



The Facts

HORSE POWER (HP) / TRUE OR EXAGGERATED?

Many air compressor companies “exaggerate” their horsepower ratings to help big retail chain stores sell more compressors. Industrial compressors like our TRI-MAX™ Series are accurately rated, which is why our 5 and 7.5 HP motors are physically larger (almost 40% larger) than an overrated “Big Chain Store” one. A good way to tell if you are looking at real or overrated HP is to look at how much electrical power it takes to run the motor. Good rules of thumb for TRUE horsepower ratings are as follows.

- 1-Phase 115V - 9½ -10 Amps per HP
- 1-Phase 230V – 4½ - 5 Amps per HP
- 3-Phase 230V – 2 - 2½ Amps per HP
- 3-Phase 460V – 1-1¼ Amps per HP

A true 5 HP motor will draw 22-25 amps and be required to run on a 220 volt circuit, (single phase power), whereas most overrated “Big Chain Store” compressors run on a normal 15 amp 110 volt circuit. A normal 15 amp 110 volt circuit is really only capable of running about 2-3 real HP. If you can plug it into a normal wall plug, it really can't be more than 2-3 true HP.

BALDOR MOTORS ARE BEST

BendPak offers you the piece of mind that comes with buying the best. Our TRI-MAX™ Series air compressors feature the best electric motor money can buy. For the past eight decades, Baldor Electric has led the industry in developing electric motors that deliver greater performance and reliability while using less electricity. High performance and reliability are the hallmarks of these energy efficient electric motors. Premium-grade copper wire, more iron, thinner laminations, premium-grade steel, superior bearings, larger end rings, low-loss fans lets these energy efficient motors run cooler and longer with better dependability. Their formula, like ours, is simple - quality products, and exceptional after sales support.

In October of 2006, Baldor again received 1st place ranking for motors in several trade publication surveys. Baldor continues to rank better than any other motor manufacturer in their category. The results of each survey are listed below. The question asked by each magazine to their readers was "who do you consider to be the top industrial electric motor manufacturer?" or "if you could only choose one motor manufacturer, who would it be?" No matter how you word it, what it comes down to is customers prefer Baldor.

Control Design Readers Choice	Food Engineering Magazine Readers Choice	IMPO - Industrial Maintenance & Plant Ops Readers Choice
Industrial Electric Motors 1. Baldor 48% 2. Regal-Beloit 17% 3. Rockwell (Reliance) 12% 4. GE 5%	Industrial Electric Motors 1. Baldor 71% 2. GE 30% 3. Reliance 30% 4. Leeson 21%	Industrial Electric Motors 1. Baldor 64% 2. GE 23% 3. Reliance 19% 4. USEM 11%

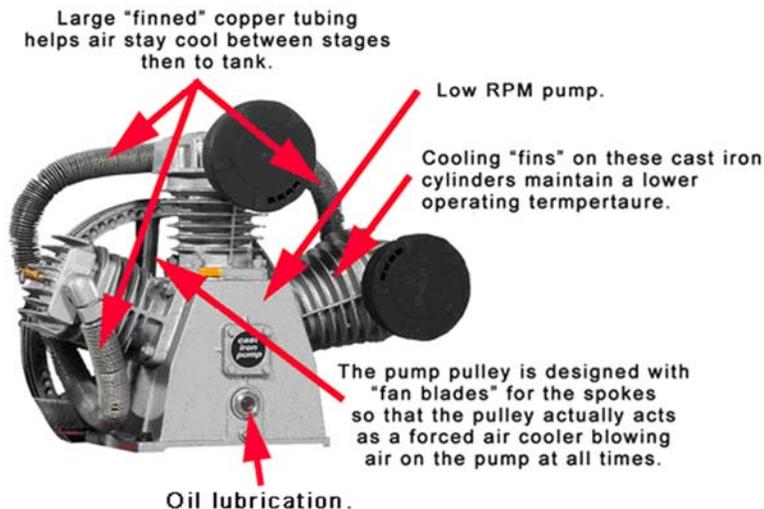
100% CAST IRON CONSTRUCTION

A true industrial-grade air compressor like our TRI-MAX™ Series models will feature a 100% cast iron construction on the pump, block and heads. That is the biggest selling advantage our TRI-MAX™ Series models have over our competition. An air compressor pump is just like a car engine and as you know, almost all car engines are made from cast iron. Cast iron is the most durable material that can be used on a high-use, high-temperature application. Engines used for racecars may use aluminum for weight reduction but these engines last for one or two races then have to be rebuilt.

MOISTURE

When compressed air gets hot then cools, it creates condensation. The harder you work your compressor the hotter it will get and the more moisture problems you will have. There are two moisture problems that exist. The first is moisture that goes through the air lines then eventually to your air tools, the second is air that accumulates in the bottom of the tank which can cause excessive rust and jeopardize the integrity of your tank. The trick is to keep the air as cool as possible. Copper pipe works best as it won't rust and it also dissipates heat well. Our TRI-MAX™ power-house air compressors feature the renowned TRI-MAX™ extreme-duty three-cylinder pump that has been designed and manufactured to operate with maximum cooling efficiency under all load conditions. The 100% cast-iron TRI-MAX™ Series pump features a "W-3" configuration that provides 360° cooling efficiency and simple splash lubrication for total reliability and a multi-blade cooling fan helps to provide maximum forced air-cooling for ultimate efficiency. A large pump that puts out little noise and a lot of power is due to the slower RPM speed and efficient two-stage design, a special feature of every TRI-MAX™ Series pump. Because they operate at slower speeds than other compressors and feature large-diameter finned copper tubing between stages, they have a lower operating temperature, which ultimately achieves maximum compressor efficiency.

How **Tri-Max** Air Compressors Help Keep Their Cool



CUBIC FEET PER MINUTE (CFM)

Air tools and equipment require a certain volume of air to keep them going. The volume of air that a compressor produces is rated in CFM (Cubic Feet per Minute). You may see several CFM ratings at different pressures on a compressor. CFM ratings tend to be exaggerated just like HP ratings, but you should get around 3½ - 4 CFM per real HP at 90 PSI.

TANK SIZE

Does size matter? The answer is "not too much." A compressor tank doesn't produce air, it only stores air. It is much more important to have a big enough pump and motor, because if you are producing as much air as you want to use, you'll never run out of air no matter how small the tank is. A smaller tank is more portable and gets up to pressure quicker, whereas a compressor with a large tank doesn't start and stop as often and cools the air a bit better. A large tank doesn't mean the compressor runs less, it starts and stops less often but the running time is the same as if it had a smaller tank.

CERTIFIED TANK MEETS ASME STANDARDS

All TRI-MAX™ extreme-duty compressors feature 80-gallon tanks manufactured by Manchester Tank, the world's premier manufacturer of pressure vessels. Founded in 1946, Manchester Tank produces quality pressure vessels in North America and Australia. Manchester Tank continues to set the standard for quality and reliability, and provide unsurpassed value in both mass-market and customized D.O.T. and A.S.M.E. products.

ONE OR TWO STAGE

Single stage compressors have one or more cylinders, and each cylinder pumps air directly into the tank. Two stage compressors have at least 2 cylinders, and the air is pumped from one cylinder into another and then into the tank. A typical two stage, 2 cylinder compressor has a large first stage cylinder which pumps air through a cooling tube and into the smaller second stage cylinder at about 90 PSI, and finally into the tank at 175 PSI. The main reason for buying a two-stage air compressor is if you need high pressure.

DIRECT DRIVE OR BELT DRIVE

The main advantages of belt-drive compressors are that the pump can spin a lot slower than the motor, which allows it to be more efficient with a lot less wear and tear. Pumps on direct-drive compressors turn at a much faster RPM because the pump is connected directly to the motor shaft and turns the same speed as the motor. Most electrical motors spin at either 2850 or 3450 RPM. Our TRI-MAX™ Series models use a belt-drive allowing the pump to run at a lower RPM than the motor and the lower the RPM, the better. The motor RPM is always the same and cannot be changed. An air compressor RPM rating is the rating for the pump not the motor. But pump RPM and CFM is also relative to pump size and output. You can have two 7.5 HP air compressors running at the same 900 RPM but one may obtain a higher CFM than the other because of piston size. Obviously a larger piston moving at the same RPM as a smaller one will produce a higher CFM. "Big Chain Store" air compressors usually are higher RPM because their pumps are usually much smaller than an industrial brand. Remember, higher RPM causes more heat than slower RPM.

OIL OR OIL-LESS

Most industrial grade compressors are splash lubricated which means they have "flaps" on the bottom of the connecting rods to splash oil around in the compressor crankcase. As long as there is enough oil in the crankcase, splash lubricated pumps should last a long time. Many cheaper direct-drive compressors are oil-less, which means they use no oil to lubricate the piston inside the cylinder. If you can imagine your car engine running without oil you can understand the problem. Oil-less compressors usually use cheaper aluminum cylinders, heads and pistons to help dissipate the heat. It may help dissipate the heat, but aluminum warps and wears out much faster than cast-iron. Another advantage oil-lubricated compressors have over non-lubricated ones are they are much quieter. Oil-less air compressors are very noisy because they have no oil in the pump to "muffle" the sounds of the moving parts.

AIR REQUIREMENT FOR OPERATING VARIOUS AIR TOOLS AND EQUIPMENT

Tool/Equipment	Size or Type	Est. (PSI) Req.	Est. (CFM) Req.
Air Bushing	Small or Large	80-90	15-25
Air Hammer	Light to Heavy	70-90	4.0-40
Blow Gun		70-90	3
Body Polisher		70-100	2
Body Sander	Orbital	70-100	5
Die Grinder		70-100	7
Drill		70-90	50-110
Dusting Blow Gun		70-90	5
Grease Gun		70-90	3
Grease Gun	Hi Pressure	120-150	4
Grinders - Horizontal	6" to 8" wheel	70-90	50
Grinders - Horizontal	2"-2 1/2" wheels	70-90	14-20
Grinders - Horizontal	1-1/2" wheels and under	70-90	10
Grinders and Sanders - Vertical	Large	70-90	53
Grinders and Sanders - Vertical	Medium	70-90	30
Grinders and Sanders - Vertical	Small	70-90	22
Hydraulic Floor Jack		125-150	6
Hydraulic Lift		145-175	6
Impact Wrench/ Screw Driver	Small to Large	70-90	4-10.0
Impact Wrenches	Up to-1/2"	70-90	5
Impact Wrenches	1/2" to 3/4"	70-90	10
Impact Wrenches	3/4" to 1 1/4"	70-90	20
Impact Wrenches	1-1/4" to 2"	70-90	30
Nailers and Staplers		70-100	5.0-8.0
Paint Sprayers	Protection gun	40-70	20
Paint Sprayers	Small Hand	70-90	2.0-7.0
Riveters	Small-Large	70-90	10.0-40
Riveters	3/32"-1" rivets	70-90	12
Riveting Hammer		70-100	8
Rotary Sanders		70-90	30
Scaling Hammer		70-100	3
Screwdrivers	Nbr. 2 to 6 screw	70-90	5
Screwdrivers	Nbr. 6 to 5/16" screw	70-90	10
Spark Plug Cleaner	Reach 36-45	70-90	5
Spray Gun Engine Cleaner		90-100	5
Tire Changer		70-90	1
Tire Changer		125-150	2
Tire Hammer		90-100	12
Tire Inflater		70-90	2
Tire Rim Stripper		125-150	6
Tire Spreader		70-90	1
Touch Up Paint Spray Gun		90-100	4
Undercoat Paint Spray Gun		90-100	19
Vacuum Cleaner Shop		100-120	6
Valve Grinder		70-90	2
Vertical Disc Sander		90-100	10

HOW MUCH DO AIR LEAKS COST?

Leakage Loss Orifice Dia. (In.)	Air Loss CFM	Air Loss cu. ft./day	Loss / Day \$	Loss / Month \$	Loss / Year \$
1/64	0.4	590	0.15	4.4	54.75
1/32	1.6	2332	0.58	17.6	211.7
3/64	3.7	5270	1.32	40.15	481.8
1/16	6.5	9345	2.34	71.17	854.1
3/32	14.5	20880	5.22	158.77	1905.3
1/8	26	37152	9.29	282.57	3390.85
3/16	58.3	83952	20.99	638.45	7661.35
1/4	104	149760	37.44	1138.8	13665.6
5/16	162	233280	58.32	1773.9	21286.8
3/8	234	336960	84.24	2562.3	30747.6
1/2	415	597600	149.4	4544.25	54531
5/8	649	934560	233.64	7106.55	85278.6

The above figures are based on values from the Compressed Air & Gas Handbook. Calculations assume a conservative cost of \$0.25/1000 cu. ft. of compressed air, 100% coefficient of flow, and working 8,760 hours/year, at 100 psig.