E-Tech

by Franklin Electric

VERTICAL MULTISTAGE PUMPS

60Hz

INDEX

EV Series
Vertical Multistage Centrifugal Pumps

APPLICATIONS

- Pressure boosting and water supply systems
- Water treatment plants
- Boiler feed
- Handling of water, free of suspended solids, in the civil, industrial and agricultural sector
- Wash down unit
- Irrigation systems
- Circulation of hot and cold water for heating, cooling and conditioning systems

FEATURES

- Full stainless steel compact and solid structure
- Liquid end made of stainless steel in order to achieve durability, superior efficiency and the highest performances
- Standard mechanical seal (EN 12756 ex DIN 24960)
- Oversize ball bearing (bearing bracket) ensure motor bearing long life and eliminates axial and other adjustments of moving parts
- Tungsten carbide intermediate bearing to control and eliminate vibration and stabilize the rotor with a large number of stages
- Standard motor without oversize bearing, size B14 up to 4kW / size B5 from 5.5kW and above, Protection degree: IP55, Max ambient temperature: 40°C, Insulation class: F.
- Easy installation IN LINE ports

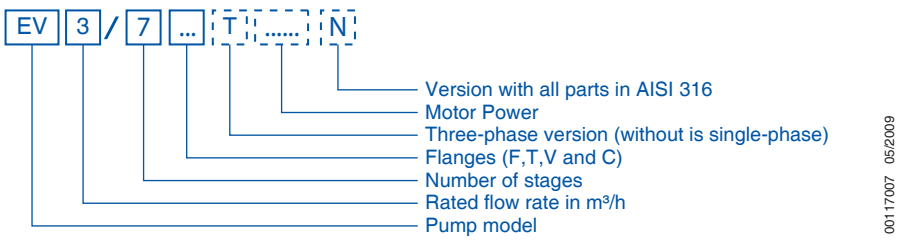
SPECIFICATIONS

- Capacities up to 32 m³/h at 60Hz
- Discharge and Suction port: Oval, Round flanges, Victaulic and Clamp connections
- Maximum working pressure: Oval flange 16 Bar
  Round Flange, Victaulic and Clamp connections 25 Bar
- Liquid temperature range: from -15°C to +120°C
- Direction of rotation : clockwise looking at the pump from the top down (for EV 3-5-9)
- Direction of rotation : counter-clockwise looking at the pump from the top down (for EV 16)
- Materials: suitable for handling potable water (WRAS certified)
- Hydraulic characteristics are guaranteed, according to ISO standard 9906 annex A

AVAILABLE ON REQUEST

- AISI 316 version
- Special materials for the mechanical seal, gaskets and elastomers
- Oval counter flanges
- Round counter flanges

PUMP IDENTIFICATION CODE



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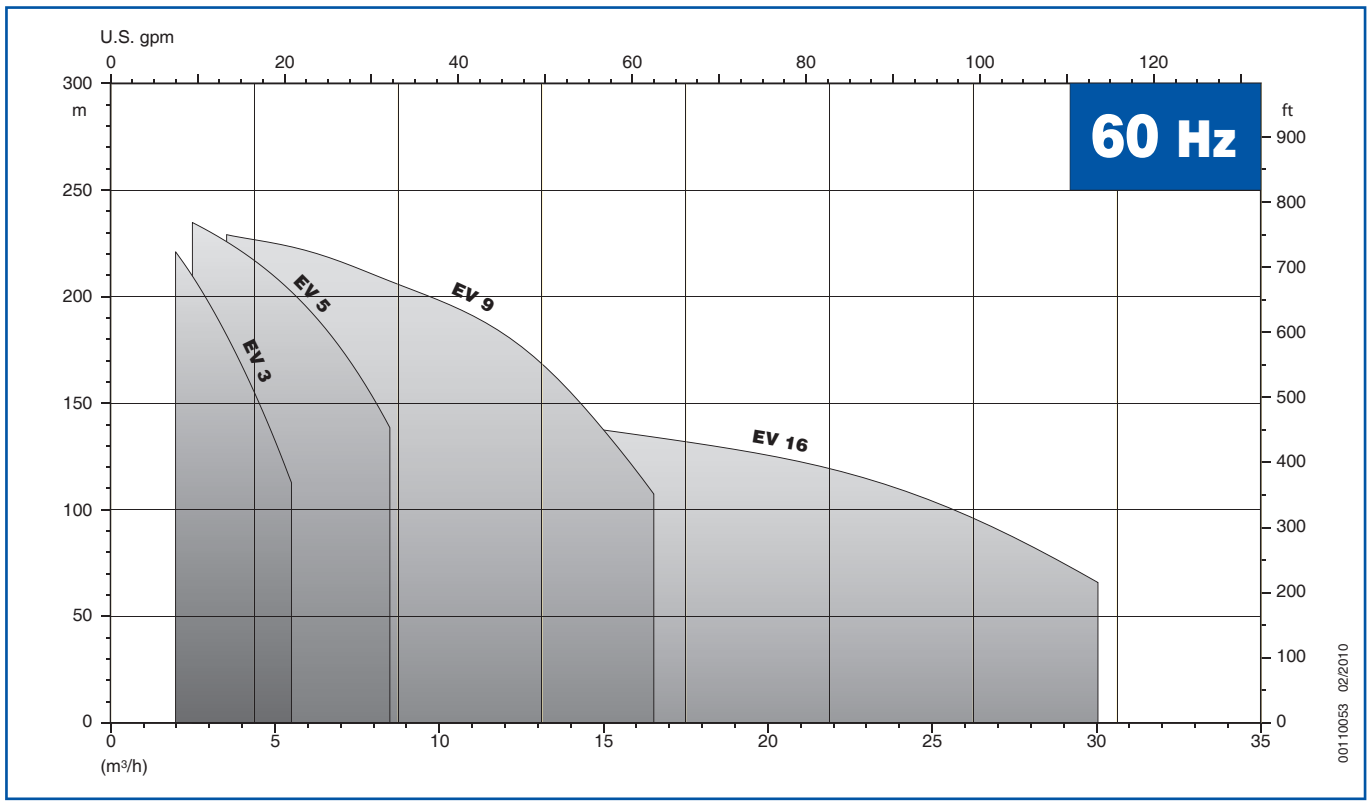
It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.



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EV3-16
TABLE OF HYDRAULIC PERFORMANCES AT 60Hz

PUMP TYPE	RATED POWER		Q = DELIVERY																				
			l/min 0	33	42	50	58	70	80	92	100	108	120	142	167	181	200	220	275	360	400	440	500
			m³/h 0	2	2,5	3	3,5	4,2	4,8	5,5	6	6,48	7,2	8,5	10	10,83	12	13,2	16,5	21,6	24	26,4	30
	kW	HP	H = TOTAL HEAD METERS COLUMN OF WATER																				
EV 3/2	0.55	0.75	32	27	25	23,5	21,5	18,5	15,5	12													
EV 3/3	0.75	1	48,5	42,5	40	37,5	34,5	30	26	20,5													
EV 3/4	1.1	1.5	64,5	56,5	53,5	50	46	40	34,5	27													
EV 3/5	1.5	2	81,5	72	68	63,5	59	51,5	44,5	35,5													
EV 3/6	1.5	2	97	85	80	75	69	60	52	41													
EV 3/7	2.2	3	115,5	102	97	91	84	74	64,5	51,5													
EV 3/8	2.2	3	131	115,5	109,5	102,5	95	83,5	72	57,5													
EV 3/9	3	4	148,5	131,5	125	117,5	108,5	95,5	83	67													
EV 3/10	3	4	164,5	145	138	129	119,5	105	91	73													
EV 3/11	3	4	180,5	158,5	150,5	141	130	114	98,5	79													
EV 3/12	3	4	196	172	162,5	152	140,5	123	106	84,5													
EV 3/13	4	5.5	216	192,5	183,5	172,5	160,5	141,5	123,5	99,5													
EV 3/14	4	5.5	232,5	207	197	185	171,5	151,5	132	106,5													
EV 3/15	4	5.5	248,5	220,5	210	197	183	161,5	140,5	113													
EV 5/2	0.75	1	32,5		30	29,5	29	28	26,5	25,5	24,5	23	21	16,5									
EV 5/3	1.1	1.5	48,5		44,5	43,5	42,5	41	39,5	37,5	35,5	34	31	24									
EV 5/4	1.5	2	65,5		60,5	59	57,5	55,5	53,5	50,5	48,5	46	42	33									
EV 5/5	2.2	3	82,5		77	75,5	73,5	71,5	69	65,5	63	60	55	44									
EV 5/6	2.2	3	98,5		91	89,5	87,5	84,5	81	77	74	70,5	64,5	51									
EV 5/7	3	4	115,5		107,5	105,5	103	99,5	96	91,5	87,5	83,5	77	61									
EV 5/8	3	4	131,5		122	119	116,5	112,5	108,5	103	98,5	94	86	68									
EV 5/9	4	5.5	150		140,5	138	135	131	126,5	121	116,5	111	102,5	83									
EV 5/10	4	5.5	166,5		155,5	152,5	149,5	144,5	140	133,5	128	122,5	113	91									
EV 5/12	5.5	7.5	199,5		186,5	183	179,5	173,5	167,5	160	154	147	135,5	109									
EV 5/13	5.5	7.5	216		201,5	197,5	193,5	187	180,5	172,5	165,5	158	145,5	116,5									
EV 5/14	5.5	7.5	232		216	212	207,5	200,5	193,5	184,5	177	169	155,5	124									
EV 5/15	7.5	10	250,5		234,5	230,5	225,5	218,5	211,5	202	194,5	186	171,5	138,5									
EV 9/2	1.5	2	34,5						31,5	31,5	31	30,5	30	29	27,5	27	25,5	23	14,5				
EV 9/3	2.2	3	51,5						48	47,5	47	46,5	45,5	44	42	41	38,5	35,5	22,5				
EV 9/4	3	4	69						64	63,5	62,5	62	61	58,5	56	54,5	51,5	47	30				
EV 9/5	3	4	85,5						79	78	77	76,5	75	72	68,5	66,5	62,5	57	35,5				
EV 9/6	4	5.5	104						97	96	95	94,5	92,5	89,5	85,5	83	78,5	72,5	46,5				
EV 9/7	5.5	7.5	121,5						113	112	111	110	108	104,5	100	97	92	84,5	55				
EV 9/8	5.5	7.5	138,5						128,5	127,5	126	125	122,5	118	113	110	103,5	95,5	61				
EV 9/9	7.5	10	156,5						146,5	145	144	142,5	140	135	129,5	126	119,5	110	71,5				
EV 9/10	7.5	10	173,5						162	160,5	159	157,5	154,5	149	143	139	131,5	121	78,5				
EV 9/11	7.5	10	190,5						177,5	175,5	174	172,5	169	163	156	151,5	143,5	132	85				
EV 9/12	7.5	10	207,5						192,5	190,5	189	187	183,5	177	169	164	155	142,5	91				
EV 9/13	11	15	225,5						209,5	207,5	206	203,5	200	193	184,5	179,5	169,5	156	100,5				
EV 9/14	11	15	242						225	223	220,5	218,5	214,5	206,5	197,5	192	181	166,5	106,5				
EV 16/2	2.2	3	34,5												31,5	31	30,5	29,5	28	25	22	18,5	12,5
EV 16/3	4	5.5	52,5												48,5	48	47	46	43,5	39	35,5	30,5	21
EV 16/4	5.5	7.5	70												64,5	63,5	62,5	61	57,5	52	47	40	27,5
EV 16/5	7.5	10	87,5												81	80	78,5	77	73	65,5	59,5	50,5	35
EV 16/6	7.5	10	104,5												96	95	93,5	91,5	86,5	77,5	70	59,5	41
EV 16/7	11	15	122												112,5	111	109	107	101	90,5	81,5	69,5	48
EV 16/8	11	15	139												127,5	126	123,5	121	114	102,5	92	78	53,5
EV 16/9	11	15	158,5												147,5	146	143,5	141	133,5	120,5	109,5	94	66,5

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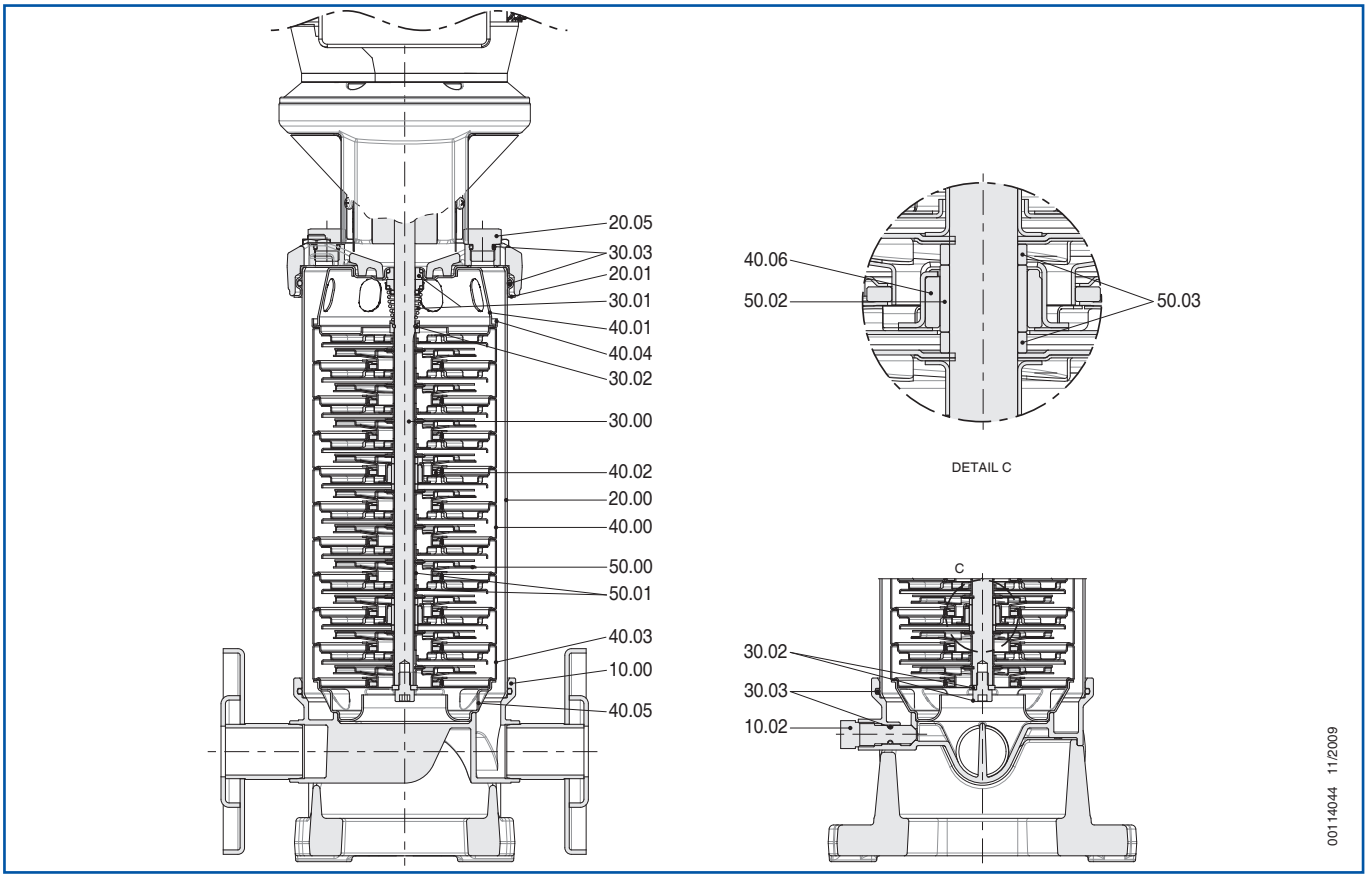
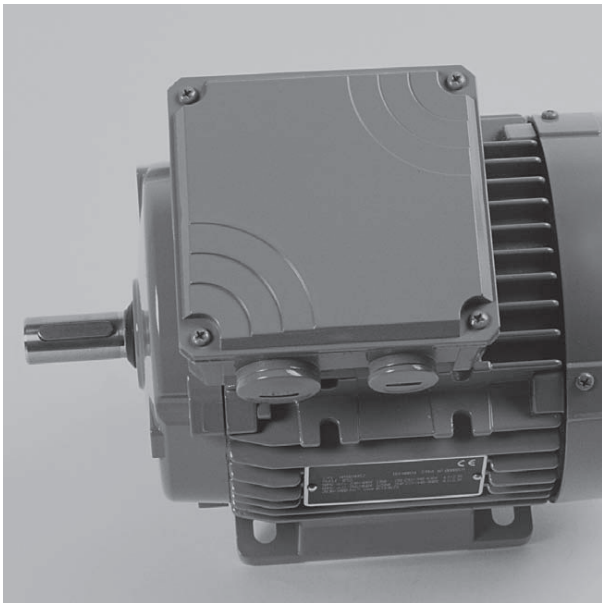


MATERIAL IN CONTACT WITH THE LIQUID						
Pos.	**PARTS DESCRIPTIONS**		**MATERIAL**			
			Standard version		**N version**	
		Type	**AISI**	**DIN / EN**	**AISI**	**DIN / EN**
10.00	**Pump Casing**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
10.02	**Draining and priming cap**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
20.00	**Outer case**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
20.01	**Mechanical seal housing**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
20.05	**Filling plug**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
30.00	**Pump shaft**	Stainless steel	AISI 304	1.4301	AISI 329	1.4460
30.01	**Mechanical seal**	Silicon Carbide (SIC) / Carbon / EPDM / Stainless steel				
30.02	**Screws, nuts and washers**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
30.03	**O-ring (4 pcs)**	EPDM				
40.00	**Stage housing and diffuser**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
40.01	**Stage centering outlet**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
40.02	**Floating neck ring assembly**	Stainless steel + PTFE	AISI 304	1.4301	AISI 316	1.4401
40.03	**Initial stage housing**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
40.04	**Last stage with diffuser**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
40.05	**Stage centering inlet**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
40.06	**Stage housing and diffuser with bearing**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
50.00	**Impeller**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
50.01	**Impeller spacers (2 pcs)**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401
50.02	**Intermediary sleeve**	Tungsten Carbide				
50.03	**Intermediary sleeve spacers (2 pcs)**	Stainless steel	AISI 304	1.4301	AISI 316	1.4401

Motors – AEG



FEATURES

- Protection degree: IP55
- Max ambient temperature: 40°C
- Insulation class: F
- Size B14 up to 4kW, size B5 from 5.5kW and above

SINGLE-PHASE MOTORS

- The range available is especially designed for superior performance and low vibration and noise. The AMM range is ideal for low-inertia applications and the application industry.
- Standard Voltage 230V
- Capacitor inside terminal box

THREE-PHASE MOTORS – ENERGY EFFICIENT

High Efficiency Three-phase Motors IE2 code
The standard design includes the following basic features to give a high level of flexibility:

- Multi Mount Construction for an easy change of terminal box position
- Terminal box rotates by 90° to allow cable entry from any direction
- Easy-to-change flanges with over-sized and smaller-sized dimensions
- Provision for oil seal at Drive End
- Motors conforming to the higher efficiency standards for Europe, North America and Australia
- Standard Voltage 220/380V

Single-phase motors designed for range of rated voltage 220V 60Hz

Power kW	Power HP	IEC Size	Construction Design	I_N [A] 220V	min^{-1}	M_N Nm	η %	cos φ	I_A/I_N	M_A/M_N	Weight Kg
0.55	0.75	71	B14	4.0	3480	1.5	65.0	0.98	5.7	0.8	8.5
0.75	1	80	B14	6.1	3450	2.1	65.0	0.89	5.3	0.8	11.4
1.1	1.5	80	B14	6.8	3350	3.1	74.0	0.95	4.4	0.5	11.8
1.5	2	90	B14	10.5	3300	4.3	73.0	0.95	3.7	0.5	17.3
2.2	3	90	B14	14.5	3350	6.3	76.0	0.90	5.0	0.5	19.3

Three-phase motors designed for range of rated voltage 220/380V 60Hz, 2 poles

Power kW	Power HP	IEC Size	Construction Design	I_N [A] Δ 220V	I_N [A] Y 380V	min^{-1}	M_N Nm	η %	cos φ	I_A/I_N	M_A/M_N	Weight Kg
0.55	0.75	71	B14	3.0	1.7	3450	1.5	73.0	0.77	4.6	2.5	6.2
0.75	1	80	B14	3.4	1.9	3520	2.0	82.0	0.73	9.2	5.7	9.5
1.1	1.5	80	B14	4.6	2.7	3475	3.0	83.0	0.76	9.1	5.7	11.1
1.5	2	90	B14	5.7	3.3	3470	4.1	84.3	0.88	7.7	3.1	14.0
2.2	3	90	B14	8.2	4.7	3500	6.0	86.3	0.84	10.0	4.4	16.0
3	4	100	B14	10.5	6.1	3525	8.1	87.7	0.82	11.4	5.6	22.8
4	5.5	112	B14	13.8	8.0	3540	10.8	88.0	0.87	11.8	4.0	27.4
5.5	7.5	132	B5	19.3	11.1	3520	14.9	88.5	0.87	10.2	3.1	46.0
7.5	10	132	B5	23.1	13.3	3510	20.4	89.5	0.91	9.8	3.4	53.0
11	15	132	B5	37.7	21.8	3520	29.8	90.3	0.85	10.7	3.4	58.0

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New International Efficiency classes of motors – IE code

The new IEC 60034-30:2008 defines worldwide the efficiency classes of motors.
IE1 = Standard Efficiency (comparable to EFF2)
IE2 = High Efficiency (comparable to EFF1)
IE3 = Premium Efficiency
The efficiency levels according to IEC 60034-30 are measured based on the test methods defined in IEC 60034-2-1:2007.
The IEC 60034-30 only defines requirements of efficiency classes and aims to create provisions for International consistency. It does not define which motors must be supplied with which efficiency level. This is left to respective regional legislation.

Output	IE1 code Standard Efficiency			IE2 code Standard Efficiency			IE3 code Standard Efficiency		
kW	2 poles	4 poles	6 poles	2 poles	4 poles	6 poles	2 poles	4 poles	6 poles
0.75	72.1	72.1	70.0	77.4	79.6	75.9	80.7	82.5	78..9
1.1	75.0	75.0	72.9	79.6	81.4	78.1	82.7	84.1	81.0
1.5	77.2	77.2	75.2	81.3	82.8	79.8	84.2	85.3	82.5
2.2	79.7	79.7	77.7	83.2	84.3	81.8	85.9	86.7	84.3
3	81.5	81.5	79.7	84.6	85.5	83.3	87.1	87.7	85.6
4	83.1	83.1	81.4	85.8	86.6	84.6	88.1	88.6	86.8
5.5	84.7	84.7	83.1	87.0	87.7	86.0	89.2	89.6	88.0
7.5	86.0	86.0	84.7	88.1	88.7	87.2	90.1	90.4	89.1
11	87.6	87.6	86.4	89.4	89.8	88.7	91.2	91.4	90.3
15	88.7	88.7	87.7	90.3	90.6	89.7	91.9	92.1	91.2

Efficiency values according to IEC 60034-30;2008.
Efficiency standard calculation: IEC 60034-2-1;2007

Noise

The noise level of an electrical machine is determined by measuring the sound pressure level in accordance with curve A of the sound level meter to EN 60651 and is indicated in dB (A). The permitted noise levels of electrical machines are fixed in EN 60034-9 (IEC 34-9). The noise level of our motors is well below these limit values.
Air-borne sound measurements are carried out in an anechoic testing chamber to EN 21680-ISO 1680.
Speed corresponding to a mains frequency of 50 Hz and the number of poles.

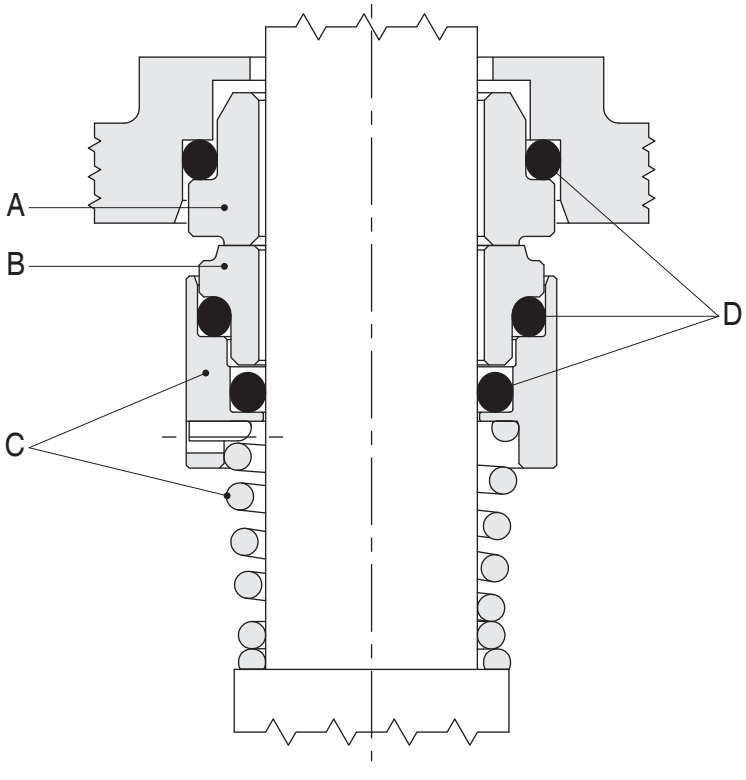
Noise levels

The noise values listed below refer to 50 Hz at rated voltage with a tolerance of up to + 3 dB(A). Values for pole-changing motors on request. For 60 Hz supply values are 3-5 dB(A) higher.
Sound pressure level LpA and sound power level LWA for three-phase single-speed motors with dimensions and output ratings to IEC 60072

Frame	2 pole		4 pole	
size	L_{WA}	L_{pA}	L_{WA}	L_{pA}
56	57	48	47	38
63	58	49	47	38
71	61	52	51	42
80	72	60	60	48
90	74	62	61	49
100	78	66	62	50
112	80	68	65	53
132	81	72	71	59
160	87	74	75	62

Mechanical seal specifications

(in accordance with EN 12756)



Standard version

Model	Type				Position A Stationary part	Position B Rotating part	Position C Other components	Position D Elastomers	Temperature
1	B	Q1	G	E	Carbon	Silicon Carbide	AISI 316	EPDM	-30°C +120°C

Available on request

Model	Type				Position A Stationary part	Position B Rotating part	Position C Other components	Position D Elastomers	Temperature (°C)
2	Q1	Q1	G	E	Silicon Carbide	Silicon Carbide	AISI 316	EPDM	-10°C +120°C
3	Q1	Q1	G	V	Silicon Carbide	Silicon Carbide	AISI 316	FKM	-10°C +120°C
4	B	Q1	G	V	Carbon	Silicon Carbide	AISI 316	FKM	-10°C +120°C

Type	Material
B	Carbon
E	EPDM
G	AISI 316
Q1	Silicon Carbide
V	FKM

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Compatibility fluid / seal materials

Liquid	Concentration (%)	Temperature Min/Max (°C)	EV models 3-5-9-16 STD	N
Acetic acid	80	-10 +70	1	1
Alkaline degreaser	-	-	3	3
Aluminium sulfate	30	-5 +50		2
Ammonia in water	25	-20 +50	1	1
Ammonium sulfate	10	-10 +60		2
Benzoic acid	70	0 +70	4	4
Butyl alcohol	100	-5 +80	4	4
Caustic soda	25	0 +70	2	2
Chloroform	100	-10 +30	4	4
Citric acid	5	-10 +70	1	1
Cleaning products	10	-5 +100	3	3
Copper sulfate	20	0 +30		3
Cutting fluid	100	-5 +110	4	4
Deionised, demineralised water	100	-25 +110	1	1
Denatured alcohol	100	-5 +70	1	1
Diathermic oil	100	-5 +110	4	4
Emulsion oil and water	any	-5 +90	4	4
Ethyl alcohol	100	-5 +40	1	1
Ethylene glycol	30	-30 +120	1	1
Formic acid	5	-15 +25	1	1
Glycerine	100	+20 +90	1	1
Hydraulic oil	100	-5 +110	4	4
Hydrochloric acid	2	-5 +25		3
Hydroxide sodium	25	0 +70	2	2
Iron sulfate	10	-5 +30		1
Methyl alcohol	100	-5 +40	1	1
Mineral oil	100	-5 +110	4	4
Nitric acid	50	-5 +30	3	3
Perchloroethylene	100	-10 +30	4	4
Phosphates-polyphosphates	10	-5 +90		3
Phosphoric acid	10	-5 +30		1
Propyl alcohol (Propanol)	100	-5 +80	1	1
Propylene glycol	30	-30 +120	1	1
Sodium bicarbonate (Baking soda)	10	+60		1
Sodium hypochlorite	1	-10 +25		3
Sodium nitrate	10	+60	1	1
Sodium sulfate	15	-10 +40	2	2
Sulphuric acid	2	-10 +25		4
Tannic acid	20	0 +50		1
Tartaric acid	50	-10 +25	3	3
Trichloroethylene	100	-10 +40	4	4
Uric acid	80	-10 +80	1	1
Vegetable oil	100	-5 +110	1	1
Water	100	-5 +120	1	1
Water condensate	100	-5 +100	1	1
Water detergents, mineral oils mixture	10	-5 +80	3	3

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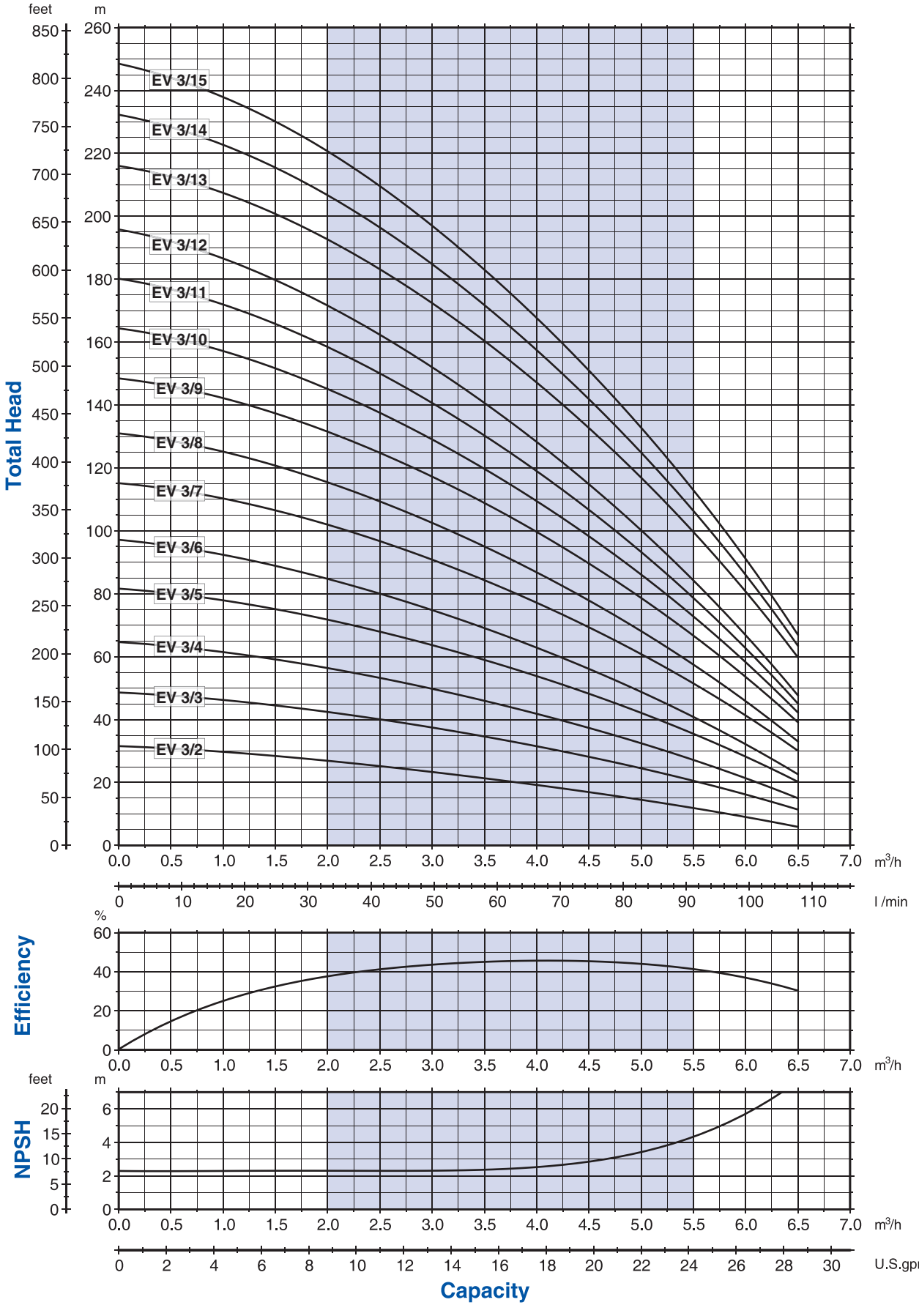
EV Series
Performance Curves and Technical Data

EV 3 60Hz

EV 3

Performance curves 60Hz



The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

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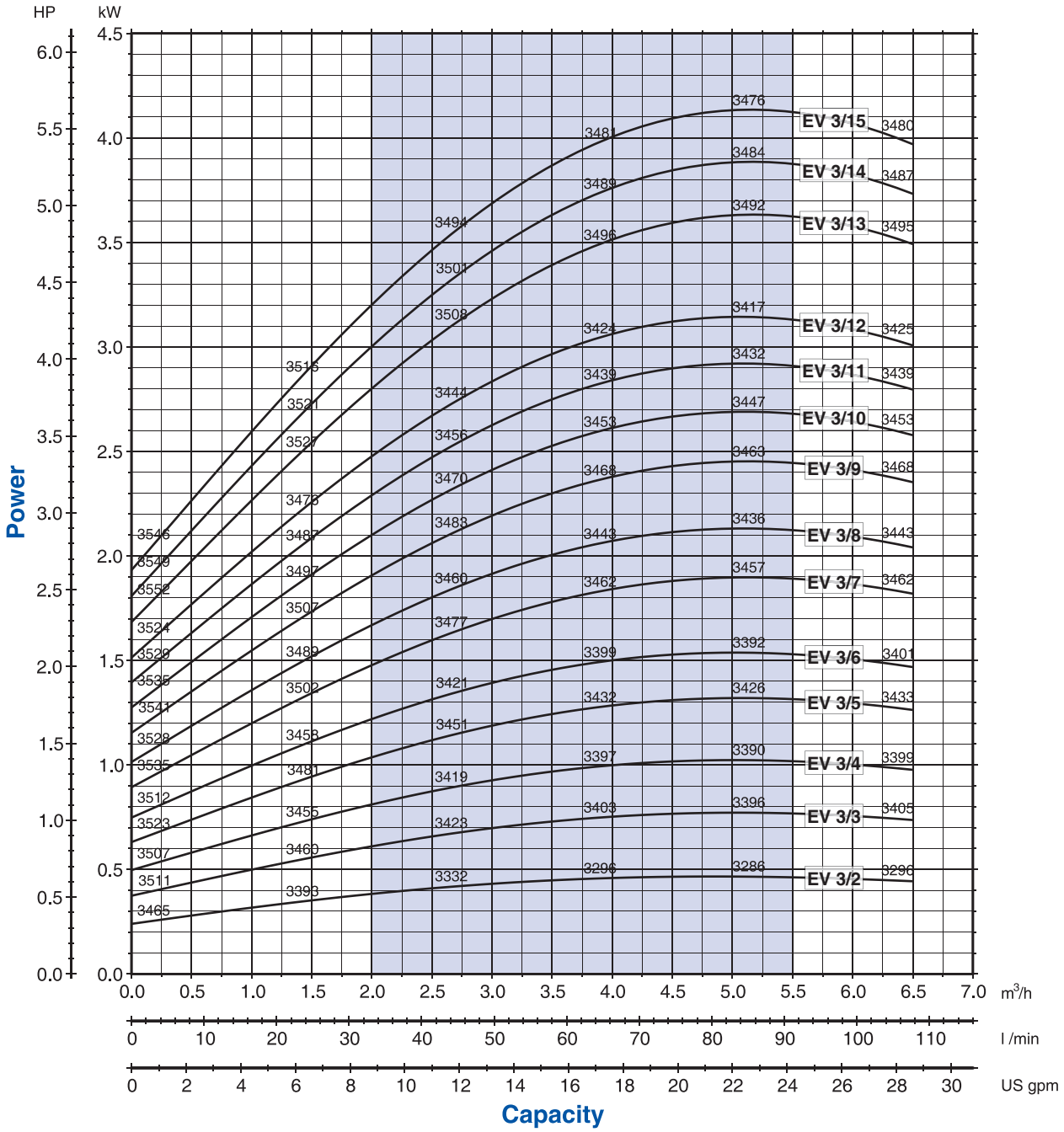
E-Tech by Franklin Electric

Performance curves 60Hz



Performance curves of Q, H and P depend on the rpm number according to the following formulae:

$$Q_2 = Q_1 \cdot \left(\frac{n_2}{n_1}\right) \quad , \quad H_2 = H_1 \cdot \left(\frac{n_2}{n_1}\right)^2 \quad , \quad P_2 = P_1 \cdot \left(\frac{n_2}{n_1}\right)^3 \quad , \quad \eta \approx 1$$

The rpm number related to the performance curves (Q-H-P) is indicated in the power chart.
Performance curves (Q-H-P) will change in case a motor with rpm number different from indicated values is used.
Q=Capacity, H=Head, P=Pressure, η=Efficiency

00110042 07/2008

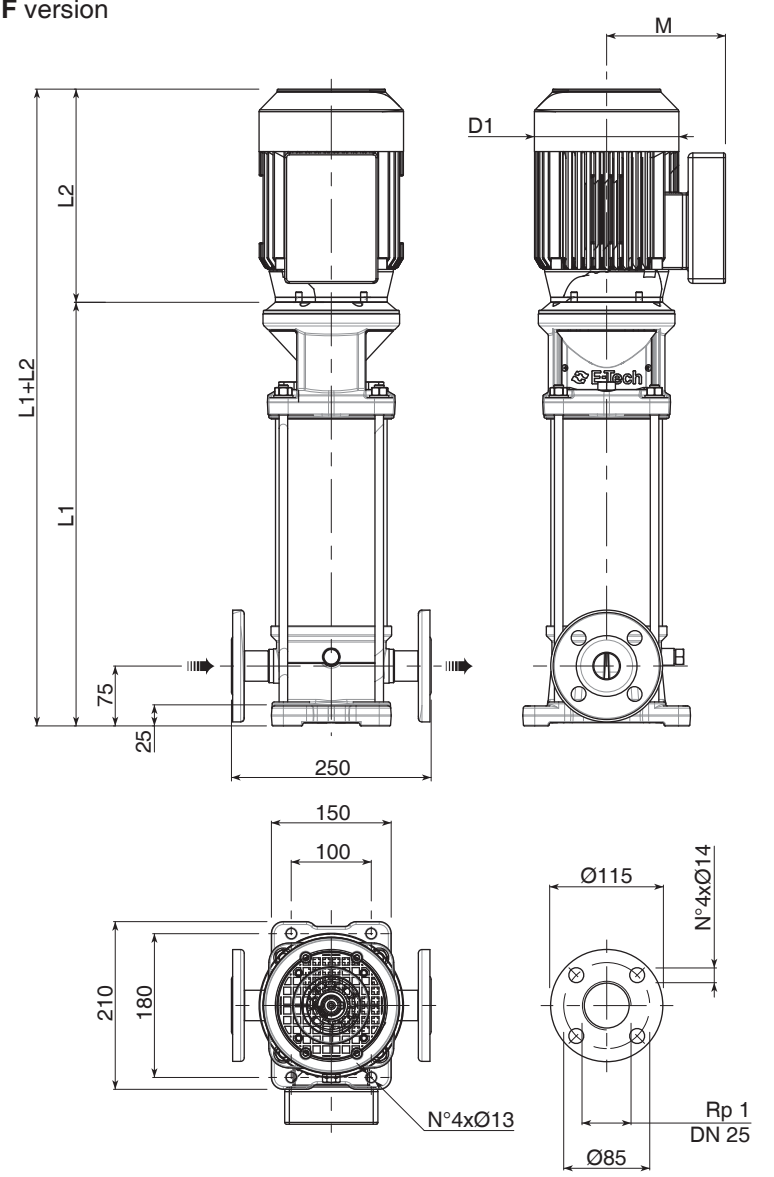
The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

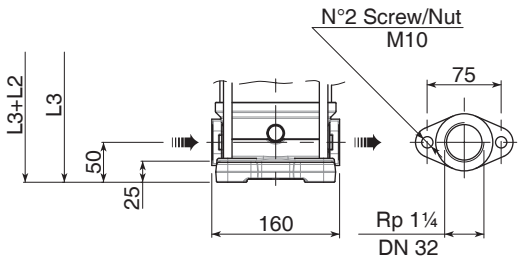
EV 3

Technical data 60Hz

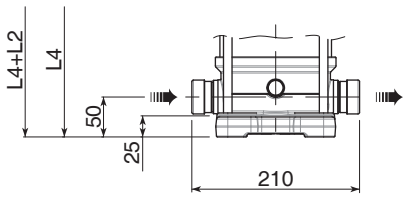
F version



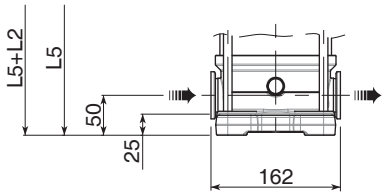
T version



V version



C version



00114014 01/2012

F version	Round flanges on body type PN25: the pump is supplied with joints and bolts without counterflanges (Optional accessories).
T version	Oval flanges on body type PN16: the pump is supplied without oval counter flanges for pipe to be screwed, joints and bolts (Optional accessories).
V version	Connections with rapid fittings type "Victaulic": the pump is supplied without the collars (Optional accessories).
C version	Connections with round fittings type Clamp-FlexiClamp: the pump is supplied without collars (Optional accessories).

Pump Model	Motor		Dimensions (mm)											Weight	
			L1	L2		L3	L4	L5	M		D1			Pump	Electric Pump
	kW	Size	F	1-PHASE	3-PHASE	T	V	C	1-PHASE	3-PHASE	1-PHASE	3-PHASE			
• **EV 3/2**	0.55	71	328.5	215	215	303.5	303.5	303.5	129	112	142	142		15	21
EV 3/3	0.75	80	352.5	232	232	327.5	327.5	327.5	150	129	160	160		15.5	25
EV 3/4	1.1	80	376.5	232	232	351.5	351.5	351.5	150	129	160	160		16	27.5
EV 3/5	1.5	90	410.5	267	267	385.5	385.5	385.5	160	138	180	180		17	31
EV 3/6	1.5	90	435	267	267	410	410	410	160	138	180	180		18	32
EV 3/7	2.2	90	459	267	267	434	434	434	160	138	180	180		18.5	34.5
EV 3/8	2.2	90	483	267	267	458	458	458	160	138	180	180		19	35
EV 3/9	3	100	517	-	306	492	492	492	-	145	-	196		20.5	43.5
EV 3/10	3	100	541	-	306	516	516	516	-	145	-	196		21	44
EV 3/11	3	100	565	-	306	-	540	540	-	145	-	196		21.5	44.5
EV 3/12	3	100	589	-	306	-	564	564	-	145	-	196		22	45
EV 3/13	4	112	613	-	328	-	588	588	-	161	-	225		23	56.5
EV 3/14	4	112	637	-	328	-	612	612	-	161	-	225		23.5	57
EV 3/15	4	112	661	-	328	-	636	636	-	161	-	225		24	57.5

• Standard efficiency motors IE1

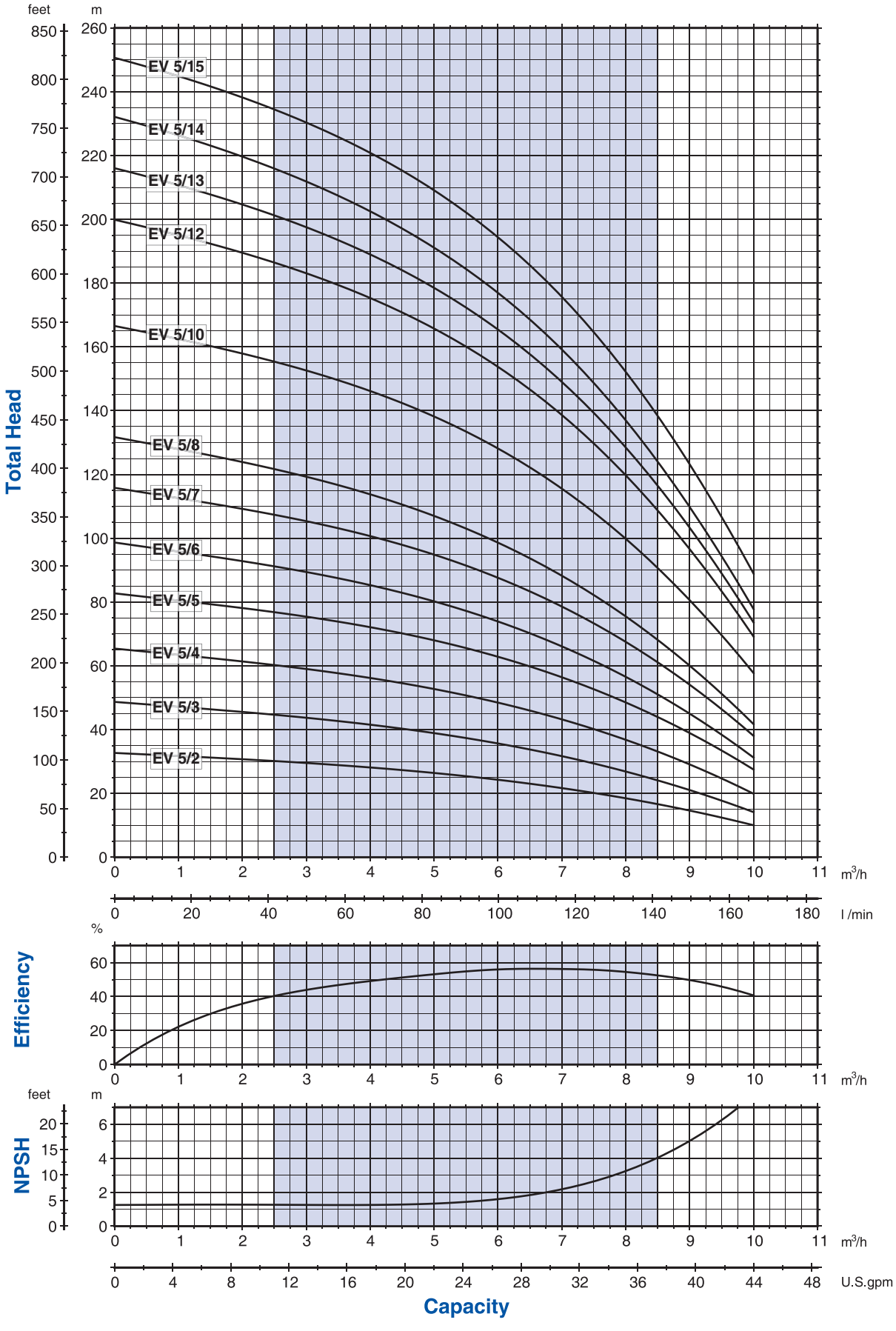
It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

E-Tech by Franklin Electric

EV Series Performance Curves and Technical Data

EV 5 60Hz

Performance curves 60Hz



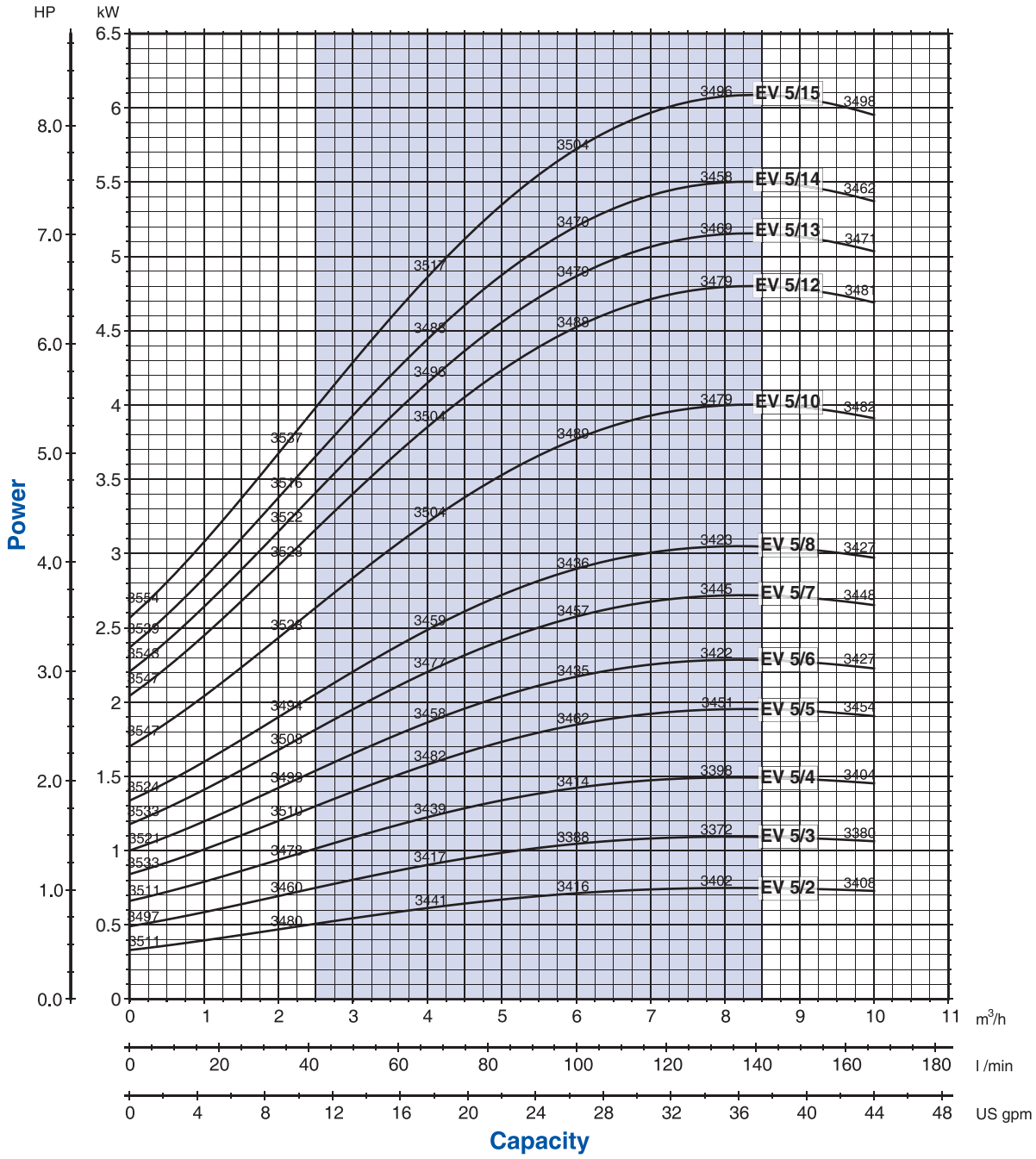
00110043 09/2012

The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

E-Tech by Franklin Electric

Performance curves 60Hz



Performance curves of Q, H and P depend on the rpm number according to the following formulae:

$$Q_2 = Q_1 \cdot \left(\frac{n_2}{n_1}\right) \quad , \quad H_2 = H_1 \cdot \left(\frac{n_2}{n_1}\right)^2 \quad , \quad P_2 = P_1 \cdot \left(\frac{n_2}{n_1}\right)^3 \quad , \quad \eta \approx 1$$

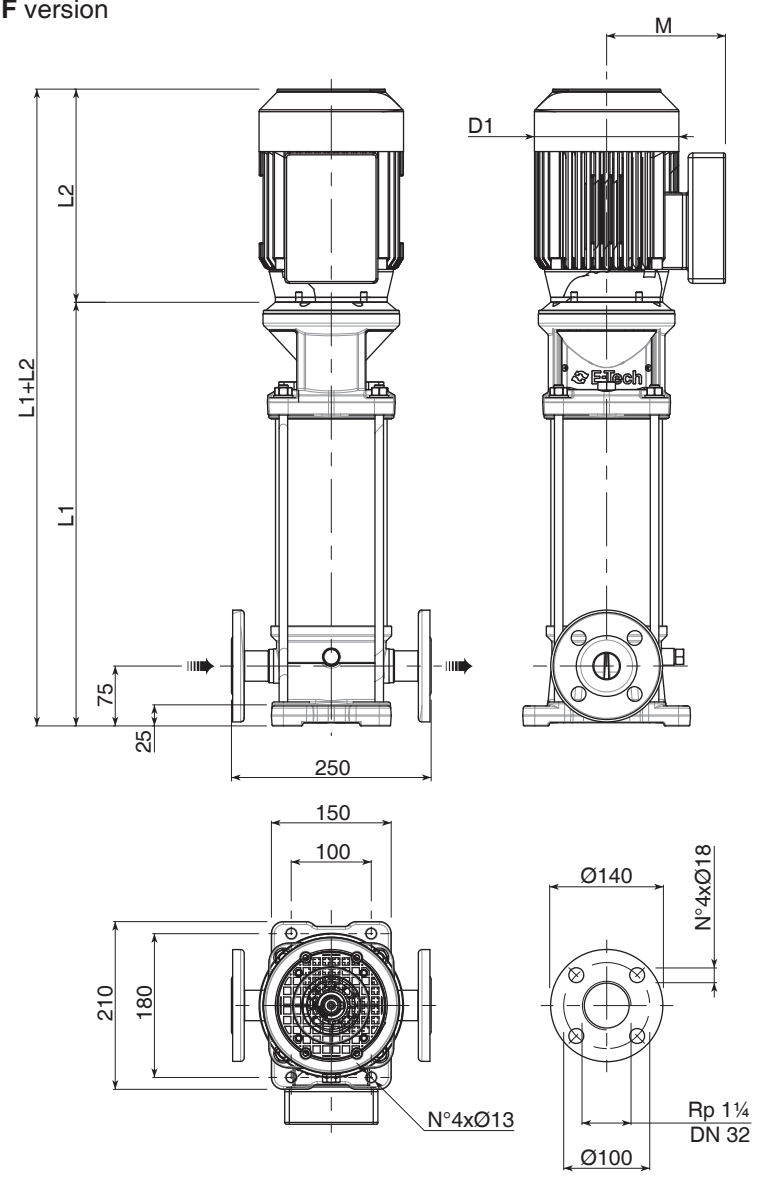
The rpm number related to the performance curves (Q-H-P) is indicated in the power chart.
Performance curves (Q-H-P) will change in case a motor with rpm number different from indicated values is used.
Q=Capacity, H=Head, P=Pressure, η=Efficiency

00110043 09/2012

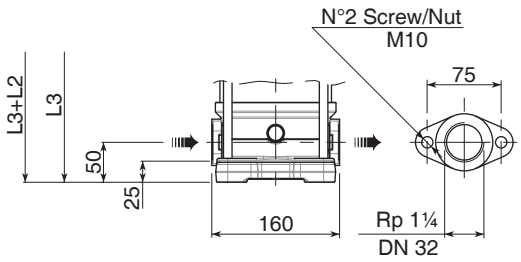
EV 5

Technical data 60Hz

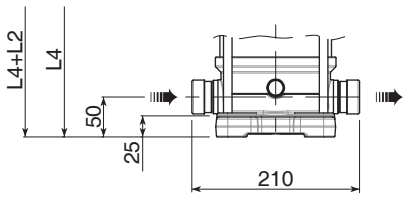
F version



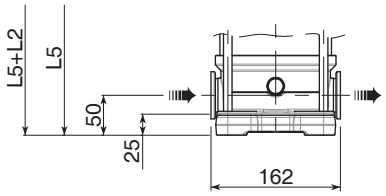
T version



V version



C version



00114014 01/2012

F version	Round flanges on body type PN25: the pump is supplied with joints and bolts without counterflanges (Optional accessories).	V version	Connections with rapid fittings type "Victaulic": the pump is supplied without the collars (Optional accessories).
T version	Oval flanges on body type PN16: the pump is supplied without oval counter flanges for pipe to be screwed, joints and bolts (Optional accessories).	C version	Connections with round fittings type Clamp-FlexiClamp: the pump is supplied without collars (Optional accessories).

Pump Model	Motor		Dimensions (mm)											Weight	
			L1	L2		L3	L4	L5	M		D1				
	kW	Size	F	1-PHASE	3-PHASE	T	V	C	1-PHASE	3-PHASE	1-PHASE	3-PHASE		Pump	Electric Pump
EV 5/2	0.75	80	328.5	232	232	303.5	303.5	303.5	150	129	160	160		15.5	25
EV 5/3	1.1	80	352.5	232	232	327.5	327.5	327.5	150	129	160	160		16	27.5
EV 5/4	1.5	90	386.5	267	267	361.5	361.5	361.5	160	138	180	180		17	31
EV 5/5	2.2	90	410.5	267	267	385.5	385.5	385.5	160	138	180	180		17.5	33.5
EV 5/6	2.2	90	435	267	267	410	410	410	160	138	180	180		18	34
EV 5/7	3	100	469	-	306	444	444	444	-	145	-	196		19.5	42.5
EV 5/8	3	100	493	-	306	468	468	468	-	145	-	196		20	43
EV 5/10	4	112	541	-	328	516	516	516	-	161	-	225		21	54.5
EV 5/12	5.5	132	611.5	-	362	-	586.5	586.5	-	195	-	268		27.5	73.5
EV 5/13	5.5	132	635.5	-	362	-	610.5	610.5	-	195	-	268		28	74
EV 5/14	5.5	132	659.5	-	362	-	634.5	634.5	-	195	-	268		28.5	74.5
EV 5/15	7.5	132	683.5	-	362	-	658.5	658.5	-	195	-	268		29	82

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

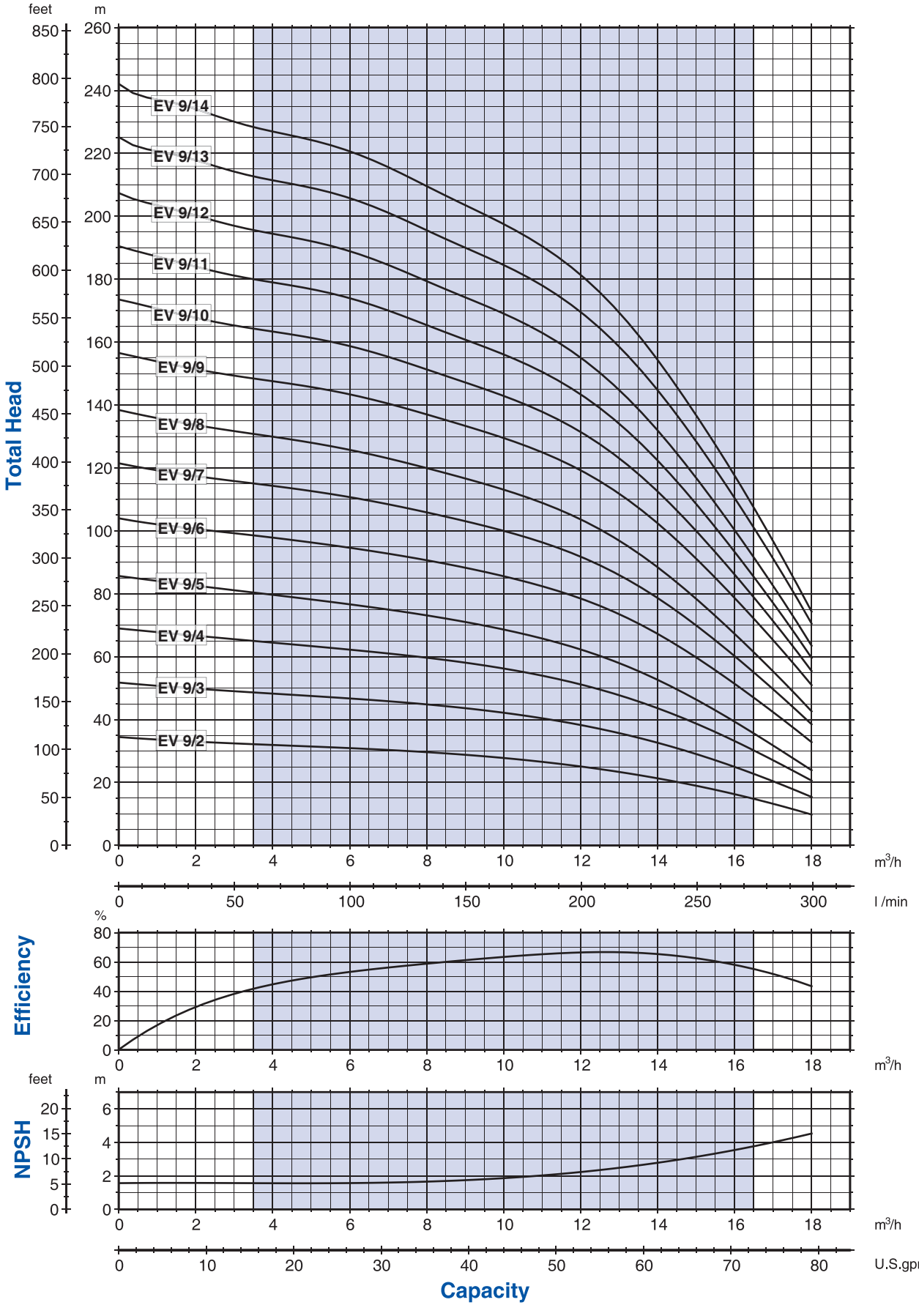
E-Tech by Franklin Electric

EV Series
Performance Curves and Technical Data

EV 9 60Hz

EV 9

Performance curves 60Hz



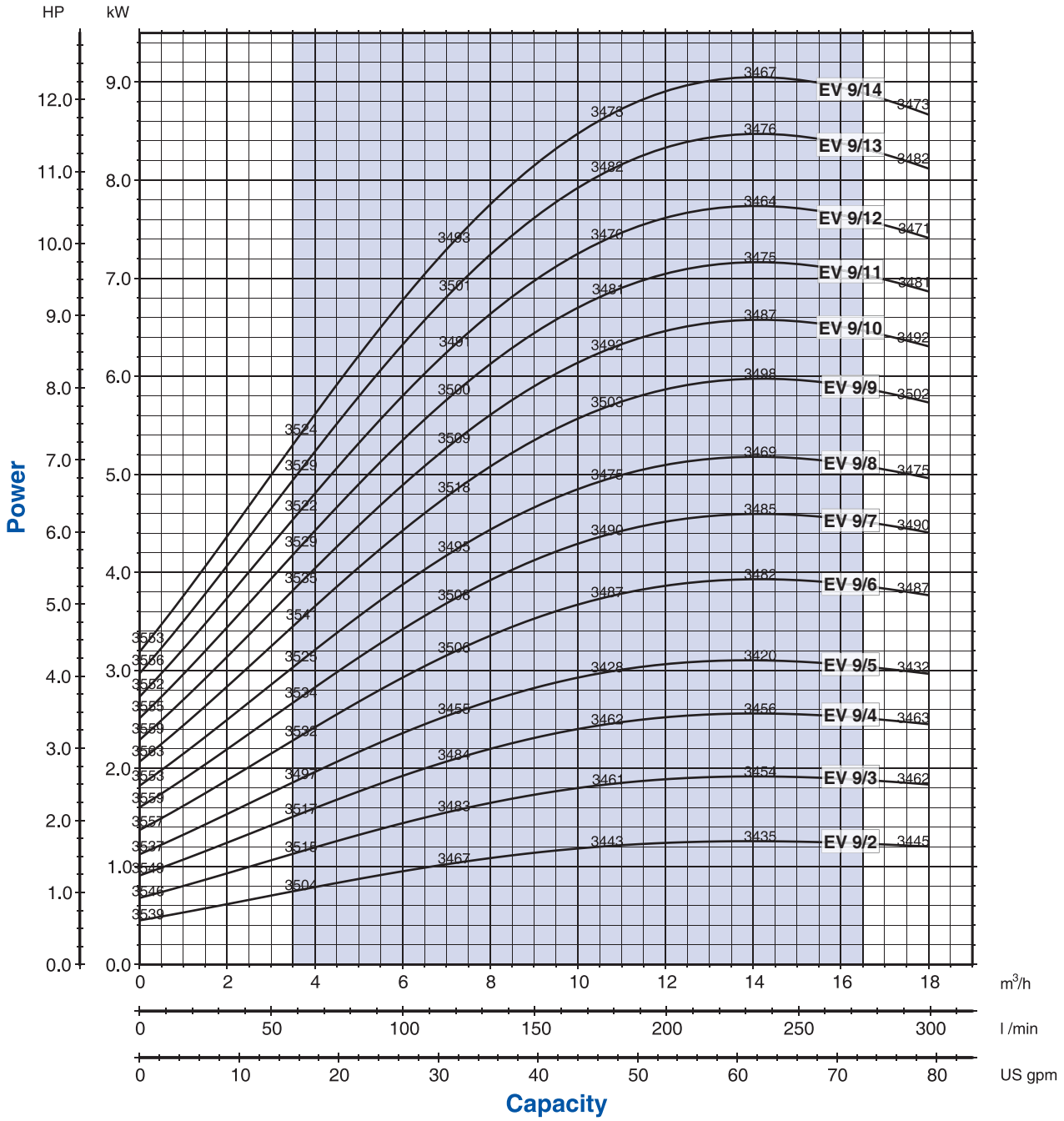
00110044 07/2008

The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

E-Tech by Franklin Electric

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

Performance curves 60Hz



Performance curves of Q, H and P depend on the rpm number according to the following formulae:

$$Q_2 = Q_1 \cdot \left(\frac{n_2}{n_1}\right) \quad , \quad H_2 = H_1 \cdot \left(\frac{n_2}{n_1}\right)^2 \quad , \quad P_2 = P_1 \cdot \left(\frac{n_2}{n_1}\right)^3 \quad , \quad \eta \approx 1$$

The rpm number related to the performance curves (Q-H-P) is indicated in the power chart.
Performance curves (Q-H-P) will change in case a motor with rpm number different from indicated values is used.
Q=Capacity, H=Head, P=Pressure, η=Efficiency

00110044 07/2008

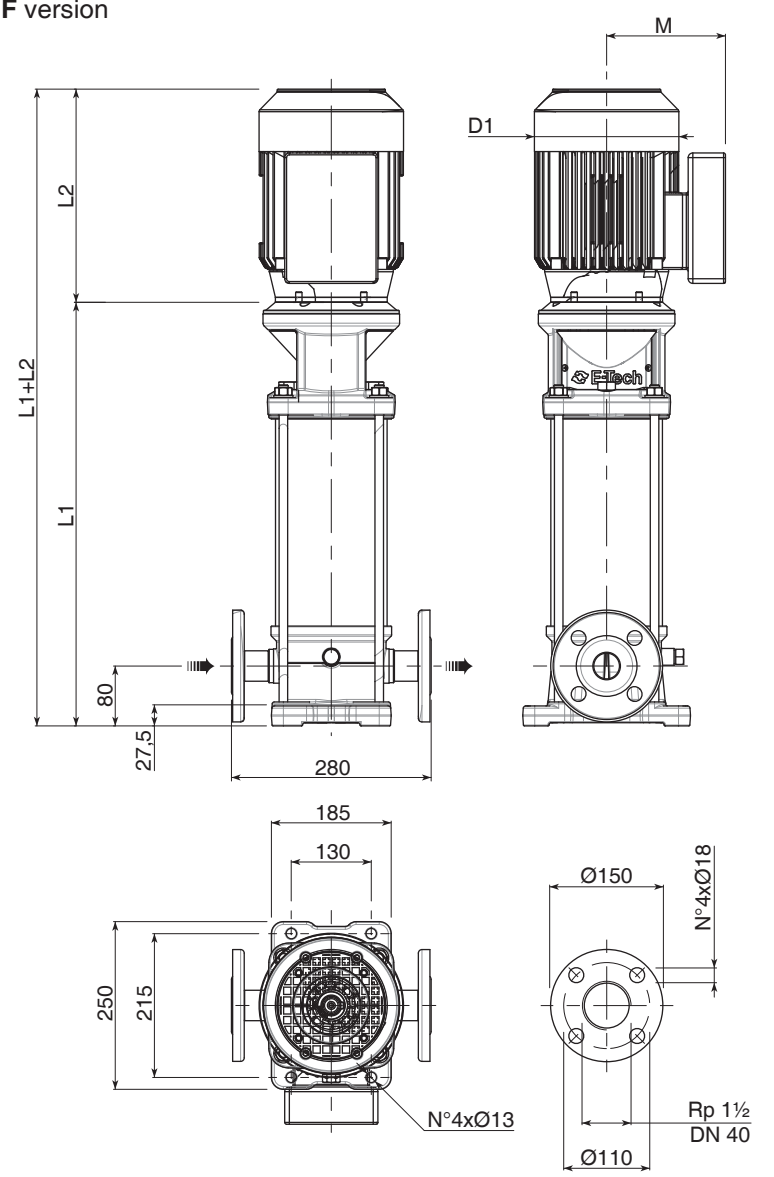
The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

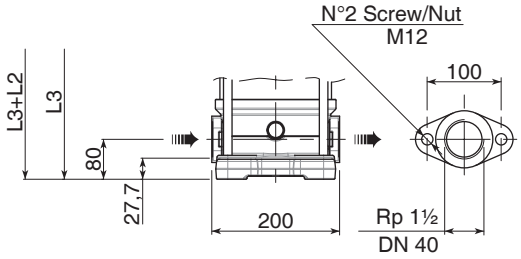
EV 9

Technical data 60Hz

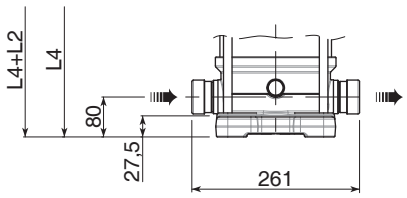
F version



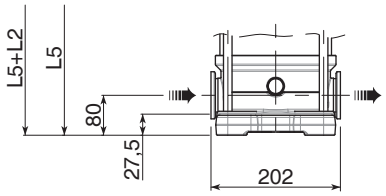
T version



V version



C version



00114014 01/2012

F version Round flanges on body type PN25: the pump is supplied with joints and bolts without counterflanges (Optional accessories).

T version Oval flanges on body type PN16: the pump is supplied without oval counter flanges for pipe to be screwed, joints and bolts (Optional accessories).

V version Connections with rapid fittings type "Victaulic": the pump is supplied without the collars (Optional accessories).

C version Connections with round fittings type Clamp-FlexiClamp: the pump is supplied without collars (Optional accessories).

Pump Model	Motor		Dimensions (mm)											Weight	
			L1	L2		L3	L4	L5	M		D1			Pump	Electric Pump
	kW	Size	F	1-PHASE	3-PHASE	T	V	C	1-PHASE	3-PHASE	1-PHASE	3-PHASE			
EV 9/2	1.5	90	357.5	267	267	357.5	357.5	357.5	160	138	180	180		18	24
EV 9/3	2.2	90	387.5	267	267	387.5	387.5	387.5	160	138	180	180		18.5	34.5
EV 9/4	3	100	427.5	-	306	427.5	427.5	427.5	-	145	-	196		20	43
EV 9/5	3	100	458	-	306	458	458	458	-	145	-	196		20.5	43.5
EV 9/6	4	112	488	-	328	488	488	488	-	161	-	225		21.5	55
EV 9/7	5.5	132	540.5	-	362	540.5	540.5	540.5	-	195	-	248		27	73
EV 9/8	5.5	132	570.5	-	362	570.5	570.5	570.5	-	195	-	248		27.5	73.5
EV 9/9	7.5	132	600.5	-	362	600.5	600.5	600.5	-	195	-	248		28.5	81.5
EV 9/10	7.5	132	630.5	-	362	-	630.5	630.5	-	195	-	248		29	82
EV 9/11	7.5	132	660.5	-	362	-	660.5	660.5	-	195	-	248		30	83
EV 9/12	7.5	132	690.5	-	362	-	690.5	690.5	-	195	-	248		30.5	83.5
• **EV 9/13**	11	132	720.5	-	420	-	720.5	720.5	-	195	-	248		30.5	83.5
• **EV 9/14**	11	132	750.5	-	420	-	750.5	750.5	-	195	-	248		31.5	84.5

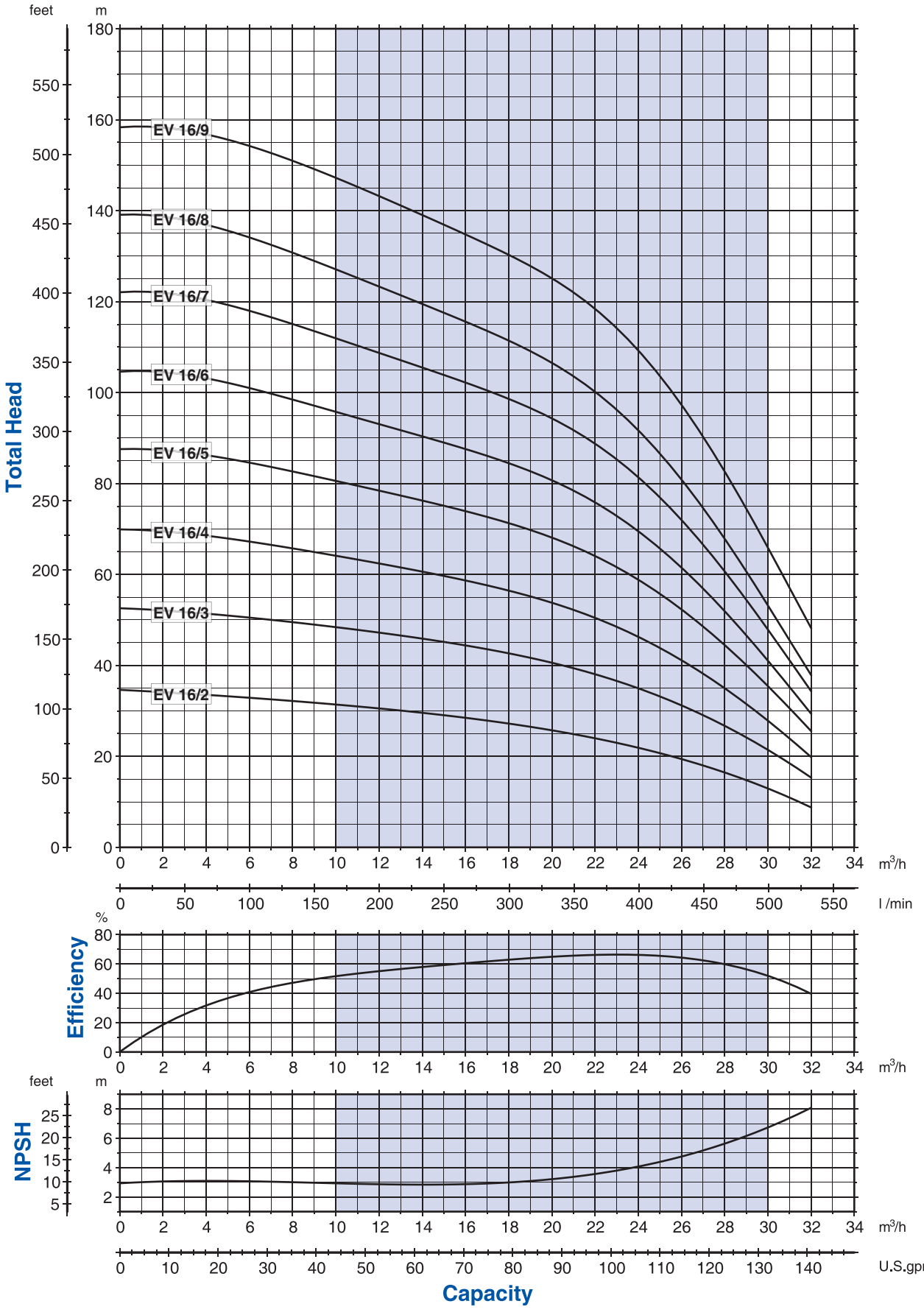
• Motor flange size 132 rated 11kW not included in IEC 72-1 standards

EV Series Performance Curves and Technical Data

EV 16 60Hz

EV 16

Performance curves 60Hz



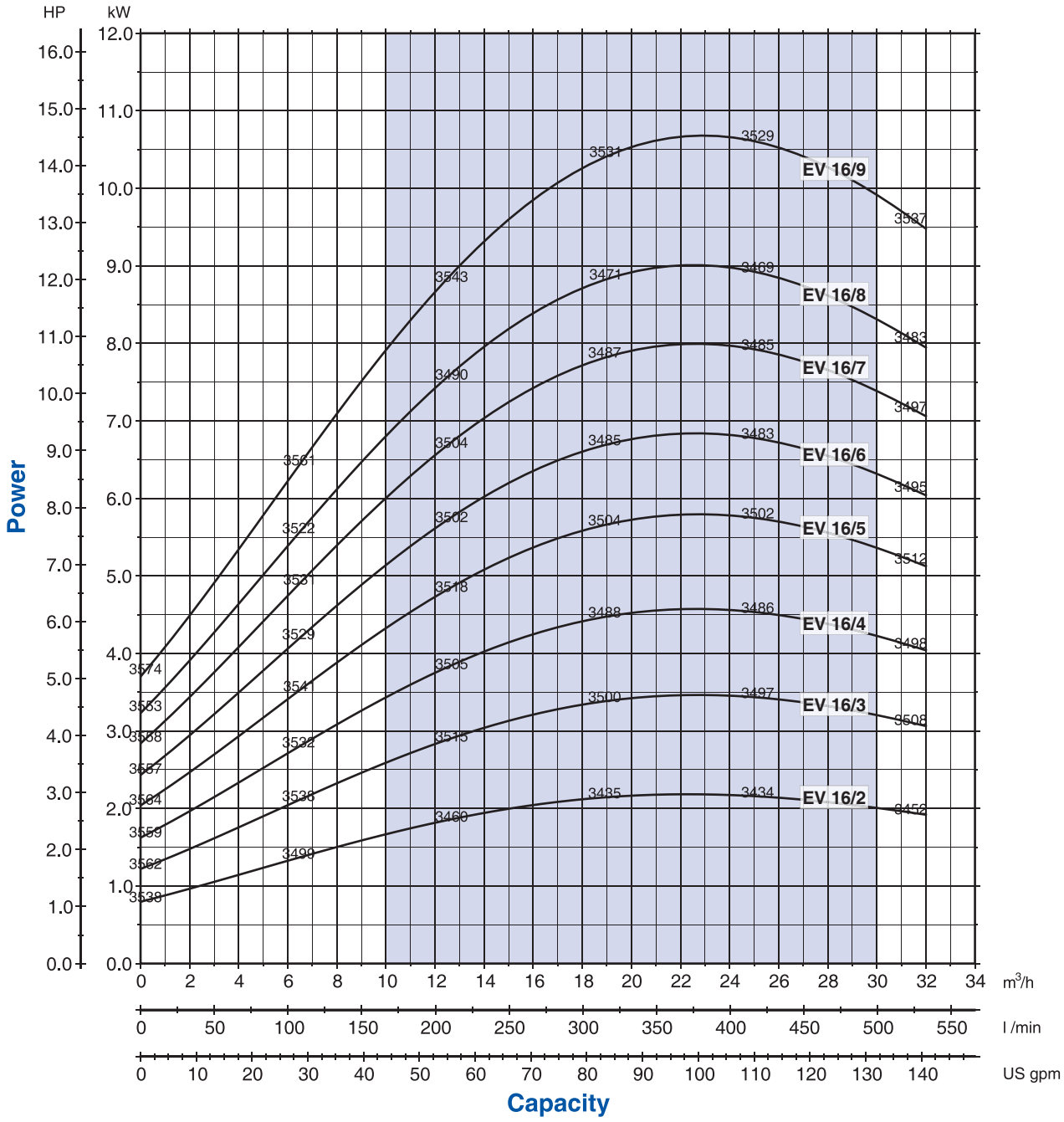
00110047 05/2009

The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

E-Tech by Franklin Electric

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

Performance curves 60Hz



Performance curves of Q, H and P depend on the rpm number according to the following formulae:

$$Q_2 = Q_1 \cdot \left(\frac{n_2}{n_1}\right) \quad , \quad H_2 = H_1 \cdot \left(\frac{n_2}{n_1}\right)^2 \quad , \quad P_2 = P_1 \cdot \left(\frac{n_2}{n_1}\right)^3 \quad , \quad \eta \approx 1$$

The rpm number related to the performance curves (Q-H-P) is indicated in the power chart.
Performance curves (Q-H-P) will change in case a motor with rpm number different from indicated values is used.
Q=Capacity, H=Head, P=Pressure, η=Efficiency

00110047 05/2009

The hydraulic characteristics are guaranteed, according to ISO standard 9906, Annex A, grade 2.

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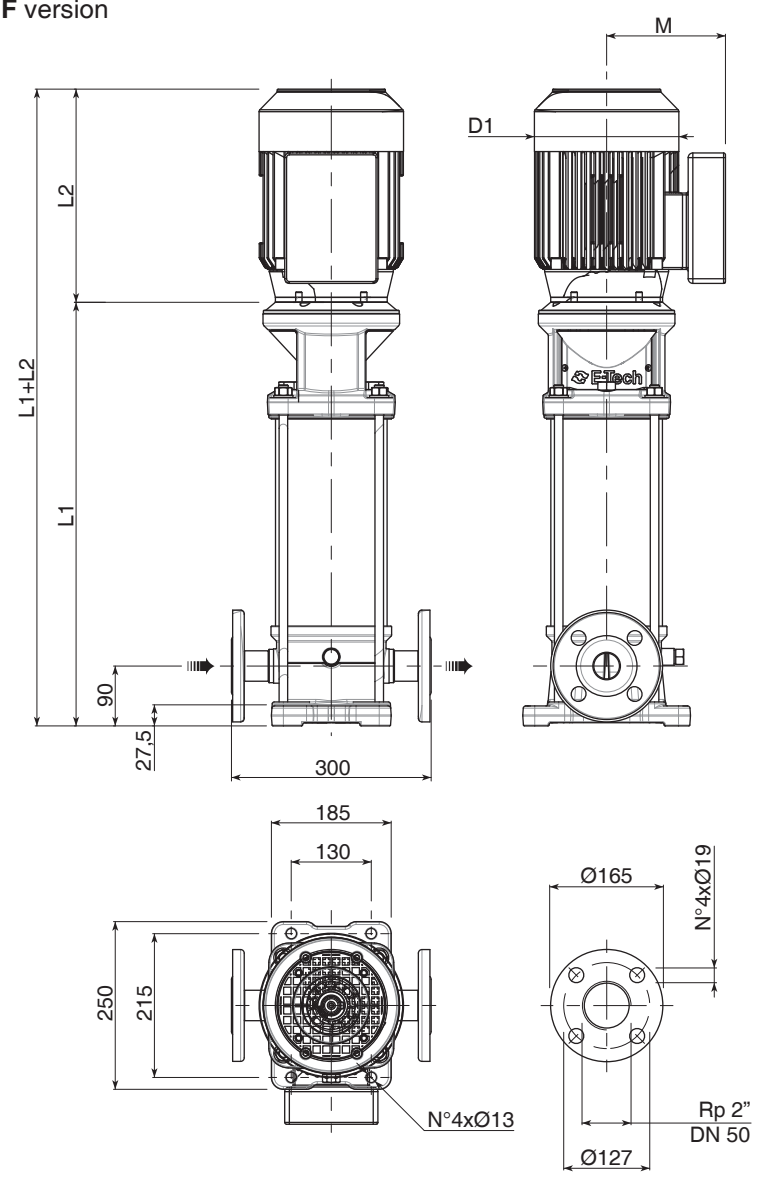
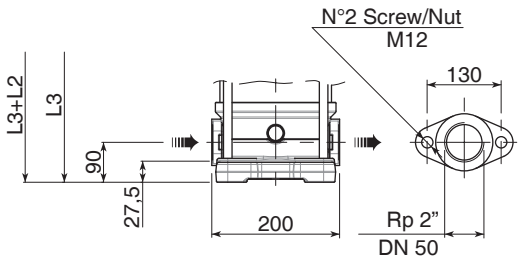
EV 16

Technical data 60Hz

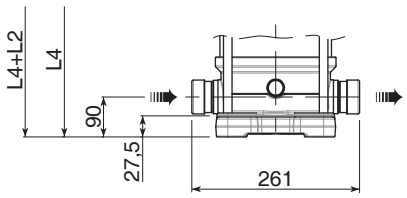
F version



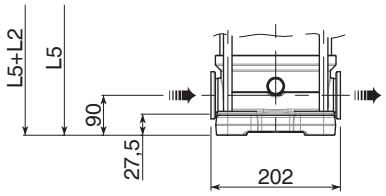
T version



V version



C version



00114014 01/2012

F version	Round flanges on body type PN25: the pump is supplied with joints and bolts without counterflanges (Optional accessories).
T version	Oval flanges on body type PN16: the pump is supplied without oval counter flanges for pipe to be screwed, joints and bolts (Optional accessories).
V version	Connections with rapid fittings type "Victaulic": the pump is supplied without the collars (Optional accessories).
C version	Connections with round fittings type Clamp-FlexiClamp: the pump is supplied without collars (Optional accessories).

Pump Model	Motor		Dimensions (mm)										Weight	
			L1	L2		L3	L4	L5	M		D1		Pump	Electric Pump
	kW	Size	F	1-PHASE	3-PHASE	T	V	C	1-PHASE	3-PHASE	1-PHASE	3-PHASE		
EV 16/2	2.2	90	382.5	-	267	382.5	382.5	382.5	-	138	-	180	19	35
EV 16/3	4	112	430	-	328	430	430	430	-	161	-	225	20.5	54
EV 16/4	5.5	132	490	-	362	490	490	490	-	195	-	248	26.5	72.5
EV 16/5	7.5	132	527.5	-	362	527.5	527.5	527.5	-	195	-	248	27.5	80.5
EV 16/6	7.5	132	565	-	362	565	565	565	-	195	-	248	28.5	81.5
• **EV 16/7**	11	132	602.5	-	420	602.5	602.5	602.5	-	195	-	248	29.5	82.5
• **EV 16/8**	11	132	640	-	420	640	640	640	-	195	-	248	30.5	83.5
• **EV 16/9**	11	132	677.5	-	420	677.5	677.5	677.5	-	195	-	248	31.5	84.5

• Motor flange size 132 rated 11kW not included in IEC 72-1 standards

It is our policy to continuously develop and improve our products, therefore, we reserve the right to amend specifications without prior notice.

E-Tech by Franklin Electric

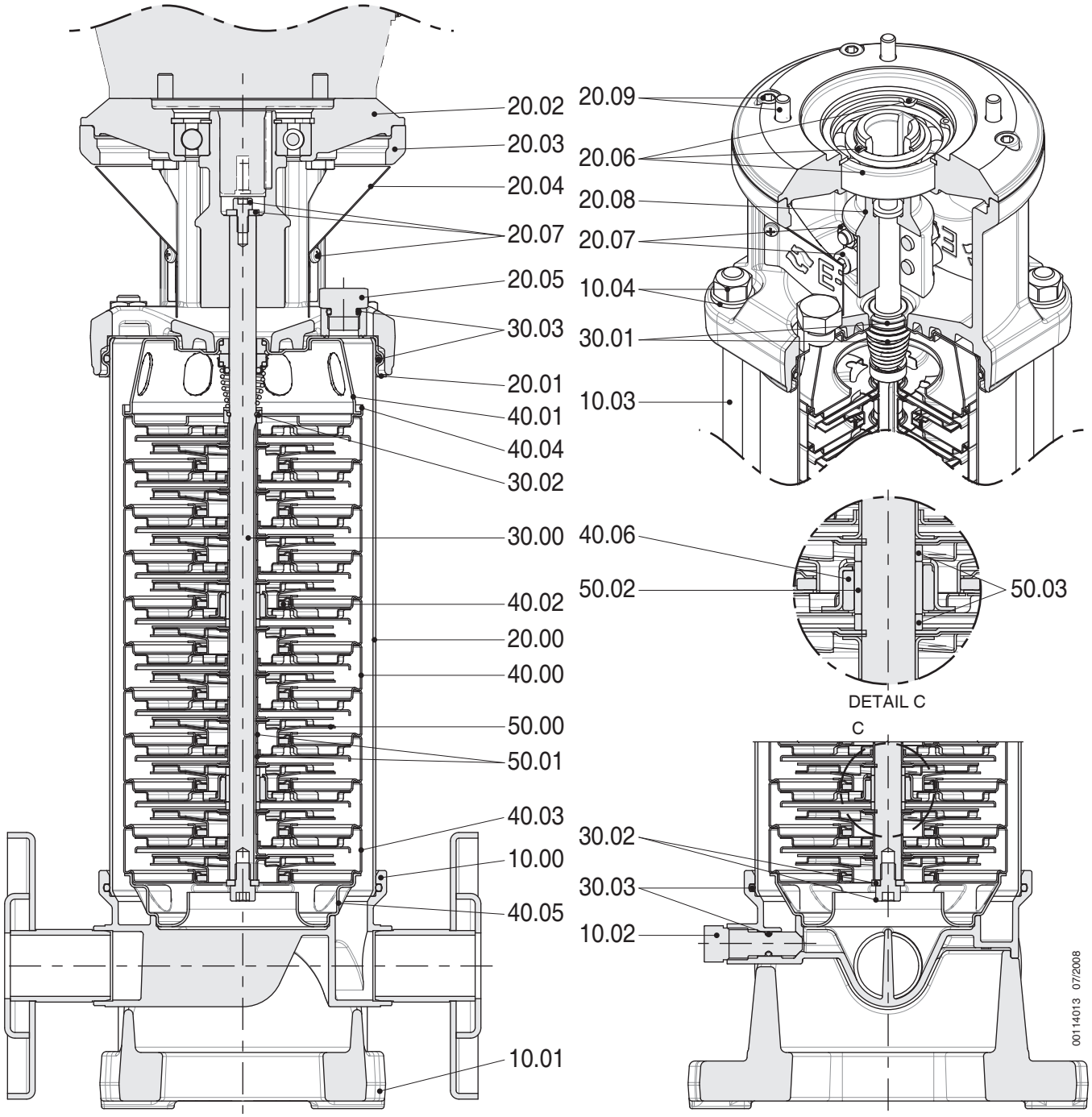
EV Series
Pump Section and
List of Main Components

EV 3

EV 5

EV 9

EV 16



Ref. N.	Description
10 00	Pump Casing
10 01	Pump fixing plate
10 02	Draining and priming cap
10 03	Tie bolt
10 04	Kit nuts and washers
20 00	Outer case
20 01	Mechanical seal housing
20 02	Motor flange
20 03	Motor bracket
20 04	Coupling guard
20 05	Filling plug
20 06	Kit circlip and bearing
20 07	Kit coupling washers and screws
20 08	Coupling
20 09	Kit motor screws

Ref. N.	Description
30 00	Pump shaft
30 01	Kit mechanical seal
30 02	Kit screws, nuts and washers
30 03	Kit o-ring (4 pcs)
40 00	Stage housing and diffuser
40 01	Stage centering outlet
40 02	Floating neck ring assembly
40 03	Initial stage housing
40 04	Last stage with diffuser
40 05	Stage centering inlet
40 06	Stage housing and diffuser with bearing
50 00	Impeller
50 01	Impeller spacers (2 pcs)
50 02	Intermediary sleeve
50 03	Intermediary sleeve spacers (2 pcs)

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