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AF SERIES CENTRIFUGAL FANS

SOUND POWER LEVELS

Licensed to bear the AMCA Seal for Sound and Air Performance

**Bulletin 355A-S
Issue April 1993**



Sheldons Engineering certifies that the AF Series fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. For air performance data refer to catalogue 355A.

INTRODUCTION

This bulletin is a supplement to Sheldons' fan selection program and catalogue 355A. Because of speed and user friendliness, sound power data should be obtained using the fan selection program if possible; identical results will be obtained regardless of which source is used.

This bulletin uses procedures in accordance with AMCA Standards. Tests have been conducted using AMCA Standard 300, Figure #3, Fan Outlet Sound Testing. Sound power level ratings are in decibels, referred to 10^{-12} watts calculated per AMCA Standard 301. "Methods for Calculating Fan Sound Ratings from Laboratory Test Data". Values shown are for outlet sound power levels (L_{wo}) for installation type 'B', free inlet, ducted outlet. Ratings include the effect of duct end correction.

In order to use this bulletin the user must understand two concepts, that of specific sound power and VP/SP as follows:

Specific sound power is the means by which a fan's overall sound can be reduced to a set of base numbers which still represent the "signature" of the original fan. This is provided in the form of decibels produced from a fan delivering one CFM at one inch pressure over a frequency range of eight octave bands. In order to predict the sound of another geometrically similar fan, the specific sound power level spectrum for that type of fan and its operating point location on the fan curve is found. The acoustic energy corresponding to the new fan is added back into the "base signature". This acoustic energy is called the "capacity fraction L_{wf} ". Therefore, the general equation is:

$L_{wo} = L_{wko} + L_{wf}$ Where: L_{wo} = Outlet sound power of fan

L_{wko} = Outlet specific sound power for a particular fan design

L_{wf} = Capacity fraction which is $10 \log (\text{CFM}) + 20 \log (\text{pressure})$

The specific sound power of a fan changes with operating point location on the fan curve. Therefore, a means must be devised to identify the specific sound power levels which correspond to the operating point for which sound is being desired. This is done using the term VP/SP in that regardless of speed, fan size or density the VP/SP ratio remains constant and defines the same corresponding operating point for the base fan as well as the new fan.

The capacity fraction (L_{wf}) and VP/SP ratio can easily be found using Tables I and II. It is important to note that the VP/SP ratio requires both the VP and SP values to be at the same density. Because it is necessary that SP values be known at standard conditions in order to use catalogue 355A, it is convenient to determine the VP/SP ratio at standard conditions using Table I. However, the acoustic energy (capacity fraction L_{wf}) is a function of the SP at the actual operating conditions of the new fan. Therefore, use the SP corresponding to the actual operating conditions in Table II or you will obtain the wrong values of sound power.

SAMPLE CALCULATION

This bulletin is a supplement to the air performance catalogue 355A. The sample calculation which follows is a continuation of the sample selection located on page 9 of 355A.

A size AF45 SWSI fan must deliver 34,230 CFM ($16.15 \text{ m}^3/\text{sec}$) at 3 inches Wg. (746 Pa) static pressure. The fan must perform at an altitude of 2000-feet (610 m) with air entering the fan inlet at 400°F (204.4°C).

1. DETERMINE THE AERODYNAMIC RATING

The aerodynamic rating is found using the procedures found on page 8 of catalogue 355A. The final rating at actual operating conditions is:

34,230 CFM ($16.15 \text{ m}^3/\text{sec}$), 3" Wg. (746 Pa) static pressure, 1035 RPM and 21.87 HP (16.34 kW).

2. DETERMINE THE VP/SP RATIO

From page 19 of catalogue 355A, the outlet velocity may be read directly from the catalogue or calculated using the outlet area provided at the top of the page. The outlet area is 11.41 sq. ft. (1.06 m^2).

$$\text{Outlet velocity} = \frac{34,230 \text{ CFM } (16.15 \text{ m}^3/\text{sec})}{11.41 \text{ sq. ft. } (1.06 \text{ m}^2)} = 3000 \text{ ft/min.}$$

The SP at standard conditions is 5.25" Wg. (1305.5 Pa).

From Table I, for 3000, ft/min and 5.0" Wg., the VP/SP is .11.

3. DETERMINE THE CAPACITY FRACTION (L_{wf})

The static pressure at the actual operating conditions is 3" Wg. By interpolation of the CFM of 34,230, the L_{wf} is 55dB.

4. DETERMINE THE SPECIFIC SOUND POWER (L_{wko}) FOR THE FAN SIZE AND SPEED DESIRED.

The fan will run at 1035 RPM and operate at a VP/SP of .11. For the listed speed NEAREST the desired speed and INTERPOLATING for values of VP/SP, determine the values of L_{wko} .

For a speed of 1000 RPM and a VP/SP of .11, the values of L_{wko} are:

| OCTAVE BAND | | | | | | | |
|-------------|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 52 | 46 | 38 | 36 | 33 | 26 | 22 | 18 |

5. DETERMINE OUTLET SOUND POWER LEVELS (L_{wo}) dB re 10^{-12} Watts

| OCTAVE BAND | | | | | | | | |
|-------------|-----|-----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| L_{wki} | 52 | 46 | 38 | 36 | 33 | 26 | 22 | 18 |
| L_{wf} | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| L_{wo} | 107 | 101 | 93 | 91 | 88 | 81 | 77 | 73 |

VP/SP RATIO TABLE I
Standard Conditions

| Velocity | Static Pressure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|-----------------|-----|-----|------|-----|-----|------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 6 1/2 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | | | | | |
| 600 | .09 | .06 | .04 | .04 | .03 | .03 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | | | |
| 800 | .16 | .11 | .08 | .06 | .05 | .05 | .04 | .03 | .03 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | |
| 1000 | .25 | .17 | .12 | .10 | .08 | .07 | .06 | .05 | .04 | .03 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 1200 | .36 | .24 | .18 | .14 | .12 | .10 | .09 | .07 | .06 | .04 | .04 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 1400 | .49 | .33 | .24 | .20 | .16 | .14 | .12 | .10 | .08 | .06 | .05 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 1600 | .64 | .43 | .32 | .26 | .21 | .18 | .16 | .13 | .11 | .08 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 1800 | .81 | .54 | .40 | .32 | .27 | .23 | .20 | .16 | .13 | .10 | .08 | .07 | .06 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .03 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 2000 | 1.00 | .67 | .50 | .40 | .33 | .29 | .25 | .20 | .17 | .12 | .10 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 2200 | | .80 | .60 | .48 | .40 | .34 | .30 | .24 | .20 | .15 | .12 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .05 | .04 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 2400 | | .96 | .72 | .57 | .48 | .41 | .36 | .29 | .24 | .18 | .14 | .12 | .10 | .09 | .08 | .07 | .06 | .06 | .05 | .04 | .04 | .04 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 | .01 |
| 2600 | | | .84 | .67 | .56 | .48 | .42 | .34 | .28 | .21 | .17 | .14 | .12 | .11 | .09 | .08 | .07 | .06 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 |
| 2800 | | | .98 | .78 | .65 | .56 | .49 | .39 | .33 | .24 | .20 | .16 | .14 | .12 | .11 | .10 | .09 | .08 | .08 | .07 | .06 | .05 | .05 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 |
| 3000 | | | | .90 | .75 | .64 | .56 | .45 | .37 | .28 | .22 | .19 | .16 | .14 | .12 | .11 | .10 | .09 | .09 | .08 | .07 | .06 | .06 | .05 | .04 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 |
| 3200 | | | | 1.00 | .85 | .73 | .64 | .51 | .43 | .32 | .26 | .21 | .18 | .16 | .14 | .13 | .12 | .11 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | |
| 3400 | | | | | .96 | .82 | .72 | .58 | .48 | .36 | .29 | .24 | .21 | .18 | .16 | .14 | .13 | .12 | .11 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | |
| 3600 | | | | | | .92 | .81 | .65 | .54 | .40 | .32 | .27 | .23 | .20 | .18 | .16 | .15 | .13 | .12 | .12 | .10 | .09 | .08 | .07 | .06 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | |
| 3800 | | | | | | | .90 | .72 | .60 | .45 | .36 | .30 | .26 | .23 | .20 | .18 | .16 | .15 | .14 | .13 | .11 | .10 | .09 | .08 | .06 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | |
| 4000 | | | | | | | 1.00 | .80 | .67 | .50 | .40 | .33 | .29 | .25 | .22 | .20 | .18 | .17 | .15 | .14 | .12 | .11 | .10 | .08 | .07 | .06 | .06 | .05 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | |
| 4200 | | | | | | | | .88 | .73 | .55 | .44 | .37 | .31 | .28 | .24 | .22 | .20 | .18 | .17 | .16 | .14 | .12 | .11 | .09 | .08 | .07 | .06 | .06 | .05 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 |
| 4400 | | | | | | | | .97 | .80 | .60 | .48 | .40 | .34 | .30 | .27 | .24 | .22 | .20 | .19 | .17 | .15 | .13 | .12 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .03 | .03 | .03 |
| 4600 | | | | | | | | .88 | .66 | .53 | .44 | .38 | .33 | .29 | .26 | .24 | .22 | .20 | .19 | .16 | .15 | .13 | .11 | .09 | .08 | .07 | .07 | .06 | .05 | .05 | .05 | .04 | .04 | .04 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 |
| 4800 | | | | | | | | .96 | .72 | .57 | .48 | .41 | .36 | .32 | .29 | .26 | .24 | .22 | .21 | .18 | .16 | .14 | .12 | .10 | .09 | .08 | .07 | .07 | .06 | .06 | .05 | .05 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 |
| 5000 | | | | | | | | .78 | .62 | .52 | .45 | .39 | .35 | .31 | .28 | .26 | .24 | .22 | .19 | .17 | .16 | .13 | .11 | .10 | .09 | .08 | .07 | .06 | .06 | .05 | .05 | .05 | .05 | .05 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 | .04 |
| 5200 | | | | | | | | .84 | .67 | .56 | .48 | .42 | .37 | .34 | .31 | .28 | .26 | .24 | .21 | .19 | .17 | .14 | .12 | .11 | .09 | .08 | .08 | .07 | .06 | .06 | .06 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 | .05 |
| 5400 | | | | | | | | .91 | .73 | .61 | .52 | .45 | .40 | .36 | .33 | .30 | .28 | .26 | .23 | .20 | .18 | .15 | .13 | .11 | .10 | .09 | .08 | .08 | .07 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 |
| 5600 | | | | | | | | .98 | .78 | .65 | .56 | .49 | .43 | .39 | .36 | .33 | .30 | .28 | .24 | .22 | .20 | .16 | .14 | .12 | .11 | .10 | .09 | .08 | .08 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 |
| 5800 | | | | | | | | | .84 | .70 | .60 | .52 | .47 | .42 | .38 | .35 | .32 | .30 | .26 | .23 | .21 | .17 | .15 | .13 | .12 | .10 | .10 | .09 | .08 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 |
| 6000 | | | | | | | | .90 | .75 | .64 | .56 | .50 | .45 | .41 | .37 | .35 | .32 | .28 | .25 | .22 | .19 | .16 | .14 | .12 | .11 | .10 | .09 | .09 | .08 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 | .07 |

CAPACITY FRACTION (L_w) TABLE II

| CFM | Static Pressure at Operating Conditions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|---|-----|-----|-----|-----|-----|----|-------|-------|----|-------|----|-------|----|-------|----|-------|----|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 6 1/2 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | | |
| 100 | 8 | 11 | 14 | 16 | 18 | 19 | 20 | 22 | 24 | 26 | 28 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 36 | 37 | 38 | 39 | 40 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 48 | 49 | 50 | 50 | 51 | 51 | 52 | 52 | 53 | 54 |
| 150 | 10 | 13 | 16 | 18 | 19 | 21 | 22 | 24 | 25 | 28 | 30 | 31 | 33 | 34 | 35 | 36 | 37 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 45 | 46 | 47 | 48 | 49 | 49 | 50 | 51 | 51 | 52 | 52 | 53 | 53 | 54 | 54 | 55 |
| 200 | 11 | 14 | 17 | 19 | 21 | 22 | 23 | 25 | 27 | 29 | 31 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 39 | 40 | 41 | 42 | 43 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 51 | 52 | 53 | 53 | 54 | 54 | 55 | 55 | 55 | 55 |
| 300 | 13 | 16 | 19 | 21 | 22 | 24 | 25 | 27 | 28 | 31 | 33 | 34 | 36 | 37 | 38 | 39 | 40 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 48 | 49 | 50 | 51 | 52 | 52 | 53 | 54 | 54 | 55 | 55 | 56 | 56 | 56 | 57 | 57 |
| 500 | 15 | 18 | 21 | 23 | 24 | 26 | 27 | 29 | 31 | 33 | 35 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 43 | 44 | 45 | 46 | 47 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 55 | 56 | 57 | 57 | 58 | 58 | 59 | 59 | 59 | 59 |
| 750 | 17 | 20 | 23 | 25 | 26 | 28 | 29 | 31 | 32 | 35 | 37 | 38 | 40 | 41 | 42 | 43 | 44 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 52 | 53 | 54 | 55 | 56 | 56 | 57 | 58 | 58 | 59 | 59 | 60 | 60 | 61 | 61 | |
| 1000 | 18 | 21 | 24 | 26 | 28 | 29 | 30 | 32 | 34 | 36 | 38 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 46 | 47 | 48 | 49 | 50 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 58 | 59 | 60 | 60 | 61 | 61 | 62 | 62 | 62 | 62 |
| 1500 | 20 | 23 | 26 | 28 | 29 | 31 | 32 | 34 | 35 | 38 | 40 | 41 | 43 | 44 | 45 | 46 | 47 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 61 | 62 | 62 | 63 | 63 | 64 | 64 | 65 | 65 |
| 2000 | 21 | 24 | 27 | 29 | 31 | 32 | 33 | 35 | 37 | 39 | 41 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 49 | 50 | 51 | 52 | 53 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 63 | 64 | 64 | 65 | 65 | 66 | 66 | 66 |
| 3000 | 23 | 26 | 29 | 31 | 32 | 34 | 35 | 37 | 38 | 41 | 43 | 44 | 46 | 47 | 48 | 49 | 50 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 64 | 65 | 65 | 66 | 66 | 67 | 67 | 68 | 68 |
| 5000 | 25 | 28 | 31 | 33 | 34 | 36 | 37 | 39 | 41 | 43 | 45 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 53 | 54 | | | | | | | | | | | | | | | | | | | | |

OUTLET SPECIFIC SOUND POWER LEVELS IN DECIBELS REFERRED TO 10⁻¹² WATTS (L_{wko})

Size AF18 - AF24 SW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 500 | 41 | 35 | 33 | 31 | 30 | 26 | 22 | 18 | 40 | 33 | 30 | 28 | 27 | 23 | 19 | 15 | 44 | 38 | 35 | 31 | 30 | 27 | 24 | 21 | 49 | 43 | 40 | 37 | 34 | 33 | 32 | 31 | 54 | 48 | 46 | 42 | 40 | 38 | 36 | 34 | 58 | 53 | 50 | 46 | 44 | 43 | 42 | 41 | | | | | | | |
| 600 | 41 | 36 | 33 | 31 | 30 | 27 | 23 | 19 | 40 | 35 | 31 | 28 | 27 | 24 | 20 | 16 | 44 | 39 | 36 | 32 | 30 | 28 | 25 | 22 | 49 | 44 | 41 | 38 | 35 | 33 | 32 | 31 | 54 | 49 | 46 | 43 | 40 | 38 | 36 | 34 | 58 | 54 | 51 | 47 | 44 | 43 | 42 | 41 | | | | | | | |
| 800 | 42 | 39 | 34 | 32 | 31 | 29 | 25 | 21 | 41 | 38 | 32 | 29 | 28 | 26 | 22 | 18 | 45 | 42 | 37 | 34 | 31 | 29 | 26 | 23 | 50 | 47 | 42 | 39 | 36 | 34 | 33 | 32 | 55 | 52 | 47 | 45 | 41 | 39 | 37 | 35 | 59 | 56 | 52 | 49 | 45 | 44 | 43 | 42 | | | | | | | |
| 1000 | 42 | 41 | 35 | 33 | 31 | 30 | 26 | 22 | 42 | 40 | 33 | 30 | 28 | 27 | 23 | 19 | 45 | 44 | 38 | 35 | 31 | 30 | 27 | 24 | 51 | 49 | 43 | 40 | 37 | 34 | 33 | 32 | 56 | 54 | 48 | 46 | 42 | 40 | 38 | 36 | 59 | 58 | 53 | 50 | 46 | 44 | 43 | 42 | | | | | | | |
| 1200 | 45 | 41 | 36 | 33 | 31 | 30 | 27 | 23 | 45 | 40 | 35 | 31 | 28 | 27 | 24 | 20 | 48 | 44 | 39 | 36 | 32 | 30 | 28 | 25 | 54 | 49 | 44 | 41 | 38 | 35 | 33 | 32 | 59 | 54 | 49 | 46 | 43 | 40 | 38 | 36 | 62 | 58 | 54 | 51 | 47 | 44 | 43 | 42 | | | | | | | |
| 1500 | 48 | 42 | 38 | 34 | 32 | 31 | 28 | 24 | 49 | 41 | 37 | 32 | 29 | 28 | 25 | 21 | 52 | 45 | 41 | 37 | 33 | 31 | 29 | 26 | 58 | 50 | 46 | 42 | 39 | 36 | 34 | 33 | 62 | 55 | 51 | 47 | 44 | 41 | 39 | 37 | 65 | 59 | 55 | 52 | 48 | 45 | 44 | 43 | | | | | | | |
| 1800 | 51 | 42 | 40 | 35 | 33 | 31 | 29 | 25 | 53 | 42 | 39 | 32 | 30 | 28 | 26 | 22 | 56 | 45 | 43 | 37 | 34 | 31 | 29 | 26 | 61 | 51 | 48 | 42 | 39 | 36 | 34 | 33 | 65 | 56 | 53 | 48 | 45 | 42 | 40 | 38 | 68 | 59 | 57 | 52 | 49 | 46 | 44 | 43 | | | | | | | |
| 2100 | 53 | 43 | 41 | 35 | 33 | 31 | 30 | 26 | 55 | 43 | 40 | 33 | 30 | 28 | 27 | 23 | 58 | 46 | 44 | 38 | 35 | 31 | 30 | 27 | 63 | 52 | 49 | 43 | 40 | 37 | 34 | 33 | 67 | 57 | 54 | 48 | 46 | 42 | 40 | 38 | 70 | 60 | 58 | 53 | 50 | 46 | 44 | 43 | | | | | | | |
| 2400 | 53 | 45 | 41 | 36 | 33 | 31 | 30 | 27 | 55 | 45 | 40 | 35 | 31 | 28 | 27 | 24 | 58 | 48 | 44 | 39 | 36 | 32 | 30 | 28 | 63 | 54 | 49 | 44 | 41 | 38 | 35 | 33 | 67 | 59 | 54 | 49 | 46 | 43 | 40 | 38 | 70 | 62 | 58 | 54 | 51 | 47 | 44 | 43 | | | | | | | |
| 3000 | 53 | 48 | 42 | 38 | 34 | 32 | 31 | 28 | 55 | 49 | 41 | 37 | 32 | 29 | 28 | 25 | 58 | 52 | 45 | 41 | 37 | 33 | 31 | 29 | 63 | 58 | 50 | 46 | 42 | 39 | 36 | 34 | 67 | 62 | 55 | 51 | 47 | 44 | 41 | 39 | 70 | 65 | 59 | 55 | 52 | 48 | 45 | 44 | | | | | | | |
| 3600 | 53 | 51 | 42 | 40 | 35 | 33 | 31 | 29 | 55 | 53 | 42 | 39 | 32 | 30 | 28 | 26 | 58 | 56 | 45 | 43 | 37 | 34 | 31 | 29 | 63 | 61 | 51 | 48 | 42 | 39 | 36 | 34 | 67 | 65 | 56 | 53 | 48 | 45 | 42 | 40 | 70 | 68 | 59 | 57 | 52 | 49 | 46 | 44 | | | | | | | |

Size AF27 - AF33 SW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 300 | 36 | 31 | 27 | 23 | 21 | 19 | 17 | 15 | 35 | 29 | 24 | 20 | 18 | 16 | 14 | 12 | 40 | 34 | 30 | 25 | 22 | 19 | 16 | 13 | 45 | 39 | 35 | 30 | 26 | 23 | 20 | 17 | 52 | 45 | 41 | 37 | 33 | 28 | 23 | 18 | 56 | 50 | 46 | 43 | 41 | 35 | 29 | 23 | | | | | | | |
| 400 | 39 | 33 | 29 | 25 | 22 | 19 | 17 | 15 | 38 | 31 | 26 | 22 | 19 | 16 | 14 | 12 | 43 | 36 | 32 | 27 | 24 | 21 | 18 | 15 | 48 | 41 | 37 | 32 | 28 | 25 | 22 | 19 | 55 | 47 | 43 | 39 | 35 | 30 | 25 | 20 | 57 | 52 | 48 | 44 | 42 | 37 | 31 | 25 | | | | | | | |
| 500 | 42 | 34 | 30 | 26 | 22 | 20 | 18 | 16 | 41 | 33 | 27 | 23 | 19 | 17 | 15 | 13 | 46 | 38 | 33 | 28 | 24 | 21 | 18 | 15 | 49 | 43 | 38 | 33 | 29 | 25 | 22 | 19 | 56 | 50 | 44 | 40 | 36 | 31 | 26 | 21 | 58 | 54 | 49 | 45 | 42 | 39 | 33 | 27 | | | | | | | |
| 600 | 44 | 36 | 31 | 27 | 23 | 21 | 19 | 17 | 44 | 35 | 29 | 24 | 20 | 18 | 16 | 14 | 48 | 40 | 34 | 30 | 25 | 22 | 19 | 16 | 51 | 45 | 39 | 35 | 30 | 26 | 23 | 20 | 57 | 52 | 45 | 41 | 37 | 33 | 28 | 23 | 60 | 56 | 50 | 46 | 43 | 41 | 35 | 29 | | | | | | | |
| 800 | 46 | 39 | 33 | 29 | 25 | 22 | 19 | 17 | 47 | 38 | 31 | 26 | 22 | 19 | 16 | 14 | 51 | 43 | 36 | 32 | 27 | 24 | 21 | 18 | 53 | 48 | 41 | 37 | 32 | 28 | 25 | 22 | 59 | 55 | 47 | 43 | 39 | 35 | 30 | 25 | 62 | 57 | 52 | 48 | 44 | 42 | 37 | 31 | | | | | | | |
| 1000 | 47 | 42 | 34 | 30 | 26 | 22 | 20 | 18 | 48 | 41 | 33 | 27 | 23 | 19 | 17 | 15 | 52 | 46 | 38 | 33 | 28 | 24 | 21 | 18 | 54 | 49 | 43 | 38 | 33 | 29 | 25 | 22 | 60 | 56 | 50 | 44 | 40 | 36 | 31 | 26 | 62 | 58 | 54 | 49 | 45 | 42 | 39 | 33 | | | | | | | |
| 1200 | 48 | 44 | 36 | 31 | 27 | 23 | 21 | 19 | 49 | 44 | 35 | 29 | 24 | 20 | 18 | 16 | 53 | 48 | 40 | 34 | 30 | 25 | 22 | 19 | 56 | 51 | 45 | 39 | 35 | 30 | 26 | 23 | 61 | 57 | 52 | 45 | 41 | 37 | 33 | 28 | 63 | 60 | 56 | 50 | 46 | 43 | 41 | 35 | | | | | | | |
| 1500 | 48 | 46 | 38 | 32 | 28 | 24 | 21 | 19 | 50 | 46 | 37 | 31 | 25 | 21 | 18 | 16 | 54 | 50 | 43 | 36 | 31 | 26 | 23 | 20 | 57 | 52 | 47 | 41 | 36 | 31 | 27 | 24 | 62 | 58 | 54 | 47 | 42 | 38 | 34 | 29 | 64 | 61 | 57 | 52 | 47 | 43 | 42 | 37 | | | | | | | |
| 1800 | 48 | 47 | 41 | 34 | 29 | 25 | 22 | 20 | 50 | 47 | 40 | 32 | 27 | 22 | 19 | 17 | 54 | 51 | 45 | 37 | 32 | 28 | 24 | 21 | 57 | 54 | 49 | 42 | 37 | 33 | 28 | 25 | 62 | 59 | 55 | 49 | 43 | 39 | 35 | 31 | 64 | 62 | 58 | 53 | 48 | 44 | 42 | 38 | | | | | | | |
| 2100 | 48 | 47 | 43 | 35 | 30 | 26 | 23 | 20 | 50 | 48 | 42 | 33 | 28 | 23 | 20 | 17 | 54 | 52 | 47 | 39 | 33 | 29 | 25 | 22 | 57 | 55 | 50 | 44 | 38 | 34 | 29 | 26 | 62 | 60 | 56 | 51 | 44 | 40 | 36 | 32 | 64 | 63 | 59 | 54 | 49 | 45 | 43 | 39 | | | | | | | |
| 2400 | 48 | 48 | 44 | 36 | 31 | 27 | 23 | 21 | 50 | 49 | 44 | 35 | 29 | 24 | 20 | 18 | 54 | 53 | 48 | 40 | 34 | 30 | 25 | 22 | 57 | 56 | 51 | 45 | 39 | 35 | 30 | 26 | 62 | 61 | 57 | 52 | 45 | 41 | 37 | 33 | 64 | 63 | 60 | 56 | 50 | 46 | 43 | 41 | | | | | | | |
| 3000 | 48 | 48 | 46 | 38 | 32 | 28 | 24 | 21 | 50 | 50 | 46 | 37 | 31 | 25 | 21 | 18 | 54 | 54 | 50 | 43 | 36 | 31 | 26 | 23 | 57 | 57 | 52 | 47 | 41 | 36 | 31 | 27 | 62 | 62 | 58 | 54 | 47 | 42 | 38 | 34 | 64 | 64 | 61 | 57 | 52 | 47 | 43 | 42 | | | | | | | |

Size AF37 - AF81 SW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|------|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 200 | 35 | 32 | 29 | 25 | 21 | 17 | 13 | 9 | 33 | 30 | 26 | 22 | 18 | 14 | 10 | 6 | 37 | 35 | 30 | 24 | 20 | 16 | 12 | 8 | 40 | 38 | 33 | 27 | 23 | 19 | 15 | 11 | 44 | 42 | 37 | 31 | 27 | 23 | 19 | 15 | 50 | 47 | 43 | 38 | 34 | 30 | 26 | 22 | | | | | | | |
| 300 | 37 | 34 | 31 | 27 | 24 | 20 | 16 | 12 | 37 | 32 | 29 | 24 | 21 | 17 | 13 | 9 | 40 | 36 | 34 | 27 | 23 | 19 | 15 | 11 | 43 | 39 | 37 | 30 | 26 | 22 | 18 | 14 | 47 | 43 | 41 | 34 | 30 | 26 | 22 | 18 | 52 | 49 | 46 | 41 | 37 | 33 | 29 | 25 | | | | | | | |
| 400 | 40 | 35 | 32 | 29 | 25 | 21 | 17 | 13 | 40 | 33 | 30 | 26 | 22 | 18 | 14 | 10 | 43 | 37 | 35 | 30 | 24 | 20 | 16 | 12 | 47 | 40 | 38 | 33 | 27 | 23 | 19 | 15 | 50 | 44 | 42 | 37 | 31 | 27 | 23 | 19 | 55 | 50 | 47 | 43 | 38 | 34 | 30 | 26 | | | | | | | |
| 500 | 43 | 36 | 33 | 31 | 26 | 23 | 19 | 15 | 43 | 35 | 31 | 28 | 23 | 20 | 16 | 12 | 46 | 38 | 36 | 33 | 26 | 22 | 18 | 14 | 49 | 41 | 39 | 36 | 29 | 25 | 21 | 17 | 53 | 45 | 43 | 40 | 33 | 29 | 25 | 21 | 58 | 51 | 48 | 45 | 40 | 36 | 32 | 28 | | | | | | | |
| 600 | 44 | 37 | 34 | 31 | 27 | 24 | 20 | 16 | 44 | 37 | 32 | 29 | 24 | 21 | 17 | 13 | 47 | 40 | 36 | 34 | 27 | 23 | 19 | 15 | 50 | 43 | 39 | 37 | 30 | 26 | 22 | 18 | 54 | 47 | 43 | 41 | 34 | 30 | 26 | 22 | 59 | 52 | 49 | 46 | 41 | 37 | 33 | 29 | | | | | | | |
| 700 | 45 | 39 | 34 | 32 | 28 | 24 | 21 | 17 | 45 | 39 | 33 | 29 | 25 | 21 | 18 | 14 | 48 | 42 | 37 | 34 | 29 | 24 | 20 | 16 | 51 | 45 | 40 | 37 | 32 | 27 | 23 | 19 | 55 | 49 | 44 | 41 | 36 | 31 | 27 | 23 | 59 | 54 | 49 | 46 | 42 | 38 | 34 | 30 | | | | | | | |
| 800 | 45 | 41 | 35 | 32 | 29 | 25 | 21 | 17 | 47 | 40 | 33 | 30 | 26 | 22 | 18 | 14 | 50 | 43 | 37 | 35 | 30 | 24 | 20 | 16 | 53 | 47 | 40 | 38 | 33 | 27 | 23 | 19 | 55 | 50 | 44 | 42 | 37 | 31 | 27 | 23 | 60 | 56 | 50 | 47 | 43 | 38 | 34 | 30 | | | | | | | |
| 1000 | 47 | 43 | 36 | 33 | 31 | 26 | 23 | 19 | 49 | 43 | 35 | 31 | 28 | 23</ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

OUTLET SPECIFIC SOUND POWER LEVELS IN DECIBELS REFERRED TO 10⁻¹² WATTS (L_{wko})

Size AF18 - AF24 DW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|----|----|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 500 | 44 | 39 | 35 | 33 | 29 | 26 | 24 | 22 | 43 | 37 | 32 | 30 | 26 | 23 | 21 | 19 | 45 | 39 | 34 | 31 | 27 | 24 | 21 | 18 | 47 | 43 | 37 | 33 | 29 | 24 | 20 | 16 | 53 | 48 | 43 | 40 | 36 | 31 | 24 | 17 | 59 | 54 | 49 | 46 | 42 | 36 | 30 | 24 | | | | | | | |
| 600 | 43 | 42 | 35 | 34 | 30 | 26 | 24 | 22 | 42 | 41 | 33 | 31 | 27 | 23 | 21 | 19 | 44 | 43 | 35 | 33 | 29 | 25 | 22 | 19 | 46 | 46 | 39 | 35 | 30 | 26 | 22 | 18 | 52 | 51 | 44 | 42 | 38 | 32 | 25 | 18 | 58 | 57 | 50 | 48 | 43 | 38 | 32 | 26 | | | | | | | |
| 800 | 41 | 46 | 36 | 35 | 32 | 27 | 25 | 23 | 41 | 45 | 34 | 32 | 29 | 24 | 22 | 20 | 43 | 47 | 36 | 34 | 30 | 26 | 23 | 20 | 45 | 49 | 40 | 36 | 32 | 27 | 23 | 19 | 51 | 55 | 45 | 43 | 39 | 35 | 28 | 21 | 57 | 61 | 51 | 49 | 45 | 40 | 34 | 28 | | | | | | | |
| 1000 | 43 | 44 | 39 | 35 | 33 | 29 | 26 | 24 | 44 | 43 | 37 | 32 | 30 | 26 | 23 | 21 | 46 | 45 | 39 | 34 | 31 | 27 | 24 | 21 | 18 | 48 | 47 | 43 | 37 | 33 | 29 | 24 | 20 | 53 | 53 | 48 | 43 | 40 | 36 | 31 | 24 | 59 | 59 | 54 | 49 | 46 | 42 | 36 | 30 | | | | | | |
| 1200 | 45 | 43 | 42 | 35 | 34 | 30 | 26 | 24 | 46 | 42 | 41 | 33 | 31 | 27 | 23 | 21 | 47 | 44 | 43 | 35 | 33 | 29 | 25 | 22 | 19 | 49 | 46 | 46 | 39 | 35 | 30 | 26 | 22 | 55 | 52 | 51 | 44 | 42 | 38 | 32 | 25 | 61 | 58 | 57 | 50 | 48 | 43 | 38 | 32 | | | | | | |
| 1500 | 47 | 41 | 45 | 35 | 35 | 32 | 27 | 25 | 49 | 41 | 44 | 33 | 32 | 29 | 24 | 22 | 50 | 43 | 46 | 35 | 34 | 30 | 26 | 23 | 19 | 52 | 45 | 49 | 40 | 36 | 32 | 27 | 23 | 57 | 51 | 54 | 44 | 43 | 39 | 35 | 28 | 63 | 57 | 60 | 50 | 49 | 45 | 40 | 34 | | | | | | |
| 1800 | 47 | 42 | 45 | 37 | 35 | 33 | 28 | 25 | 49 | 43 | 44 | 36 | 32 | 30 | 25 | 22 | 50 | 45 | 46 | 38 | 34 | 31 | 27 | 24 | 19 | 52 | 47 | 48 | 42 | 37 | 33 | 28 | 24 | 57 | 52 | 54 | 46 | 43 | 40 | 36 | 30 | 63 | 58 | 60 | 52 | 49 | 46 | 41 | 35 | | | | | | |
| 2100 | 47 | 44 | 44 | 40 | 35 | 33 | 29 | 26 | 49 | 45 | 43 | 38 | 32 | 30 | 26 | 23 | 50 | 46 | 45 | 40 | 34 | 32 | 28 | 24 | 19 | 52 | 48 | 47 | 44 | 38 | 34 | 29 | 25 | 57 | 54 | 53 | 49 | 43 | 41 | 37 | 31 | 63 | 60 | 59 | 55 | 49 | 47 | 42 | 37 | | | | | | |
| 2400 | 47 | 45 | 43 | 42 | 35 | 34 | 30 | 26 | 49 | 46 | 42 | 41 | 33 | 31 | 27 | 23 | 50 | 47 | 44 | 43 | 35 | 33 | 29 | 25 | 19 | 52 | 49 | 46 | 46 | 39 | 35 | 30 | 26 | 57 | 55 | 52 | 51 | 44 | 42 | 38 | 32 | 63 | 61 | 58 | 57 | 50 | 48 | 43 | 38 | | | | | | |
| 3000 | 47 | 47 | 41 | 45 | 35 | 35 | 32 | 27 | 49 | 49 | 41 | 44 | 33 | 32 | 29 | 24 | 50 | 50 | 43 | 46 | 35 | 34 | 30 | 26 | 19 | 52 | 52 | 45 | 49 | 40 | 36 | 32 | 27 | 57 | 57 | 51 | 54 | 44 | 43 | 39 | 35 | 63 | 63 | 63 | 57 | 60 | 50 | 49 | 45 | 40 | | | | | |
| 3600 | 47 | 47 | 42 | 45 | 37 | 35 | 33 | 28 | 49 | 49 | 43 | 44 | 36 | 32 | 30 | 25 | 50 | 50 | 45 | 46 | 38 | 34 | 31 | 27 | 19 | 52 | 52 | 47 | 48 | 42 | 37 | 33 | 28 | 57 | 57 | 52 | 54 | 46 | 43 | 40 | 36 | 63 | 63 | 58 | 60 | 52 | 49 | 46 | 41 | | | | | | |

Size AF27 - AF33 DW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 300 | 37 | 32 | 32 | 29 | 23 | 19 | 15 | 11 | 35 | 30 | 29 | 26 | 20 | 16 | 12 | 8 | 38 | 33 | 30 | 27 | 22 | 18 | 14 | 10 | 43 | 37 | 34 | 31 | 26 | 22 | 18 | 14 | 48 | 43 | 40 | 36 | 31 | 27 | 23 | 19 | 54 | 49 | 46 | 43 | 38 | 34 | 30 | 26 | | | | | | | |
| 400 | 38 | 33 | 32 | 30 | 25 | 21 | 17 | 13 | 37 | 31 | 29 | 27 | 22 | 18 | 14 | 10 | 40 | 34 | 31 | 29 | 24 | 20 | 16 | 12 | 44 | 39 | 36 | 33 | 28 | 24 | 20 | 16 | 49 | 44 | 41 | 38 | 33 | 29 | 25 | 21 | 56 | 50 | 47 | 45 | 40 | 36 | 32 | 28 | | | | | | | |
| 500 | 37 | 35 | 32 | 31 | 27 | 22 | 18 | 14 | 37 | 33 | 29 | 28 | 24 | 19 | 15 | 11 | 40 | 36 | 32 | 29 | 25 | 21 | 17 | 13 | 44 | 41 | 36 | 33 | 29 | 25 | 21 | 17 | 49 | 46 | 42 | 39 | 34 | 30 | 26 | 22 | 56 | 52 | 48 | 45 | 41 | 37 | 33 | 29 | | | | | | | |
| 600 | 37 | 37 | 32 | 32 | 29 | 23 | 19 | 15 | 36 | 35 | 30 | 29 | 26 | 20 | 16 | 12 | 40 | 38 | 33 | 30 | 27 | 22 | 18 | 14 | 45 | 43 | 37 | 34 | 31 | 26 | 22 | 18 | 50 | 48 | 43 | 40 | 36 | 31 | 27 | 23 | 55 | 54 | 49 | 46 | 43 | 38 | 34 | 30 | | | | | | | |
| 800 | 37 | 38 | 33 | 32 | 30 | 25 | 21 | 17 | 37 | 37 | 31 | 29 | 27 | 22 | 18 | 14 | 41 | 40 | 34 | 31 | 29 | 24 | 20 | 16 | 46 | 44 | 39 | 36 | 33 | 28 | 24 | 20 | 51 | 49 | 44 | 41 | 38 | 33 | 29 | 25 | 57 | 56 | 50 | 47 | 45 | 40 | 36 | 32 | | | | | | | |
| 1000 | 39 | 37 | 35 | 32 | 31 | 27 | 22 | 18 | 40 | 37 | 33 | 29 | 28 | 24 | 19 | 15 | 44 | 40 | 36 | 32 | 29 | 25 | 21 | 17 | 48 | 44 | 41 | 36 | 33 | 29 | 25 | 21 | 53 | 49 | 46 | 42 | 39 | 34 | 30 | 26 | 59 | 56 | 52 | 48 | 45 | 41 | 37 | 33 | | | | | | | |
| 1200 | 41 | 37 | 37 | 32 | 32 | 29 | 23 | 19 | 42 | 36 | 35 | 30 | 29 | 26 | 20 | 16 | 46 | 40 | 38 | 33 | 30 | 27 | 22 | 18 | 50 | 45 | 43 | 37 | 34 | 31 | 26 | 22 | 55 | 50 | 48 | 43 | 40 | 36 | 31 | 27 | 62 | 55 | 54 | 49 | 46 | 43 | 38 | 34 | | | | | | | |
| 1500 | 42 | 37 | 38 | 33 | 32 | 30 | 25 | 20 | 44 | 37 | 37 | 31 | 29 | 27 | 22 | 17 | 48 | 41 | 40 | 34 | 31 | 28 | 23 | 19 | 51 | 46 | 44 | 39 | 35 | 32 | 27 | 23 | 56 | 51 | 49 | 44 | 41 | 37 | 32 | 28 | 64 | 56 | 56 | 50 | 47 | 44 | 39 | 35 | | | | | | | |
| 1800 | 42 | 38 | 38 | 34 | 32 | 31 | 26 | 21 | 44 | 39 | 37 | 32 | 29 | 28 | 23 | 18 | 48 | 43 | 40 | 35 | 32 | 29 | 25 | 20 | 15 | 47 | 44 | 40 | 36 | 33 | 29 | 24 | 56 | 52 | 49 | 45 | 42 | 38 | 34 | 29 | 64 | 58 | 56 | 51 | 48 | 45 | 41 | 36 | | | | | | | |
| 2100 | 42 | 39 | 37 | 35 | 32 | 31 | 27 | 22 | 44 | 41 | 37 | 34 | 30 | 28 | 24 | 19 | 48 | 45 | 40 | 37 | 32 | 30 | 26 | 21 | 15 | 48 | 44 | 41 | 37 | 34 | 30 | 25 | 56 | 53 | 49 | 46 | 42 | 39 | 35 | 30 | 64 | 60 | 56 | 53 | 48 | 46 | 42 | 37 | | | | | | | |
| 2400 | 42 | 41 | 37 | 37 | 32 | 32 | 29 | 23 | 44 | 42 | 36 | 35 | 30 | 29 | 26 | 20 | 48 | 46 | 40 | 38 | 33 | 30 | 27 | 22 | 15 | 50 | 45 | 43 | 37 | 34 | 31 | 26 | 56 | 55 | 50 | 48 | 43 | 40 | 36 | 31 | 64 | 62 | 55 | 54 | 49 | 46 | 43 | 38 | | | | | | | |
| 3000 | 42 | 42 | 37 | 38 | 33 | 32 | 30 | 25 | 44 | 44 | 37 | 37 | 31 | 29 | 27 | 22 | 48 | 48 | 41 | 40 | 34 | 31 | 28 | 23 | 15 | 51 | 46 | 44 | 39 | 35 | 32 | 27 | 56 | 56 | 51 | 49 | 44 | 41 | 37 | 32 | 64 | 64 | 56 | 56 | 50 | 47 | 44 | 39 | | | | | | | |

Size AF37 - AF81 DW

| RPM | VP/SP = .03 | | | | | | | | VP/SP = .05 | | | | | | | | VP/SP = .10 | | | | | | | | VP/SP = .20 | | | | | | | | VP/SP = .40 | | | | | | | | VP/SP = .80 | | | | | | | | | | | | | | |
|------|-------------|----|----|----|------|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 200 | 35 | 33 | 32 | 29 | 24 | 20 | 16 | 12 | 34 | 31 | 29 | 26 | 21 | 17 | 13 | 9 | 36 | 33 | 31 | 28 | 23 | 19 | 15 | 11 | 41 | 39 | 37 | 33 | 29 | 24 | 19 | 14 | 45 | 43 | 41 | 37 | 34 | 28 | 22 | 16 | 50 | 48 | 46 | 42 | 39 | 33 | 27 | 21 | | | | | | | |
| 300 | 41 | 34 | 33 | 31 | 27 | 22 | 18 | 14 | 40 | 33 | 30 | 28 | 24 | 19 | 15 | 11 | 42 | 35 | 32 | 30 | 26 | 21 | 17 | 13 | 47 | 40 | 38 | 35 | 31 | 27 | 22 | 17 | 52 | 44 | 42 | 39 | 36 | 32 | 26 | 20 | 56 | 49 | 47 | 44 | 41 | 37 | 31 | 25 | | | | | | | |
| 400 | 45 | 35 | 33 | 32 | 29 | 24 | 20 | 16 | 45 | 34 | 31 | 29 | 26 | 21 | 17 | 13 | 47 | 36 | 33 | 31 | 28 | 23 | 19 | 15 | 52 | 41 | 39 | 37 | 33 | 29 | 24 | 19 | 57 | 45 | 43 | 41 | 37 | 34 | 28 | 22 | 61 | 50 | 48 | 46 | 42 | 39 | 33 | 27 | | | | | | | |
| 500 | 43 | 38 | 34 | 32 | 30 | 26 | 21 | 17 | 43 | 38 | 32 | 30 | 27 | 23 | 18 | 14 | 46 | 40 | 34 | 32 | 29 | 25 | 20 | 16 | 51 | 45 | 40 | 38 | 34 | 30 | 26 | 21 | 54 | 49 | 44 | 42 | 38 | 35 | 30 | 24 | 60 | 54 | 49 | 47 | 43 | 40 | 35 | 29 | | | | | | | |
| 600 | 41 | 41 | 34 | 33 | 31 | 27 | 22 | 18 | 42 | 40 | 33 | 30 | 28 | 24 | 19 | 15 | 45 | 42 | 35 | 32 | 30 | 26 | 21 | 17 | 50 | 47 | 40 | 38 | 35 | 31 | 27 | 22 | 53 | 52 | 44 | 42 | 39 | 36 | 32 | 26 | 59 | 56 | 49 | 47 | 44 | 41 | 37 | 31 | | | | | | | |
| 700 | 39 | 43 | 35 | 33 | 31 | 28 | 23 | 19 | 41 | 43 | 33 | 31 | 28 | 25 | 20 | 16 | 45 | 45 | 35 | 33 | 30 | 27 | 22 | 18 | 50 | 50 | 41 | 39 | 36 | 32 | 28 | 23 | 53 | 55 | 45 | 43 | 40 | 36 | 33 | 27 | 58 | 59 | 50 | 48 | 45 | 41 | 38 | 32 | | | | | | | |
| 800 | 38 | 45 | 35 | 33 | 32 | 29 | 24 | 20 | 40 | 45 | 34 | 31 | 29 | 26 | 21 | 17 | 44 | 47 | 36 | 33 | 31 | 28 | 23 | 19 | 49 | 52 | 41 | 39 | 37 | 33 | 29 | 24 | 52 | 57 | 45 | 43 | 41 | 37 | 34 | 28 | 57 | 61 | 50 | 48 | 46 | 42 | 39 | 33 | | | | | | | |
| 1000 | 38 | 43 | 38 | 34 | 32</ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |