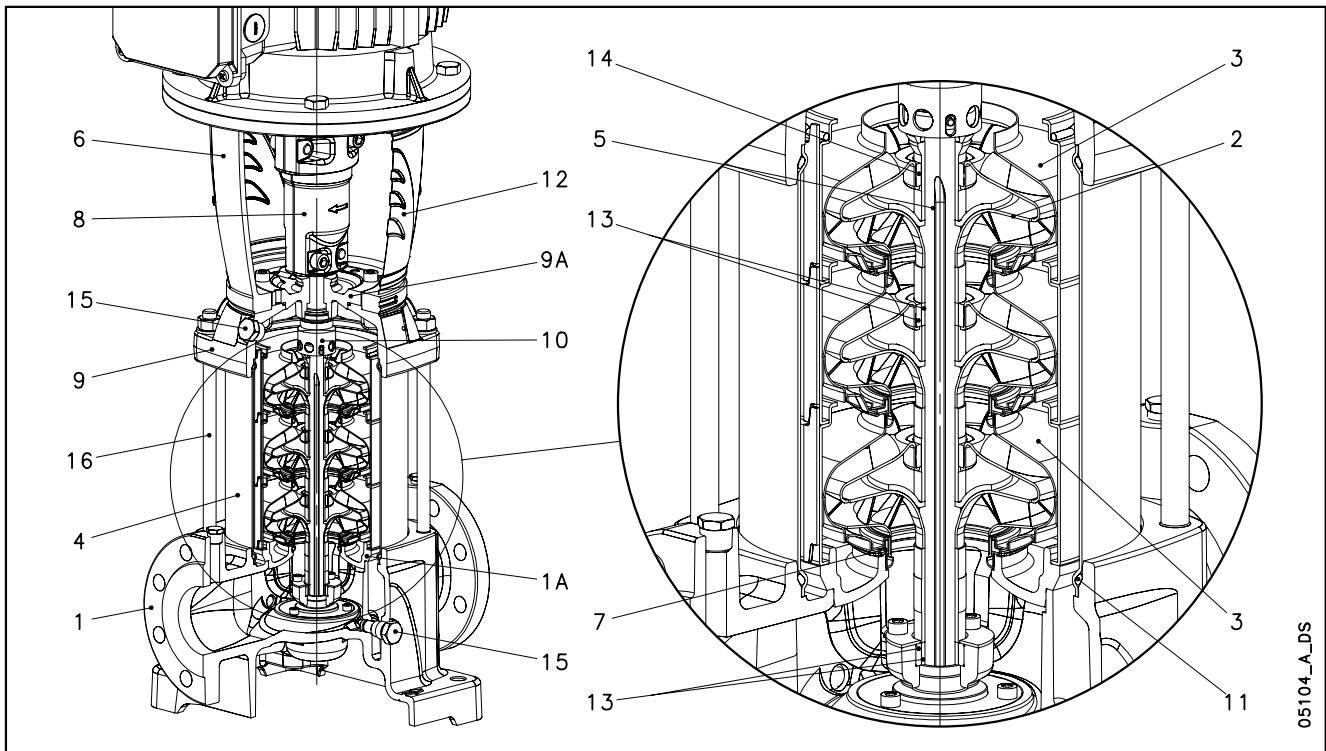
sv2-16-nvc-en_b_tm



ITT

Lowara

SV 33, 46, 66, 92 SERIES ELECTRIC PUMP CROSS SECTION AND MAIN COMPONENTS



05104_A_DS

SV 33, 46, 66, 92 - F VERSIONS

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
1A	Lower support	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
3	Diffuser	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Outer sleeve	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Shaft	Stainless steel	EN 10088-1 - X17CrNi16-2 (1.4057)	AISI 431
6	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
7	Wear ring	Technopolymer PPS		
8	Coupling	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Upper head	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
9A	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
10	Mechanical seal	Silicon carbide / Carbon / EPDM		
11	Elastomers	EPDM		
12	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
13	Shaft sleeve and bushing	Tungsten carbide		
14	Bushing for diffuser	Carbon		
15	Fill / Drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
16	Tie rods	Galvanized steel	EN 10277-3-36SMnPb14 (1.0765)	-

SV 33, 46, 66, 92 - N VERSIONS

sv33-92-f-en_c_tm

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
1A	Lower support	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
2	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
3	Diffuser	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Outer sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Shaft	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	UNS S 31803
6	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
7	Wear ring	Technopolymer PPS		
8	Coupling	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Upper head	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
9A	Seal housing	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
10	Mechanical seal	Silicon carbide / Carbon / EPDM		
11	Elastomers	EPDM		
12	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
13	Shaft sleeve and bushing	Tungsten carbide		
14	Bushing for diffuser	Carbon		
15	Fill / drain / air plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
16	Tie rods	Stainless steel	EN 10088-1-X17CrNi16-2 (1.4057)	AISI 431

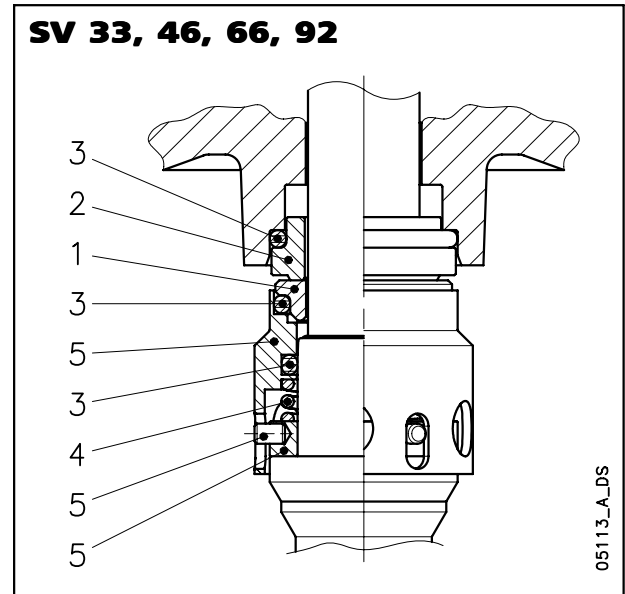
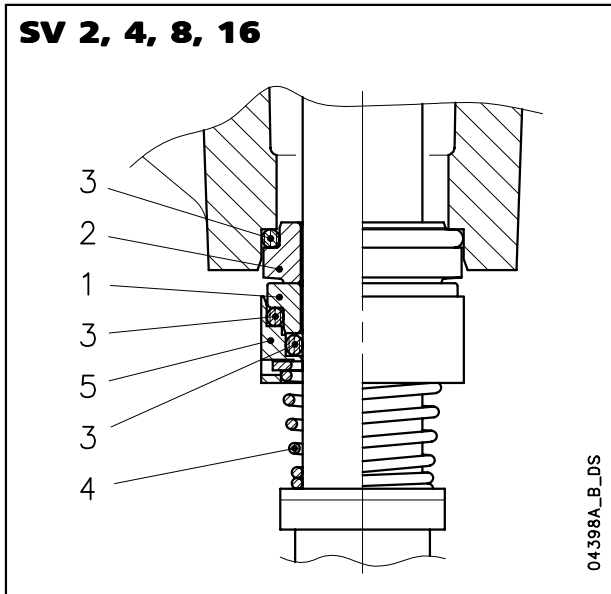
sv33-92-n-en_c_tm



ITT

Lowara

SV SERIES MECHANICAL SEALS, ACCORDING TO EN 12756



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
Q ₁ : Silicon Carbide	E : EPDM	G : AISI 316
B : Resin impregnated carbon	V : FPM	
C : Special resin impregnated carbon	T : PTFE	

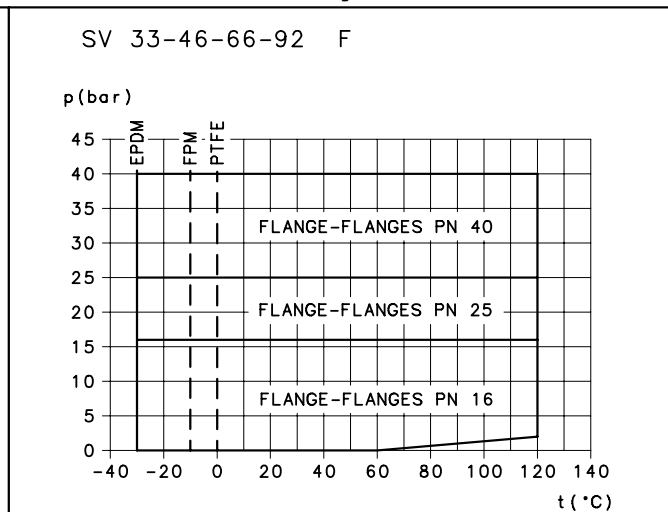
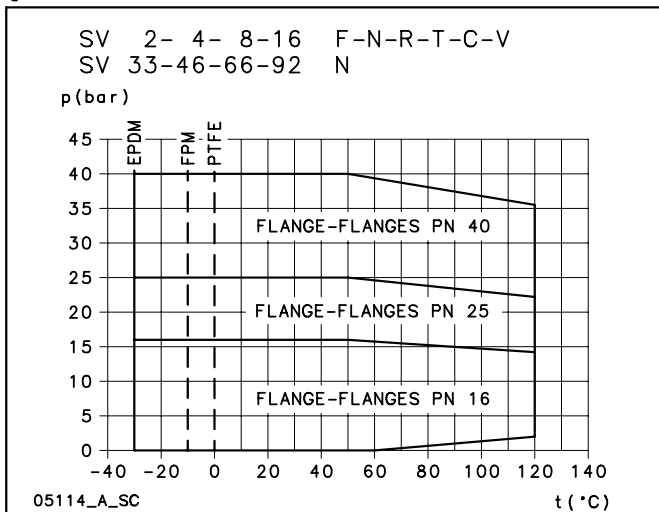
TYPE OF SEAL

sv_ten-mec-en_a_tm

TYPE	POSITION					TEMPERATURE (°C)
	1 ROTATING PART	2 STATIONARY PART	3 ELASTOMERS	4 SPRINGS	5 OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
Q ₁ B E G G	Q ₁	B	E	G	G	-30 +120
OTHER TYPES OF MECHANICAL SEAL						
Q ₁ Q ₁ E G G	Q ₁	Q ₁	E	G	G	-30 +120
Q ₁ B V G G	Q ₁	B	V	G	G	-10 +120
Q ₁ Q ₁ V G G	Q ₁	Q ₁	V	G	G	-10 +120
Q ₁ C T G G	Q ₁	C	T	G	G	0 +120
Q ₁ Q ₁ T G G	Q ₁	Q ₁	T	G	G	0 +120

sv_tipi-ten-mec-en_a_tc

PRESSURE/TEMPERATURE APPLICATION LIMITS FOR COMPLETE PUMP (APPLICABLE WITH ANY OF THE SEALS LISTED ABOVE)



MOTORS

- Standard Lowara motors with powers up to 15 kW (included) for the 4-pole version, and up to 22 kW (included) for the 2-pole version. Other motor brands are used for higher powers.
- The normalized Lowara PLM motors have efficiency values that fall within the range normally referred to as **efficiency class 1**.
- Short-circuit squirrel-cage motor (TEFC), enclosed construction with external ventilation.
- IP55 protection.
- Class F insulation.
- Performance according to EN 60034-1.
- Standard voltage.
- Cable gland with standard passage dimensions according to EN 50262 (metric thread).
 - **Single-phase** version: 220-230 V 60 Hz

with built-in automatic reset overload protection up to 1,5 kW.

For higher powers the protection must be provided by the user.

- **Three-phase** version 2 pole:
220 V Δ , 380 V Y, 60 Hz up to 45 kW.

- **Three-phase** version 4 pole:
220 V Δ , 380 V Y, 60 Hz up to 15 kW.

Overload protection to be provided by the user.

• **Type of motor used:**

2-Pole

Single-phase: Lowara SM (up to 1,5 kW).
Lowara PLM (above 1,5 kW).

Three-phase: Lowara SM (up to 2,2 kW).
Lowara PLM (above 2,2 kW).

4-Pole

Three-phase: Lowara SM (up to 0,75 kW).
Lowara PLM (above 0,75 kW).

SV SERIES

SINGLE-PHASE MOTORS AT 60 Hz, 2-POLE

MOTOR TYPE			INPUT CURRENT	CAPACITOR		DATA FOR 220V 60Hz					
kW	IEC SIZE*	CONSTRUCTION DESIGN	In (A)	μ F	V	min ⁻¹	Is / In	η %	cos ϕ	Tn	
			220-230 V							Nm	Ts/Tn**
0,55	71	B14	3,74-3,69	16	450	3420	3,88	68,7	0,97	1,54	0,60
0,75	80R	B14	4,95-4,84	20	450	3430	3,72	70,6	0,98	2,09	0,53
1,1	80	B14	6,98-6,85	30	450	3445	4,51	73,9	0,97	3,05	0,57
1,5	90R	B14	9,20-9,22	40	450	3450	4,49	76,8	0,97	4,15	0,47
2,2	90	B14	12,8-12,3	60	450	3425	4,52	79,8	0,95	6,14	0,49

* R =Reduced size of motor casing as compared to shaft extension and flange.

sv-motm-2p60_en_b_te

**Ts/Tn = ratio between starting torque and nominal torque.

SV SERIES

THREE-PHASE MOTORS AT 60 Hz, 2-POLE

MOTOR TYPE			INPUT CURRENT IN (A)		DATA FOR 380 V 60Hz					
kW	IEC SIZE*	CONSTRUCTION DESIGN	THREE-PHASE		min ⁻¹	Is / In	η %	cos ϕ	Tn	
			Δ 220 V	Y 380 V					Nm	Ts/Tn**
0,55	71	B14	2,34	1,35	3385	5,64	75,9	0,82	1,55	3,37
0,75	80R	B14	3,24	1,87	3390	5,76	72,9	0,84	2,11	3,09
1,1	80	B14	4,16	2,40	3420	6,26	79,3	0,88	3,07	2,52
1,5	90R	B14	5,58	3,22	3435	6,77	80,0	0,88	4,17	2,94
2,2	90R	B14	7,79	4,50	3420	7,31	83,4	0,89	6,14	3,20
3	100R	B14	10,36	5,98	3445	7,10	86,5	0,89	8,36	2,96
4	112R	B14	13,06	7,54	3475	8,20	88,4	0,91	11,0	3,23
5,5	132R	B5	17,67	10,2	3465	8,85	87,9	0,93	15,2	3,16
7,5	132	B5	24,07	13,9	3505	7,54	89,7	0,91	20,4	2,31
11	160R	B5	35,51	20,5	3485	7,73	88,7	0,92	30,1	2,61
15	160	B5	46,59	26,9	3525	6,50	92,1	0,92	40,6	1,77
18,5	160	B5	57,33	33,1	3540	7,94	93,0	0,91	49,9	2,20
22	180R	B5	68,07	39,3	3530	7,36	91,5	0,93	59,5	2,05
30	200	B5	98,0	57,0	3540	6,80	92,5	0,87	81,0	2,40
37	200	B5	119	69,0	3540	7,20	92,9	0,88	100	2,50
45	225	B5	145	84,0	3550	6,70	92,9	0,88	121	2,40

* R =Reduced size of motor casing as compared to shaft extension and flange.

sv-mott-2p60_en_b_te

**Ts/Tn = ratio between starting torque and nominal torque.

**SV SERIES
THREE-PHASE MOTORS AT 60 Hz, 4-POLE**

MOTOR TYPE			INPUT CURRENT IN (A)		DATA FOR 380V 60Hz					
kW	IEC SIZE	CONSTRUCTION DESIGN	THREE-PHASE		min ⁻¹	Is / In	η %	cosφ	Tn Nm	Ts/Tn*
			Δ 220 V	Y 380 V						
0,25	71	B14	1,51	0,87	1650	3,45	64,8	0,68	1,45	2,37
0,37	71	B14	2,18	1,26	1630	3,52	65,5	0,68	2,17	2,65
0,55	80	B14	2,74	1,58	1650	3,55	68,9	0,77	3,18	1,80
0,75	80	B14	3,62	2,09	1655	3,92	71,8	0,76	4,32	2,09
1,1	90	B14	4,43	2,56	1715	4,86	82,5	0,79	6,11	1,53
1,5	90	B14	6,01	3,47	1730	5,85	84,2	0,78	8,27	1,95
2,2	100	B14	8,05	4,65	1725	5,69	85,6	0,84	12,2	1,91
3	100	B14	11,14	6,43	1740	6,36	88,0	0,81	16,5	2,29
4	112	B14	14,27	8,24	1735	6,35	88,4	0,84	22,0	2,10
5,5	132	B5	19,74	11,4	1740	5,55	89,1	0,82	30,1	1,953
7,5	132	B5	26,50	15,3	1740	5,90	89,6	0,83	41,1	2,07
11	160	B5	36,55	21,1	1755	5,53	91,1	0,87	59,8	1,71
15	160	B5	49,54	28,6	1765	6,93	92,7	0,86	81,2	2,22

*Ts/Tn = ratio between starting torque and nominal torque.

sv-mott-4p60-en_b_te

MOTOR NOISE

The tables show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680).
Noise values were measured with the 60 Hz motor running idle with a tolerance of 3 dB (A).

2-POLE MOTOR

POWER	MOTOR TYPE	NOISE
kW	IEC* SIZE	LpA dB
0,55	71	<70
0,75	80R	<70
1,1	80	<70
1,5	90R	<70
2,2	90R	<70
3	100R	<70
4	112R	<70
5,5	132R	<70
7,5	132	76
11	160R	77
15	160	74
18,5	160	75
22	180R	73
30	200	78
37	200	78
45	225	83

4-POLE MOTOR

POWER	MOTOR TYPE	NOISE
kW	IEC* SIZE	LpA dB
0,25	71	<70
0,37	71	<70
0,55	80	<70
0,75	80	<70
1,1	90	<70
1,5	90	<70
2,2	100	<70
3	100	<70
4	112	<70
5,5	132	<70
7,5	132	<70
11	160	<70
15	160	<70

*R=reduced motor casing size with respect to shaft extension and related flange

sv_mott-60-en_b_tr

SVH SERIES ELECTRIC PUMPS WITH HYDROVAR® CONTROL SYSTEM

The Lowara SV electric pumps are available in the SVH version, i.e. coupled to Hydrovar®, the microprocessor based control unit designed to manage the performance of the pump based on the conditions and requirements of the system. The basic SV electric pump is thus transformed into a complete pumping system suitable for a number of applications, including:

- Variable speed pressure boosting (constant pressure is maintained in industrial, civil and agricultural applications).
- Water filtration and treatment (constant flow is maintained based on flow resistance).
- Air conditioning and heating (constant differential pressure is maintained in a closed circuit).

- **No special pumps or motors:**

HYDROVAR® is mounted directly onto a standard three-phase TEFC motor with class F insulation up to 22 kW power. A wall-mounted version is available for higher powers, up to 45 kW.

- **No separate pressure sensors:**

HYDROVAR® is equipped with a pressure transmitter or differential pressure transmitter, depending on the applications.

- **No separate microprocessors:**

In multiple-pump systems the microprocessor regulates the sequential operation of the pumps or motors. Since HYDROVAR® features a built-in microprocessor, no other control devices are required.

- **No separate control panels or converters:**

HYDROVAR® performs all the functions of a pump control panel, incorporating protections against overload, short circuit, high temperature, etc. The only external device required is a fuse on the power supply line. Will depend upon any local electrical installation regulations.

- **No by-pass lines or safety systems:**

With HYDROVAR® the pump switches off immediately when demand is zero or exceeds the maximum capacity of the pump. This way there is no need to install additional safety devices.

- **No large diaphragm tanks are required:**

Without a supply tank, a constant speed pump running at maximum power will be constantly switching on and off in order to satisfy system demands. With



the HYDROVAR® system the speed of each pump varies in order to maintain a constant pressure or flow. A small surge tank is sufficient to maintain system pressure at zero demand, therefore there is no need to install a large tank. Where local regulations allow it, the HYDROVAR® systems can be connected directly to the water supply line, so there is no need to install large storage tanks on the suction side.

The pump's operation at the correct speed based on system requirements enables energy consumption to be substantially reduced.

- **Anti-condensation heater**

All the units are equipped with anti-condensation heaters that switch on when the pump is in standby mode.

OPERATING PRINCIPLE

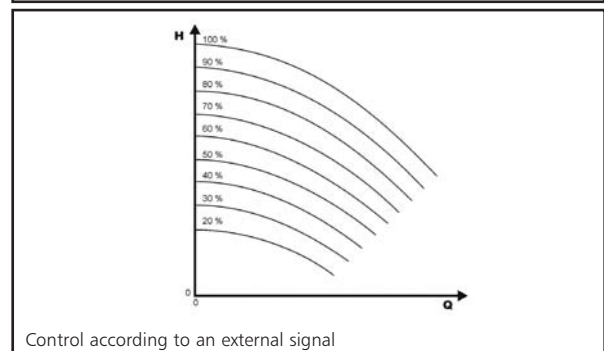
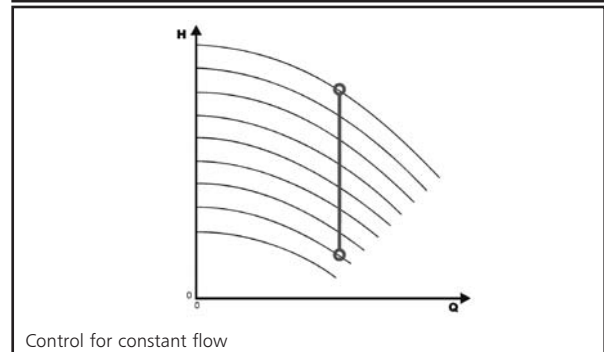
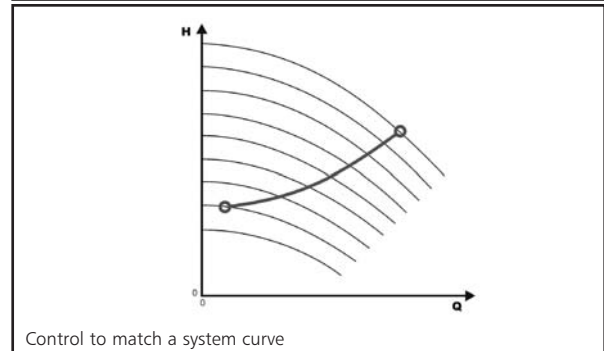
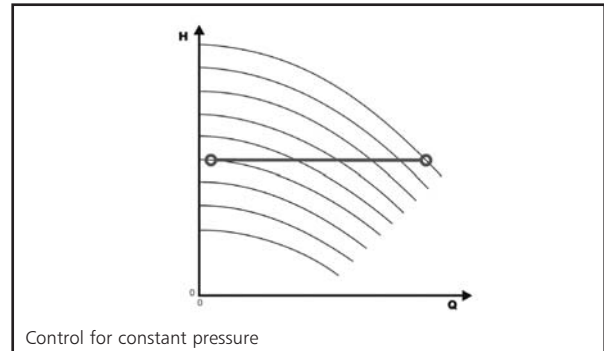
The basic function of the HYDROVAR® device is to control the pump to meet the system demands.

HYDROVAR® performs these functions by:

- 1) Measuring the system pressure or flow via a transmitter mounted on the pump's delivery side.
- 2) Calculating the motor speed to maintain the correct flow or pressure.
- 3) Sending out a signal to the pump to start the motor, increase speed, decrease speed or stop.
- 4) In the case of multiple pump installations, HYDROVAR® will automatically provide for the cyclic changeover of the pumps' starting sequence

In addition to these basic functions, HYDROVAR® can do things only by the most advanced computerised control systems, such as:

- Stop the pump(s) at zero demand.
- Stop the pump(s) in case of water failure on the suction side (protection against dry running).
- Stop the pump if the required delivery exceeds the pump's capacity (protection against cavitation caused by excessive demand), or automatically switch on the next pump in a multiple series.
- Protect the pump and motor from overvoltage, undervoltage, overload and earth fault.
- Vary the pump speed acceleration and deceleration time.
- Compensate for increased flow resistance at high flow rates.
- Conduct automatic test starts at set intervals.
- Monitor the converter and motor operating hours.
- Display all functions on an LCD in different languages (Italian, English, French, German, Spanish, Portuguese, Dutch).
- Send a signal to a remote control system which is proportional to the pressure and frequency.
- Communicate with another HYDROVAR or control system via an RS 485 interface.



TYPICAL EXAMPLE OF ENERGY SAVINGS

System: SV1608F75T vertical multistage electric pump with 7.5 kW motor equipped with Hydrovar, 80 m head. 12 hour/day operation.

Application: maintaining a constant pressure as the flow rate varies.

FLOW	ABSORBED POWER		POWER SAVED	OPERATING TIME	TOTAL ENERGY SAVINGS
	CONSTANT SPEED PUMP	VARIABLE SPEED PUMP			
m ³ /h	kW	kW	kW	(hours)	kWh
9	5,50	3,09	2,41	1095	2639
14	6,71	4,81	1,90	2190	4161
21	7,30	7,21	0,09	1095	99
YEARLY ENERGY SAVINGS (kWh)					6899

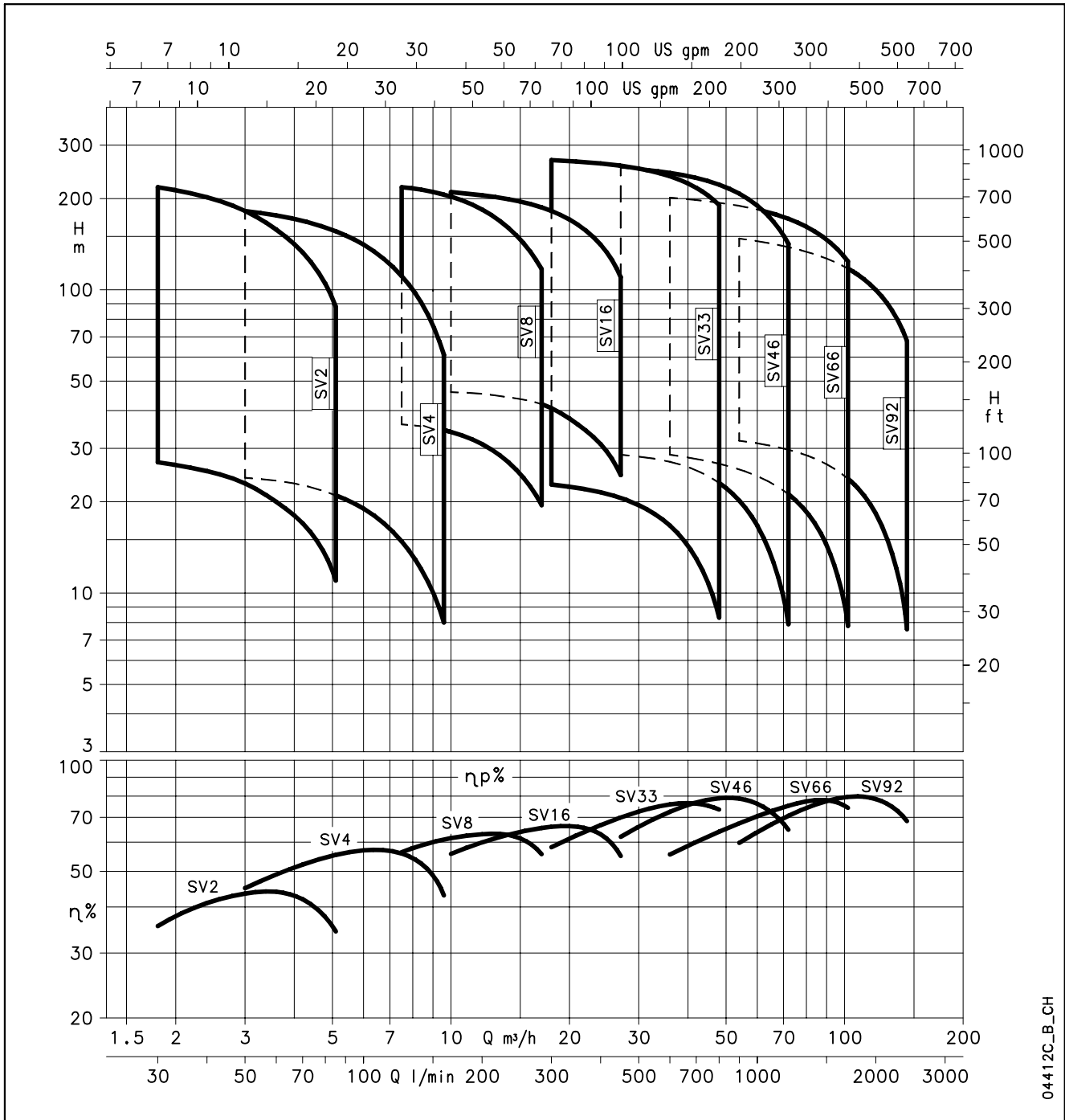


ITT

Lowara

SV SERIES

HYDRAULIC PERFORMANCE RANGE, 2 POLES (~3500 rpm) 60 Hz



04412C_B_CH

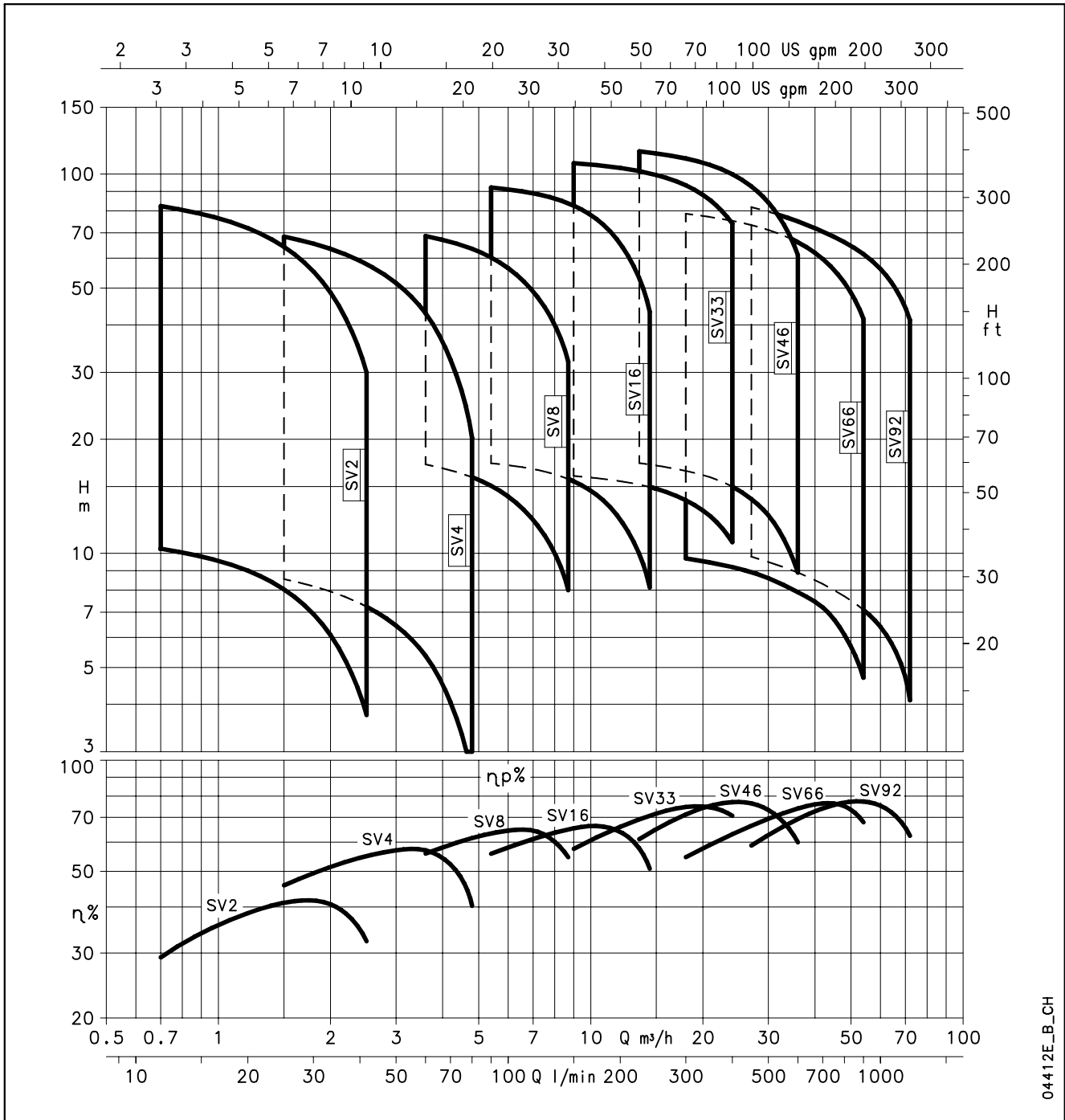


ITT

Lowara

SV SERIES

HYDRAULIC PERFORMANCE RANGE, 4 POLES (~1750 rpm) 60 Hz



04412E_IB_CH



ITT

Lowara

SV 2-16 SERIES

TABLE OF HYDRAULIC PERFORMANCES AT ~3500 rpm

PUMP TYPE	RATED POWER		Q = CAPACITY																	
			l/min	30	40	50	60	70	85	100	125	140	160	167	200	233	283	350	400	450
			0	1,8	2,4	3	3,6	4,2	5,1	6	7,5	8,4	9,6	10	12	14	17	21	24	27
		H = TOTAL HEAD IN METRES OF COLUMN OF WATER																		
		kW	HP																	
SV2 02	0,55	0,75	30	27	25	23	20	17	11											
SV2 03	0,75	1	45	41	38	34	30	25	16,5											
SV2 04	1,1	1,5	60	54	50	46	40	33	22											
SV2 05	1,1	1,5	75	68	63	57	50	42	27,5											
SV2 06	1,5	2	89	82	76	68	59	50	33											
SV2 07	1,5	2	104	95	88	80	69	58	39											
SV2 09	2,2	3	133	123	113	103	89	75	50											
SV2 11	3	4	162	150	139	125	109	91	61											
SV2 13	3	4	192	177	164	148	129	108	72											
SV2 15	4	5,5	222	204	189	171	149	125	83											
SV2 16	4	5,5	237	218	202	182	158	133	88											
SV4 02	0,55	0,5	27			24	23	22	21	19	14,8	12	8							
SV4 03	1,1	1,5	40			36,5	35	34	31	28	22	18	12							
SV4 04	1,1	1,5	55			48,5	47	45	41	38	30	24	16							
SV4 05	1,5	2	67			61	59	56	52	47	37	30	20							
SV4 06	2,2	3	82			73	70	67	62	56	45	36	24							
SV4 07	2,2	3	95			85	82	78	73	66	52	42	28							
SV4 08	2,2	3	108			97	94	90	83	75	59	48	32							
SV4 09	3	4	122			109	105	101	93	85	67	54	37							
SV4 11	3	4	150			134	129	123	114	103	82	67	45							
SV4 13	4	5,5	177			158	152	146	135	122	96	79	53							
SV4 15	4	5,5	204			182	176	168	156	141	111	91	61							
SV8 02	2,2	3	40								36	35,5	34,5	34	31	27,0	19,5			
SV8 03	3	4	60								55	53	51	51	46	40	29			
SV8 04	4	5,5	80								73	71	69	68	61	53,0	39			
SV8 05	4	5,5	99								91	89	86	84	77	67	49			
SV8 06	5,5	7,5	119								109	107	103	101	92	80	58			
SV8 07	5,5	7,5	138								127	125	120	118	107	93	68			
SV8 08	7,5	10	158								145	142	137	135	122	107	78			
SV8 09	7,5	10	178								164	160	154	152	138	120	87			
SV8 10	11	15	197								182	178	172	169	153	133	97			
SV8 11	11	15	217								200	196	189	186	168	146	107			
SV8 12	11	15	237								218	214	206	203	184	160	117			
SV16 02	4	5,5	49											46	45,5	44	42	36	31	24,5
SV16 03	5,5	7,5	73											70	68	66	62	55	47	37
SV16 04	7,5	10	97											93	91	89	83	73	63	49
SV16 05	11	15	122											117	114	111	104	91	78	61
SV16 06	11	15	147											140	137	133	125	109	94	73
SV16 07	11	15	172											163	160	155	145	127	110	85
SV16 08	15	20	196											186	182	177	166	146	125	98
SV16 09	15	20	220											210	205	199	187	164	141	110

Performances in compliance with ISO 9906-Annex A

sv2-16-2p60-en_a_th



ITT

Lowara

SV 33-46 SERIES

TABLE OF HYDRAULIC PERFORMANCES AT ~3500 rpm

PUMP TYPE	RATED POWER		Q = CAPACITY										
			l/min 0	300	350	400	450	550	700	800	900	1000	1200
	HP	kW	m ³ /h 0	18	21	24	27	33	42	48	54	60	72
H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
SV33 01/1	3	4	24,5	22,8	22,2	21,5	20,6	18,2	13	8,3			
SV33 01	5,5	7,5	34,5	33,1	32,7	32,2	31,6	30,1	26,6	23,2			
SV33 02/2	5,5	7,5	49,6	47,7	46,7	45,3	43,6	39	28,9	20			
SV33 02/1	7,5	10	59,6	56,5	55,5	54,3	52,8	48,9	40,2	32,2			
SV33 02	11	15	69,4	66,8	66	65	64	61	54	47,3			
SV33 03/2	11	15	86	81,8	80	78	76	70	57	44,7			
SV33 03/1	11	15	94,7	90,4	89	87	85	80	68	56,9			
SV33 03	15	20	104,2	100,2	99	98	96	91	81	71,1			
SV33 04/2	15	20	119,8	114,8	113	110	107	99	82	65			
SV33 04/1	15	20	128,9	123,7	122	120	117	110	94	79			
SV33 04	18,5	25	138,3	132,9	131	129	127	121	107	93,8			
SV33 05/2	18,5	25	155,8	149,4	147	145	141	132	112	94,1			
SV33 05/1	22	30	163,9	157,5	155	153	150	142	123	105,3			
SV33 05	22	30	173	166,2	164	162	159	151	134	117,3			
SV33 06/2	22	30	189	181,7	179	176	172	162	139	116			
SV33 06/1	30	40	199,2	191,9	190	187	183	174	152	130,4			
SV33 06	30	40	208,5	200,9	199	196	192	183	163	142,8			
SV33 07/2	30	40	224,6	216,5	214	210	206	194	168	141,8			
SV33 07/1	30	40	233,9	225,4	223	219	215	204	179	154,2			
SV33 07	30	40	243,3	234,3	232	228	225	214	190	166,6			
SV33 08/2	37	50	259,3	250	247	243	238	225	195	165,6			
SV33 08/1	37	50	268,7	258,9	256	252	247	235	206	178			
SV33 08	37	50	278,1	267,8	265	261	257	245	217	190,4			
SV46 01/1	5,5	7,5	29,1				28,6	27,7	25,4	23,1	20,2	16,7	7,9
SV46 01	7,5	10	39,9				36	34,2	31,6	29,6	27,1	24,2	16,4
SV46 02/2	11	15	56,7				58,8	58	54	50	45,2	39,1	24
SV46 02/1	11	15	67,8				64,8	63	59	55	50	44,3	29
SV46 02	15	20	78,2				72,1	70	67	64	60	54,7	40,8
SV46 03/2	18,5	25	95,5				94,6	93	87	82	75	66	44,2
SV46 03/1	18,5	25	106,1				101	99	93	88	82	74	52,1
SV46 03	18,5	25	117,2				108,1	106	100	95	89	82	61,5
SV46 04/2	22	30	134,1				130,3	127	120	113	103	92	62,7
SV46 04/1	30	40	144,2				137,3	134	127	120	111	101	73
SV46 04	30	40	155,7				143,9	140	133	126	118	108	80
SV46 05/2	30	40	171,6				166,7	163	154	146	134	121	86
SV46 05/1	30	40	183,1				173,3	169	160	152	141	127	93
SV46 05	37	50	194,6				179,9	176	166	158	147	134	100
SV46 06/2	37	50	210,5				202,7	198	188	177	164	147	105,9
SV46 06/1	37	50	222				209,3	205	194	183	170	154	112,9
SV46 06	37	50	233,6				215,9	211	200	190	177	161	120,1
SV46 07/2	45	60	250,3				239,5	234	222	210	194	176	127,6
SV46 07/1	45	60	261,8				246,2	241	228	216	201	183	134,6
SV46 07	45	60	273,4				252,8	247	234	222	208	190	141,7

Performances in compliance with ISO 9906 - Annex A.

sv33-46-2p60-en_a_th



ITT

Lowara

SV 66-92 SERIES

TABLE OF HYDRAULIC PERFORMANCES AT ~3500 rpm

PUMP TYPE	RATED POWER		Q = CAPACITY										
			l/min 0	600	800	900	1200	1400	1600	1700	2000	2200	2400
	kW	HP	m ³ /h 0	36	48	54	72	84	96	102	120	132	144
H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
SV66 01/1	7,5	10	31,4	28,6	26,7	25,6	21,2	17,0	11	7,8			
SV66 01	11	15	43,8	40	37,9	36,8	33,1	29,9	25,9	23,4			
SV66 02/2	15	20	64,5	60,1	58	56	49,4	42	32,8	27			
SV66 02/1	18,5	25	74,9	69,7	67	65	58	51	42,3	37,1			
SV66 02	18,5	25	85,4	79,5	76	74	66	60	52	47,7			
SV66 03/2	22	30	106,6	99,5	96	93	82	72	59	52,2			
SV66 03/1	30	40	117,4	110,3	106	103	92	82	70	63,7			
SV66 03	30	40	127,8	120,3	115	112	101	92	80	74			
SV66 04/2	37	50	149,1	139,9	135	131	117	103	87	77,5			
SV66 04/1	37	50	159,2	150	144	141	126	113	97	88,1			
SV66 04	37	50	169,3	160,2	154	150	136	123	108	98,6			
SV66 05/2	45	60	191,9	180,9	174	170	152	135	115	103,2			
SV66 05/1	45	60	202	191,2	184	180	162	146	125	113,6			
SV66 05	45	60	212,2	201,4	194	189	172	156	136	124,1			
SV92 01/1	11	15	36,4			31,8	29,7	27,8	25,3	23,9	18,3	13,5	7,6
SV92 01	15	20	49,5			41,7	37,7	35,3	33	31,9	28,1	24,7	19,9
SV92 02/2	18,5	25	69,9			64	60	57	52	50	39,6	31,1	21,1
SV92 02/1	22	30	83,6			74,2	69	65	60	58	49	41,5	32,1
SV92 02	30	40	97,9			84,7	78	73	69	66	59	52	43,8
SV92 03/2	37	50	117,4			106,3	100	94	88	84	71	60	46,1
SV92 03/1	37	50	131,5			117,5	109	103	96	92	80	69	56,5
SV92 03	45	60	144,9			127,8	118	111	104	101	90	81	68,4
SV92 04/2	45	60	163			147,6	138	131	122	117	100	86	67,8

Performances in compliance with ISO 9906 - Annex A.

sv66-92-2p60-en_a_th



ITT

Lowara

SV 2-16 SERIES

TABLE OF HYDRAULIC PERFORMANCES AT ~1750 rpm

PUMP TYPE	RATED POWER		Q = CAPACITY																			
			l/min	12	20	25	30	35	42	50	60	70	80	90	100	120	145	180	210	240		
			0	0,7	1,2	1,5	1,8	2,1	2,5	3	3,6	4,2	4,8	5,4	6	7,2	8,7	10,8	12,6	14,4		
		H = TOTAL HEAD IN METRES OF COLUMN OF WATER																				
		kW	HP																			
SV2 03..4	0,25	0,34	11,7	10,3	9	8	6,9	5,6	3,8													
SV2 05..4	0,25	0,34	19,4	17,2	15	13,4	11,5	9,4	6,3													
SV2 07..4	0,25	0,34	27,2	24	21	18,7	16,1	13,1	8,8													
SV2 09..4	0,25	0,34	35	30,9	27	24,1	20,8	16,9	11,3													
SV2 11..4	0,37	0,5	42,7	37,7	33	29,5	25,4	20,7	13,8													
SV2 13..4	0,37	0,5	50,5	44,6	39	34,8	30	24,4	16,3													
SV2 15..4	0,55	0,75	58,2	52	45	40,2	34,6	28,2	18,8													
SV2 18..4	0,55	0,75	69,9	62	54	48,2	41,5	33,8	22,5													
SV2 20..4	0,55	0,75	77,7	69	60	54	46,1	37,6	25													
SV2 22..4	0,75	1	85,4	76	66	59	51	41,4	27,5													
SV2 24..4	0,75	1	93,2	82	72	64	55	45,1	30													
SV4 03..4	0,25	0,34	10,3			8,6	8,2	7,8	7,2	6,5	5,4	4,1	2,5									
SV4 05..4	0,25	0,34	17,2			14,3	13,7	13	12,1	10,8	9	6,8	4,2									
SV4 07..4	0,25	0,34	24			20	19,1	18,2	16,9	15,1	12,5	9,5	5,9									
SV4 09..4	0,37	0,5	30,9			25,7	24,6	23,4	21,7	19,4	16,1	12,2	7,6									
SV4 11..4	0,37	0,5	37,7			31,4	30	28,6	26,5	23,7	19,7	14,9	9,2									
SV4 13..4	0,55	0,75	44,6			37,1	35,5	33,8	31,3	28	23,3	17,6	10,9									
SV4 16..4	0,55	0,75	54,9			45,6	43,7	41,6	38,6	34,4	28,6	21,6	13,4									
SV4 18..4	0,55	0,75	61,7			51,3	49,1	46,8	43,4	38,7	32,2	24,3	15,1									
SV4 20..4	0,75	1	68,6			57	55	52	48,2	43	35,8	27	16,8									
SV4 22..4	0,75	1	75,5			62,7	60	57	53	47,3	39,4	29,7	18,5									
SV4 24..4	0,75	1	82,3			68,4	66	62	58	52	43	32,4	20,1									
SV8 04..4	0,37	0,5	19,8								17,2	16,6	15,9	15,1	14,1	11,8	8					
SV8 06..4	0,55	0,75	29,8								25,7	24,8	23,8	22,6	21,2	17,8	12					
SV8 07..4	0,75	1	34,7								30	29	27,8	26,4	24,7	20,7	14					
SV8 09..4	1,1	1,5	44,6								38,6	37,3	35,7	33,9	31,8	26,6	18					
SV8 11..4	1,1	1,5	54,6								47,2	45,5	43,7	41,4	38,8	32,6	22					
SV8 13..4	1,5	2	64,5								55,8	54	52	49	45,9	38,5	26					
SV8 14..4	1,5	2	69,4								60,1	58	56	53	49,4	41,4	28					
SV8 16..4	1,5	2	79,4								68,6	66	64	60	56,5	47,4	32					
SV16 03..4	0,75	1	18,3											17,3	17,1	16,6	15,7	13,8	11,4	8,1		
SV16 05..4	1,1	1,5	30,5											28,8	28,5	27,7	26,2	23	19	13,6		
SV16 07..4	1,5	2	42,6											40,3	39,9	38,7	36,6	32,2	26,6	19		
SV16 08..4	2,2	3	48,7											46,1	45,6	44,2	41,9	36,8	30,4	21,7		
SV16 10..4	2,2	3	60,9											57,6	57	55	52	46	38	27,1		
SV16 12..4	3	4	73,1											69,1	68	66	63	55	45,6	32,5		
SV16 14..4	3	4	85,3											80,6	80	77	73	64	53	37,9		
SV16 16..4	4	5,5	97,4											92,2	91	89	84	74	61	43,4		

Performances in compliance with ISO 9906-Annex A

sv2-16-4p60-en_a_th



ITT

Lowara

SV 33-92 SERIES

TABLE OF HYDRAULIC PERFORMANCES AT ~1750 rpm

PUMP TYPE	RATED POWER		Q = CAPACITY																	
			l/min	0	150	200	225	300	350	400	450	500	600	700	800	900	1000	1100	1200	
	kW	HP	m ³ /h	0	9	12	13,5	18	21	24	27	30	36	42	48	54	60	66	72	
H = TOTAL HEAD IN METRES OF COLUMN OF WATER																				
SV33 02..4	1,1	1,5	17	16	15,5	15,2	13,8	12,5	10,7											
SV33 03..4	1,5	2	25,7	24,5	23,8	23,3	21,4	19,4	16,9											
SV33 04..4	2,2	3	34	32,2	31,2	30,6	27,9	25,3	21,8											
SV33 05..4	3	4	42,7	40,6	39,4	38,6	35,3	32	27,7											
SV33 06..4	3	4	51,5	49,1	47,7	46,8	42,9	39	33,9											
SV33 07..4	4	5,5	59,9	57	55	54	49,5	45	38,9											
SV33 08..4	5,5	7,5	69	66	64	63	58	53	46,2											
SV33 09..4	5,5	7,5	77,5	74,1	72	71	65	59	51,5											
SV33 10..4	5,5	7,5	85,9	82,1	80	78	72	65	56,7											
SV33 11..4	7,5	10	94,9	90,8	88	87	80	73	63,5											
SV33 12..4	7,5	10	103,3	98,8	96	94	87	79	68,7											
SV33 13..4	7,5	10	111,8	106,8	104	102	93	85	74											
SV46 02..4	1,5	2	19			17,3	16,5	16	15	13,9	12,6	8,9								
SV46 03..4	2,2	3	28,8			26,5	25,4	24,4	23,1	21,5	19,5	14,4								
SV46 04..4	3	4	37,9			34,6	33,1	31,6	29,8	27,6	24,8	17,7								
SV46 05..4	4	5,5	47,6			43,6	41,7	40	37,7	35	31,6	22,7								
SV46 06..4	5,5	7,5	57,7			53,1	51	48,9	46,3	43,1	39,1	28,6								
SV46 07..4	5,5	7,5	67,1			61,7	59	57	54	49,8	45	32,7								
SV46 08..4	7,5	10	77			70,9	68	65	62	58	52	38,2								
SV46 09..4	7,5	10	86,4			79,4	76,1	73	69	64	58	42,4								
SV46 10..4	7,5	10	95,7			87,9	84	81	76	71	64	46,5								
SV46 11..4	11	15	105,7			97,1	93	89	85	79	71	52								
SV46 12..4	11	15	115,3			105,9	102	97	92	86	78	57								
SV46 12..4	11	15	124,9			114,8	110	106	100	93	84	61								
SV66 01..4	1,5	2	10,8				9,7	9,5	9,2	8,9	8,6	7,9	7,2	6,1	4,7					
SV66 02..4	3	4	21,1				19,4	19	18,5	17,9	17,4	16,0	14,5	12,5	10,1					
SV66 03..4	4	5,5	31,4				29,2	28,5	27,8	27	26,2	24,2	21,7	18,9	15,4					
SV66 04..4	5,5	7,5	42				39,4	38,7	37,8	36,9	35,8	33,2	30	26,1	21,3					
SV66 05..4	7,5	10	52,5				49,4	48,5	47,5	46,3	44,9	41,7	37,8	32,8	26,5					
SV66 06..4	7,5	10	62,7				59	58	57	55	53	49,6	44,8	38,7	31,1					
SV66 07..4	11	15	73,2				68,8	67	66	64	62	58	52	45,2	36,3					
SV66 08..4	11	15	83,7				78,6	77	75	73	71	66	60	52	41,5					
SV92 01..4	1,5	2	11,8							9,8	9,5	8,9	8,3	7,7	7,1	6,4	5,5	4,1		
SV92 02..4	3	4	23,4							20	19,4	18,3	17,1	16	14,8	13,4	11,7	9,4		
SV92 03..4	5,5	7,5	35,4							31	30,2	28,5	26,8	25,2	23,4	21,5	19	15,9		
SV92 04..4	7,5	10	47,2							41,4	40,3	38	35,8	33,6	31,2	28,6	25,4	21,3		
SV92 05..4	7,5	10	58,5							51,2	50	46,9	44,1	41,4	38,4	35,1	31,1	25,8		
SV92 06..4	11	15	70,2							61,4	60	56	53	50	46,1	42,1	37,3	30,9		
SV92 07..4	11	15	81,9							71,6	70	66	62	58	54	49	43,5	36,1		
SV92 08..4	15	20	93,6							81,8	80	75	71	66	62	56	50	41,2		

Performances in compliance with ISO 9906 - Annex A.

sv33-92-4p60-en_a_th



ITT

Lowara

DIMENSIONS AND WEIGHTS, SV2 SERIES (~3500 rpm)

F version: AISI 304, in-line ports, round flanges from SV202 to SV216, PN25.

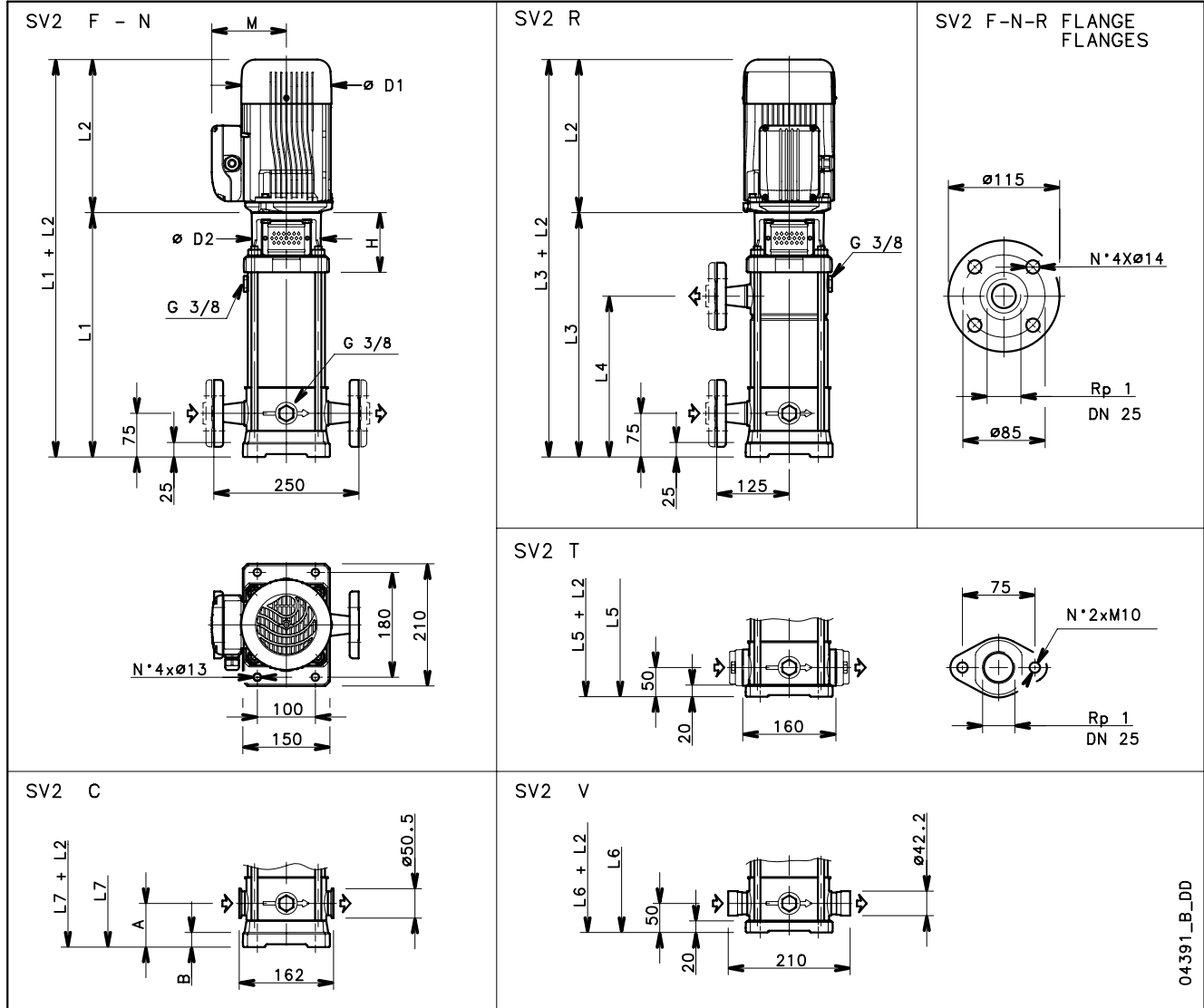
T version: AISI 304, in-line ports, oval flanges from SV202 to SV209, PN16.

R version: AISI 304, delivery port above suction, round flanges from SV204 to SV216, PN25.

N version: AISI 316, in-line ports, round flanges from SV202 to SV216, PN25.

V version: AISI 316, in-line ports, Victaulic couplings from SV202 to SV216, PN25.

C version: AISI 316, in-line ports, Clamp couplings from SV202 to SV209, PN16.
from SV211 to SV216, PN25.



04391_B_DD

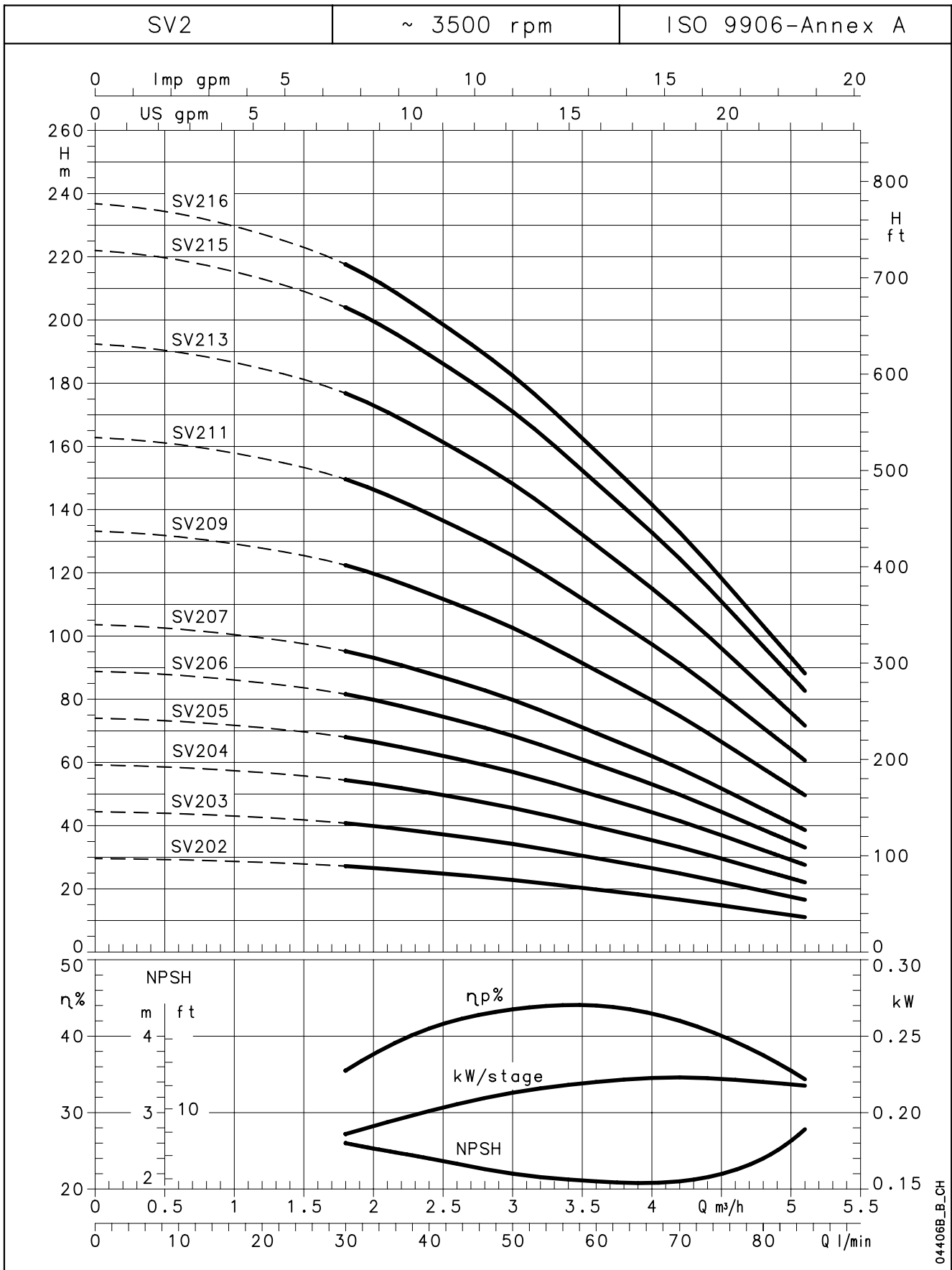
PUMP TYPE	MOTOR		DIMENSIONS (mm)															WEIGHT kg		
	kW	SIZE	L1	L2		L3	L4	L5	L6	L7	H	M		D1		D2	A	B	PUMP	ELECTRIC PUMP
SV202	0,55	71	285	231	231	-	-	260	260	260	93	111	111	140	140	105	50	20	9,5	17,5
SV203	0,75	80	320	226	226	-	-	295	295	295	103	121	121	140	140	120	50	20	10,5	20
SV204	1,1	80	345	263	263	345	200	320	320	320	103	137	129	155	155	120	50	20	11	21,5
SV205	1,1	80	370	263	263	370	225	345	345	345	103	137	129	155	155	120	50	20	11,5	22
SV206	1,5	90	405	263	263	405	250	380	380	380	113	137	129	155	155	140	50	20	12,5	28,5
SV207	1,5	90	430	263	263	430	275	405	405	405	113	137	129	155	155	140	50	20	13	29
SV209	2,2	90	480	281	263	480	325	455	455	455	113	121	129	176	155	140	50	20	13,5	30,5
SV211	3	100	540	-	298	540	375	-	515	540	123	-	134	-	174	160	75	25	15	36
SV213	3	100	590	-	298	590	425	-	565	590	123	-	134	-	174	160	75	25	16	37
SV215	4	112	640	-	319	640	475	-	615	640	123	-	154	-	197	160	75	25	17	43,5
SV216	4	112	665	-	319	665	500	-	640	665	123	-	154	-	197	160	75	25	17,5	44



ITT

Lowara

SV2 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

DIMENSIONS AND WEIGHTS, SV4 SERIES (~3500 rpm)

F version: AISI 304, in-line ports, round flanges from SV402 to SV415, PN25.

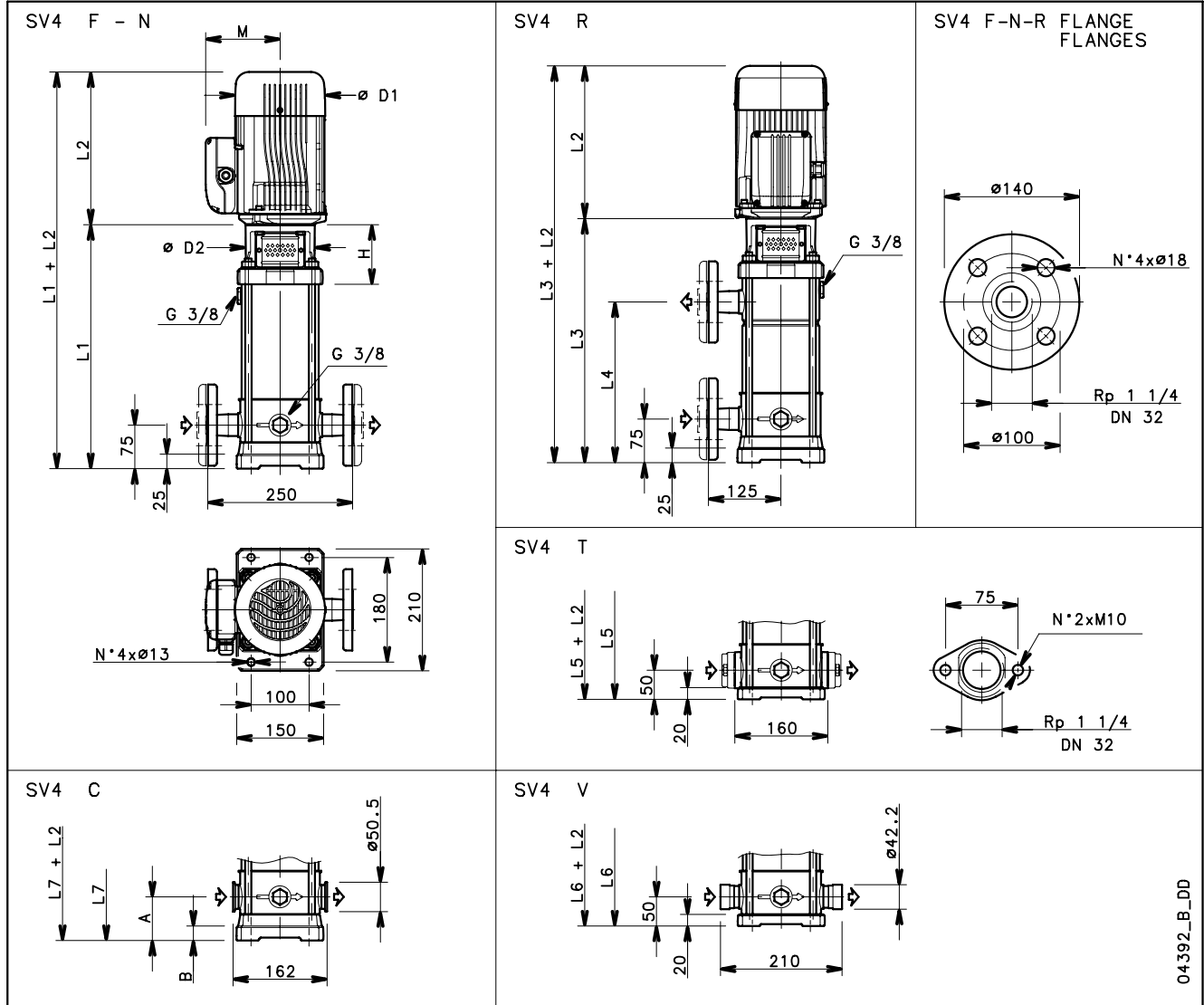
T version: AISI 304, in-line ports, oval flanges from SV402 to SV411, PN16.

R version: AISI 304, delivery port above suction, round flanges from SV405 to SV415, PN25.

N version: AISI 316, in-line ports, round flanges from SV402 to SV415, PN25.

V version: AISI 316, in-line ports, Victaulic couplings from SV402 to SV415, PN25.

C version: AISI 316, in-line ports, Clamp couplings from SV402 to SV411, PN16.
from SV413 to SV415, PN25.



04392_B_DD

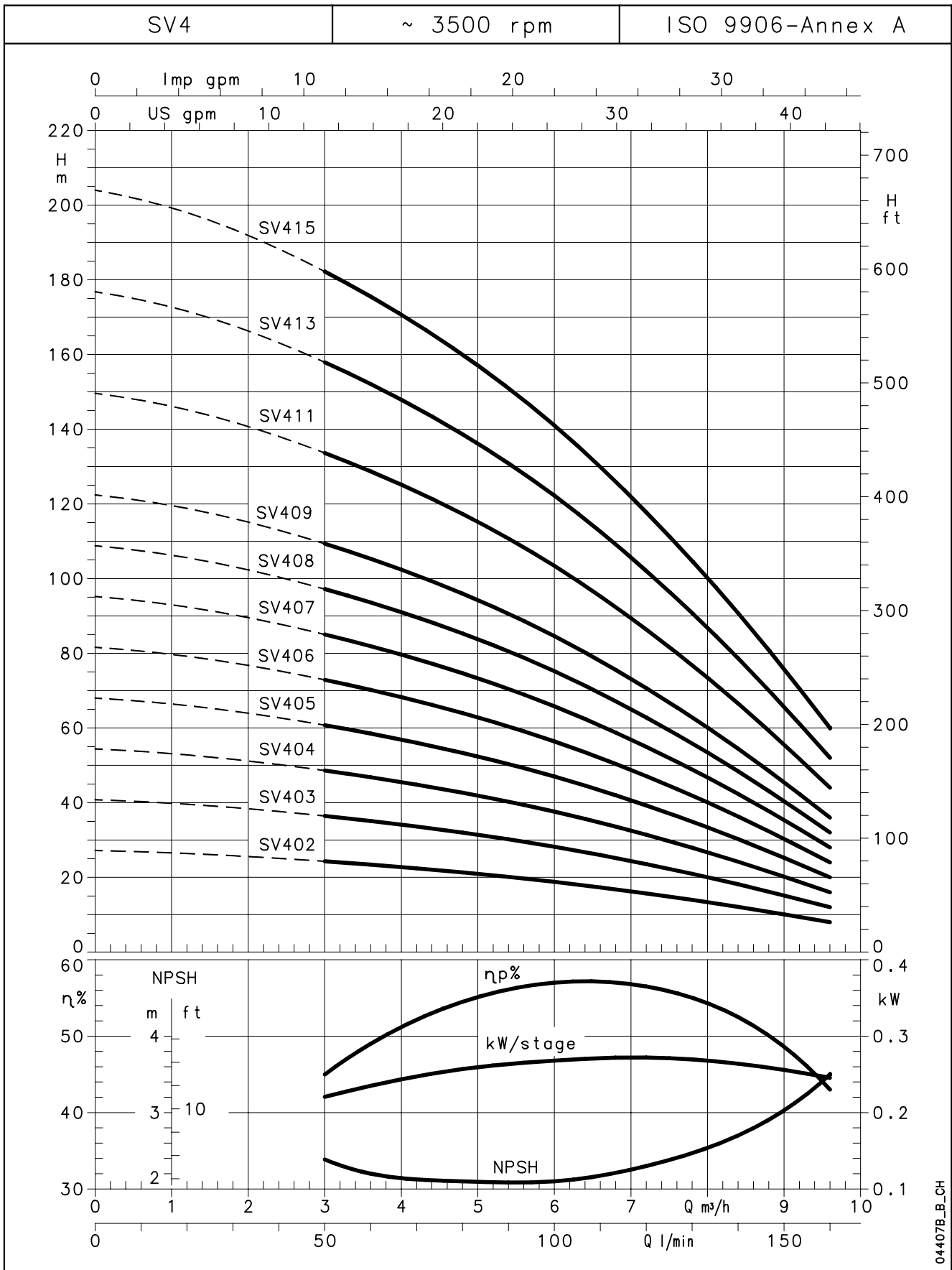
PUMP TYPE	MOTOR		DIMENSIONS (mm)															WEIGHT kg		
	kW	SIZE	L1	L2		L3	L4	L5	L6	L7	H	M		D1		D2	A	B	PUMP	ELECTRIC
SV402	0,55	71	285	231	231	-	-	260	260	260	93	111	111	140	140	105	50	20	9,5	17,5
SV403	1,1	80	320	263	263	-	-	295	295	295	103	137	129	155	155	120	50	20	10,5	21
SV404	1,1	80	345	263	263	-	-	320	320	320	103	137	129	155	155	120	50	20	11	21,5
SV405	1,5	90	380	263	263	380	225	355	355	355	113	137	129	155	155	140	50	20	12	28
SV406	2,2	90	405	281	263	405	250	380	380	380	113	121	129	176	155	140	50	20	12,5	29,5
SV407	2,2	90	430	281	263	430	275	405	405	405	113	121	129	176	155	140	50	20	13	30
SV408	2,2	90	455	281	263	455	300	430	430	430	113	121	129	176	155	140	50	20	13,5	30,5
SV409	3	100	490	-	298	490	325	465	465	465	123	-	134	-	174	160	50	20	14,5	35,5
SV411	3	100	540	-	298	540	375	515	515	515	123	-	134	-	174	160	50	20	15,5	36,5
SV413	4	112	590	-	319	590	425	-	565	590	123	-	154	-	197	160	75	25	16,5	43
SV415	4	112	640	-	319	640	475	-	615	640	123	-	154	-	197	160	75	25	17,5	44



ITT

Lowara

SV4 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



04407B_B_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

DIMENSIONS AND WEIGHTS, SV8 SERIES (~3500 rpm)

F version: AISI 304, in-line ports, round flanges from SV802 to SV812, PN25.

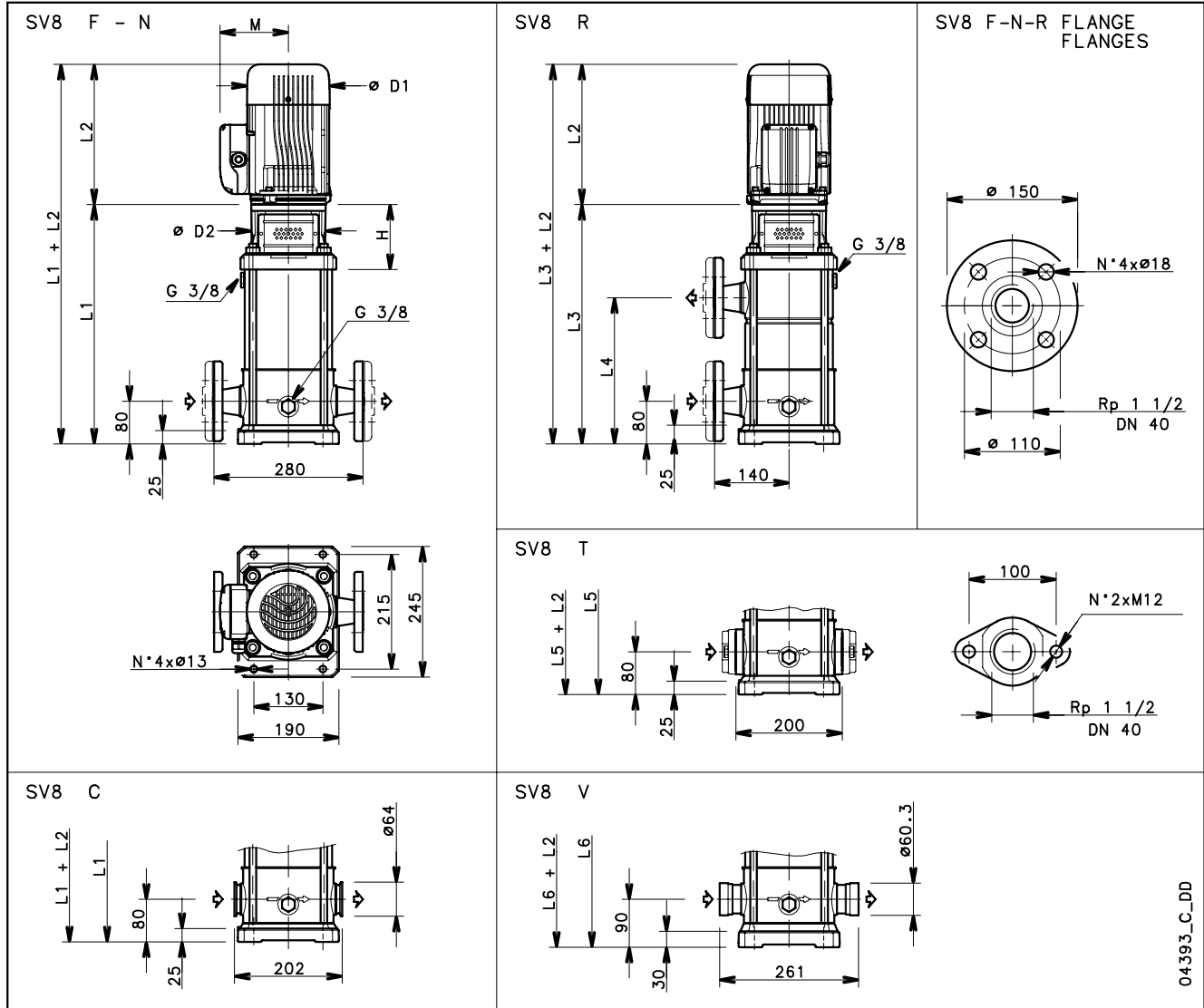
T version: AISI 304, in-line ports, oval flanges from SV802 to SV808, PN16.

R version: AISI 304, delivery port above suction, round flanges from SV803 to SV812, PN25.

N version: AISI 316, in-line ports, round flanges from SV802 to SV812, PN25.

V version: AISI 316, in-line ports, Victaulic couplings from SV802 to SV812, PN25.

C version: AISI 316, in-line ports, Clamp couplings from SV802 to SV812, PN25.



04393_C_DD

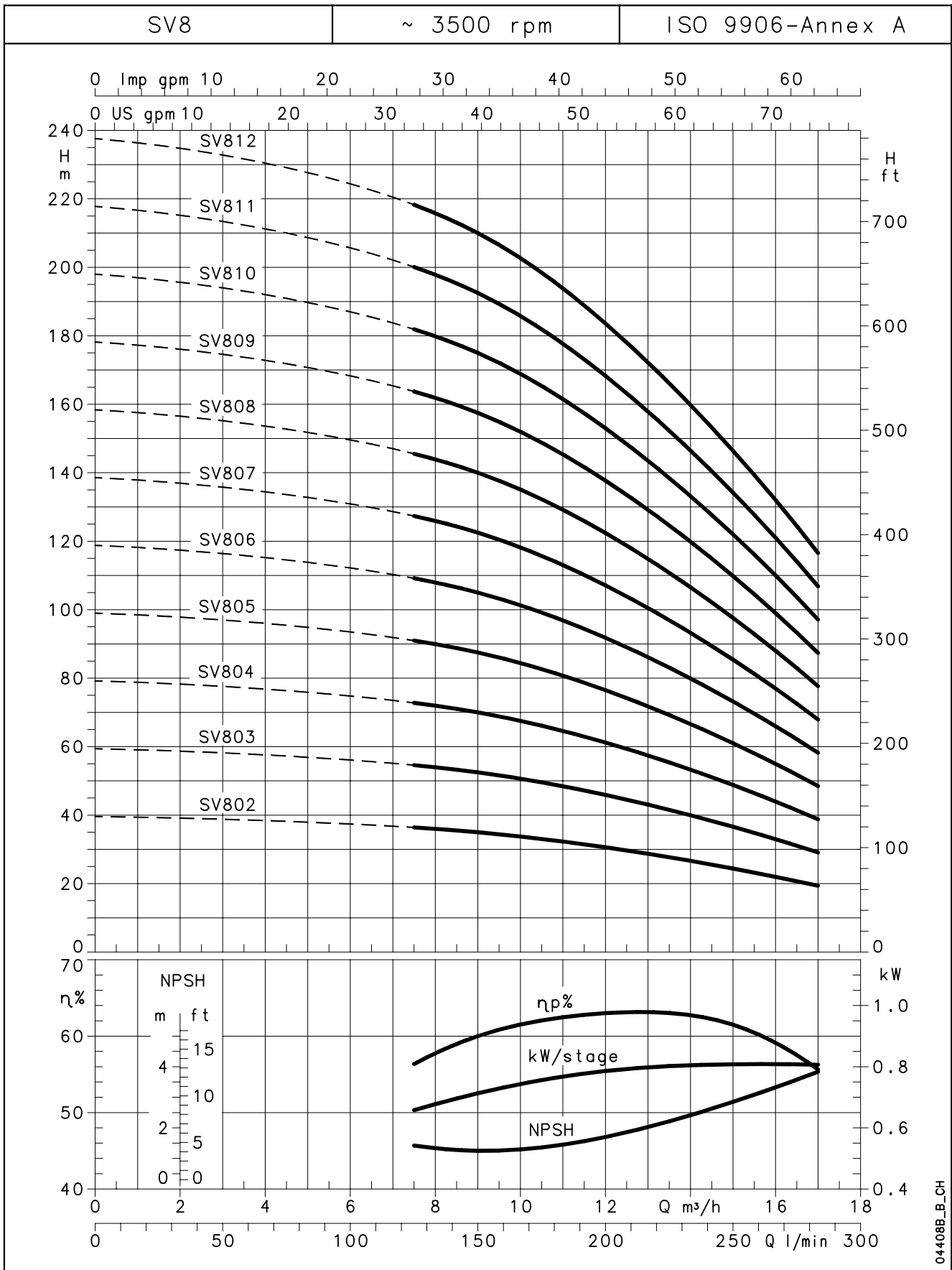
PUMP TYPE	MOTOR		DIMENSIONS (mm)													WEIGHT kg	
	kW	SIZE	L1	L2		L3	L4	L5	L6	H	M		D1		D2	PUMP	ELECTRIC PUMP
SV802	2,2	90	373	281	263	-	-	373	383	122	121	129	176	155	140	15	32
SV803	3	100	421	-	298	421	236	421	431	132	-	134	-	174	160	16,5	37,5
SV804	4	112	459	-	319	459	274	459	469	132	-	154	-	197	160	17,5	44
SV805	4	112	497	-	319	497	312	497	507	132	-	154	-	197	160	18,5	45
SV806	5,5	132	555	-	375	555	350	555	565	152	-	168	-	214	300	23	60,5
SV807	5,5	132	593	-	375	593	388	593	603	152	-	168	-	214	300	24	61,5
SV808	7,5	132	631	-	367	631	426	631	641	152	-	191	-	256	300	25	81
SV809	7,5	132	669	-	367	669	464	-	679	152	-	191	-	256	300	26	82
SV810	11	160	739	-	428	739	502	-	749	184	-	191	-	256	350	34	105
SV811	11	160	777	-	428	777	540	-	787	184	-	191	-	256	350	35	106
SV812	11	160	815	-	428	815	578	-	825	184	-	191	-	256	350	36	107



ITT

Lowara

SV8 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



04408B_B_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



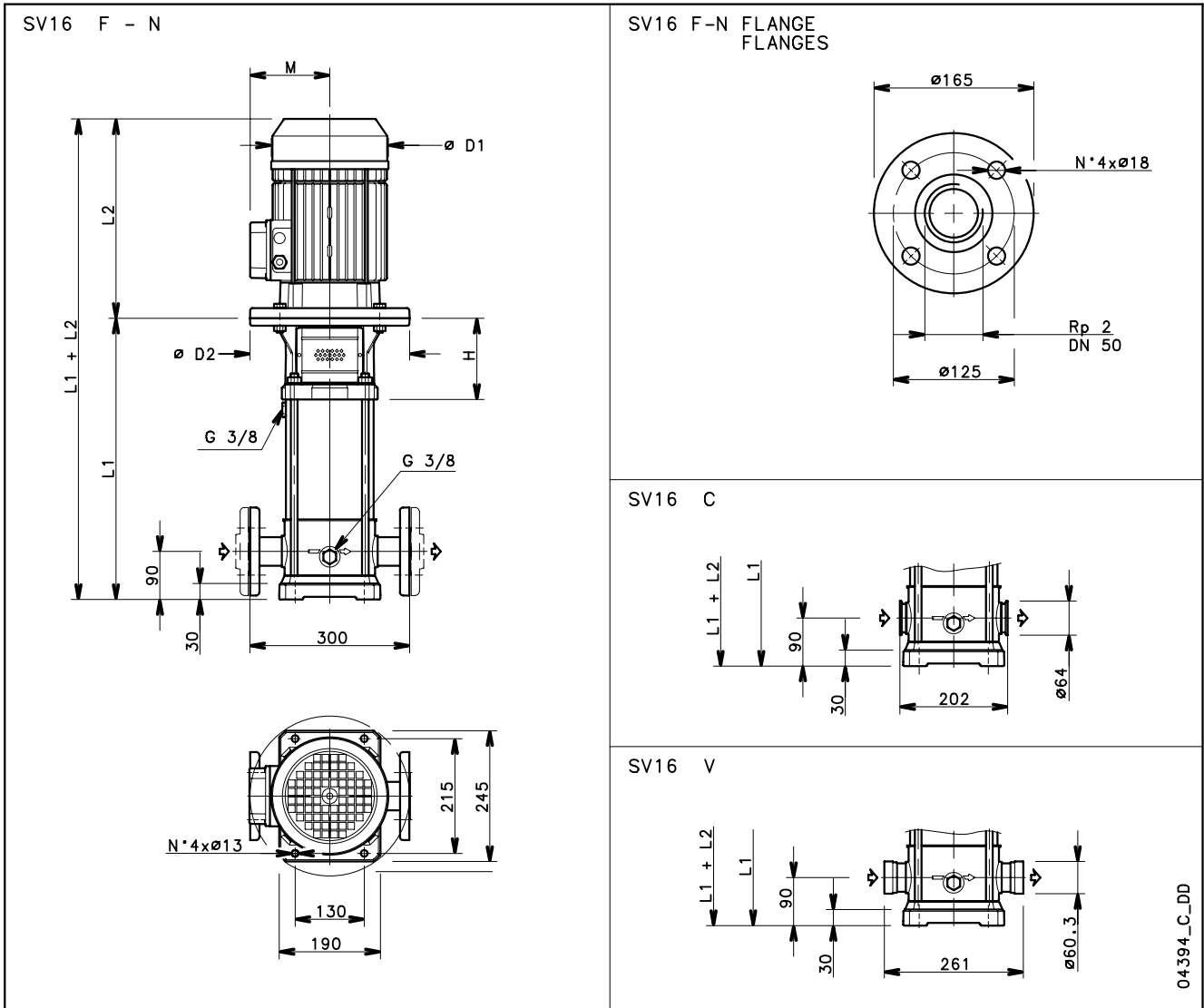
ITT

Lowara

DIMENSIONS AND WEIGHTS, SV16 SERIES (~3500 rpm)

F version: AISI 304, in-line ports, round flanges from SV1602 to SV1609, PN25.
N version: AISI 316, in-line ports, round flanges from SV1602 to SV1609, PN25.

V version: AISI 316, in-line ports, Victaulic couplings from SV1602 to SV1609, PN25.
C version: AISI 316, in-line ports, Clamp couplings from SV1602 to SV1609, PN25.



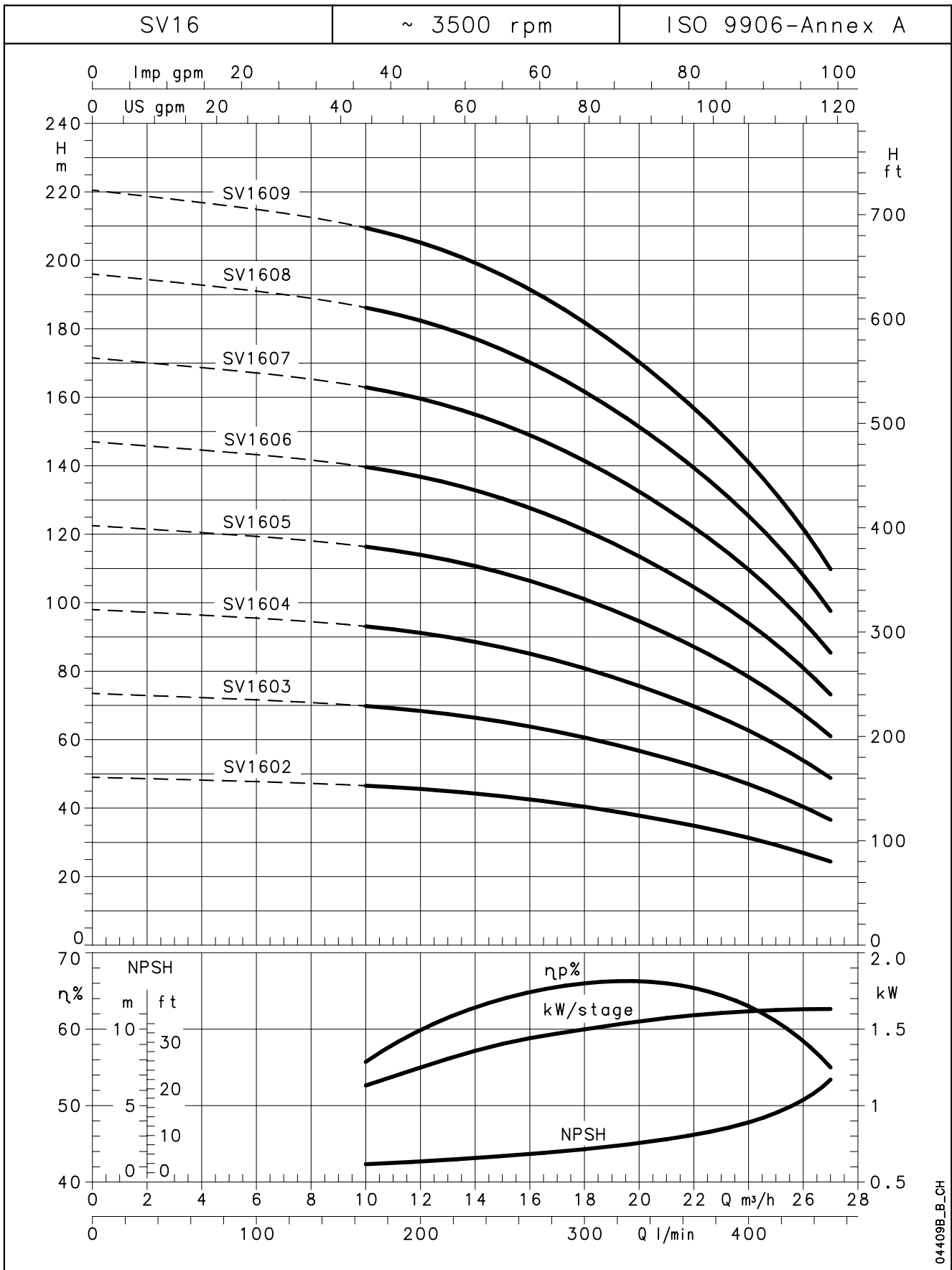
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	H	M	D1	D2	PUMP	ELECTRIC PUMP
SV1602	4	112	393	319	132	154	197	160	16	42,5
SV1603	5,5	132	451	375	152	168	214	300	20,5	58
SV1604	7,5	132	489	367	152	191	256	300	21,5	77,5
SV1605	11	160	559	428	184	191	256	350	29	100
SV1606	11	160	597	428	184	191	256	350	30	101
SV1607	11	160	635	428	184	191	256	350	31	102
SV1608	15	160	673	494	184	240	313	350	32	134
SV1609	15	160	711	494	184	240	313	350	33	135



ITT

Lowara

SV16 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



04409B_B_CH

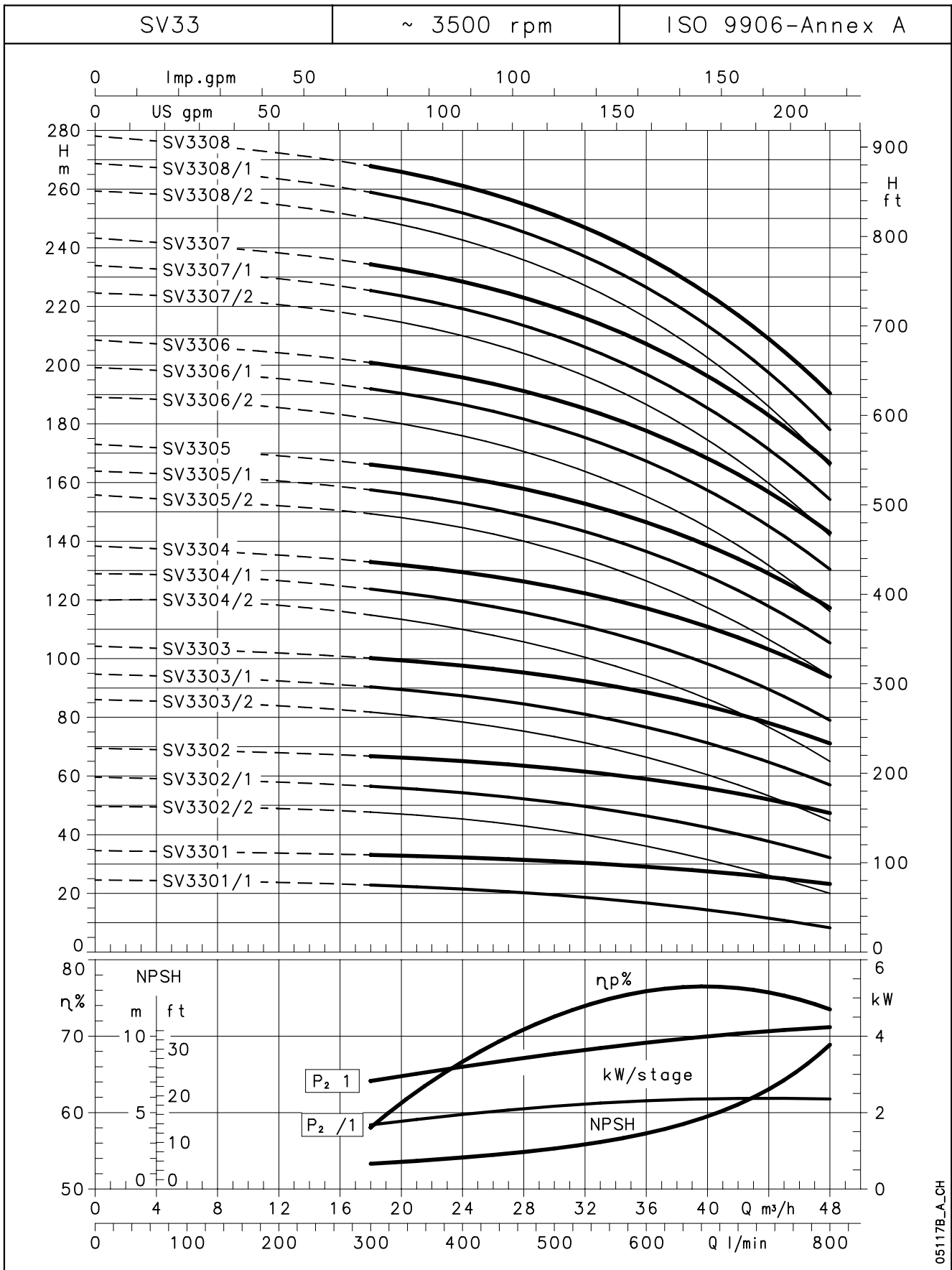
These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

SV33 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



05117B_A_CH

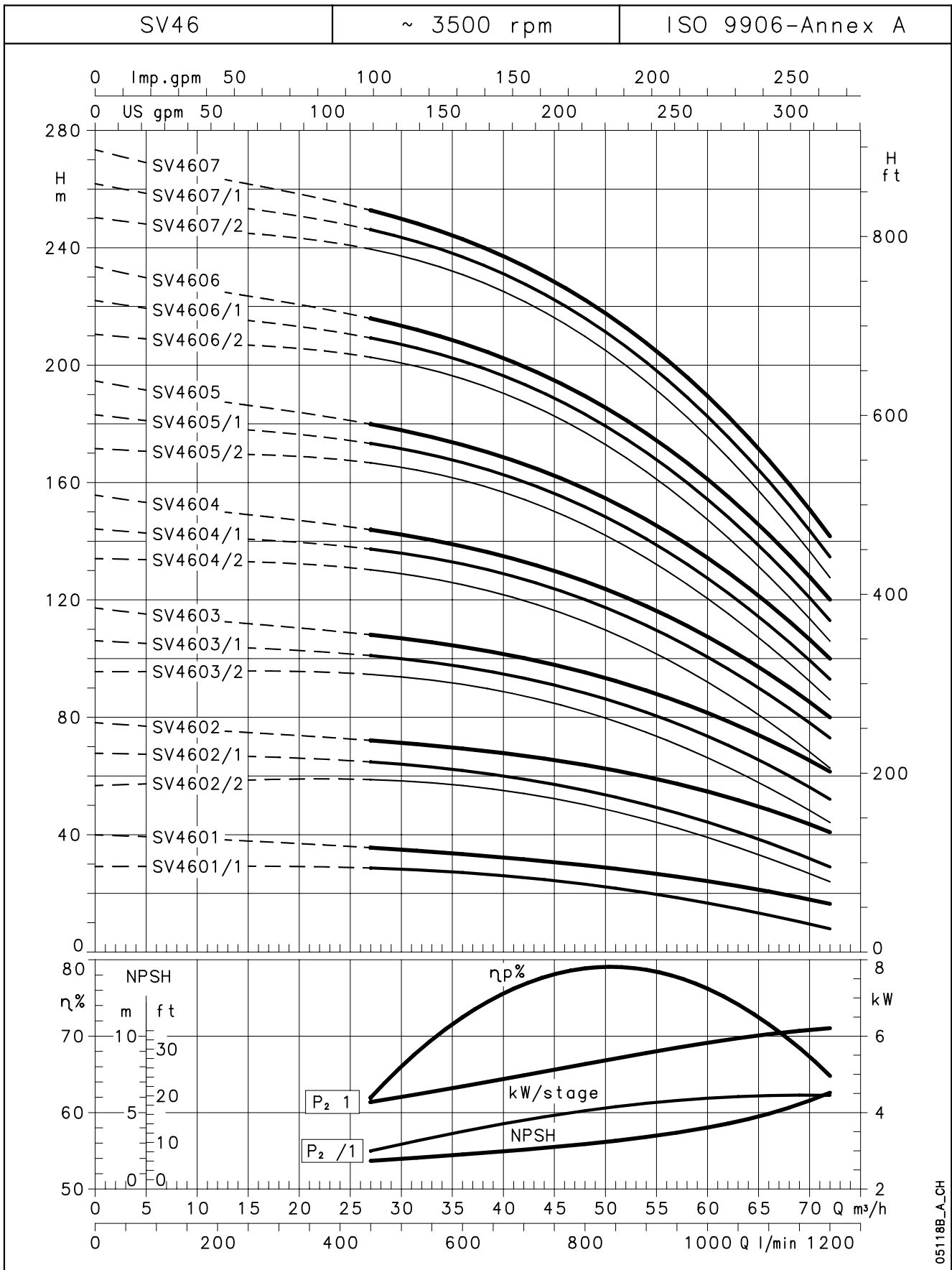
These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

SV46 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



05118B_A_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

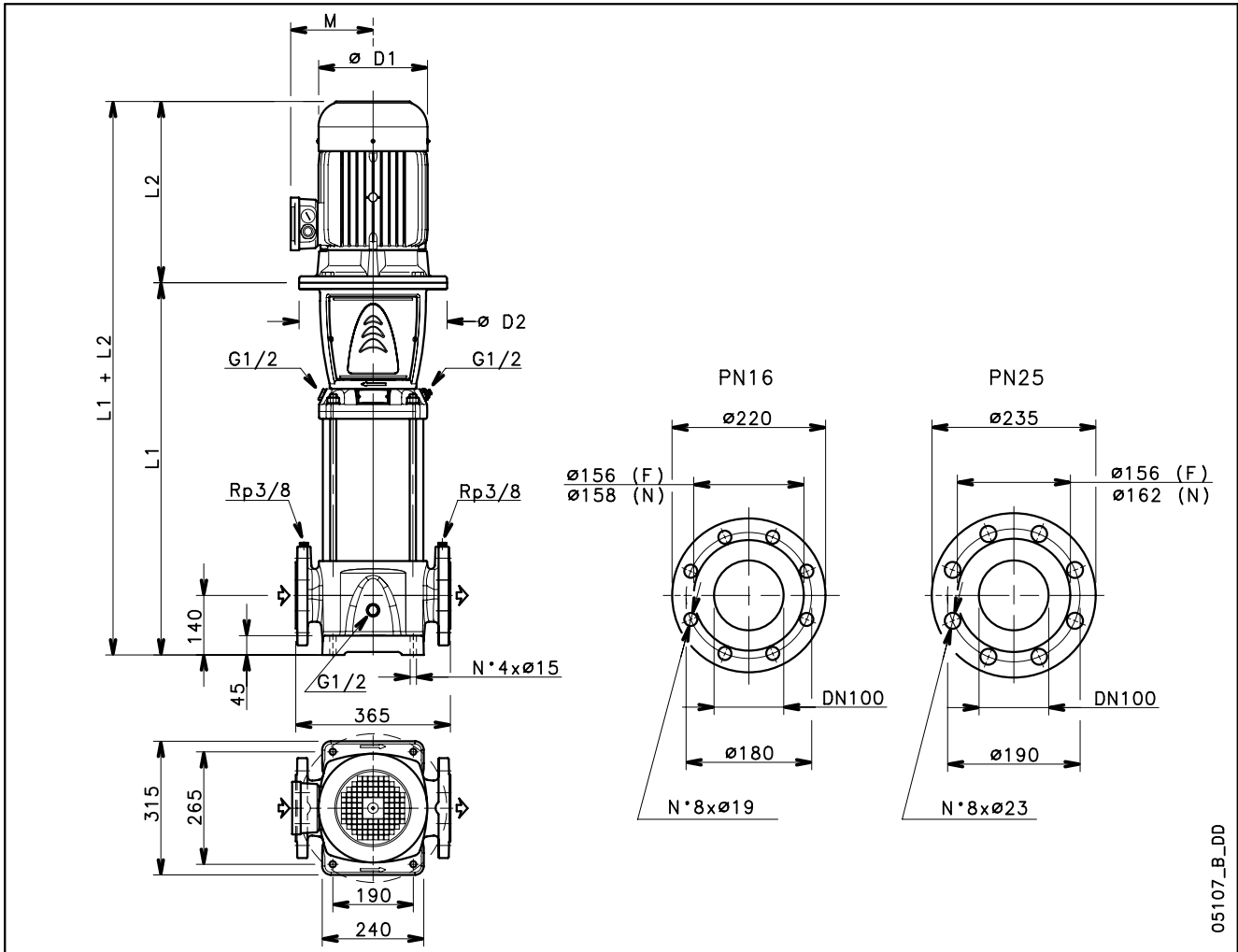


ITT

Lowara

DIMENSIONS AND WEIGHTS, SV66 SERIES (~3500 rpm)

F version: AISI 316/Cast iron, in-line ports, round flanges.
N version: AISI 316, in-line ports, round flanges.



05107_B_DD

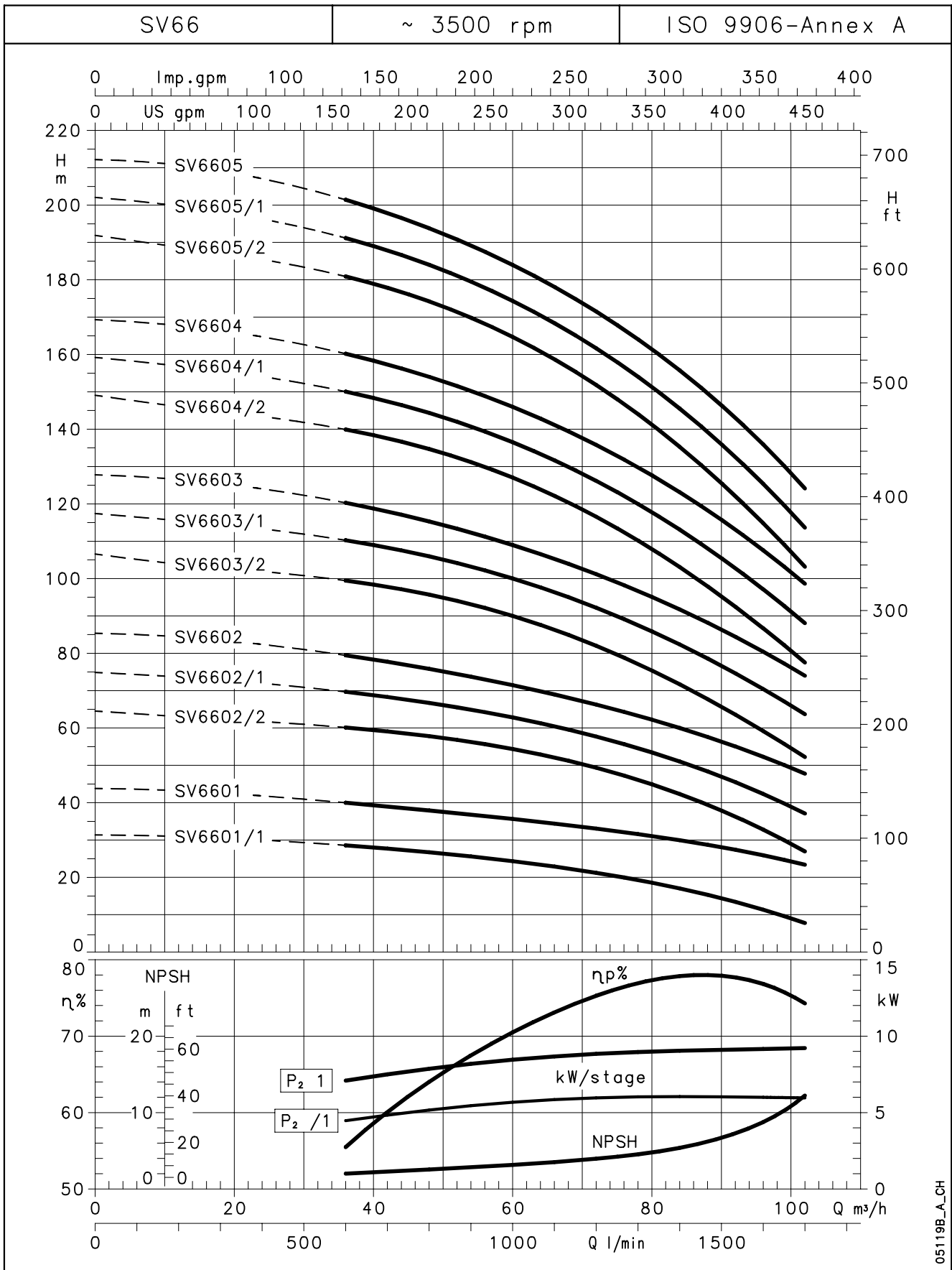
PUMP TYPE	MOTOR		DIMENSIONS (mm)					FLANGES	WEIGHT kg	
	kW	SIZE	L1	L2	D1	D2	M		PUMP	ELECTRIC
SV6601/1	7,5	132	574	367	256	300	191	16	72	128
SV6601	11	160	609	428	256	350	191	16	76	147
SV6602/2	15	160	699	494	313	350	240	16	81	183
SV6602/1	18,5	160	699	494	313	350	240	16	81	192
SV6602	18,5	160	699	494	313	350	240	16	81	192
SV6603/2	22	180	789	494	313	350	240	16	87	209
SV6603/1	30	200	789	613	354	400	278	16	94	227
SV6603	30	200	789	613	354	400	278	16	94	227
SV6604/2	37	200	879	613	354	400	278	16	100	242
SV6604/1	37	200	879	613	354	400	278	25	102	245
SV6604	37	200	879	613	354	400	278	25	102	245
SV6605/2	45	225	969	710	411	450	298	25	111	330
SV6605/1	45	225	969	710	411	450	298	25	111	330
SV6605	45	225	969	710	411	450	298	25	111	330



ITT

Lowara

SV66 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



05119B_A_CH

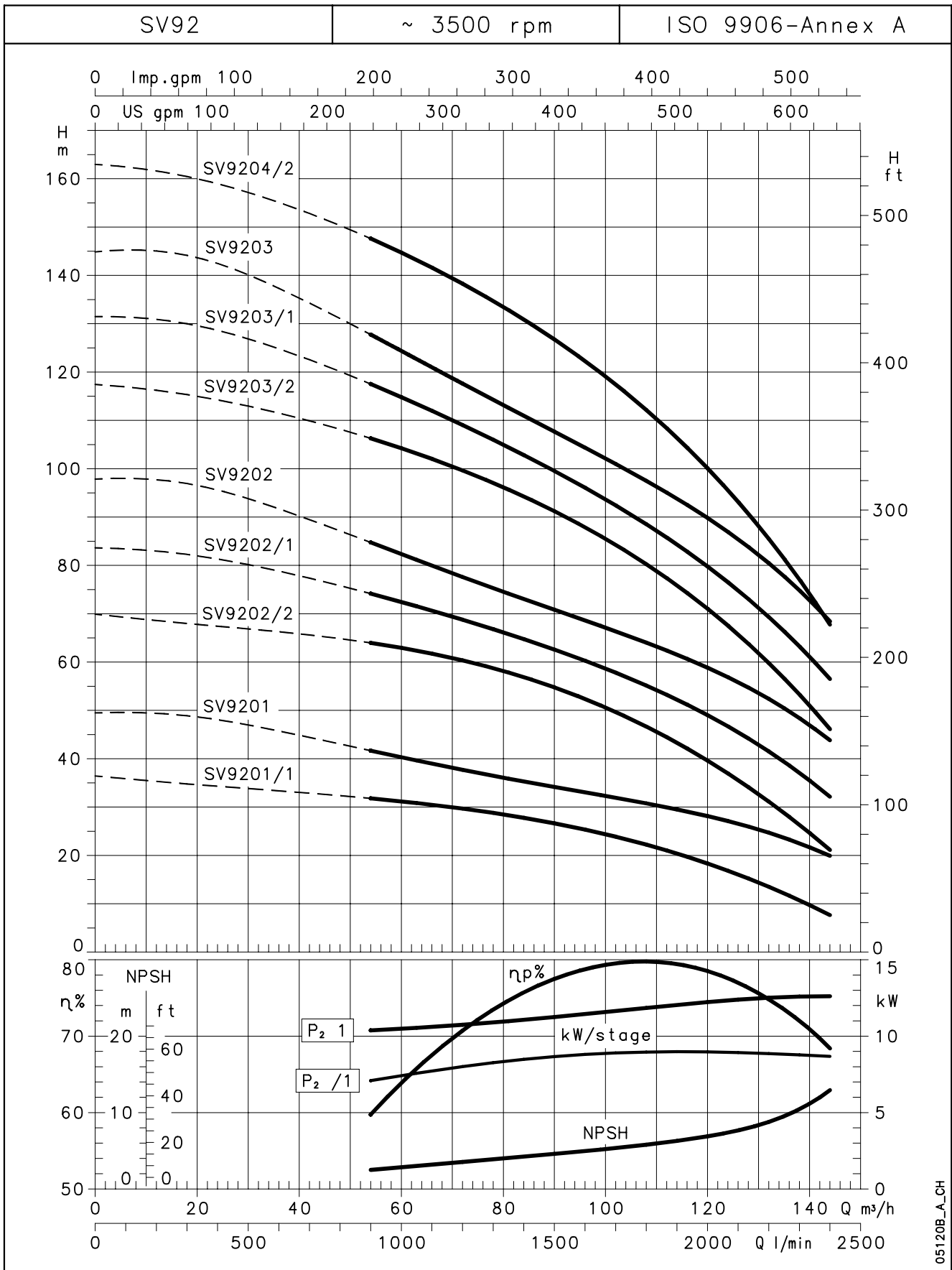
These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

SV92 SERIES OPERATING CHARACTERISTICS AT ~3500 rpm, 60 Hz



05120B_A_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



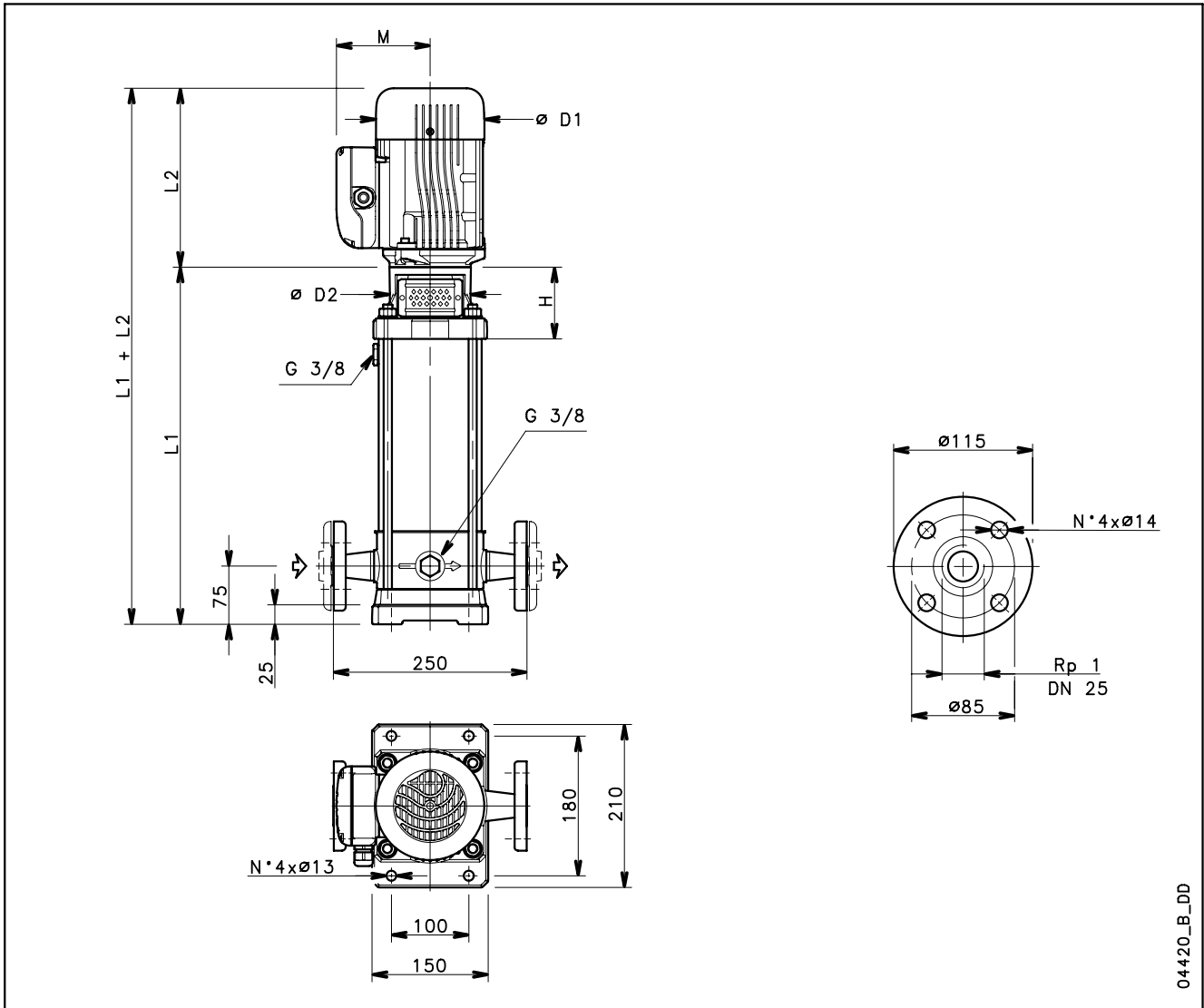
ITT

Lowara

DIMENSIONS AND WEIGHTS, SV2 SERIES (~1750 rpm)

F version: AISI 304, in-line ports, round flanges, PN25.

N version: AISI 316, in-line ports, round flanges, PN25.



04420_B_DD

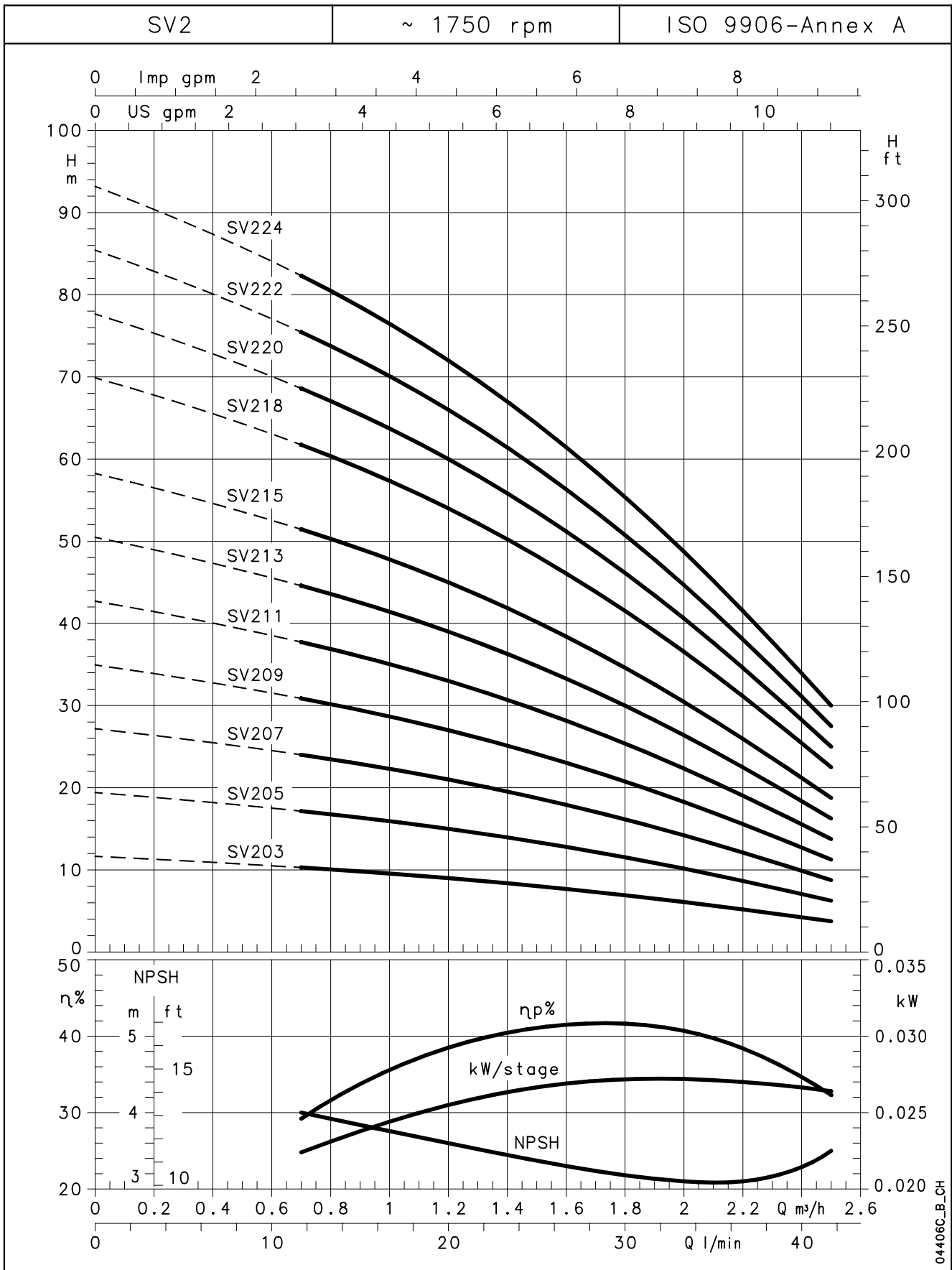
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	H	M	D1	D2	PUMP	ELECTRIC PUMP
SV203..4	0,25	71	310	231	93	121	140	105	10	16
SV205..4	0,25	71	360	231	93	121	140	105	11	17
SV207..4	0,25	71	410	231	93	121	140	105	12	18
SV209..4	0,25	71	460	231	93	121	140	105	13	19
SV211..4	0,37	71	510	231	93	121	140	105	14	21
SV213..4	0,37	71	560	231	93	121	140	105	15	22
SV215..4	0,55	80	620	263	103	129	155	120	16,5	25
SV218..4	0,55	80	695	263	103	129	155	120	18	27
SV220..4	0,55	80	745	263	103	129	155	120	19	28
SV222..4	0,75	80	795	263	103	129	155	120	20	30
SV224..4	0,75	80	845	263	103	129	155	120	21	31



ITT

Lowara

SV2 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



04406C_B_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

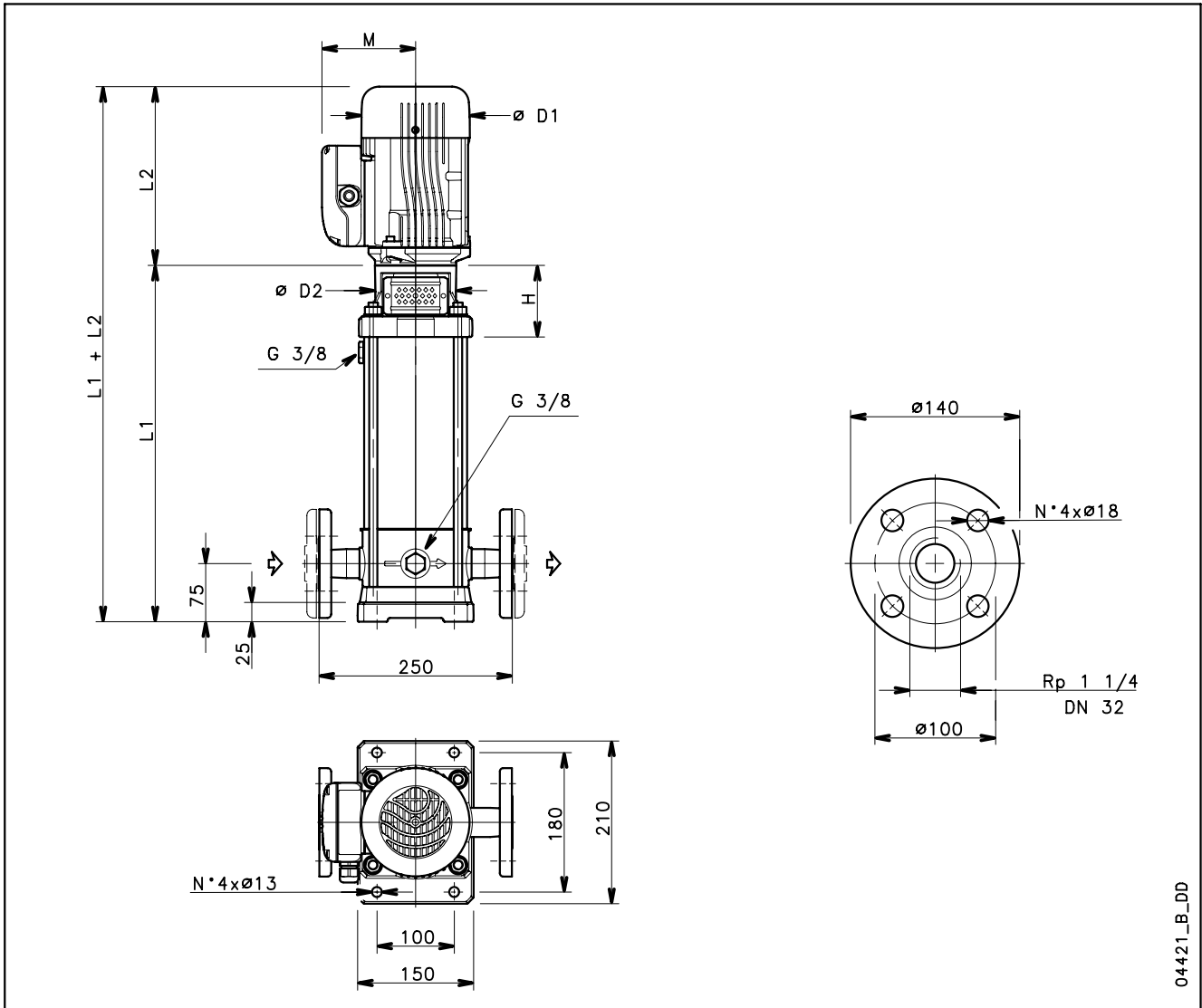


ITT

Lowara

DIMENSIONS AND WEIGHTS, SV4 SERIES (~1750 rpm)

F version: AISI 304, in-line ports, round flanges, PN25.
N version: AISI 316, in-line ports, round flanges, PN25.



04421_B_DD

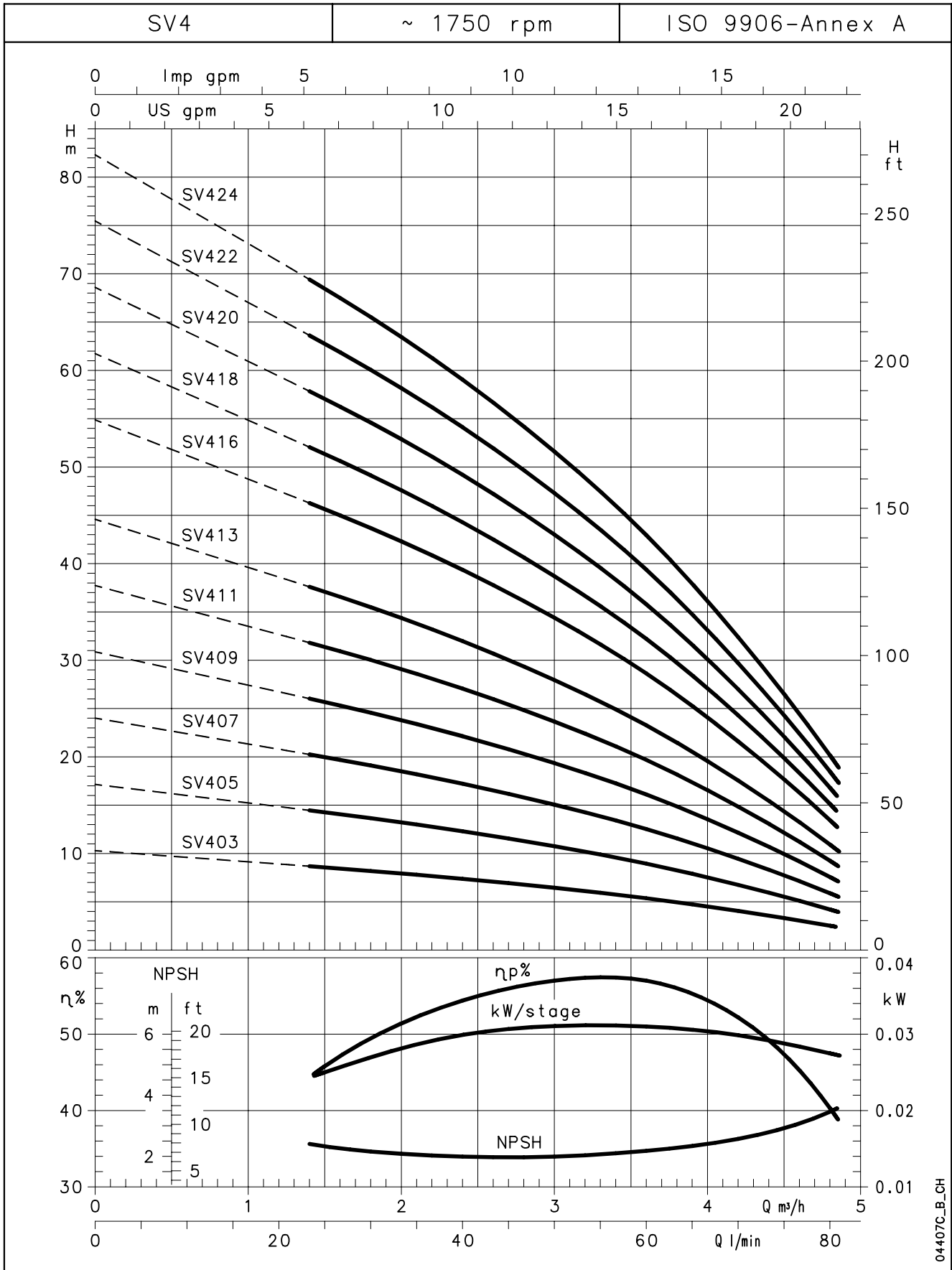
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	H	M	D1	D2	PUMP	ELECTRIC PUMP
SV403..4	0,25	71	310	231	93	121	140	105	10	16
SV405..4	0,25	71	360	231	93	121	140	105	11	17
SV407..4	0,25	71	410	231	93	121	140	105	12	18
SV409..4	0,37	71	460	231	93	121	140	105	13	20
SV411..4	0,37	71	510	231	93	121	140	105	14	21
SV413..4	0,55	80	570	263	103	129	155	120	15,5	24
SV416..4	0,55	80	645	263	103	129	155	120	17	26
SV418..4	0,55	80	695	263	103	129	155	120	18	27
SV420..4	0,75	80	745	263	103	129	155	120	19	29
SV422..4	0,75	80	795	263	103	129	155	120	20	30
SV424..4	0,75	80	845	263	103	129	155	120	21	31



ITT

Lowara

SV4 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



04407C_B_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



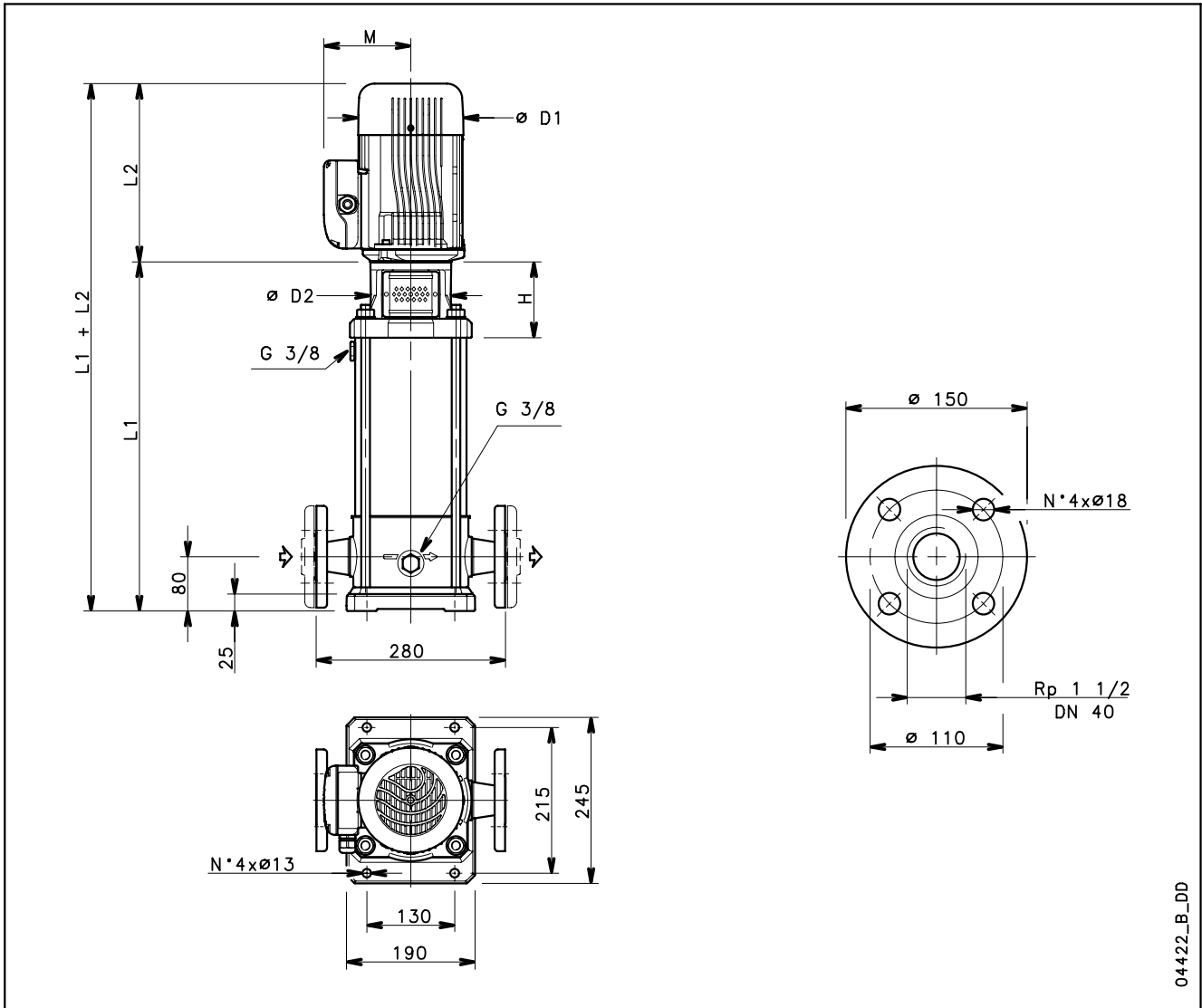
ITT

Lowara

DIMENSIONS AND WEIGHTS, SV8 SERIES (~1750 rpm)

F version: AISI 304, in-line ports, round flanges, PN25.

N version: AISI 316, in-line ports, round flanges, PN25.



04422_B_DD

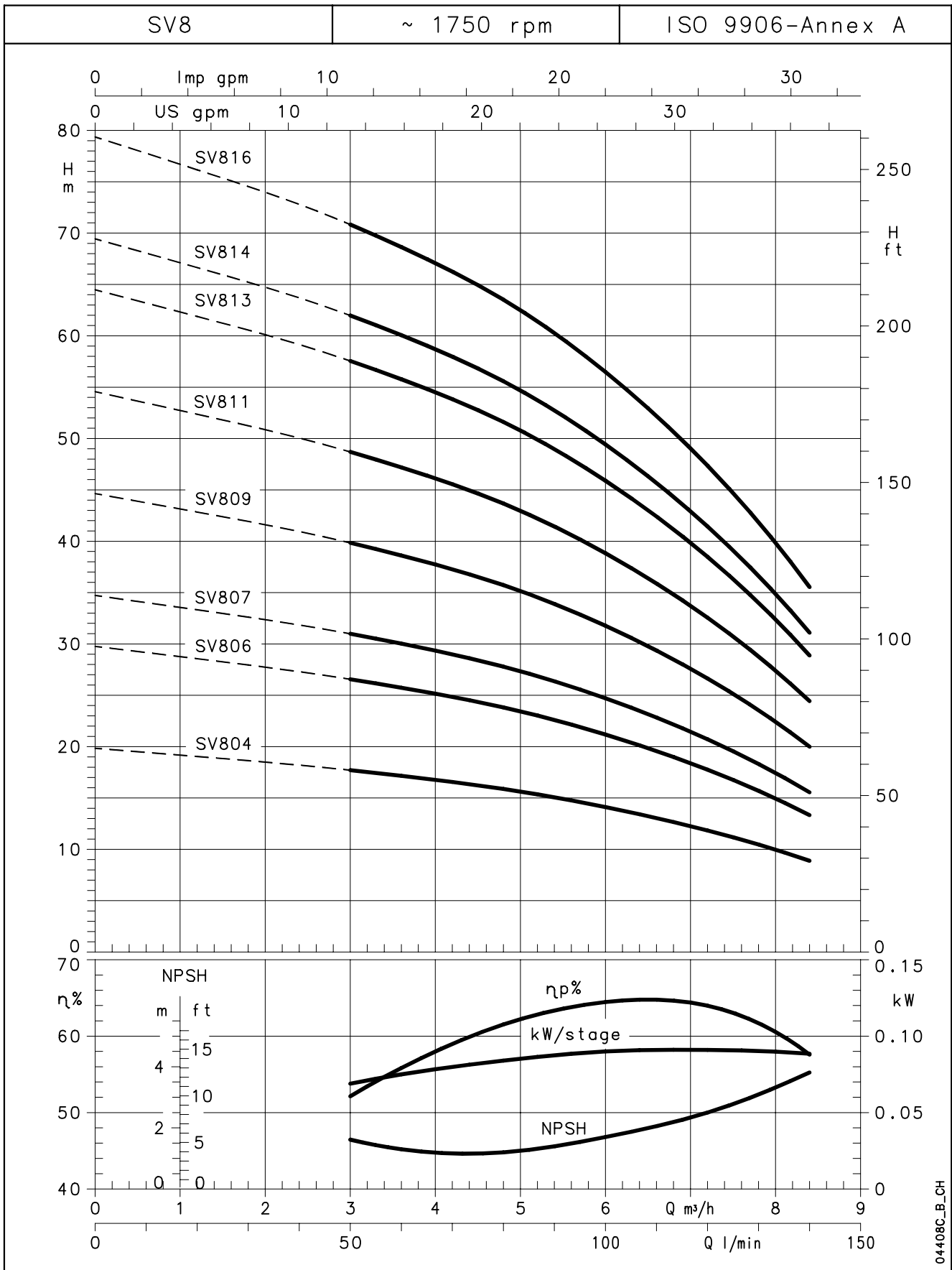
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	H	M	D1	D2	PUMP	ELECTRIC PUMP
SV804..4	0,55	80	439	263	112	129	155	120	16,5	25
SV806..4	0,55	80	515	263	112	129	155	120	18,5	27
SV807..4	0,75	80	553	263	112	129	155	120	19,5	29
SV809..4	1,1	90	639	298	122	134	174	140	22	39,5
SV811..4	1,1	90	715	298	122	134	174	140	24	41,5
SV813..4	1,5	90	791	298	122	134	174	140	26	49
SV814..4	1,5	90	829	298	122	134	174	140	27	50
SV816..4	1,5	90	905	298	122	134	174	140	29	52



ITT

Lowara

SV8 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



04408C_B_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



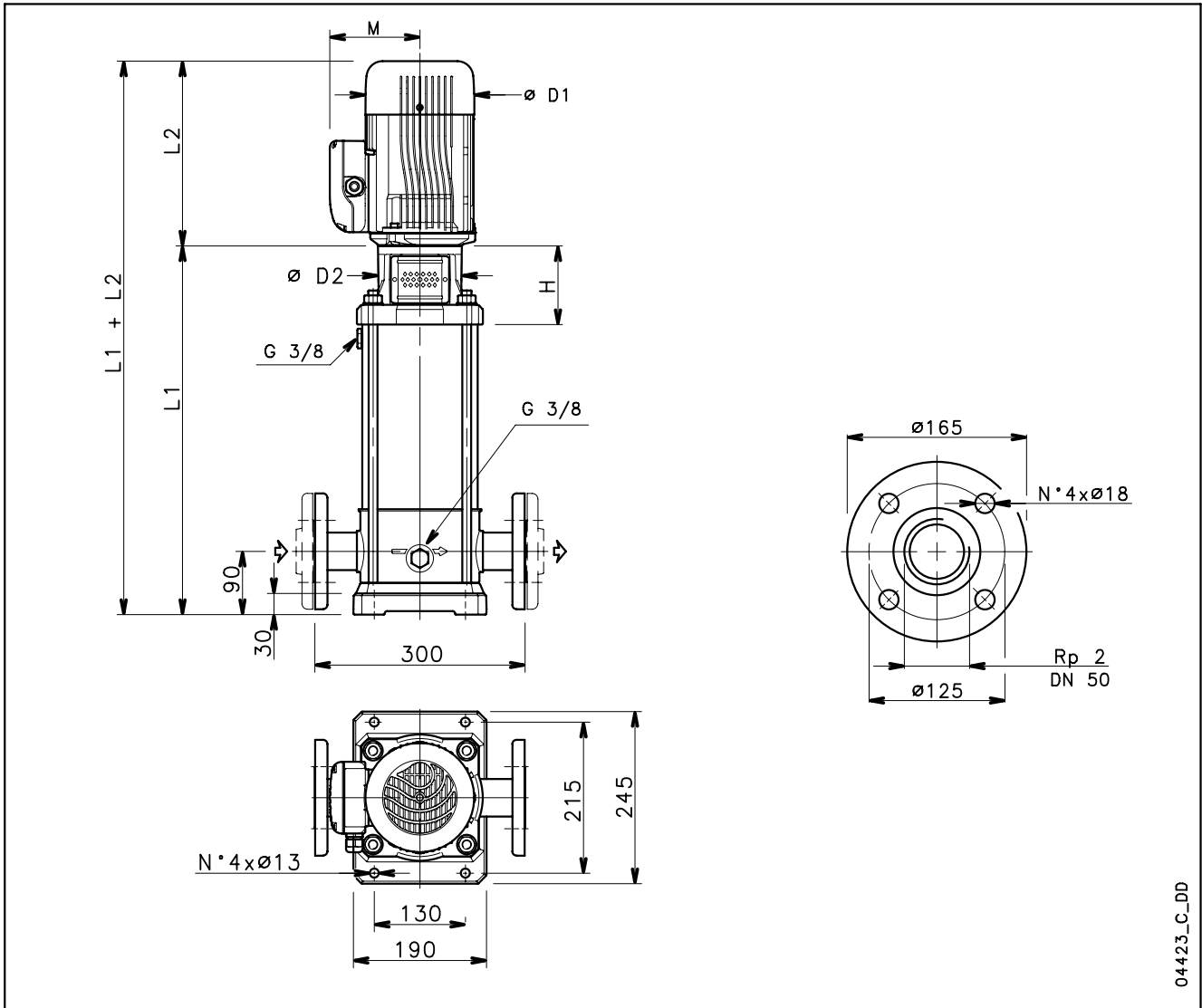
ITT

Lowara

DIMENSIONS AND WEIGHTS, SV16 SERIES (~1750 rpm)

F version: AISI 304, in-line ports, round flanges, PN25.

N version: AISI 316, in-line ports, round flanges, PN25.



04423_C_DD

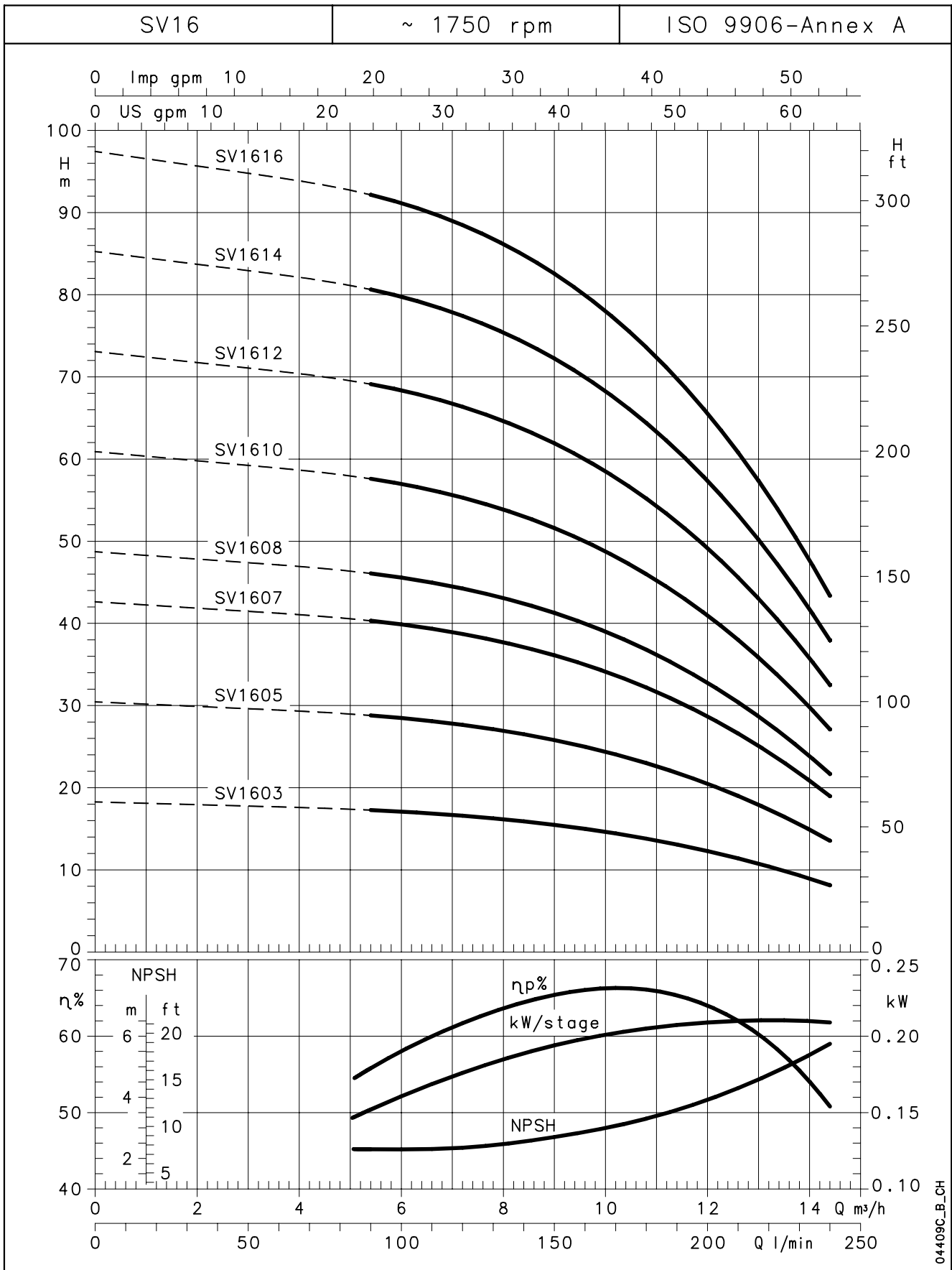
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kw	SIZE	L1	L2	H	M	D1	D2	PUMP	ELECTRIC PUMP
SV1603..4	0,75	80	411	263	112	129	155	120	15,5	26
SV1605..4	1,1	90	497	298	122	134	174	140	18	35,5
SV1607..4	1,5	90	573	298	122	134	174	140	20	43
SV1608..4	2,2	100	621	322	132	168	214	160	22	51
SV1610..4	2,2	100	697	322	132	168	214	160	24	53
SV1612..4	3	100	773	353	132	168	214	160	26	58
SV1614..4	3	100	849	353	132	168	214	160	28	60
SV1616..4	4	112	925	398	132	168	214	160	30	84



ITT

Lowara

SV16 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

04409C_B_CH

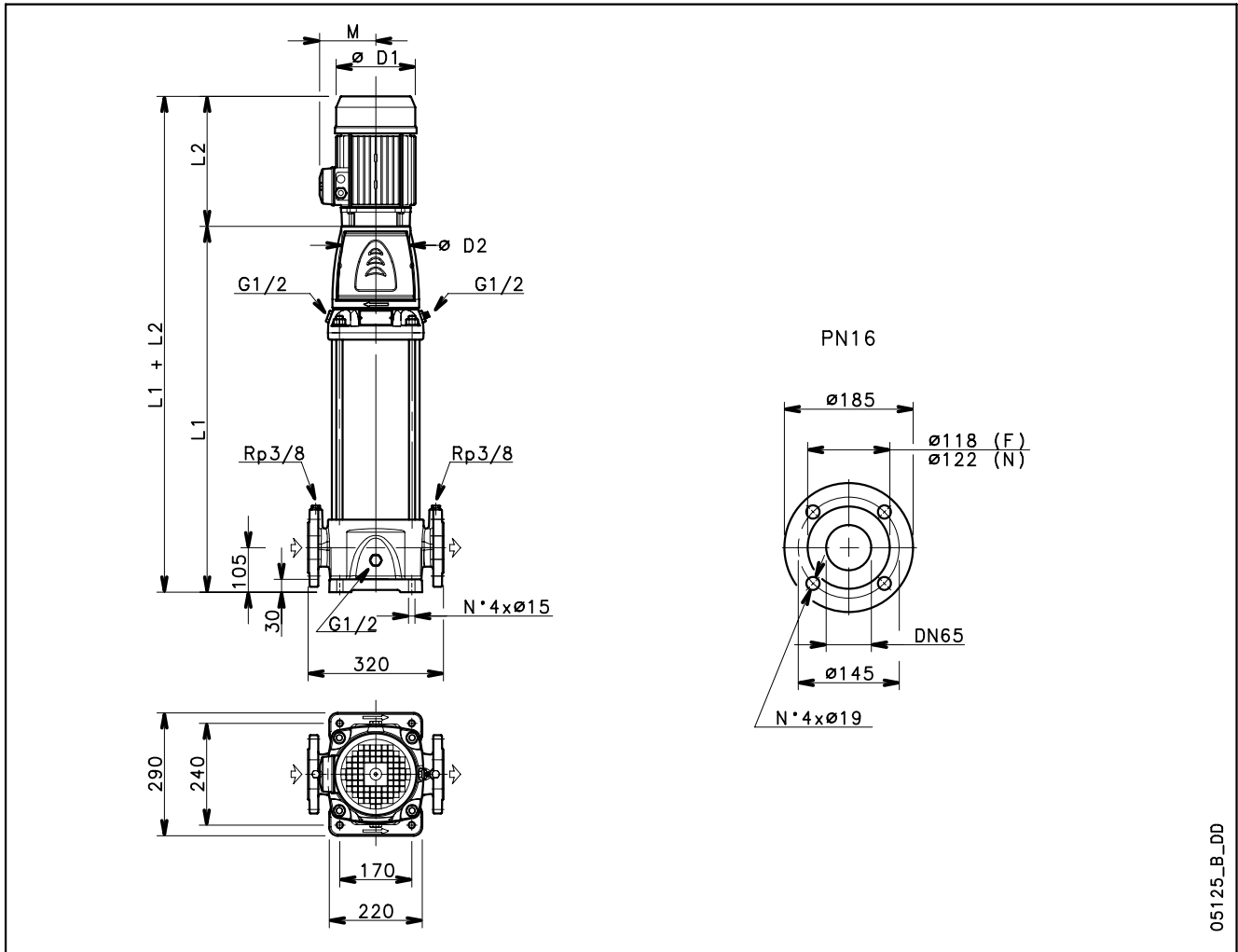


ITT

Lowara

DIMENSIONS AND WEIGHTS, SV33 SERIES (~1750 rpm)

F version: AISI 316/Cast iron, in-line ports, round flanges.
N version: AISI 316, in-line ports, round flanges.



05125_B_DD

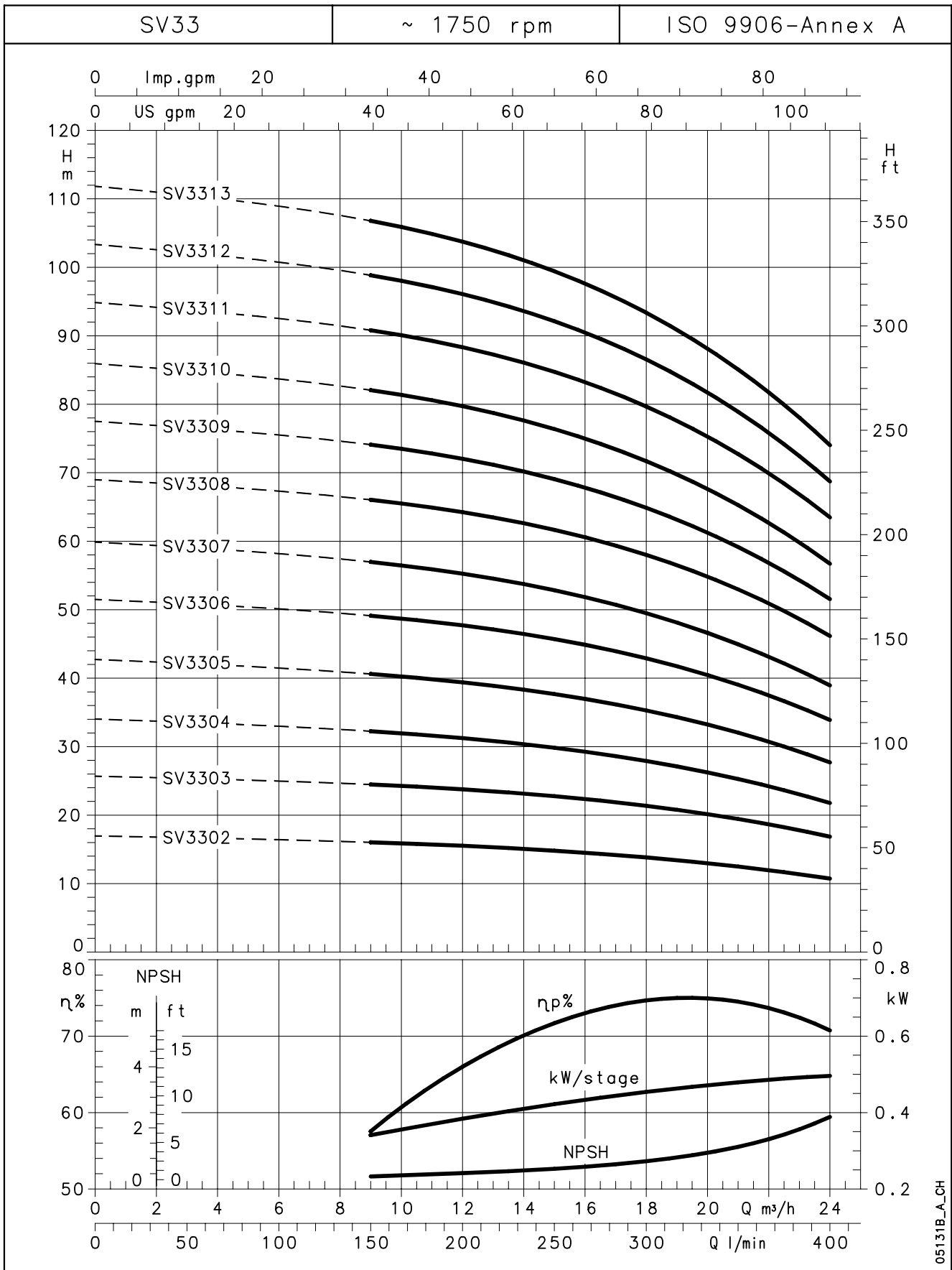
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	D1	D2	M	FLANGES PN	PUMP	ELECTRIC PUMP
SV3302..4	1,1	90	564	298	174	164	134	16	56	74
SV3303..4	1,5	90	639	298	174	164	134	16	60	83
SV3304..4	2,2	100	714	322	214	164	168	16	64	93
SV3305..4	3	100	789	353	214	164	168	16	68	100
SV3306..4	3	100	864	353	214	164	168	16	72	104
SV3307..4	4	112	939	398	214	164	168	16	75	129
SV3308..4	5,5	132	1034	405	256	300	191	16	84	146
SV3309..4	5,5	132	1109	405	256	300	191	16	88	150
SV3310..4	5,5	132	1184	405	256	300	191	16	92	154
SV3311..4	7,5	132	1259	405	256	300	191	16	101	168
SV3312..4	7,5	132	1334	405	256	300	191	16	105	172
SV3313..4	7,5	132	1409	405	256	300	191	16	109	176



ITT

Lowara

SV33 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



05131B_A_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



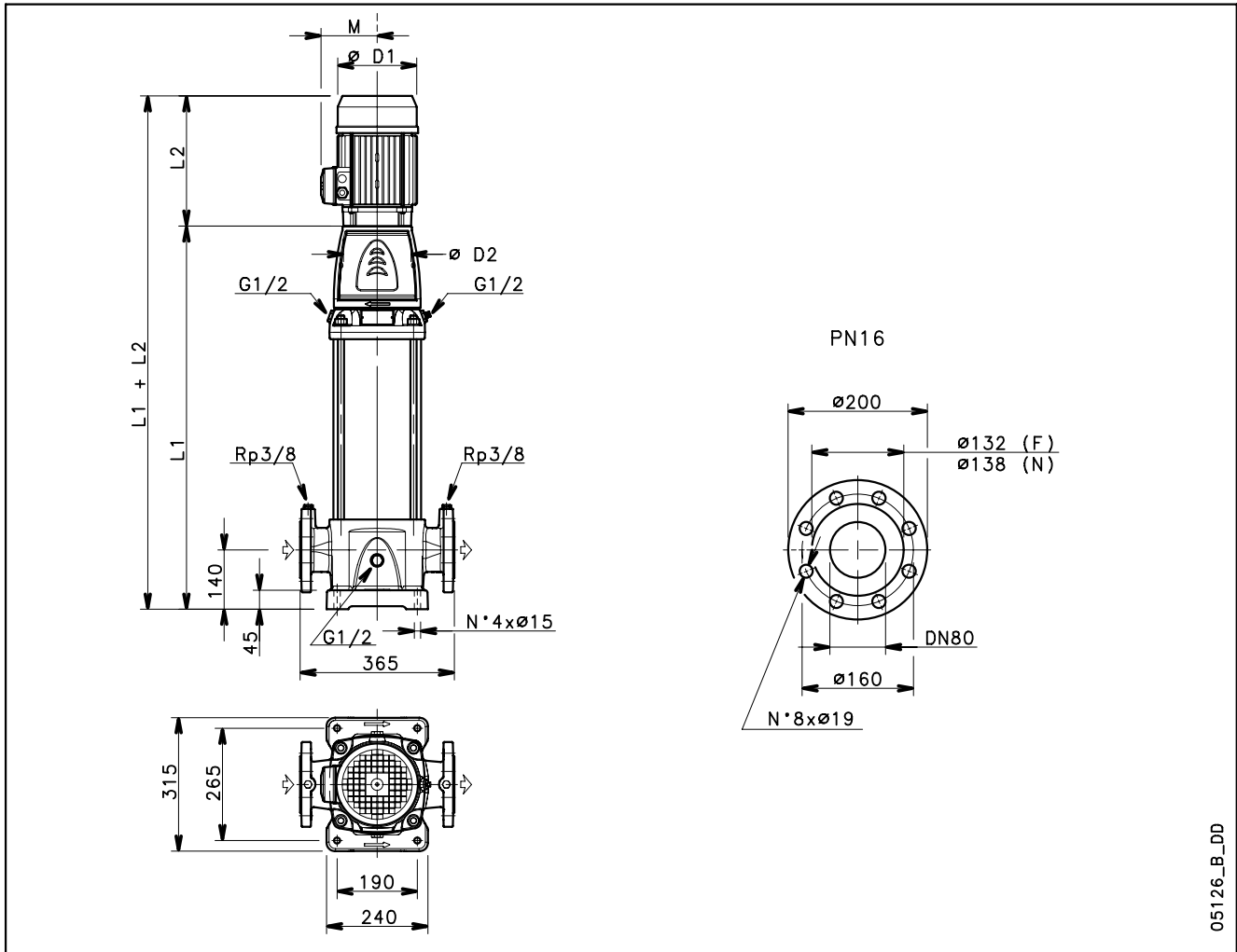
ITT

Lowara

DIMENSIONS AND WEIGHTS, SV46 SERIES (~1750 rpm)

F version: AISI 316/Cast iron, in-line ports, round flanges.

N version: AISI 316, in-line ports, round flanges.



05126_B_DD

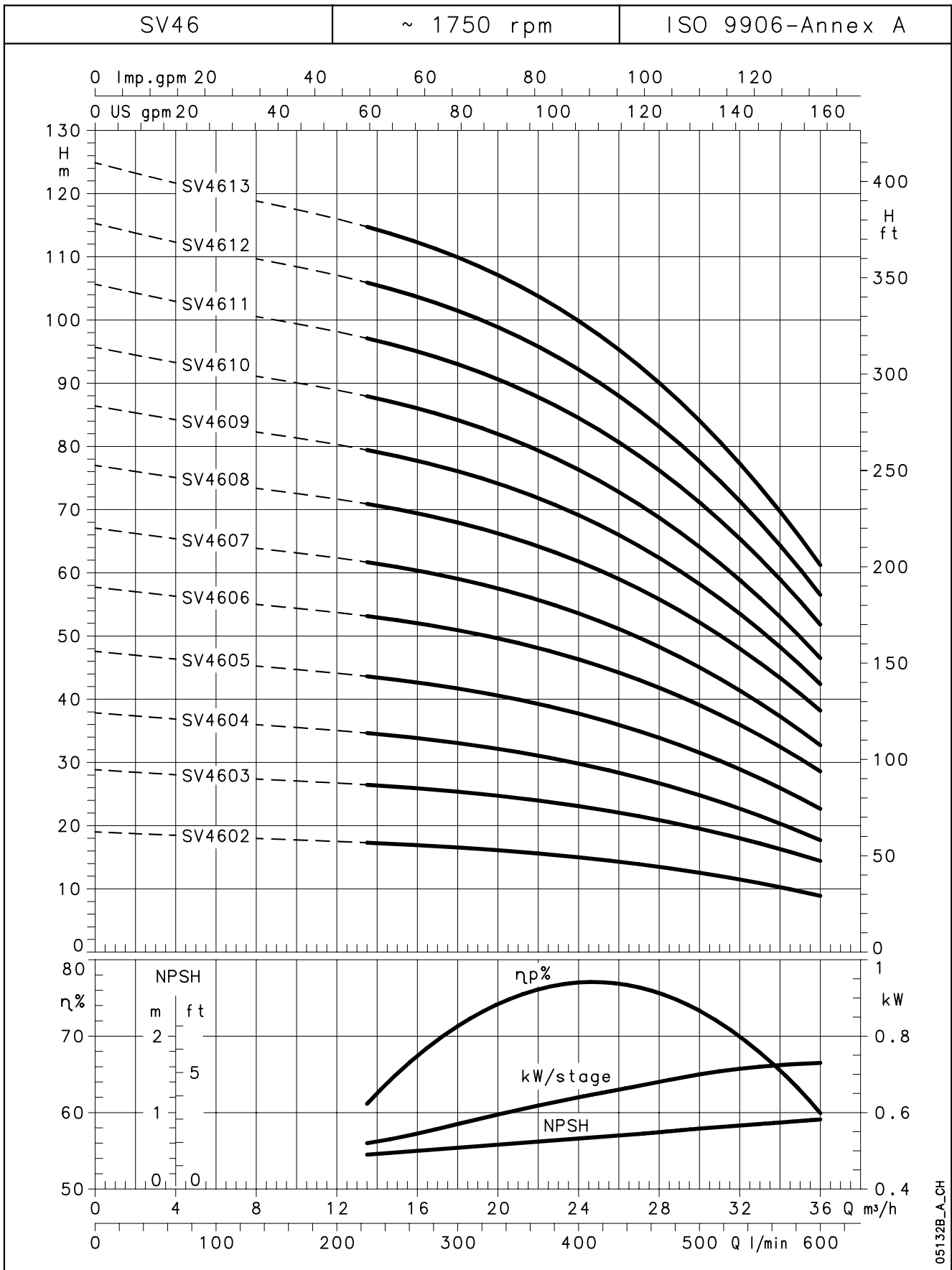
PUMP TYPE	MOTOR		DIMENSIONS (mm)						WEIGHT kg	
	kW	SIZE	L1	L2	D1	D2	M	FLANGES PN	PUMP	ELECTRIC
SV4602..4	1,5	90	604	298	174	164	134	16	61	84
SV4603..4	2,2	100	679	322	214	164	168	16	65	94
SV4604..4	3	100	754	353	214	164	168	16	69	101
SV4605..4	4	112	829	398	214	164	168	16	73	127
SV4606..4	5,5	132	924	405	256	300	191	16	82	144
SV4607..4	5,5	132	999	405	256	300	191	16	85	147
SV4608..4	7,5	132	1074	405	256	300	191	16	89	156
SV4609..4	7,5	132	1149	405	256	300	191	16	93	160
SV4610..4	7,5	132	1224	405	256	300	191	16	97	164
SV4611..4	11	160	1334	494	313	350	240	16	109	235
SV4612..4	11	160	1409	494	313	350	240	16	113	239
SV4613..4	11	160	1484	494	313	350	240	16	117	243



ITT

Lowara

SV46 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



05132B_A_CH

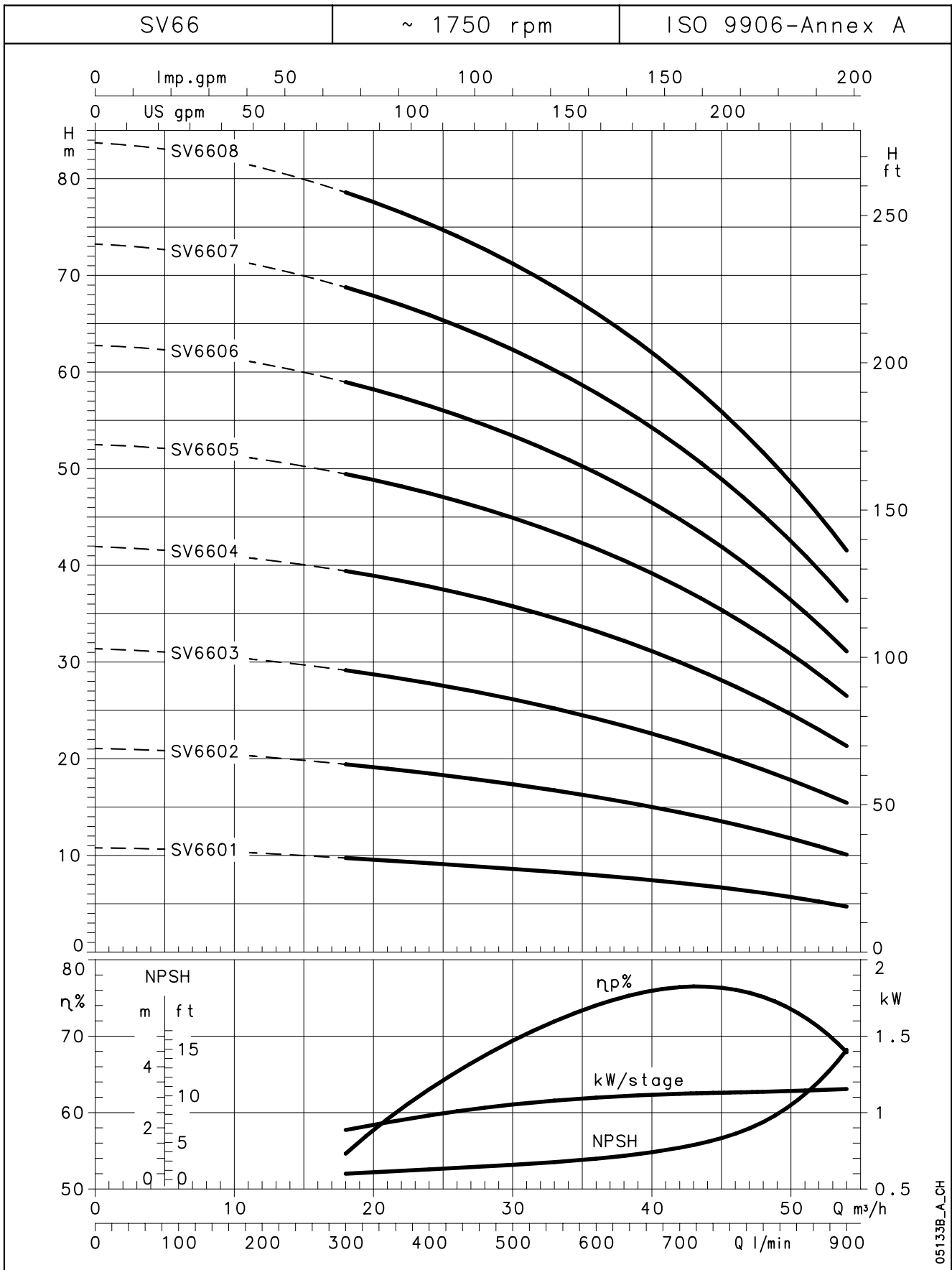
These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

SV66 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



05133B_A_CH

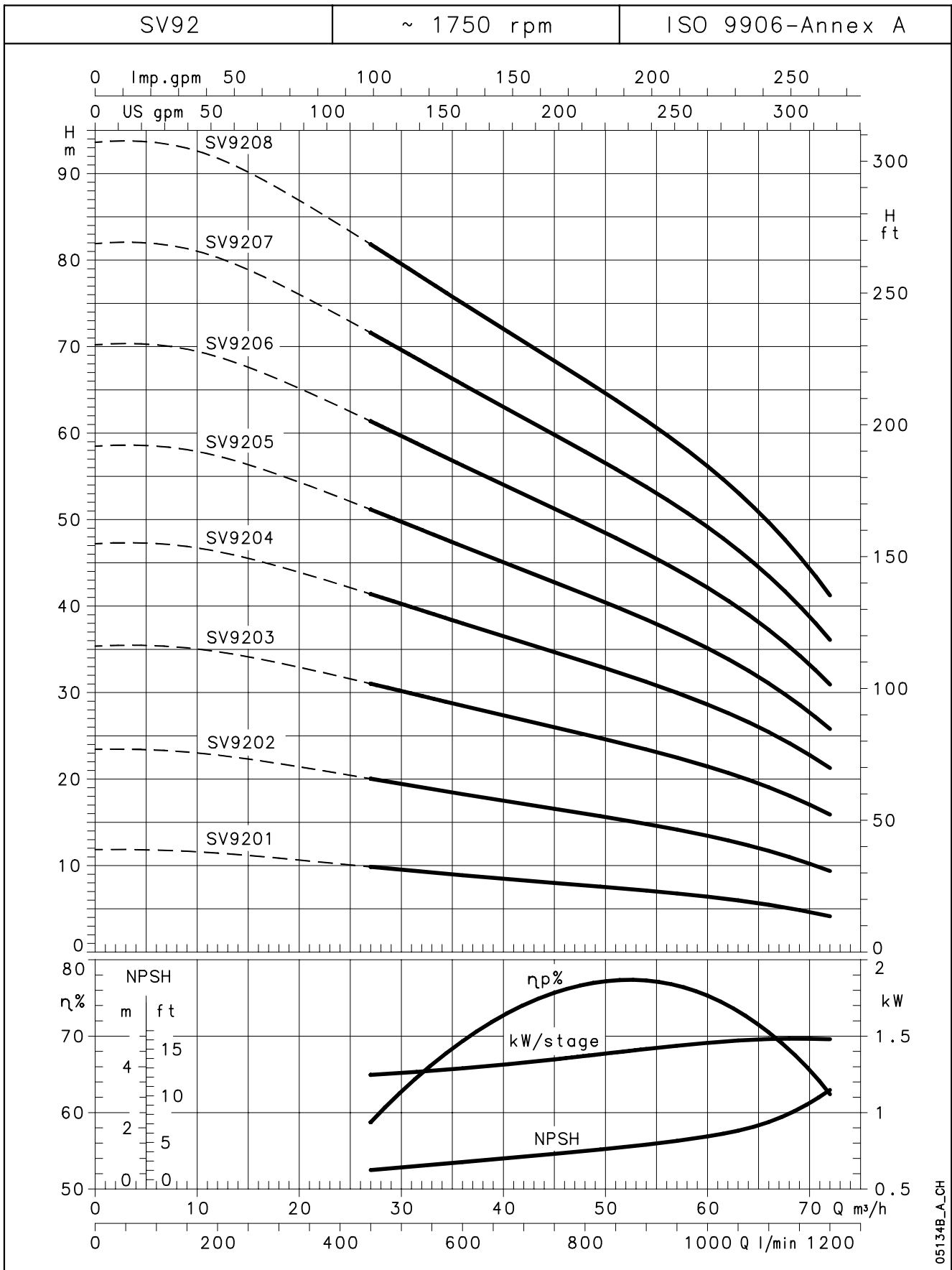
These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



ITT

Lowara

SV92 SERIES OPERATING CHARACTERISTICS AT ~1750 rpm, 60 Hz



05134B_A_CH

These performances are valid for liquids with density $\rho = 1.0 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.



DIMENSIONS OF OVAL FLANGES (SV VERSION T)

PUMP TYPE	DN	ø C	DIMENSIONS (mm)				HOLES			PN
			A	B	D	H	ø F	N°		
SV2T	25	Rp 1	75	12	100	22	11	2	16	
SV4T	32	Rp 1¼	75	12	100	22	11	2	16	
SV8T	40	Rp 1½	100	15	132	25	14	2	16	
SV8T(*)	50	Rp 2	100	15	132	25	14	2	16	

(*) Special version

sv-ctf-ovali-en_a_td

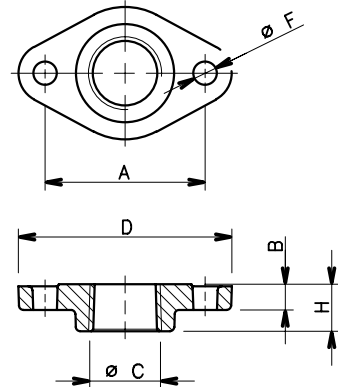
OVAL COUNTERFLANGES

Standard supply (included with the pump)

- SV2, 4, 8 version T : galvanized steel.

On request :

- AISI 304L stainless steel.

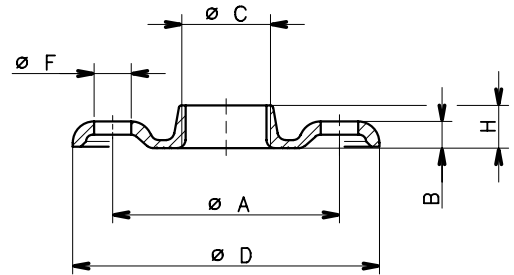


04429_B_DD

DIMENSIONS OF ROUND FLANGES (SV VERSIONS F, N, R)

PUMP TYPE	DN	ø C	DIMENSIONS (mm)				HOLES			PN
			ø A	B	ø D	H	ø F	N°		
SV2	25	Rp 1	85	10	115	16	14	4	25	
SV4	32	Rp 1¼	100	13	140	16	18	4	25	
SV8	40	Rp 1½	110	14	150	19	18	4	25	
SV16	50	Rp 2	125	16	165	24	18	4	25	
SV33	65	Rp 2½	145	16	185	23	18	4	16	
SV46	80	Rp 3	160	17	200	27	18	8	16	
SV66	100	Rp 4	180	18	220	31	18	8	16	
SV92										

sv-ctf-tonde-f-en_a_td

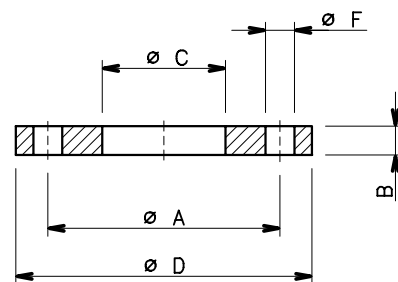


04430_B_DD

DIMENSIONS OF WELD-ON ROUND FLANGES (SV VERSIONS F, N,)

PUMP TYPE	DN	ø C	DIMENSIONS (mm)			HOLES		PN
			ø A	B	ø D	ø F	N°	
SV33	65	77	145	18	185	18	4	16
SV46	80	90	160	20	200	18	8	16
SV66	100	115,5	180	22	220	18	8	16
SV92								
SV33	65	77	145	24	185	18	8	25-40
SV46	80	90	160	26	200	18	8	25-40
SV66	100	115,5	190	26	235	22	8	25-40
SV92								

sv-ctf-tonde-s-en_a_td



04431_A_DD

ROUND COUNTERFLANGES

Standard supply (included with the pump).

- SV2, 4, 8, 16 versions F, R : threaded, galvanized steel.

- SV2, 4, 8, 16 versions N : threaded, AISI 316L stainless steel.

On request :

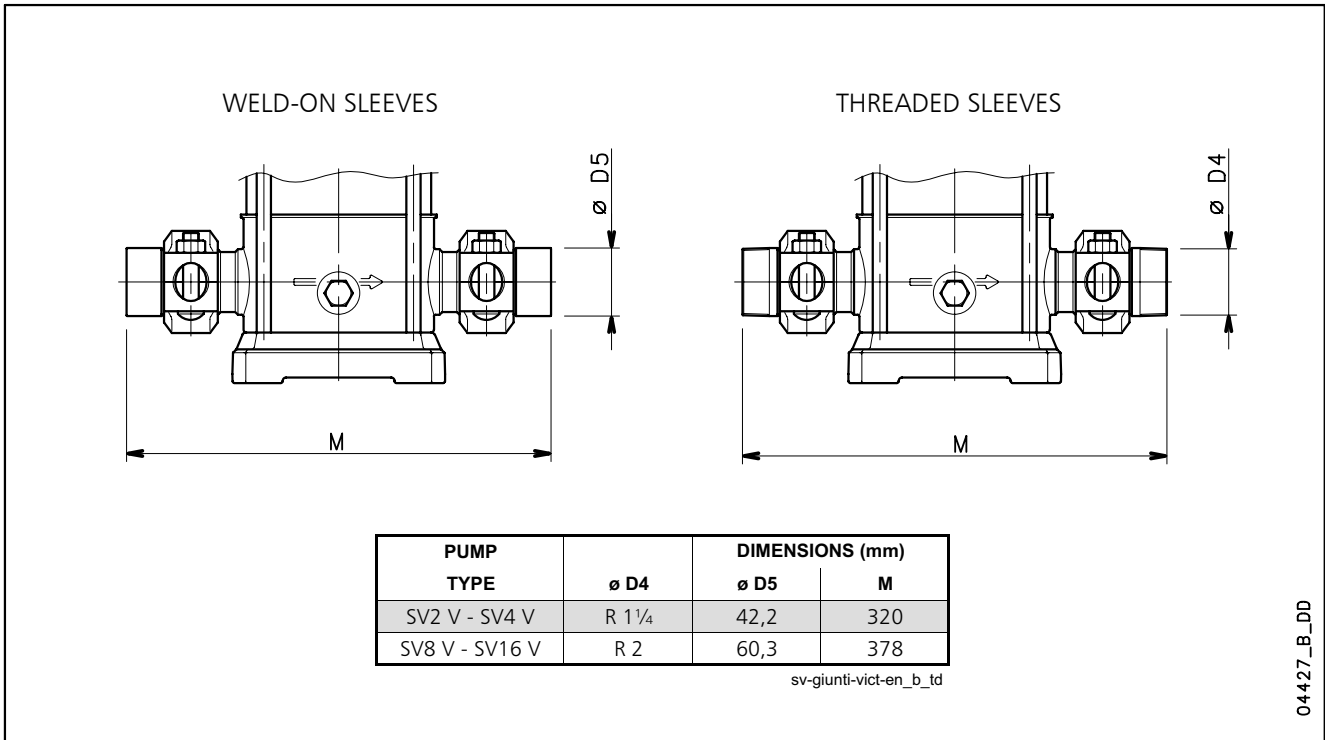
- SV2, 4, 8, 16 versions F, R : Kit containing 2 threaded counterflanges made of AISI 316L stainless steel, plus bolts and gaskets.

- SV33, 46, 66, 92 versions F : Kit containing weld-on counterflanges (PN16, PN25, PN40) or threaded ones PN16 made of galvanized steel. Each kit contains 2 counterflanges plus bolts and gaskets.

- SV33, 46, 66, 92 versions N : Kit containing weld-on counterflanges (PN16, PN25, PN40) or threaded ones PN16 made of AISI 316L stainless steel. Each kit contains 2 counterflanges plus bolts and gaskets.



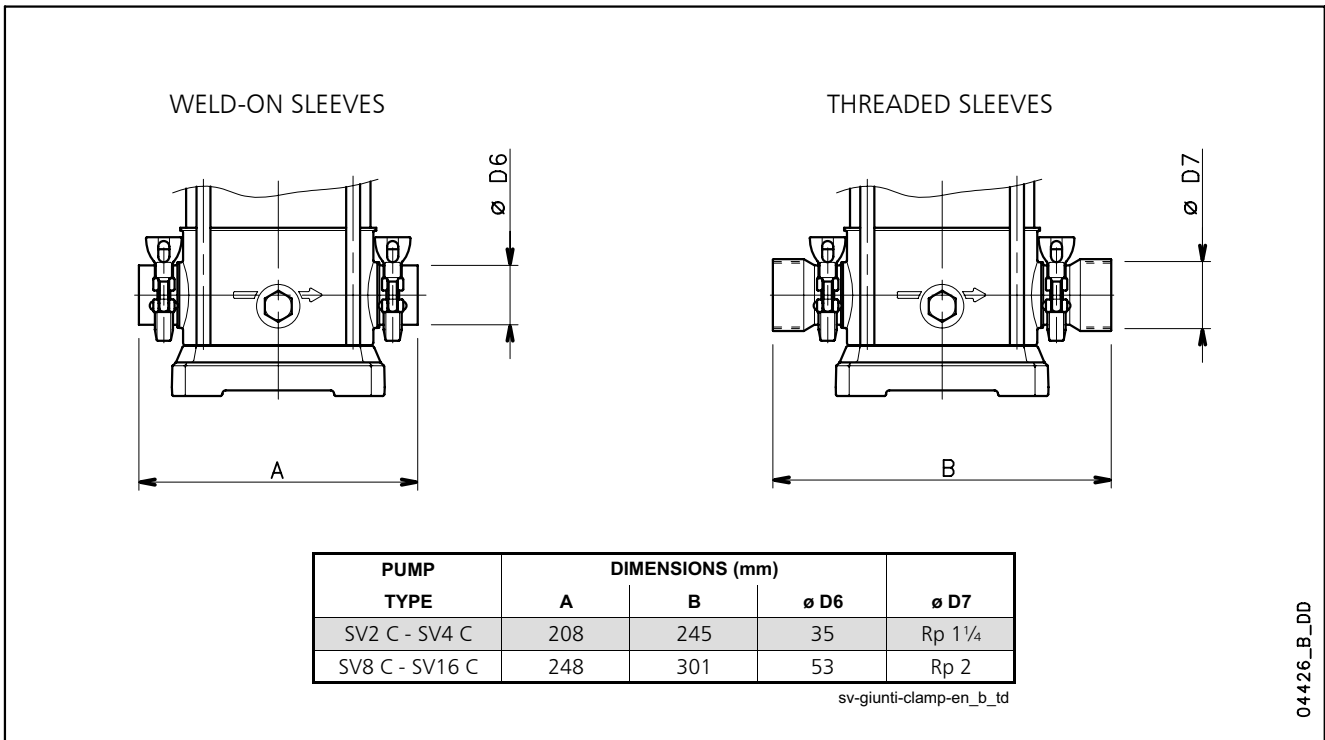
DIMENSIONS OF VICTAULIC® COUPLINGS (SV VERSION V)



VICTAULIC® ACCESSORIES (ON REQUEST)

- SV2, 4, 8, 16 version V : Kit containing 1 Victaulic® coupling with AISI 316L stainless steel weld-on or threaded sleeve, plus EPDM or FPM gasket.

DIMENSIONS OF CLAMP COUPLINGS (SV VERSION C)



CLAMP ACCESSORIES (ON REQUEST)

- SV2, 4, 8, 16 version C : Kit containing 2 Clamp coupling with AISI 316L stainless steel weld-on or threaded sleeve, plus EPDM or FPM gasket.
Coupling shape and dimensions according to DIN 32676.

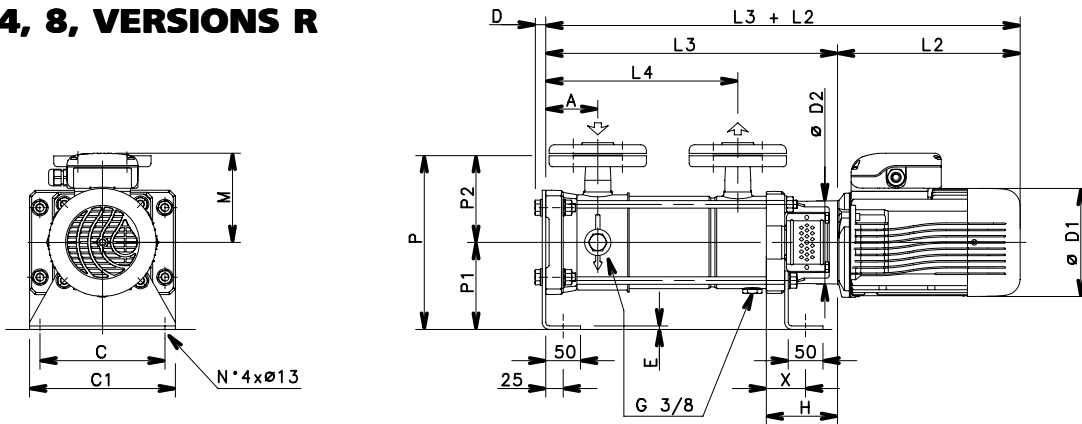


ITT

Lowara

HORIZONTAL VERSION

SV2, 4, 8, VERSIONS R

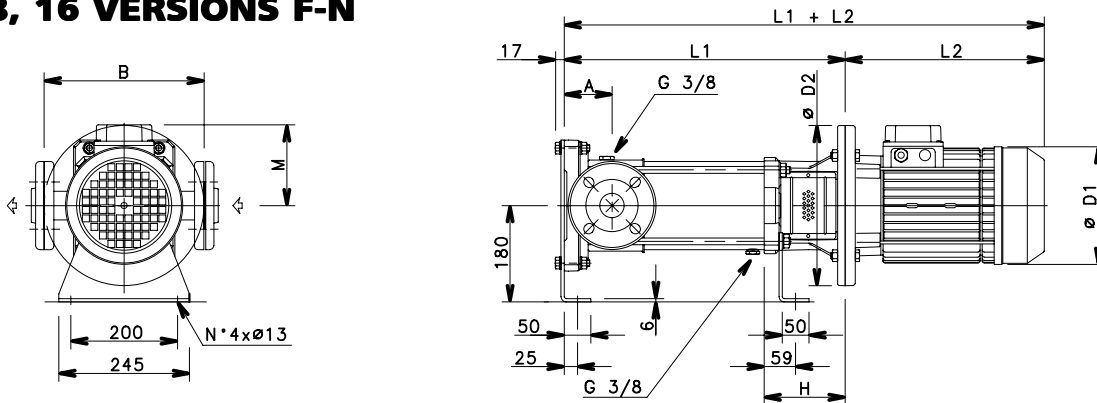


PUMP TYPE	DIMENSIONS (mm)								
	A	C	C1	D	E	P	P1	P2	X
SV2R-SV4R	75	180	210	16	5	250	125	125	57
SV8R	80	200	245	17	6	320	180	140	59

svo-2-4-8-2p50-en_b_td

043920_C_DD

SV 8, 16 VERSIONS F-N

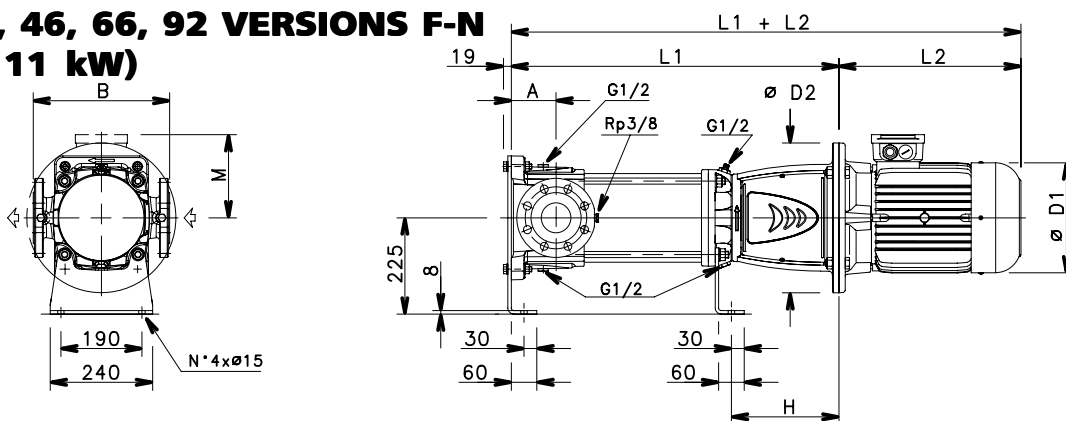


PUMP TYPE	DIMENSIONS (mm)	
	A	B
SV8F	80	280
SV16F	90	300

svo-8-16-2p50-en_b_td

043940_C_DD

SV33, 46, 66, 92 VERSIONS F-N (1.1÷11 kW)



PUMP TYPE	DIMENSIONS (mm)		MOTOR		DIMENSIONS (mm)
	A	B	kW	SIZE	
SV33	105	320	1.1÷4	90-100-112	196
SV46-SV66-SV92	140	365	5.5÷7.5	132	216
			11	160	251

svo-33-92-11kw-2p50-en_a_td

05108_A_DD

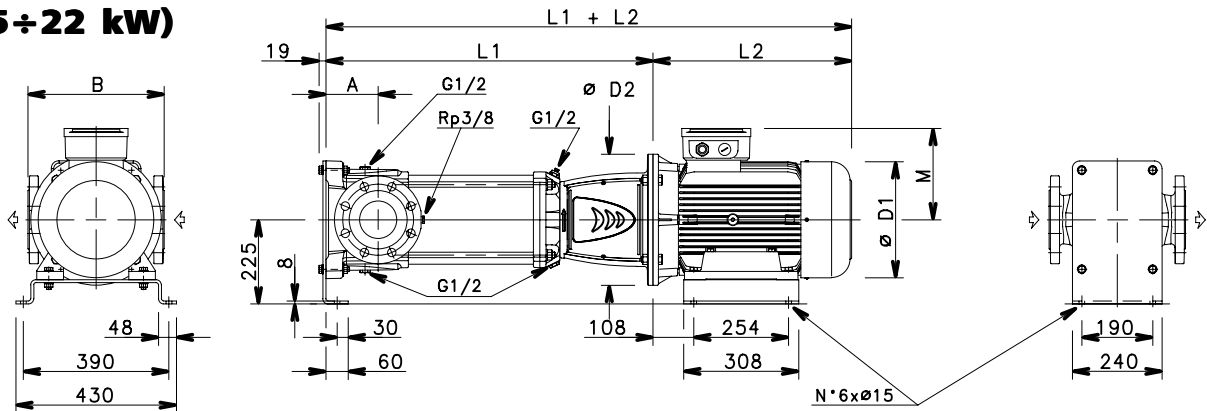


ITT

Lowara

HORIZONTAL VERSION

SV33, 46, 66, 92 VERSIONS F-N (15÷22 kW)

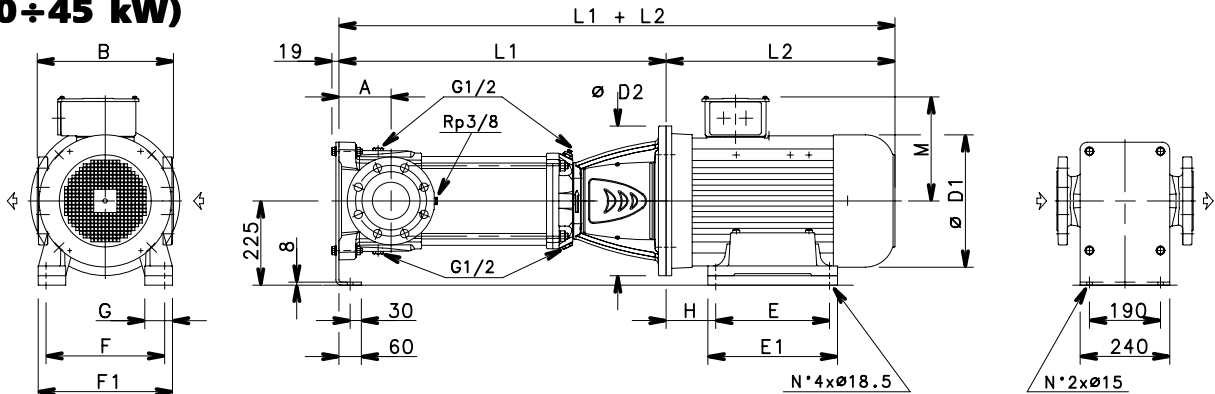


PUMP TYPE	DIMENSIONS (mm)	
	A	B
SV33	105	320
SV46-SV66-SV92	140	365

svo-33-92-22kw-2p50-en_a_td

05109_A_DD

SV33, 46, 66, 92 VERSIONS F-N (30÷45 kW)



PUMP TYPE	DIMENSIONS (mm)	
	A	B
SV33	105	320
SV46-SV66-SV92	140	365

kW	SIZE	DIMENSIONS (mm)
		H
30÷37	200	133
45	225	149

svo-33-92-45kw-2p50-en_a_td

05109C_A_DD

ACCESSORY KIT FOR HORIZONTAL INSTALLATION

- Bracket kit SV2-4R
- Bracket kit SV8R
- Bracket kit SV8-16F
- Bracket kit SV33
- Bracket kit SV46
- Bracket kit SV66
- Bracket kit SV92

Note : Consult the Lowara sales network for correct Bracket kit selection.



Lowara



ITT

Lowara

TECHNICAL APPENDIX



COMPATIBILITY CHART FOR MATERIALS IN CONTACT WITH MOST COMMONLY USED LIQUIDS

LIQUID	CONCENTRATION (%)	TEMPERATURE MIN/MAX (°C)	SPECIFIC WEIGHT (kg/dm³)	SV 2, 4, 8, 16		SV 33, 46, 66, 92		RECOMMENDED SEAL	ELASTOMERS
				STANDARD VERSION	N VERSION	STANDARD VERSION	N VERSION		
Water	100	-5/+120		•	•	•	•	Q ₁ BEGG	E
Deionized, demineralized or distilled water	100	-25/+110		•	•	•	•	Q ₁ BEGG	E
Water and oil emulsion	any	-5/+90		•	•	•	•	Q ₁ BVGG	V
Acetic acid (•)	80	-10/+70	1,05	•	•	•	•	Q ₁ BEGG	E
Citric acid	5	-10/+70	1,54	•	•	•	•	Q ₁ BEGG	E
Hydrochloric acid	2	-5/+25	1,20		•		•	Q ₁ Q ₁ VGG	V
Phosphoric acid	10	-5/+30	1,33		•		•	Q ₁ BEGG	E
Nitric acid (•)	50	-5/+30	1,48	•	•	•	•	Q ₁ Q ₁ VGG	V
Sulphuric acid (•)	2	-10/+25	1,84		•		•	Q ₁ BVGG	V
Tannic acid	20	0/+50			•		•	Q ₁ BEGG	E
Tartaric acid	50	-10/+25	1,76	•	•	•	•	Q ₁ Q ₁ VGG	V
Uric acid	80	-10/+80	1,89	•	•	•	•	Q ₁ BEGG	E
Benzoic acid	70	0/+70	1,31	•	•	•	•	Q ₁ BVGG	V
Boric acid	saturo	-10/+90	1,43	•	•	•	•	Q ₁ Q ₁ VGG	V
Formic acid (•)	5	-15/+25	1,22	•	•	•	•	Q ₁ BEGG	E
Ethyl alcohol (•)	100	-5/+40	0,81	•	•	•	•	Q ₁ BEGG	E
Methyl alcohol (•)	100	-5/+40	0,79	•	•	•	•	Q ₁ BEGG	E
Propyl alcohol (•)	100	-5/+80	0,80	•	•	•	•	Q ₁ BEGG	E
Butyl alcohol	100	-5/+80	0,81	•	•	•	•	Q ₁ BVGG	V
Denatured alcohol (•)	100	-5/+70	0,81	•	•	•	•	Q ₁ BEGG	E
Ammonia in water (•)	25	-20/+50	0,99	•	•	•	•	Q ₁ BEGG	E
Chloroform		-10/+30	1,48	•	•	•	•	Q ₁ BVGG	V
Caustic soda	25	0/+70	2,13	•	•	•	•	Q ₁ Q ₁ EGG	E
Water, detergents, mineral oils mixture		-5/+80		•	•	•	•	Q ₁ Q ₁ VGG	V
Cleaning products		-5/100		•	•	•	•	Q ₁ Q ₁ VGG	V
Diesel oil (•)	100	0/+80	0,90	•	•	•	•	Q ₁ BVGG	V
Kerosene (•)	100	0/+80		•	•	•	•	Q ₁ BVGG	V
Fuel oil (•)		0/+90	0,76	•	•	•	•	Q ₁ BVGG	V
Glycerine	100	+20/+90	1,26	•	•	•	•	Q ₁ BEGG	E
Sodium hypochlorite	1	-10/+25			•		•	Q ₁ Q ₁ VGG	V
Phosphates/polyphosphates		-5/+90			•		•	Q ₁ Q ₁ VGG	V
Formaldehyde	100	0/+30	1,13	•	•	•	•	Q ₁ Q ₁ TGG	T
Sodium nitrate	saturo	-10/+80	2,25	•	•	•	•	Q ₁ BEGG	E
Cutting fluid	100	-5/+110	0,90	•	•	•	•	Q ₁ BVGG	V
Peanut oil (•)	100	-5/+110	0,95	•	•	•	•	Q ₁ BEGG	E
Colza oil (•)	100	-5/+110	0,95	•	•	•	•	Q ₁ BEGG	E
Linseed oil (•)	100	-5/+110	0,94	•	•	•	•	Q ₁ BEGG	E
Coconut oil (•)	100	-20/+90	0,92	•	•	•	•	Q ₁ BEGG	E
Soybean oil (•)	100	0/+90		•	•	•	•	Q ₁ BEGG	E
Diathermic oil	100	-5/+110	0,90	•	•	•	•	Q ₁ BVGG	V
Hydraulic oil	100	-5/+110		•	•	•	•	Q ₁ BVGG	V
Mineral oil	100	-5/+110	0,94	•	•	•	•	Q ₁ BVGG	V
Sodium sulfate	15	-10/+40	2,60	•	•	•	•	Q ₁ Q ₁ EGG	E
Aluminium sulfate	30	-5/+50	2,71		•		•	Q ₁ Q ₁ EGG	E
Ammonium sulfate	10	-10/+60	1,77		•		•	Q ₁ Q ₁ EGG	E
Iron sulfate	10	-5/+30	2,09		•		•	Q ₁ BEGG	E
Copper sulfate	20	0/+30	2,28		•		•	Q ₁ Q ₁ VGG	V
Trichloroethylene		-10/+40	1,46	•	•	•	•	Q ₁ BVGG	V
Perchloroethylene		-10/+30	1,60	•	•	•	•	Q ₁ BVGG	V

SV SERIES MECHANICAL SEAL OPTIONS

Standard	Q ₁ BEGG
Option 1	Q ₁ Q ₁ EGG
Option 2	Q ₁ BVGG
Option 3	Q ₁ Q ₁ VGG
Option 4	Q ₁ CTGG
Option 5	Q ₁ Q ₁ TGG

Legend

Q₁ = Silicon carbide
 B = Resin impregnated carbon
 C = Special resin impregnated carbon

E = EPDM
 V = FPM
 T = PTFE
 G = AISI 316

(•) A special version may be necessary for this fluid.

For additional information, please contact our sales network.

NPSH

The minimum operating values that can be reached at the pump suction end are limited by the onset of cavitation.

Cavitation is the formation of vapour-filled cavities within liquids where the pressure is locally reduced to a critical value, or where the local pressure is equal to, or just below the vapour pressure of the liquid.

The vapour-filled cavities flow with the current and when they reach a higher pressure area the vapour contained in the cavities condenses. The cavities collide, generating pressure waves that are transmitted to the walls. These, being subjected to stress cycles, gradually become deformed and yield due to fatigue. This phenomenon, characterized by a metallic noise produced by the hammering on the pipe walls, is called incipient cavitation.

The damage caused by cavitation may be magnified by electrochemical corrosion and a local rise in temperature due to the plastic deformation of the walls. The materials that offer the highest resistance to heat and corrosion are alloy steels, especially austenitic steel. The conditions that trigger cavitation may be assessed by calculating the total net suction head, referred to in technical literature with the acronym NPSH (Net Positive Suction Head).

The NPSH represents the total energy (expressed in m.) of the liquid measured at suction under conditions of incipient cavitation, excluding the vapour pressure (expressed in m.) that the liquid has at the pump inlet.

To find the static height h_z at which to install the machine under safe conditions, the following formula must be verified:

$$h_p + h_z \geq (NPSH_r + 0.5) + h_f + h_{pv} \quad \textcircled{1}$$

where:

- h_p** is the absolute pressure applied to the free liquid surface in the suction tank, expressed in m. of liquid; h_p is the quotient between the barometric pressure and the specific weight of the liquid.
- h_z** is the suction lift between the pump axis and the free liquid surface in the suction tank, expressed in m.; h_z is negative when the liquid level is lower than the pump axis.
- h_f** is the flow resistance in the suction line and its accessories, such as: fittings, foot valve, gate valve, elbows, etc.
- h_{pv}** is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid. h_{pv} is the quotient between the P_v vapour pressure and the liquid's specific weight.
- 0.5** is the safety factor.

The maximum possible suction head for installation depends on the value of the atmospheric pressure (i.e. the elevation above sea level at which the pump is installed) and the temperature of the liquid.

To help the user, with reference to water temperature (4°C) and to the elevation above sea level, the following tables show the drop in hydraulic pressure head in relation to the elevation above sea level, and the suction loss in relation to temperature.

Water temperature (°C)	20	40	60	80	90	110	120
Suction loss (m)	0,2	0,7	2,0	5,0	7,4	15,4	21,5

Elevation above sea level (m)	500	1000	1500	2000	2500	3000
Suction loss (m)	0,55	1,1	1,65	2,2	2,75	3,3

Flow resistance is shown in the tables at pages 65-66 of this catalogue. To reduce it to a minimum, especially in cases of high suction head (over 4-5 m.) or within the operating limits with high flow rates, we recommend using a suction line having a larger diameter than that of the pump's suction port. It is always a good idea to position the pump as close as possible to the liquid to be pumped.

Make the following calculation:

Liquid: water at ~ 15°C $\gamma = 1 \text{ kg/dm}^3$
 Flow rate required: 30 m³/h
 Head for required delivery: 43 m.
 Suction lift: 3.5 m.
 The selection is an FHE 40-200/75 pump whose NPSH required value is, at 30 m³/h, 2.5 m.

For water at 15°C the h_{pv} term is $\frac{P_v}{\gamma} = 0,174 \text{ m (0.01701 bar)}$

and $h_p = \frac{P_a}{\gamma} = 10,33 \text{ m}$

The H_f flow resistance in the suction line with foot valves is ~1.2 m.
 By substituting the parameters in formula $\textcircled{1}$ with the numeric values above, we have:

$$10.33 + (-3.5) \geq (2.5 + 0.5) + 1.2 + 0.17$$

from which we have: 6.8 > 4.4

The relation is therefore verified.



TECHNICAL APPENDIX VAPOUR PRESSURE PS VAPOUR PRESSURE AND ρ DENSITY OF WATER TABLE

t °C	T K	ps bar	ρ kg/dm ³	t °C	T K	ps bar	ρ kg/dm ³	t °C	T K	ps bar	ρ kg/dm ³
0	273,15	0,00611	0,9998	55	328,15	0,15741	0,9857	120	393,15	1,9854	0,9429
1	274,15	0,00657	0,9999	56	329,15	0,16511	0,9852	122	395,15	2,1145	0,9412
2	275,15	0,00706	0,9999	57	330,15	0,17313	0,9846	124	397,15	2,2504	0,9396
3	276,15	0,00758	0,9999	58	331,15	0,18147	0,9842	126	399,15	2,3933	0,9379
4	277,15	0,00813	1,0000	59	332,15	0,19016	0,9837	128	401,15	2,5435	0,9362
5	278,15	0,00872	1,0000	60	333,15	0,1992	0,9832	130	403,15	2,7013	0,9346
6	279,15	0,00935	1,0000	61	334,15	0,2086	0,9826	132	405,15	2,867	0,9328
7	280,15	0,01001	0,9999	62	335,15	0,2184	0,9821	134	407,15	3,041	0,9311
8	281,15	0,01072	0,9999	63	336,15	0,2286	0,9816	136	409,15	3,223	0,9294
9	282,15	0,01147	0,9998	64	337,15	0,2391	0,9811	138	411,15	3,414	0,9276
10	283,15	0,01227	0,9997	65	338,15	0,2501	0,9805	140	413,15	3,614	0,9258
11	284,15	0,01312	0,9997	66	339,15	0,2615	0,9799	145	418,15	4,155	0,9214
12	285,15	0,01401	0,9996	67	340,15	0,2733	0,9793	155	428,15	5,433	0,9121
13	286,15	0,01497	0,9994	68	341,15	0,2856	0,9788	160	433,15	6,181	0,9073
14	287,15	0,01597	0,9993	69	342,15	0,2984	0,9782	165	438,15	7,008	0,9024
15	288,15	0,01704	0,9992	70	343,15	0,3116	0,9777	170	443,15	7,920	0,8973
16	289,15	0,01817	0,9990	71	344,15	0,3253	0,9770	175	448,15	8,924	0,8921
17	290,15	0,01936	0,9988	72	345,15	0,3396	0,9765	180	453,15	10,027	0,8869
18	291,15	0,02062	0,9987	73	346,15	0,3543	0,9760	185	458,15	11,233	0,8815
19	292,15	0,02196	0,9985	74	347,15	0,3696	0,9753	190	463,15	12,551	0,8760
20	293,15	0,02337	0,9983	75	348,15	0,3855	0,9748	195	468,15	13,987	0,8704
21	294,15	0,24850	0,9981	76	349,15	0,4019	0,9741	200	473,15	15,550	0,8647
22	295,15	0,02642	0,9978	77	350,15	0,4189	0,9735	205	478,15	17,243	0,8588
23	296,15	0,02808	0,9976	78	351,15	0,4365	0,9729	210	483,15	19,077	0,8528
24	297,15	0,02982	0,9974	79	352,15	0,4547	0,9723	215	488,15	21,060	0,8467
25	298,15	0,03166	0,9971	80	353,15	0,4736	0,9716	220	493,15	23,198	0,8403
26	299,15	0,03360	0,9968	81	354,15	0,4931	0,9710	225	498,15	25,501	0,8339
27	300,15	0,03564	0,9966	82	355,15	0,5133	0,9704	230	503,15	27,976	0,8273
28	301,15	0,03778	0,9963	83	356,15	0,5342	0,9697	235	508,15	30,632	0,8205
29	302,15	0,04004	0,9960	84	357,15	0,5557	0,9691	240	513,15	33,478	0,8136
30	303,15	0,04241	0,9957	85	358,15	0,5780	0,9684	245	518,15	36,523	0,8065
31	304,15	0,04491	0,9954	86	359,15	0,6011	0,9678	250	523,15	39,776	0,7992
32	305,15	0,04753	0,9951	87	360,15	0,6249	0,9671	255	528,15	43,246	0,7916
33	306,15	0,05029	0,9947	88	361,15	0,6495	0,9665	260	533,15	46,943	0,7839
34	307,15	0,05318	0,9944	89	362,15	0,6749	0,9658	265	538,15	50,877	0,7759
35	308,15	0,05622	0,9940	90	363,15	0,7011	0,9652	270	543,15	55,058	0,7678
36	309,15	0,05940	0,9937	91	364,15	0,7281	0,9644	275	548,15	59,496	0,7593
37	310,15	0,06274	0,9933	92	365,15	0,7561	0,9638	280	553,15	64,202	0,7505
38	311,15	0,06624	0,9930	93	366,15	0,7849	0,9630	285	558,15	69,186	0,7415
39	312,15	0,06991	0,9927	94	367,15	0,8146	0,9624	290	563,15	74,461	0,7321
40	313,15	0,07375	0,9923	95	368,15	0,8453	0,9616	295	568,15	80,037	0,7223
41	314,15	0,07777	0,9919	96	369,15	0,8769	0,9610	300	573,15	85,927	0,7122
42	315,15	0,08198	0,9915	97	370,15	0,9094	0,9602	305	578,15	92,144	0,7017
43	316,15	0,09639	0,9911	98	371,15	0,9430	0,9596	310	583,15	98,70	0,6906
44	317,15	0,09100	0,9907	99	372,15	0,9776	0,9586	315	588,15	105,61	0,6791
45	318,15	0,09582	0,9902	100	373,15	1,0133	0,9581	320	593,15	112,89	0,6669
46	319,15	0,10086	0,9898	102	375,15	1,0878	0,9567	325	598,15	120,56	0,6541
47	320,15	0,10612	0,9894	104	377,15	1,1668	0,9552	330	603,15	128,63	0,6404
48	321,15	0,11162	0,9889	106	379,15	1,2504	0,9537	340	613,15	146,05	0,6102
49	322,15	0,11736	0,9884	108	381,15	1,3390	0,9522	350	623,15	165,35	0,5743
50	323,15	0,12335	0,9880	110	383,15	1,4327	0,9507	360	633,15	186,75	0,5275
51	324,15	0,12961	0,9876	112	385,15	1,5316	0,9491	370	643,15	210,54	0,4518
52	325,15	0,13613	0,9871	114	387,15	1,6362	0,9476	374,15	647,30	221,20	0,3154
53	326,15	0,14293	0,9862	116	389,15	1,7465	0,9460				
54	327,15	0,15002	0,9862	118	391,15	1,8628	0,9445				

G-at_npsH_a_sc



TABLE OF FLOW RESISTANCE IN 100 m OF STRAIGHT CAST IRON PIPELINE (HAZEN-WILLIAMS FORMULA C=100)

FLOW RATE		NOMINAL DIAMETER in mm and INCHES																		
m ³ /h	l/min	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400		
		1/2"	3/4"	1"	1 1/4"	1 1/2"	2	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"	14"	16"		
0,6	10	v	0,94	0,53	0,34	0,21	0,13													
		hr	16	3,94	1,33	0,40	0,13													
0,9	15	v	1,42	0,80	0,51	0,31	0,20													
		hr	33,9	8,35	2,82	0,85	0,29													
1,2	20	v	1,89	1,06	0,68	0,41	0,27	0,17												
		hr	57,7	14,21	4,79	1,44	0,49	0,16												
1,5	25	v	2,36	1,33	0,85	0,52	0,33	0,21												
		hr	87,2	21,5	7,24	2,18	0,73	0,25												
1,8	30	v	2,83	1,59	1,02	0,62	0,40	0,25												
		hr	122	30,1	10,1	3,05	1,03	0,35												
2,1	35	v	3,30	1,86	1,19	0,73	0,46	0,30												
		hr	162	40,0	13,5	4,06	1,37	0,46												
2,4	40	v		2,12	1,36	0,83	0,53	0,34	0,20											
		hr		51,2	17,3	5,19	1,75	0,59	0,16											
3	50	v		2,65	1,70	1,04	0,66	0,42	0,25											
		hr		77,4	26,1	7,85	2,65	0,89	0,25											
3,6	60	v		3,18	2,04	1,24	0,80	0,51	0,30											
		hr		108	36,6	11,0	3,71	1,25	0,35											
4,2	70	v		3,72	2,38	1,45	0,93	0,59	0,35											
		hr		144	48,7	14,6	4,93	1,66	0,46											
4,8	80	v		4,25	2,72	1,66	1,06	0,68	0,40											
		hr		185	62,3	18,7	6,32	2,13	0,59											
5,4	90	v			3,06	1,87	1,19	0,76	0,45	0,30										
		hr			77,5	23,3	7,85	2,65	0,74	0,27										
6	100	v			3,40	2,07	1,33	0,85	0,50	0,33										
		hr			94,1	28,3	9,54	3,22	0,90	0,33										
7,5	125	v			4,25	2,59	1,66	1,06	0,63	0,41										
		hr			142	42,8	14,4	4,86	1,36	0,49										
9	150	v				3,11	1,99	1,27	0,75	0,50	0,32									
		hr				59,9	20,2	6,82	1,90	0,69	0,23									
10,5	175	v				3,63	2,32	1,49	0,88	0,58	0,37									
		hr				79,7	26,9	9,07	2,53	0,92	0,31									
12	200	v				4,15	2,65	1,70	1,01	0,66	0,42									
		hr				102	34,4	11,6	3,23	1,18	0,40									
15	250	v				5,18	3,32	2,12	1,26	0,83	0,53	0,34								
		hr				154	52,0	17,5	4,89	1,78	0,60	0,20								
18	300	v					3,98	2,55	1,51	1,00	0,64	0,41								
		hr					72,8	24,6	6,85	2,49	0,84	0,28								
24	400	v					5,31	3,40	2,01	1,33	0,85	0,54	0,38							
		hr					124	41,8	11,66	4,24	1,43	0,48	0,20							
30	500	v					6,63	4,25	2,51	1,66	1,06	0,68	0,47							
		hr					187	63,2	17,6	6,41	2,16	0,73	0,30							
36	600	v					5,10	3,02	1,99	1,27	0,82	0,57	0,42							
		hr					88,6	24,7	8,98	3,03	1,02	0,42	0,20							
42	700	v					5,94	3,52	2,32	1,49	0,95	0,66	0,49							
		hr					118	32,8	11,9	4,03	1,36	0,56	0,26							
48	800	v					6,79	4,02	2,65	1,70	1,09	0,75	0,55							
		hr					151	42,0	15,3	5,16	1,74	0,72	0,34							
54	900	v					7,64	4,52	2,99	1,91	1,22	0,85	0,62							
		hr					188	52,3	19,0	6,41	2,16	0,89	0,42							
60	1000	v					5,03	3,32	2,12	1,36	0,94	0,69	0,53							
		hr					63,5	23,1	7,79	2,63	1,08	0,51	0,27							
75	1250	v					6,28	4,15	2,65	1,70	1,18	0,87	0,66							
		hr					96,0	34,9	11,8	3,97	1,63	0,77	0,40							
90	1500	v					7,54	4,98	3,18	2,04	1,42	1,04	0,80							
		hr					134	48,9	16,5	5,57	2,29	1,08	0,56							
105	1750	v					8,79	5,81	3,72	2,38	1,65	1,21	0,93							
		hr					179	65,1	21,9	7,40	3,05	1,44	0,75							
120	2000	v						6,63	4,25	2,72	1,89	1,39	1,06	0,68						
		hr						83,3	28,1	9,48	3,90	1,84	0,96	0,32						
150	2500	v						8,29	5,31	3,40	2,36	1,73	1,33	0,85						
		hr						126	42,5	14,3	5,89	2,78	1,45	0,49						
180	3000	v							6,37	4,08	2,83	2,08	1,59	1,02	0,71					
		hr							59,5	20,1	8,26	3,90	2,03	0,69	0,28					
210	3500	v								7,43	4,76	3,30	2,43	1,86	1,19	0,83				
		hr								79,1	26,7	11,0	5,18	2,71	0,91	0,38				
240	4000	v								8,49	5,44	3,77	2,77	2,12	1,36	0,94				
		hr								101	34,2	14,1	6,64	3,46	1,17	0,48				
300	5000	v									6,79	4,72	3,47	2,65	1,70	1,18				
		hr									51,6	21,2	10,0	5,23	1,77	0,73				
360	6000	v									8,15	5,66	4,16	3,18	2,04	1,42				
		hr									72,3	29,8	14,1	7,33	2,47	1,02				
420	7000	v										6,61	4,85	3,72	2,38	1,65	1,21			
		hr											39,6	18,7	9,75	3,29	1,35	0,64		
480	8000	v											7,55	5,55	4,25	2,72	1,89	1,39		
		hr												50,7	23,9	12,49	4,21	1,73	0,82	
540	9000	v												8,49	6,24	4,78	3,06	2,12	1,56	1,19
		hr													63,0	29,8	15,5	5,24	2,16	1,02
600	10000	v													6,93	5,31	3,40	2,36	1,73	1,33
		hr													36,2	18,9	6,36	2,62	1,24	0,65

FLOW RESISTANCE
TABLE OF FLOW RESISTANCE IN BENDS, VALVES AND GATES

The flow resistance is calculated using the equivalent pipeline length method according to the table below:

ACCESSORY TYPE	DN											
	25	32	40	50	65	80	100	125	150	200	250	300
	Equivalent pipeline length (m)											
45° bend	0,2	0,2	0,4	0,4	0,6	0,6	0,9	1,1	1,5	1,9	2,4	2,8
90° bend	0,4	0,6	0,9	1,1	1,3	1,5	2,1	2,6	3,0	3,9	4,7	5,8
90° smooth bend	0,4	0,4	0,4	0,6	0,9	1,1	1,3	1,7	1,9	2,8	3,4	3,9
Union tee or cross	1,1	1,3	1,7	2,1	2,6	3,2	4,3	5,3	6,4	7,5	10,7	12,8
Gate	-	-	-	0,2	0,2	0,2	0,4	0,4	0,6	0,9	1,1	1,3
Non return valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9

G-a-pcv_a_th

The table is valid for the Hazen Williams coefficient $C = 100$ (cast iron pipework). For steel pipework, multiply the values by 1.41. For stainless steel, copper and coated cast iron pipework, multiply the values by 1.85.

When the **equivalent pipeline length** has been determined, the flow resistance is obtained from the table of flow resistance.

The values given are guideline values which are bound to vary slightly according to the model, especially for gate valves and non-return valves, for which it is a good idea to check the values supplied by the manufacturers.



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 ₂ O	millimetre di mercury mm Hg
1,0000	0,0010	1 x 10 ⁻⁵	1,45 x 10 ⁻⁴	1,02 x 10 ⁻⁴	0,0075
1000,0000	1,0000	0,0100	0,1450	0,1020	7,5000
1 x 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 x 10 ⁶	220,0000	264,2000	35,3147
0,0010	1,0000	1000,0000	0,2200	0,2642	0,0353
1 x 10 ⁻⁶	0,0010	1,0000	2,2 x 10 ⁻⁴	2,642 x 10 ⁻⁴	3,53 x 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



ITT

Lowara

Headquarters

LOWARA S.r.l.

Via Dott. Lombardi, 14
36075 Montecchio Maggiore
Vicenza - Italy
Tel. (+39) 0444 707111
Fax (+39) 0444 492166
e-mail: lowara.mkt@itt.com - <http://www.lowara.com>

"RESIDENTIAL AND COMMERCIAL WATER GROUP - EMEA" SALES NETWORK

ITALY

MILANO 20090 Cusago - Viale Europa, 30
Tel. (+39) 02 90394188
Fax (+39) 0444 707176
e-mail: lowara.milano@itt.com

BOLOGNA 40132 - Via Marco Emilio Lepido, 178
Tel. (+39) 051 6415666
Fax (+39) 0444 707178
e-mail: lowara.bologna@itt.com

VICENZA 36061 Bassano del Grappa - Via Pigafetta, 6
Tel. (+39) 0424 566776 (R.A. 3 Linee)
Fax (+39) 0424 566773
e-mail: lowara.bassano@itt.com

PADOVA 35020 Albignasego - Via A. Volta, 56 - Zona Mandriola
Tel. (+39) 049 8801110
Fax (+39) 049 8801408
e-mail: lowara.bassano@itt.com

ROMA 00173 Via Frascineto, 8
Tel. (+39) 06 7235890 (2 linee)
Fax (+39) 0444 707180
e-mail: lowara.roma@itt.com

CAGLIARI 09122 - Via Dolcetta, 3
Tel. (+39) 070 287762 - 292192
Fax (+39) 0444 707179
e-mail: lowara.cagliari@itt.com

CATANIA 95027 S. Gregorio - Via XX Settembre, 75
Tel. (+39) 095 7123226 - 7123987
Fax (+39) 095 498902
e-mail: lowara.catania@itt.com



EUROPE

Pumpenfabrik ERNST VOGEL GmbH
A-2000 STOCKERAU
Ernst Vogel-Straße 2
Tel. (+43) 02266 604 - Fax (+43) 02266 65311
e-mail: vogelpumpen.info@itt.com - <http://www.vogel-pumpen.com>

LOWARA DEUTSCHLAND GMBH
Biebigheimer Straße 12
D-63762 Großostheim
Tel. (+49) 0 60 26 9 43 - 0 - Fax (+49) 0 60 26 9 43 - 2 10
e-mail: lowarade.info@itt.com - <http://www.lowara.de>

LOWARA FRANCE S.A.S.
BP 57311
37073 Tours Cedex 2
Tel. (+33) 02 47 88 17 17 - Fax (+33) 02 47 88 17 00
e-mail: lowarafr.info@itt.com - <http://www.lowara.fr>

LOWARA FRANCE SAS Agence Sud
Z.I. La Sipière - BP 23
13730 Saint Victoret - F
Tel. (+33) 04 42 10 02 30 - Fax (+33) 04 42 10 43 75
<http://www.lowara.fr>

LOWARA NEDERLAND B.V.
Zandweistraat 22
4181 CG Waardenburg
Tel. (+31) 0418 655060 - Fax (+31) 0418 655061
e-mail: lowaranl.info@itt.com - <http://www.lowara.nl>

ITT PORTUGAL, Unipessoal, Lda.
Praçeta da Castanheira, 38
4475-019 Barca
Tel. (+351) 22 9478550 - Fax (+351) 22 9478570
e-mail: lowarapt.info@itt.com - <http://www.lowara.pt>

ITT PORTUGAL, Unipessoal, Lda. Delegação
Quinta da Fonte - Edifício D. Pedro I
2770-071 Paço de Arcos
Tel. (+351) 21 0001628 - Fax (+351) 21 0001675

LOWARA UK LTD.
Millwey Rise, Industrial Estate
Axminster - Devon EX13 5HU UK
Tel. (+44) 01297 630200 - Fax (+44) 01297 630270
e-mail: lowaraukenquiries@itt.com - <http://www.lowara.co.uk>

LOWARA IRELAND LTD.
59, Broomhill Drive - Tallaght Industrial Estate
Tallaght - DUBLIN 24
Tel. (+353) 01 4520266 - Fax (+353) 01 4520725
e-mail: lowara.ireland@itt.com - <http://www.lowara.ie>

LOWARA VOGEL POLSKA Sp. z o.o.
PL 57-100 Strzelin
ul. Kazimierza Wielkiego 5
Tel. (+48) 071 769 3900 - Fax (+48) 071 769 3909
e-mail: info.lowarapl@itt.com - <http://www.lowara-vogel.pl>

Lowara reserves the right to make modification without prior notice.

cod. 191012051 W 04/08

Engineered for life

