

# Submersible electric pumps

## FDL series



### MARKET SECTORS

DOMESTIC, AGRICULTURAL, INDUSTRIAL, CONSTRUCTION, MUNICIPAL, MINING INDUSTRY.

### APPLICATIONS

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



### SPECIFICATIONS

- **Delivery:** up to 1140 m<sup>3</sup>/h.
- **Head:** up to 65 m.
  - Maximum liquid **temperature:** 25-40°C (see hydraulic performance table).
  - Maximum immersion depth: 20 m.
- **Passes solids** 30 to 105 mm in diameter
- Motor with IP 68 protection and class F insulation (155°C).
- Power supply: three-phase, 50 Hz.
- **Motor power:** up to 42 kW.
- Maximum number of starts per hour: approx. 20 (possibly more, depending on the application).

### CONSTRUCTION CHARACTERISTICS

- Sturdy cast iron construction.
- Channel **impeller**.
- Double seal: Silicon Carbide / Silicon Carbide inner seal, Ceramic / Carbon upper seal or Nitrile Rubber seal ring with interposed oil chamber.
- Adjustable volute bottom cover to compensate for impeller wear and ensure stable long-lasting hydraulic performances.
- Oversized motor bearings.
- 10-metre power supply cable with neoprene sheath (H07RN-F).
- Moisture sensor in oil chamber (see electric data table).

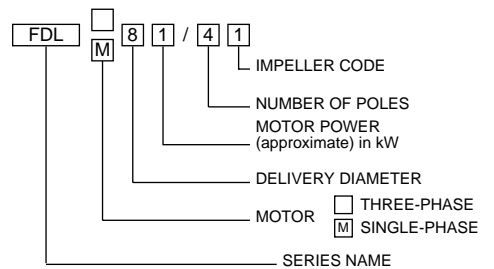
### OPTIONAL FEATURES

- Cathodic protection
- Ceramic treatment
- Cooling sleeve for dry installations
- Version without float.
- Flameproof construction (Exx).

### ACCESSORIES / INSTALLATION

- Lowering system.
- 90° delivery union.
- Threaded flange for delivery port
- Tripod stand.
- Non-return ball valves.
- Floats for solids-laden waters.
- Command and control **panels**.

### IDENTIFICATION CODE



### TABLE OF MATERIALS

PART	FDL MATERIAL
Impeller, Pump body, Motor casing, Volute bottom, Upper cover	250 CAST IRON UNI-ISO 185
Shaft	STAINLESS STEEL (AISI 420B)
Bearings	LIFETIME LUBRICATED BALL TYPE
Upper seal	CERAMIC-GRAPHITE OR NITRILE RUBBER SEAL RING
Lower seal	SILICON CARBIDE / SILICON CARBIDE
Gaskets	NITRILE RUBBER
Bolts and screws	STAINLESS STEEL (AISI 304)

## FDL SERIES ELECTRICAL DATA (50 Hz)

PUMP TYPE	ABSORBED POWER*		ABSORBED CURRENT			STARTING CURRENT		ELECTRIC CABLE TYPE	STATOR THERMAL PROTECTION**	WATER SENSOR IN OIL CHAMBER**
			In(A)		Isp (A)					
THREE-PHASE	kW	min <sup>-1</sup>	220-240 V Δ	380-415 V Y Δ	220-240 V A	380-415 V A				
<b>SINGLE-CHANNEL IMPELLER</b>										
FDL 62-26	1,1	2850	4,3	2,5		19,9	11,5	4G1,5	NO	NO
FDL 62-25	1,3	2850	4,7	2,7		19,6	11,3	4G1,5	NO	NO
FDL 62-24	1,5	2850	4,8	2,8		20,3	11,8	4G1,5	NO	NO
FDL 62-23	1,6	2850	5,2	3		21,8	12,6	4G1,5	NO	NO
FDL 62-21	2,2	2850	6,4	3,7		36,5	21,1	4G2,5	NO	NO
FDL 815-23	11,3	2850	40,3		23,3	302,3	174,8	10G4	YES	YES
FDL 815-22	14,2	2850	46,0		26,6	345,1	199,5	10G4	YES	YES
FDL 815-21	17,5	2850	59,3		34,3	445,0	257,3	10G4	YES	YES
FDL 81-42	1,7	1450	5,4	3,1		21,5	12,4	4G2,5	NO	NO
FDL 82-41N	2,6	1450	8,1	4,7		37,4	21,6	4G2,5	NO	NO
FDL 83-41	2,8	1450	8,7	5		39,8	23,0	4G2,5	NO	NO
FDL 104-42	4,1	1450	13,8		8	72,0	41,6	12G1,5	YES	YES
FDL 104-41	4,2	1450	14,0		8,1	72,9	42,1	12G1,5	YES	YES
FDL 106-41	5,7	1450	18,0		10,4	100,8	58,2	12G2,5	YES	YES
FDL 107-41	5,9	1450	17,3		10	96,9	56,0	12G2,5	YES	YES
FDL 109-42	9,3	1450	32,0		18,5	217,6	125,8	10G4	YES	YES
FDL 109-41	11,2	1450	37,2		21,5	252,9	146,2	10G4	YES	YES
FDL 152-43	15,5	1450	49,3		28,5	364,9	210,9	10G4	YES	YES
FDL 152-42	17,5	1450	51,9		30	327,0	189,0	10G4	YES	YES
FDL 152-41	20,5	1450	64,0		37	403,3	233,1	10G4	YES	YES
<b>MULTIPLE-CHANNEL IMPELLER</b>										
FDL 64-22	3,5	2850	10,0	5,8		58,2	33,6	4G2,5	NO	NO
FDL 85-22	5,2	2850	15,2		8,8	99,0	57,2	12G1,5	YES	YES
FDL 86-21	6,6	2850	19,0		11	123,7	71,5	12G1,5	YES	YES
FDL 118-24	13	2850	40,5		23,4	303,6	175,5	10G4	YES	YES
FDL 118-23	14,8	2850	44,8		25,9	336,1	194,3	10G4	YES	YES
FDL 118-22	17,5	2850	51,9		30	389,3	225,0	10G4	YES	YES
FDL 118-21	18	2850	52,9		30,6	397,0	229,5	10G4	YES	YES
FDL 107-42	6,5	1450	19,9		11,5	111,4	64,4	12G2,5	YES	YES
FDL 101-41	10	1450	34,6		20	235,3	136,0	10G4	YES	YES
FDL 153-43	23,5	1450	71,8		41,5	452,3	261,5	10G4	YES	YES
FDL 153-43/1	26	1450	73,7		42,6	464,3	268,4	10G4	YES	YES
FDL 153-41/1	30	1450	88,2		51	555,8	321,3	10G4	YES	YES
FDL 153-42	30,6	1450	93,4		54	588,5	340,2	10G4	YES	YES
FDL 153-41	32	1450	93,4		54	588,5	340,2	10G4	YES	YES
FDL 154-43	35	1450	102,1		59	663,5	383,5	2X4G10+4G2,5	YES	YES
FDL 154-42	38	1450	112,5		65	730,9	422,5	2X4G10+4G2,5	YES	YES
FDL 154-41	42	1450	124,6		72	809,6	468,0	2X4G10+4G2,5	YES	YES
FDL 102-61	3	950	10,4		6	54,0	31,2	12G1,5	YES	YES
FDL 158-61	8,7	950	27,7		16	174,4	100,8	10G4	YES	YES
FDL 151-62	10,5	950	35,8		20,7	186,2	107,6	10G4	YES	YES
FDL 151-61	13	950	41,5		24	215,9	124,8	10G4	YES	YES
FDL 201-63	9,3	950	27,7		16	143,9	83,2	10G4	YES	YES
FDL 201-62	11,2	950	31,7		18,3	164,6	95,2	10G4	YES	YES
FDL 201-61	13,6	950	38,6		22,3	200,6	116,0	10G4	YES	YES
FDL 252-62	17,5	950	55,4		32	287,9	166,4	2X4G4+4G2,5	YES	YES
FDL 253-64	24	950	65,7		38	341,8	197,6	2X4G4+4G2,5	YES	YES
FDL 252-61	24,5	950	70,9		41	368,8	213,2	2X4G4+4G2,5	YES	YES
FDL 253-63	26	950	74,0		42,8	407,2	235,4	2X4G4+4G2,5	YES	YES
FDL 253-62	37	950	103,8		60	570,9	330,0	2X4G4+4G2,5	YES	YES
FDL 253-61	38,6	950	110,7		64	609,0	352,0	2X4G4+4G2,5	YES	YES

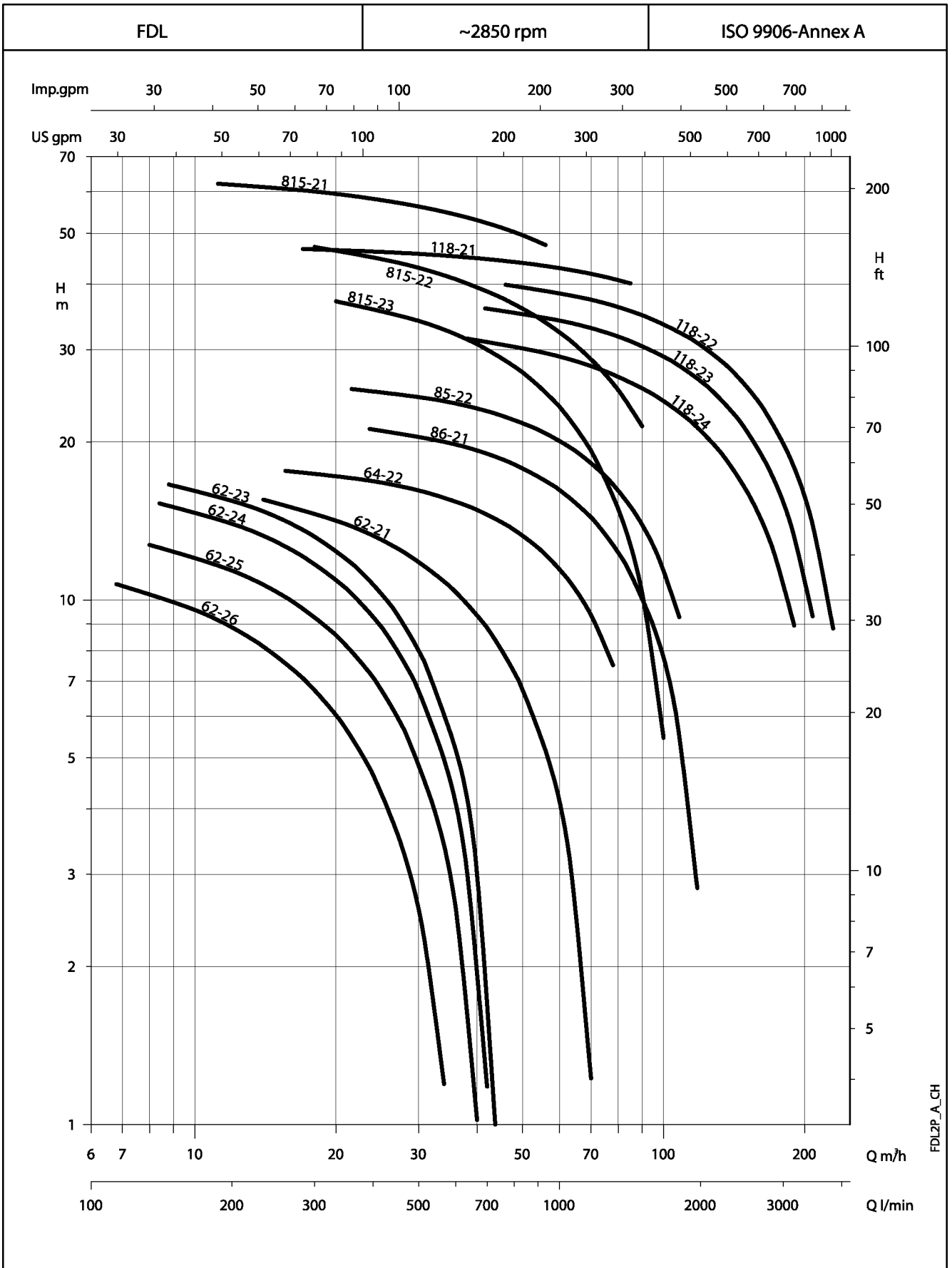
\*Maximum values within the operating range

Fdl-2p-4p-6p50\_b\_te

\*\*Featured in the standard version



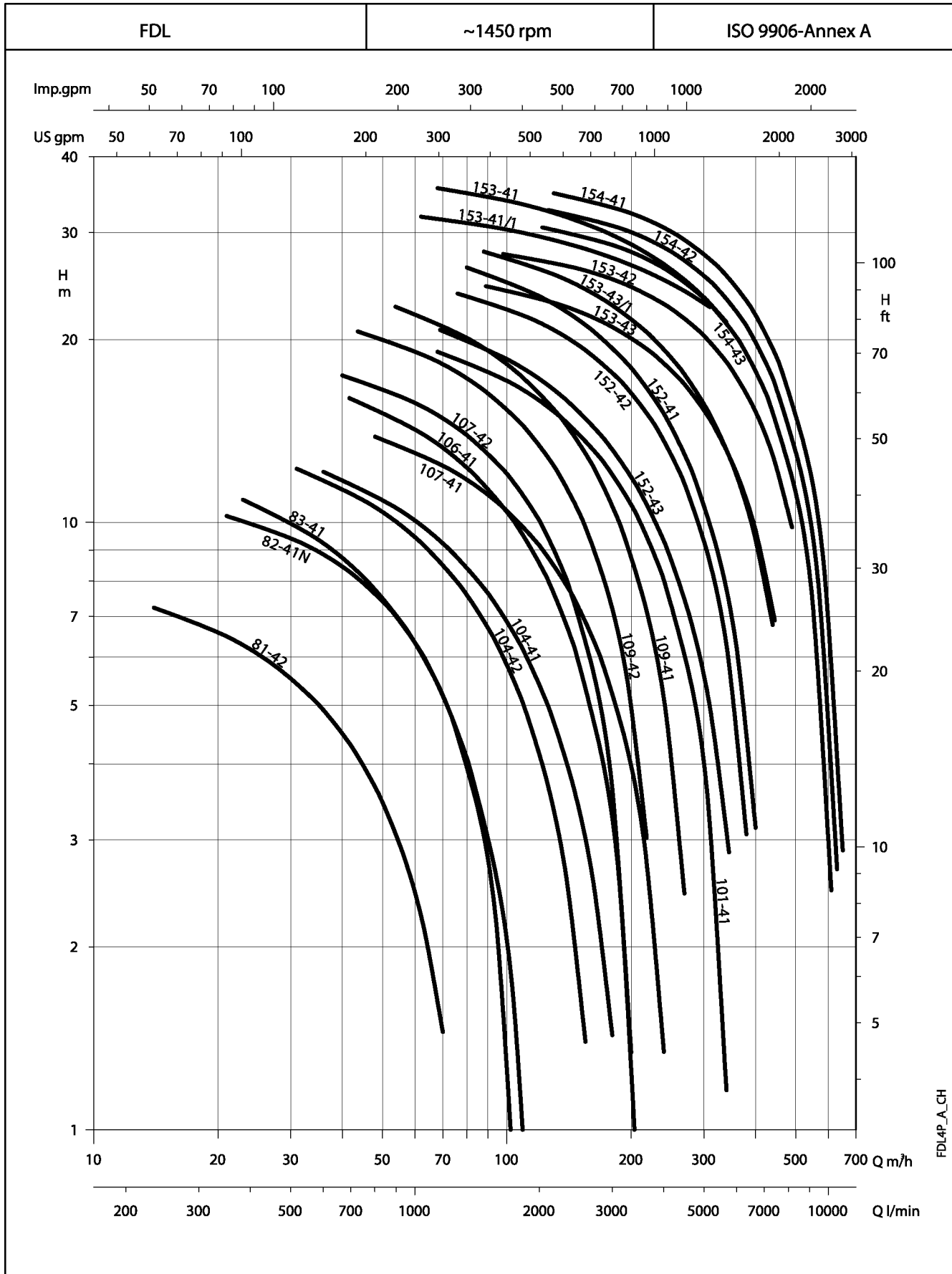
**FDL SERIES, 2 POLE  
OPERATING CHARACTERISTICS AT 50 Hz**



FDL2P\_A\_CH



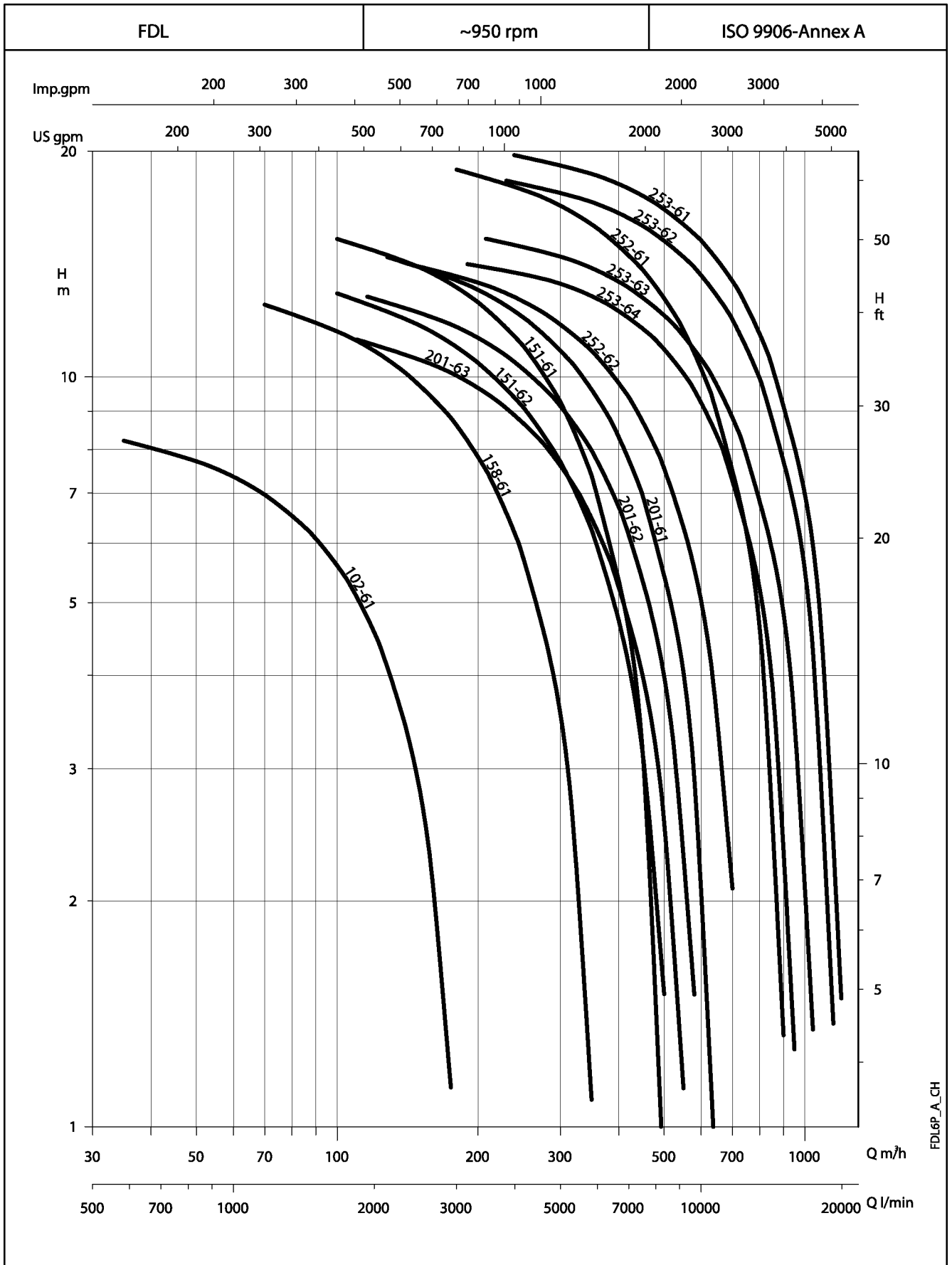
**FDL SERIES, 4 POLE  
OPERATING CHARACTERISTICS AT 50 Hz**



FDL4P\_A\_CH



### FDL SERIES, 6 POLE OPERATING CHARACTERISTICS AT 50 Hz



FDL6P\_A\_CH



### FDL SERIES, 6 POLE HYDRAULIC PERFORMANCE TABLE

PUMP TYPE	ABS. POW. kW	rpm	Q = DELIVERY													DNM	PASSES SOLIDS UP TO (mm)	MAX LIQUID TEMP. °C	
			l/min	75	150	300	400	500	600	800	1000	1200	1600	1800					
			m³/h	0,5	9	18	24	30	36	48	60	72	96	108					
H = TOTAL HEAD METERS COLUMN OF WATER																			
FDL 62-26	1,1	2850	13,2	11,5	9,9	6,7	4,6	2,6									65	30	40
FDL 62-25	1,3	2850	15,4	13,9	12,4	9,3	7,1	4,9	2,6								65	30	40
FDL 62-24	1,5	2850	18,1	16,6	15,1	11,7	9,3	6,7	4,0								65	30	40
FDL 62-23	1,6	2850	19,4	18,0	16,5	13,2	10,7	8,0	5,1								65	30	40
FDL 62-21	2,2	2850	18,5	17,6	16,6	14,6	13,3	11,8	10,4	7,3	4,1						70	30	40
FDL 64-22	3,5	2850	18,6	18,4	18,1	17,4	16,8	16,2	15,4	13,6	11,4	8,9					70	30	25
FDL 85-22	5,2	2850	23,0	22,7	22,4	21,7	21,1	20,5	19,8	18,1	16,2	14,0	8,7	5,6			DN 80	30	40
FDL 86-21	6,6	2850	26,7	26,5	26,2	25,6	25,0	24,4	23,7	22,0	20,1	17,9	12,4	9,3			DN 80	30	40
FDL 815-23	11,3	2850	42,4	41,3	40,1	37,7	35,9	34,0	32,1	27,9	23,3	18,4	7,4				DN 80	40	40
FDL 815-22	14,2	2850	53,2	51,7	50,1	47,1	45,0	42,9	40,9	36,6	32,4	28,0					DN 80	40	40
FDL 815-21	17,5	2850	65,5	64,2	62,8	60,0	58,2	56,2	54,3	50,3							DN 80	40	40
FDL 81-42	1,7	1450	9,5	8,9	8,3	7,1	6,3	5,5	4,8	3,4	2,0						DN 80	65	40
FDL 82-41N	2,6	1450	13,3	12,7	12,2	11,1	10,4	9,7	8,9	7,5	6,0	4,5	1,4				DN 80	65	40
FDL 83-41	2,8	1450	14,0	13,4	12,8	11,6	10,8	10,0	9,2	7,8	6,3	5,0	2,4	1,2			DN 80	76	40

PUMP TYPE	ABS. POW. kW	rpm	Q = DELIVERY													DNM	PASSES SOLIDS UP TO (mm)	MAX LIQUID TEMP. °C	
			l/min	600	1000	1200	1400	2200	2900	3400	4400	5200	6800	7800					
			m³/h	36	60	72	84	132	174	204	264	312	408	468					
H = TOTAL HEAD METERS COLUMN OF WATER																			
FDL 118-24	13,0	2850	35,0	31,7	29,1	27,7	26,1	19,2	12,0								DN 100	40	40
FDL 118-23	14,8	2850	39,2	36,5	34,1	32,7	31,3	24,2	16,6	10,2							DN 100	40	40
FDL 118-22	17,5	2850	43,5	40,8	38,5	37,1	35,7	28,7	21,1	14,8							DN 100	40	40
FDL 118-21	18,0	2850	47,8	45,2	42,9	41,6	40,2										DN 100	40	40
FDL 107-42	6,5	1450	20,7	17,8	15,7	14,7	13,6	8,8	4,3								DN 100	60	40
FDL 101-41	10,0	1450	23,2	21,0	19,6	18,8	18,1	15,1	12,4	10,4	6,4	3,1					DN 100	80	40
FDL 153-43	23,5	1450	27,3	26,2	25,5	25,1	24,7	22,9	21,2	19,9	17,1	14,7	9,2				DN 150	100	40
FDL 153-43/1	26,0	1450	32,6	30,7	29,4	28,8	28,1	25,5	23,1	21,4	17,8	14,9	8,9				DN 150	80	40
FDL 153-41/1	30,0	1450	34,4	32,9	31,9	31,5	31,0	29,1	27,5	26,4	24,2						DN 150	80	40
FDL 153-42	30,6	1450	29,8	29,1	28,6	28,3	28,0	26,7	25,3	24,3	21,9	19,7	14,8	11,2			DN 150	100	40
FDL 153-41	32,0	1450	39,0	37,1	35,9	35,3	34,7	32,2	30,0	28,5	25,4	22,8					DN 150	80	40
FDL 102-61	3,0	950	9,1	8,2	7,4	6,9	6,4	3,9	1,2								DN 100	80	40
FDL 158-61	8,7	950	14,5	13,5	12,8	12,4	12,0	10,4	8,9	7,7	5,1	2,9					DN 150	80	40
FDL 151-62	10,5	950	15,2	14,4	13,8	13,6	13,3	12,2	11,1	10,3	8,7	7,4	4,5	2,6			DN 150	100	40
FDL 151-61	13,0	950	17,4	16,7	16,2	15,9	15,6	14,5	13,3	12,5	10,5	8,8	5,0	2,3			DN 150	100	40

PUMP TYPE	ABS. POW. kW	rpm	Q = DELIVERY													DNM	PASSES SOLIDS UP TO (mm)	MAX LIQUID TEMP. °C	
			l/min	2500	3400	3900	5200	6000	7800	8900	10000	11333	15000	19000					
			m³/h	150	204	234	312	360	468	534	600	680	900	1140					
H = TOTAL HEAD METERS COLUMN OF WATER																			
FDL 154-43	35,0	1450	33,5	29,7	27,7	26,5	22,8	20,2	13,4	8,6	3,3						DN 150	100	40
FDL 154-42	38,0	1450	35,8	31,9	29,9	28,6	24,9	22,3	15,4	10,6	5,3						DN 150	100	40
FDL 154-41	42,0	1450	38,1	34,1	32,1	30,8	27,0	24,4	17,5	12,6	7,3						DN 150	100	40
FDL 201-63	9,3	950	12,8	10,6	9,6	9,0	7,4	6,3	3,5	1,6							DN 200	102	40
FDL 201-62	11,2	950	14,5	12,2	11,2	10,6	8,9	7,7	4,9	2,9							DN 200	102	40
FDL 201-61	13,6	950	16,5	14,0	13,0	12,4	10,6	9,4	6,4	4,4	2,3						DN 200	102	40
FDL 252-62	17,5	950	15,6	14,1	13,3	12,9	11,5	10,6	8,3	6,7	5,0	2,7					DN 250	105	40
FDL 253-64	24,0	950	14,8	14,4	14,1	13,9	13,2	12,7	11,4	10,4	9,3	7,8	2,6				DN 250	105	40
FDL 252-61	24,5	950	21,2	19,3	18,5	18,1	16,7	15,8	13,5	12,0	10,3	8,1	1,3				DN 250	105	40
FDL 253-63	26,0	950	16,4	15,7	15,3	15,1	14,4	13,9	12,5	11,6	10,6	9,2	4,7				DN 250	105	40
FDL 253-62	37,0	950	19,6	18,9	18,5	18,2	17,5	17,0	15,7	14,7	13,7	12,3	7,8	1,7			DN 250	105	40
FDL 253-61	38,6	950	21,2	20,5	20,1	19,8	19,1	18,6	17,2	16,3	15,2	13,8	9,3	3,1			DN 250	105	40

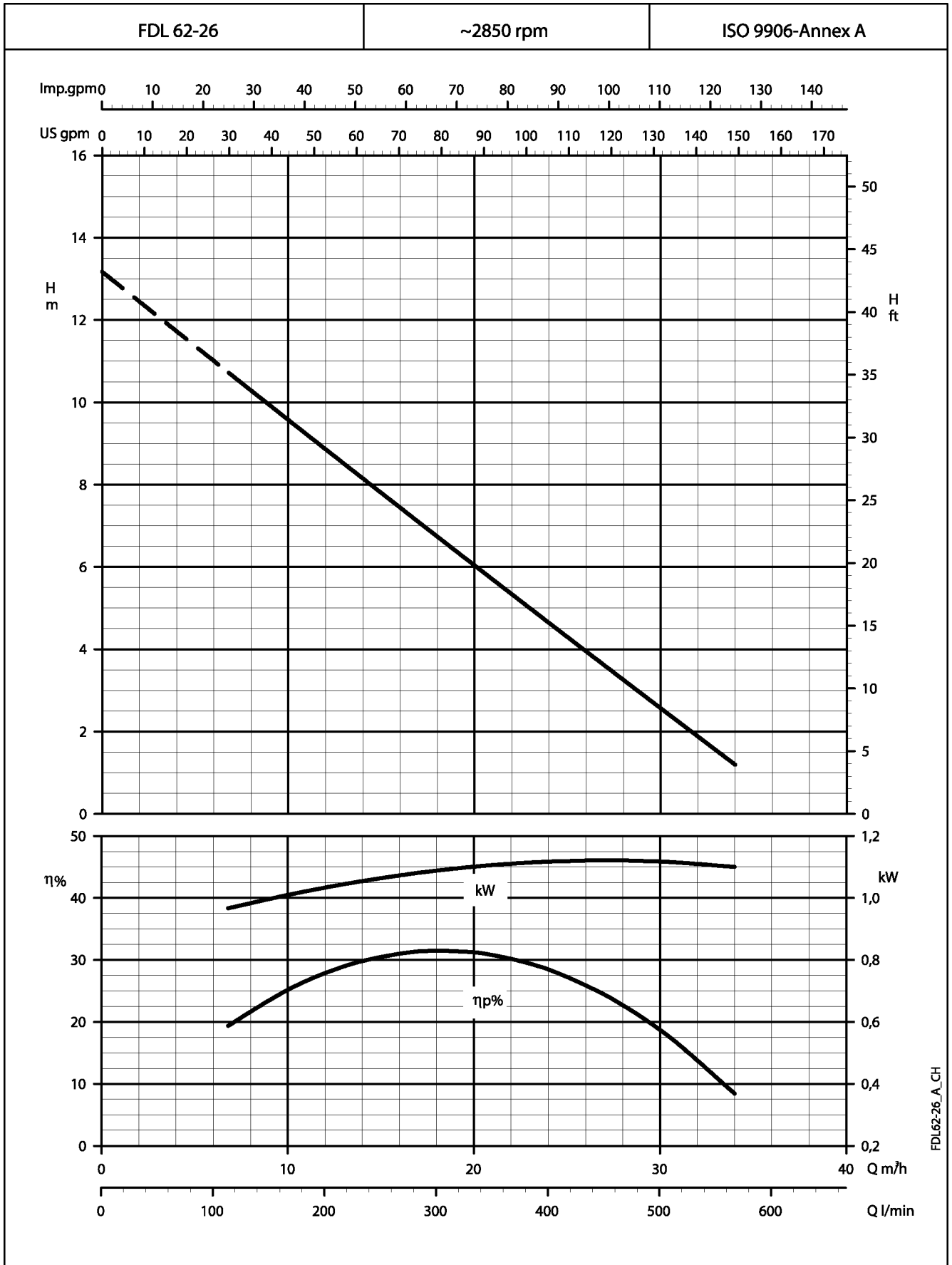
PUMP TYPE	ABS. POW. kW	rpm	Q = DELIVERY													DNM	PASSES SOLIDS UP TO (mm)	MAX LIQUID TEMP. °C	
			l/min	500	800	1200	1600	1800	2500	2900	3400	3900	5200	6000					
			m³/h	30	48	72	96	108	150	174	204	234	312	360					
H = TOTAL HEAD METERS COLUMN OF WATER																			
FDL 104-42	4,1	1450	15,4	12,4	10,6	8,3	6,2	5,2	1,8								DN 100	78	40
FDL 104-41	4,2	1450	15,4	12,6	11,1	9,1	7,2	6,3	3,3	1,8							DN 100	78	40
FDL 106-41	5,7	1450	20,2	17,2	15,4	13,1	10,8	9,7	5,8	3,7	1,1						DN 100	78	40
FDL 107-41	5,9	1450	17,0	15,0	13,8	12,3	10,7	9,9	7,2	5,6	3,7	1,7					DN 100	100	40
FDL 109-42	9,3	1450	24,4	21,8	20,2	18,0	15,7	14,6	10,4	7,8	4,6						DN 100	90	40
FDL 109-41	11,2	1450	27,9	24,9	23,2	20,9	18,6	17,5	13,5	11,2	8,4	5,7					DN 100	90	40
FDL 152-43	15,5	1450	25,7	23,5	22,2	20,5	18,9	18,0	15,2	13,6	11,6	9,7	4,8				DN 150	100	40
FDL 152-42	17,5	1450	27,7	26,2	25,3	24,0	22,7	22,0	19,5	18,0	16,1	14,1	8,4	4,7			DN 150	100	40
FDL 152-41	20,5	1450	31,6	29,6	28,4	26,8	25,2	24,4	21,5	19,8	17,7	15,5	9,8	6,2			DN 150	100	40

PERFORMANCES MEASURED WITH PURE WATER AT 20°C

FDL\_B\_TH



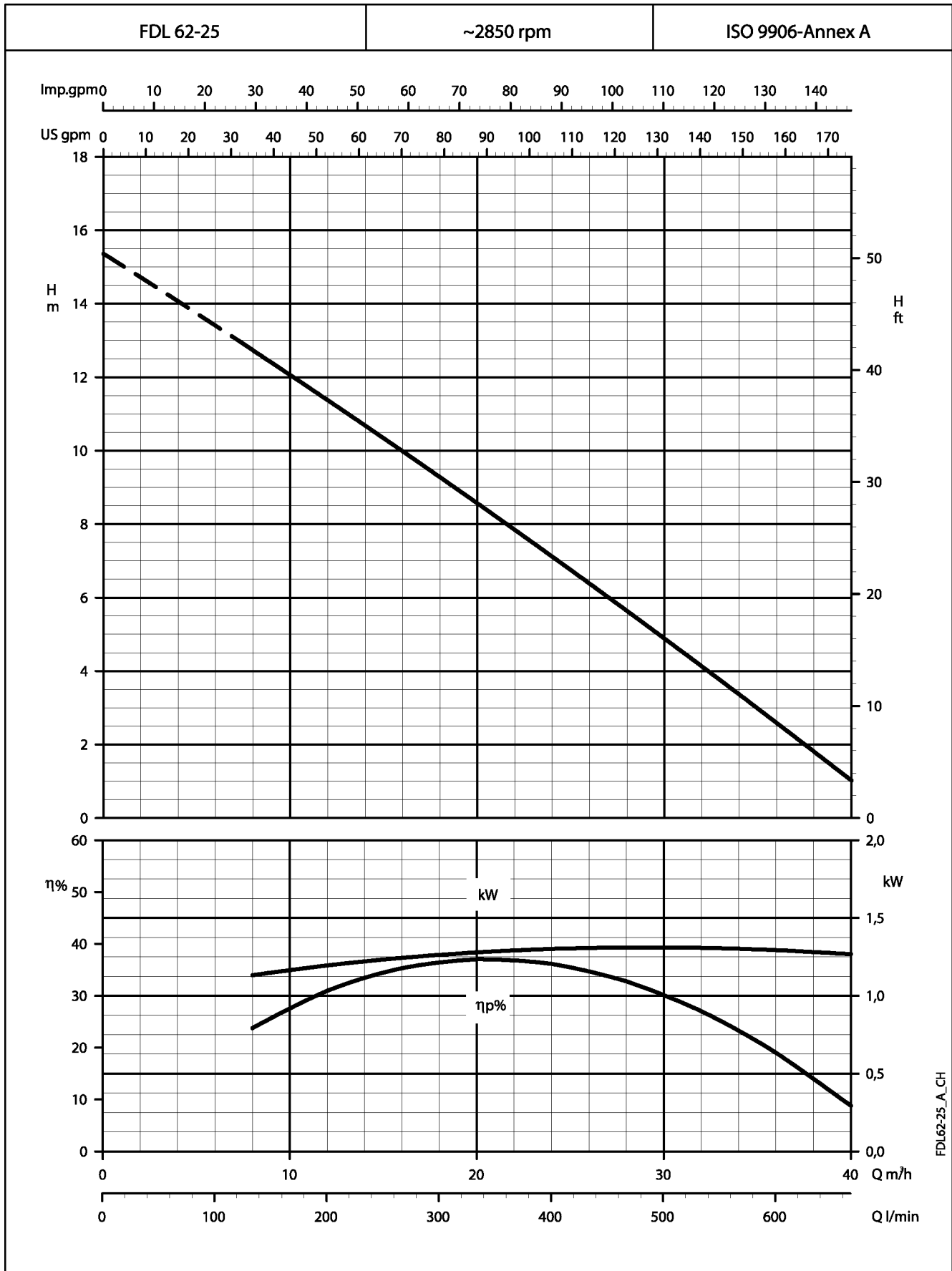
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**

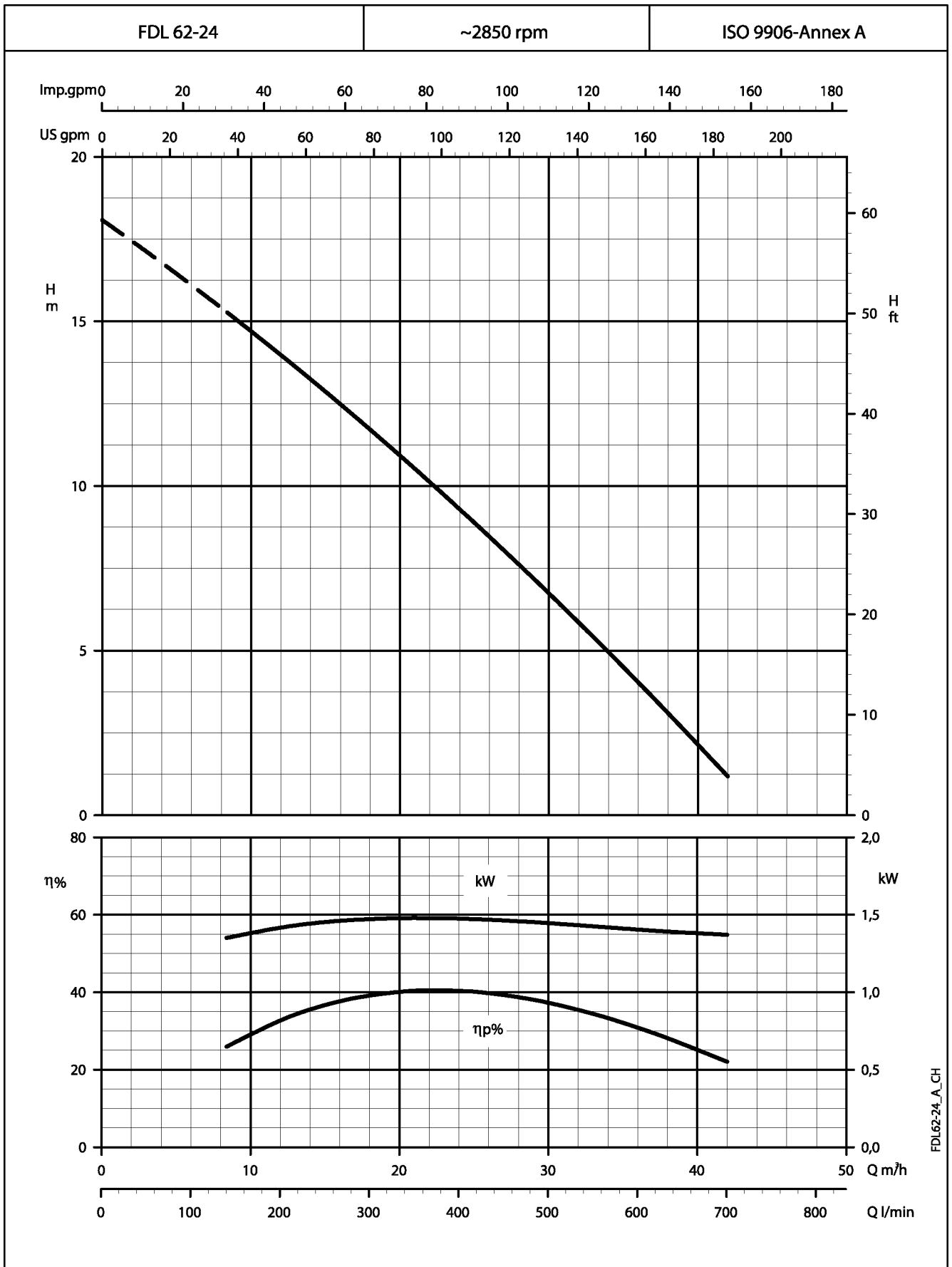


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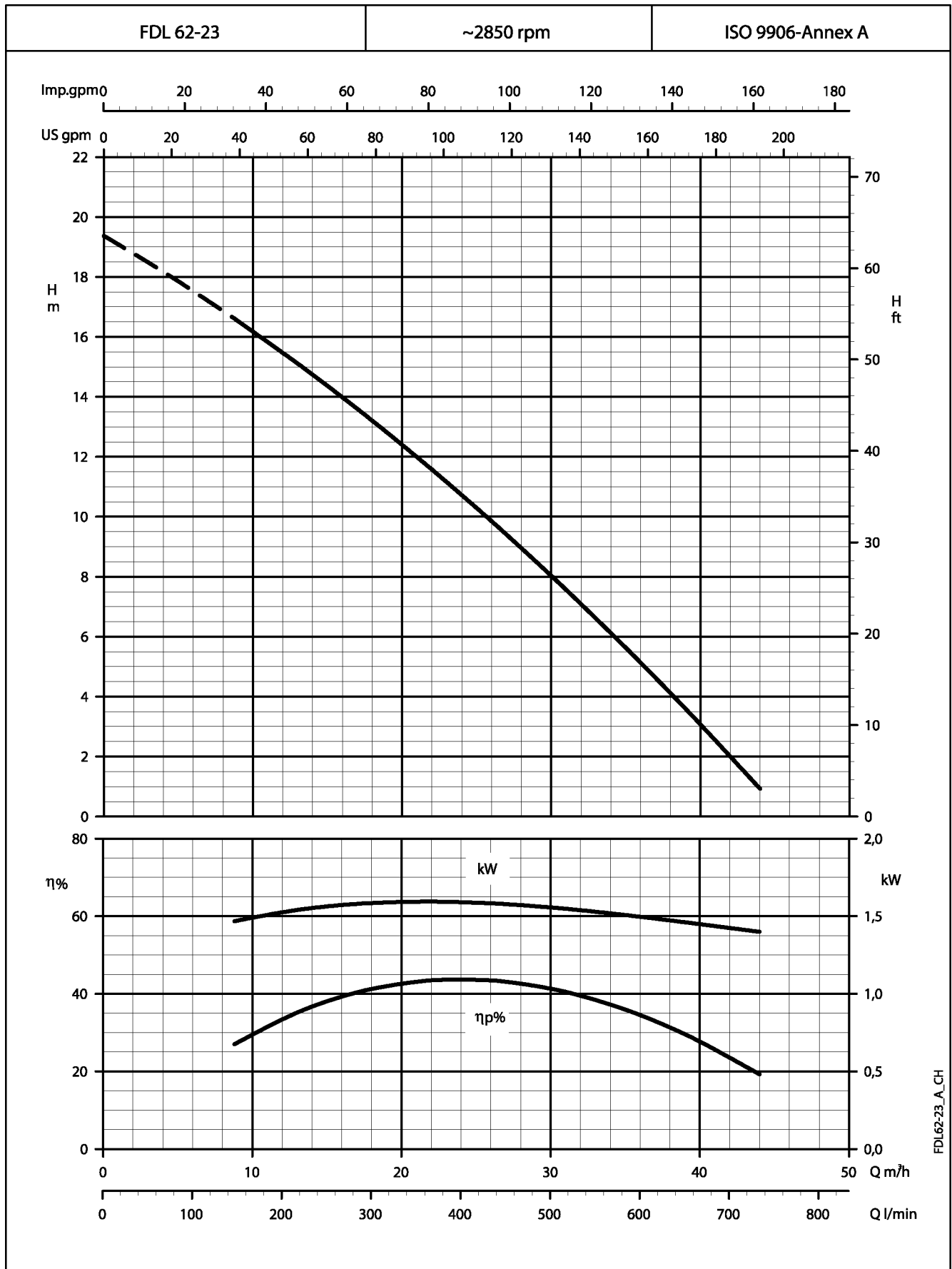
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OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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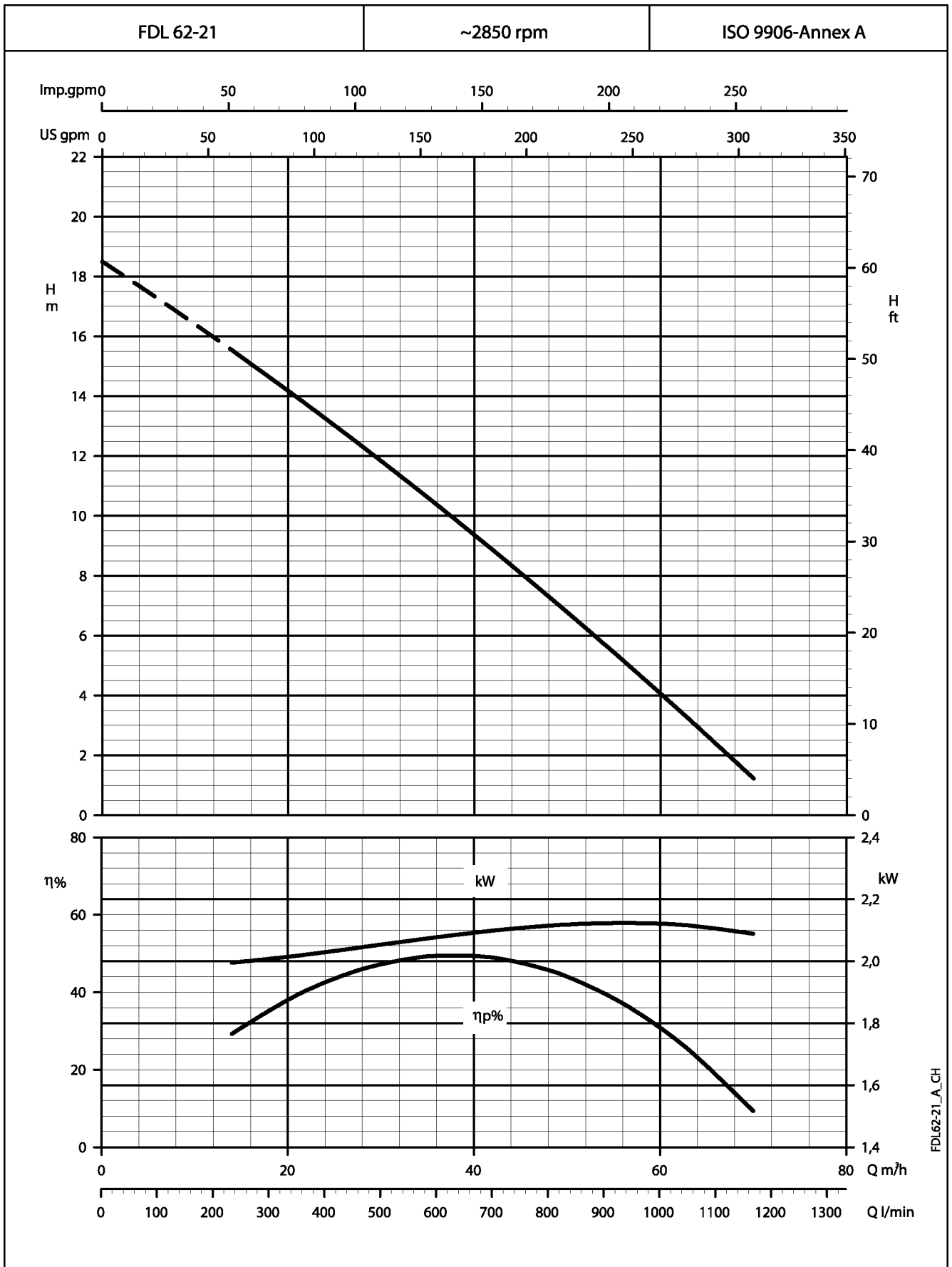
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



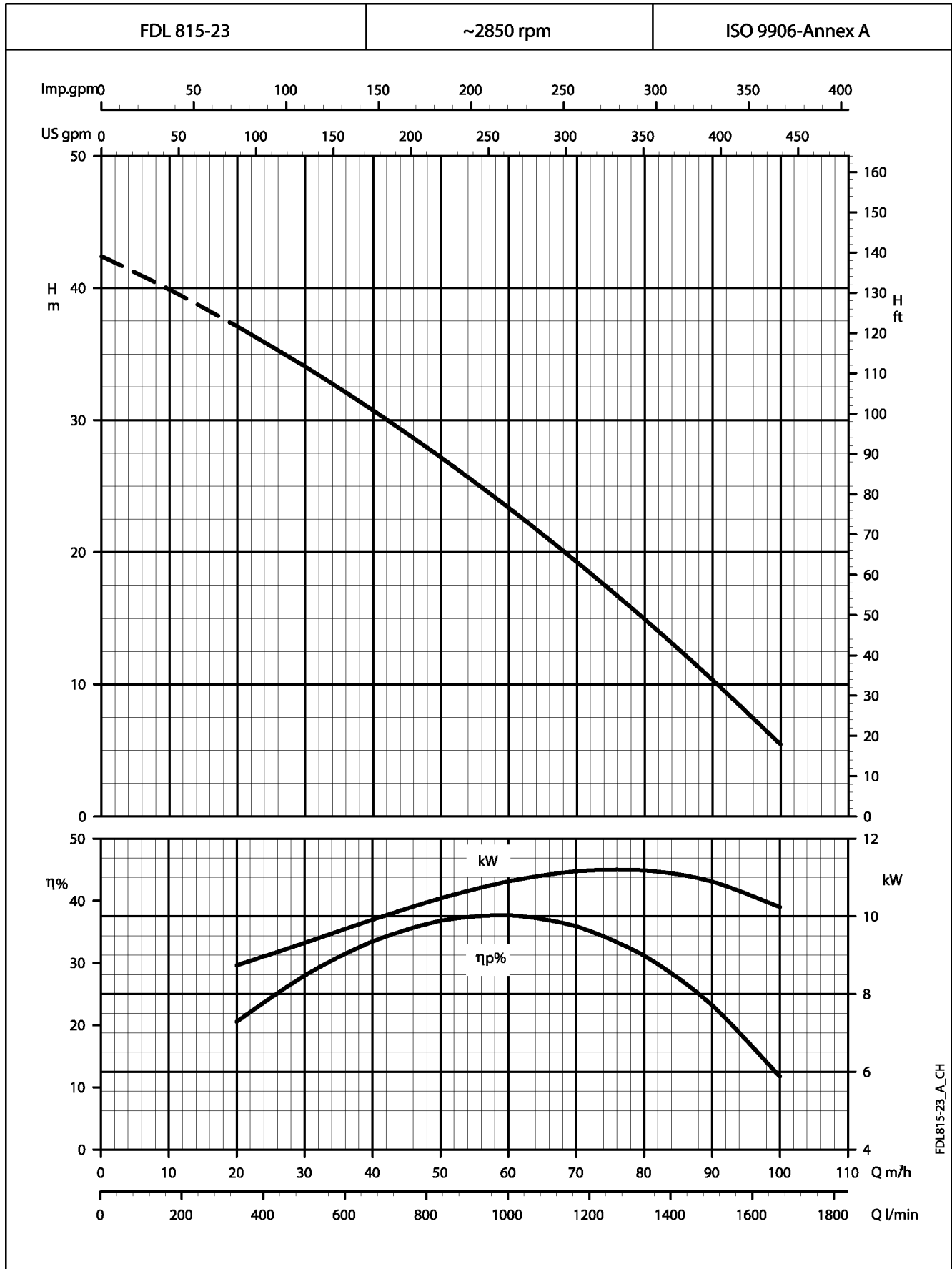
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



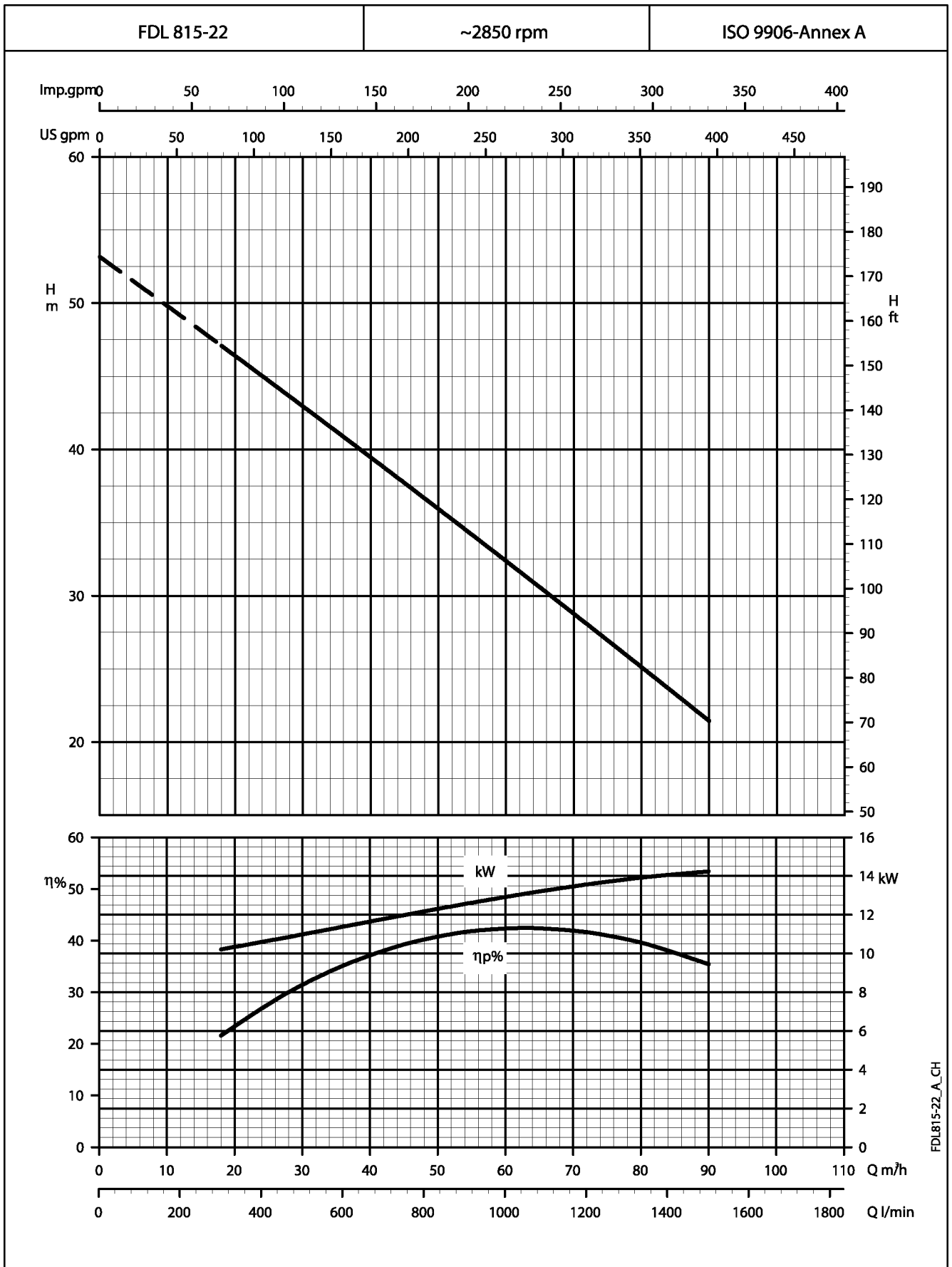
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



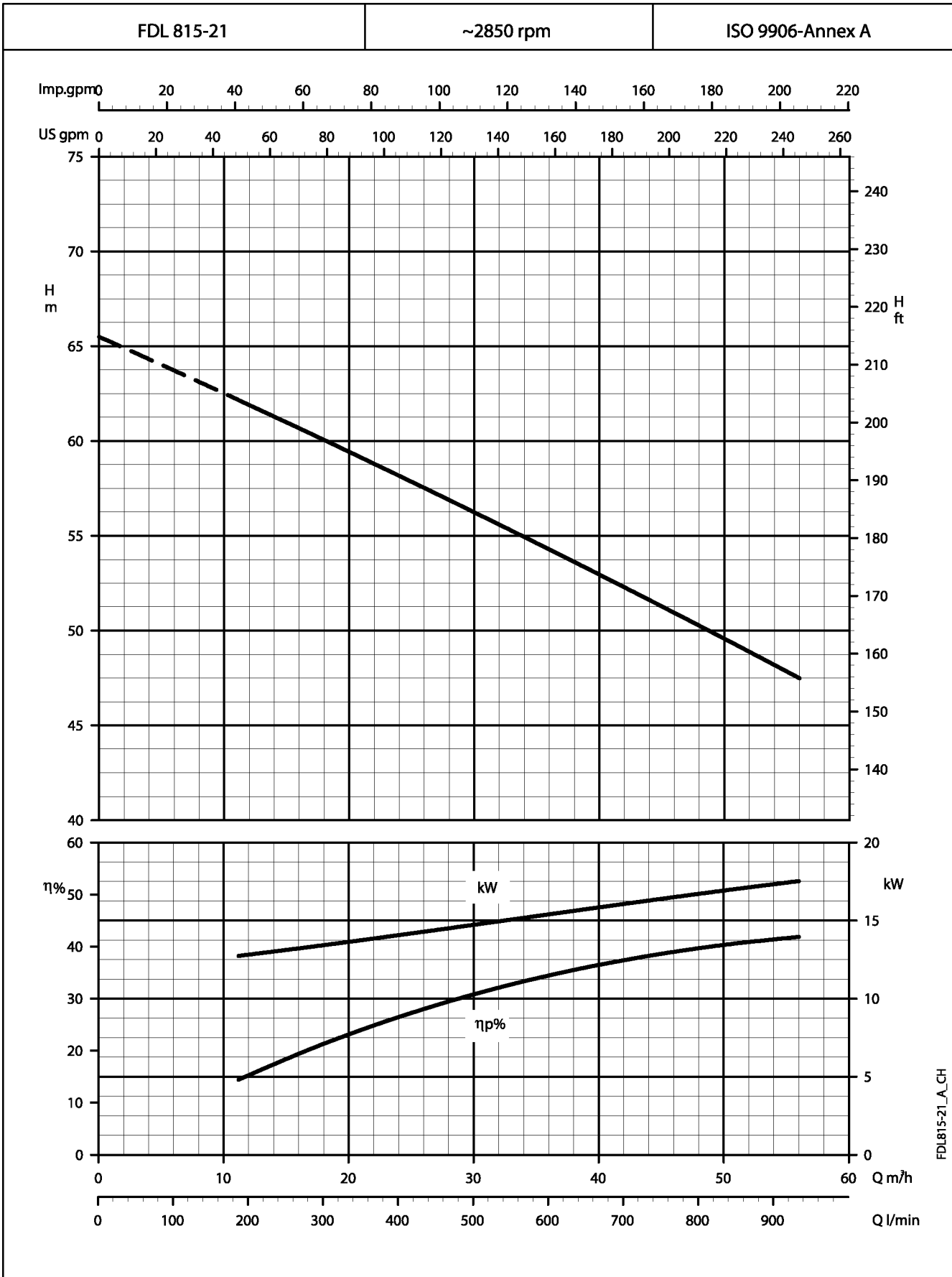
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



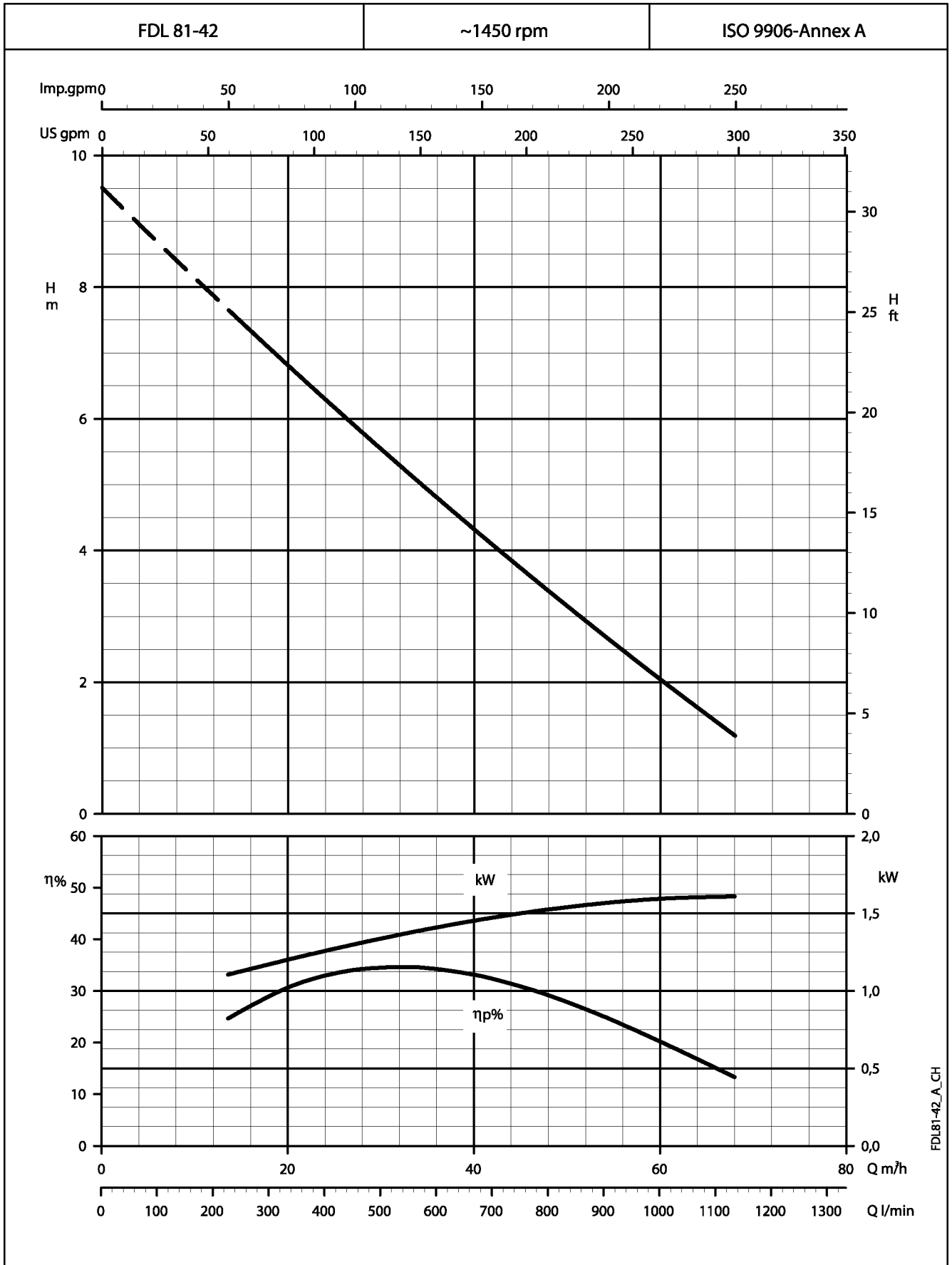
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



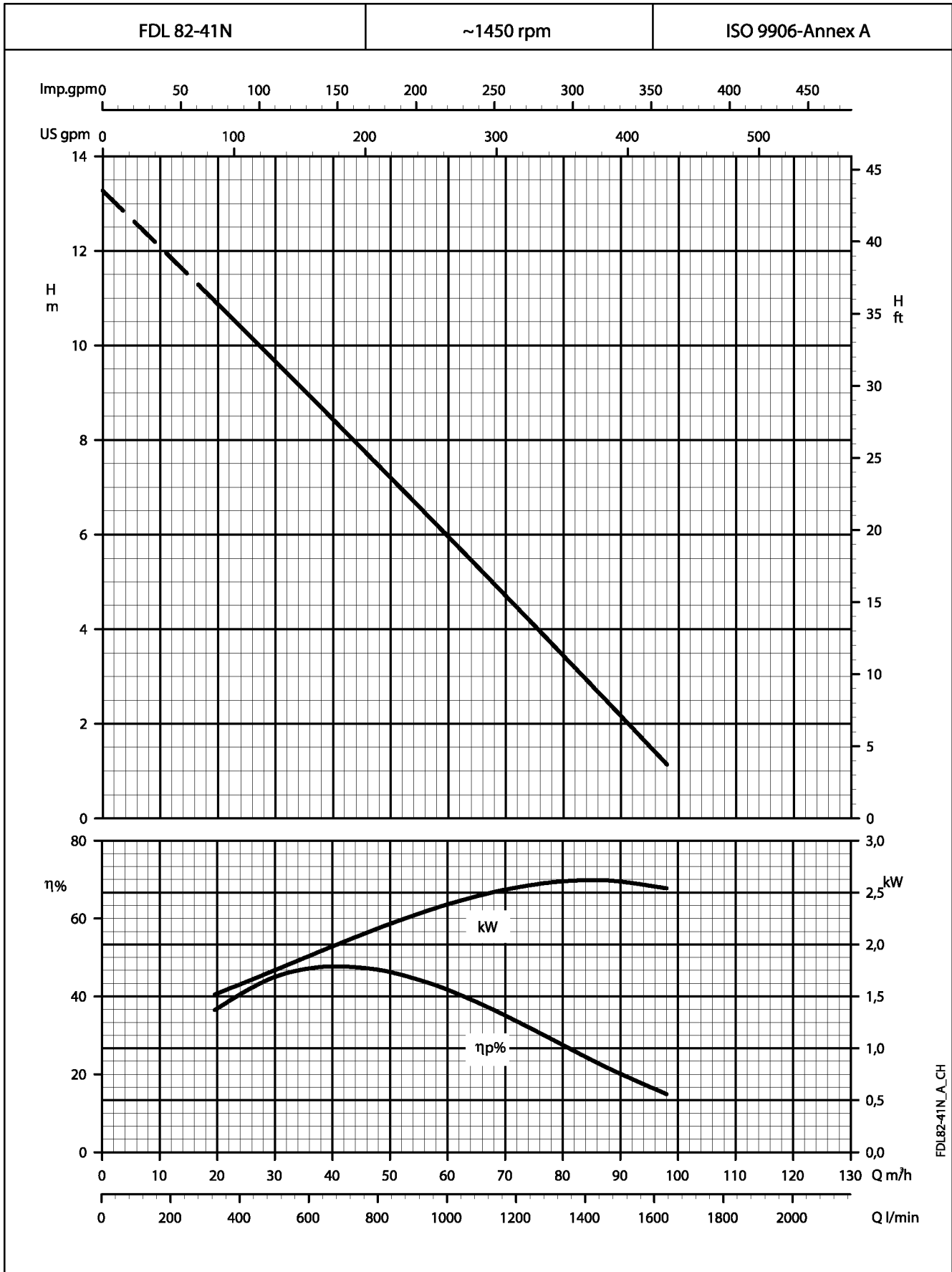
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

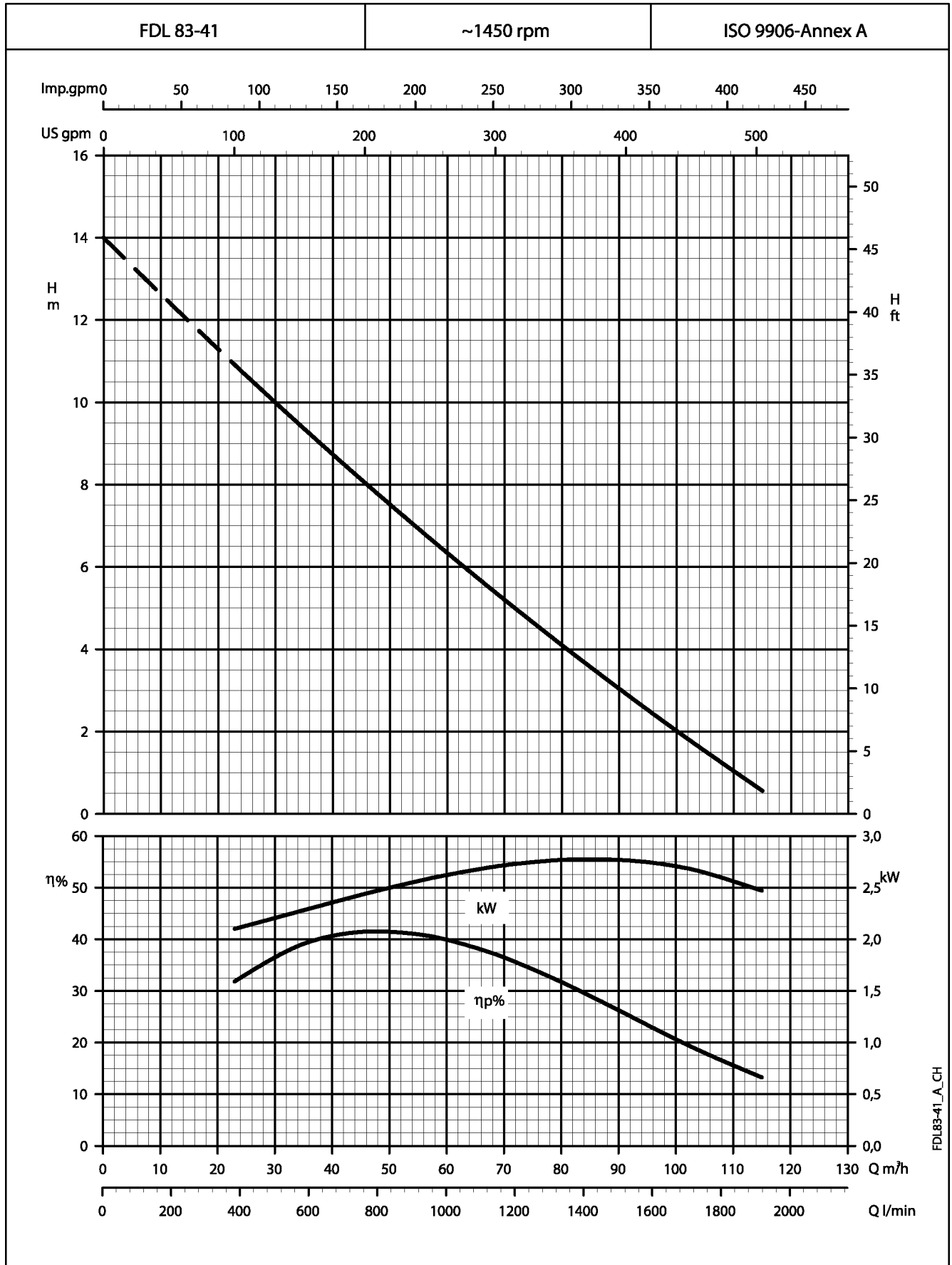


These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\gamma = 1 \text{ mm}^2/\text{s}$ .





**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

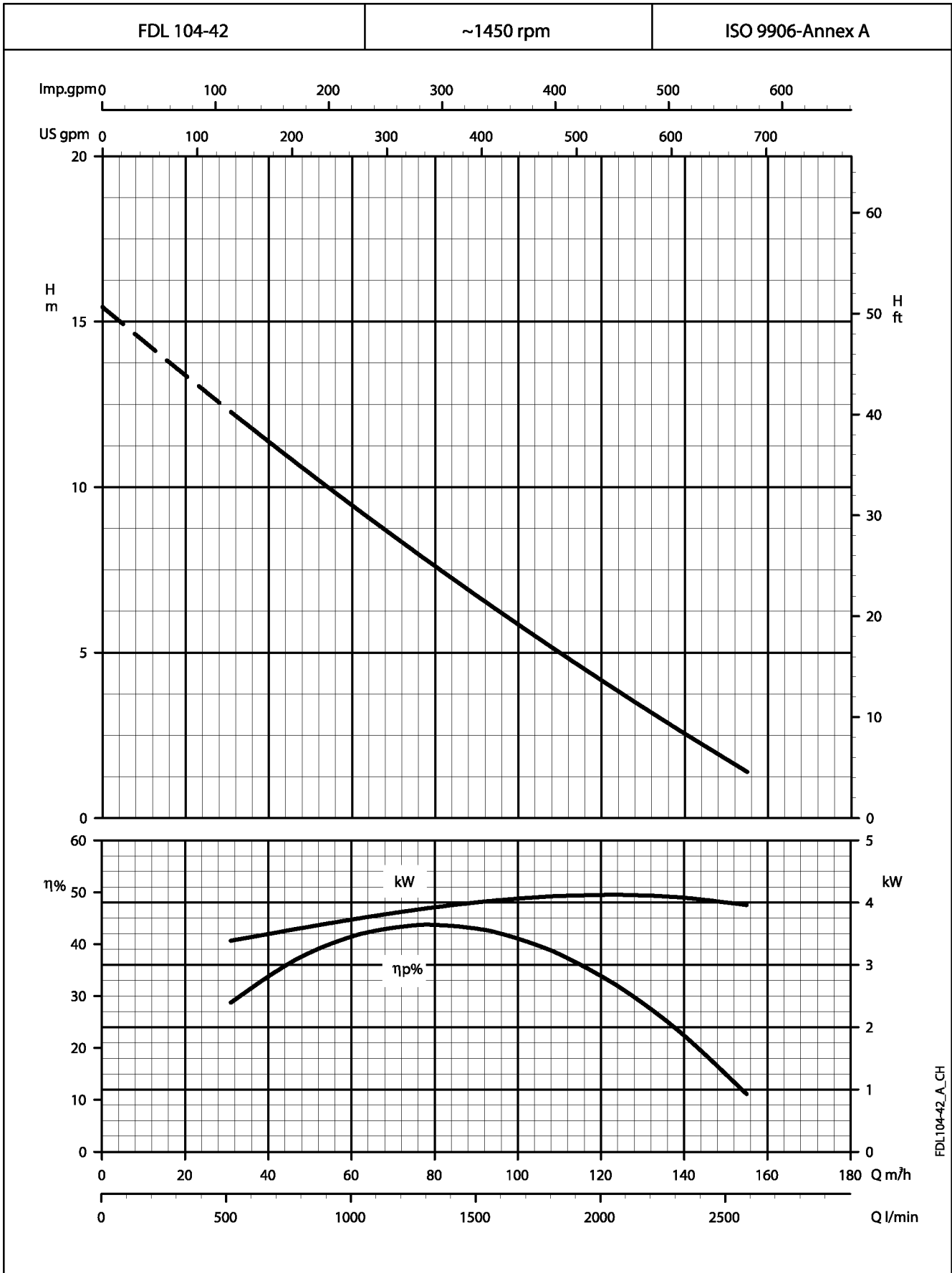


FDL83-41\_A\_CH

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



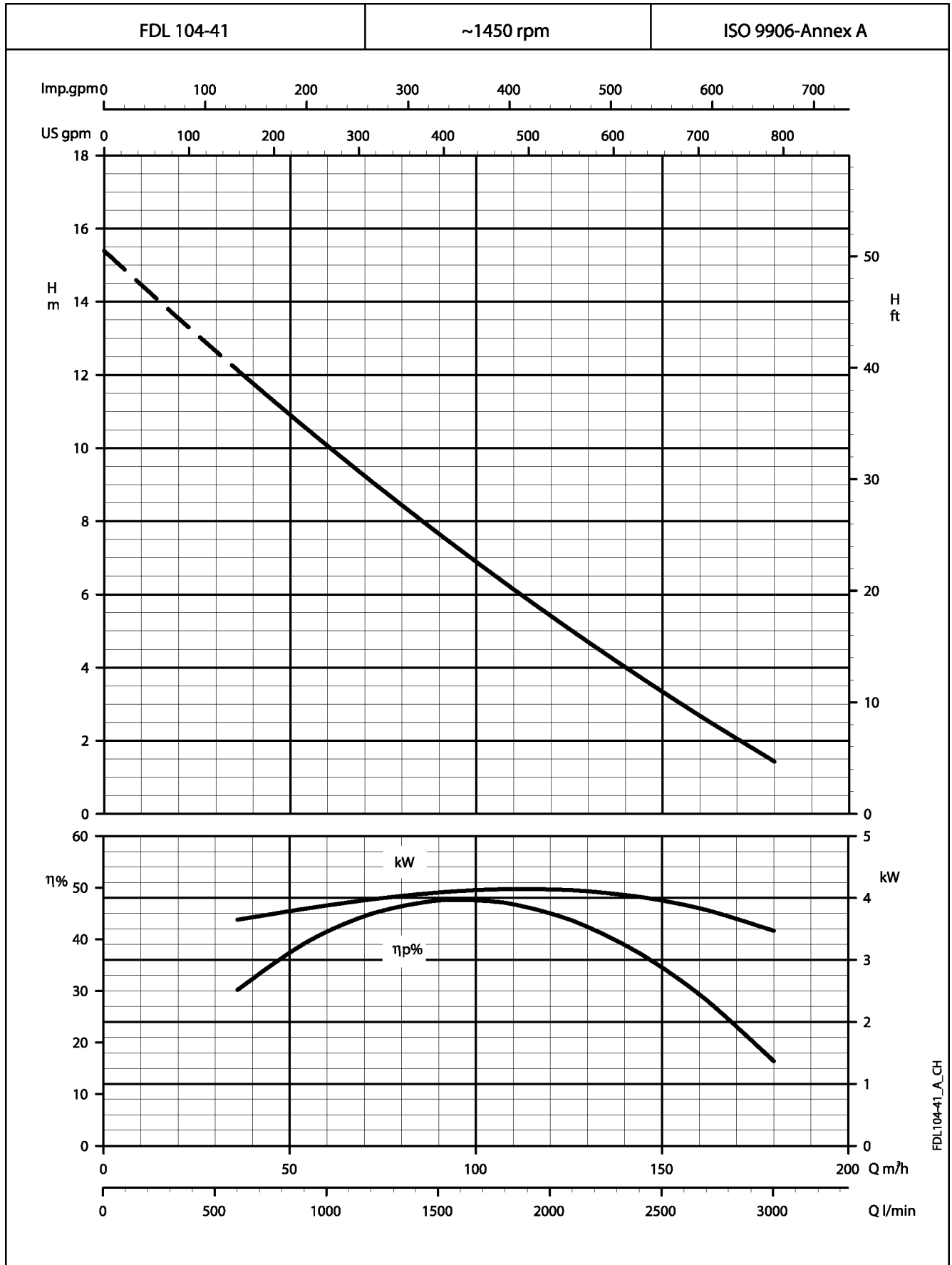
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

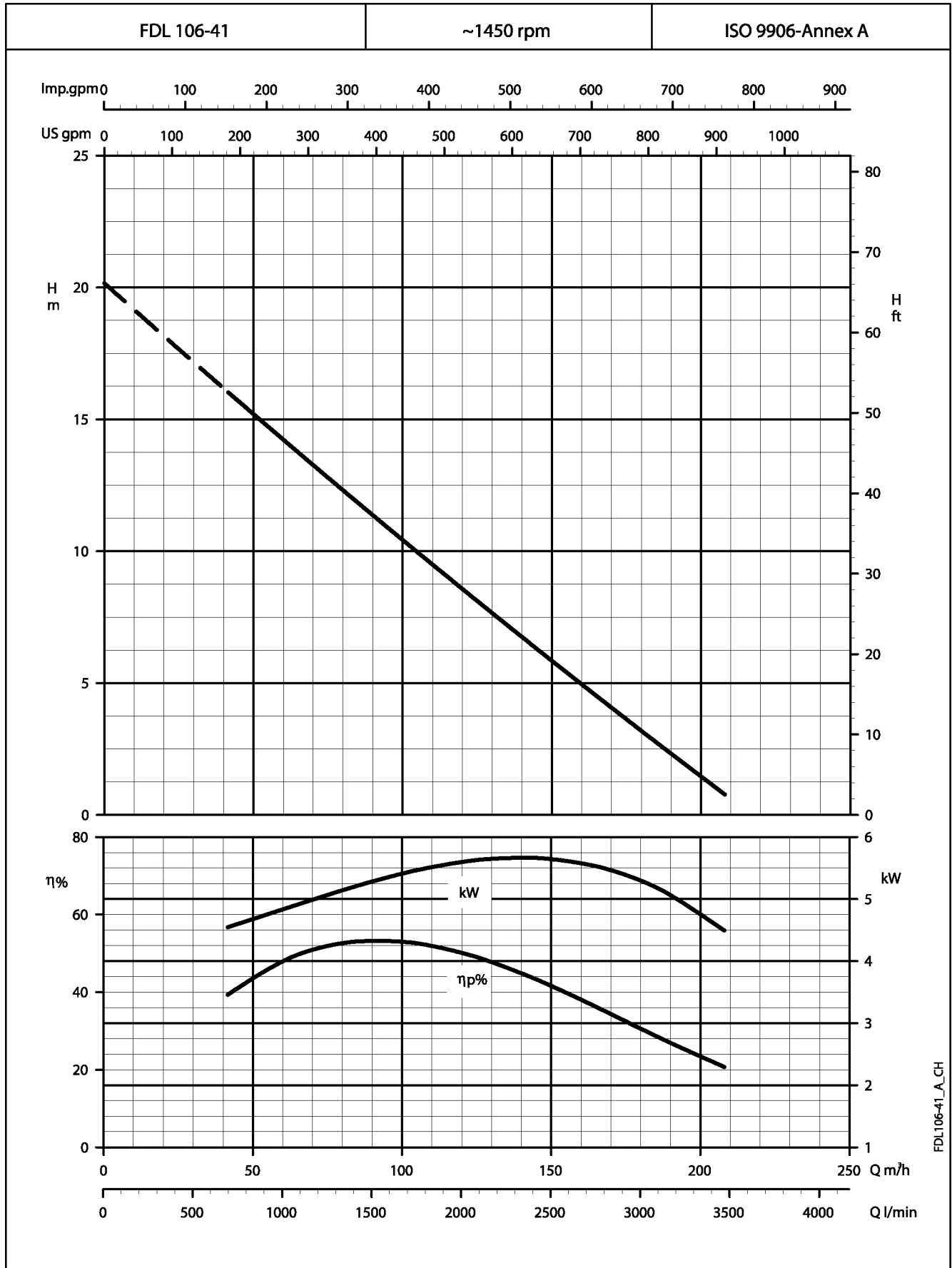


FDL104-41\_A\_CH

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



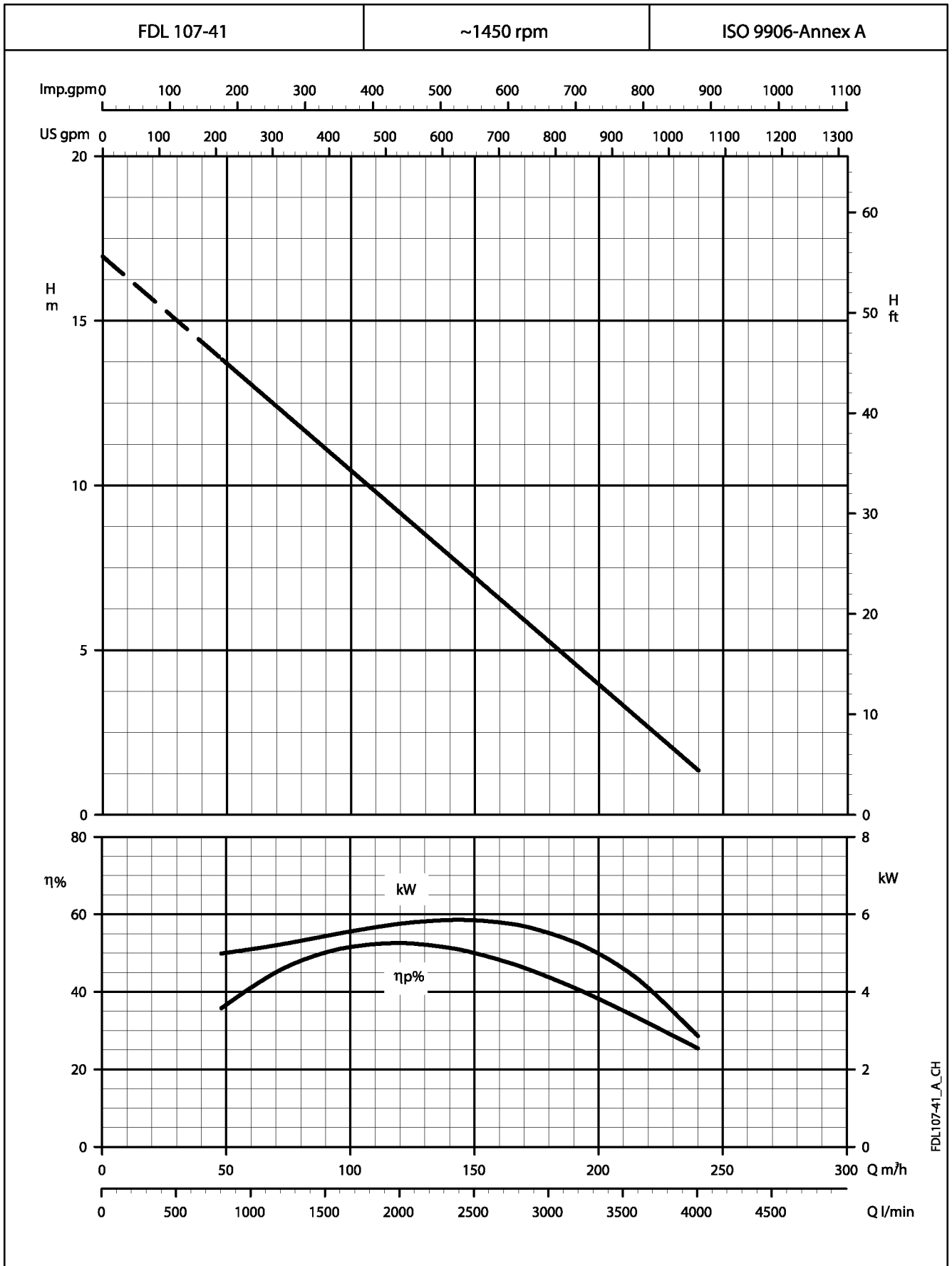
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



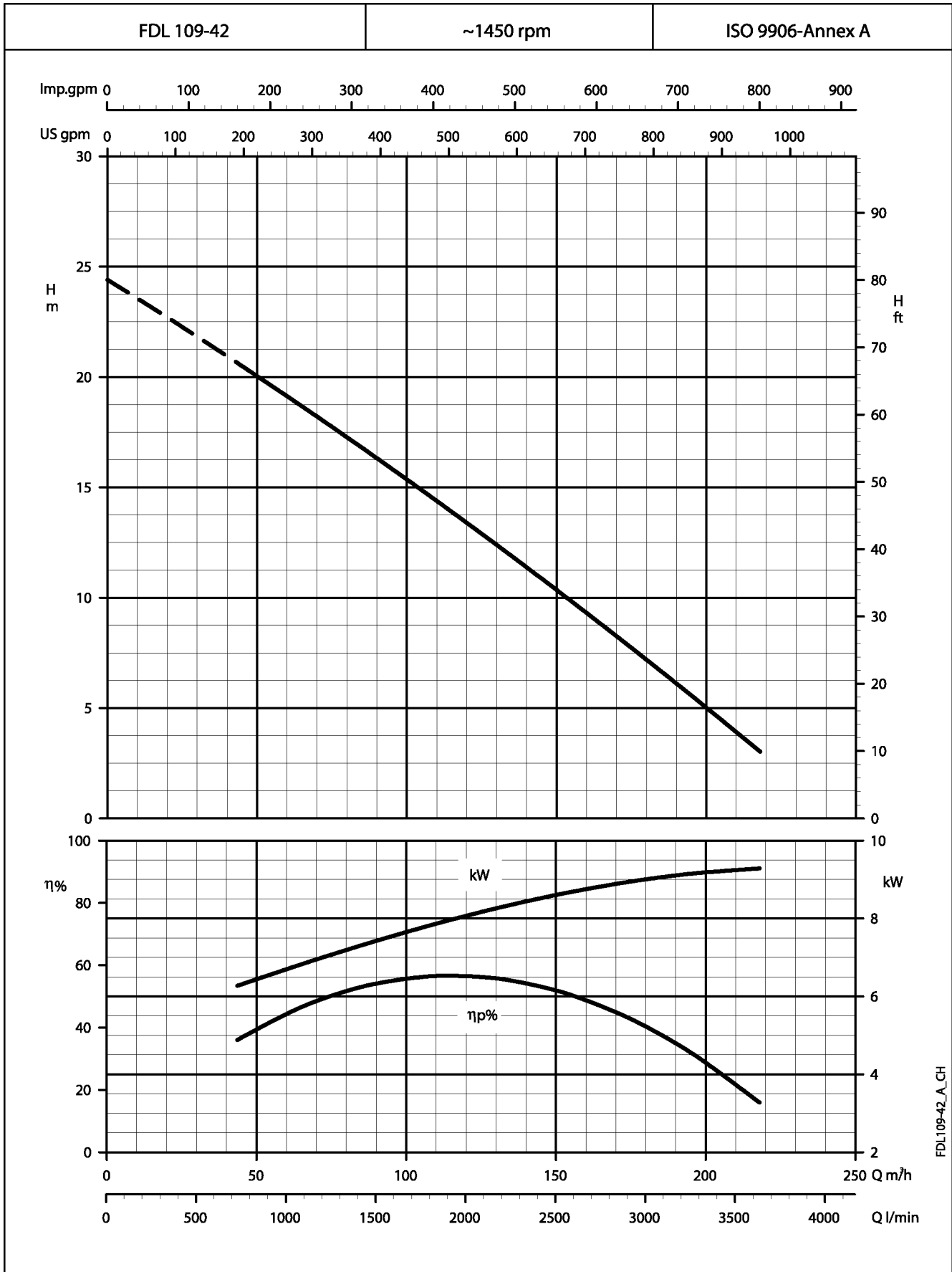
**FDL SERIES**  
**OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



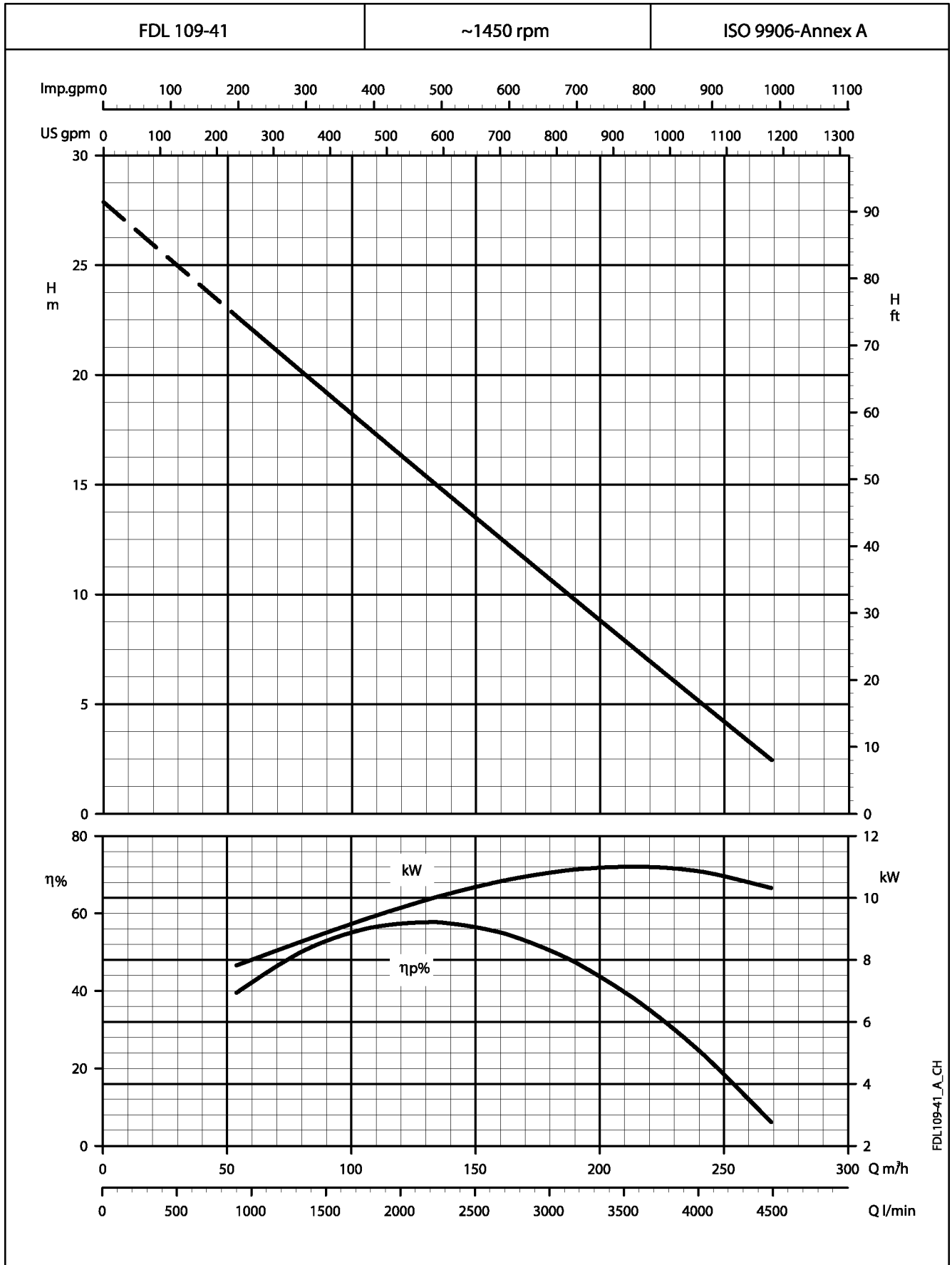
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



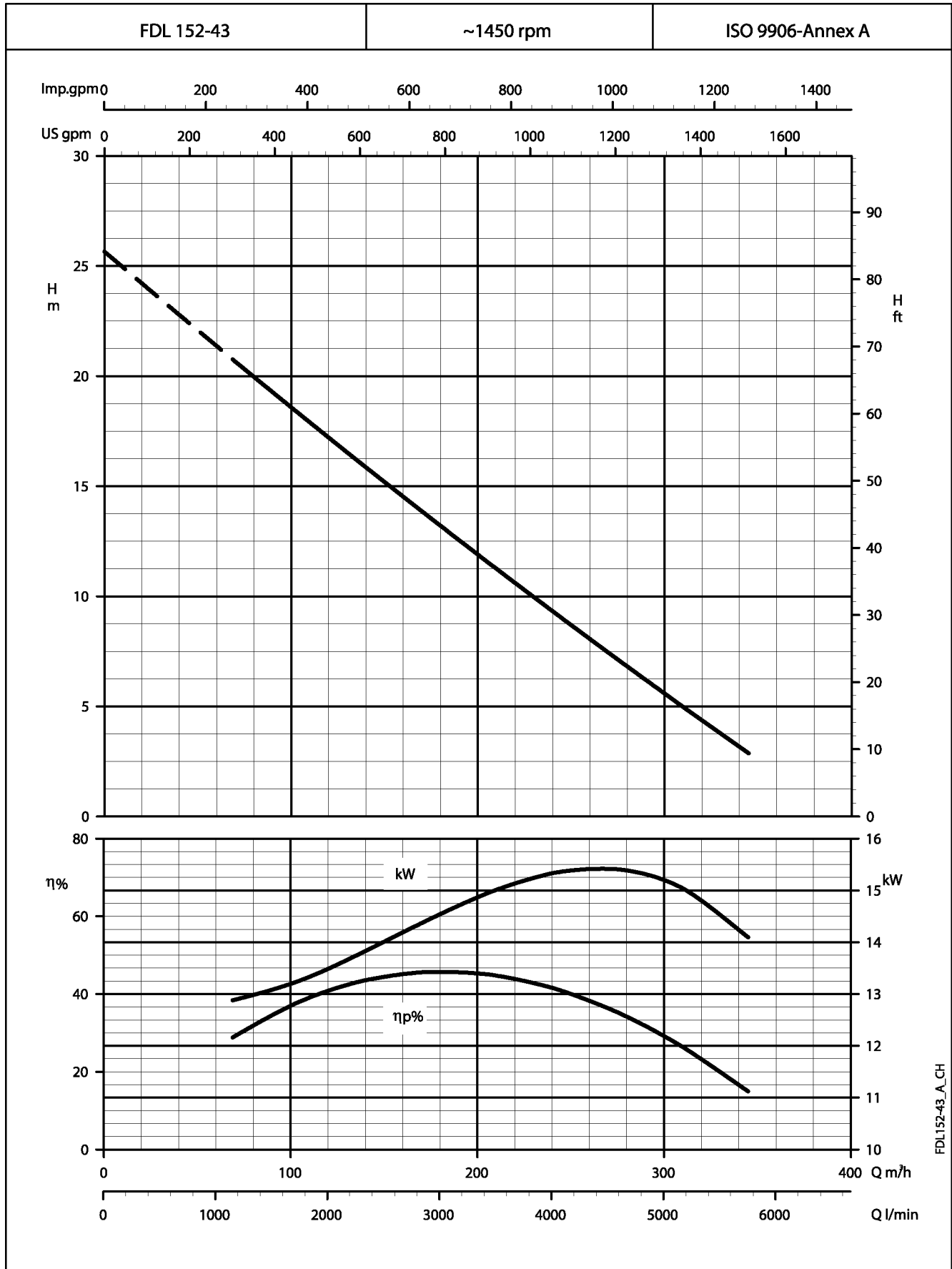
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

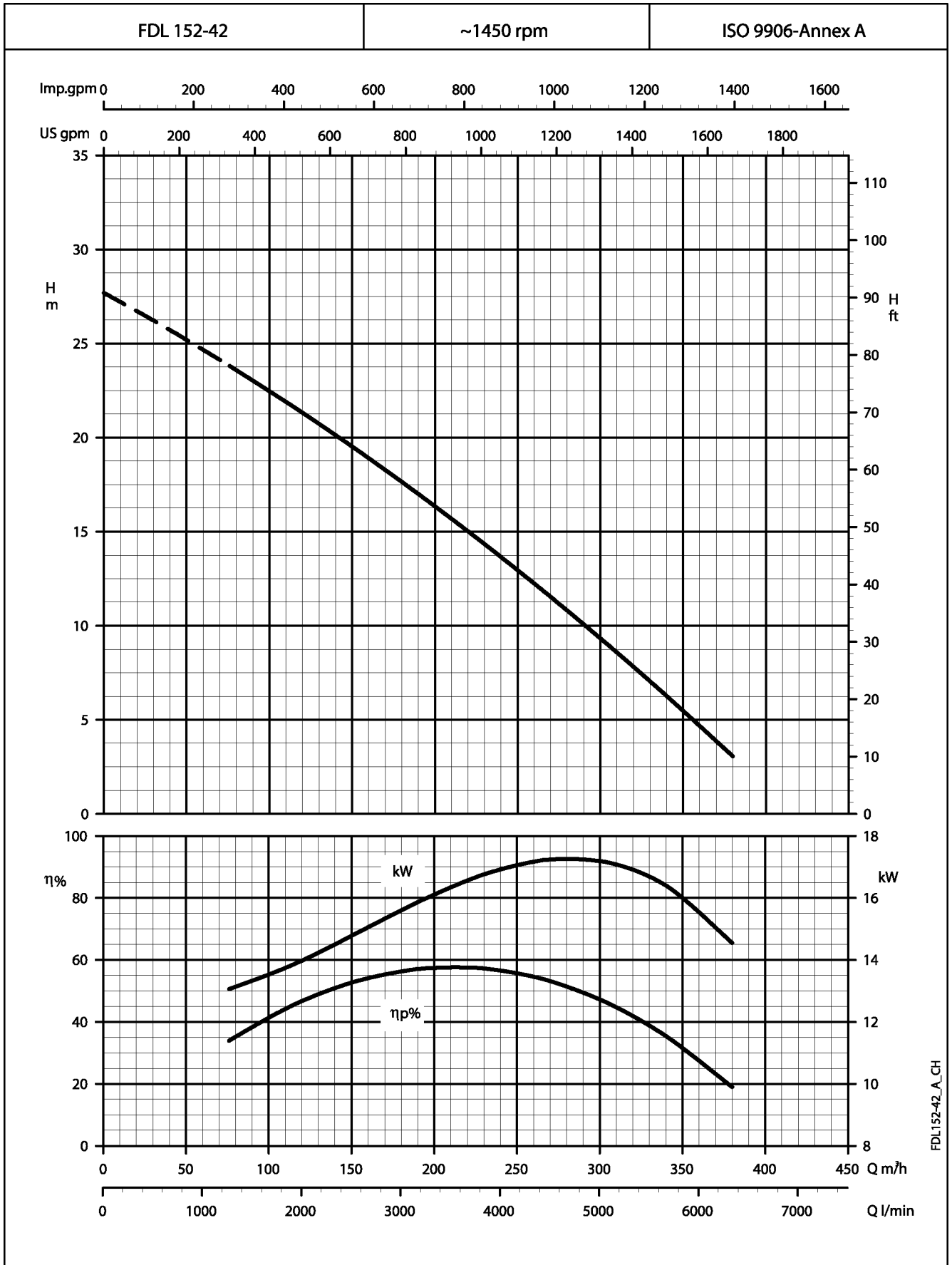


These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .





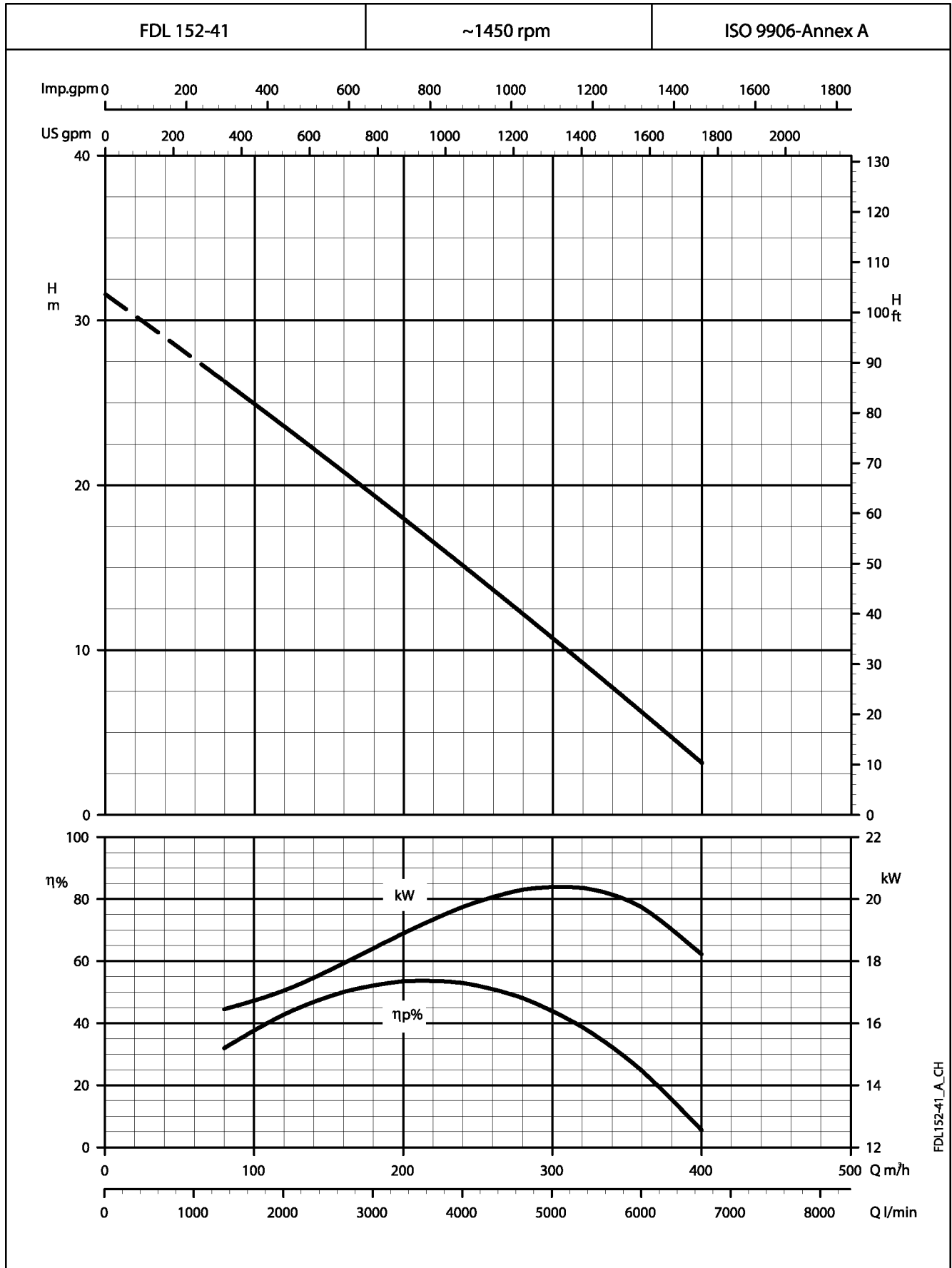
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



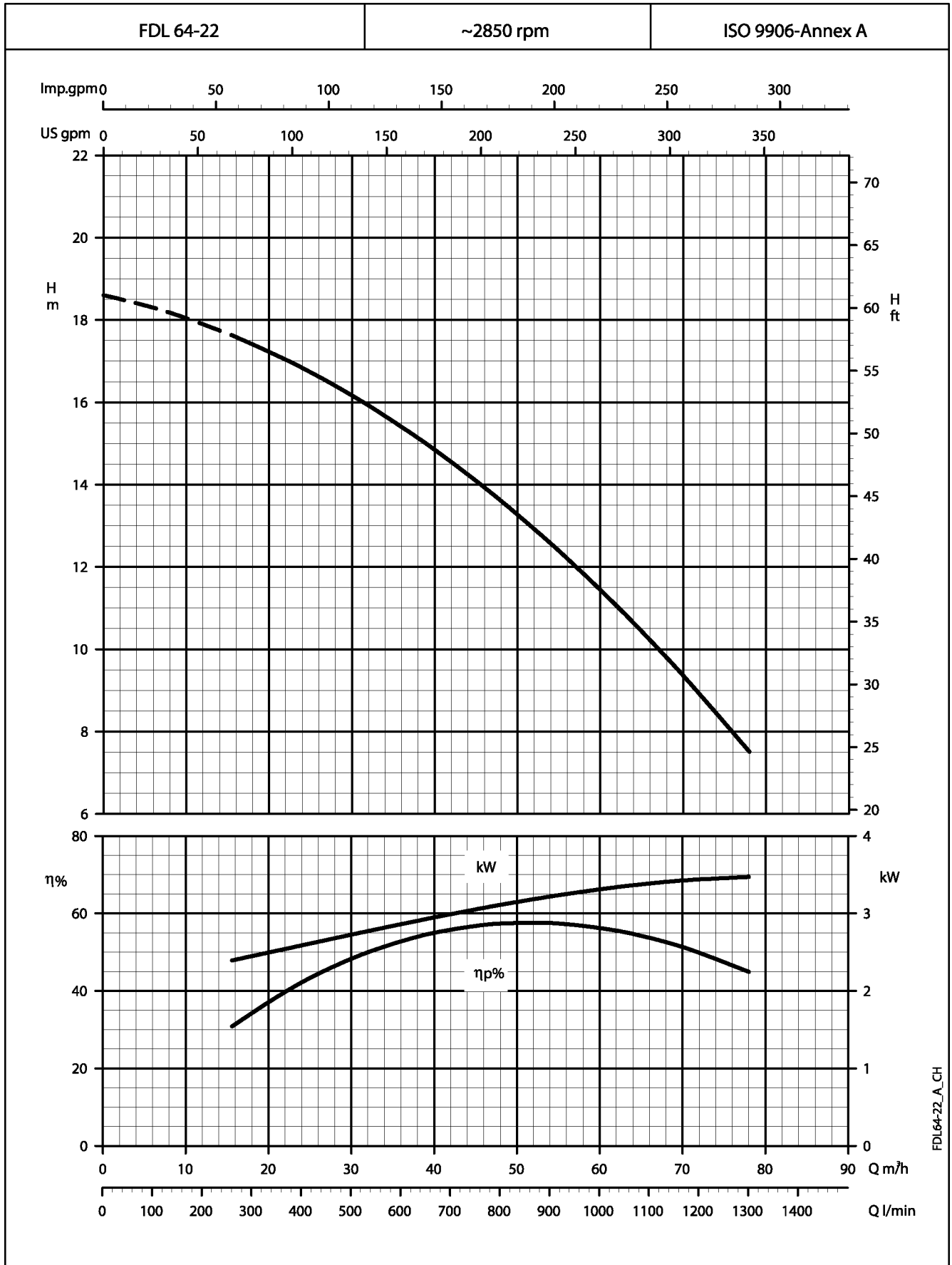
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



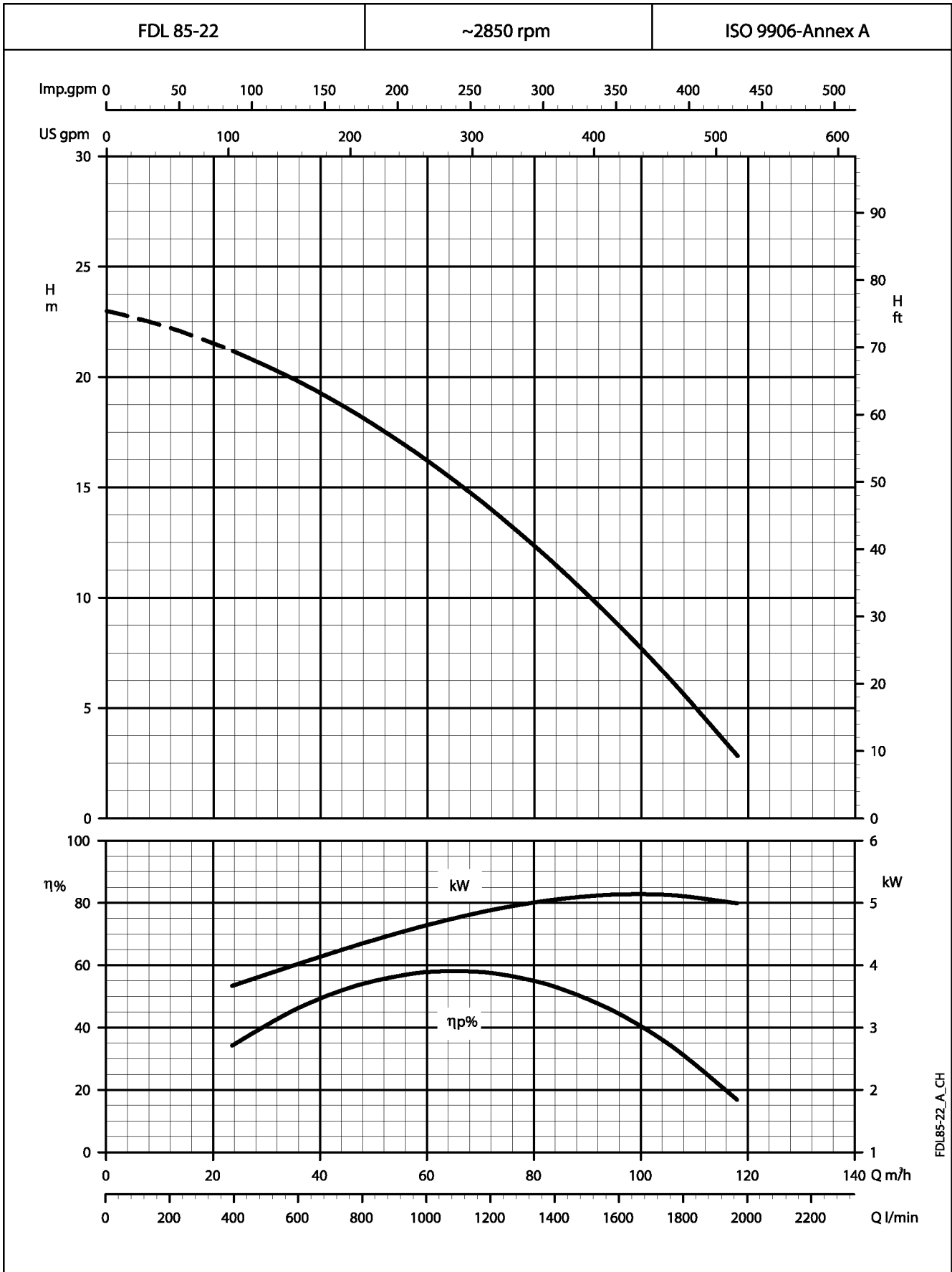
**FDL SERIES**  
**OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



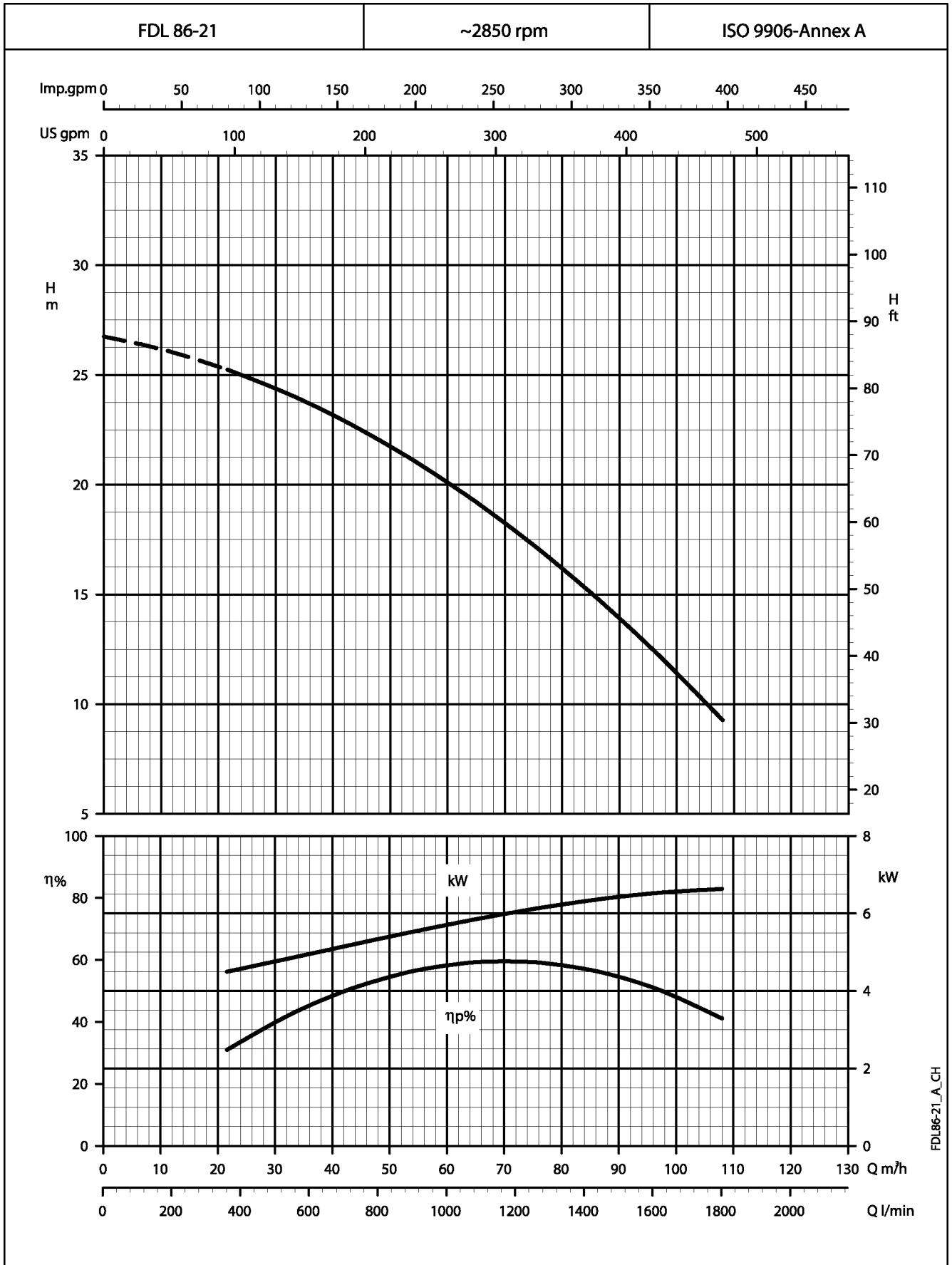
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



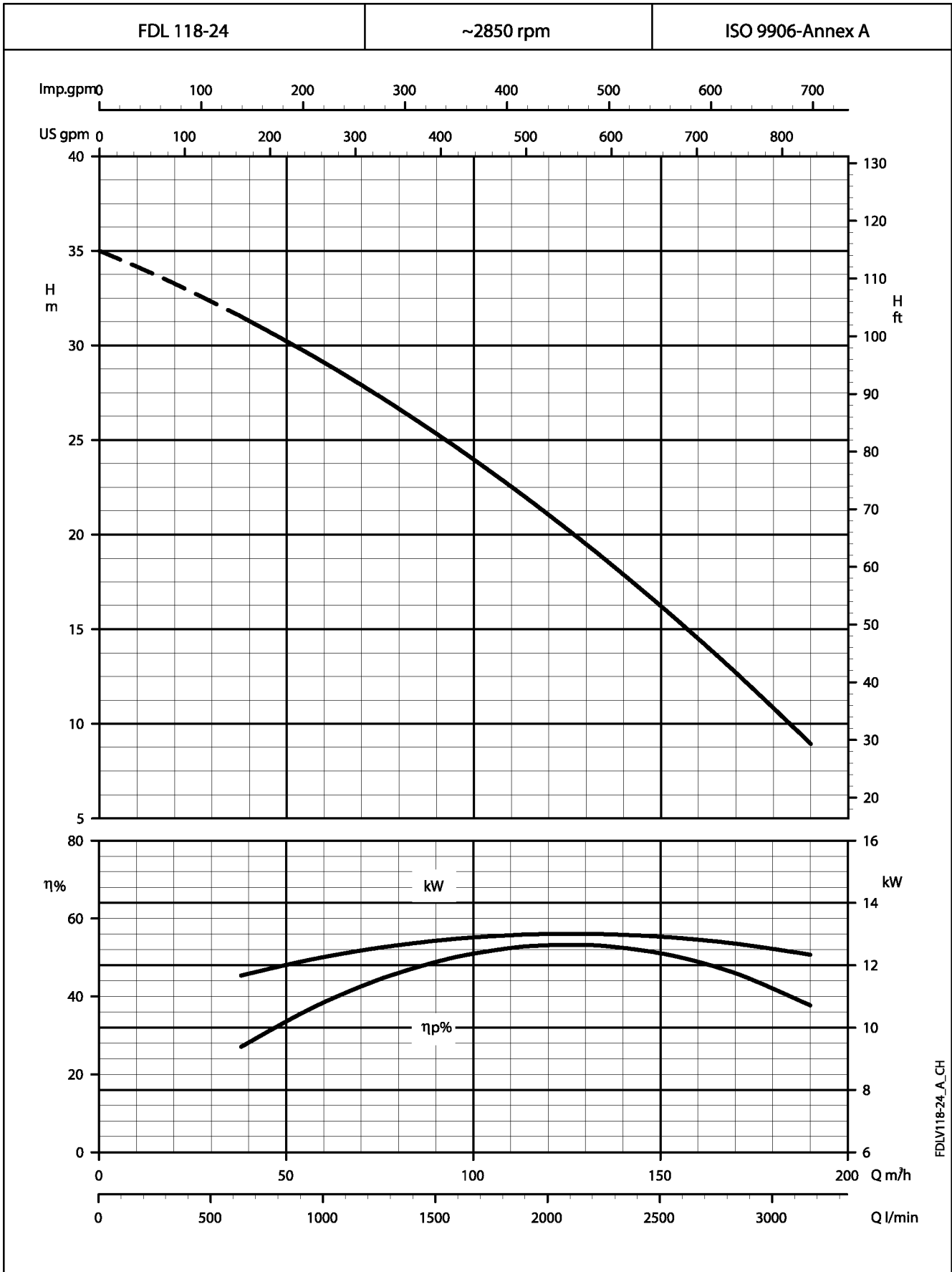
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**

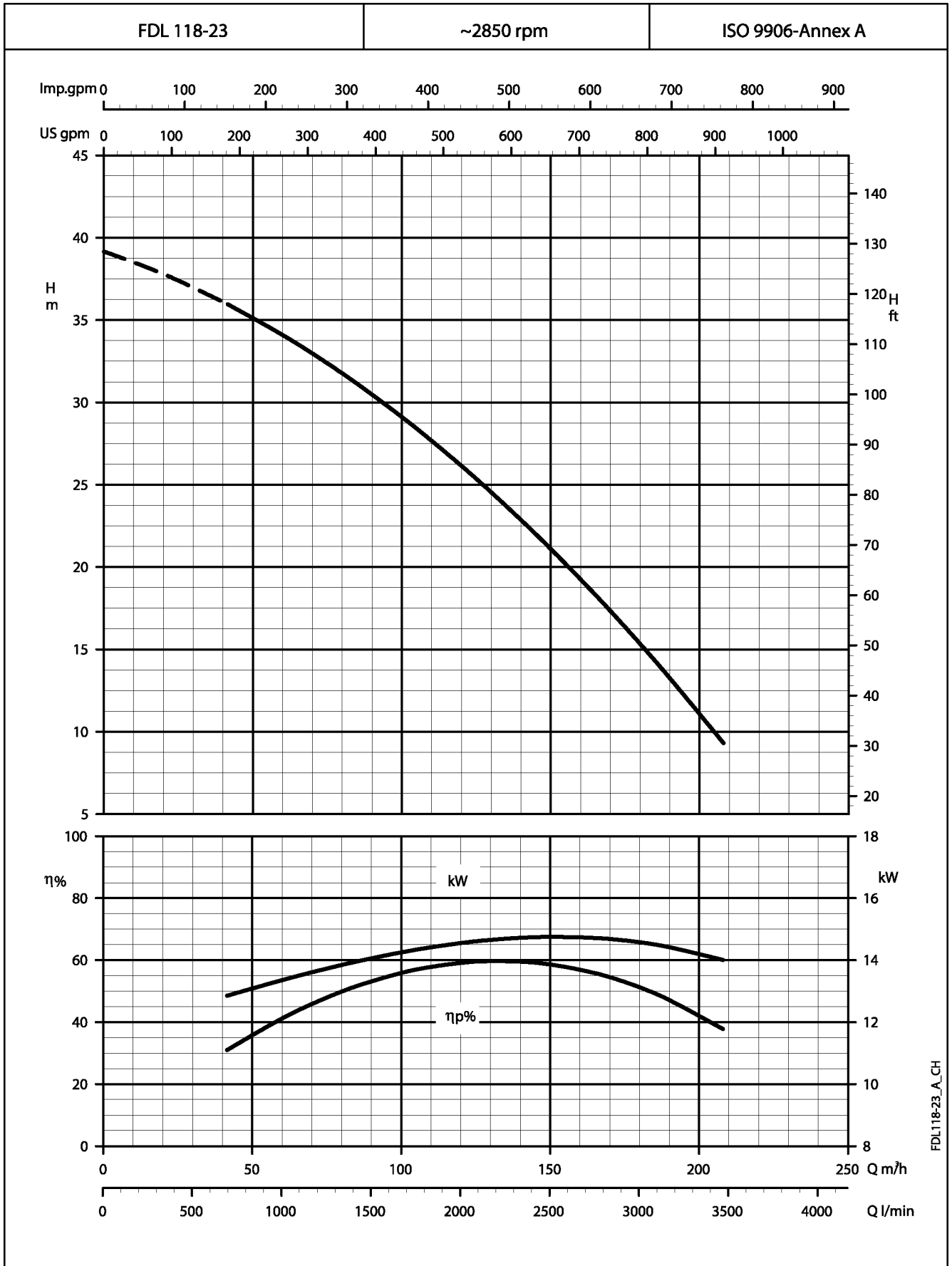


FDL118-24\_A\_CH

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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**

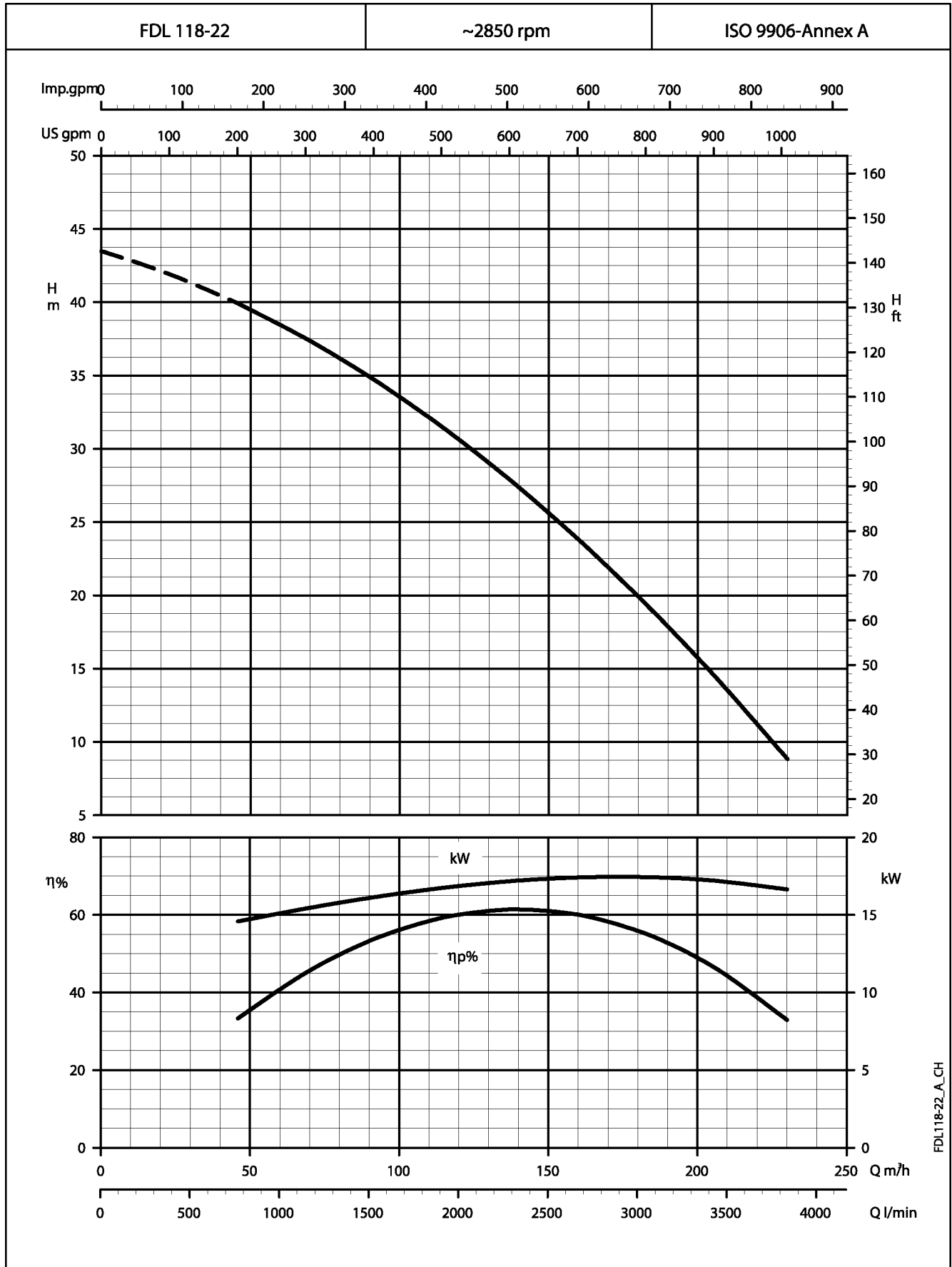


FDL118-23\_A\_CH

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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**

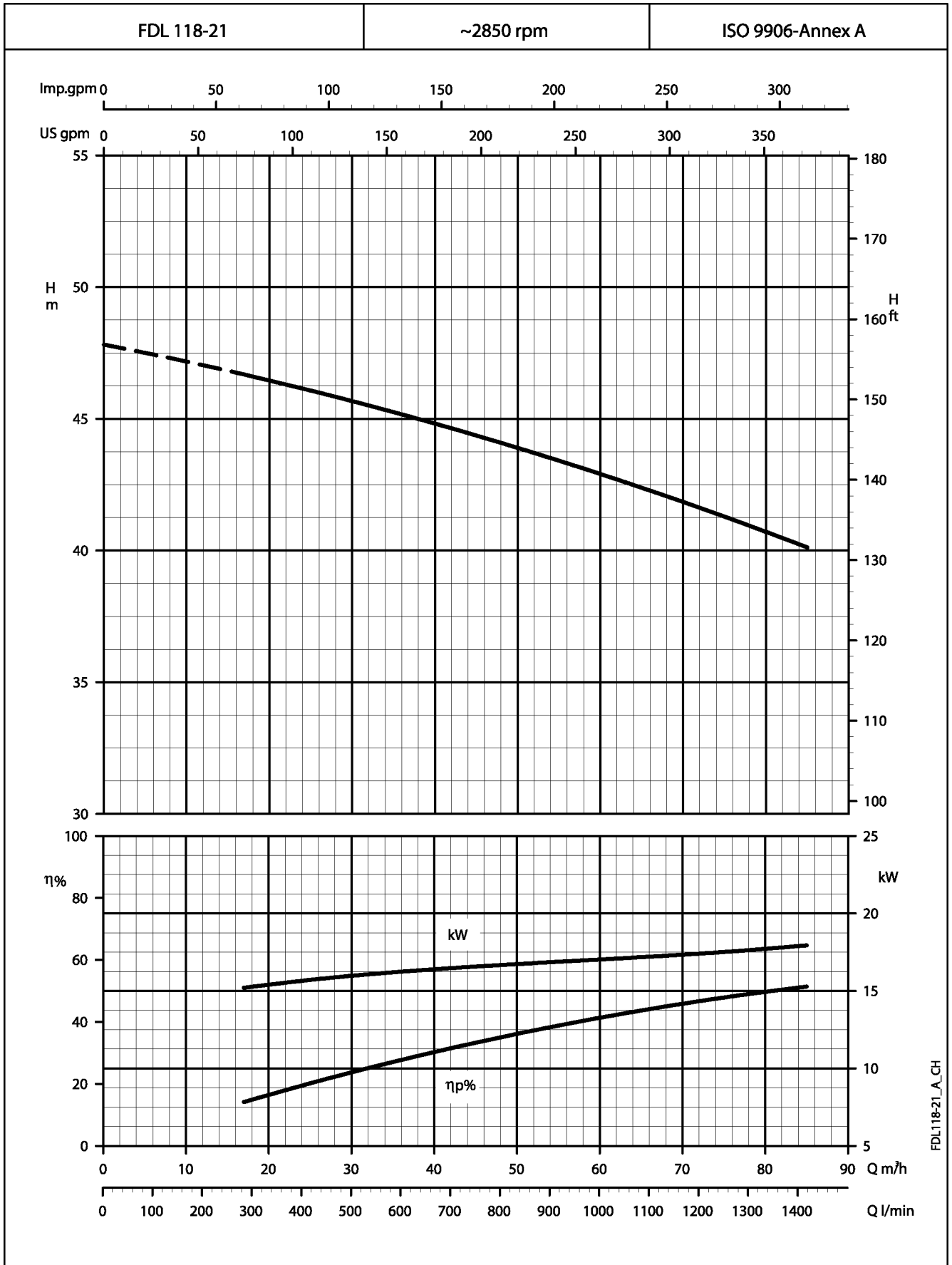


These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .





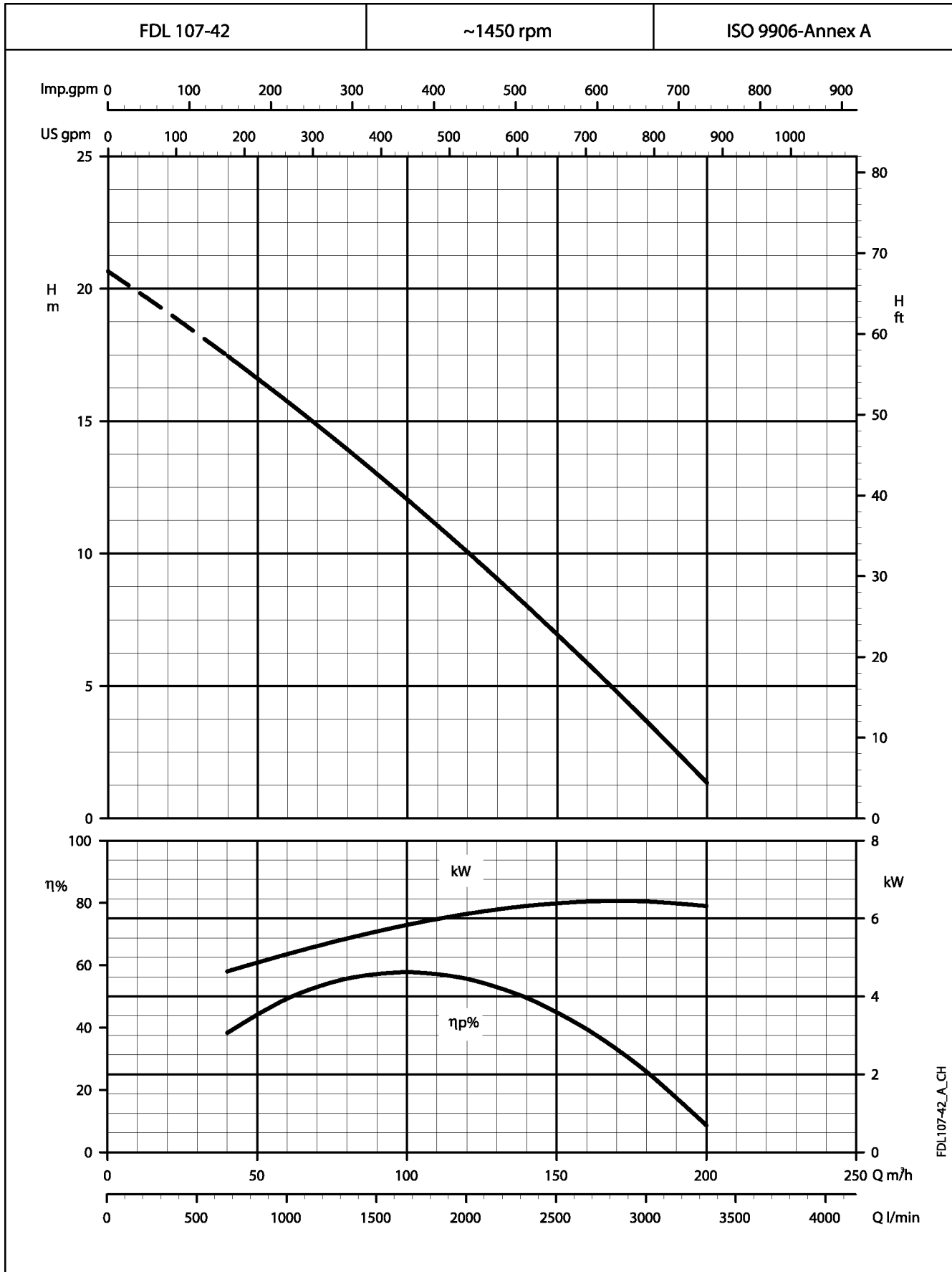
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



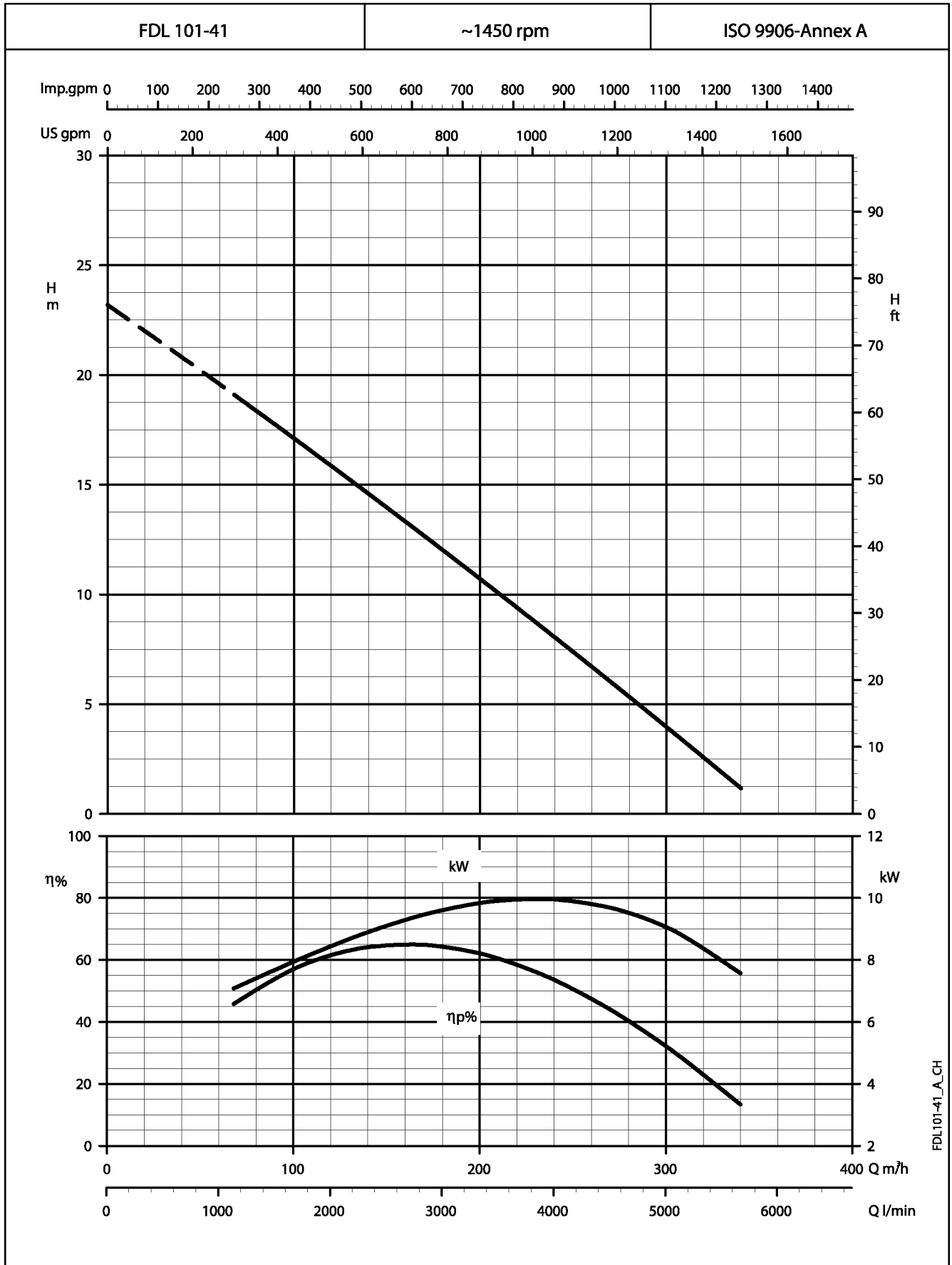
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



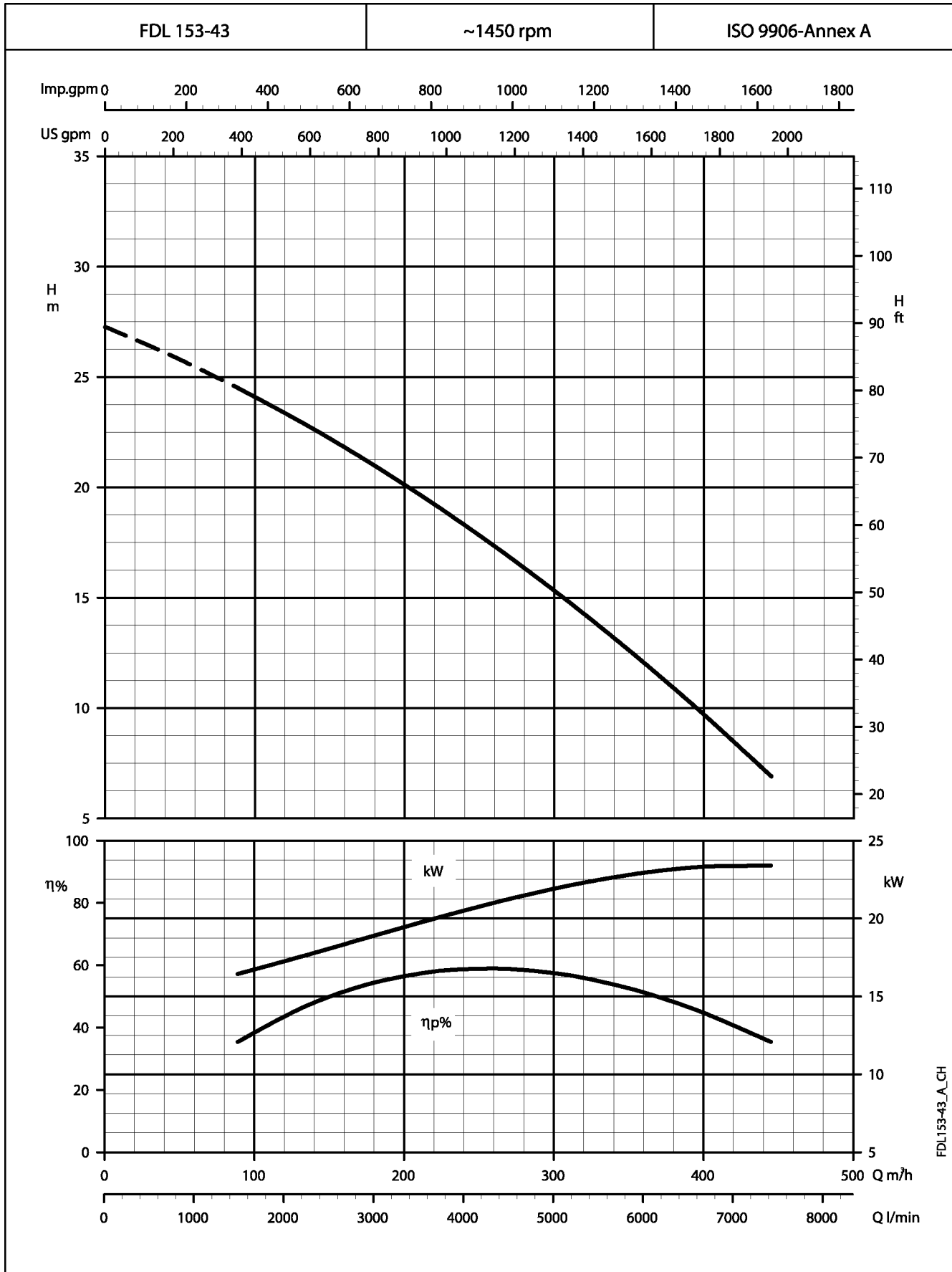
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



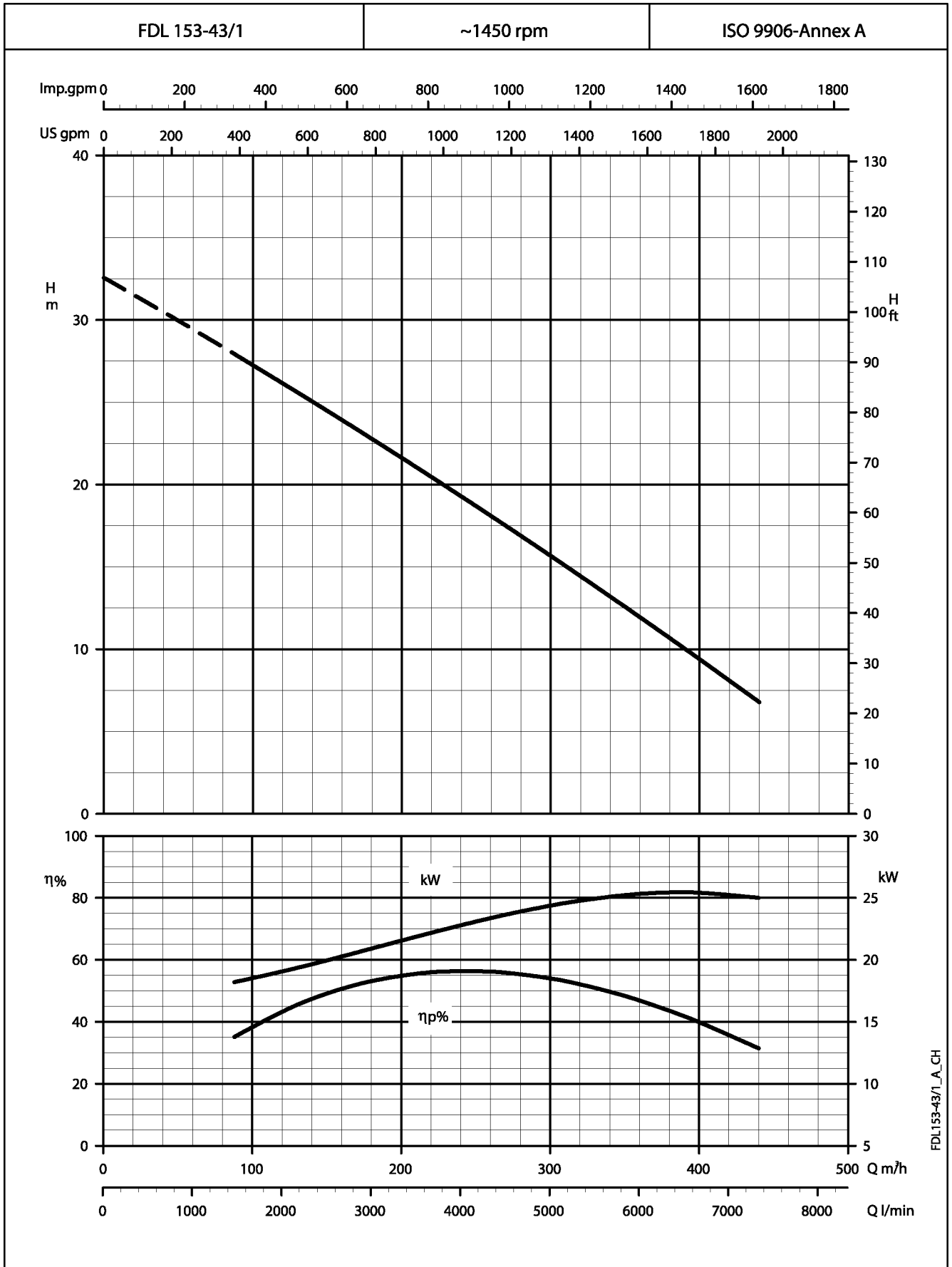
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

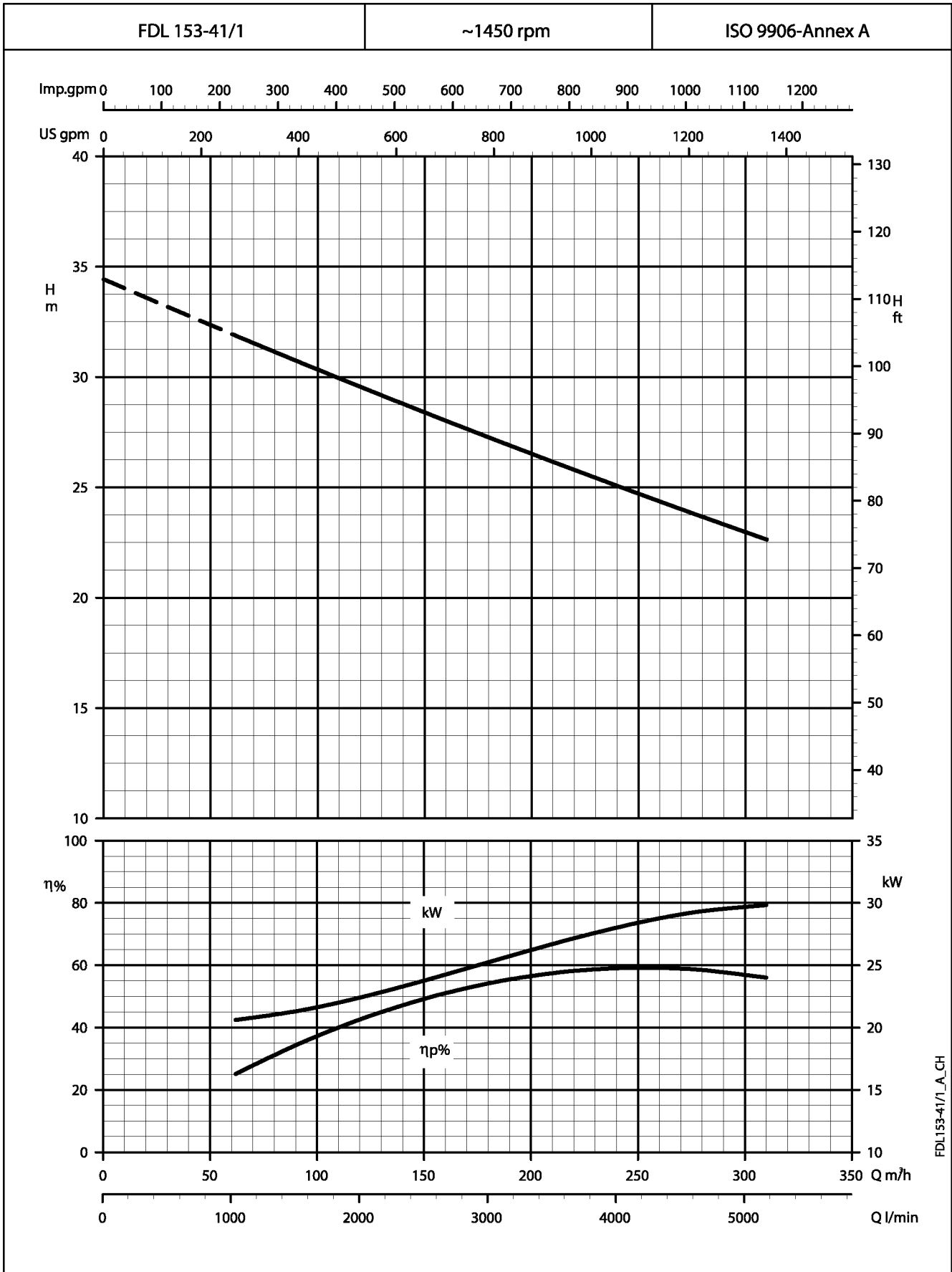


FDL153-43/1\_A\_CH

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



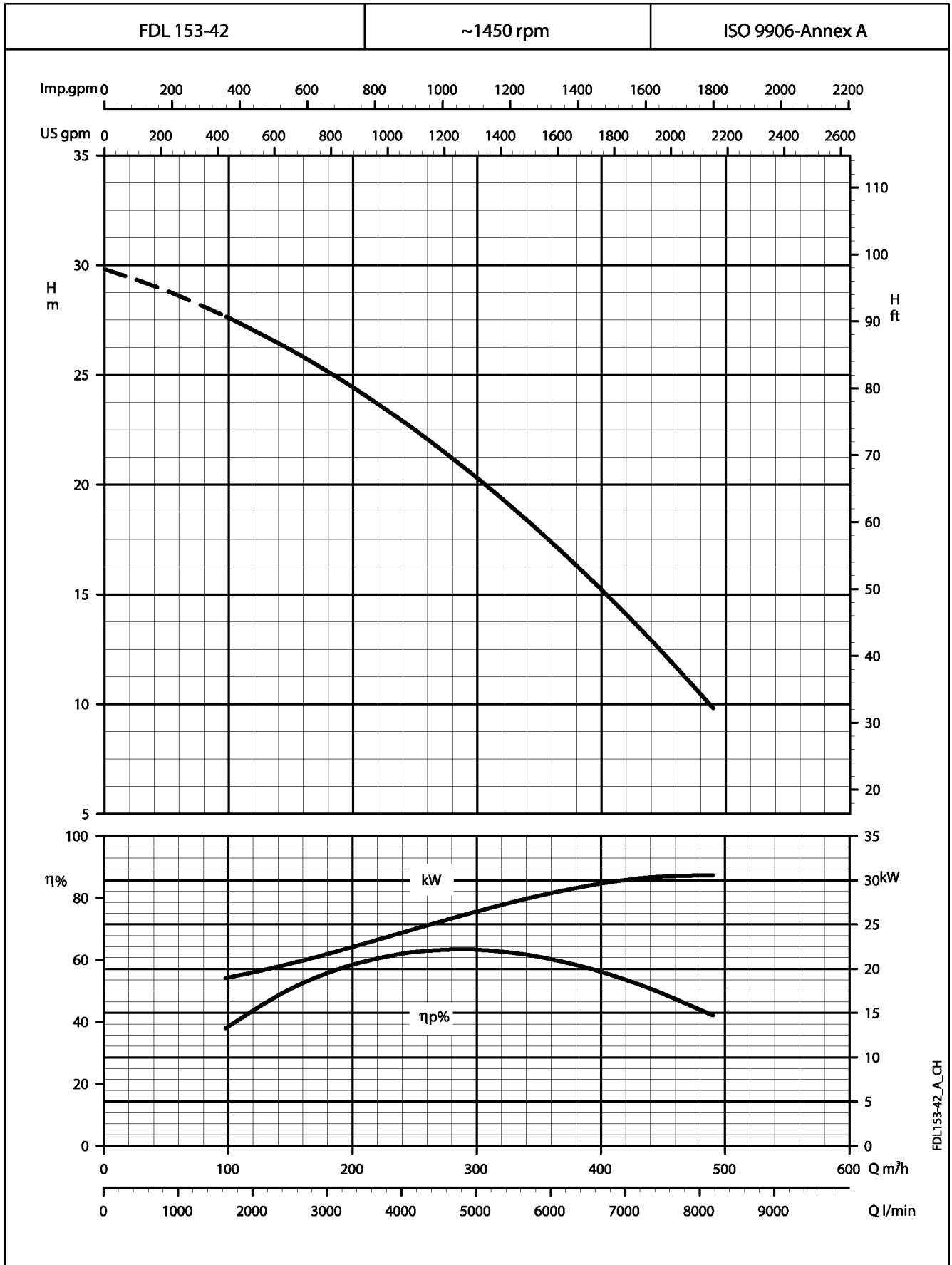
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



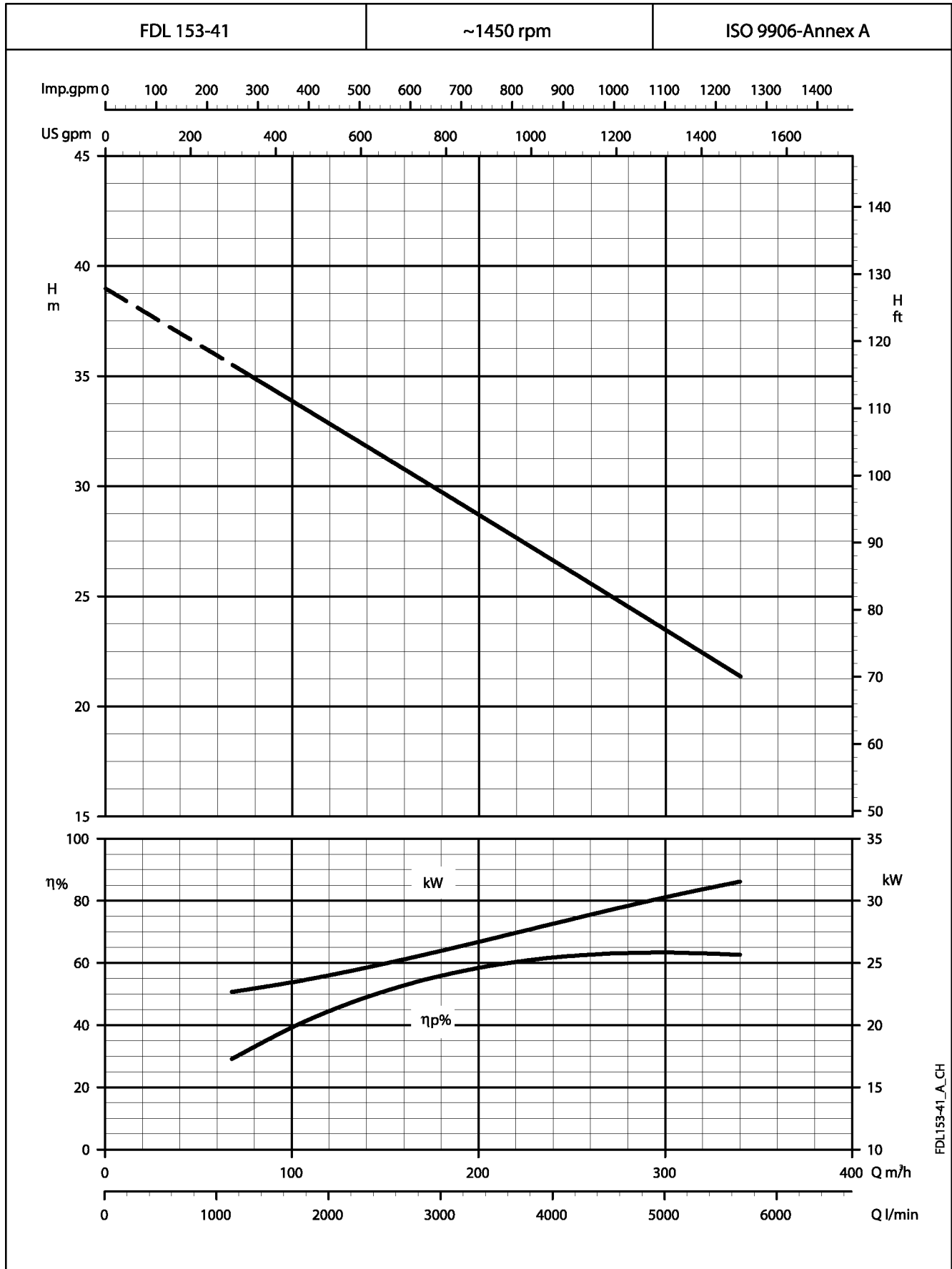
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**

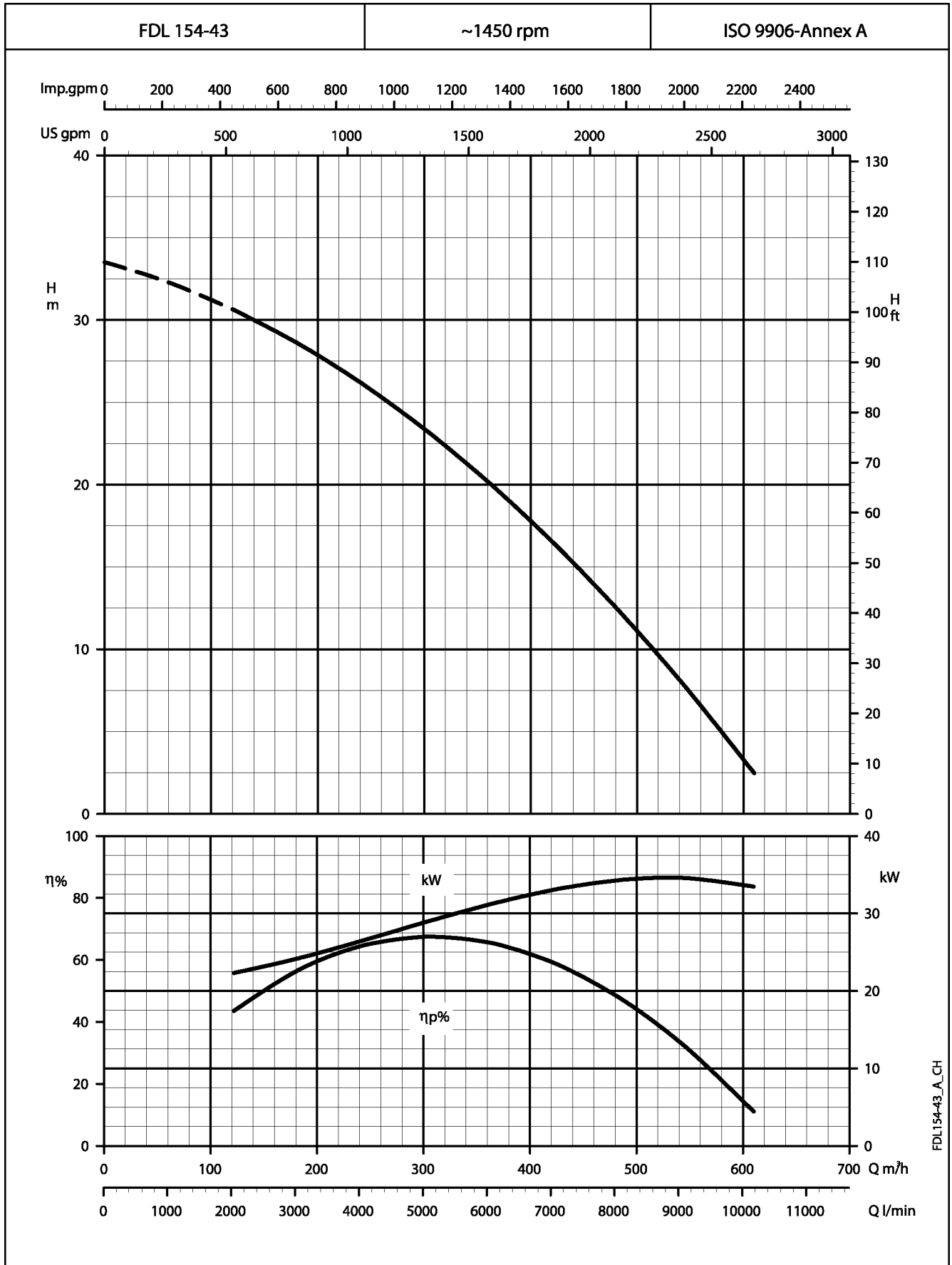


These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\gamma = 1 \text{ mm}^2/\text{s}$ .





## FDL SERIES OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz

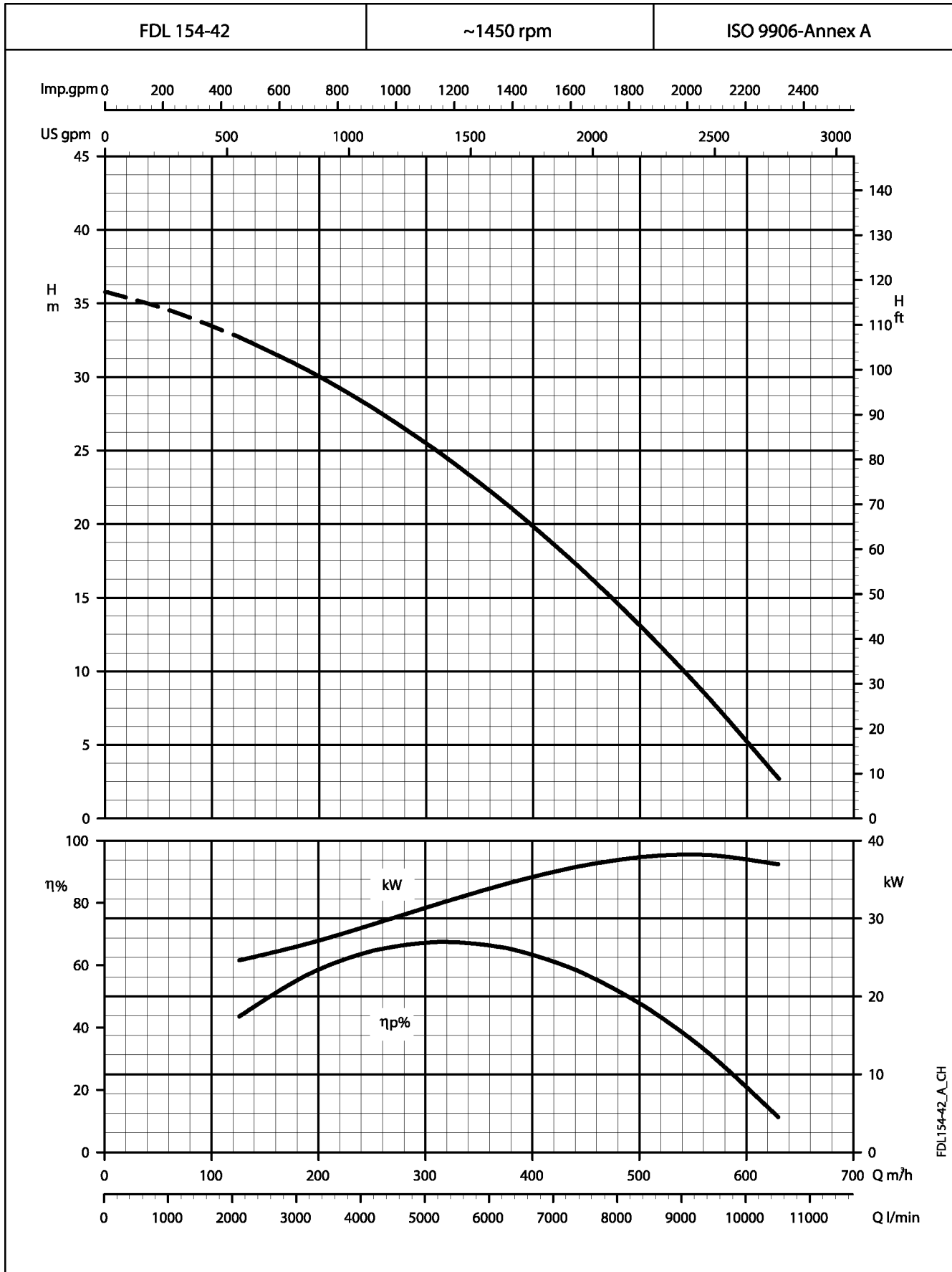


FDL154-43\_A\_CH

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



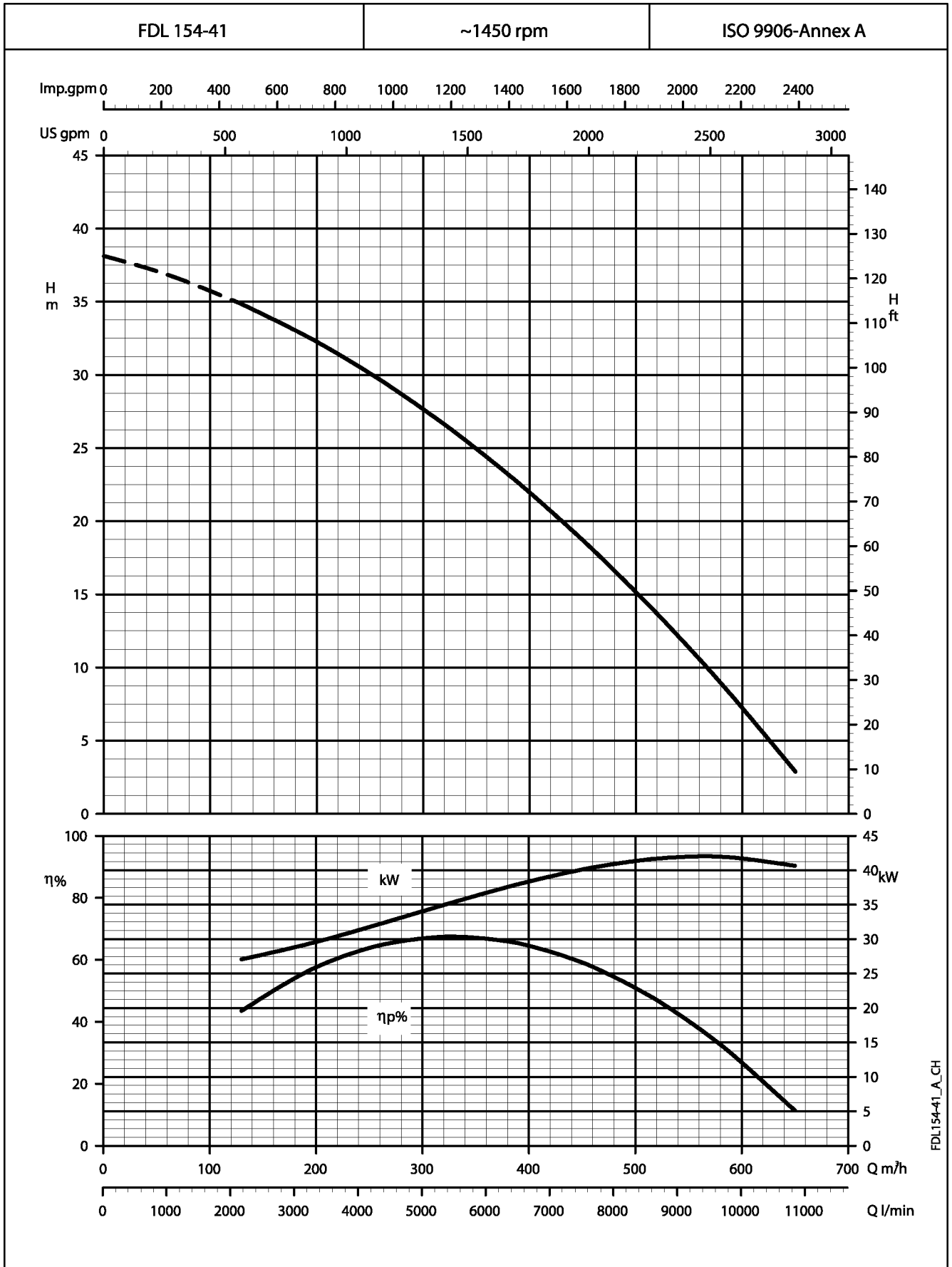
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



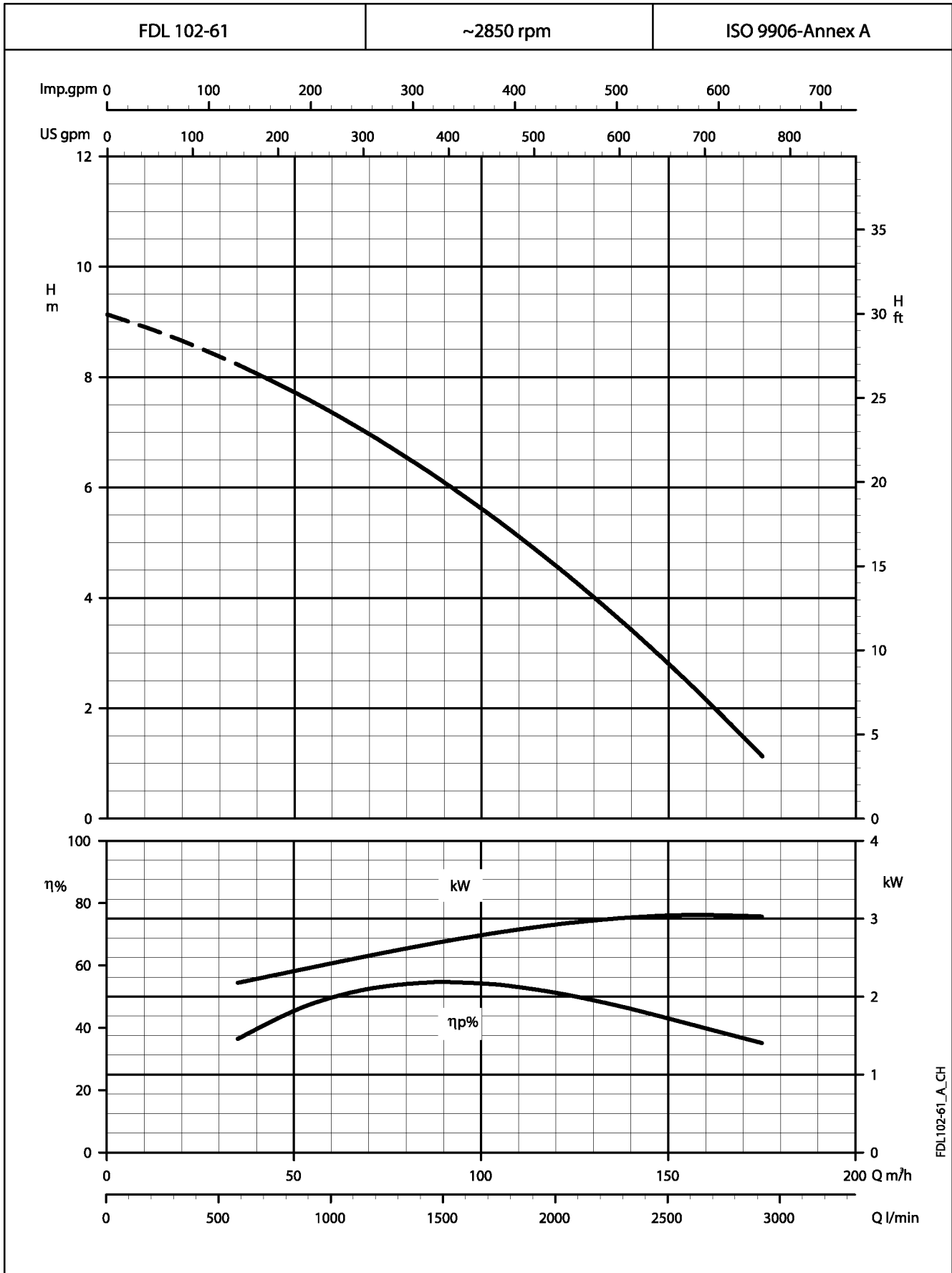
**FDL SERIES  
OPERATING CHARACTERISTICS AT 1450 rpm 50 Hz**



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



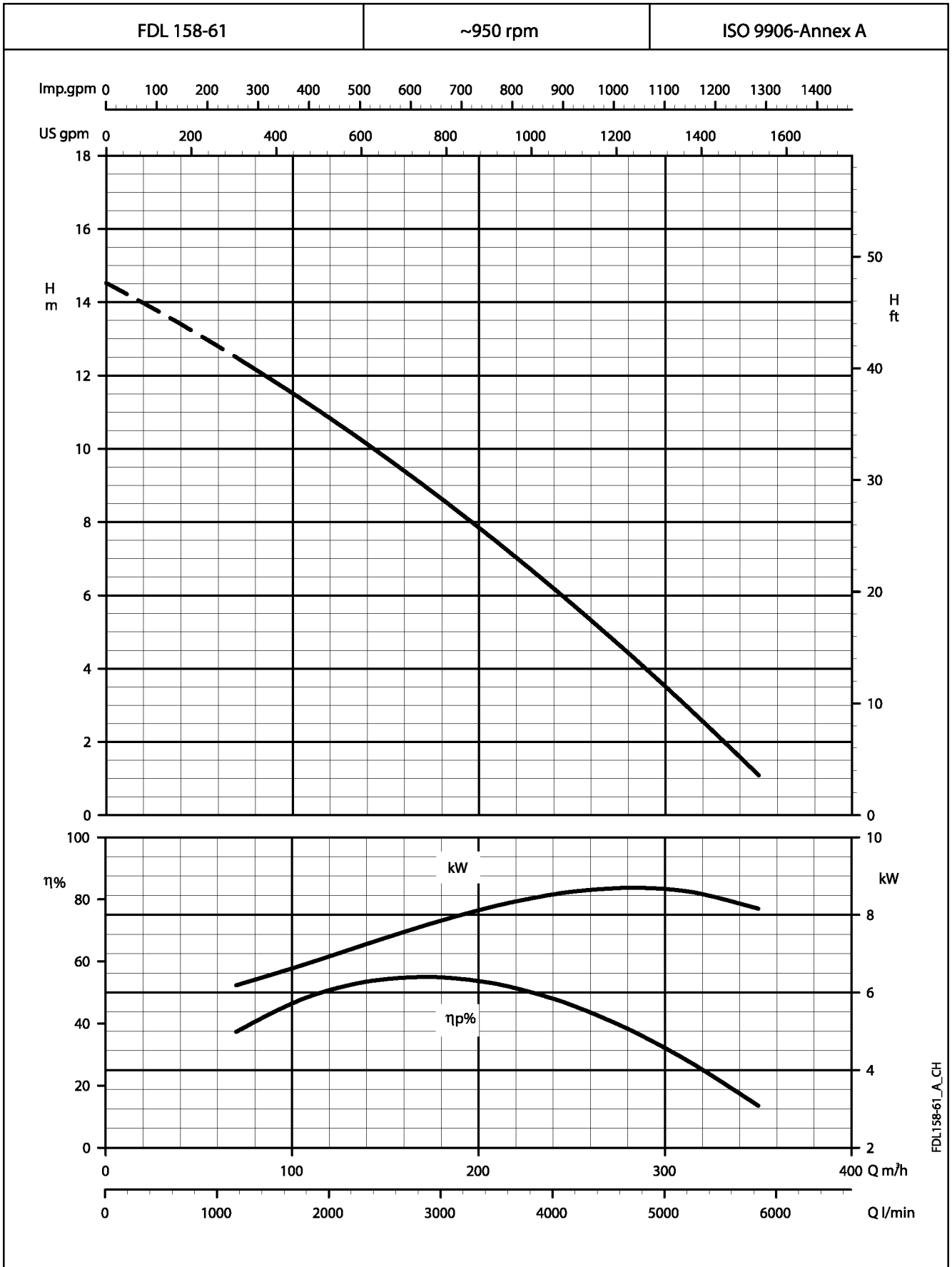
**FDL SERIES  
OPERATING CHARACTERISTICS AT 2850 rpm 50 Hz**



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



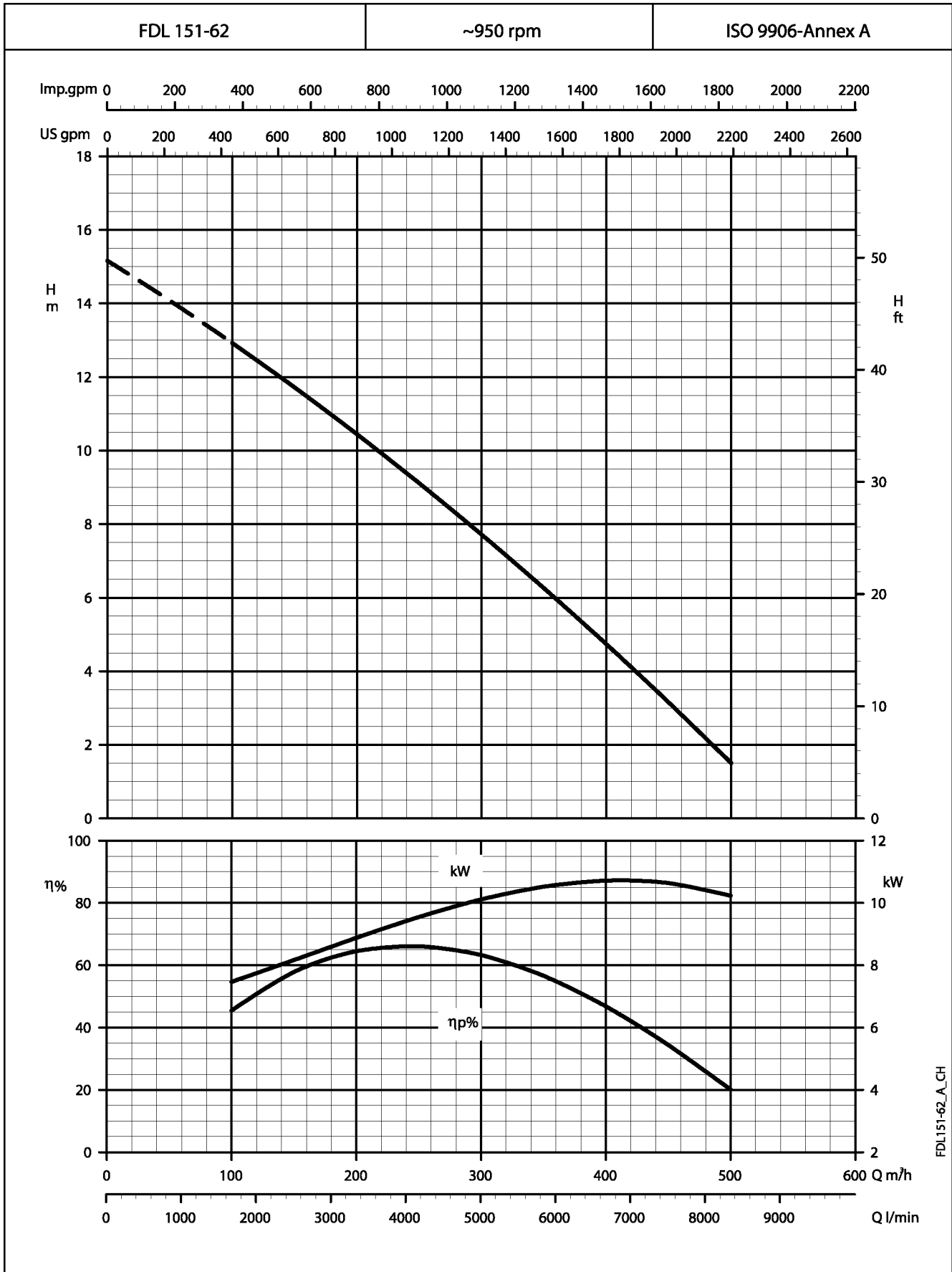
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



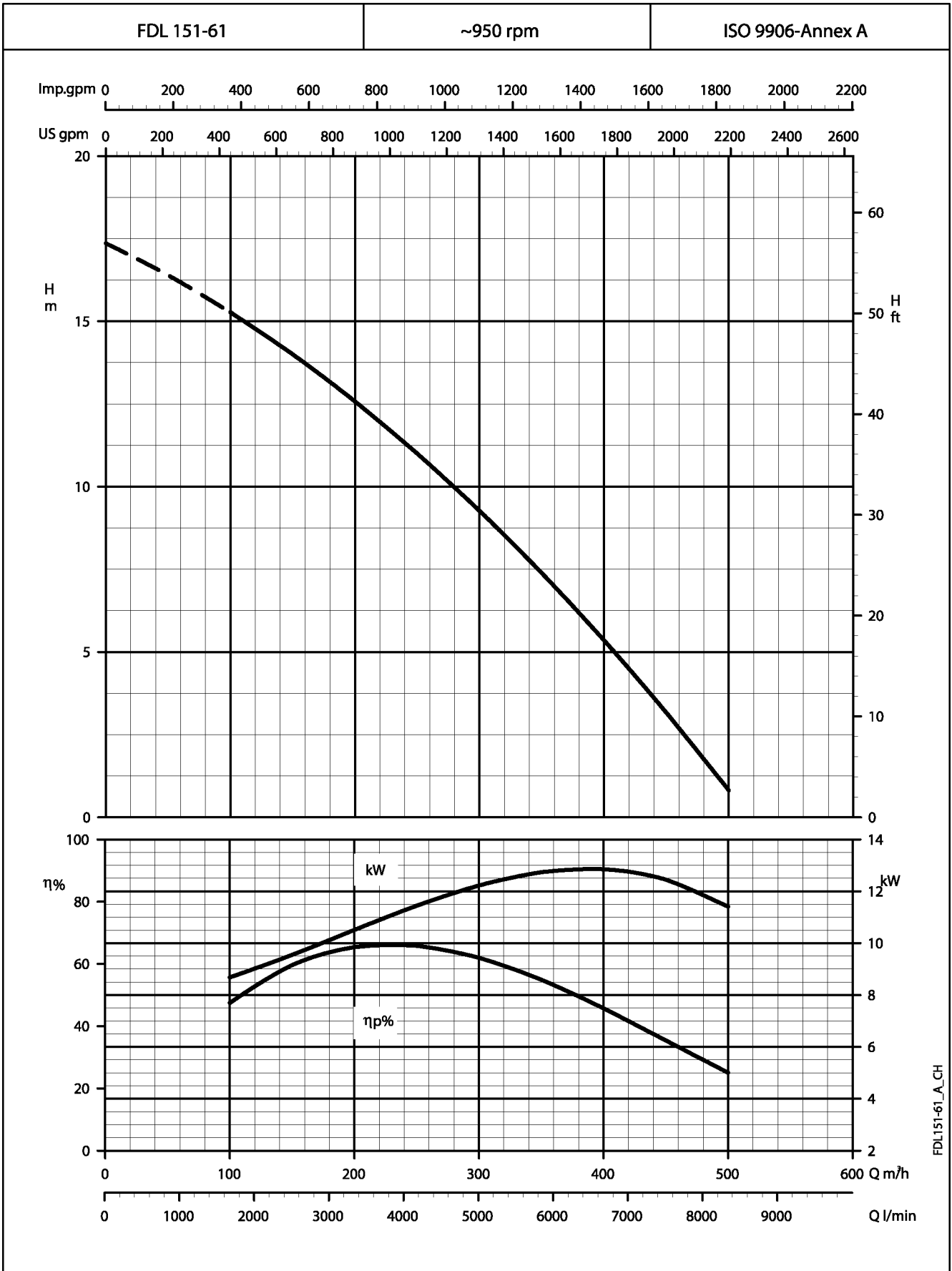
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



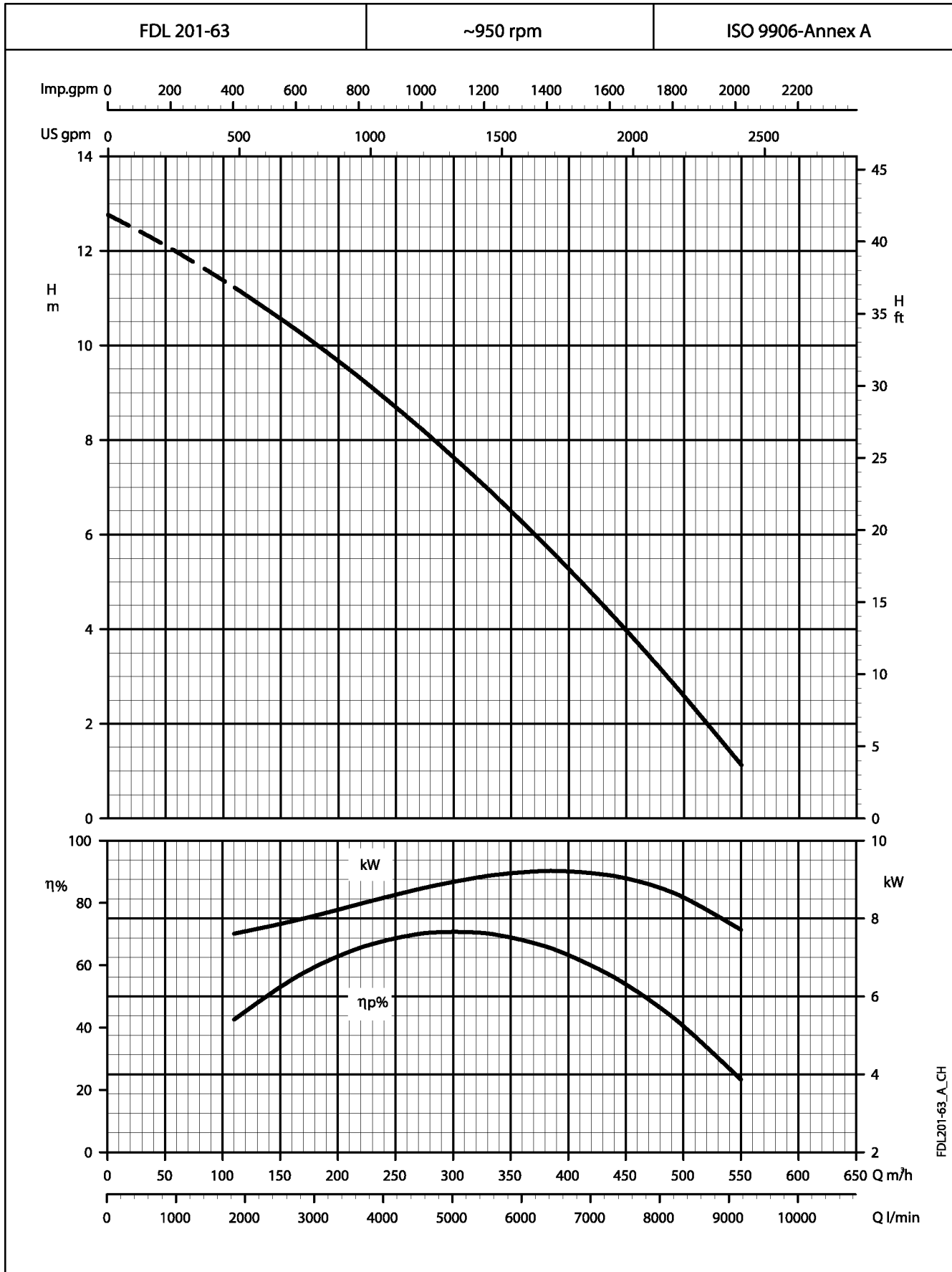
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**

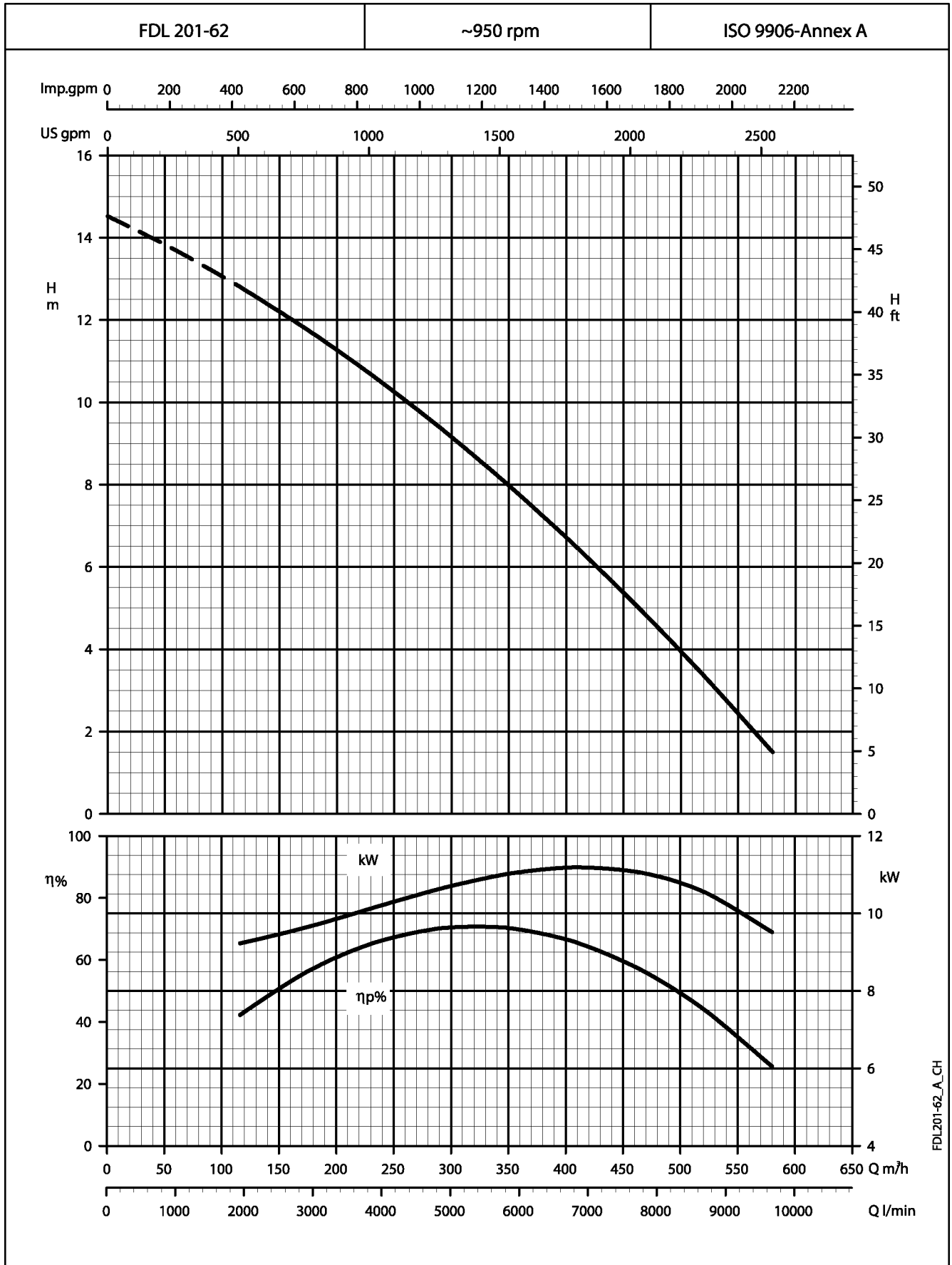


These performances are valid for liquids with density  $\rho = 1.0 \text{ kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .





### FDL SERIES OPERATING CHARACTERISTICS AT 950 rpm 50 Hz

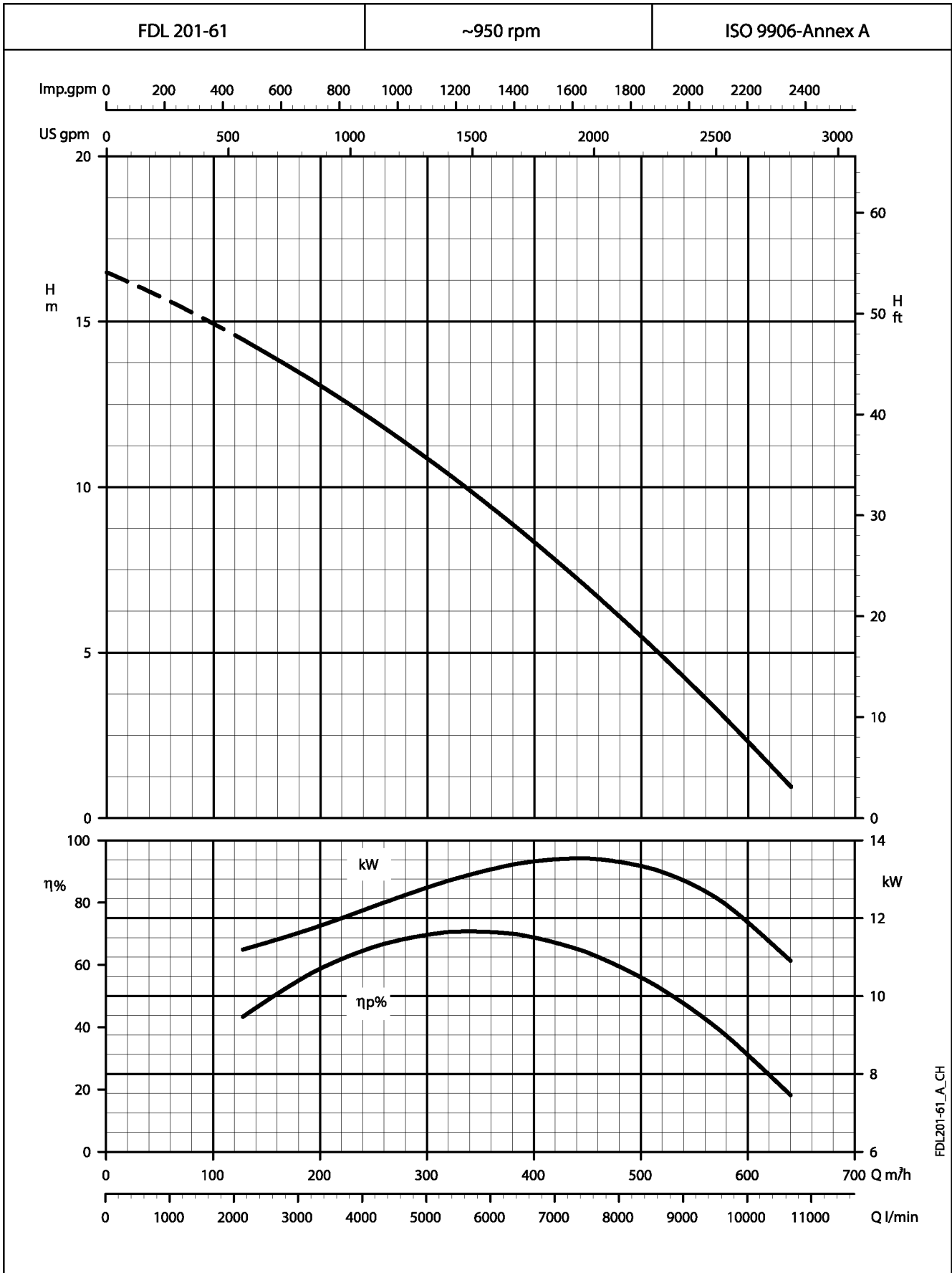


FDL201-62\_A\_CH

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



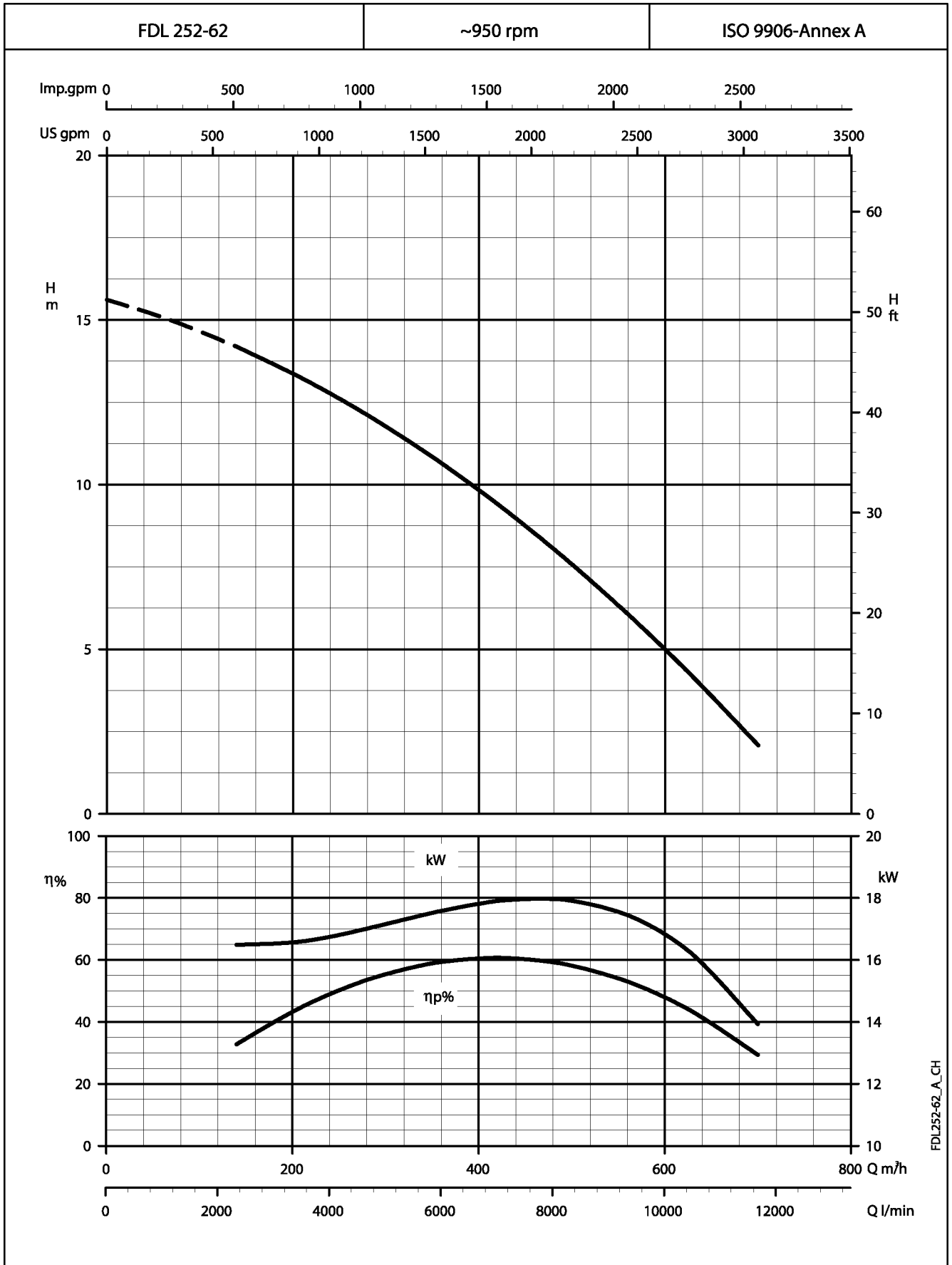
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**

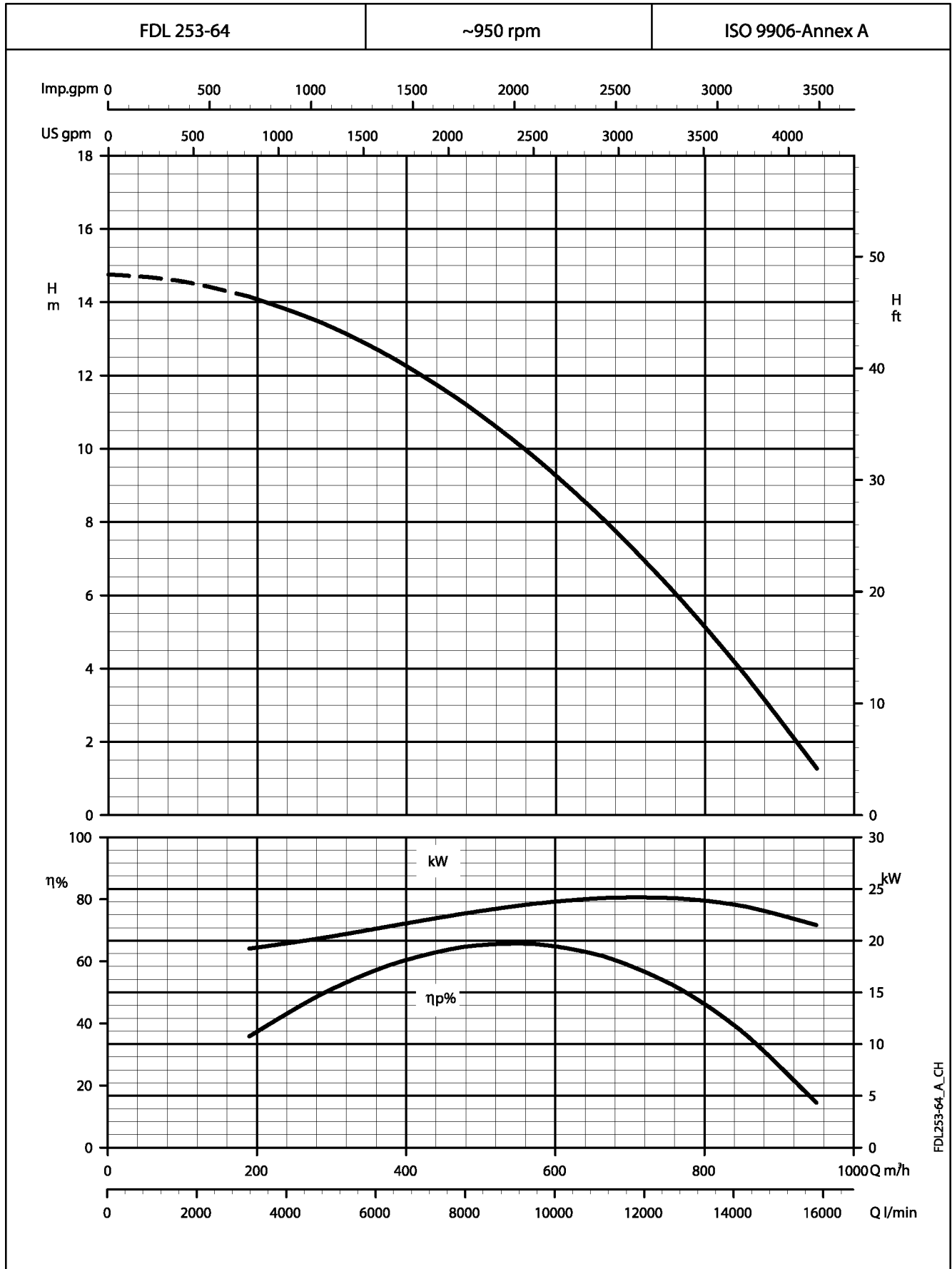


FDL252-62\_A\_CH

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



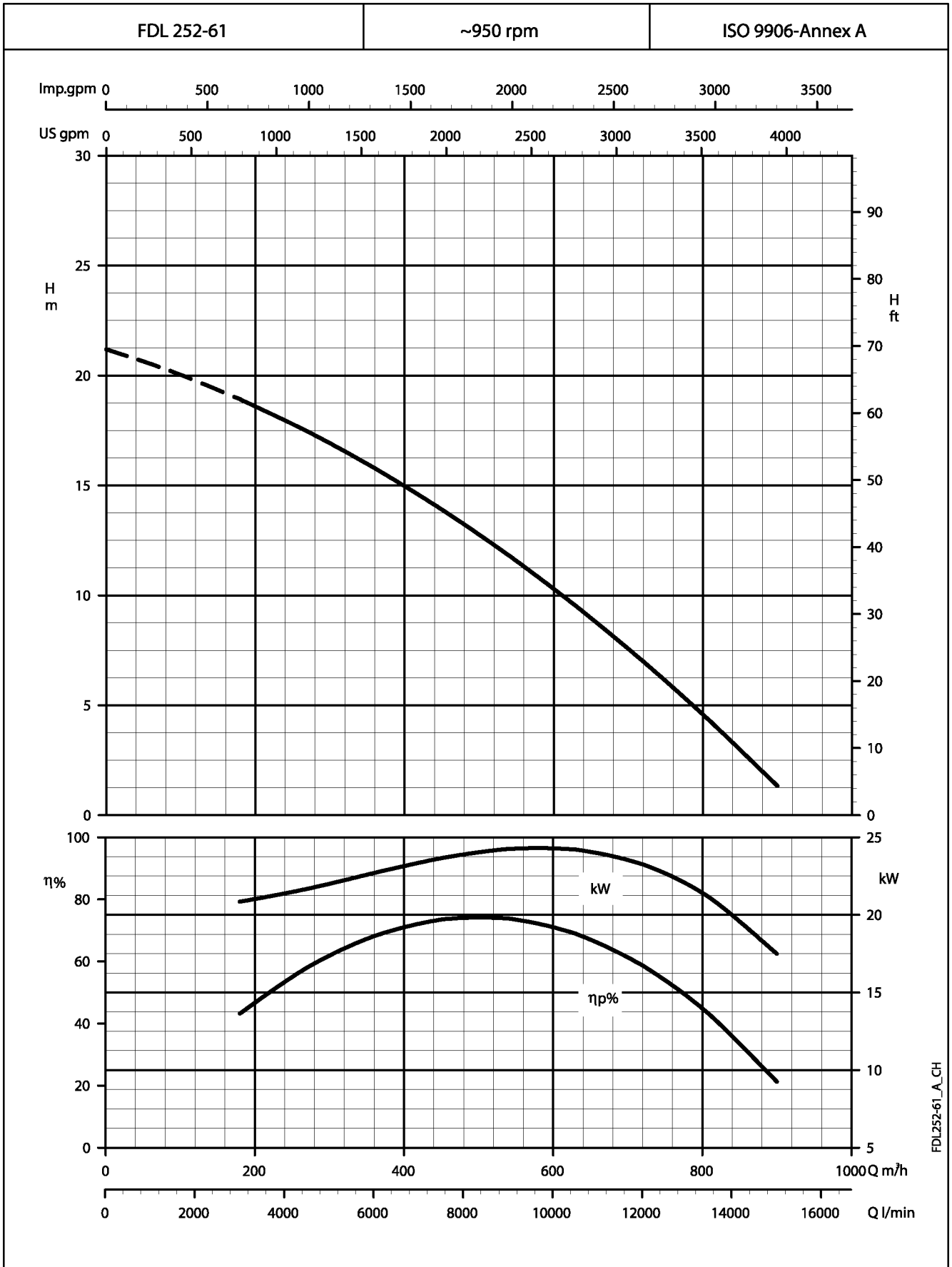
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



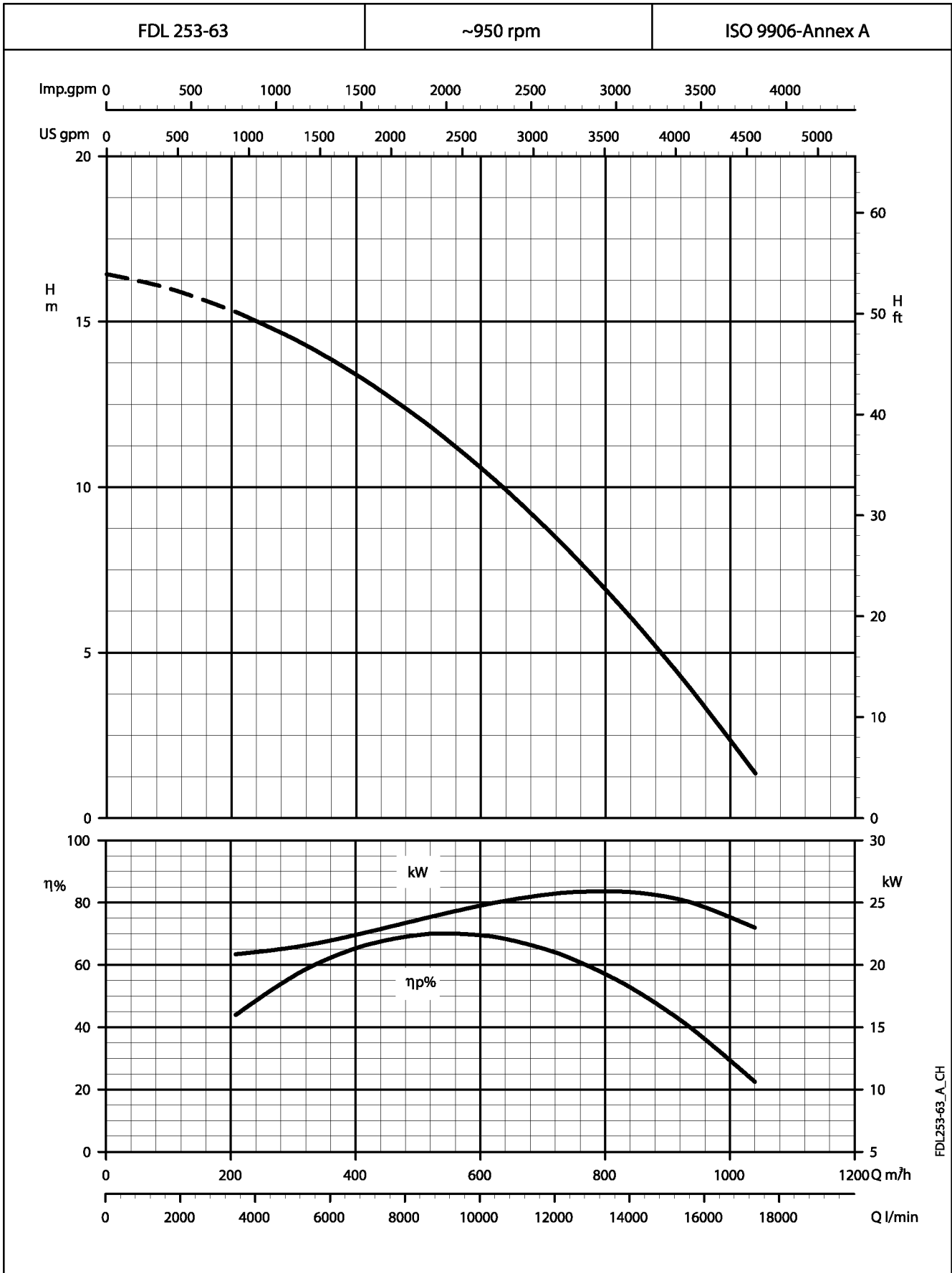
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



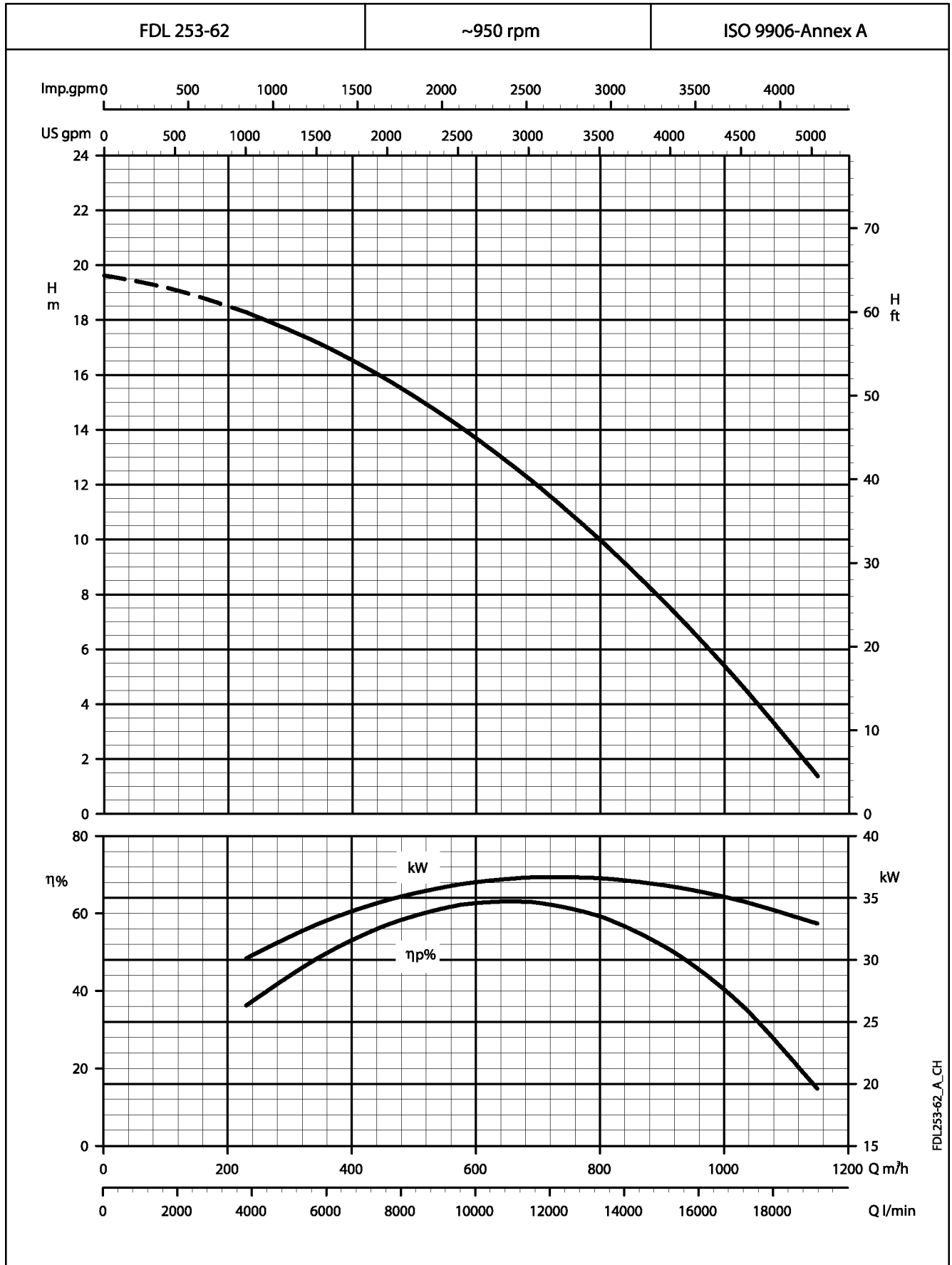
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



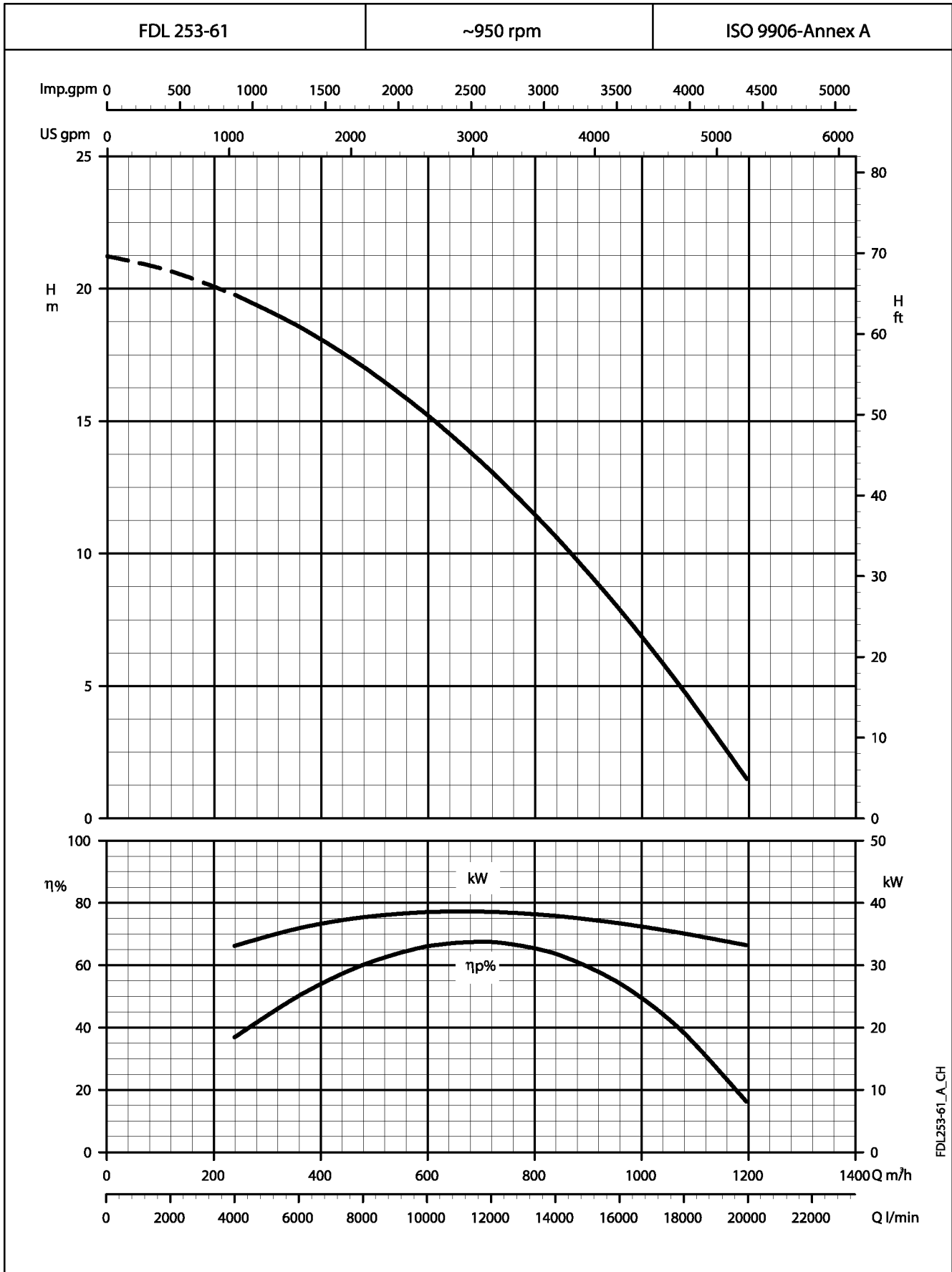
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



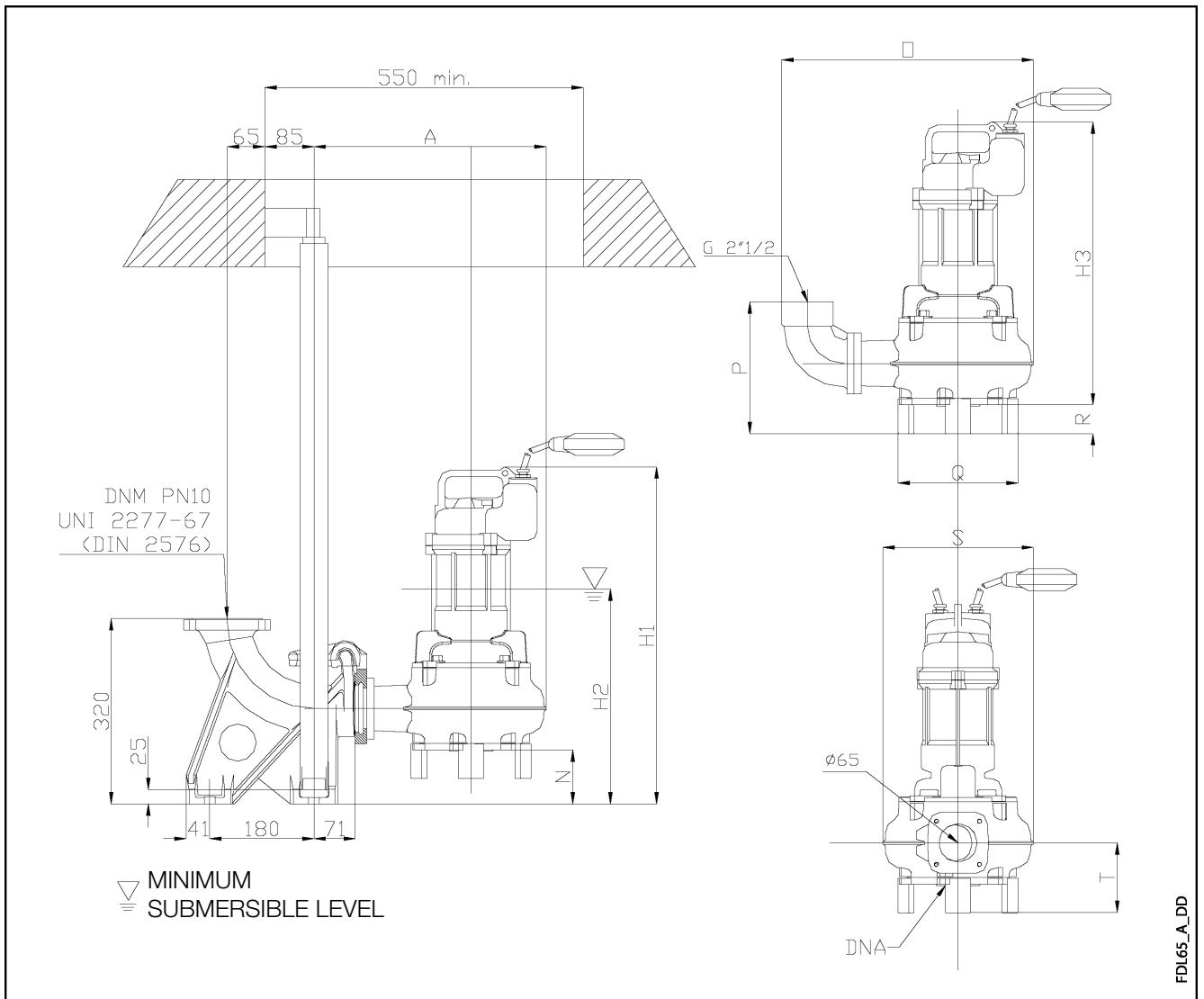
**FDL SERIES  
OPERATING CHARACTERISTICS AT 950 rpm 50 Hz**



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



**DIMENSIONS AND WEIGHTS, FDL SERIES (DN65)**

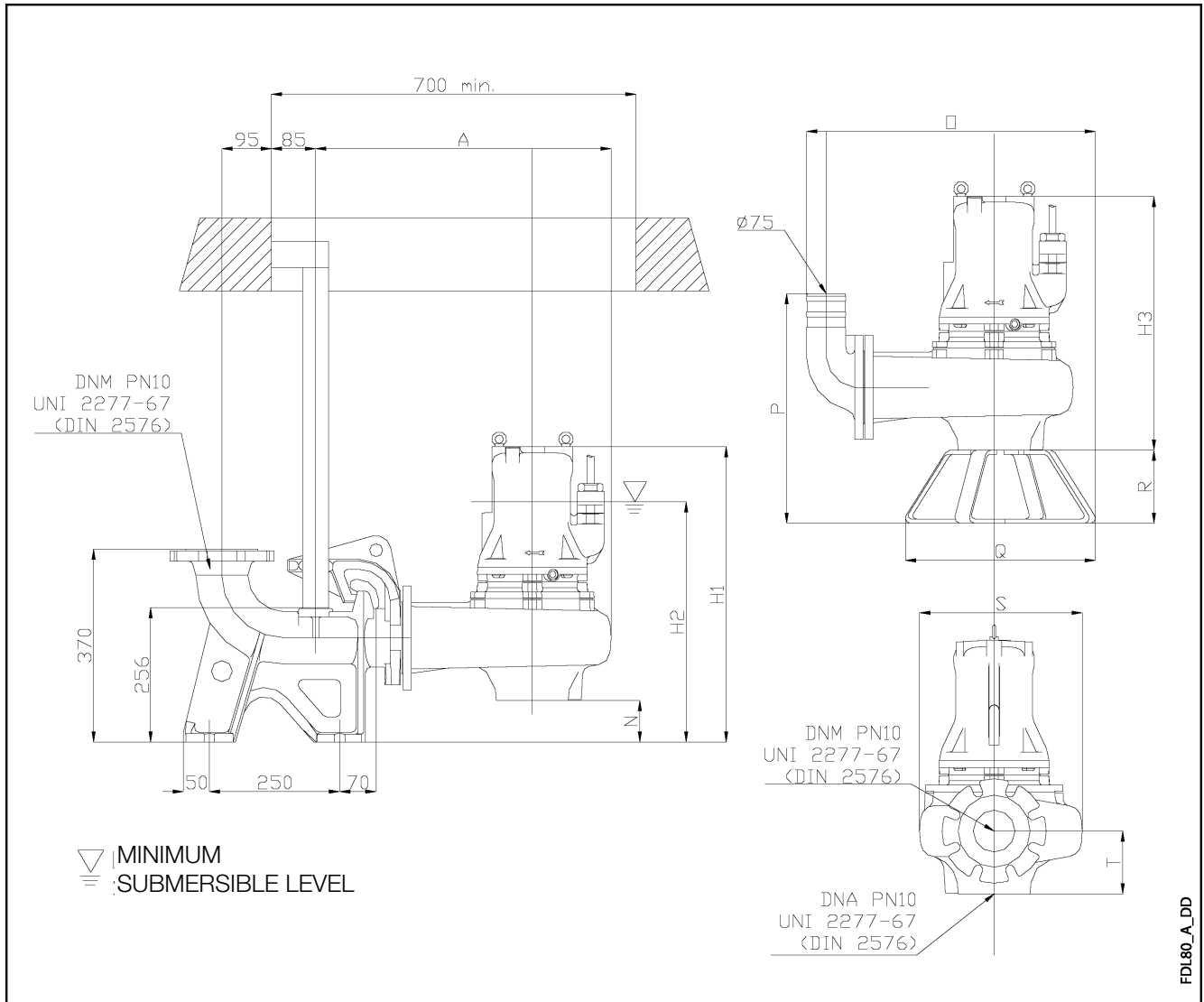


FDL65\_A\_DD

PUMP TYPE	DIMENSIONS (mm)											DNA	DNM	WEIGHT
	A	N	O	P	Q	R	S	T	H1	H2	H3			
FDL 62-26	501	91	434	227	190	51	260	121	582	371	538	50	65	42
FDL 62-25	501	91	434	227	190	51	260	121	582	371	538	50	65	42
FDL 62-24	501	91	434	227	190	51	260	121	582	371	538	50	65	42
FDL 62-23	501	91	434	227	190	51	260	121	582	371	538	50	65	42
FDL 62-21	414	84	447	231	200	44	269	125	494	342	450	-	70	50
FDL 64-22	414	84	447	231	190	44	269	125	534	342	450	-	70	48

FDL65\_A\_TD

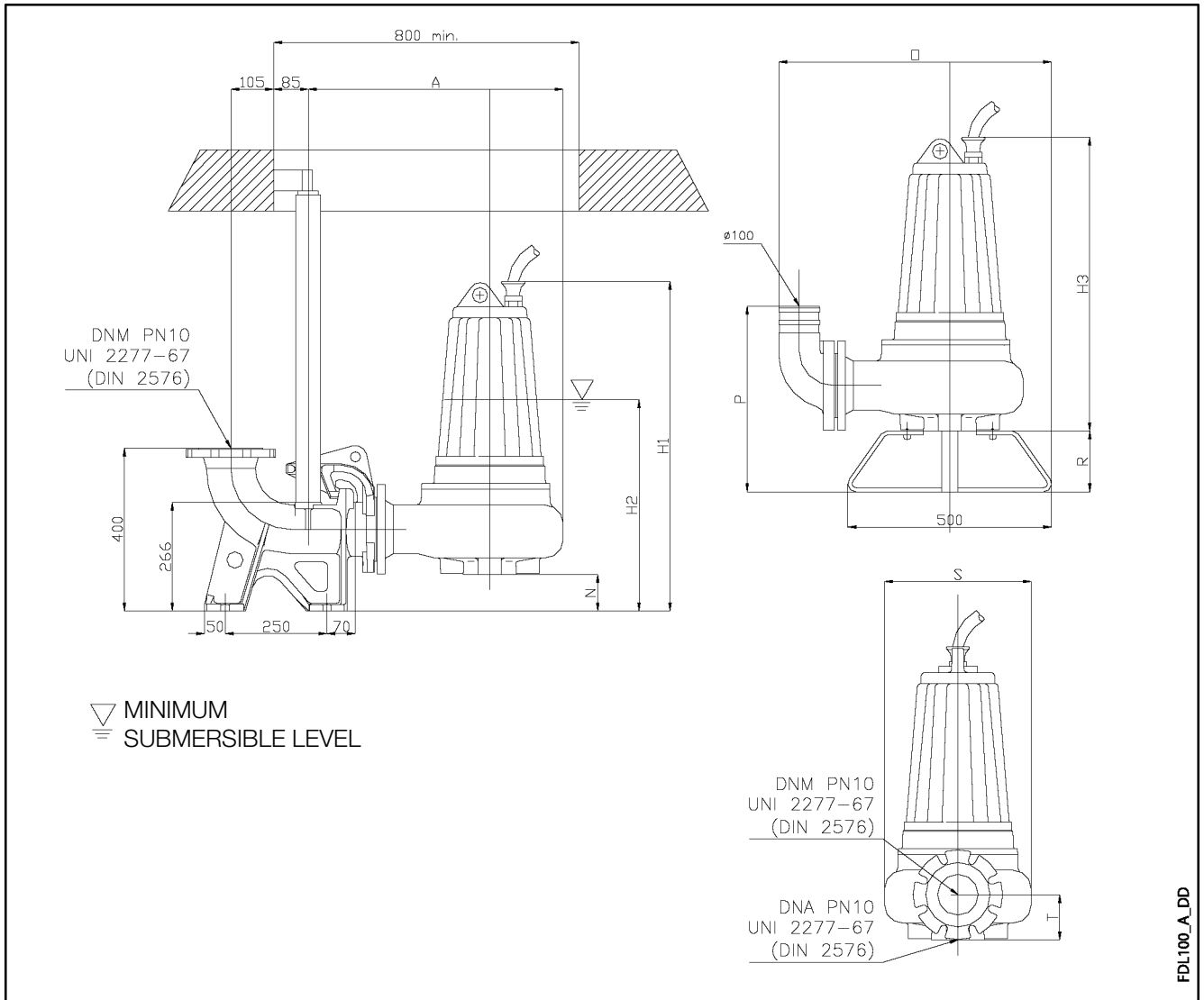
**DIMENSIONS AND WEIGHTS, FDL SERIES (DN80)**



PUMP TYPE	DIMENSIONS (mm)											DNA	DNM	WEIGHT
	A	N	O	P	Q	R	S	T	H1	H2	H3			
FDL 81-42	522	84	515	436	370	140	293	116	538	436	453	DN 80	DN 80	60
FDL 82-41N	522	84	515	436	370	140	293	116	594	461	481	DN 80	DN 80	67
FDL 83-41	522	84	515	436	370	140	293	116	594	461	481	DN 80	DN 80	70
FDL 815-21	579	80	610	450	500	150	326	120	848	560	768	DN 80	DN 80	190
FDL 815-22	579	80	610	450	500	150	326	120	848	560	768	DN 80	DN 80	190
FDL 815-23	579	80	610	450	500	150	326	120	848	560	768	DN 80	DN 80	190
FDL 85-22	531	110	475	410	370	140	278	90	625	438	515	DN 80	DN 80	70
FDL 86-21	531	110	475	410	370	140	278	90	625	438	515	DN 80	DN 80	70

FDL80\_A\_TD

**DIMENSIONS AND WEIGHTS, FDL SERIES (DN100)**

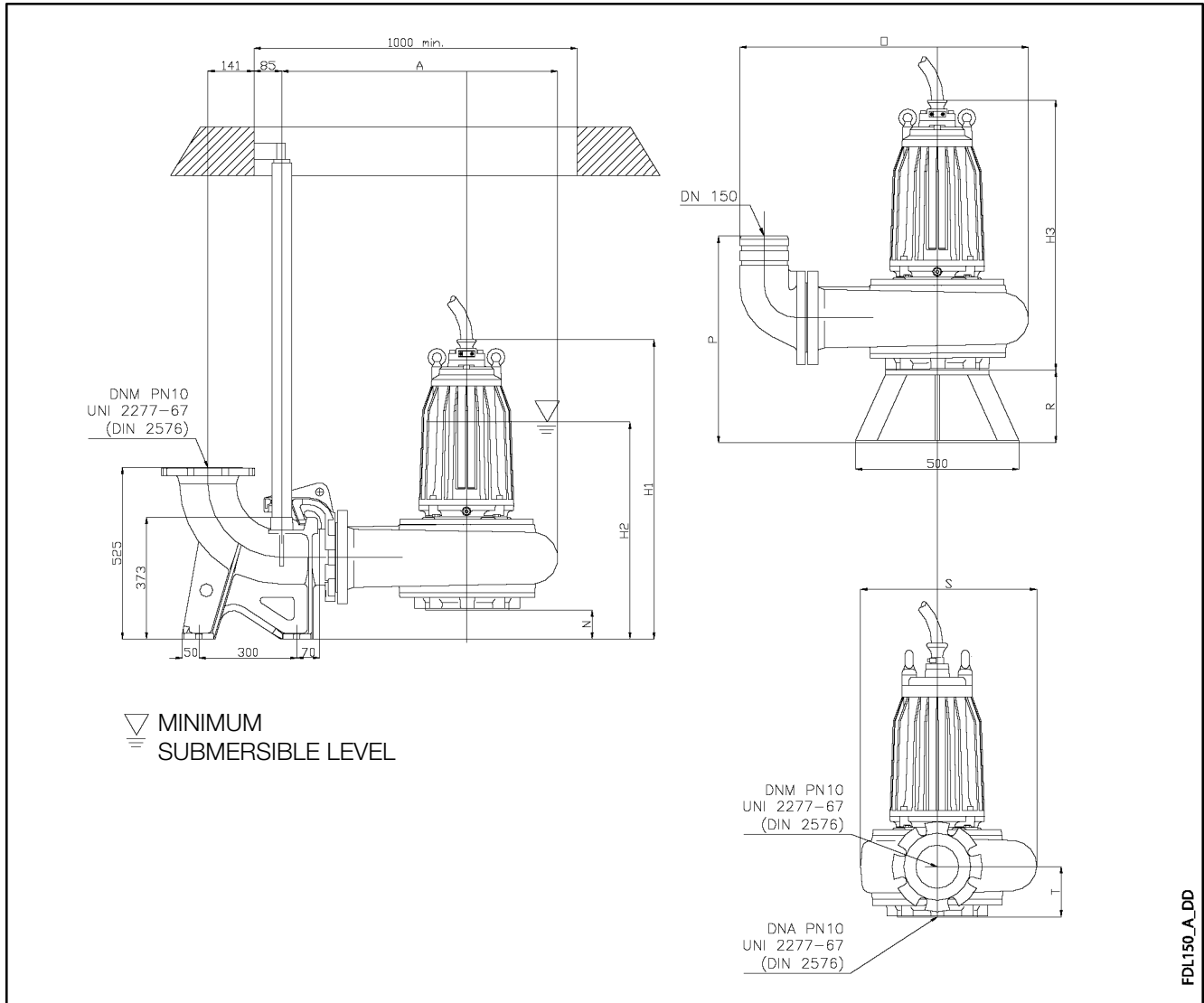


FDL100\_A\_DD

PUMP TYPE	DIMENSIONS (mm)										DNA	DNM	WEIGHT kg
	A	N	O	P	R	S	T	H1	H2	H3			
FDL 102-61	673	62	647	510	150	411	139	703	465	642	DN 125	DN 100	118
FDL 118-24	628	127	665	418	150	352	110	853	566	727	DN 125	DN 100	140
FDL 118-23	628	127	665	418	150	352	110	853	566	727	DN 125	DN 100	140
FDL 118-22	628	127	665	418	150	352	110	853	566	727	DN 125	DN 100	140
FDL 118-21	628	127	665	418	150	352	110	853	566	727	DN 125	DN 100	140
FDL 107-42	676	80	690	510	150	405	120	795	503	715	DN 125	DN 100	138
FDL 101-41	673	80	689	470	150	401	120	859	532	779	DN 125	DN 100	196
FDL 104-42	673	62	690	501	150	411	139	703	465	642	DN 125	DN 100	117
FDL 104-41	673	62	690	484	150	411	139	703	465	641	DN 125	DN 100	117
FDL 106-41	676	80	690	511	150	405	120	795	503	715	DN 125	DN 100	134
FDL 107-41	626	50	660	504	150	390	150	780	522	700	DN 125	DN 100	125
FDL 109-42	641	54	670	510	150	395	155	880	549	826	DN 125	DN 100	189
FDL 109-41	641	54	670	510	150	395	155	880	549	826	DN 125	DN 100	189

FDL100\_A\_TD

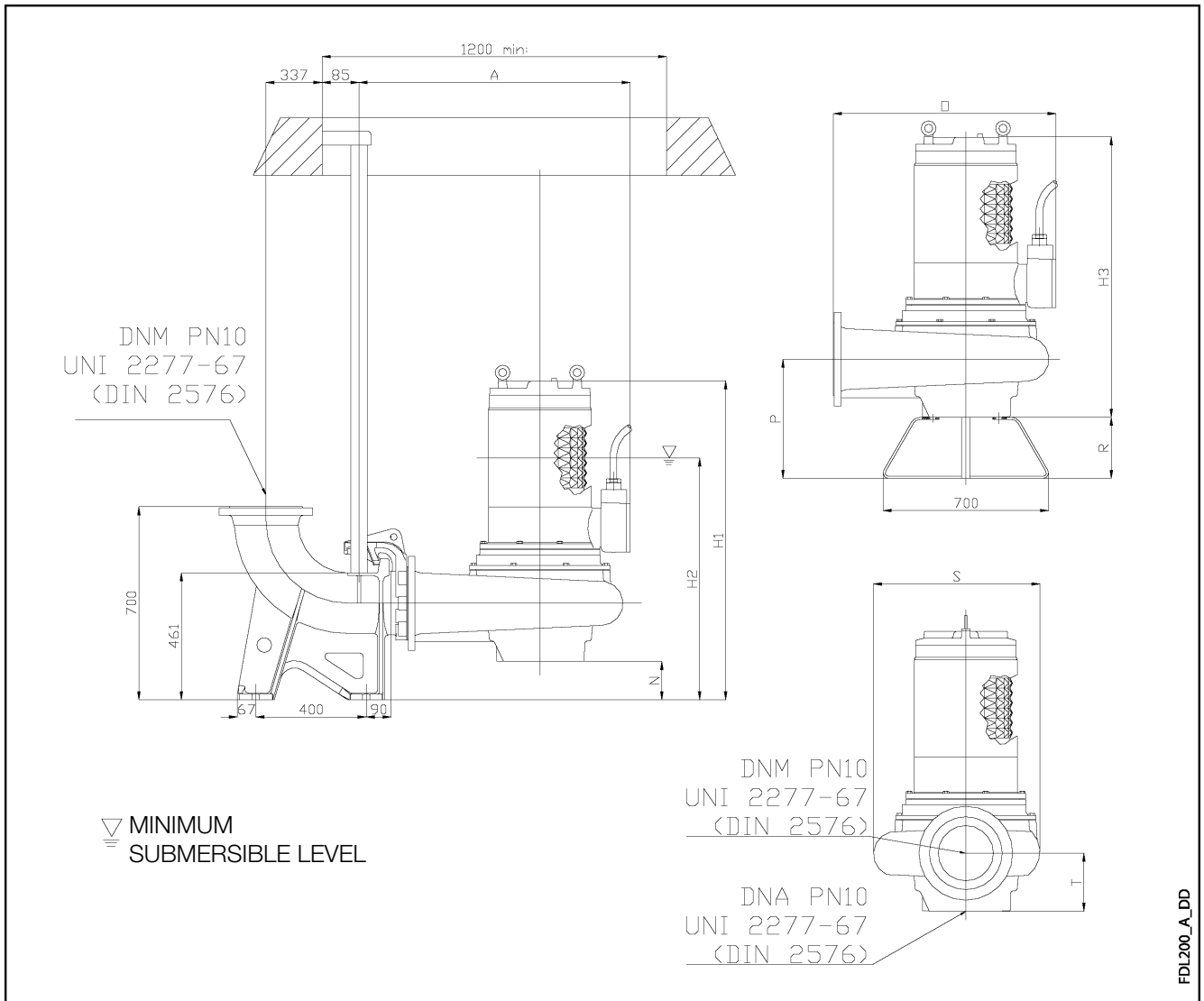
**DIMENSIONS AND WEIGHTS, FDL SERIES (DN150)**



PUMP TYPE	DIMENSIONS (mm)										DNA	DNM	WEIGHT kg
	A	N	O	P	R	S	T	H1	H2	H3			
FDL 158-61	846	90	885	635	225	540	160	965	614	876	DN 150	DN 150	280
FDL 151-62	846	90	885	635	225	548	160	1045	664	955	DN 150	DN 150	341
FDL 151-61	846	90	885	635	225	548	160	1045	664	955	DN 150	DN 150	330
FDL 153-43	846	90	885	635	225	540	160	1045	664	955	DN 150	DN 150	328
FDL 153-43/1	846	90	680	385	225	540	160	1045	664	955	DN 150	DN 150	330
FDL 153-41/1	846	90	680	385	225	540	160	1045	664	955	DN 150	DN 150	330
FDL 153-42	846	90	885	635	225	540	160	1045	664	955	DN 150	DN 150	328
FDL 153-41	846	90	885	635	225	540	160	1045	664	955	DN 150	DN 150	330
FDL 154-43	893	73	727	385	225	566	178	1124	788	1052	DN 150	DN 150	550
FDL 154-42	893	73	727	385	225	566	178	1124	788	1052	DN 150	DN 150	550
FDL 154-41	893	73	727	385	225	566	178	1124	788	1052	DN 150	DN 150	550
FDL 152-43	846	90	885	635	225	540	160	916	664	826	DN 150	DN 150	280
FDL 152-42	846	90	885	635	225	540	160	1045	664	1180	DN 150	DN 150	350
FDL 152-41	846	90	885	635	225	540	160	1045	664	1180	DN 150	DN 150	350

FDL150\_A\_TD

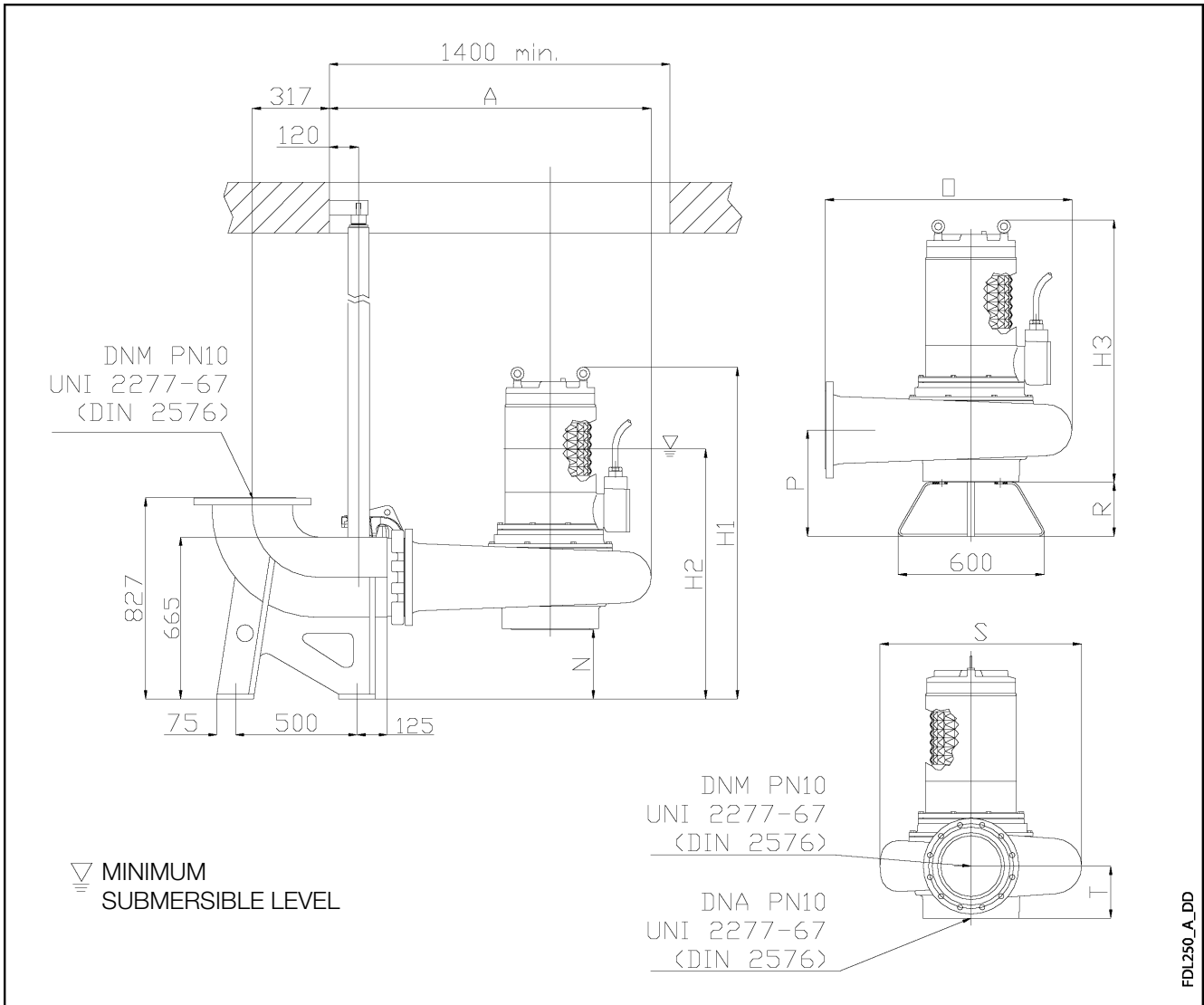
**DIMENSIONS AND WEIGHTS, FDL SERIES (DN200)**



PUMP TYPE	DIMENSIONS (mm)										DNA	DNM	WEIGHT kg
	A	N	O	P	R	S	T	H1	H2	H3			
FDL 201-63	958	139	782	433	222	604	211	1128	764	989	DN 200	DN 200	420
FDL 201-62	958	139	782	433	222	604	211	1128	764	989	DN 200	DN 200	420
FDL 201-61	958	139	782	433	222	604	211	1128	764	989	DN 200	DN 200	420

FDL200\_A\_TD

**DIMENSIONS AND WEIGHTS, FDL SERIES (DN250)**



PUMP TYPE	DIMENSIONS (mm)										DNA	DNM	WEIGHT kg
	A	N	O	P	R	S	T	H1	H2	H3			
FDL 252-62	1323	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584
FDL 253-64	1203	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584
FDL 252-61	1323	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584
FDL 253-63	1203	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584
FDL 253-62	1203	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584
FDL 253-61	1203	286	1014	436	222	829	214	1363	1027	1077	DN 250	DN 250	584

FDL250\_A\_TD

**PUMP SECTION  
FDL SERIES**

**FDL**

Shafts: made of AISI 420B stainless steel

AISI

Motor: three-phase asynchronous 2-4-6 poles, insulation class F (155°C). Dry, cooled by the surrounding liquid.

Oil chamber with water sensor for audible and visual signalling. The oil lubricates and cools the seals and emulsifies any water leaks. The pump is equipped with two mechanical seals for perfect insulation between the electric motor and the pumped liquid. Upper seal: ceramic/carbon Lower seal: silicon carbide/silicon carbide.

The radial bearings are sized for minimum 10,000 hours of operation.

