

TYPE KEY

3E 4 32 - 125 / 0.75 R - Q1AVGG

Optional Mechanical Seal

NA : Q1AEGG (Standard)
Q4Q1EGG (Optional)
Q4Q1VGG (Optional)
Q1AVGG (Optional)

Reduced Impeller

NA : Full diameter Impeller
R : Reduced Impeller

Motor Power (kW)

0.37/0.55/0.75/1.1/1.5/2.2/3/4/5.5/
7.5/9.2/11/15/18.5/22

Nominal impeller diameter in millimeters

100/125/160/200

Suction/Discharge nozzle, nominal size in millimeters

32/40/50/65/80/100

Number of poles

NA=2 poles
4=4 poles

3E Series

3E : Extended shaft model
3ES : Stub shaft model

PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906:2012 - Grade 3B

The curves refer to effective speed of asynchronous motors at 50 Hz, 2 poles.

Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt)

The NPSH curve is an average curve obtained in the same conditions of performance curves.

The continuous curves indicate the recommended working range. The dotted curve is only a guide.

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

Q = volume flow rate

H = total head

P₂ = pump power input (shaft power)

η = pump efficiency

NPSH = net positive suction head required by the pump

MEI = minimum efficiency index

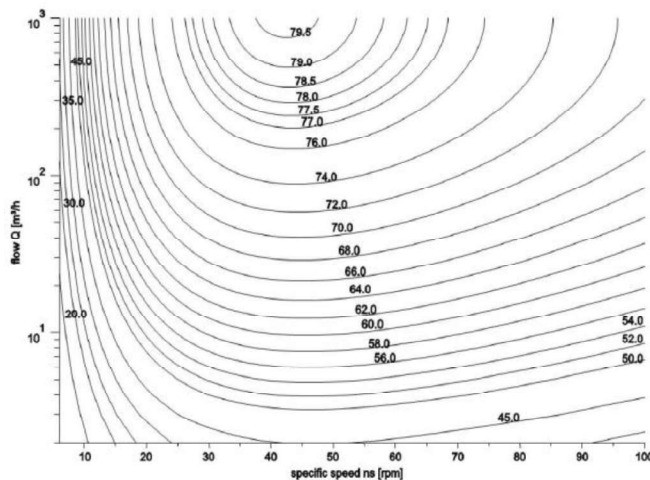
MEI INDEX SPECIFICATIONS

The minimum efficiency index (MEI) is a measure of the quality of a pump size in respect to its mean efficiency. The minimum efficiency index is based on the hydraulic efficiency and on the head at the best efficiency point.

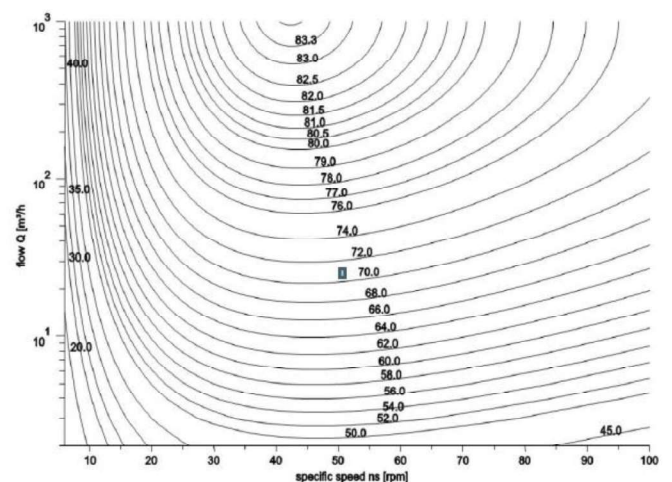
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to a reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variable duty points may be more efficient and economical when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

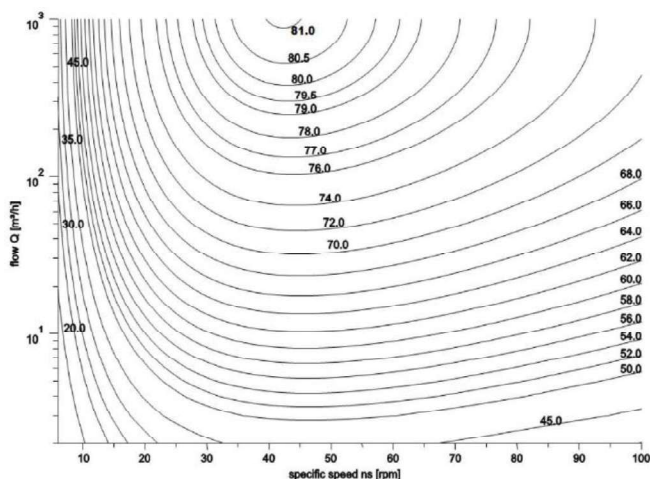
MEI = 0.4 for ESCCi 2900rpm



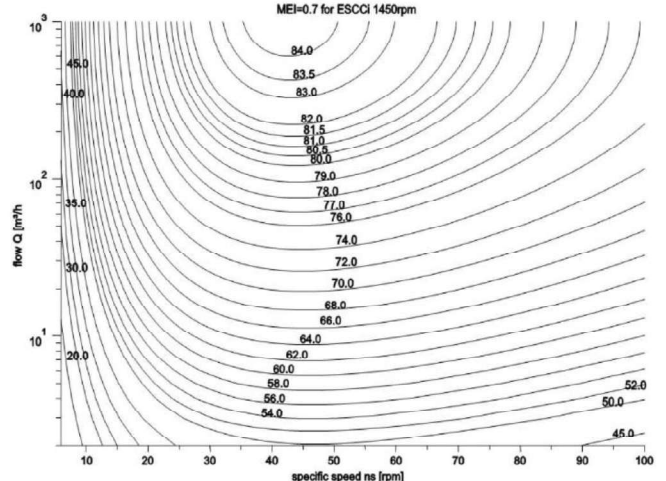
MEI=0.7 for ESCCi 2900 rpm



MEI = 0.4 for ESCCi 1450 rpm



MEI = 0.7 for ESCCi 1450rpm



GENERAL SPECIFICATION MOTOR

MOTOR					
Type	3E		3ES		
	Electric - TEFC				
	Three Phase				
Efficiency level (Reg. 640/2009)	"IE2 from 0.37 kW up to 0.55 kW IE3 from 0.75 kW up to 22 kW				
No. of Poles	2	4	2	4	
Rotation speed [min-1]	~2900	~1450	~2900	~1450	
Insulation Class	F (temperature rise class B)				
Protection degree (CEI EN 60034-5)	IP55				
Power rating	[kW]	0.37 ÷ 22	0.37 ÷ 3.0	0.75 ÷ 22	0.55 ÷ 3.0
	[HP]	0.5 ÷ 30	0.5 ÷ 4.0	1 ÷ 30	0.75 ÷ 4.0
Frequency [Hz]	50				
Voltage [V]	230/400 ±10% (up to 4.0 kW) 400/690 ±10% (5.5 kW and above)				
Over load protection	Provided by the user				
Casing material	Aluminium				
Motor support material	Cast iron / Aluminium				
Dimensions of cable entry	PG11, PG13.5, PG16, PG21 M20x1.5, M25x1.5		M32x1.5, M40x1.5, M50x1.5 M10x1.5, M20x1.5, M25x1.5		
Flange mount (IEC motor)	---		IM B5		

GENERAL SPECIFICATION PUMP

PUMP						
Version			3E		3ES	
Pole			2 pole	4 pole	2 pole	4 pole
Liquid Handled	Type of liquid		Clean water[1], Brine(anti-freezing liquid), Water/Glycol mixture up to 40% vol. [2]			
	Temperature [°C]		-10 to 120			
Maximum working pressure [MPa]			1.0 or 1.6 [3]			
Maximum suction pressure [MPa]			1.0 or 1.6 - Shut-off pressure			
Construction	Impeller		Closed centrifugal type Closed centrifugal three dimensional blades for 65 and 80 version			
	Shaft seal type		Mechanical seal (with air ventiration system)			
	Bearing		Sealed ball bearing (Inside of the Motor)			
Pipe Connection	Suction and Discharge	32-100/125/160/200	Flange DN32 according EN 1092-1 Standard			
		40-100/125/160/200	Flange DN40 according EN 1092-1 Standard			
		50-100/125/160/200	Flange DN50 according EN 1092-1 Standard			
		65-100/125/160/200	Flange DN65 according EN 1092-1 Standard			
		80-100/125/160/200/250	Flange DN80 according EN 1092-1 Standard			
		100-160/200/250	Flange DN100 according EN 1092-1 Standard			
Material	Casing		Cast iron EN-GJL-250-EN 1561			
	Impeller	32,40,50,65 series,80-100	EN 1.4301 (AISI 304)			
		Other 80 series	EN 1.4401 (AISI 316)			
		100 series	EN 1.4404 (AISI 316L)			
	Casing cover	32,40,50,65,80 series	EN 1.4301 (AISI 304)			
		80-250,100 series	EN 1.4404 (AISI 316L) stainless casting			
	Mechanical seal		SiC/Carbon/EPDM as a standard(Q1AEGG) SiC/SiC/EPDM as an optional(QGQ1EGG) SiC/SiC/FPM as an optional(QGQ1VGG) SiC/Carbon/FPM as an optional(Q1AVGG) (For version see page 337÷339)			
	O-ring		EPDM as a standard FPM as an optional			
	Shaft	Designation	Extended shaft		Stub-shaft	
		32,40,50,65,80 series	EN 1.4301 (AISI 304) for wetted part Carbon steel for dry part		EN 1.4301 (AISI 304) for wetted part Carbon steel for dry part	
		100 series	EN 1.4404 (AISI 316L) for wetted part Carbon steel for dry part		EN 1.4404 (AISI 316L) for wetted part Carbon steel for dry part	
	Bracket		Aluminium		Cast iron EN-GJL-250-EN 1561	
Accessory (upon request)			Counter Flange (See page 345) Base plate for 11kW or above			
Applicable standard of test			ISO 9906:2012 – Grade 3B			

[1] Viscosity and Dencity shall be equivalent with water

[2] If water-glycol mixtures are used, differents power consumption and pump performances shall be considered.

[3] Depending on the model. See selection chart page 208 and 209

SELECTION CHART 50Hz 4POLE

3E4 SERIES 32 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	50	100	150	200
				m3/h	0	3	6	9	12
32-160/0.37R	0.37	0.5	1.6		7.3	6.8	6.0	4.7	—
32-160/0.37	0.37	0.5	1.6		9.3	8.9	8.1	6.7	5.0
32-200/0.55	0.55	0.75	1.6		13.1	12.5	11.1	9.1	6.7

3E4 SERIES 40 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	50	100	150	170	175	200	250
				m3/h	0	3	6	9	10.2	10.5	12	15
40-160/0.37R	0.37	0.5	1.6		7.3	6.8	6.0	4.8	4.2	4.0	3.0	—
40-160/0.37	0.37	0.5	1.6		9.3	9.0	8.2	6.9	6.3	6.1	5.3	3.3
40-200/0.55	0.55	0.75	1.6		11.9	—	10.6	9	8.2	—	—	—
40-200/0.75	0.75	1	1.6		16.2	—	15	13.2	12.3	12.1	—	—

3E4 SERIES 50 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	100	150	200	250	300	350	400
				m3/h	0	6	9	12	15	18	21	24
50-125/0.37	0.37	0.5	1.6		6.1	6	5.7	5.2	4.6	3.9	3.1	2.2
50-160/0.55	0.55	0.75	1.6		9.5	8.9	8.5	7.9	7.3	6.5	5.7	4.8
50-200/0.75	0.75	1	1.6		10.6	10.5	10.1	9.7	9.1	8.4	7.6	6.6
50-200/1.1	1.1	1.5	1.6		13.2	12.9	12.6	12.1	11.6	10.8	10.0	9.2
50-200/1.5	1.5	2	1.6		16.6	16.2	15.8	15.3	14.8	14.1	13.2	12

3E4 SERIES 65 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	200	250	300	350	400	500	600	700
				m3/h	0	12	15	18	21	24	30	36	42
65-125/0.55	0.55	0.75	1.6		6.1	6.1	6.0	5.8	5.5	5.1	4.2	3.3	—
65-160/0.75	0.75	1	1.6		7.6	7.5	7.3	7	6.6	6.2	5.2	4	2.7
65-160/1.1	1.1	1.5	1.6		9.1	9	8.8	8.5	8.1	7.7	6.7	5.5	3.9
65-200/1.5	1.5	2	1.6		13.6	13.0	12.6	12.1	11.6	10.9	9.5	7.7	5.7
65-200/2.2	2.2	3	1.6		17.9	17.1	16.8	16.3	15.8	15.2	13.6	11.6	9.2

3E4 SERIES 80 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	350	500	600	800	900	950	1050	1100	1200
				m3/h	0	21	30	36	48	54	57	63	66	72
80-160/1.5	1.5	2	1.6		9.8	9.3	8.6	8.1	6.7	5.8	—	—	—	—
80-200/2.2	2.2	3	1.6		14.2	14.1	13.2	12.4	10.4	9.2	8.5	—	—	—
80-200/3.0	3	4	1.6		16.1	15.8	15	14.3	12.4	11.3	10.6	9.3	8.6	7.1

3E4 SERIES 100 SIZE

Pump type	kW	HP	Max. working pressure (Mpa)	l/min	0	600	800	950	1000	1050	1100	1200	1300	1400	1600	1800
				m3/h	0	36	48	57	60	63	66	72	78	84	96	108
100-160/1.5	1.5	2	1.6		7.3	6.9	6.7	6.4	6.3	6.2	6	5.7	5.3	4.8	—	—
100-160/2.2	2.2	3	1.6		9.4	9.1	8.9	8.6	8.5	8.4	8.2	7.9	7.5	7.1	6.1	4.9

IN-LINE CENTRIFUGAL PUMPS

3E

SELECTION CHART

50Hz

Rev.A

SELECTION CHART 50Hz 2POLE

3E SERIES 32 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	25	50	70	75	100	125	150
				m³/h	0	1.5	3	4.2	4.5	6	7.5	9
32-125/0.37	0.37	0.5	1.0		14.8	14.3	13.6	12.8	—	—	—	—
32-125/0.55	0.55	0.75	1.0		17.6	17.3	16.9	16.4	16.2	15.4	14.5	13.3
32-125/0.75	0.75	1	1.0		25.2	24.5	23.4	22.3	22	20.1	17.9	15.3

3E SERIES 40 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	100	150	200	230	250	300	400	450
				m³/h	0	6	9	12	13.8	15	18	24	27
40-160/1.1	1.1	1.5	1.6		22.6	21.2	19.5	17.4	15.9	14.8	11.7	—	—
40-160/1.5	1.5	2	1.6		29.7	27.7	26.1	24.1	22.7	21.7	—	—	—
40-160/2.2	2.2	3	1.6		36.5	35.2	33.6	31.5	30	29	26.2	—	—
40-200/3.0	3	4	1.6		44.5	42.6	40.3	37.7	36	34.9	32	—	—
40-200/4.0	4	5.5	1.6		52.7	51.7	49.3	46.4	44.7	43.5	40.5	—	—
40-200/7.5	7.5	10	1.6		68.5	68.1	65.7	62.7	60.8	59.4	56.1	49	44.8

3E SERIES 50 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	200	250	300	350	400	450	500	640	650	750	800
				m³/h	0	12	15	18	21	24	27	30	38.4	39	45	48
50-100/0.37	0.37	0.5	1.0		7.9	6.6	5.5	4	—	—	—	—	—	—	—	—
50-100/0.55	0.55	0.75	1.0		11.6	10	8.8	—	—	—	—	—	—	—	—	—
50-100/0.75	0.75	1	1.0		15	12.9	11.6	—	—	—	—	—	—	—	—	—
50-125/1.5	1.5	2	1.6		18.9	18.5	17.9	17.1	16.2	15.2	—	—	—	—	—	—
50-125/2.2	2.2	3	1.6		25.4	24.7	24.2	23.4	22.6	21.5	20.4	—	—	—	—	—
50-160/3.0	3	4	1.6		29.8	28.6	27.8	26.8	25.8	24.6	23.3	21.9	17.6	—	—	—
50-160/4.0	4	5.5	1.6		38.2	37.2	36.5	35.5	34.5	33.4	32.2	30.9	26.9	26.6	—	—
50-200/5.5	5.5	7.5	1.6		45	44.1	43.4	42.7	41.8	40.8	39.8	38.6	34.7	34.4	—	—
50-200/7.5	7.5	10	1.6		55.1	53.7	53.1	52.5	51.7	50.9	49.9	48.8	45.1	44.8	41.3	—
50-200/11	11	15	1.6		70	68.8	68.2	67.5	66.8	66	65	64	60.2	59.9	56.2	54

3E SERIES 65 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	100	200	300	400	450	500	600	700	900	1000	1100
				m³/h	0	6	12	18	24	27	30	36	42	54	60	66
65-100/0.55	0.55	0.75	1.0		9.5	9.1	8.4	7.4	—	—	—	—	—	—	—	—
65-100/0.75	0.75	1	1.0		11.1	10.8	10.2	9.3	8.1	7.4	—	—	—	—	—	—
65-100/1.1	1.1	1.5	1.0		14.5	14.4	14	13.4	12.5	12	11.3	9.7	—	—	—	—
65-100/1.5	1.5	2	1.0		18.2	17.7	17.4	17.1	16.5	16.1	—	—	—	—	—	—
65-125/2.2	2.2	3	1.6		19.4	19.5	19.5	19.1	18.4	18.0	17.6	—	—	—	—	—
65-125/3.0	3	4	1.6		21.3	21.7	21.8	21.7	21.3	21.0	20.6	19.6	18.4	—	—	—
65-125/4.0	4	5.5	1.6		25.4	25.7	25.9	25.9	25.6	25.4	25.1	24.2	23.0	19.9	—	—
65-160/5.5	5.5	7.5	1.6		32.8	—	—	—	31.7	31.3	30.8	29.7	28.3	24.7	22.5	19.9
65-160/7.5	7.5	10	1.6		38.5	—	—	—	37.6	37.3	36.9	35.9	34.5	30.9	28.7	26.5
65-200/9.2	9.2	12.5	1.6		49.7	—	—	—	49.3	48.7	48	46.3	44.3	39.1	36	—
65-200/11	11	15	1.6		55.5	—	—	—	55.3	54.7	54	52.3	50.2	45.2	42.2	38.9
65-200/15	15	20	1.6		71.9	—	—	—	71.7	71.2	70.5	68.9	67	62.3	59.4	56

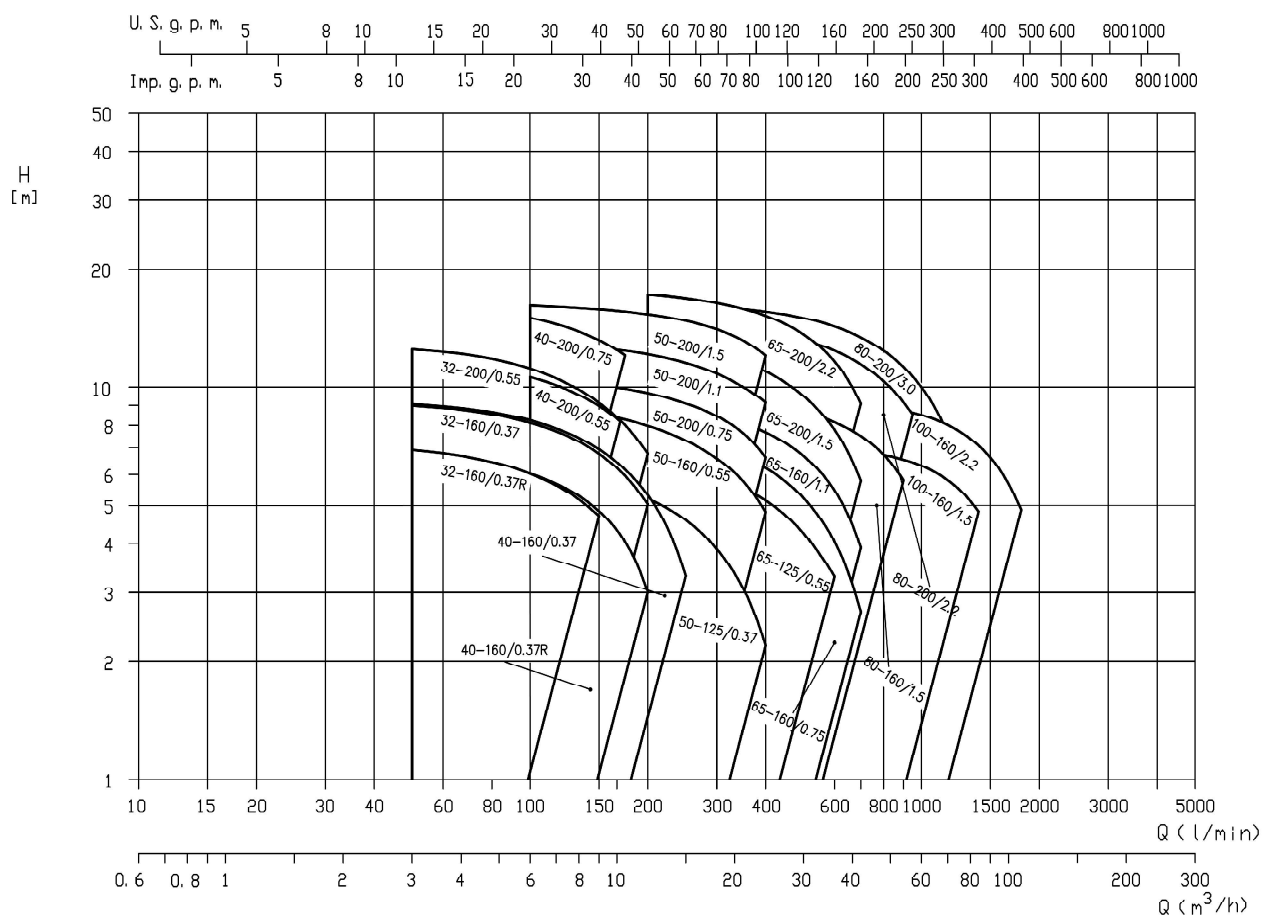
3E SERIES 80 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	600	700	850	1000	1100	1300	1600	1900	2000	2100
				m³/h	0	36	42	51	60	66	78	96	114	120	126
80-100/1.5	1.5	2	1.0		12.4	9.9	9.2	7.9	—	—	—	—	—	—	—
80-100/2.2	2.2	3	1.0		14.5	13.1	12.5	11.5	10.2	—	—	—	—	—	—
80-160/9.2	9.2	12.5	1.6		33.8	33.8	33.4	32.5	31.3	30.3	28	23.5	17.6	15.3	12.9
80-160/11	11	15	1.6		38.5	38.6	38.1	37.3	36.1	35.3	33.2	29.2	24	21.8	19.5
80-160/15	15	20	1.6		44.3	44.3	43.9	43	41.9	41.1	39.2	35.6	31.1	29.4	27.5
80-200/18.5	18.5	25	1.6		57	57.3	56.5	54.9	53.1	51.7	48.6	43.2	36.8	34.4	31.8
80-200/22	22	30	1.6		64.9	64.7	64.1	62.9	61.3	60.1	57.2	51.9	45.6	43.2	40.8

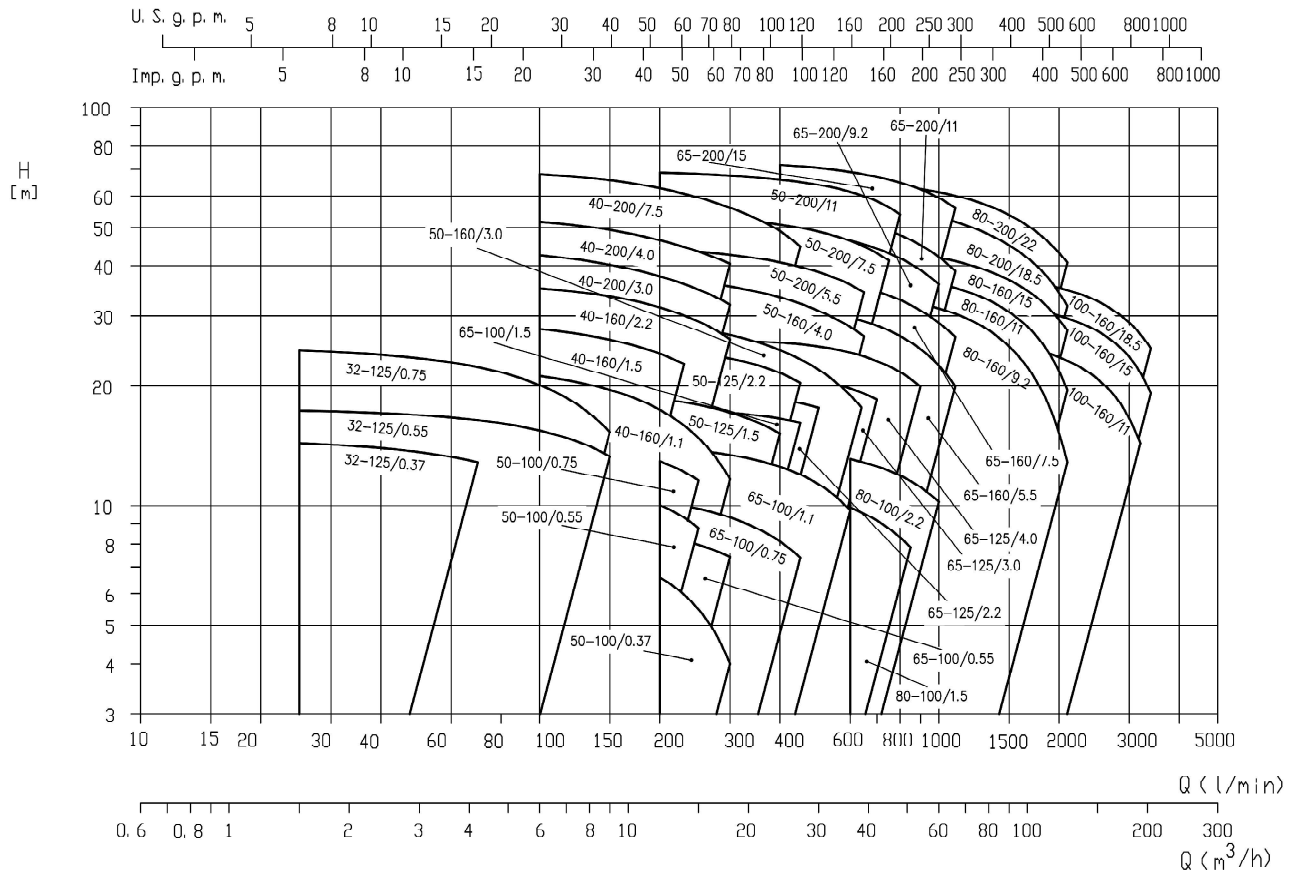
3E SERIES 100 SIZE

Pump type	kW	HP	Max.working pressure (MPa)	I/min	0	1300	1500	1700	1900	2100	2500	3000	3200	3400
				m³/h	0	78	90	102	114	126	150	180	192	204
100-160/11	11	15	1.6		30.0	26.3	25.7	24.9	24.1	23.1	20.8	16.6	14.3	—
100-160/15	15	20	1.6		34.8	32.7	32.0	31.3	30.4	29.6	27.4	23.6	21.6	19.2
100-160/18.5	18.5	25	1.6		39.2	37.5	37.0	36.4	35.7	34.8	32.6	28.8	27.0	24.9

PERFORMANCE RANGE 4 POLE



PERFORMANCE RANGE 2 POLE



MODEL VARIATION

Version		3E		3ES	
pole		2 pole	4 pole	2 pole	4 pole
Pump Size	32-125	◆	-	◆	-
	32-160	-	◆	-	-
	32-200	-	◆	-	◆
	40-100	-	-	-	-
	40-160	◆	◆	◆	-
	40-200	◆	◆	◆	◆
	50-100	◆	-	◆	-
	50-125	◆	◆	◆	-
	50-160	◆	◆	◆	◆
	50-200	◆	◆	◆	◆
	65-100	◆	-	◆	-
	65-125	◆	◆	◆	◆
	65-160	◆	◆	◆	◆
	65-200	◆	◆	◆	◆
	80-100	◆	-	◆	-
	80-125	-	-	-	-
	80-160	◆	◆	◆	◆
	80-200	◆	◆	◆	◆
	80-250	-	-	-	-
	100-160	◆	◆	◆	◆
	100-200	-	-	-	-
	100-250	-	-	-	-

BUILDING SERVICE

- ✓ Air conditioning-district heating & cooling
- ✓ HVAC system
- ✓ General water supply
- ✓ Hot water circulation
- ✓ Pressure boosting



WATER SUPPLY

- ✓ Water supply duties for municipalities
- ✓ Heat station
- ✓ Irrigation
- ✓ Drainage clean water
- ✓ Fire protection
- ✓ Swimming pool
- ✓ Pressure boosting



OEM

- ✓ Air conditioner
- ✓ Chilling unit
- ✓ Boiler
- ✓ Heat exchanger
- ✓ Coolant unit
- ✓ Water circulation unit



Energy-saving design

- ✓ Major improvement over our previous models by impeller designed using our proprietary 3D inverse design technology.
- ✓ Higher efficiency means lower energy consumption and motor output, and more compact size.

Easy installation and simple maintenance

- ✓ Alignment is not required.
- ✓ Back pull-out structure enables disassembly and inspection without removal of suction and discharge piping.
- ✓ Shield bearings eliminate need for adding or exchanging lubricating oil.
- ✓ Shaft seal flushing piping not required for the standard application.
- ✓ Air-bleeding not required.
- ✓ Simplified shaft seal and “O” ring body seal enable easy assembly.

Pump specifications & features

- ✓ Maximum operating pressure: 16 bar(*)
- ✓ Liquid temperature range expansion: -10°C to 120°C
- ✓ Back pull-out design
- ✓ ring casing seal

International standards

- ✓ Pump dimensions adopt EN733
- ✓ Mechanical seal adopts EN12756
- ✓ Protector fitted in accordance with EN294.
- ✓ Electric motor conforms to IEC60072-1 and IEC60034-1

(*) Several models are 1.0MPa