

ENGINEERING STANDARD

REVISION

RB-26 FAN PERFORMANCE CURVES

These fan performance curves have been designed to provide a simple and accurate method of selecting type RB-26 fans.

The SP scale is a square-root type scale. This means that all system curves are straight radial lines running through the 0,0 point. These system lines are also incidentally lines of constant efficiency. The cfm. scale is linear.

The broken lines are lines of constant horsepower. The solid lines are the SP curves. The spacing between the speed curves is linear. This means that the 1500 rpm. SP curve would lie exactly half way between the 1400 rpm. and 1600 rpm. SP curves.

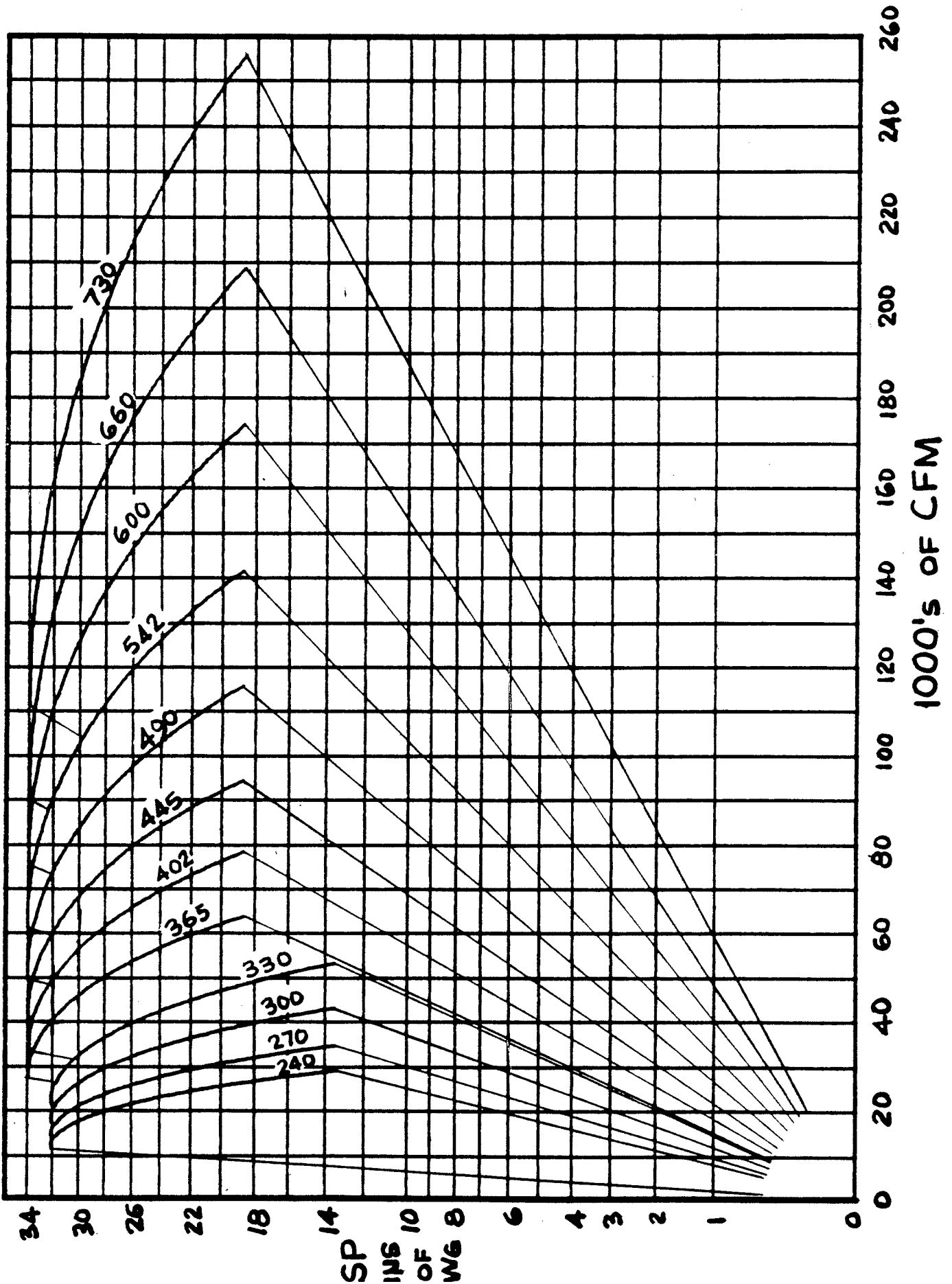
Three different tip speed classes are shown on the curves: 16M (16,000 fpm.), 19M (19,000 fpm.), and 22M (22,000 fpm.).

The outlet VP for any cfm. can be read from the scale at the right hand side.

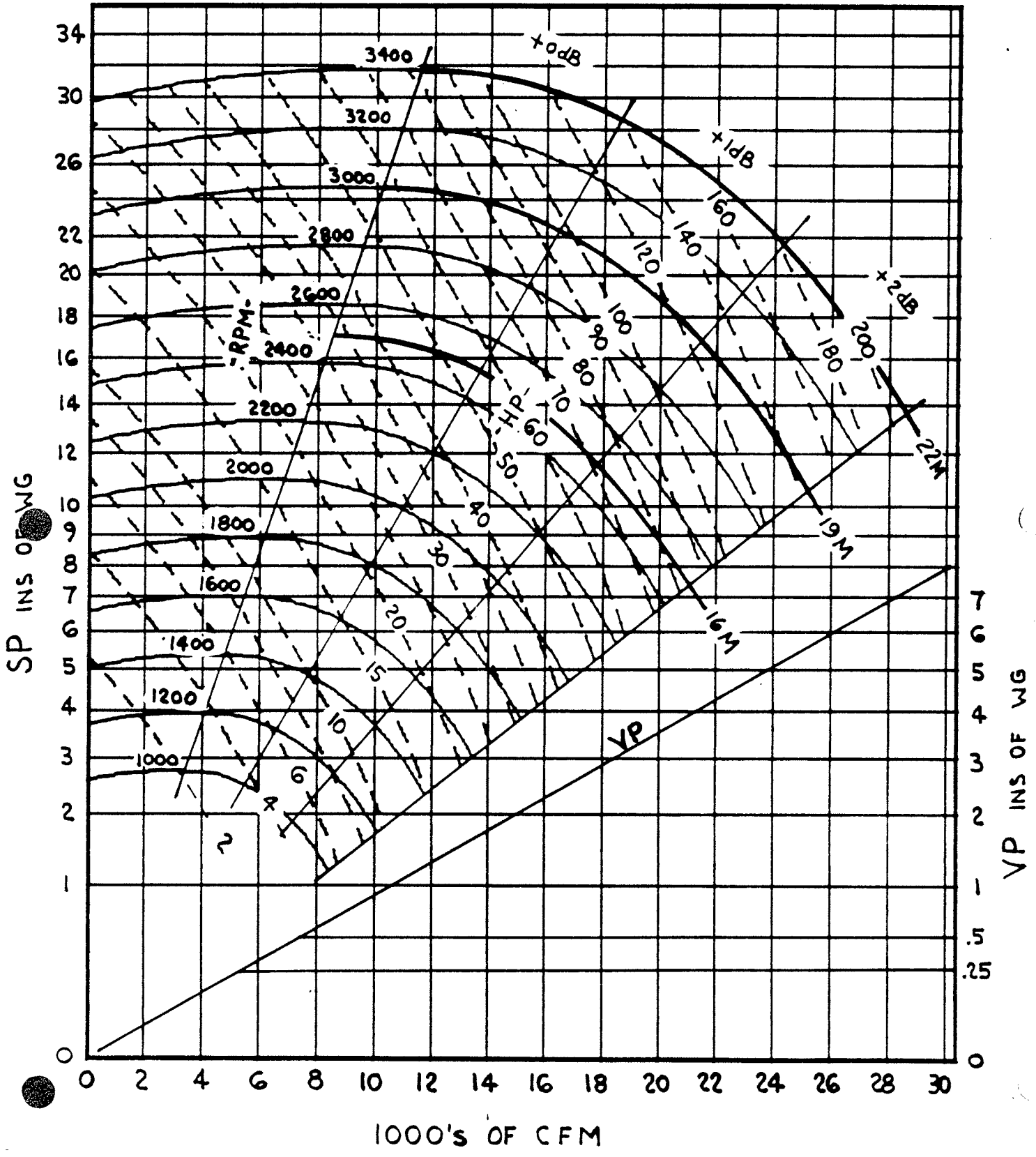
The allowable selection area is divided by radial lines into three sectors. Either 0, 1 or 2 dB must be added to the L_w values depending upon the sector in which the point of operation lies.

- * Fans should not be selected in the area to the left of the left-most radial line. This area is given only for reference.
- * These curves are based on inlet volume and a mean gas density of $.075 \text{ lb./ft.}^3$

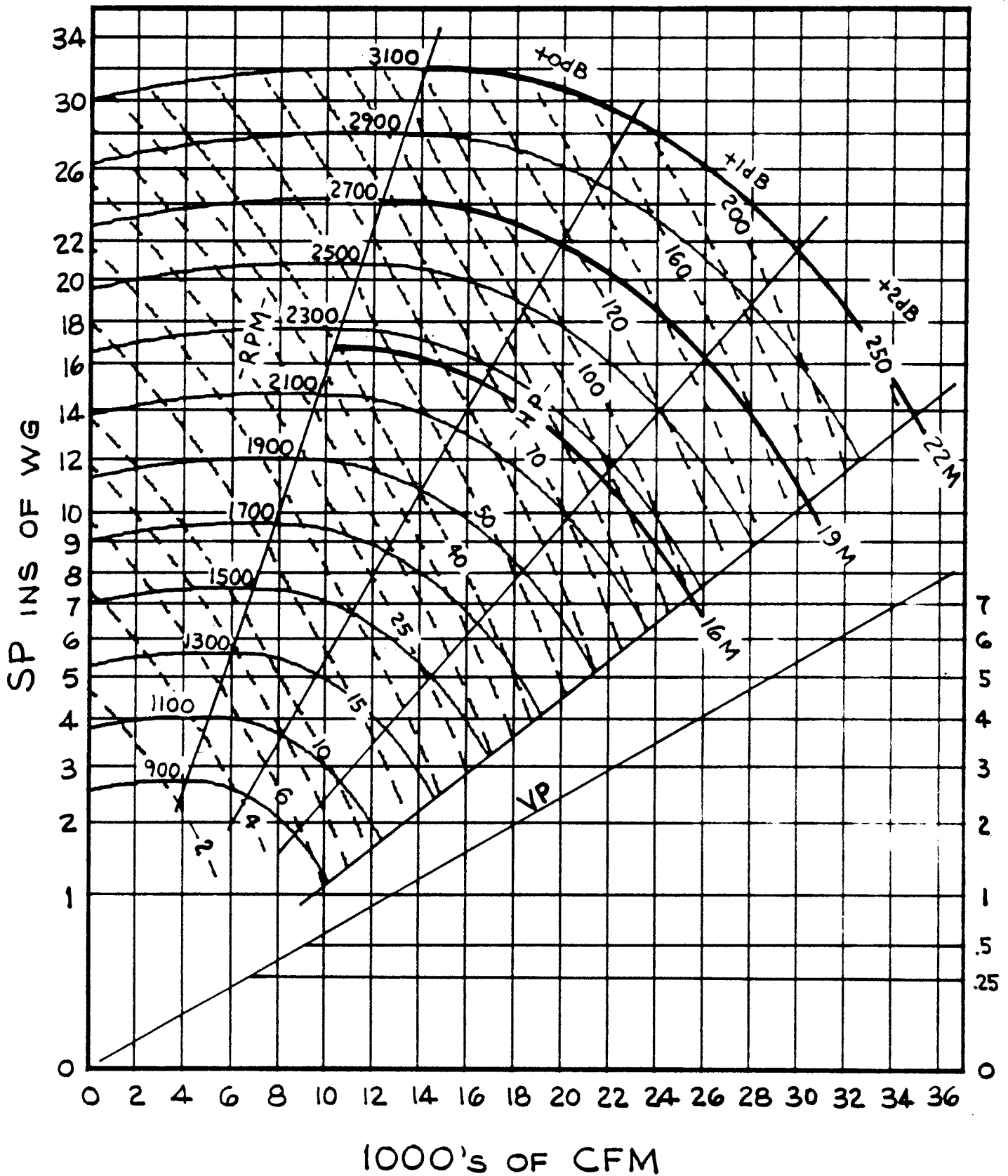
QUICK SELECTION CHART



24.5" DIA. WHEEL
2.66 SQ. FT. OUTLET AREA

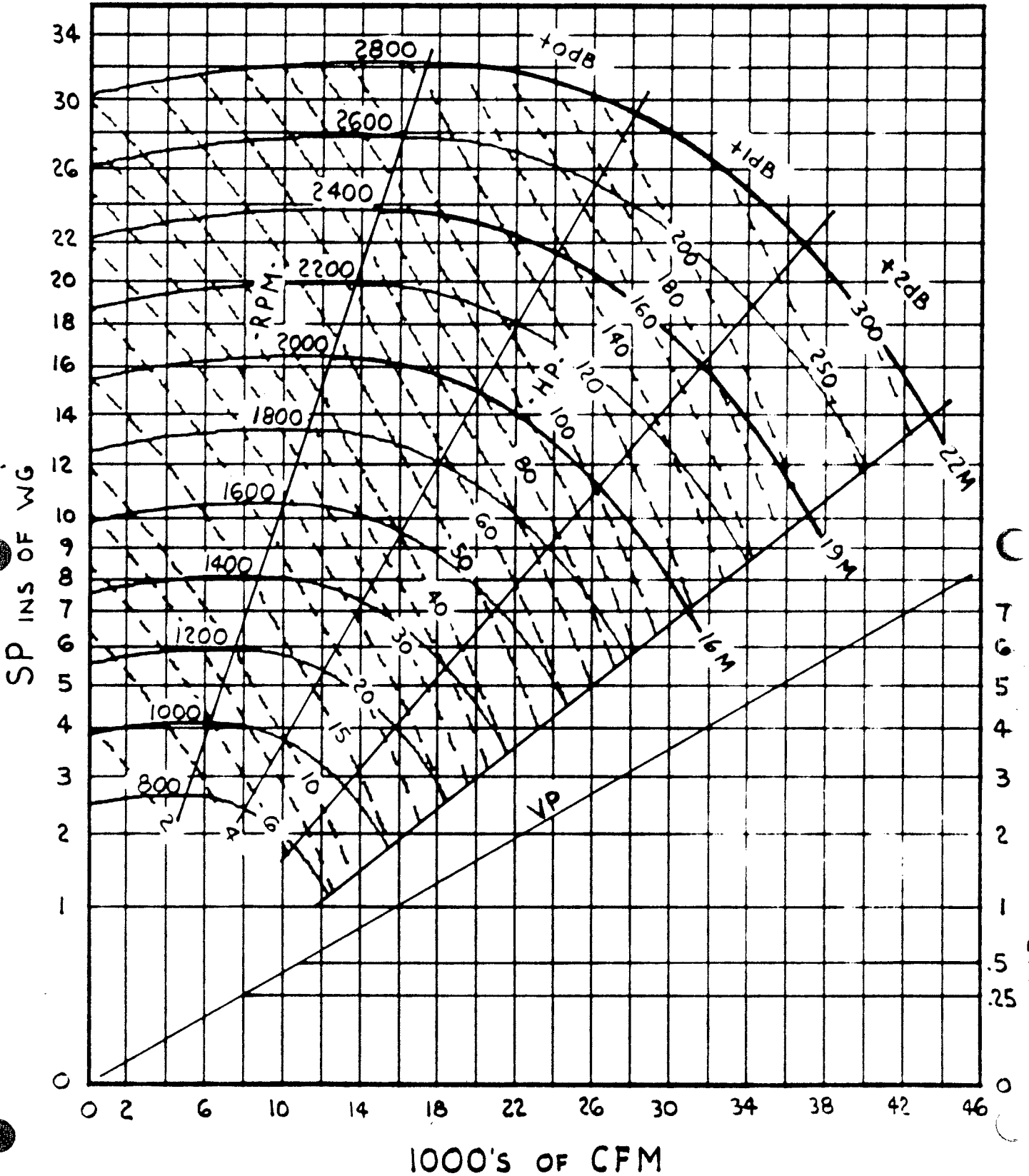


27" DIA. WHEEL
3.23 SQ. FT. OUTLET AREA

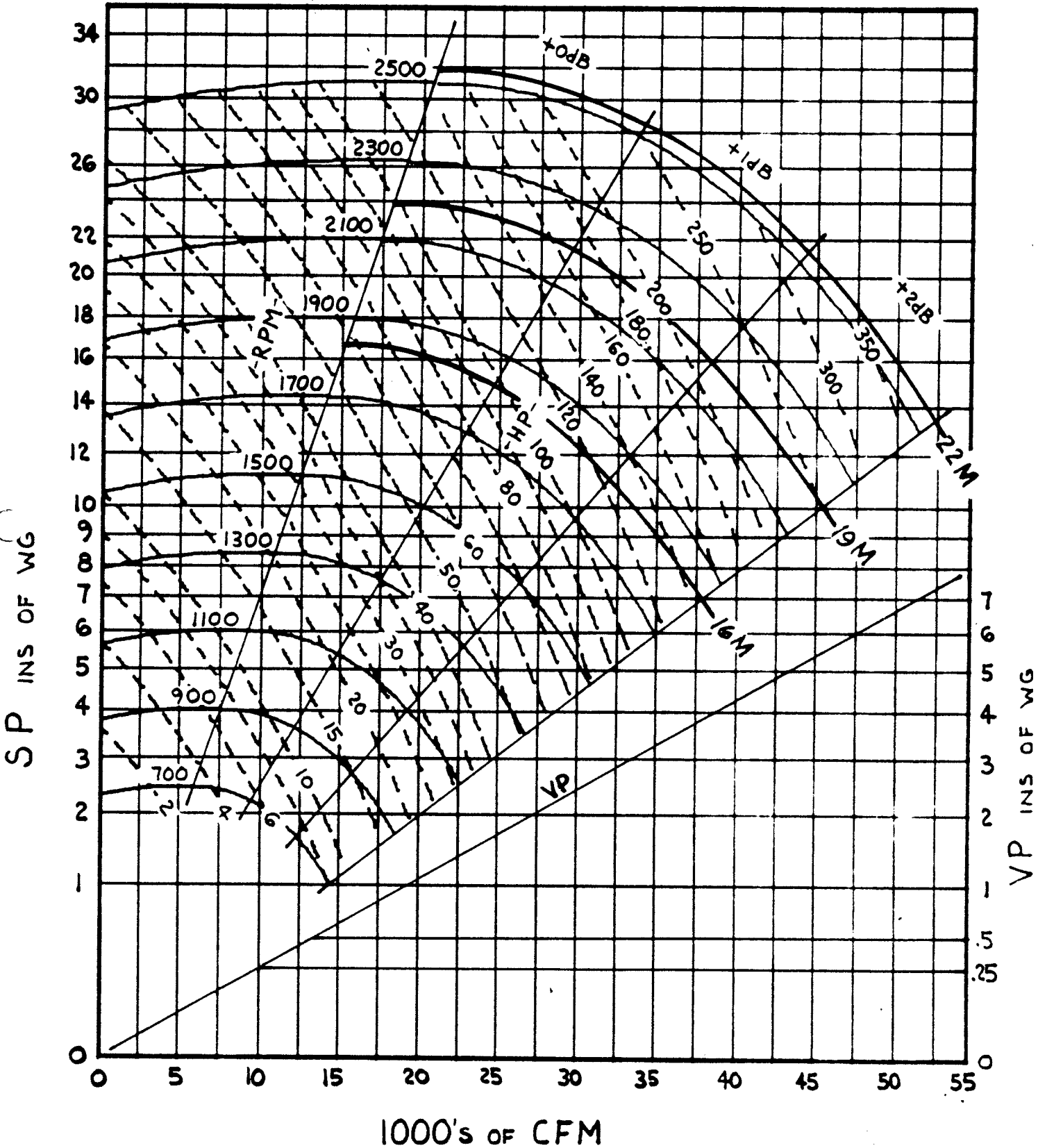


30" DIA. WHEEL

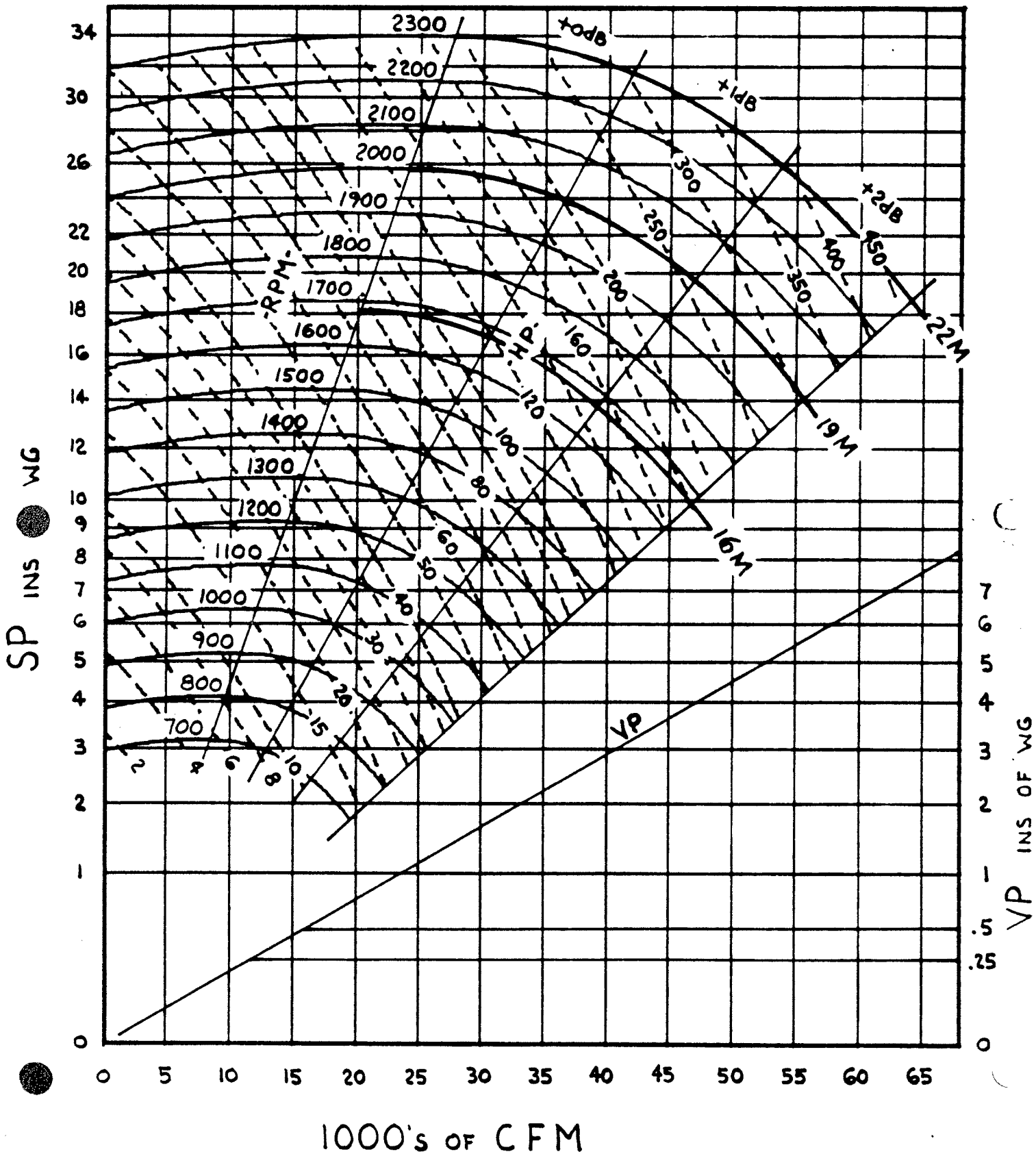
3.99 SQ. FT. OUTLET AREA



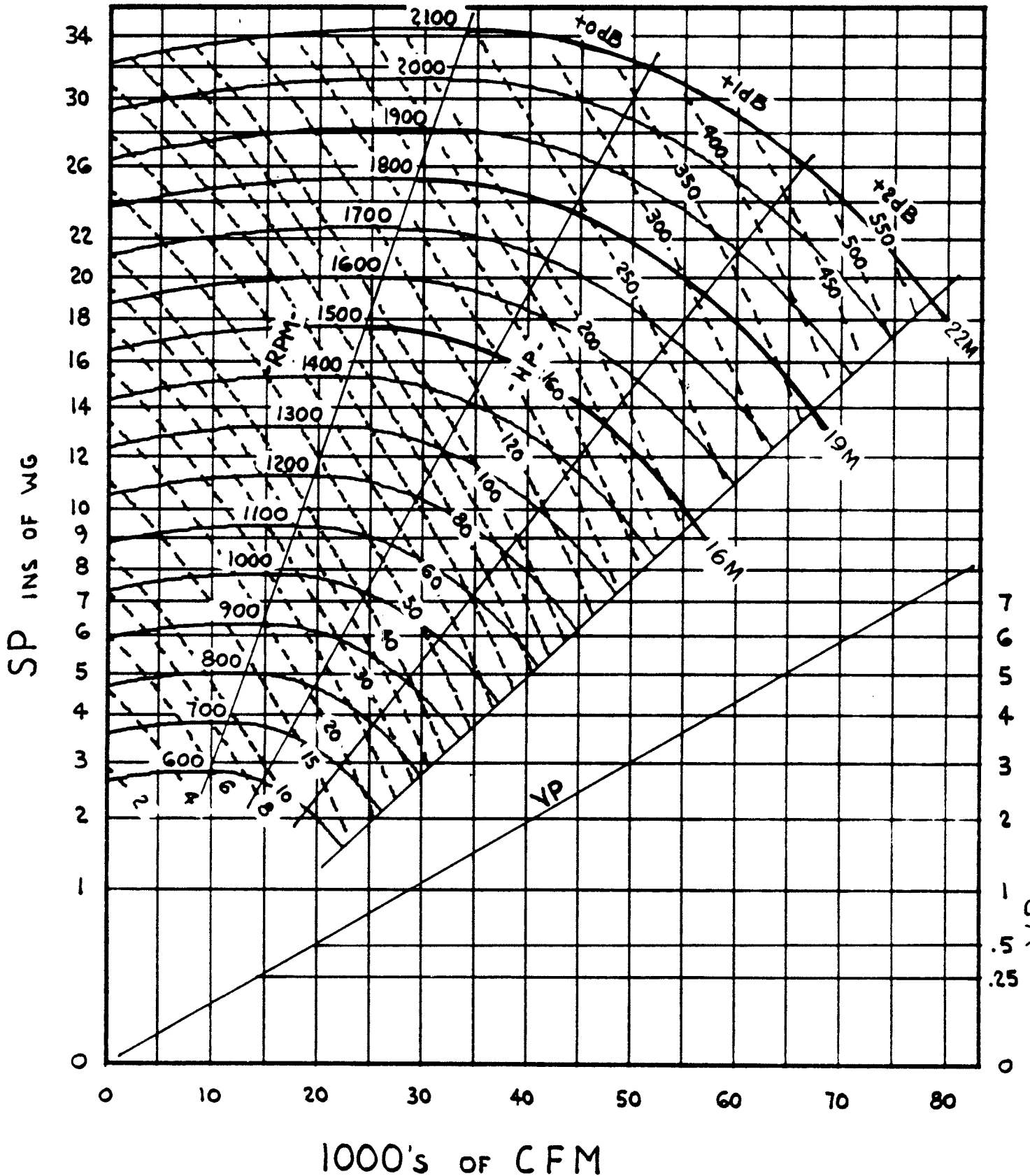
33" DIA. WHEEL
4.83 SQ. FT. OUTLET AREA



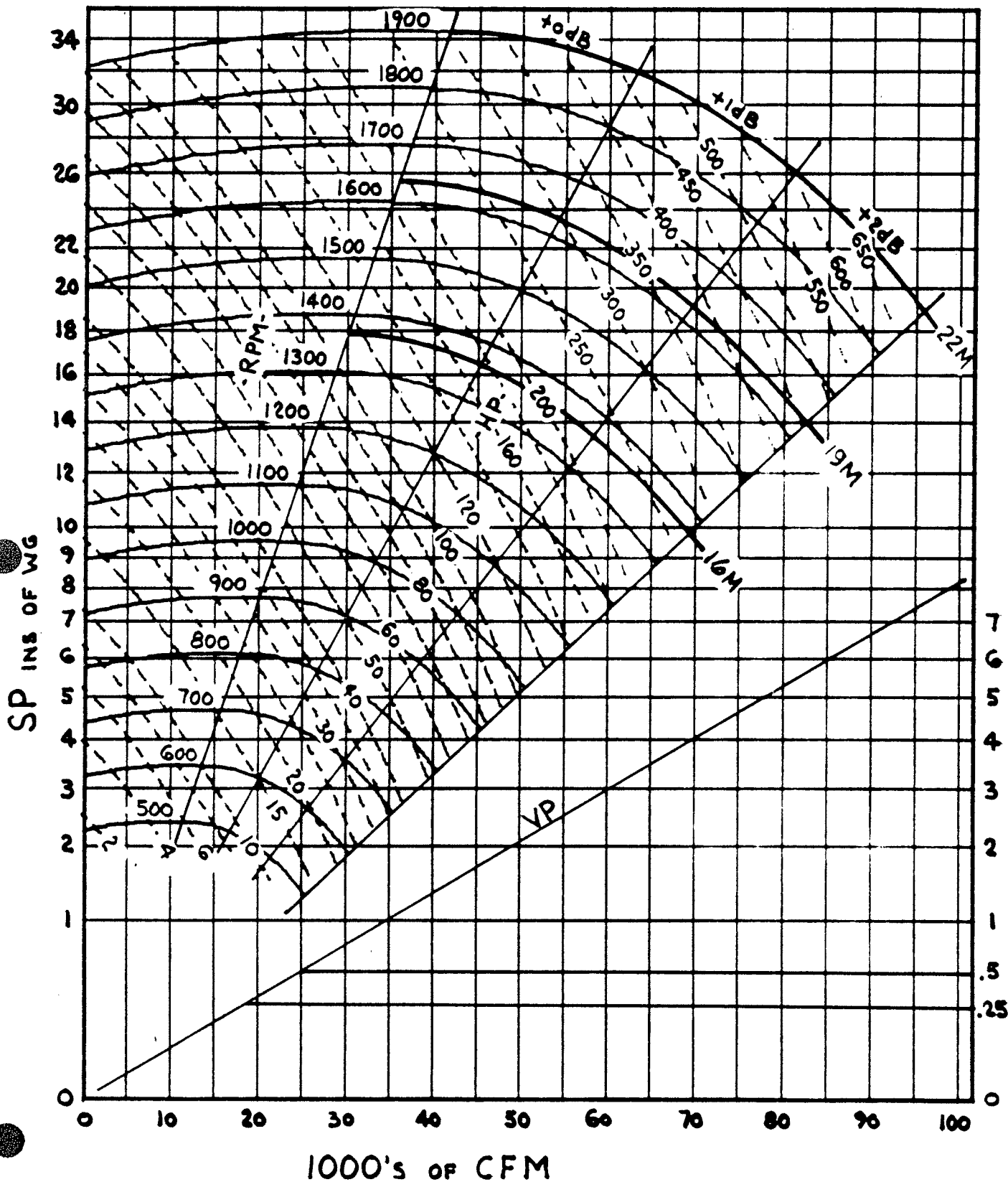
36.5" DIA. WHEEL
5.91 SQ. FT. OUTLET AREA



40.25" DIA. WHEEL
7.19 SQ. FT. OUTLET AREA



44.5" DIA. WHEEL
8.79 SQ. FT. OUTLET AREA

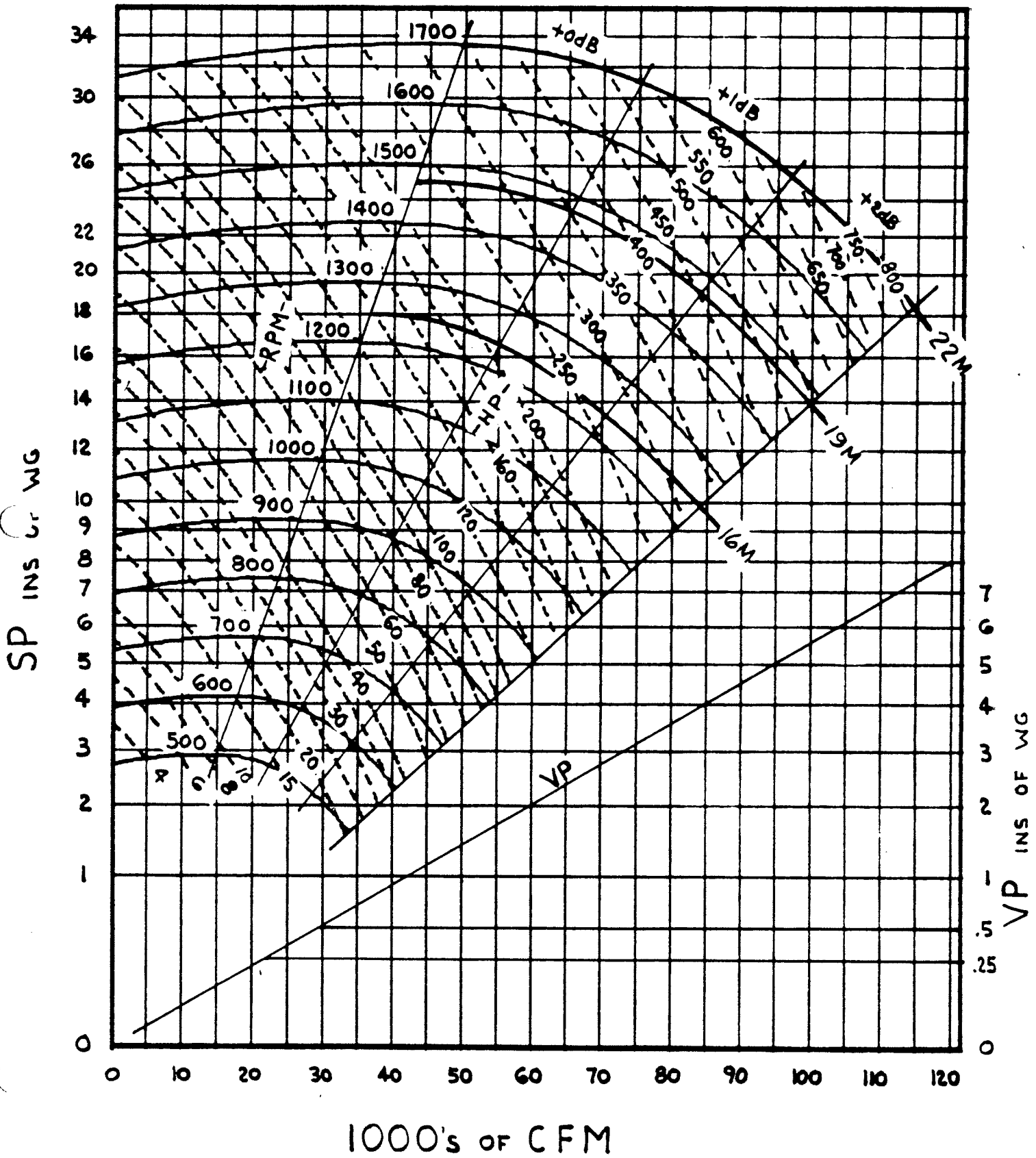


VP INS OF WG

49" DIA. WHEEL
10.65 SQ. FT. OUTLET AREA

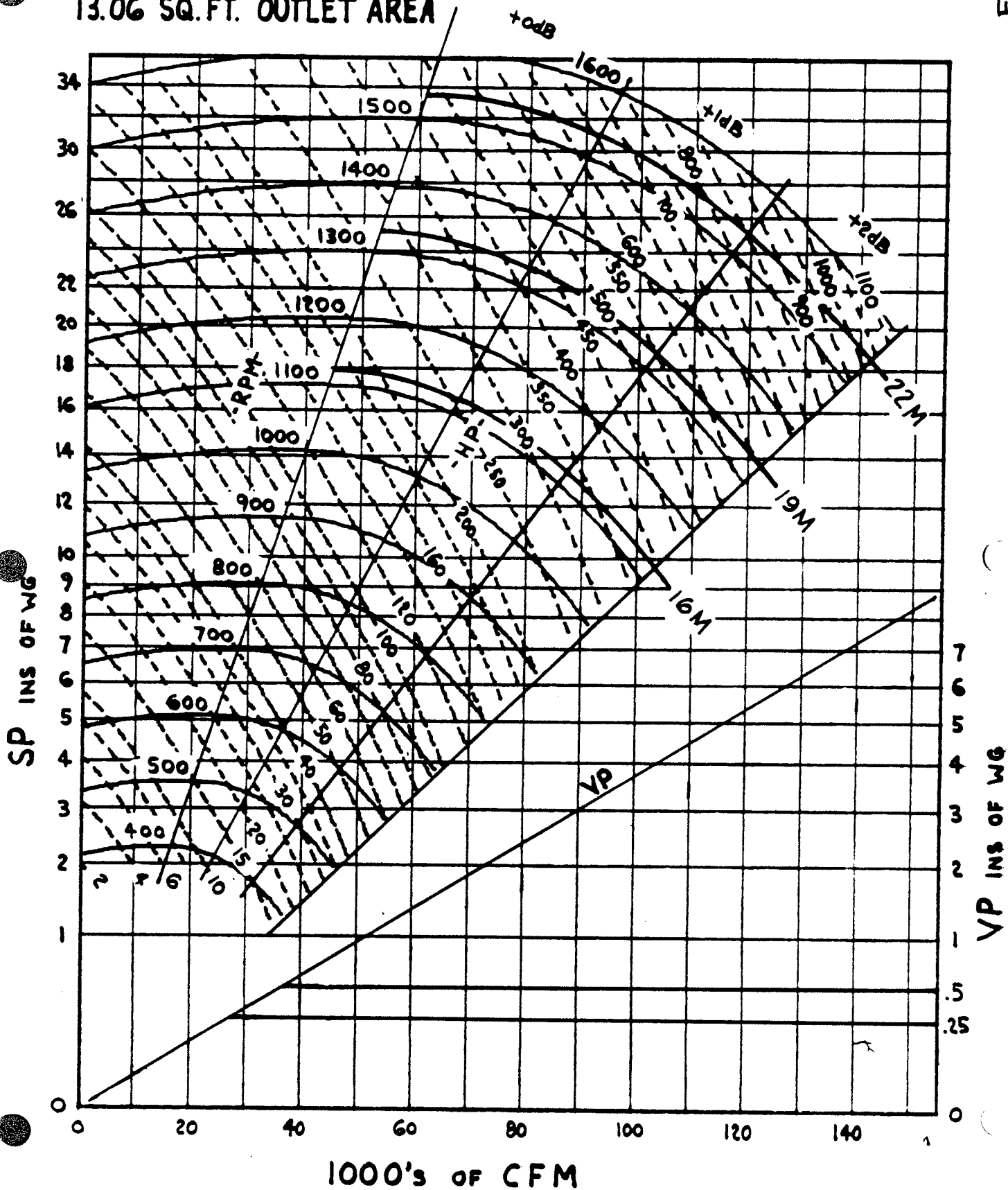
RB-26

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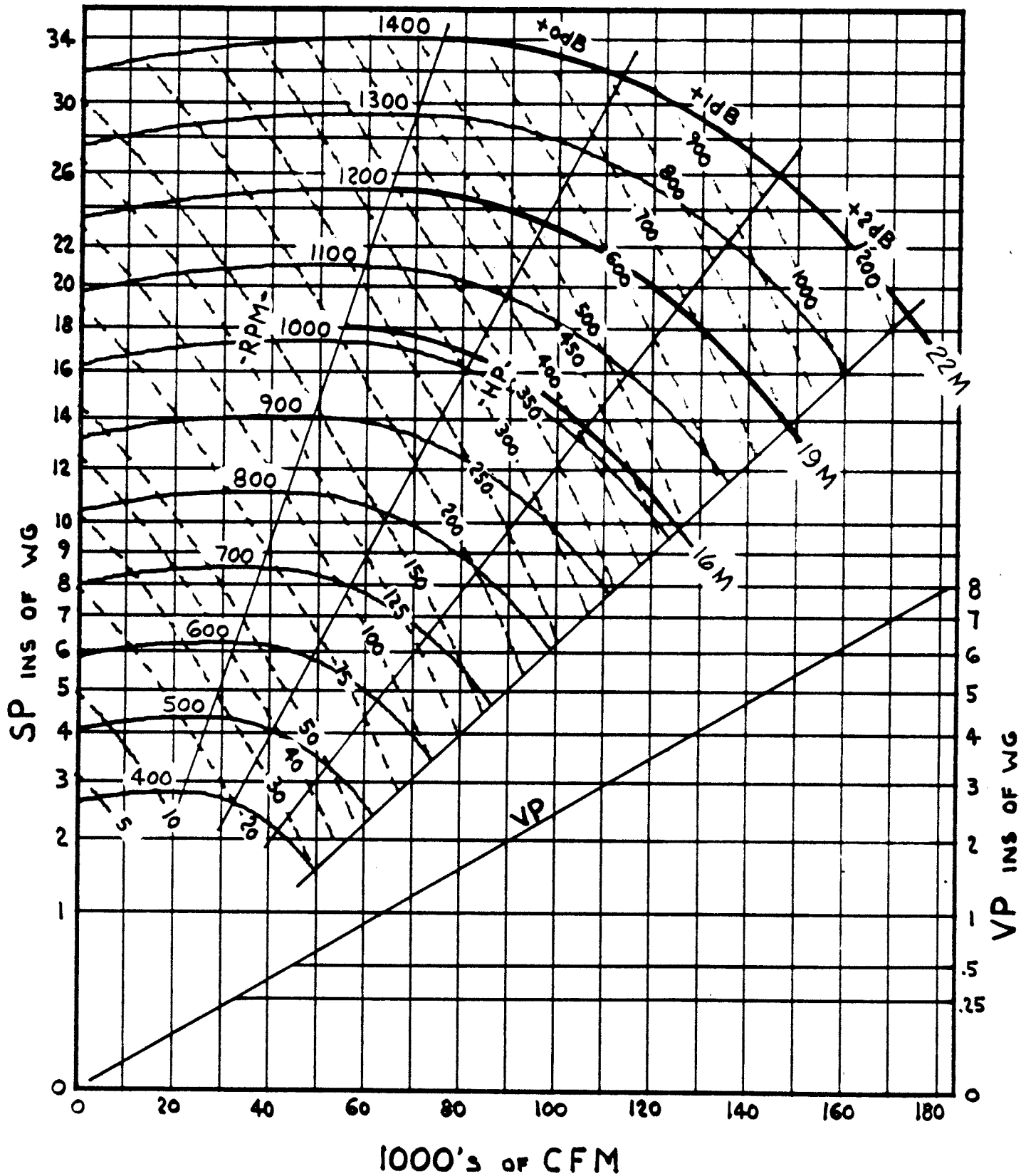
54.25" DIA. WHEEL

13.06 SQ. FT. OUTLET AREA



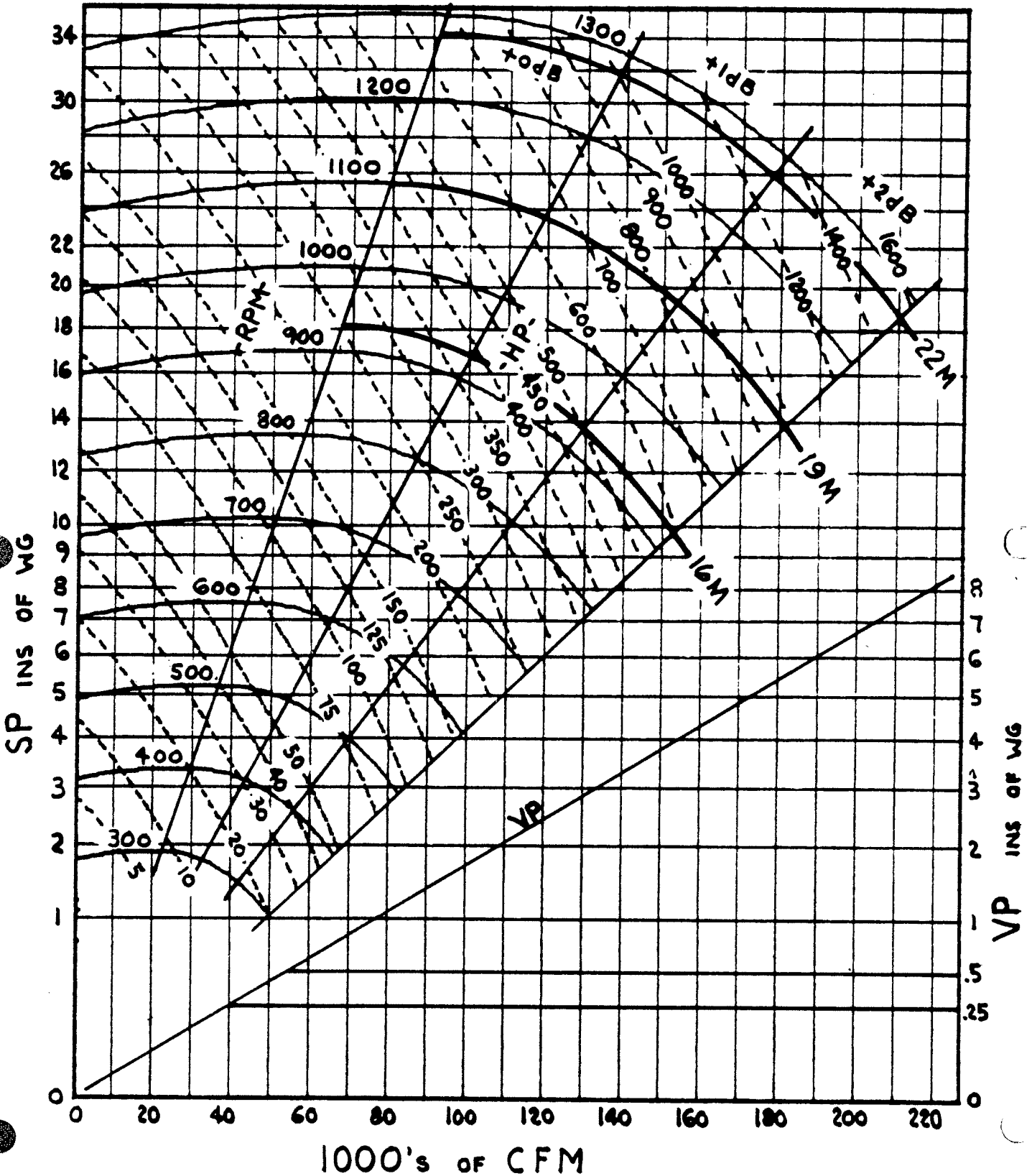
60" DIA. WHEEL
15.98 SQ. FT. OUTLET AREA

FRR-12



66" DIA. WHEEL

19.33 SQ. FT. OUTLET AREA

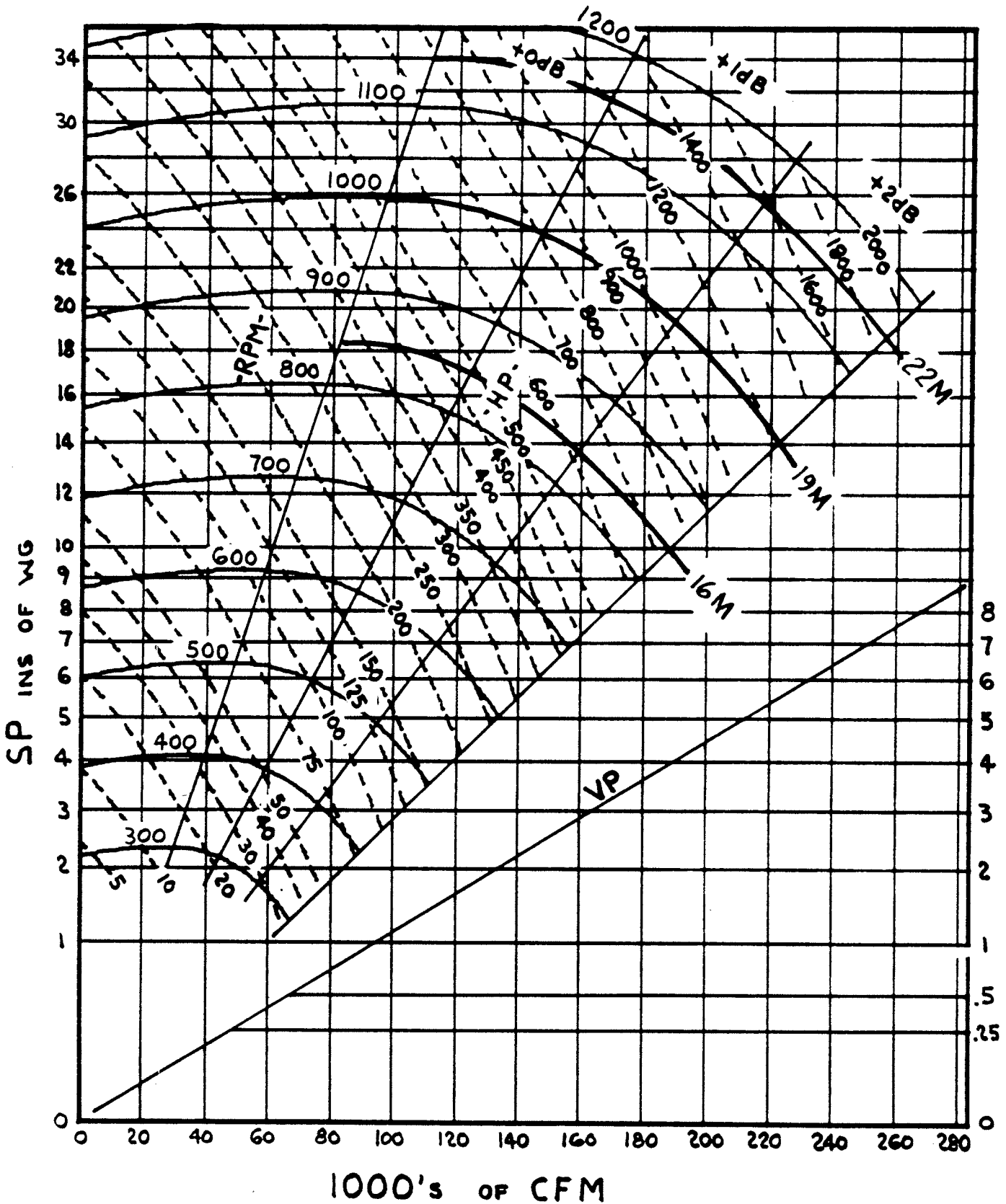


73" DIA. WHEEL

RB-26

23.65 SQ.FT. OUTLET AREA

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SOUND POWER LEVELS

The sound power levels in each octave band are tabulated for each fan size at the same rpm.'s as the SP curves.

The sound power level for a speed not tabulated may be obtained by linear interpolation. While this method is not theoretically correct, the error is very small. For example, the L_w for a 365 RB at 950 rpm. in the 63 hz. band is $(98 + 100) \times \left(\frac{1000 - 950}{1000 - 900} \right) \approx 99$ dB.

After obtaining the L_w spectrum, add either 0, 1 or 2 dB in each band depending upon where the point of operation lies.

These sound power levels are re 10^{-12} watts. To obtain the sound pressure levels re $.0002$ dynes/cm.² at 10 ft. from the fan in a free field, subtract 21 dB in each octave band. For other conditions consult page 4-20 of "Noise and Vibration Control" by Laymon N. Millar of Bolt Beranek and Newman Inc.

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SOUND POWER LEVELS								245 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.								
	63	125	250	500	1000	2000	4000	8000	
1000	88	84	78	77	75	70	63	61	
1200	92	90	83	81	80	76	68	65	
1400	96	96	87	84	84	82	73	68	
1600	98	98	91	88	87	85	77	72	
1800	101	101	96	91	89	88	82	75	
2000	103	103	99	93	92	90	85	78	
2200	105	105	102	96	94	93	89	81	
2400	107	107	105	98	96	95	92	83	
2600	109	109	108	100	98	97	94	86	
2800	111	111	111	102	99	99	97	88	
3000	112	112	112	104	101	100	98	90	
3200	113	113	113	106	103	102	100	93	
3400	115	115	115	109	104	103	102	95	

SOUND POWER LEVELS								270 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.								
	63	125	250	500	1000	2000	4000	8000	
900	89	83	78	77	76	69	63	62	
1100	93	90	84	82	81	76	69	66	
1300	97	96	88	85	85	82	74	70	
1500	100	100	92	89	88	86	78	73	
1700	103	103	97	92	91	89	83	77	
1900	105	105	100	95	93	92	86	80	
2100	107	107	104	97	96	95	90	83	
2300	109	109	107	100	98	97	93	85	
2500	111	111	110	102	100	99	96	88	
2700	113	113	112	104	101	101	99	90	
2900	114	114	114	106	103	102	101	92	
3100	116	116	116	108	105	104	102	94	

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SOUND POWER LEVELS								300 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
800	90	83	79	78	84	71	63	63
1000	94	90	84	83	86	82	69	67
1200	98	97	89	87	88	91	75	71
1400	102	102	93	90	90	98	79	74
1600	105	105	98	94	93	99	86	78
1800	107	107	102	97	96	100	92	82
2000	110	110	105	99	98	101	97	85
2200	112	112	109	102	100	102	101	87
2400	113	113	112	104	102	103	106	90
2600	115	115	114	106	104	104	110	92
2800	117	117	117	108	105	105	113	94

SOUND POWER LEVELS								330 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
700	90	81	78	78	86	67	62	63
800	93	86	82	81	87	74	66	66
900	95	90	85	83	88	80	69	68
1000	97	93	87	86	89	85	72	70
1100	100	97	90	88	90	89	75	72
1200	101	100	92	90	91	94	78	74
1300	103	102	94	92	92	98	80	76
1400	105	105	96	93	93	101	82	77
1500	106	106	98	95	94	101	86	79
1600	108	108	101	97	96	102	89	81
1700	109	109	103	98	97	103	92	83
1800	110	110	105	100	99	103	95	85
1900	111	111	107	101	100	104	97	86
2000	113	113	108	102	101	104	100	88
2100	114	114	110	104	102	105	102	89
2200	115	115	112	105	103	105	104	90
2300	116	116	113	106	104	106	107	91
2400	116	116	115	107	105	106	109	93
2500	117	117	116	108	106	107	111	94

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SOUND POWER LEVELS								365 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
700	93	84	81	81	79	70	65	66
800	96	89	85	84	82	75	69	69
900	98	93	88	86	85	79	72	71
1000	100	96	90	89	88	82	75	73
1100	103	100	93	91	90	86	78	75
1200	104	103	95	93	92	89	81	77
1300	106	105	97	95	94	91	83	79
1400	108	108	99	96	96	94	85	80
1500	109	109	101	98	97	96	87	82
1600	111	111	104	100	99	97	90	84
1700	112	112	106	101	100	99	92	86
1800	113	113	108	103	102	100	94	88
1900	114	114	110	104	103	101	96	89
2000	116	116	111	105	104	103	97	91
2100	117	117	113	107	105	104	99	92
2200	118	118	115	108	106	105	101	93
2300	119	119	116	109	107	106	102	94

SOUND POWER LEVELS								402 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
600	91	83	81	80	77	69	65	66
700	96	87	84	84	82	73	68	69
800	99	92	88	87	85	78	72	72
900	101	96	91	89	88	82	75	74
1000	103	99	93	92	91	85	78	76
1100	106	103	96	94	93	89	81	78
1200	107	106	98	96	95	92	84	80
1300	109	108	100	98	97	94	86	82
1400	111	111	102	99	99	97	88	83
1500	112	112	104	101	100	99	90	85
1600	114	114	107	103	102	100	93	87
1700	115	115	109	104	103	102	95	89
1800	116	116	111	106	105	103	97	91
1900	117	117	113	107	106	104	99	92
2000	119	119	114	108	107	106	100	94
2100	120	120	116	110	108	107	102	95

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SOUND POWER LEVELS								445 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.								
	63	125	250	500	1000	2000	4000	8000	
500	87	81	80	79	73	66	64	65	
600	94	86	84	83	80	72	68	69	
700	99	90	87	87	85	76	71	72	
800	102	95	91	90	88	81	75	75	
900	104	99	94	93	91	85	79	77	
1000	107	102	96	95	94	88	82	79	
1100	109	106	99	97	96	92	84	81	
1200	110	109	101	99	98	95	87	83	
1300	112	111	103	101	100	98	89	85	
1400	114	114	105	102	102	100	91	87	
1500	115	115	108	104	104	102	94	88	
1600	117	117	110	106	105	103	96	90	
1700	118	118	112	107	106	105	98	92	
1800	119	119	114	109	108	106	100	94	
1900	120	120	116	110	109	107	102	95	

SOUND POWER LEVELS								490 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.								
	63	125	250	500	1000	2000	4000	8000	
500	90	84	83	82	76	69	67	68	
600	97	89	87	86	83	75	71	72	
700	102	93	90	90	88	79	74	75	
800	105	98	94	93	91	84	78	78	
900	107	102	97	95	94	88	82	80	
1000	109	105	99	98	97	91	85	82	
1100	112	109	102	100	99	95	87	84	
1200	113	112	104	102	101	98	90	86	
1300	115	114	106	104	103	101	92	88	
1400	117	117	108	105	105	103	94	89	
1500	118	118	110	107	106	105	96	91	
1600	120	120	113	109	108	106	99	93	
1700	121	121	115	110	109	108	101	95	

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SOUND POWER LEVELS								542 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
400	86	82	81	79	72	66	66	66
500	93	88	86	85	79	73	70	71
600	100	92	90	89	86	78	74	75
700	105	96	94	93	91	82	78	78
800	108	101	97	96	94	87	81	81
900	110	105	100	99	97	91	85	83
1000	113	108	103	101	100	95	88	85
1100	115	112	105	103	102	98	90	87
1200	117	115	107	105	104	101	93	89
1300	118	118	109	107	106	104	95	91
1400	120	120	111	109	108	106	97	93
1500	121	121	114	110	110	108	100	95
1600	123	123	116	112	111	109	102	96

SOUND POWER LEVELS								600 SWSI RB - 26
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
400	89	85	84	82	75	69	69	69
450	93	88	87	85	79	73	71	72
500	97	91	89	88	83	76	73	74
550	100	93	91	90	86	78	75	76
600	103	95	93	92	89	81	77	78
650	106	97	95	94	92	83	79	79
700	108	99	97	96	94	85	81	81
750	109	102	98	98	96	88	83	82
800	111	104	100	99	97	90	84	84
850	112	106	102	100	99	92	86	85
900	113	108	103	102	100	94	88	86
950	115	110	104	103	102	96	89	87
1000	116	112	106	104	103	98	91	89
1050	117	113	107	105	104	99	92	90
1100	118	115	108	106	105	101	93	91
1150	119	116	109	107	106	102	95	91
1200	120	118	110	108	107	104	96	92
1250	121	119	111	109	108	105	97	93
1300	121	121	112	110	109	107	98	94
1350	122	122	113	111	110	108	99	95
1400	123	123	114	112	111	109	100	96

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SOUND POWER LEVELS							660 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
300	83	81	80	77	69	65	66	66
350	87	84	84	82	73	69	69	69
400	92	88	87	85	78	72	72	72
450	96	91	90	88	82	76	74	75
500	99	94	92	91	85	79	76	77
550	103	96	94	93	89	81	78	79
600	106	98	96	95	92	84	80	81
650	109	100	98	97	95	86	82	82
700	111	102	100	99	97	88	84	84
750	112	105	101	101	99	91	86	85
800	114	107	103	102	100	93	87	87
850	115	109	104	103	102	95	89	88
900	116	111	106	105	103	97	91	89
950	118	113	107	106	105	99	92	90
1000	119	114	109	107	106	101	94	91
1050	120	116	110	108	107	102	95	92
1100	121	118	111	109	108	104	96	93
1150	122	119	112	110	109	105	98	94
1200	123	121	113	111	110	107	99	95
1250	123	122	114	112	111	108	100	96
1300	124	124	115	113	112	110	101	97

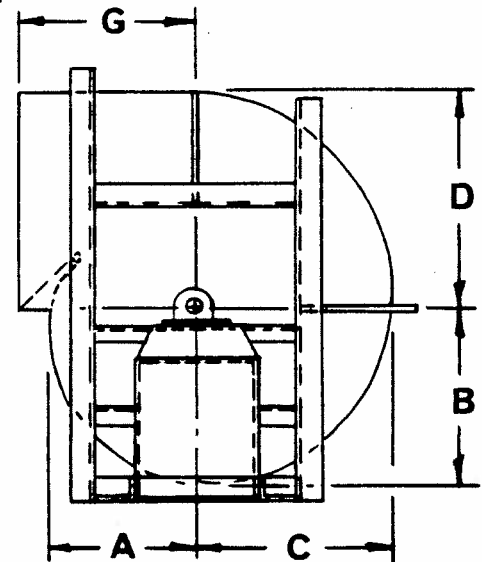
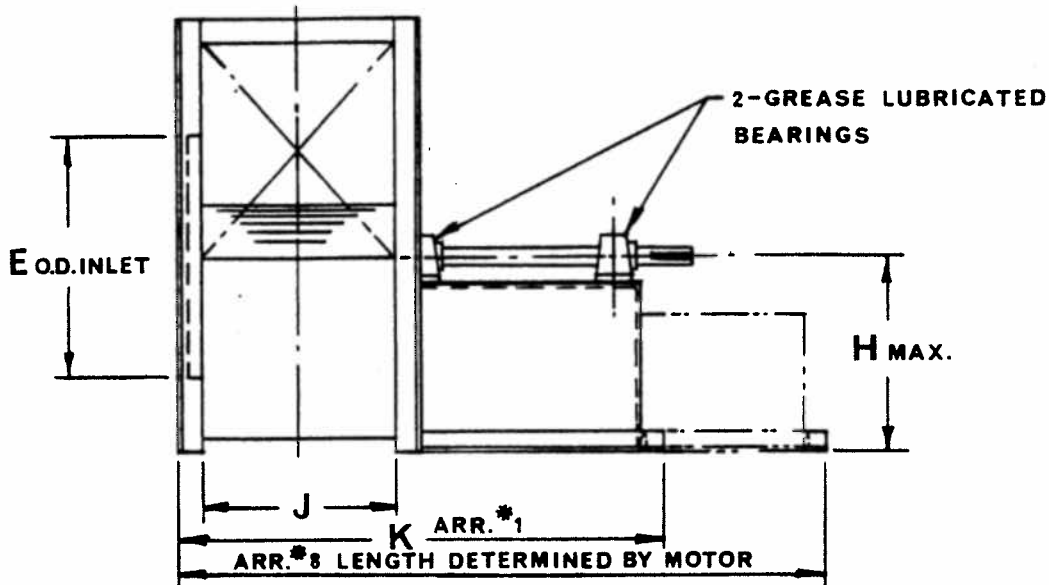
SOUND POWER LEVELS							730 SWSI RB - 26	
RPM	MID-BAND FREQUENCY HZ.							
	63	125	250	500	1000	2000	4000	8000
300	86	84	83	80	72	68	69	69
350	90	88	87	85	76	72	72	73
400	95	91	90	88	81	75	75	75
450	99	94	93	91	85	79	77	78
500	103	97	95	94	89	82	80	80
550	106	99	97	96	92	84	82	82
600	109	101	99	98	95	87	83	84
650	112	103	101	100	98	89	85	86
700	114	105	103	102	100	91	87	87
750	115	108	104	104	102	94	89	89
800	117	110	106	105	103	96	90	90
850	118	112	108	106	105	98	92	91
900	119	114	109	108	106	100	94	92
950	121	116	110	109	108	102	95	93
1000	122	118	112	110	109	104	97	95
1050	123	119	113	111	110	105	98	96
1100	124	121	114	112	111	107	99	97
1150	125	122	115	113	112	108	101	97
1200	126	124	116	114	113	110	102	98

ISSUED BY *SP*

APPROVED BY *[Signature]*

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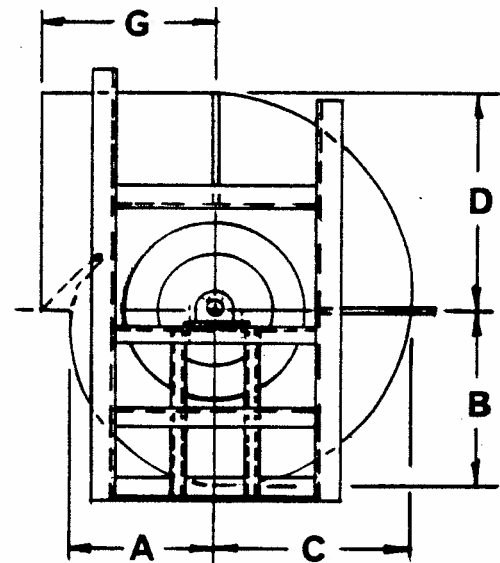
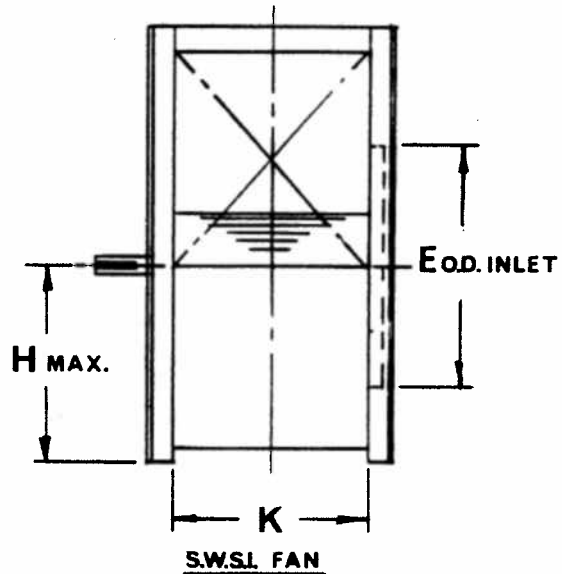
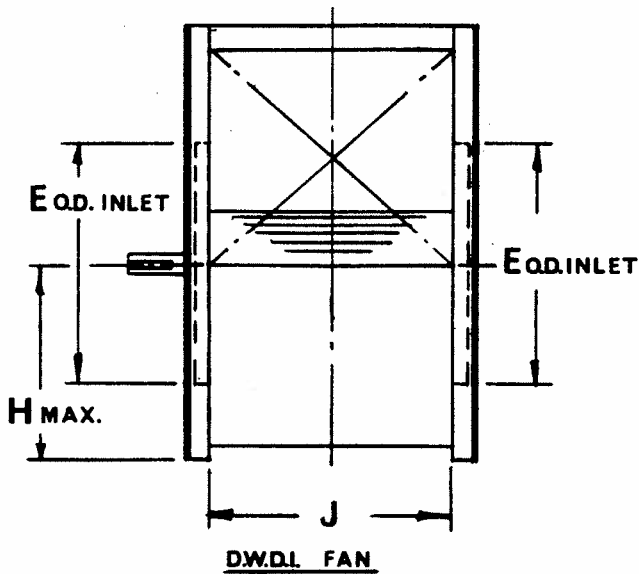
FAN SIZE	A	B	C	D	E	F	G	H	J	K
245	15½	18	20½	23	27½		29½	25	17	39½
270	17	20	22½	25½	30		32½	28	18½	41½
300	19	22	25	28	33½		36	30	20½	45½
330	21	24½	27½	31	36½		39½	33	23	50
365	23	27	30½	34½	39½		43½	36	25½	54½
402	25½	29½	33½	37½	43		48	40	28	61
445	28	32½	37½	41½	47		53	44	30½	66½
490	31	36	41	46	51½		58½	48	33½	73½
542	34	39½	45½	50½	56		65	53	37½	77½
600	38	44	50	56	57		71½	59	40½	87½
660	41½	48½	55	61½	62½		79	64	45½	95½
730	46	53½	61	68	68½		87	71	50	103

**TYPE RB-26 FANS
ARRANGEMENT *1&8
SWSL**

NOTE:
OUTLET EVASE RECOMMENDED FOR
O.V. GREATER THAN 5500 F.P.M.

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FAN SIZE	A	B	C	D	E	F	G	H	J	K
245	15½	18	20½	23	27¼		29½	25	31½	17
270	17	20	22½	25¼	30		32½	28	34½	18½
300	19	22	25	28	33¼		36	30	38½	20½
330	21	24¼	27½	31	36¼		39½	33	41¼	23
365	23	27	30½	34¼	39¼		43½	36	47	25¼
402	25¼	29½	33½	37½	43		48	40	51½	28
445	28	32½	37¼	41½	47		53	44	57	30½
490	31	36	41	46	51¼		58½	48	62½	33½
542	34	39½	45¼	50½	56		65	53	69¼	37¼
600	38	44	50	56	57		71½	59	76½	40¼
660	41½	48¼	55	61½	62½		79	64	84¼	45¼
730	46	53¼	61	68	68½		87	71	93¼	50

**TYPE RB-26 FANS
ARRANGEMENT 3
SW & DW**

NOTE:
OUTLET EVASE RECOMMENDED FOR
Q.V. GREATER THAN 5500 FPM.

