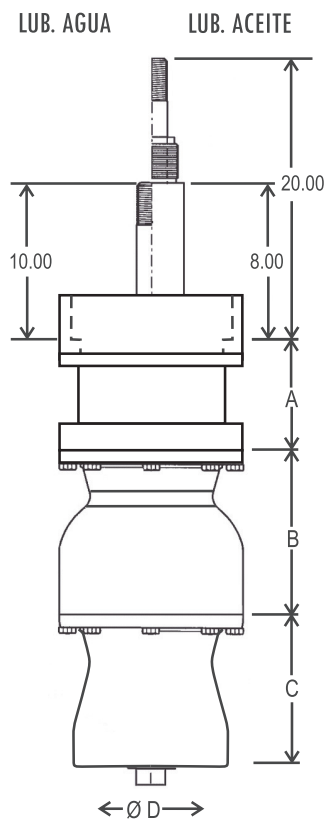




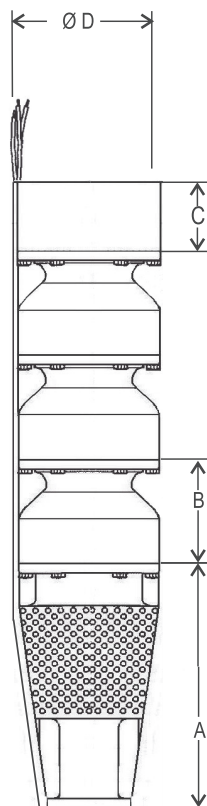
**CATÁLOGO
DE CURVAS**



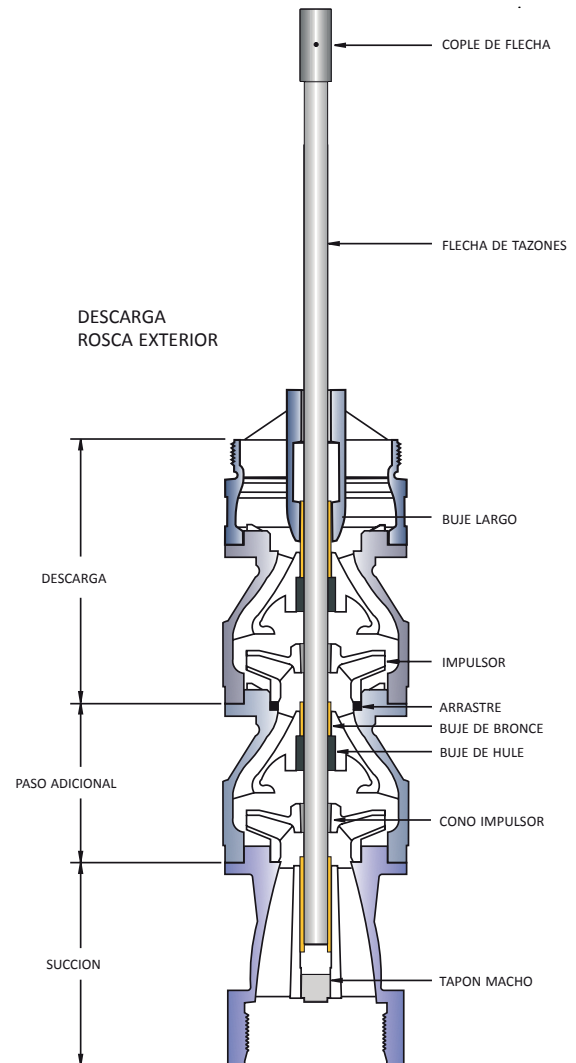
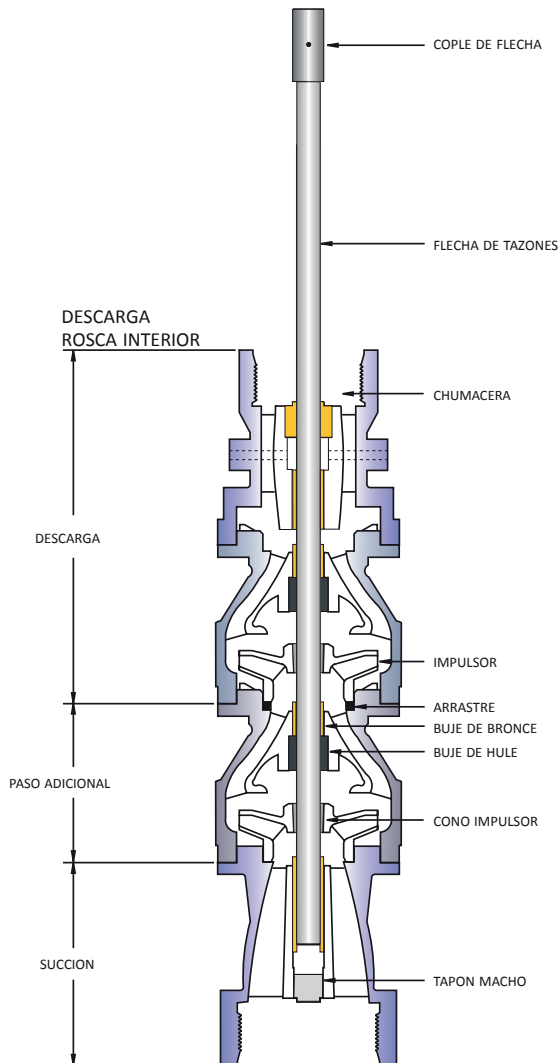
INFORMACIÓN TÉCNICA



Modelo	Descarga A (in)	Tazón intermedio B (in)	Succión C (in)	Diámetro Exterior D (in)	Diámetro de Succión NPT (in)	Diámetro de Descarga NPT (in)
5AS1	4.75	4.00	5.00	5.20	4	3, 4
5AS2	4.75	4.63	5.00	5.20	4	3, 4
6AS	4.75	5.13	5.00	5.90	4	3, 4
7AS	4.38	6.38	5.88	7.13	5	4, 6
8AS	4.38	6.50	6.25	7.50	5	4, 6
9AS1	5.19	7.63	9.19	9.50	6	6, 8
9AS2	5.25	8.50	9.25	9.25	6	6, 8
11AS	5.75	9.88	10.13	11.00	8	8
12AS	5.75	11.00	10.38	11.75	8	8, 10
14AS	9.00	11.50	10.38	13.70	10	10, 12
14AS2	13.50	13.63	11.00	14.00	10	10, 12
16AS1	14.37	16.74	15.68	16.00	N/A	16F
18AS1	9.88	18.63	12.75	18.00	N/A	18F



Modelo	Succión A (in)	Tazón Intermedio B (in)	Descarga C (in)	Diámetro Exterior D (in)	Diámetro de Descarga NPT (in)	NEMA motor (in)
5AS1	5.00	4.00	3.06	5.20	3, 4	6.00
5AS2	5.00	4.63	3.06	5.20	3, 4	6.00
6AS	5.00	5.13	3.75	5.90	3, 4	6.00
7AS	5.88	6.38	3.63	7.13	4, 6	6, 8
8AS	6.25	6.50	3.63	7.50	4, 6	6, 8
9AS1	9.19	7.63	4.50	9.50	6, 8	6, 8, 10
9AS2	9.25	8.50	4.50	9.25	6, 8	6, 8, 10
11AS	10.13	9.88	5.13	11.00	8, 10	8, 10
12AS	10.38	11.00	6.25	11.75	8, 10	8, 10
14AS	10.38	11.50	5.25	13.70	10, 12	10, 12
14AS2	11.00	13.63	8.63	14.00	10, 12	10, 14
16AS1	15.68	16.74	N/A	16.00	16F	10, 14
18AS1	12.75	18.63	N/A	18.00	18F	10, 14



Hierro Fundido ASTM-A48 CL 30B

Descarga

Tazon Intermedio

Succión

Bronce ASTM B584 C875

Impulsor

Bronce SAE-65

Buje de Bronce

Chumaceras (cuerda derecha)

Neopreno:

Arrastres

Buje de Hule

CR-1018

Cono Impulsor

Acero Inox. SS 416 ASTM A582

Flecha Tazones

Fierro

Tapón Macho (cuerda estándar)

AISI-1035

Cople de Flecha

COMPONENTES ENSAMBLE DE TAZONES SUMERGIBLE

MATERIALES DE CONSTRUCCION :

Tazón Intermedio: FOFO ASTM A48 CL 30B

Bracket: Fierro Colado ASTM A48 CL 30B

Impulsor: ASTM-B-584 C90500

Chumacera ASTM-B-584 C 93800

Resorte: Acero 1/8, 2", 12 lbs, compresión a 3/4

Arrastres: Neopreno

Buje de Hule: Neopreno

Cono Impulsor: CR-1018

Flecha Tazones: A ASTM-A-582 TIPO 416

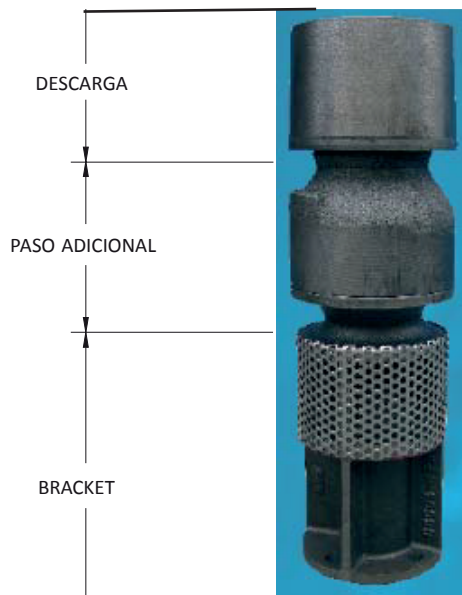
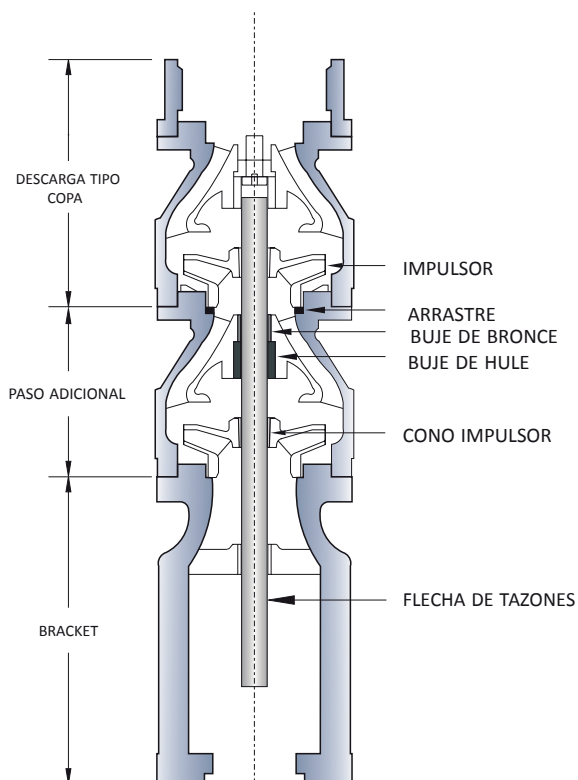
Tornillo Ajustador: Latón, cuerda estándar

Tuercas de ajuste: Estándar

Tapón portatornillo: Ac. Inoxidable T-416



IMPULSORES EN BRONCE



MECANISMO

- 1.- Armar cuerpo de tazones hasta colocar el último tazón intermedio.
- 2.- Girar el tornillo ajustador hasta que pegue con la flecha de tazones.
- 3.- Girar el tornillo ajustador hacia el lado contrario hasta que se despegue 0.125 " de la flecha de tazones.
- 4.- Retirar el último tazón de la bomba.
- 5.- Sujetar el tornillo ajustador por el opresor allen mediante la llave correspondiente.
- 6.- Colocar la primera tuerca ajustadora por la parte superior del tazón hasta que pegue en el tapón portatornillo.
- 7.- Colocar la segunda tuerca ajustadora sobre la primera y apretar.
- 8.- Colocar una vez más el tazón en la bomba y seguir armando el cuerpo de tazones.



CUADRO DE ALARGAMIENTO PARA TUBOS DE COLUMNA

Pulgadas por 100 pies de Columna

EMPUJE HIDRAULICO (lbs)	DIÁMETRO DE LA COLUMNA							
	3"	4"	6"	8"	10"	12"	14"	16"
500	0.007	0.005	0.003					
600	0.008	0.006	0.004					
800	0.011	0.008	0.005					
1000	0.013	0.012	0.006	0.004				
1200	0.016	0.014	0.007	0.005				
1400	0.019	0.016	0.008	0.006				
1600	0.021	0.018	0.009	0.007	0.005			
1800	0.024	0.020	0.011	0.008	0.006			
2000	0.027	0.023	0.012	0.009	0.007			
2400	0.032	0.027	0.014	0.10	0.008	0.006		
2800	0.037	0.031	0.016	0.012	0.01	0.007		
3200	0.043	0.035	0.019	0.014	0.011	0.008		
3600	0.048	0.039	0.021	0.016	0.012	0.009	0.008	
4000		0.043	0.023	0.017	0.014	0.010	0.008	
4400		0.047	0.026	0.019	0.015	0.011	0.009	
4800		0.051	0.028	0.021	0.016	0.013	0.010	0.009
5200		0.055	0.030	0.023	0.018	0.014	0.011	0.010
5600			0.033	0.024	0.019	0.015	0.012	0.011
6000			0.035	0.026	0.020	0.016	0.013	0.011
6500			0.038	0.028	0.022	0.017	0.014	0.012
7000			0.041	0.03	0.024	0.018	0.015	0.013
7500			0.044	0.033	0.025	0.020	0.016	0.014
8000			0.047	0.035	0.027	0.021	0.017	0.015
9000			0.053	0.039	0.030	0.023	0.019	0.017
10,000			0.059	0.043	0.034	0.026	0.021	0.019
12,000			0.070	0.052	0.041	0.031	0.025	0.023
14,000			0.082	0.061	0.048	0.036	0.029	0.026
16,000			0.094	0.070	0.054	0.042	0.034	0.030
18,000				0.078	0.061	0.047	0.038	0.034
20,000				0.087	0.068	0.052	0.042	0.037
22,000				0.096	0.075	0.057	0.046	0.041
24,000				0.104	0.082	0.063	0.050	0.045
26,000				0.113	0.088	0.068	0.055	0.049
28,000					0.095	0.073	0.059	0.052
30,000					0.102	0.078	0.063	0.056
32,000					0.109	0.083	0.067	0.060
34,000					0.115	0.089	0.071	0.064
36,000					0.122	0.094	0.076	0.068
38,000					0.129	0.099	0.080	0.071
40,000					0.136	0.104	0.084	0.075



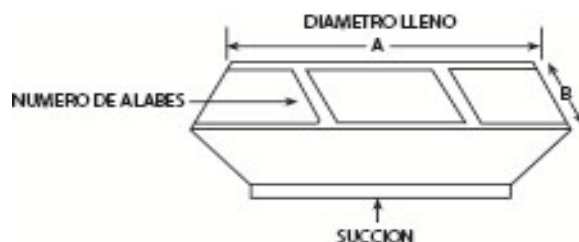
CUADRO DE ALARGAMIENTO DE FLECHAS

Pulgadas por 100 pies de Flecha

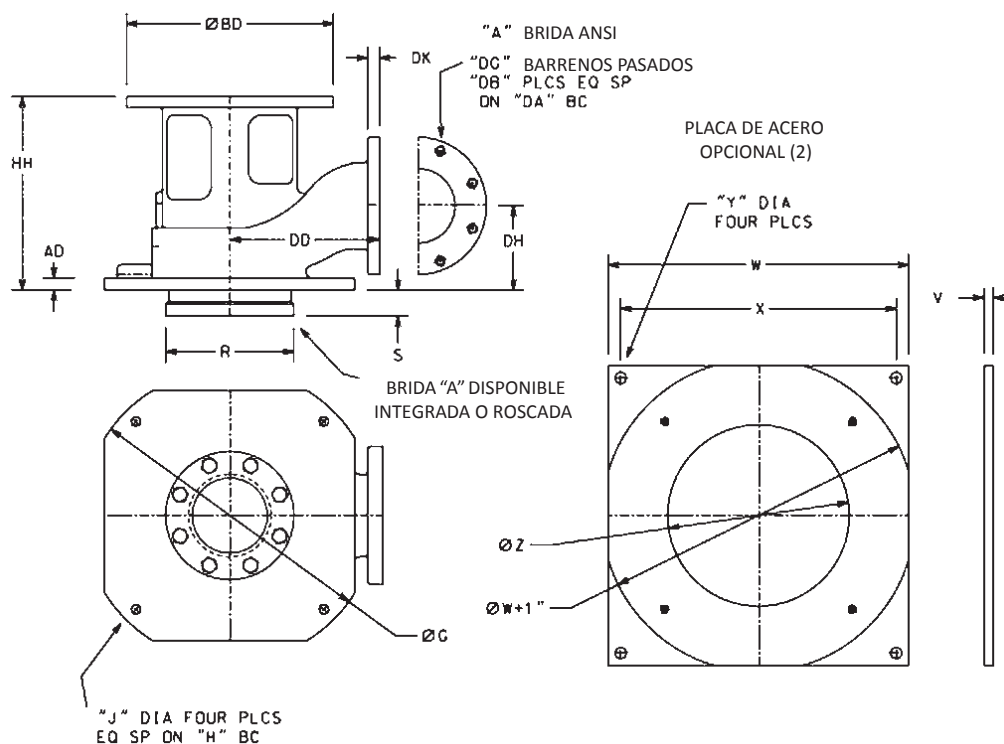
EMPUJE HIDRAULICO (lbs)	DIÁMETRO DE LA FLECHA													
	3/4"	1"	1 3/16"	1 1/2"	1 11/16"	1 15/16"	2 3/16"	2 7/16"	2 11/16"	2 15/16"	3 3/16"	3 7/16"	3 11/16"	3 15/16"
500	0.047	0.026	0.018	0.012	0.009	0.007								
600	0.056	0.032	0.022	0.014	0.011	0.008	0.006							
800	0.075	0.042	0.030	0.019	0.015	0.011	0.009							
1000	0.094	0.053	0.037	0.024	0.019	0.014	0.011	0.009						
1200	0.112	0.063	0.045	0.028	0.022	0.017	0.013	0.011						
1400	0.131	0.074	0.052	0.033	0.026	0.020	0.015	0.012	0.010					
1600	0.150	0.084	0.60	0.380	0.030	0.022	0.018	0.014	0.012					
1800	0.169	0.095	0.067	0.042	0.033	0.025	0.02	0.016	0.013	0.011				
2000	0.187	0.105	0.075	0.047	0.037	0.028	0.022	0.018	0.015	0.012				
2400	0.225	0.127	0.090	0.056	0.044	0.034	0.026	0.021	0.018	0.015	0.012			
2800	0.262	0.148	0.0105	0.066	0.052	0.039	0.03	0.025	0.020	0.017	0.015			
3200		0.169	0.119	0.075	0.059	0.045	0.035	0.028	0.023	0.020	0.017	0.014		
3600		0.190	0.135	0.085	0.067	0.051	0.04	0.032	0.026	0.022	0.019	0.016		
4000		0.211	0.150	0.094	0.074	0.056	0.044	0.036	0.029	0.025	0.021	0.018	0.016	
4400		0.240	0.164	0.103	0.081	0.062	0.048	0.039	0.032	0.027	0.024	0.020	0.017	
4800		0.253	0.179	0.113	0.089	0.067	0.053	0.043	0.035	0.029	0.025	0.021	0.019	0.016
5200		0.274	0.194	0.122	0.096	0.073	0.057	0.046	0.038	0.032	0.027	0.023	0.02	0.018
5600			0.209	0.131	0.107	0.079	0.062	0.050	0.041	0.034	0.029	0.025	0.022	0.019
6000			0.224	0.141	0.111	0.084	0.066	0.053	0.044	0.037	0.031	0.027	0.023	0.020
6500			0.243	0.153	0.120	0.091	0.071	0.058	0.047	0.040	0.034	0.029	0.025	0.022
7000			0.260	0.164	0.129	0.098	0.077	0.062	0.051	0.043	0.036	0.031	0.027	0.024
7500				0.176	0.139	0.105	0.082	0.067	0.055	0.046	0.039	0.033	0.029	0.026
8000				0.188	0.148	0.112	0.088	0.071	0.058	0.049	0.042	0.036	0.031	0.027
9000				0.211	0.167	0.126	0.098	0.080	0.066	0.055	0.047	0.040	0.035	0.031
10,000				0.234	0.185	0.140	0.11	0.089	0.073	0.061	0.052	0.045	0.039	0.034
12,000				0.281	0.222	0.168	0.132	0.106	0.088	0.073	0.062	0.054	0.047	0.041
14,000					0.259	0.196	0.154	0.124	0.102	0.086	0.073	0.062	0.055	0.048
16,000					0.296	0.224	0.176	0.142	0.117	0.098	0.083	0.071	0.062	0.054
18,000						0.252	0.198	0.160	0.131	0.110	0.093	0.080	0.070	0.061
20,000						0.280	0.22	0.176	0.146	0.122	0.104	0.089	0.078	0.068
22,000							0.242	0.195	0.160	0.134	0.114	0.098	0.086	0.074
24,000							0.264	0.213	0.175	0.147	0.124	0.107	0.094	0.082
26,000							0.286	0.230	0.190	0.159	0.135	0.116	0.102	0.088
28,000								0.248	0.204	0.171	0.145	0.125	0.109	0.095
30,000								0.266	0.219	0.183	0.156	0.134	0.117	0.104
32,000								0.283	0.233	0.196	0.166	0.143	0.125	0.109
34,000									0.248	0.208	0.176	0.152	0.133	0.116
36,000									0.262	0.220	0.187	0.160	0.140	0.122
38,000									0.277	0.232	0.197	0.170	0.148	0.129
40,000									0.292	0.245	0.207	0.178	0.156	0.136

DATOS TECNICOS IMPULSORES

Impulsor Modelo	Paso de Esfera (pulg)	Area del Impulsor (sq.pulg)	Presión del impulsor wr2 (lb-ft2)	Factor de Empuje "K" (lbs/ft)	Dimensiones Impulsor			Peso del Impulsor (lbs)	
					A = (pulg)	B = (pulg)	No. De Alabes	Cerrado	Abierto
5AS1L	0.15	1.62	0.05	1.30	4.00	0.21	5	2.40	N/A
5AS1H	0.15	1.62	0.05	1.30	4.00	0.21	8	2.40	N/A
5AS2L	0.22	3.08	0.03	1.40	3.72	0.43	5	2.00	N/A
5AS2H	0.22	3.08	0.03	1.30	3.72	0.43	8	2.00	N/A
6ASL	0.22	4.05	0.07	2.10	4.22	0.46	5	2.30	N/A
6ASH	0.22	4.05	0.07	2.10	4.22	0.46	8	2.30	N/A
7ASL	0.43	7.54	0.14	3.50	5.25	0.60	5	3.10	N/A
7ASH	0.43	7.54	0.14	3.50	5.25	0.60	8	3.10	N/A
8ASL	0.43	8.51	0.29	4.00	5.25	0.71	5	5.70	4.20
8ASH	0.43	8.51	0.29	4.00	5.25	0.71	8	5.70	4.20
9AS1L	0.45	8.60	0.58	4.60	7.31	0.73	5	7.90	N/A
9AS1H	0.45	8.60	0.58	4.65	7.71	0.73	8	7.90	N/A
9AS2L	0.56	12.56	0.33	4.90	6.88	1.00	5	7.00	N/A
9AS2H	0.56	12.56	0.33	4.90	6.88	1.00	8	7.00	N/A
11ASL	0.68	15.60	0.89	7.10	8.13	0.90	5	13.00	10.00
11ASH	0.68	15.60	0.89	6.80	8.13	0.90	8	13.00	10.00
12ASM	0.73	20.43	1.65	7.40	8.69	1.20	5	18.00	14.50
12ASH	0.73	20.43	1.65	7.50	8.69	1.20	8	18.00	14.50
14ASM	0.98	30.24	3.12	13.0	9.82	1.34	5	27.00	N/A
14ASH	0.98	30.24	3.12	13.0	9.82	1.34	8	27.00	N/A



CABEZAL DE DESCARGA EN HIERRO GRIS ASTM-A48 CLASE 30



DIMENSIONES EN PULGADAS

A	BD	AD	DH	G	H	J	HH	R	S	V	W	X	Y	Z
4"	10	0.75	5.00	16.50	14.00	0.63	13.50	7.50	1.81	0.75	18.00	16.00	0.63	12.00
6"	12, 16.5	1.00	6.75	23.50	21.25	0.75	15.50	10.25	1.81	0.75	24.00	22.00	0.88	14.50
8"	12, 16.5, 20	1.63	7.50	23.50	21.25	0.75	17.50	12.25	2.06	0.75	24.00	22.00	0.88	18.00
10"	16.5, 20	1.13	9.25	25.00	22.75	0.75	19.00	14.60	2.38	0.75	26.00	23.00	0.88	18.00
12"	24.5	1.50	10.75	32.00	30.00	0.88	23.00	19.00	4.13	0.75	34.00	31.00	1.00	24.00

125#

A	DD	DG	DB	DA	DK
4"	9.00	0.62	8	7.50	0.75
6"	12.00	0.75	8	9.50	1.00
8"	13.00	0.75	8	11.75	1.00
10"	14.00	0.88	12	14.25	1.00
12"	16.00	0.88	12	17.00	1.25

TABLA DE SELECCIÓN DE FLECHAS DE LINEA Y FRICCIONES MECANICAS

DIÁMETRO FLECHA	PESO FLECHA LBS/PIE	CARGA AXIAL MÁXIMA LBS	H.P. MÁXIMOS								
			3500	1760	1175	875	700	585	500	440	390
3/4"	1.54	2,240	38.6 .61	19.4 .31	13.0 .20	9.7 .15					
1"	2.77	3,800	114 1.07	57.5 .54	38.4 .36	28.6 .28	22.8 .22				
1- 3/16"	3.92	5,600	179 1.40	90 .70	60 .47	44.8 .35	35.8 .28	30 .23			
1- 1/2"	6.21	8,800	370 2.32	186 1.17	124 .78	92.5 .58	74 .46	61.8 .39	52.9 .33		
1- 11/16"	7.90	11,500	567 2.82	280 1.42	187 .95	139 .71	111 .57	92 .47	79.5 .41	70 .36	
1- 15/16"	10.5	15,500		440 1.83	294 1.22	219 .91	175 .73	146 .61	125 .52	110 .46	97.5 .40
2- 3/16"	13.5	20,000		650 2.30	434 1.54	324 1.14	259 .92	216 .76	185 .65	163 .58	144 .51
2- 7/16"	16.9	25,000		792 2.89	529 1.93	394 1.44	315 1.15	263 .96	225 .82	198 .72	175 .64
2- 11/16"	20.5	30,000		1035 3.24	691 2.23	514 1.66	412 1.33	346 1.11	294 .95	259 .84	229 .74
2- 15/16"	24.5	36,500			916 2.66	683 1.98	546 1.58	456 1.32	390 1.13	345 .99	304 .88
3- 3/16"	28.8	43,000			1190 3.22	884 2.40	707 1.92	591 1.60	505 1.37	444 1.21	394 1.07

MULTIPLICADORES DE H.P.

DIAMETRO FLECHA	C 1045	316 SS	416 SS	17-4PH	K-MONEL
3/4" a 2- 3/16"	1.00	0.88	1.30	1.70	1.70
2- 7/16" y Mayores	1.00	0.73	1.50	2.00	2.0

La capacidad de transmisión de las flechas de línea en H.P., así como las fricciones mecánicas se presentan en las casillas que corresponden a una determinada velocidad y para un determinado diámetro de flecha. La cifra superior en las casillas representa la potencia máxima que la flecha puede transmitir siempre y cuando no se rebase la carga axial máxima señalada en la tercera columna de la tabla. Las cifras en la parte inferior de las casillas corresponden a las pérdidas de fricción expresadas en H.P. por cada 30.50 metros (100') de columna lubricada por aceite o agua. **Las flechas de línea dependen de la carga máxima axial, por lo que hay que aplicar los siguientes factores cuando sea necesario:**

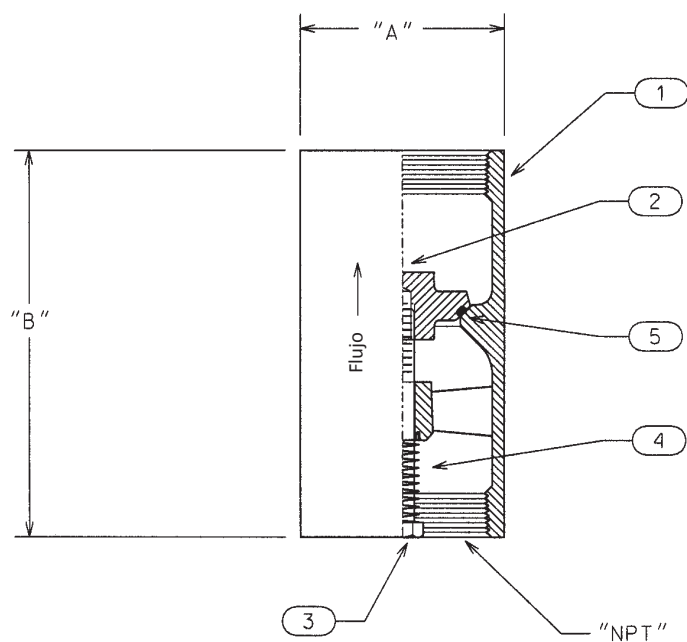
- 1.- Si la carga axial excede en un 50% de los factores listados, multiplíquese las potencias en H.P. por 0.958
- 2.- Si la carga axial es solamente un 50% de los factores listados, multiplíquese las potencias en H.P. por 1.025



CANTIDAD DE GUIAS DE HULE

LONGITUD DE COLUMNA EN PIES	CANTIDAD	COLOCAR EL ESTABILIZADOR EN EL TRAMO NO.
30	0	
40 -70	1	3
80 - 120	2	3 y 7
130 - 150	3	3 , 7 y 12
160 - 190	4	3 , 7 , 12 y 15
200 - 240	5	3 , 7 , 12 , 15 y 19
250 -270	6	3 , 7 , 12 , 15 , 19 y 24
280 - 310	7	3 , 7 , 12 , 15 , 19 , 24 y 27
320 -360	8	3 , 7 , 12 , 15 , 19 , 24 , 27 y 31
370 - 390	9	3 , 7 , 12 , 15 , 19 , 24 , 27 , 31 y 36
400 - 430	10	3 , 7 , 12 , 15 , 19 , 24 , 27 , 31 , 36 y 39

VÁLVULA CHECK



MATERIALES DE CONSTRUCCIÓN

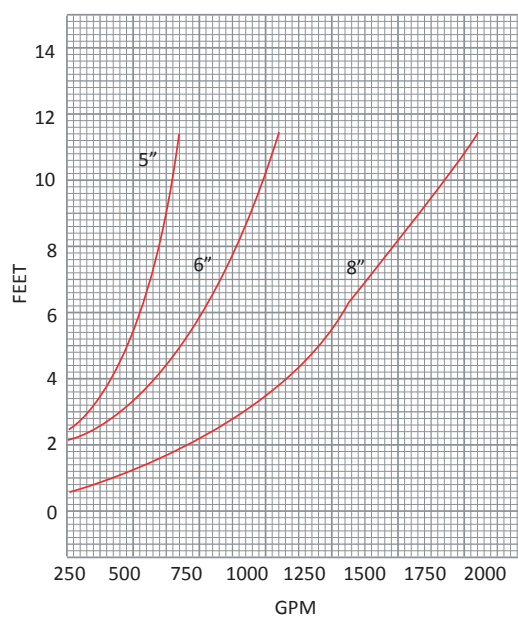
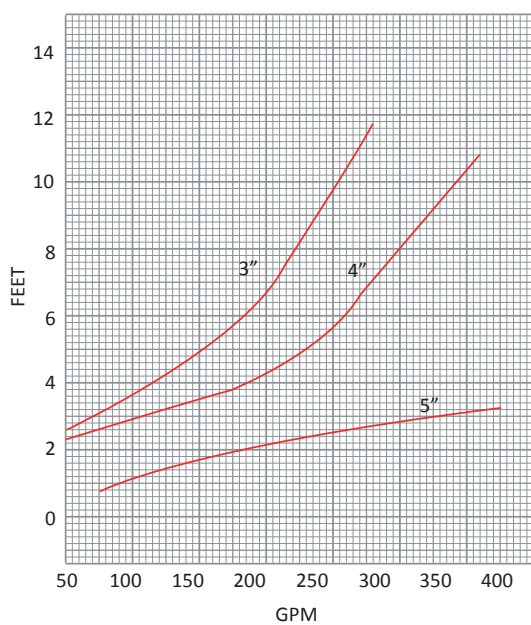
Ítem	Descripción	Material	GPI	ASTM
1	Cuerpo	Hierro Ductil	1018	A536
2	Plunger	Hierro	1003	A48
3	Tornillo	SST	2228	A276
4	Resorte	SST	2228	A276
5	O-Ring	Nitrilo	5301	

DIMENSIONES

NPT	"A"	"B"	Weight
3	4.31	8	11
4	5.25	10	20
5	6.63	10	32
6	7.63	11	44
8	9.88	13	71



PÉRDIDAS POR FRICCIÓN EN VÁLVULA CHECK





PERDIDAS POR FRICCIÓN EN COLUMNAS DE BOMBA TIPO TURBINA LUBRICADAS POR ACEITE O AGUA

PERDIDAS EN PIES DE COLUMNA DE AGUA POR CADA 100 PIES DE COLUMNA LUBRICADA POR ACEITE O AGUA
LAS PERDIDAS POR FRICCIÓN TABULADAS ESTAN DE ACUERDO A LAS ESPECIFICACIONES ANSI B58.1 Y AWWA E101

DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		10	20	30	40	50	60	70	80	90	100	125	150	175	200	225	250	275	300
2 1/2"	3/4"	1.0	2.3	3.9	5.4	7.2	9.0	11.5											
3"	3/4"		1.0	1.9	3.0	4.4	6.0	7.8	9.7	11.8	14.1								
	1"		1.2	2.3	3.7	5.4	7.3	9.5	14.0										
4"	3/4"						0.9	1.2	1.5	1.8	2.2	3.2	4.4	5.7	7.3	9.0	10.8	12.8	15.0
	1"					0.9	1.2	1.5	1.9	2.4	2.8	4.2	5.7	7.5	9.5	11.5	14.0		
6"	1 3/16"			0.7	1.1	1.6	2.2	2.9	3.6	4.4	5.3	7.7	10.5	13.5					
	3/4"																	1.0	1.2
	1"															0.9	1.1	1.3	1.5
	1 3/16"														1.0	1.2	1.4	1.7	2.0
	1 1/2"-1 11/16"												0.9	1.1	1.4	1.7	2.0	2.4	2.8
	1 15/16"												0.9	1.3	1.7	2.2	2.7	3.3	3.9

DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		325	350	375	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400
6"	3/4"	1.4	1.6	1.8	2.0	2.5	3.0	3.6	4.2	4.8	5.5	6.2	7.0	8.6	10.4				
	1"	1.7	2.0	2.2	2.5	3.1	3.7	4.4	5.2	6.0	6.8	7.7	8.6	10.7					
	1 3/16"	2.3	2.6	2.9	3.3	4.1	4.9	5.8	6.8	7.8	9.0	10.1							
	1 1/2"-1 11/16"	3.2	3.6	4.1	4.6	5.7	6.9	8.1	9.5	11.0									
	1 15/16"	5.2	6.0	6.7	7.5	9.3	11.5												
8"	3/4"									1.0	1.2	1.5	1.8	2.3	2.8	3.2	3.9	4.4	5.0
	1"								1.0	1.2	1.4	1.7	2.0	2.5	3.0	3.5	4.2	4.8	5.5
	1 3/16"						0.9	1.1	1.3	1.5	1.7	1.9	2.2	2.7	3.2	3.8	4.5	5.2	6.0
	1 1/2"-1 11/16"					0.9	1.1	1.3	1.5	1.8	2.0	2.3	2.6	3.2	3.9	4.6	5.4	6.2	7.2
	1 15/16"			0.9	1.0	1.2	1.5	1.8	2.1	2.4	2.8	3.2	3.6	4.5	5.4	6.4	7.5	8.8	10.0
10"	2 3/16"-2 7/16"	0.9	1.1	1.3	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.6	5.2	6.4	7.8	9.4			
	1"																1.1	1.2	1.4
	1 3/16"															1.0	1.2	1.4	1.6
	1 1/2"-1 11/16"														1.0	1.2	1.4	1.6	1.8
	1 15/16"													1.0	1.2	1.4	1.6	1.9	2.2
	2 3/16"-2 7/16"												0.9	1.2	1.4	1.7	2.0	2.3	2.7
	2 11/16"										1.0	1.1	1.3	1.6	1.9	2.2	2.6	3	3.5



PERDIDAS POR FRICCIÓN EN COLUMNAS DE BOMBA TIPO TURBINA LUBRICADAS POR ACEITE O AGUA

PERDIDAS EN PIES DE COLUMNA DE AGUA POR CADA 100 PIES DE COLUMNA LUBRICADA POR ACEITE O AGUA
LAS PERDIDAS POR FRICCIÓN TABULADAS ESTAN DE ACUERDO A LAS ESPECIFICACIONES ANSI B58.1 Y AWWA E101

DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		1500	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4250	4500	4750	5000
8"	3/4"	5.7	6.3	7.8	9.5	11.0													
	1"	6.2	6.9	8.6	10.5														
	1 3/16"	6.8	7.6	9.4	11.4														
10"	1"	1.6	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.6	6.3	7.0	7.8	8.7	9.6				
	1 3/16"	1.8	2.0	2.5	3.0	3.6	4.2	4.9	5.6	6.4	7.1	8.0	8.9	9.8					
	1 1/2"-1 11/16"	2.0	2.3	2.8	3.5	4.1	4.8	5.6	6.4	7.2	8.2	9.1							
	1 15/16"	2.5	2.8	3.4	4.2	5.0	5.8	6.8	7.8	8.9	10.0								
	2 3/16"-2 7/16"	3.0	3.4	4.3	5.2	6.1	7.2	8.2	9.4										
	2 11/16"	3.9	4.5	5.5	6.7	7.9	9.3												
12"	1 3/16"			1.0	1.2	1.4	1.7	1.9	2.2	2.5	2.8	3.1	3.5	3.9	4.2	4.8	5.3	5.8	6.4
	1 1/2"-1 11/16"		0.9	1.1	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.8	5.3	6.0	6.6	7.3
	1 15/16"	0.9	1.0	1.3	1.6	1.9	2.2	2.5	2.9	3.3	3.7	4.1	4.6	5.1	5.6	6.3	7.0	7.8	8.5
	2 3/16"-2 7/16"	1.1	1.2	1.5	1.8	2.1	2.5	2.9	3.3	3.8	4.3	4.8	5.4	5.9	6.5	7.2	8.0	8.8	9.7
	2 11/16"	1.3	1.4	1.8	2.1	2.5	3.0	3.5	4.0	4.5	5.1	5.7	6.4	7.1	7.8	8.8	9.9		
14"	1 1/2"-1 11/16"						1.0	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.6	2.9	3.2	3.6	4.0
	1 15/16"					0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.9	3.2	3.5	3.9	4.3
	2 3/16"-2 7/16"				0.9	1.1	1.3	1.5	1.7	2.0	2.2	2.4	2.7	3.0	3.3	3.7	4.0	4.4	4.9
	2 11/16"			0.9	1.0	1.2	1.4	1.7	2.0	2.2	2.5	2.7	3.1	3.4	3.8	4.2	4.6	5.0	5.5
	2 15/16"	0.9	1.0	1.1	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.9	5.4	5.9	6.7	7.2
16"	1 1/2"-1 11/16"											1.0	1.1	1.2	1.3	1.4	1.6	1.8	1.9
	1 15/16"										0.9	1.1	1.2	1.3	1.4	1.6	1.7	1.9	2.1
	2 3/16"-2 7/16"								0.9	1.0	1.1	1.3	1.4	1.5	1.7	1.9	2.1	2.3	
	2 11/16"								0.9	1.0	1.1	1.2	1.4	1.5	1.6	1.8	2.0	2.2	2.5
	2 15/16"						0.9	1.0	1.1	1.3	1.4	1.6	1.8	1.9	2.1	2.4	2.7	2.9	

DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		4500	4750	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	11000	12000	13000	14000	15000
14"	1 1/2"-1 11/16"	3.2	3.6	4.0	4.7	5.6	6.4	7.4	8.5	9.7									
	1 15/16"	3.5	3.9	4.3	5.1	6.0	7.0	8.0											
	2 3/16"-2 7/16"	4.0	4.4	4.9	5.8	6.9	8.0	9.2											
	2 11/16"	4.6	5.0	5.5	6.7	8.0	9.3												
	2 15/16"	8.6	10.0																
16"	1 1/2"-1 11/16"	1.6	1.8	1.9	2.3	2.6	3.1	3.6	4.1	4.6	5.2	5.8	6.4	7.1	7.8	8.6			
	1 15/16"	1.7	1.9	2.1	2.5	3.0	3.4	3.8	4.3	4.8	5.4	6.0	6.6	7.2	7.9				
	2 3/16"-2 7/16"	1.9	2.1	2.3	2.7	3.3	3.8	4.4	5.0	5.6	6.3	7.0	7.7	8.5					
	2 11/16"	2.0	2.2	2.5	2.9	3.5	4	4.6	5.3	5.9	6.5	7.3	8	8.8					
	2 15/16"	2.4	2.7	2.9	3.5	4.1	4.7	5.4	6.1	6.8	7.6	8.3	9.0						
18"	1 15/16"		1.0	1.1	1.4	1.6	1.9	2.1	2.4	2.7	3.1	3.4	3.8	4.2	4.9	5.8	6.8	7.8	8.8
	2 3/16"-2 7/16"	1.0	1.1	1.2	1.5	1.7	2.0	2.3	2.6	2.9	3.3	3.6	4.0	4.4	5.3	6.2	7.2	8.3	9.4
	2 11/16"	1.1	1.2	1.3	1.6	1.8	2.1	2.5	2.8	3.2	3.6	4.0	4.4	4.8	5.7	6.7	7.8	9.0	
	2 15/16"	1.2	1.4	1.5	1.8	2.1	2.4	2.8	3.1	3.5	4.0	4.4	4.9	5.2	6.4	7.5	8.8		
20"	1 15/16"					0.9	1.0	1.2	1.4	1.6	1.7	1.9	2.1	2.3	2.7	3.2	3.7	4.2	4.9
	2 3/16"-2 7/16"					1.0	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	3.0	3.6	4.1	4.7	5.3
	2 11/16"				0.9	1.1	1.2	1.4	1.6	1.8	2.0	2.3	2.5	2.7	3.2	3.8	4.4	5.0	5.7
	2 15/16"			0.9	1.0	1.2	1.4	1.6	1.8	2	2.3	2.6	2.8	3.1	3.7	4.3	5.0	5.8	6.6



PERDIDAS POR FRICCIÓN EN COLUMNAS DE BOMBA TIPO TURBINA LUBRICADAS POR ACEITE O AGUA

PERDIDAS EN PIES DE COLUMNA DE AGUA POR CADA 100 PIES DE COLUMNA LUBRICADA POR ACEITE O AGUA
LAS PERDIDAS POR FRICCIÓN TABULADAS ESTAN DE ACUERDO A LAS ESPECIFICACIONES ANSI B58.1 Y AWWA E101

DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		10000	11000	12000	13000	14000	15000	16000	18000	20000	22000	24000	26000	28000	30000	32000	34000	36000	38000
18"	1 15/16"	4.2	4.9	5.8	6.8	7.8	8.8												
	2 3/16"-2 7/16"	4.4	5.3	6.2	7.2	8.3	9.4												
	2 11/16"	4.8	5.7	6.7	7.8	9.0													
	2 15/16"	5.2	6.4	7.5	8.8														
20"	1 15/16"	2.3	2.7	3.2	3.7	4.2	4.9	5.5	6.8	8.2									
	2 3/16"-2 7/16"	2.5	3	3.6	4.1	4.7	5.3	6.0	7.5	9.1									
	2 11/16"	2.7	3.2	3.8	4.4	5.0	5.7	6.5	8.0										
	2 15/16"	3.1	3.7	4.3	5.0	5.8	6.6	7.4	9.2										
24"	2 3/16"-2 7/16"	1.0	1.1	1.3	1.5	1.8	2.0	2.3	2.8	3.4	4.1	4.8	5.6	6.4	7.2	8.2			
	2 11/16"	1.0	1.2	1.4	1.6	1.9	2.2	2.4	3.0	3.6	4.2	5.2	5.6	6.8	7.8				
	2 15/16"	1.1	1.3	1.6	1.8	2.1	2.4	2.7	3.4	4.1	4.9	5.7	6.6	7.6	8.7				
	3 3/16" - 3 7/16"	1.3	1.5	1.8	2.1	2.4	2.7	3.0	3.8	4.6	5.5	6.5	7.8	8.6					
30"	2 11/16"									1.0	1.1	1.3	1.5	1.8	2.0	2.3	2.6	2.9	3.2
	2 15/16"								0.9	1.0	1.2	1.4	1.7	2.0	2.2	2.5	2.8	3.1	3.4
	3 3/16" - 3 7/16"								1.0	1.2	1.4	1.6	1.9	2.2	2.5	2.8	3.2	3.5	3.9
36"	2 11/16"													0.9	1.1	1.3	1.5	1.6	1.8
	2 15/16"													1.0	1.2	1.4	1.6	1.7	1.9
	3 3/16" - 3 7/16"												0.9	1.1	1.3	1.5	1.7	1.8	2.0

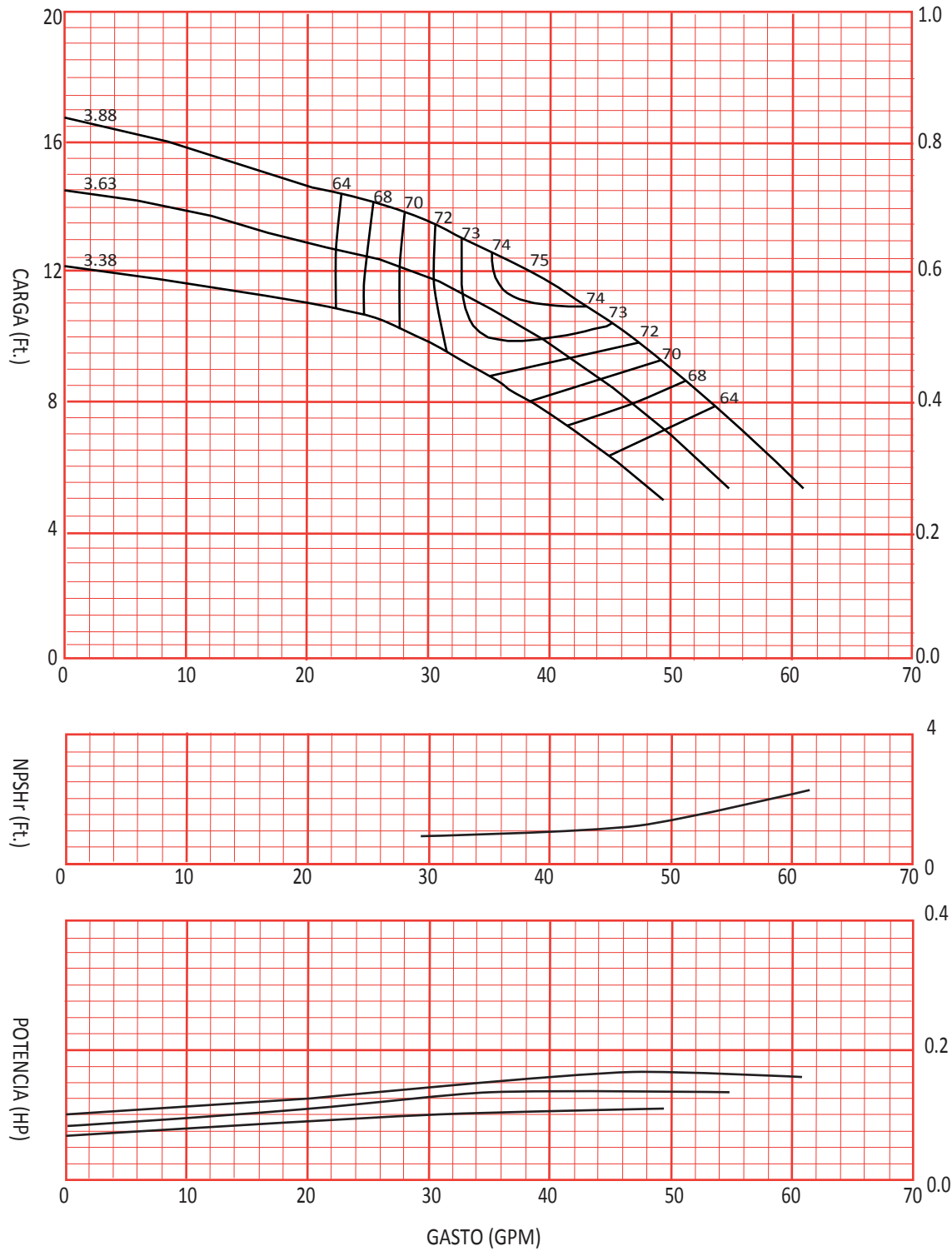
DIAM. DE COLUMNA	DIAM. DE FLECHA	FLUJO G.P.M.																	
		34000	36000	38000	40000	42000	44000	46000	48000	50000	52000	54000	56000	58000	60000	62000	64000	66000	68000
42"	2 15/16"			0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1				
	3 3/16" - 3 7/16"		0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.0	2.1	2.2				
	3 3/4" - 4" - 4 1/2"	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.3	2.4				
48"	2 15/16"												0.9	1.0	1.1	1.2	1.3	1.4	1.5
	3 3/16" - 3 7/16"											0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
	3 3/4" - 4" - 4 1/2"									0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8



**IMPULSOR
CERRADO**

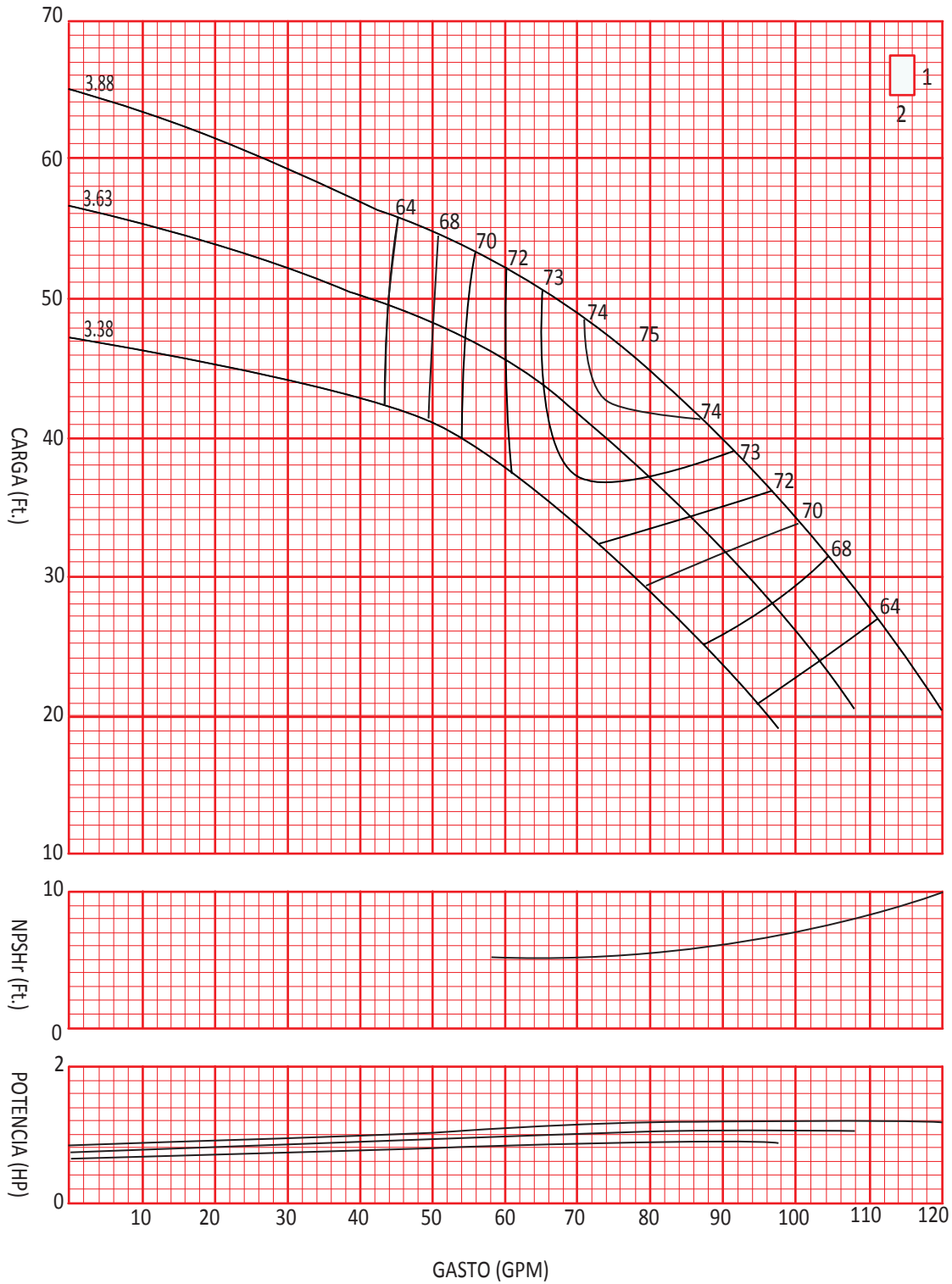


5AS1L 1750 RPM



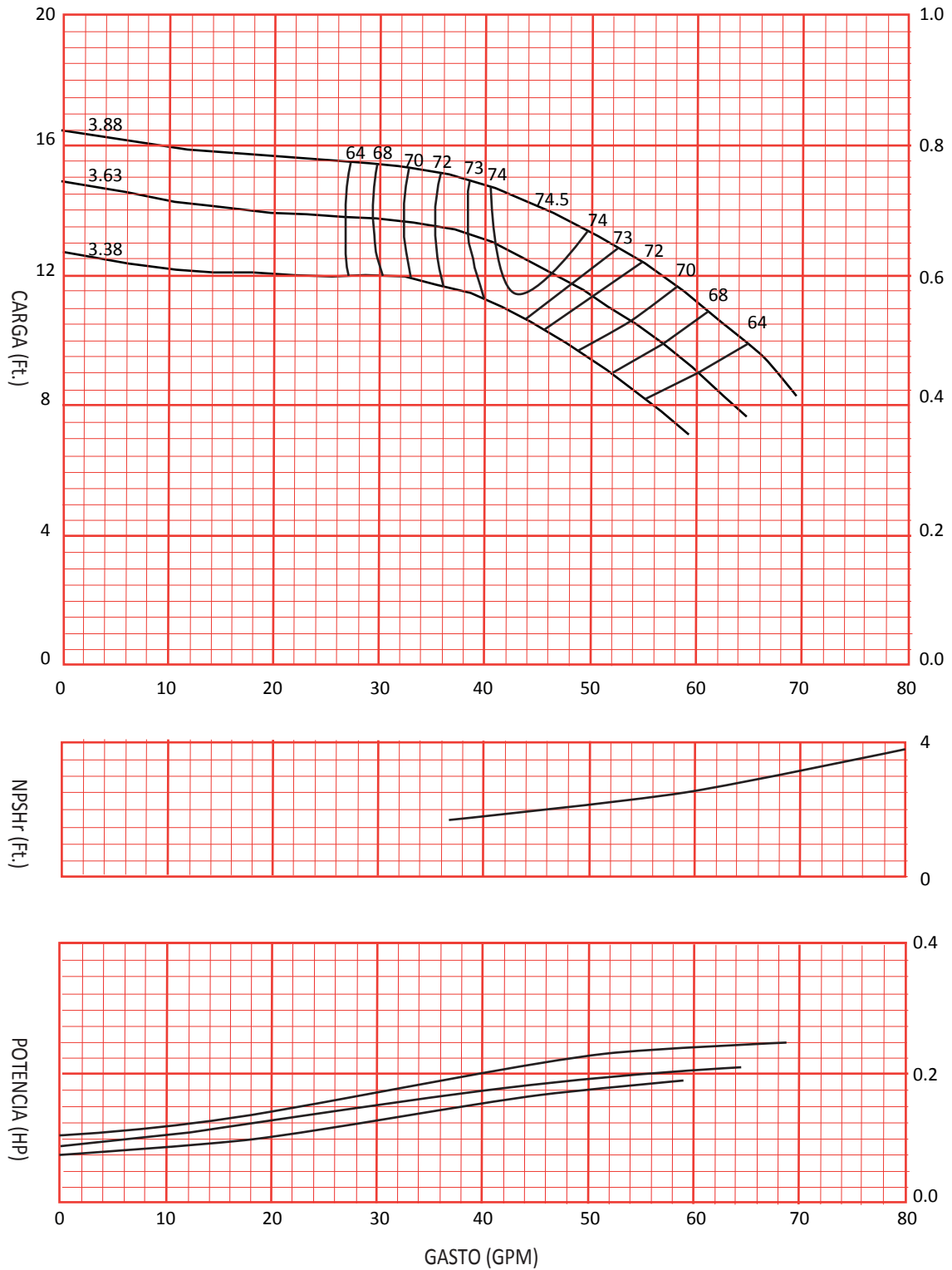


5AS1L 3600 RPM



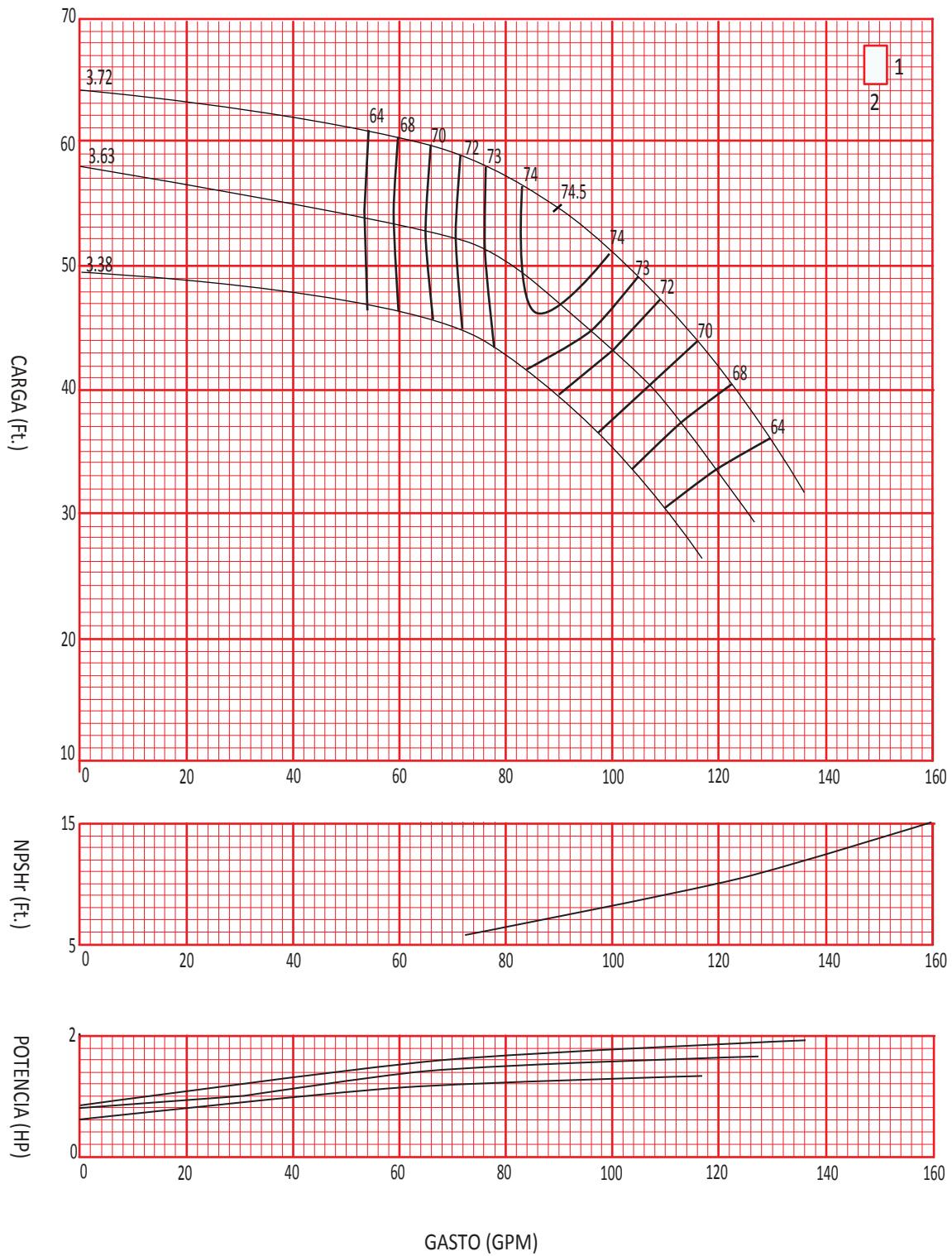


5AS1H 1750 RPM



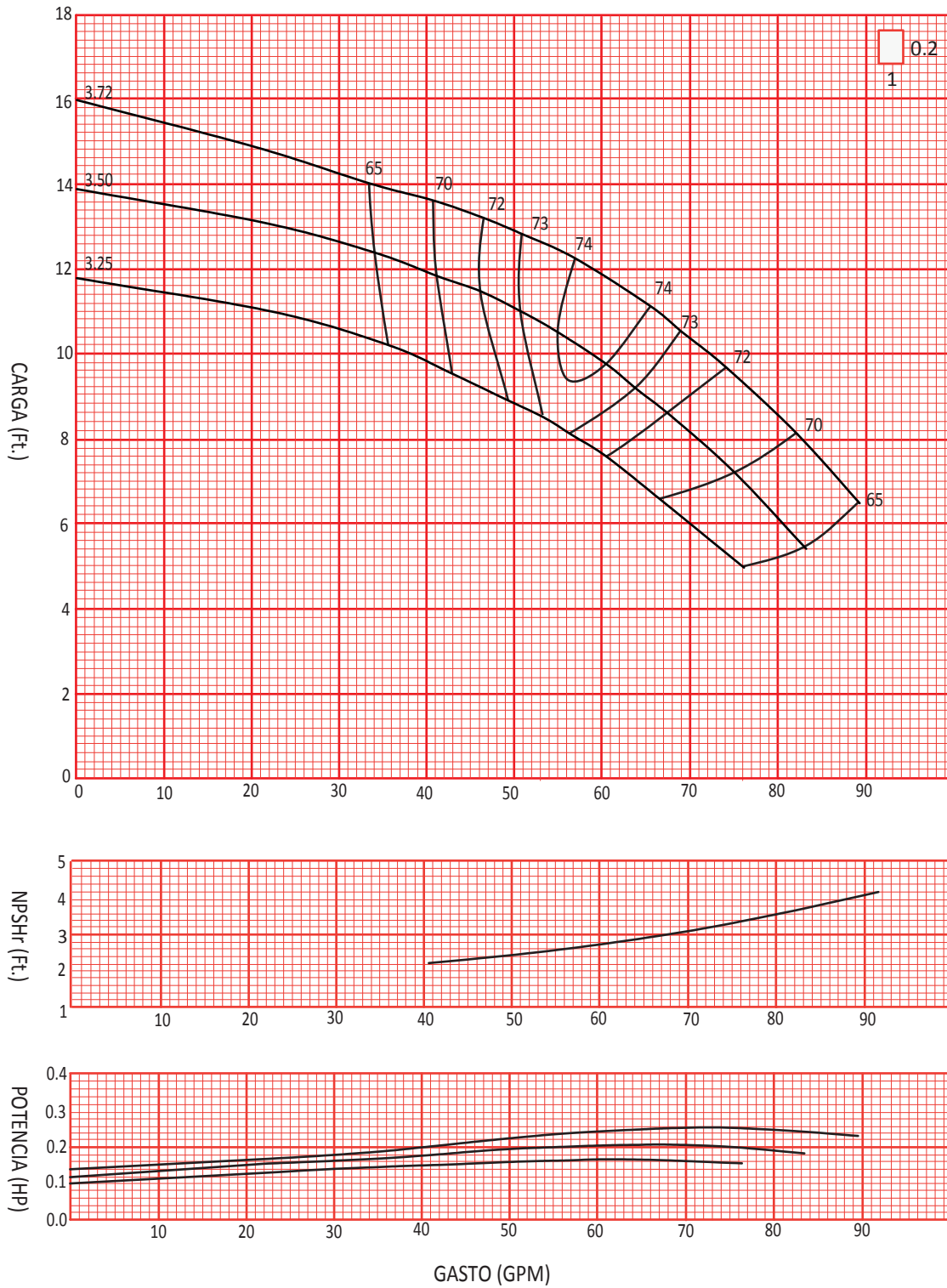


5AS1H 3600 RPM



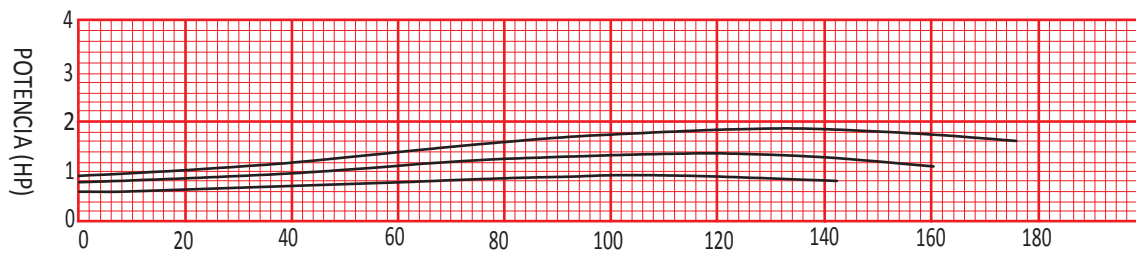
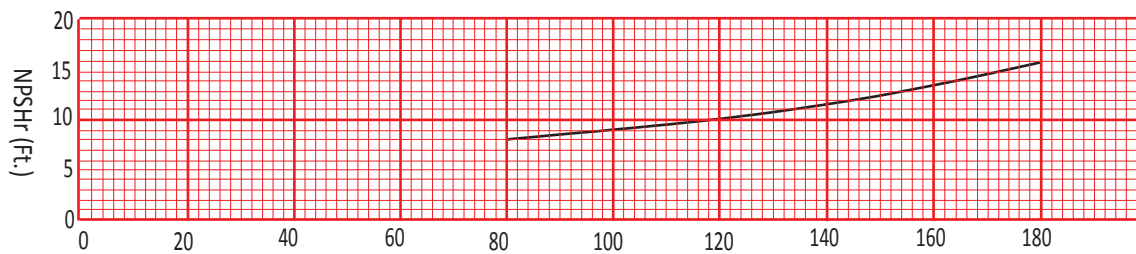
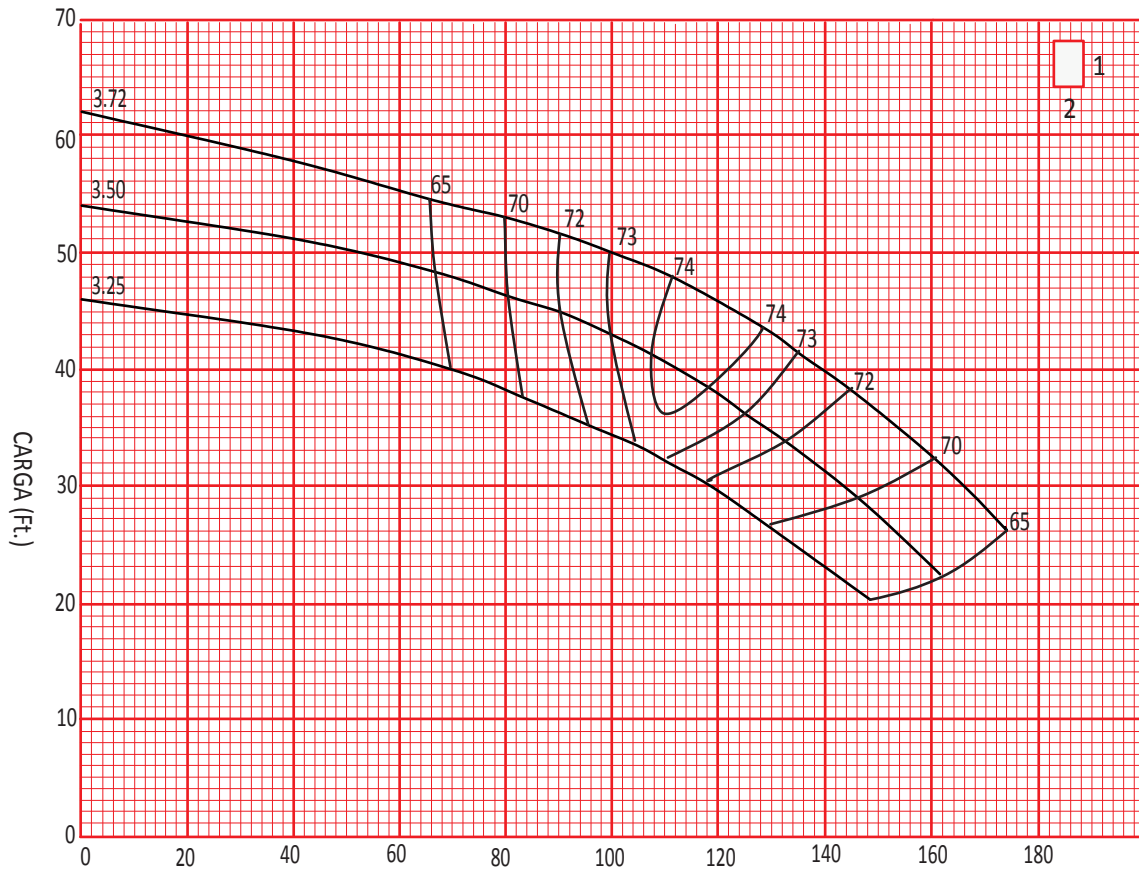


5AS2L 1800 RPM





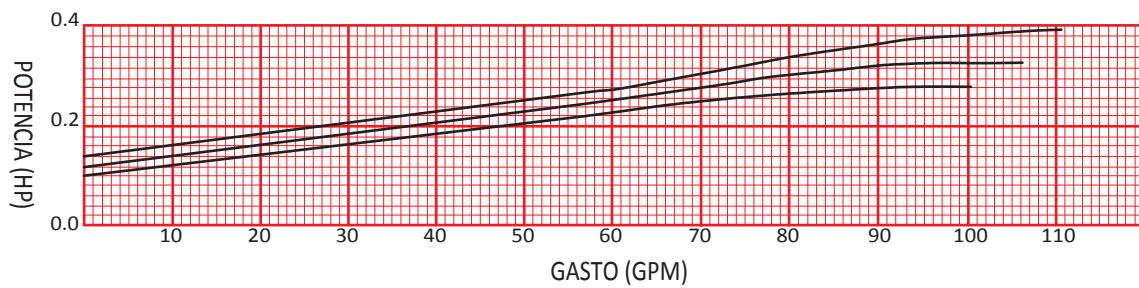
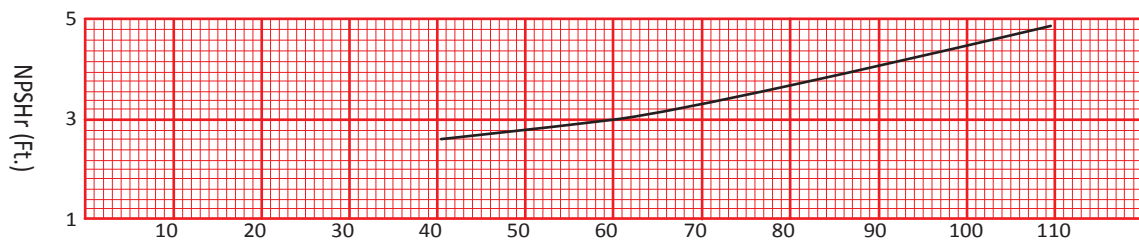
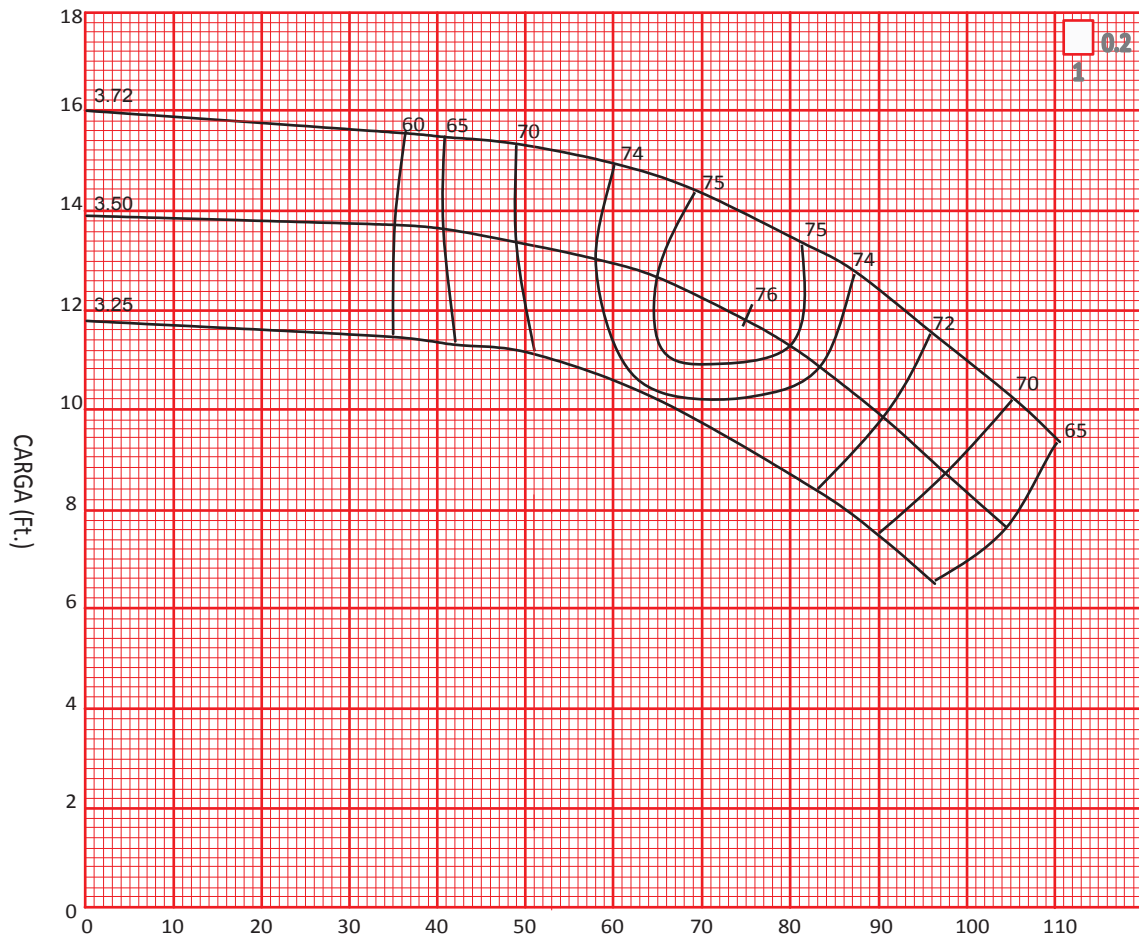
5AS2L 3600 RPM



GASTO (GPM)

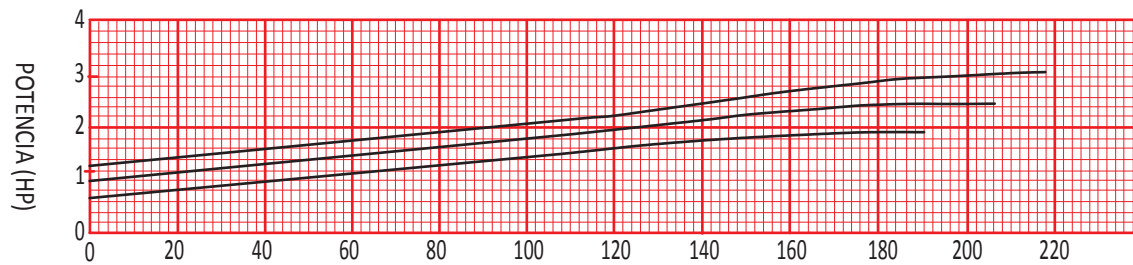
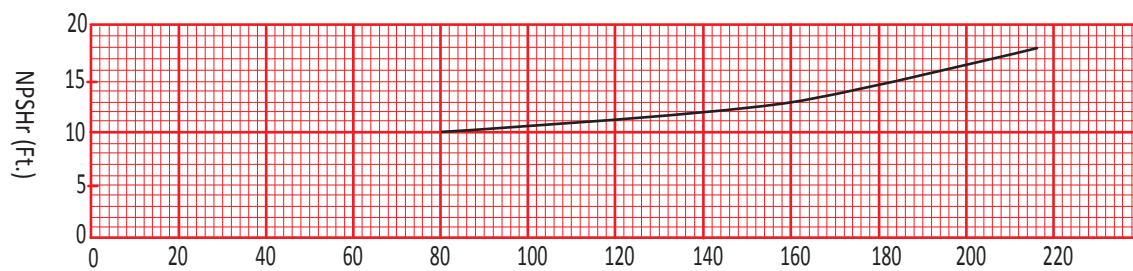
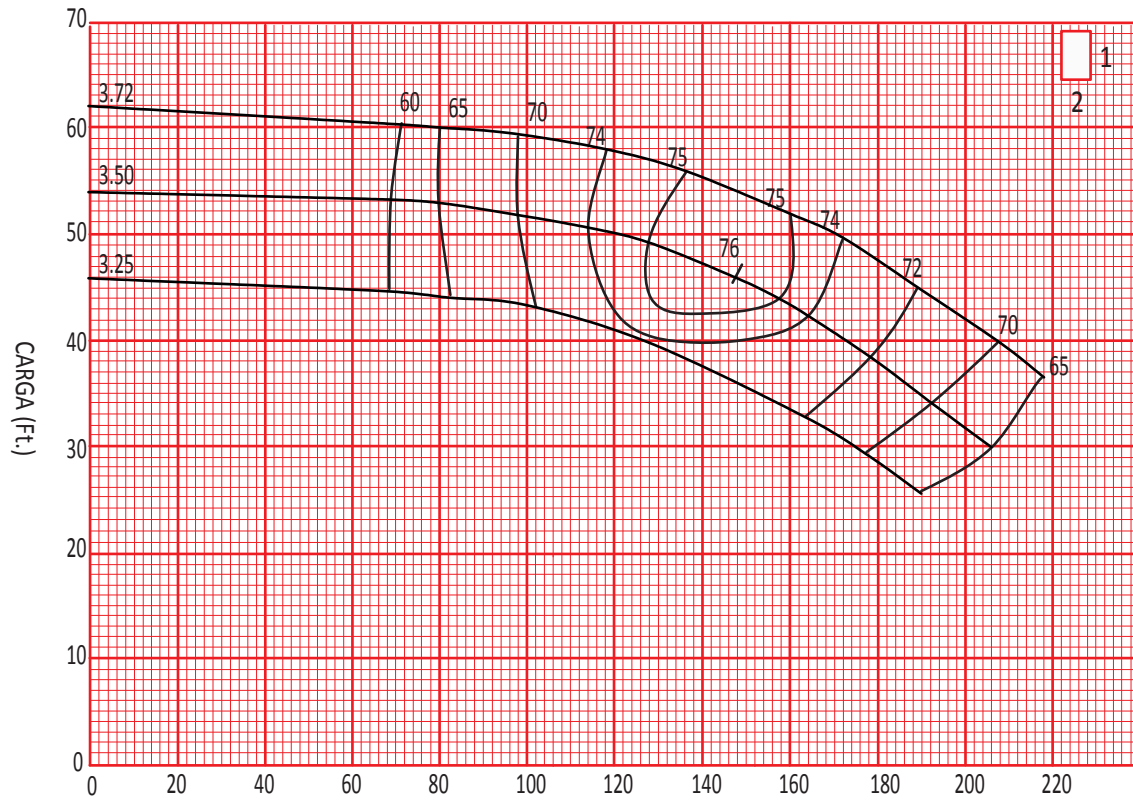


5AS2H 1750RPM





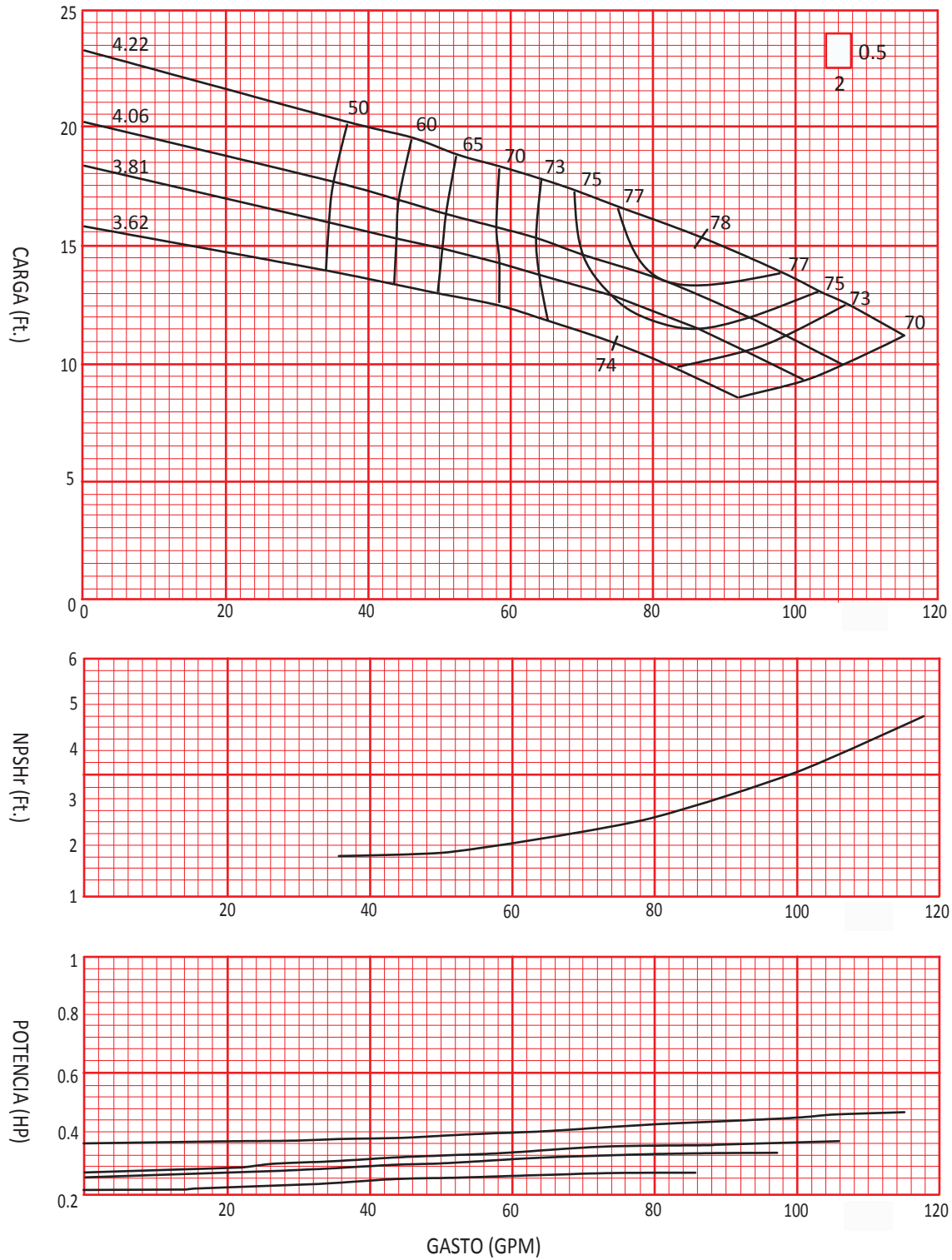
5AS2H 3600 RPM



GASTO (GPM)

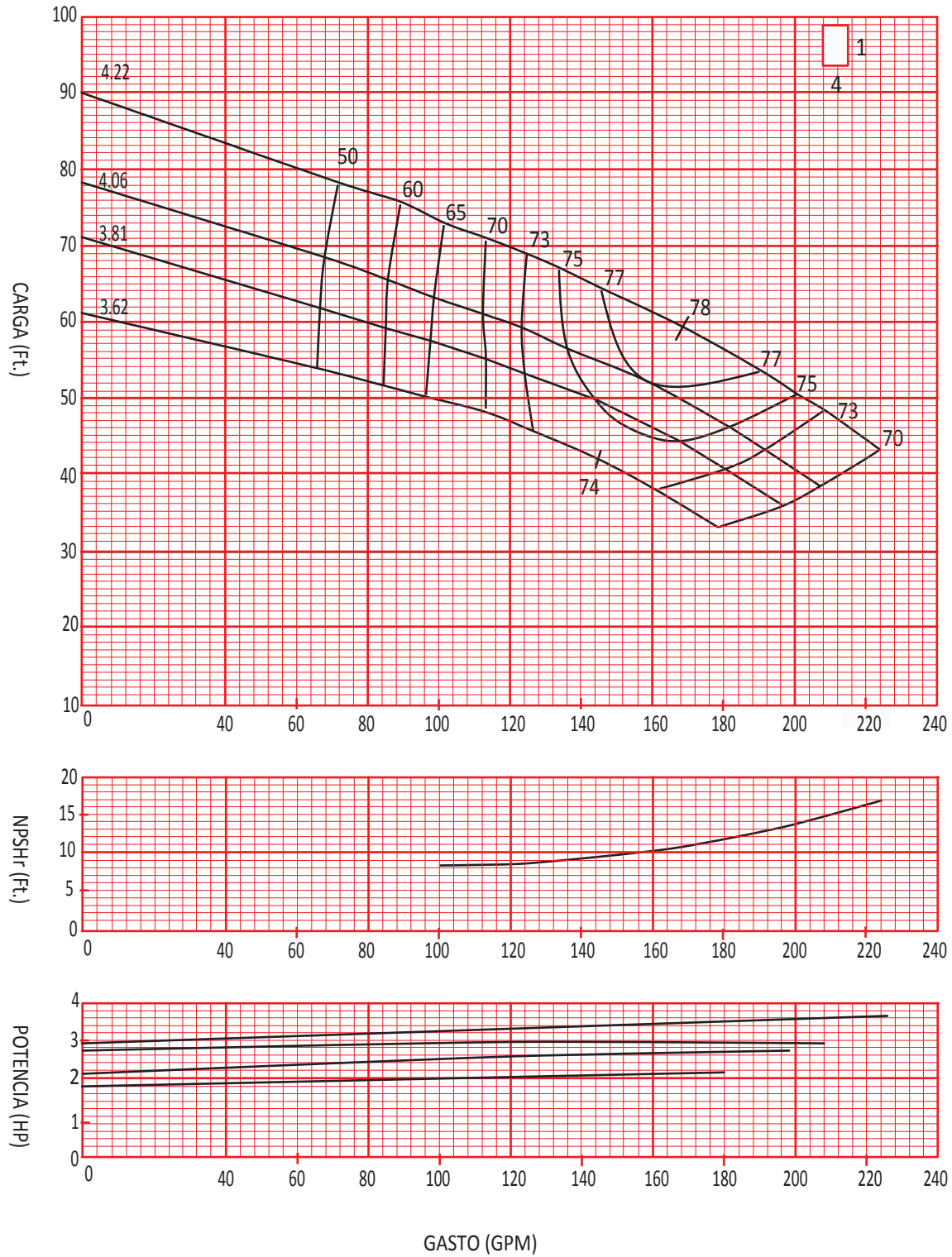


6ASL 1800 RPM



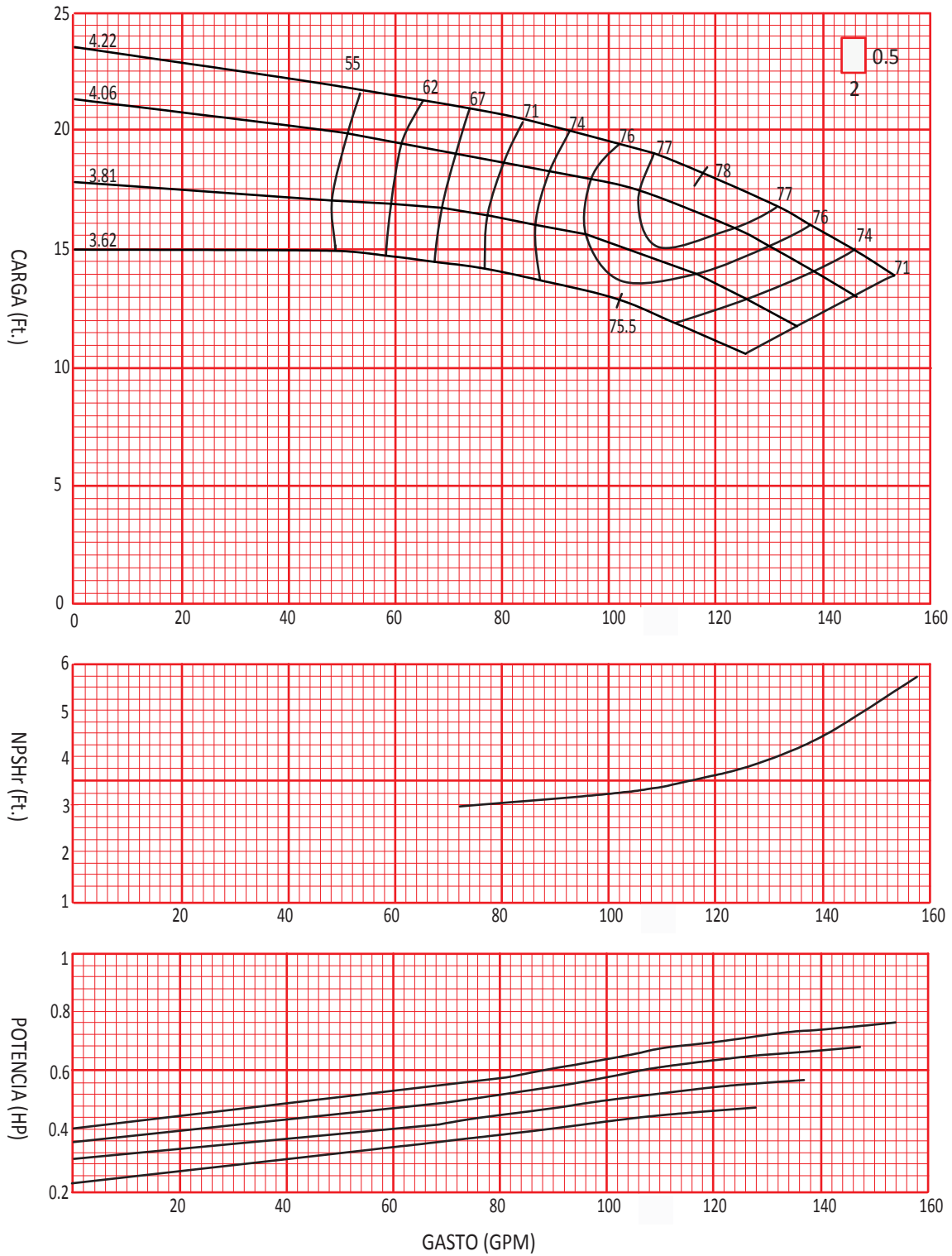


6ASL 3600 RPM



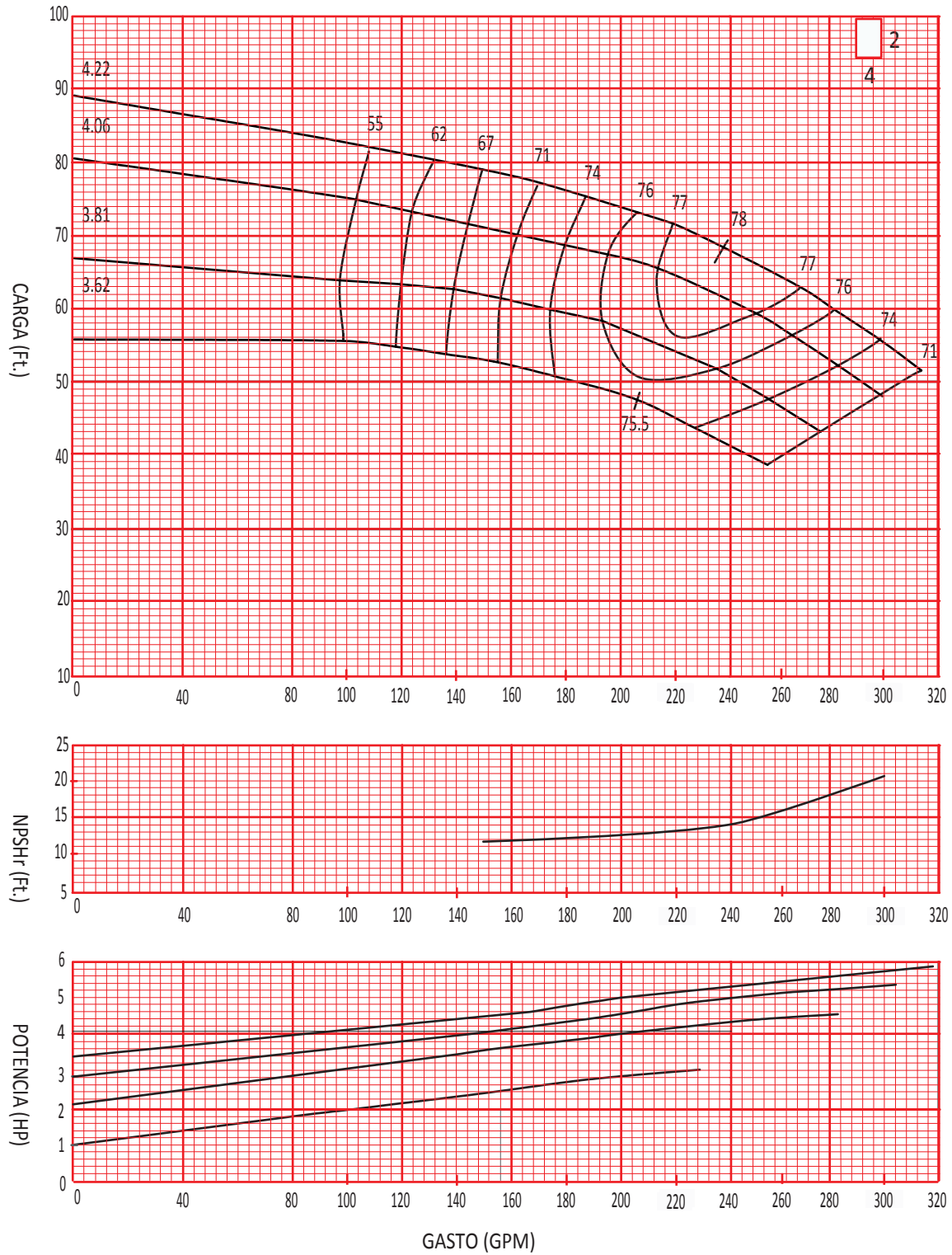


6ASH 1800 RPM



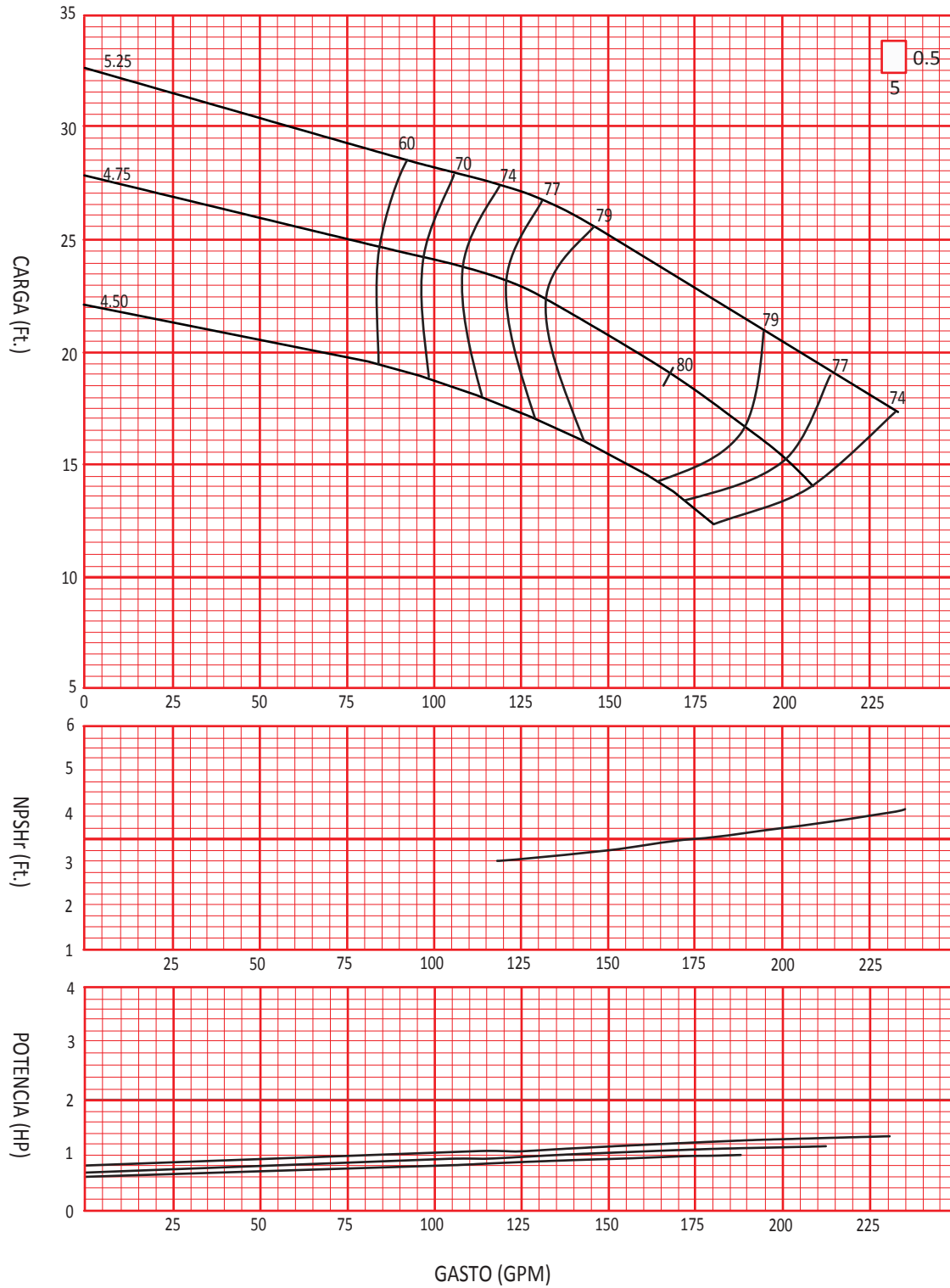


6ASH 3600 RPM



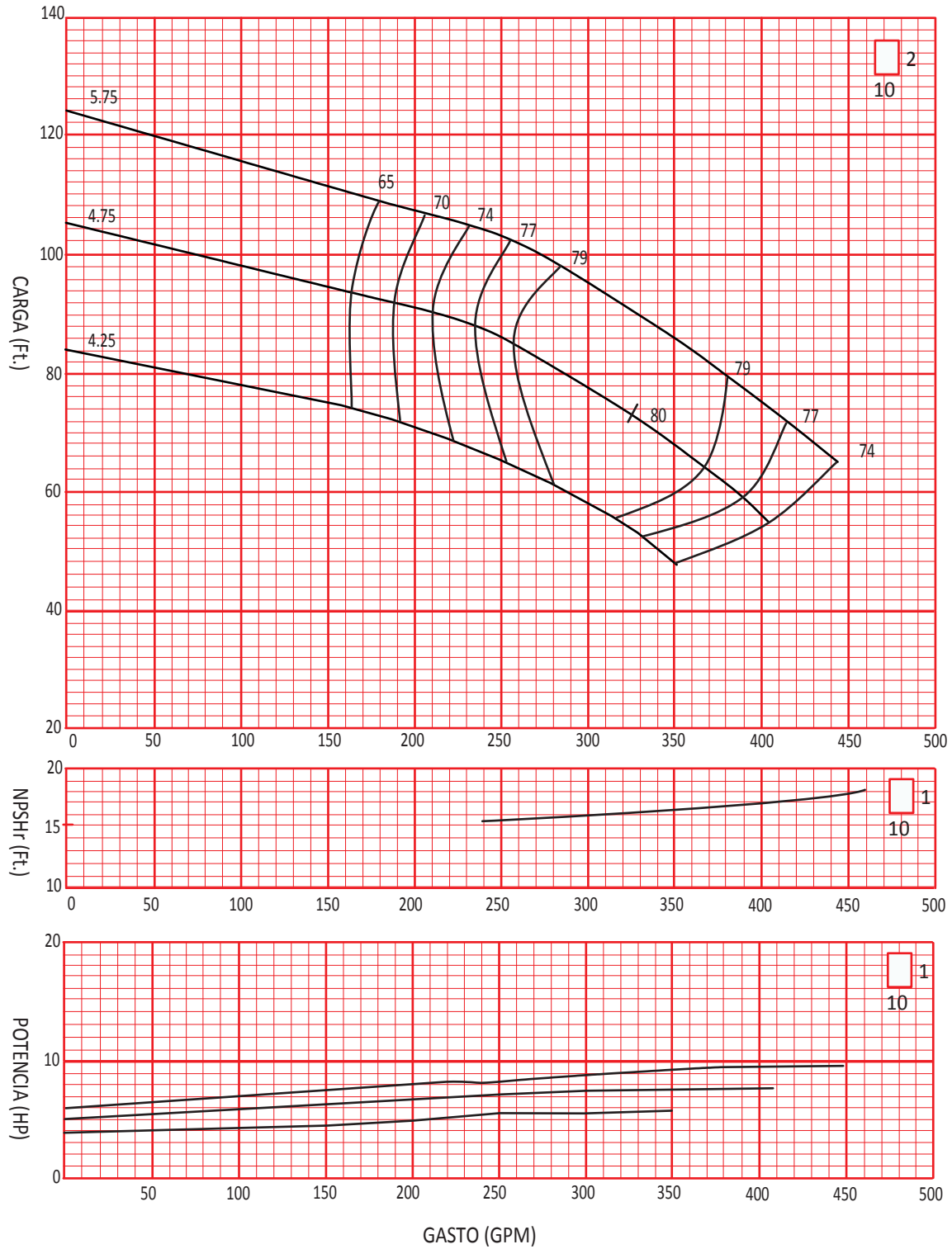


7ASL 1800 RPM



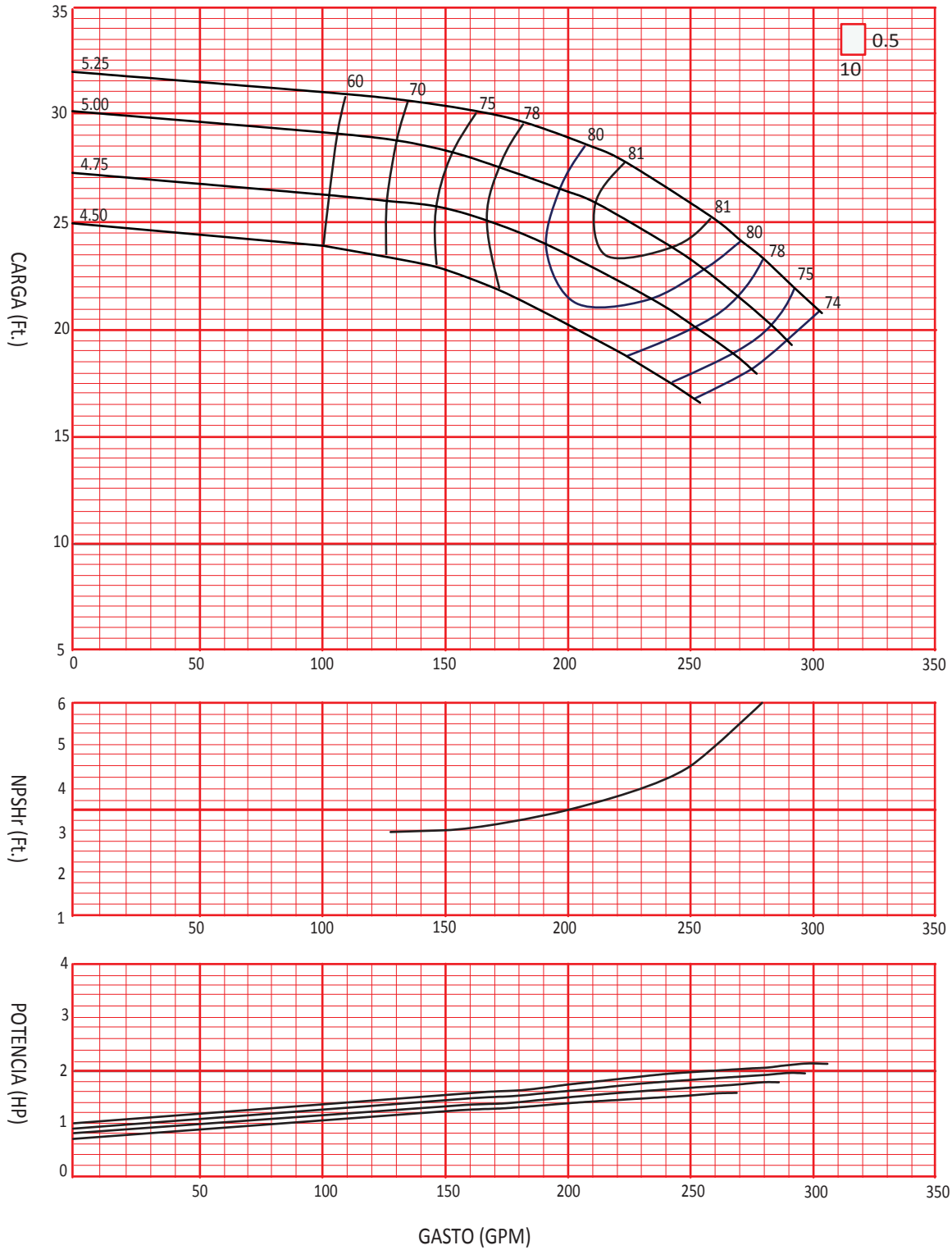


7ASL 3600 RPM



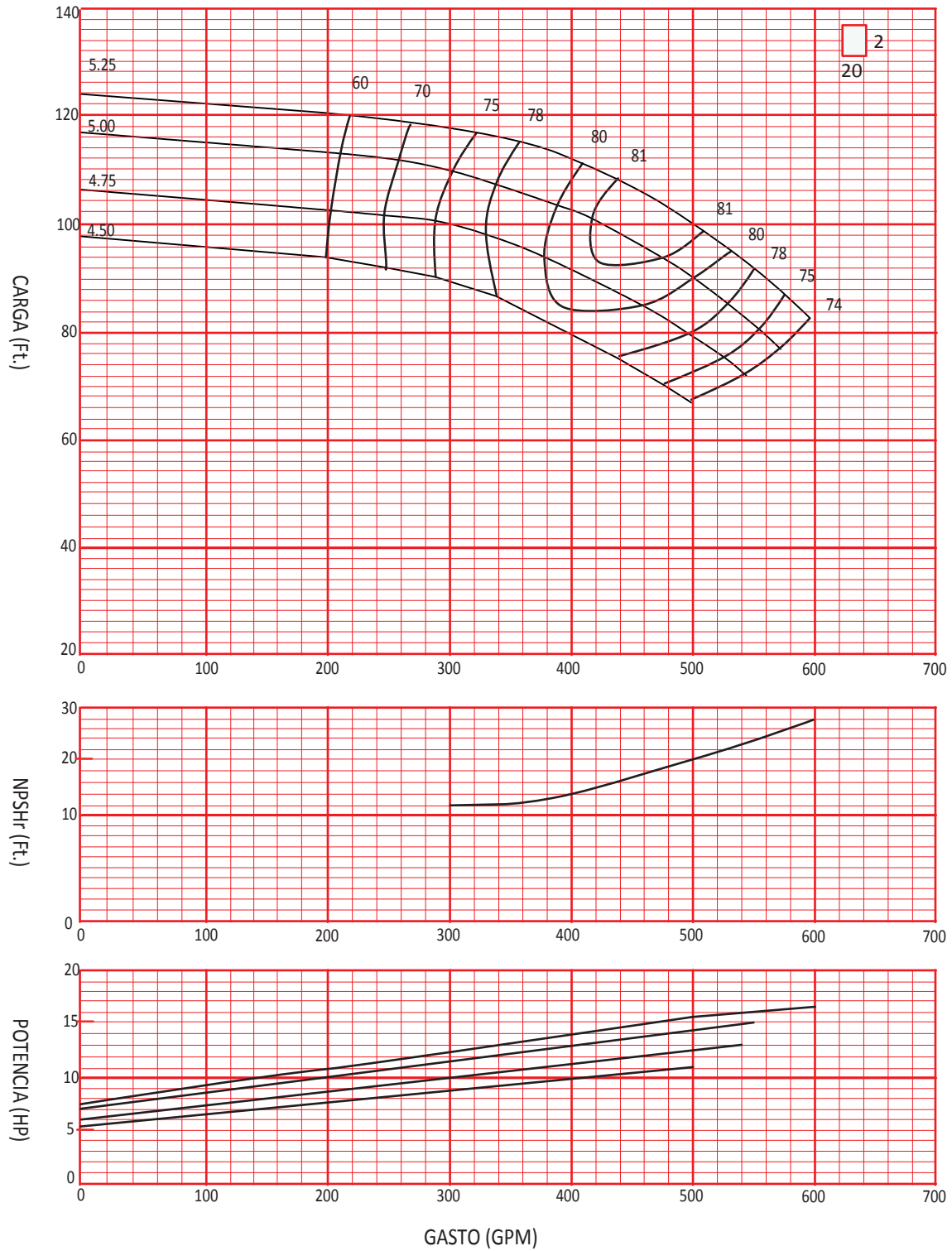


7ASH 1800 RPM



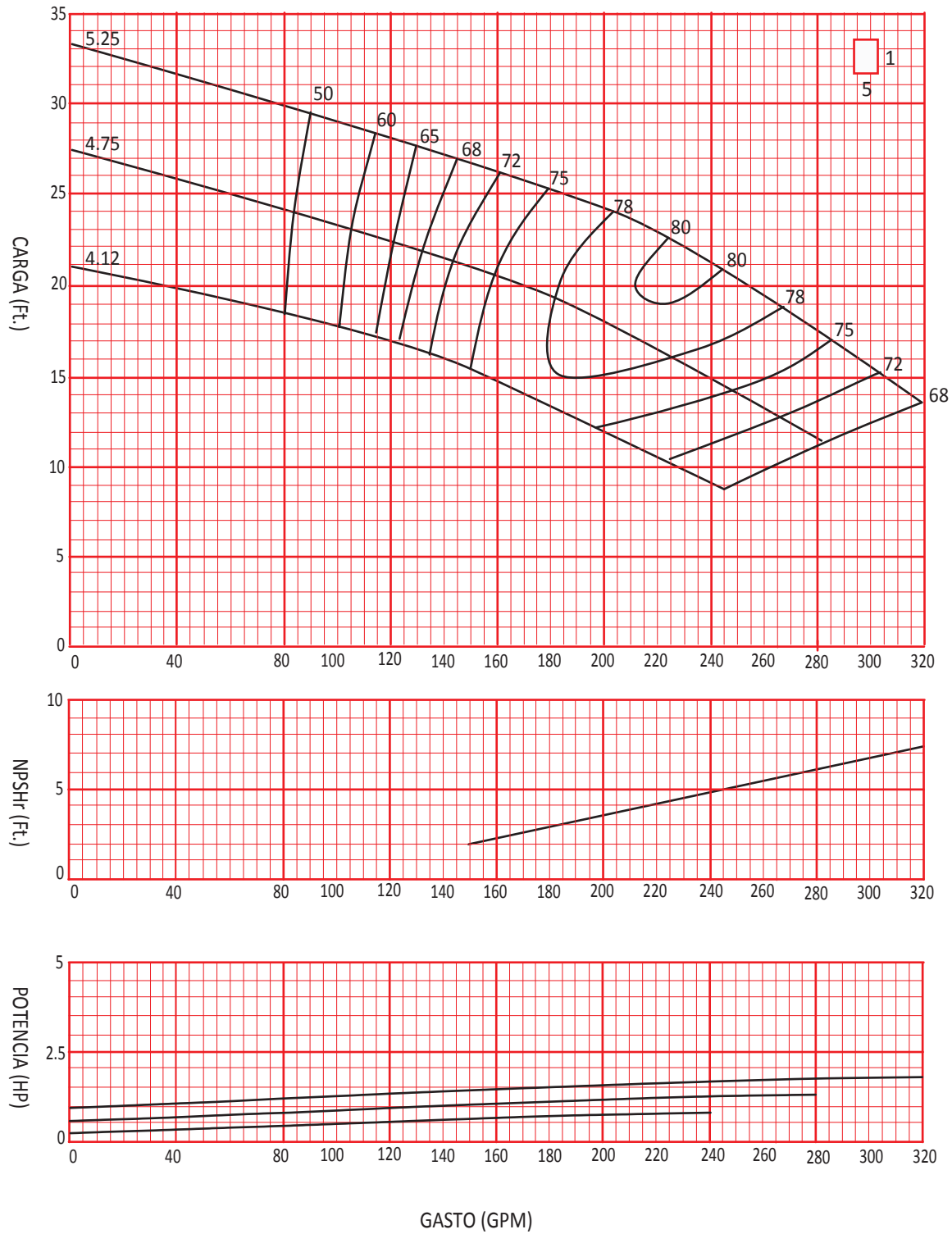


7ASH 3600 RPM



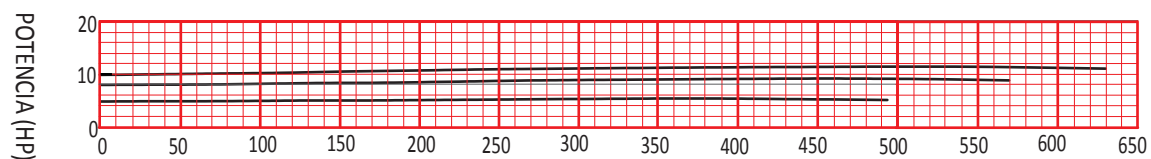
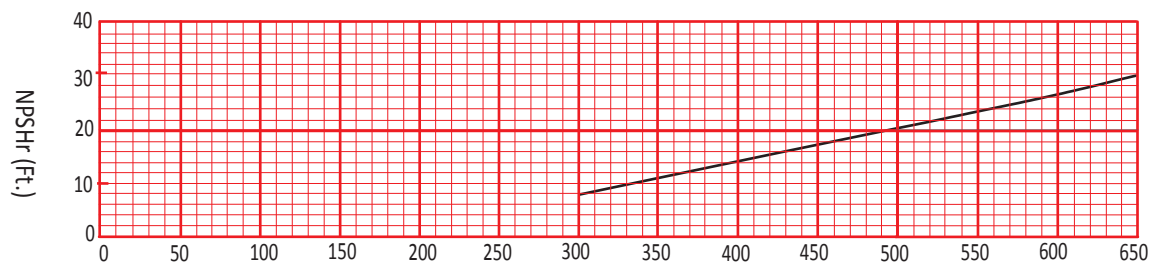
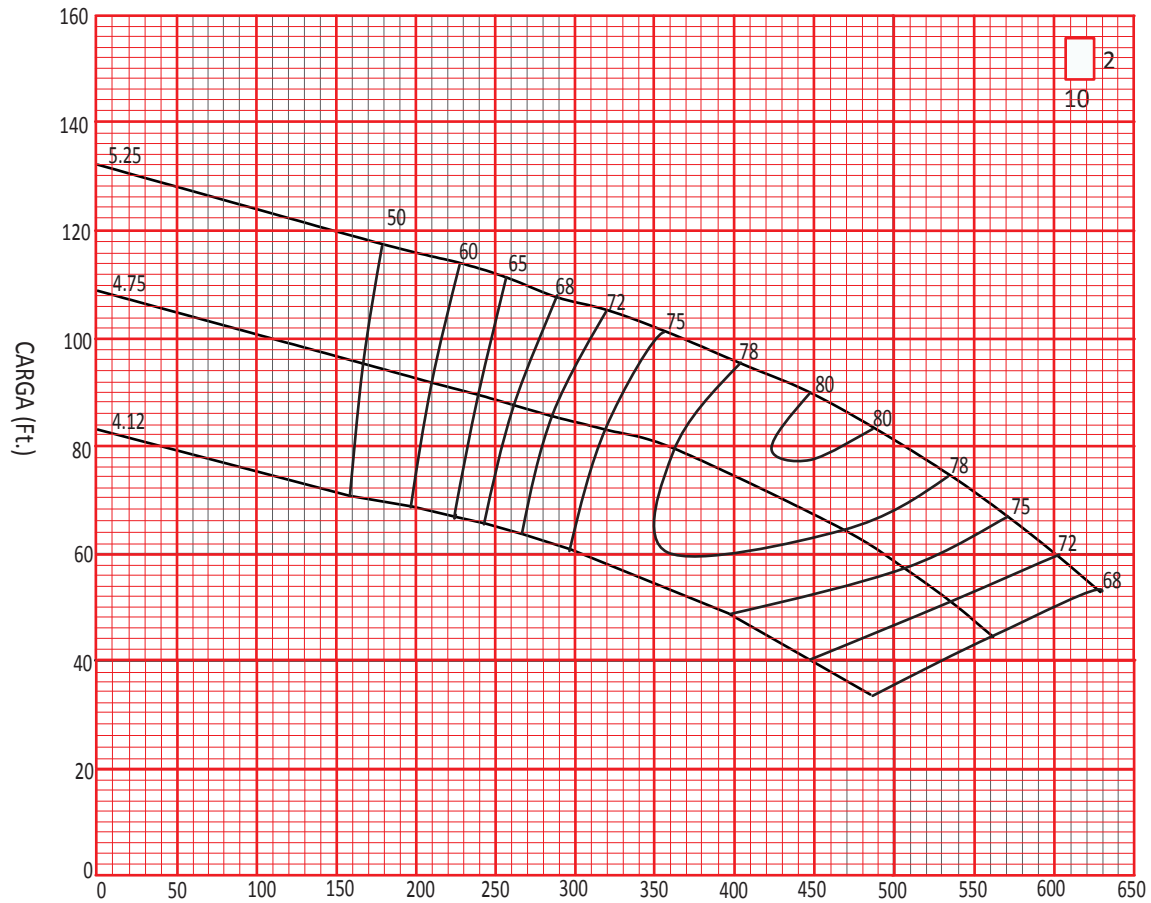


8ASL 1800 RPM





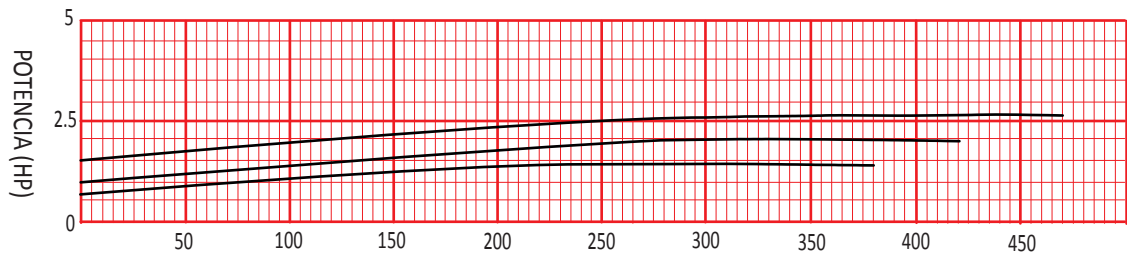
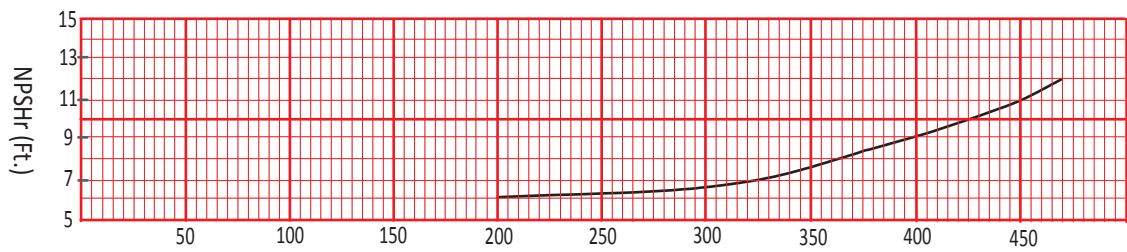
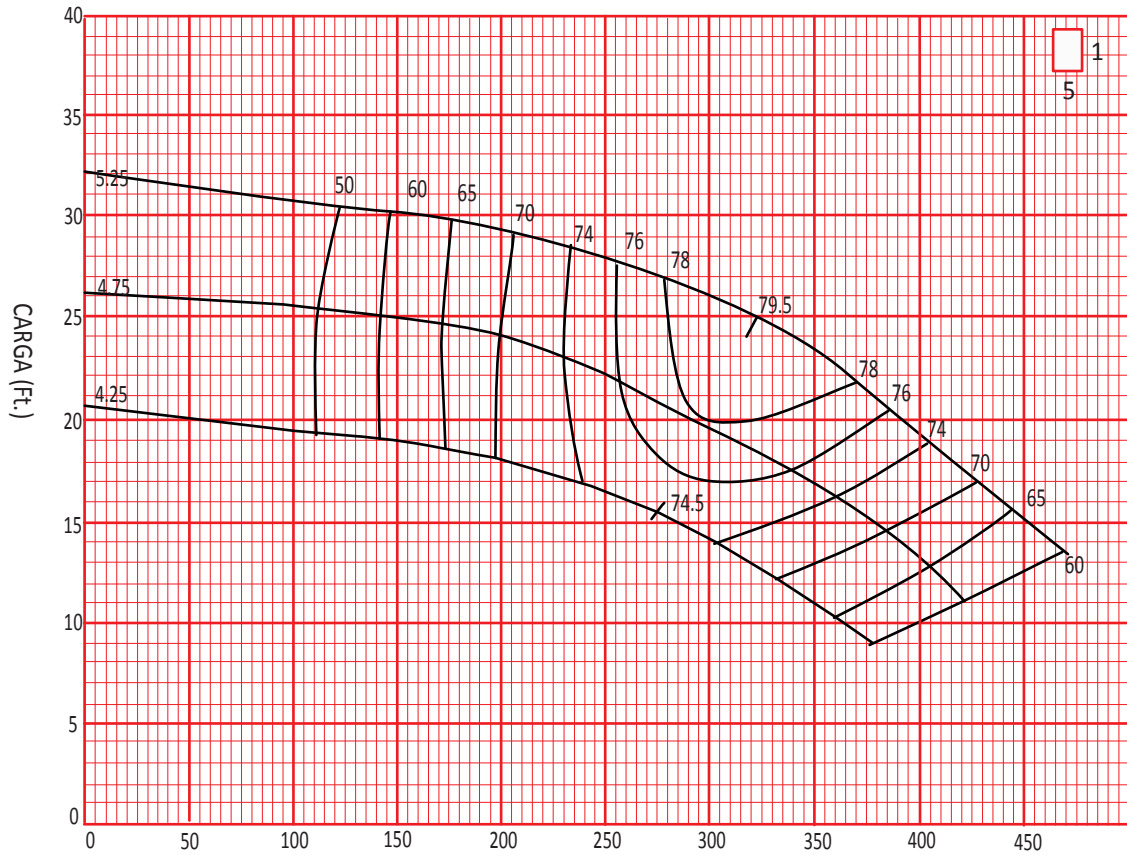
8ASL 3600 RPM



GASTO (GPM)



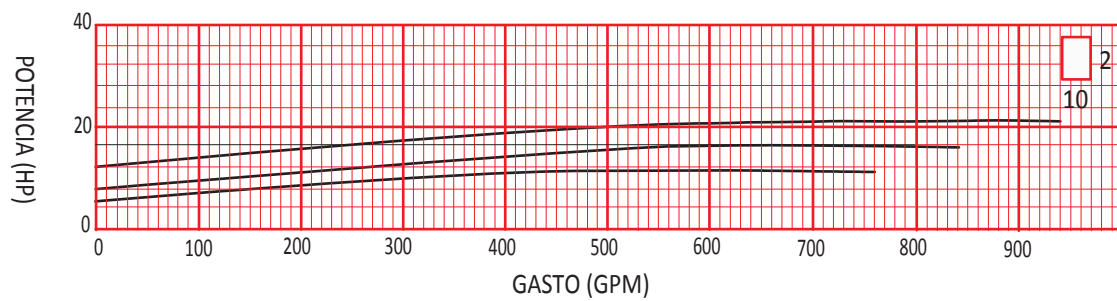
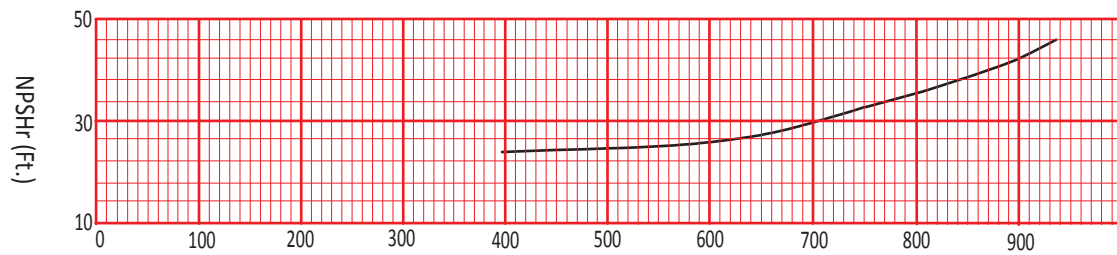
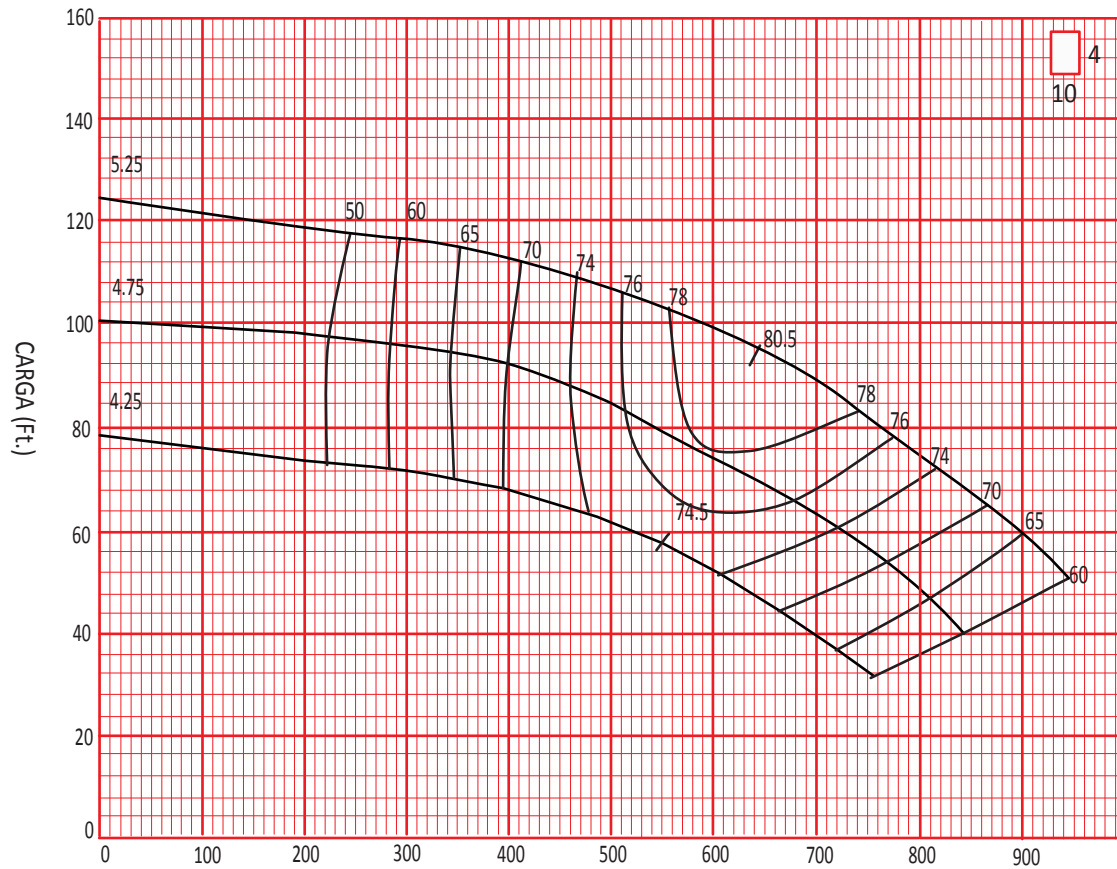
8ASH 1800 RPM



GASTO (GPM)

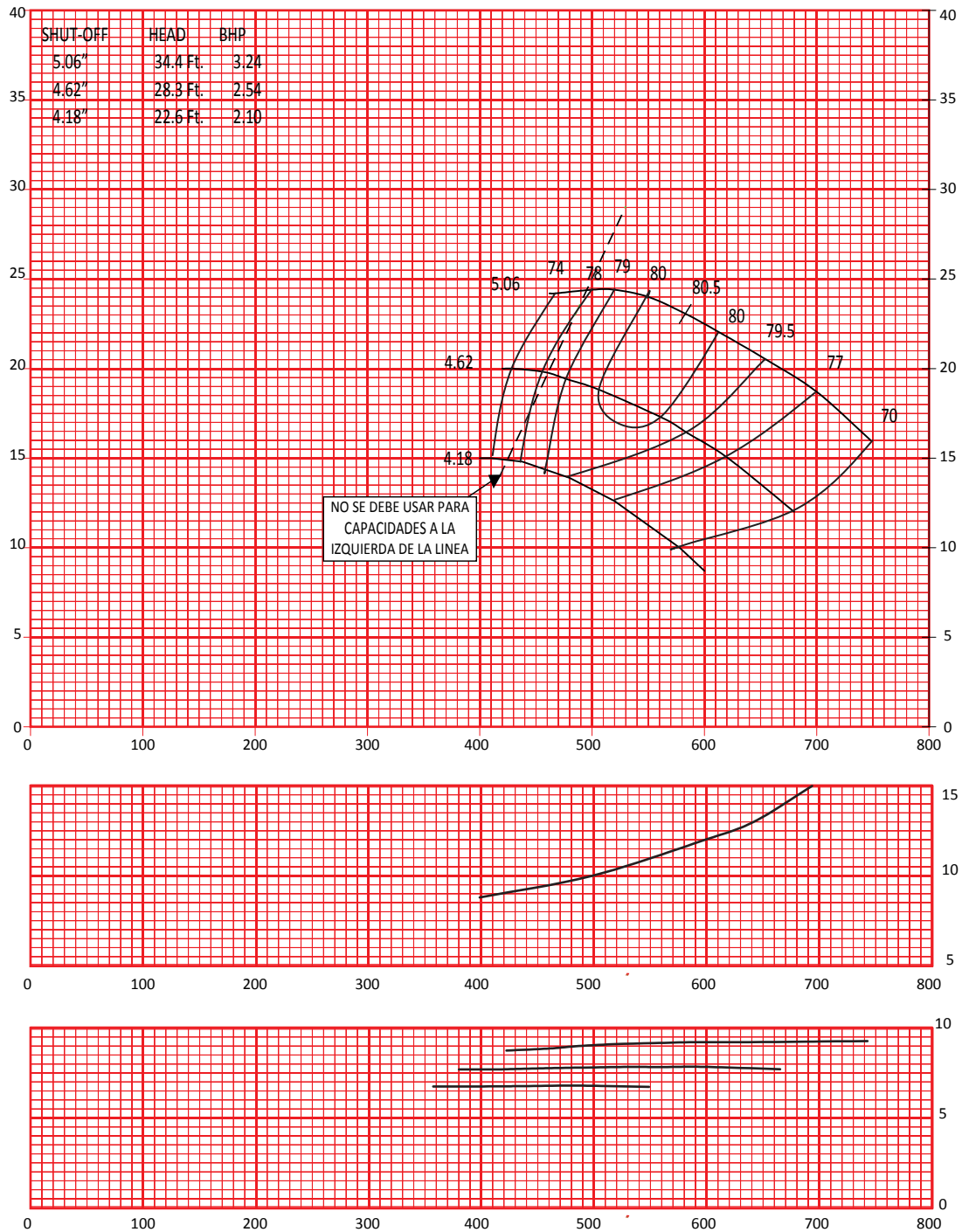


8ASH 3600 RPM



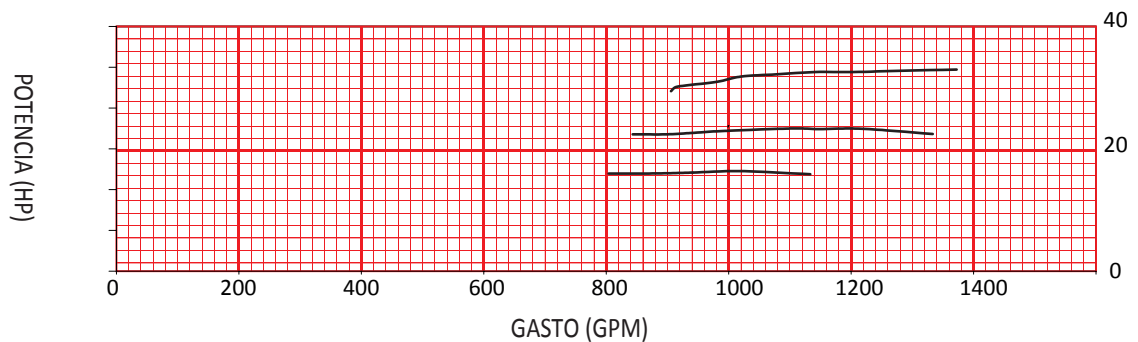
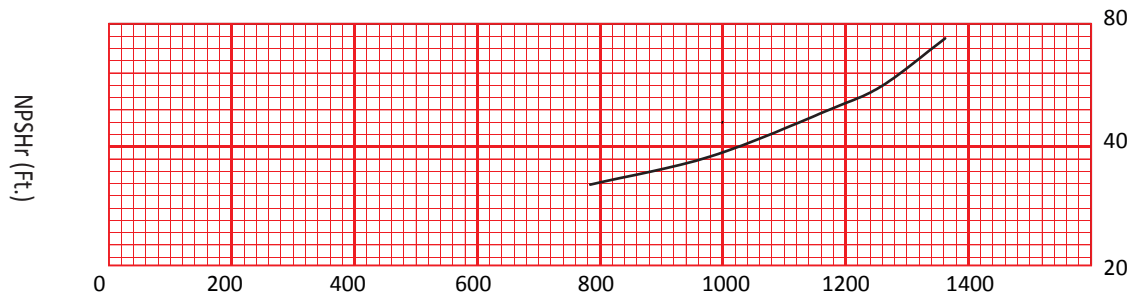
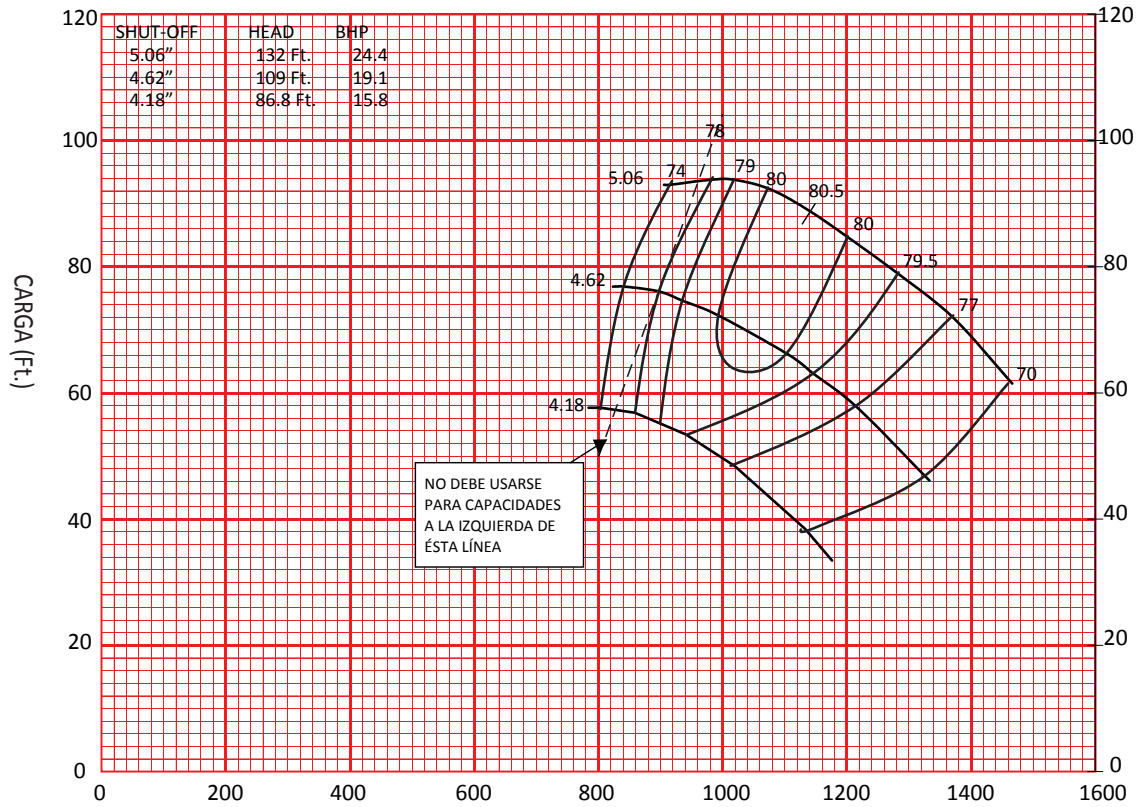


8AS2H 1750 RPM



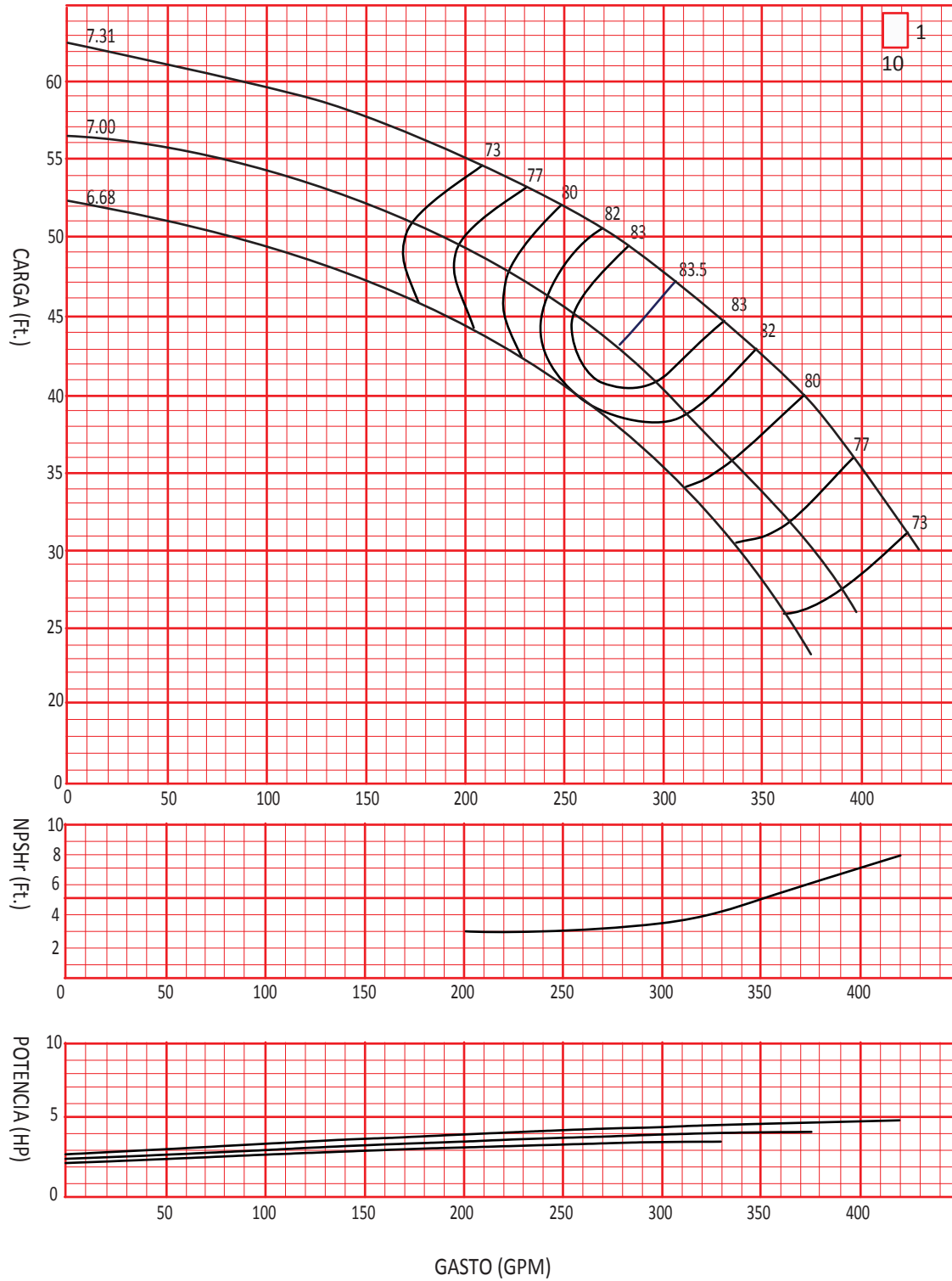


8AS2H 3600 RPM



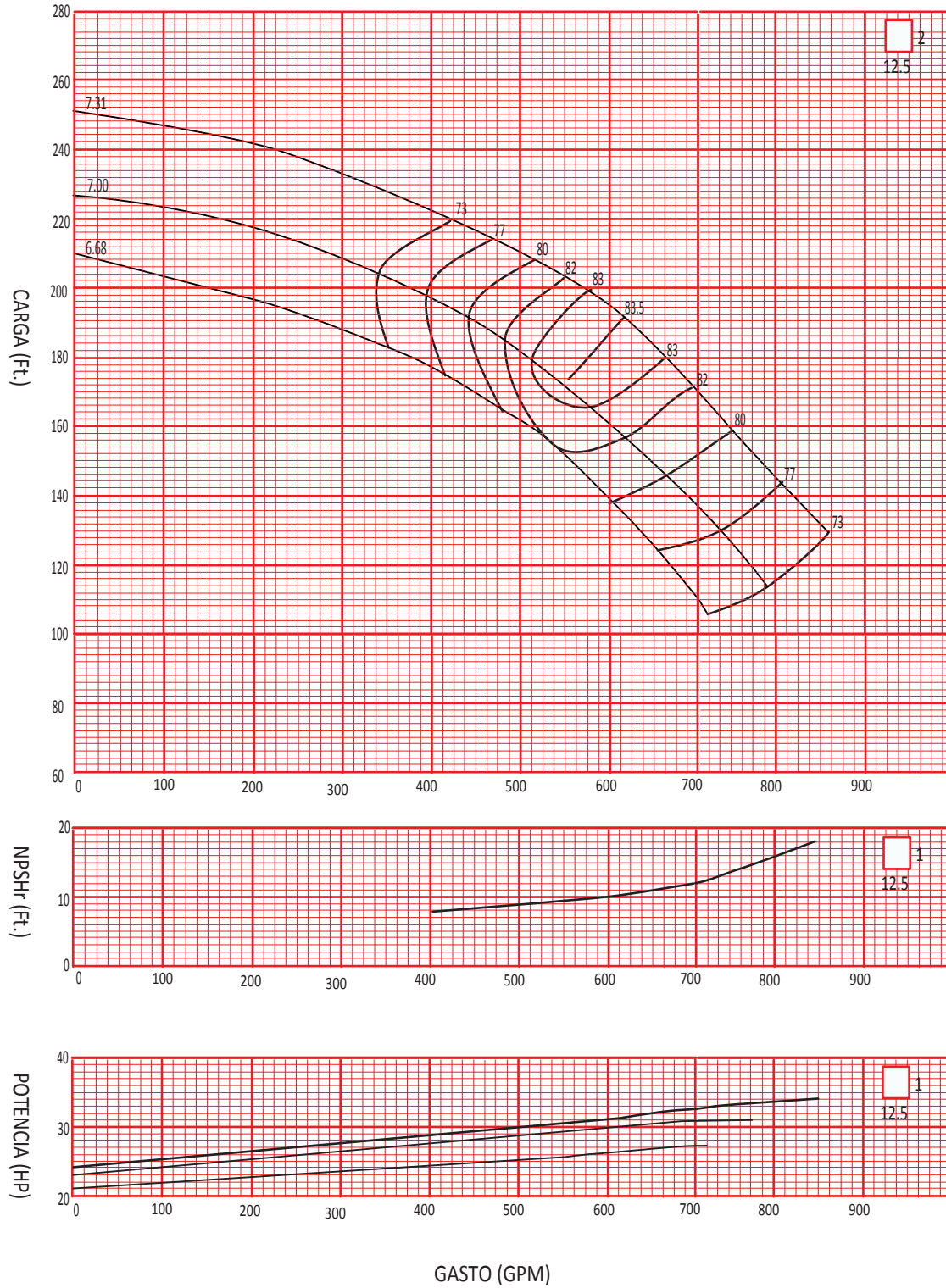


9AS1L 1800 RPM



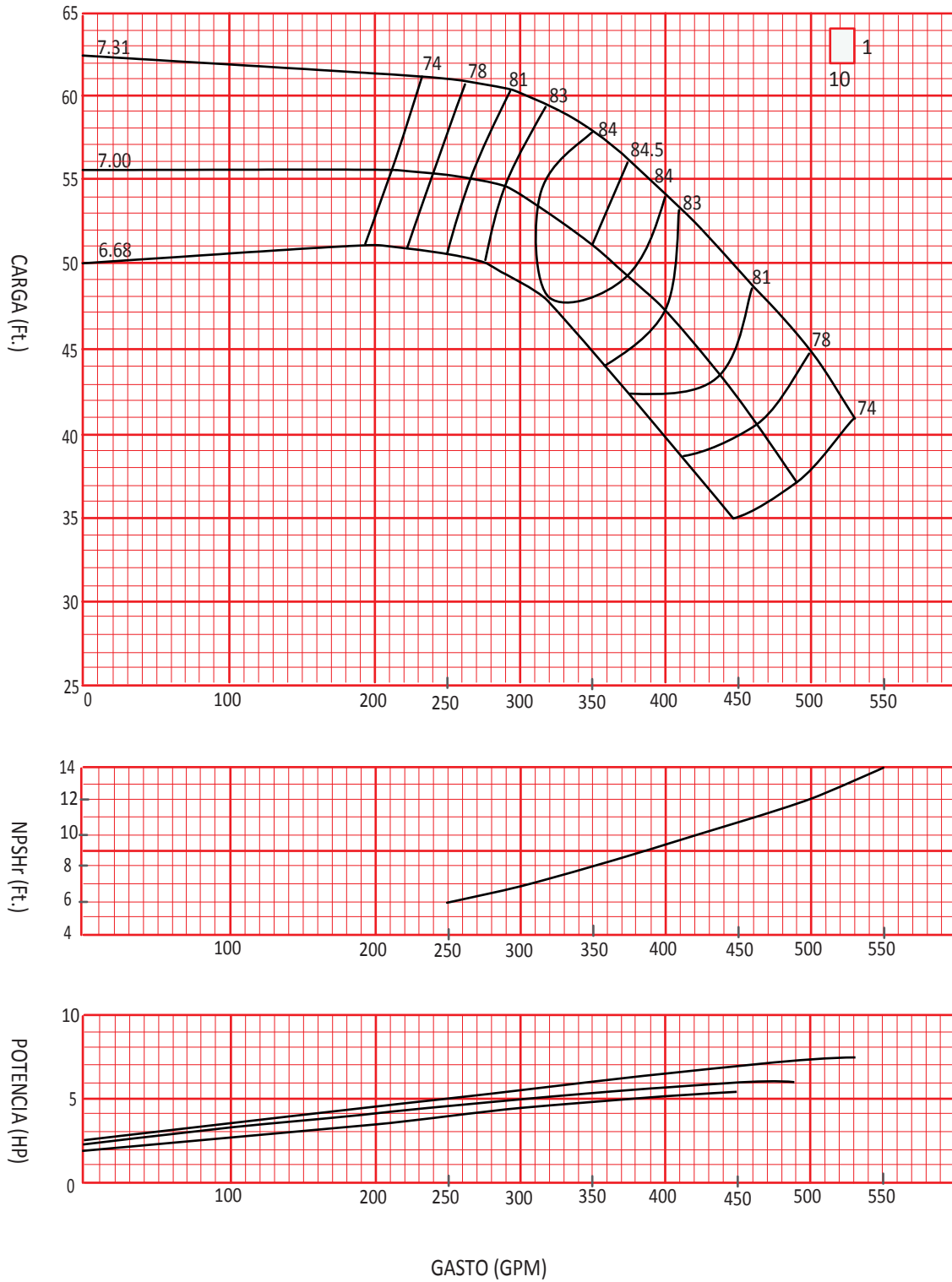


9AS1L 3600 RPM



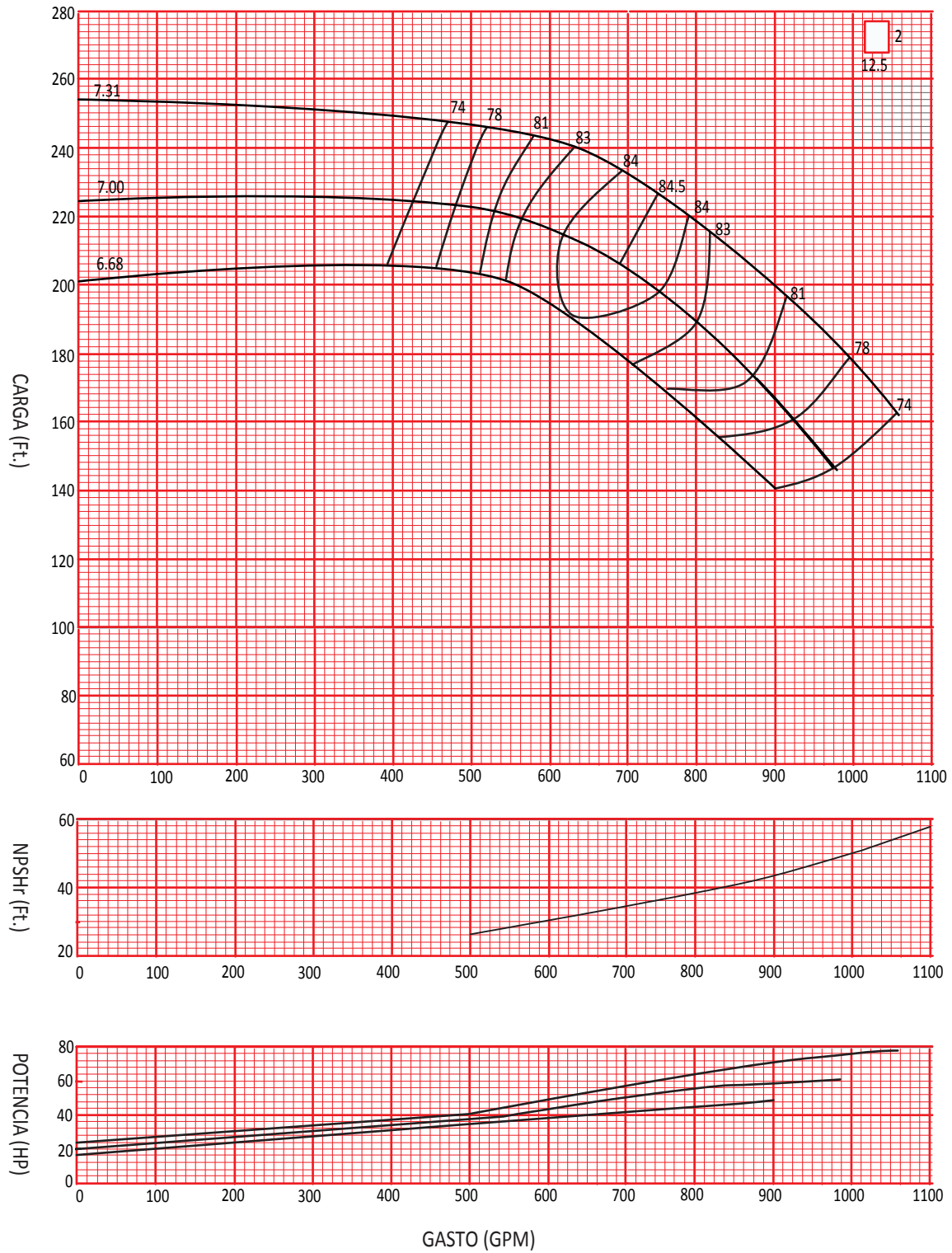


9AS1H 1800 RPM



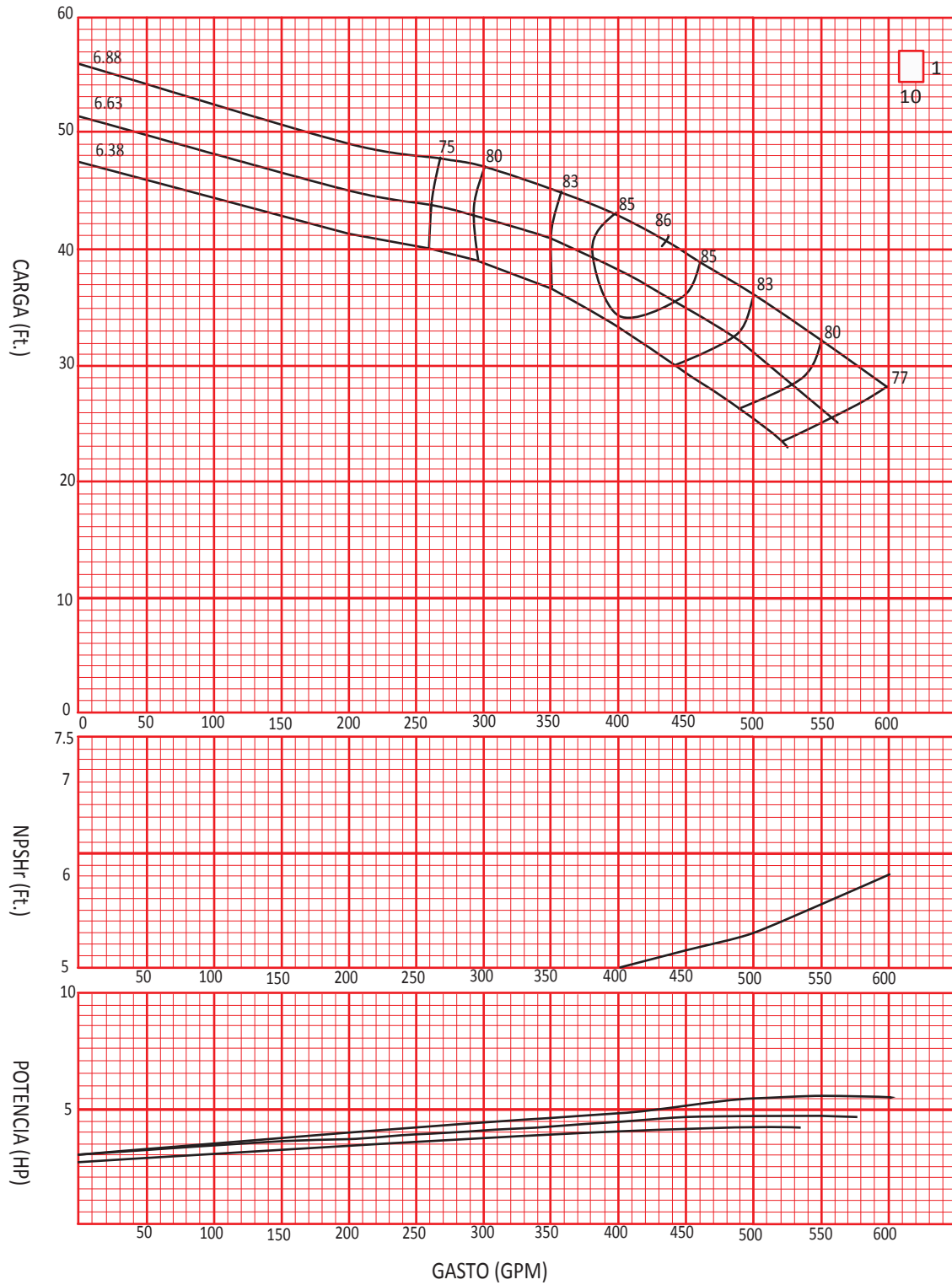


9AS1H 3600 RPM



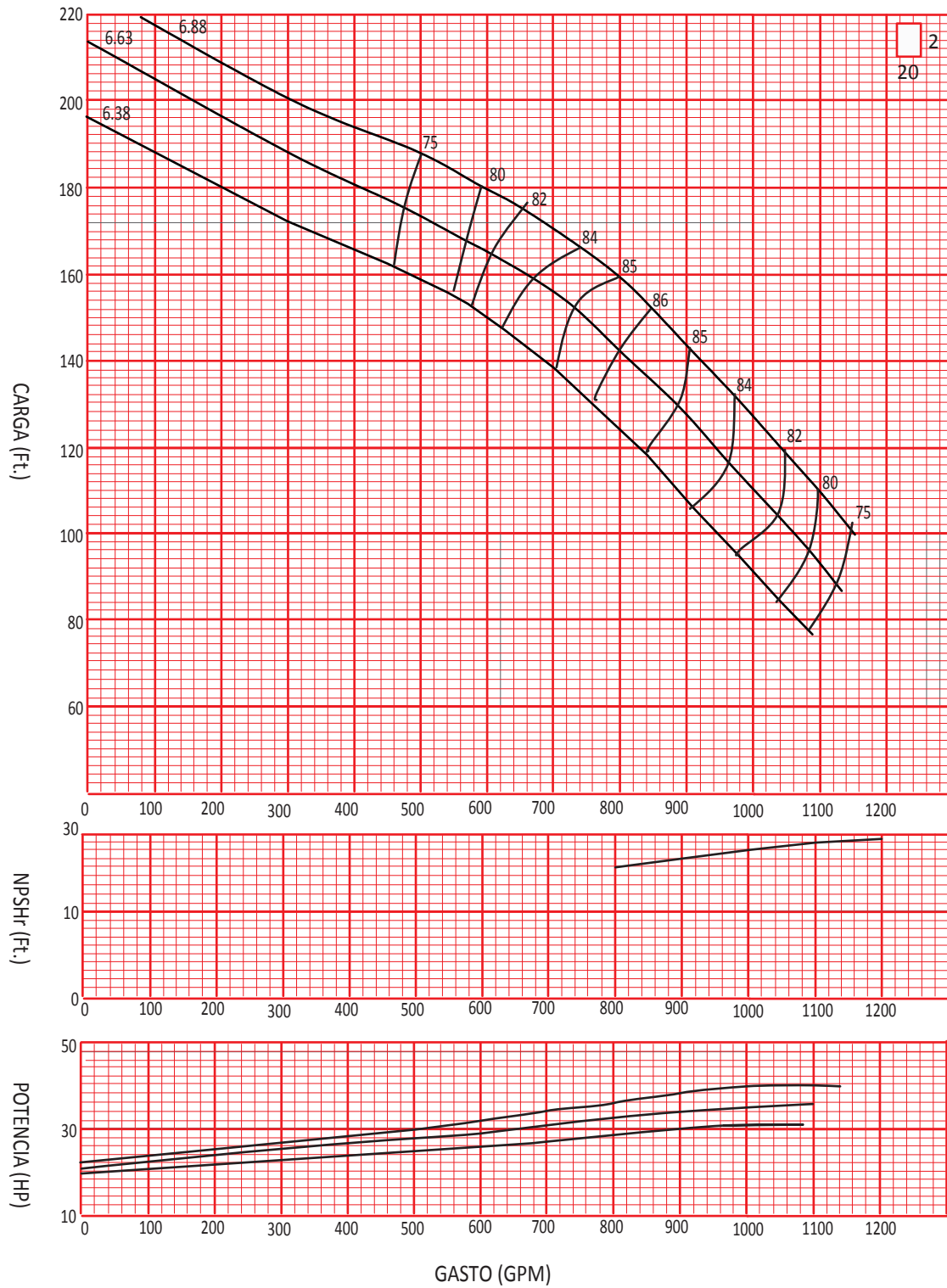


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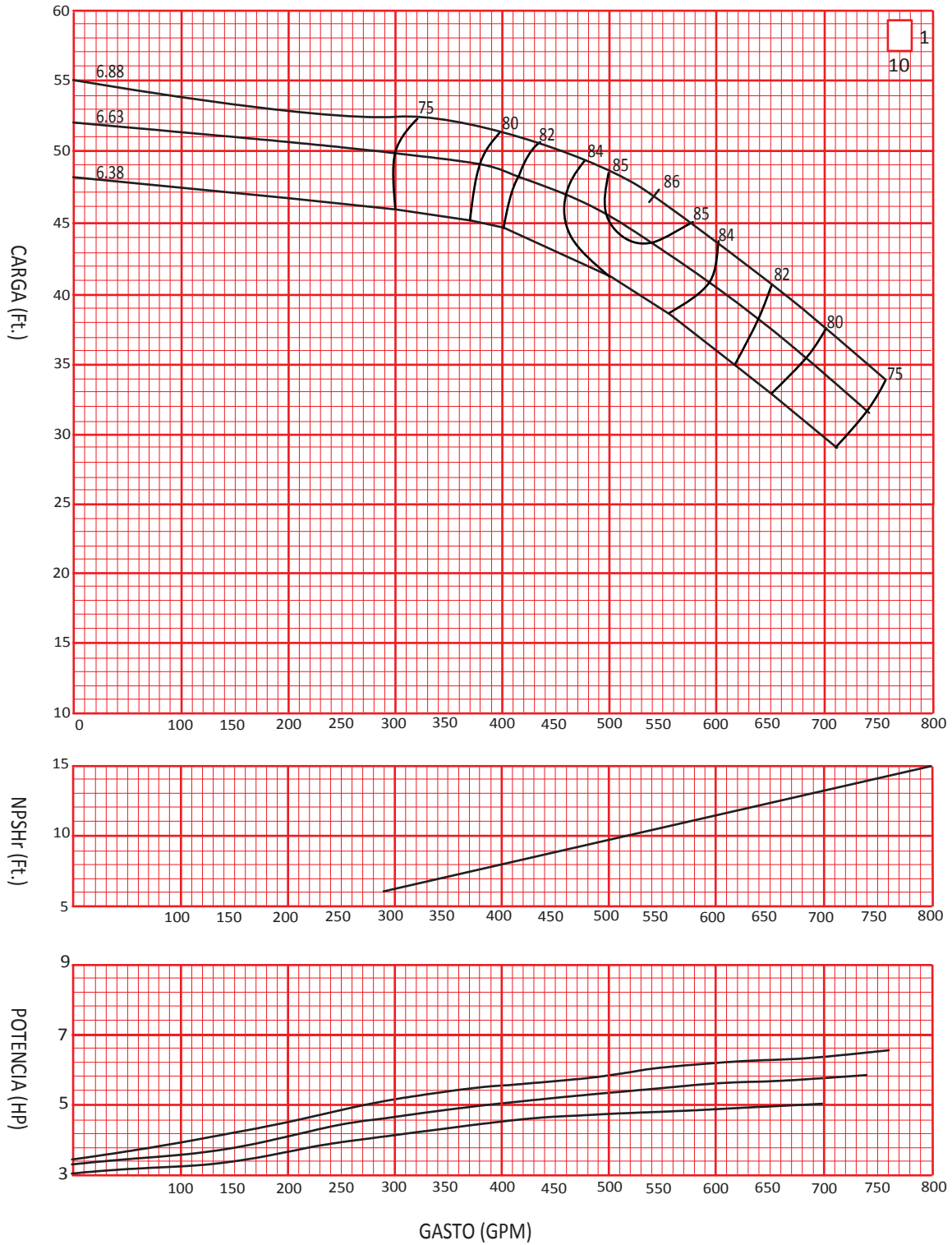


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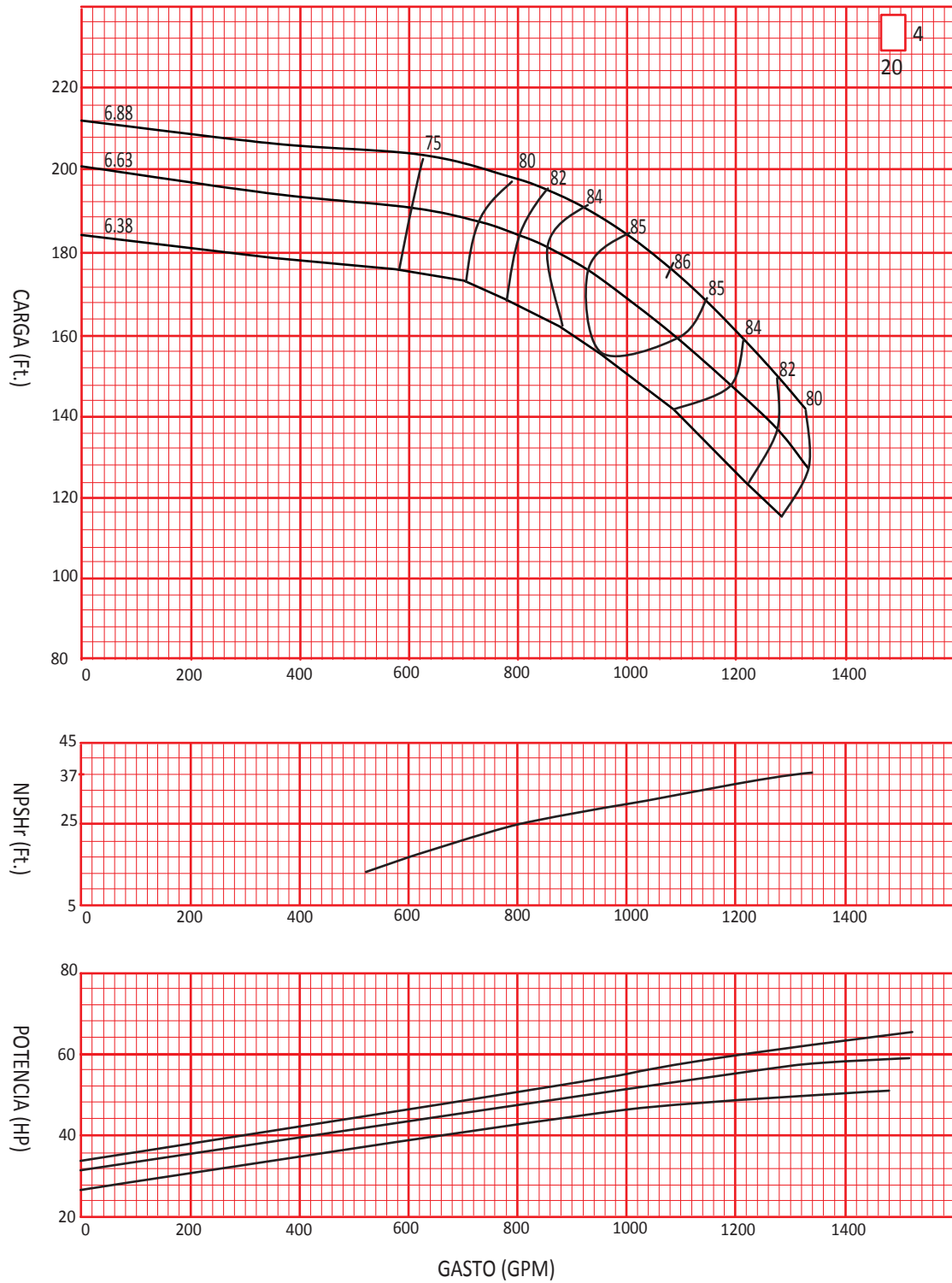


9AS2H 1800 RPM



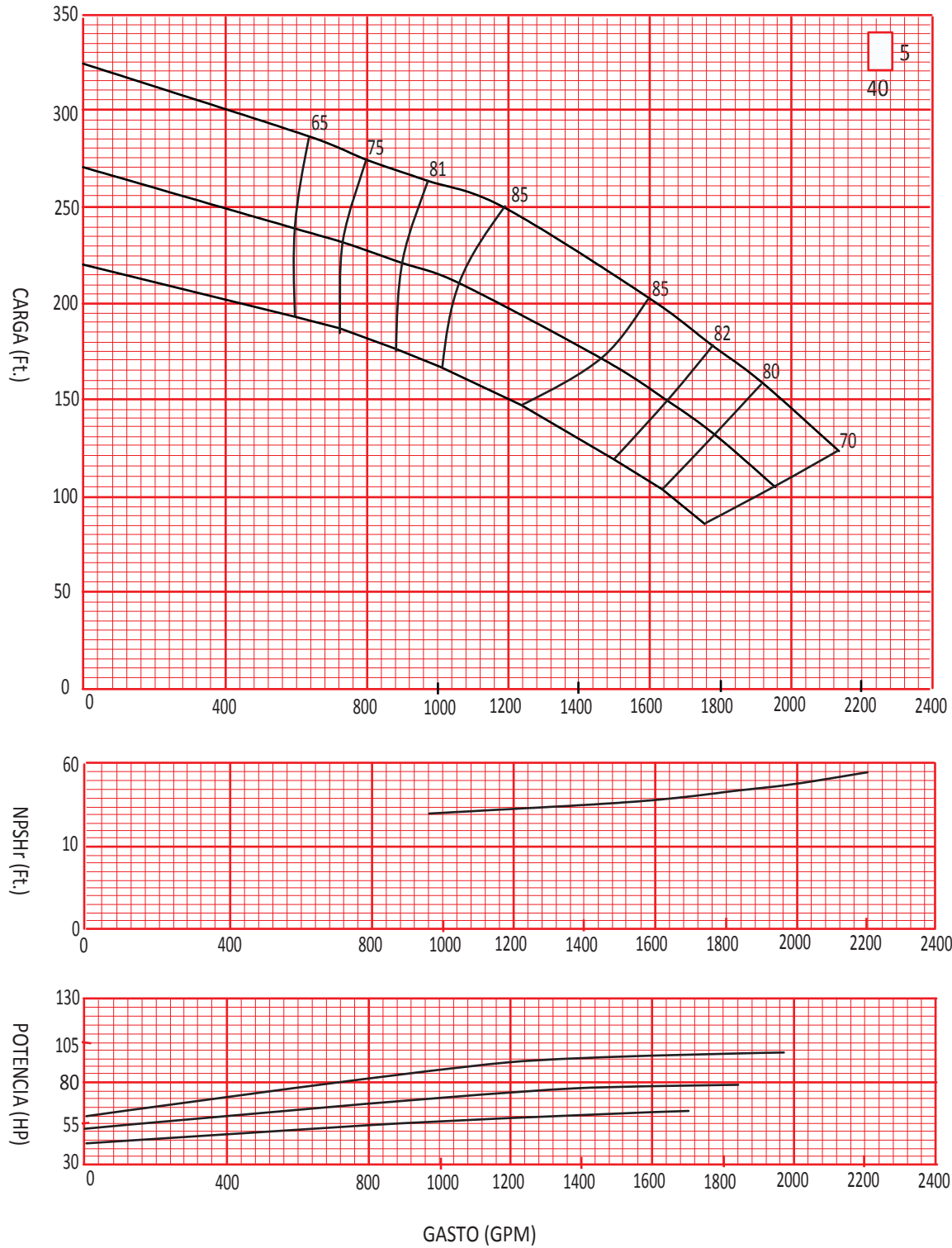


9AS2H 3600 RPM



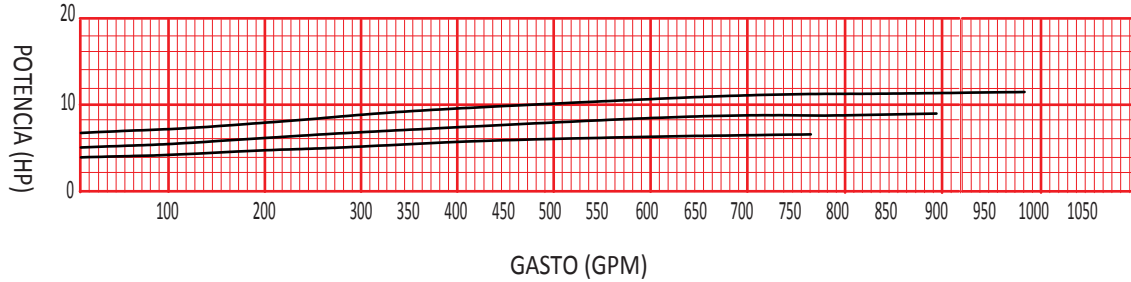
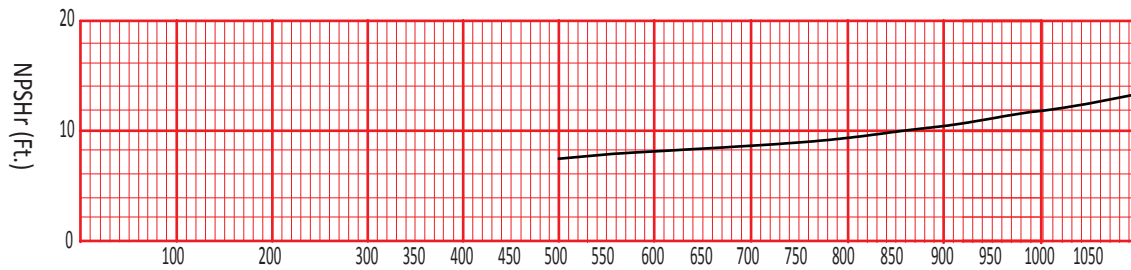
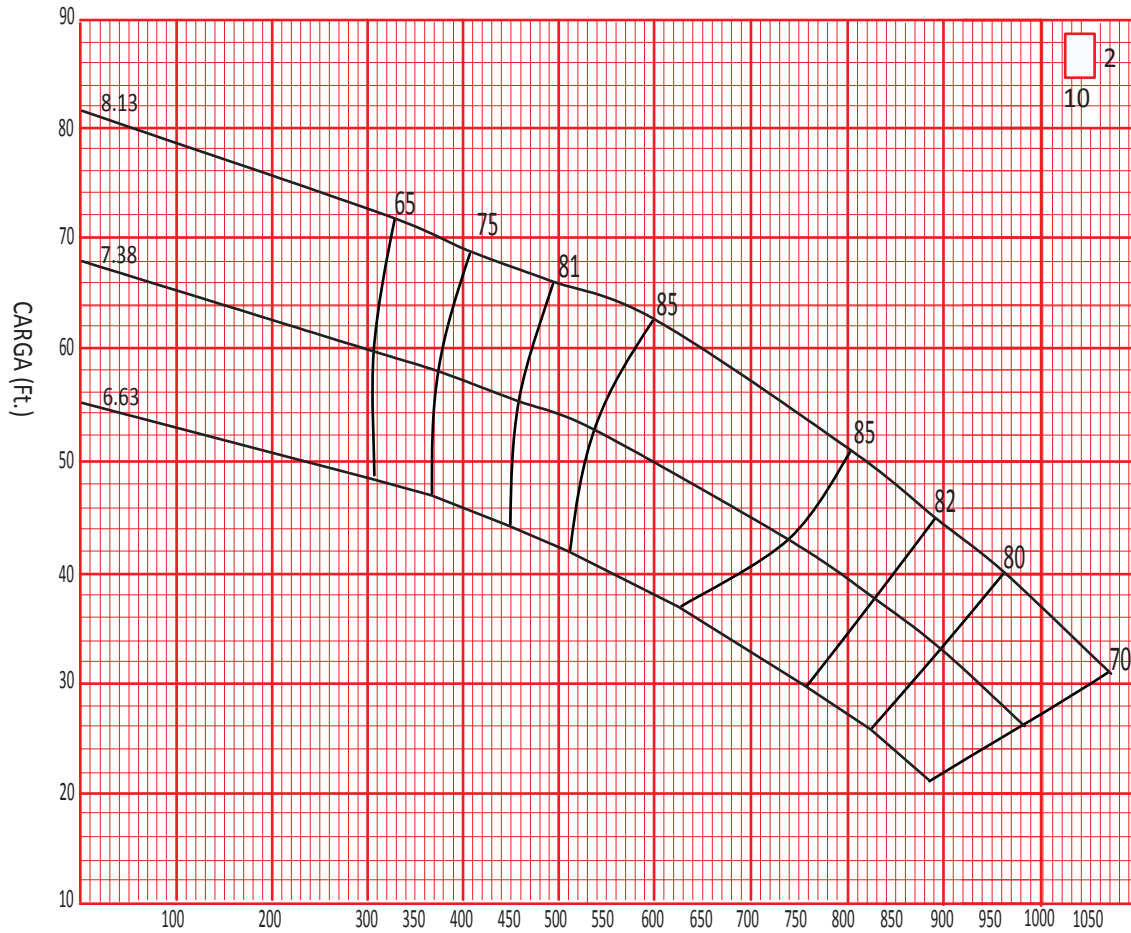


11ASL 3600 RPM



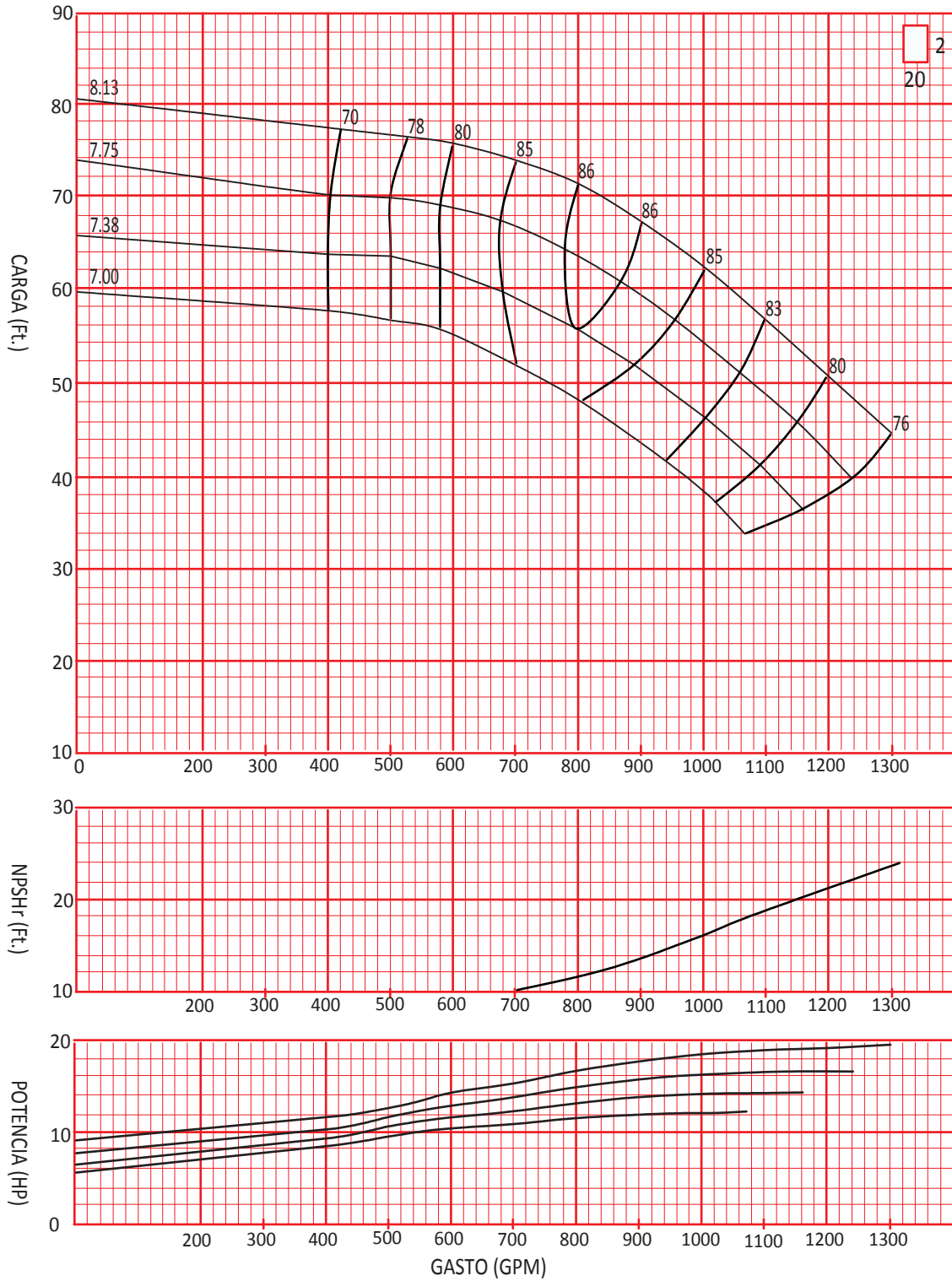


11ASL 1800 RPM



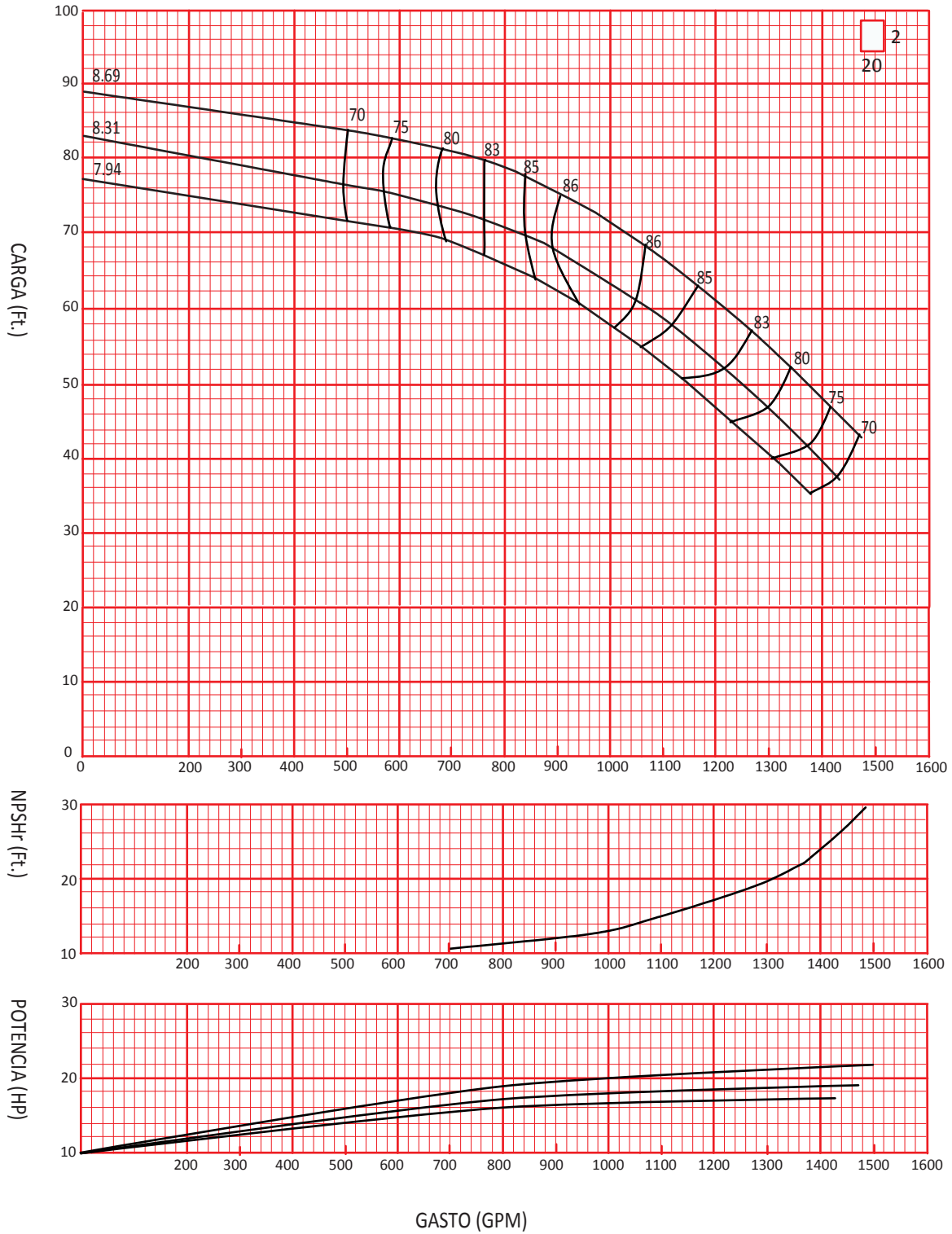


11ASH 1800 RPM



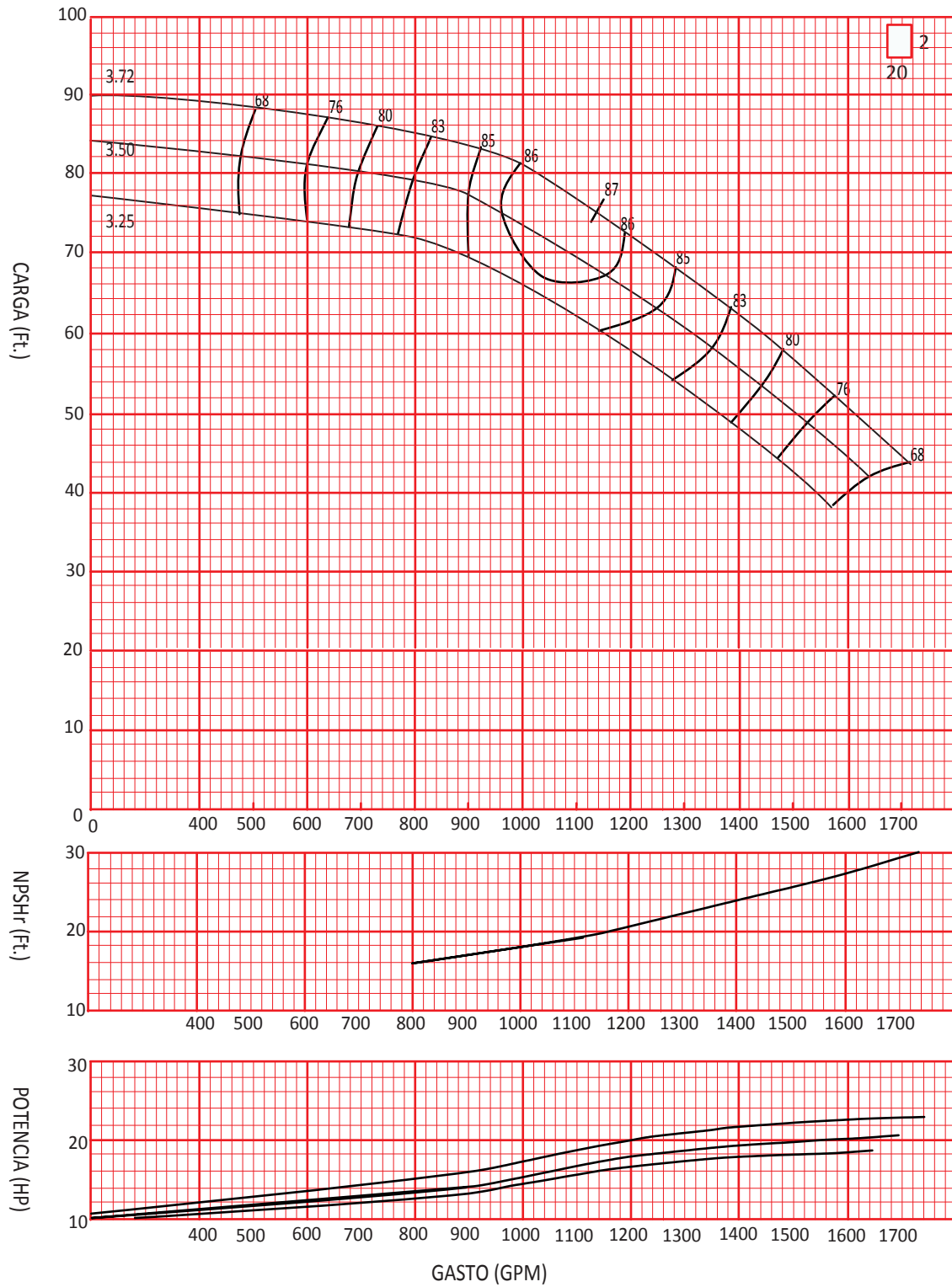


12ASM 1800 RPM



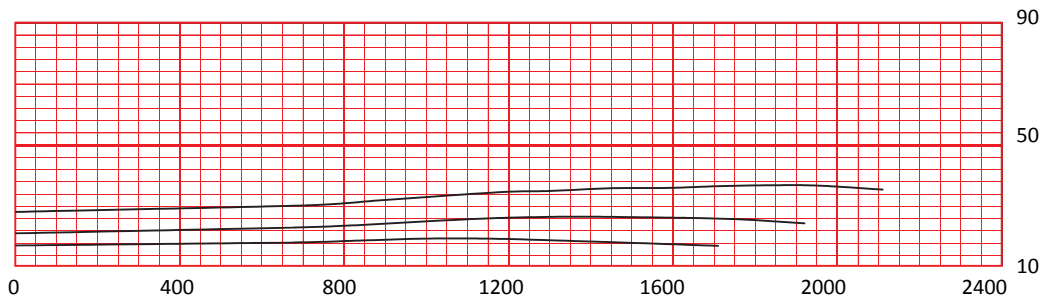
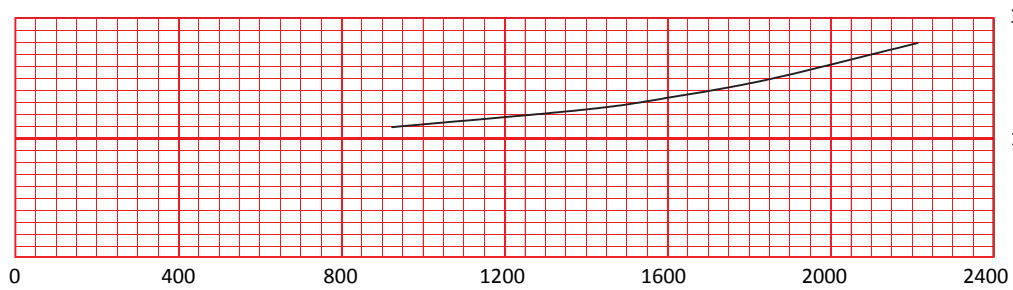
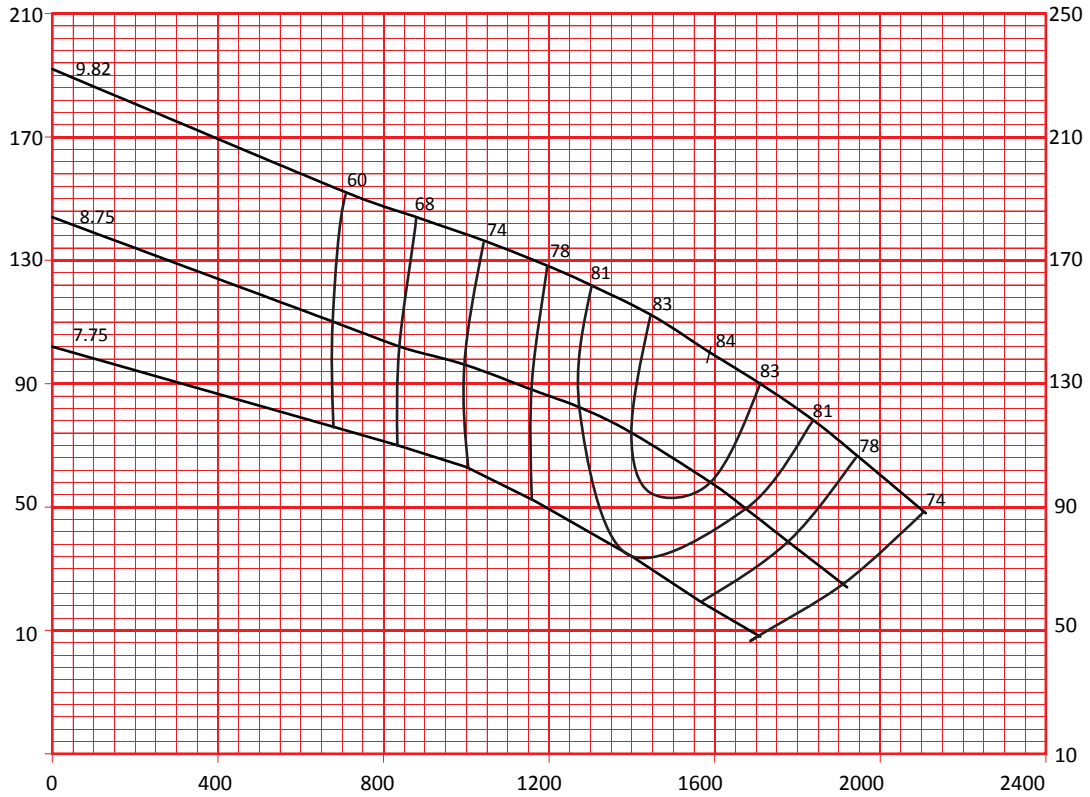


12ASH 1800 RPM



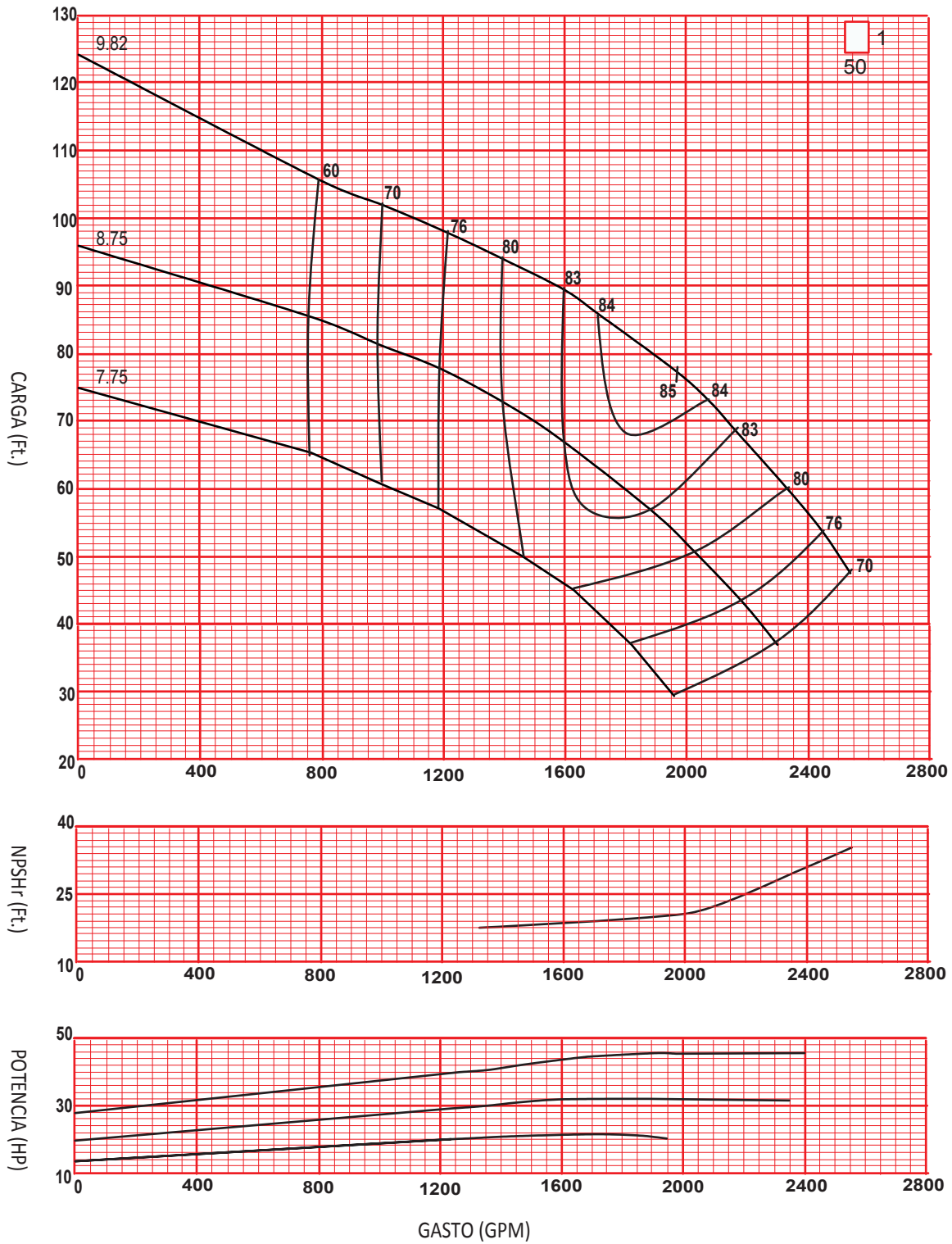


14ASL 1800 RPM



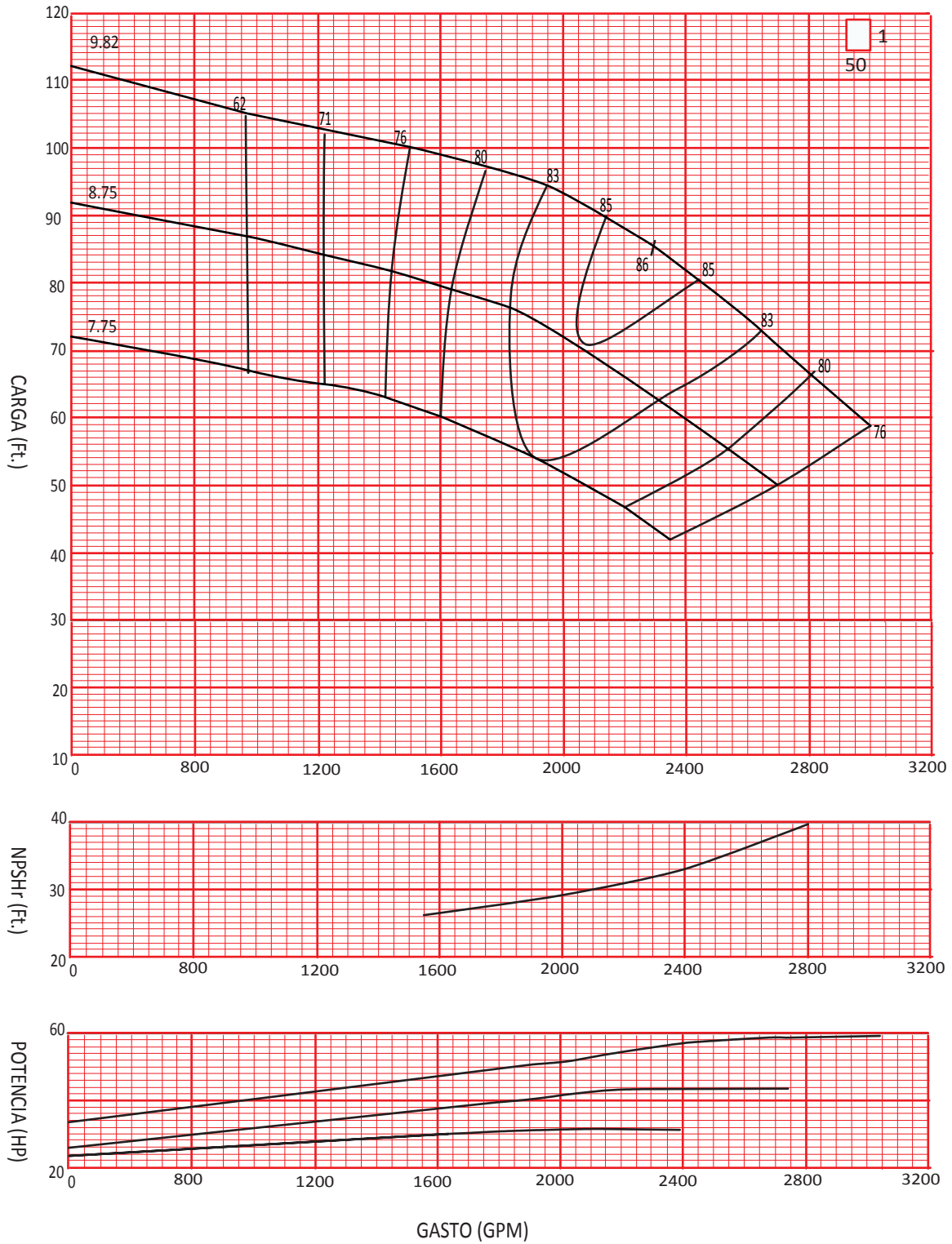


14ASM 1800 RPM



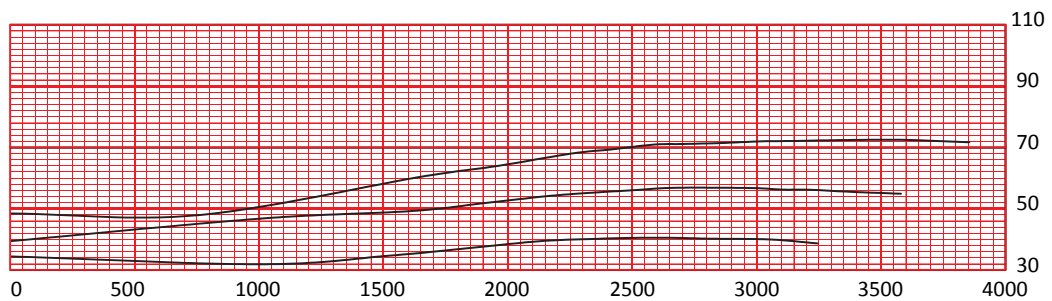
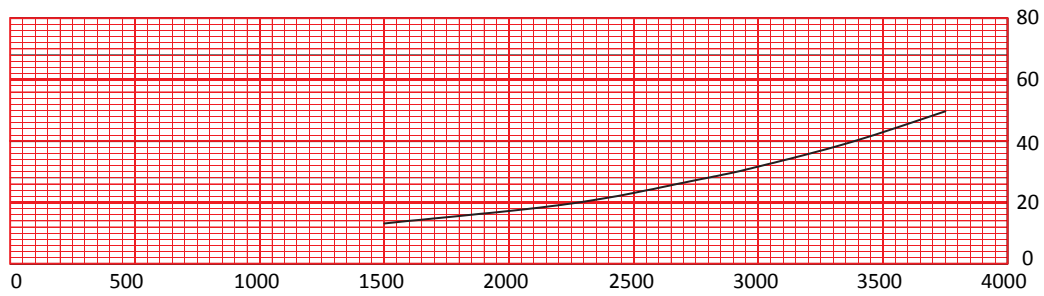
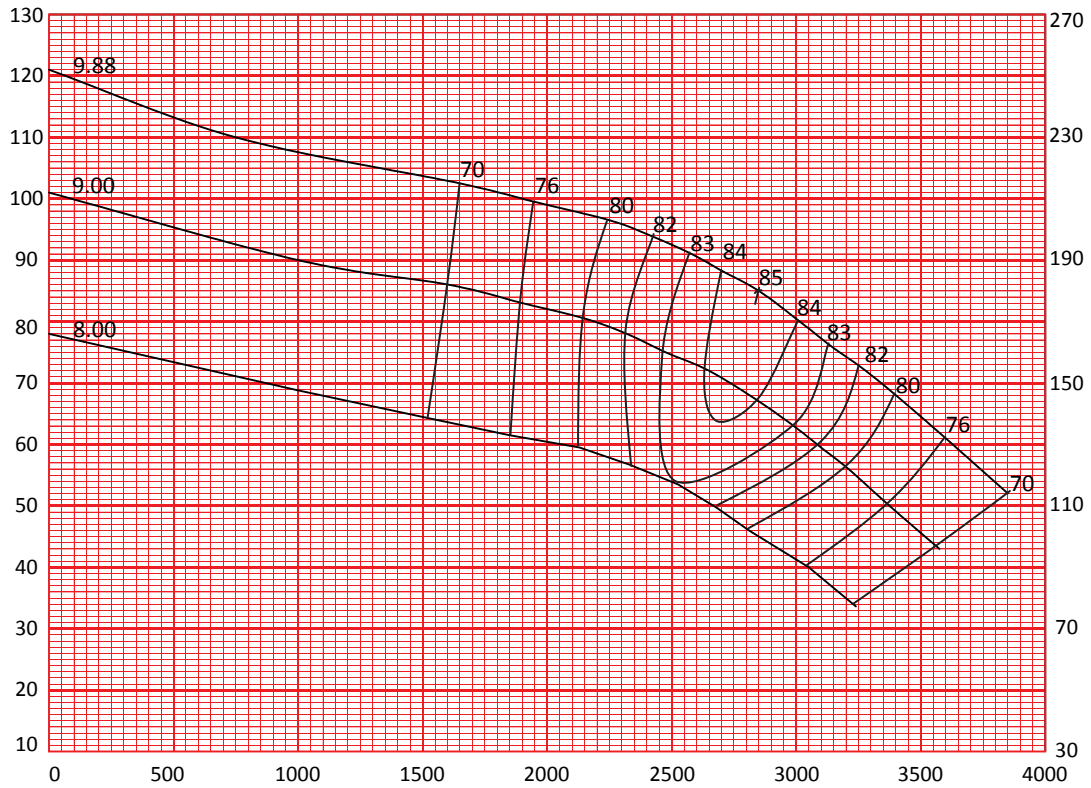


14ASH 1800 RPM



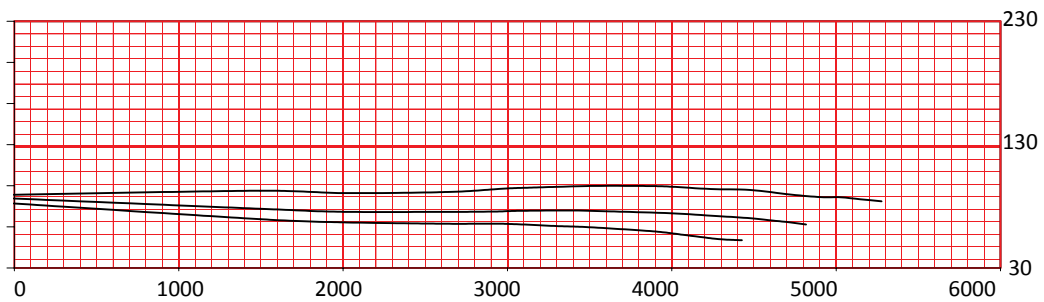
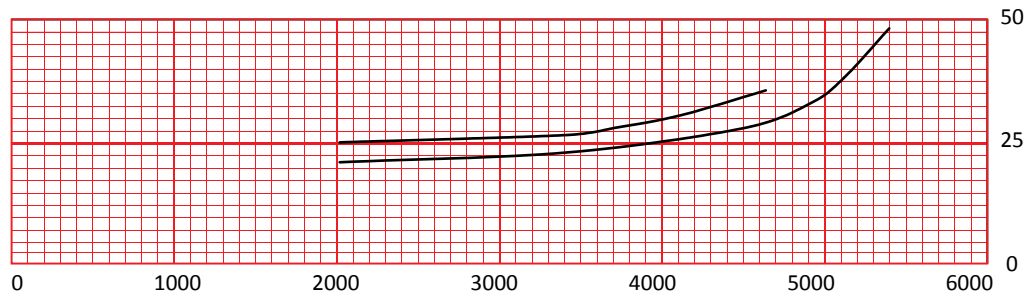
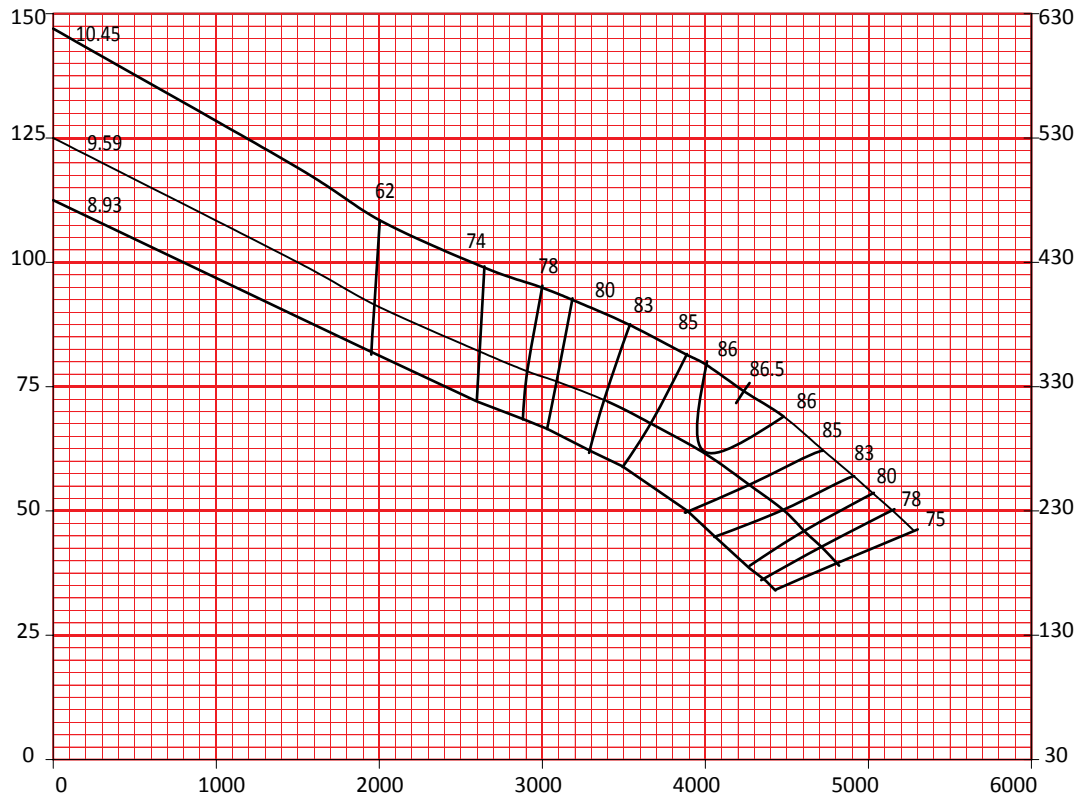


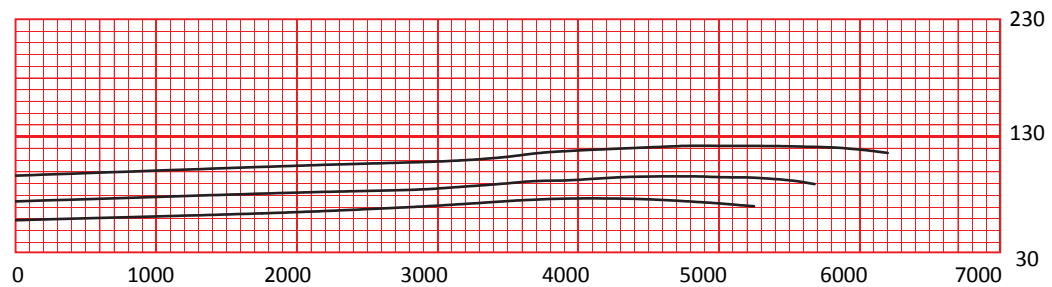
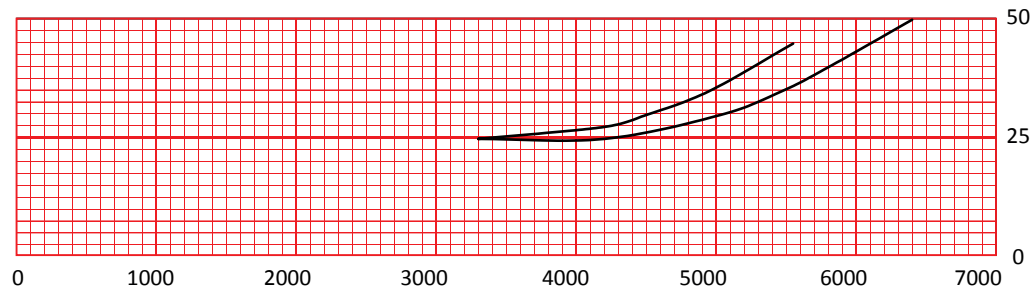
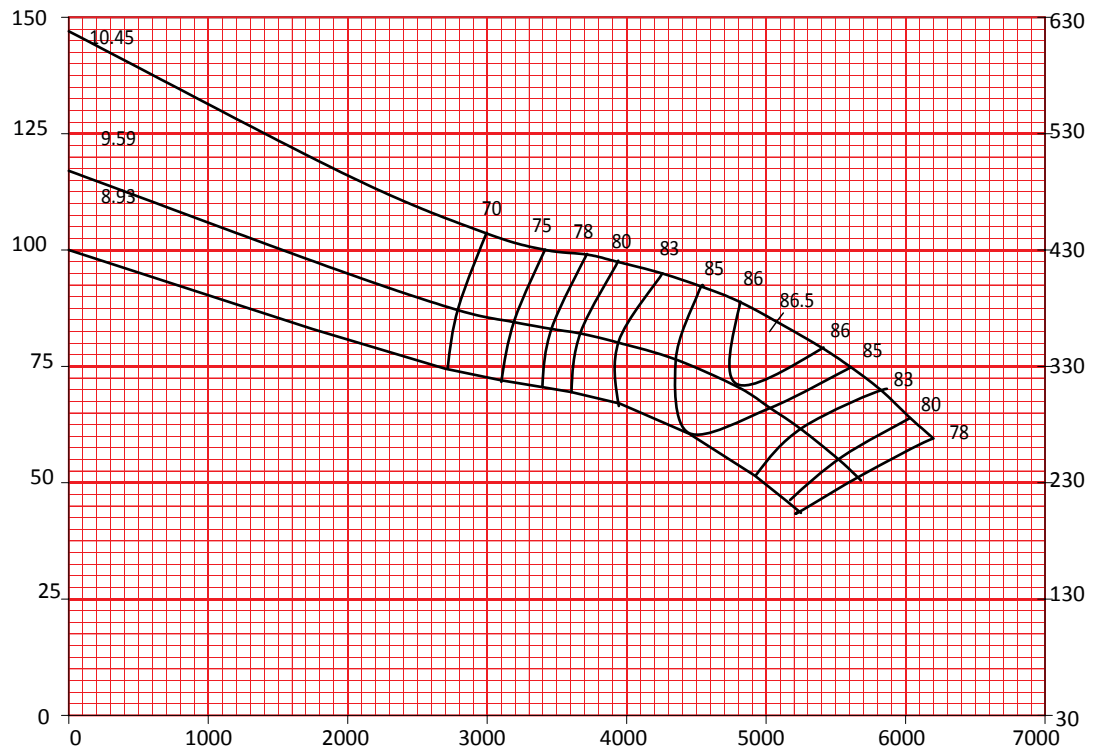
14AS2H 1800 RPM





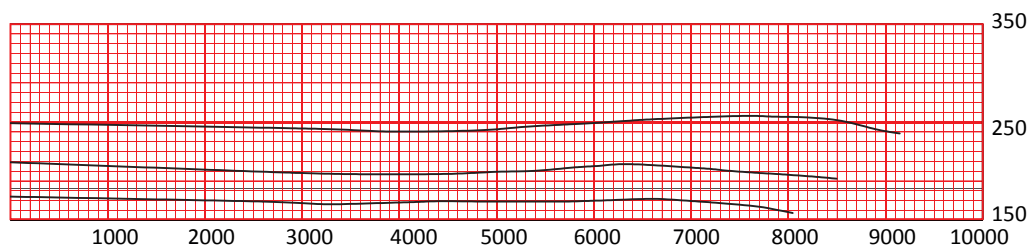
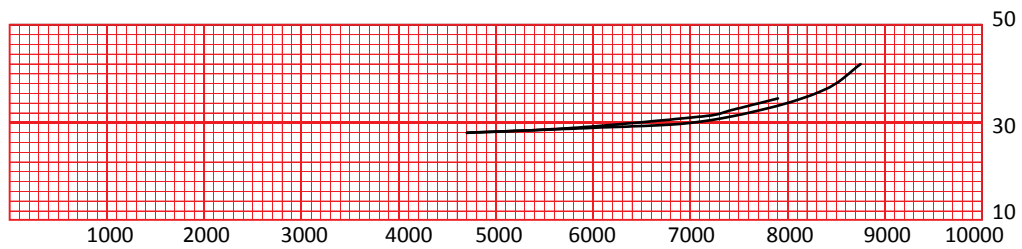
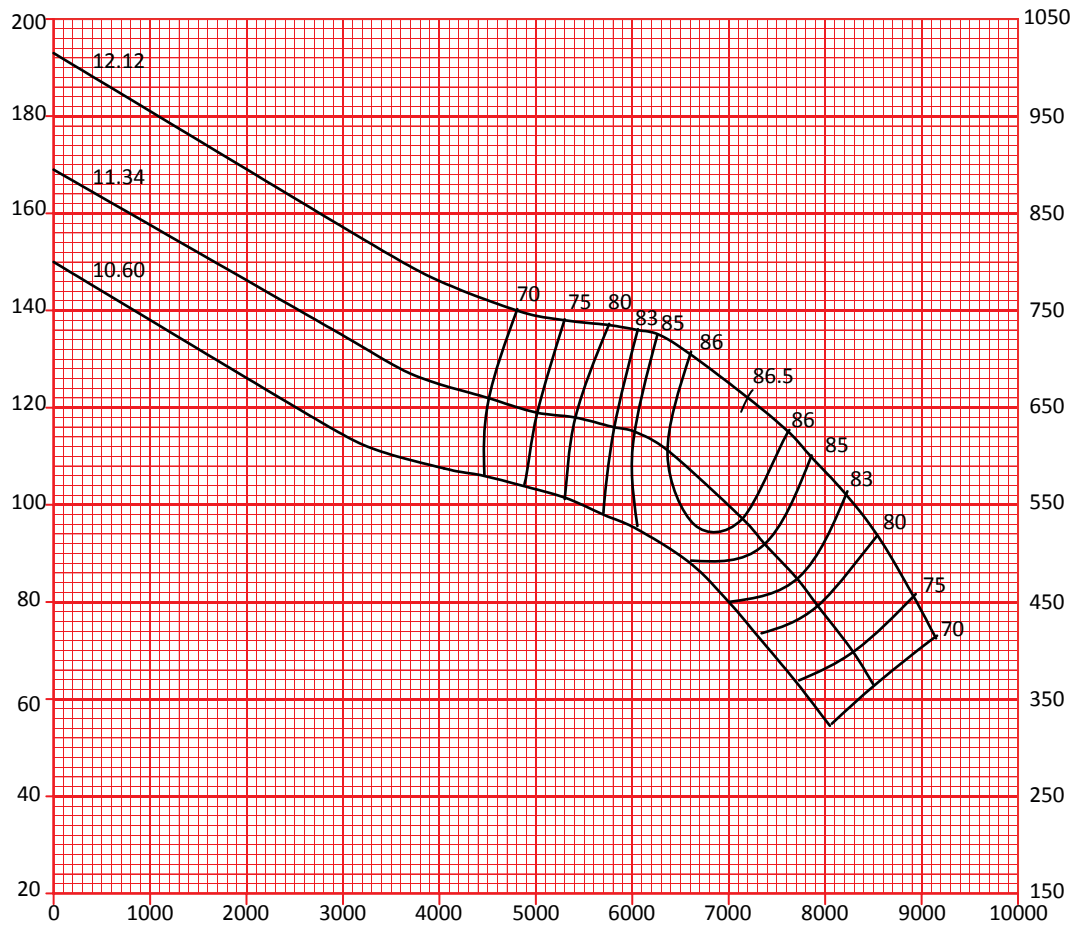
16AS1L 1800 RPM







18AS1H 1800 RPM

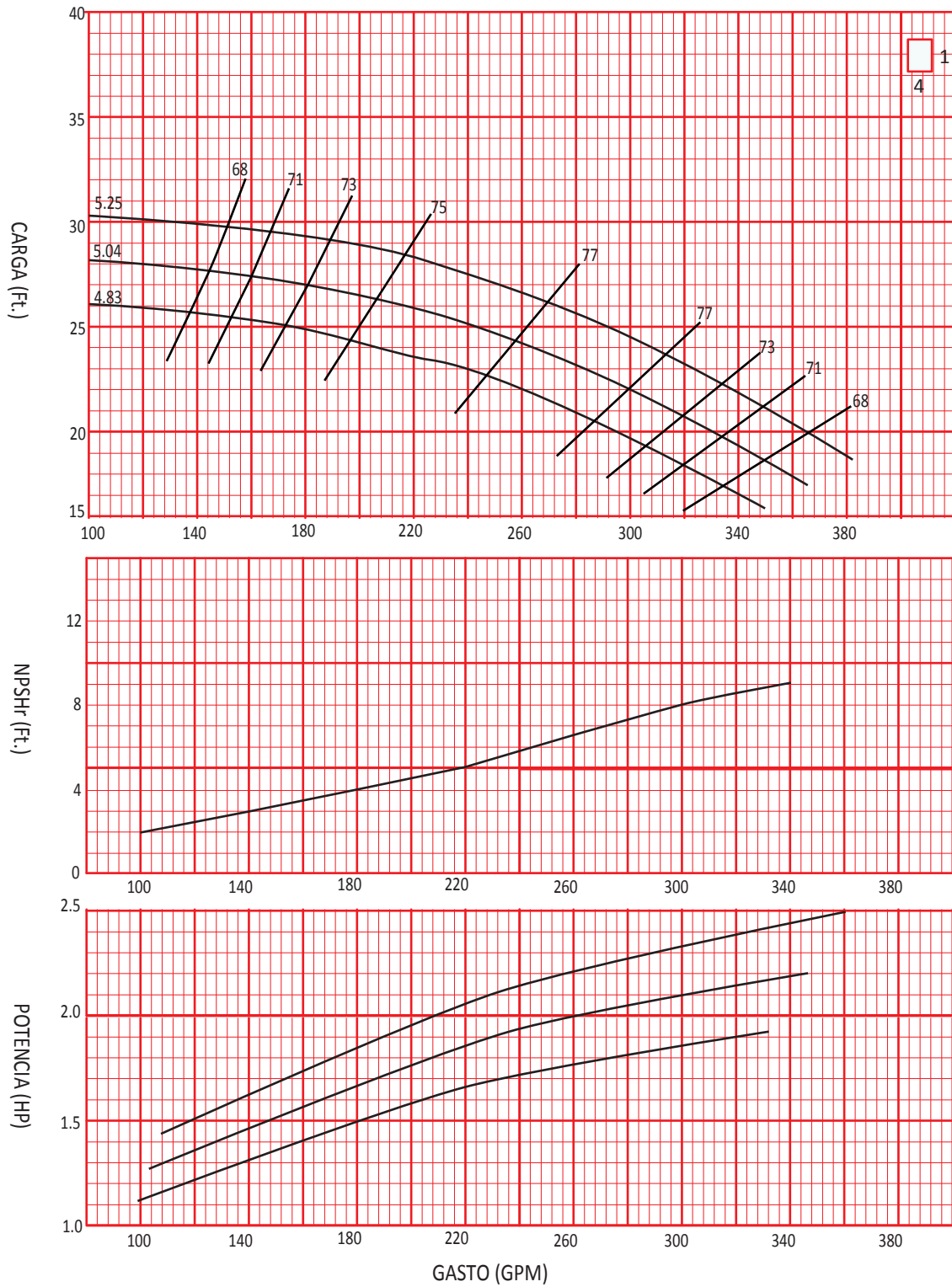




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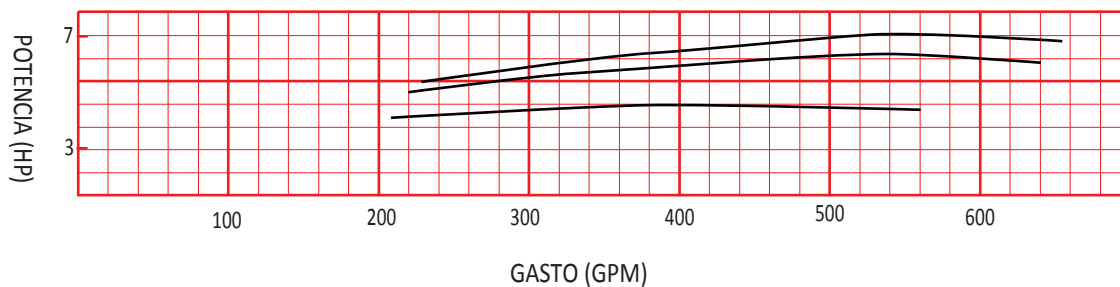
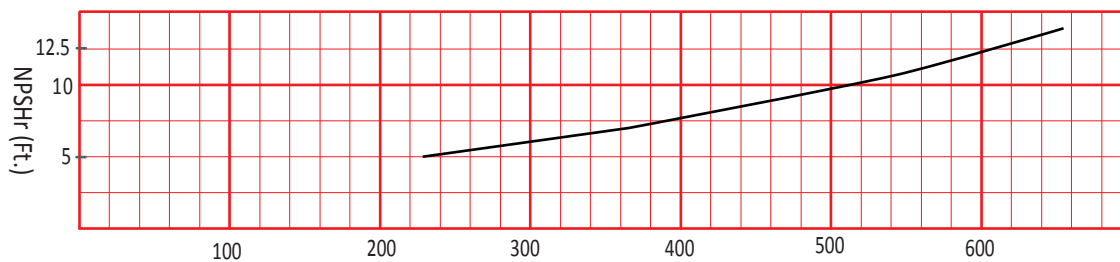
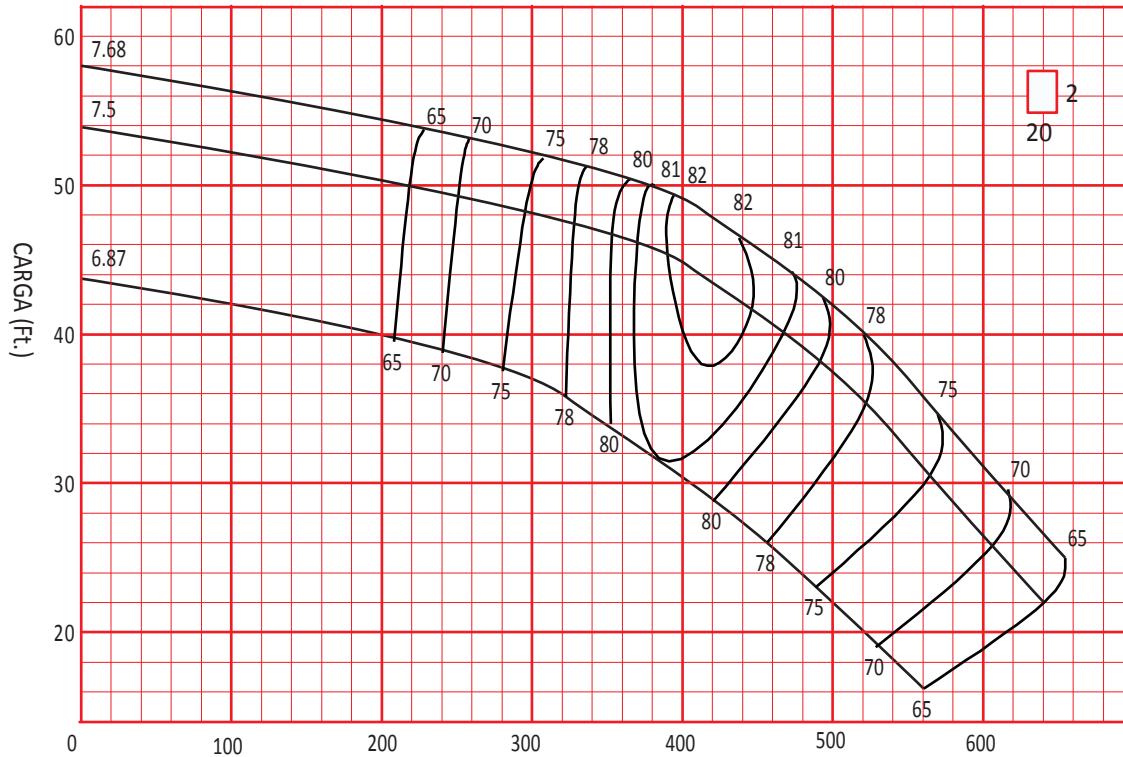


8ASRS 1800 RPM



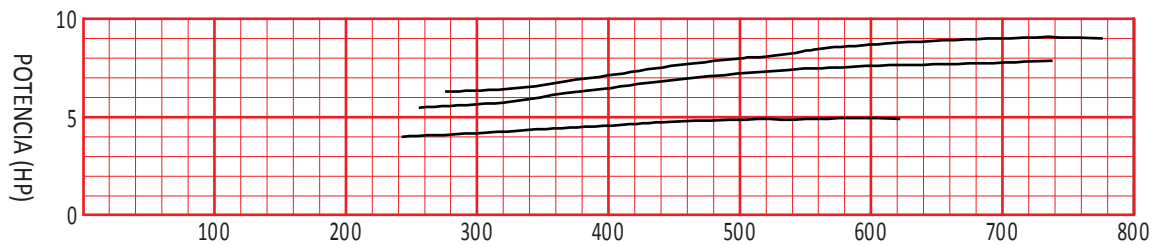
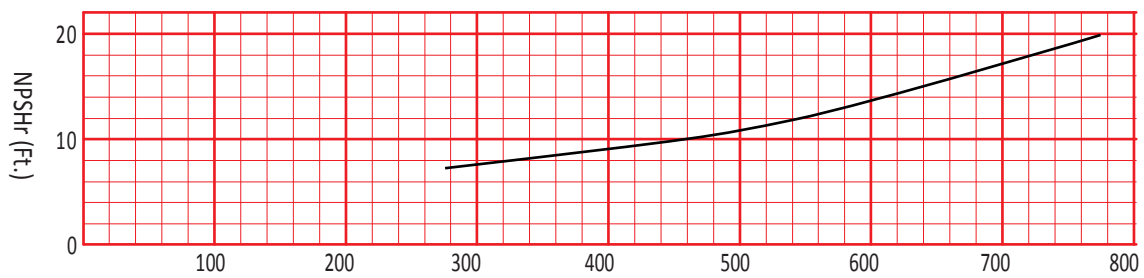
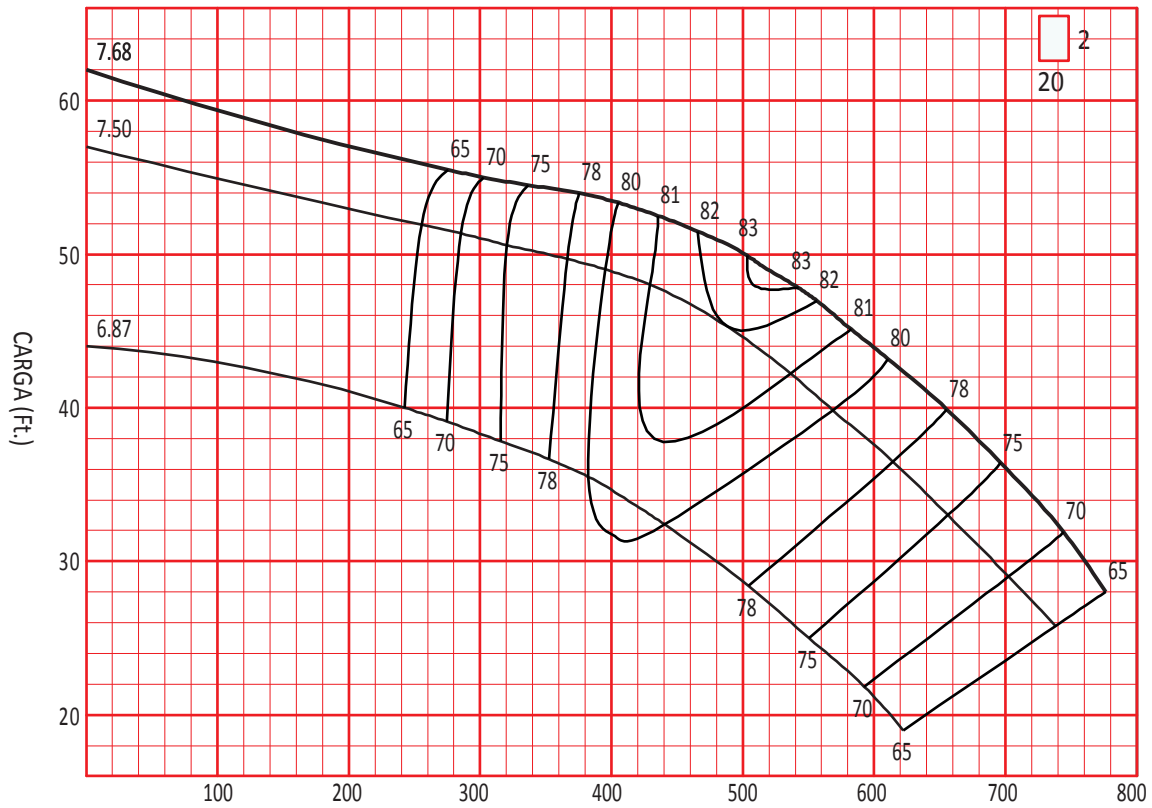


10ASLS 1800 RPM





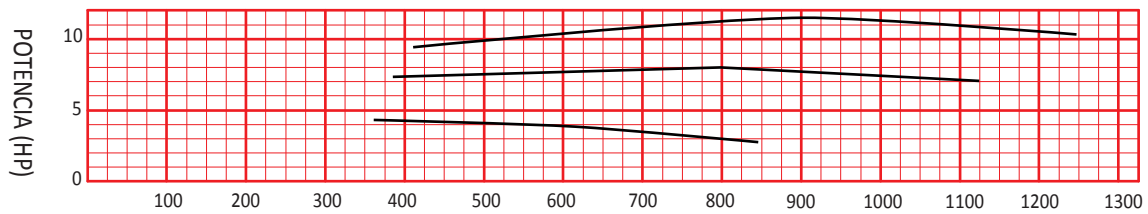
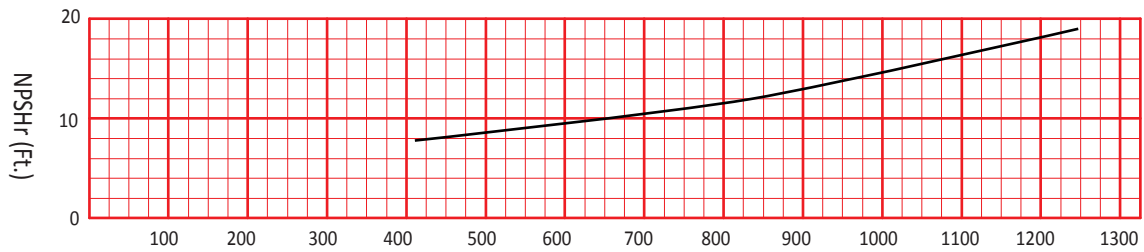
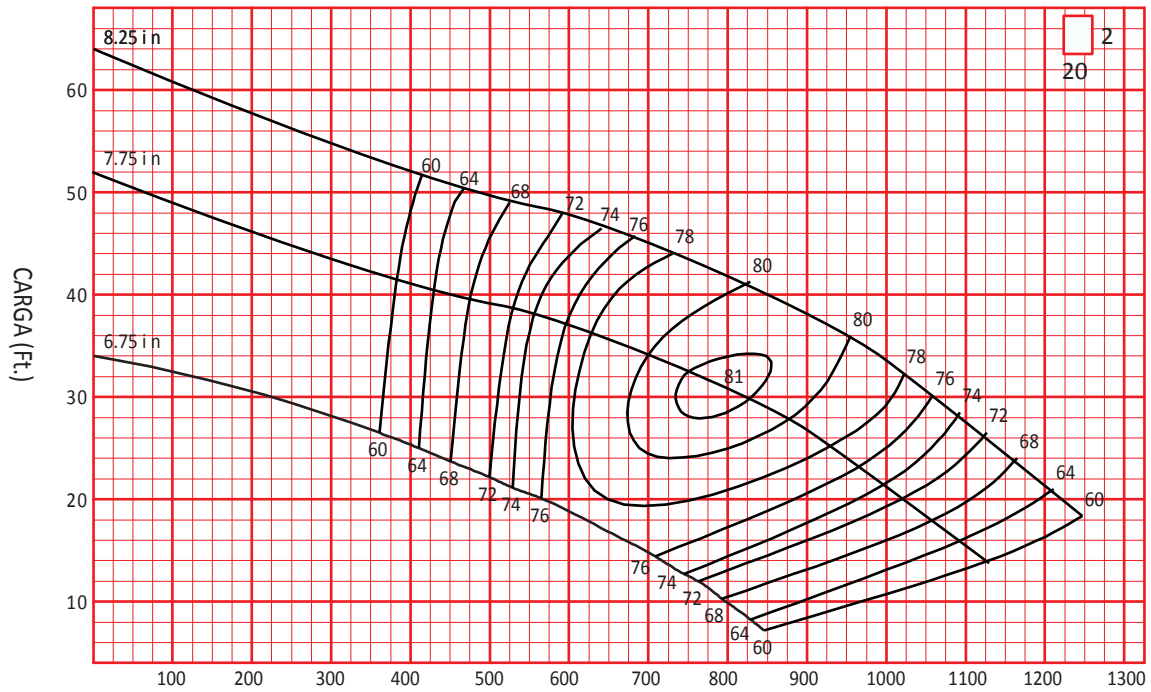
10ASMS 1800 RPM



GASTO (GPM)



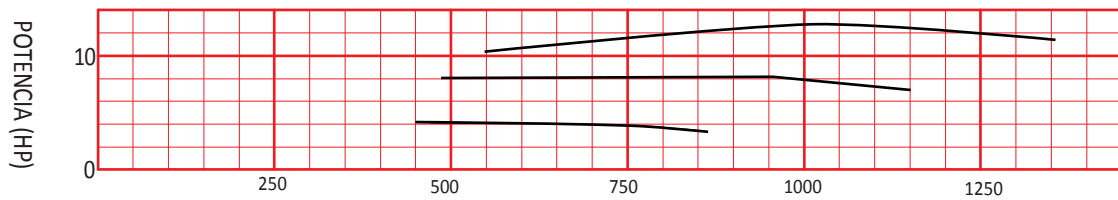
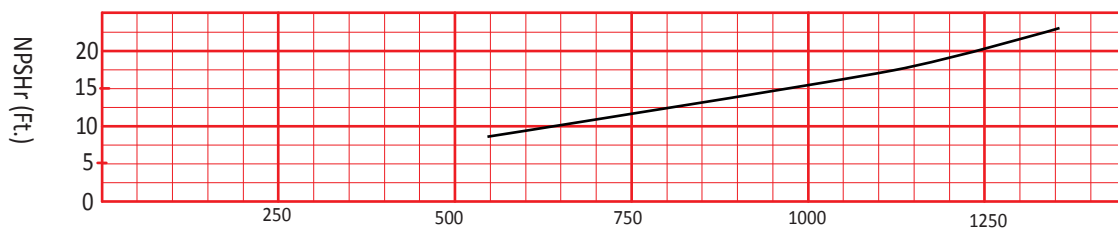
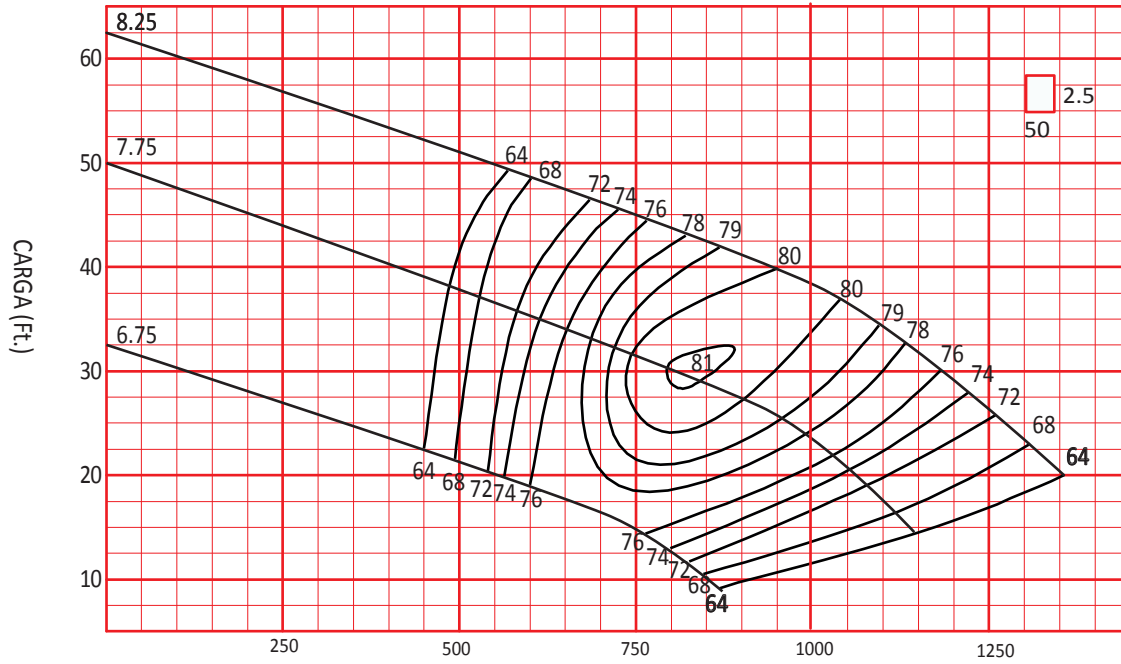
10ASWS 1800 RPM



GASTO (GPM)



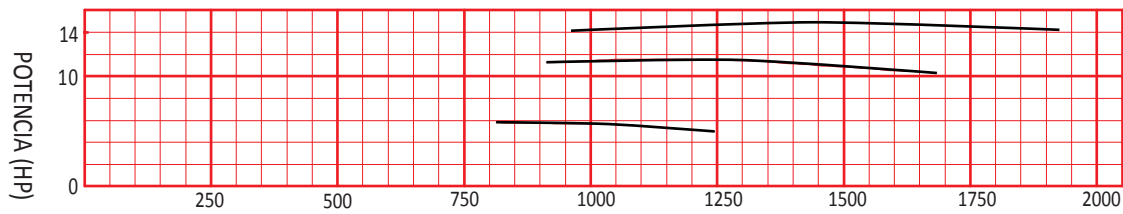
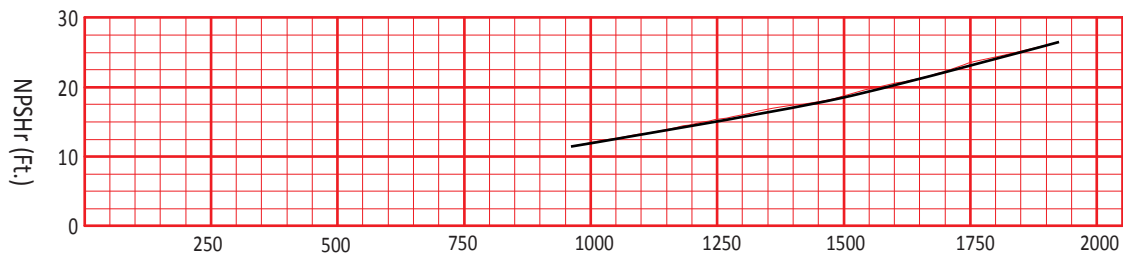
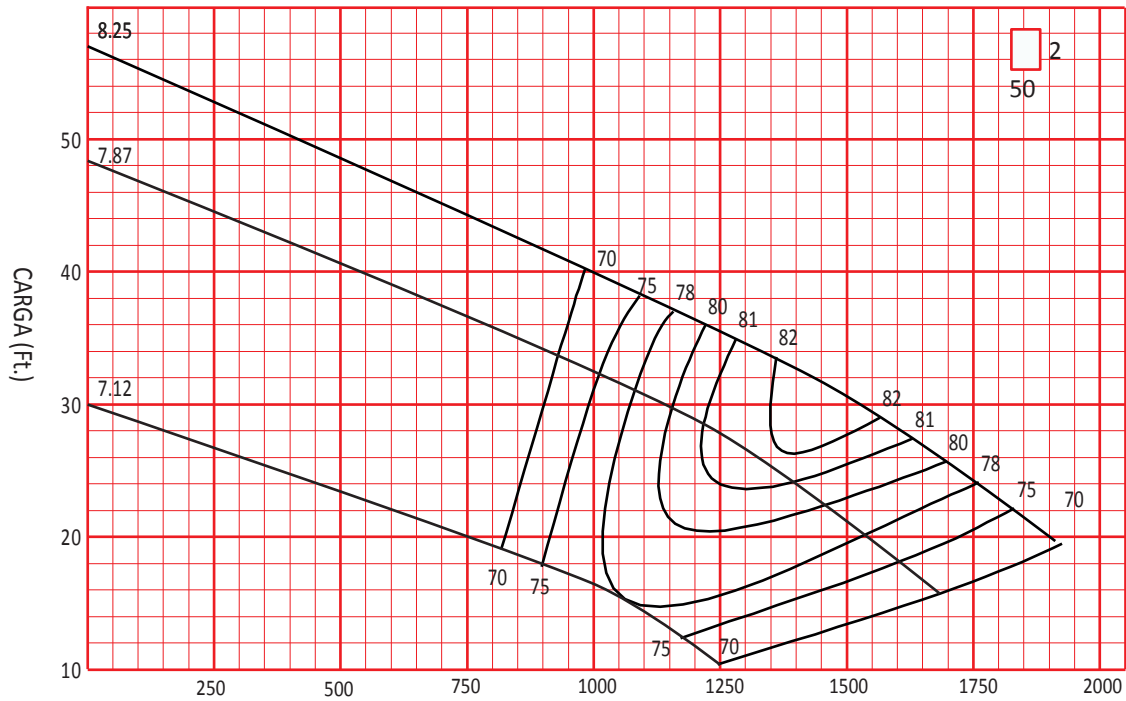
10ASYS 1800 RPM



GASTO (GPM)



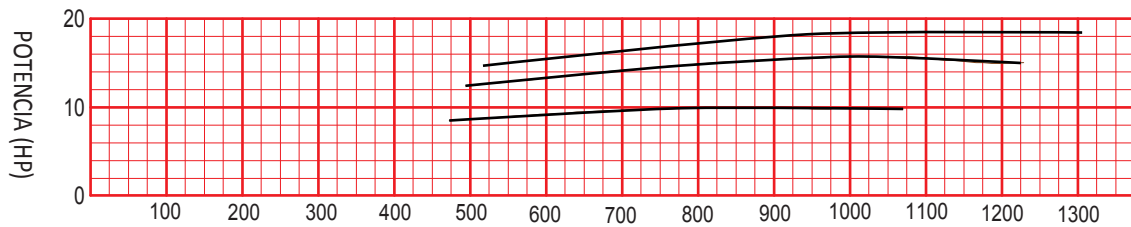
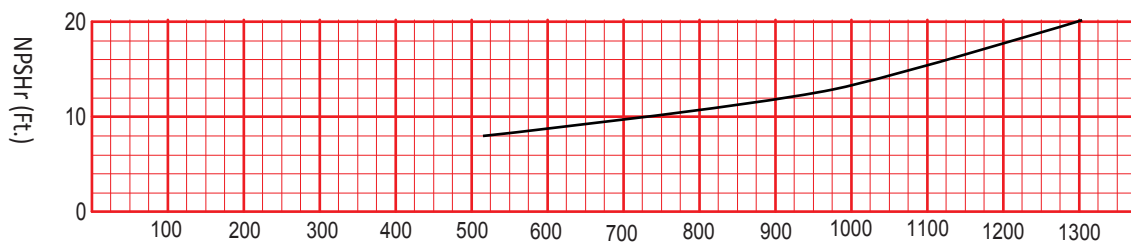
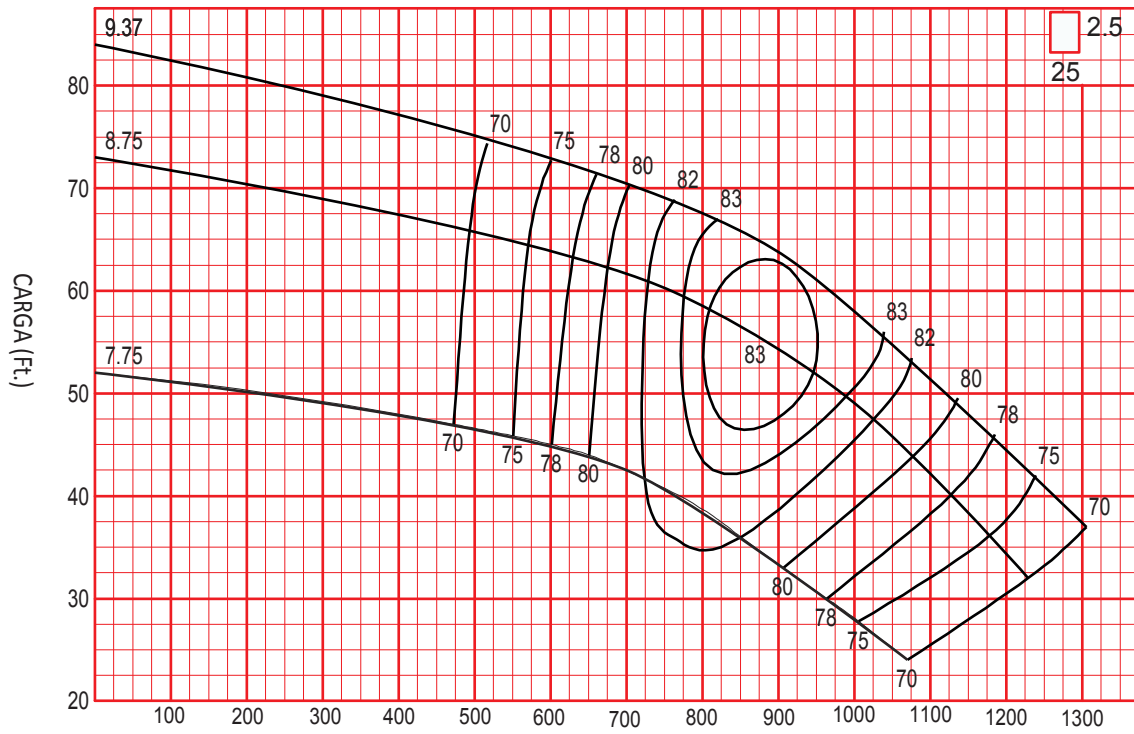
10ASZS 1800 RPM



GASTO (GPM)



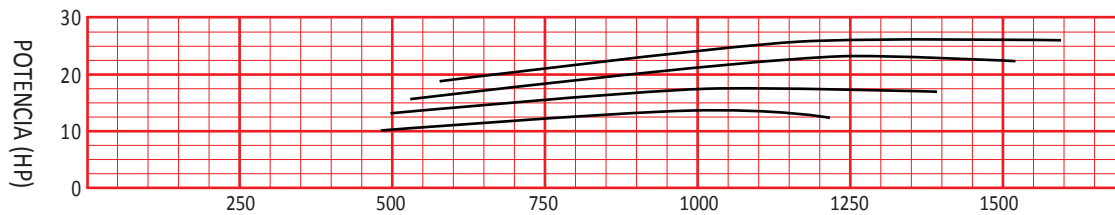
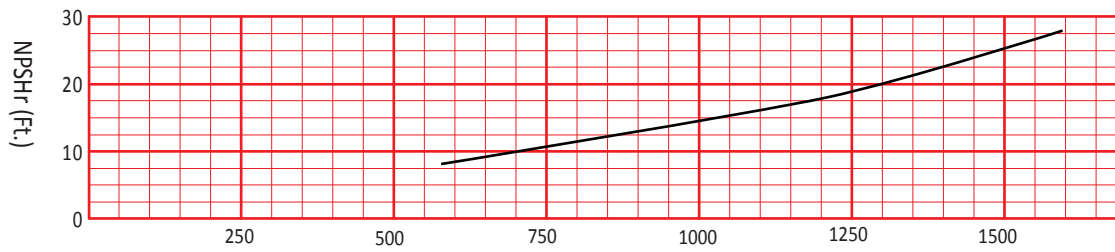
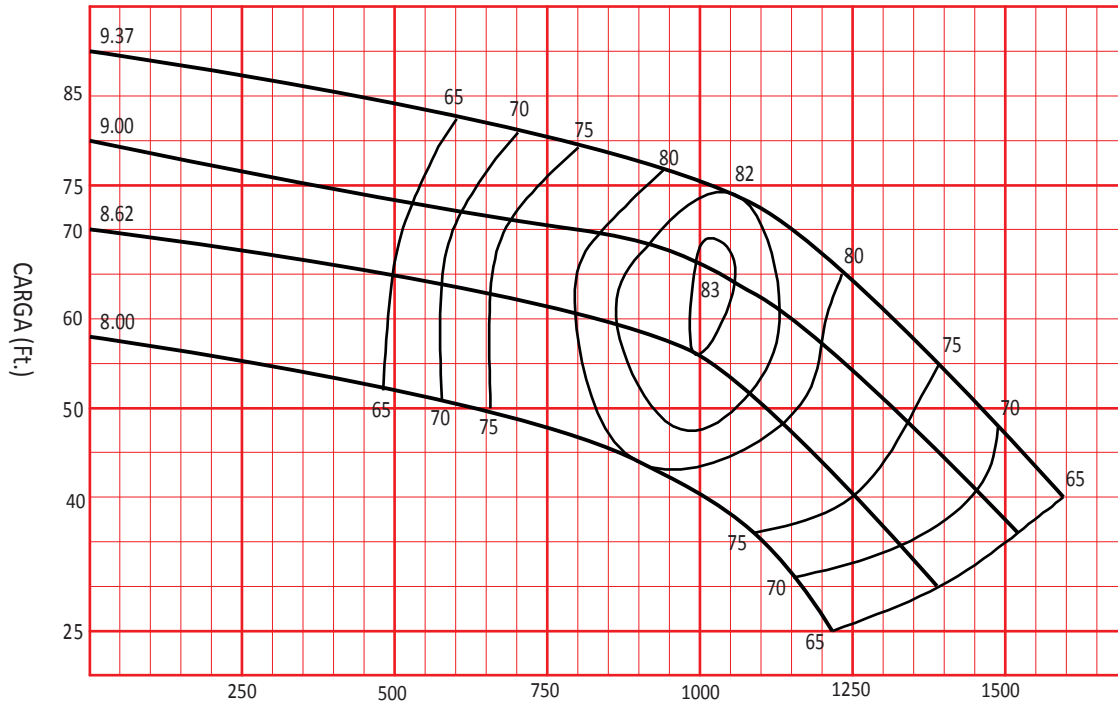
12ASLS 1800 RPM



GASTO (GPM)



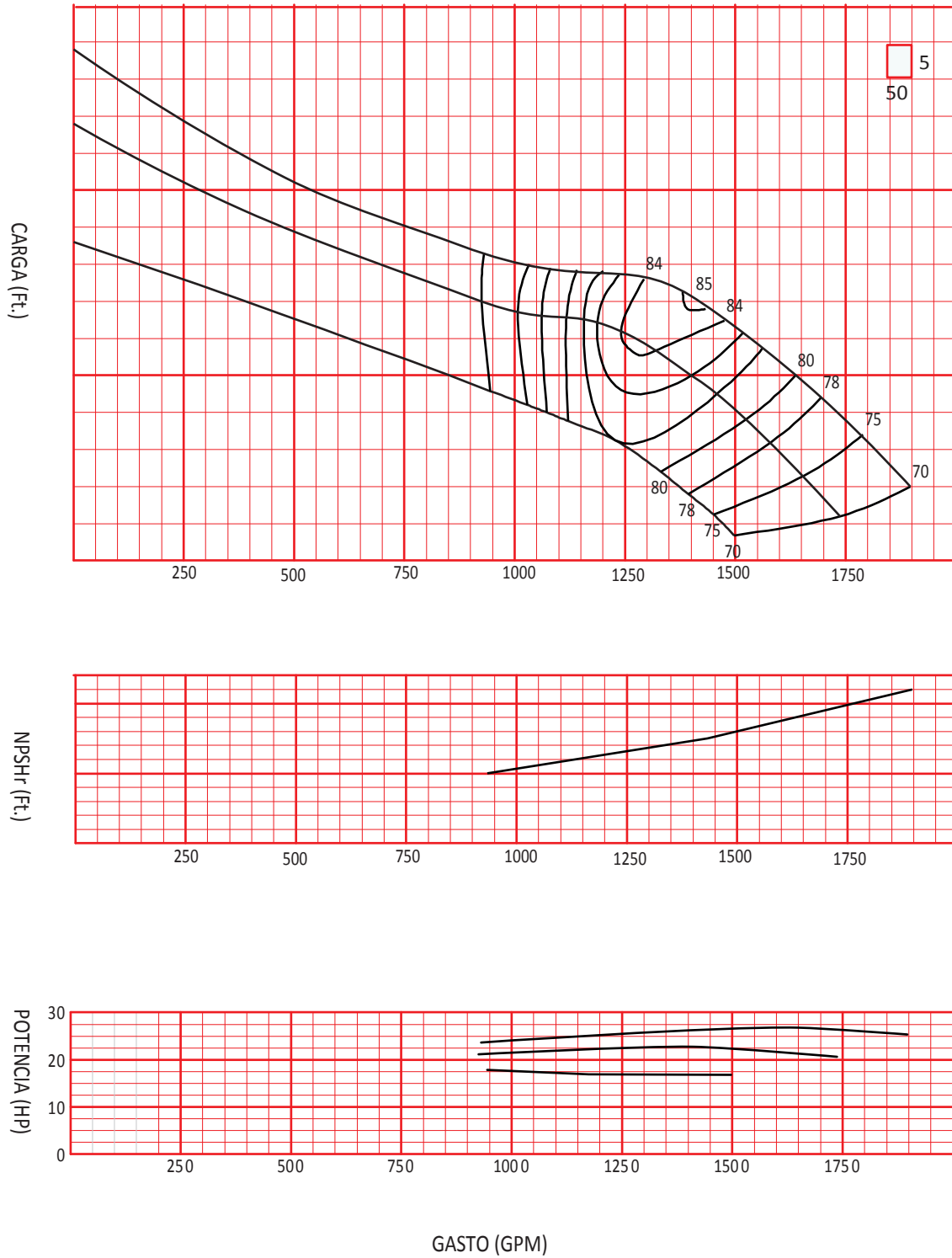
12ASMS 1800 RPM



GASTO (GPM)

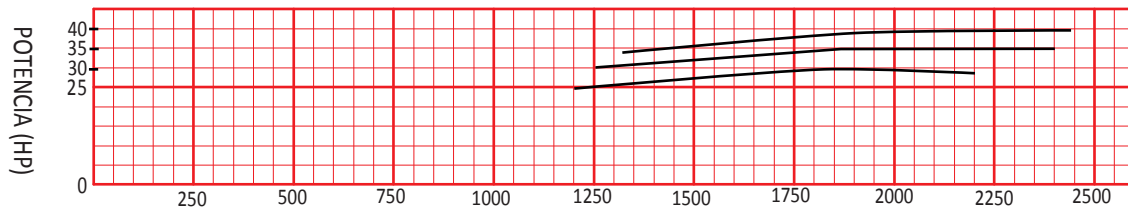
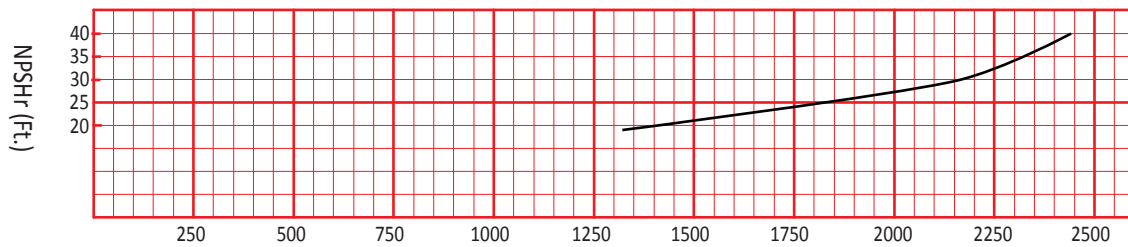
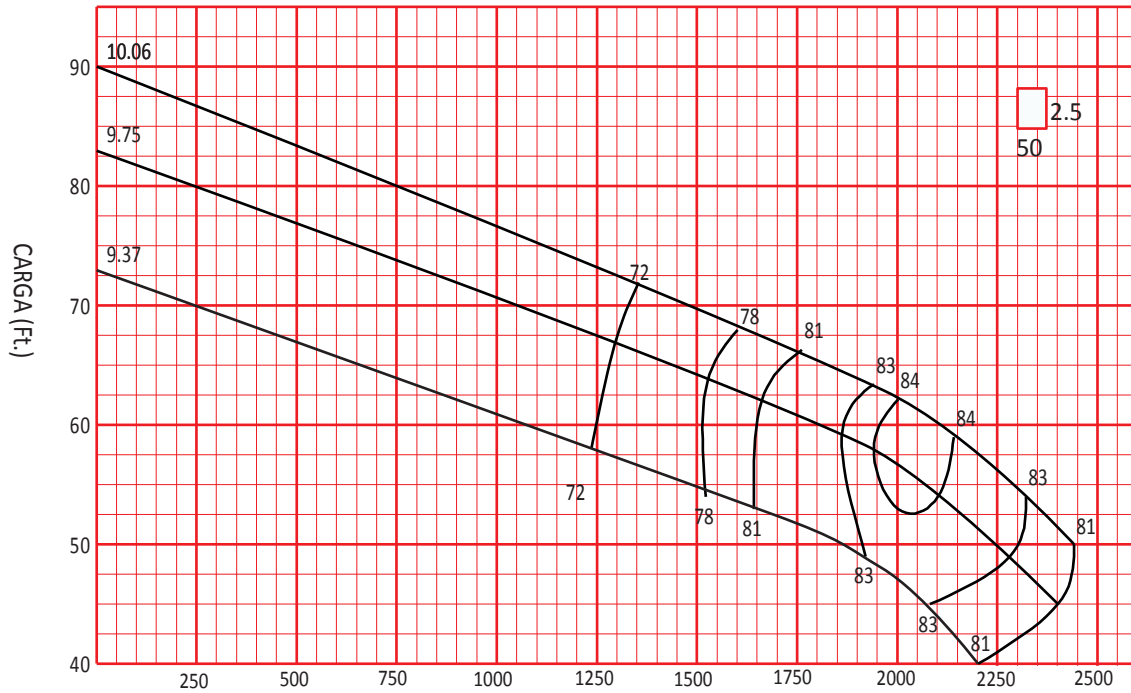


12ASHS 1800 RPM





12ASWS 1800 RPM



GASTO (GPM)



14ASWS 1800 RPM

