



**ITT**

**Lowara**

## SVI Series

2, 4, 8, 16

33, 46, 66, 92

Submersible Vertical  
Electric Pumps  
equipped with high  
efficiency PLM motors

**60 Hz**



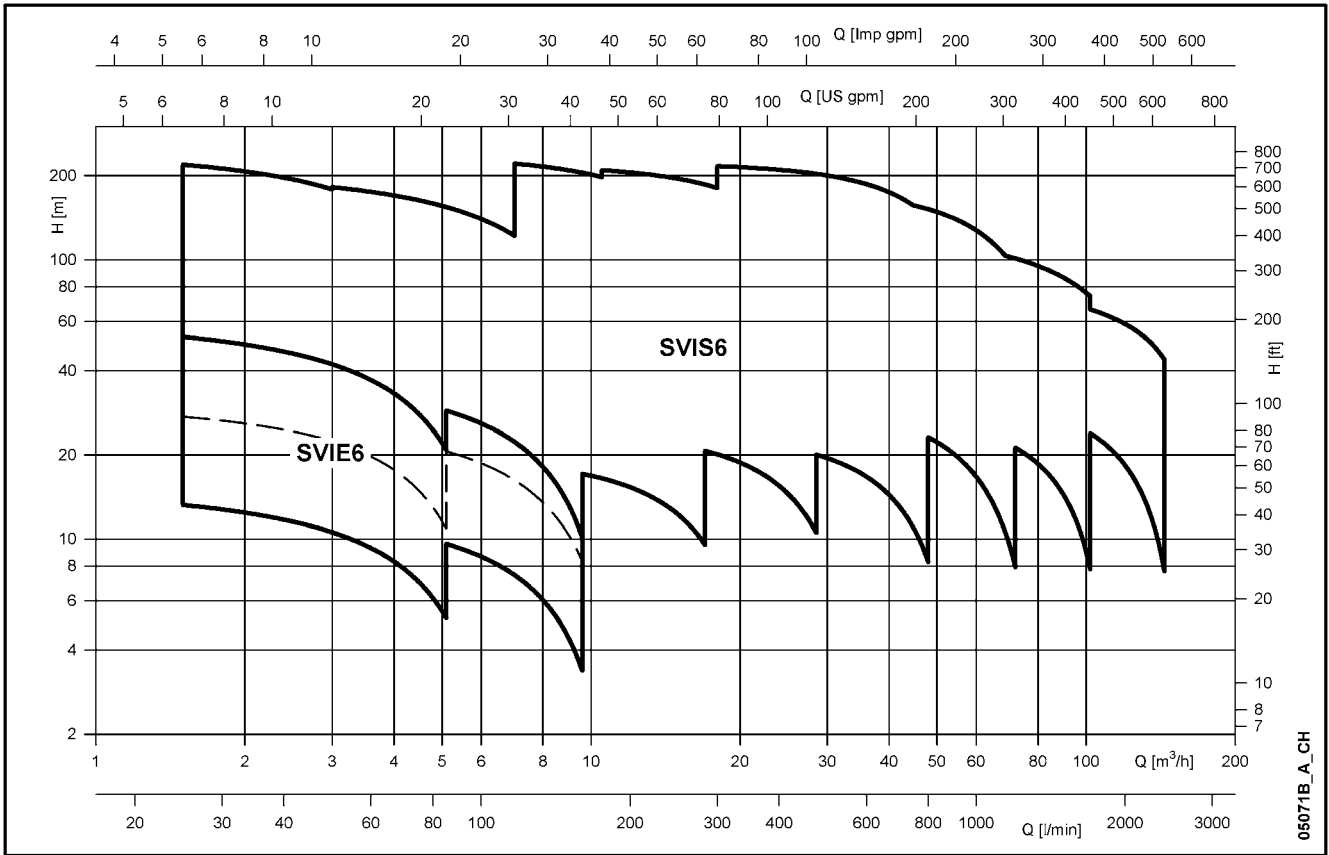
*Engineered for life*



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## SVI SERIES HYDRAULIC PERFORMANCE RANGE AT 60 Hz



05071B\_A\_CH



## CONTENTS

Specifications SVI Series .....	<b>5</b>
Characteristics of SVI 2, 4, 8, 16 Series .....	<b>6</b>
Characteristics of SVI 33, 46, 66, 92 Series .....	<b>6</b>
General Characteristics SVI Series .....	<b>7</b>
Identification Code SVI Series .....	<b>8</b>
SVI 2, 4 Series, Electric Pump Cross Section and Main Components .....	<b>10</b>
SVI 2, 4, 8, 16 Series, Electric Pump Cross Section and Main Components .....	<b>11</b>
SVI 33, 46, 66, 92 Series, Electric Pump Cross Section and Main Components .....	<b>12</b>
SVI Mechanical Seals .....	<b>13</b>
Motors .....	<b>15</b>
Hydraulic Performance Range SVI Series, 60 Hz .....	<b>17</b>
Table of Hydraulic Performances SVI Series, 60 Hz .....	<b>18</b>
Dimensions and Weights SVI Series .....	<b>22</b>
Operating Characteristics SVI Series, 60 Hz .....	<b>23</b>
Dimensions of flanges .....	<b>42</b>
Installation .....	<b>43</b>
Technical Appendix .....	<b>45</b>



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## Submersible Vertical Electric pumps

### SVI Series with high efficiency PLM motors

## MARKET SECTORS

INDUSTRIAL, CIVIL.

## APPLICATIONS

- Pumping of coolants, lubricants and condensate.
- Machine tools, welders, engine test stands.
- Cooling systems.
- Washing systems.



## SPECIFICATIONS

### PUMP

SVI is a vertical-axis pump with submersible body, equipped with standard motor (for S and N versions).

- **Delivery:** up to 144 m<sup>3</sup>/h.
- **Head:** up to 248 m.
- **Liquid temperature** for the standard versions:
  - from -10°C to +90°C for S and N versions with coupling.
  - from -10°C a +60°C for close-coupled E versions.
- Maximum ambient temperature: +40°C.
- **Mechanical seal** in Ceramic/Carbon/FPM for the close-coupled E version and in Silicon Carbide/Carbon/FPM for S and N versions with coupling. For SVI 33-46-66-92 models, mechanical seal can be replaced without removing the motor from the pump.
- Tank coupling flange in compliance with EN 12157 (ex DIN 5440) for SVI 2-4 models.
- Standard installation in vertical position; horizontal installation on request.
- These pumps can handle clean liquids free of abrasive substances or fibres, with kinematic viscosity up to 37mm<sup>2</sup>/sec, with suitably sized motor.
- Minimum level of suction liquid: 25 mm for SVI 2-4-8-16 models and 80 mm for SVI 33-46-66-92.

- Base in the suction side with filter in order to avoid damages due to solids entrance.
- 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).
- Longer pump columns (from coupling flange to suction base) are available on request. Possible variants are indicated in each model's dimensions table.

### MOTORS

- 2 poles motors with squirrel cage in short circuit, enclosed construction with external ventilation.
- Construction design:
  - Close-coupled for E version.
  - Standard motor for S and N versions.
- **From 3 kW to 22 kW pumps are equipped with PLM motors with efficiency values that fall within the range normally referred to as efficiency class 1.** Other motor brands are used for 30 kW power.
- IP55 **protection.**
- Class F **Insulation.**
- Performances according to EN 60034-1.
- Standard voltage:
  - Three-phase version, 2 poles: 220 V Δ, 380 V Y, 60 Hz.

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**CHARACTERISTICS OF SVI 2, 4 SERIES (E, EN VERSIONS)**

- Vertical pump with submersible body with impellers, diffusers, outer sleeve, suction base and filter made entirely of stainless steel. Adapter with delivery port in cast iron.
- “N” version made entirely of AISI 316 stainless steel.
- Motor with special shaft extension.
- Standard version for temperatures ranging from -10°C to +60°C.

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**CHARACTERISTICS OF SVI 2, 4, 8, 16 SERIES (S, N VERSIONS)**

- Vertical pump with submersible body.
- “S” version with standard motor; impellers, diffusers, outer sleeve, suction base and filter made entirely of stainless steel. Adapter with delivery port in cast iron.
- “N” version with standard motor, made entirely of AISI 316 stainless steel.
- Reduced axial thrusts enable the use of standard motors that are easily found in the market.
- Mechanical seal according to EN 12756 (ex DIN 24960) e ISO 3069.
- Standard version for temperatures ranging from -10°C to +90°C.

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**CHARACTERISTICS OF SVI 33, 46, 66, 92 SERIES (S, N VERSIONS)**

- Vertical pump with submersible body.
- “S” version with standard motor; impellers, diffusers, tie-rods, suction base and filter made entirely of stainless steel. Adapter and upper head in cast iron.
- “N” version with standard motor; made entirely of AISI 316 stainless steel.
- Delivery port can be coupled to counter-flanges, according to EN 1092.
- Four new sizes (SVI 33-46-66-92) entirely re-designed; improved efficiency and performances.
- Motor versions, depending on the model:
  - with standard bearings for powers up to 15 kW.
  - with reinforced bearings, able to support the vertical axial thrust of the pump for powers  $\geq 18,5$  kW.
- Balanced mechanical seal (SiC/C/FPM as standard) according to EN 12756 (ex DIN 24960) and ISO 3069, which can be replaced without removing the motor from the pump.
- Standard version for temperatures ranging from -10°C e +90°C.

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**OPTIONAL FEATURES**

- Single-phase version.
- 4 poles version.
- Special voltages.
- Special materials for mechanical seals and gaskets.
- Horizontal installation.

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**ACCESSORIES**

- Adapter ring which allows compatibility with the previous models SVI 30-60 (keeping the same discharge port axle height from the flange and the same centering to the tank).

**GENERAL CHARACTERISTICS**  
**2-POLE SVI**

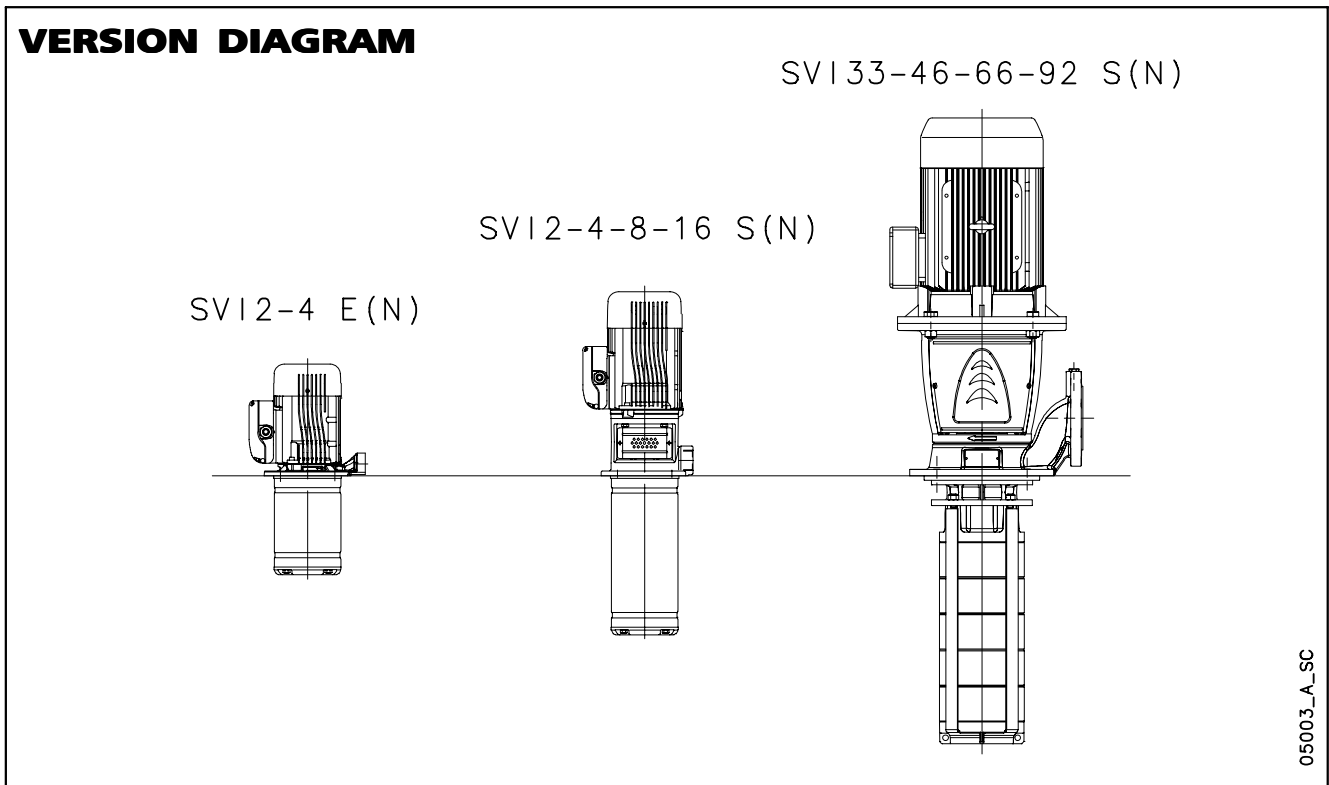
	2E	4E	2S	4S	8S	16S	33S	46S	66S	92S
Max efficiency flow (m <sup>3</sup> /h)	3,5	6,5	3,5	6,5	15	19	40	50	87	108
Flow range (m <sup>3</sup> /h)	1,5÷5,1	3÷9,6	1,5÷5,1	3÷9,6	7÷17	10,5÷28,5	18÷48	27÷72	36÷102	54÷144
Maximum pressure ( bar )	24	21	24	21	24	22	28	28	22	17
Motor power ( kW )	0,37÷0,9	0,37÷0,9	0,55÷4	0,55÷4	1,1÷11	2,2÷15	3÷30	5,5÷30	7,5÷30	11÷30
Max $\eta$ ( % ) of pump	42,5	56,5	42,5	59	61,5	64,5	76,5	79	78	79,5
Standard temperature ( °C )	-10 +60		-10 +90							

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**SVI VERSIONS**

	VERSION	HYDRAULIC	UPPER HEAD	DELIVERY PORT
<b>SVI2-4E</b>	CLOSE-COUPLED	AISI 304	CAST IRON	Threaded Rp 3/4
<b>SVI2-4EN</b>	CLOSE-COUPLED	AISI 316	AISI 316	Threaded Rp 3/4
<b>SVI2-4S</b>	WITH COUPLING	AISI 304	CAST IRON	Threaded Rp 1 1/4
<b>SVI2-4N</b>	WITH COUPLING	AISI 316	AISI 316	Threaded Rp 1 1/4
<b>SVI8-16S</b>	WITH COUPLING	AISI 304	CAST IRON	Threaded Rp 2
<b>SVI8-16N</b>	WITH COUPLING	AISI 316	AISI 316	Threaded Rp 2
<b>SVI33-46-66-92S</b>	WITH COUPLING	AISI 304	CAST IRON	Flanged DN 80
<b>SVI33-46-66-92N</b>	WITH COUPLING	AISI 316	AISI 316	Flanged DN 80

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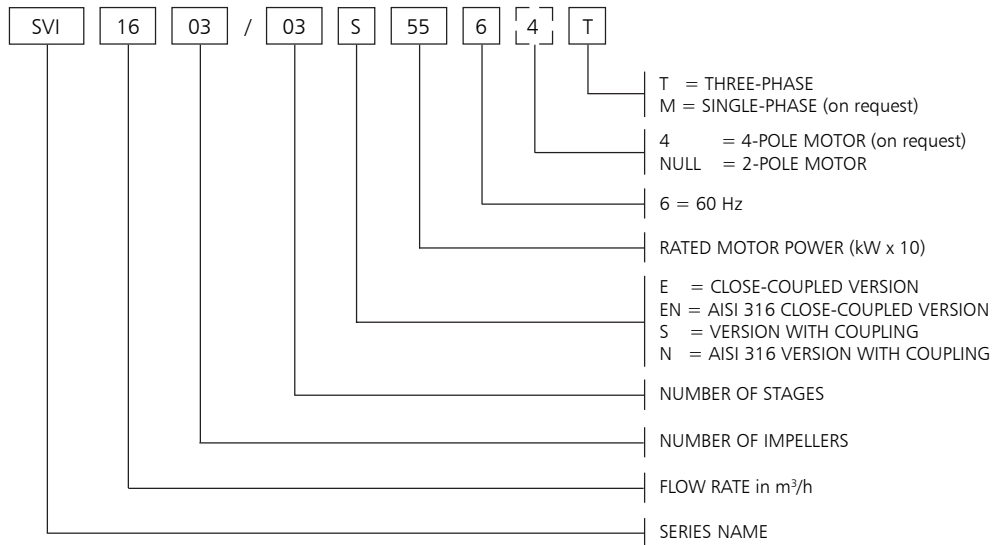


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## IDENTIFICATION CODE

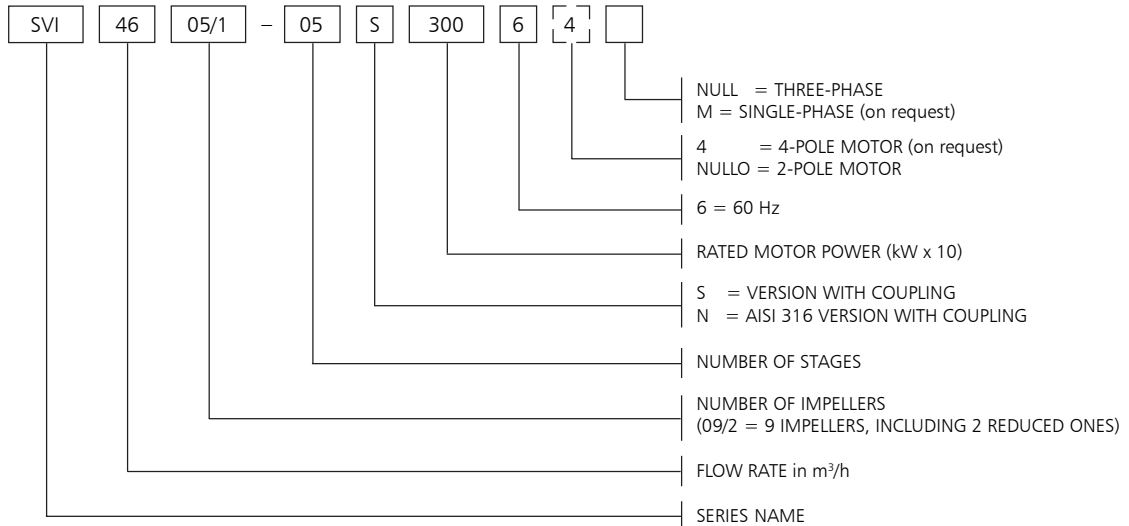
### SVI 2, 4, 8, 16



EXAMPLE : SVI1603/03S556T

SVI Series Electric pump, flow rate 16 m<sup>3</sup>/h, number of impellers 3, number of stages 3, S version with coupling, rated motor power 5,5 kW, 60 Hz version, three-phase.

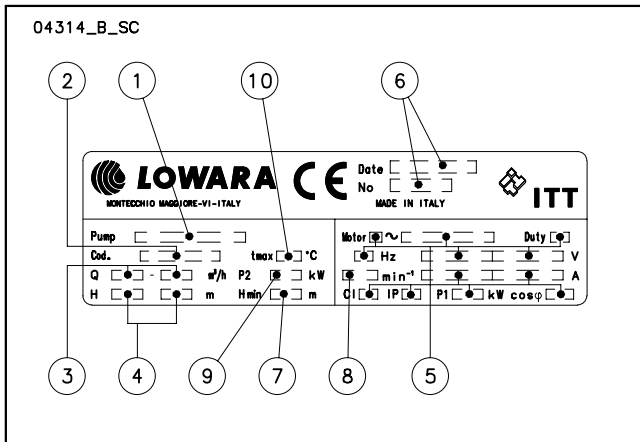
### SVI 33, 46, 66, 92



EXAMPLE : SVI4605/1-05S3006

SVI Series Electric pump, flow rate 46 m<sup>3</sup>/h, number of impellers 5 including 1 reduced ones, number of stages 5, S version with coupling, rated motor power 30 kW, 60 Hz version, three-phase.

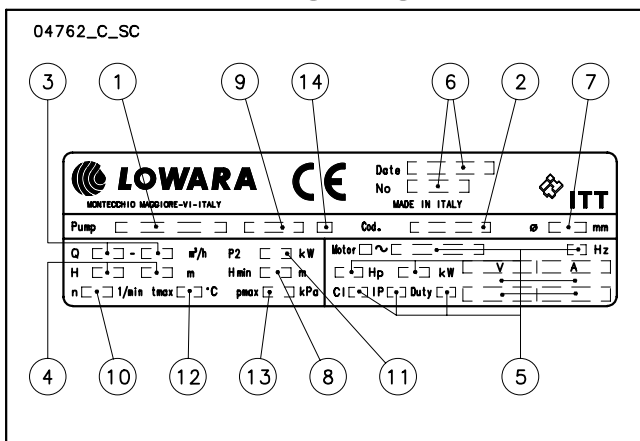
## RATING PLATE SVI 2, 4 (E, EN)



## LEGEND

- 1 - Electric pump type
- 2 - Code
- 3 - Delivery range
- 4 - Head range
- 5 - Motor type
- 6 - Date of manufacturing and serial number
- 7 - Minimum head
- 8 - Speed
- 9 - Rated power
- 10 - Maximum operating temperature

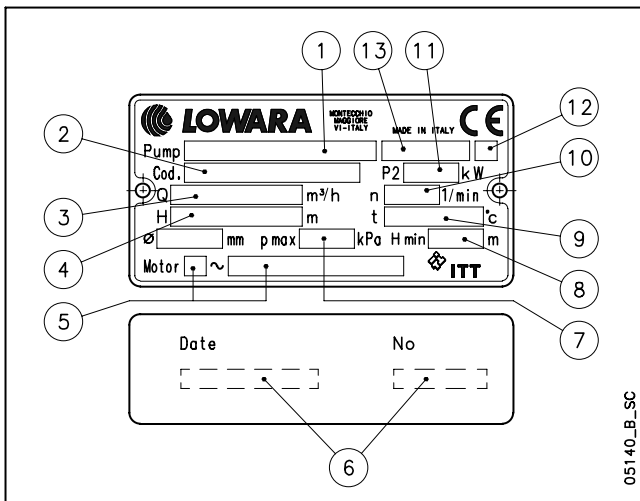
## SVI 2, 4, 8, 16 (S, N)



## LEGEND

- 1 - Electric pump type
- 2 - Code
- 3 - Delivery range
- 4 - Head range
- 5 - Motor type
- 6 - Date of manufacturing and serial number
- 7 - Impeller diameter
- 8 - Minimum head
- 9 - Mechanical seal material identification code
- 10 - Speed
- 11 - Rated power
- 12 - Maximum operating temperature
- 13 - Maximum operating pressure
- 14 - O-ring material identification code

## SVI 33, 46, 66, 92 (S, N)



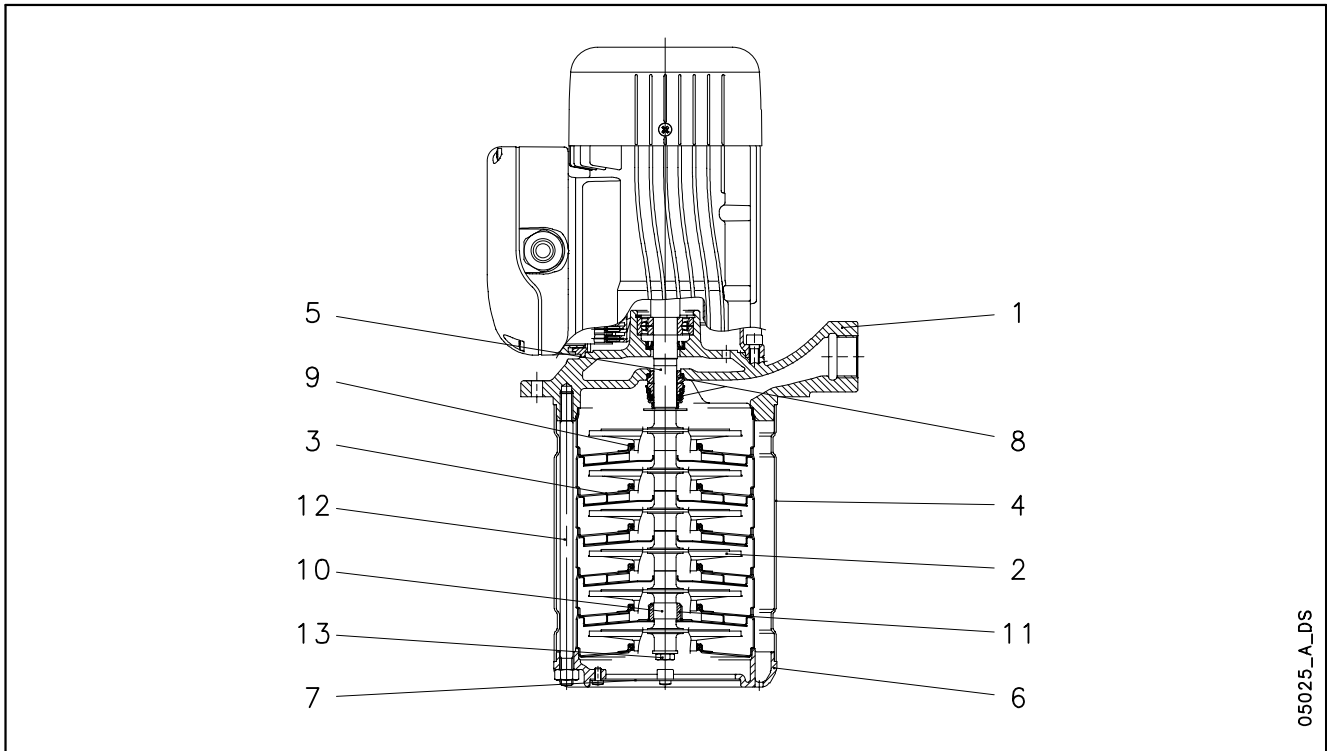
## LEGEND

- 1 - Electric pump type
- 2 - Code
- 3 - Delivery range
- 4 - Head range
- 5 - Motor type
- 6 - Date of manufacturing 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

\* To be verified on pressure/temperature limit diagrams (pag. 14)



## SVI 2, 4 (E, EN) SERIES ELECTRIC PUMP CROSS SECTION AND MAIN COMPONENTS



### SVI 2, 4 (E VERSIONS)

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Adapter	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
2	Impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Diffuser	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Outer sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Shaft	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
7	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Mechanical seal	Ceramic / Carbon / FPM		
9	Elastomers	FPM		
10	Shaft sleeve	Tungsten carbide		
11	Bushing	Ceramic (Alumina)		
12	Tie rods	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
13	Screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304

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### SVI 2, 4 (EN VERSIONS)

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Adapter	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	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
7	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Mechanical seal	Ceramic / Carbon / FPM		
9	Elastomers	FPM		
10	Shaft sleeve	Tungsten carbide		
11	Bushing	Ceramic (Alumina)		
12	Tie rods	Acciaio inox	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
13	Screws	Acciaio inox	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316

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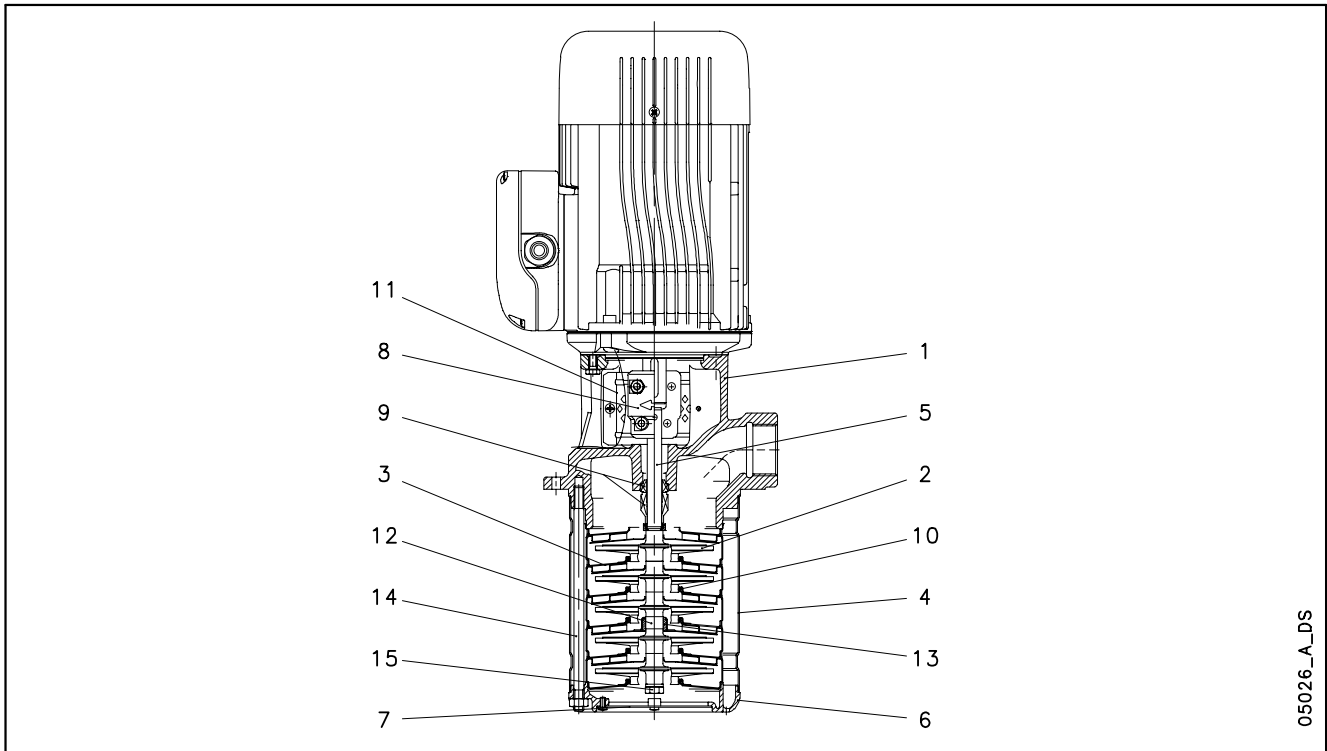


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## SVI 2, 4, 8, 16 (S, N) SERIES

### ELECTRIC PUMP CROSS SECTION AND MAIN COMPONENTS



### SVI 2, 4, 8, 16 (S VERSIONS)

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Impeller	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
3	Diffuser	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Outer sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Shaft	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
7	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Coupling (up to 4 kW)	Aluminium	EN 1706-AC-ALSi11Cu2 (Fe) (AC46100)	-
	Coupling (for higher powers)	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Mechanical seal	Silicon carbide / Carbon / FPM		
10	Elastomers	FPM		
11	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
12	Shaft sleeve	Tungsten carbide		
13	Bushing	Ceramic (Alumina)		
14	Tie rods	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
15	Screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316

### SVI 2, 4, 8, 16 (N VERSIONS)

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REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Adapter	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	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
7	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
8	Coupling (up to 4 kW)	Aluminium	EN 1706-AC-ALSi11Cu2 (Fe) (AC46100)	-
	Coupling (for higher powers)	Cast iron	EN 1561-GJL-200 (JL1030)	ASTM Class 25
9	Mechanical seal	Silicon carbide / Carbon / FPM		
10	Elastomers	FPM		
11	Coupling protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
12	Shaft sleeve	Tungsten carbide		
13	Bushing	Ceramic (Alumina)		
14	Tie rods	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
15	Screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316

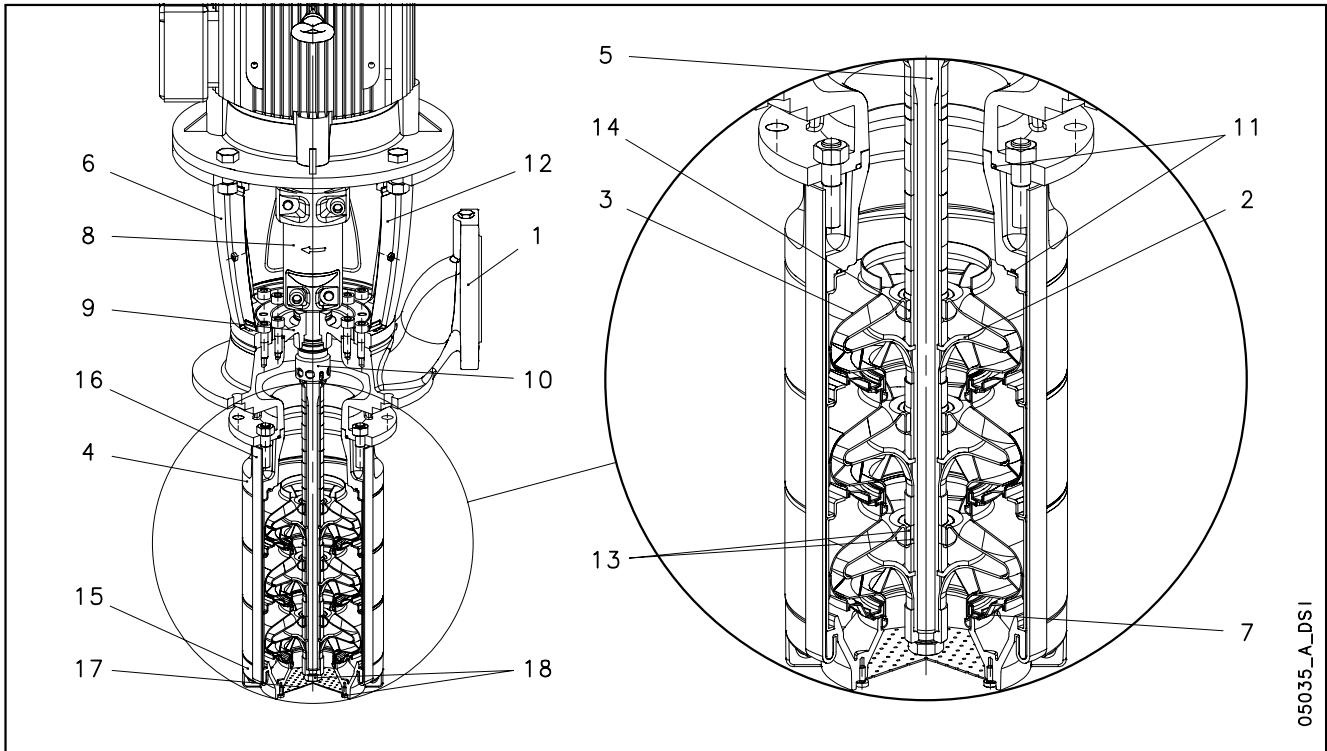
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## SVI 33, 46, 66, 92 (S, N) SERIES ELECTRIC PUMP CROSS SECTION AND MAIN COMPONENTS



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### SVI 33, 46, 66, 92 (S VERSIONS)

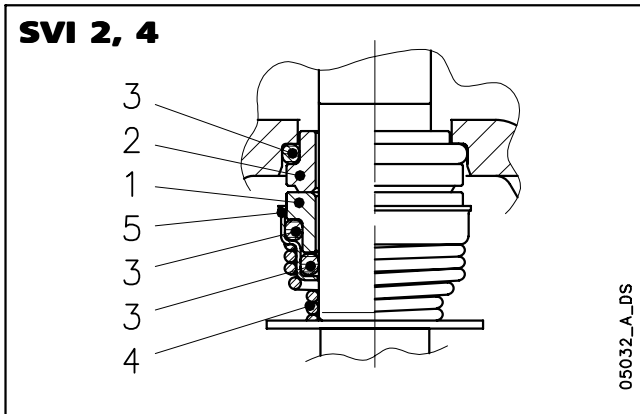
REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Upper head	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
2	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
3	Diffuser	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
4	Adapter	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
5	Shaft	Stainless steel	EN 10088-1 - X17CrNi16-2 (1.4057)	AISI 431
6	Motor 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	Seal housing	Cast iron	EN 1561-GJL-250 (JL1040)	ASTM Class 35
10	Mechanical seal	Silicon carbide / Carbon / FPM		
11	Elastomers	FPM		
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	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
16	Tie rods	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
17	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316

### SVI 33, 46, 66, 92 (N VERSIONS)

svi33-92-s-en\_a\_tm

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Upper head	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	Adapter	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
5	Shaft	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	UNS S 31803
6	Motor 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	Seal housing	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
10	Mechanical seal	Silicon carbide / Carbon / FPM		
11	Elastomers	FPM		
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	Suction base	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF8M (AISI 316 cast)
16	Tie rods	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
17	Strainer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316

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**SVI (E, EN) SERIES  
MECHANICAL SEAL, ACCORDING TO EN 12756**

**LIST OF MATERIALS**

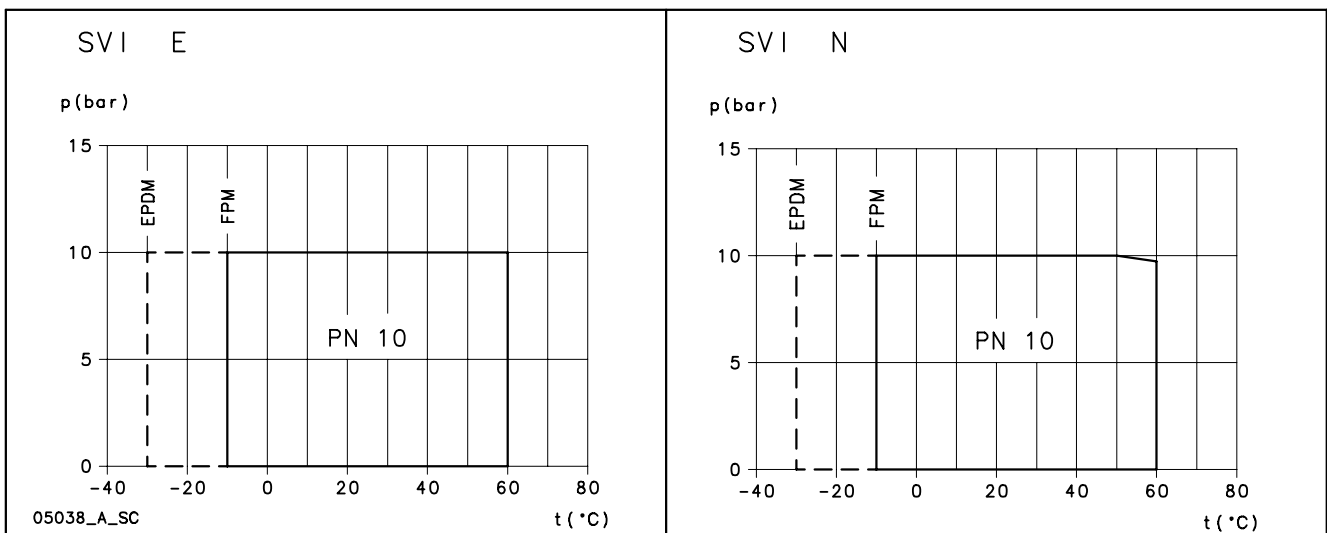
POSITION 1 - 2	POSITION 3	POSITION 4 - 5
V : Ceramic	V : FPM	G : AISI 316
B : Resin impregnated carbon	E : EPDM	
C : Special resin impregnated carbon		
Q <sub>1</sub> : Silicon Carbide		

svi-e\_ten-mec-en\_a\_tm

**SEAL TYPES**

TYPE	POSITION					TEMPERATURE (°C)
	1 ROTATING PART	2 STATIONARY PART	3 ELASTOMERS	4 SPRINGS	5 OTHER COMPONENTS	
STANDARD MECHANICAL SEAL						
VBVGG	V	B	V	G	G	-10 +60
OTHER TYPES OF MECHANICAL SEAL						
Q <sub>1</sub> Q <sub>1</sub> EGG	Q <sub>1</sub>	Q <sub>1</sub>	E	G	G	-30 +60
Q <sub>1</sub> CVGG	Q <sub>1</sub>	C	V	G	G	-10 +60
Q <sub>1</sub> Q <sub>1</sub> VGG	Q <sub>1</sub>	Q <sub>1</sub>	V	G	G	-10 +60

svi-e\_tipi-ten-mec-en\_a\_tc

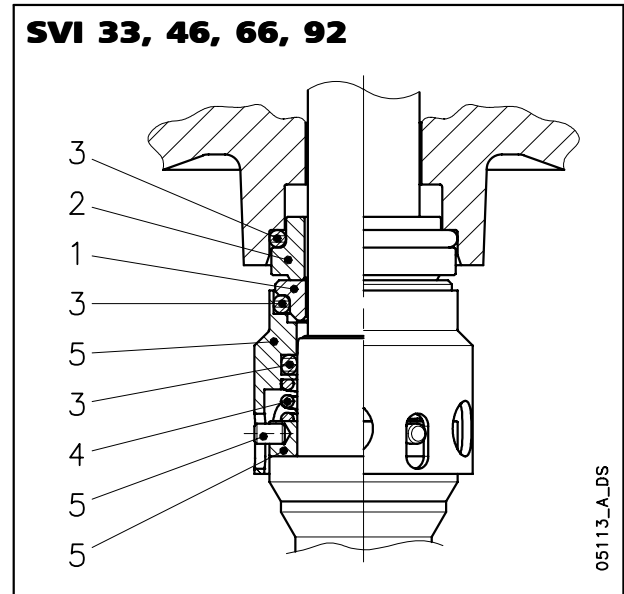
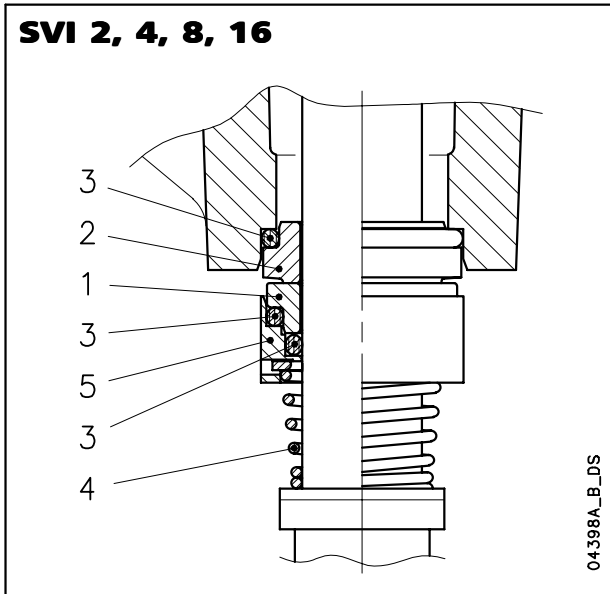
**COMPLETE PUMP PRESSURE / TEMPERATURE OPERATING LIMITS  
(WITH ANY OF THE SEALS LISTED ABOVE)**




# ITT

# Lowara

## SVI (S, N) SERIES MECHANICAL SEALS, ACCORDING TO EN 12756



### LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
Q <sub>1</sub> : Silicon Carbide	V : FPM	G : AISI 316
B : Resin impregnated carbon	E : EPDM	
	T : PTFE	

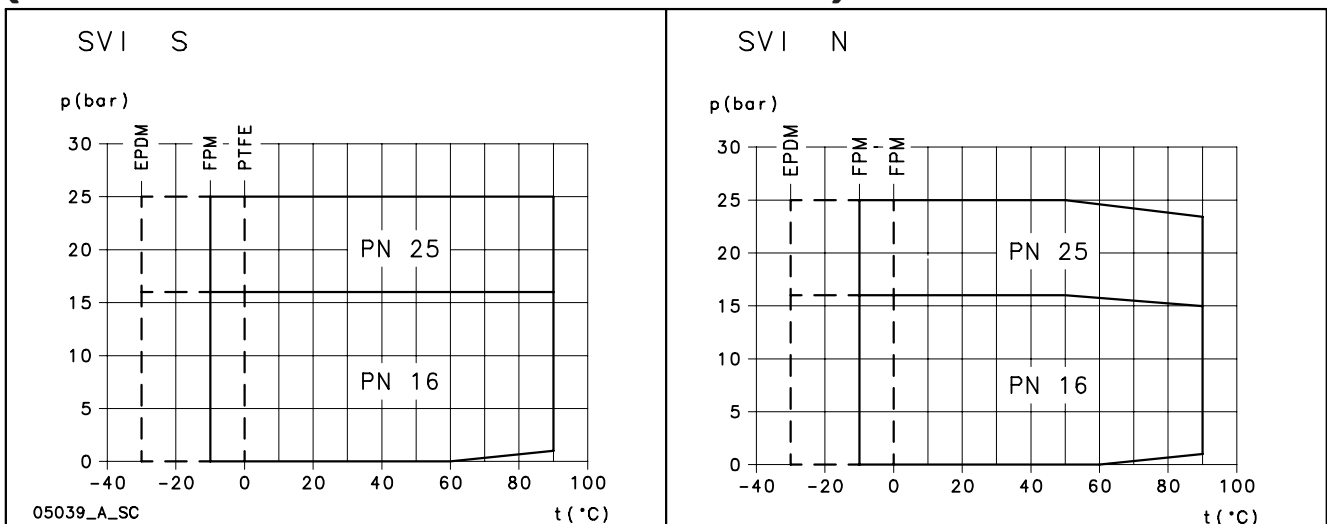
### SEAL TYPES

svi-s\_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 <sub>1</sub> B V G G	Q <sub>1</sub>	B	V	G	G	-10 +90
OTHER TYPES OF MECHANICAL SEAL						
Q <sub>1</sub> Q <sub>1</sub> V G G	Q <sub>1</sub>	Q <sub>1</sub>	V	G	G	-10 +90
Q <sub>1</sub> Q <sub>1</sub> E G G	Q <sub>1</sub>	Q <sub>1</sub>	E	G	G	-30 +90
Q <sub>1</sub> Q <sub>1</sub> T G G	Q <sub>1</sub>	Q <sub>1</sub>	T	G	G	0 +90

svi-s\_tipi-ten-mec-en\_a\_tc

### COMPLETE PUMP PRESSURE / TEMPERATURE OPERATING LIMITS (WITH ANY OF THE SEALS LISTED ABOVE)



**MOTORS**

- Standard Lowara motors with powers up to 22 kW (included) for the 2-pole version. 4-poles version on request.
  - 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 (on request).
  - **Three-phase** version 2 poles: 220 V  $\Delta$ , 380 V Y, 60 Hz. Overload protection to be provided by the user.
- **Type of motor used:**  
**2-Pole**  
 Three-phase: Lowara SM (up to 2,2 kW).  
 Lowara PLM (from 3 to 22 kW).  
 Other brand motors (30 kW).

**SVI (E, EN) SERIES  
THREE-PHASE 60 Hz, 2-POLE MOTORS**

MOTOR TYPE		INPUT CURRENT in (A) THREE-PHASE		DATA FOR 400 V 60 Hz VOLTAGE					
kW	IEC SIZE *	$\Delta$	Y	min <sup>-1</sup>	Is / In	$\eta$ %	cos $\phi$	Tn Nm	Ts/Tn**
		220 V	380 V						
0,37	63	1,47	0,85	3270	4,13	66,4	0,81	0,88	2,86
0,45	63	1,92	1,11	3300	4,79	68,6	0,80	1,16	3,59
0,55	63	3,50	1,32	3270	4,54	70,0	0,82	1,46	3,35
0,75	71	3,24	1,87	3390	5,76	72,9	0,84	2,11	3,09
0,9	71	3,79	2,19	3400	6,49	79,2	0,83	2,67	3,36

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

svi-e-mott-2p60-en\_a\_te

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

**SVI (S, N) SERIES  
THREE-PHASE 60 Hz, 2-POLE MOTORS**

MOTOR TYPE			INPUT CURRENT IN (A) THREE-PHASE		DATA FOR 380 V 60Hz					
kW	IEC SIZE*	CONSTRUCTION DESIGN	$\Delta$	Y	min <sup>-1</sup>	Is / In	$\eta$ %	cos $\phi$	Tn Nm	Ts/Tn**
			220 V	380 V						
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

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

svi-mott-2p60-en\_a\_te

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

**MOTOR NOISE**

The tables below show the mean sound pressure levels (Lp) measured at 1 meter's distance in a free field according to the A curve (ISO 1680 standard).

The noise values are measured with idling 50 Hz motor with a tolerance of 3 dB (A).

**SVI (E, EN) SERIES  
THREE-PHASE 60 Hz,  
2-POLE MOTORS**

POWER kW	MOTOR TYPE IEC SIZE	NOISE LpA dB
0,37	63	<70
0,45	63	<70
0,55	63	<70
0,75	71	<70
0,9	71	<70

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

**SVI (S, N) SERIES  
THREE-PHASE 60 Hz,  
2-POLE MOTORS**

POWER kW	MOTOR TYPE IEC* SIZE	NOISE 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	75
11	160R	77
15	160	74
18,5	160	75
22	180R	73
30	200	84

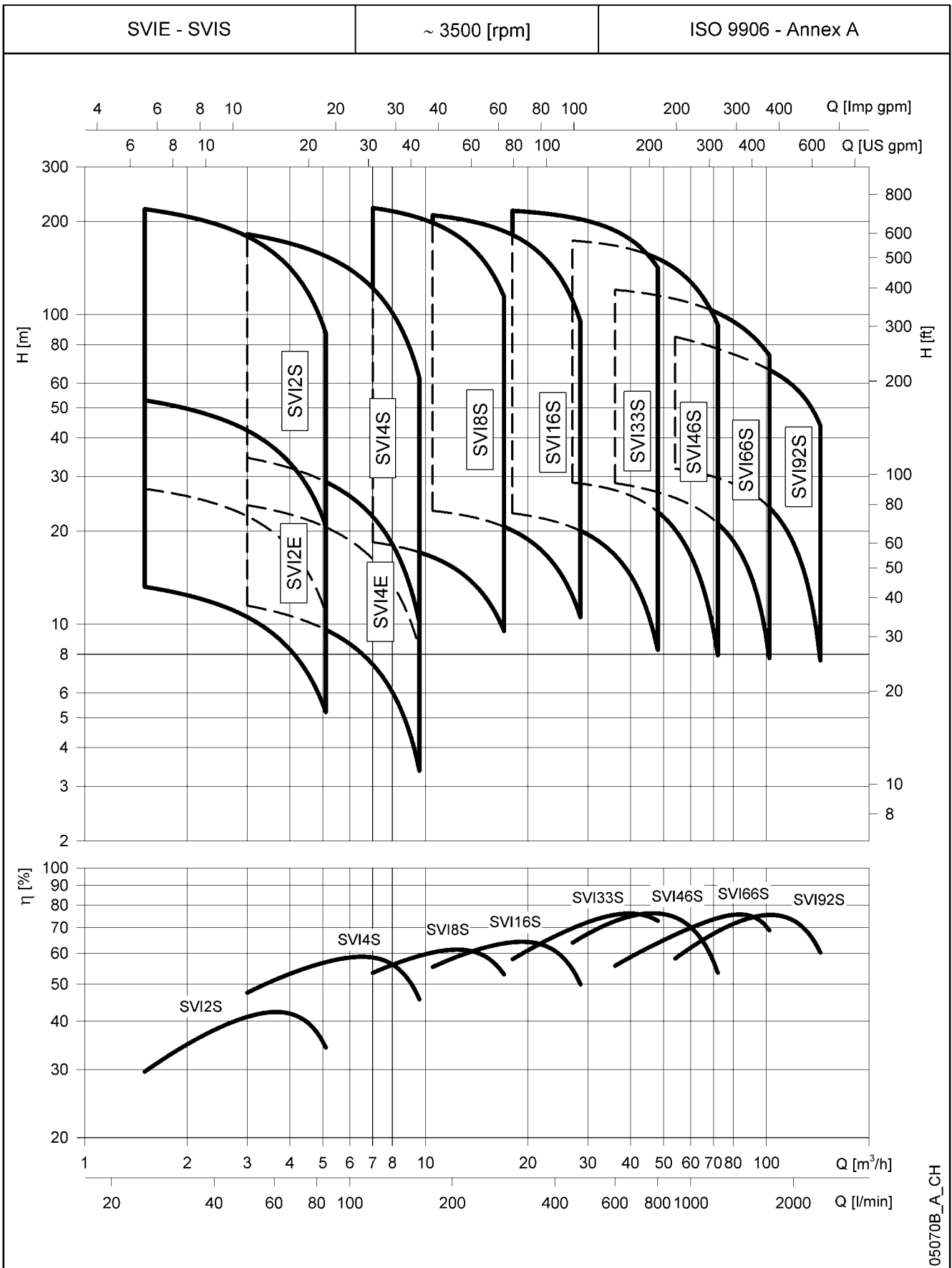
svi\_mott-60-en\_a\_tr



# ITT

# Lowara

## SVI SERIES HYDRAULIC PERFORMANCE RANGE AT 60 Hz



05070B\_A\_CH



# ITT

# Lowara

## SVI 2, 4 SERIES

### TABLE OF HYDRAULIC PERFORMANCES AT 60 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY											
			V <sub>min</sub> 0	25	30	40	50	60	70	85	100	120	140	160
	kW	HP	m <sup>3</sup> /h 0	1,5	1,8	2,4	3	3,6	4,2	5,1	6	7,2	8,4	9,6
H = TOTAL HEAD METRES COLUMN OF WATER														
SVI 201E6	0,37	0,5	15,3	13,2	12,7	11,7	10,6	9,3	7,8	5,2				
SVI 202E6	0,37	0,5	30,6	26,4	25,5	23,4	21,1	18,5	15,6	10,4				
SVI 203E6	0,45	0,6	45,9	39,7	38,2	35,2	31,7	27,8	23,4	15,6				
SVI 204E6	0,55	0,75	61,2	52,9	51,0	46,9	42,3	37,0	31,2	20,9				
SVI 401E6	0,37	0,5	13,7				11,5	11,0	10,5	9,6	8,6	7,2	5,4	3,4
SVI 402E6	0,37	0,5	27,4				23,0	22,0	20,9	19,2	17,3	14,3	10,9	6,7
SVI 403E6	0,45	0,6	41,2				34,5	33,0	31,4	28,8	25,9	21,5	16,3	10,1
SVI 202S6	0,37	0,5	31,0	27,4	26,5	24,6	22,3	19,7	16,6	10,9				
SVI 203S6	0,37	0,5	46,5	41,1	39,8	36,9	33,5	29,6	24,9	16,3				
SVI 204S6	0,55	0,75	62,1	54,8	53,0	49,2	44,7	39,4	33,2	21,8				
SVI 205S6	0,75	1	77,6	68,4	66,3	61,5	55,9	49,3	41,5	27,2				
SVI 206S6	0,75	1	93,1	82,1	79,6	73,8	67,0	59,1	49,8	32,7				
SVI 207S6	1,1	1,5	108,6	95,8	92,8	86,1	78,2	69,0	58,1	38,1				
SVI 209S6	1,1	1,5	139,6	123,2	119,3	110,7	100,6	88,7	74,7	49,0				
SVI 211S6	1,5	2	170,6	150,6	145,8	135,3	122,9	108,4	91,3	59,9				
SVI 213S6	1,5	2	201,7	178,0	172,4	159,9	145,3	128,1	107,8	70,8				
SVI 215S6	2,2	3	232,7	205,3	198,9	184,5	167,6	147,8	124,4	81,7				
SVI 216S6	2,2	3	248,2	219,0	212,1	196,8	178,8	157,6	132,7	87,2				
SVI 402S6	0,37	0,5	27,9				24,3	23,3	22,3	20,6	18,7	15,7	12,3	8,3
SVI 403S6	0,55	0,75	41,9				36,4	35,0	33,4	30,9	28,0	23,6	18,4	12,5
SVI 404S6	0,75	1	55,9				48,5	46,6	44,6	41,2	37,3	31,5	24,6	16,7
SVI 405S6	1,1	1,5	69,9				60,6	58,3	55,7	51,5	46,7	39,3	30,7	20,8
SVI 406S6	1,1	1,5	83,8				72,8	70,0	66,9	61,8	56,0	47,2	36,9	25,0
SVI 407S6	1,1	1,5	97,8				84,9	81,6	78,0	72,1	65,4	55,0	43,0	29,2
SVI 408S6	1,5	2	111,8				97,0	93,3	89,2	82,4	74,7	62,9	49,2	33,3
SVI 409S6	1,5	2	125,8				109,2	104,9	100,3	92,7	84,0	70,8	55,3	37,5
SVI 411S6	2,2	3	153,7				133,4	128,3	122,6	113,3	102,7	86,5	67,6	45,8
SVI 413S6	2,2	3	181,7				157,7	151,6	144,9	133,9	121,4	102,2	79,9	54,2
SVI 415S6	3	4	209,6				181,9	174,9	167,2	154,5	140,0	117,9	92,2	62,5

Performances in compliance with ISO 9906 - Annex A.

svi2-4-2p60-en\_a\_th



# ITT

# Lowara

## SVI 8, 16 SERIES

### TABLE OF HYDRAULIC PERFORMANCES AT 60 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY											
			$V_{min}$	116,7	130	150	175	200	240	283,3	300	350	400	475
			m <sup>3</sup> /h	7,0	7,8	9	10,5	12	14,4	17,0	18	21	24	28,5
H = TOTAL HEAD METRES COLUMN OF WATER														
SVI 801S6	0,75	1	20,0	18,4	18,1	17,4	16,5	15,3	12,9	9,5				
SVI 802S6	1,1	1,5	40,0	36,8	36,1	34,9	33,0	30,6	25,9	19,0				
SVI 803S6	1,5	2	60,0	55,3	54,2	52,3	49,5	46,0	38,8	28,5				
SVI 804S6	2,2	3	80,0	73,7	72,3	69,8	66,0	61,3	51,7	38,1				
SVI 805S6	2,2	3	100,1	92,1	90,3	87,2	82,5	76,6	64,7	47,6				
SVI 806S6	3	4	84,0	110,5	108,4	104,7	99,0	91,9	77,6	57,1				
SVI 808S6	4	5,5	112,0	147,4	144,5	139,6	131,9	122,6	103,4	76,1				
SVI 809S6	4	5,5	126,0	165,8	162,6	157,0	148,4	137,9	116,4	85,6				
SVI 810S6	4	5,5	126,0	184,2	180,7	174,5	164,9	153,2	129,3	95,2				
SVI 811S6	5,5	7,5	154,0	202,6	198,8	191,9	181,4	168,5	142,2	104,7				
SVI 812S6	5,5	7,5	168,0	221,1	216,8	209,4	197,9	183,9	155,2	114,2				
SVI 1601S6	1,1	1,5	24,4				23,3	22,8	21,9	20,7	20,1	18,1	15,5	10,5
SVI 1602S6	2,2	3	48,7				46,5	45,7	43,9	41,3	40,2	36,1	31,0	21,1
SVI 1603S6	3	4	73,1				69,8	68,5	65,8	62,0	60,3	54,2	46,5	31,6
SVI 1604S6	4	5,5	97,4				93,1	91,3	87,7	82,7	80,4	72,2	61,9	42,1
SVI 1605S6	5,5	7,5	121,8				116,3	114,1	109,7	103,3	100,5	90,3	77,4	52,7
SVI 1606S6	5,5	7,5	146,2				139,6	137,0	131,6	124,0	120,6	108,3	92,9	63,2
SVI 1607S6	7,5	10	170,5				162,9	159,8	153,5	144,7	140,7	126,4	108,4	73,7
SVI 1608S6	7,5	10	194,9				186,1	182,6	175,4	165,4	160,8	144,4	123,9	84,3
SVI 1609S6	11	15	219,2				209,4	205,4	197,4	186,0	180,8	162,5	139,4	94,8

Performances in compliance with ISO 9906 - Annex A.

svi8-16-2p60-en\_a\_th



# ITT

# Lowara

## SVI 33, 46 SERIES

### TABLE OF HYDRAULIC PERFORMANCES AT 60 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY											
			V <sub>min 0</sub>	300	400	450	500	600	700	800	900	1000	1100	1200
	kW	HP	m <sup>3</sup> /h 0	18	24	27	30	36	42	48	54	60	66	72
H = TOTAL HEAD METRES COLUMN OF WATER														
SVI 3301/1S6	3	4	24,5	22,8	21,5	20,6	19,5	16,7	13,0	8,3				
SVI 3301S6	5,5	7,5	34,5	33,1	32,2	31,6	30,9	29,1	26,6	23,2				
SVI 3302/2S6	5,5	7,5	49,6	47,7	45,3	43,6	41,5	36,1	28,9	20,0				
SVI 3302/1S6	7,5	10	59,6	56,5	54,3	52,8	51,0	46,4	40,2	32,2				
SVI 3303/2S6	11	15	86,0	81,8	78,4	76,1	73,4	66,4	57,0	44,7				
SVI 3303S6	15	20	104,2	100,2	97,6	95,9	93,9	88,5	81,1	71,1				
SVI 3304S6	18,5	25	138,3	132,9	129,4	127,1	124,4	117,2	107,2	93,8				
SVI 3305/1S6	22	30	163,9	157,5	152,9	149,8	146,1	136,5	123,2	105,3				
SVI 3306/2S6	22	30	189,0	181,7	175,9	172,0	167,4	155,3	138,6	116,0				
SVI 3307/2S6	30	40	224,6	216,5	210,0	205,6	200,4	186,6	167,5	141,8				
SVI 4601/1S6	5,5	7,5	29,1			28,6	28,3	27,1	25,4	23,1	20,2	16,7	12,6	7,9
SVI 4601S6	7,5	10	39,9			35,6	34,9	33,4	31,6	29,6	27,1	24,2	20,6	16,4
SVI 4602/1S6	11	15	67,8			64,8	64,0	61,9	58,9	55,1	50,2	44,3	37,2	29,0
SVI 4602S6	15	20	78,2			72,1	71,3	69,4	66,9	63,8	59,7	54,7	48,5	40,8
SVI 4603S6	18,5	25	117,2			108,1	106,9	104,0	100,2	95,3	89,1	81,5	72,3	61,5
SVI 4604/2S6	22	30	134,1			130,3	128,9	125,2	119,8	112,6	103,4	92,0	78,5	62,7
SVI 4605/1S6	30	40	183,1			173,3	171,5	166,8	160,3	151,7	140,8	127,4	111,5	93,0

Performances in compliance with ISO 9906 - Annex A.

svi33-46-2p50-en\_a\_th



# ITT

# Lowara

## SVI 66, 92 SERIES

### TABLE OF HYDRAULIC PERFORMANCES AT 60 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY											
			V <sub>min 0</sub>	600	700	800	900	1100	1300	1500	1700	2000	2200	2400
	kW	HP	m <sup>3</sup> /h 0	36	42	48	54	66	78	90	102	120	132	144
H = TOTAL HEAD METRES COLUMN OF WATER														
SVI 6601/1S6	7,5	10	31,4	28,6	27,7	26,7	25,6	22,9	19,3	14,4	7,8			
SVI 6601S6	11	15	43,8	40,0	39,0	37,9	36,8	34,4	31,6	28,1	23,4			
SVI 6602/2S6	15	20	64,5	60,1	59,1	57,8	56,3	52,1	46,1	37,9	27,0			
SVI 6602S6	18,5	25	85,4	79,5	77,7	75,8	73,7	69,0	63,3	56,3	47,7			
SVI 6603/2S6	22	30	106,6	99,5	97,8	95,7	93,1	86,3	77,1	65,7	52,2			
SVI 6603S6	30	40	127,8	120,3	118,0	115,3	112,3	105,3	96,7	86,3	74,0			
SVI 9201/1S6	11	15	36,4				31,8	30,5	28,8	26,6	23,9	18,3	13,5	7,6
SVI 9201S6	15	20	49,5				41,7	39,0	36,5	34,2	31,9	28,1	24,7	19,9
SVI 9202/2S6	18,5	25	69,9				64,0	61,7	58,7	54,8	49,7	39,6	31,1	21,1
SVI 9202/1S6	22	30	83,6				74,2	70,6	66,8	62,6	57,8	49,0	41,5	32,1
SVI 9202S6	30	40	97,9				84,7	79,9	75,3	70,8	66,4	58,8	52,4	43,8

Performances in compliance with ISO 9906 - Annex A.

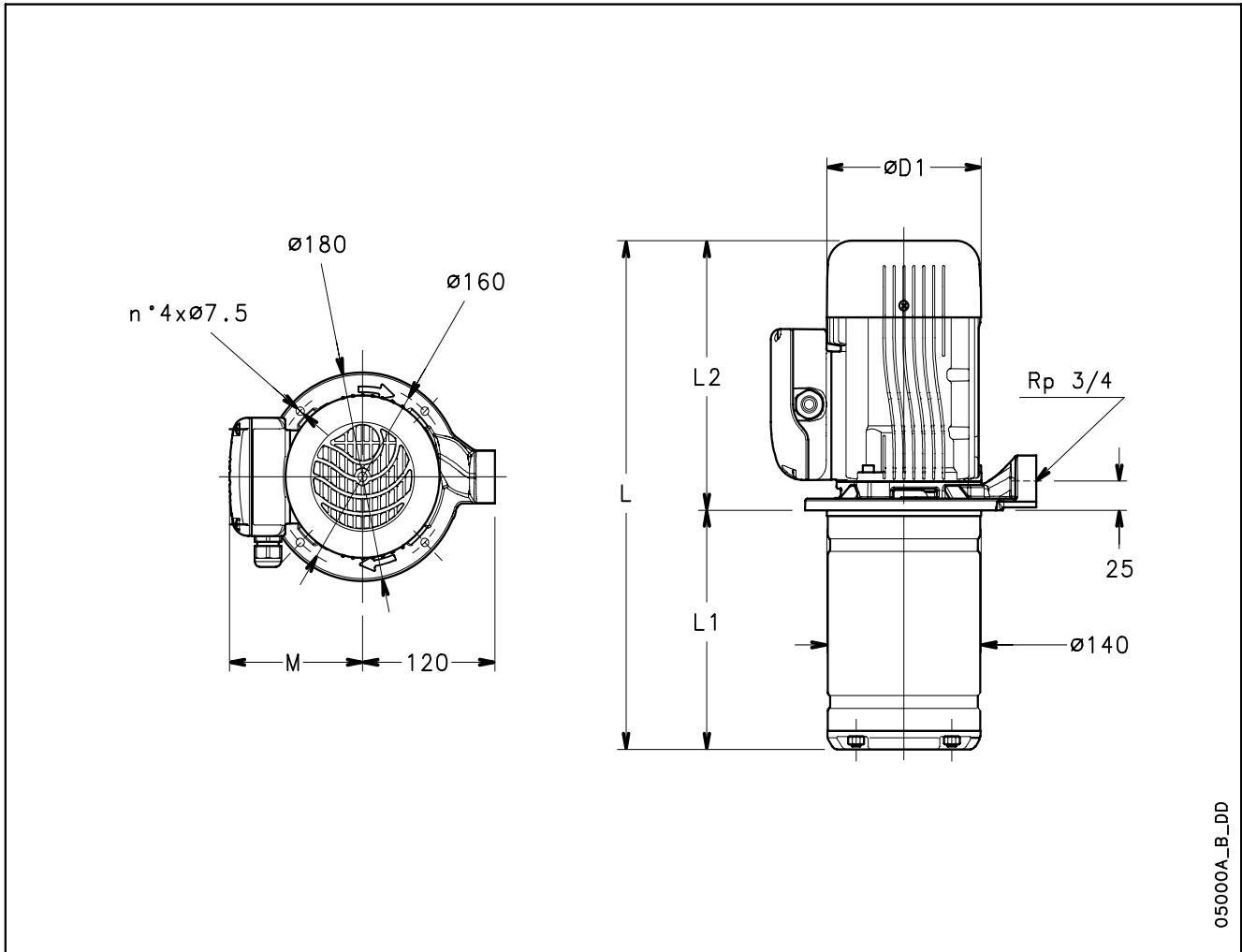
svi66-92-2p50-en\_a\_th



# ITT

# Lowara

## SVI 2 (E, EN) SERIES DIMENSIONS AND WEIGHTS



05000A\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)					ELECTRIC PUMP WEIGHT
	kW	SIZE	L	L1	L2	M	D1	kg
SVI201/03E036T	0,37	63	324	106	218	111	120	8,8
SVI202/03E046T	0,45	63	324	106	218	111	120	8,9
SVI203/03E076T	0,75	71	338	106	232	121	140	13
SVI204/04E096T	0,9	71	363	131	232	121	140	13,5

svi2e-2p60-en\_a\_td

N. OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2 mm	NUMBER OF STAGES							
		kW	SIZE		3	4	5	6	7	8	10	13
					L1 Shank lengths in mm ( AVAILABLE ON REQUEST )							
	SVI201/..	0,37	63	218	106	131	156	181	206	231	281	356
	SVI202/..	0,45	63	218	106	131	156	181	206	231	281	356
	SVI203/..	0,75	71	232	106	131	156	181	206	231	281	356
	SVI204/..	0,9	71	232		131	156	181	206	231	281	356

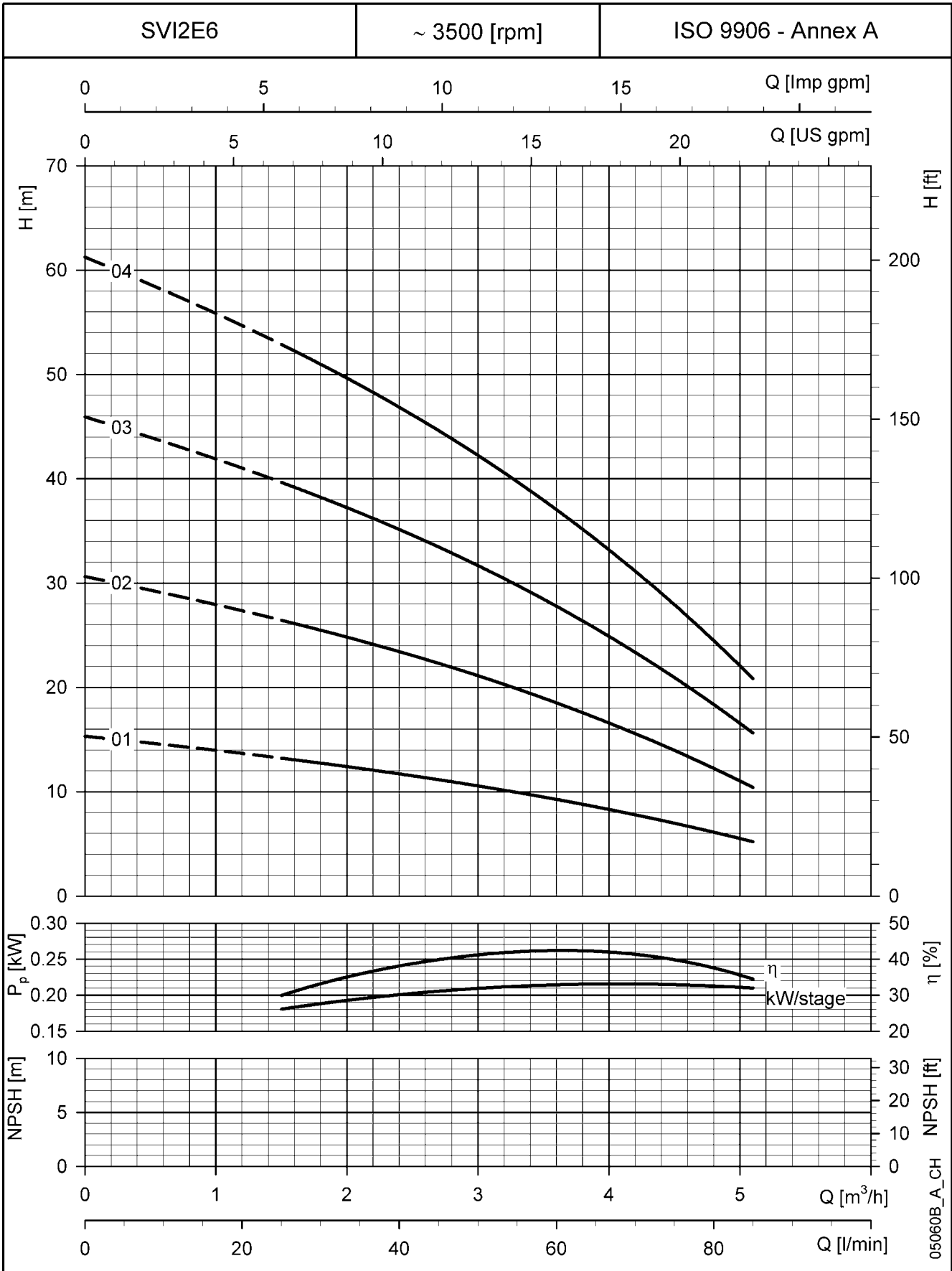
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# ITT

# Lowara

## SVI 2 (E, EN) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



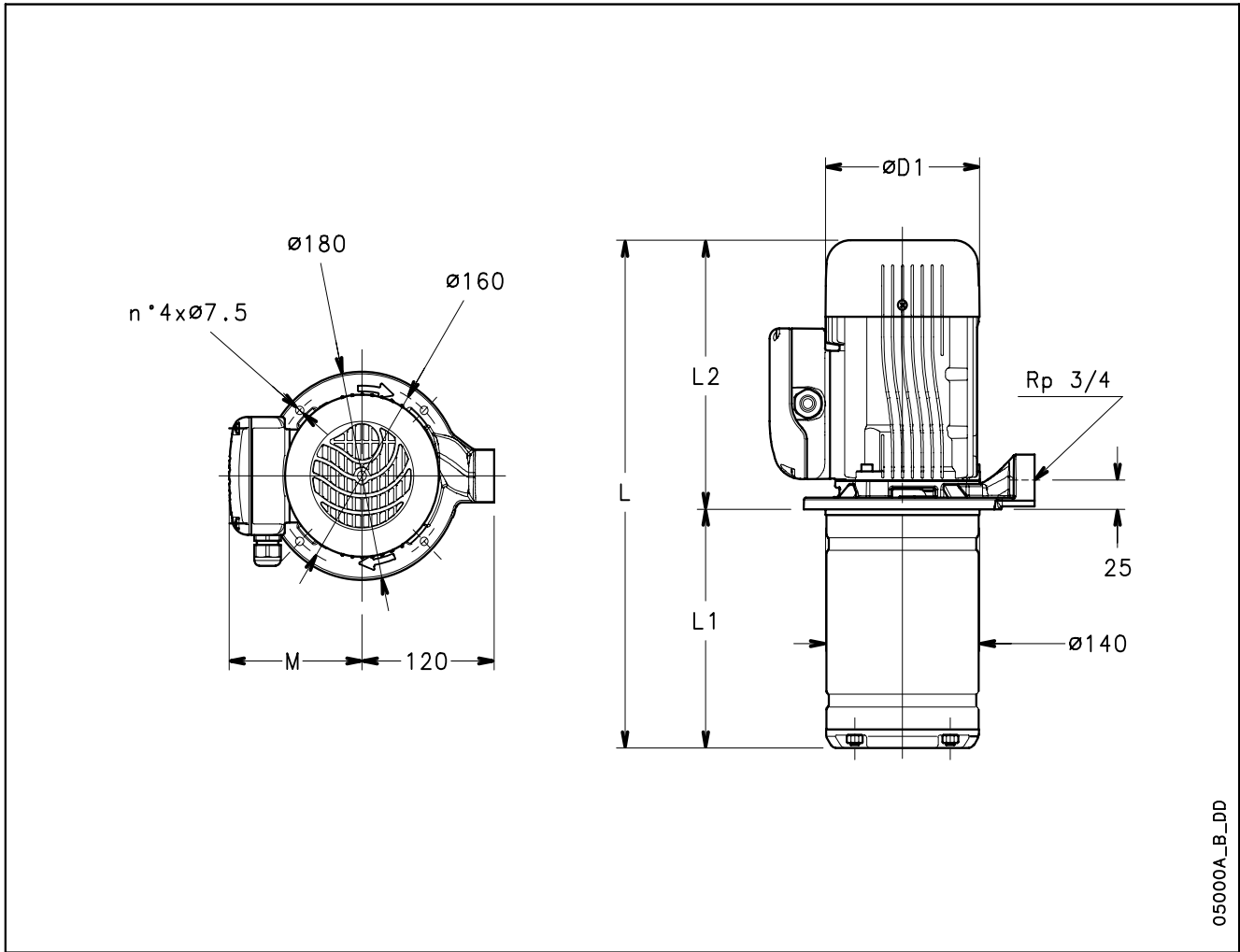
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 4 (E, EN) SERIES DIMENSIONS AND WEIGHTS



05000A\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)					ELECTRIC PUMP WEIGHT
	kW	SIZE	L	L1	L2	M	D1	kg
SVI401/03E036T	0,37	63	324	106	218	111	120	8,8
SVI402/03E056T	0,55	63	324	106	218	111	120	8,9
SVI403/03E096T	0,9	71	338	106	232	121	140	13

svi4e-2p60-en\_a\_td

N. OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2 mm	NUMBER OF STAGES							
		kW	SIZE		3	4	5	6	7	8	10	13
					L1 Shank lengths in mm ( AVAILABLE ON REQUEST )							
	SVI401/..	0,37	63	218	106	131	156	181	206	231	281	356
	SVI402/..	0,55	63	218	106	131	156	181	206	231	281	356
	SVI403/..	0,9	71	232	106	131	156	181	206	231	281	356

svi4e-2p60-en\_a\_tcm

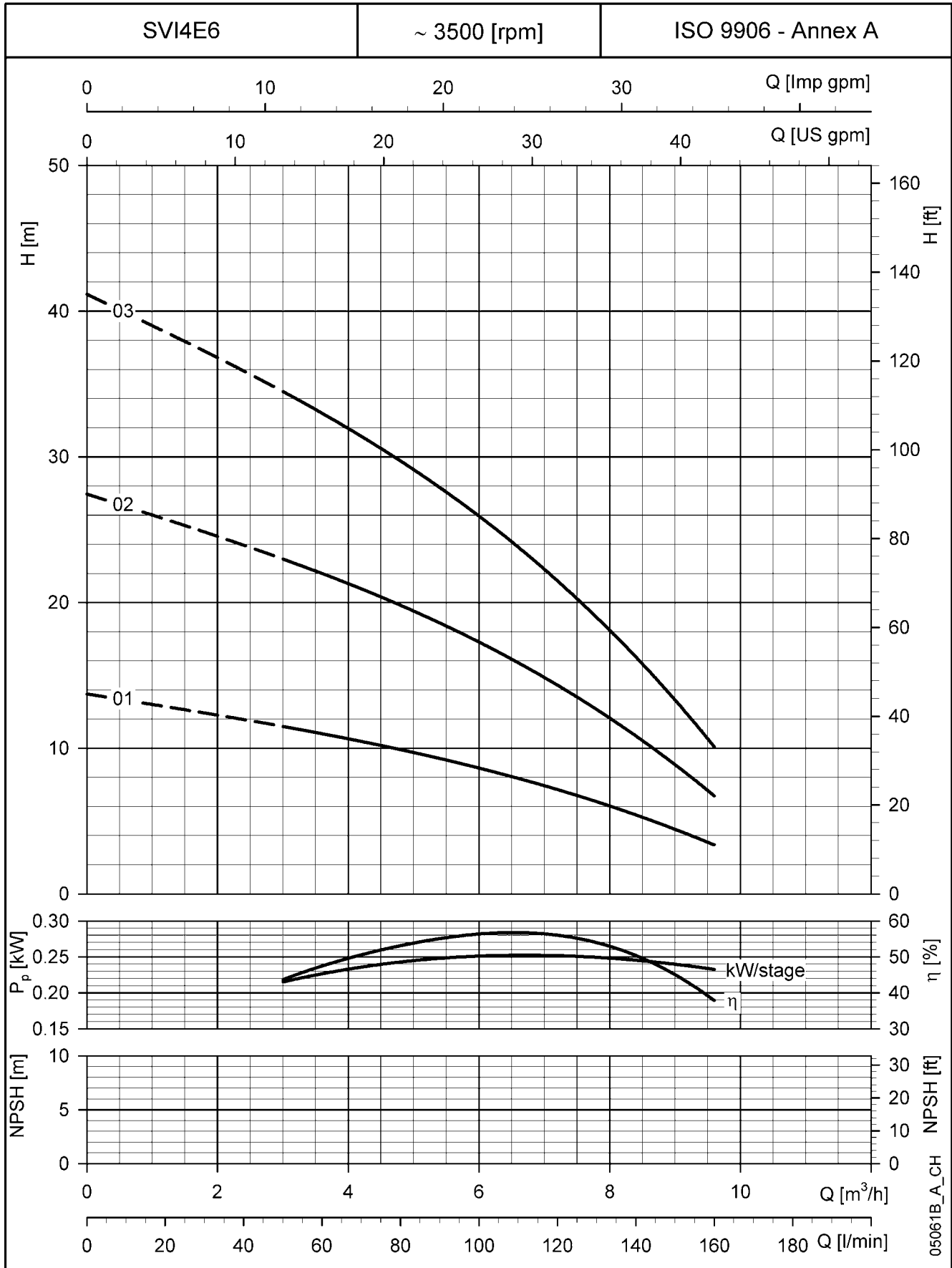


# ITT

# Lowara

## SVI 4 (E, EN) SERIES

### OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



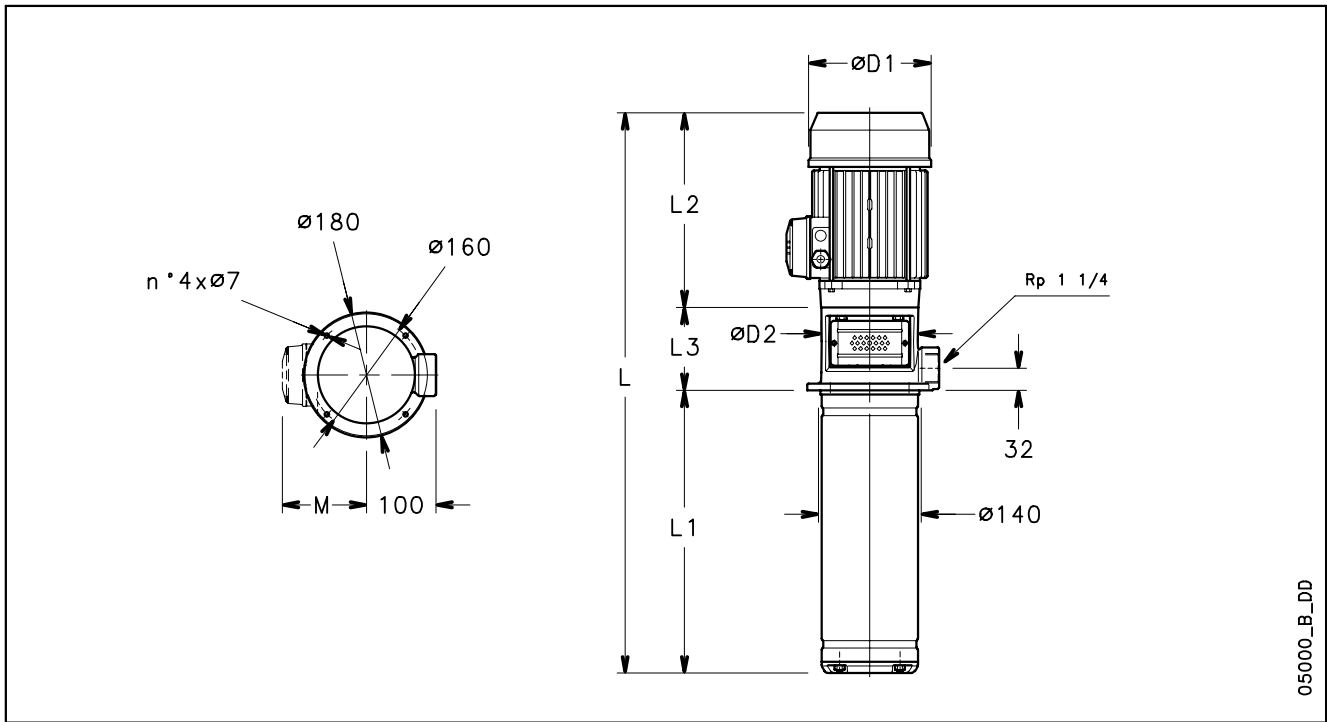
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 2 (S, N) SERIES DIMENSIONS AND WEIGHTS



05000\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI202/02S056T	0,55	71	438	107	231	100	111	120	105	14	
SVI203/03S076T	0,75	80	468	132	226	110	121	140	120	17	
SVI204/04S116T	1,1	80	530	157	263	110	121	140	120	18	
SVI205/05S116T	1,1	80	555	182	263	110	121	140	120	19	
SVI206/06S156T	1,5	90	590	207	263	120	129	155	140	23	
SVI207/07S156T	1,5	90	614	231	263	120	129	155	140	24	
SVI209/09S226T	2,2	90	664	281	263	120	129	155	140	26	
SVI211/11S306T	3	100	759	331	298	130	134	174	160	32	
SVI213/13S306T	3	100	809	381	298	130	134	174	160	33	
SVI215/15S406T	4	112	880	431	319	130	154	197	160	45	
SVI216/16S406T	4	112	905	456	319	130	154	197	160	46	

svi2s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES																
		kW	SIZE		L1 Shank lengths in mm ( AVAILABLE ON REQUEST )																
					2	3	4	5	6	7	8	9	11	12	13	14	15	16	18	20	22
SVI202/..	0,55	71	331	107	132	157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI203/..	0,75	80	336		132	157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI204/..	1,1	80	373			157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI205/..	1,1	80	373				182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI206/..	1,5	90	383					207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI207/..	1,5	90	383						231	256	281	331	356	381	406	431	456	506	556	606	656
SVI209/..	2,2	90	383								281	331	356	381	406	431	456	506	556	606	656
SVI211/..	3	100	428									331	356	381	406	431	456	506	556	606	656
SVI213/..	3	100	428										381	406	431	456	506	556	606	656	656
SVI215/..	4	112	449												431	456	506	556	606	656	656
SVI216/..	4	112	449													456	506	556	606	656	656

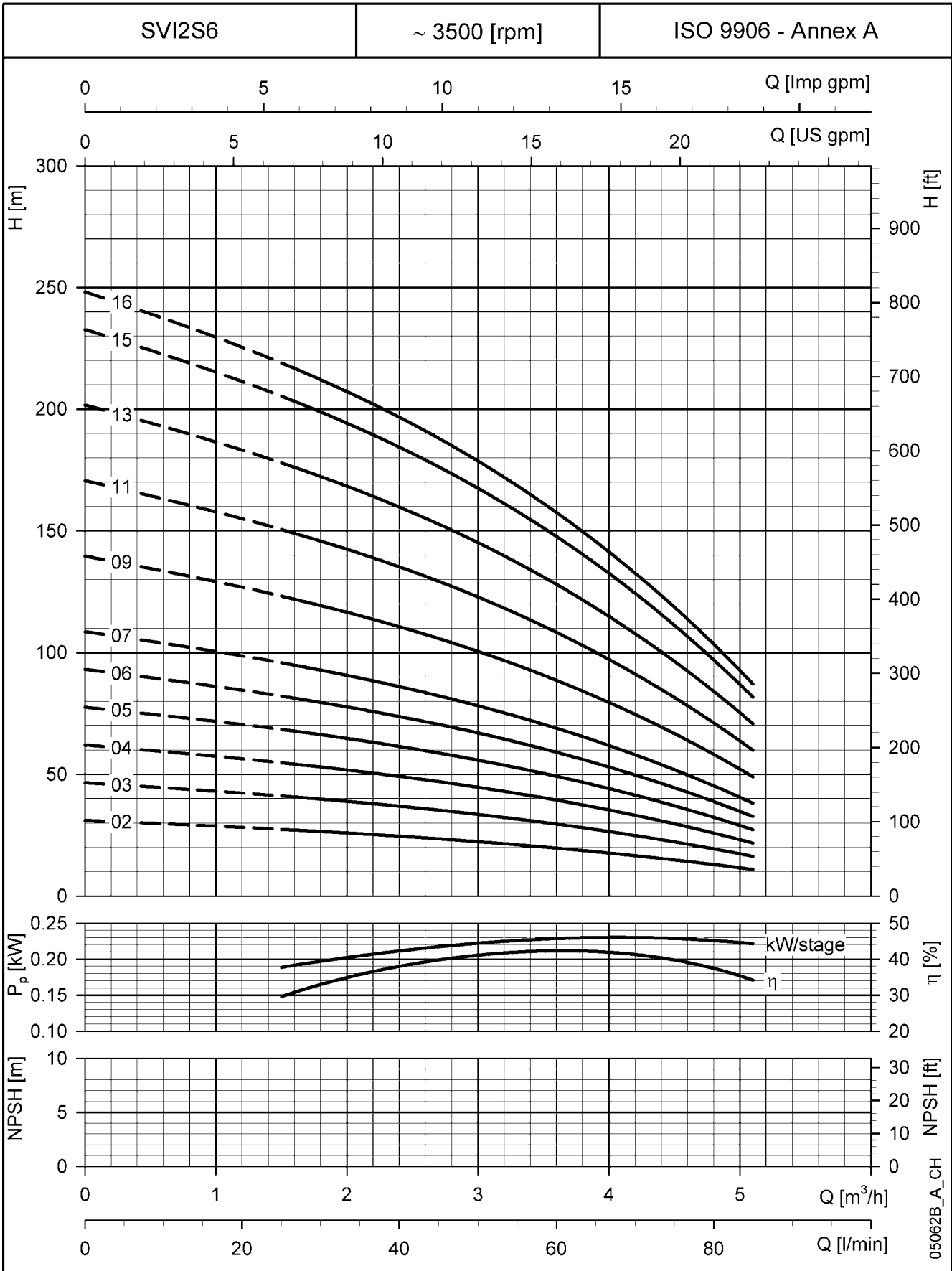
svi2s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 2 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



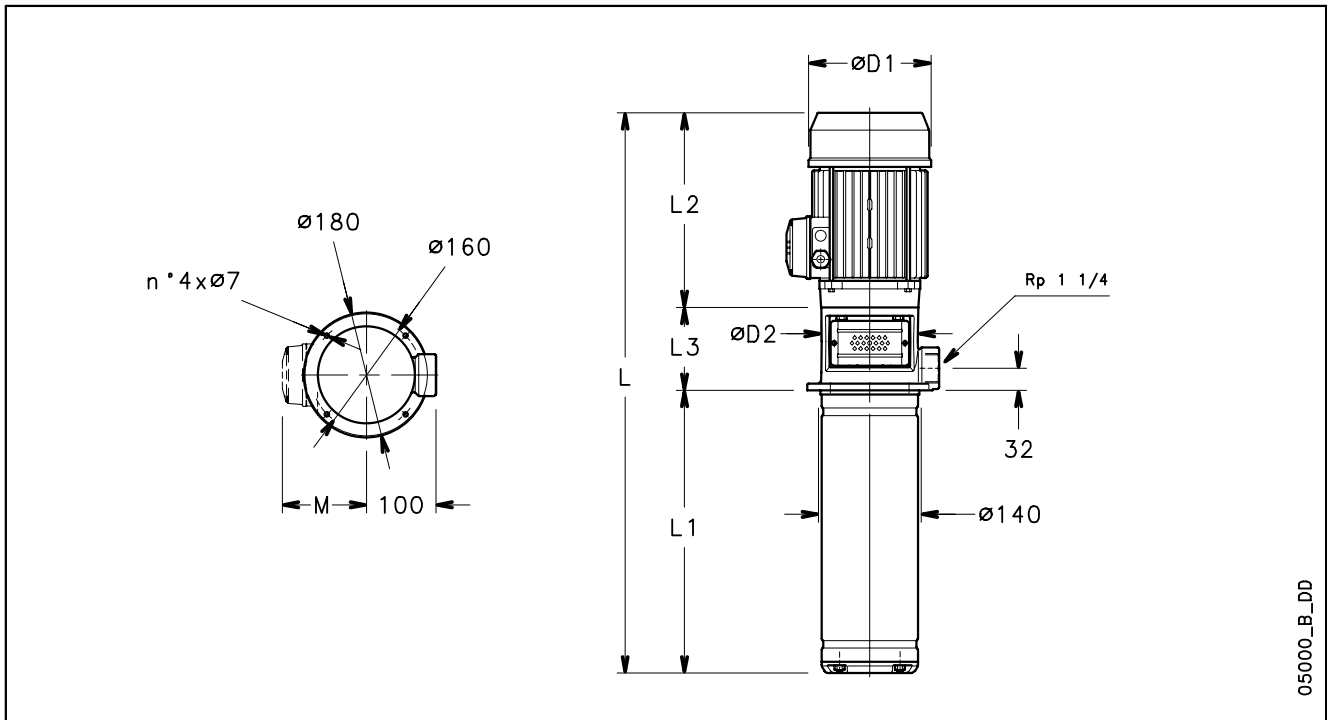
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 4 (S, N) SERIES DIMENSIONS AND WEIGHTS



05000\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI402/02S056T	0,55	71	438	107	231	100	121	140	105	14	
SVI403/03S116T	1,1	80	505	132	263	110	129	155	120	17	
SVI404/04S116T	1,1	80	530	157	263	110	129	155	120	18	
SVI405/05S156T	1,5	90	565	182	263	120	129	155	140	23	
SVI406/06S226T	2,2	90	590	207	263	120	129	155	140	24	
SVI407/07S226T	2,2	90	614	231	263	120	129	155	140	25	
SVI408/08S226T	2,2	90	639	256	263	120	129	155	140	26	
SVI409/09S306T	3	100	709	281	298	130	134	174	160	31	
SVI411/11S306T	3	100	759	331	298	130	134	174	160	32	
SVI413/13S406T	4	112	830	381	319	130	154	197	160	44	
SVI415/15S406T	4	112	880	431	319	130	154	197	160	45	

svi4s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES																
		kW	SIZE		L1 Shank lengths in mm ( AVAILABLE ON REQUEST )																
					2	3	4	5	6	7	8	9	11	12	13	14	15	16	18	20	22
SVI402/..	0,55	71	331	107	132	157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI403/..	1,1	80	373		132	157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI404/..	1,1	80	373			157	182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI405/..	1,5	90	383				182	207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI406/..	2,2	90	383					207	231	256	281	331	356	381	406	431	456	506	556	606	656
SVI407/..	2,2	90	383						231	256	281	331	356	381	406	431	456	506	556	606	656
SVI408/..	2,2	90	383							256	281	331	356	381	406	431	456	506	556	606	656
SVI409/..	3	100	428								281	331	356	381	406	431	456	506	556	606	656
SVI411/..	3	100	428									331	356	381	406	431	456	506	556	606	656
SVI413/..	4	112	449										381	406	431	456	506	556	606	656	656
SVI415/..	4	112	449												431	456	506	556	606	656	656

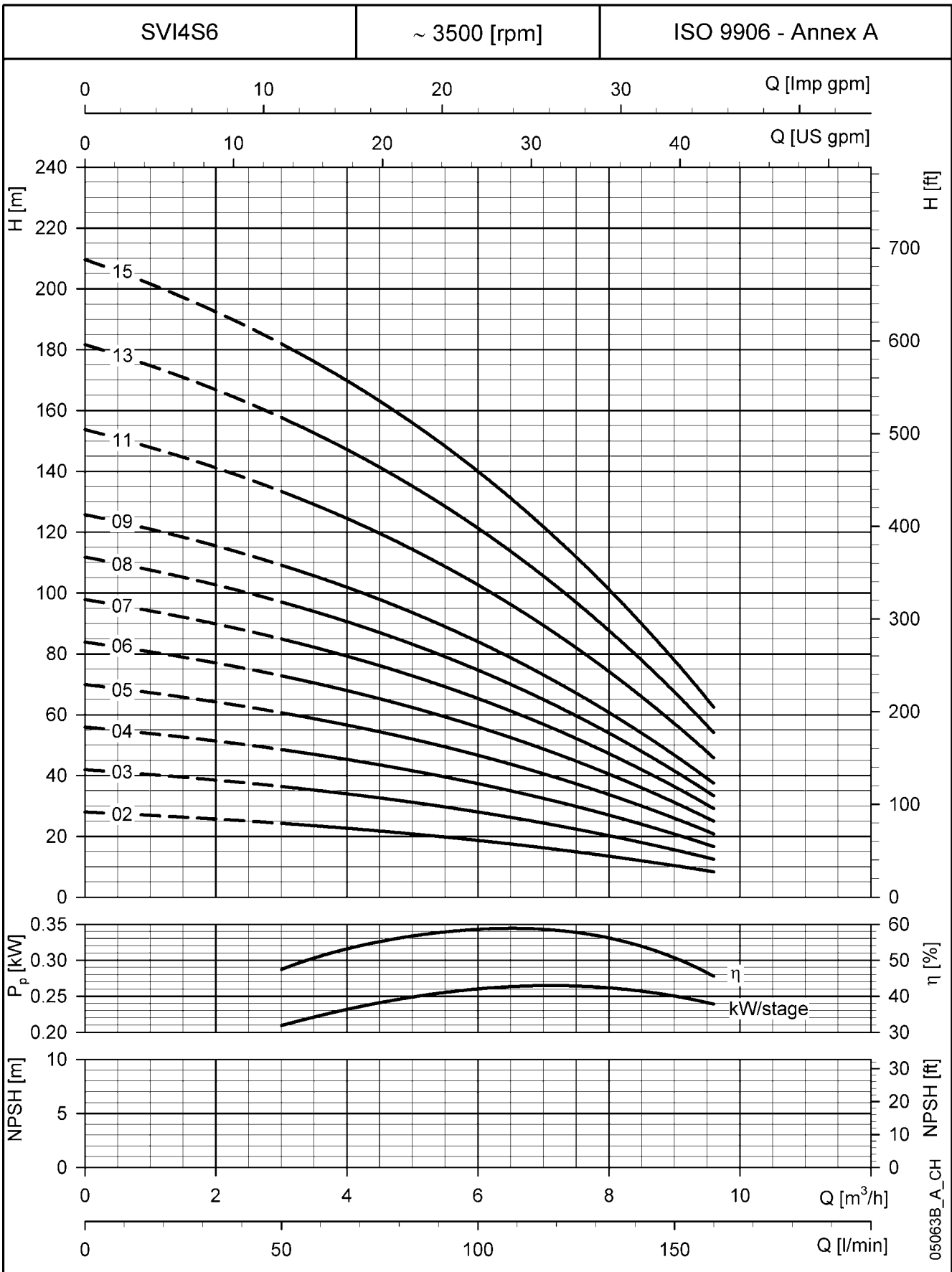
svi4s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 4 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



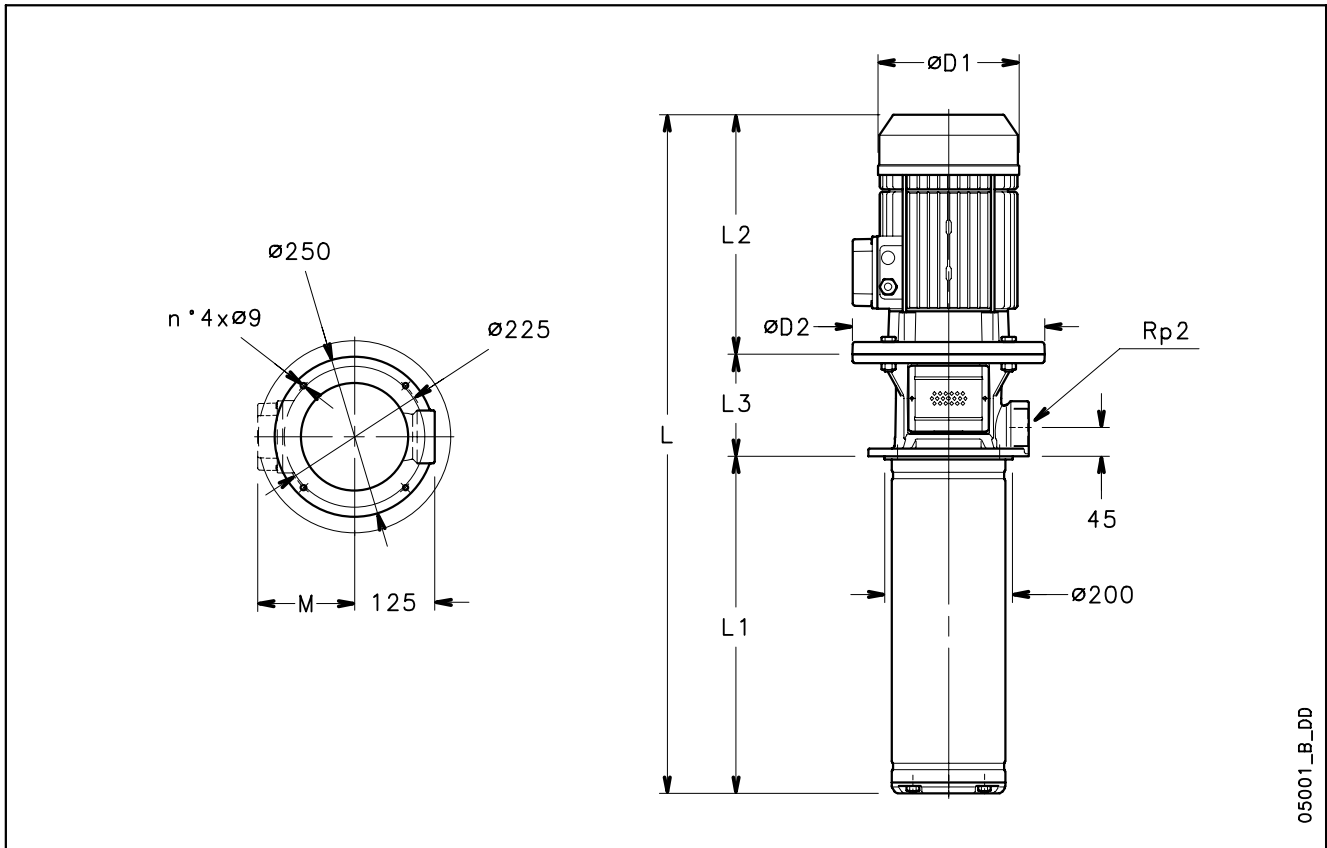
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 8 (S, N) SERIES DIMENSIONS AND WEIGHTS



05001\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI801/02S116T	1,1	80	528	146	263	119	129	155	120	22	
SVI802/02S226T	2,2	90	538	146	263	129	129	155	140	29	
SVI803/03S306T	3	100	621	184	298	139	134	174	160	37	
SVI804/04S406T	4	112	680	222	319	139	154	197	160	55	
SVI805/05S406T	4	112	718	260	319	139	154	197	160	56	
SVI806/06S556T	5,5	132	832	298	375	159	168	214	300	66	
SVI807/07S556T	5,5	132	870	336	375	159	168	214	300	67	
SVI808/08S756T	7,5	132	900	374	367	159	191	256	300	84	
SVI809/09S756T	7,5	132	938	412	367	159	191	256	300	85	
SVI810/10S1106T	11	160	1069	450	428	191	191	256	350	119	
SVI811/11S1106T	11	160	1107	488	428	191	191	256	350	120	
SVI812/12S1106T	11	160	1145	526	428	191	191	256	350	121	

svi8s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES													
		kW	SIZE		2	3	4	5	6	7	8	9	10	11	12	14	15	16
					L1 Shank lengths in mm ( AVAILABLE ON REQUEST )													
	SVI801/..	1,1	80	382	146	184	222	260	298	336	374	412	450	488	526	602	640	678
	SVI802/..	2,2	90	392	146	184	222	260	298	336	374	412	450	488	526	602	640	678
	SVI803/..	3	100	437		184	222	260	298	336	374	412	450	488	526	602	640	678
	SVI804/..	4	112	458			222	260	298	336	374	412	450	488	526	602	640	678
	SVI805/..	4	112	458				260	298	336	374	412	450	488	526	602	640	678
	SVI806/..	5,5	132	534					298	336	374	412	450	488	526	602	640	678
	SVI807/..	5,5	132	534						336	374	412	450	488	526	602	640	678
	SVI808/..	7,5	132	526							374	412	450	488	526	602	640	678
	SVI809/..	7,5	132	526								412	450	488	526	602	640	678
	SVI810/..	11	160	619									450	488	526	602	640	678
	SVI811/..	11	160	619										488	526	602	640	678
	SVI812/..	11	160	619											526	602	640	678

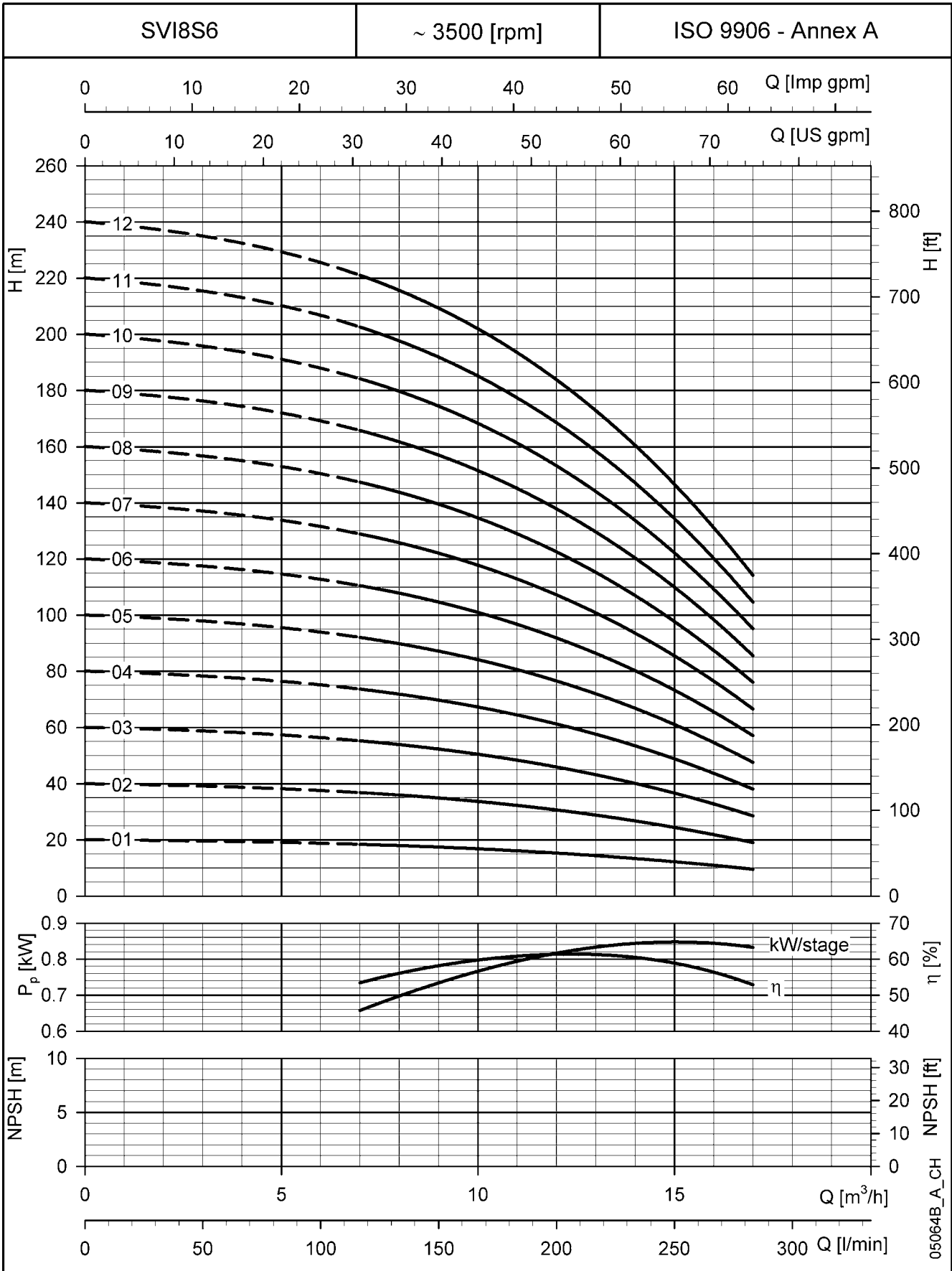
svi8s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 8 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



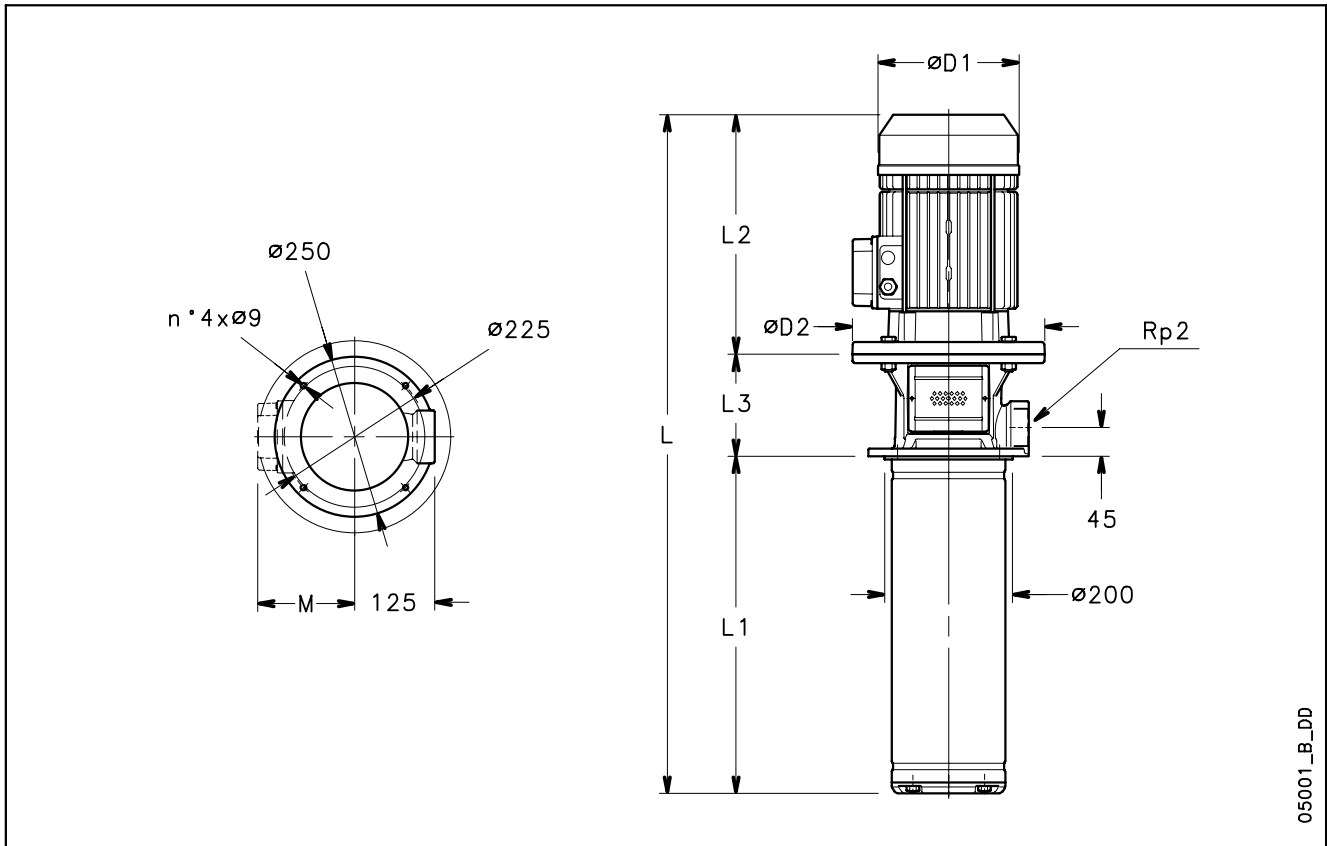
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 16 (S, N) SERIES DIMENSIONS AND WEIGHTS



05001\_B\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI1601/02S226T	2,2	90	538	146	263	129	129	155	140	30	
SVI1602/02S406T	4	112	604	146	319	139	154	197	160	55	
SVI1603/03S556T	5,5	132	718	184	375	159	168	214	300	63	
SVI1604/04S756T	7,5	132	748	222	367	159	191	256	300	80	
SVI1605/05S1106T	11	160	879	260	428	191	191	256	350	116	
SVI1606/06S1106T	11	160	917	298	428	191	191	256	350	117	
SVI1607/07S1106T	11	160	955	336	428	191	191	256	350	118	
SVI1608/08S1506T	15	160	1059	374	494	191	240	313	350	125	
SVI16090/09S1506T	15	160	1097	412	494	191	240	313	350	126	

svi16s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES															
		kW	SIZE		2	3	4	5	6	7	8	9	10	11	12	14	15	16		
					L1 Shank lengths in mm ( AVAILABLE ON REQUEST )															
	SVI1601/..	2,2	90	392	146	184	222	260	298	336	374	412	450	488	526	602	640	678		
	SVI1602/..	4	112	458	146	184	222	260	298	336	374	412	450	488	526	602	640	678		
	SVI1603/..	5,5	132	534		184	222	260	298	336	374	412	450	488	526	602	640	678		
	SVI1604/..	7,5	132	526			222	260	298	336	374	412	450	488	526	602	640	678		
	SVI1605/..	11	160	619				260	298	336	374	412	450	488	526	602	640	678		
	SVI1606/..	11	160	619					298	336	374	412	450	488	526	602	640	678		
	SVI1607/..	11	160	619						336	374	412	450	488	526	602	640	678		
	SVI1608/..	15	160	685							374	412	450	488	526	602	640	678		
	SVI1609/..	15	160	685								412	450	488	526	602	640	678		

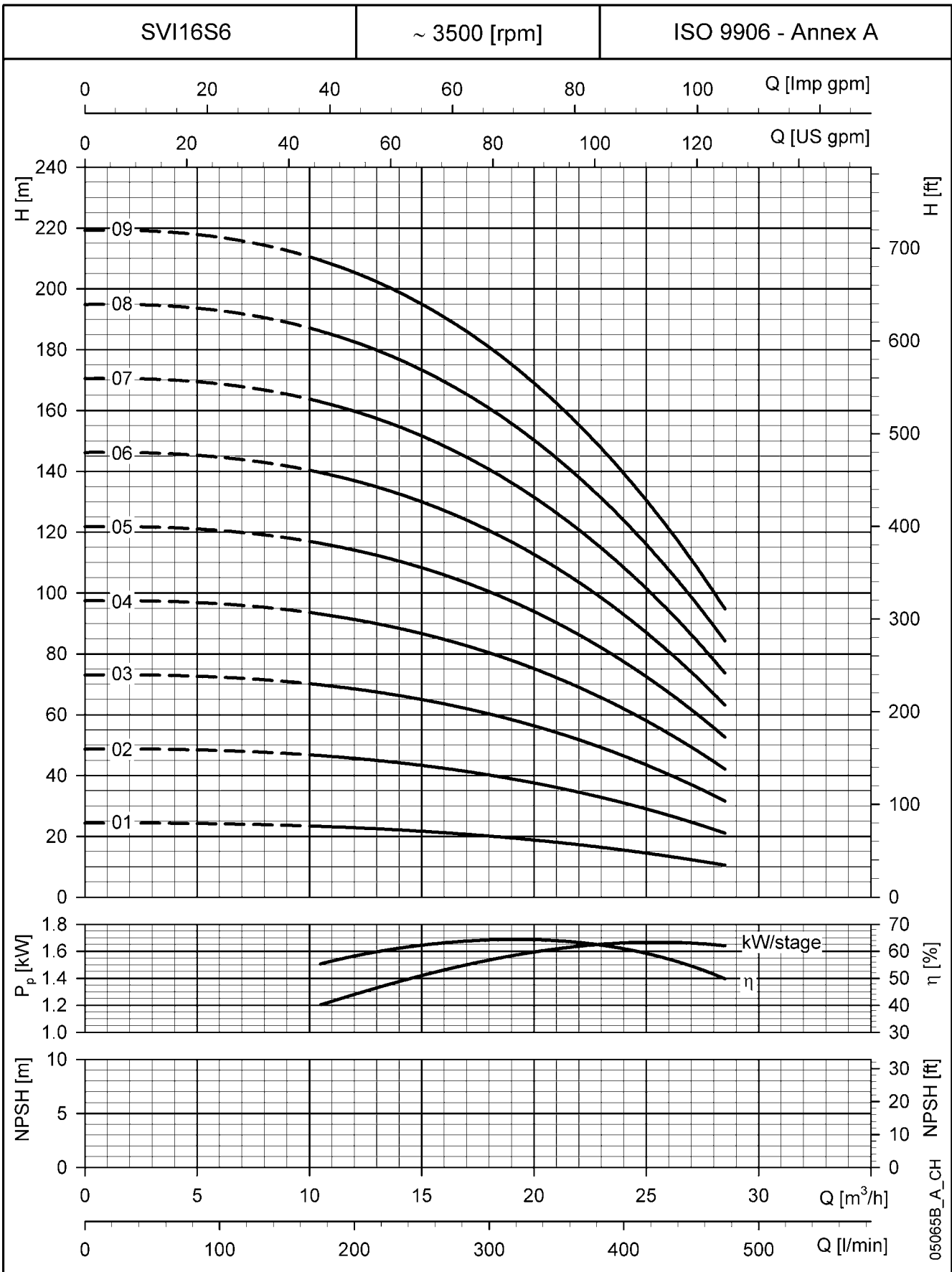
svi16s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 16 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



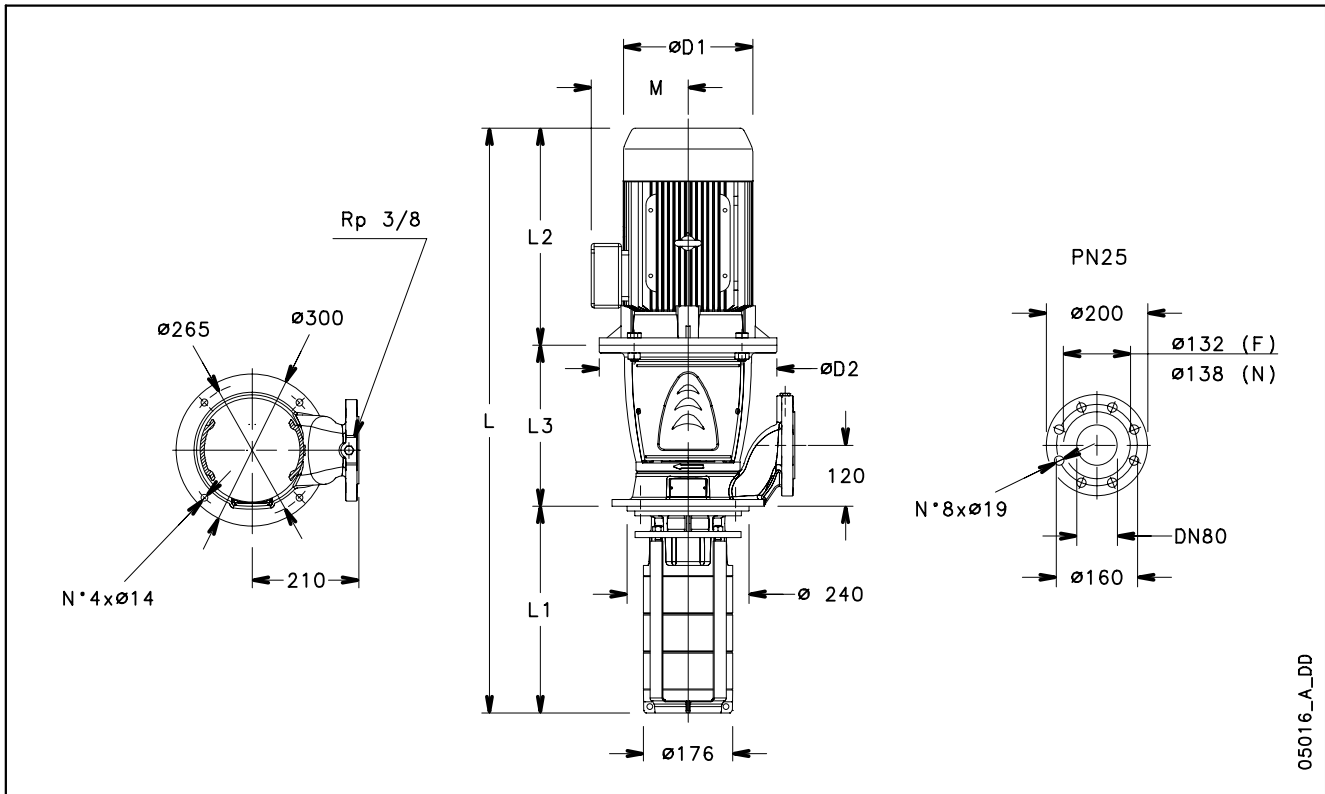
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 33 (S, N) SERIES DIMENSIONS AND WEIGHTS



05016\_A\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI3301/1-01S306	3	100	817	257	298	262	134	174	160	64	
SVI3301-01S556	5,5	132	914	257	375	282	168	214	300	82	
SVI3302/2-02S556	5,5	132	989	332	375	282	168	214	300	85	
SVI3302/1-02S756	7,5	132	981	332	367	282	191	256	300	104	
SVI3303/2-03S1106	11	160	1152	407	428	317	191	256	350	125	
SVI3303-03S1506	15	160	1218	407	494	317	240	313	350	157	
SVI3304-04S1856	18,5	160	1293	482	494	317	240	313	350	168	
SVI3305/1-05S2206	22	180	1368	557	494	317	240	313	350	182	
SVI3306/2-06S2206	22	180	1443	632	494	317	240	313	350	185	
SVI3307/2-07S3006	30	200	1637	707	613	317	278	354	400	206	

svi33s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES											
		kW	SIZE		1	2	3	4	5	6	7	8	9	10	11	12
					L1 Shank lengths in mm ( AVAILABLE ON REQUEST )											
	SVI3301/1-..	3	100	560	257	332	407	482	557	632	707	782	857	932	1007	1082
	SVI3301-..	5,5	132	657	257	332	407	482	557	632	707	782	857	932	1007	1082
	SVI3302/2-..	5,5	132	657		332	407	482	557	632	707	782	857	932	1007	1082
	SVI3302/1-..	7,5	132	649		332	407	482	557	632	707	782	857	932	1007	1082
	SVI3303/2-..	11	160	745			407	482	557	632	707	782	857	932	1007	1082
	SVI3303-..	15	160	811			407	482	557	632	707	782	857	932	1007	1082
	SVI3304-..	18,5	160	811				482	557	632	707	782	857	932	1007	1082
	SVI3305/1-..	22	180	811					557	632	707	782	857	932	1007	1082
	SVI3306/2-..	22	180	811						632	707	782	857	932	1007	1082
	SVI3307/2-..	30	200	930							707	782	857	932	1007	1082

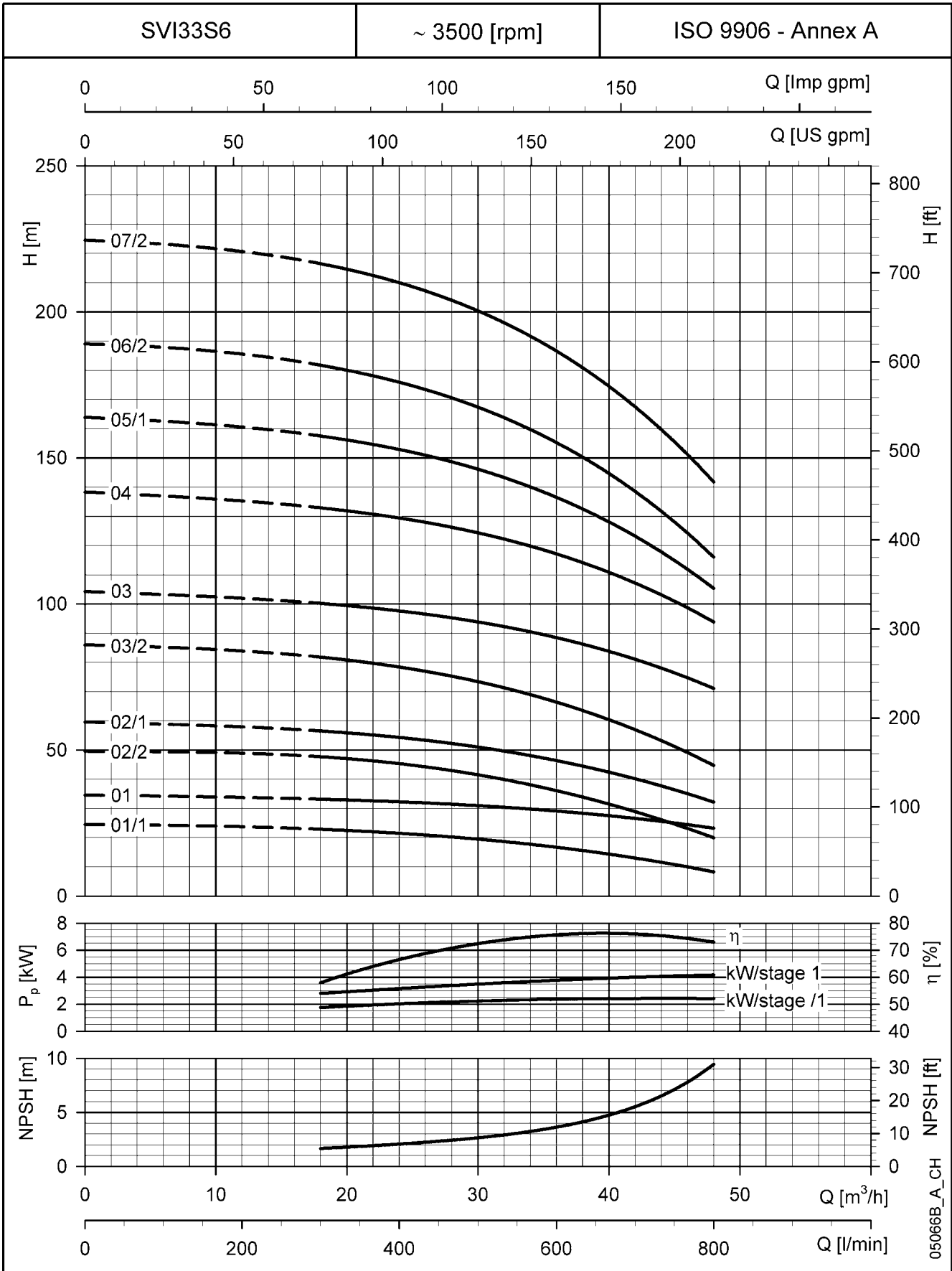
svi33s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 33 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



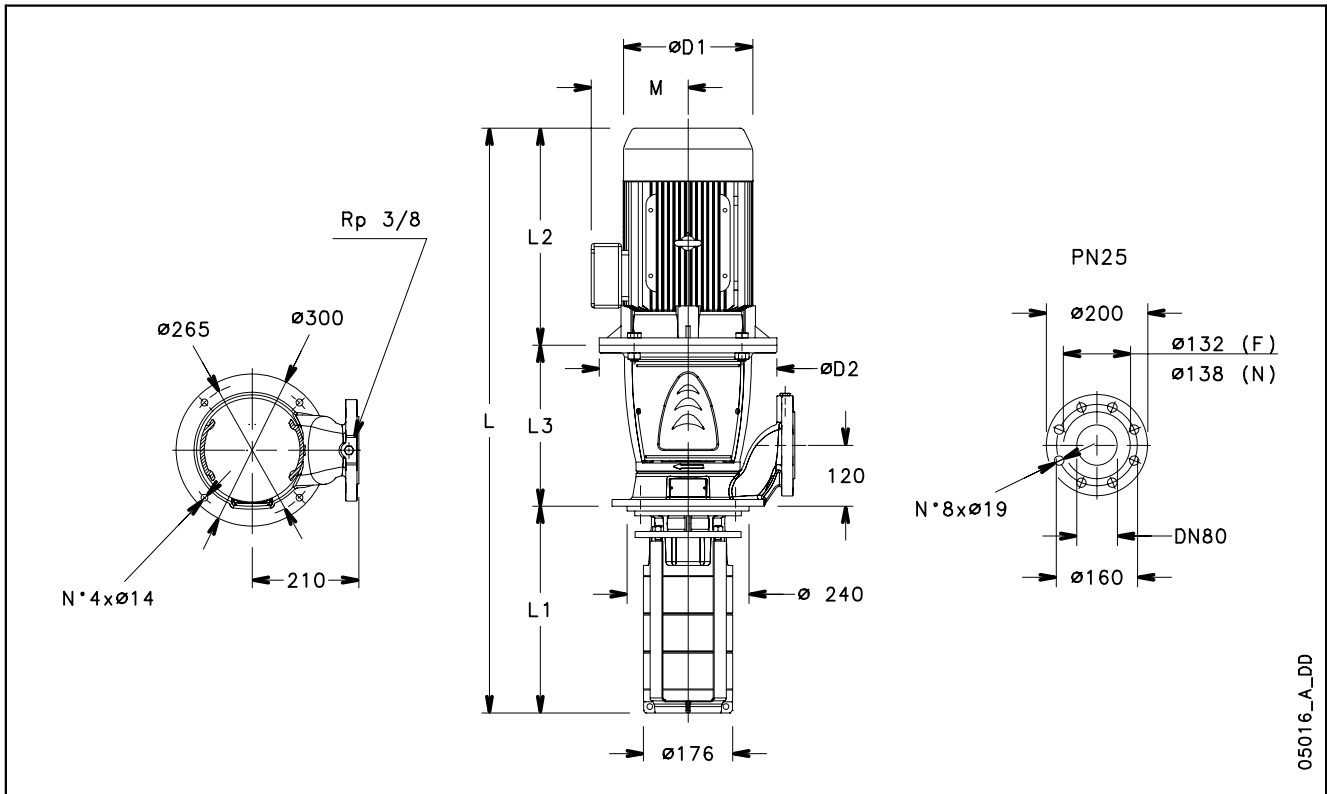
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 46 (S, N) SERIES DIMENSIONS AND WEIGHTS



PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT kg
	kW	SIZE	L	L1	L2	L3	M	D1	D2	
SVI4601/1-01S556	5,5	132	914	257	375	282	168	214	300	82
SVI4601-01S756	7,5	132	906	257	367	282	191	256	300	101
SVI4602/1-02S1106	11	160	1077	332	428	317	191	256	350	122
SVI4602-02S1506	15	160	1143	332	494	317	240	313	350	154
SVI4603-03S1856	18,5	160	1218	407	494	317	240	313	350	165
SVI4604/2-04S2206	22	180	1293	482	494	317	240	313	350	179
SVI4605/1-05S3006	30	200	1487	557	613	317	278	354	400	199

svi46s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES											
		kW	SIZE		1	2	3	4	5	6	7	8	9	10	11	12
		L1 Shank lengths in mm ( AVAILABLE ON REQUEST )														
	SVI4601/1-..	5,5	132	657	257	332	407	482	557	632	707	782	857	932	1007	1082
	SVI4601-..	7,5	132	649	257	332	407	482	557	632	707	782	857	932	1007	1082
	SVI4602/1-..	11	160	745		332	407	482	557	632	707	782	857	932	1007	1082
	SVI4602-..	15	160	811		332	407	482	557	632	707	782	857	932	1007	1082
	SVI4603-..	18,5	160	811			407	482	557	632	707	782	857	932	1007	1082
	SVI4604/2-..	22	180	811				482	557	632	707	782	857	932	1007	1082
	SVI4605/1-..	30	200	930					557	632	707	782	857	932	1007	1082

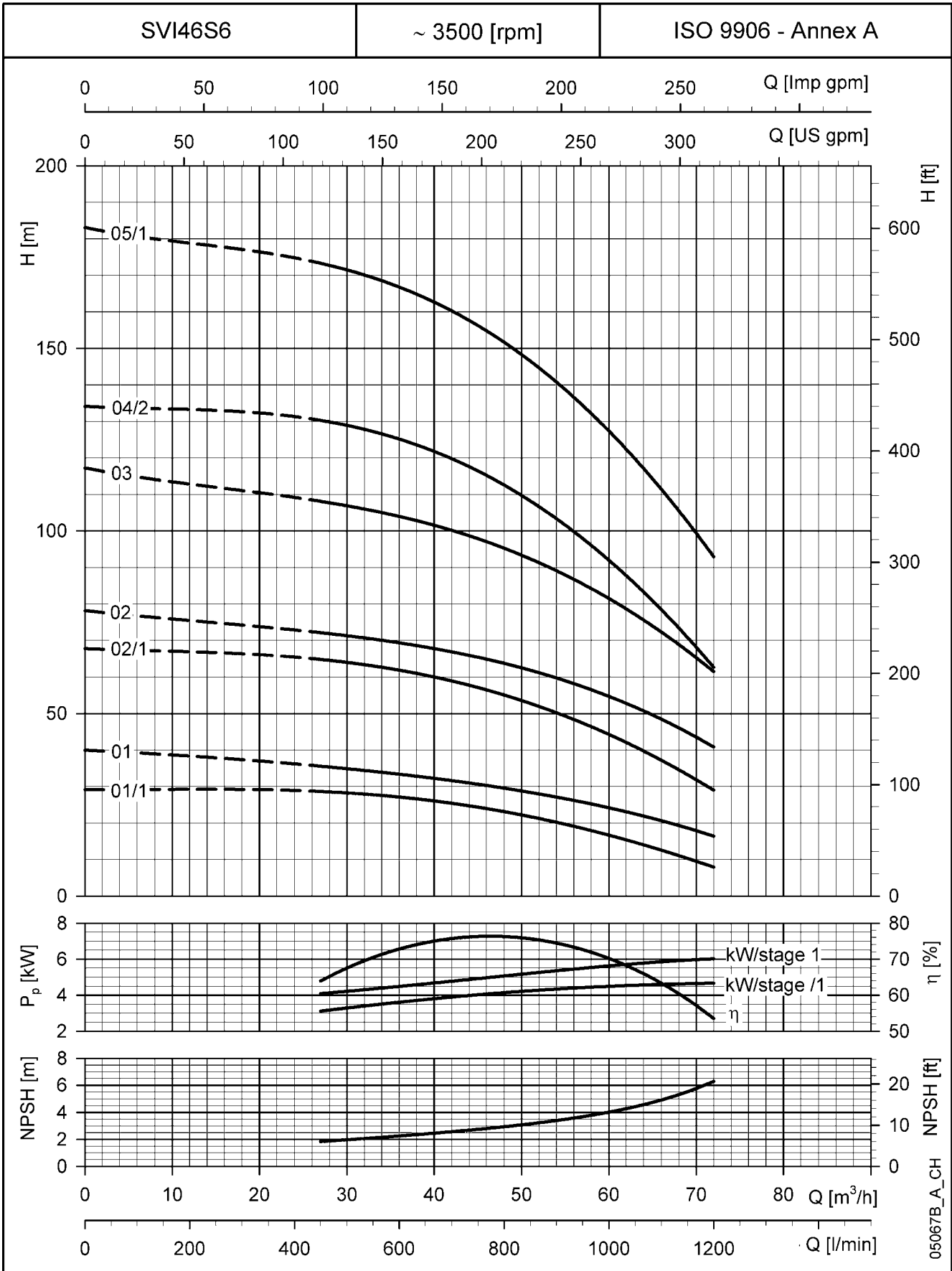
svi46s-2p60-en\_a\_tcm



# ITT

# Lowara

## SVI 46 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



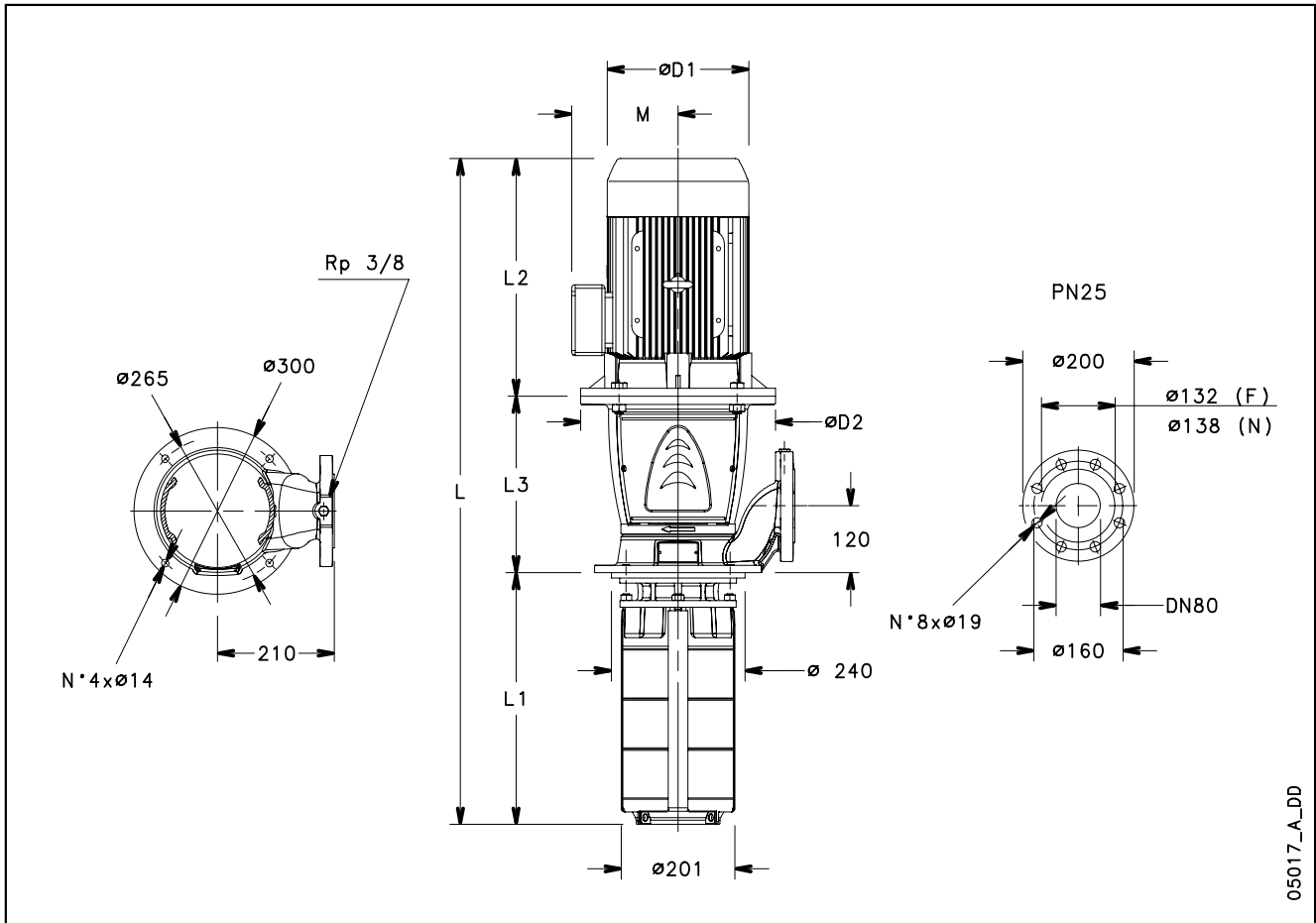
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



# ITT

# Lowara

## SVI 66 (S, N) SERIES DIMENSIONS AND WEIGHTS



05017\_A\_DD

PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI6601/1-01S756	7,5	132	921	272	367	282	191	256	300	103	
SVI6601-01S1106	11	160	1017	272	428	317	191	256	350	121	
SVI6602/2-02S1506	15	160	1173	362	494	317	240	313	350	156	
SVI6602-02S1856	18,5	160	1173	362	494	317	240	313	350	165	
SVI6603/2-03S2206	22	180	1263	452	494	317	240	313	350	180	
SVI6603-03S3006	30	200	1382	452	613	317	278	354	400	197	

svi66s-2p60-en\_a\_td

NUMBER OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES									
		kW	SIZE		1	2	3	4	5	6	7	8	9	10
					L1 Shank lengths in mm (AVAILABLE ON REQUEST)									
	SVI6601/1-..	7,5	132	649	272	362	452	542	632	722	812	902	992	1082
	SVI6601-..	11	160	745	272	362	452	542	632	722	812	902	992	1082
	SVI6602/2-..	15	160	811		362	452	542	632	722	812	902	992	1082
	SVI6602-..	18,5	160	811		362	452	542	632	722	812	902	992	1082
	SVI6603/2-..	22	180	811			452	542	632	722	812	902	992	1082
	SVI6603-..	30	200	930			452	542	632	722	812	902	992	1082

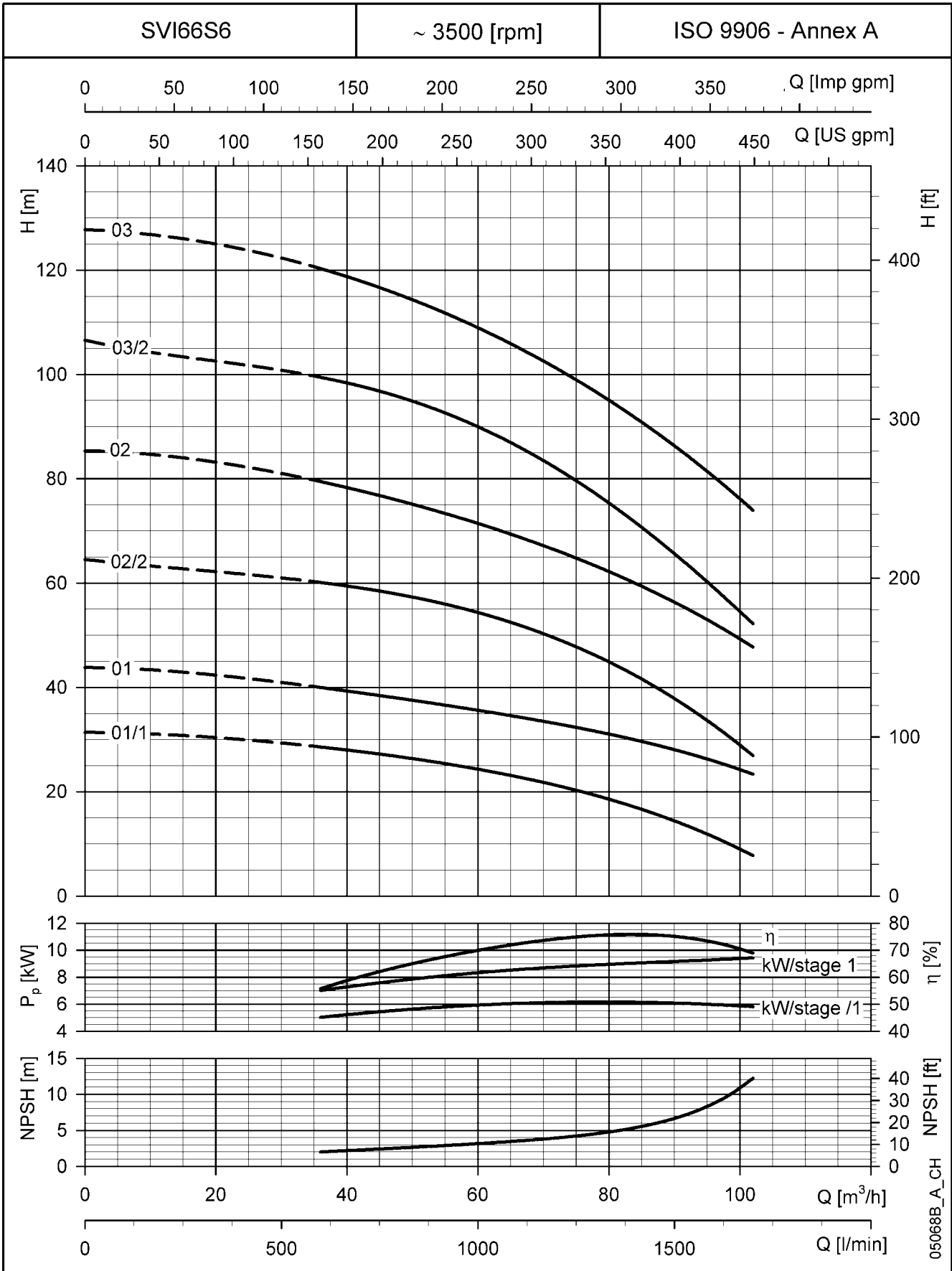
svi66s-2p60-en\_a\_tcm



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## SVI 66 (S, N) SERIES OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES



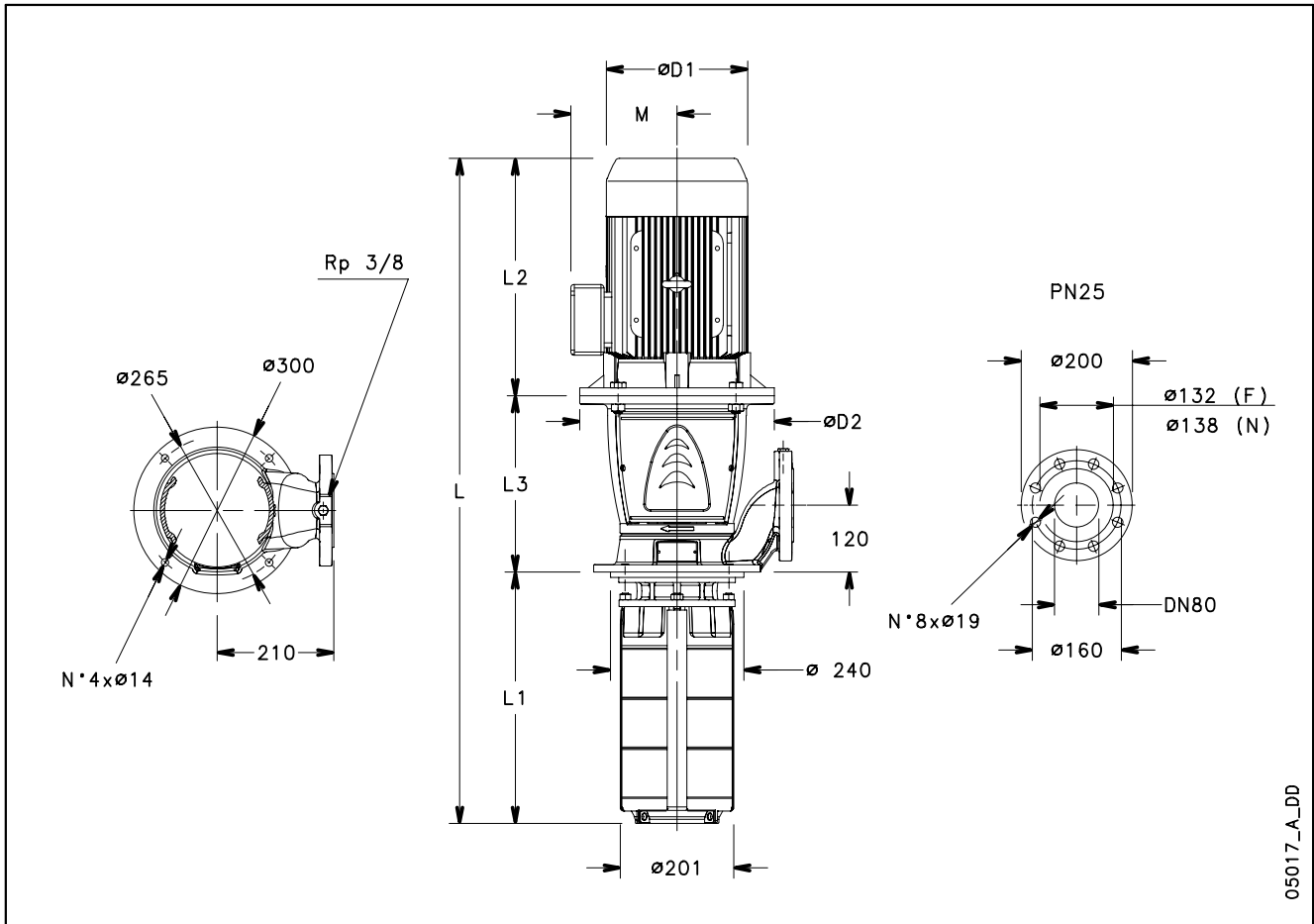
These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .



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## SVI 92 (S, N) SERIES DIMENSIONS AND WEIGHTS



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PUMP TYPE	MOTOR		DIMENSIONS (mm)							ELECTRIC PUMP WEIGHT	
	kW	SIZE	L	L1	L2	L3	M	D1	D2	kg	
SVI9201/1-01S1106	11	160	1017	272	428	317	191	256	350	121	
SVI9201-01S1506	15	160	1083	272	494	317	240	313	350	153	
SVI9202/2-02S1856	18,5	160	1173	362	494	317	240	313	350	165	
SVI9202/1-02S2206	22	180	1173	362	494	317	240	313	350	176	
SVI9202-02S3006	30	200	1292	362	613	317	278	354	400	194	

svi92s-2p60-en\_a\_td

N. OF IMPELLERS	PUMP TYPE	MOTOR		DIMENS. L2+L3 mm	NUMBER OF STAGES									
		kW	SIZE		1	2	3	4	5	6	7	8	9	10
		L1 Shank lengths in mm ( AVAILABLE ON REQUEST )												
	SVI9201/1-..	11	132	745	272	362	452	542	632	722	812	902	992	1082
	SVI9201-..	15	132	811	272	362	452	542	632	722	812	902	992	1082
	SVI9202/2-..	18,5	160	811		362	452	542	632	722	812	902	992	1082
	SVI9202/1-..	22	160	811		362	452	542	632	722	812	902	992	1082
	SVI9202-..	30	160	930		362	452	542	632	722	812	902	992	1082

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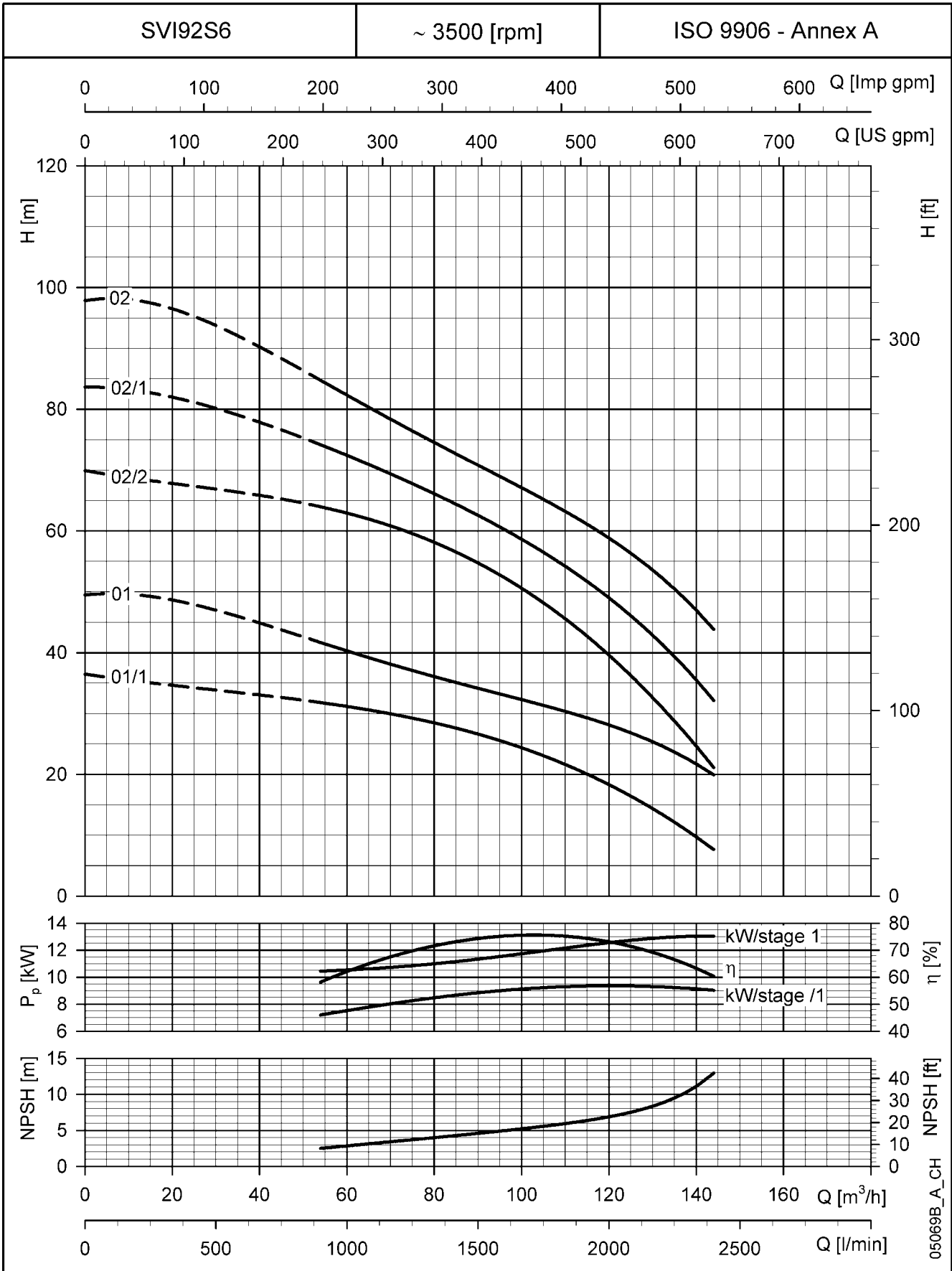


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## SVI 92 (S, N) SERIES

### OPERATING CHARACTERISTICS AT 60 Hz, 2 POLES

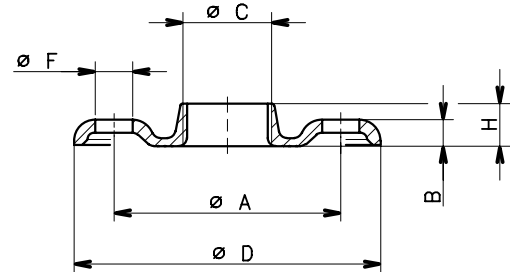


These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{sec}$ .

### SVI 33, 46, 66, 92 SERIES (S, N VERSIONS) DIMENSIONS OF ROUND THREADED COUNTERFLANGES

PUMP TYPE	DN	ø C	DIMENSIONS (mm)				HOLES		PN
			ø A	B	ø D	H	ø F	N°	
SVI33	80	Rp 3	160	17	200	27	18	8	16
SVI46									
SVI66									
SVI92									

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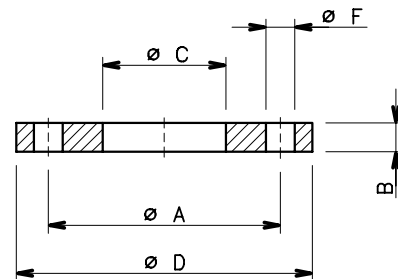


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### SVI 33, 46, 66, 92 SERIES (S, N VERSIONS) DIMENSIONS PF ROUND WELD-ON COUNTERFLANGES

PUMP TYPE	DN	ø C	DIMENSIONS (mm)			HOLES		PN
			ø A	B	ø D	ø F	N°	
SVI33	80	90	160	20	200	18	8	16
SVI46								
SVI66								
SVI92								
SVI33	80	90	160	24	200	18	8	25
SVI46								
SVI66								
SVI92								

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### ROUND COUNTERFLANGES

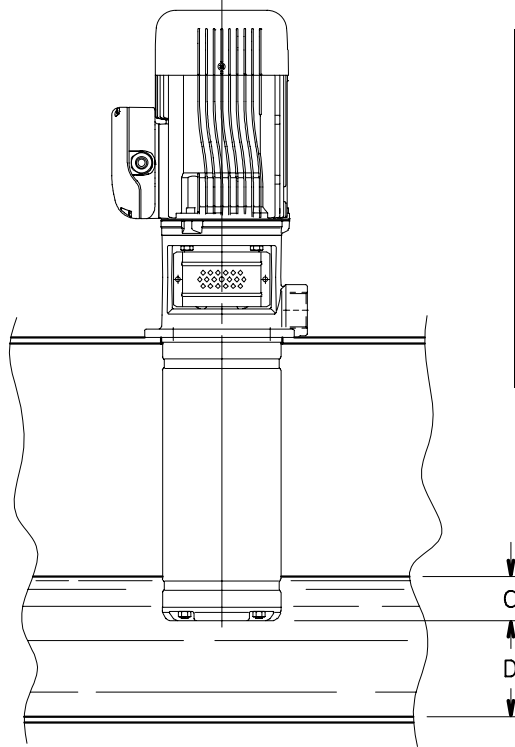
- SVI 33, 46, 66, 92 S versions : Kit containing weld-on counterflange (PN16, PN25) or threaded one PN16 made of galvanized steel. Each Kit contains 1 counterflange plus bolts and gasket.
- SVI 33, 46, 66, 92 N versions : Kit containing weld-on counterflange (PN16, PN25) or threaded one PN16 made of AISI 316L stainless steel. Each Kit contains 1 counterflange plus bolts and gasket.



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## INSTALLATION



MINIMUM IMMERSION LEVEL		DISTANCE FROM THE BOTTOM	
PUMP TYPE	DIMENSION C mm	D mm	
		MINIMUM	RECOMMENDED
SVI2 SVI4	25	20	60
SVI8 SVI16	25	35	80
SVI33-46 SVI66-92	80	60	120

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# **TECHNICAL APPENDIX**

## 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<sub>p</sub>** 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<sub>z</sub>** 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<sub>f</sub>** is the flow resistance in the suction line and its accessories, such as: fittings, foot valve, gate valve, elbows, etc.

**h<sub>pv</sub>** is the vapour pressure of the liquid at the operating temperature, expressed in m. of liquid.  $h_{pv}$  is the quotient between the Pv 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

Friction loss is shown in the tables at pages 48-49 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 m<sup>3</sup>/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 m<sup>3</sup>/h, di 2,5 m.

For water at 15 °C

$$h_p = P_a / \gamma = 10,33\text{m}, h_{pv} = P_v / \gamma = 0,174\text{m} (0,01701 \text{ bar})$$

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.



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## TECHNICAL APPENDIX VAPOUR PRESSURE PS VAPOUR PRESSURE AND $\rho$ DENSITY OF WATER TABLE

t °C	T K	ps bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	ps bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	ps bar	$\rho$ kg/dm <sup>3</sup>
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				

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**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 <sup>3</sup> /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						
		hr							59,5	20,1	8,26	3,90	2,03	0,69						
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	0,53			
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

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

**PRESSURE AND HEAD**

Newton per square metre N/m <sup>2</sup>	kilo Pascal kPa	bar bar	Pound force per square inch psi	metre of water m H <sub>2</sub> O	millimetre di mercury mm Hg
<b>1,0000</b>	0,0010	1 x 10 <sup>-5</sup>	1,45 x 10 <sup>-4</sup>	1,02 x 10 <sup>-4</sup>	0,0075
1000,0000	<b>1,0000</b>	0,0100	0,1450	0,1020	7,5000
1 x 10 <sup>5</sup>	100,0000	<b>1,0000</b>	14,5000	10,2000	750,1000
6895,0000	6,8950	0,0690	<b>1,0000</b>	0,7030	51,7200
9789,0000	9,7890	0,0980	1,4200	<b>1,0000</b>	73,4200
133,3000	0,1333	0,0013	0,0190	0,0140	<b>1,0000</b>

**LENGHT**

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

**VOLUME**

cubic metre m <sup>3</sup>	litre litro	millilitre ml	imp. gallon imp. gal.	US gallon US gal.	cubic foot ft <sup>3</sup>
<b>1,0000</b>	1000,0000	1 x 10 <sup>6</sup>	220,0000	264,2000	35,3147
0,0010	<b>1,0000</b>	1000,0000	0,2200	0,2642	0,0353
1 x 10 <sup>-6</sup>	0,0010	<b>1,0000</b>	2,2 x 10 <sup>-4</sup>	2,642 x 10 <sup>-4</sup>	3,53 x 10 <sup>-5</sup>
0,0045	4,5460	4546,0000	<b>1,0000</b>	1,2010	0,1605
0,0038	3,7850	3785,0000	0,8327	<b>1,0000</b>	0,1337
0,0283	28,3170	28317,0000	6,2288	7,4805	<b>1,0000</b>

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# ITT

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