ITT

Lowara

GLS-GLV and DLG Series

Submersible wastewater pumps for the UK market

50 Hz

Engineered for life

CONTENTS

SELECTION GUIDE

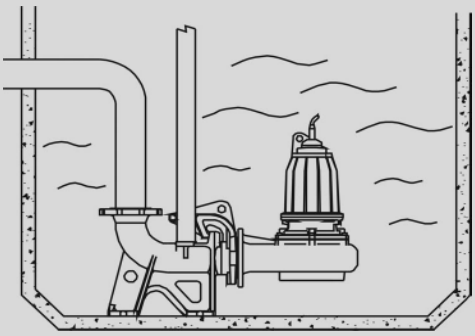
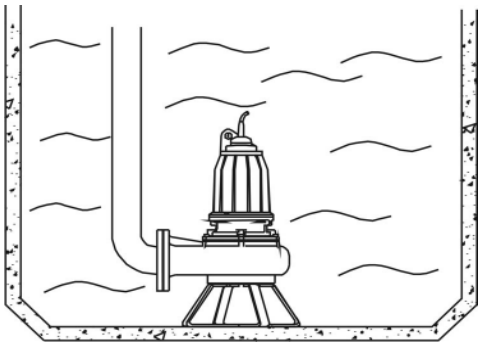
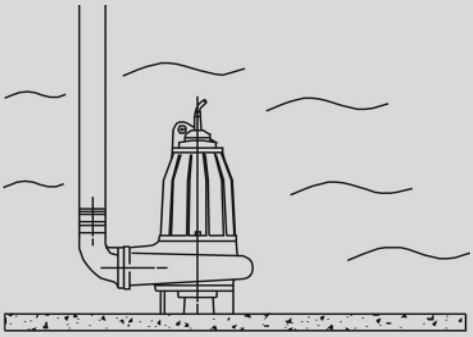
The GLS, GLV, and DLG series of submersible electric pumps featured in the Lowara catalogue are designed to satisfy the most varied liquid handling requirements under even extreme conditions, thanks to the wide variety of materials and impeller and motor types.
In order to optimise the pump's performances and reduce energy consumption, it is very important to select the "correct" electric pump for intended application.

TYPICAL APPLICATIONS

APPLICATIONS	PUMP TYPE		
	GLS	GLV	DLG
Purification systems	✓	✓	
Sewers - single-family dwellings, small condominiums, multi-family dwellings	✓	✓	✓
Sewers - campsites	✓	✓	✓
Sewers - restaurants, hotels	✓	✓	
Industry	✓	✓	✓
Sludge	✓	✓	
Land reclamation, irrigation, agriculture	✓	✓	
Building yards	✓	✓	
Mining industry	✓	✓	
Stock farming		✓	
Aquaculture	✓	✓	

INSTALLATION

GL-en_a_sc

LOWERING SYSTEM		Fixed submerged installation, with coupling foot and guide rails. Access to the electric pump for inspection or maintenance is quick and easy: to extract the pump, just lift it with a chain. The pump's stability and sealing are ensured by its weight. The pump's motor is cooled by the surrounding liquid. A minimum liquid level, indicated in the dimensional drawings for the different versions, must be guaranteed.
TRIPOD STAND		Portable submerged installation, with tripod stand. The pump's motor is cooled by the surrounding liquid. A minimum liquid level, indicated in the dimensional drawings for the different versions, must be guaranteed.
90° DELIVERY UNION		Free submerged installation with support feet and threaded bend. The pump's motor is cooled by the surrounding liquid. A minimum liquid level, indicated in the dimensional drawings for the different versions, must be guaranteed.

Submersible Electric Pumps

GLS Series (Self cleaning impeller)

MARKET SECTORS

RESIDENTIAL AND COMMERCIAL BUILDINGS, INDUSTRIES.

APPLICATIONS

- Submersible pump for pumping clean water, surface water and wastewater containing solids or long-fibred material.

SPECIFICATIONS

- **Delivery**: up to 72 m^3/h.
- **Head**: up to 24 m.
- **Free passage**: 48 mm (see hydraulic data table).
- **Discharge** connection: DN 50 - 65 mm.
- **Motor power**: up to 3,2 kW.
- Maximum liquid **temperature**: 40 °C.
- Maximum immersion **depth**: 20 m.
- pH **pumped liquid**: pH 5,5-14.
- Maximum liquid **density**: 1100 Kg/m^3.
- Motor with IP68 **protection** and class H insulation (180°C).
- **Power supply** 230V single-phase, 400V three-phase, 50 Hz.
- Voltage **variation**:
  - continuous running: max ±5%.
  - intermittent running: max ±10%.
- Voltage **imbalance** between phases: max 2%.
- Maximum number of starts per hour: 30.

CONSTRUCTION CHARACTERISTICS

- Sturdy cast iron construction.
- Self-Cleaning **impeller**.
- **Double seal**: Tungsten Carbide/Ceramic on pump side, Carbon/Ceramic on motor side, with interposed oil chamber.
- **Cable** (10 m standard version):
  - Direct-on-line start: SUBCAB® 4G1,5+2x1,5.
  - Y/D start: SUBCAB® 7G2,5+2x1,5.
- Motor thermal **protection**: opening temperature 125°C.

OPTIONAL FEATURES

- 20 m cable.
- Explosion proof version.
- Different voltages: 380V and 415V for three-phase version, 220V and 240V for single-phase version.

ACCESSORIES / INSTALLATION

- Lowering system.
- 90° delivery elbow with hose connector.
- 90° threaded delivery elbow.
- Stand.
- Non-return ball valve.
- Float for solid-laden waters.
- Control panels.

GLS SERIES
PUMP SECTION AND TABLE OF MATERIALS

PART	MATERIAL
Motor casing	GREY IRON
Seal oil chamber	
Pump body	
Impeller	
Shaft	431 STAINLESS STEEL
Bearings	BALL TYPE
Motor-side seal	CARBON / CERAMIC
Pump-side seal	TUNGSTEN CARBIDE / CERAMIC
Gaskets	NITRILE RUBBER
Bolts and screws	304 STAINLESS STEEL
Power cord	CPE ELASTOMER

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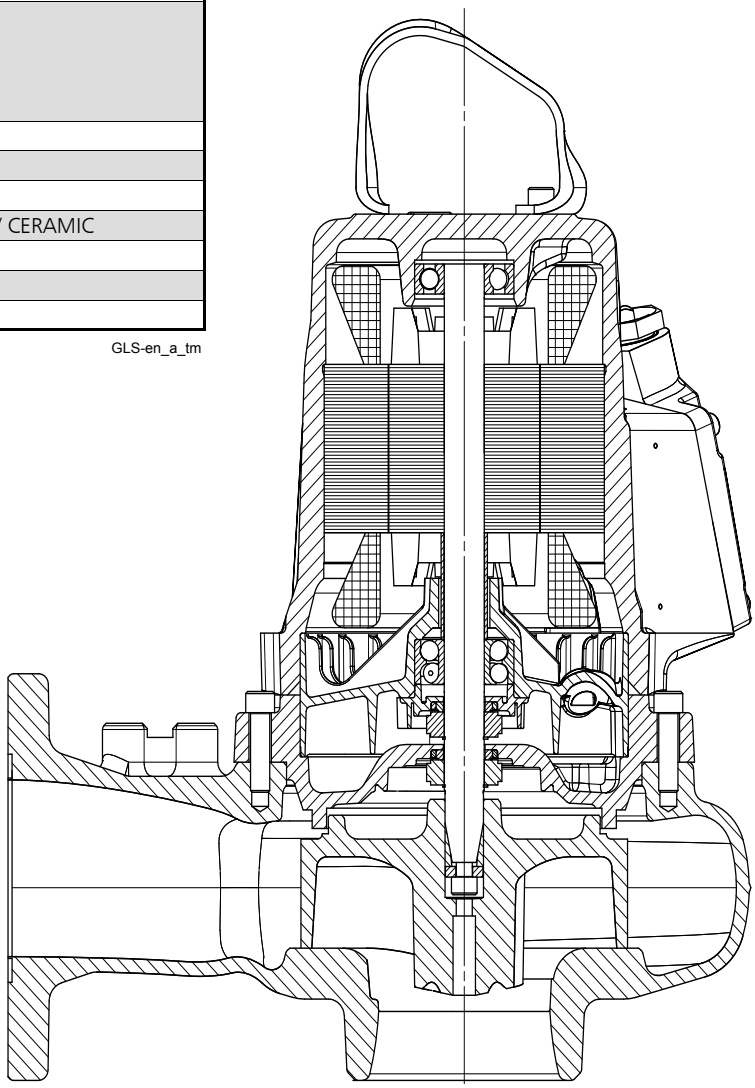

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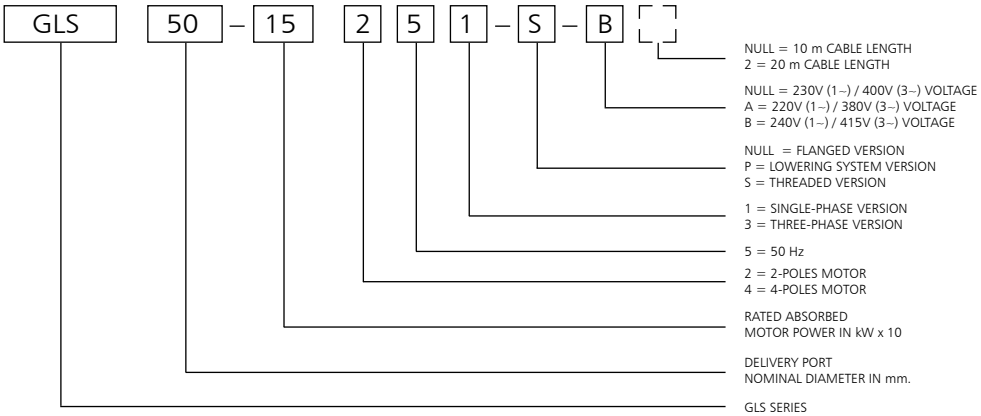


EXAMPLE : GLS 50-15 251-S-B
GLS series electric pump, 50 mm nominal delivery port, 1,5 kW rated absorbed motor power, 2-poles version, 50 Hz, single-phase, threaded version, 415 V of voltage, 10 m cable length.

GLS SERIES
ELECTRICAL DATA TABLE AT 50 Hz

PUMP TYPE	min^{-1}	Pgr (P1) kW *	(P2) Nom kW **	VOLTAGE / PHASES ***	CURRENT ABSORBED I_{abs}(A)	CURRENT INRUSH I_{sp}(A)	START	ELECTRICAL CABLE TYPE	RUNNING CAPACITOR µF/V	STARTING CAPACITOR µF/V
GLS 50-15-251-S	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLS 50-15-251-P	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLS 50-16-253-S	2900	1,9	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLS 50-16-253-P	2900	1,9	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLS 50-20-253-S	2900	2,4	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLS 50-20-253-P	2900	2,4	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLS 50-24-253-S	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-
GLS 50-24-253-P	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-
GLS 65-15-251	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLS 65-16-253	2900	1,9	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLS 65-20-253	2900	2,4	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLS 65-24-253	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-

Stator thermal protection included in all models.

* Maximum value of absorbed motor power within the operating range.

** P2 = Rated shaft power.

*** All the pumps are available also in 220 and 240 versions (single-phase) and 380 and 415 versions (three-phase).

GLS SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz

PUMP TYPE	Pgr (P1) kW *	(P2) Nom kW **	D Impeller mm	min^{-1}	Q = DELIVERY															Passes solids up to (mm)
					l/s 0	2	4	6	8	10	15	20	25	30	40	45	50	60	67,8	
					m^3/h 0	7,2	14,4	21,6	28,8	36	54	72	90	108	144	162	180	216	244	
					H = TOTAL HEAD METRES COLUMN OF WATER															
GLS 50-15-251-S	2	1,5	104	2900	17,0	13,8	11,5	9,7	8,0	5,9										48
GLS 50-15-251-P	2	1,5	104	2900	15,8	13,7	11,8	10,3	8,8	7,4	3,5									48
GLS 50-16-253-S	1,9	1,6	104	2900	17,2	14,0	11,7	9,9	8,2	6,1										48
GLS 50-16-253-P	1,9	1,6	104	2900	16,0	13,8	12,0	10,5	9,1	7,7	3,8									48
GLS 50-20-253-S	2,4	2	112	2900	19,0	16,8	14,3	12,0	10,1	8,2										48
GLS 50-20-253-P	2,4	2	112	2900	19,0	16,8	14,9	13,2	11,6	10,2	6,3									48
GLS 50-24-253-S	3,2	2,4	122	2900	24,0	21,3	19,4	17,1	14,6	12,3	6,3									48
GLS 50-24-253-P	3,2	2,4	122	2900	23,8	21,3	19,2	17,2	15,4	13,7	9,2									48
GLS 65-15-251	2	1,5	104	2900	15,0	12,4	10,9	9,6	8,3	7,0	3,4									48
GLS 65-16-253	1,9	1,6	104	2900	15,1	12,7	11,0	9,7	8,5	7,3	3,6									48
GLS 65-20-253	2,4	2	112	2900	17,4	15,2	13,4	11,9	10,5	9,2	5,6									48
GLS 65-24-253	3,2	2,4	122	2900	20,9	18,9	17,1	15,5	14,0	12,5	8,4									48

Performances according to ISO Standard 9906 –Annex A.

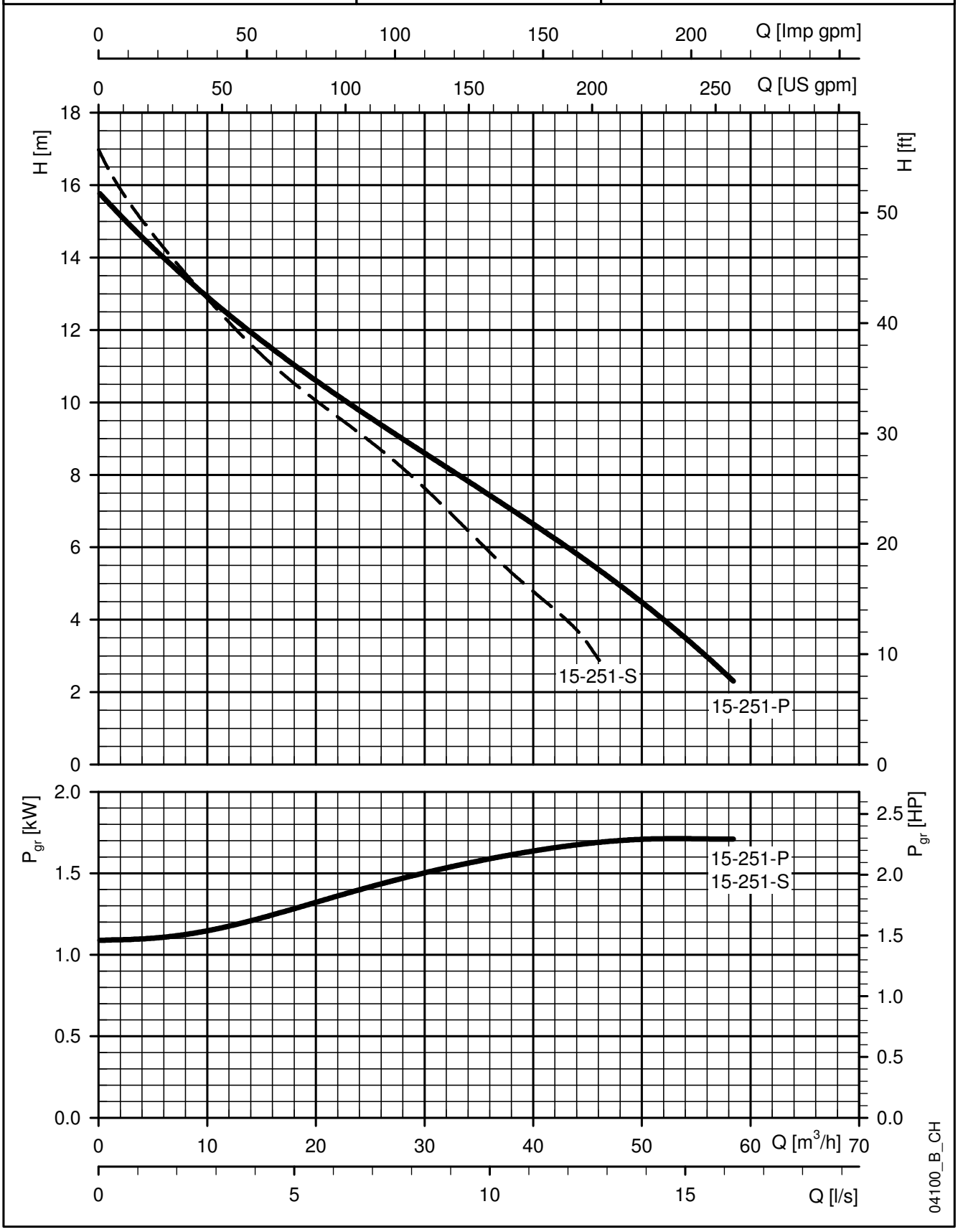
These performances are valid for liquids with density $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

* Maximum value of absorbed motor power within the operating range.

** P2 = Rated shaft power.

GLS 50 SERIES (SINGLE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

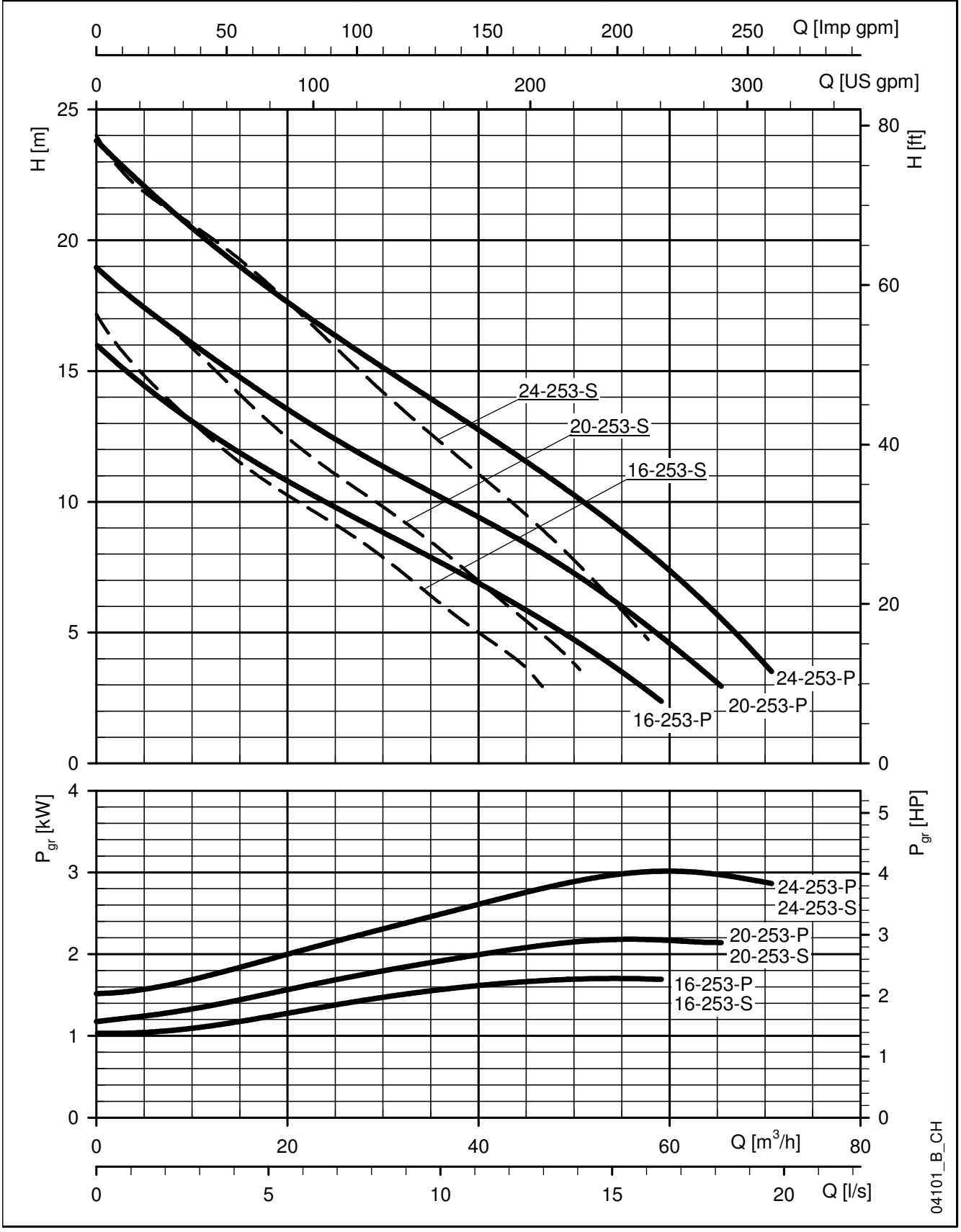
GLS 50 1 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

GLS 50 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

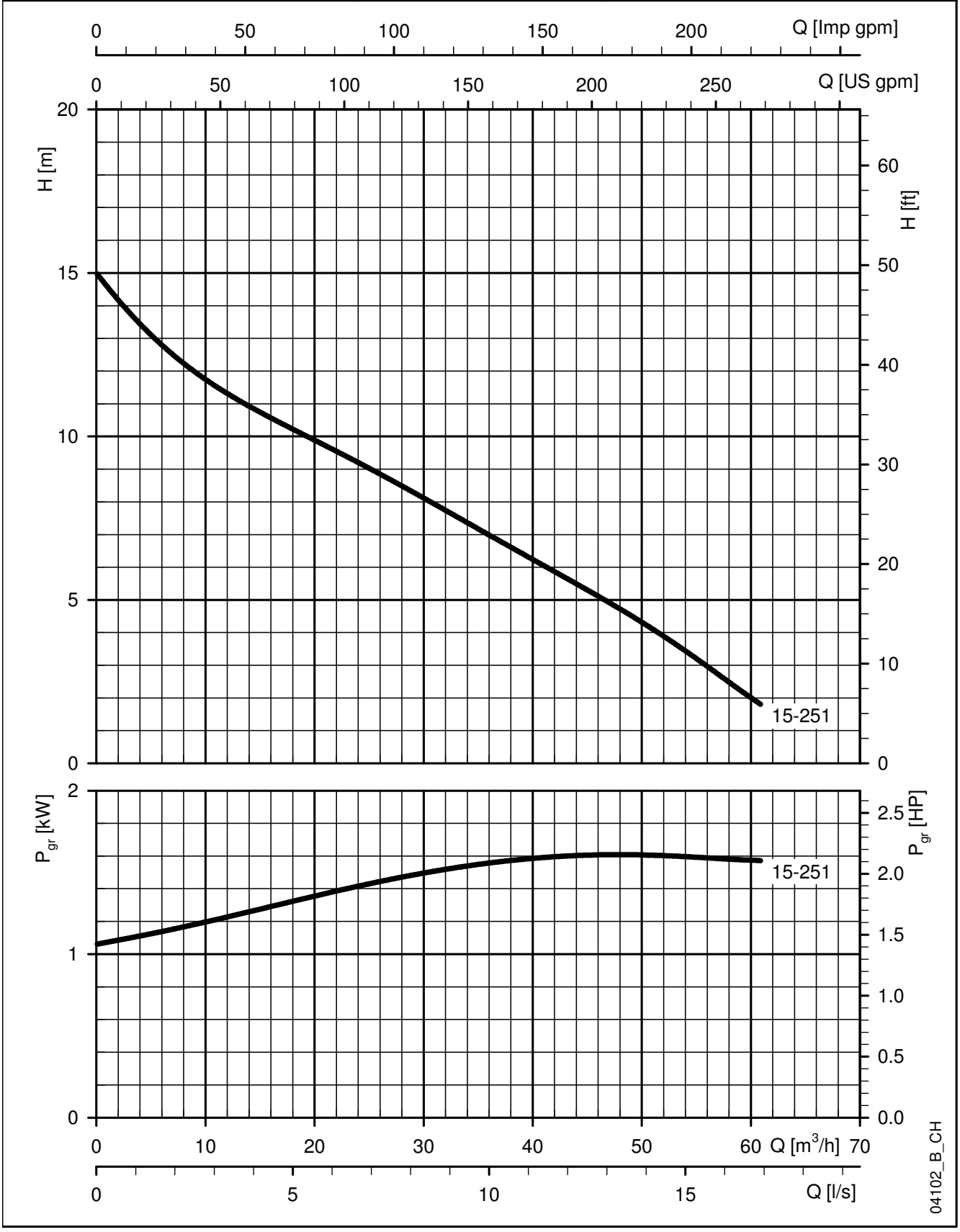
GLS 50 3 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

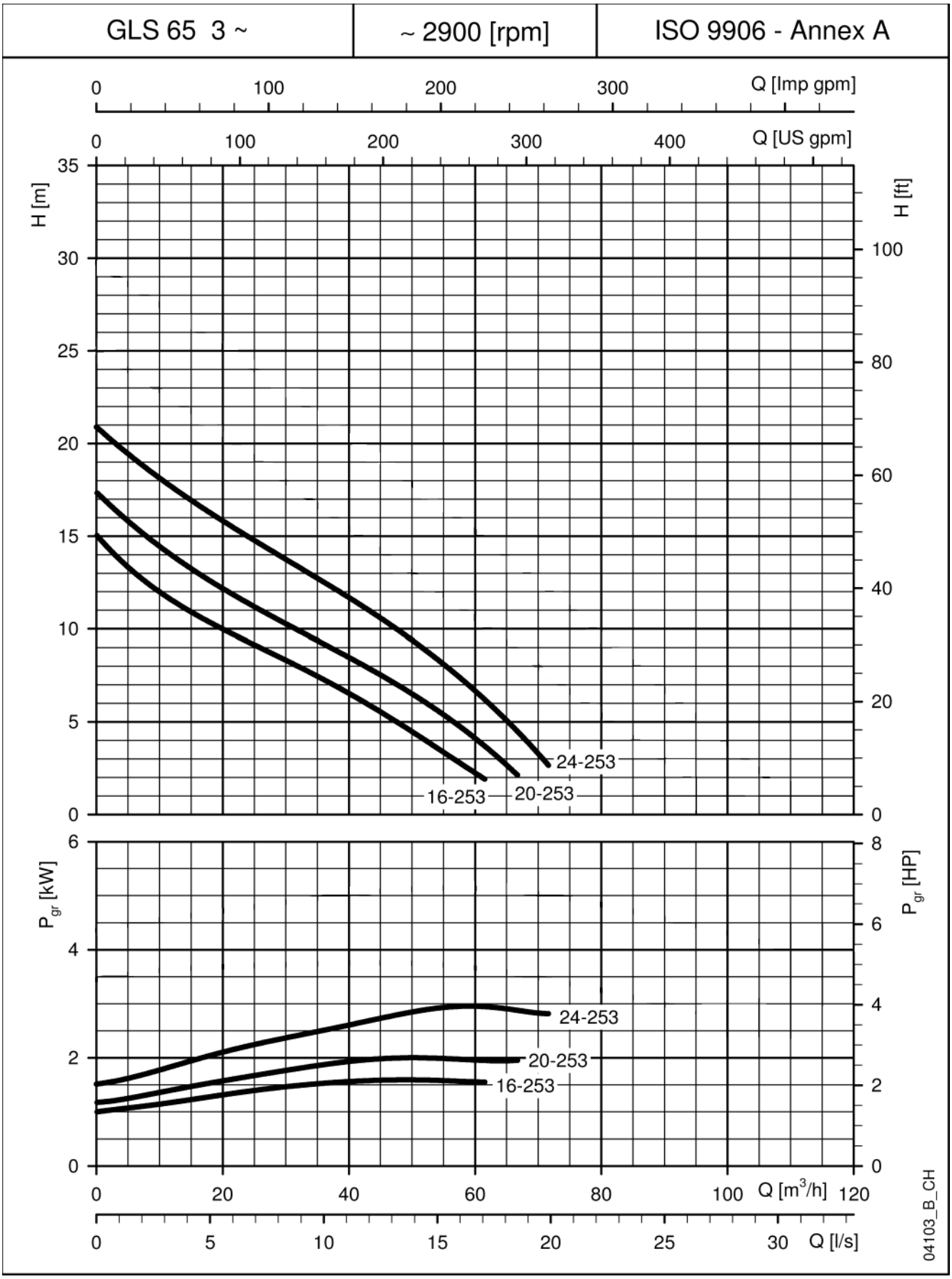
GLS 65 SERIES (SINGLE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

GLS 65 1 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

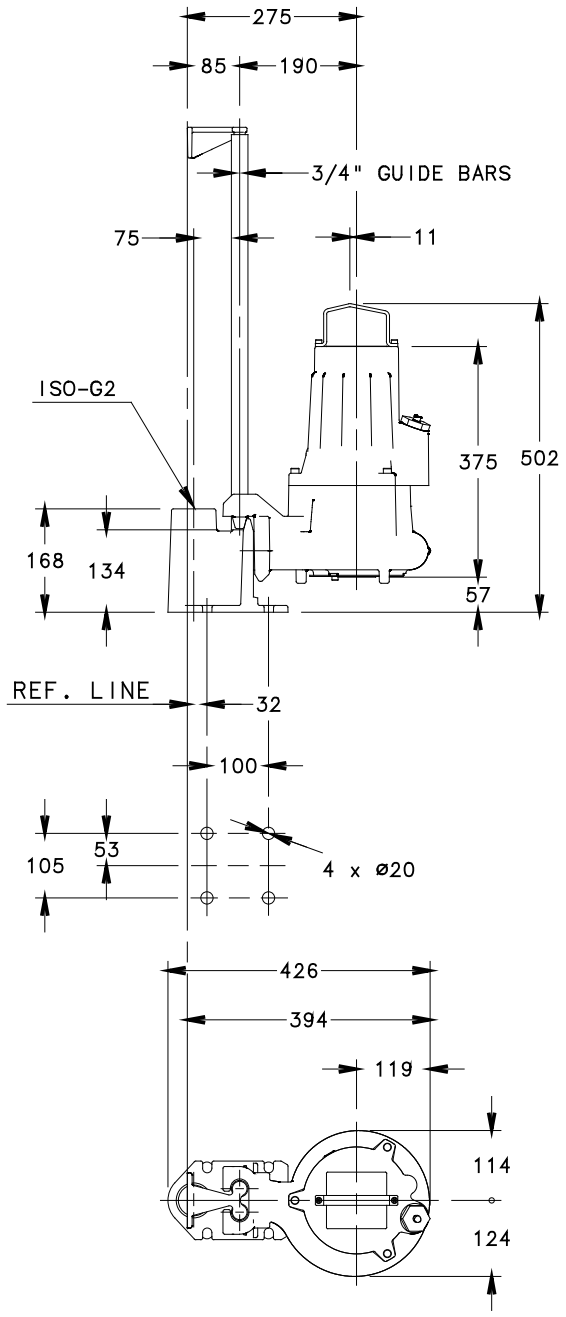
GLS 65 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

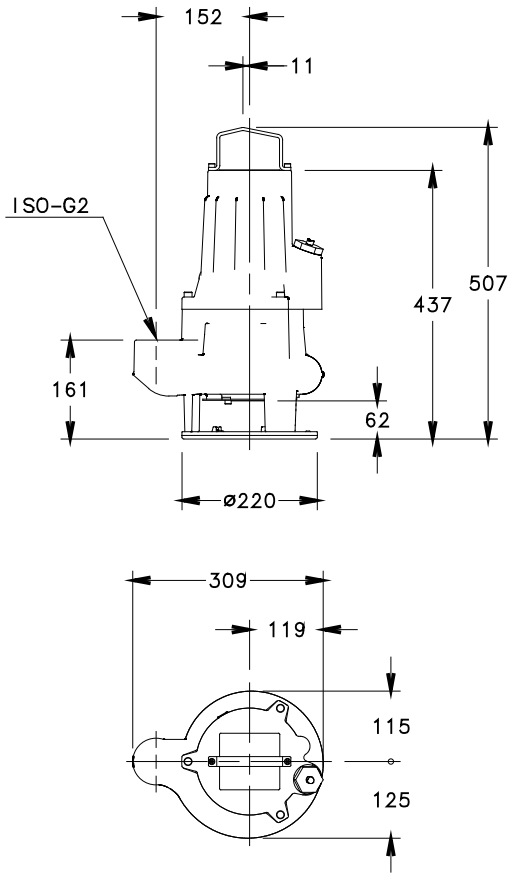
GLS SERIES DIMENSIONS AND WEIGHTS

GLS 50 SERIES (DN50)
DIMENSIONS AND WEIGHTS



PUMP TYPE	WEIGHT kg
GLS 50-15-251-P-B	35
GLS 50-16-253-P-B	35
GLS 50-20-253-P-B	35
GLS 50-24-253-P-B	35

gls50-p-2p50-en_a_td



PUMP TYPE	WEIGHT kg
GLS 50-15-251-S-B	35
GLS 50-16-253-S-B	35
GLS 50-20-253-S-B	35
GLS 50-24-253-S-B	35

gls50-s-2p50-en_a_td

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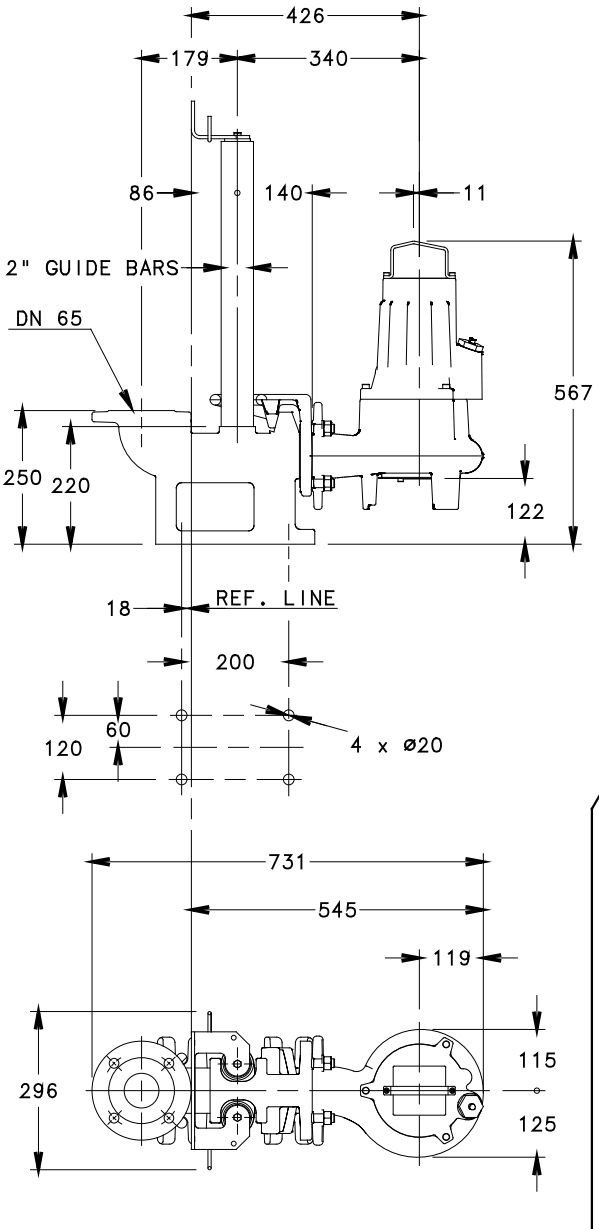
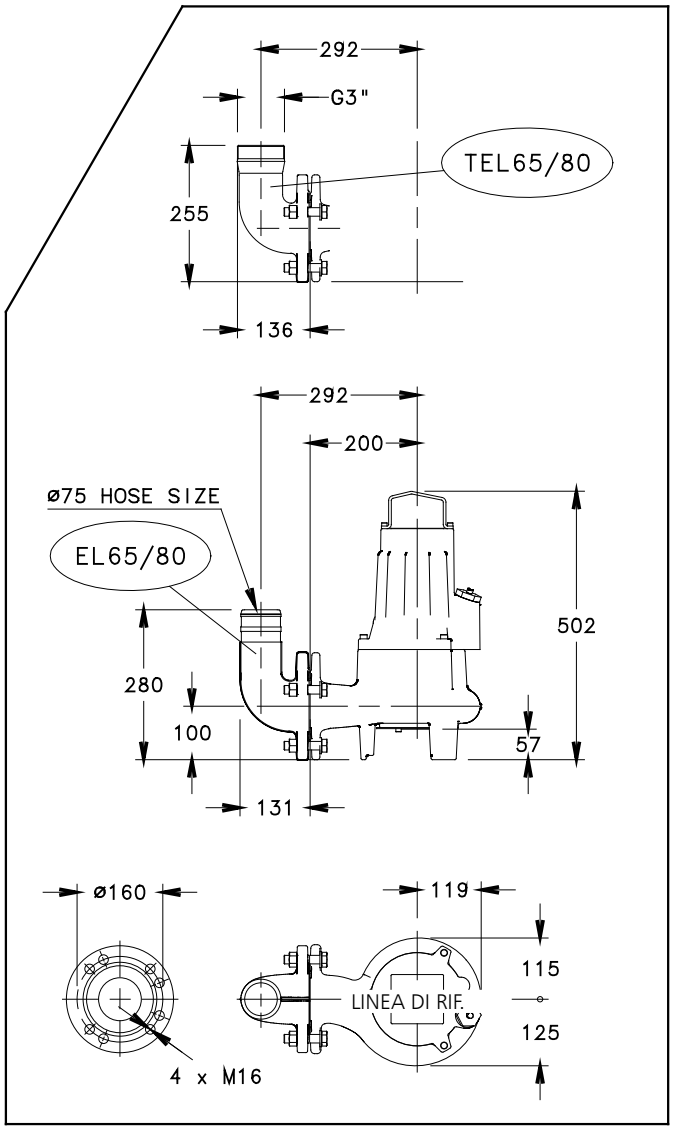
GLS 65 SERIES (DN65)
DIMENSIONS AND WEIGHTS



PUMP TYPE	WEIGHT kg
GLS 65-15-251-B	40
GLS 65-16-253-B	40
GLS 65-20-253-B	40
GLS 65-24-253-B	40

gls65-1-2p50-en_a_td



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Submersible Electric Pumps

GLV Series (Vortex impeller)

MARKET SECTORS

RESIDENTIAL AND COMMERCIAL BUILDINGS, INDUSTRIES.

APPLICATIONS

- Submersible pump for pumping clean water, surface water and wastewater containing solids or long-fibred material. The vortex impeller is the best choice in low volume, high head applications and in media which contains sand and other abrasive solids.

SPECIFICATIONS

- **Delivery**: up to 200 m^3/h.
- **Head**: up to 29 m.
- **Free passage**: up to 100 mm (see hydraulic data table).
- **Discharge** connection: DN 50 - 65 - 80 - 100 mm.
- **Motor power**: up to 7,4 kW.
- Maximum liquid **temperature**: 40 °C.
- Maximum immersion **depth**: 20 m.
- pH **pumped liquid**: pH 5,5-14.
- Maximum liquid **density**: 1100 Kg/m^3.
- Motor with IP68 **protection** and class H insulation (180°C).
- **Power supply** 230V single-phase, 400V three-phase, 50 Hz.
- Voltage **variation**:
  - continuous running: max ±5%.
  - intermittent running: max ±10%.
- Voltage **imbalance** between phases: max 2%.
- Maximum number of starts per hour: 30.

CONSTRUCTION CHARACTERISTICS

- Sturdy cast iron construction.
- Vortex-type open **impeller**.
- **Double seal**: Tungsten Carbide/Ceramic on pump side, Carbon/Ceramic on motor side, with interposed oil chamber.
- **Cable** (10 m standard version):
  - Direct-on-line start: SUBCAB® 4G1,5+2x1,5.
  - Y/D start: SUBCAB® 7G2,5+2x1,5.
- Motor thermal **protection**: opening temperature 125°C.

OPTIONAL FEATURES

- 20 m cable.
- Explosion proof version.
- Different voltages: 380V and 415V for three-phase version, 220V and 240V for single-phase version.

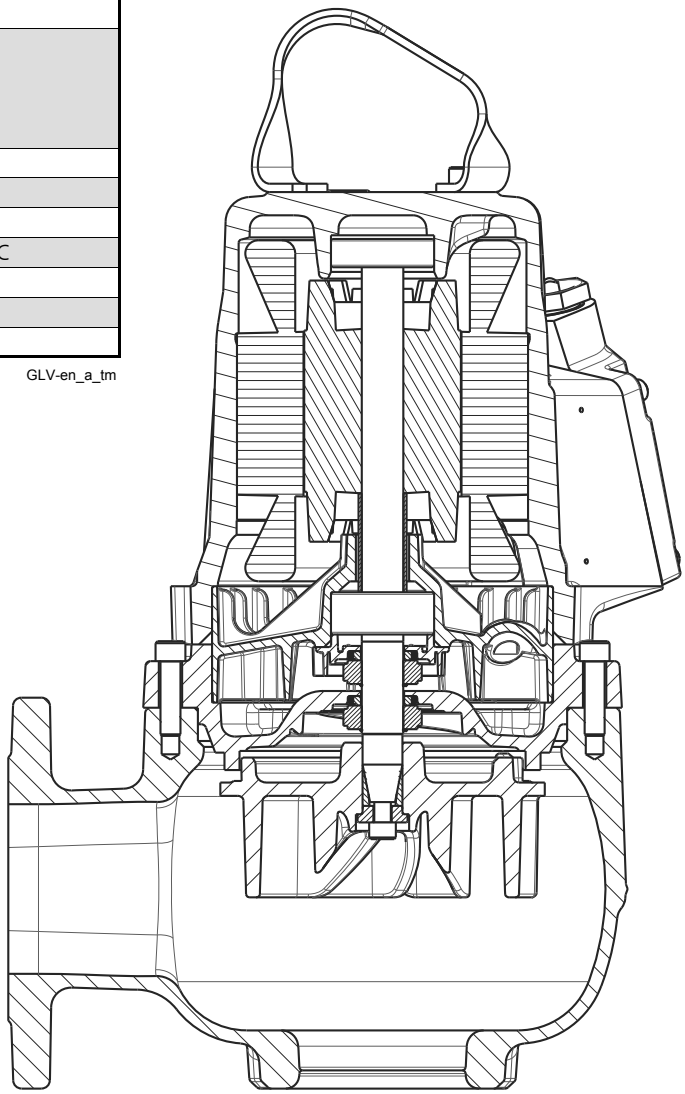
ACCESSORIES / INSTALLATION

- Lowering system.
- 90° delivery elbow with hose connector.
- 90° threaded delivery elbow.
- Stand.
- Non-return ball valve.
- Float for solid-laden waters.
- Control panels.

GLV SERIES
PUMP SECTION AND TABLE OF MATERIALS

PART	MATERIAL
Motor casing	GREY IRON
Seal oil chamber	
Pump body	
Impeller	
Shaft	431 STAINLESS STEEL
Bearings	BALL TYPE
Motor-side seal	CARBONE / CERAMICA
Pump-side seal	TUNGSTEN CARBIDE / CERAMIC
Gaskets	NITRILE RUBBER
Bolts and screws	304 STAINLESS STEEL
Power cord	CPE ELASTOMER

GLV-en_a_tm



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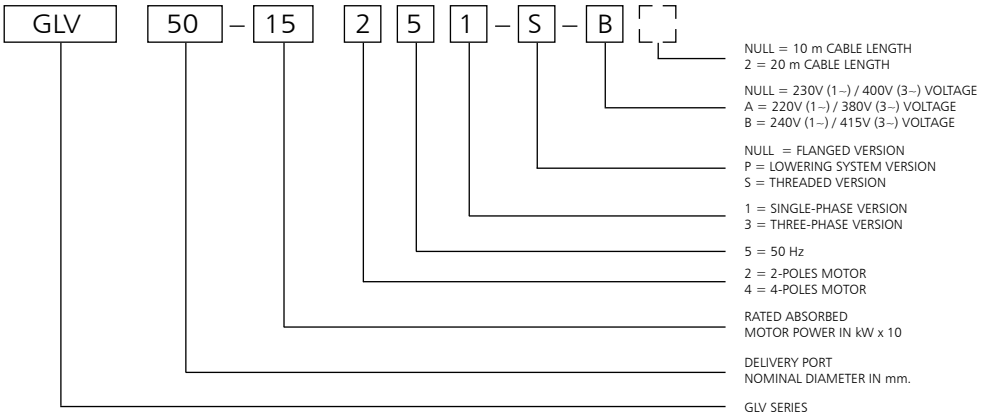


EXAMPLE : GLV 50-15 251-S-B
GLV series electric pump, 50 mm nominal delivery port, 1,5 kW rated absorbed motor power, 2-poles version, 50 Hz, single-phase, threaded version, 415 V of voltage, 10 m cable length.

GLV SERIES
ELECTRICAL DATA TABLE AT 50 Hz

PUMP TYPE	min^{-1}	Pgr (P1) kW *	(P2) Nom kW **	VOLTAGE / PHASES ***	CURRENT		START	ELECTRICAL TABLE TYPE	RUNNING CAPACITOR µF/V	STARTING CAPACITOR µF/V
					ABSORBED I_{abs}(A)	INRUSH I_{sp}(A)				
GLV 50-12-251-S	2900	1,5	1,2	230/1	6,7	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLV 50-12-251-P	2900	1,5	1,2	230/1	6,7	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLV 50-15-251-S	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLV 50-15-251-P	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLV 50-16-253-S	2900	1,9	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLV 50-16-253-P	2900	1,9	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLV 50-20-253-S	2900	2,6	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLV 50-20-253-P	2900	2,6	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLV 50-24-253-S	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-
GLV 50-24-253-P	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-
GLV 65-15-251	2900	2	1,5	230/1	8,4	32	DOL	4G1,5 + 2x1,5	35/400	100/330
GLV 65-15-253	2900	2	1,6	400/3	3,6	27	DOL	4G1,5 + 2x1,5	-	-
GLV 65-20-253	2900	2,5	2	400/3	4,3	27	DOL	4G1,5 + 2x1,5	-	-
GLV 65-24-253	2900	3,2	2,4	400/3	5,1	27	DOL	4G1,5 + 2x1,5	-	-
GLV 65-32-253	2900	3,8	3,2	400/3	6,1	52	YD	7G2,5 + 2x1,5	-	-
GLV 65-42-253	2900	5,3	4,2	400/3	8,2	52	YD	7G2,5 + 2x1,5	-	-
GLV 80-32-253	2900	3,8	3,2	400/3	6,1	52	YD	7G2,5 + 2x1,5	-	-
GLV 80-42-253	2900	5,3	4,2	400/3	8,2	52	YD	7G2,5 + 2x1,5	-	-
GLV 80-59-253	2900	6,9	5,9	400/3	11	114	YD	7G2,5 + 2x1,5	-	-
GLV 80-74-253	2900	8,7	7,4	400/3	14	114	YD	7G2,5 + 2x1,5	-	-
GLV 100-24-453	1450	2,8	2,4	400/3	5,5	38	YD	7G2,5 + 2x1,5	-	-
GLV 100-31-453	1450	3,7	3,1	400/3	6,7	38	YD	7G2,5 + 2x1,5	-	-
GLV 100-45-453	1450	5,3	4,5	400/3	9,7	77	YD	7G2,5 + 2x1,5	-	-
GLV 100-59-453	1450	7	5,9	400/3	12	77	YD	7G2,5 + 2x1,5	-	-

Stator thermal protection included in all models.

GLV-en_A_te

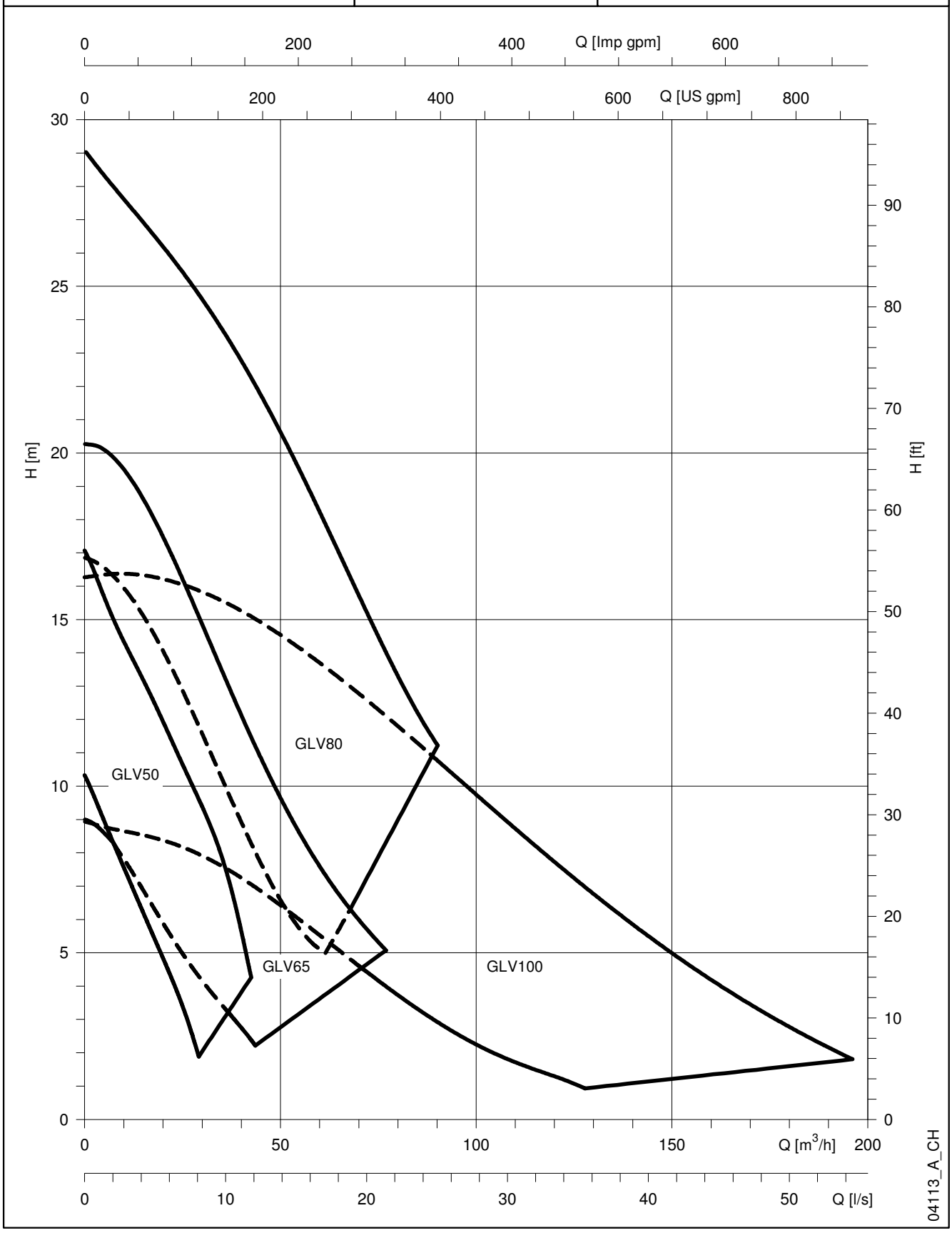
* Maximum value of absorbed motor power within the operating range.

** P2 = Rated shaft power.

*** All the pumps are available also in 220 and 240 versions (single-phase) and 380 and 415 versions (three-phase).

GLV SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 and 4 POLES

GLV	~ 2900 -1450 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

GLV SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz

PUMP TYPE	Pgr (P1) kW *	(P2) Nom kW **	D Impeller mm	min^{-1}	Q = DELIVERY l/s 0	2	4	6	8	10	12,5	15	20	25	30	35	40	45	54	Passes solids up to (mm)
					m^3/h 0	7,2	14,4	21,6	28,8	36	45	54	72	90	108	126	144	162	196	
					H = TOTAL HEAD METRES COLUMN OF WATER																
GLV 50-12-251-S	1,5	1,2	104	2900	10,3	8,2	6,1	4,0	1,5											48
GLV 50-12-251-P	1,5	1,2	104	2900	10,3	8,3	6,4	4,4	2,0											48
GLV 50-15-251-S	2	1,5	118	2900	14,1	11,8	9,8	7,5	4,7											48
GLV 50-15-251-P	2	1,5	118	2900	13,4	11,7	9,9	7,9	5,4											48
GLV 50-16-253-S	1,9	1,6	104	2900	10,4	8,3	6,2	4,1	1,6											48
GLV 50-16-253-P	1,9	1,6	104	2900	10,4	8,4	6,5	4,5	2,2											48
GLV 50-20-253-S	2,6	2	118	2900	14,2	12,0	10,0	7,7	5,0											48
GLV 50-20-253-P	2,6	2	118	2900	13,6	11,8	10,2	8,2	5,6											48
GLV 50-24-253-S	3,2	2,4	128	2900	17,5	15,1	13,0	10,8	8,5	5,8										48
GLV 50-24-253-P	3,2	2,4	128	2900	17,1	15,0	13,3	11,5	9,7	7,5										48
GLV 65-15-251	2	1,5	105	2900	9,0	8,3	7,0	5,6	4,3	3,3										65
GLV 65-15-253	2	1,6	105	2900	9,1	8,4	7,1	5,7	4,5	3,4										65
GLV 65-20-253	2,5	2	117	2900	11,7	10,9	9,5	8,0	6,4	5,1	3,5									65
GLV 65-24-253	3,2	2,4	129	2900	14,6	13,6	12,2	10,7	9,1	7,6	5,7	3,6								65
GLV 65-32-253	3,8	3,2	138	2900	16,9	16,3	15,2	13,7	11,9	10,0	7,7	5,9								65
GLV 65-42-253	5,3	4,2	155	2900	20,3	19,9	18,7	17,1	15,2	13,2	10,8	8,8	5,7							65
GLV 80-32-253	3,8	3,2	138	2900	16,9	16,3	15,2	13,7	11,9	10,0	7,7	5,9								65
GLV 80-42-253	5,3	4,2	155	2900	20,3	19,9	18,7	17,1	15,2	13,2	10,8	8,8	5,7							65
GLV 80-59-253	6,9	5,9	159	2900	24,4	23,4	22,4	21,5	20,3	19,0	17,1	14,8	10,2							65
GLV 80-74-253	8,7	7,4	168	2900	29,1	28,0	27,0	26,0	24,8	23,5	21,7	19,7	15,2	11,2						65
GLV 100-24-453	2,8	2,4	175	1450	8,9	8,7	8,5	8,3	8,0	7,5	6,9	6,1	4,4	2,9	1,8	1,0				80
GLV 100-31-453	3,7	3,1	193	1450	11,1	10,9	10,7	10,4	10,1	9,7	9,2	8,6	7,1	5,6	4,1	2,8	1,9			80
GLV 100-45-453	5,3	4,5	204	1450	13,2	13,2	13,2	13,0	12,7	12,3	11,7	11,0	9,5	7,9	6,2	4,8	3,4	2,3		100
GLV 100-59-453	7	5,9	223	1450	16,3	16,4	16,3	16,2	15,9	15,5	14,9	14,2	12,6	10,8	8,9	7,1	5,5	4,0	1,8	100

Performances according to ISO Standard 9906 –Annex A.

GLV-50-en_a_th

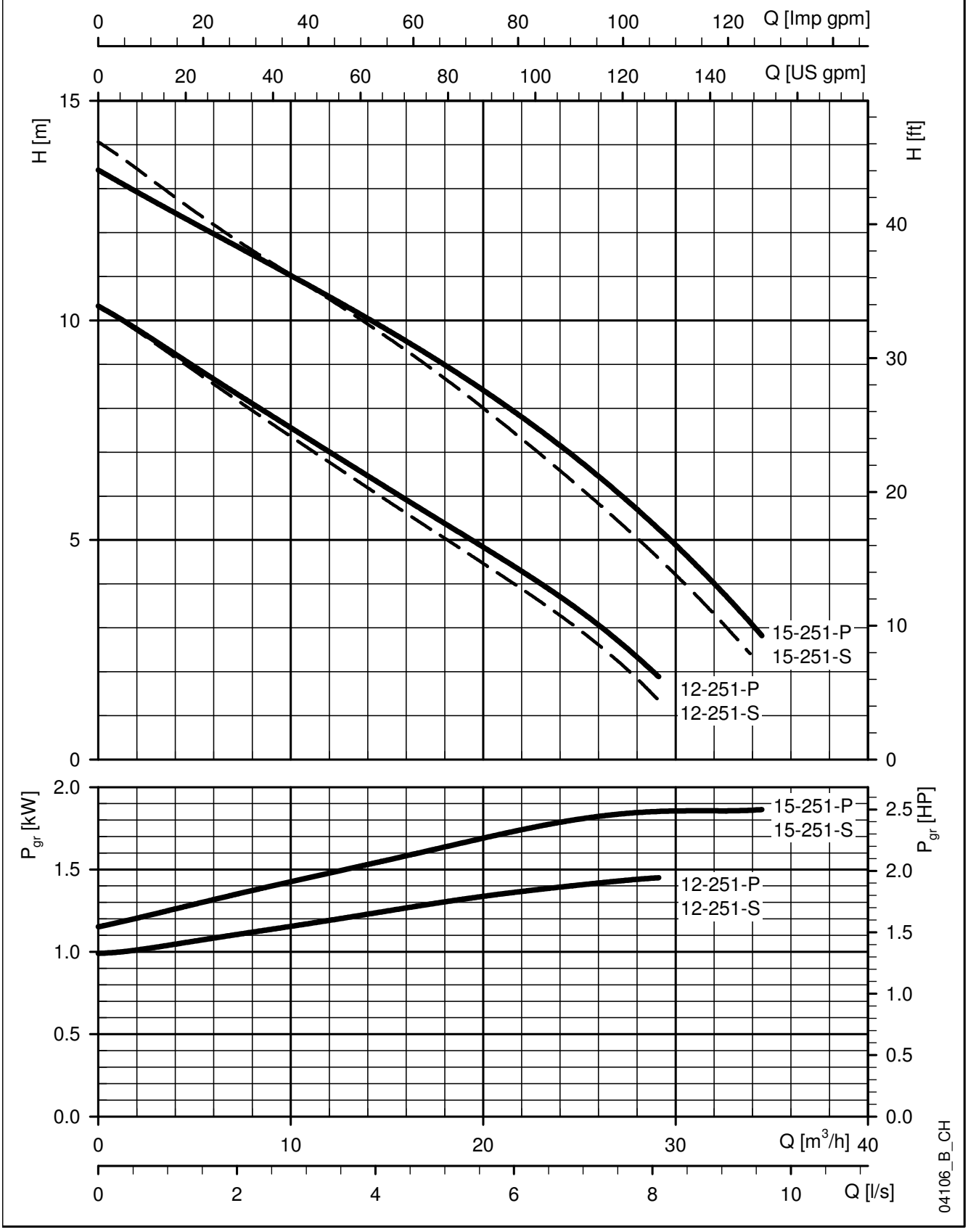
These performances are valid for liquids with density ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

* Maximum value of absorbed motor power within the operating range.

** P2 = Rated shaft power.

GLV 50 SERIES (SINGLE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

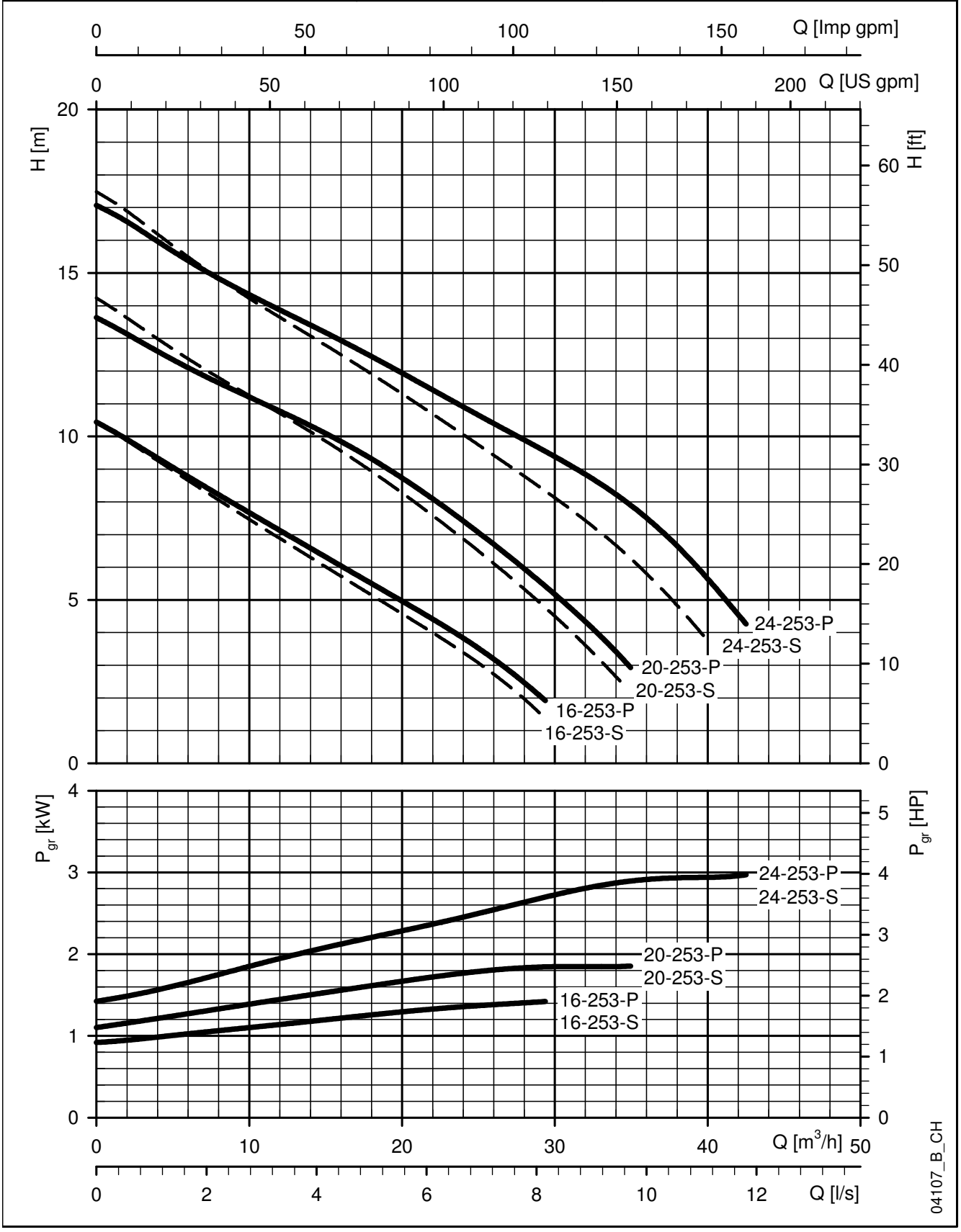
GLV 50 1 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

GLV 50 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

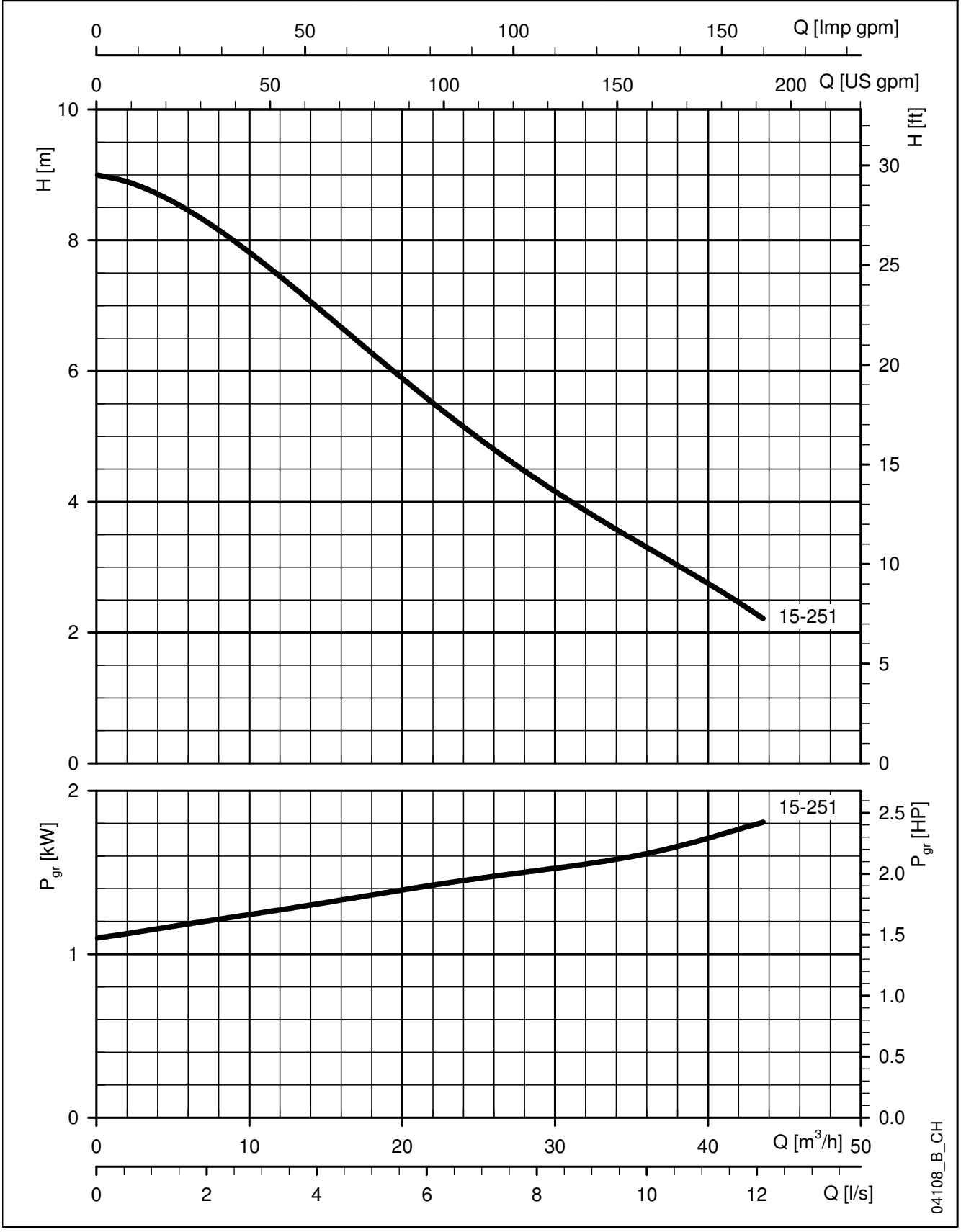
GLV 50 3 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

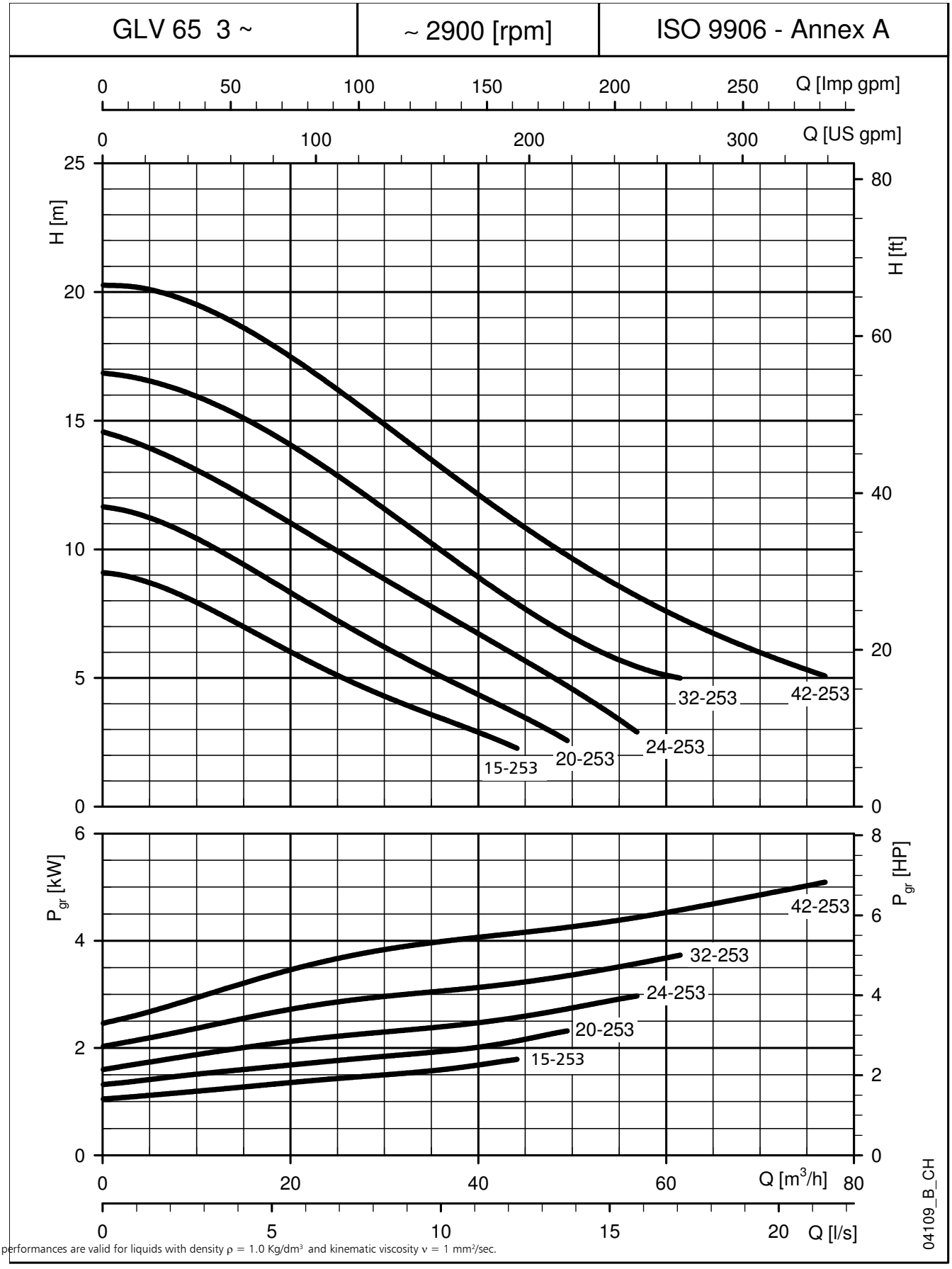
GLV 65 SERIES (SINGLE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

GLV 65 1 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density ρ = 1.0 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.

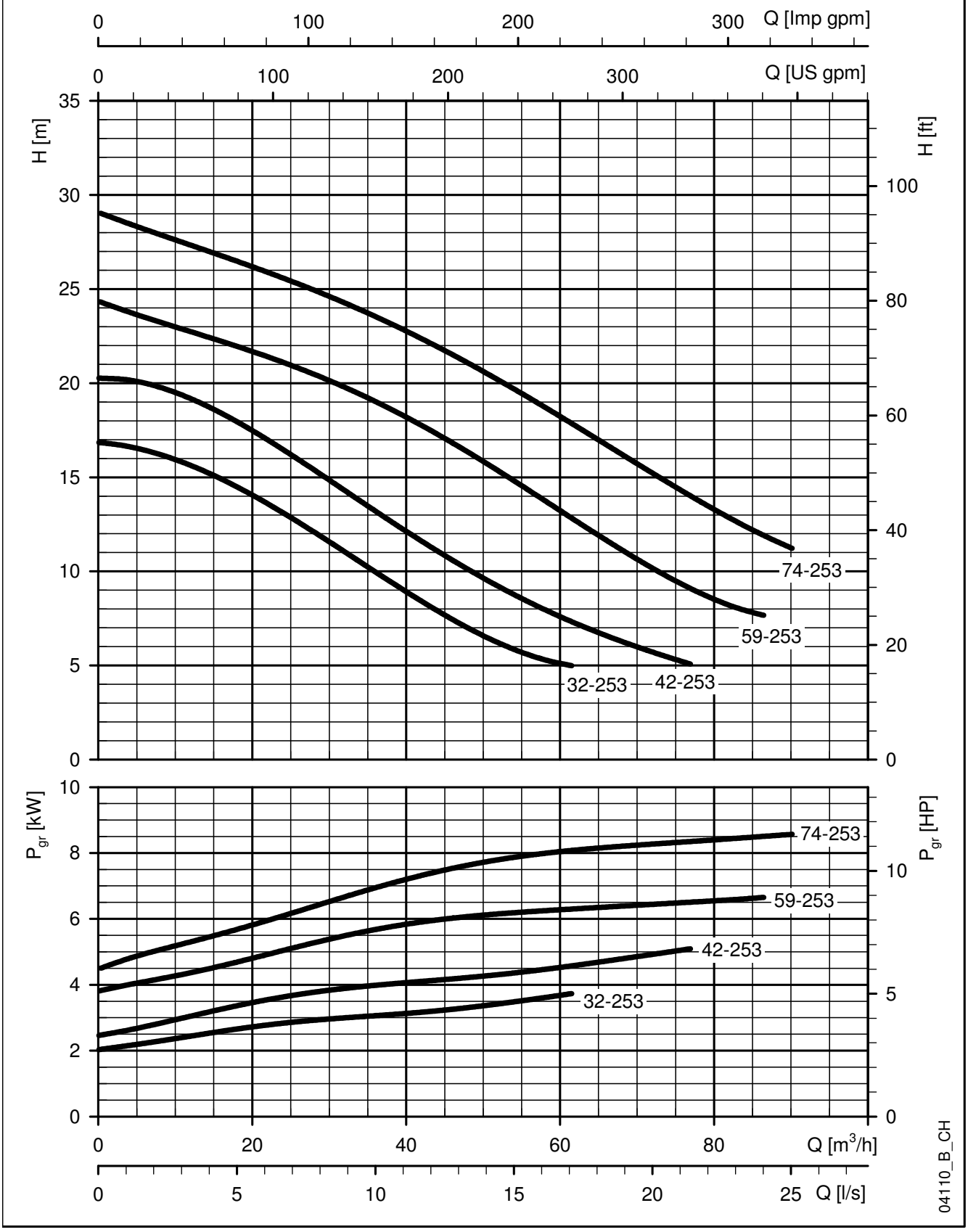
GLV 65 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



These performances are valid for liquids with density ρ = 1.0 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

GLV 80 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

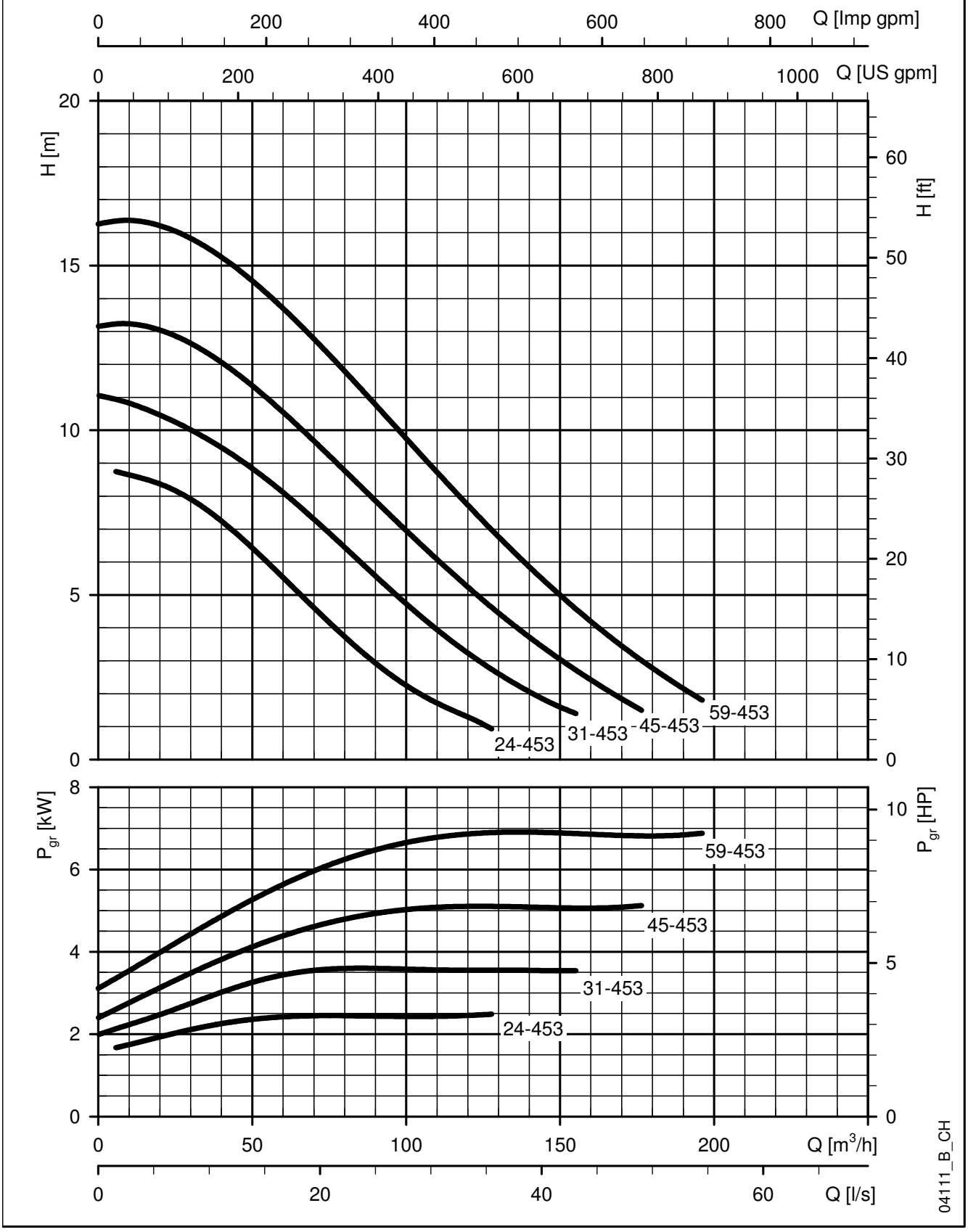
GLV 80 3 ~	~ 2900 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

GLV 100 SERIES (THREE-PHASE)
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

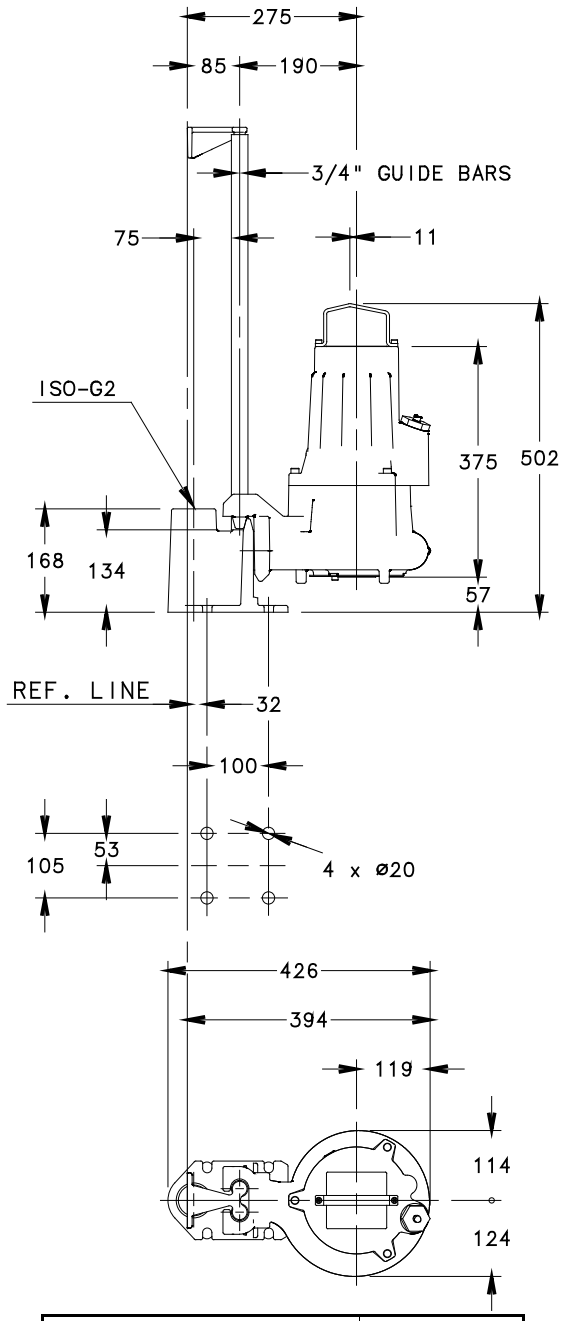
GLV 100 3 ~	~ 1450 [rpm]	ISO 9906 - Annex A



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

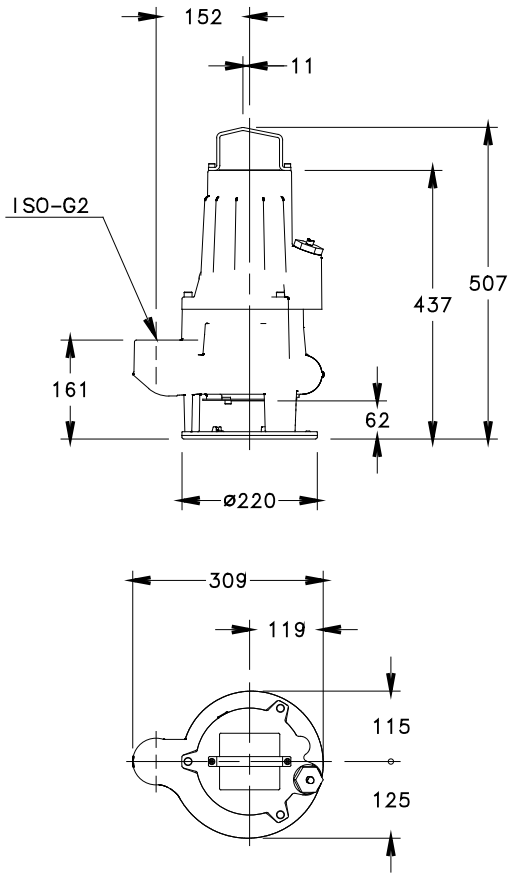
GLV SERIES DIMENSIONS AND WEIGHTS

GLV 50 SERIES (DN50)
DIMENSIONS AND WEIGHTS



PUMP TYPE	WEIGHT kg
GLV 50-12-251-P-B	35
GLV 50-15-251-P-B	35
GLV 50-16-253-P-B	35
GLV 50-20-253-P-B	35
GLV 50-24-253-P-B	35

glv50-p-2p50-en_a_td



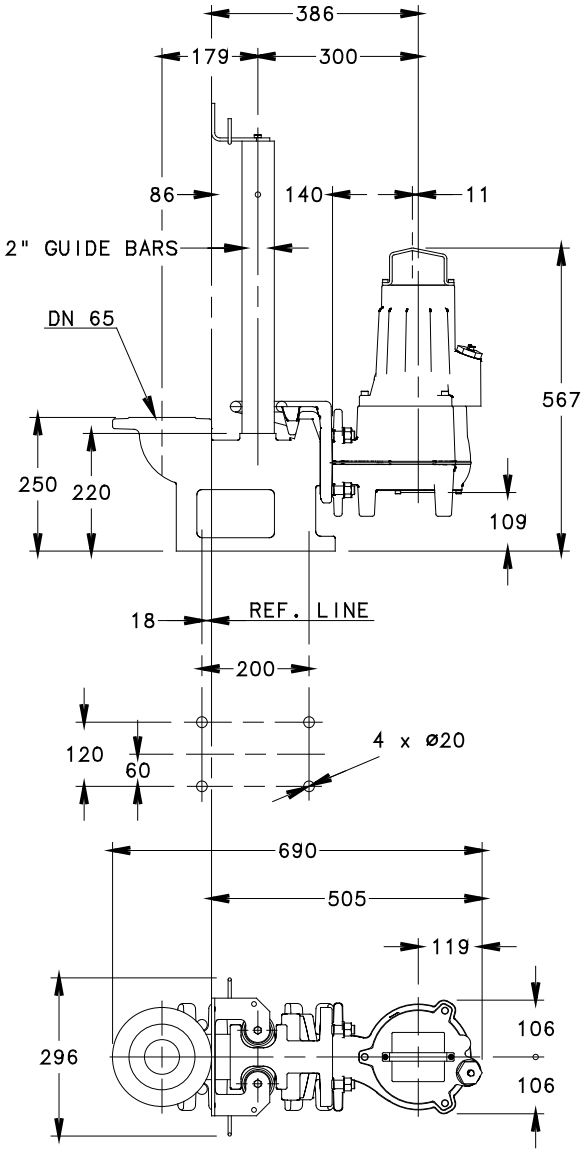
PUMP TYPE	WEIGHT kg
GLV 50-12-251-S-B	35
GLV 50-15-251-S-B	35
GLV 50-16-253-S-B	35
GLV 50-20-253-S-B	35
GLV 50-24-253-S-B	35

glv50-s-2p50-en_a_td

04180_A_DD

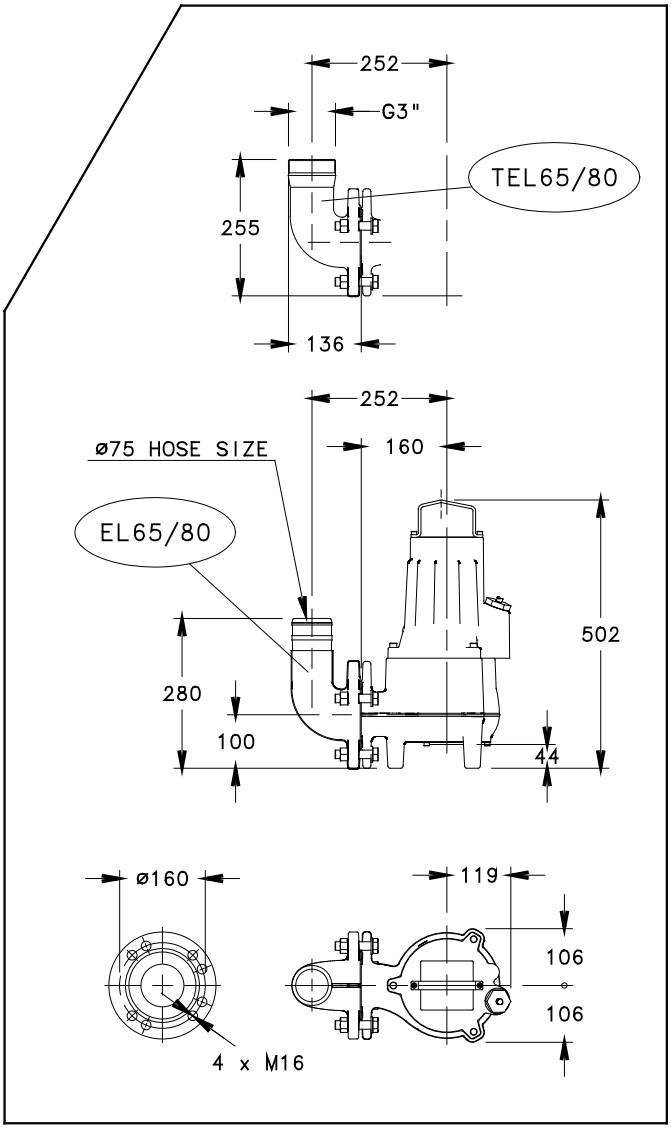
GLV 65 SERIES (DN65)
DIMENSIONS AND WEIGHTS

15-253-B



PUMP TYPE	WEIGHT kg
GLV 65-15-251-B	40
GLV 65-16-253-B	40
GLV 65-20-253-B	40
GLV 65-24-253-B	40

glv65-1-2p50-en_a_td

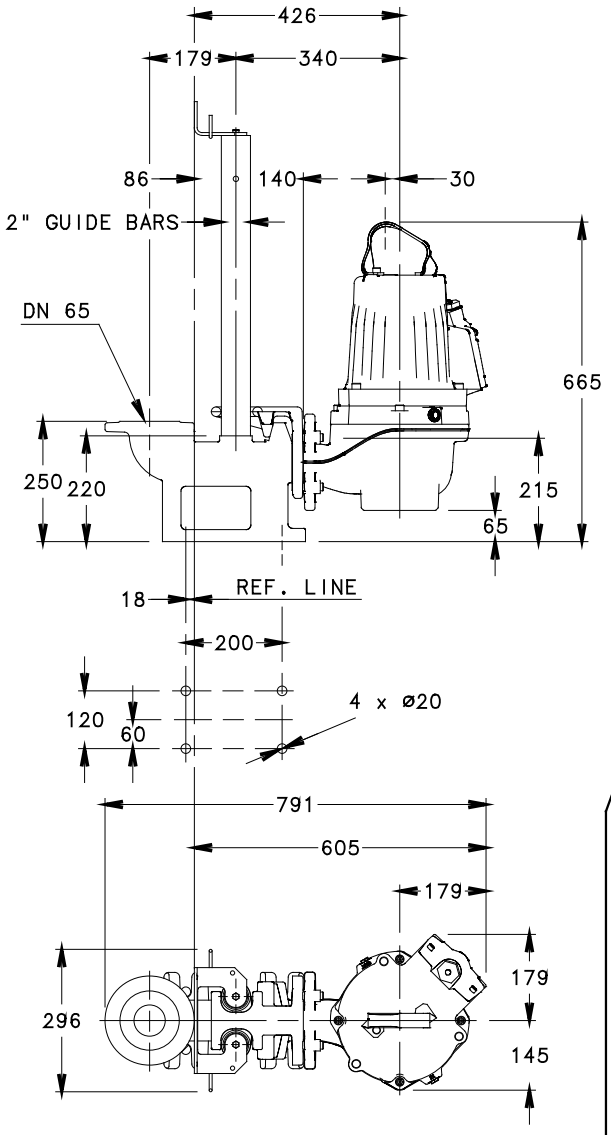


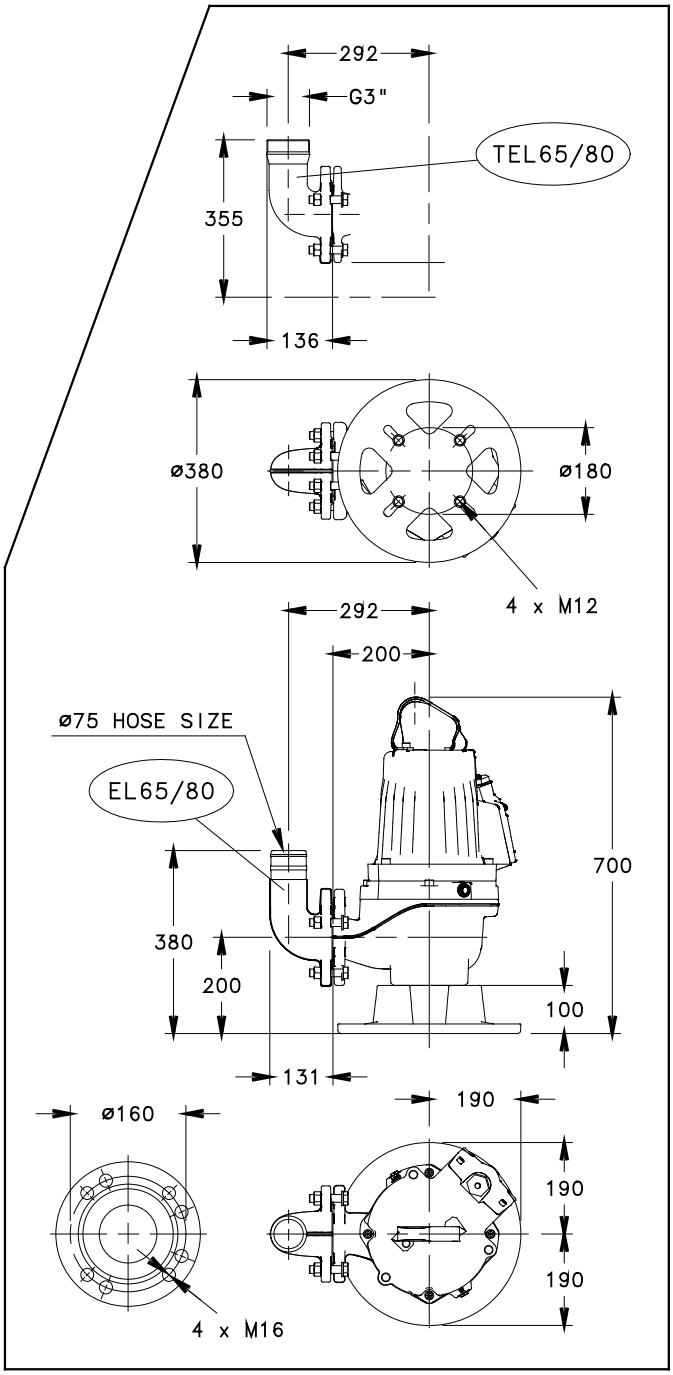
04187_A_DD

GLV 65 SERIES (DN65)
DIMENSIONS AND WEIGHTS

PUMP TYPE	WEIGHT kg
GLV 65-32-253-B	50
GLV 65-42-253-B	50

glv65-2-2p50-en_a_td



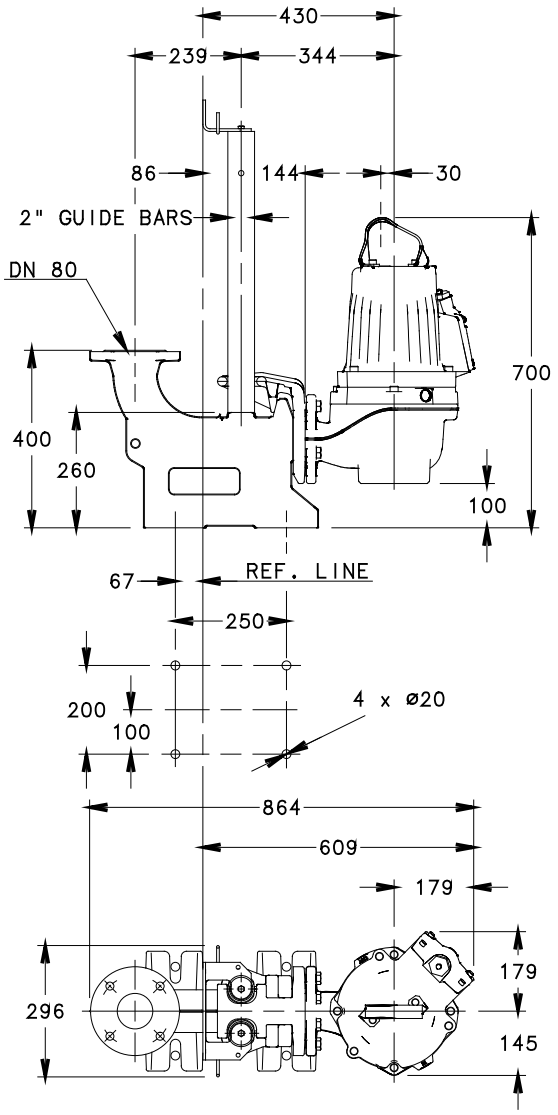


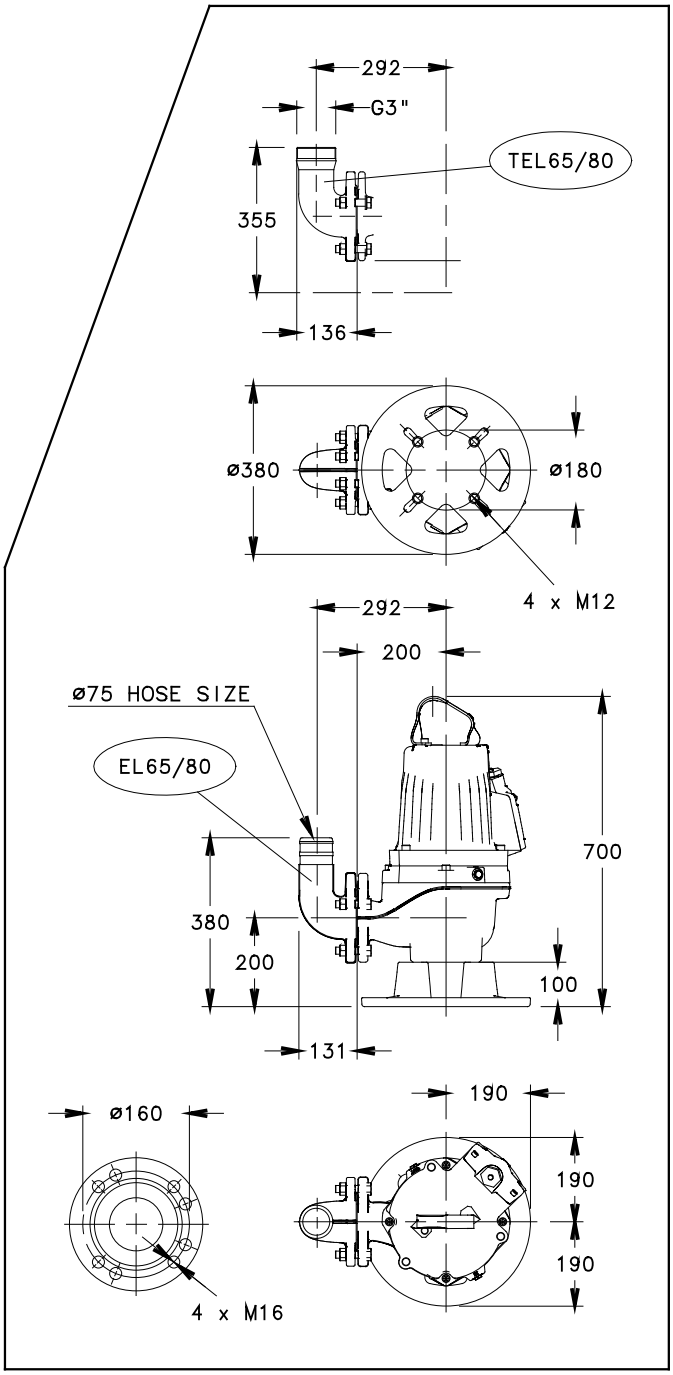
04188_A_DD

GLV 80 SERIES (DN80)
DIMENSIONS AND WEIGHTS

PUMP TYPE	WEIGHT kg
GLV 80-32-253-B	50
GLV 80-42-253-B	50

glv80-1-2p50-en_a_td



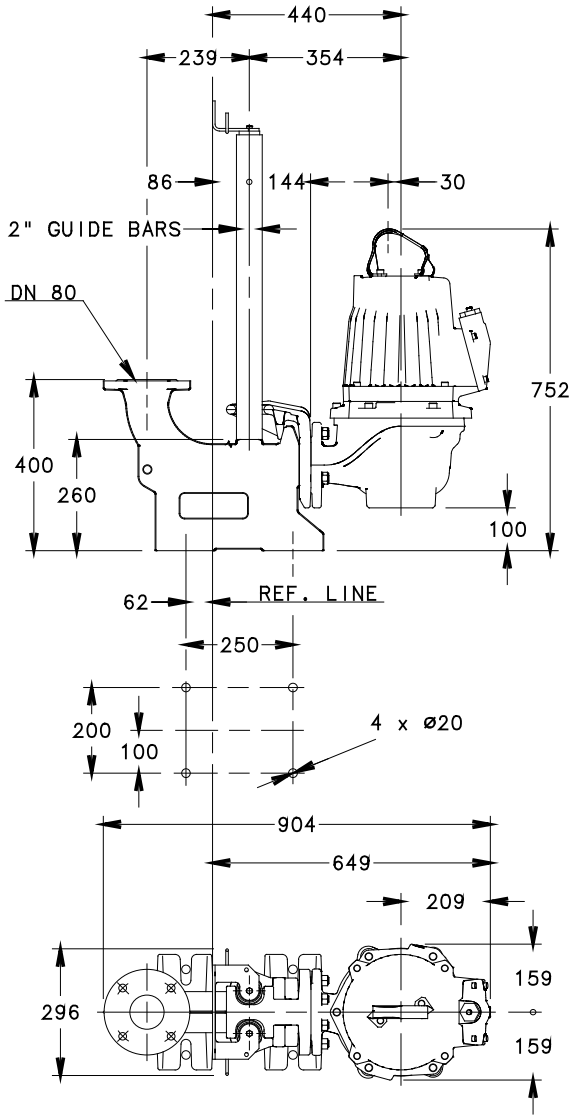


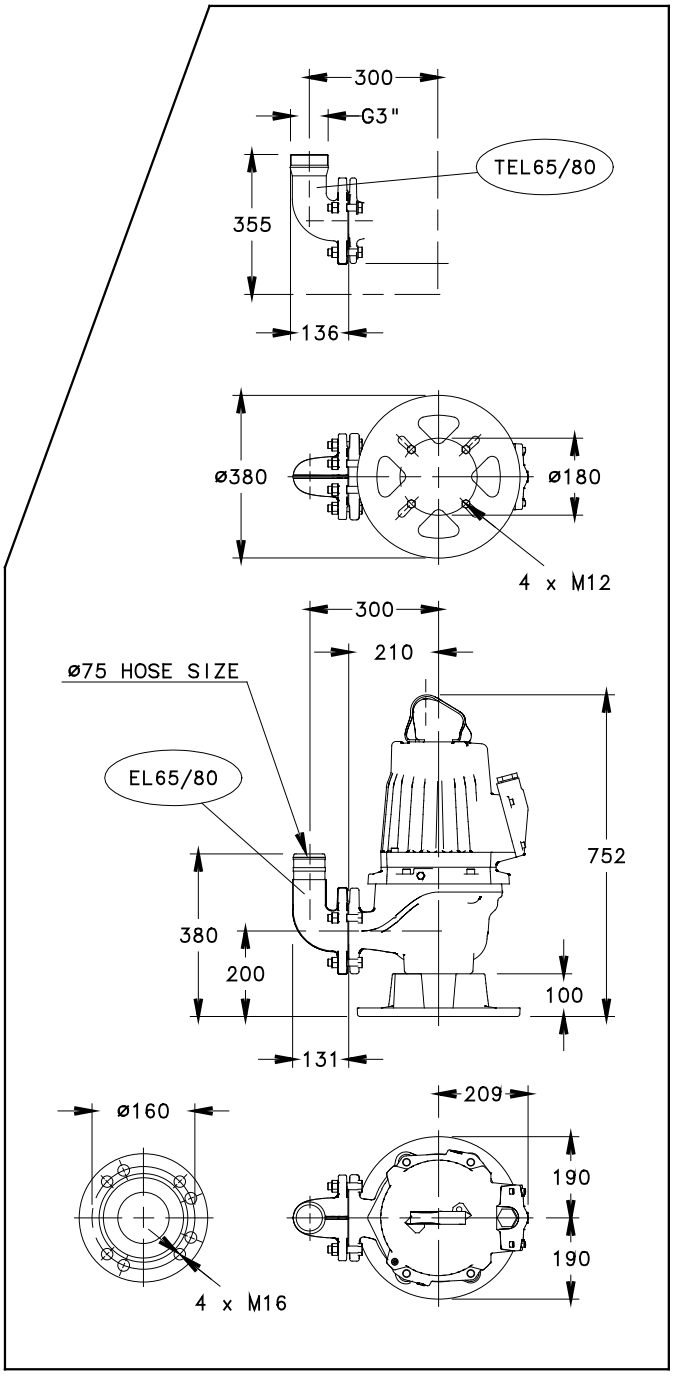
04189_A_DD

GLV 80 SERIES (DN80)
DIMENSIONS AND WEIGHTS

PUMP TYPE	WEIGHT kg
GLV 80-59-253-B	110
GLV 80-74-253-B	110

glv80-2-2p50-en_a_td



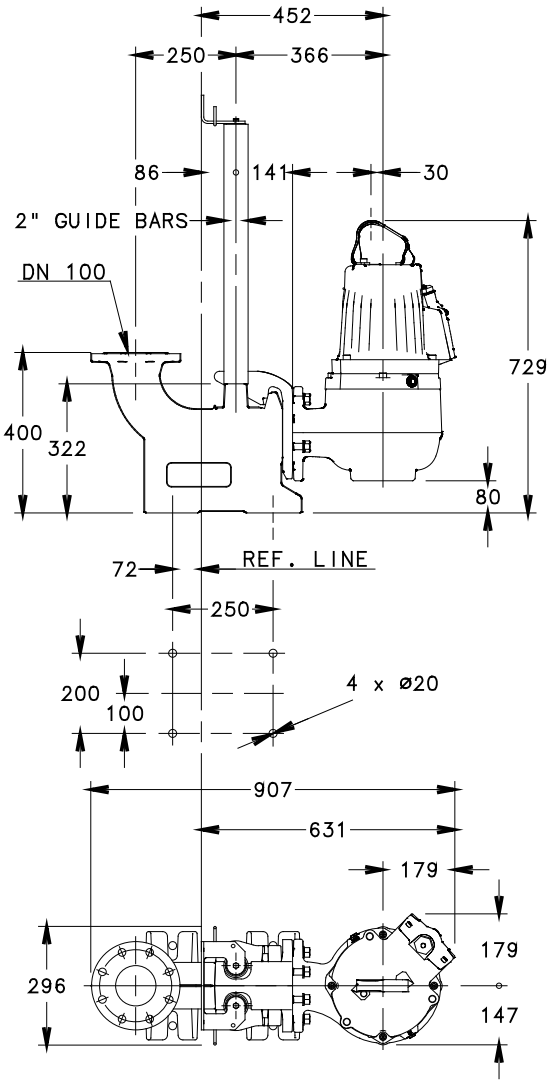


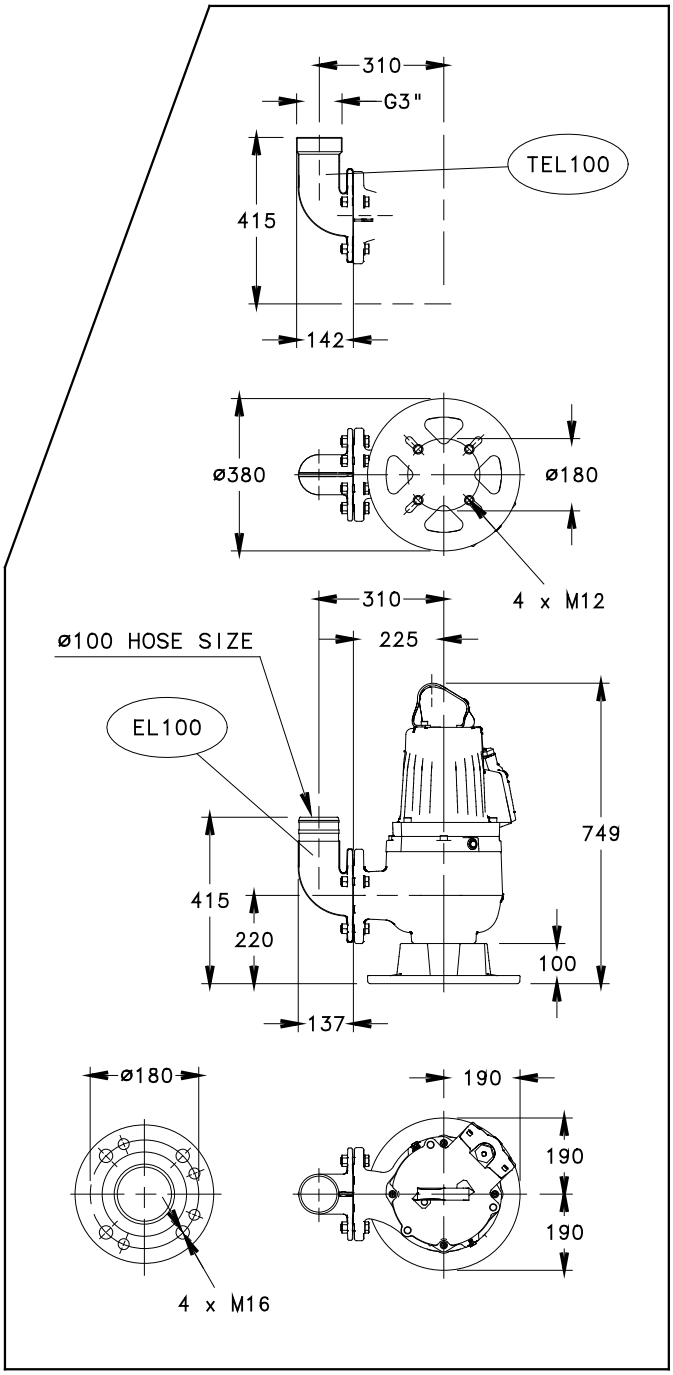
04190_A_DD

GLV 100 SERIES (DN100)
DIMENSIONS AND WEIGHTS

PUMP TYPE	WEIGHT kg
GLV 100-24-253-B	55
GLV 100-31-253-B	55

glv100-1-2p50-en_a_td



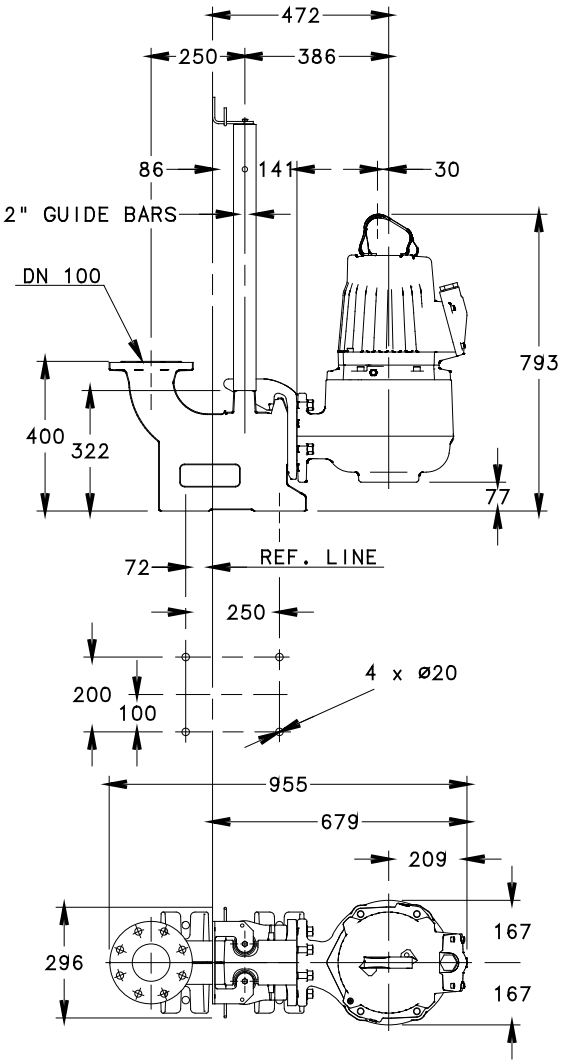


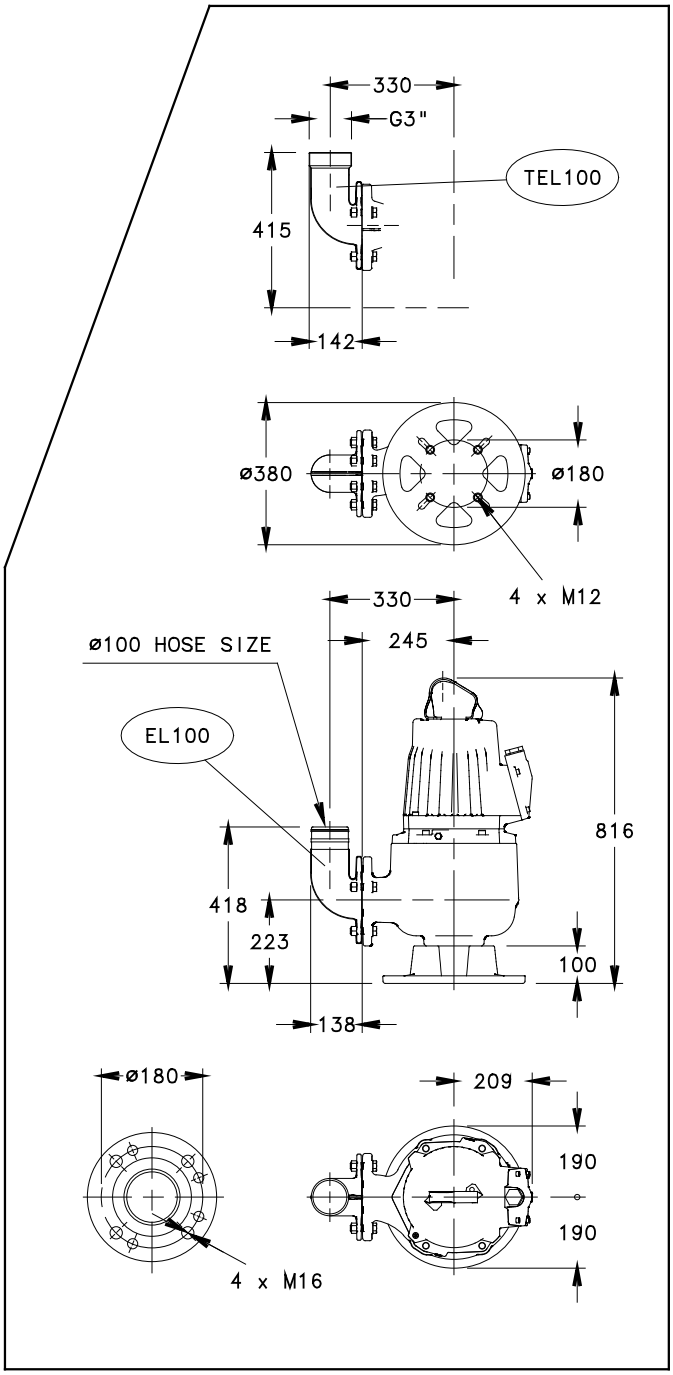
04191_A_DD

GLV 100 SERIES (DN100)
DIMENSIONS AND WEIGHTS

PUMP TYPE	WEIGHT kg
GLV 100-45-253-B	125
GLV 100-59-253-B	125

glv100-2-2p50-en_a_td





04192_A_DD

Submersible Electric Pumps

MARKET SECTORS

RESIDENTIAL AND COMMERCIAL BUILDINGS, INDUSTRIES.

APPLICATIONS

- Handling of sewage, liquids, wastewater and industrial sludge, draining of flooded excavations and marshy ground.

DLG Series (Grinder)

SPECIFICATIONS

- **Delivery**: up to 15 m^3/h.
- **Head**: up to 52 m.
- Maximum liquid **temperature**: 40 °C.
- Maximum immersion depth: 20 m.
- **Passes solids**: up to 6 mm. in diameter.
- DN 50.
- Motor with IP68 protection and class H insulation (180°C).
- **Power supply**: 230V single-phase, 400V three-phase, 50 Hz.
- **Motor power**: up to 5,1 kW.
- Maximum number of starts per hour: 20.
- Oversized motor bearings.
- 10-metre power supply cable with neoprene sheath (H07RN-F).
- Control panel for the single-phase versions without motor thermal protection.

OPTIONAL FEATURES

- Moisture sensor in oil chamber (see electric data table).
- Motor thermal protection (see electric data table).

CONSTRUCTION CHARACTERISTICS

- Sturdy cast iron construction.
- Open **impeller** with grinder assembly.
- Integrated stand.
- Double seal: Silicon Carbide / Silicon Carbide seal on pump side, Ceramic / Carbon on motor side, with interposed oil chamber.
- Adjustable volute bottom cover to compensate for impeller wear and ensure stable long-lasting hydraulic performances.

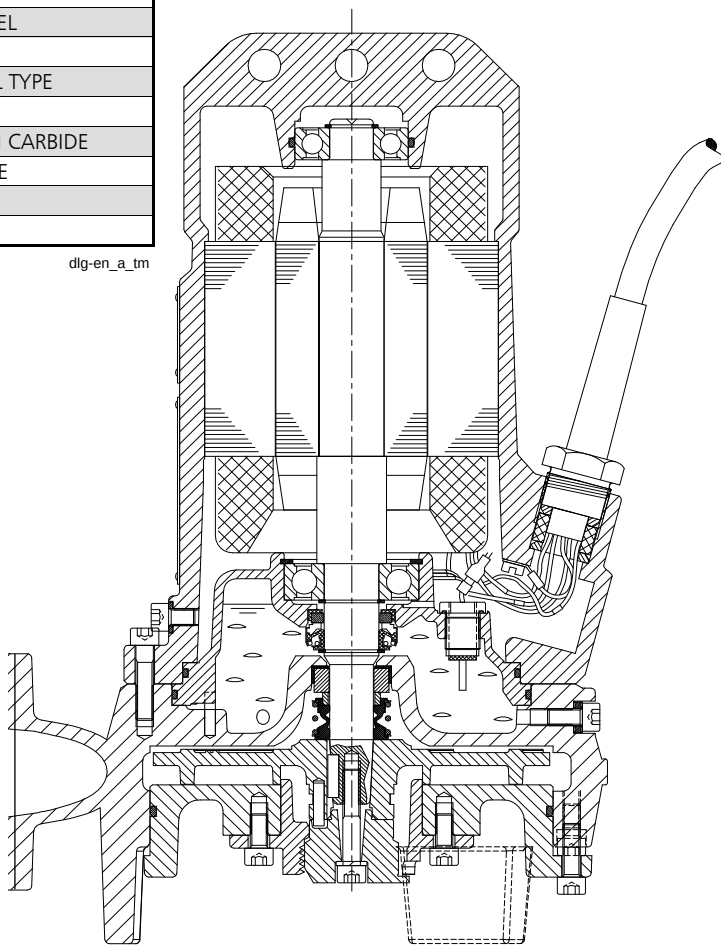
ACCESSORIES / INSTALLATION

- Lowering system.
- 90° delivery elbow with hose connector.
- Threaded flange for delivery port.
- 90° threaded delivery elbow.
- Metal sheath for protection of electrical cable (up to 15 kW).
- Non-return ball valve.
- Float for solids-laden waters.
- Control panels.

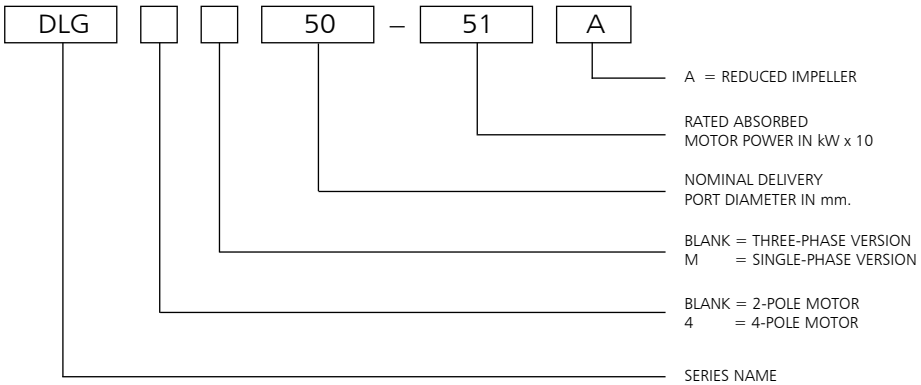
DLG SERIES
PUMP SECTION AND TABLE OF MATERIALS

PART	MATERIAL
Motor casing	GREY IRON
Seal oil chamber	
Pump body	
Impeller	SPHEROIDAL GRAPHITE CAST IRON
Grinder	HARDENED STAINLESS STEEL
Shaft	431 STAINLESS STEEL
Bearings	LIFETIME LUBRICATED BALL TYPE
Motor-side seal	CERAMIC / CARBON
Pump-side seal	SILICON CARBIDE / SILICON CARBIDE
Gaskets	NITRILE RUBBER; NEOPRENE
Bolts and screws	304 STAINLESS STEEL
Power cord	NEOPRENE

dlg-en_a_tm



IDENTIFICATION CODE



EXAMPLE : DLG 50-51 A
DLG series electric pump, 2-pole version, three-phase, 50 mm nominal delivery port, 5,1 kW rated absorbed motor power, A reduced impeller.

DLG SERIES
ELECTRICAL DATA TABLE AT 50 Hz

PUMP TYPE	min^{-1}	Pgr (P1) kW *	(P2) Nom kW ***	VOLTAGE / PHASES	CURRENT			START	ELECTRICAL CABLE TYPE	CAPACITOR 450V RUN / START μF	STATOR THERMAL PROTECT. **	WATER SENSOR IN OIL CHAMBER **
					NOMINAL I_n(A)	INRUSH I_{sp}(A)	ABSORBED I_{abs}(A)					
DLGM 50-15 A	2900	1,2	1,1	230V/1	8,5	-	6,9	-	4G1.5	35/60	✓	✓
DLGM 50-15	2900	1,7	1,1	230V/1	8,5	-	8,5	-	4G1.5	35/60	✓	✓
DLGM 50-21 A	2900	2	1,4	230V/1	10,7	-	9,8	-	4G1.5	35/60	✓	✓
DLGM 50-21	2900	2,3	1,4	230V/1	10,7	-	10,7	-	4G1.5	35/60	✓	✓
DLG 50-15 A	2900	1,1	1,1	400V/3	2,5	17,3	2,4	DOL	4G1.5	-	✓	✓
DLG 50-15	2900	1,5	1,1	400V/3	2,5	17,3	2,5	DOL	4G1.5	-	✓	✓
DLG 50-21 A	2900	1,8	1,5	400V/3	3,4	16,6	2,9	DOL	4G1.5	-	✓	✓
DLG 50-21	2900	2,1	1,5	400V/3	3,4	16,6	3,4	DOL	4G1.5	-	✓	✓
DLG 50-28	2900	2,6	2,2	400V/3	4,5	24	4,5	DOL	4G1.5	-	✓	✓
DLG 50-35 A	2900	3	2,6	400V/3	5,6	25,6	4,8	DOL	4G1.5	-	✓	✓
DLG 50-35	2900	3,5	2,6	400V/3	5,6	25,6	5,6	DOL	4G1.5	-	✓	✓
DLG 50-51 A	2900	4,1	4	400V/3	8,5	53	6,9	YD	7G1.5	-	✓	✓
DLG 50-51	2900	4,7	4	400V/3	8,5	53	8,5	YD	7G1.5	-	✓	✓
DLG4M 50-09	1450	0,95	0,65	230V/1	4,3	-	4,3	-	4G1.5	20/40	✓	✓
DLG4 50-09	1450	0,95	0,65	400V/3	1,7	6,4	1,7	DOL	4G1.5	-	✓	✓

* Maximum value of absorbed motor power within the operating range.

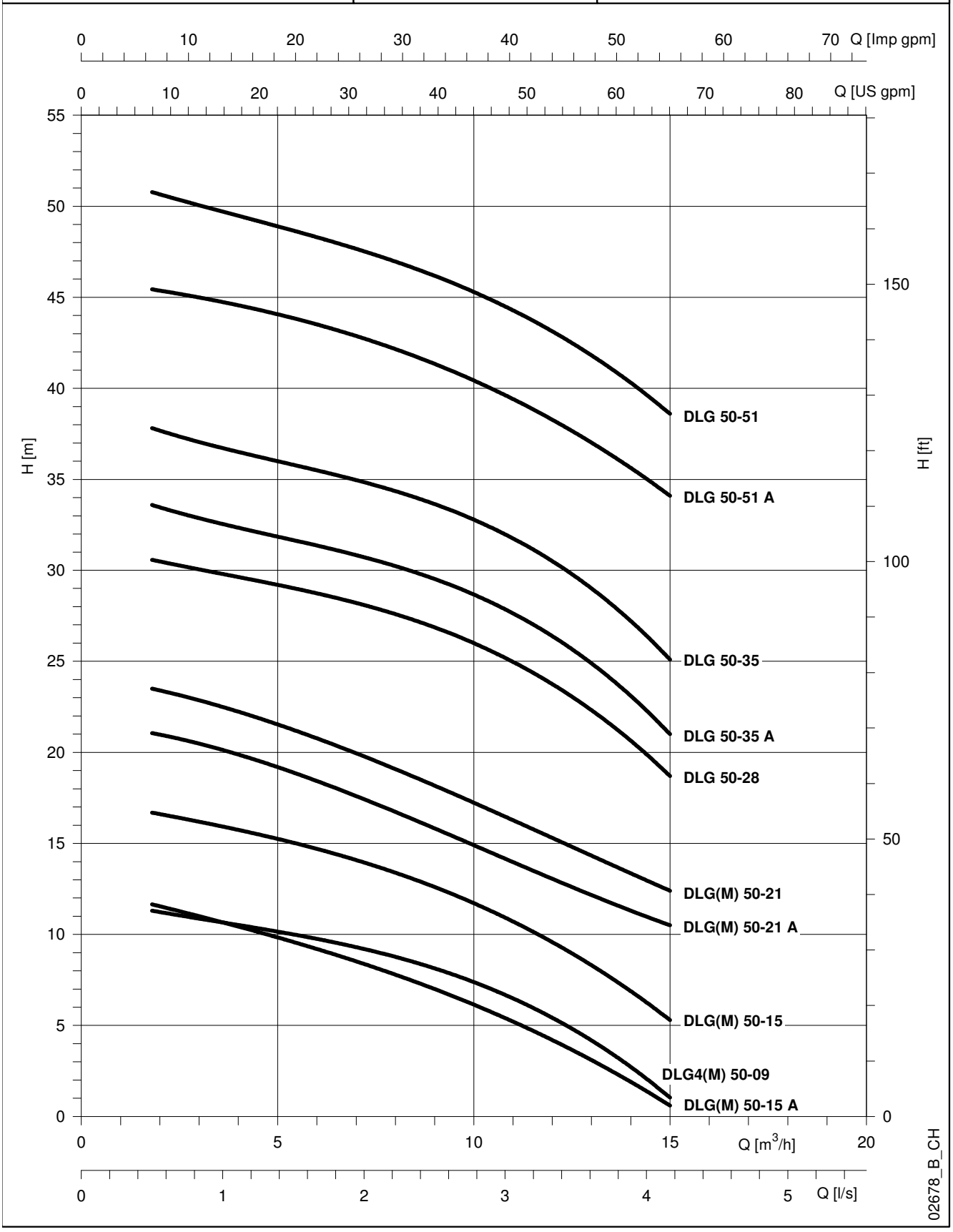
DLG-en_C_te

** ✓ Option available on request.

*** P2 = Rated shaft power.

DLG - DLG4 SERIES
HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 and 4 POLES

DLG(M)-DLG4(M)	~ 2900 -1450[rpm]	ISO 9906 - Annex A



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

DLG SERIES
HYDRAULIC PERFORMANCE TABLE AT 50 Hz

PUMP TYPE	Pgr (P1) kW *	(P2) Nom kW **	D Impeller mm	min^{-1}	Q = DELIVERY l/min 0	17	30	33	50	67	83	100	117	133	150	167	183	200	217	233	250	Passes solids up to (mm)
					m^3/h 0	1	1,8	2	3	4	5	6	7	8,0	9	10	11	12	13	14	15	
					H = TOTAL HEAD METRES COLUMN OF WATER																	
DLGM 50-15 A	1,1	1,1	101	2900	12,6		11,7	11,6	11,0	10,4	9,8	9,2	8,5	7,8	7,0	6,1	5,2	4,2	3,1	1,9	0,6	6
DLGM 50-15	1,5	1,1	114	2900	17,4		16,7	16,6	16,2	15,7	15,3	14,7	14,1	13,4	12,6	11,7	10,7	9,6	8,3	6,9	5,3	6
DLGM 50-21 A	1,9	1,4	123	2900	21,6		21,1	21,0	20,5	19,9	19,2	18,4	17,6	16,7	15,8	14,9	14,0	13,1	12,1	11,3	10,5	6
DLGM 50-21	2,1	1,4	130	2900	24,2		23,5	23,4	22,9	22,2	21,5	20,8	19,9	19,1	18,2	17,2	16,3	15,3	14,3	13,4	12,4	6
DLG 50-15 A	1,1	1,1	101	2900	12,6		11,7	11,6	11,0	10,4	9,8	9,2	8,5	7,8	7,0	6,1	5,2	4,2	3,1	1,9	0,6	6
DLG 50-15	1,5	1,1	114	2900	17,4		16,7	16,6	16,2	15,7	15,3	14,7	14,1	13,4	12,6	11,7	10,7	9,6	8,3	6,9	5,3	6
DLG 50-21 A	1,8	1,5	123	2900	21,6		21,1	21,0	20,5	19,9	19,2	18,4	17,6	16,7	15,8	14,9	14,0	13,1	12,1	11,3	10,5	6
DLG 50-21	2,1	1,5	130	2900	24,2		23,5	23,4	22,9	22,2	21,5	20,8	19,9	19,1	18,2	17,2	16,3	15,3	14,3	13,4	12,4	6
DLG 50-28	2,6	2,2	146	2900	31,5		30,6	30,5	30,0	29,6	29,2	28,7	28,2	27,6	26,9	26,0	25,0	23,8	22,3	20,7	18,7	6
DLG 50-35 A	3	2,6	156	2900	35,0		33,6	33,5	32,9	32,3	31,9	31,4	30,8	30,2	29,5	28,6	27,7	26,4	24,9	23,1	21,0	6
DLG 50-35	3,5	2,6	160	2900	39,3		37,8	37,7	37,1	36,5	36,0	35,5	34,9	34,4	33,6	32,8	31,8	30,5	29,0	27,3	25,1	6
DLG 50-51 A	4,1	4	176	2900	46,0		45,4	45,4	45,0	44,6	44,1	43,5	42,9	42,2	41,3	40,4	39,4	38,3	37,0	35,7	34,1	6
DLG 50-51	4,7	4	182	2900	52,0		50,8	50,7	50,1	49,5	48,9	48,3	47,7	47,0	46,2	45,3	44,3	43,1	41,8	40,3	38,6	6
DLG4M 50-09	0,95	0,65	182	1450	12,1		11,3	11,2	10,9	10,5	10,2	9,8	9,3	8,8	8,1	7,4	6,5	5,4	4,2	2,8	1,0	6
DLG4 50-09	0,95	0,65	180	1450	12,1		11,3	11,2	10,9	10,5	10,2	9,8	9,3	8,8	8,1	7,4	6,5	5,4	4,2	2,8	1,0	6

Performances according to ISO Standard 9906 –Annex A.

dlg_50-en_b_th

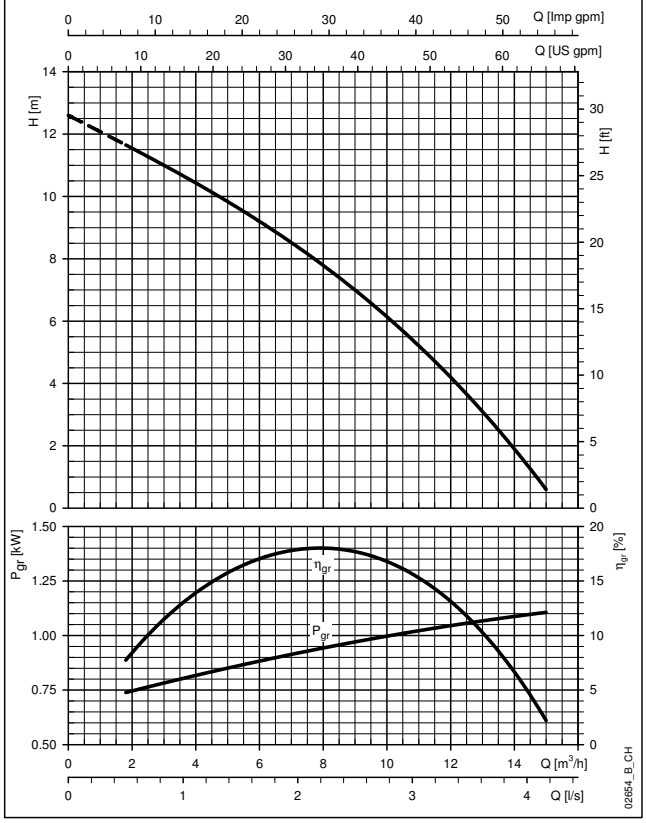
These performances are valid for liquids with density $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

* Maximum value of absorbed motor power within the operating range.

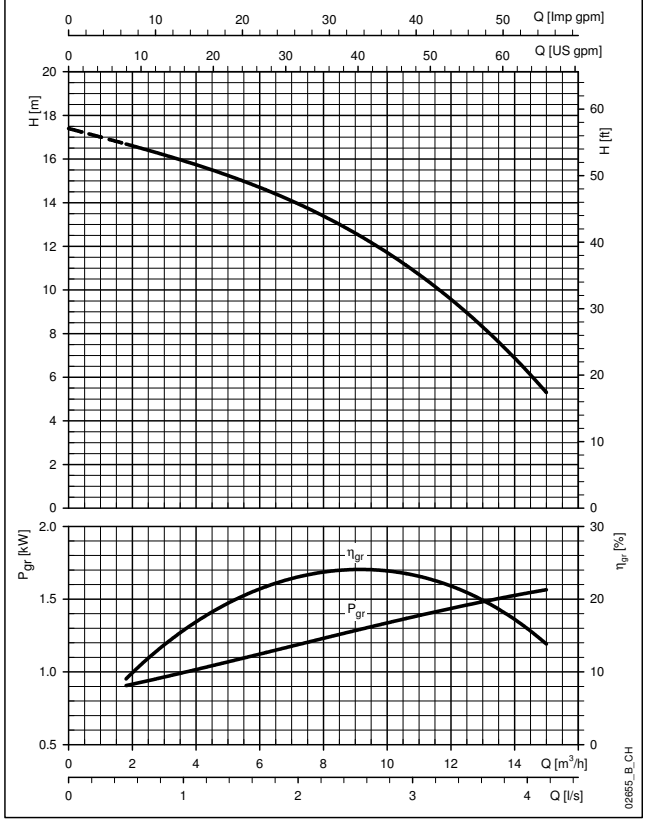
** P2 = Rated shaft power.

DLG SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

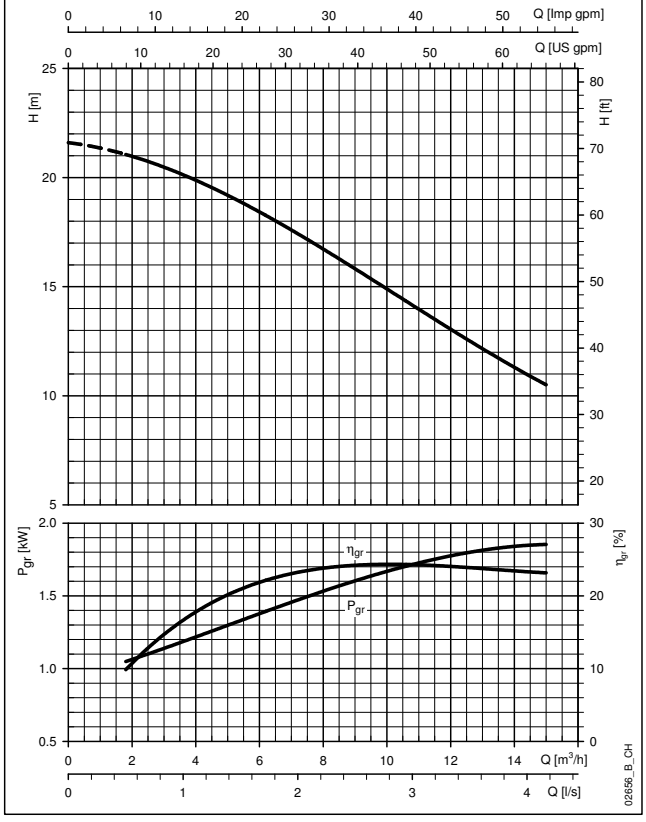
DLGM 50-15 A | ~ 2900 [rpm] | ISO 9906 - Annex A



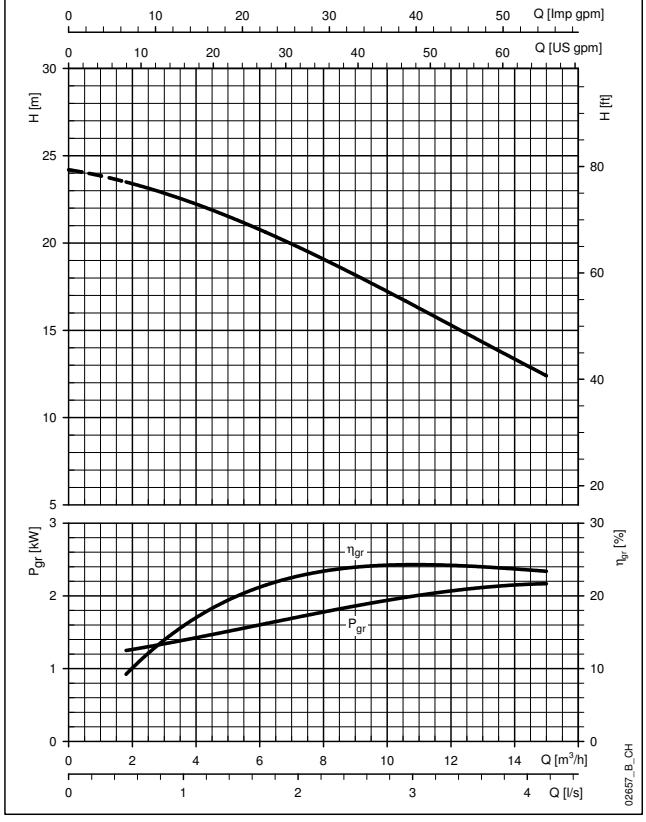
DLGM 50-15 | ~ 2900 [rpm] | ISO 9906 - Annex A



DLGM 50-21 A | ~ 2900 [rpm] | ISO 9906 - Annex A



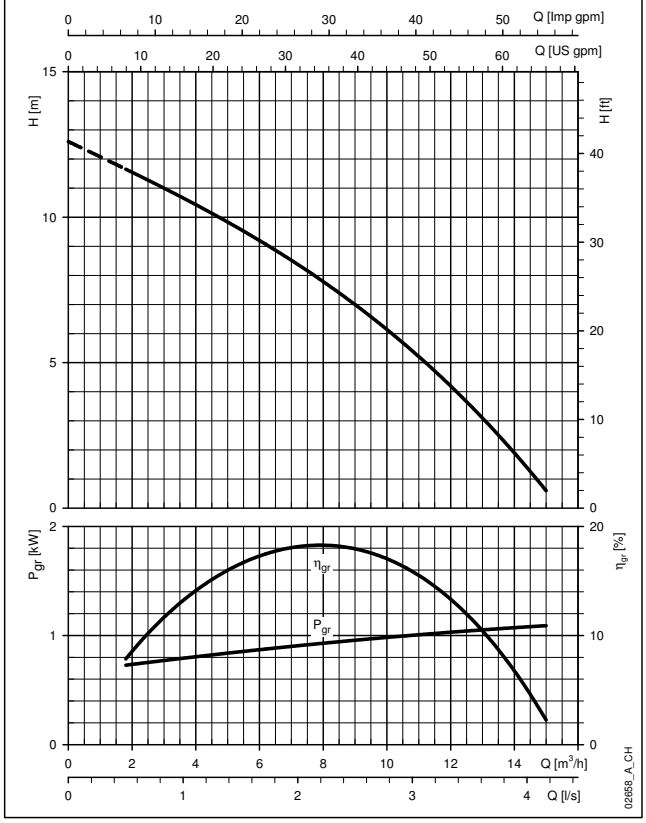
DLGM 50-21 | ~ 2900 [rpm] | ISO 9906 - Annex A



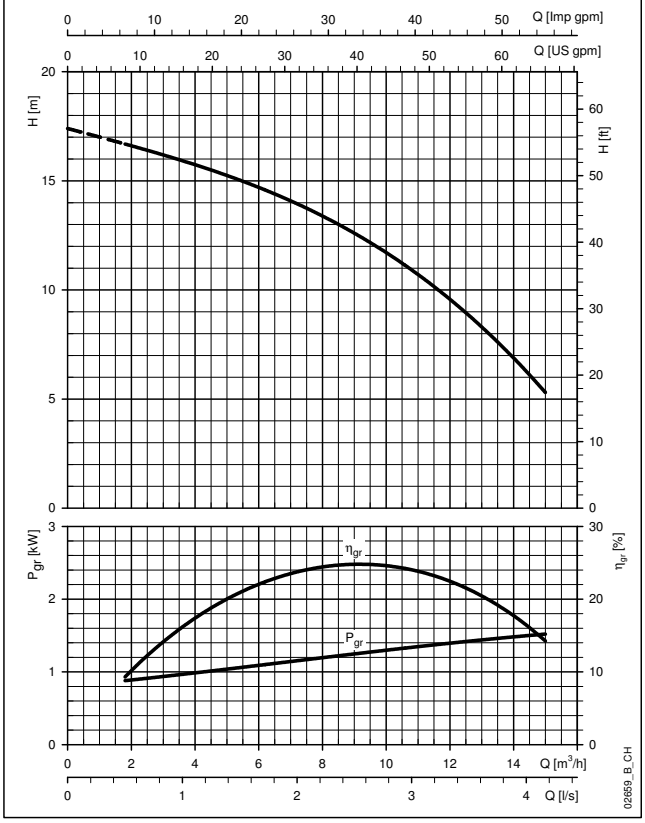
These performances are valid for liquids with density $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

DLG SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

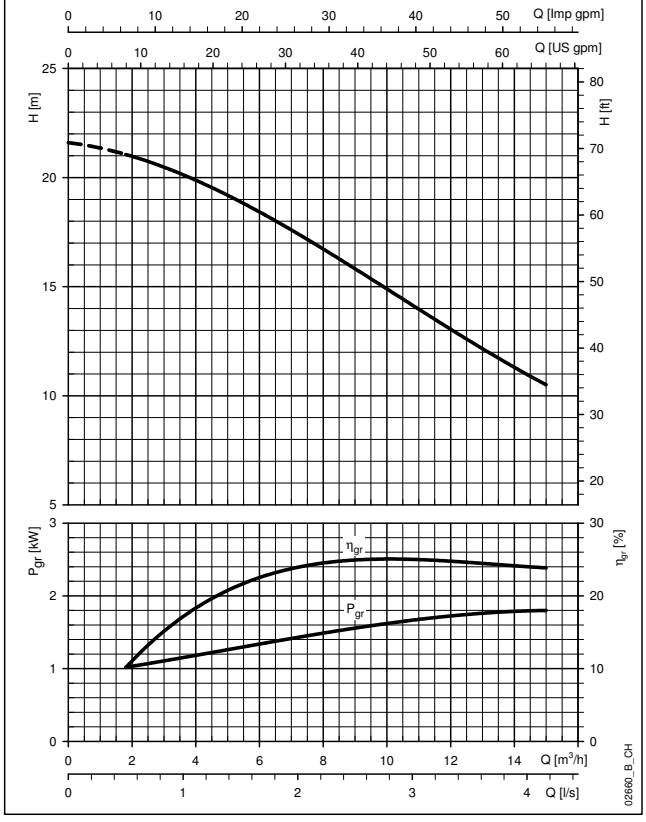
DLG 50-15 A | ~ 2900 [rpm] | ISO 9906 - Annex A



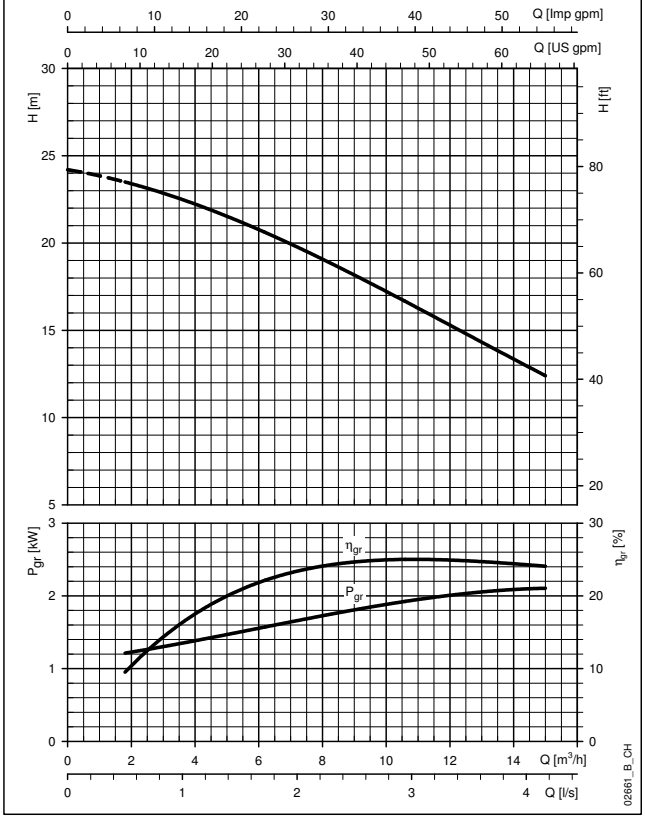
DLG 50-15 | ~ 2900 [rpm] | ISO 9906 - Annex A



DLG 50-21 A | ~ 2900 [rpm] | ISO 9906 - Annex A



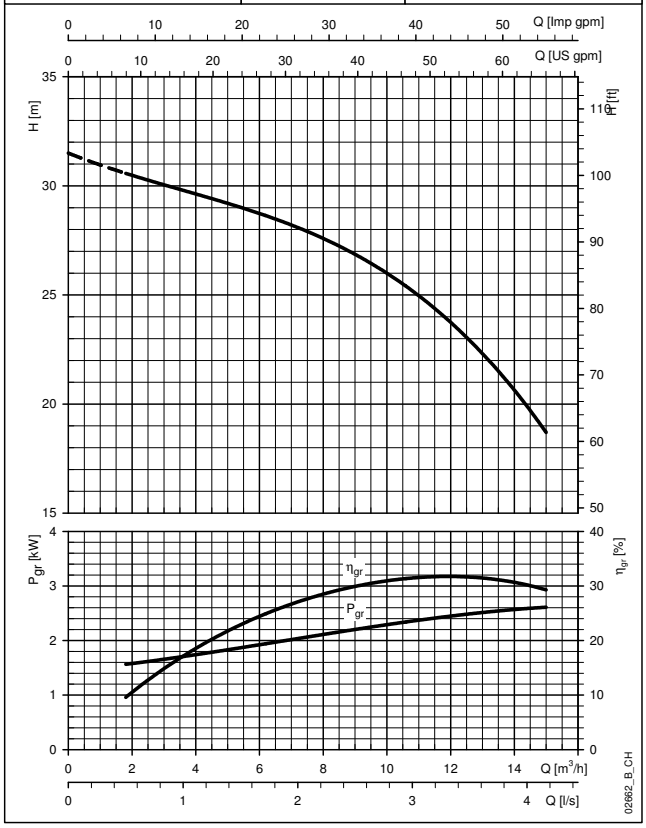
DLG 50-21 | ~ 2900 [rpm] | ISO 9906 - Annex A



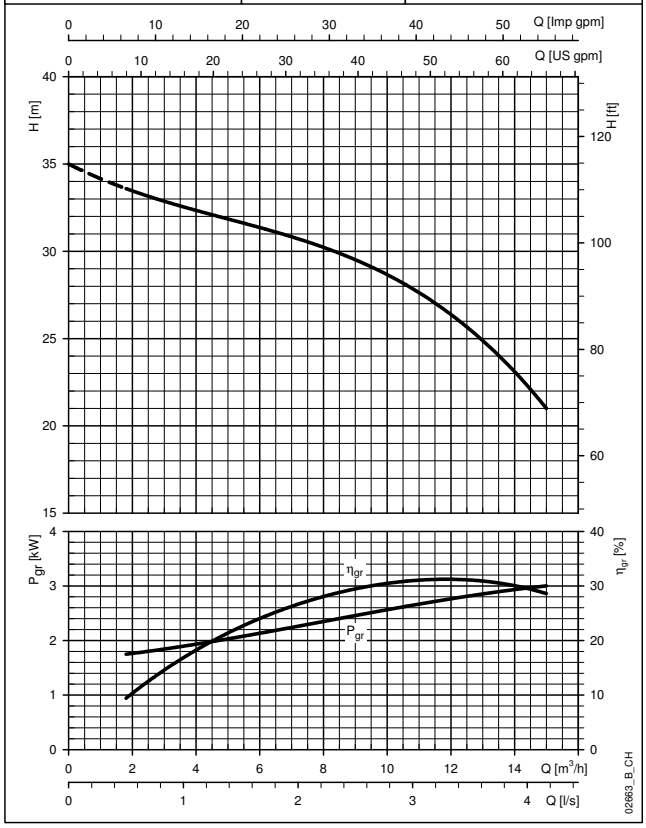
These performances are valid for liquids with density $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

DLG SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES

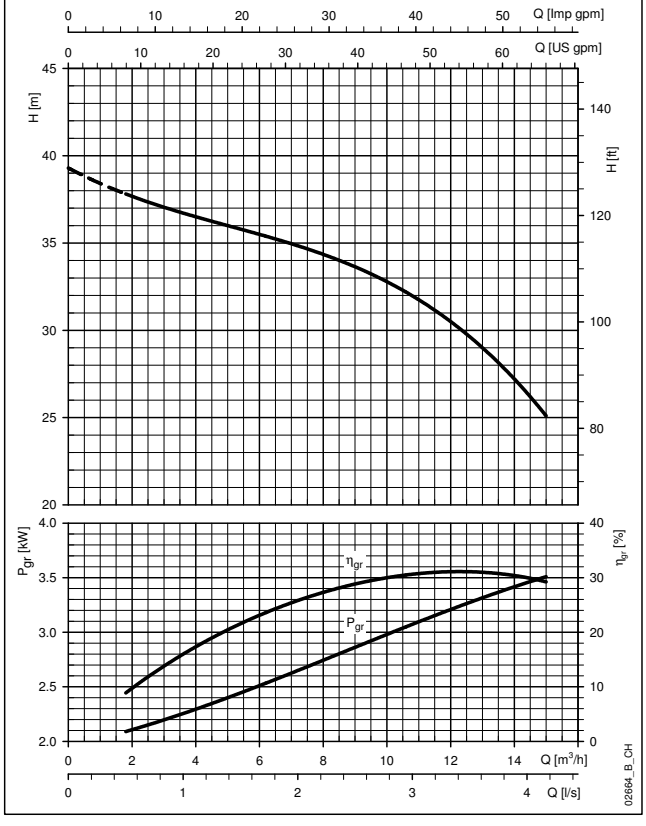
DLGM 50-28 | ~ 2900 [rpm] | ISO 9906 - Annex A



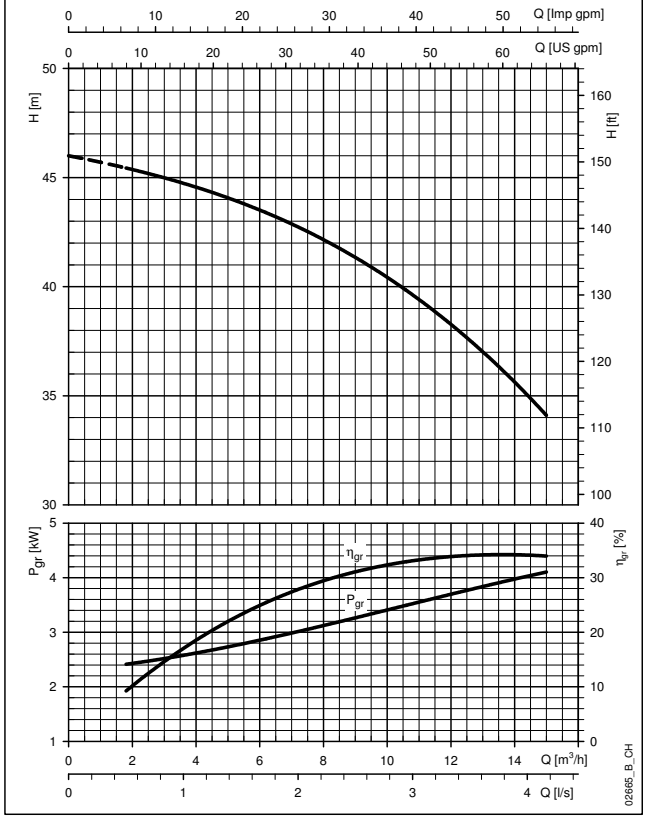
DLG 50-35 A | ~ 2900 [rpm] | ISO 9906 - Annex A



DLG 50-35 | ~ 2900 [rpm] | ISO 9906 - Annex A

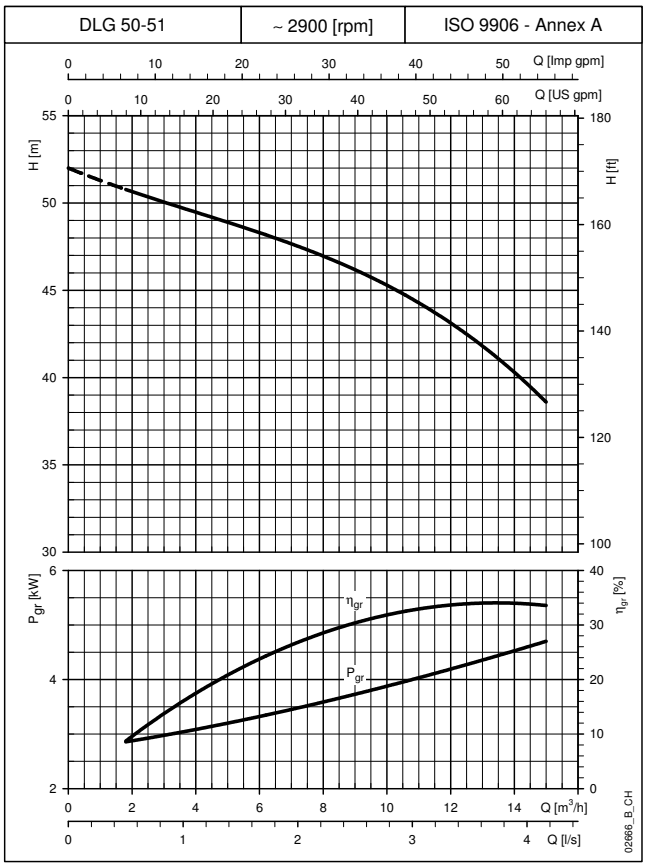


DLG 50-51 A | ~ 2900 [rpm] | ISO 9906 - Annex A



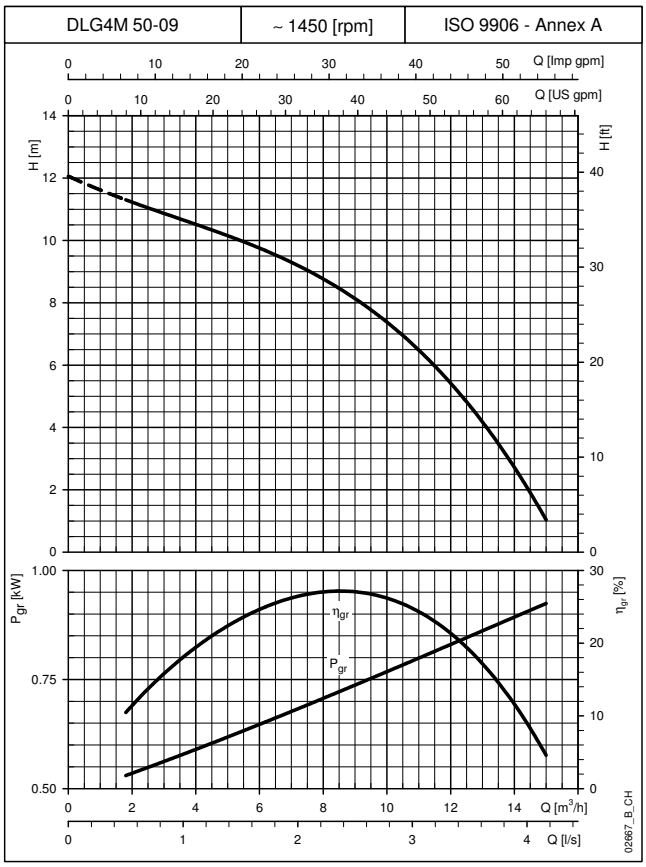
These performances are valid for liquids with density $\rho = 1.0$ Kg/dm^3 and kinematic viscosity $\nu = 1$ mm^2/sec.

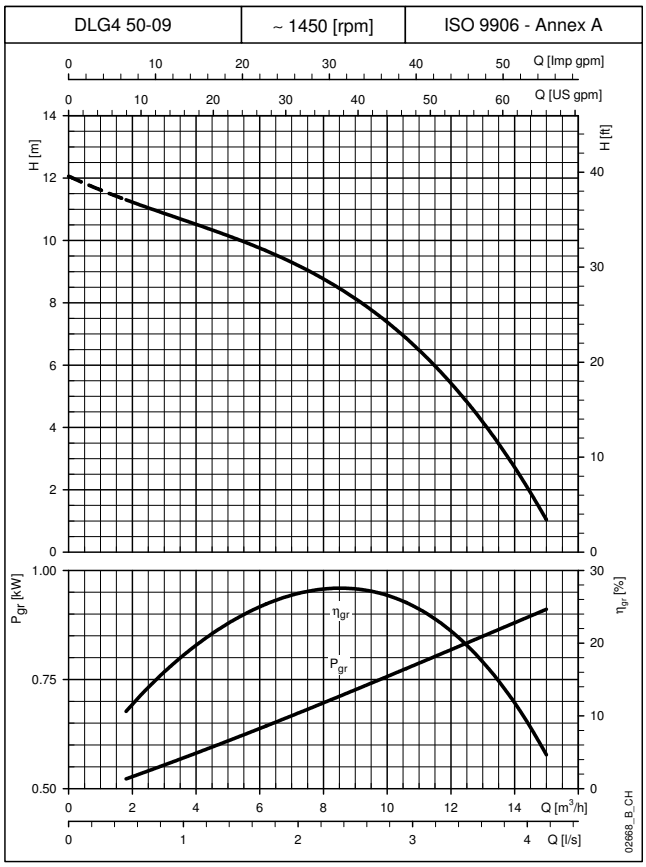
DLG SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES



These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

DLG4 SERIES
OPERATING CHARACTERISTICS AT 50 Hz, 4 POLES

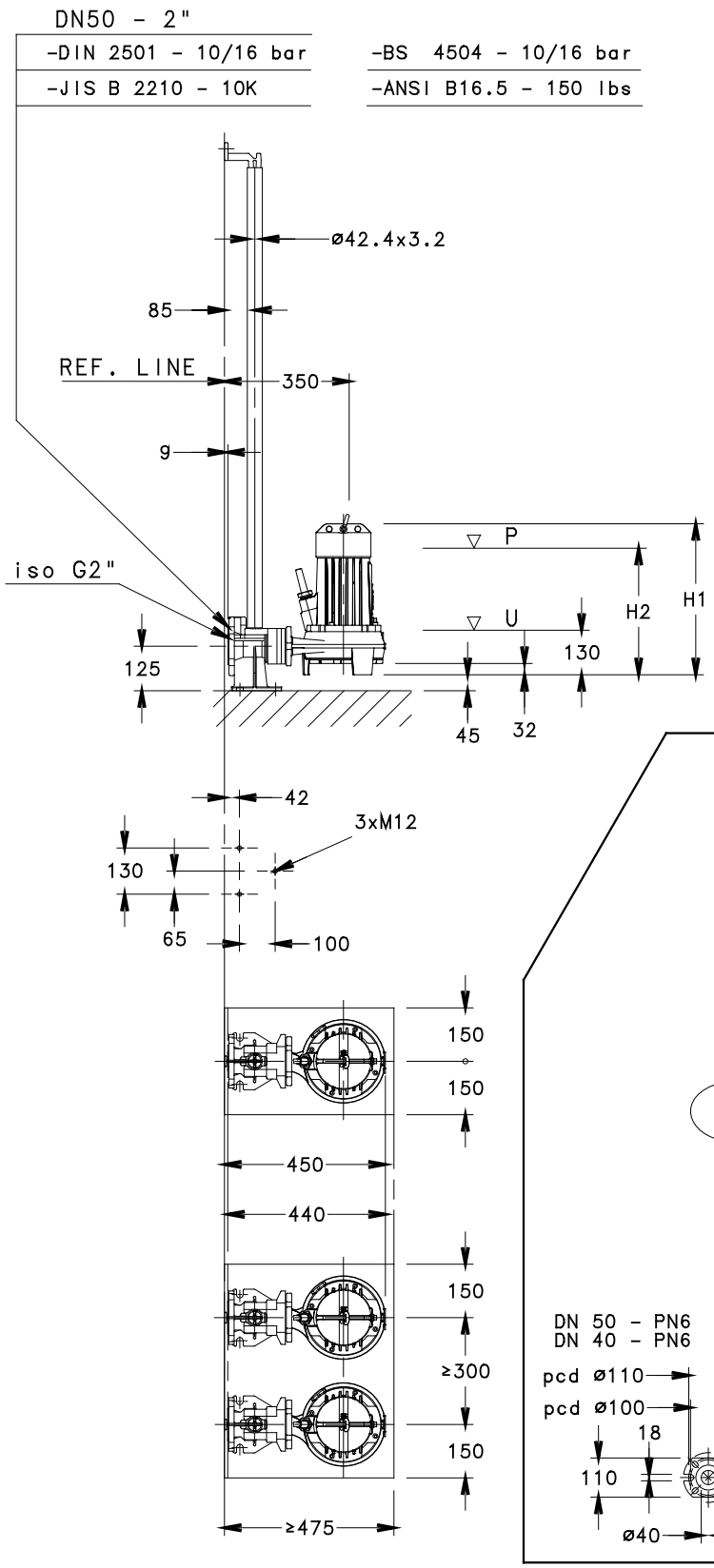


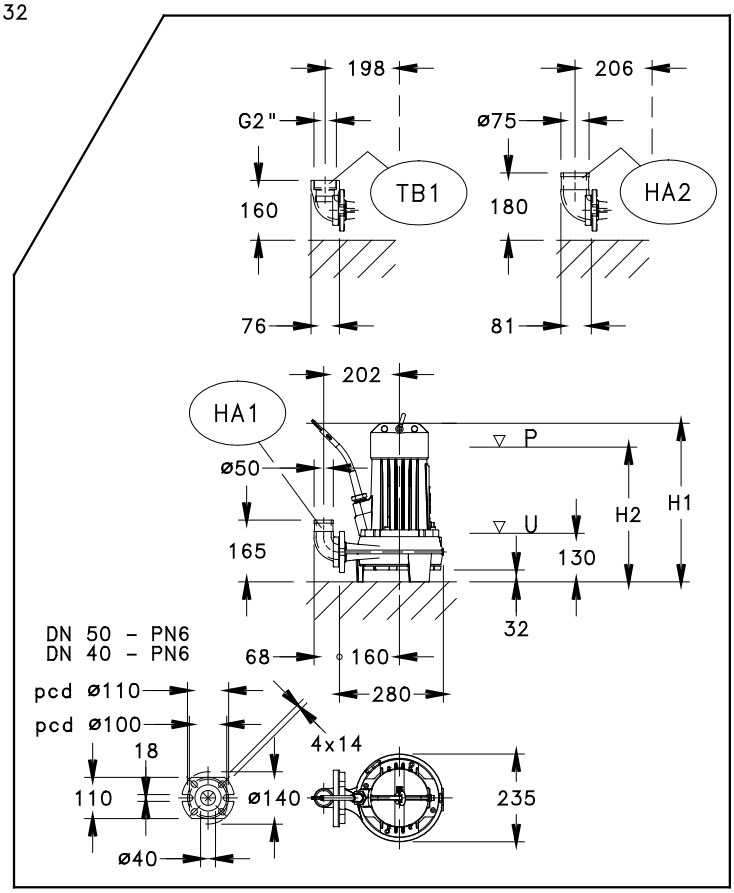


These performances are valid for liquids with density $\rho = 1.0$ Kg/dm³ and kinematic viscosity $\nu = 1$ mm²/sec.

DLG SERIES DIMENSIONS AND WEIGHTS

DLG 50 SERIES (DN50) DS1
DIMENSIONS AND WEIGHTS





PUMP TYPE	DIMENSIONS (mm)		WEIGHT kg
	H1	H2	
DLGM 50-15A	425	360	42
DLGM 50-15	425	360	42
DLGM 50-21A	425	360	42
DLGM 50-21	425	360	42
DLG 50-15A	425	360	42
DLG 50-15	425	360	42
DLG 50-21A	425	360	42
DLG 50-21	425	360	42
DLG 50-28	425	360	42
DLG 50-35A	425	360	42
DLG 50-35	425	360	42
DLG 50-51A	425	360	42
DLG 50-51	425	360	42
DLG4M 50-09	425	360	42
DLG4 50-09	425	360	40

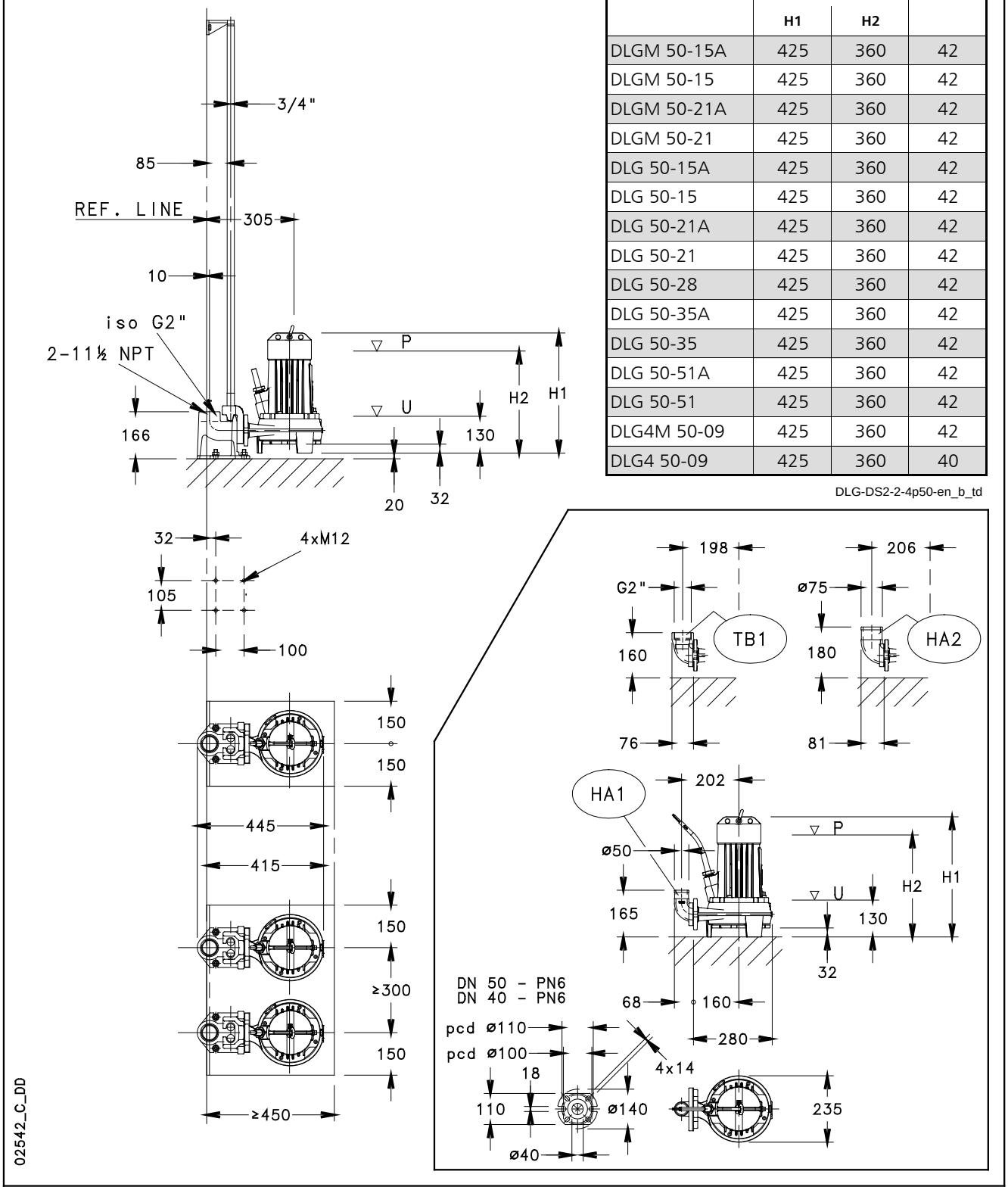
DLG-DS1-2-4p50-en_b_td

P = Minimum liquid level for continuous operation.
U = Minimum operating level to prevent air entrance into pump.

DLG 50 SERIES (DN50) DS2A
DIMENSIONS AND WEIGHTS

PUMP TYPE	DIMENSIONS (mm)		WEIGHT kg
	H1	H2	
DLGM 50-15A	425	360	42
DLGM 50-15	425	360	42
DLGM 50-21A	425	360	42
DLGM 50-21	425	360	42
DLG 50-15A	425	360	42
DLG 50-15	425	360	42
DLG 50-21A	425	360	42
DLG 50-21	425	360	42
DLG 50-28	425	360	42
DLG 50-35A	425	360	42
DLG 50-35	425	360	42
DLG 50-51A	425	360	42
DLG 50-51	425	360	42
DLG4M 50-09	425	360	42
DLG4 50-09	425	360	40

DLG-DS2-2-4p50-en_b_td



P = Minimum liquid level for continuous operation.
U = Minimum operating level to prevent air entrance into pump.

ACCESSORIES

Electrical panel for drainage pumps

A large selection of Control Panels are available from ITT Lowara, Please consult the sales office for further informartion and prices.

GLS SERIES
ACCESSORIES

ELECTRIC PUMP TYPE	LOWERING SYSTEM				KIT 90° ELBOW WITH HOSE CONNECTOR	THREADED KIT 90° ELBOW	STAND KIT
	BASEPLATE	UPPER GUIDE RAIL HOLDER	FIXING KIT	KIT GUIDECLAW			
GLS 50-15-251-S	BP50	UG50	FK50	-	-	-	integrated
GLS 50-15-251-P	BP50	UG50	FK50	integrated	-	-	-
GLS 50-16-253-S	BP50	UG50	FK50	-	-	-	integrated
GLS 50-16-253-P	BP50	UG50	FK50	integrated	-	-	-
GLS 50-20-253-S	BP50	UG50	FK50	-	-	-	integrated
GLS 50-20-253-P	BP50	UG50	FK50	integrated	-	-	-
GLS 50-24-253-S	BP50	UG50	FK50	-	-	-	integrated
GLS 50-24-253-P	BP50	UG50	FK50	integrated	-	-	-
GLS 65-15-251	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLS 65-16-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLS 65-20-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLS 65-24-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLS 65-32-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	ST65/80/100
GLS 65-42-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	ST65/80/100
GLS 80-32-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLS 80-42-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLS 80-59-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLS 80-74-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLS 100-24-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLS 100-31-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLS 100-45-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLS 100-59-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100

LEGEND	
BP50 = Baseplate DN50	GC65 = Kit guideclaw DN65
BP65 = Baseplate DN65	GC80 = Kit guideclaw DN80
BP80 = Baseplate DN80	GC100 = Kit guideclaw DN100
BP100 = Baseplate DN100	EL65/80 = Kit 90° elbow with hose connector DN65/80 - 75mm
UG50 = Upper guide rail holder DN50	EL100 = Kit 90° elbow with hose connector DN100 - 100mm
UG65/80/100 = Upper guide rail holder DN65/80/100	TEL65/80 = Threaded kit 90° elbow ISO G3"
FK50 = Fixing kit DN50	TEL100 = Threaded kit 90° elbow ISO G4"
FK65/80/100 = Fixing kit DN65/80/100	ST65/80/100 = Stand kit DN65/80/100

GLS-en_A_TA

GLV SERIES
ACCESSORIES

ELECTRIC PUMP TYPE	LOWERING SYSTEM				KIT 90° ELBOW WITH HOSE CONNECTOR	THREADED KIT 90° ELBOW	STAND KIT
	BASEPLATE	UPPER GUIDE RAIL HOLDER	FIXING KIT	KIT GUIDECLAW			
GLV 50-12-251-S	BP50	UG50	FK50	-	-	-	integrated
GLV 50-12-251-P	BP50	UG50	FK50	integrated	-	-	-
GLV 50-15-251-S	BP50	UG50	FK50	-	-	-	integrated
GLV 50-15-251-P	BP50	UG50	FK50	integrated	-	-	-
GLV 50-16-253-S	BP50	UG50	FK50	-	-	-	integrated
GLV 50-16-253-P	BP50	UG50	FK50	integrated	-	-	-
GLV 50-20-253-S	BP50	UG50	FK50	-	-	-	integrated
GLV 50-20-253-P	BP50	UG50	FK50	integrated	-	-	-
GLV 50-24-253-S	BP50	UG50	FK50	-	-	-	integrated
GLV 50-24-253-P	BP50	UG50	FK50	integrated	-	-	-
GLV 65-15-251	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLV 65-15-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLV 65-20-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLV 65-24-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	integrated
GLV 65-32-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	ST65/80/100
GLV 65-42-253	BP65	UG65/80/100	FK65/80/100	GC65	EL65/80	TEL65/80	ST65/80/100
GLV 80-32-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLV 80-42-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLV 80-59-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLV 80-74-253	BP80	UG65/80/100	FK65/80/100	GC80	EL65/80	TEL65/80	ST65/80/100
GLV 100-24-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLV 100-31-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLV 100-45-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100
GLV 100-59-453	BP100	UG65/80/100	FK65/80/100	GC100	EL100	TEL100	ST65/80/100

LEGEND	
BP50 = Baseplate DN50	GC65 = Kit guideclaw DN65
BP65 = Baseplate DN65	GC80 = Kit guideclaw DN80
BP80 = Baseplate DN80	GC100 = Kit guideclaw DN100
BP100 = Baseplate DN100	EL65/80 = Kit 90° elbow with hose connector DN65/80 - 75mm
UG50 = Upper guide rail holder DN50	EL100 = Kit 90° elbow with hose connector DN100 - 100mm
UG65/80/100 = Upper guide rail holder DN65/80/100	TEL65/80 = Threaded kit 90° elbow ISO G3"
FK50 = Fixing kit DN50	TEL100 = Threaded kit 90° elbow ISO G4"
FK65/80/100 = Fixing kit DN65/80/100	ST65/80/100 = Stand kit DN65/80/100

DLG SERIES
ACCESSORIES

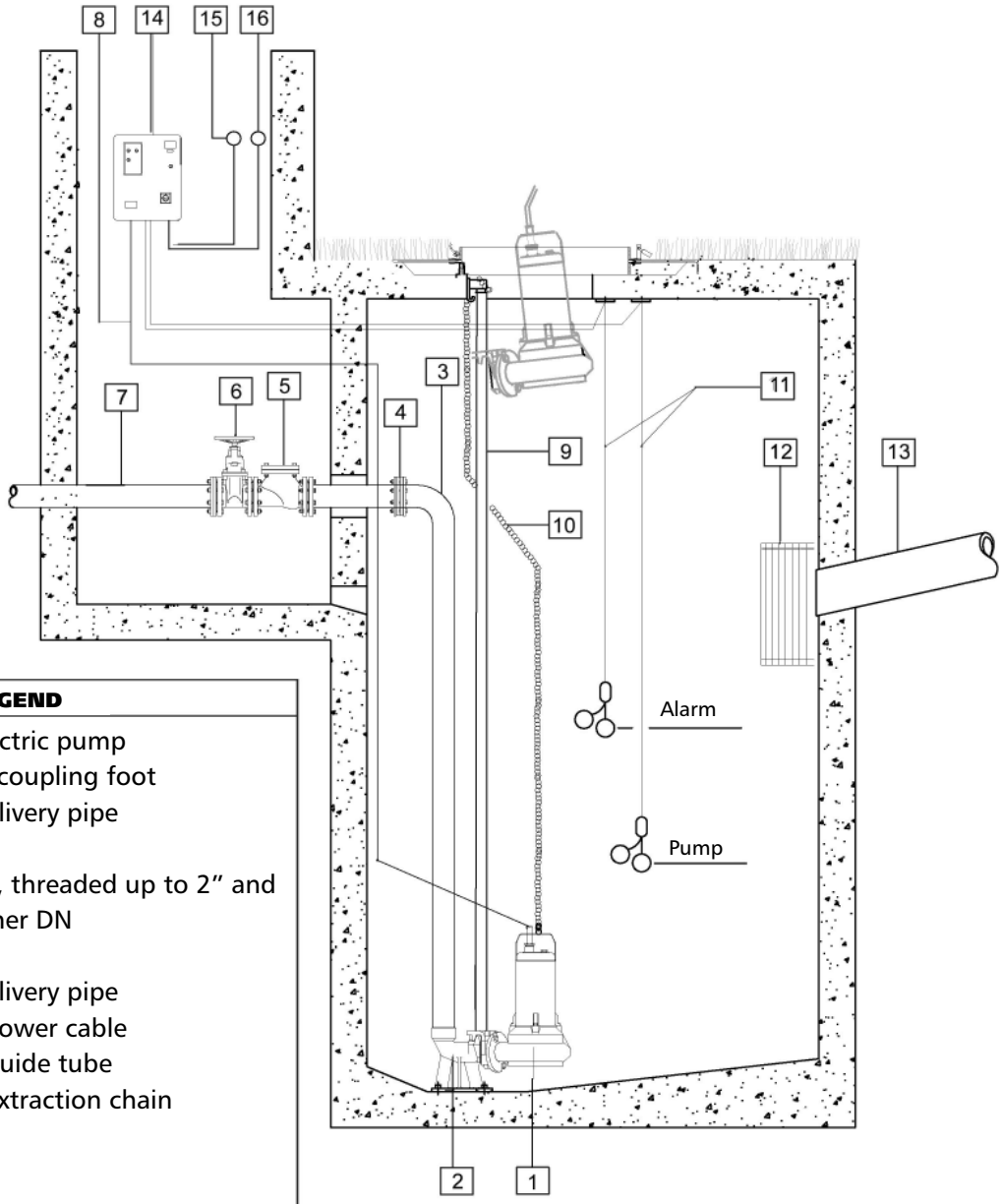
TYPE	LOWERING SYSTEM KIT		90° ELBOW WITH HOSE CONNECTOR		THREADED 90° ELBOW	THREADED FLANGE	STAND
ELECTRIC PUMP	TYPE 1	TYPE 2	TYPE 1	TYPE 2			
DLGM 50-15 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLGM 50-15	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLGM 50-21 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLGM 50-21	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-15 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-15	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-21 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-21	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-28	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-35 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-35	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-51 A	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG 50-51	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG4M 50-09	DS1	DS2A	HA1	HA2	TB1	TF3	integrato
DLG4 50-09	DS1	DS2A	HA1	HA2	TB1	TF3	integrato

LEGEND

DS1 = DS1 lowering kit DN 50-65/C	HA1 = HA1 hose connector 50mm
DS2A = DS2A lowering kit DN 50-65 2R/C	HA2 = HA2 hose connector 75mm
TB1 = TB1 2" F elbow	TF3 = TF3 2" F flange

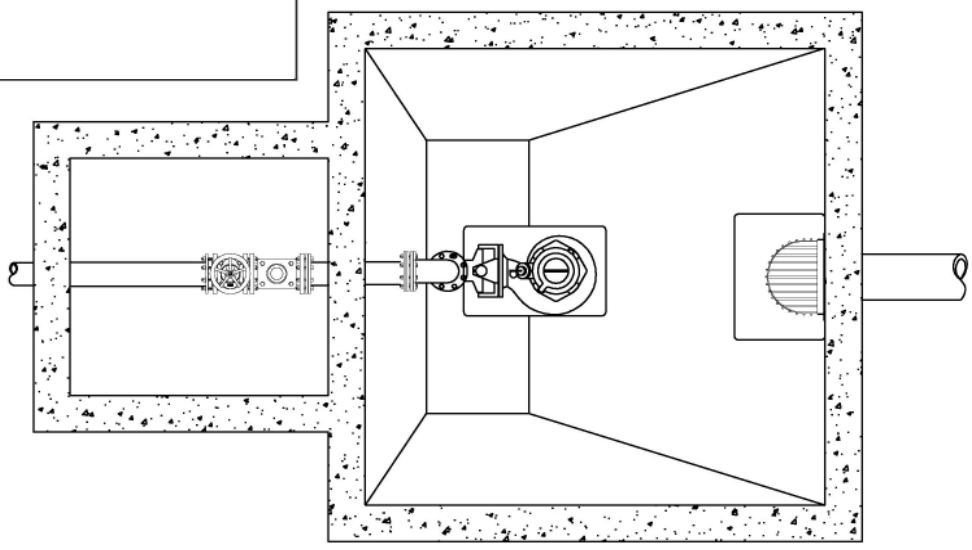
DLG-en_B_TA

EXAMPLE OF INSTALLATION OF SINGLE-PUMP SYSTEM

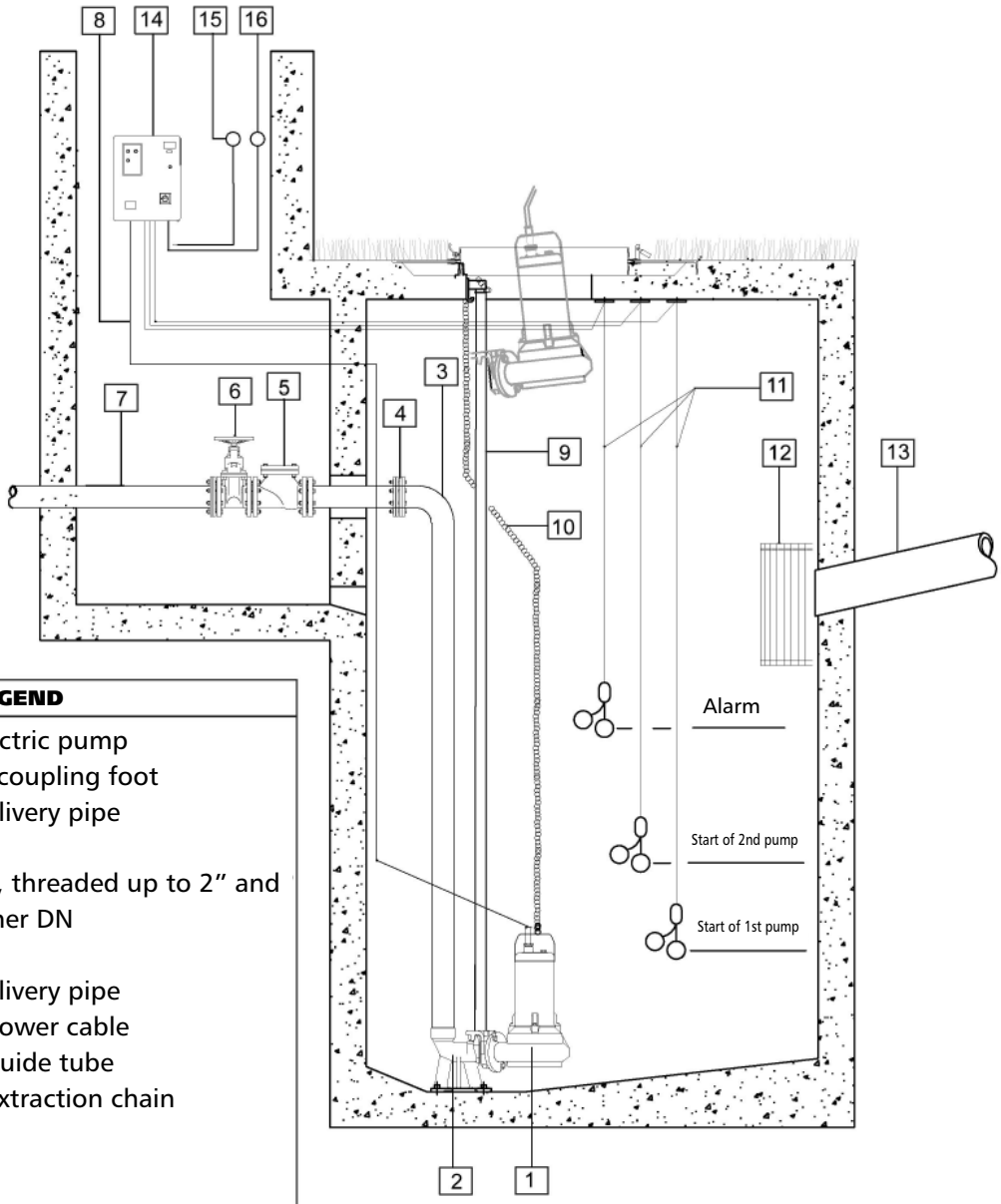


LEGEND

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

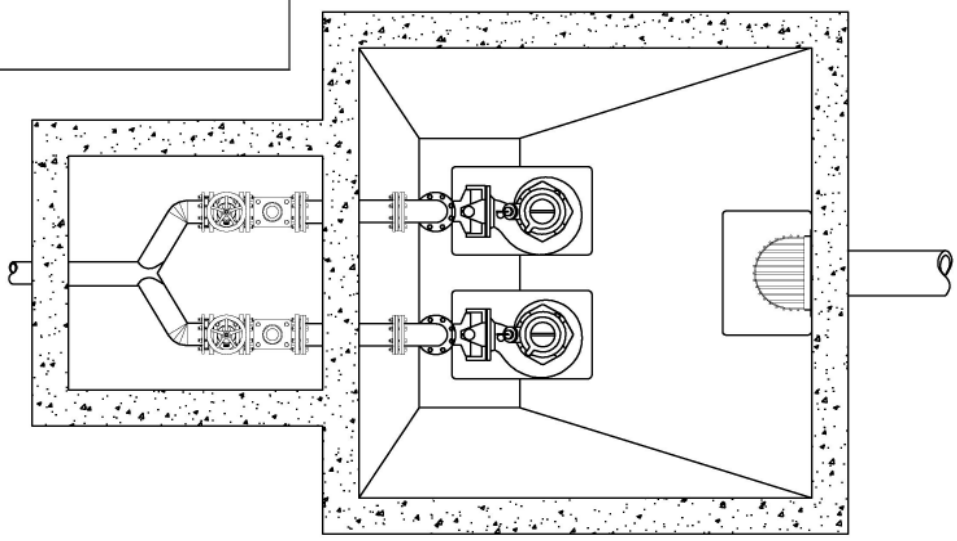


EXAMPLE OF INSTALLATION OF TWO-PUMP SYSTEM WITH THREE FLOATS

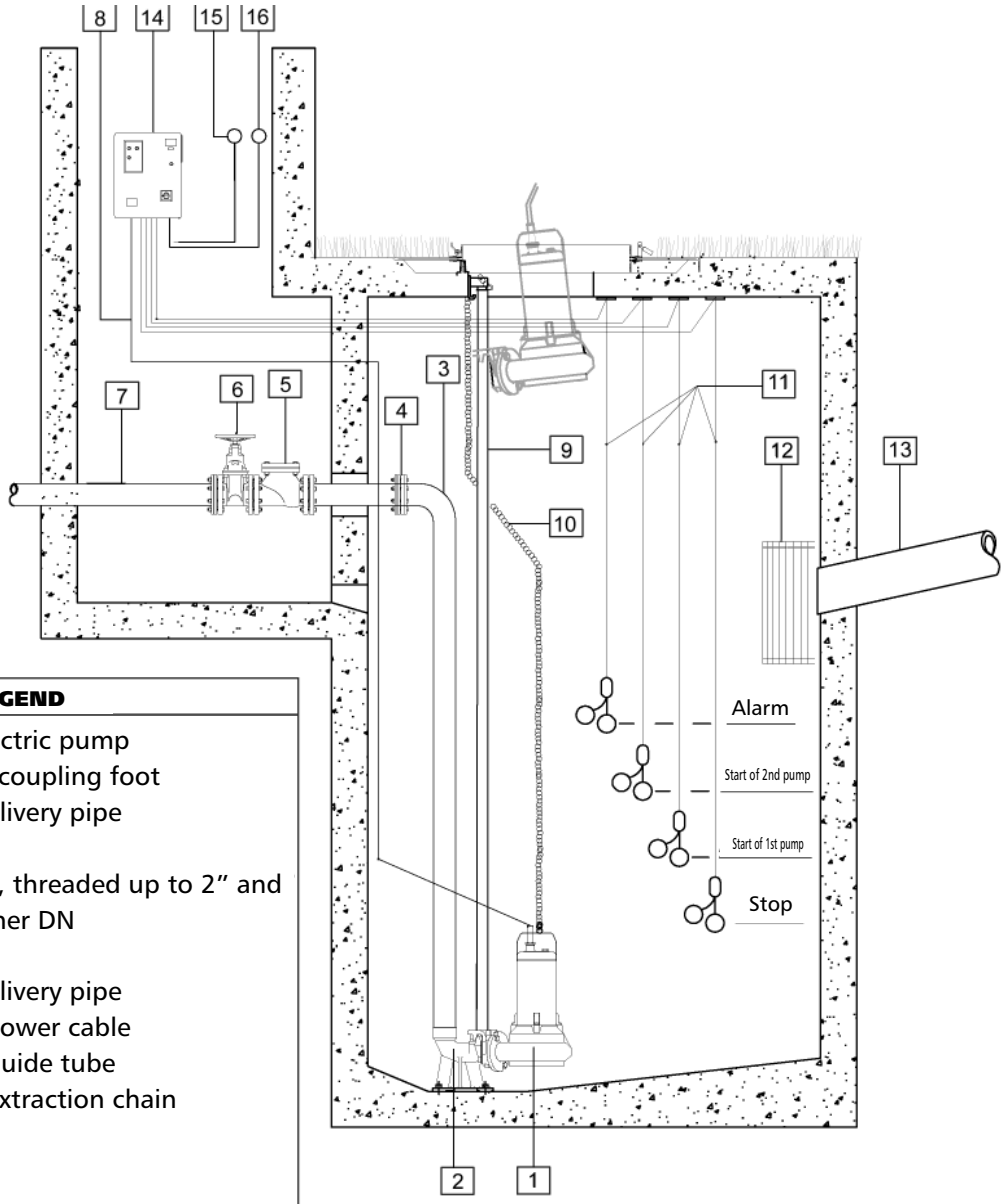


LEGEND

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



EXAMPLE OF INSTALLATION OF TWO-PUMP SYSTEM WITH FOUR FLOATS



LEGEND

1. Submersible electric pump
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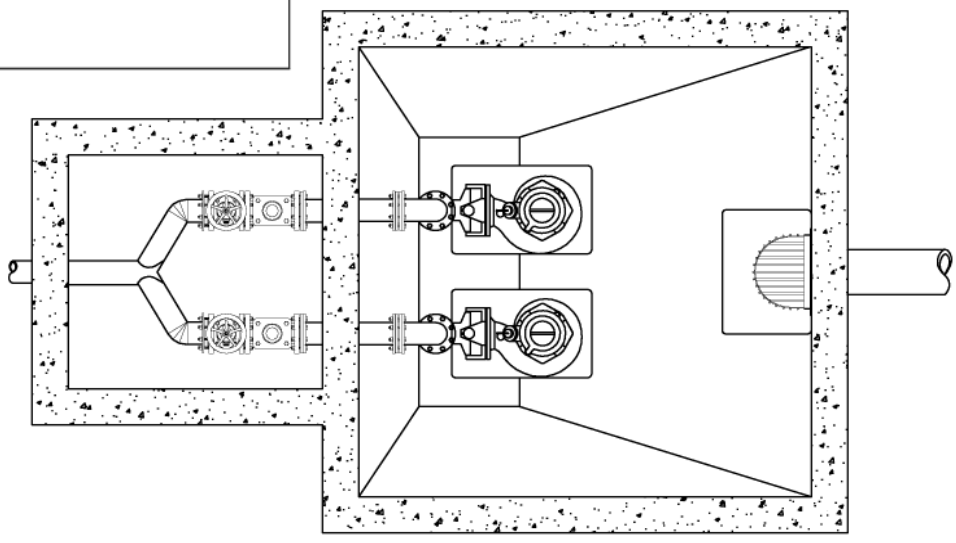
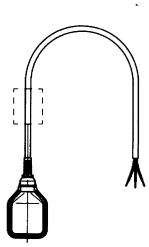


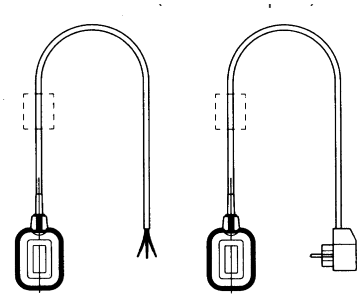
LEVEL CONTROL FLOAT

SMALL MODEL



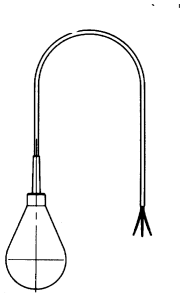
For single function (draining)
cable length 1.5, 5, 10 m.
Counterweight available on request for version with 5, 10 m cable.

KEY MODEL



For dual function (draining/filling)
cable length1.5, 5, 10, 20 m.
Counterweight available on request for version with 5, 10 m cable.
Version with plug and socket for single-phase pumps up to 1 kW.

RDN-10 MODEL



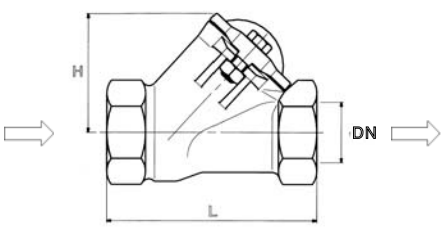
For solids-laden water.
Cable length: 15 m. (PVC)

BALL CHECK VALVE FOR SOLIDS-LADEN WATER

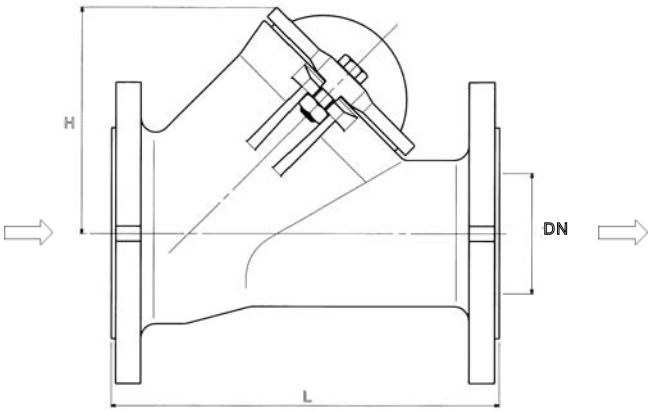
No-clog, maximum reliability, low flow resistance.
Maximum operating pressure: 10 bar.
Maximum temperature: 85°C.
Horizontal or vertical operating position.

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

Valv-palla-en_a_td



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



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

TECHNICAL APPENDIX

FLOW RESISTANCE

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

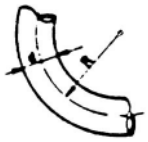
FLOW RATE			NOMINAL DIAMETER IN mm AND INCHES																
m³/h	l/min.		15 ½"	20 ¾"	25 1"	32 1 ¼"	40 1½"	50 2"	65 2½"	80 3"	100 4"	125 5"	150 6"	175 7"	200 8"	250 10"	300 12"	350 14"	400 16"
0,6	10	V	0,94	0,53	0,34	0,21													
		hr	11,8	2,82	1	0,25													
0,9	15	V	1,42	0,8	0,51	0,31		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

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

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

V = WATER SPEED (m/sec)

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

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

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

ITT

Lowara

ITT-Lowara (www.lowara.com), headquarters of "Residential and Commercial Water - EMEA" part of the ITT Corporation and located in Montecchio Maggiore, Vicenza - Italy, is a leading manufacturer of hydraulic pumps and water handling and control systems. It has 1.819 employees in Europe, 675 operating in Italy. In 2009 its consolidated sales totalled about 286 million €, or over 396 million $.
ITT Corporation is a high-technology engineering and manufacturing company operating on all seven continents in three vital markets: water and fluids management, global defense and security, and motion and flow control. With a heritage of innovation, ITT partners with its customers to deliver extraordinary solutions that create more livable environments, provide protection and safety and connect our world. Headquartered in White Plains, N.Y., the company generated 2009 revenue of $10.9 billion.

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