

INDUSTRIAL UNIFOIL BACKWARD CURVE





SIZES: 12" - 89" Wheel Diameter

CLASS: I, II, III and IV

PERFORMANCE: 1,500 to 200,000 cfm

and up to 12" SP.

APPLICATION: Light to heavy industrial. Processes or HVAC systems. Optional high heat design for applications.

ARRANGEMENT: 1, 3, 8 and 9. **DESIGN**: Robust design with a reinforcing exterior ribs for added stiffness. SWSI and DWDI designs are

both available.



sales@sheldonsengineering.com 1-800-265-3572

3000 SERIES





Sheldons Engineering Product Index

www.sheldonsengineering.com

VENTILATING CENTRIFUGAL FAN with BACKWARD CURVED BLADES –3000 GENERAL

The centrifugal fan shall be designed and manufactured by Sheldons Engineering to ensure smooth operation. Fan wheel shall be single thickness airfoil-Unifoil™ as shown in plans with all steel construction. Unless otherwise directed, fan arrangement, motor location, support base, rotation and discharge are as shown on the layout drawings.

PERFORMANCE

Fan ratings shall be based on tests made in accordance with AMCA Standard 210. Flow shall be actual volumetric flow at the fan inlet. Fan static pressure is defined as static pressure at fan outlet less total pressure at fan inlet. Standard inlet density is to be taken as 0.75 lb/ft³ with corrections for temperature, elevation, inlet static pressure, gas composition and humidity as defined in the schedule. Fans shall be selected to operate to the right of the peak static pressure at the given speed to ensure stable performance. Fan brake horsepower shall be equal to or less than specified at the given flow and fan static pressure.

SOUND

Fan manufacturers shall provide sound power level ratings for fans tested and rated in accordance with AMCA Standards 300 and 301. Sound power ratings shall be in decibels (reference 10-12 watts) in eight octave bands. Sound power levels will be corrected for installation by the specifying engineer...dBA or sound pressure levels only are not acceptable.

CONSTRUCTION

Fan housings are to be heavy – per chart below, continuously welded construction with flanged and punched outlet. Housings with lock seams or spot welded construction are not acceptable.

Fan Size	Class I & II	Class III & IV	
122-200	12 gauge (0.1046" or 2.66 mm)	10 gauge	
222-365	10 gauge (0.1345" or 3.42 mm)	10 gauge	
405-730	10 gauge (0.1345" or 3.42 mm)	7 gauge	
805-890	7 gauge (0.1875" or 4.76 mm)	7 gauge	

BEARINGS (belt driven fans)

Bearings are to be heavy duty, grease lubricated, precision anti-friction spherical roller, self-aligning pillow block design. Bearings shall be designed for a minimum L-10 life of AMCA Class I: 15,000, AMCA Class II: 40,000, AMCA Class III: 100,000, Class IV 200,000 when rated at the fan's maximum cataloged operating speed for the given class.

SHAFT (belt driven fans)

Shafts are to be ASTM A-108 steel, grade 1040/1045, precision turned, ground and polished. Grade 1018 steel is not acceptable. The shaft's first critical speed shall be at least 143% of the fan's maximum operating speed.



Sheldons Engineering Product Index

www.sheldonsengineering.com

VENTILATING CENTRIFUGAL FAN with BACKWARD CURVED BLADES -3000

PAINT

All fan surfaces are to be thoroughly prepared prior to painting using a combination of washing and hand and power tool cleaning as required in SSPC-SP-3. After cleaning, all surfaces are to be coated with industrial grade alkyd enamel. Surfaces of bolted components not accessible after assembly shall be coated and allowed to dry prior to final assembly. Primer only will not be accepted.

BALANCE & INSPECTION

All fans shall be precision balanced to ISO quality grade 2.5, report to be submitted with the maintenance manual. A final inspection by a qualified inspector prior to shipment is required to include: scope of supply confirmation, balance, welding, dimensions, bearings, duct and base connection points, paint finish and overall workmanship.

ACCESSORIES

Accessories shall be provided as called for in the plans and specifications. Standard accessories include:

Motor to be NEMA Design B 3/60/460-575V-1800 rpm, high efficiency TEFC 1.15 SF V-Belt Drives - Variable Speed/Constant Speed with min 1.5 SF Belt Guard or weather cover required Extended lubrication lines (nylon, copper or stainless steel) with fittings terminating in an accessible area.

Additional Features that may be required:

Split pillow block bearings

Access Door – bolted/quick opening or plug type with raised door

Companion Flange (angle companion flange bolted to the fan inlet or outlet flange)

Inlet or Outlet screen heavy gauge wire on 2" centres OSHA standard is also available

Above 300°F, Shaft cooling wheel required

Above 500°F, high temperature aluminum paint required

Above 800°F, stainless steel rotor is required

Above 1000°F, custom design is available

Vibration Isolation - Spring - Rubber-In-Shear

Inlet box

Inlet box dampers

Unitary base

Inertia base with vibration isolators

Spark Resistant Construction -

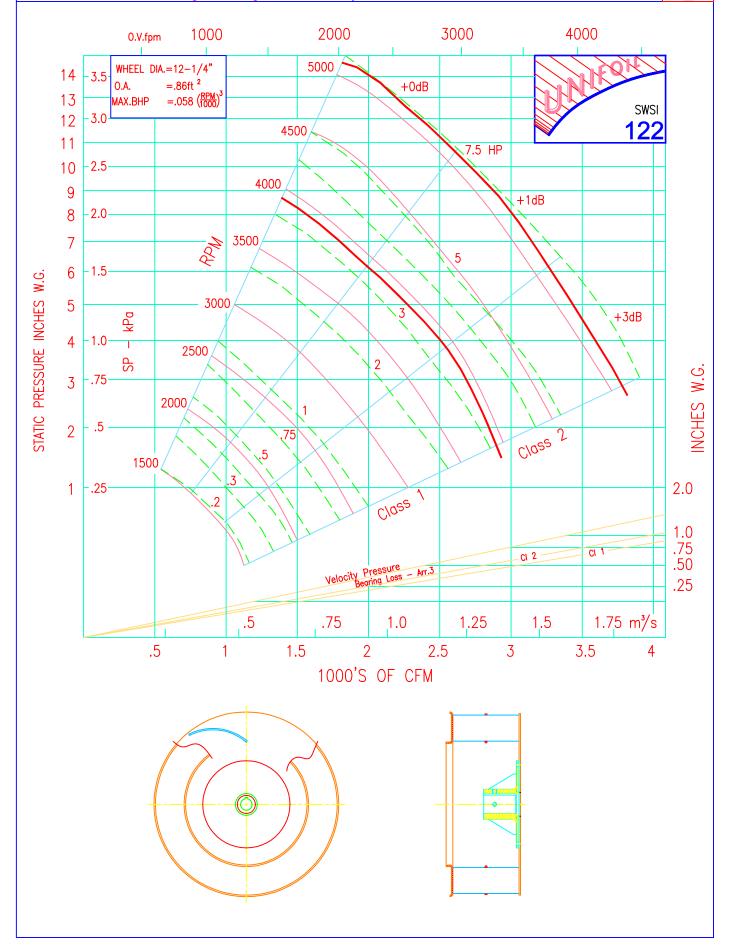
AMCA "A" All parts of the fan in contact with the air stream non-ferrous material AMCA "B" Non-ferrous wheel and aluminum rubbing ring where shaft passes through Housing with shaft seal

AMCA "C" Aluminum inlet cone and Aluminum rubbing ring

Variable inlet vanes

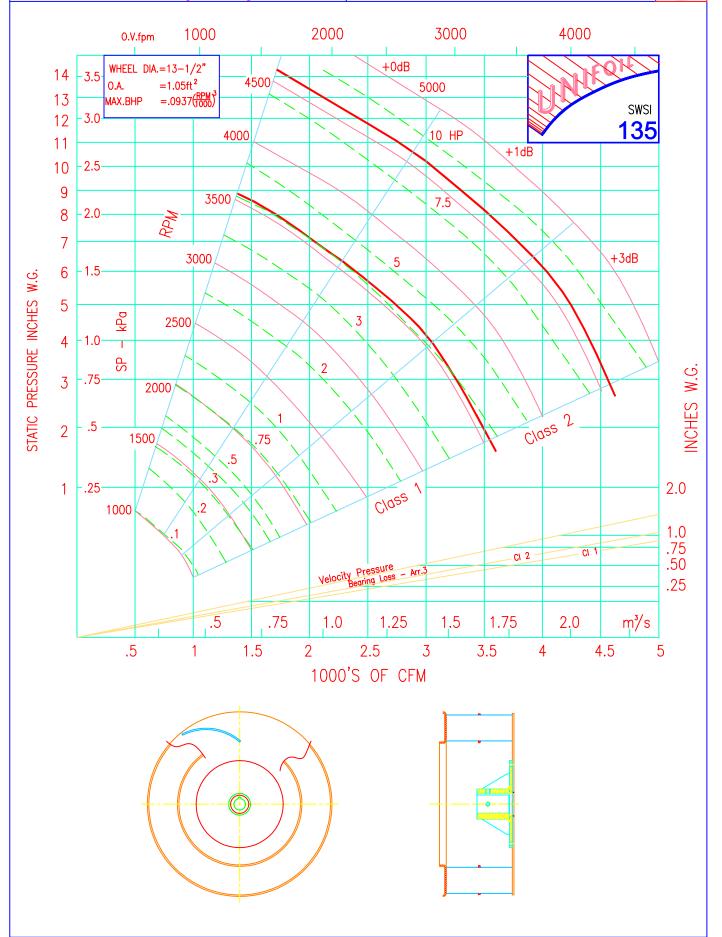
www.sheldonsengineering.com





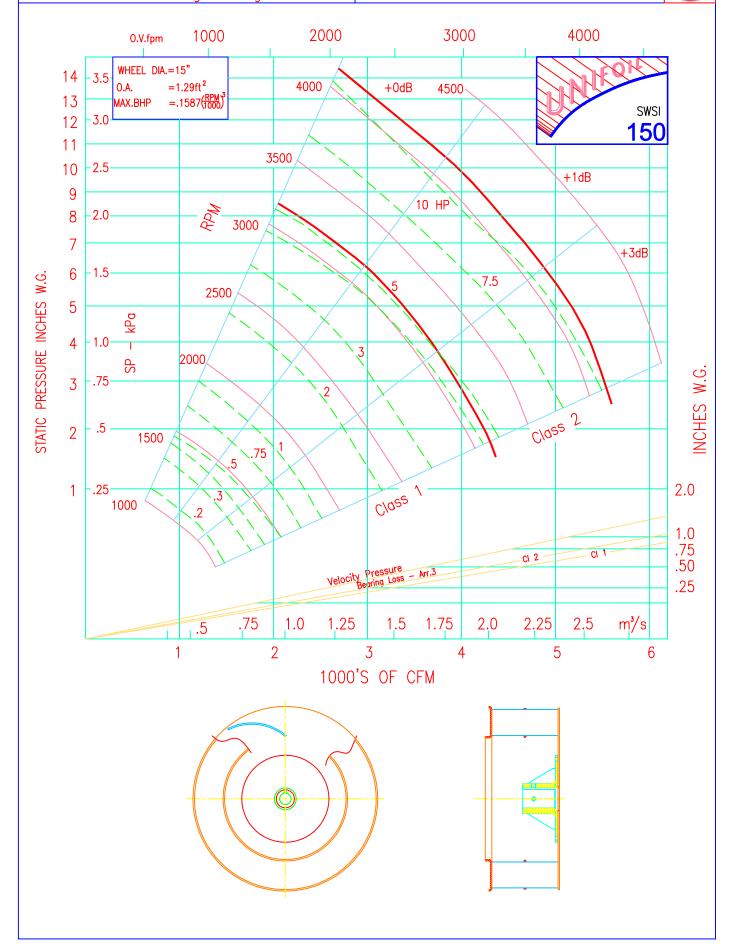
www.sheldonsengineering.com





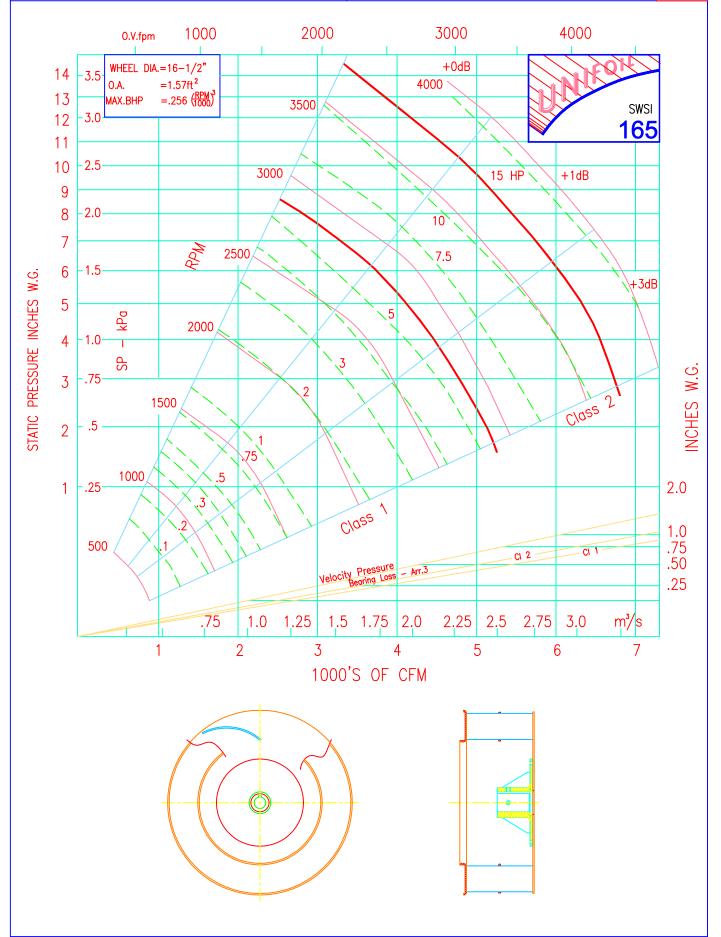
www.sheldonsengineering.com





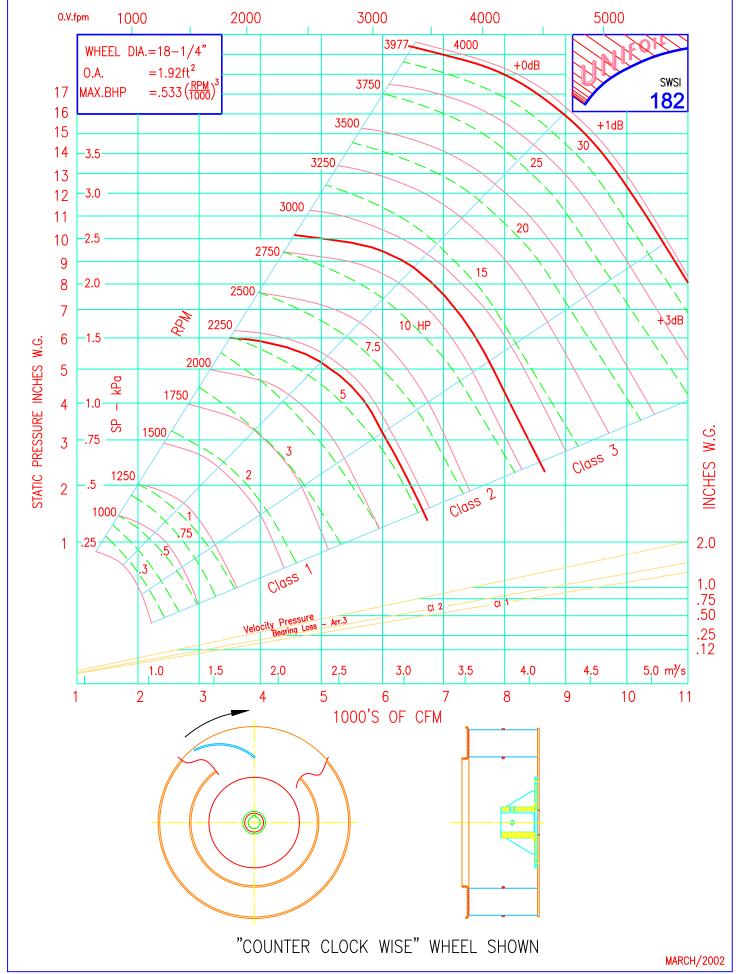
www.sheldonsengineering.com

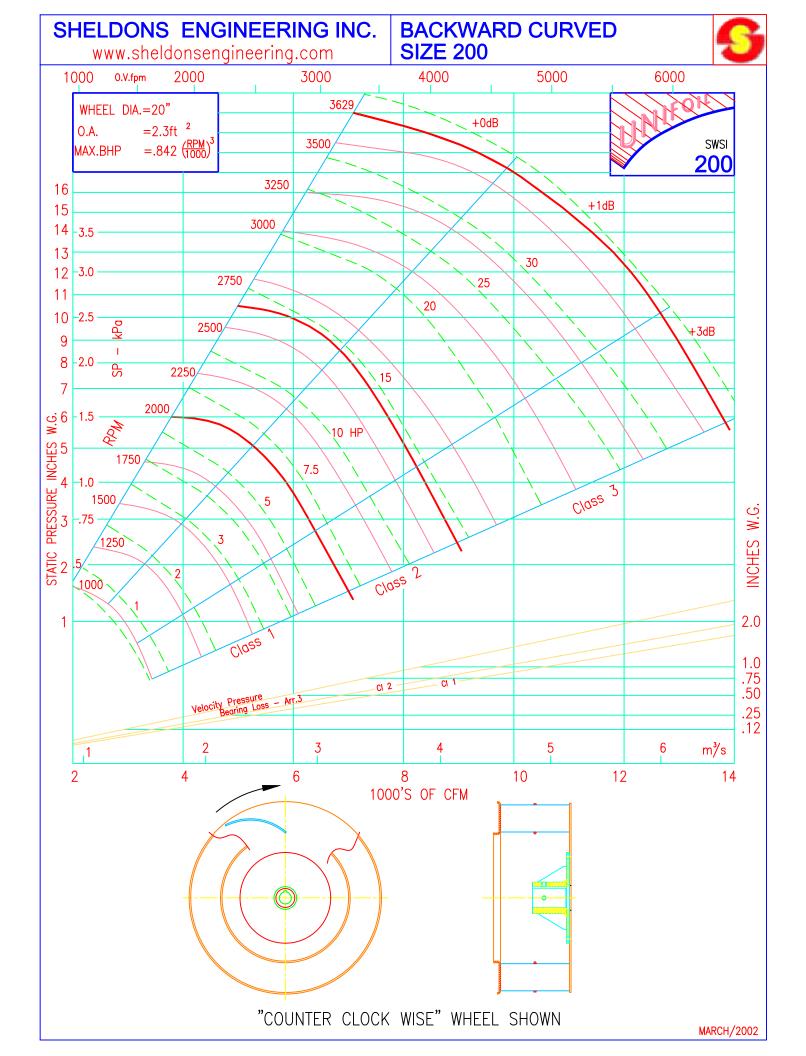


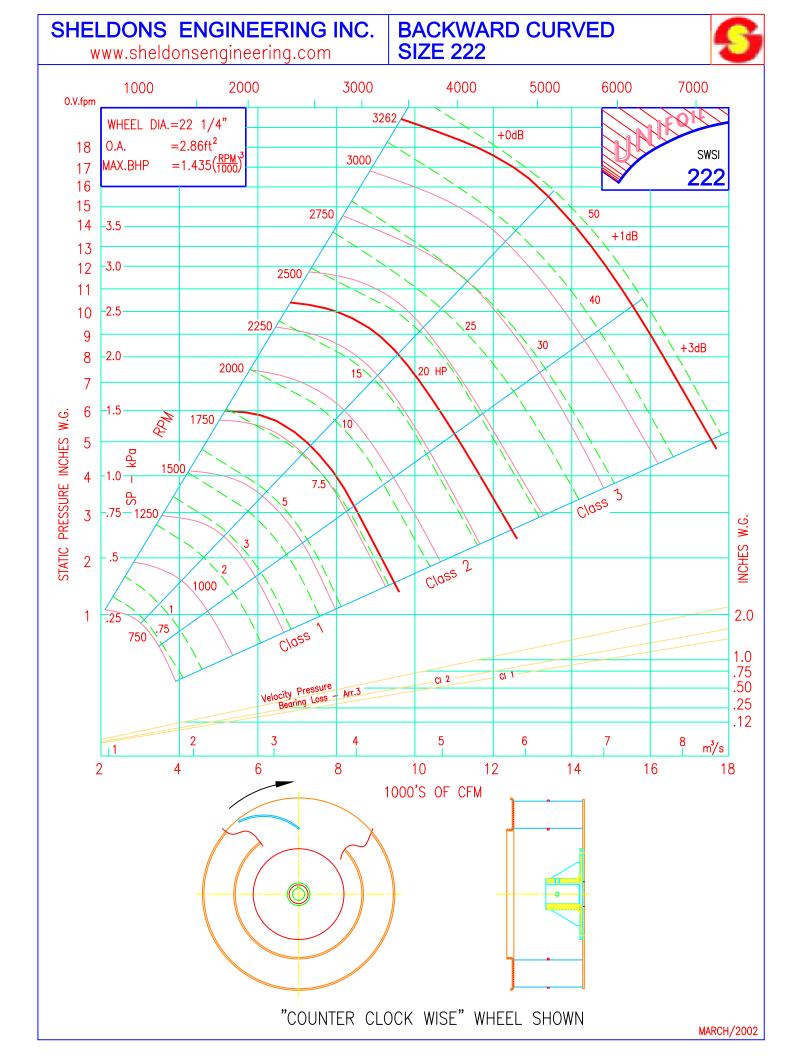


www.sheldonsengineering.com



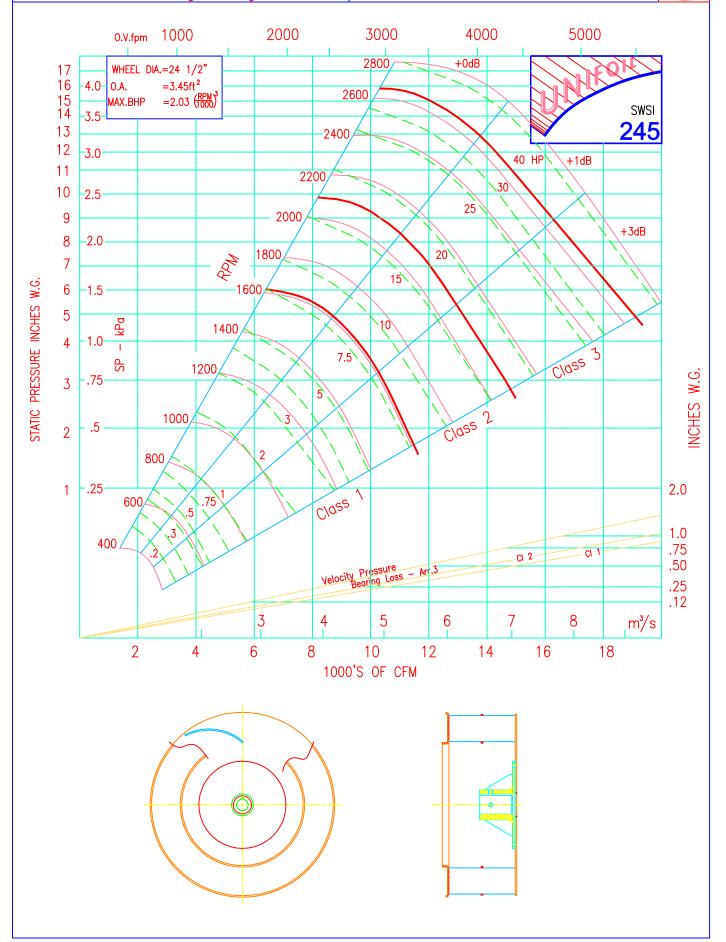






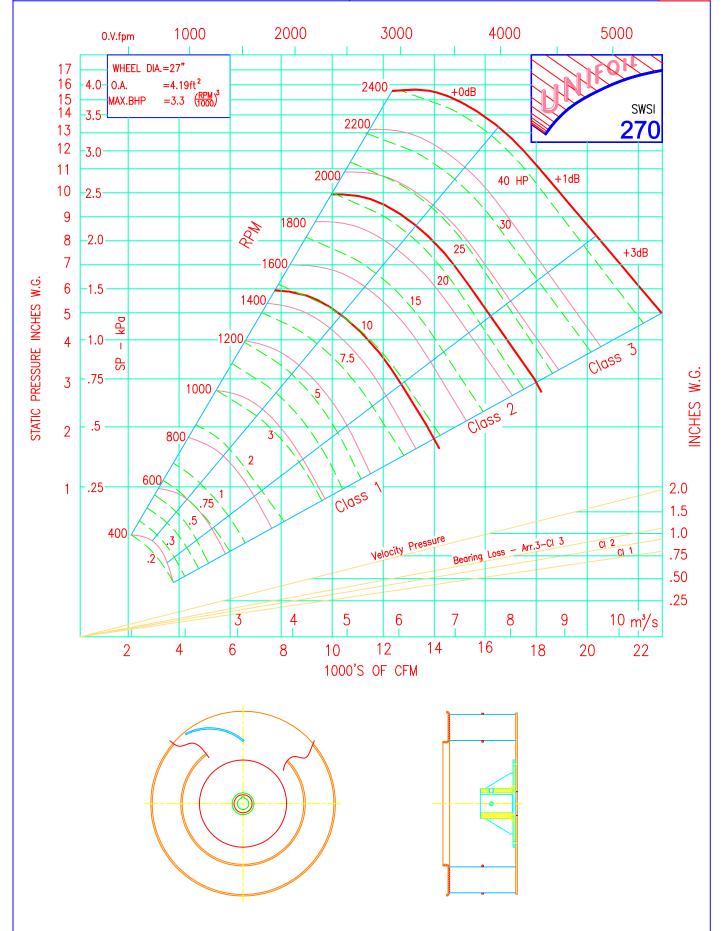
www.sheldonsengineering.com





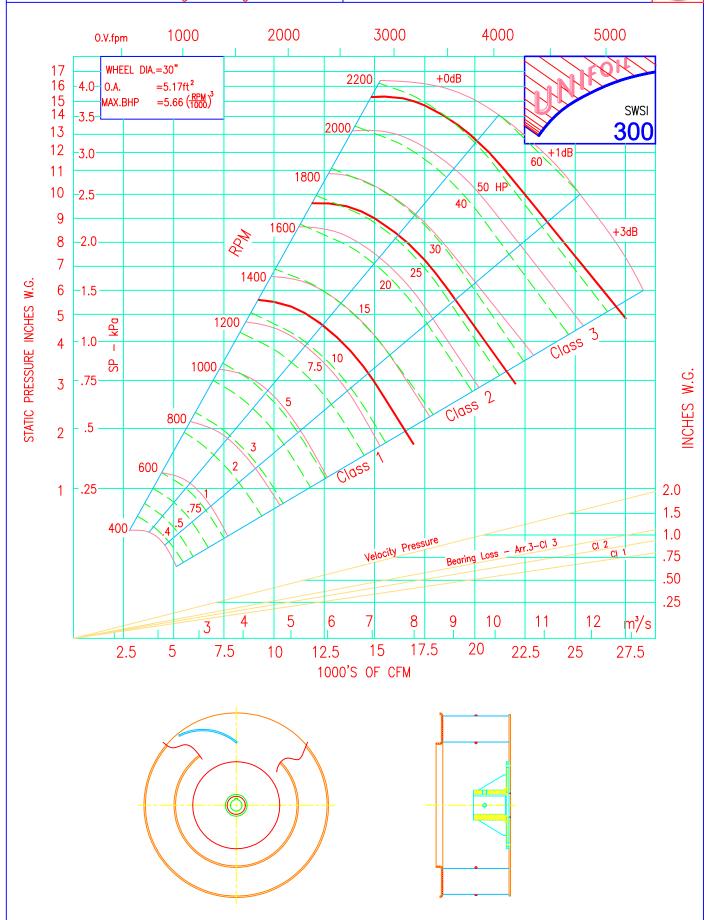
www.sheldonsengineering.com





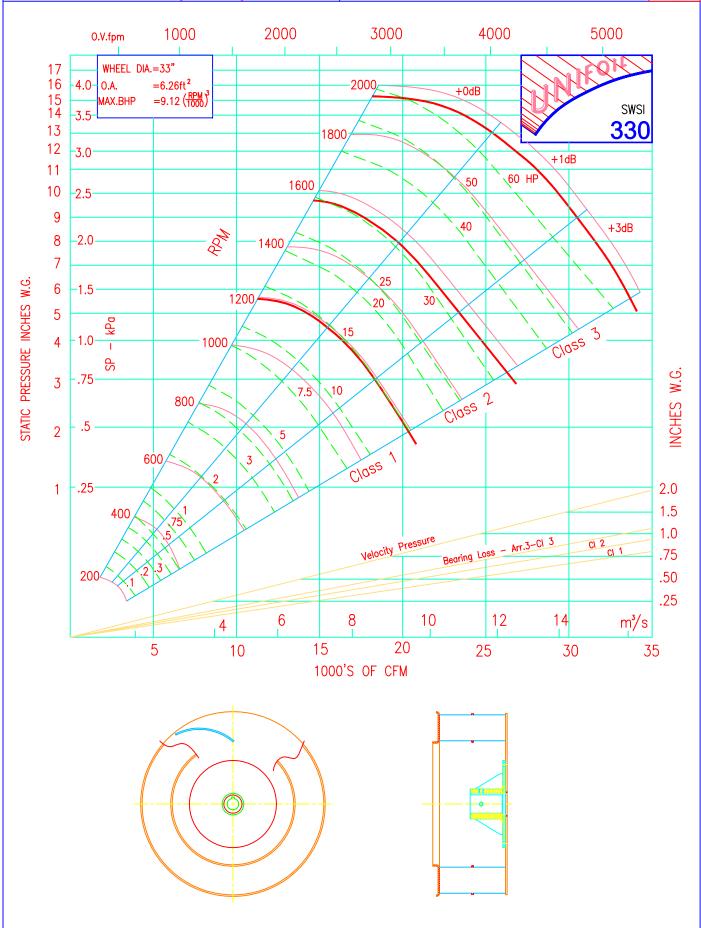
www.sheldonsengineering.com





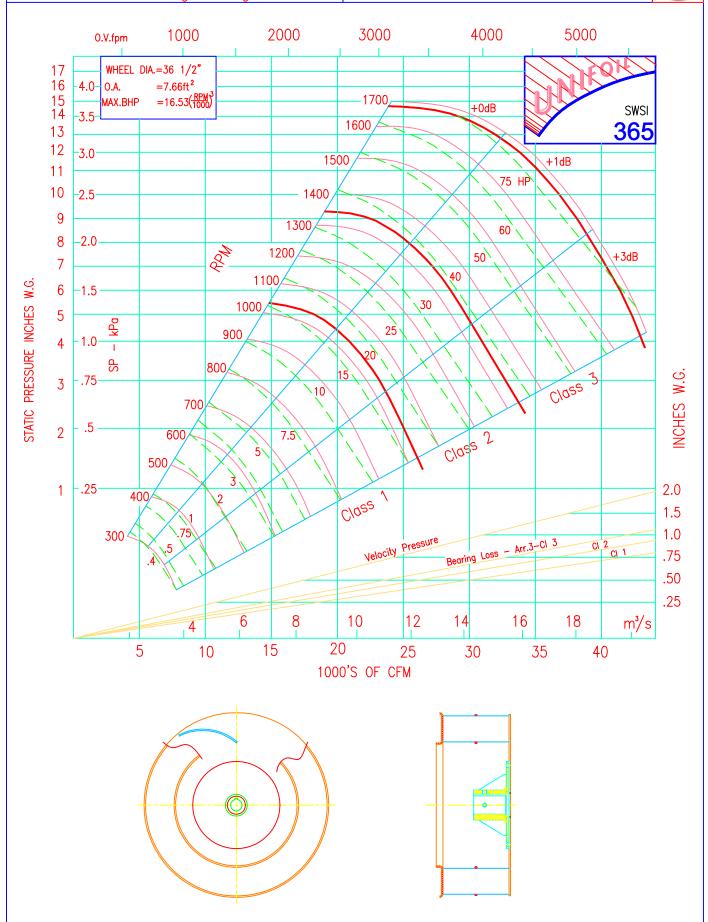
www.sheldonsengineering.com





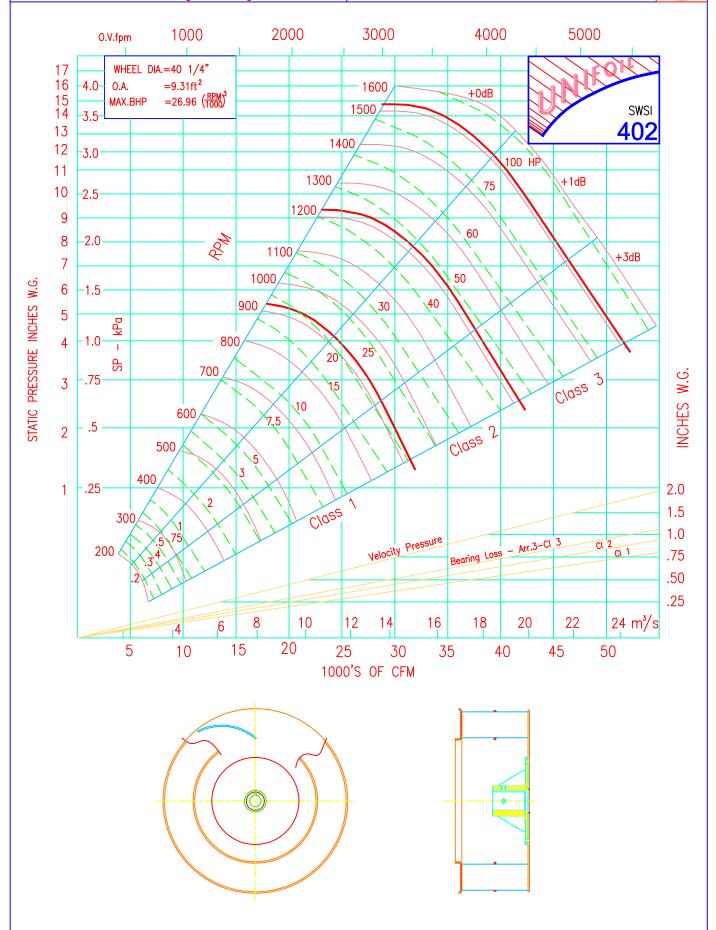
www.sheldonsengineering.com





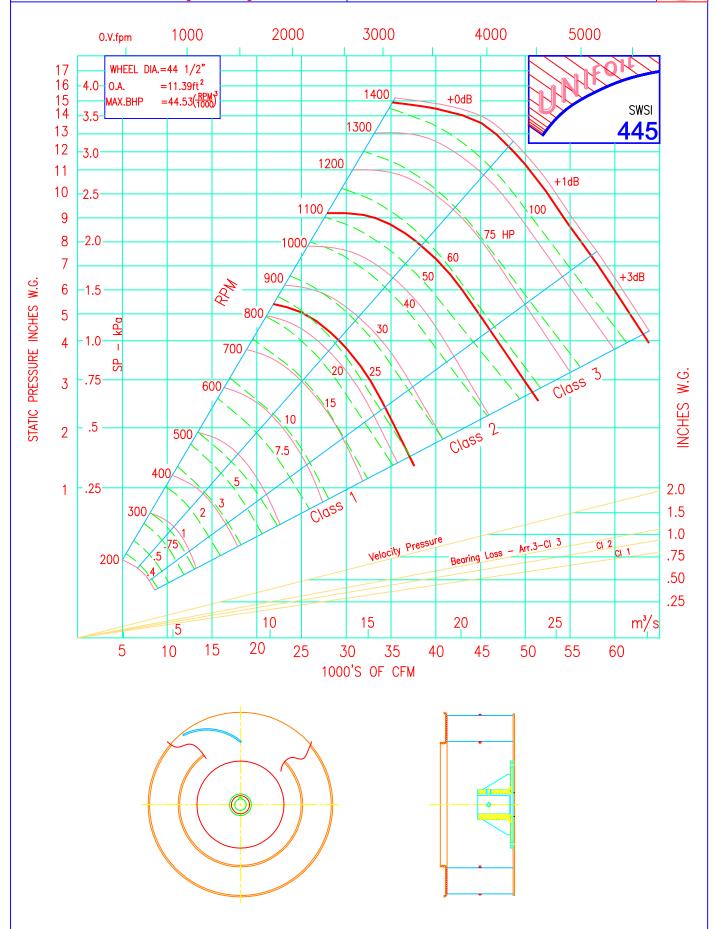
www.sheldonsengineering.com





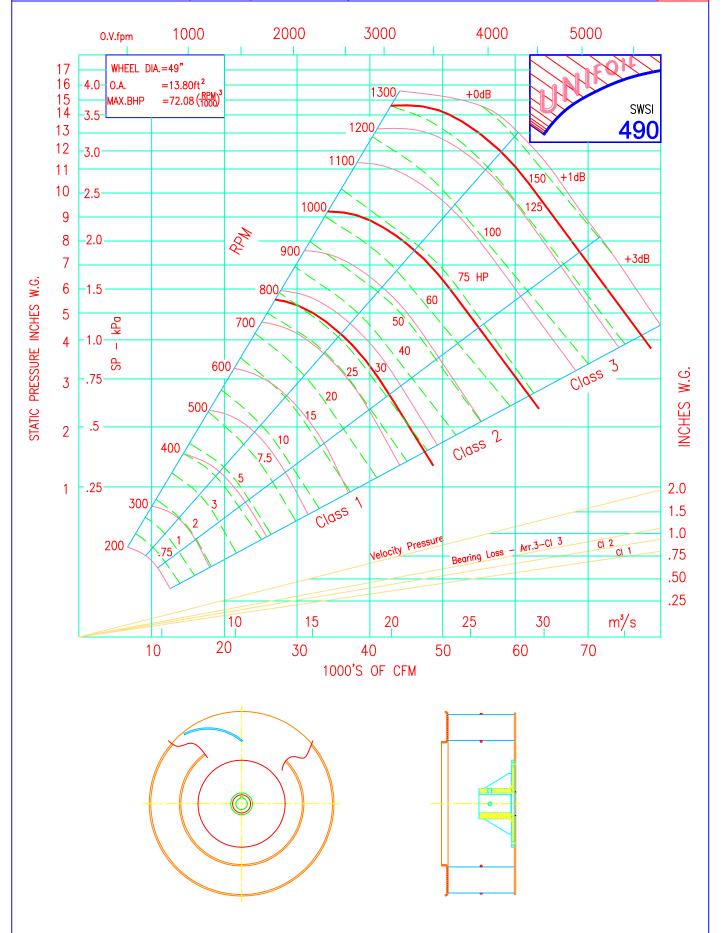
www.sheldonsengineering.com





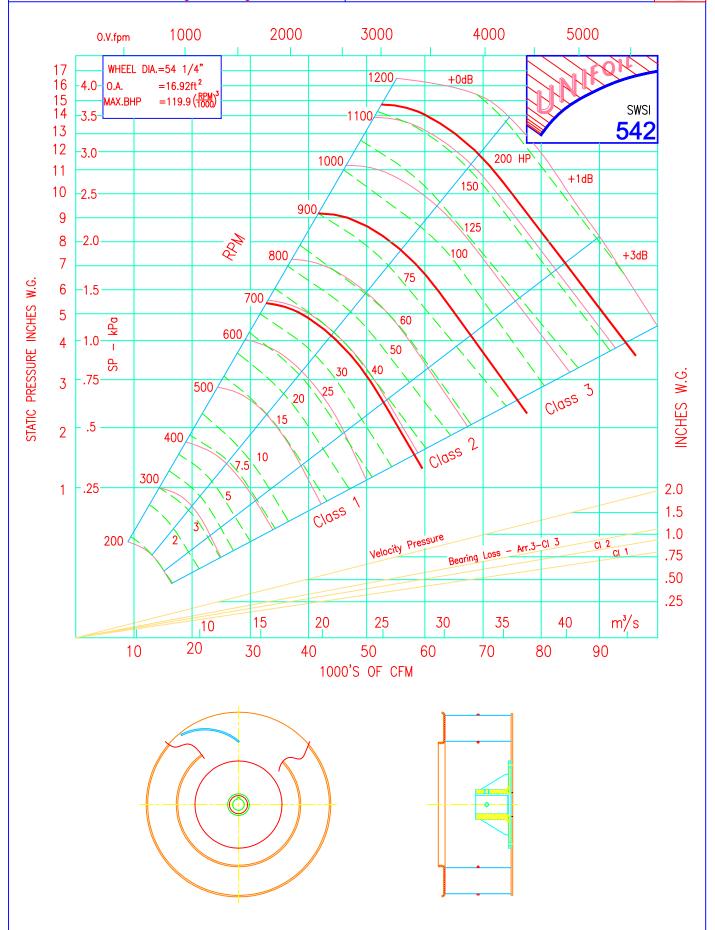
www.sheldonsengineering.com





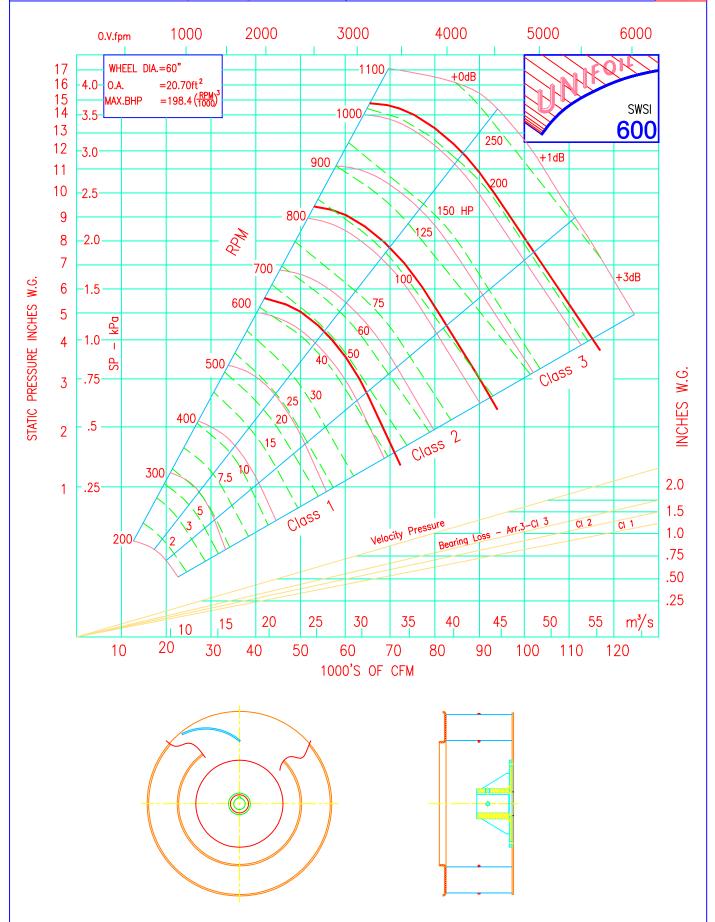
www.sheldonsengineering.com





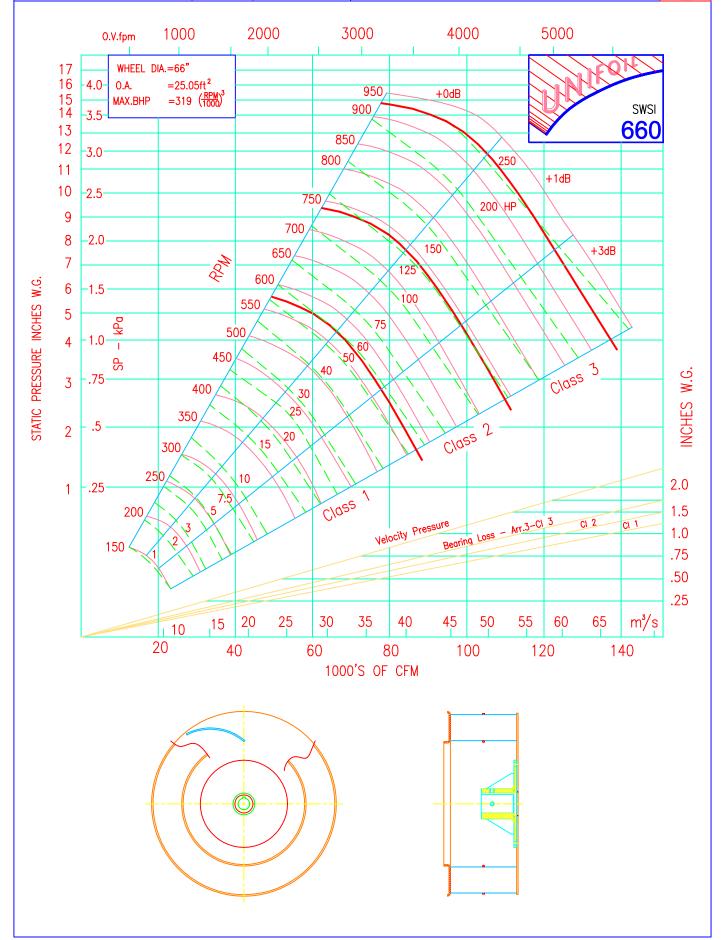
www.sheldonsengineering.com





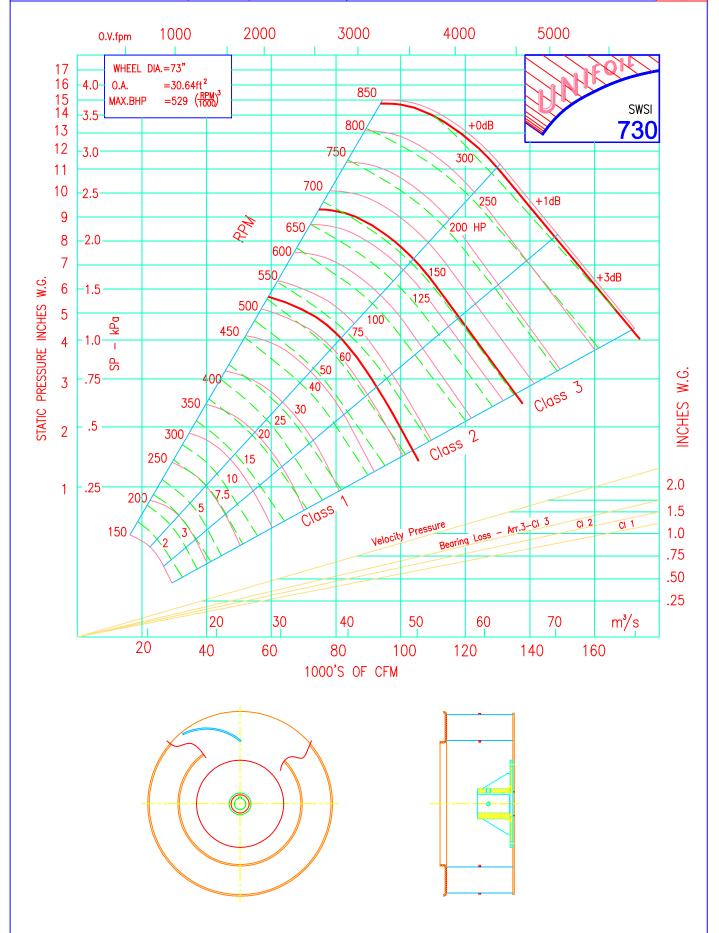
www.sheldonsengineering.com





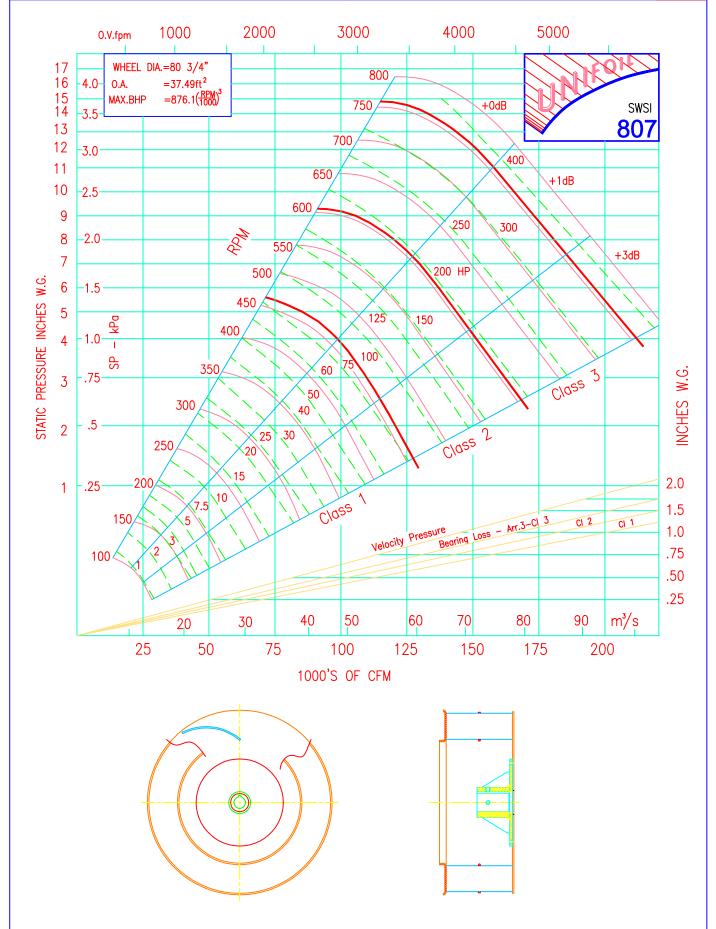
www.sheldonsengineering.com





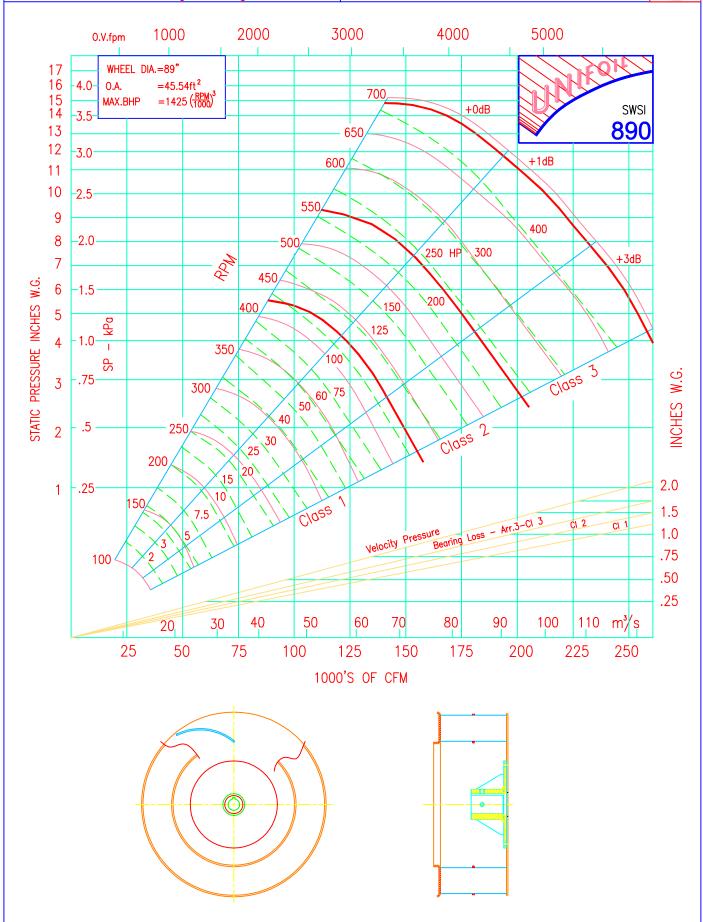
www.sheldonsengineering.com





www.sheldonsengineering.com

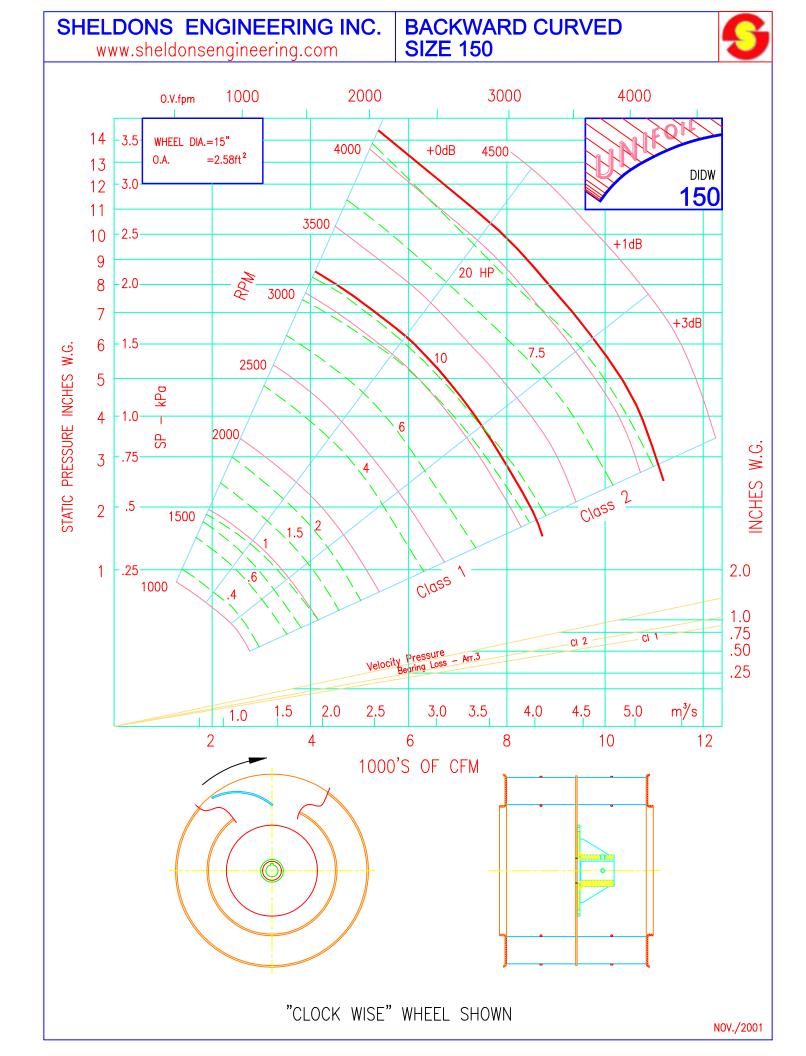




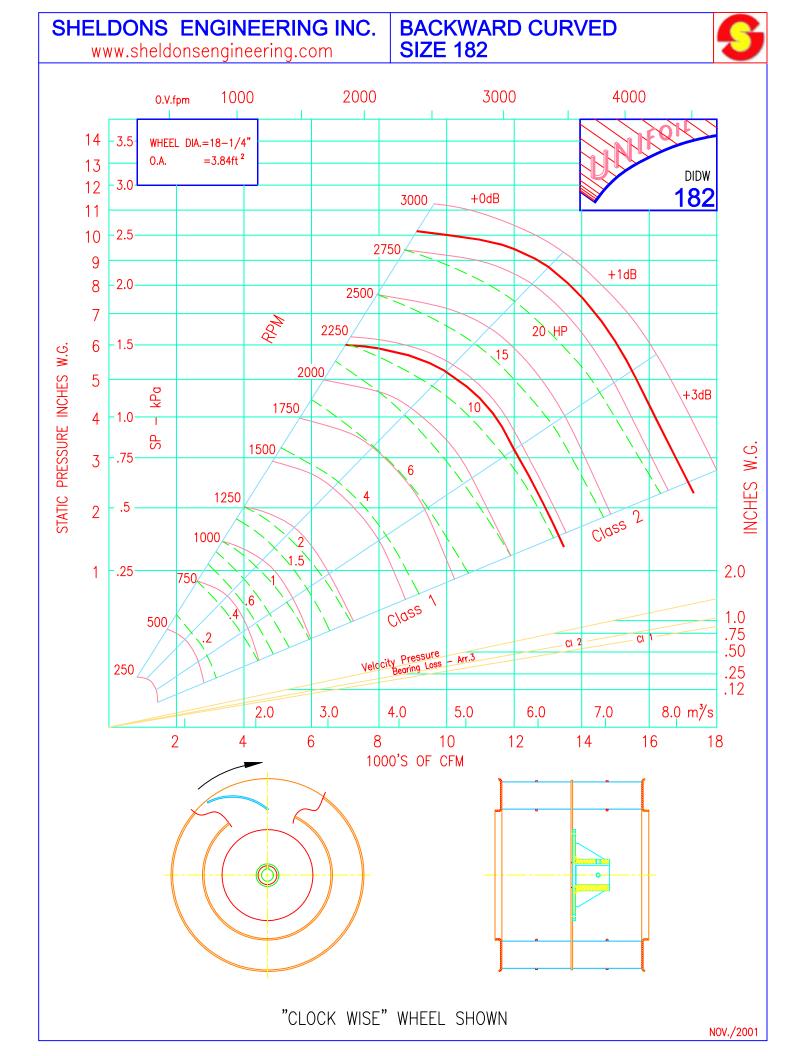
SHELDONS ENGINEERING INC. **BACKWARD CURVED SIZE 122** www.sheldonsengineering.com 0.V.fpm 1000 2000 3000 4000 5000 14 - 3.5-WHEEL DIA.=12-1/4" +0dB 0.A. $=1.72 ft^2$ 13 DIDW 12 3.0 122 4500 11 15 HP -2.5-10 4000 9 +1dB -2.0-3500 7 10 -1.5-6 STATIC PRESSURE INCHES W.G. 3000 +3dB 1.0 2500 SP -.75-3 2000 2 Class 5 1500 2.0 1 -.25 Class 1.0 .75 CI 2 .50 Velocity Pressure Bearing Loss - Arr.3 .25 1.0 $3.5 \text{ m}^{3}/\text{s}$ 1.5 2.0 2.5 3.0 3 5 6 4 1000'S OF CFM "CLOCK WISE" WHEEL SHOWN NOV./2001

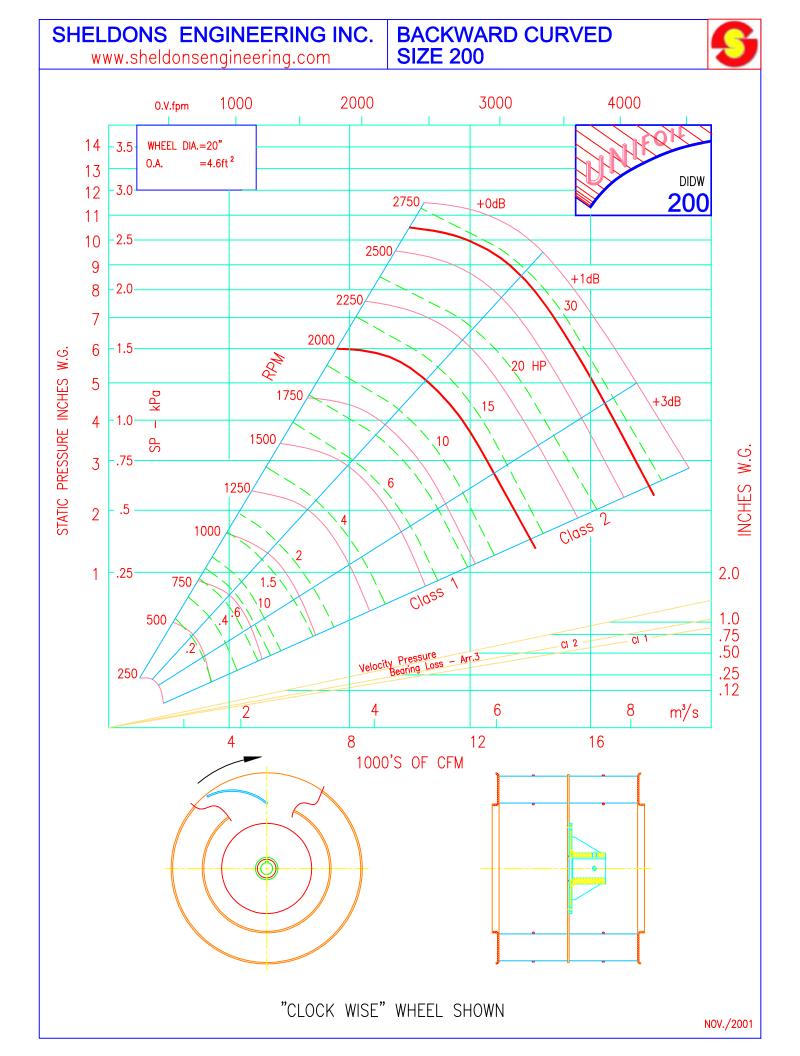
SHELDONS ENGINEERING INC. **BACKWARD CURVED** www.sheldonsengineering.com **SIZE 135** 1000 2000 3000 4000 0.V.fpm +0dB 14 - 3.5 WHEEL DIA.=13-1/2" 4500/ 5000 0.A. $= 2.1 \text{ft}^2$ 13 DIDW 12 -3.0-135 20 HP 4000 11 +1dB 10 -2.5-9 3500 15 -2.0-8 RPM 7 3000 +3dB - 1.5-6 STATIC PRESSURE INCHES W.G. 5 kPa 2500 4 -1.0-INCHES W.G. -.75-2000/ Class 2 2 - .5 1500 1.5 2.0 1 -.25 Class 1000 1.0 .75 CI 2 Velocity Pressure Bearing Loss - Arr. .50 .25 1.5 2.0 2,5 3.0 3.5 m³/s 1.0 4.0 2 3 5 6 7 8 9 10 1000'S OF CFM "CLOCK WISE" WHEEL SHOWN

JULY/2001



SHELDONS ENGINEERING INC. **BACKWARD CURVED** www.sheldonsengineering.com **SIZE 165** 2000 4000 1000 3000 0.V.fpm +0dB WHEEL DIA.=16-1/2" 14 - 3.5 4000 $=3.14ft^{2}$ 0.A. 13 3500 DIDW 12 3.0 165 11 10 -2.5 3000 30 HP +1dB 9 8 -2.0 20 7 2500 15 6 -1.5 STATIC PRESSURE INCHES W.G. +3dB 10 5 2000 -1.0 SP -.75 Class 2 1500 .5 1.5 1000 -.25 2.0 1 Class 1 1.0 500 .75 .50 Velocity Pressure Bearing Loss - Arr.3 .25 1.5 2.0 2.5 4.0 4.5 5.0 m³/s 3.0 3.5 5.5 6.0 10 12 2 4 6 8 14 1000'S OF CFM "CLOCK WISE" WHEEL SHOWN NOV./2001





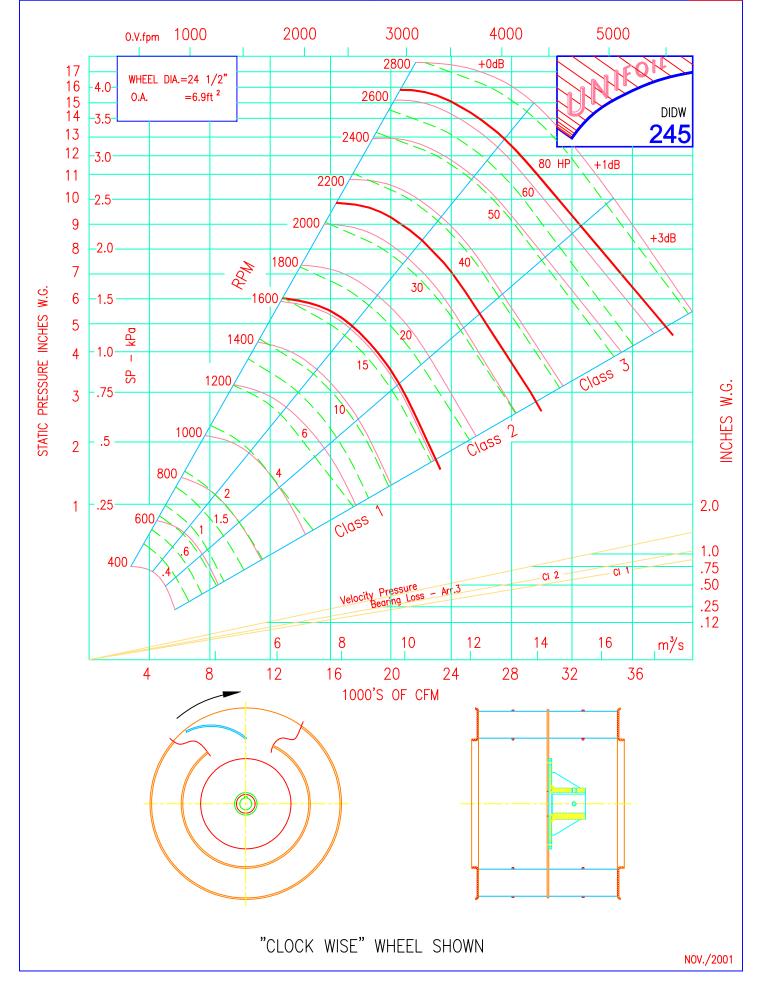
SHELDONS ENGINEERING INC. **BACKWARD CURVED** www.sheldonsengineering.com **SIZE 222** 2000 3000 4000 1000 0.V.fpm WHEEL DIA.=22 1/4" 14 - 3.5 0.A. $=5.72 ft^{2}$ 13 DIDW 12 -3.0 **222** 2500 +0dB 11 -2.5-10 2250 9 -2.0-8 40 HP 2000 +1dB 30 7 - 1.5-STATIC PRESSURE INCHES W.G. 1750 5 +3dB 1500 15 INCHES W.G. 1250 Class 5 1000 .5 750 2.0 -.25 1 Class 1 500 1.0 .75 .50 Velocity Pressure Bearing Loss 250 .25 6 8 10 12 m/s8 12 16 20 24 28 1000'S OF CFM

"CLOCK WISE" WHEEL SHOWN

NOV./2001

www.sheldonsengineering.com

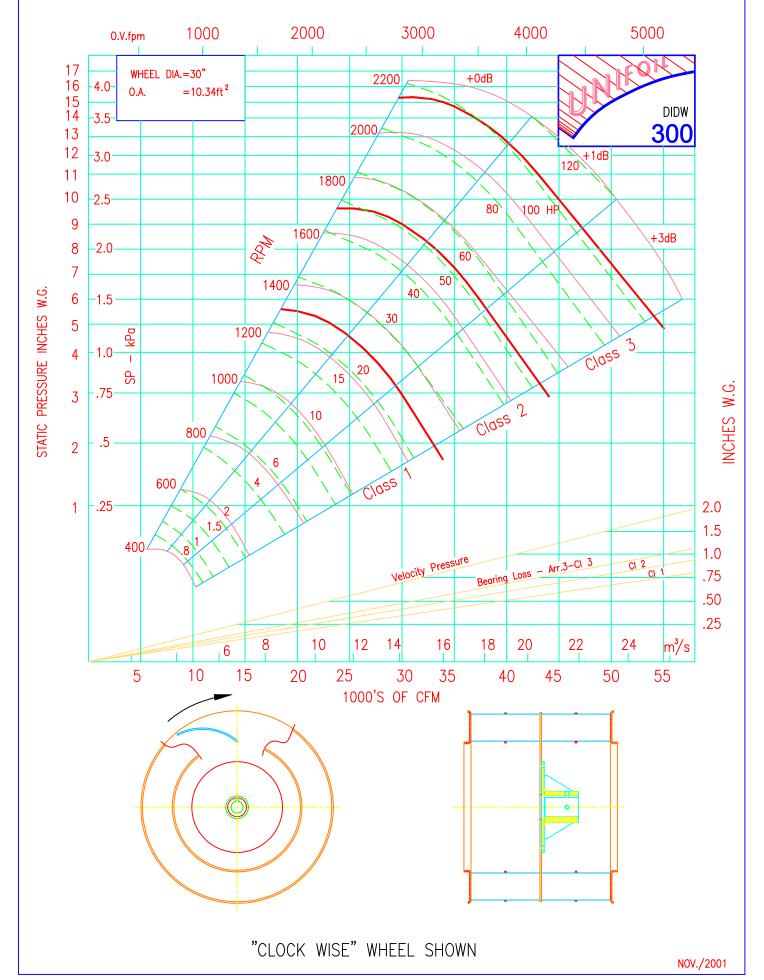




SHELDONS ENGINEERING INC. **BACKWARD CURVED** www.sheldonsengineering.com **SIZE 270** 5000 1000 2000 3000 4000 0.V.fpm 17 WHEEL DIA.=27" 16 -4.0-2400 0.A. $=8.38 \text{ft}^2$ +0dB 15 14 DIDW -3.5 2200/ **270** 13 12 -3.0-11 2000 +1dB 80 HP 10 -2.5-9 1800 60 8 -2.0 +3dB 7 1600 40 STATIC PRESSURE INCHES W.G. 6 -1.5-1400 5 20 1200 4 - 1.0-Class 3 3 | .75-1000 Closs 2 .5 2 800 1 -.25 2.0 C/ass 1.5 1.0 400 Bearing Loss - Arr.3-Cl 3 Velocity Pressu .75 .50 .25 12 14 16 $20 \text{ m}^3/\text{s}$ 8 10 18 32 8 12 24 28 36 20 40 16 44 1000'S OF CFM "CLOCK WISE" WHEEL SHOWN NOV./2001

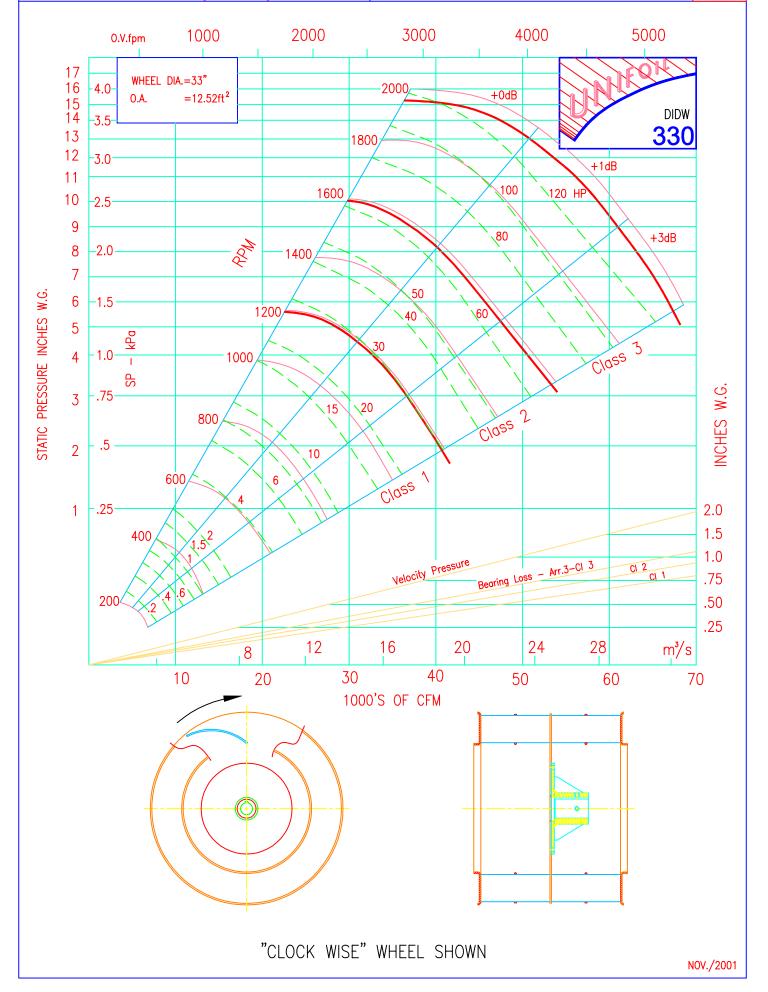
www.sheldonsengineering.com





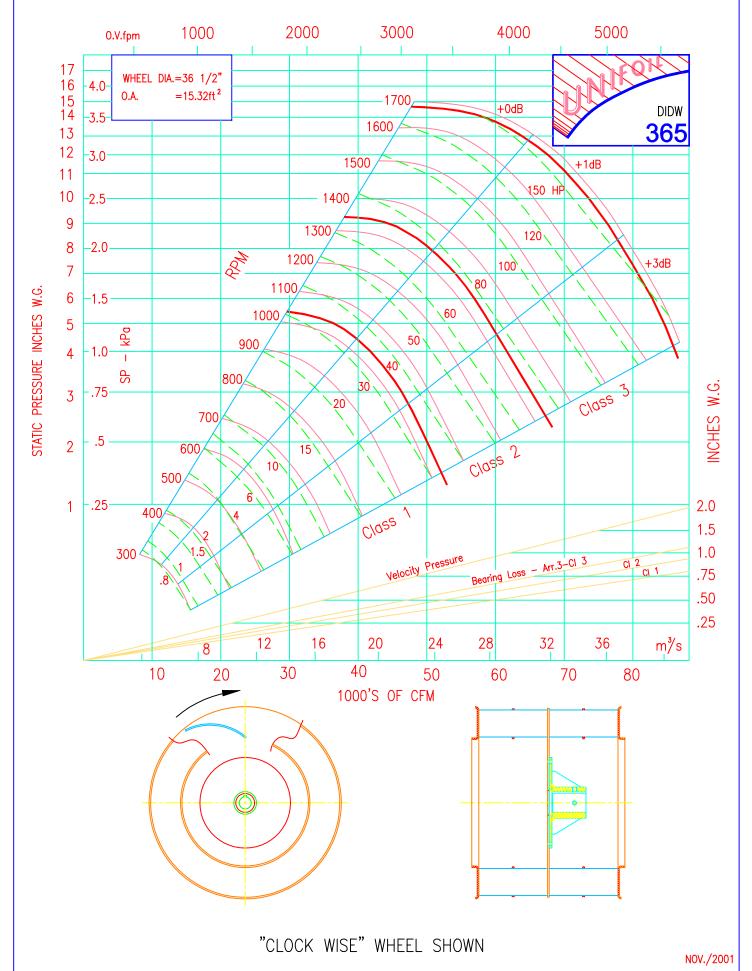
www.sheldonsengineering.com





www.sheldonsengineering.com





SHELDONS ENGINEERING INC. **BACKWARD CURVED SIZE 402** www.sheldonsengineering.com 1000 2000 3000 4000 5000 0.V.fpm 17 WHEEL DIA.=40 1/4" 16 4.0-1600 +0dB $=18.62 \text{ft}^2$ 0.A. 15 14 1500/ DIDW -3.5 402 13 1400 12 3.0 200 HP 11 1300 +1dB 150 10 2.5 1200 9 120 8 -2.0 1100 +3dB 7 1000 100 STATIC PRESSURE INCHES W.G. 6 -1.5 80 900 60 5 -1.0 800 50 SP 700 Class 3 W.G. .75 3 INCHES 600 Closs 2 .5 2 500 400 1 -.25 2.0 Class 1.5 300 1.0 Velocity Pressure Bearing Loss - Arr.3-Cl 3 200 < .75 .50 .25 20 28 32 16 36 40 44 48 m³/s 12 10 20 30 80 40 50 70 60 90 100 1000'S OF CFM

"CLOCK WISE" WHEEL SHOWN

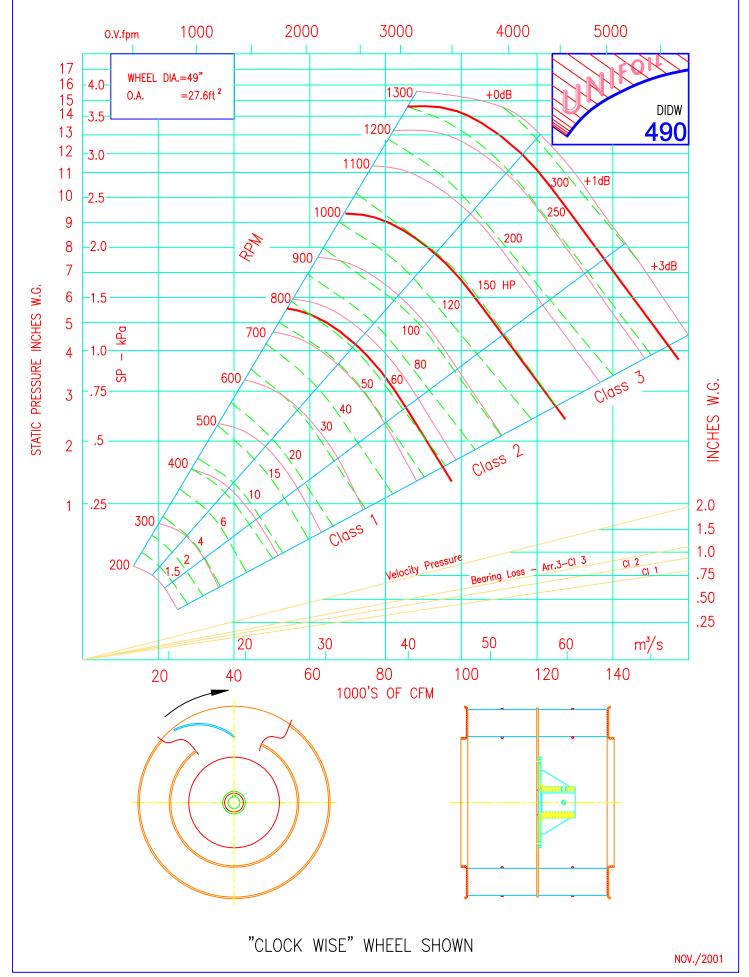
NOV./2001

SHELDONS ENGINEERING INC. **BACKWARD CURVED SIZE 445** www.sheldonsengineering.com 2000 3000 4000 5000 1000 0.V.fpm 17 WHEEL DIA.=44 1/2" 16 4.0-0.A. $=22.78 \text{ft}^2$ 1400 15 14 +0dB DIDW 3.5 1300 445 13 12 -3.0-1200 11 +1dB 10 -2.5-1100 200 9 150 HP -2.0-8 1000 120 7 +3dBA A STATIC PRESSURE INCHES W.G. 6 -1.5 100 800 5 -1.0 700 Closs 3_ W.G. -.75 600 INCHES 20 Class 5-.5 500 15 400 -.25 2.0 1 300 1.5 1.0 Velocity Pressure Bearing Loss - Arr.3-Cl 3 CI 2 .75 200 .50 .25 20 30 40 50 m³/s 10 10 110 20 30 40 50 60 70 80 90 100 120 1000'S OF CFM "CLOCK WISE" WHEEL SHOWN

NOV./2001

www.sheldonsengineering.com



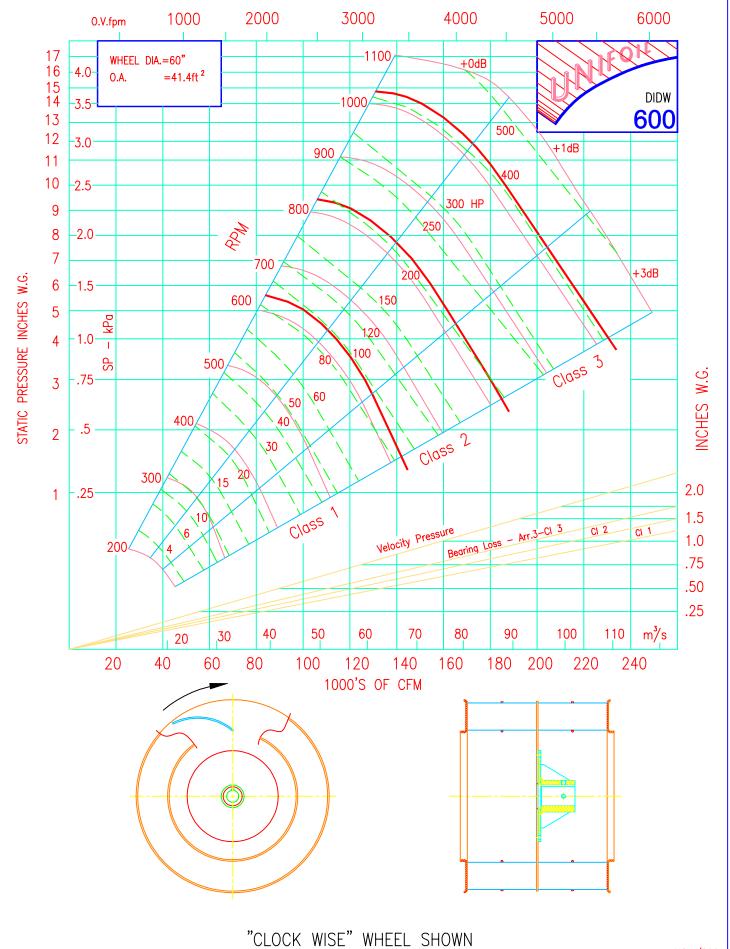


SHELDONS ENGINEERING INC. **BACKWARD CURVED** www.sheldonsengineering.com **SIZE 542** 5000 2000 3000 4000 1000 0.V.fpm 17 WHEEL DIA.=54 1/4" 1200 +0dB 16 -4.0-0.A. $=33.84 \text{ft}^2$ 15 14 DIDW -3.5-1100 **542** 13 12 -3.0-400 HP 1000 11 +1dB 300 10 -2.5-900 9 -2.0 200 800 +3dB7 150 STATIC PRESSURE INCHES W.G. 6 -1.5-700 5 120 600 4 - 1.0-100 SP INCHES W.G. -.75-Class 3 500 50 30 - .5 400 Class 2 20 15 300 -.25 2.0 1 Class 1 1.5 1.0 Velocity Pressure Bearing Loss - Arr.3-Cl 3 200 .75 .50 .25 30 50 40 60 70 80 m³/s 20 40 20 60 120 80 100 140 160 180 1000'S OF CFM

"CLOCK WISE" WHEEL SHOWN

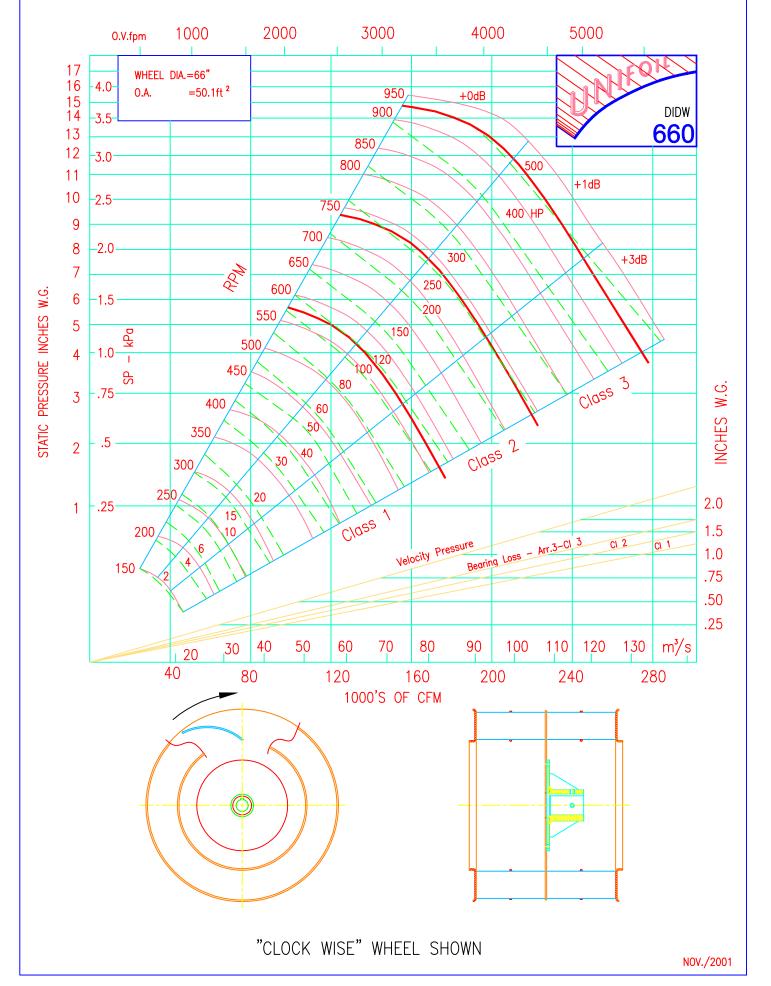
www.sheldonsengineering.com





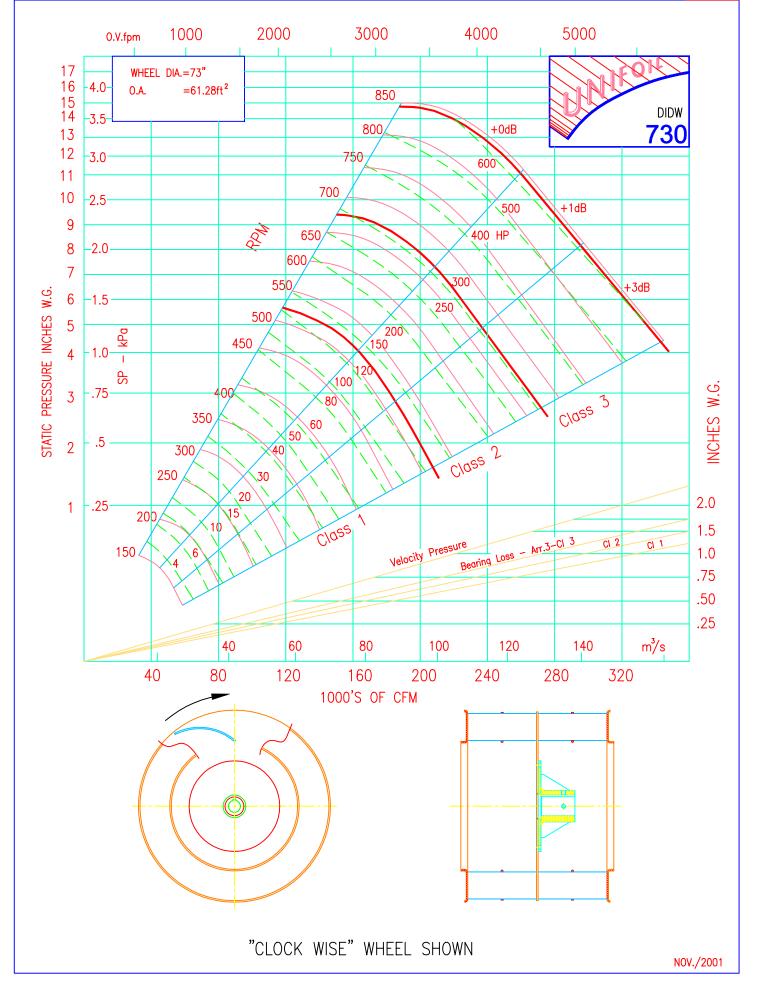
www.sheldonsengineering.com





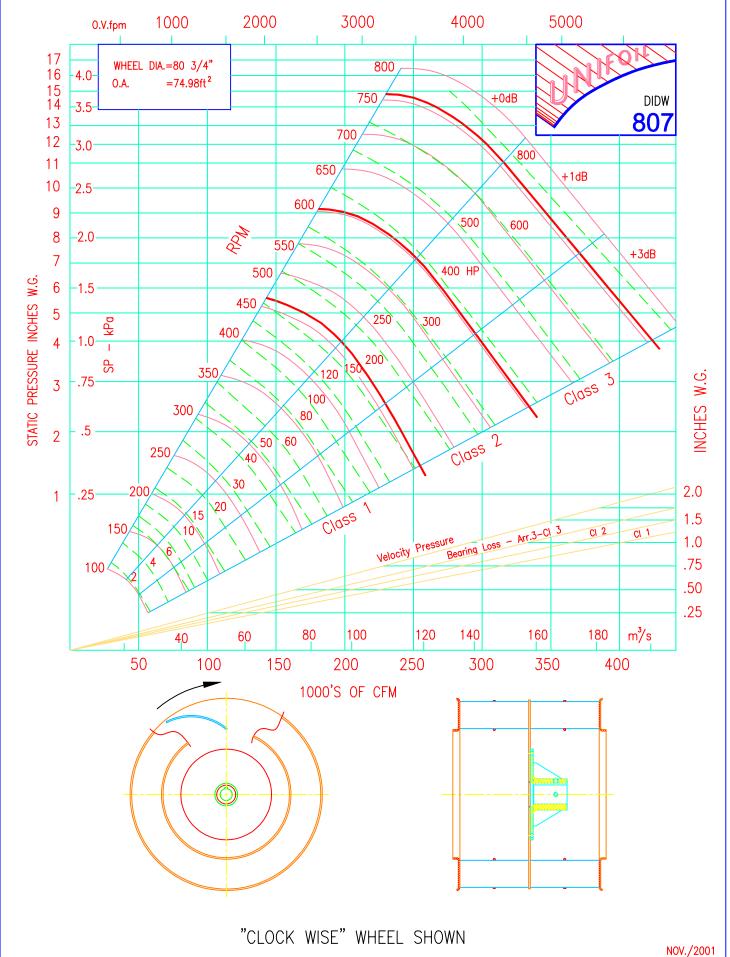
www.sheldonsengineering.com





www.sheldonsengineering.com





www.sheldonsengineering.com



