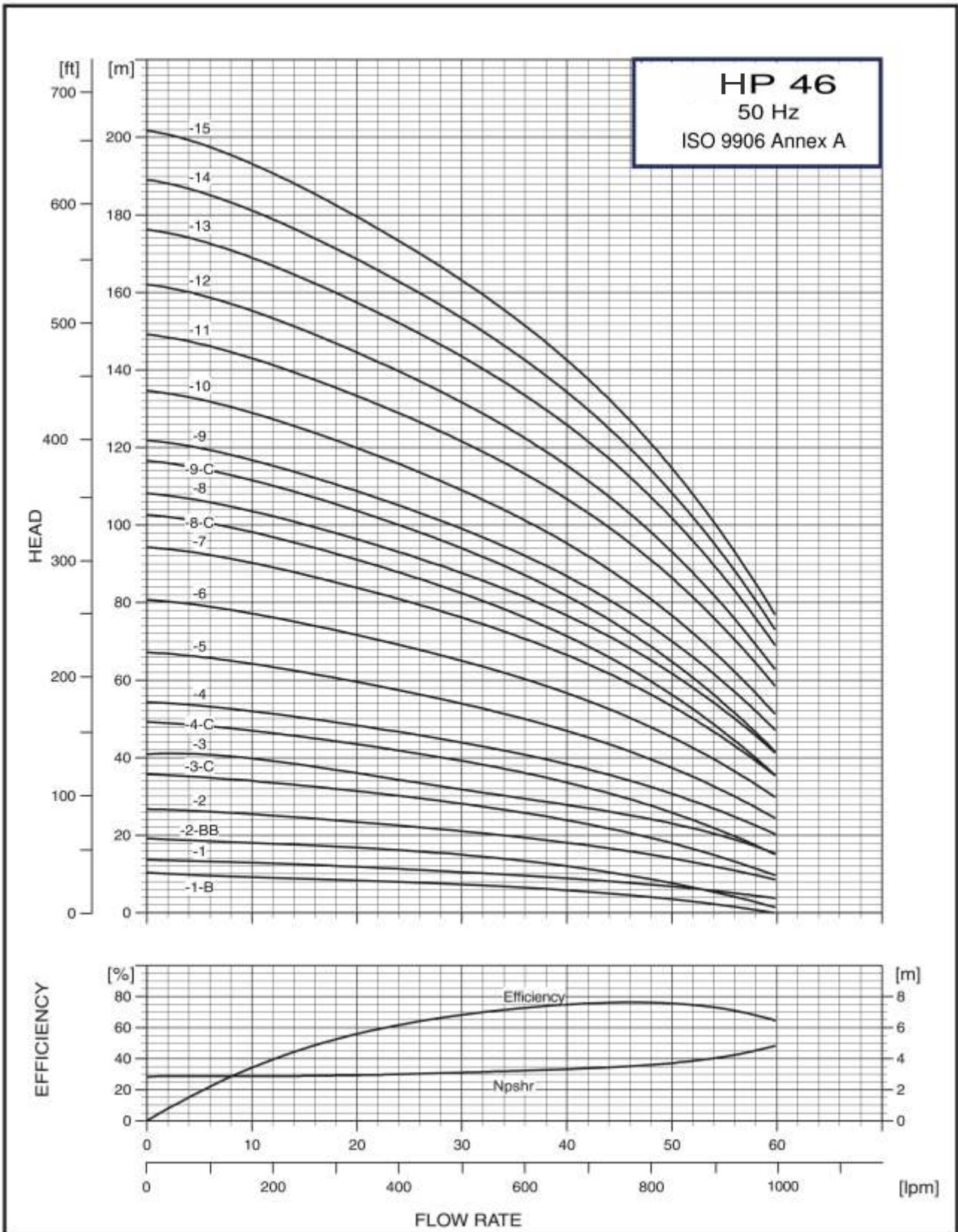
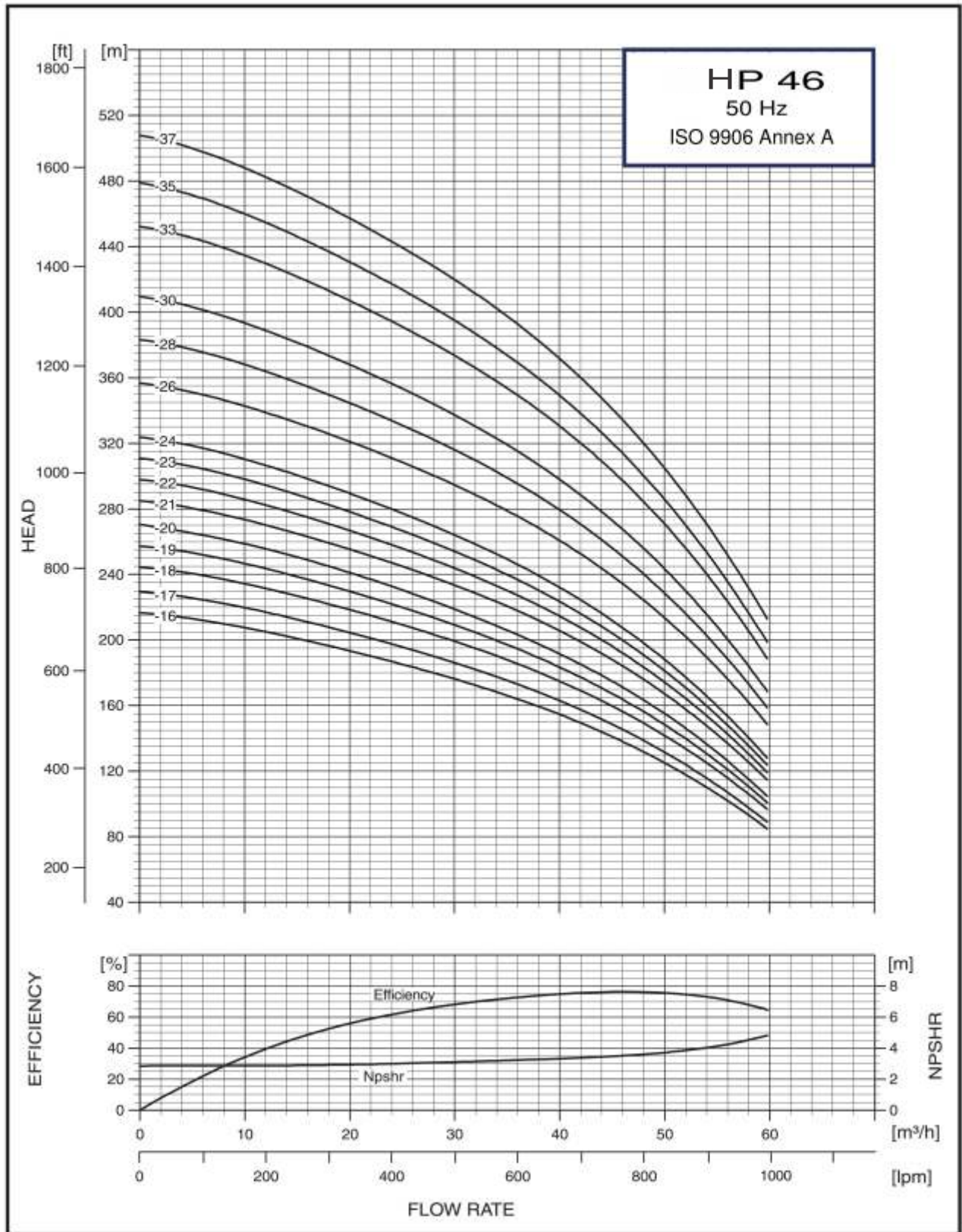


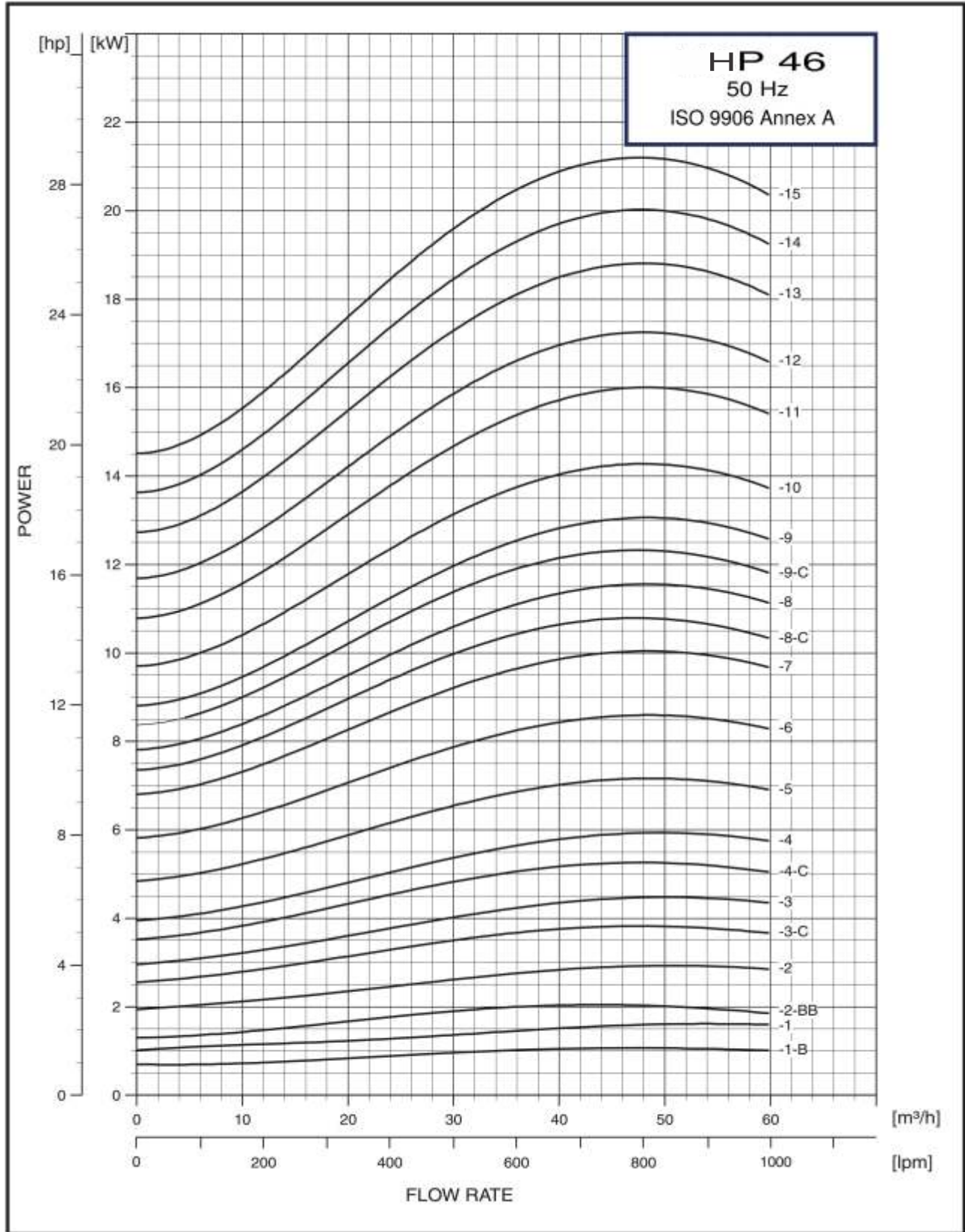
PERFORMANCE CURVE



## PERFORMANCE CURVE

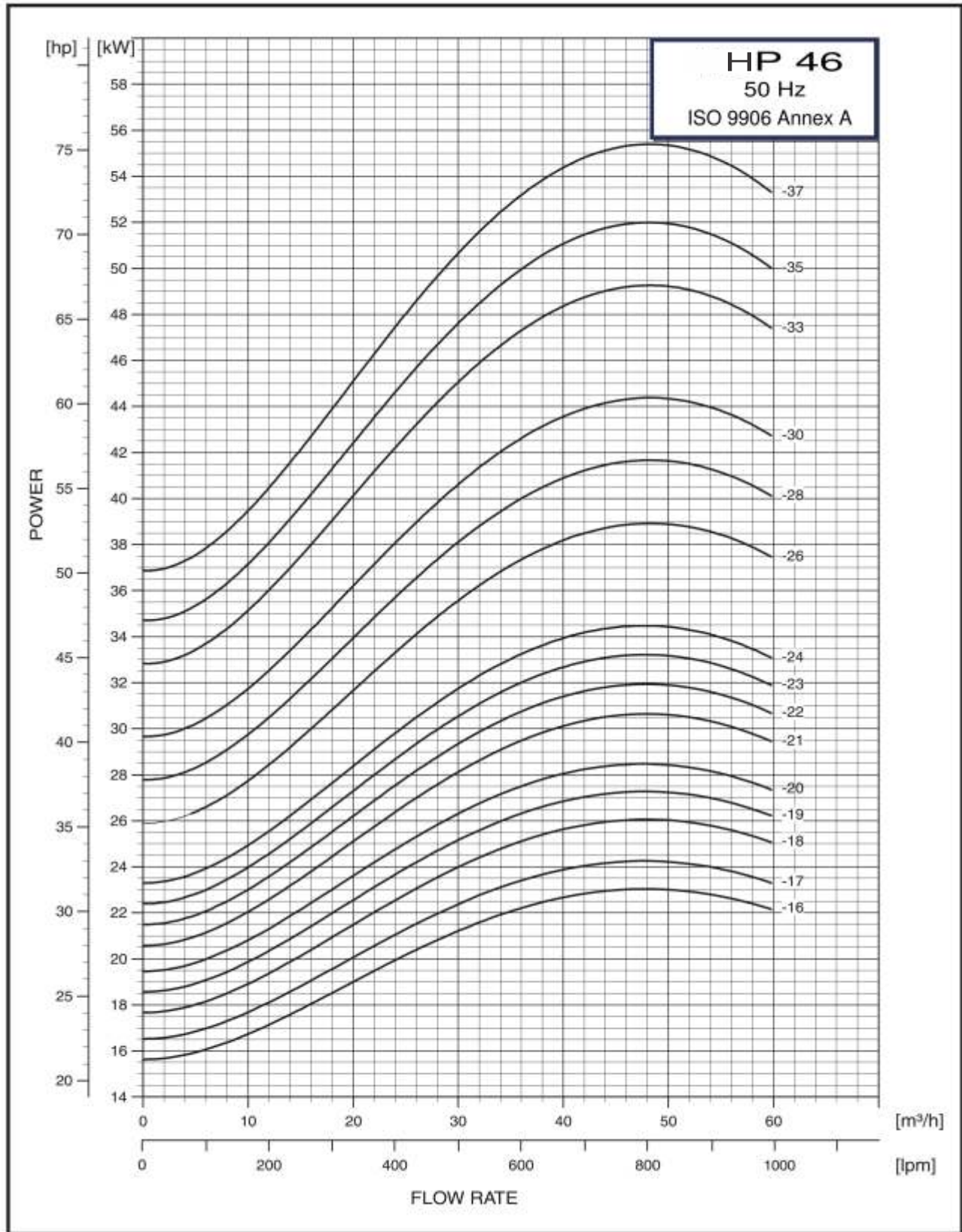


POWER CURVE

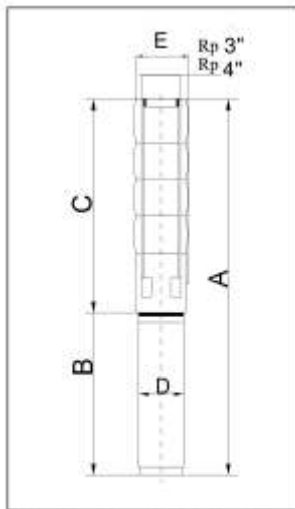




POWER CURVE



## Dimensions, Weights and Performance Table



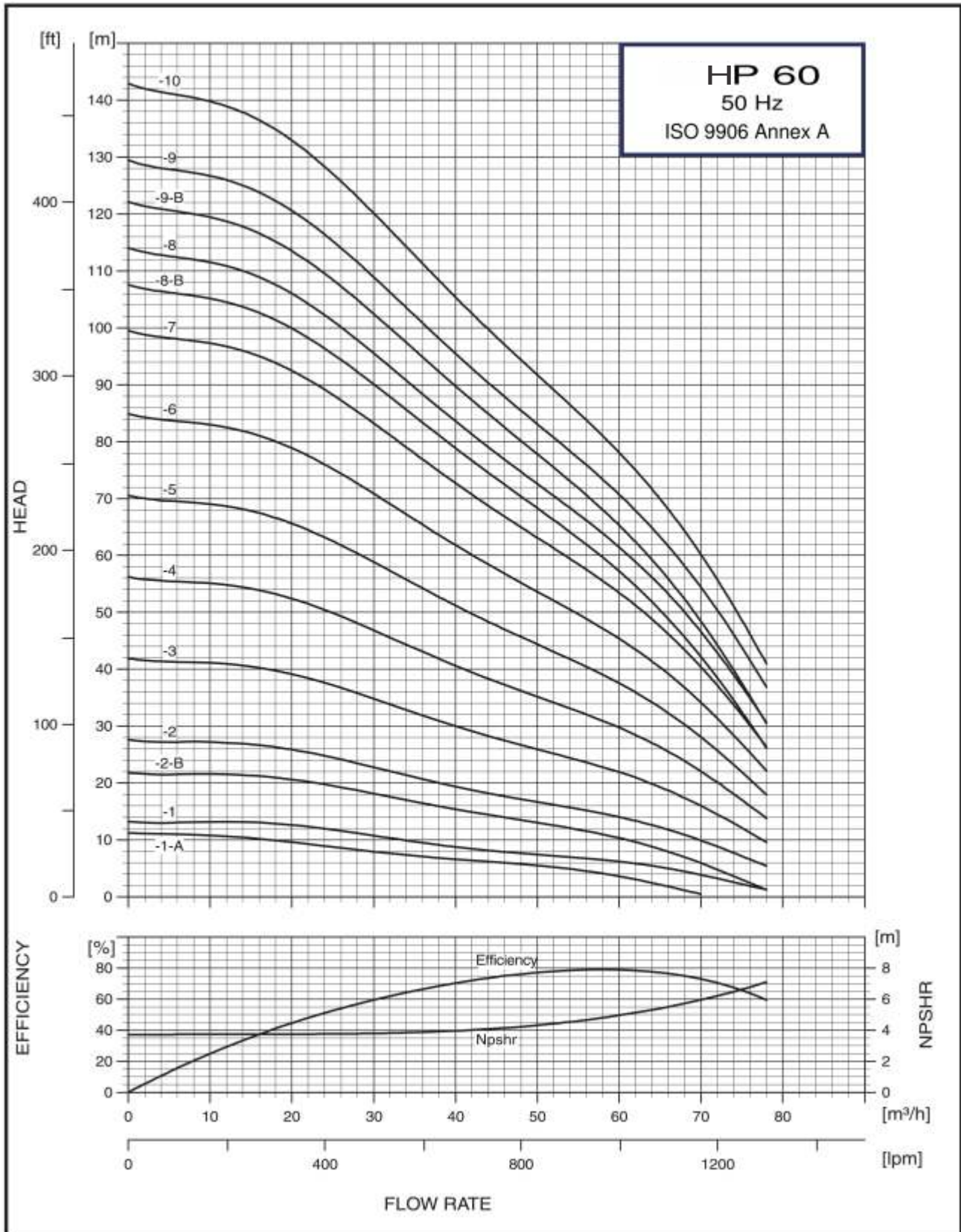
HP 46 - 26 to HP 46 - 37 are mounted in s.s. pipe sleeve.

Model - Stage	n-2950 RPM	Discharges (Q)									Dimensions in (mm)				Pump Net Weight In Kgs
	m <sup>3</sup> / hrs	0	15	25	35	40	45	50	55	59.8	Rp 4" Thread Connection				
	Ltr / Min.	0	250	417	583	667	750	833	917	997					
Motor kw / HP	Total Head in Meters									C	A	D*	E**		
HP 46 - 2-BB	2.2 / 3.0	19	17	16	14	12	10	8	5	1	483	831	95	145	8
HP 46 - 2	3 / 4.0	27	24	22	20	18	16	14	11	9	483	979	95	145	8
HP 46 - 3-C	4 / 5.5	36	33	30	26	24	21	18	14	10	596	1170	95	145	11
HP 46 - 3	5.5 / 7.5	41	38	34	30	28	26	23	20	15	612	1156	145	152	12
HP 46 - 4-C	5.5 / 7.5	49	45	41	37	34	30	26	21	15	709	1253	145	152	14
HP 46 - 4	7.5 / 10	54	50	46	41	38	35	31	26	20	725	1299	145	152	15
HP 46 - 5	7.5 / 10	67	62	57	51	47	43	37	31	24	838	1412	145	152	17
HP 46 - 6	9.2 / 12.5	81	75	68	61	57	51	45	38	30	951	1555	145	152	19
HP 46 - 7	11 / 15	94	87	80	72	66	60	53	45	35	1064	1698	145	152	22
HP 46 - 8-C	11 / 15	103	95	87	77	71	64	56	46	36	1177	1811	145	152	24
HP 46 - 8	13 / 17.5	108	100	92	83	77	70	62	52	41	1177	1841	145	152	24
HP 46 - 9-C	13 / 17.5	117	108	99	88	82	74	65	54	42	1290	1954	145	152	26
HP 46 - 9	15 / 20	122	113	104	93	87	79	70	59	47	1290	1988	145	152	26
HP 46 - 10	15 / 20	135	125	115	103	95	87	77	65	51	1403	2101	145	152	29
HP 46 - 11	18.5 / 25	149	138	128	115	107	97	86	73	59	1516	2270	145	152	31
HP 46 - 12	18.5 / 25	162	150	138	124	115	105	93	79	63	1629	2383	145	152	33
HP 46 - 13	22 / 30	176	163	151	135	126	115	102	86	69	1855	2667	145	152	35
HP 46 - 14	22 / 30	189	175	161	144	134	122	108	92	73	1855	2667	145	152	37
HP 46 - 15	22 / 30	202	187	172	154	143	130	115	97	77	1968	2780	145	152	39
HP 46 - 16	26 / 35	217	201	185	166	155	141	125	106	85	2081	2955	145	152	41
HP 46 - 17	26 / 35	229	213	196	175	163	149	132	112	89	2194	3068	145	152	43
HP 46 - 18	30 / 40	244	227	209	188	175	160	142	121	97	2307	3251	145	152	45
HP 46 - 19	30 / 40	257	239	220	197	183	167	148	126	101	2420	3364	145	152	47
HP 46 - 20	30 / 40	270	251	230	206	192	175	155	132	105	2613	3557	145	152	50
HP 46 - 21	37 / 50	285	265	245	221	206	188	167	143	115	2726	3866	188	188	54
HP 46 - 22	37 / 50	298	277	256	230	215	196	174	148	119	2839	3979	188	188	56
HP 46 - 23	37 / 50	311	289	267	240	223	204	181	154	124	2952	4092	188	188	57
HP 46 - 24	37 / 50	324	300	277	249	232	212	188	160	128	3065	4205	188	188	59
HP 46 - 26	45 / 60	357	332	308	279	261	239	214	183	149	3403	4633	188	188	90
HP 46 - 28	45 / 60	383	357	331	299	280	256	229	196	159	3629	4859	188	188	99
HP 46 - 30	45 / 60	410	381	353	319	298	273	244	208	169	3855	5085	188	188	108
HP 46 - 33	55 / 75	452	422	391	354	331	303	271	232	189	4194	538	188	188	122

\* Motor type / size may change as per requirement.

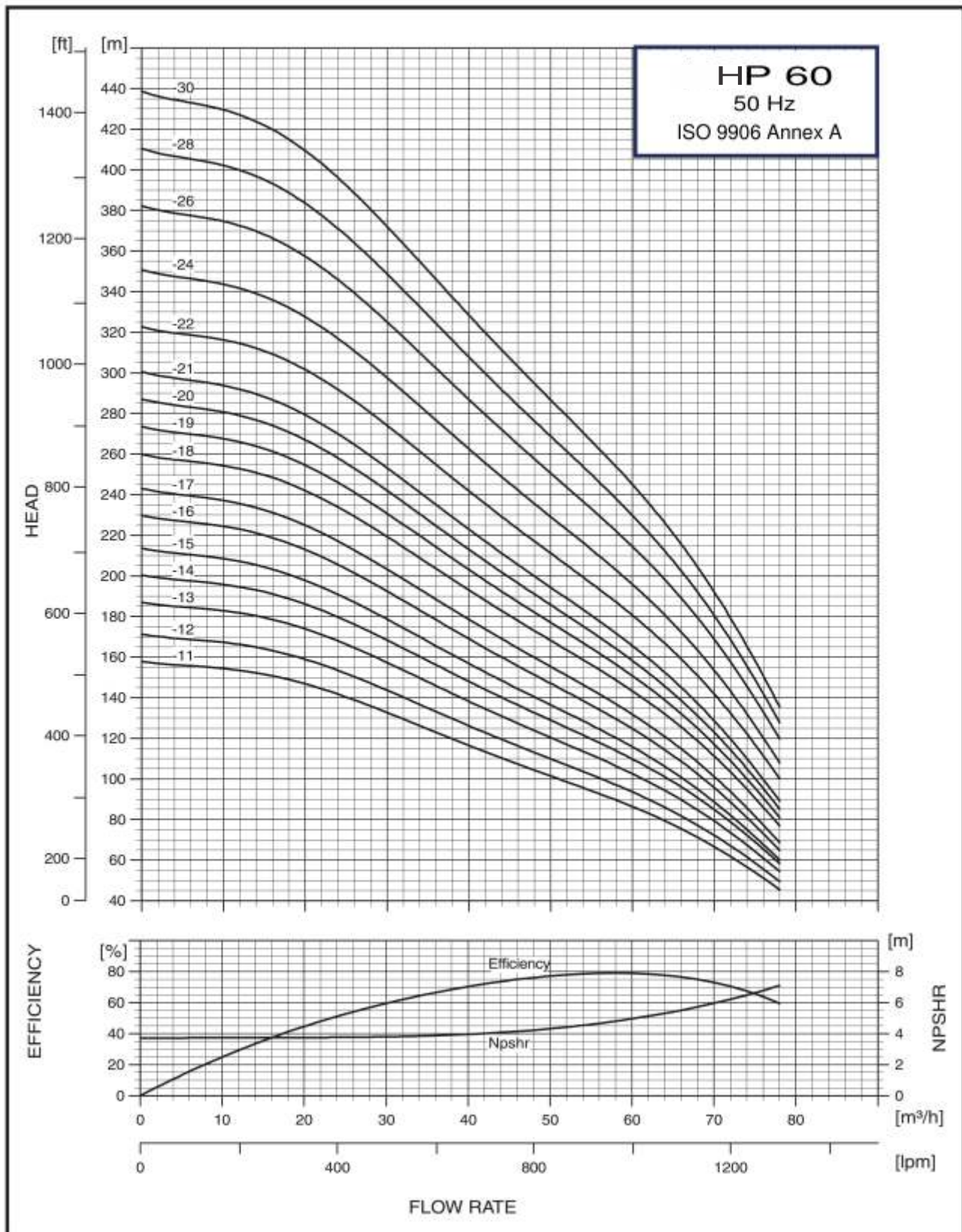
\*\* Maximum diameter of pump with two cable guard.

## PERFORMANCE CURVE

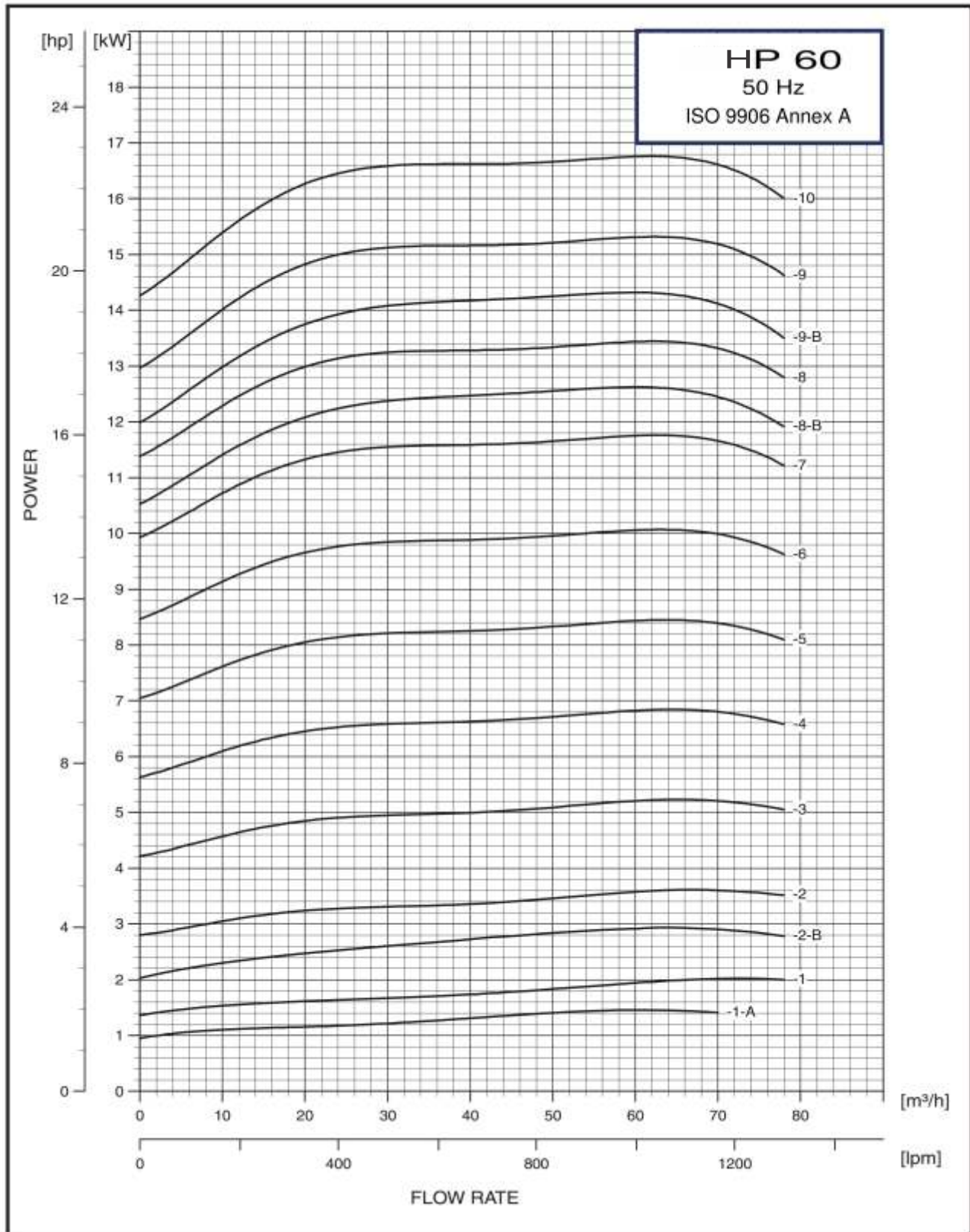




PERFORMANCE CURVE

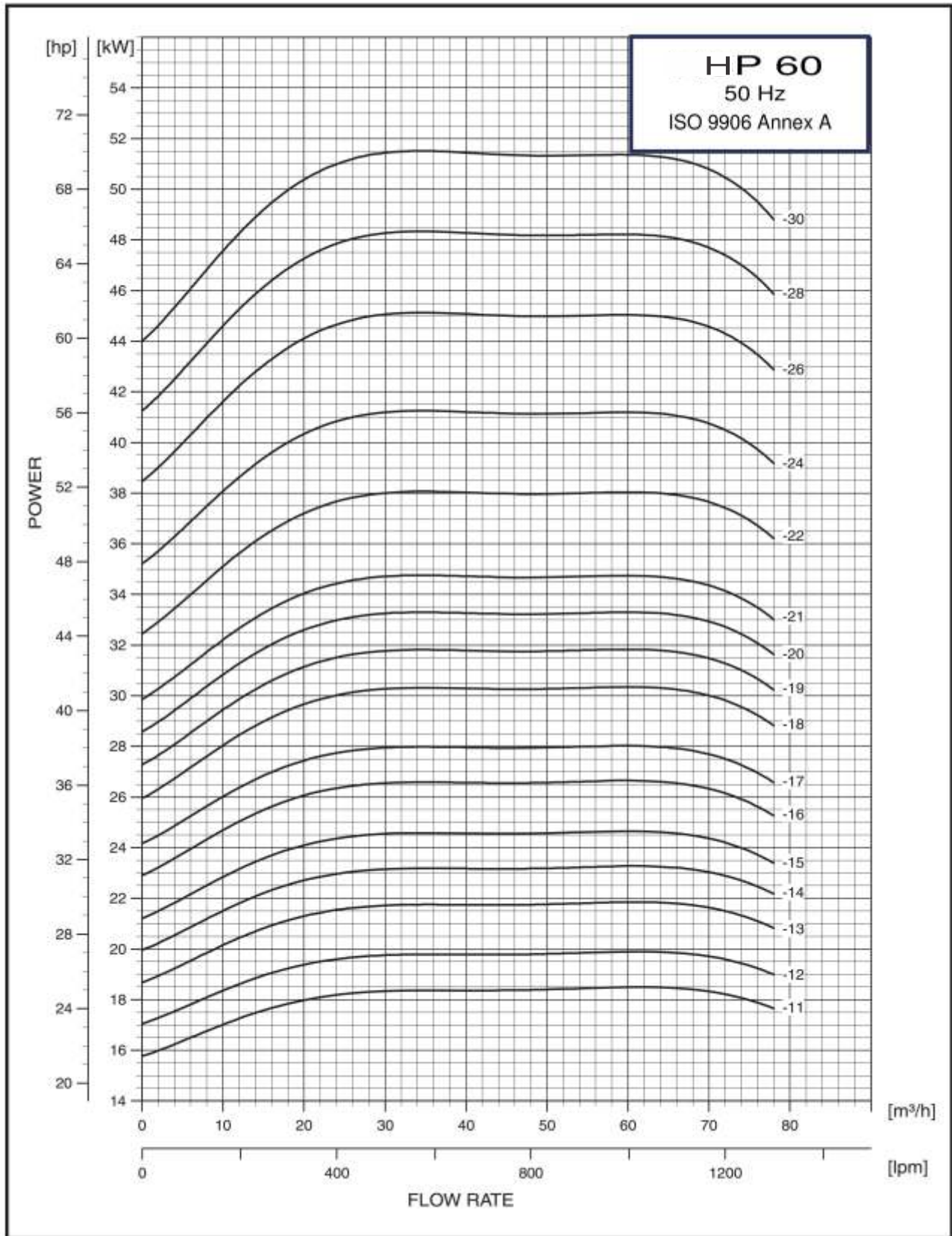


**POWER CURVE**

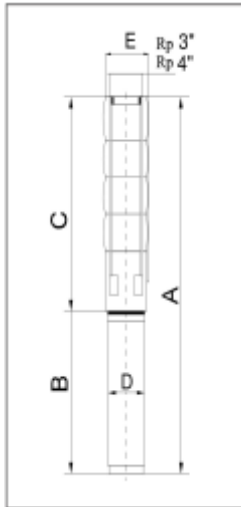




POWER CURVE



## Dimensions, Weights and Performance Table

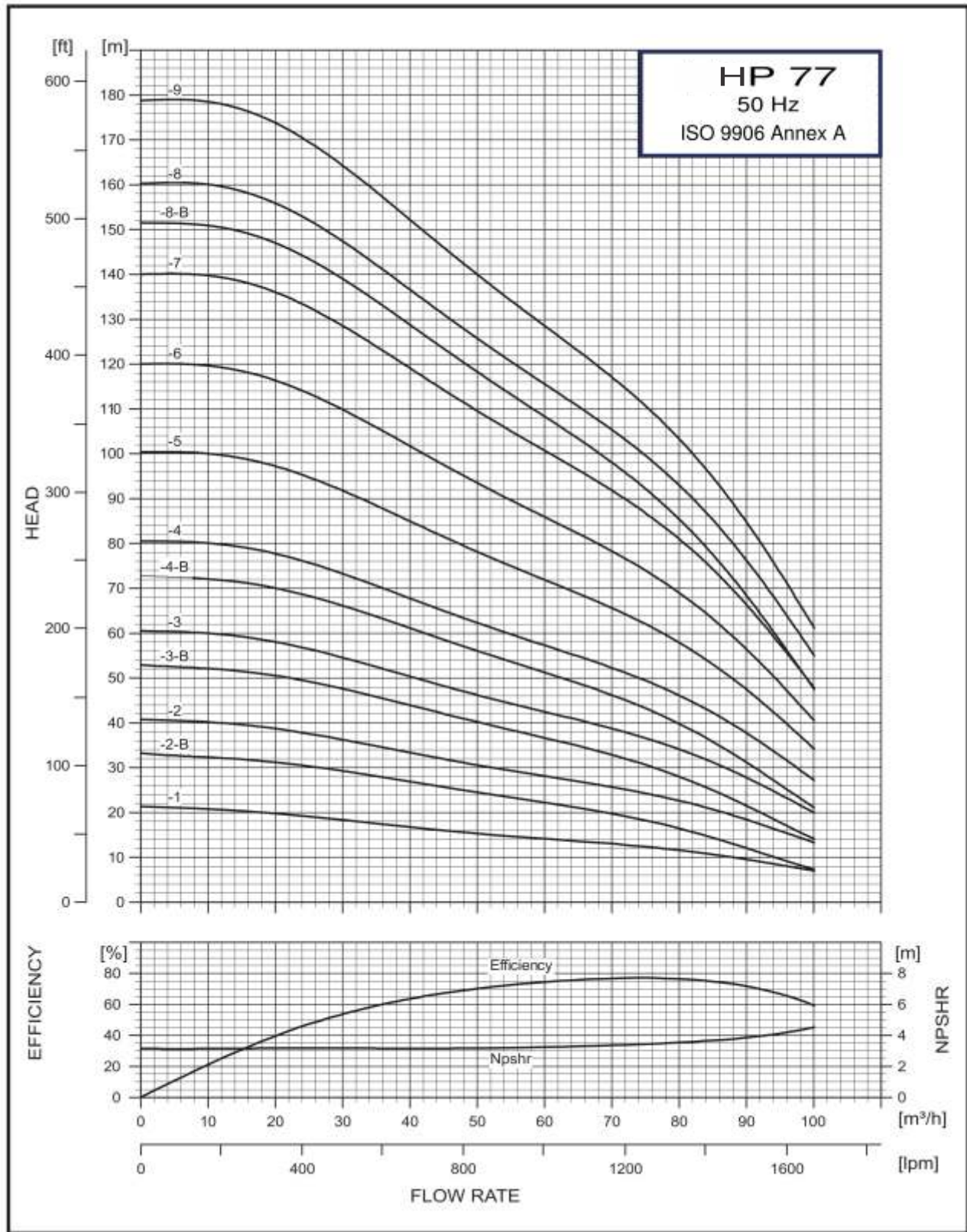


Model - Stage	n-2950 RPM	Discharges (Q)									Dimensions in (mm)				Pump Net Weight In Kgs
	m <sup>3</sup> / hrs	0	10	20	30	40	50	60	70	78	Rp 4" Thread Connection				
	Ltr / Min.	0	167	333	500	667	833	1000	1167	1300	C	A	D*	E**	
	Motor kw / HP	Total Head in Meters													
HP 60-2-B	3.0 / 4	22	22	21	18	15	13	10	6	1	483	977	95	145	8
HP 60-2	4 / 5.5	28	27	26	23	19	17	14	10	5	483	1059	95	145	8
HP 60-3	5.5 / 7.5	42	41	39	35	30	26	22	16	10	596	1271	95	145	10
HP 60-4	7.5 / 10	56	55	52	47	41	35	30	22	14	709	1486	95	145	12
HP 60-3	5.5 / 7.5	42	41	39	35	30	26	22	16	10	596	1139	145	152	13
HP 60-4	7.5 / 10	56	55	52	47	41	35	30	22	14	709	1283	145	152	16
HP 60-5	9.2 / 12.5	71	69	66	59	51	44	38	28	18	838	1442	145	152	18
HP 60-6	11 / 15	85	83	79	71	62	54	45	34	22	951	1586	145	152	20
HP 60-7	13 / 17.5	99	97	92	83	73	63	53	40	26	1064	1728	145	152	22
HP 60-8-B	13 / 17.5	108	105	100	90	79	68	57	42	26	1177	1841	145	152	24
HP 60-8	15 / 20	114	112	106	96	84	73	61	47	31	1177	1875	145	152	24
HP 60-9-B	15 / 20	122	119	113	102	90	78	65	48	30	1290	1988	145	152	28
HP 60-9	18.5 / 25	129	127	121	109	95	83	71	54	37	1290	2044	145	152	28
HP 60-10	18.5 / 25	143	140	133	120	105	92	78	60	41	1403	2157	145	152	30
HP 60-11	22 / 30	158	154	147	133	116	101	86	67	45	1516	2328	145	152	32
HP 60-12	22 / 30	171	167	159	144	126	110	94	72	50	1629	2441	145	152	34
HP 60-13	26 / 30	187	183	174	157	138	120	103	79	54	1742	2616	145	152	36
HP 60-14	26 / 30	200	196	186	168	148	129	110	85	58	1855	2729	145	152	38
HP 60-15	26 / 30	214	209	198	179	157	136	116	89	60	1968	2842	145	152	40
HP 60-16	30 / 40	230	224	213	192	169	147	125	96	65	2081	3025	145	152	42
HP 60-17	30 / 40	243	237	225	203	179	155	132	101	69	2194	3138	145	152	44
HP 60-18	37 / 50	260	254	242	219	193	168	143	111	77	2387	3527	188	188	46
HP 60-19	37 / 50	274	268	255	231	203	177	151	117	81	2500	3640	188	188	48
HP 60-20	37 / 50	287	281	267	242	213	186	158	123	85	2613	3753	188	188	50
HP 60-21	37 / 50	301	294	279	253	223	194	166	129	89	2726	3866	188	188	52
HP 60-22	45 / 60	323	316	302	274	242	211	181	142	100	2788	4018	188	188	54

\* Motor type / size may change as per requirement.

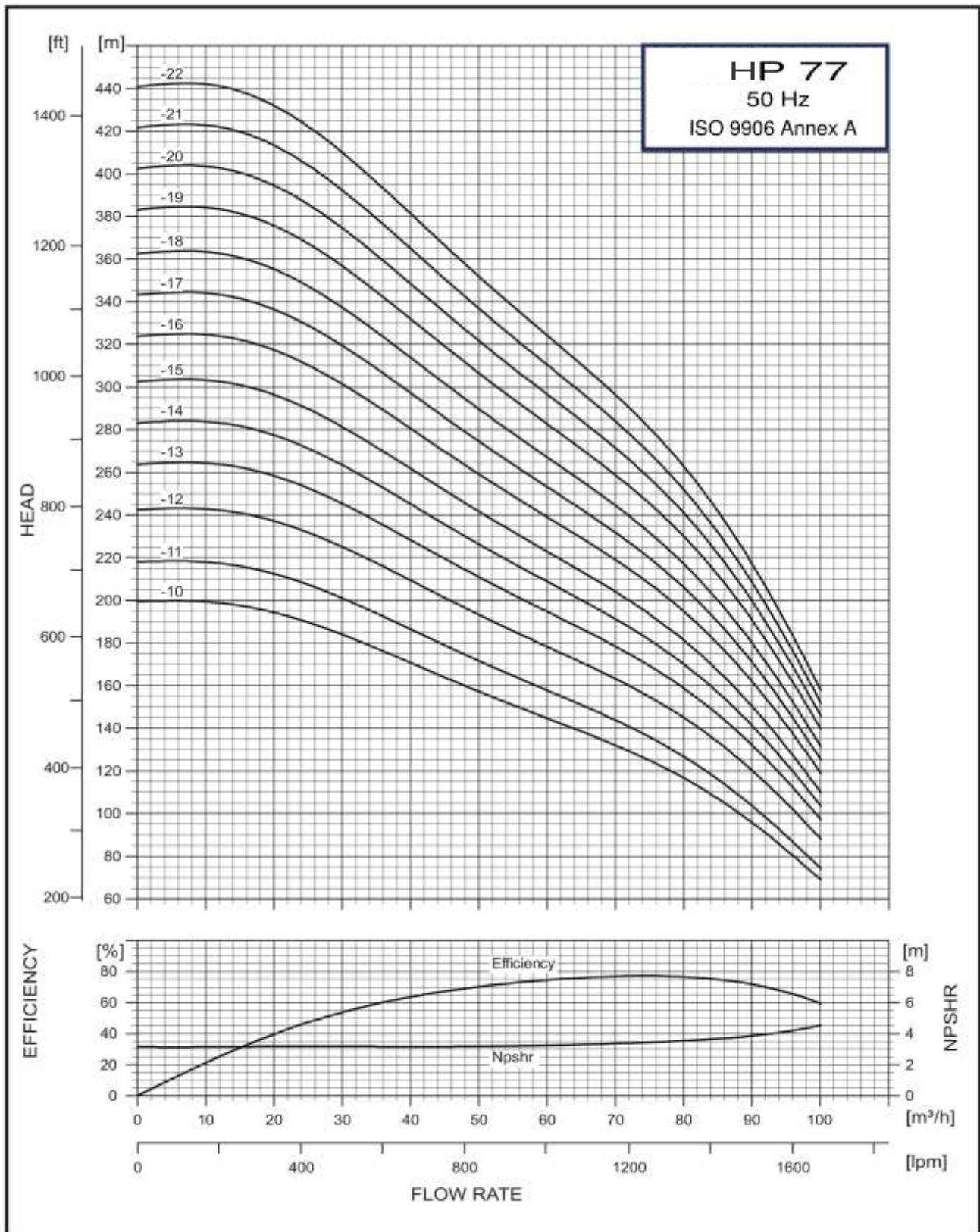
\*\* Maximum diameter of pump with two cable guard.

PERFORMANCE CURVE

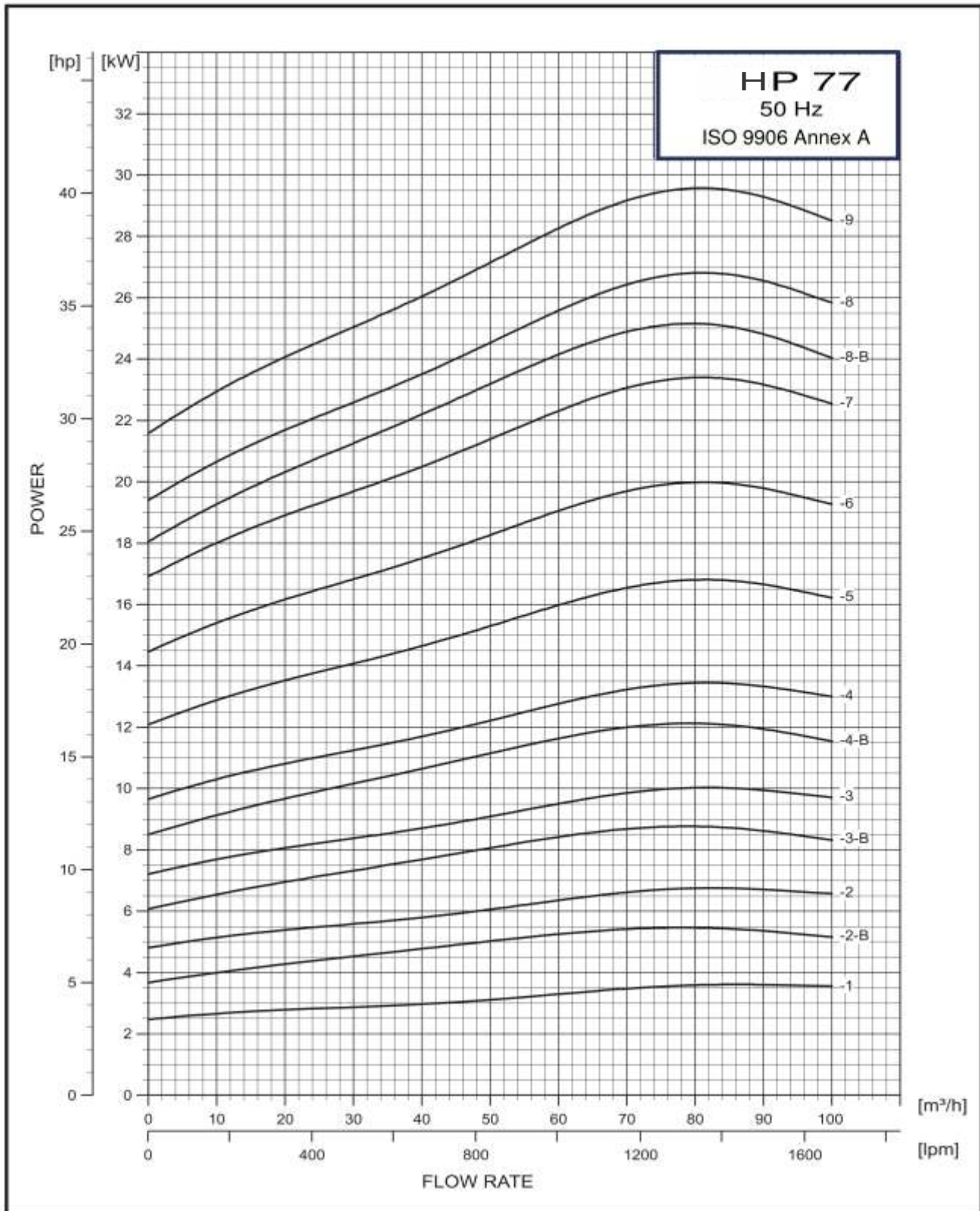




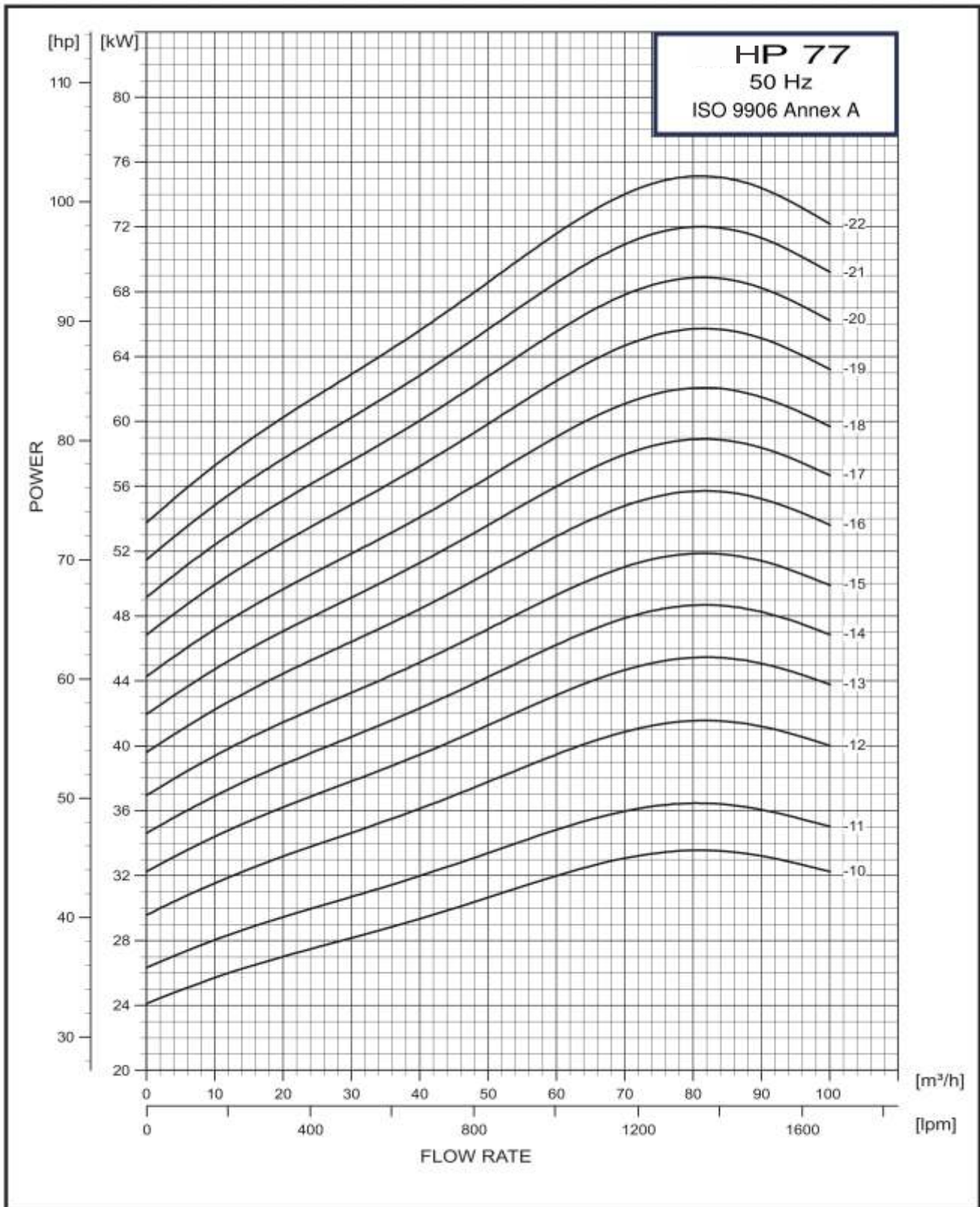
## PERFORMANCE CURVE



POWER CURVE

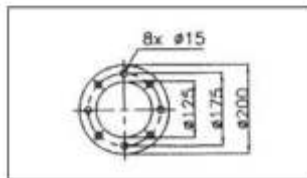
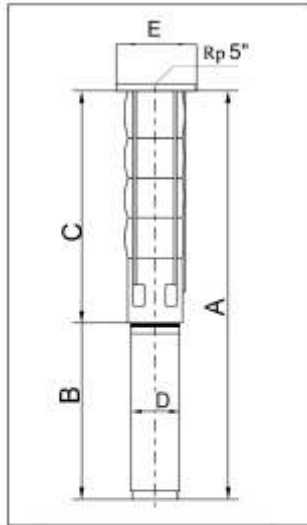


POWER CURVE





## Dimensions, Weights and Performance Table

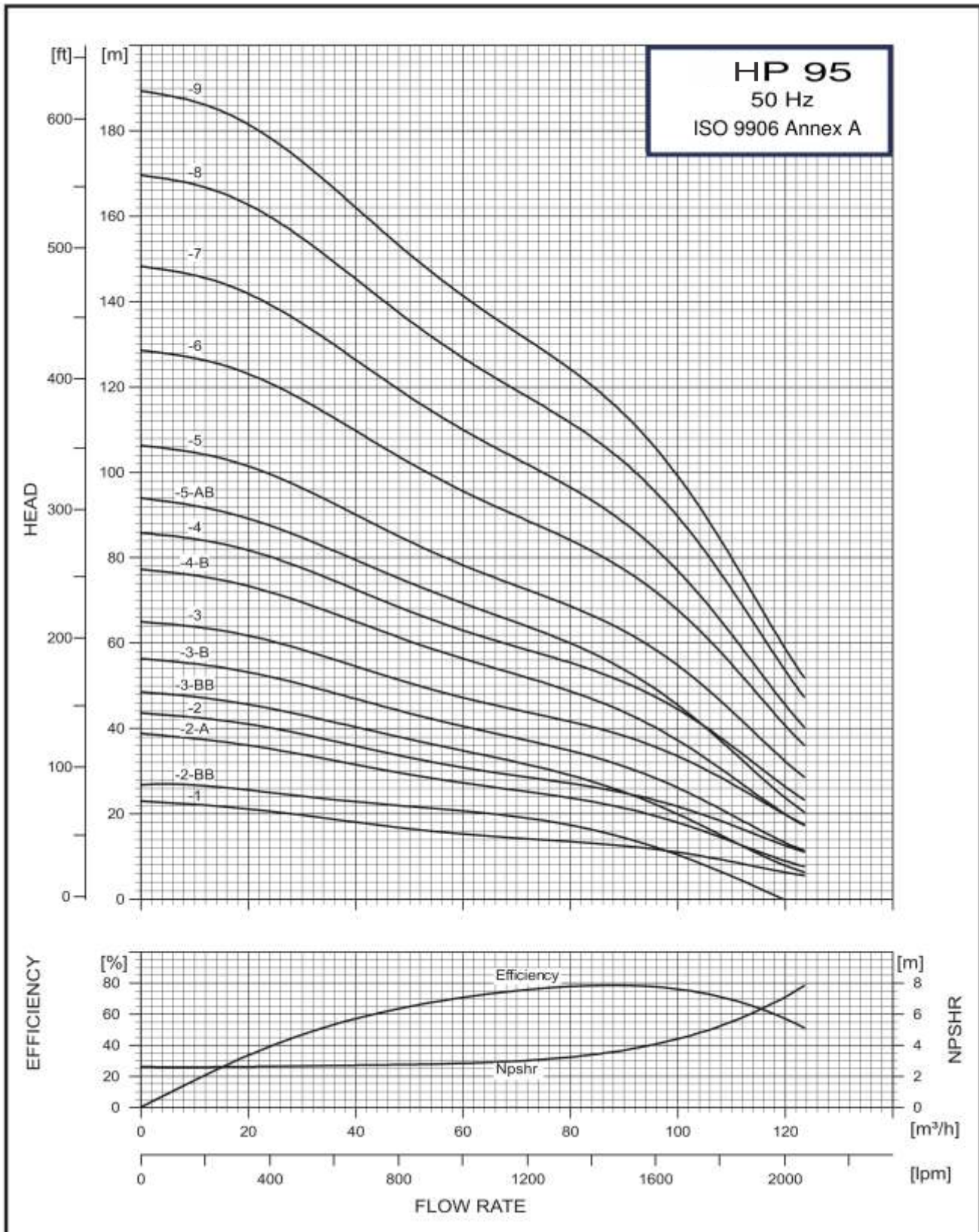


Model - Stage	n-2950 RPM	Discharges (Q)									Dimensions in (mm)				Pump Net Weight In Kgs
	m <sup>3</sup> / hrs	0	20	40	50	60	70	80	90	100	Rp 5" Thread Connection				
	Ltr / Min.	0	333	666	833	1000	1167	1300	1500	1666	C	A	D*	E**	
	Motor kw / HP	Total Head in Meters													
HP 77-1	5.5 / 7.5	21	20	17	15	14	13	12	10	7	618	1161	145	186	21
HP 77-2-B	5.5 / 7.5	33	31	27	25	22	20	16	12	7	746	1289	145	186	24
HP 77-2	7.5 / 10	41	39	33	31	28	26	23	18	13	746	1320	145	186	24
HP 77-3-B	9.2 / 12.5	53	51	44	40	37	33	28	22	14	874	1478	145	186	28
HP 77-3	11 / 15	61	58	50	46	42	39	34	28	20	874	1508	145	186	28
HP 77-4-B	13 / 17.5	73	70	61	56	51	46	40	31	21	1003	1667	145	186	31
HP 77-4	15 / 20	81	78	68	62	57	52	46	38	27	1003	1701	145	186	31
HP 77-5	18.5 / 25	100	97	85	78	72	66	58	47	34	1131	1885	145	186	35
HP 77-6	22 / 30	120	116	102	94	86	78	69	56	41	1259	2071	145	186	38
HP 77-7	26 / 35	140	136	119	110	101	92	81	66	48	1387	2261	145	186	42
HP 77-8-B	26 / 35	152	147	129	118	108	98	85	68	48	1515	2389	145	186	46
HP 77-8	30 / 40	160	156	137	126	116	105	93	76	55	1515	2459	145	186	46
HP 77-9	30 / 40	179	174	152	140	129	117	103	85	61	1643	2587	145	186	49
HP 77-10	37 / 50	199	194	171	157	145	132	117	96	69	1771	2911	188	186	53
HP 77-11	37 / 50	218	212	186	172	158	144	127	104	74	1914	3054	188	186	57
HP 77-12	45 / 60	242	237	209	193	178	163	145	120	88	2043	3273	188	186	60
HP 77-13	55 / 75	264	258	228	211	195	178	159	132	98	2172	3512	188	186	64
HP 77-14	55 / 75	283	277	245	226	209	191	170	141	104	2300	3640	188	186	68
HP 77-15	55 / 75	303	296	262	242	223	204	181	150	110	2429	3769	188	186	72
HP 77-16	63 / 85	324	317	281	259	239	219	195	162	119	2557	4047	188	186	76
HP 77-17	63 / 85	343	336	297	274	253	232	206	171	126	2685	4175	188	186	80
HP 77-18	63 / 85	363	355	314	290	267	244	217	180	132	2814	4304	188	186	84
HP 77-19	75 / 100	383	376	332	307	283	259	230	191	140	3236	4796	188	186	88
HP 77-20	75 / 100	402	395	349	322	297	271	241	200	146	3364	4924	188	186	92

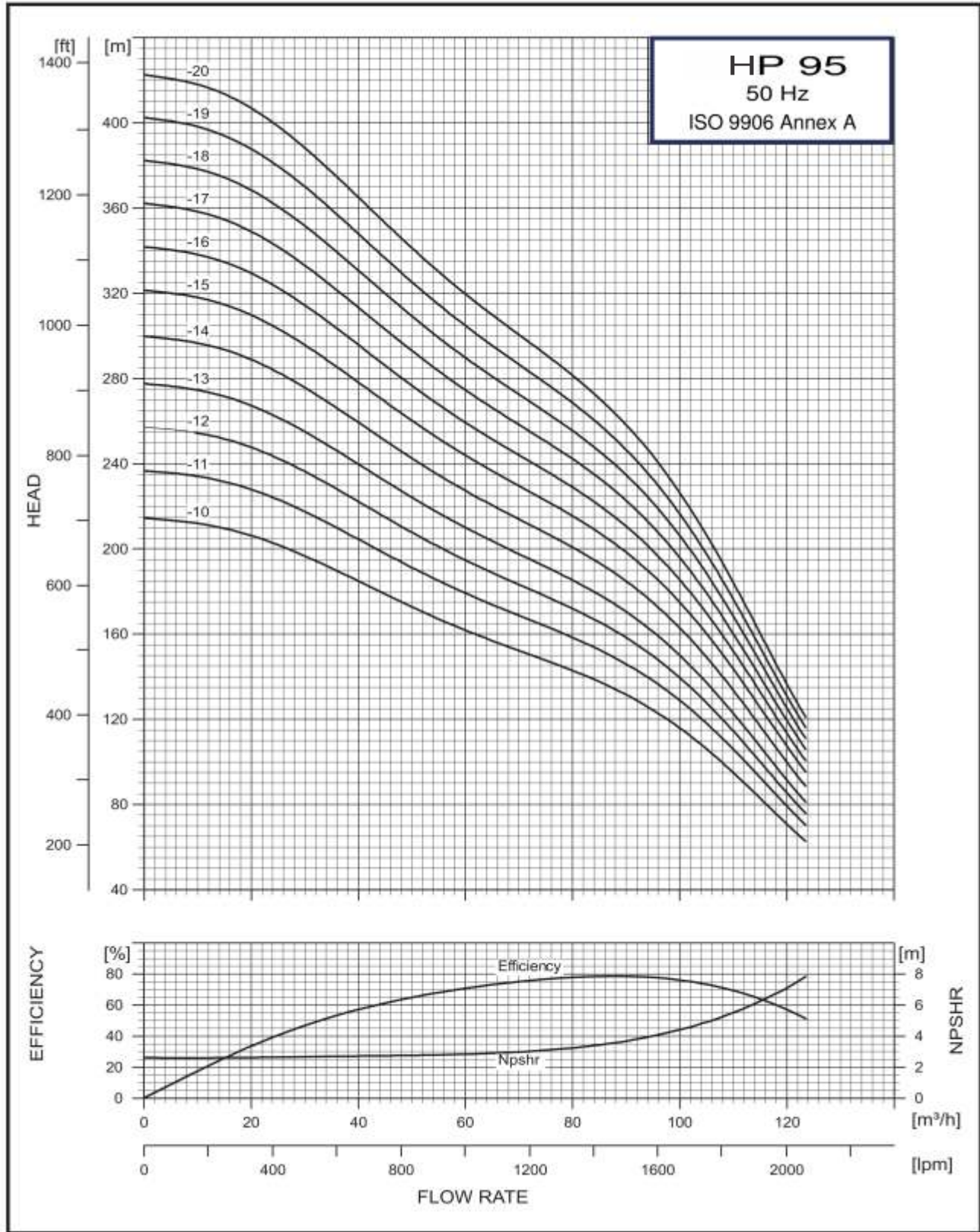
\* Motor type / size may change as per requirement.

\*\* Maximum diameter of pump with two cable guard.

## PERFORMANCE CURVE

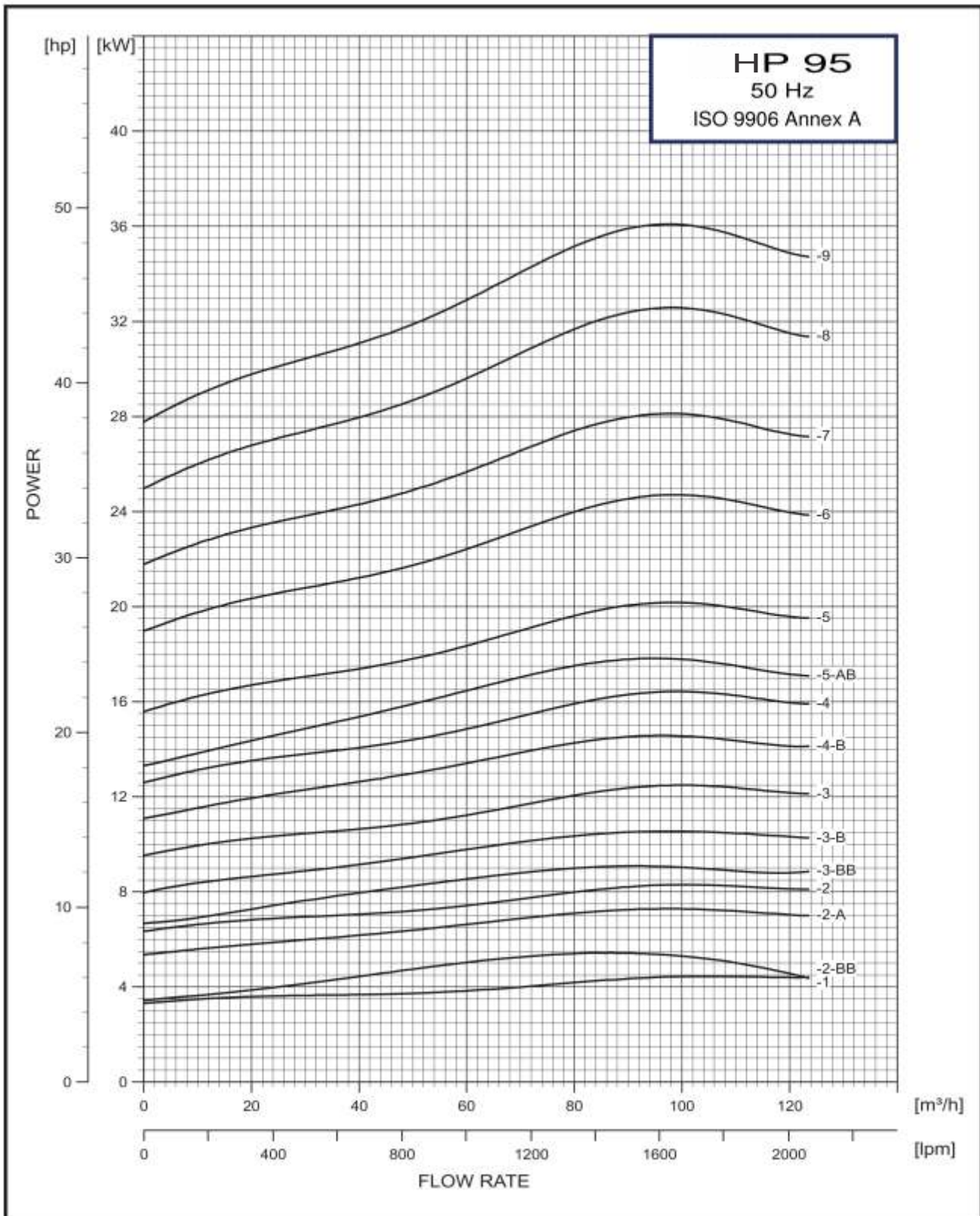


PERFORMANCE CURVE

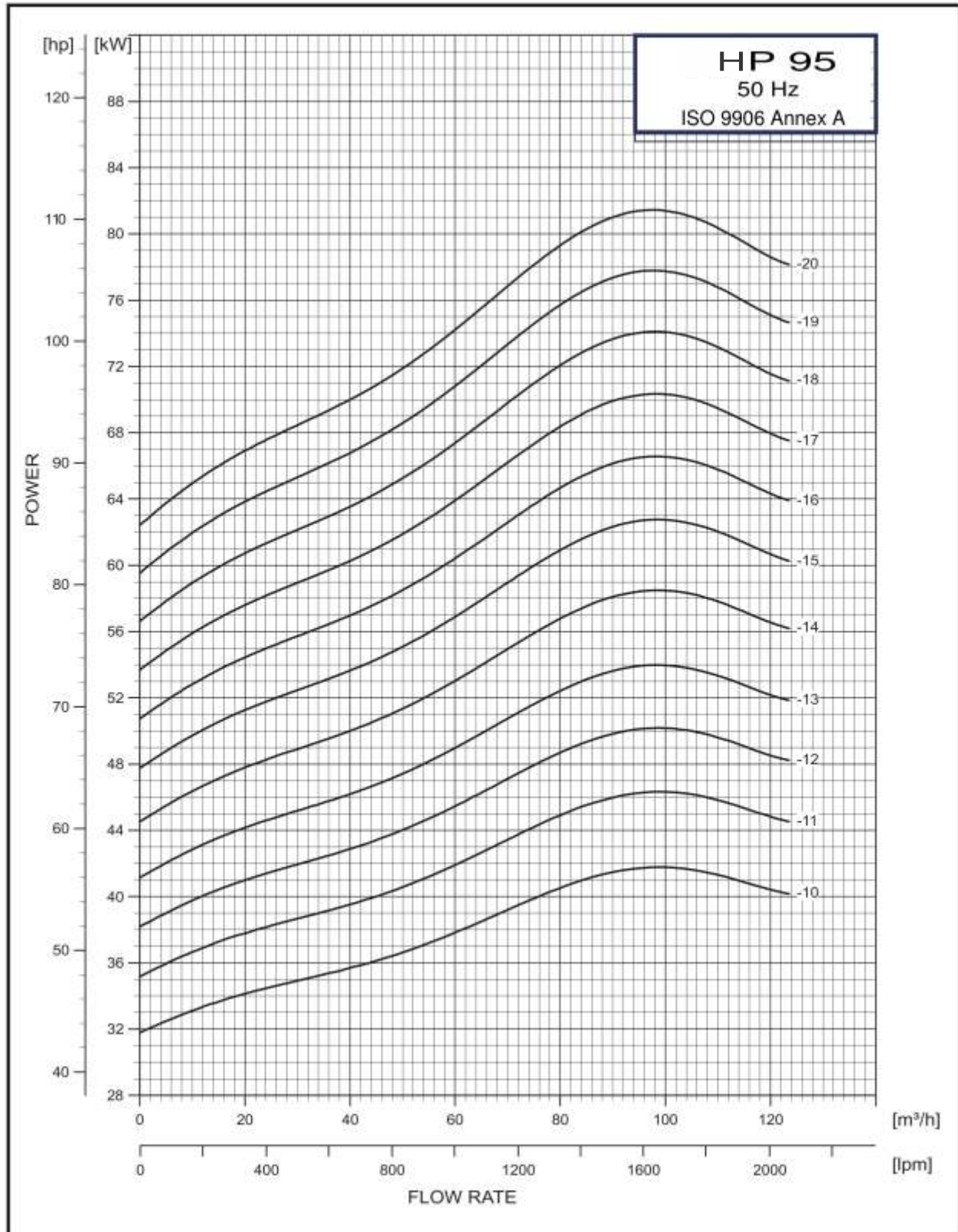




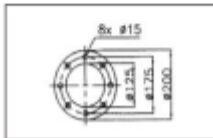
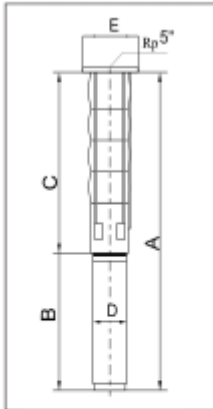
POWER CURVE



POWER CURVE



## Dimensions, Weights and Performance Table



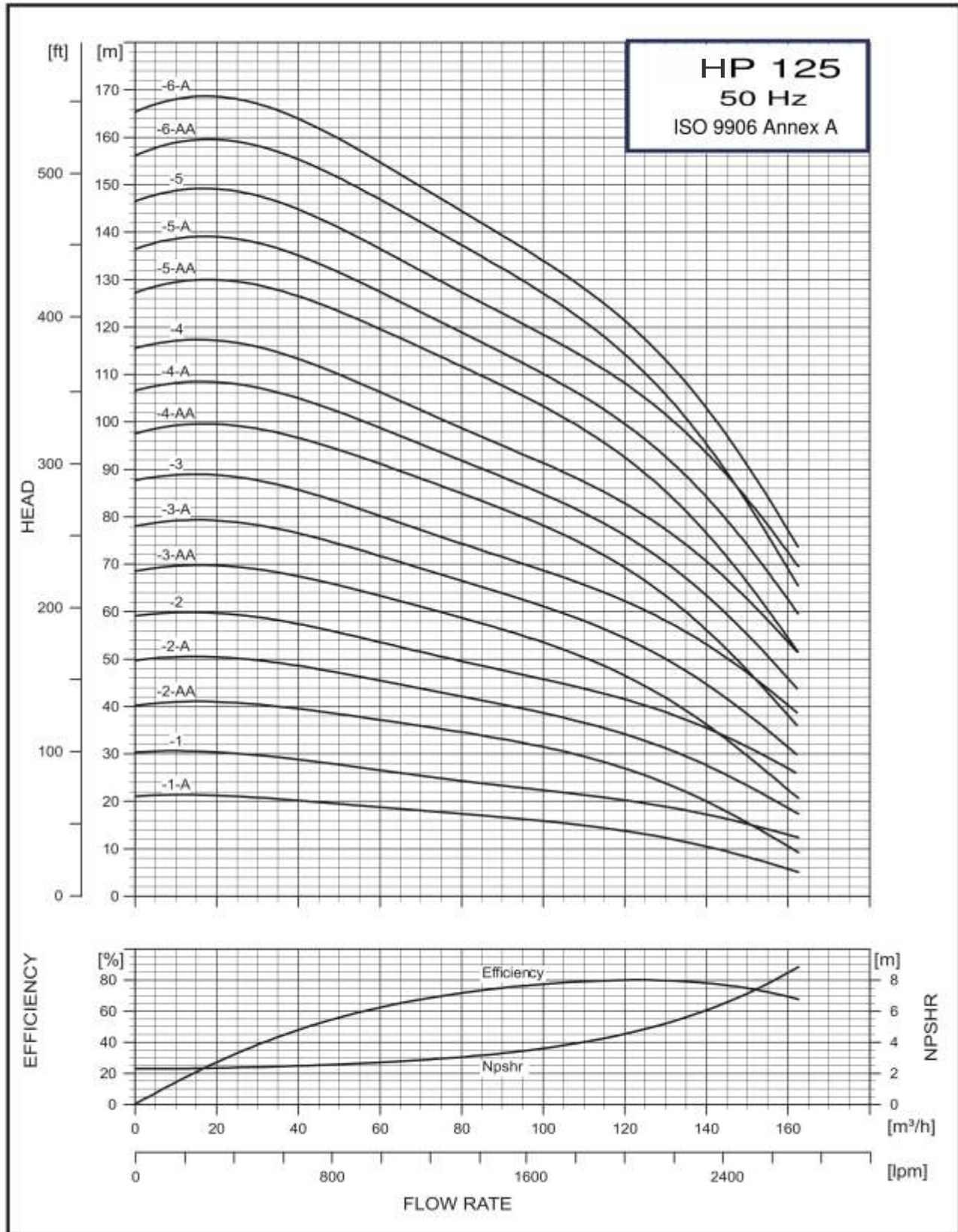
Model - Stage	n-2950 RPM	Discharges (Q)									Dimensions in (mm)				Pump Net Weight In Kgs		
		m <sup>3</sup> / hrs	0	20	40	60	80	90	100	110	120	Rp 5" Thread Connection					
	Ltr / Min.	0	333	667	1000	1333	1500	1667	1833	2000	Total Head in Meters					C	A
HP 95-1	5.5 / 7.5	23	21	18	15	13	12	10	9	6	618	1161	145	186	21		
HP 95-2-BB	5.5 / 7.5	27	26	23	21	17	14	11	6	4	746	1289	145	186	24		
HP 95-2-A	7.5 / 10	39	36	32	27	24	21	18	14	9	746	1320	145	186	24		
HP 95-2	9.2 / 12.5	44	41	36	31	27	25	22	17	13	746	1320	145	186	24		
HP 95-3-BB	9.2 / 12.5	49	46	40	35	29	25	20	16	8	874	1478	145	186	28		
HP 95-3-B	11 / 15	56	53	47	41	35	31	26	20	13	874	1478	145	186	28		
HP 95-3	13 / 17.5	65	62	55	47	42	38	33	27	20	874	1508	145	186	28		
HP 95-4-B	15 / 20	77	73	65	56	49	44	37	29	20	1003	1667	145	186	31		
HP 95-4	18.5 / 25	86	82	73	63	55	51	44	36	26	1003	1701	145	186	31		
HP 95-5-AB	18.5 / 25	94	89	79	69	60	54	45	35	24	1131	1885	145	186	35		
HP 95-5	22 / 30	106	101	90	78	69	63	55	44	32	1131	1885	145	186	35		
HP 95-6	26 / 35	129	123	110	96	84	77	68	55	41	1259	2071	145	186	38		
HP 95-7	30 / 40	148	142	126	110	96	88	77	62	46	1387	2261	145	186	42		
HP 95-8	37 / 50	170	163	145	127	112	102	90	73	54	1515	2655	188	186	46		
HP 95-9	45 / 60	189	182	162	141	124	114	99	80	59	1643	2783	188	186	49		
HP 95-10	45 / 60	214	206	185	162	143	132	116	95	71	1771	2911	188	186	53		
HP 95-11	55 / 75	237	228	205	179	158	146	129	106	79	1914	3054	188	186	57		
HP 95-12	55 / 75	257	248	222	195	172	158	140	115	86	2043	3273	188	186	60		
HP 95-13	55 / 75	278	267	240	210	185	170	150	123	92	2172	3512	188	186	64		
HP 95-14	63 / 85	300	289	259	227	201	185	163	134	100	2300	3640	188	186	68		
HP 95-15	75 / 100	321	310	278	244	215	198	175	144	107	2429	3769	188	186	72		
HP 95-16	75 / 100	342	329	296	259	229	211	186	152	114	2557	4047	188	186	76		
HP 95-17	75 / 100	362	349	313	275	242	223	196	160	120	2685	4175	188	186	80		
HP 95-18	92 / 125	382	369	331	290	255	235	206	169	125	2814	4304	188	186	84		
HP 95-19	92 / 125	402	388	348	305	269	247	216	177	131	3236	4796	188	186	88		
HP 95-20	92 / 125	423	407	365	320	281	258	226	184	137	3620	5360	188	186	100		

\* Motor type / size may change as per requirement.

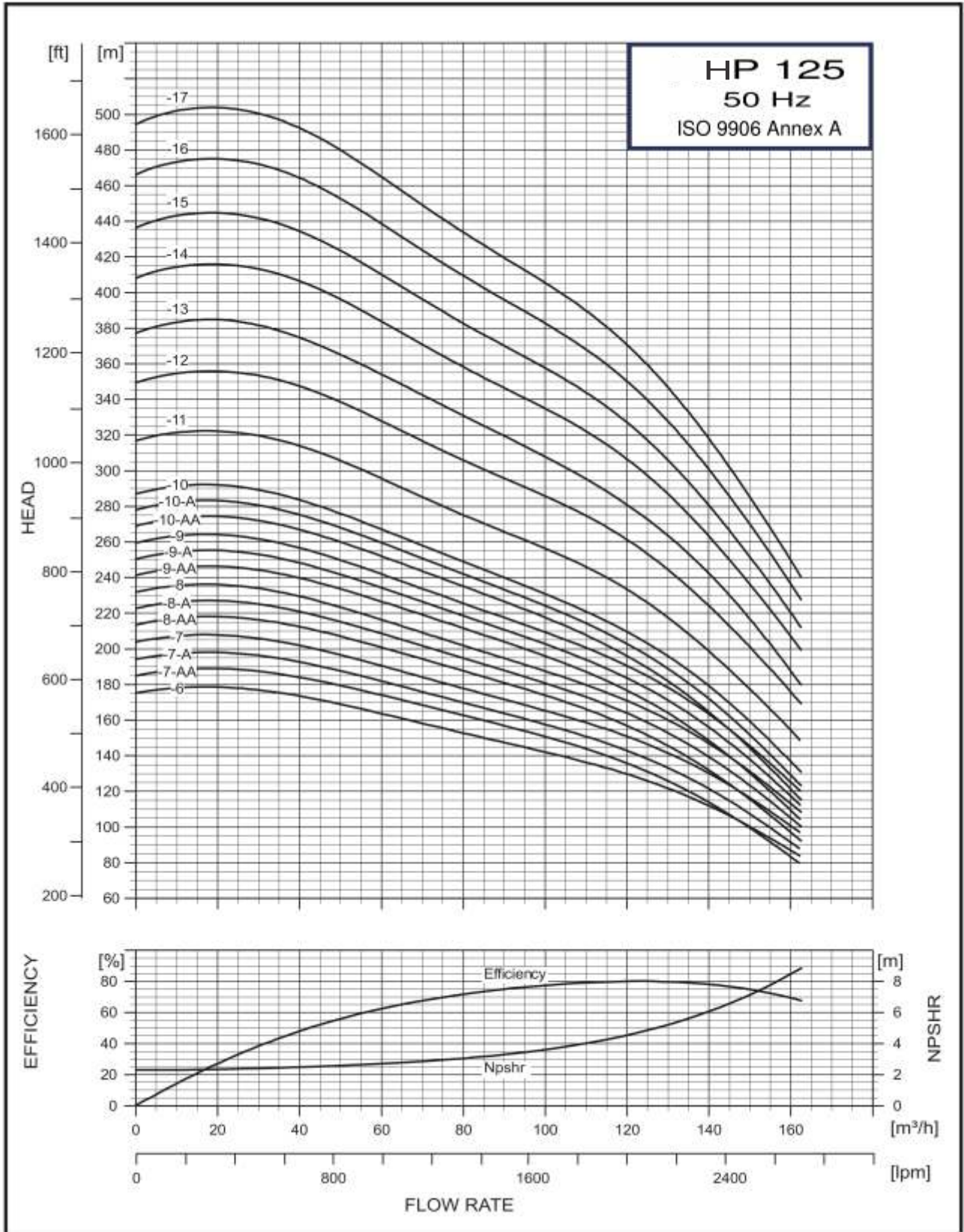
\*\* Maximum diameter of pump with two cable guard.



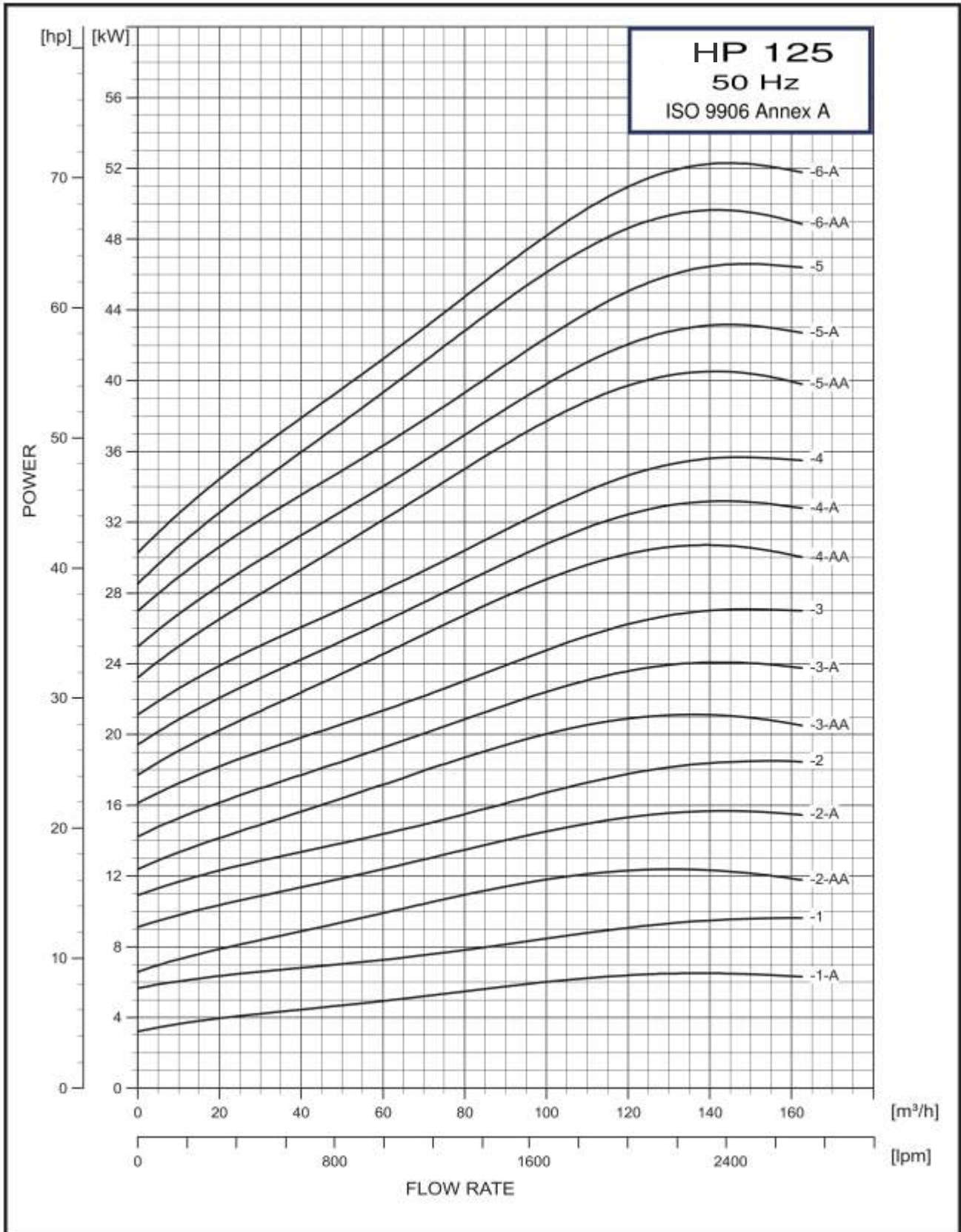
PERFORMANCE CURVE



## PERFORMANCE CURVE

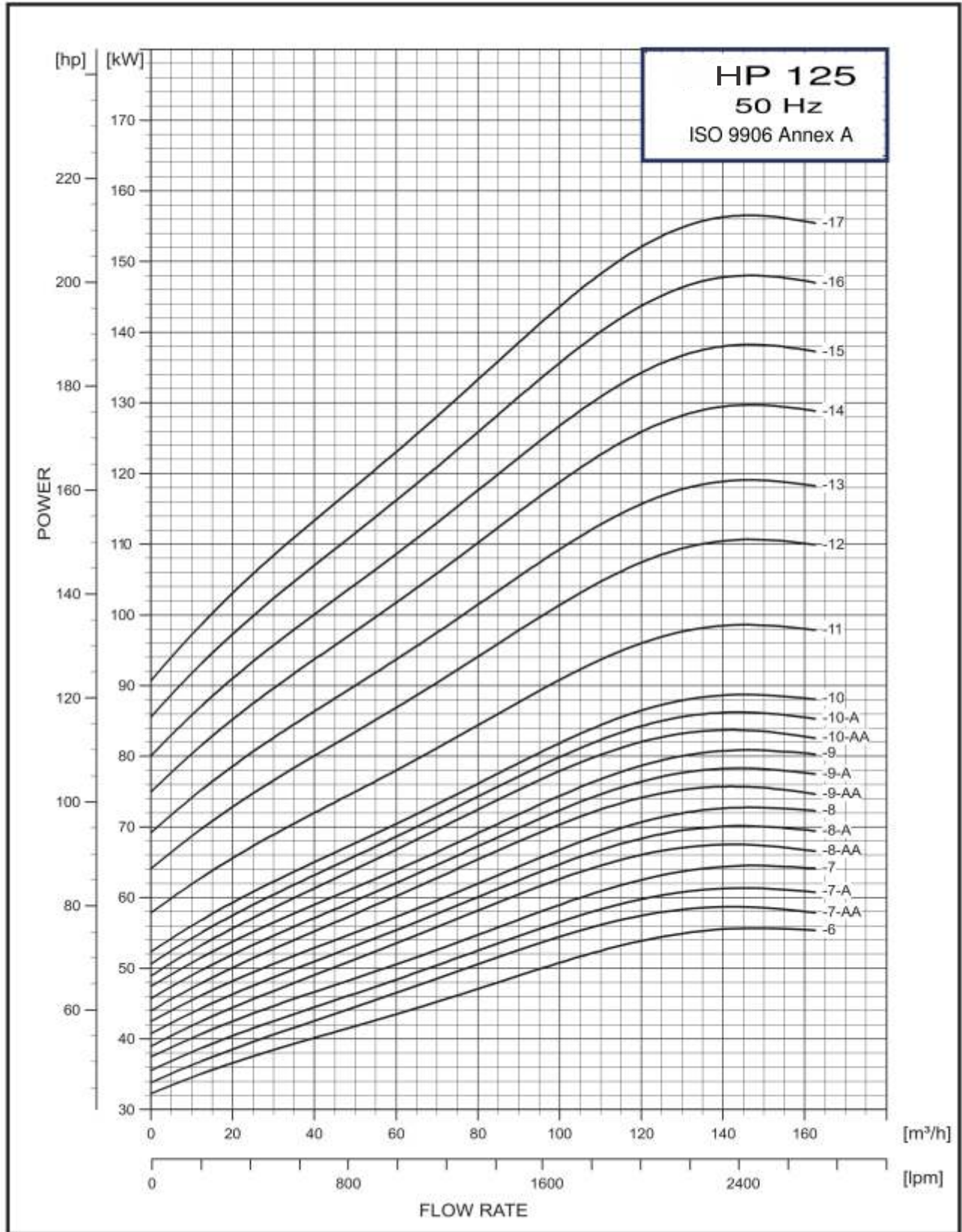


POWER CURVE

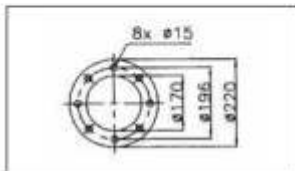
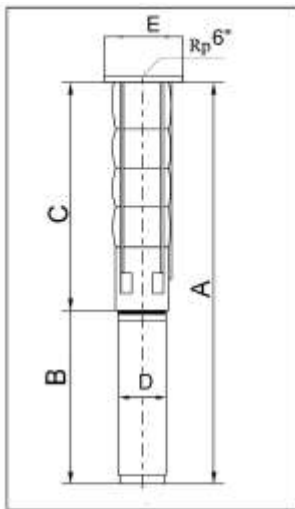




**POWER CURVE**



## Dimensions, Weights and Performance Table

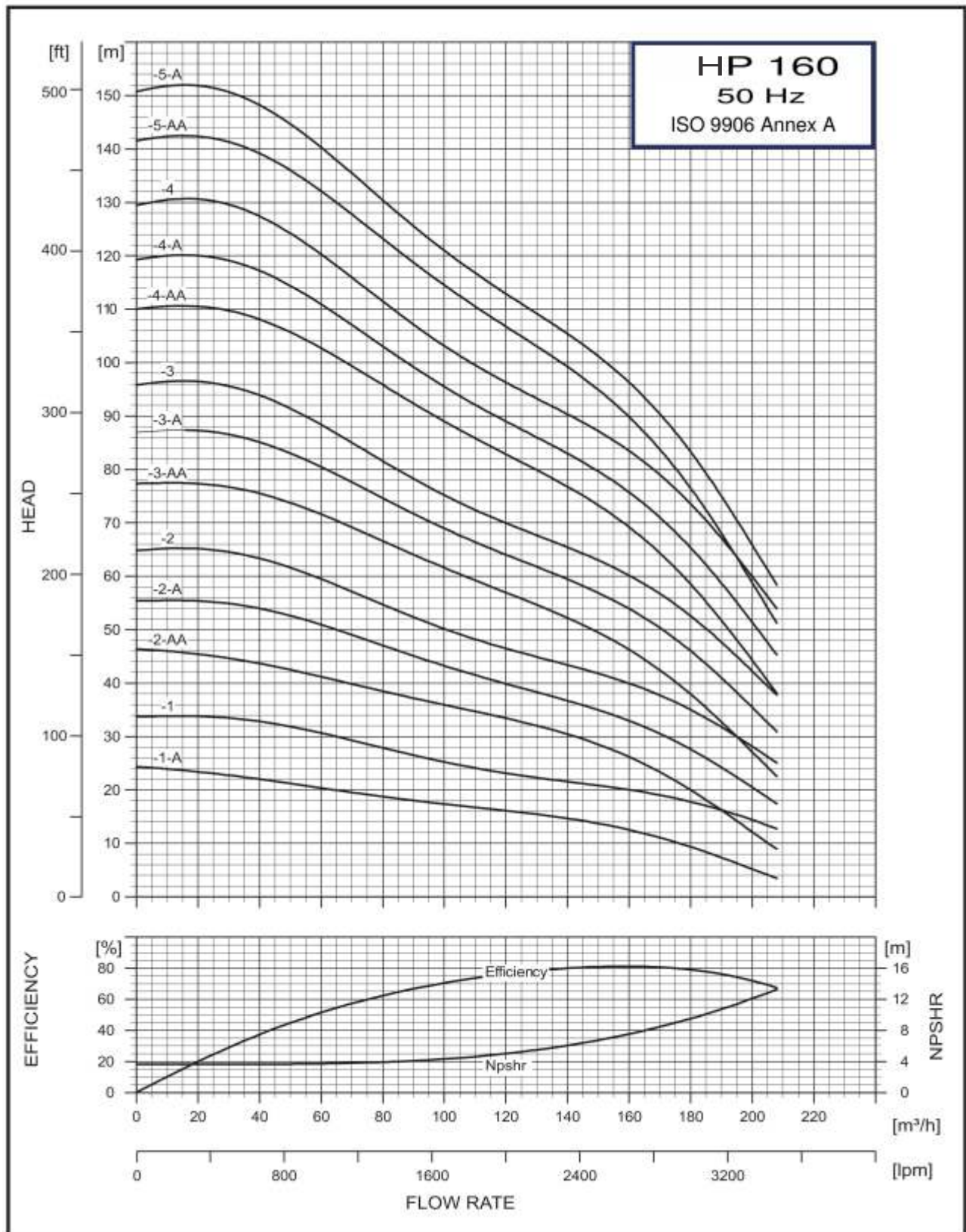


Model - Stage	n-2950 RPM	Discharges (Q)										Dimensions in (mm)				Pump Net Weight In Kgs
	m <sup>3</sup> / hrs	0	70	90	110	120	130	140	150	160	Rp 6" Thread Connection					
	Ltr / Min.	0			1833	2000	2167	2333	2500	2667						
Motor kw / HP	Total Head in Meters										C	A	D*	E**		
HP 125-1A	7.5 / 10	21	18	17	15	14	12	10	8	6	651	1225	145	218	27	
HP 125-1	11 / 15	30	25	23	21	20	19	17	15	13	651	1286	145	218	27	
HP 125-2AA	13 / 17.5	40	36	33	29	27	24	20	16	11	807	1471	145	218	33	
HP 125-2A	18.5 / 25	50	44	40	37	34	31	28	23	19	807	1561	145	218	33	
HP 125-2	22 / 30	59	52	48	44	42	39	35	32	27	807	1619	145	218	33	
HP 125-3AA	22 / 30	69	61	56	50	47	42	36	30	22	963	1775	145	218	39	
HP 125-3A	26 / 35	78	69	64	58	54	50	45	38	31	963	1837	145	218	39	
HP 125-3	30 / 40	88	77	72	66	62	58	53	47	40	963	1907	145	218	39	
HP 125-4AA	37 / 50	98	88	82	74	69	63	56	48	38	1119	2259	188	218	45	
HP 125-4A	37 / 50	107	95	88	81	76	70	63	55	46	1119	2259	188	218	45	
HP 125-4	37 / 50	116	102	95	87	83	77	71	63	54	1119	2259	188	218	45	
HP 125-5AA	45 / 60	127	116	108	98	93	85	77	66	54	1275	2505	188	218	51	
HP 125-5A	45 / 60	136	123	115	105	100	93	84	74	63	1275	2505	188	218	51	
HP 125-5	55 / 75	146	132	123	114	108	102	93	84	72	1275	2615	188	218	51	
HP 125-6AA	55 / 75	156	142	132	121	114	106	95	83	69	1431	2771	188	218	57	
HP 125-6A	55 / 75	165	150	139	1238	121	113	103	91	77	1431	2771	188	218	57	
HP 125-6	63 / 85	175	158	147	136	130	122	1123	100	87	1431	2901	188	218	57	
HP 125-7AA	63 / 85	185	168	157	144	136	126	114	100	83	1587	3057	188	218	63	
HP 125-7A	63 / 85	194	176	164	151	143	133	122	107	92	1587	3057	188	218	63	
HP 125-7	75 / 100	204	184	172	159	151	142	130	117	101	1587	3147	188	218	63	
HP 125-8AA	75 / 100	214	194	181	166	157	146	132	116	97	1743	3303	188	218	70	
HP 125-8A	75 / 100	223	202	188	173	164	153	139	123	105	1743	3303	188	218	70	
HP 125-8	75 / 100	232	209	195	180	171	160	147	131	113	1743	3303	188	218	70	
HP 125-9AA	92 / 125	241	219	204	187	177	164	149	130	110	1899	3639	188	218	76	
HP 125-9A	92 / 125	250	226	211	194	184	171	156	138	117	1899	3639	188	218	76	
HP 125-9	92 / 125	260	234	218	201	191	178	163	146	125	1899	3639	188	218	76	
HP 125-10AA	92 / 125	269	244	227	208	196	182	165	144	121	2055	3795	188	218	82	
HP 125-10A	92 / 125	278	251	233	214	203	189	172	152	129	2055	3795	188	218	82	
HP 125-10	92 / 125	287	258	240	221	210	196	179	159	137	2055	3795	188	218	82	

\* Motor type / size may change as per requirement.

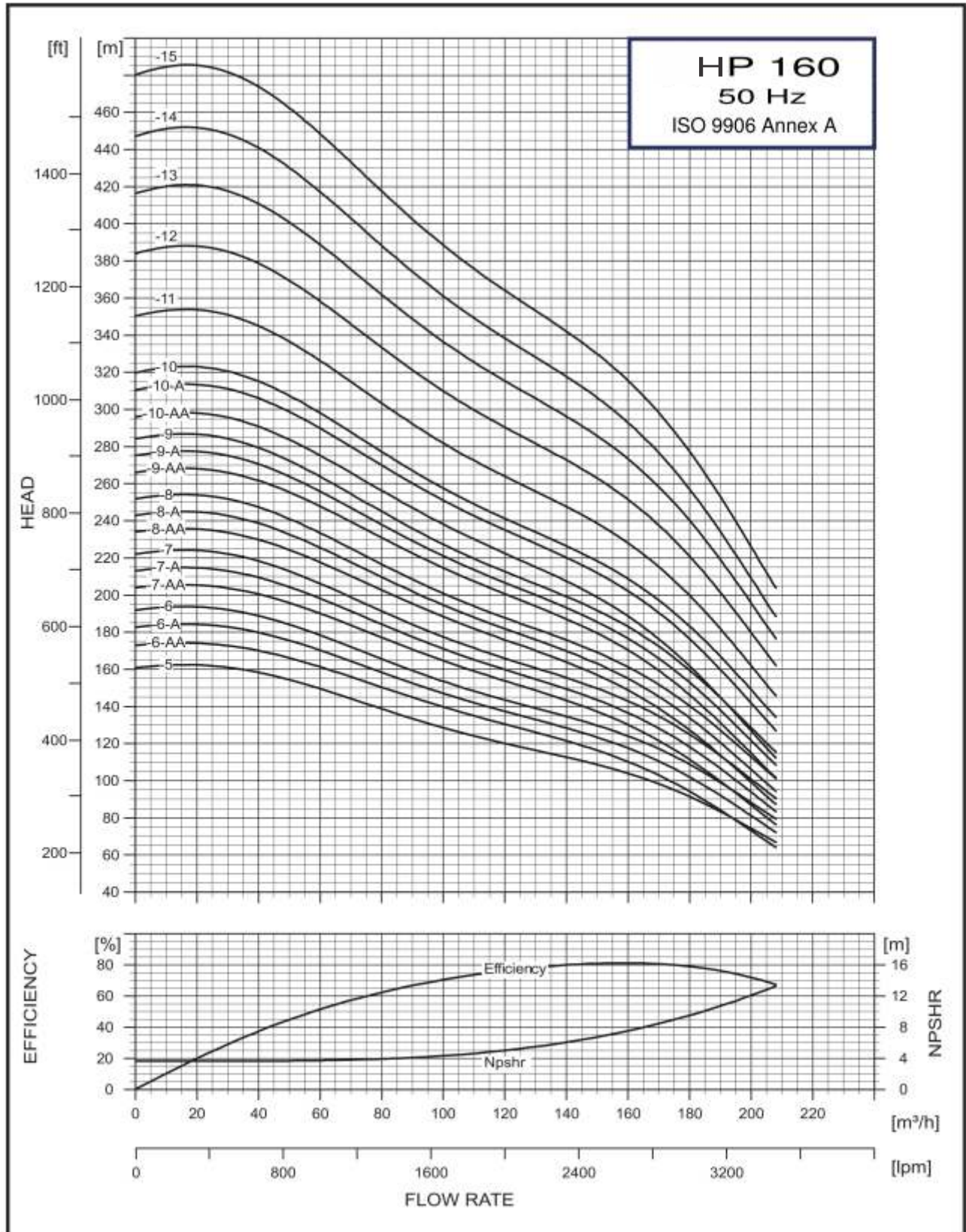
\*\* Maximum diameter of pump with two cable guard.

## PERFORMANCE CURVE

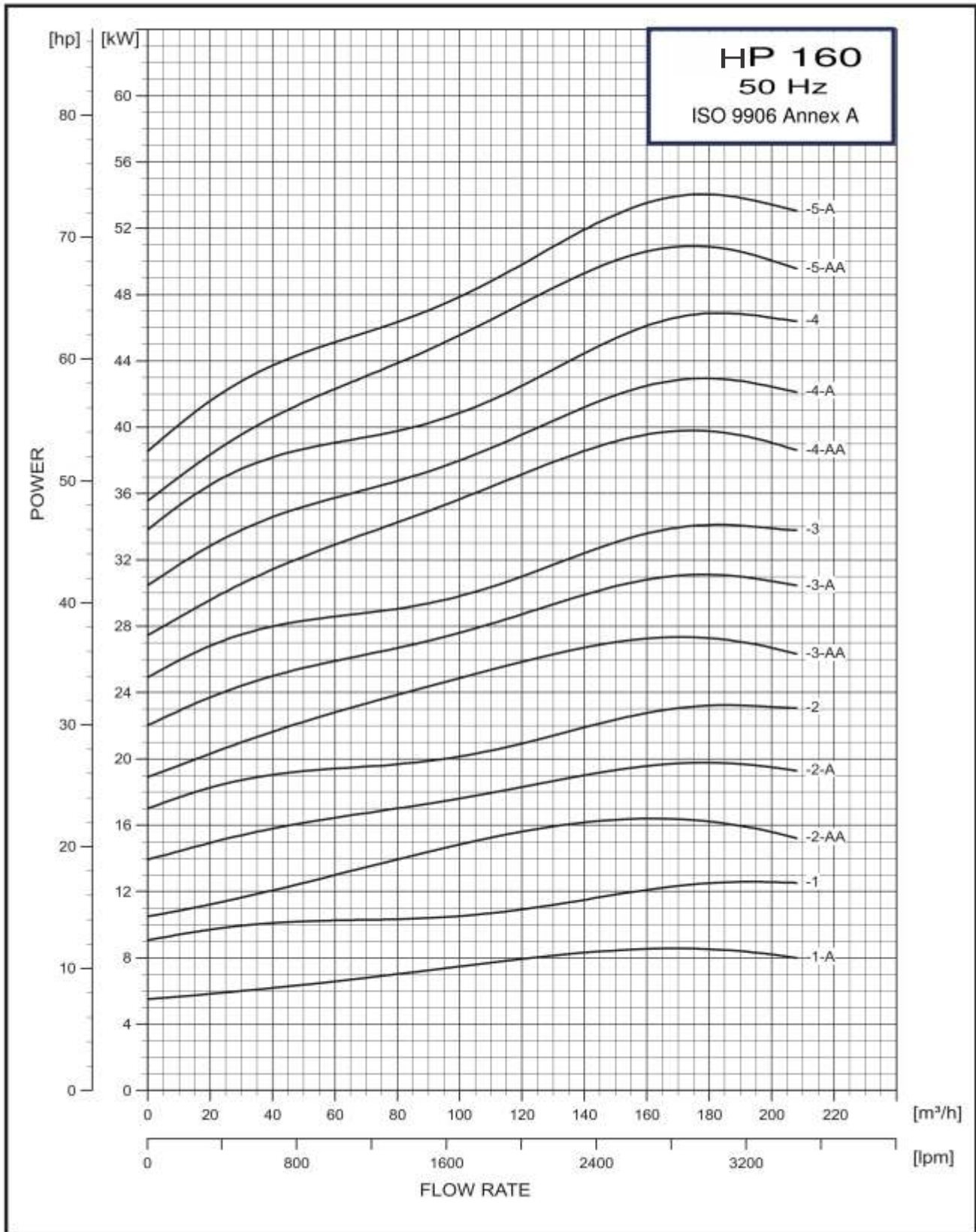




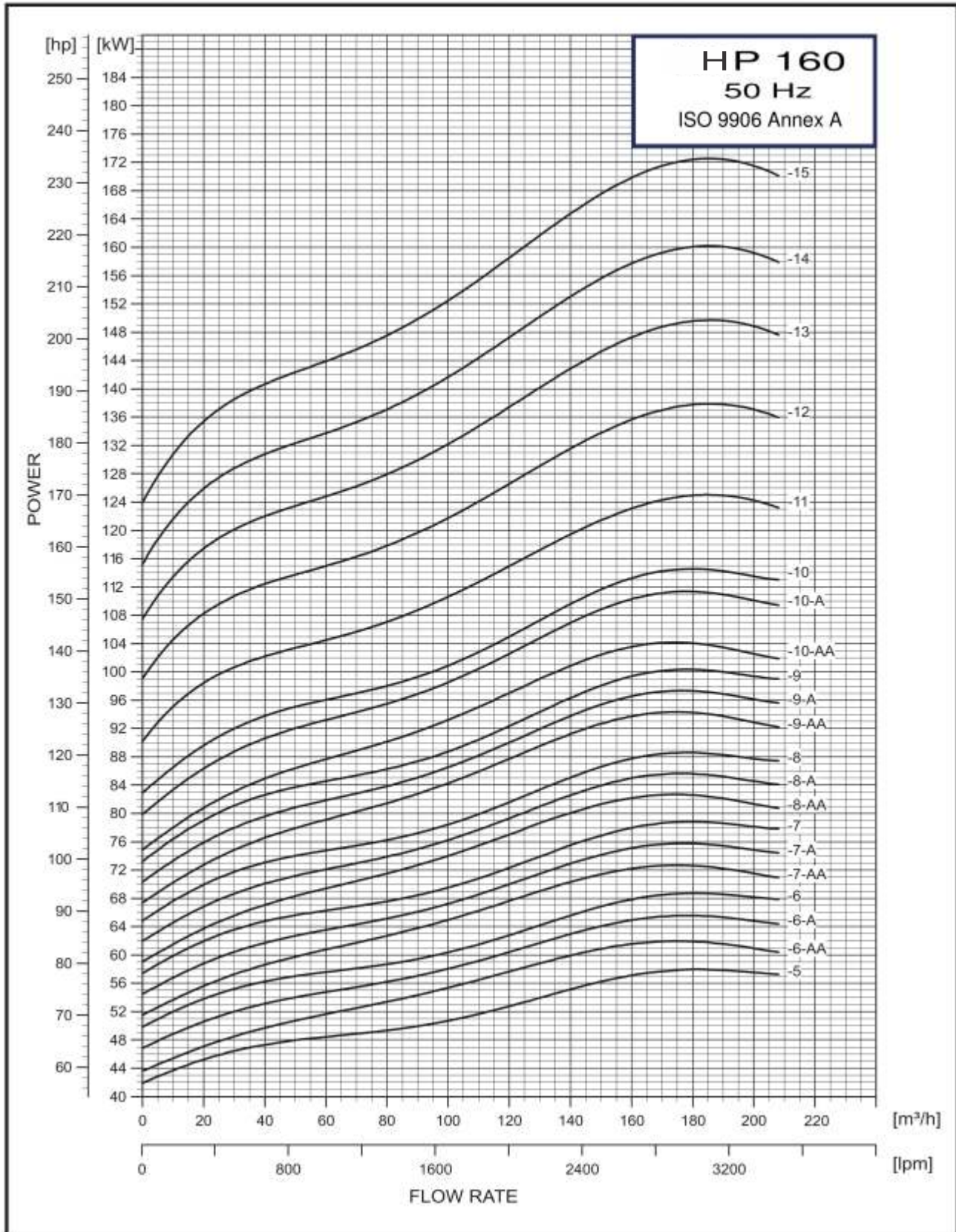
PERFORMANCE CURVE



POWER CURVE

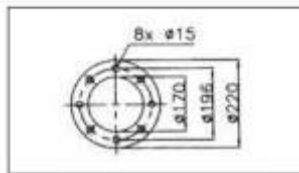
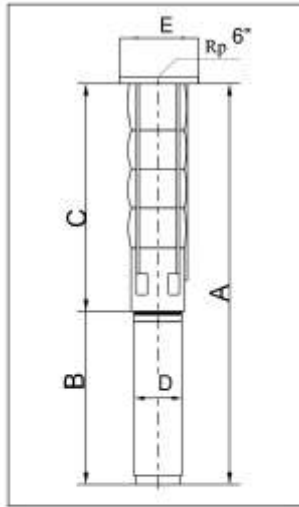


POWER CURVE





## Dimensions, Weights and Performance Table



Model - Stage	n-2950 RPM	Discharges (Q)									Dimensions in (mm)				Pump Net Weight In Kgs
	m <sup>3</sup> / hrs	0	100	120	150	160	170	180	190	200	Rp 6" Thread Connection				
	Ltr / Min.	0	1667	2000	2500	2667	2833	3000	3167	3333	C	A	D*	E**	
Motor kw / HP	Total Head in Meters														
HP 160-1A	7.5 / 10	24	17	16	14	13	11	9	7	5	651	1371	145	218	27
HP 160-1	13 / 17.5	34	25	23	21	20	19	18	16	14	651	1315	145	218	27
HP 160-2AA	18.5 / 25	46	36	33	29	26	23	20	16	12	807	1561	145	218	33
HP 160-2A	22 / 30	55	43	40	35	33	31	28	24	20	807	1619	145	218	33
HP 160-2	26 / 35	65	50	46	42	40	38	35	32	28	807	1681	145	218	33
HP 160-3AA	30 / 40	77	62	57	49	46	42	38	33	27	963	1907	145	218	39
HP 160-3A	30 / 40	87	69	64	57	54	50	46	41	35	963	1907	145	218	39
HP 160-3	37 / 50	96	75	70	63	60	57	53	48	42	963	1907	145	218	39
HP 160-4AA	45 / 60	110	89	83	73	69	64	58	52	44	1119	2349	188	218	45
HP 160-4A	45 / 60	119	95	89	80	76	71	65	59	51	1119	2349	188	218	45
HP 160-4	55 / 75	129	103	96	87	83	79	74	67	60	1119	2459	188	218	45
HP 160-5AA	55 / 75	142	114	107	95	90	84	76	68	59	1275	2615	188	218	51
HP 160-5A	55 / 75	151	121	113	101	96	90	83	75	66	1275	2615	188	218	51
HP 160-5	63 / 85	161	129	120	109	96	98	91	83	74	1275	2615	188	218	51
HP 160-6AA	63 / 85	173	140	131	116	110	103	94	84	73	1431	2771	188	218	57
HP 160-6A	75 / 100	183	147	137	123	118	111	102	92	81	1431	2991	188	218	57
HP 160-6	75 / 100	192	154	144	130	124	117	109	99	88	1431	2991	188	218	57
HP 160-7AA	75 / 100	204	165	154	137	130	122	112	100	87	1587	3147	188	218	63
HP 160-7A	92 / 125	213	171	160	144	137	128	118	107	94	1587	3327	188	218	63
HP 160-7	92 / 125	222	177	166	150	143	135	125	113	101	1587	3327	188	218	63
HP 160-8AA	92 / 125	234	18	176	157	149	139	127	114	99	1743	3483	188	218	70
HP 160-8A	92 / 125	243	195	182	163	155	145	134	121	106	1743	3483	188	218	70
HP 160-8	92 / 125	252	201	188	169	161	152	140	127	113	1743	3483	188	218	70
HP 160-9AA	110 / 150	266	215	201	179	170	159	146	131	115	1899	3589	188	218	76
HP 160-9A	110 / 150	245	221	207	186	177	166	153	138	122	1899	3589	188	218	76
HP 160-9	110 / 150	284	227	213	192	183	172	160	145	129	1899	3589	188	218	76

\* Motor type / size may change as per requirement.

\*\* Maximum diameter of pump with two cable guard.

# Table of Head Losses in Ordinary Pipes



Upper figures indicate the velocity of water in m/sec.

Lower figures indicate head in metres per 100 metres of straight pipes

Quantity of Water			Head Losses in Ordinary Water Pipes												
m <sup>3</sup> /h	Litres/min.	Litres/sec.	Nominal Pipe Diameter in Inches and Internal Diameter in (mm)												
			1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	
			15.75	21.25	27.00	35.75	41.25	52.50	68.00	80.25	92.50	105.0	130.0	155.5	
0.6	10	0.16	0.855 9.910	0.470 2.407	0.292 0.784										
0.9	15	0.25	1.282 20.11	0.705 4.862	0.438 1.570	0.249 0.416									
1.2	20	0.33	1.710 33.53	0.940 8.035	0.584 2.588	0.331 0.677	0.249 0.346								
1.5	25	0.42	2.138 49.93	1.174 11.91	0.730 3.834	0.415 1.004	0.312 0.510								
1.8	30	0.50	2.565 69.34	1.409 16.50	0.876 5.277	0.498 1.379	0.374 0.700	0.231 0.223							
2.1	35	0.58	2.993 91.54	1.644 21.75	1.022 6.949	0.581 1.811	0.436 0.914	0.269 0.291							
2.4	40	0.67	1.879 27.66	1.168 27.66	0.664 8.820	0.499 2.290	0.308 1.160	0.368							
3.0	50	0.83	2.349 41.40	1.460 13.14	1.022 13.14	0.623 3.403	0.385 1.719	0.229 0.544	0.159						
3.6	60	1.00	2.819 57.74	1.751 18.28	0.996 4.718	0.748 2.375	0.462 0.751	0.275 0.218							
4.2	70	1.12	3.288 76.49	2.043 24.18	1.162 6.231	0.873 3.132	0.539 0.988	0.321 0.287	0.231 0.131						
4.8	80	1.33	2.335 30.67	1.328 7.940	0.997 3.988	0.616 1.254	0.367 0.363	0.263 6.164							
5.4	90	1.50	2.627 38.30	1.494 9.828	1.122 4.927	0.693 1.551	0.413 0.449	0.269 0.203							
6.0	100	1.67	2.919 46.49	1.660 11.90	1.247 5.972	0.770 1.875	0.459 0.542	0.329 0.244	0.248 0.124						
7.5	125	2.08	3.649 70.41	2.075 17.93	1.558 8.967	0.962 2.802	0.574 0.809	0.412 0.365	0.310 0.185	0.241 0.101					
9.0	150	2.50	2.490 25.11	1.870 12.53	1.154 3.903	0.668 1.124	0.494 0.506	0.372 0.256	0.289 0.140						
10.5	175	2.92	2.904 33.32	2.182 16.66	1.347 5.179	0.803 1.488	0.576 0.670	0.434 0.338	0.337 0.184						
12	200	3.33	3.319 42.75	2.493 21.36	1.539 6.624	0.918 1.901	0.659 0.855	0.496 0.431	0.385 0.234	0.251 0.084					
15	250	4.17	4.149 64.86	3.117 32.32	1.924 10.03	1.147 2.860	0.823 1.262	0.620 0.646	0.481 0.350	0.314 0.126					
18	300	5.00	3.740 45.52	2.309 14.04	1.377 4.009	0.988 1.792	0.744 0.903	0.577 0.488	0.437 0.125	0.263 0.074					
24	400	6.67	4.987 78.17	3.078 24.04	1.836 6.828	1.317 3.053	0.992 1.530	0.770 0.629	0.502 0.294	0.351 0.124					
30	500	8.33	3.848 36.71	2.295 10.40	1.647 4.622	1.240 2.315	0.962 1.254	0.628 0.445	0.439 0.187						
36	600	10.0	46.18 51.84	2.753 6.505	1.976 3.261	1.488 1.757	1.155 0.623	0.753 0.260	0.526 0.260						
42	700	11.7	3.212 19.52	2.306 8.693	1.736 4.356	1.347 2.345	0.879 0.831	0.614 0.347							
48	800	13.3	3.671 25.20	2.635 11.18	1.984 5.582	1.540 3.009	1.005 1.066	0.702 0.445							
54	900	15.0	4.130 31.51	2.964 13.97	2.232 6.983	1.732 3.762	1.130 1.328	0.790 0.555							
60	1000	16.7	4.589 38.43	3.294 17.06	2.480 8.521	1.925 4.595	1.256 1.616	0.877 0.674							
75	1250	20.8	4.117 26.10	3.100 13.00	2.406 7.010	1.570 2.458	1.097 1.027								
90	1500	25.0	4.941 36.97	3.720 18.42	2.887 9.892	1.883 3.458	1.316 1.444								
105	1750	29.2	4.340 24.76	3.368 13.30	1.883 3.468	1.535 1.934									
120	2000	33.3	4.960 31.94	3.850 17.16	2.197 4.665	1.754 2.496									
150	2500	41.7	4.812 26.26	2.511 5.995	2.193 3.807										
180	3000	50.0	3.139 9.216	2.632 5.417											
240	4000	66.7	3.767 13.05	3.509 8.926											
300	5000	83.3	5.523 22.72	4.386 14.42											
90°C bends slide valves			1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.7	2.5	
T-pieces, non-return valves			4.0	4.0	4.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	7.0	9.0	

The table is calculated in accordance with H. Lang's new formula a = 0.02 and for a water temperature of 10°C

The head loss in bends, slide valves, T-Pieces and non-return valves is equivalent to the metres of straight of straight pipes stated in the last two lines of the table. To find the head loss in foot valves multiply the loss in T-pieces by two.

# Table of Head Losses in Plastic Pipes

Upper figures indicate the velocity of water in m/sec.

Lower figures indicate head in metres per 100 metres of straight pipes

Quantity of Water			PELM/PEH PN 10														
m <sup>3</sup> /h	Litres/min.	Litres/sec.	PELM				PEH										
			25 20.4	32 26.2	40 32.6	50 40.8	63 51.4	75 73.6	90 73.6	110 90.0	125 102.2	140 114.06	160 130.8	180 147.2			
0.6	10	0.16	0.49 1.8	0.30 0.66	0.19 0.27	0.12 0.085											
0.9	15	0.25	0.76 4.0	0.46 1.14	0.3 0.6	0.19 0.18	0.12 0.63										
1.2	20	0.33	1.0 6.4	0.61 2.2	0.39 0.9	0.25 0.28	0.16 0.11										
1.5	25	0.42	1.3 10.0	0.78 3.5	0.5 1.4	0.32 0.43	0.2 0.17	0.14 0.074									
1.8	30	0.50	1.53 13.0	0.93 4.6	0.6 1.9	0.38 0.57	0.24 0.22	0.17 0.092									
2.1	35	0.58	1.77 16.0	1.08 6.0	0.69 2.0	0.44 0.70	0.28 0.27	0.2 0.12									
2.4	40	0.67	2.05 22.0	1.24 7.5	0.80 3.3	0.51 0.93	0.32 0.35	0.23 0.16	0.16 0.063								
3.0	50	0.83	2.54 37.0	1.54 11.0	0.99 4.8	0.63 1.40	0.4 0.50	0.28 0.22	0.2 0.09								
3.6	60	1.00	3.06 43.0	1.85 15.0	1.2 6.5	0.76 1.90	0.48 0.70	0.34 0.32	0.24 0.13	0.16 0.050							
4.2	70	1.12	3.43 50.0	2.08 18.0	1.34 8.0	0.86 2.50	0.54 0.83	0.38 0.38	0.26 0.17	0.18 0.068							
4.8	80	1.33		2.47 25.0	1.59 10.5	1.02 3.00	0.64 1.20	0.45 0.50	0.31 0.22	0.2 0.084							
5.4	90	1.50		2.78 30.0	1.8 12.0	1.15 3.50	0.72 1.30	0.51 0.57	0.35 0.26	0.24 0.092	0.18 0.05						
6.0	100	1.67		3.1 39.0	2.0 16.0	1.28 4.6	0.8 1.80	0.56 0.73	0.39 0.30	0.26 0.12	0.2 0.07						
7.5	125	2.08		3.86 50.0	2.49 24.0	1.59 6.6	1.00 2.50	0.70 1.10	0.49 0.60	0.33 0.18	0.25 1.10	0.20 0.055					
9.0	150	2.50			3.00 33.0	1.91 8.6	1.20 3.5	0.84 1.40	0.59 0.63	0.39 0.24	0.30 0.13	0.24 0.075					
10.5	175	2.92			3.5 38.0	2.23 11.0	1.41 4.3	0.99 1.80	0.69 0.78	0.46 0.30	0.36 0.18	0.28 0.09					
12	200	3.33			3.99 50.0	2.55 14.0	1.60 5.5	1.12 2.40	0.78 1.0	0.52 0.40	0.41 0.22	0.32 0.12	0.25 0.065				
15	250	4.17				3.19 21.0	2.01 8.0	1.41 3.70	0.98 1.50	0.66 0.57	0.51 0.34	0.40 0.18	0.31 0.105	0.25 0.06			
18	300	5.00				3.82 28.0	2.41 10.5	1.69 4.60	1.18 1.95	0.78 0.77	0.61 0.45	0.48 0.25	0.37 0.13	0.29 0.085			
24	400	6.67					3.21 19.0	2.25 8.0	1.57 3.60	1.05 1.40	0.81 0.78	0.65 0.44	0.50 0.23	0.39 0.15			
30	500	8.33					4.01 28.0	2.81 11.5	1.96 5.0	1.0 2.0	1.02 1.20	0.81 0.63	0.62 0.33	0.49 0.21			
36	600	10.0					4.82 37.0	3.38 15.0	2.35 6.6	1.57 2.60	1.22 1.50	0.97 0.82	0.74 0.45	0.59 0.28			
42	700	11.7					5.64 47.0	3.95 24.0	2.75 8.0	1.84 3.50	1.43 1.90	1.13 1.10	0.87 0.60	0.69 0.40			
48	800	13.3						4.49 26.0	3.13 11.0	2.09 4.5	1.62 2.60	1.29 1.40	0.99 0.81	0.78 0.48			
54	900	15.0						5.07 33.0	3.53 13.5	2.36 5.5	1.83 3.20	1.45 1.70	1.12 0.95	0.88 0.58			
60	1000	16.7						5.64 40.0	3.93 16.0	2.63 6.7	2.04 3.90	1.62 2.2	1.24 1.2	0.96 0.75			
75	1250	20.8							4.89 25.0	3.27 9.0	2.54 5.0	2.02 3.0	1.55 1.6	1.22 0.95			
90	1500	25.0							5.88 33.0	3.93 13.0	3.05 8.0	2.42 4.1	1.86 2.3	1.47 1.40			
105	1750	29.2							6.86 44.0	4.59 17.5	3.56 9.7	2.83 5.7	2.17 3.2	1.72 1.9			
120	2000	33.3								5.23 23.0	4.06 13.0	3.23 7.0	2.48 4.0	1.96 2.4			
150	2500	41.7								6.55 34.0	5.08 18.0	4.04 10.5	3.10 6.0	2.45 3.5			
180	3000	50.0								7.86 45.0	6.1 27.0	4.85 14.0	3.72 7.6	2.94 7.5			
240	4000	66.7									8.13 43.0	6.47 24.0	4.96 13.0	3.92 7.5			
300	5000	83.3										8.08 33.0	6.2 18.0	4.89 11.0			

The table is based on a nomogram.  
 Roughness : K =0.01mm  
 Water temperature : t =10°C

Subject to alterations