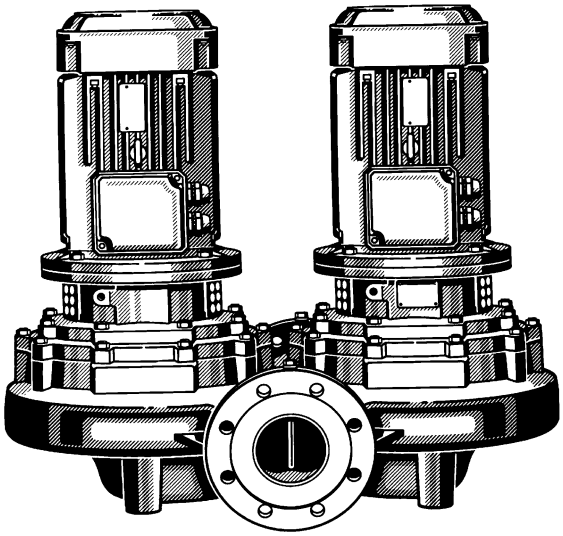
Etaline Z

In-line Twin Pumps



Fields of Application

- Heating systems
- Air-conditioning systems
- Cooling circuits
- Service water supply systems
- Water supply systems
- Industrial recirculation systems

Medium Handled

Liquids not chemically or mechanically aggressive to the pump materials (see list of media pumped on page 5).

Operating Data

Q	up to 620 m^3/h, 177 l/s	Single-pump operation
	up to 1120 m^3/h, 311 l/s	Parallel operation
H	up to 38 m	
t	–30 to +140 °C	
p_d	up to 16 bar [1])	

[1]) The sum of inlet pressure and shutoff head must not exceed the value indicated.

Designation

Etaline Z G N 65 - 250 / 40 4 . 1

- Type series
- Twin pump
- Material combination
- Standardised motor, stub shaft
- Pump size
  - Nom. dia. suction/discharge nozzle
  - Approx. impeller diameter
- Motor rating in kW x 10 (example: 4.0 kW)
- Number of poles
- Code for turned-down impeller

Design

Close-coupled in-line twin pump. Two separate centrifugal pump hydraulics in one pump casing, with a spring-loaded changeover flap located in the discharge nozzle.
The flap housing material of twin pump sizes DN 32 to DN 80 is Rilsan, from sizes DN 100 up to and including DN 200 bronze. The flaps, springs and axles etc. are made of chrome steel.
The mechanical seal chamber can be vented manually by means of integrated vent valves. Single-pump operation (one pump on standby) and parallel operation (additional pump start-up in case of peak load) can be selected as operating modes.
The associated switchgears, pump feet for vertical installation of the pump unit and blind flange for ensuring pump availability during servicing are documented as accessories.

Shaft Seal

Uncooled mechanical seal, for ex. silicon carbide/silicon carbide, special elastomers or EP rubber.
Other variants as indicated in the list of media pumped.

Materials

	Etaline Z; GN	**Etaline Z; MN**
Volute casing	Cast iron EN-GJL-250 [2])	Cast iron EN-GJL-250 [2])
Discharge cover	Cast iron EN-GJL-250 [2])	Grauguß EN-GJL-250 [2])
Impeller	Cast iron EN-GJL-250 [2])	Tin bronze
Casing wear rings	Cast iron EN-GJL [2])	Bronze
Shaft	Tempered steel C 45	Tempered steel C 45
Shaft sleeve	Chrome nickel molybdenum steel 1.4571	Chrome nickel molybdenum steel 1.4571
Motor stool	Cast iron EN-GJL [2])	Cast iron EN-GJL [2])

[2]) to EN 1561 (was GG-25)

Drive

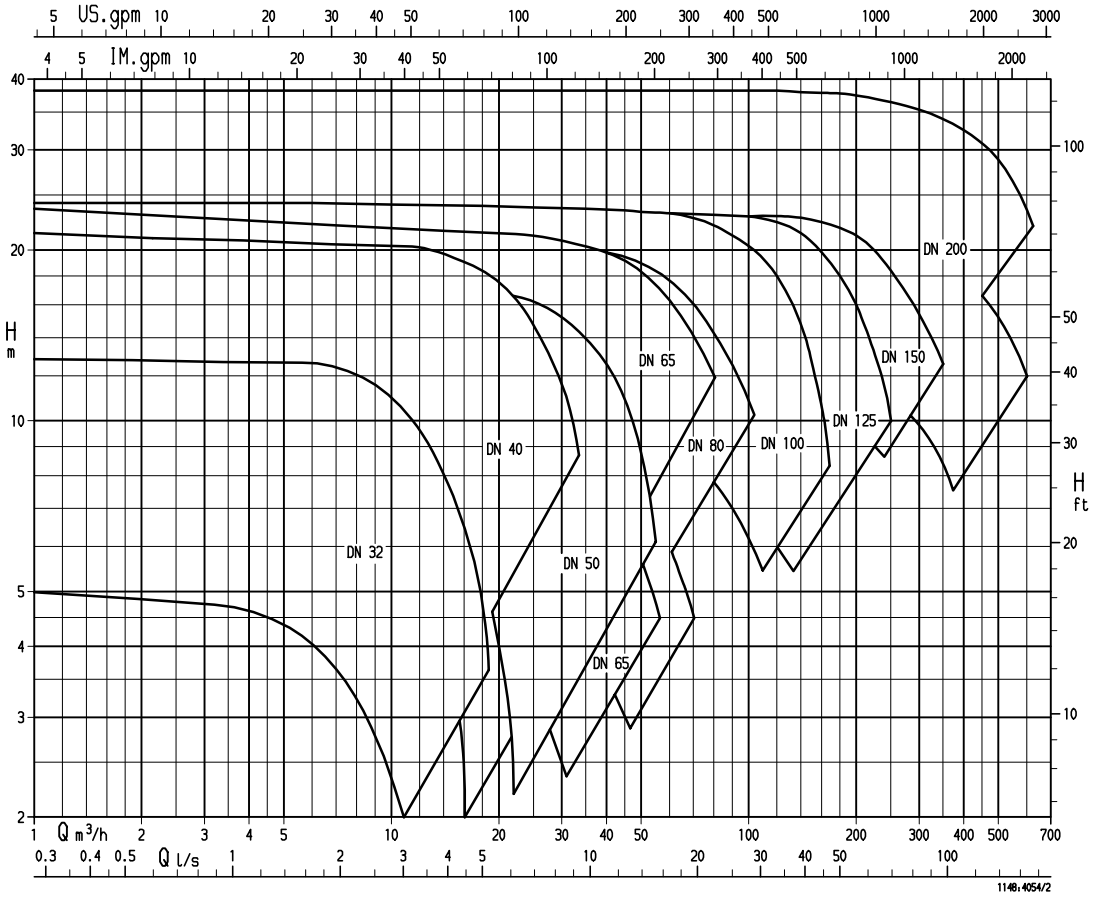
Totally enclosed, fan-cooled three-phase squirrel-cage motor, up to 2.2 kW 230/400 V, 3 kW and above 400/690 V, IP 55, insulation class F.

Bearings

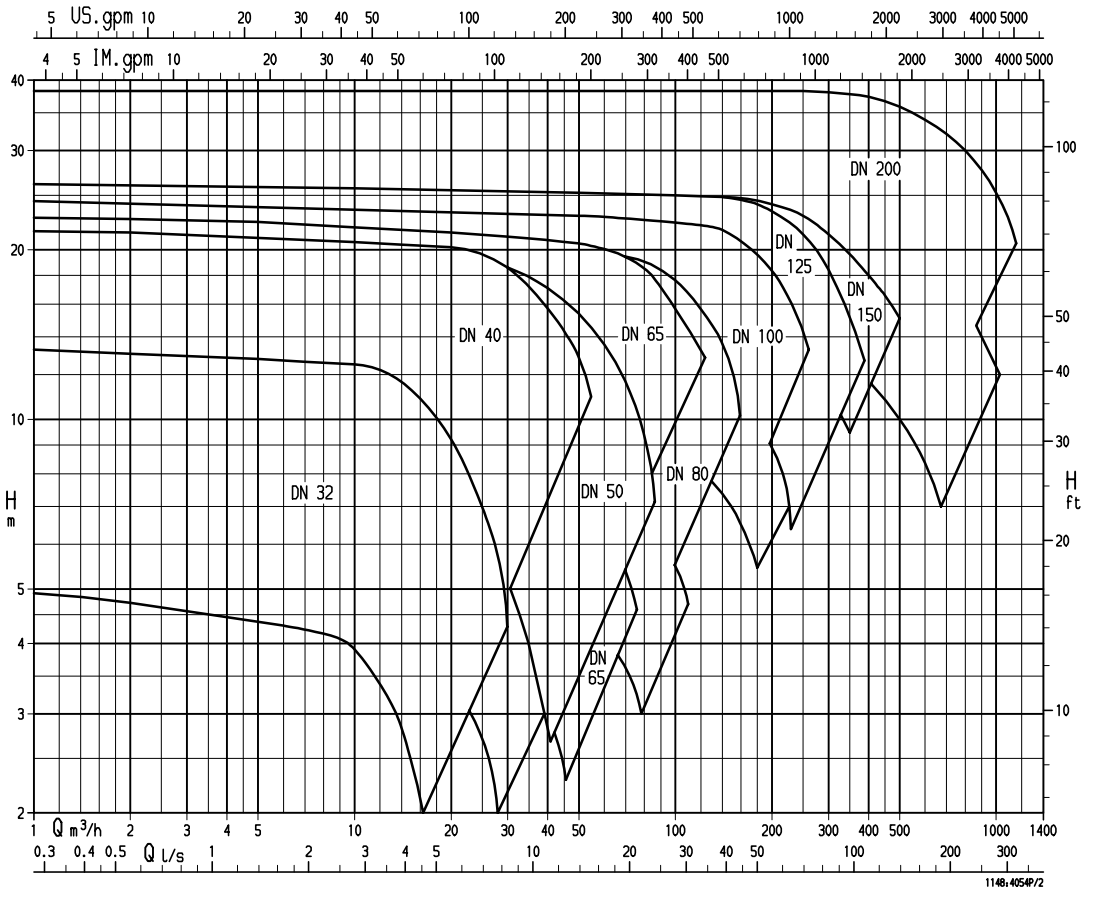
Grease-lubricated deep-groove ball bearings.

KSB

Selection Chart Etaline Z (for single-pump operation)



Selection Chart Etaline Z (for parallel operation)



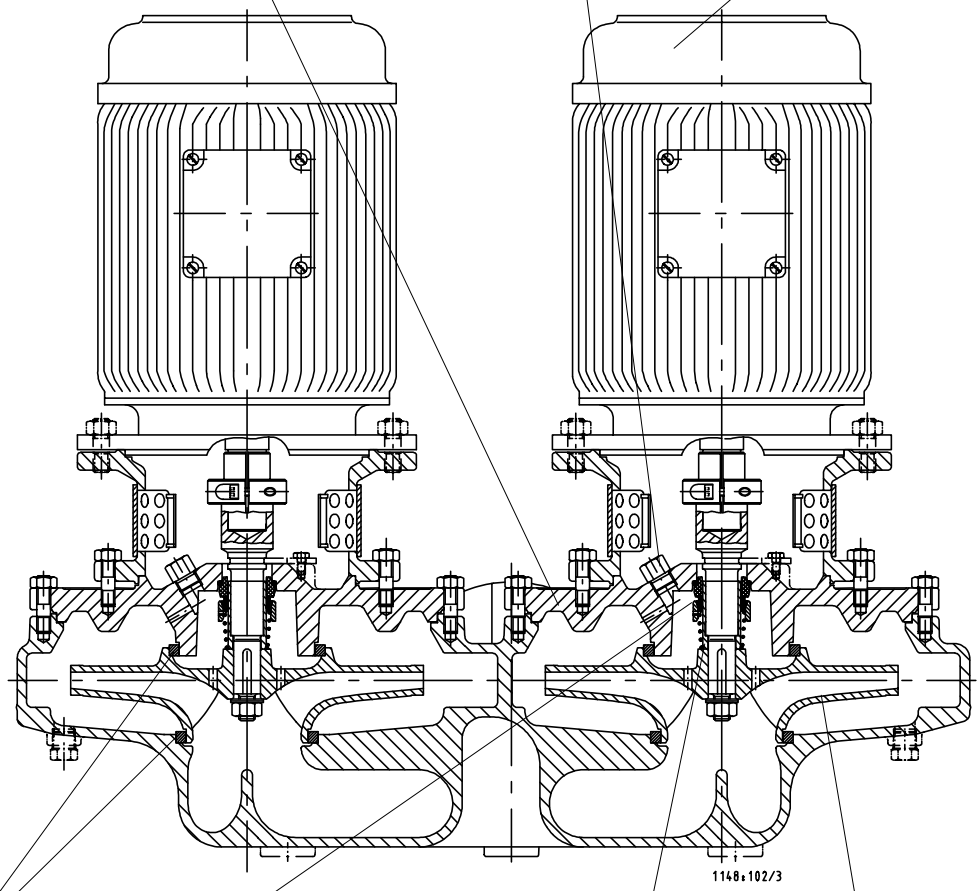
n ≈ 1450 1/min

Etaline Z	Motor		400V	Net weight
	Size	kW	≈A	≈kg
32-160/024	71	0.25	0.81	58
32-160/034.2	71	0.37	1.16	60
32-160/034.1	71	0.37	1.16	60
32-160/054	80	0.55	1.45	64
32-200/054	80	0.55	1.45	82
32-200/074.2	80	0.75	2.0	84
32-200/074.1	80	0.75	2.0	84
32-200/114	90 S	1.1	2.8	88
40-160/024	71	0.25	0.81	63
40-160/034.2	71	0.37	1.16	65
40-160/034.1	71	0.37	1.16	65
40-160/054	80	0.55	1.45	69
40-250/074.2	80 L	0.75	2.0	103
40-250/074.1	80 L	0.75	2.0	103
40-250/114.2	90 S	1.1	2.8	107
40-250/114.1	90 S	1.1	2.8	107
40-250/154.2	90 L	1.5	3.6	109
40-250/154.1	90 L	1.5	3.6	109
40-250/224.2	100 L	2.2	5.2	126
40-250/224.1	100 L	2.2	5.2	126
40-250/304	100 L	3.0	6.8	130
50-160/034.2	71	0.37	1.16	72
50-160/034.1	71	0.37	1.16	72
50-160/054.2	80	0.55	1.45	76
50-160/054.1	80	0.55	1.45	76
50-160/074.2	80	0.75	2.0	78
50-160/074.1	80	0.75	2.0	78
50-160/114	90 S	1.1	2.8	84
50-250/114	90 S	1.1	2.8	114
50-250/154.2	90 L	1.5	3.6	118
50-250/154.1	90 L	1.5	3.6	118
50-250/224.2	100 L	2.2	5.2	159
50-250/224.1	100 L	2.2	5.2	159
50-250/304	100 L	3.0	6.8	165
65-160/034	71	0.37	1.16	79
65-160/054.2	80	0.55	1.45	79
65-160/054.1	80	0.55	1.45	79
65-160/074.2	80	0.75	2.0	81
65-160/074.1	80	0.75	2.0	81
65-160/114.2	90 S	1.1	2.8	85
65-160/114.1	90 S	1.1	2.8	85
65-160/154	90 L	1.5	3.6	92
65-250/154.2	90 L	1.5	3.6	129
65-250/154.1	90 L	1.5	3.6	129
65-250/224.2	100 L	2.2	5.2	141
65-250/224.1	100 L	2.2	5.2	141
65-250/304.2	100 L	3.0	6.8	147
65-250/304.1	100 L	3.0	6.8	147
65-250/404.2	112 M	4.0	9.0	161
65-250/404.1	112 M	4.0	9.0	161
65-250/554	132 S	5.5	11.4	177
80-160/074.2	80	0.75	2.0	68
80-160/074.1	80	0.75	2.0	68
80-160/114.2	90 S	1.1	2.8	70
80-160/114.1	90 S	1.1	2.8	70
80-160/154	90 L	1.5	3.6	72
80-250/224.2	100 L	2.2	5.2	133
80-250/224.1	100 L	2.2	5.2	133
80-250/304.2	100 L	3.0	6.8	136
80-250/304.1	100 L	3.0	6.8	136
80-250/404.2	112 M	4.0	9.0	148
80-250/404.1	112 M	4.0	9.0	148
80-250/554	132 S	5.5	11.4	164

Etaline Z	Motor			400V	Net weight
	Size	Weight ≈kg	kW	≈A	≈kg
100-200/224	100 L	22	2.2	5.2	203
100-200/304.2	100 L	24	3.0	6.8	207
100-200/304.1	112 M	24	3.0	6.8	207
100-200/404.2	112 M	29	4.0	9.0	217
100-200/404.1	112 M	29	4.0	9.0	217
100-200/554	132 S	42	5.5	11.4	243
100-250/404	112 M	29	4.0	9.0	246
100-250/554.3	132 S	42	5.5	11.4	272
100-250/554.2	132 S	42	5.5	11.4	272
100-250/554.1	132 S	42	5.5	11.4	272
100-250/754.2	132 M	53	7.5	15.4	300
100-250/754.1	132 M	53	7.5	15.4	300
100-250/1104	160 M	73	11.0	22.1	354
125-200/224	100 L	22	2.2	5.2	239
125-200/304.2	100 L	24	3.0	6.8	243
125-200/304.1	100 L	24	3.0	6.8	243
125-200/404.2	112 M	29	4.0	9.0	253
125-200/404.1	112 M	29	4.0	9.0	253
125-200/554.2	132 S	42	5.5	11.4	279
125-200/554.1	132 S	42	5.5	11.4	279
125-200/754	132 M	53	7.5	15.4	307
125-250/404	112 M	29	4.0	9.0	290
125-250/554	132 S	42	5.5	11.4	316
125-250/754.3	132 M	53	7.5	15.4	338
125-250/754.2	132 M	53	7.5	15.4	338
125-250/754.1	132 M	53	7.5	15.4	338
125-250/1104.2	160 M	73	11.0	22.1	378
125-250/1104.1	160 M	73	11.0	22.1	378
125-250/1504	160 L	90	15.0	28.5	410
150-250/754.2	132 M	53	7.5	15.4	440
150-250/754.1	132 M	53	7.5	15.4	440
150-250/1104.3	160 M	73	11.0	22.1	480
150-250/1104.2	160 M	73	11.0	22.1	480
150-250/1104.1	160 M	73	11.0	22.1	480
150-250/1504.2	160 L	90	15.0	28.5	514
150-250/1504.1	160 L	90	15.0	28.5	514
150-250/1854	180 M	112	18.5	35.0	558
200-250/1104	160 M	73	11.0	22.1	480
200-250/1504.3	160 L	90	15.0	28.5	554
200-250/1504.2	160 L	90	15.0	28.5	554
200-250/1504.1	160 L	90	15.0	28.5	554
200-250/1854.2	180 M	112	18.5	35.0	752
200-250/1854.1	180 M	112	18.5	35.0	752
200-250/2204.2	180 L	126	22.0	41.0	780
200-250/2204.1	180 L	126	22.0	41.0	780
200-250/3004	200 L	170	30.0	55.0	868
200-315/3004.3	200 L	170	30.0	55.0	868
200-315/3004.2	200 L	170	30.0	55.0	868
200-315/3004.1	200 L	170	30.0	55.0	868
200-315/3704.3	225 S	300	37.0	67.0	1128
200-315/3704.2	225 S	300	37.0	67.0	1128
200-315/3704.1	225 S	300	37.0	67.0	1128
200-315/4504.2	225 M	330	45.0	80.0	1188
200-315/4504.1	225 M	330	45.0	80.0	1188
200-315/5504	250 M	435	55.0	97.0	1398

Etaline Z - GN with bolted-on discharge cover

In-line design for easy installation and simple piping layout



Pressure boundary designed for 16 bar to achieve high operating reliability

Venting nozzle in order to avoid dry-running of the mechanical seal

Standardised motor for all voltages and frequencies, 4-pole design

Service-friendly **casing wear rings**

Mechanical seal, uncooled and maintenance-free

Service-friendly **shaft sleeve** of chrome nickel molybdenum steel

Impeller with optimised hydraulics, excellent efficiency

Media Pumped

Medium pumped	Application limits	Casing/impeller materials		Shaft seal Mechanical seal				**Variant code**	Comments
		Cast iron/ Cast iron	Cast iron/ Tin bronze	U3BEGG	U3U3X4GG	Q1Q1X4GG	BQ1EGG		
		GN	MN	6	9	10	11		
Water [1]									
Service water	t ≤ 110 °C, p ≤ 10 bar	□				□		**GN 10**	
Heating water [4]	t ≤ 120 °C, p ≤ 10 bar	■					■	**GN 11**	If used as circulating pump according to DIN 4752; p_{max} ≤10 bar
Heating water [4]	t ≤ 140 °C, p ≤ 16 bar	■		■				**GN 6**	
Heating water [4]	t ≤ 110 °C, p ≤ 10 bar	□				□		**GN 10**	
Condensate [3]	t ≤ 120 °C, p ≤ 10 bar	■					■	**GN 11**	Provide open-loop circuit MN 11 (processing via product number)
Cooling water (without antifreeze agent)	t ≤ 60 °C, p ≤ 10 bar	□				□		**GN 10**	Provide open-loop circuit MN 10
Cooling water pH value ≥7.5 (with antifreeze agent) [2]	t ≥ -30 °C, p ≤ 10 bar t ≤ 110 °C	■					■	**GN 11**	
Slightly contaminated water	t ≤ 60 °C, p ≤ 10 bar	□				□		**GN 10**	
Clean water [3]	t ≤ 60 °C, p ≤ 10 bar	■					■	**GN 11**	
Untreated water	t ≤ 60 °C, p ≤ 10 bar	□				□		**GN 10**	
Swimming pool water, fresh water	t ≤ 60 °C, p ≤ 10 bar	□				□		**GN 10**	In case of requirements as per DIN 19 643, provide MN 10 (processing via product number)
Drinking water	t ≤ 60 °C, p ≤ 10 bar		□				□	**MN 11**	
Partly desalinated water	t ≤ 120 °C, p ≤ 10 bar	■					■	**GN 11**	
Refrigerants, cooling brines									
Cooling brine, anorganic pH ≥7.5, inhibited	t ≥ -30 °C, p ≤ 10 bar t ≤ 25 °C	■					■	**GN 11**	
Water with antifreeze agent pH ≥7.5 [2]	t ≥ -30 °C, p ≤ 10 bar t ≤ 110 °C	■					■	**GN 11**	
Oils / emulsions									
Boring/grinding emulsion	t ≤ 60 °C, p ≤ 10 bar	□			□			**GN 9**	
Oil/water emulsion	t ≤ 60 °C, p ≤ 10 bar	□			□			**GN 9**	
Cleaning agents									
Degreasing/cleaning solutions pH 7 to 14	t ≤ 90 °C, p ≤ 10 bar	□				□		**GN 10**	
Bottle rinsing lyes	t ≤ 90 °C, p ≤ 10 bar	□				□		**GN 10**	

■ = Standard □ = Prices and delivery times upon request

Example:
Given:
Clean water of 20 °C; Q = 40 m^3/h, H = 20 m
Found: Etaline Z GN 65-250/404.1 GN 11

Pump size as per selection chart

Variant code

G = pump casing and impeller made of EN-GJL-250 [5]
N = stub shaft variant with standardised motor
11 = mechanical seal materials BQ1EGG (as per DIN 24 960)

[1] General evaluation criteria for water analysis: pH value ≥ 7; content of chlorides (Cl') ≤ 250 mg/kg, chlorine (Cl_2) ≤ 0.6 mg/kg.
[2] Antifreeze agent on ethylene glycol basis with inhibitors. Content >20 to 50% (for example, Antifrogen N)
[3] No ultrapure water: conductivity at 25 °C: ≤800 µS/cm, neutral as to chemical corrosion
[4] For heating water we recommend application of the VDI 2035 or Vd TÜV 1466 standards, otherwise a reduced service life of the mechanical seal may be the consequence.

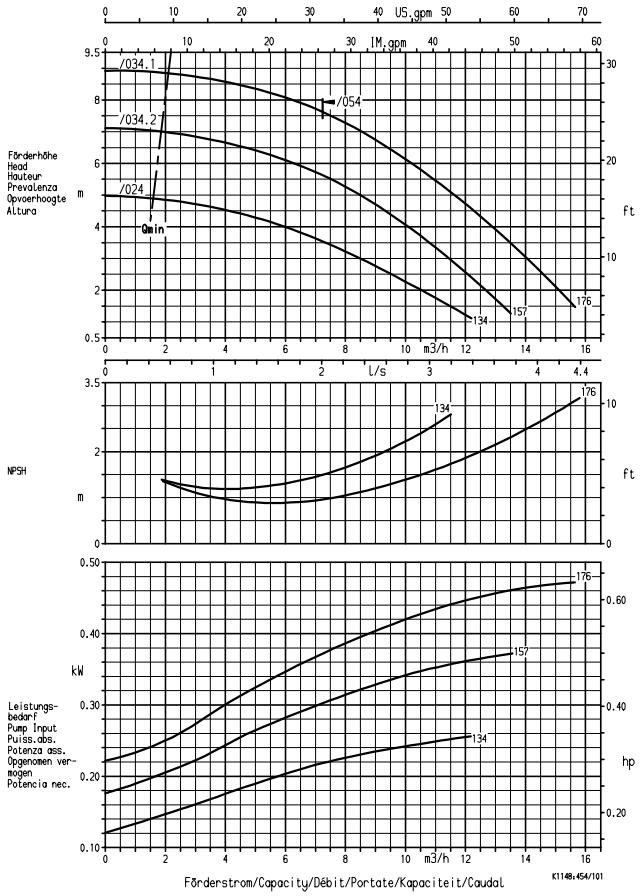
Mechanical seal material codes:
U3 = tungsten carbide
B = carbon, synthetic resin impregnated
Q1 = silicon carbide
G = CrNiMo steel
X4 = special elastomer
E = EP rubber

[5] to EN 1561 (was GG-25)

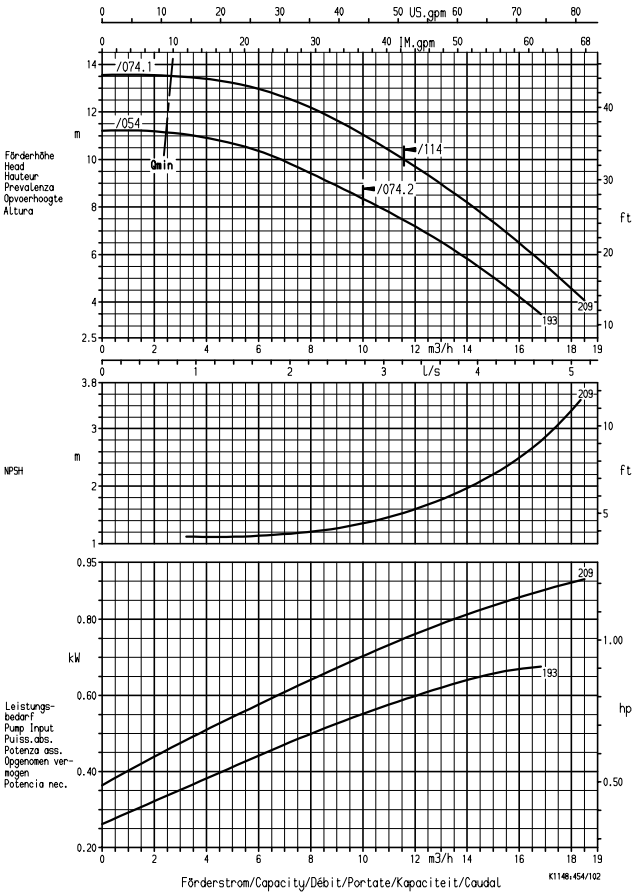
Single-pump operation

n ≈ 1450 1/min

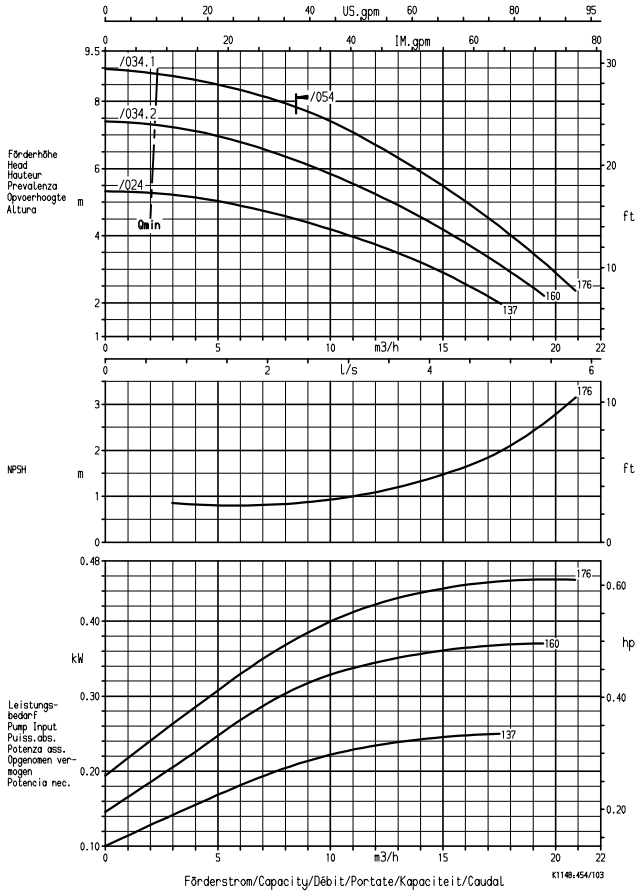
Etaline Z 32-160



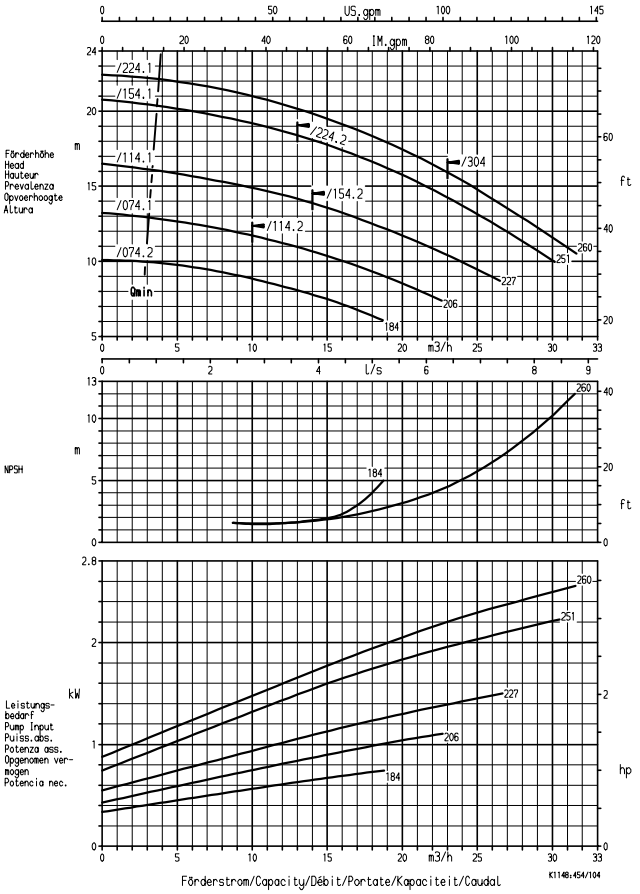
Etaline Z 32-200



Etaline Z 40-160



Etaline Z 40-250

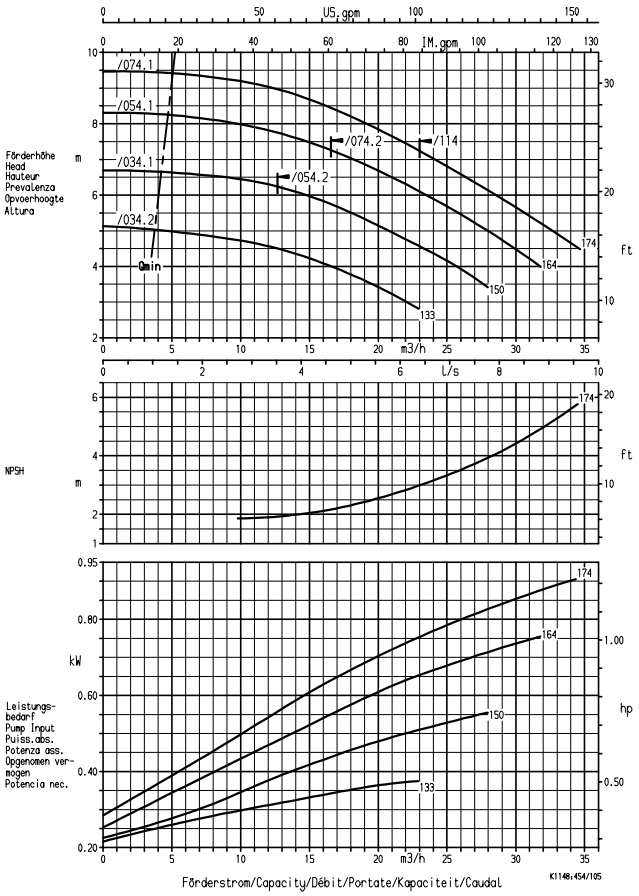


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

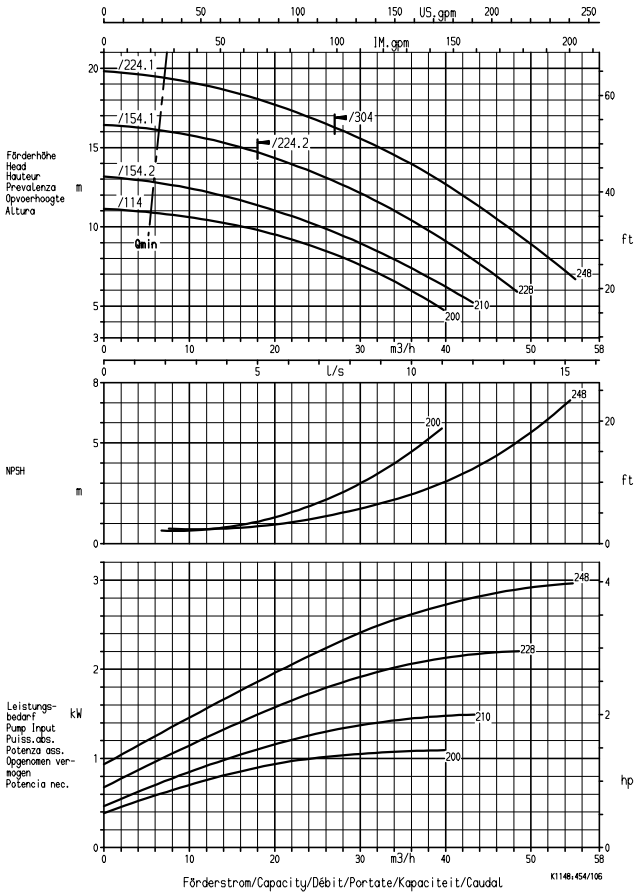
Single-pump operation

n ≈ 1450 1/min

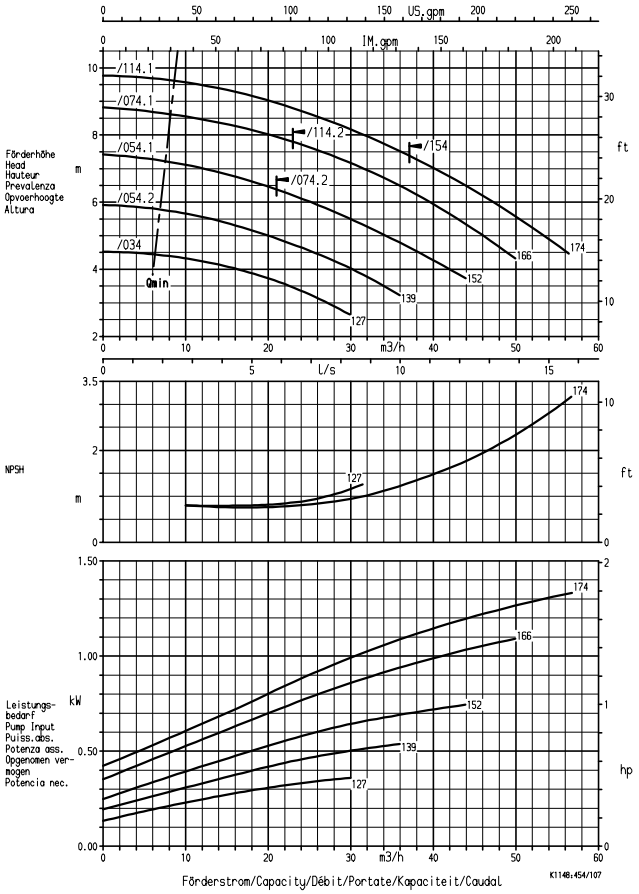
Etaline Z 50-160



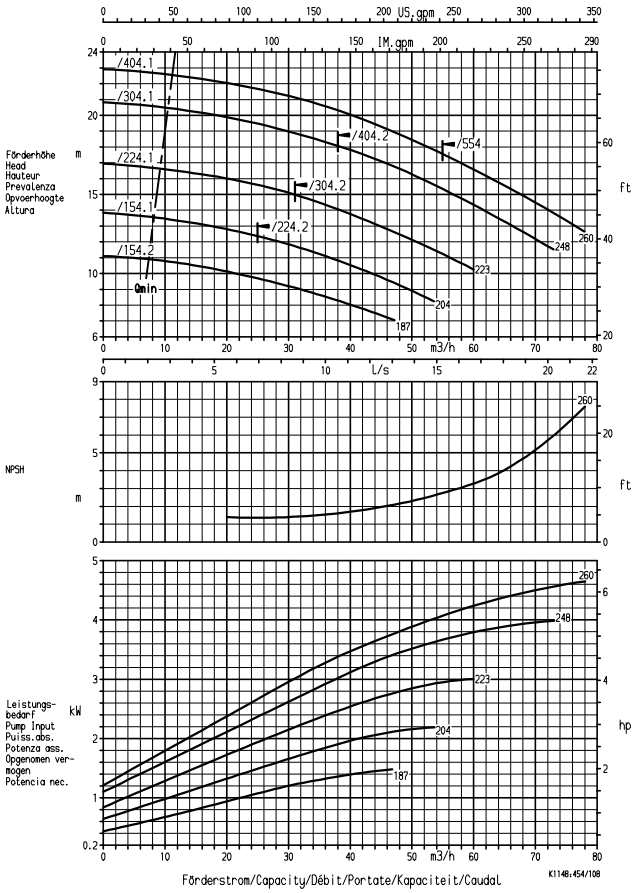
Etaline Z 50-250



Etaline Z 65-160



Etaline Z 65-250

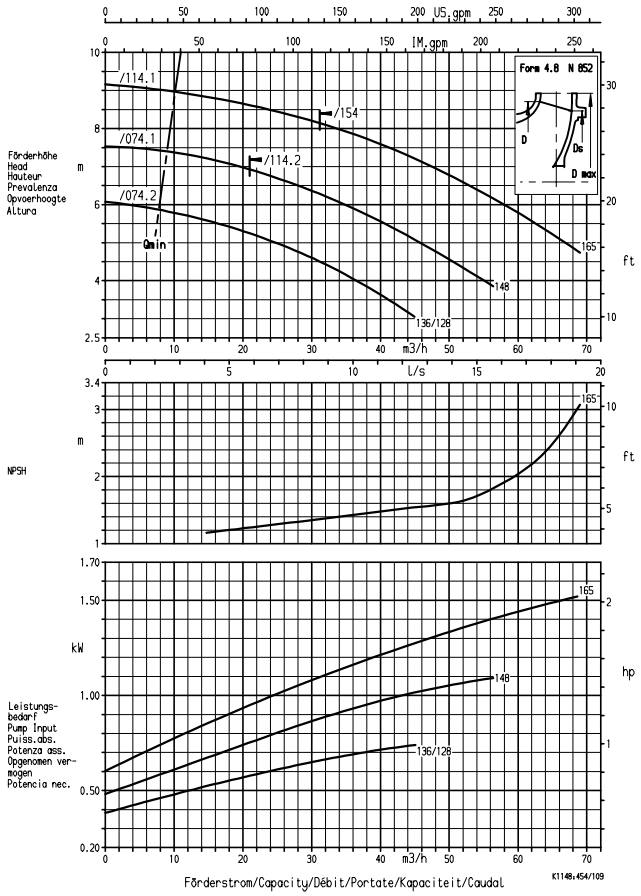


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

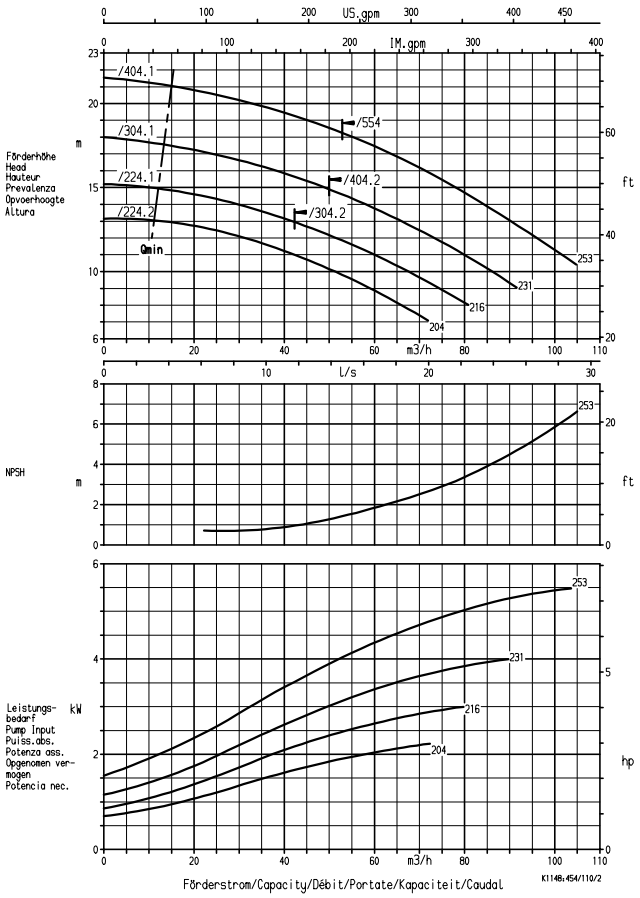
Single-pump operation

n ≈ 1450 1/min

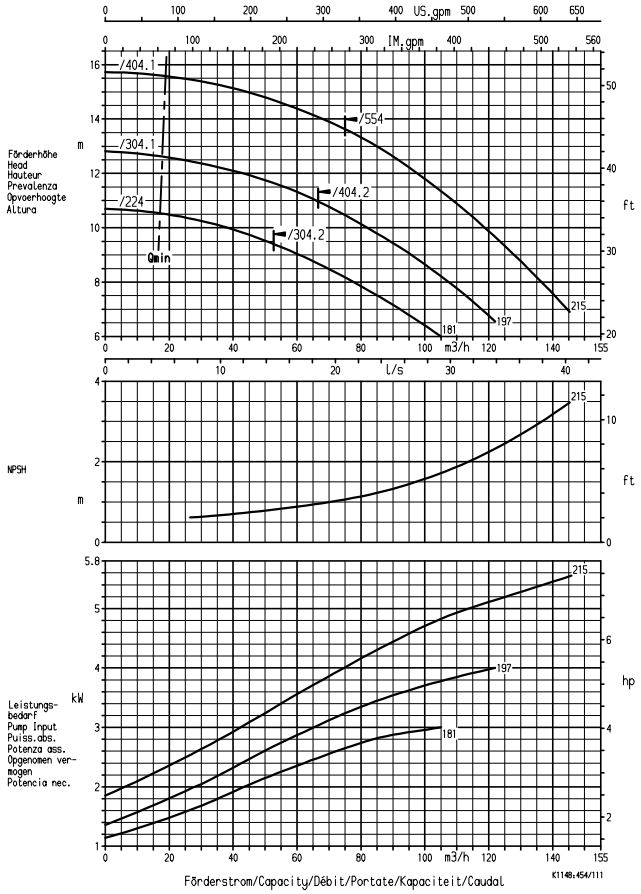
Etaline Z 80-160



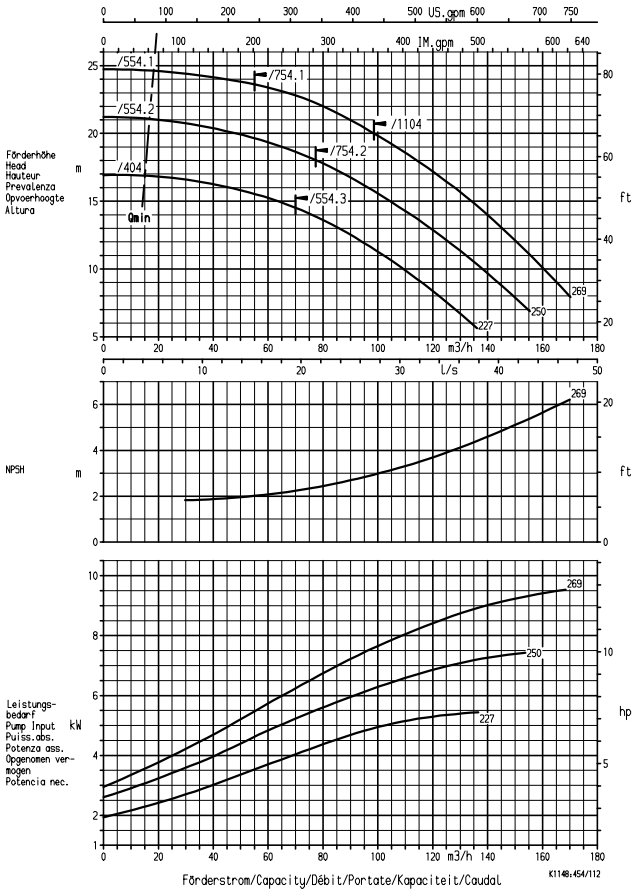
Etaline Z 80-250



Etaline Z 100-200



Etaline Z 100-250

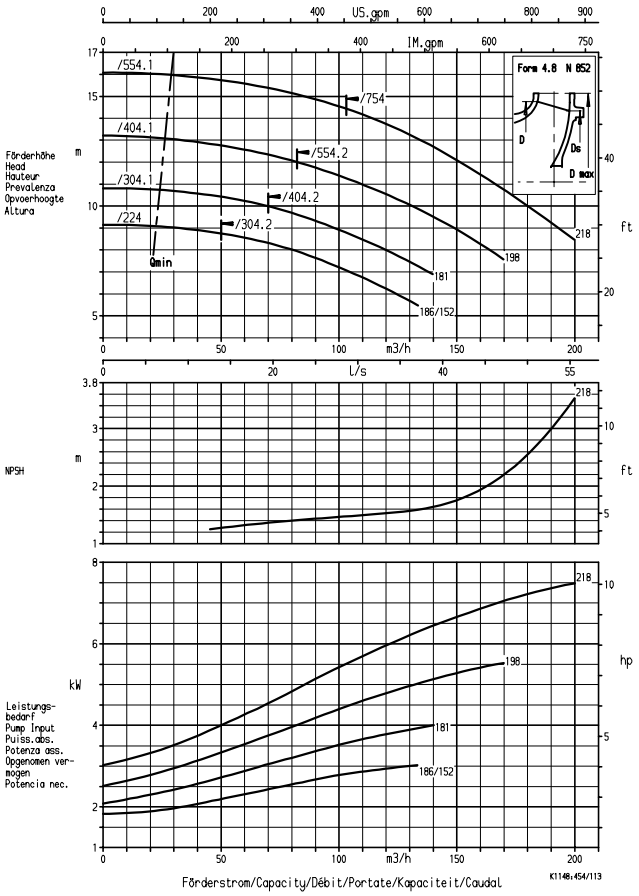


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

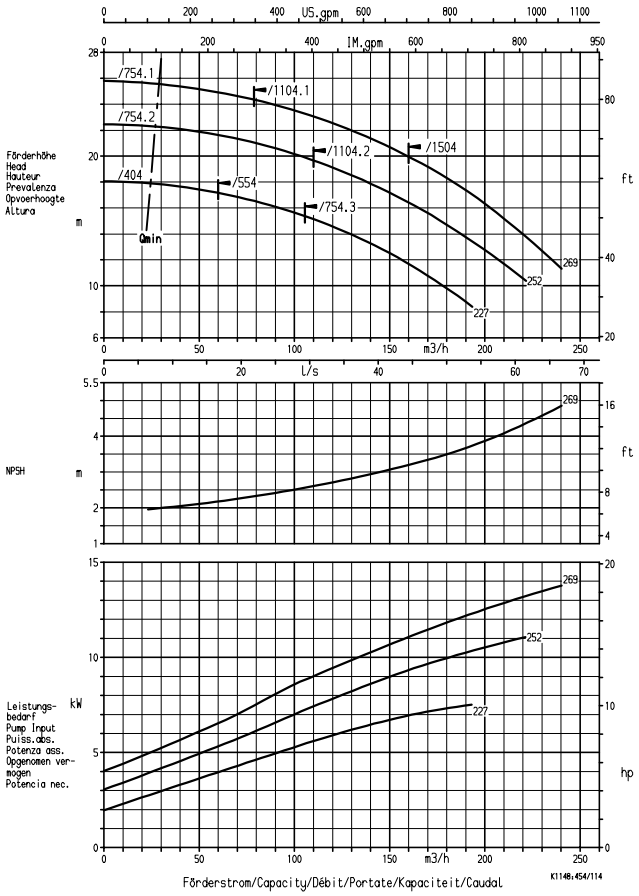
Single-pump operation

n ≈ 1450 1/min

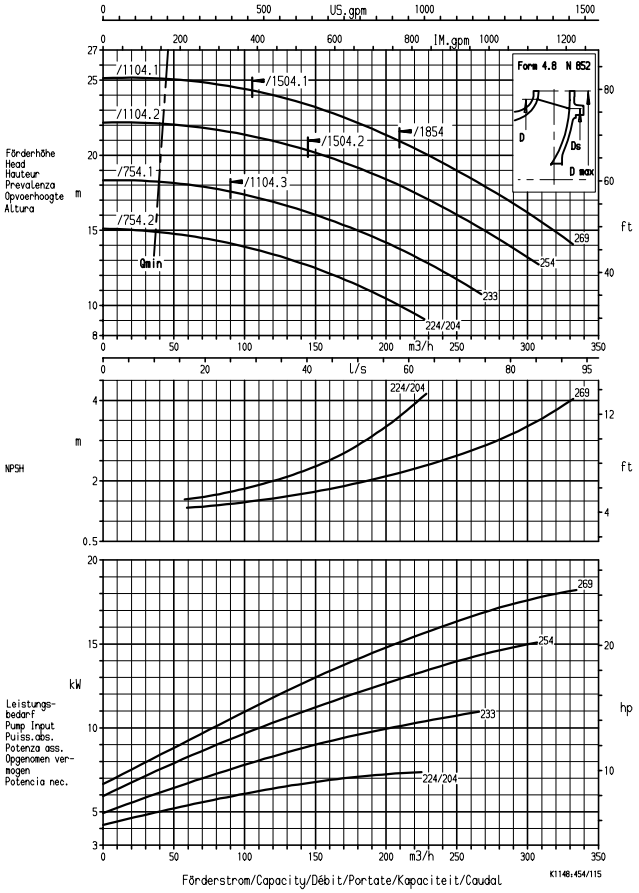
Etaline Z 125-200



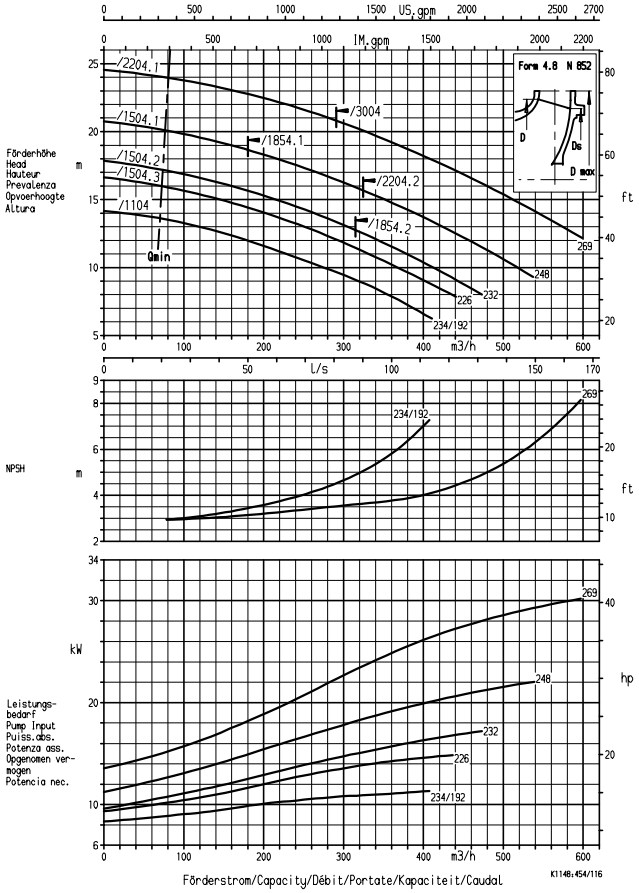
Etaline Z 125-250



Etaline Z 150-250



Etaline Z 200-250

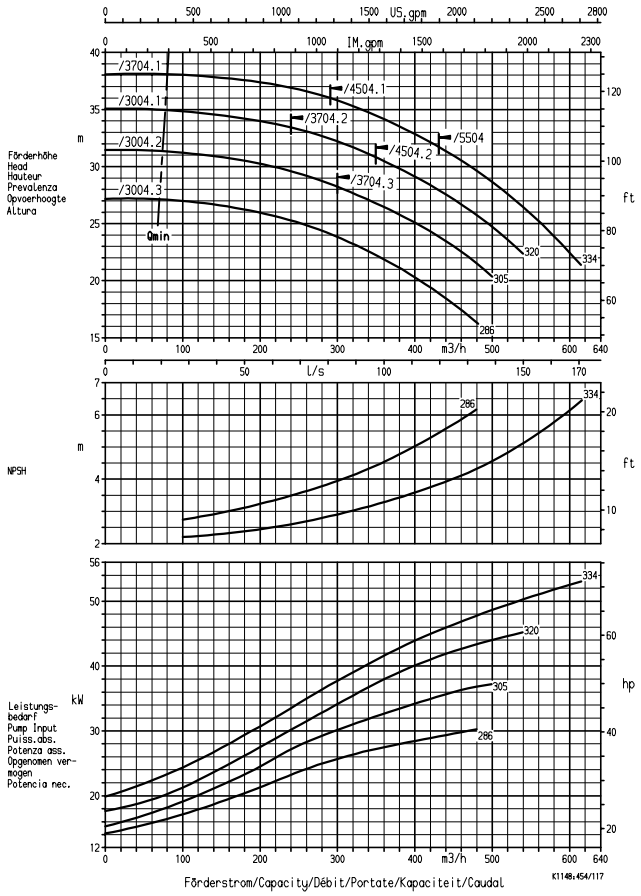


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

Single-pump operation

n ≈ 1450 1/min

Etaline Z 200-315

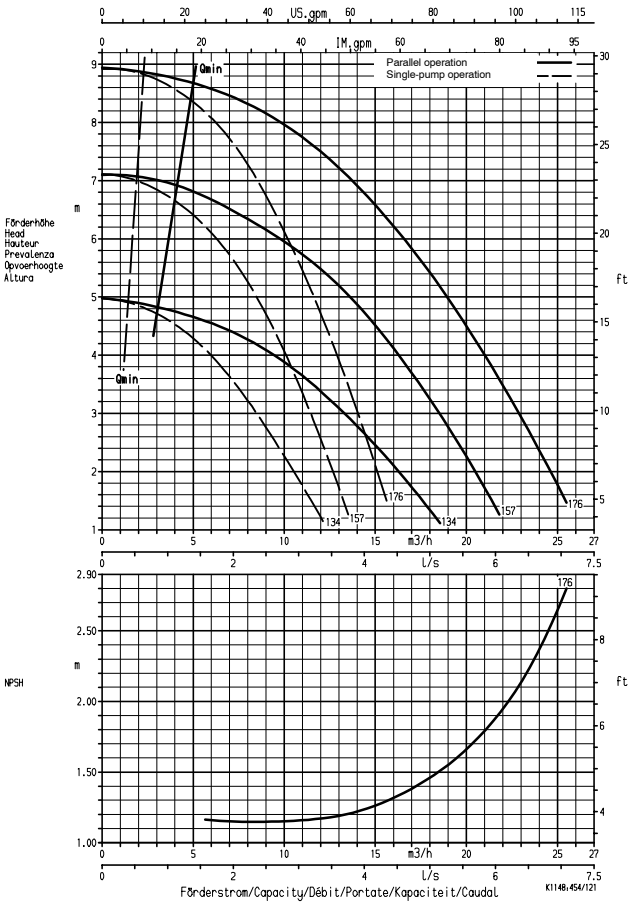


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

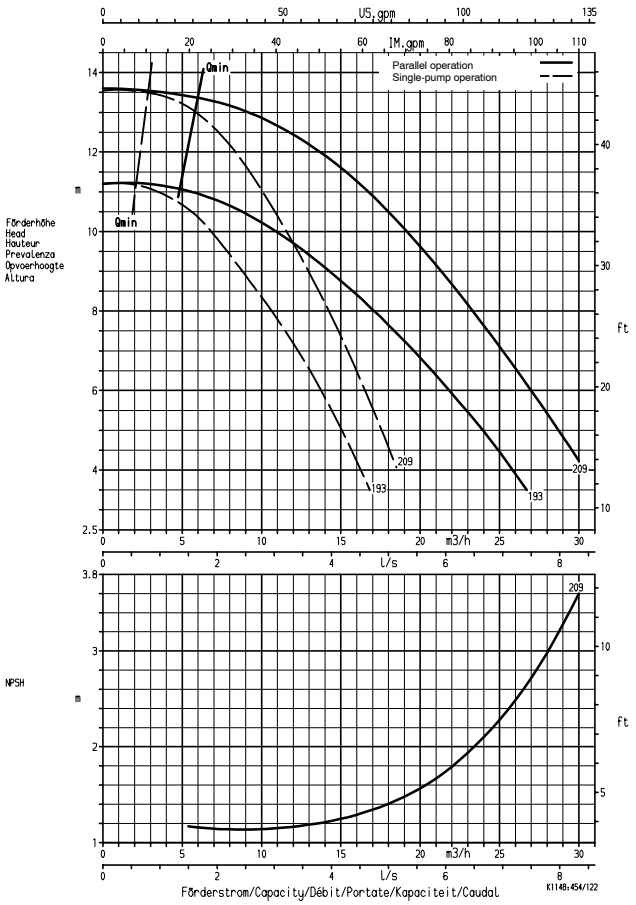
Parallel operation

n ≈ 1450 1/min

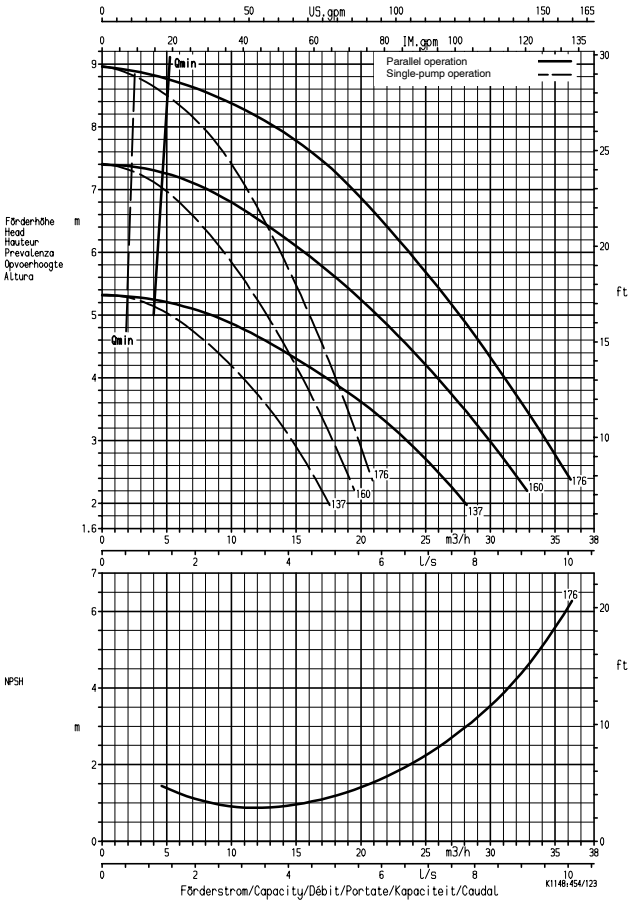
Etaline Z 32-160



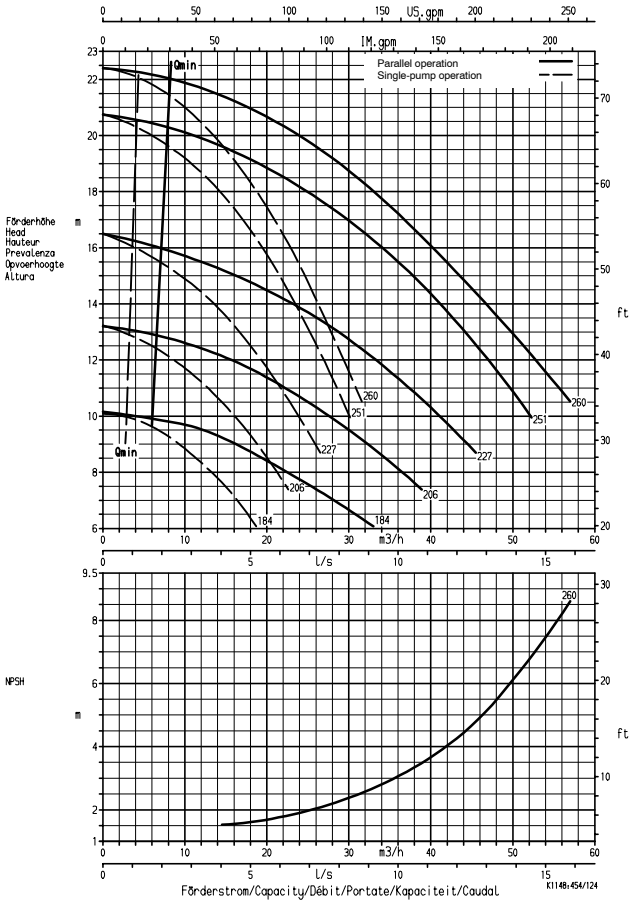
Etaline Z 32-200



Etaline Z 40-160



Etaline Z 40-250

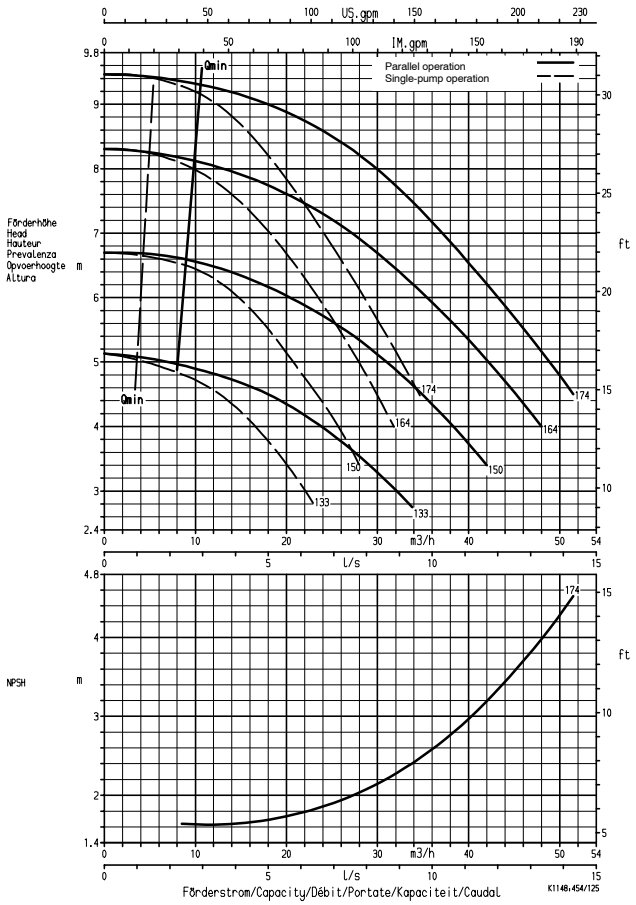


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

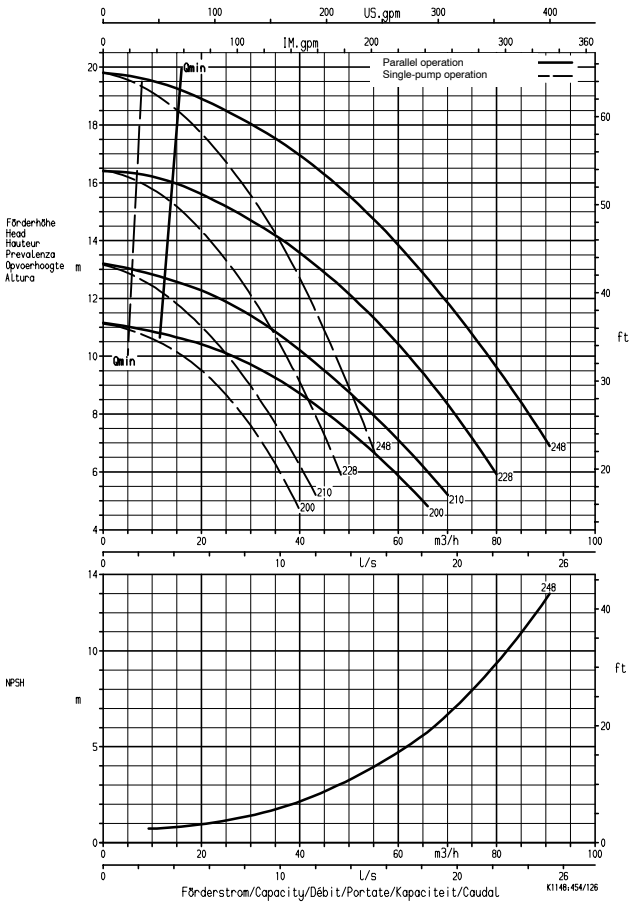
Parallel operation

n ≈ 1450 1/min

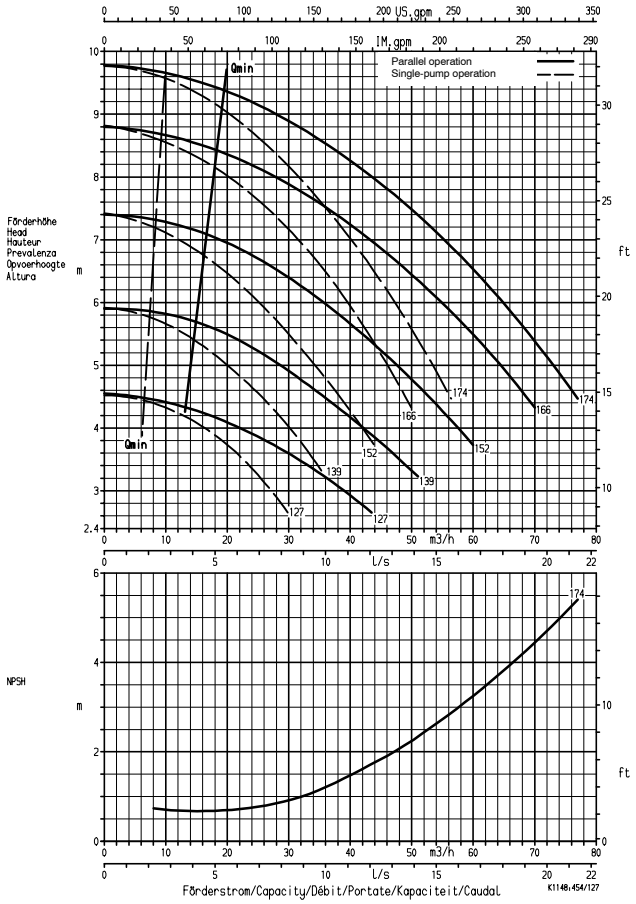
Etaline Z 50-160



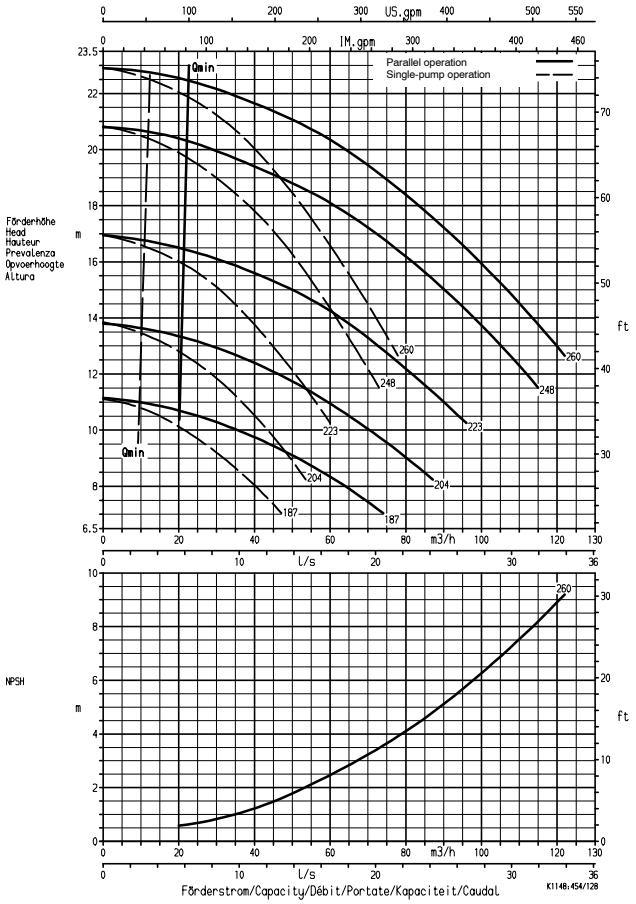
Etaline Z 50-250



Etaline Z 65-160



Etaline Z 65-250

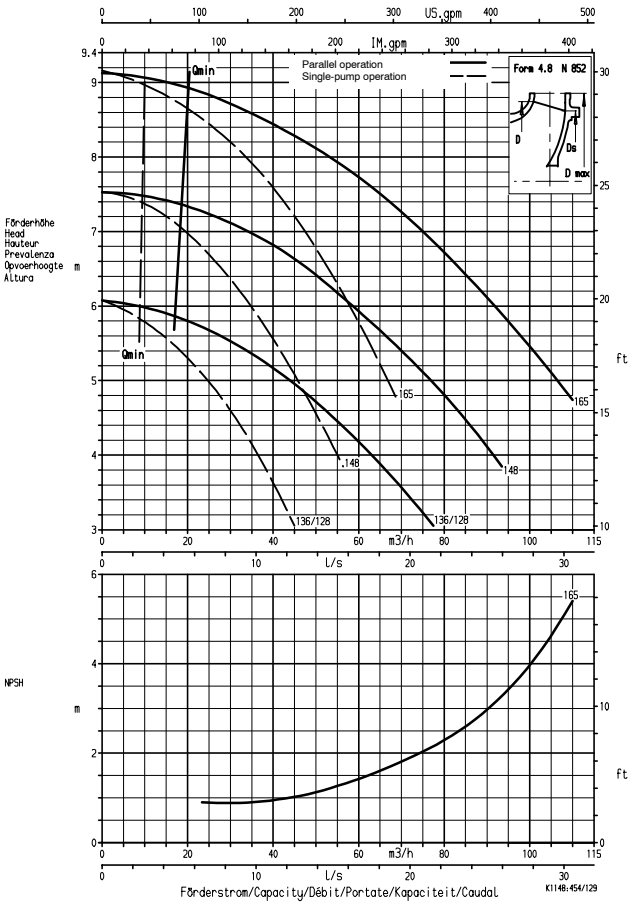


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

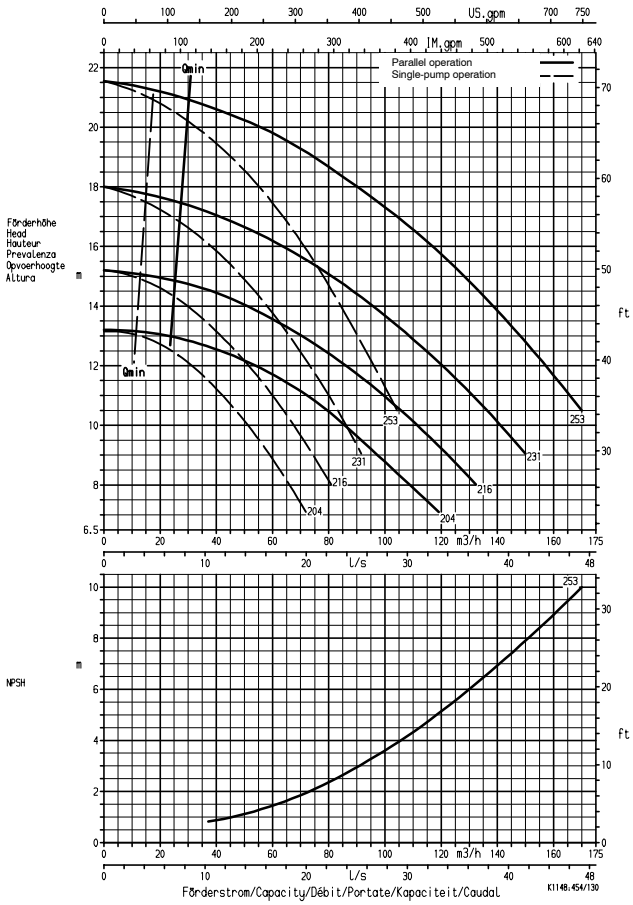
Parallel operation

n ≈ 1450 1/min

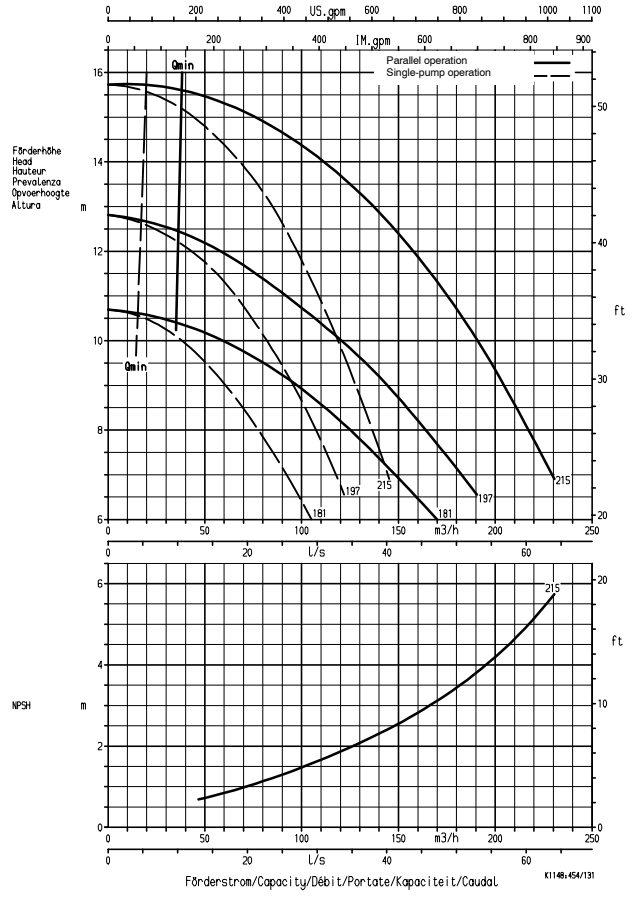
Etaline Z 80-160



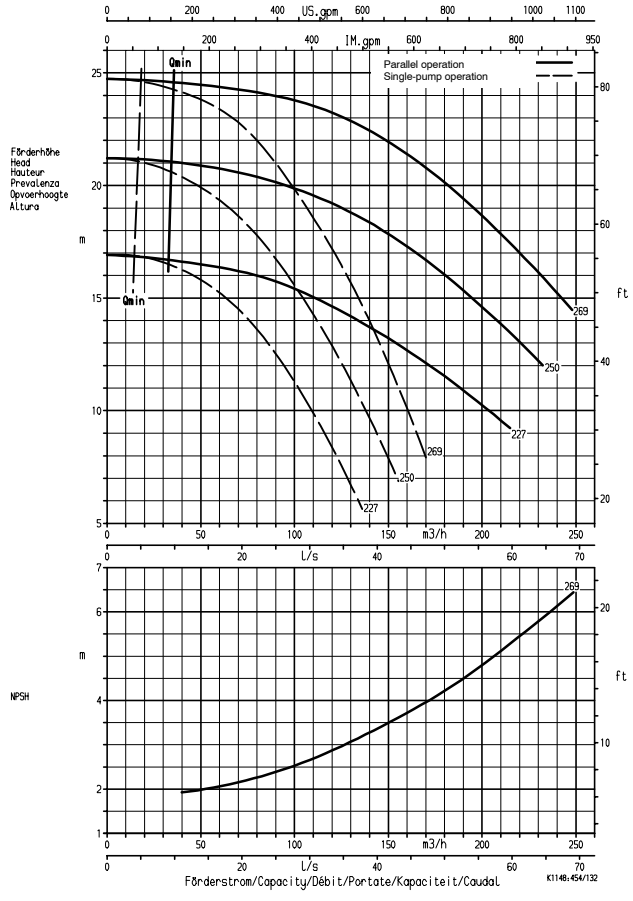
Etaline Z 80-250



Etaline Z 100-200



Etaline Z 100-250

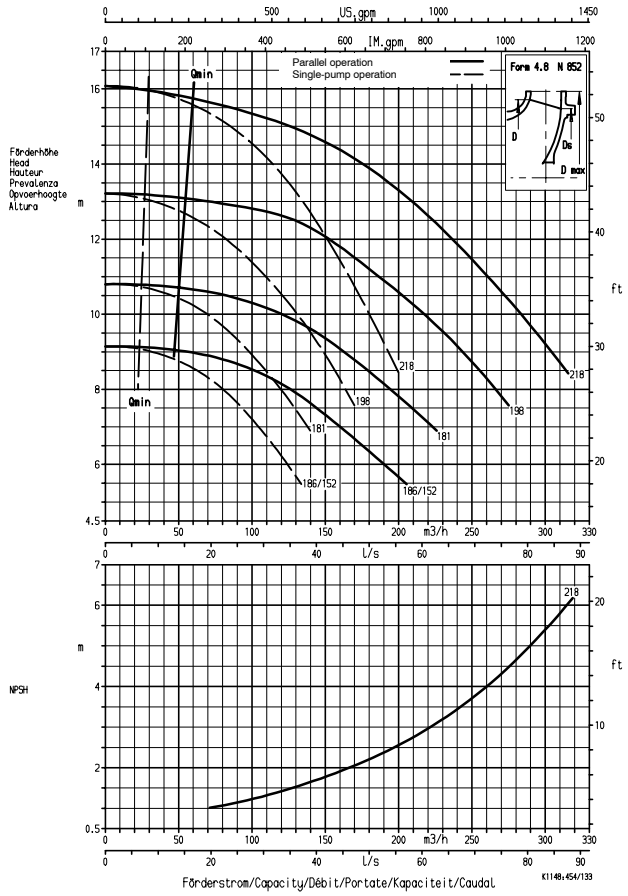


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

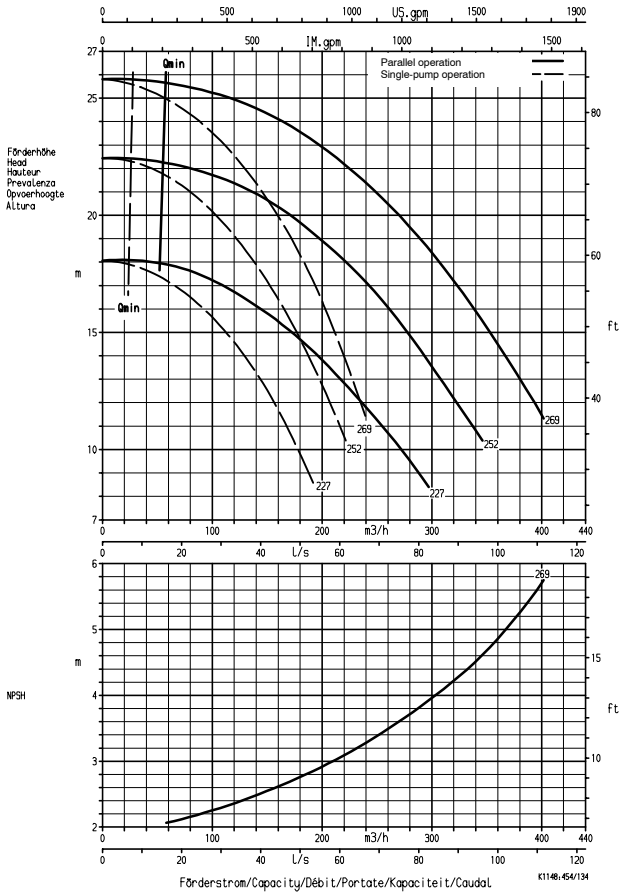
Parallel operation

n ≈ 1450 1/min

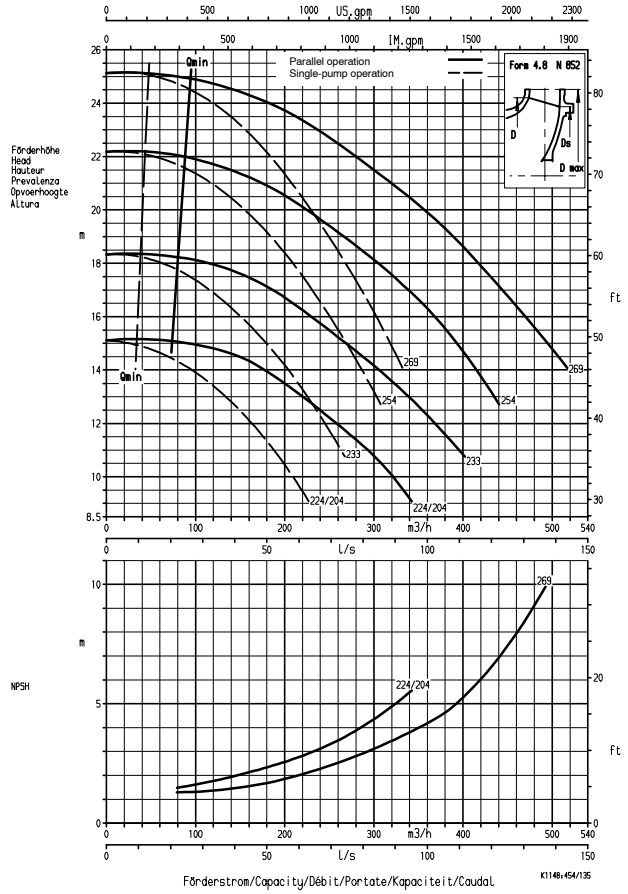
Etaline Z 125-200



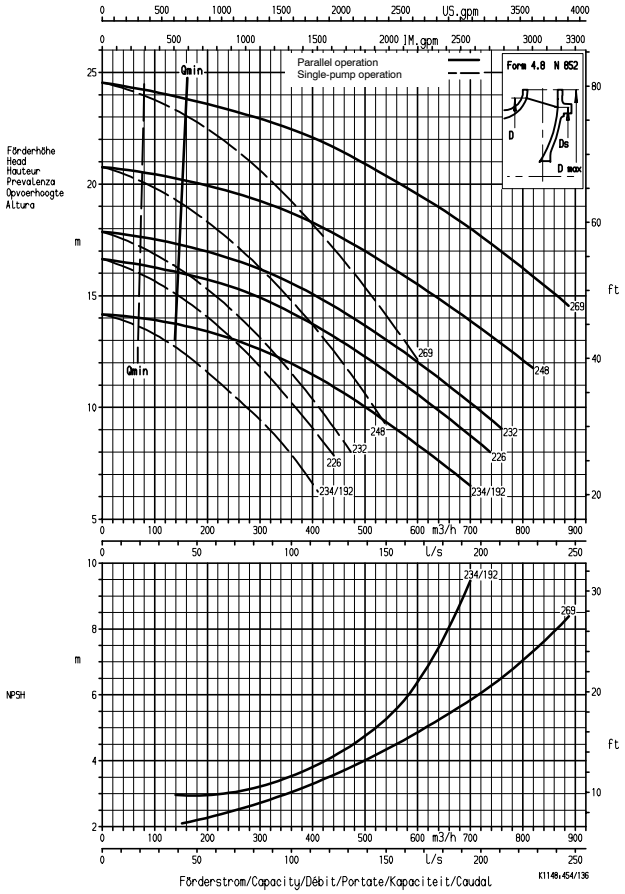
Etaline Z 125-250



Etaline Z 150-250



Etaline Z 200-250

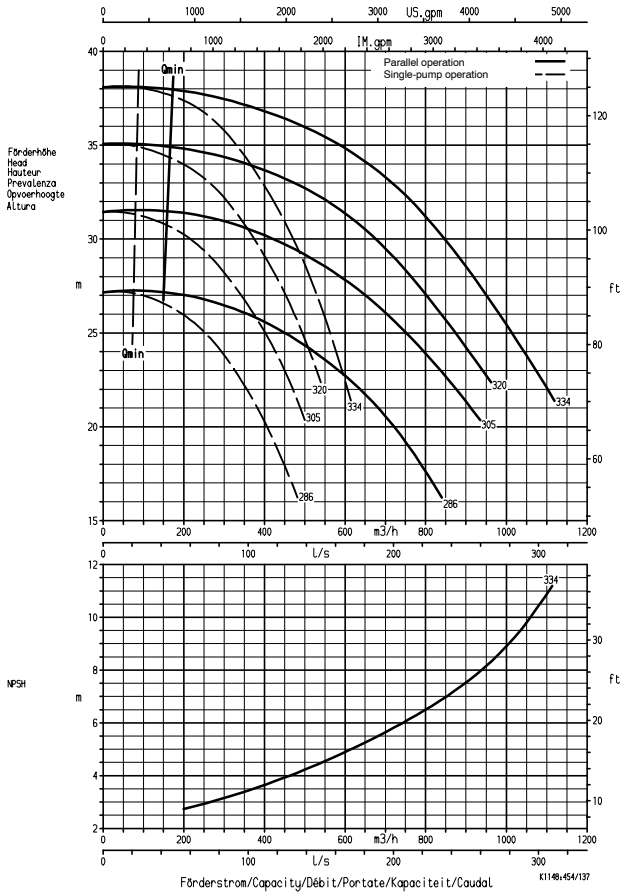


NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

Parallel operation

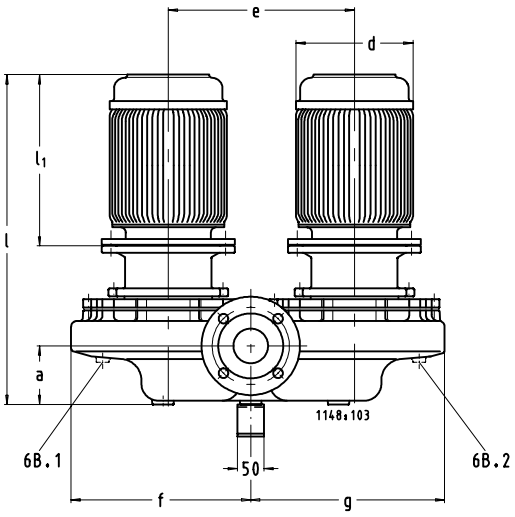
n ≈ 1450 1/min

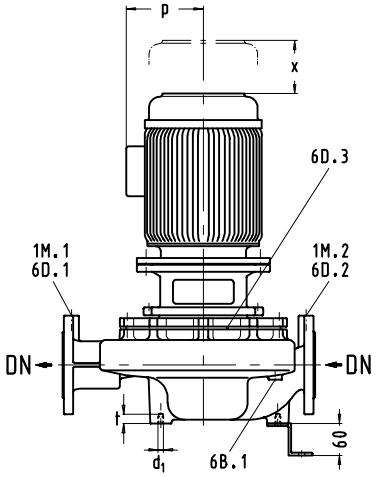
Etaline Z 200-315

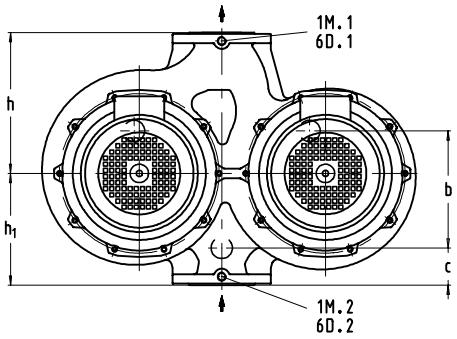


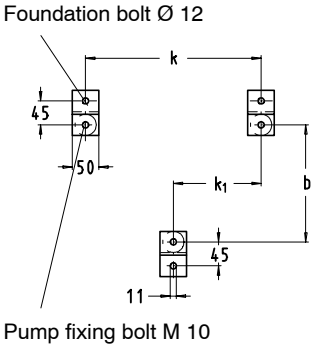
NPSH + 0,5 m Sicherheitszuschlag / safety margin / marge de sécurité / margine di sicurezza / zekerheidsmarge

n ≈ 1450 1/min







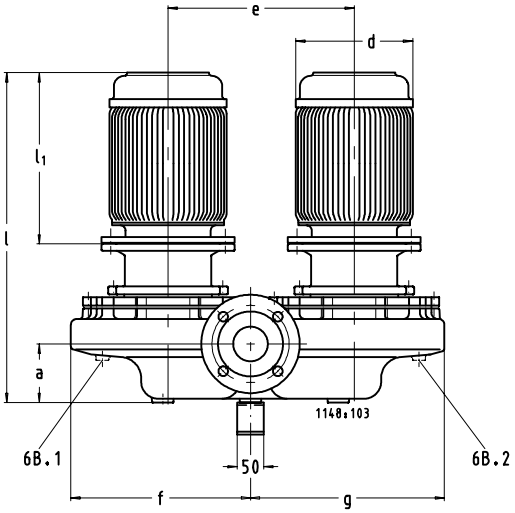


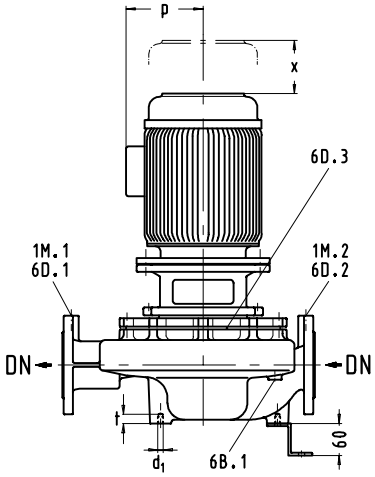
Etaline Z	DN[1]	a	b	c	d[3]	d_1	e	f[3]	g[3]	h	h_1	k	k_1	l[3]	l_1[3]	6B.1/2[2]	6D.1/2[2]	1M.1/2[2]	t	x[4]	p[3]
32-160/024	32	75	140	70	145	M10	235	235	230	170	150	235	117.5	462	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	105	116
32-160/034.2	32	75	140	70	145	M10	235	235	230	170	150	235	117.5	462	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	105	116
32-160/034.1	32	75	140	70	145	M10	235	235	230	170	150	235	117.5	462	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	105	116
32-160/054	32	75	140	70	162	M10	235	235	230	170	150	235	117.5	479	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	105	124
32-200/054	32	105	180	70	162	M10	285	274	269	190	190	285	142.5	477	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	124
32-200/074.2	32	105	180	70	162	M10	285	274	269	190	190	285	142.5	477	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	124
32-200/074.1	32	105	180	70	162	M10	285	274	269	190	190	285	142.5	477	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	124
32-200/114	32	105	180	70	181	M10	285	274	269	190	190	285	142.5	525	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
40-160/024	40	85	140	70	145	M10	250	242	237	170	150	250	125	460	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	116
40-160/034.2	40	85	140	70	145	M10	250	242	237	170	150	250	125	460	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	116
40-160/034.1	40	85	140	70	145	M10	250	242	237	170	150	250	125	460	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	116
40-160/054	40	85	140	70	162	M10	250	242	237	170	150	250	125	477	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
40-250/074.2	40	101	224	70	162	M10	330	303	348	220	220	330	190	500	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	124
40-250/074.1	40	101	224	70	162	M10	330	303	348	220	220	330	190	500	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	124
40-250/114.2	40	101	224	70	181	M10	330	303	348	220	220	330	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
40-250/114.1	40	101	224	70	181	M10	330	303	348	220	220	330	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
40-250/154.2	40	101	224	70	181	M10	330	303	348	220	220	330	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
40-250/154.1	40	101	224	70	181	M10	330	303	348	220	220	330	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
40-250/224.2	40	101	224	70	203	M10	330	303	348	220	220	330	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	158
40-250/224.1	40	101	224	70	203	M10	330	303	348	220	220	330	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	158
40-250/304	40	101	224	70	203	M10	330	303	348	220	220	330	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	158
50-160/034.2	50	110	160	70	145	M10	270	254	245	180	160	270	135	484	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	116
50-160/034.1	50	110	160	70	145	M10	270	254	245	180	160	270	135	484	237	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	116
50-160/054.2	50	110	160	70	162	M10	270	254	245	180	160	270	135	501	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
50-160/054.1	50	110	160	70	162	M10	270	254	245	180	160	270	135	501	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
50-160/074.2	50	110	160	70	162	M10	270	254	245	180	160	270	135	501	234	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
50-160/074.1	50	110	160	70	162	M10	270	254	245	180	160	270	135	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
50-160/114	50	110	160	70	162	M10	270	254	245	180	160	270	135	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	100	124
50-250/114	50	110	220	70	181	M10	380	362	352	220	220	380	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
50-250/154.2	50	110	220	70	181	M10	380	362	352	220	220	380	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
50-250/154.1	50	110	220	70	181	M10	380	362	352	220	220	380	190	548	282	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	130
50-250/224.2	50	110	220	70	203	M10	380	362	352	220	220	380	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	158
50-250/224.1	50	110	220	70	203	M10	380	362	352	220	220	380	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	158
50-250/304	50	110	220	70	203	M10	380	362	352	220	220	380	190	592	312	Rc 3/8	Rc 3/8	Rc 3/8	12.5	85	171

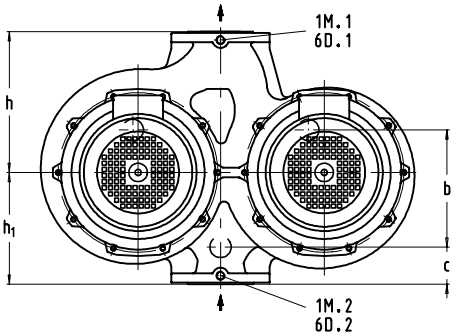
1 M.1/.2	Pressure gauge
6 B.1/.2	Pumped liquid drain
6 D.1/.2	Pumped liquid venting / drain
6 D.3	Mechanical seal chamber venting

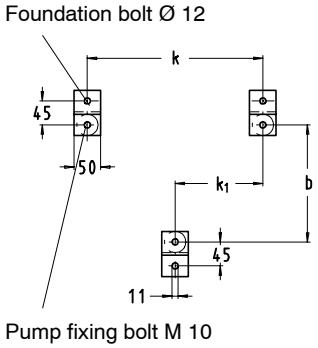
[1] DN = EN 1092-2, PN 16 (was DIN 2633)
[2] R_c = ISO 7/1
[3] Approximate dimensions
[4] Minimum clearance for removal

n ≈ 1450 1/min







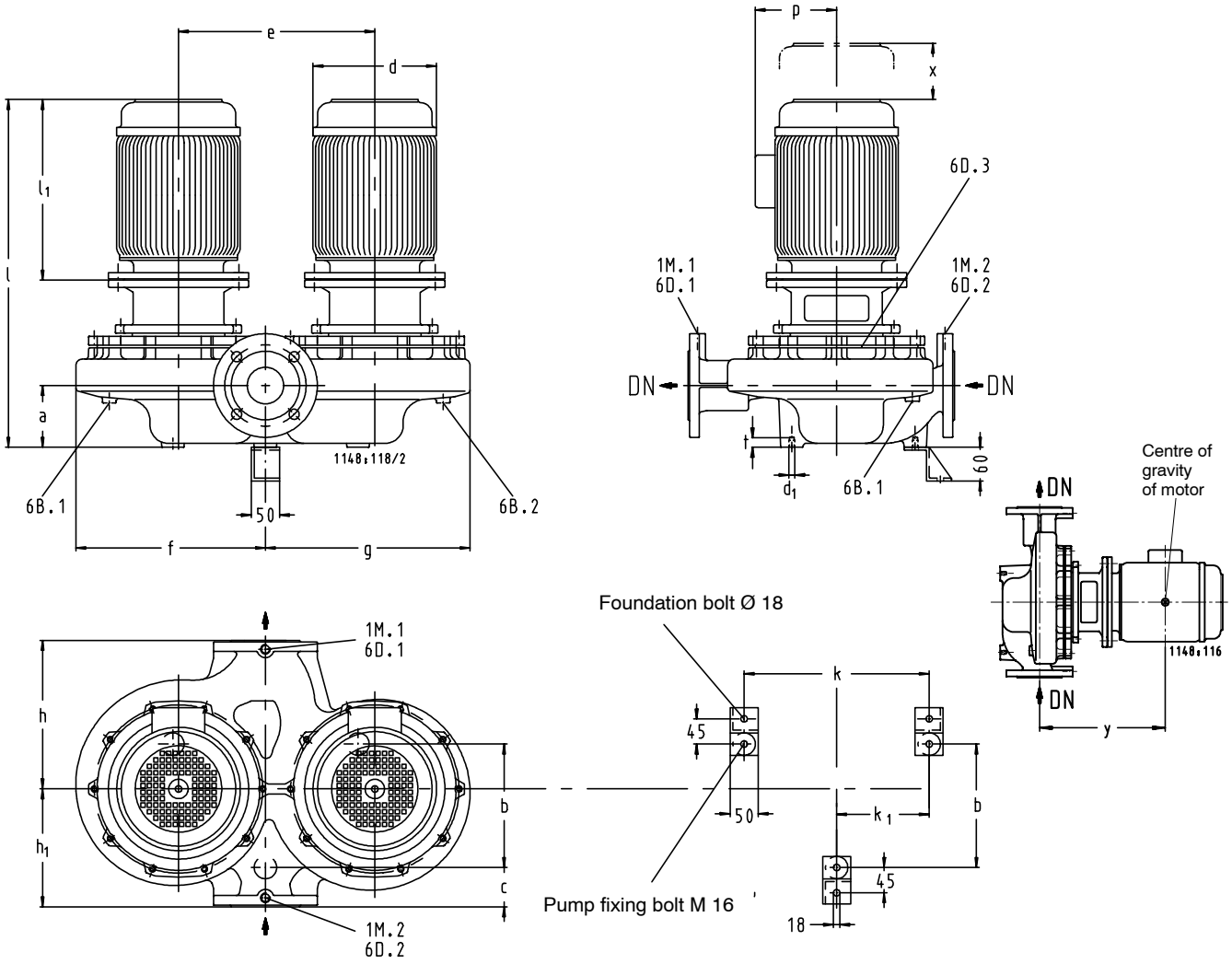


Etaline Z	DN[1]	a	b	c	d[3]	d_1	e	f[3]	g[3]	h	h_1	k	k_1	β[3]	l_1[3]	6B.1/2[2]	6D.1/2[2]	1M.1/2[2]	t	x[4]	p[3]
65-160/034.2	65	120	170	70	145	M10	285	263	255	180	160	285	142.5	484	237	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	116
65-160/034.1	65	120	170	70	162	M10	285	263	255	180	160	285	142.5	484	237	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	116
65-160/054.2	65	120	170	70	162	M10	285	263	255	180	160	285	142.5	501	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
65-160/054.1	65	120	170	70	162	M10	285	263	255	180	160	285	142.5	501	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
65-160/074.2	65	120	170	70	162	M10	285	263	255	180	160	285	142.5	501	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
65-160/074.1	65	120	170	70	162	M10	285	263	255	180	160	285	142.5	501	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
65-160/114	65	120	170	70	181	M10	285	263	255	180	160	285	142.5	549	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	130
65-160/154	65	120	170	70	181	M10	285	263	255	180	160	285	142.5	549	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	130
65-250/114	65	110	220	70	181	M10	350	338	365	265	210	330	165	568	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	130
65-250/154.2	65	110	220	70	181	M10	350	338	365	265	210	330	165	568	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	130
65-250/154.1	65	110	220	70	181	M10	350	338	365	265	210	330	165	568	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	130
65-250/224.2	65	110	220	70	203	M10	350	338	365	265	210	330	165	612	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	158
65-250/224.1	65	110	220	70	203	M10	350	338	365	265	210	330	165	612	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	158
65-250/304.2	65	110	220	70	203	M10	350	338	365	265	210	330	165	612	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	158
65-250/304.1	65	110	220	70	203	M10	350	338	365	265	210	330	165	612	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	158
65-250/404.2	65	110	220	70	228	M10	350	338	365	265	210	330	165	635	335	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	171
65-250/404.1	65	110	220	70	228	M10	350	338	365	265	210	330	165	635	335	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	171
65-250/554	65	110	220	70	266	M10	350	338	365	265	210	330	165	675	375	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	90	171
80-160/074.2	80	120	175	70	162	M10	324	290	280	195	165	324	162	525	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
80-160/074.1	80	120	175	70	162	M10	324	290	280	195	165	324	162	525	234	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	124
80-160/114.2	80	120	175	70	181	M10	324	290	280	195	165	324	162	573	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	130
80-160/114.1	80	120	175	70	181	M10	324	290	280	195	165	324	162	573	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	130
80-160/154	80	120	175	70	181	M10	324	290	280	195	165	324	162	573	282	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	110	130
80-250/224.2	80	109	224	70	203	M10	345	333	362	290	210	345	172.5	632	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	158
80-250/224.1	80	109	224	70	203	M10	345	333	362	290	210	345	172.5	632	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	158
80-250/304.2	80	109	224	70	203	M10	345	333	362	290	210	345	172.5	632	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	171
80-250/304.1	80	109	224	70	203	M10	345	333	362	290	210	345	172.5	632	312	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	171
80-250/404.2	80	109	224	70	228	M10	345	333	362	290	210	345	172.5	655	335	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	171
80-250/404.1	80	109	224	70	228	M10	345	333	362	290	210	345	172.5	655	335	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	171
80-250/554	80	109	224	70	266	M10	345	333	362	290	210	345	172.5	718	375	$Rc^3/_8$	$Rc^3/_8$	$Rc^3/_8$	12.5	125	196

1 M.1/.2	Pressure gauge
6 B.1/.2	Pumped liquid drain
6 D.1/.2	Pumped liquid venting / drain
6 D.3	Mechanical seal chamber venting

[1] DN = EN 1092-2, PN 16 (was DIN 2633)
[2] R_c = ISO 7/1
[3] Approximate dimensions
[4] Minimum clearance for removal

n ≈ 1450 1/min

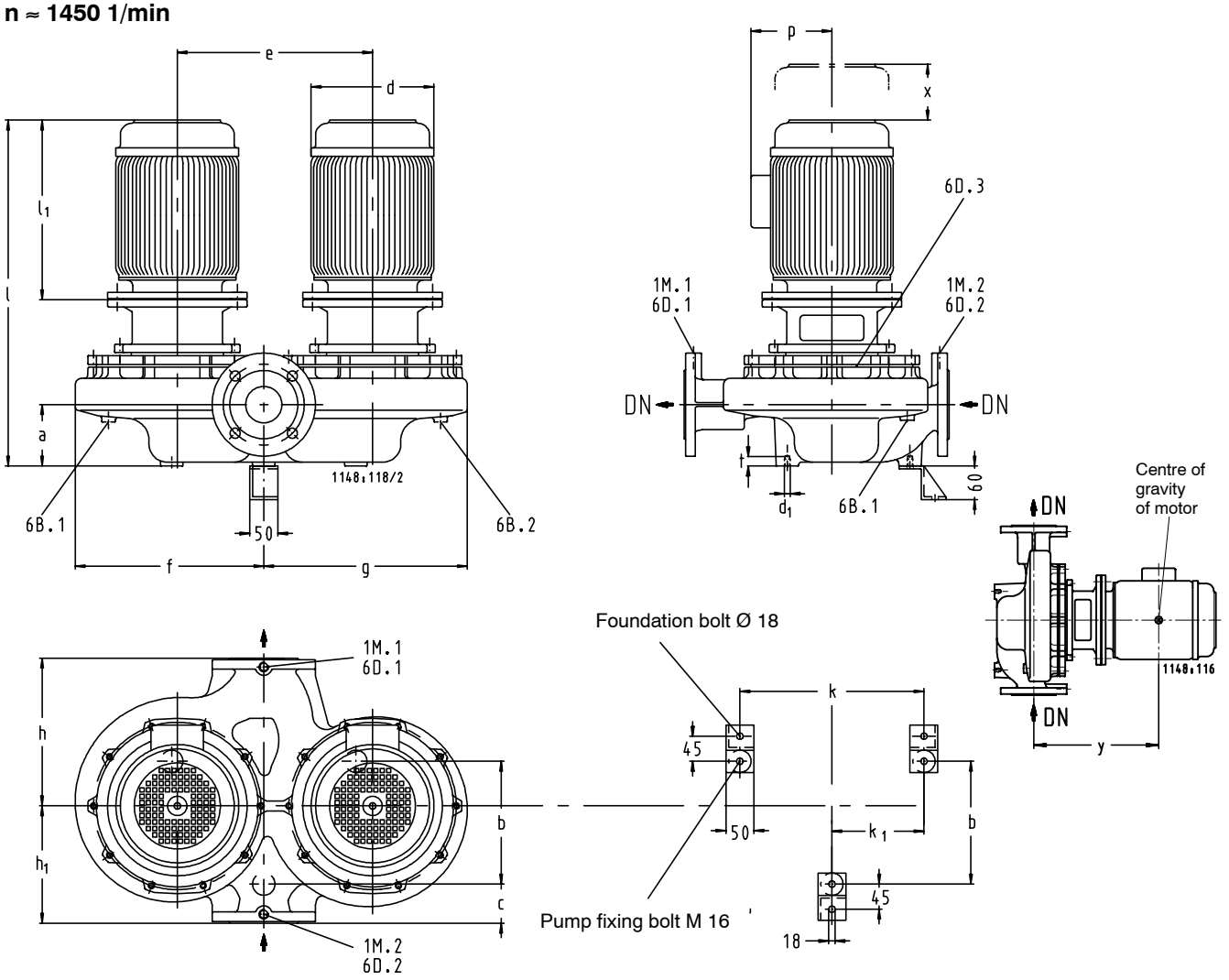


Etaline Z	DN[1]	a	b	c	d[3]	d_1	e	f[3]	g[3]	h	h_1	k	k_1	l[3]	l_1[3]	6B.1/2[2]	6D.1/2[2]	1M.1/2[2]	t	x[4]	p[3]	y[3][5]
100-200/224	100	195	280	98	203	M16	410	394	376	280	270	410	205	697	312	Rc 1/2	Rc 1/2	Rc 1/2	20	150	158	346
100-200/304.2	100	195	280	98	203	M16	410	394	376	280	270	410	205	697	312	Rc 1/2	Rc 1/2	Rc 1/2	20	150	158	346
100-200/304.1	100	195	280	98	203	M16	410	394	376	280	270	410	205	697	312	Rc 1/2	Rc 1/2	Rc 1/2	20	150	158	346
100-200/404.2	100	195	280	98	228	M16	410	394	376	280	270	410	205	720	335	Rc 1/2	Rc 1/2	Rc 1/2	20	150	171	358
100-200/404.1	100	195	280	98	228	M16	410	394	376	280	270	410	205	720	335	Rc 1/2	Rc 1/2	Rc 1/2	20	150	171	358
100-200/554	100	195	280	98	266	M16	410	394	376	280	270	410	205	743	375	Rc 1/2	Rc 1/2	Rc 1/2	20	150	196	361
100-250/404	100	195	270	105	266	M16	480	452	438	295	255	480	240	747	335	Rc 1/2	Rc 1/2	Rc 1/2	20	140	196	385
100-250/554.3	100	195	270	105	266	M16	480	452	438	295	255	480	240	787	375	Rc 1/2	Rc 1/2	Rc 1/2	20	140	196	405
100-250/554.2	100	195	270	105	266	M16	480	452	438	295	255	480	240	787	375	Rc 1/2	Rc 1/2	Rc 1/2	20	140	196	405
100-250/554.1	100	195	270	105	266	M16	480	452	438	295	255	480	240	787	375	Rc 1/2	Rc 1/2	Rc 1/2	20	140	196	405
100-250/754.2	100	195	270	105	266	M16	480	452	438	295	255	480	240	787	375	Rc 1/2	Rc 1/2	Rc 1/2	20	140	196	405
100-250/754.1	100	195	270	105	266	M16	480	452	438	295	255	480	240	787	375	Rc 1/2	Rc 1/2	Rc 1/2	20	140	234	405
100-250/1104	100	195	270	105	320	M16	480	452	438	295	255	480	240	1090	681	Rc 1/2	Rc 1/2	Rc 1/2	20	140	234	427
125-200/224	125	221	265	95	203	M16	380	394	366	345	275	550	275	723	312	Rc 1/2	Rc 1/2	Rc 1/2	20	155	158	346
125-200/304.2	125	221	265	95	203	M16	380	394	366	345	275	550	275	723	312	Rc 1/2	Rc 1/2	Rc 1/2	20	155	158	346
125-200/304.1	125	221	265	95	203	M16	380	394	366	345	275	550	275	723	312	Rc 1/2	Rc 1/2	Rc 1/2	20	155	158	346
125-200/404.2	125	221	265	95	228	M16	380	394	366	345	275	550	275	746	335	Rc 1/2	Rc 1/2	Rc 1/2	20	155	171	358
125-200/404.1	125	221	265	95	228	M16	380	394	366	345	275	550	275	746	335	Rc 1/2	Rc 1/2	Rc 1/2	20	155	171	358
125-200/554.2	125	221	265	95	266	M16	380	394	366	345	275	550	275	809	375	Rc 1/2	Rc 1/2	Rc 1/2	20	155	196	401
125-200/554.1	125	221	265	95	266	M16	380	394	366	345	275	550	275	809	375	Rc 1/2	Rc 1/2	Rc 1/2	20	155	196	401
125-200/754	125	221	265	95	266	M16	380	394	366	345	275	550	275	809	375	Rc 1/2	Rc 1/2	Rc 1/2	20	155	196	401
125-250/404	125	226	300	85	203	M16	400	409	389	360	260	400	200	751	335	Rc 1/2	Rc 1/2	Rc 1/2	20	145	171	358
125-250/554	125	226	300	85	266	M16	400	409	389	360	260	400	200	814	375	Rc 1/2	Rc 1/2	Rc 1/2	20	145	171	401
125-250/754.3	125	226	300	85	266	M16	400	409	389	360	260	400	200	814	375	Rc 1/2	Rc 1/2	Rc 1/2	20	145	196	401
125-250/754.2	125	226	300	85	266	M16	400	409	389	360	260	400	200	814	375	Rc 1/2	Rc 1/2	Rc 1/2	20	145	196	401
125-250/754.1	125	226	300	85	266	M16	400	409	389	360	260	400	200	814	375	Rc 1/2	Rc 1/2	Rc 1/2	20	145	196	401
125-250/1104.2	125	226	300	85	320	M16	400	409	389	360	260	400	200	1153	681	Rc 1/2	Rc 1/2	Rc 1/2	20	145	234	587
125-250/1104.1	125	226	300	85	320	M16	400	409	389	360	260	400	200	1153	681	Rc 1/2	Rc 1/2	Rc 1/2	20	145	234	587
125-250/1504	125	226	300	85	320	M16	400	409	389	360	260	400	200	1153	681	Rc 1/2	Rc 1/2	Rc 1/2	20	145	234	587

1 M.1/.2	Pressure gauge
6 B.1/.2	Pumped liquid drain
6 D.1/.2	Pumped liquid venting / drain
6 D.3	Mechanical seal chamber venting

[1] DN = EN 1092-2, PN 16 (was DIN 2633)
[2] R_c = ISO 7/1
[3] Approximate dimensions
[4] Minimum clearance for removal
[5] Centre of gravity of motor, motor weight see page 3

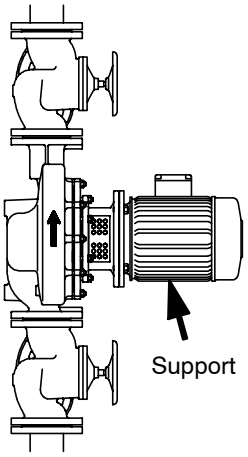
n ≈ 1450 1/min

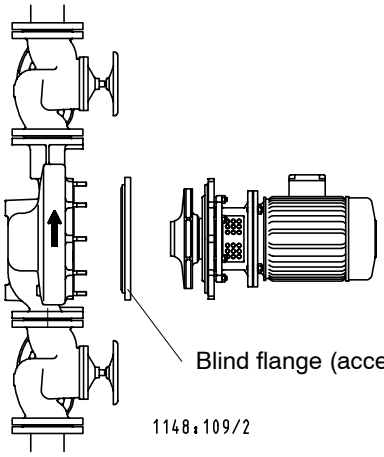


Etaline Z	DN[1]	a	b	c	d[3]	d_1	e	f[3]	g[3]	h	h_1	k	k_1	l[3]	l_1[3]	6B.1/2[2]	6D.1/2[2]	1M.1/2[2]	t	x[4]	p[3]	y[3][5]
150-250/754.2	150	256	320	120	266	M16	600	560	534	400	300	600	300	941	472	Rc 1/2	Rc 1/2	Rc 1/2	20	155	196	449
150-250/754.1	150	256	320	120	266	M16	600	560	534	400	300	600	300	941	472	Rc 1/2	Rc 1/2	Rc 1/2	20	155	196	449
150-250/1104.3	150	256	320	120	320	M16	600	560	534	400	300	600	300	1183	681	Rc 1/2	Rc 1/2	Rc 1/2	20	155	234	585
150-250/1104.2	150	256	320	120	320	M16	600	560	534	400	300	600	300	1183	681	Rc 1/2	Rc 1/2	Rc 1/2	20	155	234	585
150-250/1104.1	150	256	320	120	320	M16	600	560	534	400	300	600	300	1183	681	Rc 1/2	Rc 1/2	Rc 1/2	20	155	234	585
150-250/1504.2	150	256	320	120	320	M16	600	560	534	400	300	600	300	1183	681	Rc 1/2	Rc 1/2	Rc 1/2	20	155	275	585
150-250/1504.1	150	256	320	120	320	M16	600	560	534	400	300	600	300	1183	681	Rc 1/2	Rc 1/2	Rc 1/2	20	155	275	585
150-250/1854	150	256	320	120	375	M16	600	560	534	400	300	600	300	1112	610	Rc 1/2	Rc 1/2	Rc 1/2	20	155	275	551
200-250/1104	200	281	410	210	320	M16	600	585	537	530	470	600	300	1208	681	Rc 1/2	Rc 1/2	Rc 1/2	20	160	234	587
200-250/1504.3	200	281	410	210	320	M16	600	585	537	530	470	600	300	1208	681	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	587
200-250/1504.2	200	281	410	210	320	M16	600	585	537	530	470	600	300	1208	681	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	587
200-250/1504.1	200	281	410	210	320	M16	600	585	537	530	470	600	300	1208	681	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	587
200-250/1854.2	200	281	410	210	375	M16	600	585	537	530	470	600	300	1137	610	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	551
200-250/1854.1	200	281	410	210	375	M16	600	585	537	530	470	600	300	1137	610	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	551
200-250/2204.2	200	281	410	210	375	M16	600	585	537	530	470	600	300	1137	610	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	551
200-250/2204.1	200	281	410	210	375	M16	600	585	537	530	470	600	300	1137	610	Rc 1/2	Rc 1/2	Rc 1/2	20	160	275	551
200-250/3004	200	281	410	210	415	M16	600	585	537	530	470	600	300	1192	665	Rc 1/2	Rc 1/2	Rc 1/2	20	160	310	579
200-315/3004.3	200	287	410	220	415	M16	580	594	554	520	480	580	290	1212	665	Rc 1/2	Rc 1/2	Rc 1/2	20	185	310	593
200-315/3004.2	200	287	410	220	415	M16	580	594	554	520	480	580	290	1212	665	Rc 1/2	Rc 1/2	Rc 1/2	20	185	310	593
200-315/3004.1	200	287	410	220	415	M16	580	594	554	520	480	580	290	1212	665	Rc 1/2	Rc 1/2	Rc 1/2	20	185	310	593
200-315/3704.3	200	287	410	220	470	M16	580	594	554	520	480	580	290	1271	695	Rc 1/2	Rc 1/2	Rc 1/2	20	185	335	637
200-315/3704.2	200	287	410	220	470	M16	580	594	554	520	480	580	290	1271	695	Rc 1/2	Rc 1/2	Rc 1/2	20	185	335	637
200-315/3704.1	200	287	410	220	470	M16	580	594	554	520	480	580	290	1271	695	Rc 1/2	Rc 1/2	Rc 1/2	20	185	335	637
200-315/4504.2	200	287	410	220	470	M16	580	594	554	520	480	580	290	1271	695	Rc 1/2	Rc 1/2	Rc 1/2	20	185	335	637
200-315/4504.1	200	287	410	220	470	M16	580	594	554	520	480	580	290	1271	695	Rc 1/2	Rc 1/2	Rc 1/2	20	185	335	637
200-315/5504	200	287	410	220	580	M16	580	594	554	520	480	580	290	1366	790	Rc 1/2	Rc 1/2	Rc 1/2	20	185	430	684

1 M.1/.2	Pressure gauge
6 B.1/.2	Pumped liquid drain
6 D.1/.2	Pumped liquid venting / drain
6 D.3	Mechanical seal chamber venting

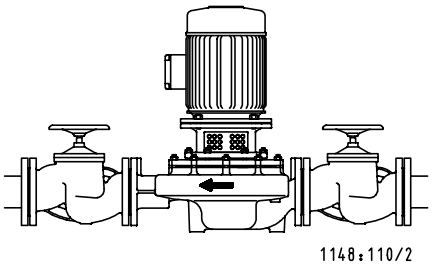
1) DN = EN 1092-2, PN 16 (was DIN 2633)
2) R_c = ISO 7/1
3) Approximate dimensions
4) Minimum clearance for removal
5) Centre of gravity of motor, motor weight see page 3



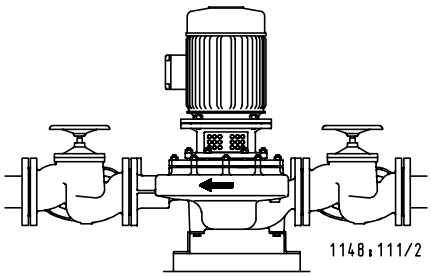


If one of the pumps needs to be serviced, the pump chamber can be shut off by a blind flange so that the pump unit remains operational.

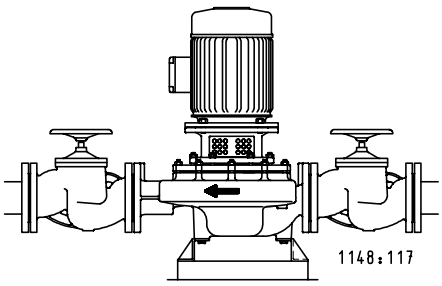
On Etaline Z pump units equipped with motors larger than size 180 (18.5 kW), with the motor axis in horizontal position, the motors must be supported.
To this end, use the foot fixing holes on the motor housing.



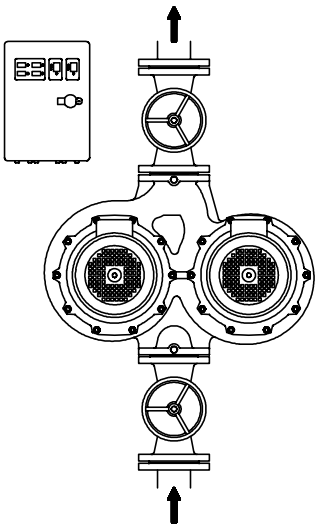
Pump sizes Etaline Z
32-160/... to 80-250/...
fixed without feet.

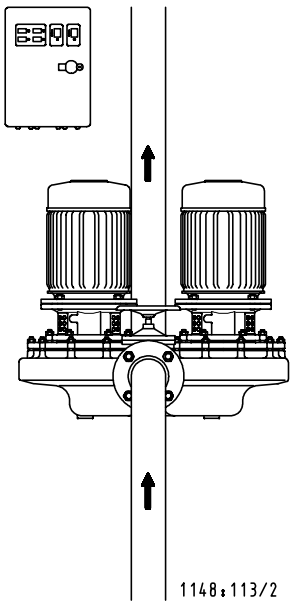


Pump sizes Etaline Z
32-160/... to 80-250/...
fixed by three angle feet
(St 37, accessories).

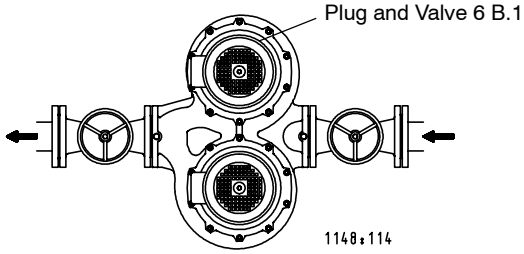


Pump sizes Etaline Z
100-200/... to 200-315/...
fixed by three angle feet
(EN-GJL, accessories).

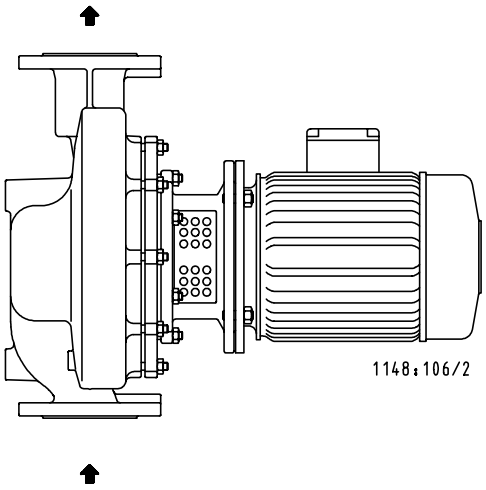




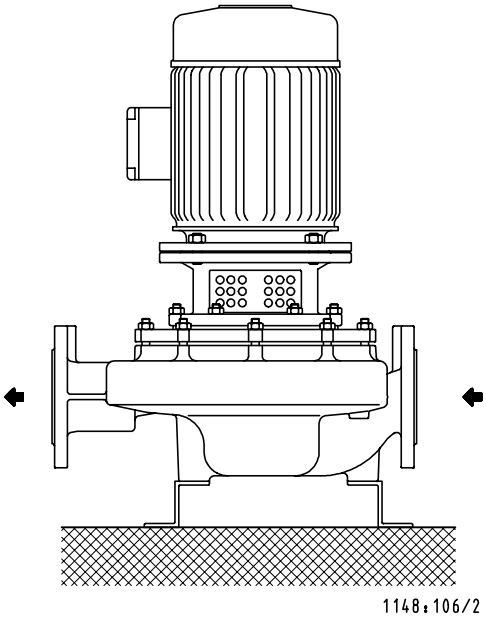
If flexible pipe joints (expansion joints) are used or if the pump set is installed with pump feet, Etaline Z has to be fixed. The list of pump accessories includes appropriate fixing elements.
When dismantling the motor the volute casing may remain in the piping.



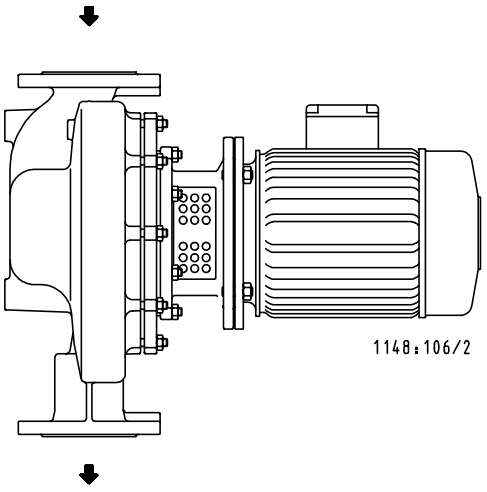
If the piping is laid horizontally, the upper pump must be vented through venting connection 6 B.1 and valve. After that, the unit will operate without disturbance.



Horizontal installation, direction of flow from bottom to top



Vertical installation, pump fixed by three angle feet



Horizontal installation; direction of flow from top to bottom. The motor must be turned by 180° so that the terminal box remains in its position on the top.
Pump sizes 32 to 80 can be directly installed into the piping in any position, but not with the motor pointing downwards.

Interchangeability of Etaline Z, Etaline and Etabloc Components and Interchangeability of Components among Each Other

Etaline [1]	Shaft unit	Description: Volute casing	Discharge cover	Shaft with taper lock ring (in GN version only)										Impeller	Mechanical seal	Casing wear ring, suction side	Casing wear ring, discharge side	Shaft sleeve	Etabloc
		Part No.: 102	163	210 Motor: 71	80	90	100/112	132	160	180	200	225	250	230	433	502.1	502.2	523	
32-160/...	25	○	1	1	2	3	4	5	◆	◆	◆	◆	◆	1	1	1	1	1	32-160.1/...
32-200/...	25	○	12	1	2	□	4	5	6	◆	◆	◆	◆	○	1	1	1	1	32-200.1/...
40-160/...	25	○	1	1	2	3	4	□	□	□	◆	◆	◆	1	1	1	1	1	32-160/...
40-250/...	25	○	2	◆	2	3	4	5	6	□	◆	◆	◆	○	1	1	2	1	32-250/...
50-160/...	25	○	1	1	2	3	4	5	□	□	◆	◆	◆	○	1	2	1	1	40-160/...
50-250/...	25	○	2	□	□	3	4	5	6	7	◆	◆	◆	○	1	2	2	1	40-250/...
65-160/...	25	○	1	1	2	3	4	5	6	□	◆	◆	◆	○	1	3	1	1	50-160/...
65-250/...	25	○	2	□	□	3	4	5	6	7	□	◆	◆	○	1	3	2	1	50-250/...
80-160/...	25	○	11	□	2	3	□	5	6	□	◆	◆	◆	○	1	4	3	1	65-160/...
80-250/...	35	○	7	◆	◆	◆	8	9	□	□	□	◆	◆	○	2	5	4	2	65-250/...
100-200/...	35	○	4	◆	◆	◆	8	□	□	□	□	◆	◆	○	2	8	5	2	80-200/...
100-250/...	35	○	5	◆	◆	◆	□	9	10	□	□	◆	◆	○	2	8	5	2	80-250/...
125-200/...	35	○	4	◆	◆	◆	□	9	□	□	□	◆	◆	○	2	9	5	2	100-200/...
125-250/...	35	○	5	◆	◆	◆	□	□	10	□	□	◆	◆	○	2	9	5	2	100-250/...
150-250/...	35	○	6	◆	◆	◆	□	□	10	11	□	◆	◆	○	2	10	6	2	125-250/...
200-250/...	35	○	13	◆	◆	◆	□	□	10	11	12	◆	◆	○	2	11	6	3	150/250/...
200-315/...	55	○	14	◆	◆	◆	◆	◆	◆	◆	13	14	15	○	3	11	7	3	–

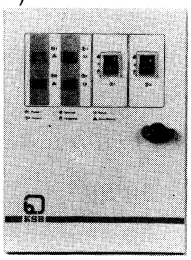
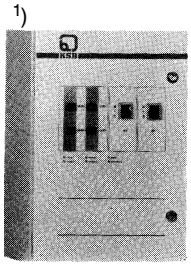
1 / 1	Same number means same component.
○	Components differ.
□	In case of other frequencies and/or power reserves for this pump/motor combination please contact the manufacturer.
◆	This pump/motor combination is not available.
	Components interchangeable with those of Etabloc and Etaline.

[1] Except for the volute casing, the pump components of single and twin Etaline pumps are identical.

Motor	Rating
71	.../024, .../034
80	.../054, .../074
90	.../114, .../154
100	.../224, .../304
112	.../404
132	.../554, .../754
160	.../1104, .../1504
180	.../1854, .../2204
200	.../3004
225	.../3704, .../4504
250	.../5504

			≈ kg
	Pump feet [1]) for vertical installation		
	Etaline Z 32-160/... bis 100-160/... [1])	47 077 960	2.0
	Etaline Z 100-200/... bis 200-315/... [1])	47 089 180	3.0
	Blind flange, consisting of blind flange and gasket		
	Etaline Z 32-160, 40-160, 50-160, 65-160, 80-160	47 085 521	5.0
	Etaline Z 32-200, 100-200, 125-200	47 085 522	9.0
	Etaline Z 40-250, 50-250, 65-250, 80-250, 100-250, 125-250, 150, 200-250	47 085 523	13.0
	Etaline Z 200-315	47 085 524	20.0

[1]) 3 pump feet with bolts

			Type of protection	Setting range max.	Prefuse		≈ kg
[1]) 	**Switchgear DDU, for direct starting** with pump changeover via timer, fault changeover, external changeover, external starting in case of peak load, external release, thermal circuit-breaker connection, separate 230 V output, with one motor protection switch each (may be locked in 'Off' position), hand-0-automatic switch with motor contactor and thermistor tripping device. Lamps indicating operation and fault for each pump. Volt-free contacts for operation and fault indication for each pump. Connections on terminal strip. Door with cylinder lock. 600 x 400 x 200 mm	DDU 10.1 DDU 16.1 DDU 25.1 DDU 40.1 DDU 60.1 DDU100.1	IP 54 IP 54 IP 54 IP 54 IP 54 IP 54	0.63 - 1 A 1 - 1.6A 1.6 - 2.5A 2.5 - 4 A 4 - 6 A 6 - 10 A	25 A 25 A 25 A 25 A 25 A 25 A	19 070 267 19 070 268 19 070 269 19 070 270 19 070 271 19 070 272	18.0 18.0 18.0 18.0 18.0 18.0
[1]) 	**Switchgear DSU, for star-delta starting** with pump changeover via timer, fault changeover, external changeover, external starting in case of peak load, external release, thermal circuit-breaker connection, separate 230 V output, with one motor protection switch each (may be locked in 'Off' position), hand-0-automatic switch with star-delta starting and thermistor tripping device. Lamps indicating operation and fault for each pump. Volt-free contacts for operation and fault indication for each pump. Connections on terminal strip. 600 x 400 x 200 mm	DSU140.1	IP 54	9 - 14 A	50 A	19 071 258	20.0
	All-purpose pressure gauge set, measuring range 0 - 6 bar, scale division 0.2 bar, consisting of: 1 precision pressure gauge, pre-assembled with 2 shut-off valves, copper connection pipes, various connection elements, elbows and reducers					40 981 832	0.8

[1]) Designed for 3 ~ 400 V. For all other voltages and frequencies please contact KSB.

1148.178/4-10 / 1.6.2003

KSB Aktiengesellschaft
P.O. Box 1361 • 91253 Pegnitz • Bahnhofplatz 1 • 91257 Pegnitz (Germany)
Tel. +49 (92 41) 7 10 • Fax +49 (92 41) 71 17 93 • www.ksb.com