

Line **ITAP**





INTRODUCTION

This catalog describes all pump models of the ITAP line manufactured by IMBIL and includes technical information on construction, applications, design, special features and attributes of the line, in addition to dimensional drawings and characteristic curves of each model.

ADDITIONAL INFORMATION

If you have any questions regarding our products and services, IMBIL and its representatives are always at your service to provide you with any further information and technical assistance.

Use our consumer hotline DDG 0800 148500.

NOTES

We reserve the right to make any modifications that we deem necessary or required to our products at any time without entailing any obligations of any nature.

APPLICATIONS

Sugar mills, distilleries, chemical and petrochemical industries, pulp and paper plants, irrigation, basic sanitation, fire fighting systems, refrigeration, air conditioning, civil construction, farming, textile industries and a vast number of other industrial and agri-industrial applications.

APLICAÇÕES

	ITAP	80	400	2
MODEL	_____	_____	_____	_____
NOMINAL DIAMETER OF DISCHARGE FLANGE (mm)	_____	_____	_____	_____
IMPELLER DIAMETER (mm)	_____	_____	_____	_____
NUMBER OF STAGES (WHERE APPLICABLE)	_____	_____	_____	_____

The system of the pump is constructed with a vertically split horizontal shaft that is usually of a single stage. Models of two or three stages are also available.

CONSTRUCTION DATA

[illegible]

¹Values for cast-iron pumps. For nodular iron, carbon steel or stainless steel pumps, the limit can be increased to 10 bar.

The NPSH values required may be calculated using the following formula, where the values of the suction height (Hs) are found in their corresponding characteristic curves.

$$\text{NPSHr} = 10 - H_s + V^2/2g + 0.5$$

where:

NPSH [m]

H_s = suction height [m]

V = suction velocity [m/s]

g = gravity acceleration [m/s²]



MAXIMUM PERIPHERAL SPEED

When specifying the product, the rotation of the pump and the impeller maximum peripheral speed must be observed, according to the construction material:

Material	Maximum Speed
Cast Iron GG20	40 [m/s]
Nodular Iron GGG40	60 [m/s]
Bronze SAE 40	60 [m/s]
Stainless Steel – CF8M (ASTM A 743)	80 [m/s]

DRIVER

Performed by means of elastic coupling, electric motor, turbine, internal combustion engine, speed reducer or by belt and pulley transmission.

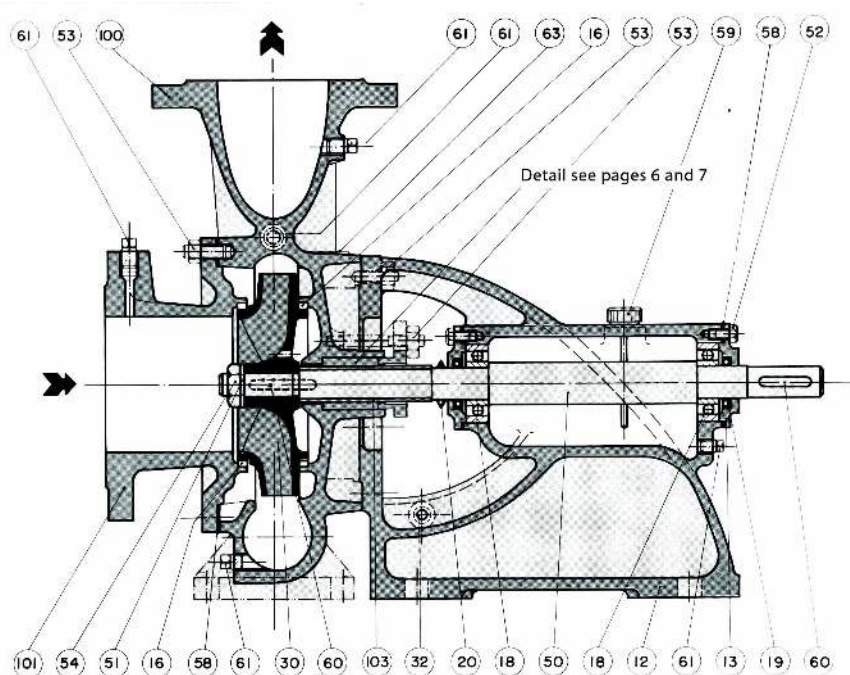
POWER RESERVE

Power Required by Pump (HP)	Driver power reserve
Up to 2	20%
Up to 20	15%
Over 20	10%



SINGLE-STAGE PUMPS

Cross-section view, parts and components



Component	Denomination	Material	Notes
12	Bearing housing	GG-20	
13	Bearing housing cover	GG-20	
16	Wear ring	GG-20	
20	Centrifuge ring	Nitrilic Rubber	
30	Impeller	GG-20	
32	Dripping outlet		
50	Shaft	SAE 4140	
51	Shaft end locking washer	SAE 1020	
52	Hex screw	SAE 1020	
53	Hex tap bolt and nuts	SAE 1020	
54	Impeller nut	SAE 1020	
58	Plain joints	K. oilit	
59	Oil level	Nylon	
60	Key	SAE 1045	
61	Plugs	F. maleável galv.	
63	Small plate	Alumínio	
100	Spiral Piece	GG-20	
101	Suction cover	GG-20	Not used for models 32.120, 32.160, 40.120 and 40.160.
103	Shaft sleeve	SAE 1020	For bearing housings nº 4 and 5

Component 18 - Bearings

Bearing housing	1	2	3	4	5	*5
Quantity	2	2	2	2	2	1+1
Material	6.304/C3	6.305/C3	6.306/C3	6.409/C3	6.411/C3	6.411/C3-6.313/C3

*For models 250.290 and 300.350

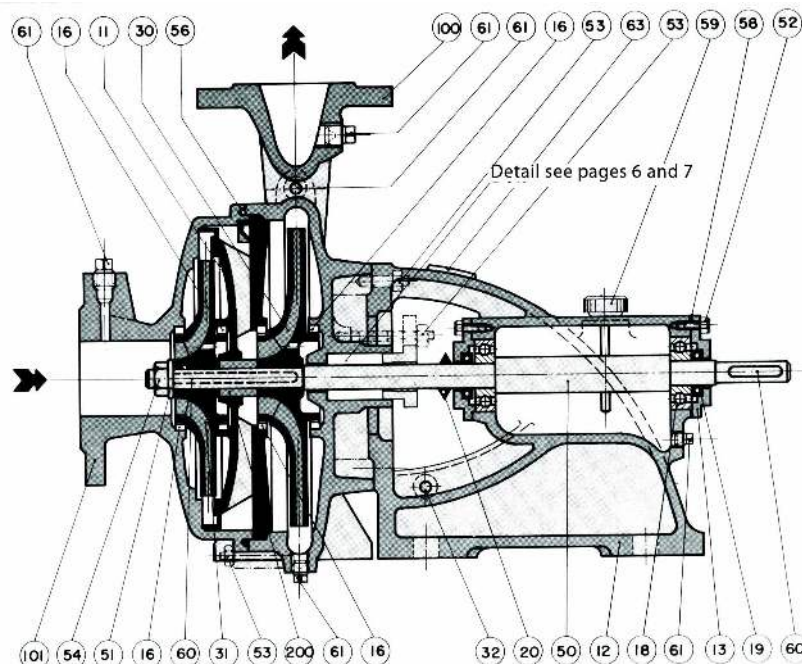
Component 19 - Retainers (Material - Nitrilic rubber)

Bearing housing	1	2	3	4	5	*5
Quantity	2	2	2	2	2	2
Dimensions	20x35x7	25x42,9x9,5	30x50x12	45x62x10	55x80x13	55x80x13



TWO-STAGE PUMPS

Cross-section view, parts and components



Component	Denomination	Material	Notes
11	Diffusers	GG-20	1 part
12	Bearing housing	GG-20	
13	Bearing housing cover	GG-20	
16	Wear ring	GG-20	
20	Centrifuge ring	Nitrilic Rubber	
30	Impeller	GG-20	
31	Impeller (stage)	GG-20	
32	Dripping outlet		
50	Shaft	SAE 4140	
51	Shaft end locking washer	SAE 1020	
52	Hex screw	SAE 1020	
53	Hex tap bolt and nuts	SAE 1020	
54	Impeller nut	SAE 1020	
56	O'Ring	Nitrilic Rubber	
58	Plain joints	K.oilit	
59	Oil level	Nylon	
60	Key	SAE 1045	
61	Plugs	F. maleável galv.	
63	Small plate	Alumínio	
100	Spiral piece	GG-20	
101	Suction cover	GG-20	Not used for models 32.120, 32.160, 40.120 and 40.160. For bearing housings n° 4 and 5
200	Separating sleeve	GG-20	

Component 18 - Bearings

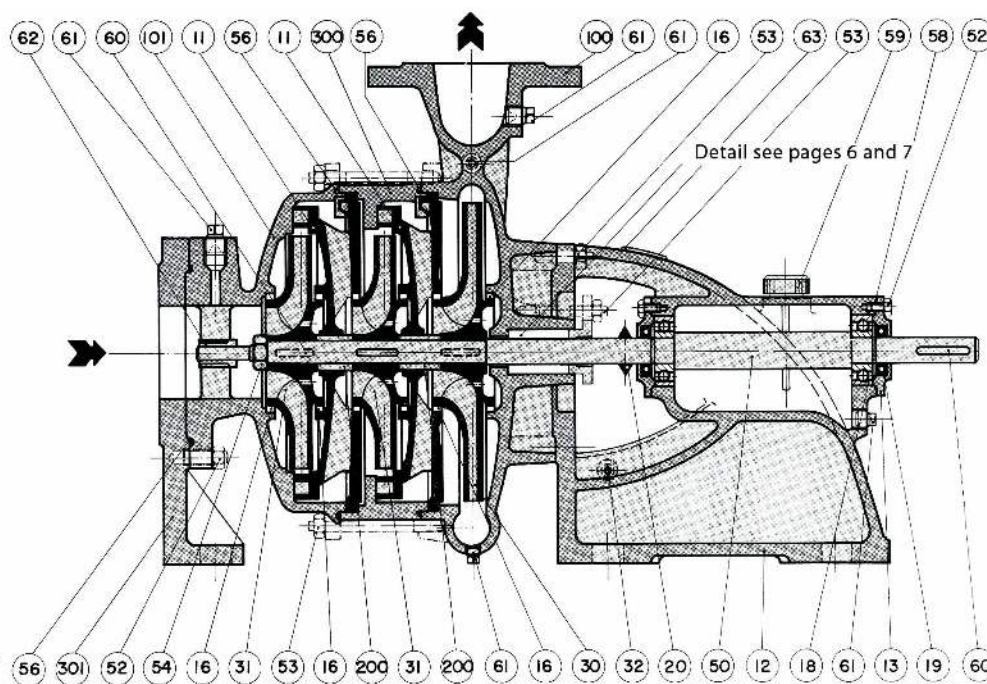
Bearing Housing	1	2	3	4	5	* 5
Quantity	2	2	2	2	2	1+1
Material	6.304/C3	6.305/C3	6.306/C3	6.409/C3	6.411/C3	6.411/C3-6.313/C3 *For models 250.290 and 300.350

Component 19 - Retainers (Material - Nitrilic Rubber)

Bearing Housing	1	2	3	4	5	* 5
Quantity	2	2	2	2	2	2
Dimensions	20x35x7	25x42,9x9,5	30x50x12	45x62x12	55x80x13	55x80x13

THREE-STAGE PUMPS

Cross-section view,
parts and
components



Component	Denomination	Material	Notes
11	Diffusers	GG-20	2 part
12	Bearing housing	GG-20	
13	Bearing housing cover	GG-20	
16	Wear ring	GG-20	
20	Centrifuge ring	Nitrilic Rubber	
30	Impeller	GG-20	
31	Impeller (stage)	GG-20	
32	Dripping outlet		
50	Shaft	SAE 4140	
52	Hex screw	SAE 1020	
53	Hex tap bolt and nuts	SAE 1020	
54	Impeller nut	SAE 1020	
56	O'Ring	Nitrilica Rubber	
58	Plain joints	K. oilit	
59	Oil level	Nylon	
60	Key	SAE 1045	
61	Plugs	F. maleável galv.	
62	Suction cover sleeve	SAE 40	For models 50.330/3, 65.330/3 and 80.400/3
63	Small plate	Alumínio	
100	Spiral piece	GG-20	
101	Suction cover	GG-20	Not used for models 32.120, 32.160, 32.200, 40.120 and 40.160.
200	Separating sleeve	GG-20	
300	Stage piece	GG-20	
301	Pump casing feet	GG-20	Only for model 80.400/3

Component 18 - Bearings

Bearing Housing	1	2	3	4	5	* 5
Quantity	2	2	2	2	2	1 + 1
Material	6.304/C3	6.305/C3	6.306/C3	6.409/C3	6.411/C3	6.411/C3-6.313/C3

*For models 250.290 and 300.350

Component 19 - Retainers (Material - Nitrilic Rubber)

Bearing Housing	1	2	3	4	5	* 5
Quantity	2	2	2	2	2	2
Dimensions	20x35x7	25x42,9x9,5	30x50x12	45x62x12	55x80x13	55x80x13



ROTATION, SEALING AND REFRIGERATION

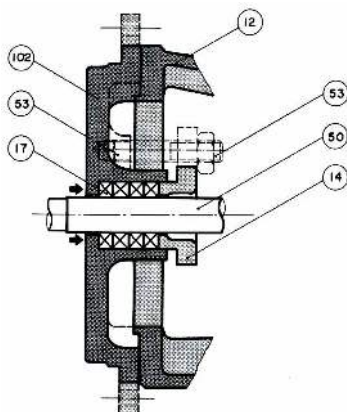
Variation coefficient of pump rotation

		Required rotation - rpm											
		1500	1600	1800	1900	2000	2100	2200	2300	2400	2500	2600	3000
Basic curve rotations at 1750 rpm	Q (x)	0,86	0,91	1,03	1,09	1,14	1,20	1,26	1,31	1,37	1,43	1,48	1,71
	H (x)	0,73	0,83	1,06	1,18	1,30	1,44	1,58	1,73	1,88	2,04	2,20	2,94
	N (x)	0,63	0,76	1,09	1,28	1,49	1,73	1,98	2,27	2,58	2,91	3,28	5,04
Basic curve rotations at 3500 rpm	Q (x)	0,43	0,43	0,51	0,54	0,57	0,60	0,63	0,66	0,68	0,71	0,74	0,86
	H (x)	0,18	0,21	0,26	0,29	0,32	0,36	0,39	0,43	0,47	0,51	0,55	0,73
	N (x)	0,08	0,095	0,136	0,160	0,186	0,216	0,25	0,28	0,32	0,36	0,41	0,63

Q = volumetric flow (m3/h) H= Head (m) N = Power (CV)

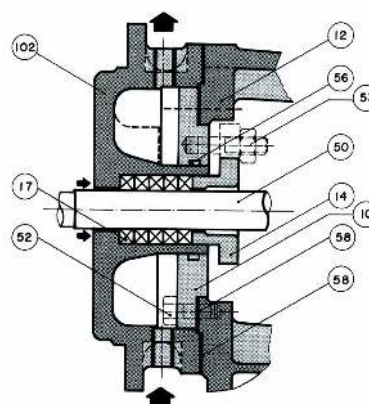
SEALING AND REFRIGERATION SYSTEMS

Standard execution

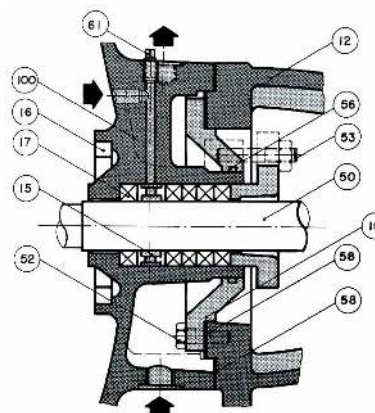
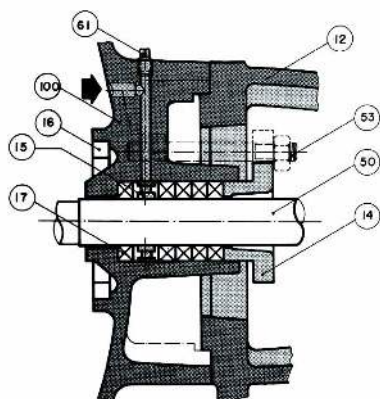


Bearing Housing 1

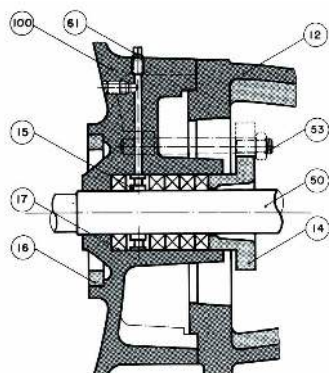
Execution with refrigeration



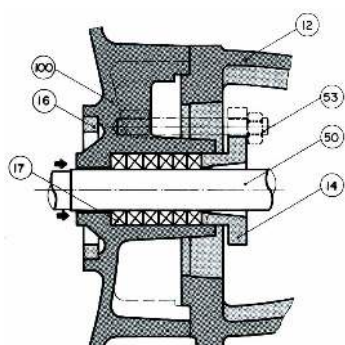
Pumps of Bearing Housing 1 mounted on Bearing Housing 2



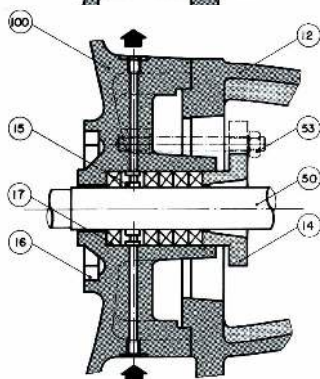
Bearing Housings 2, 3, 4 and 5: internal refrigeration by clear liquids and negative suction pressure



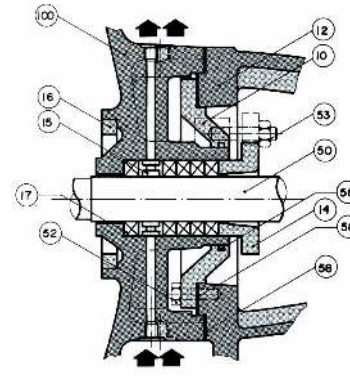
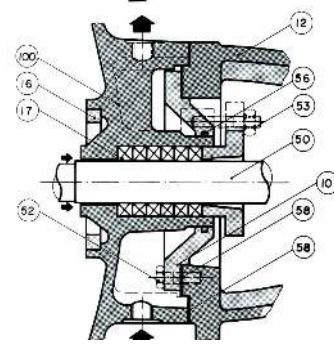
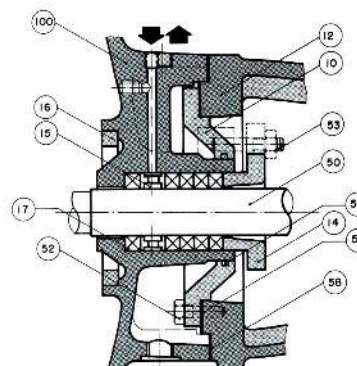
Bearing housings 2, 3, 4 and 5: external refrigeration with internal outflow.



Bearing housings 2, 3, 4 and 5: clear liquids with positive suction pressure.



Bearing housings 2, 3, 4 and 5: external refrigeration with external outflow.

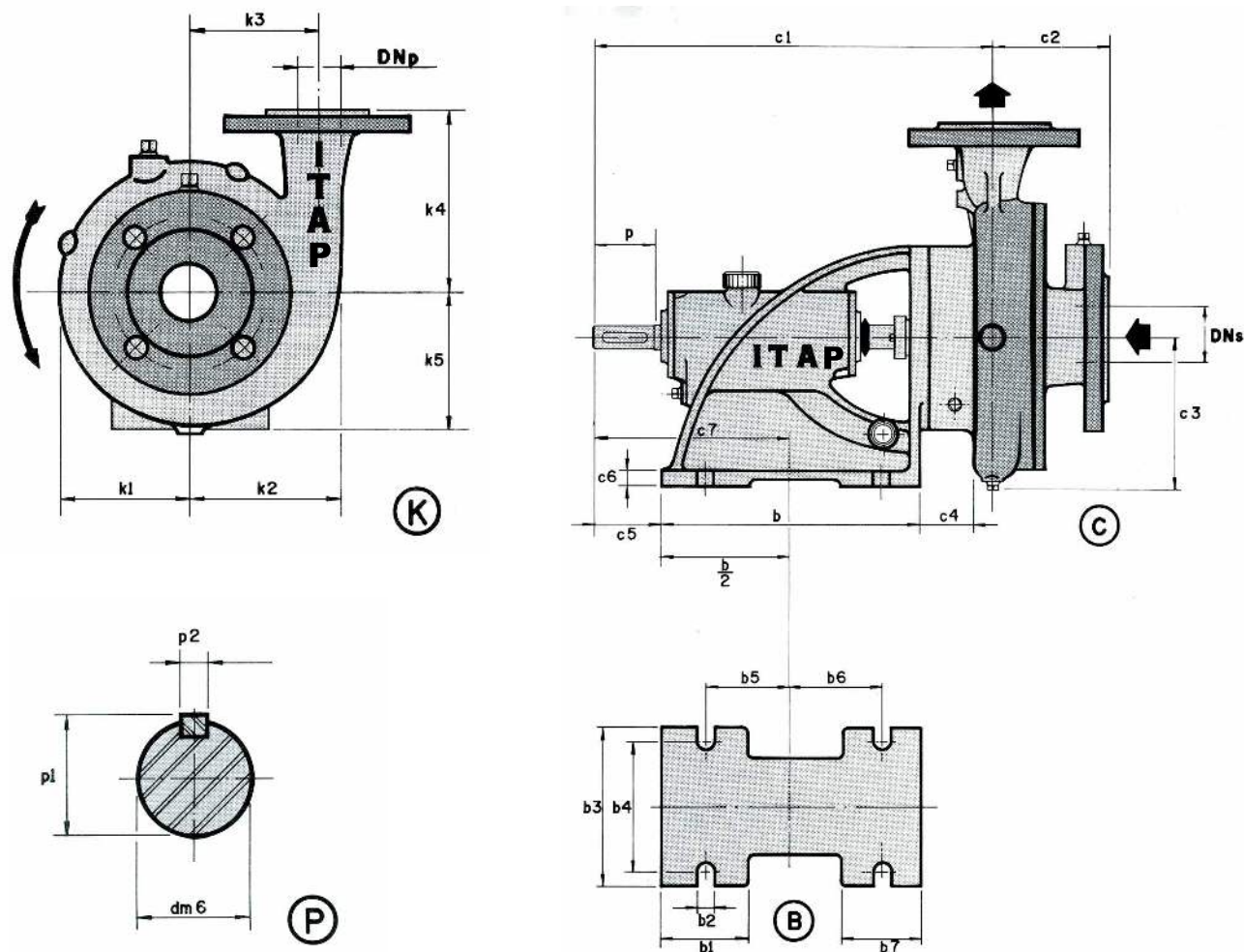


PARTS AND COMPONENTS OF THE SEALING AND REFRIGERATION SYSTEMS

Component	Denomination	Material	Notes
10	Refrigeration chamber cover	GG-40	For models with refrigeration
12	Bearing Housing	GG-20	
14	Stuffing box packing gland	GG-20	
15	Lantern ring	GG-20	
16	Wear ring	GG-20	
17	Packing	Amianto Graf.	
50	Shaft	SAE 4140	
52	Hex screw	SAE 1020	
53	Hex tap bolt and nuts	SAE 1020	
56	O'Ring	Nitrilic Rubber	
58	Plain joints	K. oilit	
61	Plugs	F. maleável galv.	
100	Spiral piece	GG-20	
102	Pressure cover	GG-20	For models 32.120, 32.160, 32.200, 40.120 and 40.160.

BEARING HOUSING 1

Basic Dimensions

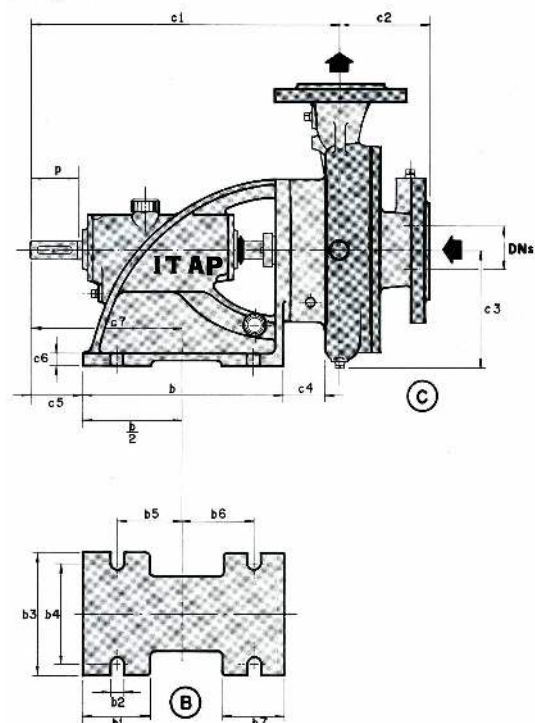
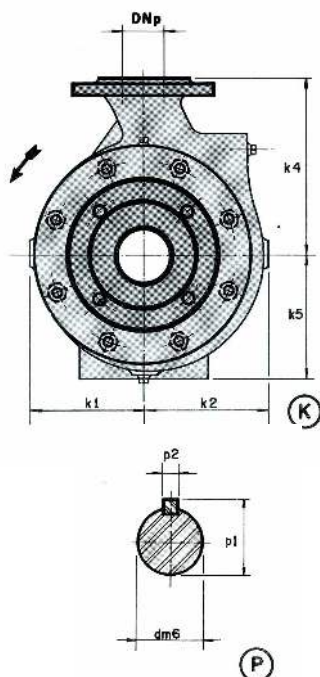


Pump Measurements in mm

Model	Housing	DN		B								C							K					P			Ø dm6
		DNs	DNp	b	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	c ₇	k ₁	k ₂	k ₃	k ₄	k ₅	p	p ₁	p ₂		
32.120 32.160	1	40	32	190	55	14	115	90	67	69	321 313	75	87 104	52 47	60	12	155	81 97	96 113	80 97	116 135	100	40	20,2	6	18	
40.120 40.160	1	50	40	190	55	14	115	90	67	69	315	75	107 120	44 50	60	12	155	88 105	108 110	85 94	120 130	100	40	20,2	6	18	
50.120 50.160	1	65	50	190	55	14	115	90	67	69	320 315	100 110	117 135	44 42	60	12	155	96 115	123 130	95 105	130 150	100	40	20,2	6	18	
65.120 65.160	1	80	65	190	55	14	115	90	67	69	320	110 125	143 148	38 42	60	12	155	121 124	142 148	105 117	140 160	100	40	20,2	6	18	

BEARING HOUSINGS 2 and 3

Basic Dimensions

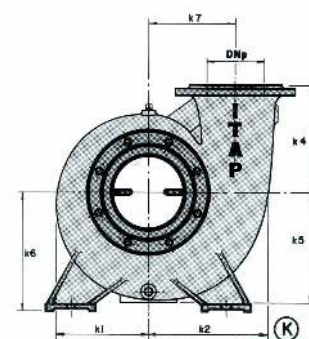
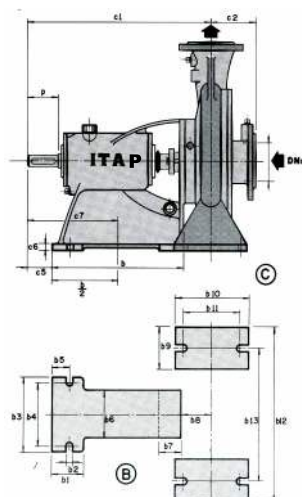
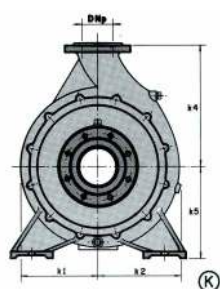


Pump Measurements in mm																										
Model	Housing	DN DNs DNp		B b b ₁ b ₂ b ₃ b ₄ b ₅ b ₆ b ₇								C c ₁ c ₂ c ₃ c ₄ c ₅ c ₆ c ₇							K k ₁ k ₂ k ₄ k ₅				P p p ₁ p ₂			Ø dm6
32.200	2	40	32	280	95	19	170	140	90	100	85	445	90	138	25	76	18	216	140	140	175	160	72	26,9	8	24
40.200 40.260 40.330/2	2	50	40	280	95	19	170	140	90	100	85	425	110 110 175	147 173 173	53 54 54	76	18	216	135 156 156	138 162 162	200 225 225	160	65	26,9	8	24
50.200 50.260 50.330/2 50.330/3	2	65	50	280	95	19	170	140	90	100	85	425	110 110 175 246	156 182 182 182	47 50 50 50	76	18	216	138 162 162 162	150 174 174 174	225 250 250 250	160	65	26,9	8	24
65.200 65.260 65.330/2 65.330/3	2	80	65	280	95	19	170	140	90	100	85	430	125 125 175 247	162 192 192 192	49 51 51 51	76	18	216	142 168 168 168	160 186 186 186	225 250 250 250	160	65	26,9	8	24
80.160 80.200	2 2	100	80	280	95	19	170	140	90	100	85	435 430	130 125	145 182	43 42	76	18	216	135 155	165 180	225 250	160	65	26,9	8	24
80.260 80.330 80.400/2 80.400/3	3 3 3 3	100	80	335	100	23	205	175	118	122	95	479	125 125 210 327	190 232 232 232	45 49 49 49	69	20	237	180 210 210 210	203 230 230 230	300 350 350 350	200	65	30,9	8	28
100.160	2	125	100	280	95	19	170	140	90	100	85	435	130	170	34	76	18	216	154	195	275	160	65	26,9	8	24
100.200 100.260 100.330	3 3 3	125	100	335	100	23	205	175	118	122	95	484	155 120 155	178 200 250	39 45 46	69	20	237	163 189 222	200 218 248	275 300 375	200	65	30,9	8	28
125.200 125.260	3	150	125	335	100	23	205	175	118	122	95	489	150 150	202 225	33 38	69	20	237	183 208	227 247	300 350	200	65	30,9	8	28
150.200	3	150	150	335	100	23	205	175	118	122	95	482	191	232	15	69	20	237	194	262	350	200	65	30,9	8	28

Models with /2 = 2 stages and /3 = 3 stages

BEARING HOUSINGS 4 AND 5

Basic Dimensions



Volute case for models
200.230, 250.290 and 300.350

Pump Measurements in mm

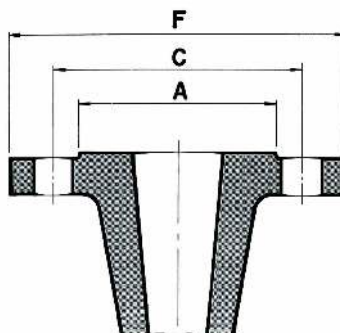
Model	Housing	DN DNs DNp		B															Ø dm6
		b	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃				
100.400 100.500/2	4	125	100	445	105	22	250	210	60	160	80	96	140	250	190	580	440	42	
125.330 125.400 125.500/2	4	150	125	445	105	22	250	210	60	160	80	101 91 91	140	250	190	580	440	42	
150.260 150.330 150.400 150.500	4 4 5 5	200 200	150 150	445 650	105 150	22 26	250 380	210 335	60 85	160 200	80 120	101 96 128 128	140	250	190	580	440	42 50	
200.230 200.330 200.400	4 5 5	200 250	200 200	445 650	105 150	24 28	250 380	210 335	60 85	160 200	80 120	107 133 138	140	250	190	580	440	42 50	
250.290 250.330 250.400	5	250 300 300	250 250 300	650	150	28	380	335	85	200	120	138 111 133	140 140 140	250	190	800 700 800	660 560 660	50	
300.350	5	300	300	650	150	28	380	335	85	200	120	148	160	320	260	840	680	50	

Model	Housing	DN DNs DNp		C					K					P			Ø dm6	
		c ₁	c ₂	c ₅	c ₆	c ₇	k ₁	k ₂	k ₄	k ₅	k ₆	k ₇	p	p ₁	p ₂			
100.400 100.500/2	4	125	100	624	155 230	83	22	306	255	275	400	300	300	-	105	45,1	12	42
125.330 125.400 125.500/2	4	150	125	629 619 619	150 160 247	83	22	306	230 267 267	266 298 298	375 475 475	300	300	-	105	45,1	12	42
150.260 150.330 150.400 150.500	4 4 5 5	200 200	150 150	629 624 870 870	170 170 160 170	83	22	306	222 245 285 323	283 300 325 363	400 425 425 525	300	300	-	105	45,1	12	42 50
200.230 200.330 200.400	4 5 5	200 250	200 200	635 875 880	250 175 180	83	22	306	264 277 308	335 353 372	300 475 525	300	330	244	105	45,1	12	42 50
250.290 250.330 250.400	5	250 300 300	250 250 300	880 853 875	220 245 180	92	25	417	340 295 330	435 398 410	350 525 600	400	400	292 - -	135	53,5	14	50
300.350	5	300	300	890	300	92	25	417	405	520	450	400	520	352	135	53,5	14	50

Models with /2 = 2 stages



FLANGES



		Suction flange (mm)							Pressure flange (mm)						
Models	Housing	EN 1092-2 Standard	DNs	F ø flange	C ø center holes	A ø flange ring	Screws Number of holes		EN 1092-2 Standard	DNp	F ø flange	C ø center holes	A ø flange ring	Screws Number of holes	
32.120 32.160	1	PN16	40	150	110	88	4	18	PN16	32	140	100	78	4	18
40.120 40.160	1	PN16	50	165	125	102	4	18	PN16	40	150	110	88	4	18
50.120 50.160	1	PN16	65	185	145	122	4	18	PN16	50	165	125	102	4	18
65.120 65.160	1	PN16	80	200	160	138	8	18	PN16	65	185	145	122	4	18
32.200	2	PN16	40	150	110	88	4	18	PN16	32	140	100	78	4	18
40.200 40.260 40.330	2	PN16	50	165	125	102	4	18	PN16	40	150	110	88	4	18
50.200 50.260 50.330/2	2	PN16	65	185	145	122	4	18	PN16	50	165	125	102	4	18
65.200 65.260 65.330/2	2	PN16	80	200	160	138	8	18	PN16	65	185	145	122	4	18
80.160 80.200 80.260 80.330 80.400/2	2 2 3 3 3	PN16	100	220	180	158	8	18	PN16	80	200	160	138	8	18
100.160 100.200 100.260 100.330	2 3 3 3	PN16	125	250	210	188	8	18	PN16	100	220	180	158	8	18
125.200 125.260	3	PN16	150	285	240	212	8	22	PN16	125	250	210	188	8	18
150.200	3	PN16	150	285	240	212	8	22	PN16	150	285	240	212	8	22
100.400 100.500/2	4	PN16	125	250	210	188	8	18	PN16	100	220	180	158	8	18
125.330 125.400 125.500/2	4	PN16	150	285	240	212	8	22	PN16	125	250	210	188	8	18
150.260 150.330 150.400 150.500	4 4 5 5	PN10	200	340	295	268	8	22	PN16	150	285	240	212	8	22
200.230 200.330 200.400	4 5 5	PN10	200	340	295	268	8	22	PN10	200	340	295	268	8	22
250.290 250.330 250.400	5	PN10	250	395	350	320	12	22	PN10	250	395	350	320	12	22
300.350	5	PN10	300	445	400	370	12	22	PN10	300	445	400	370	12	22