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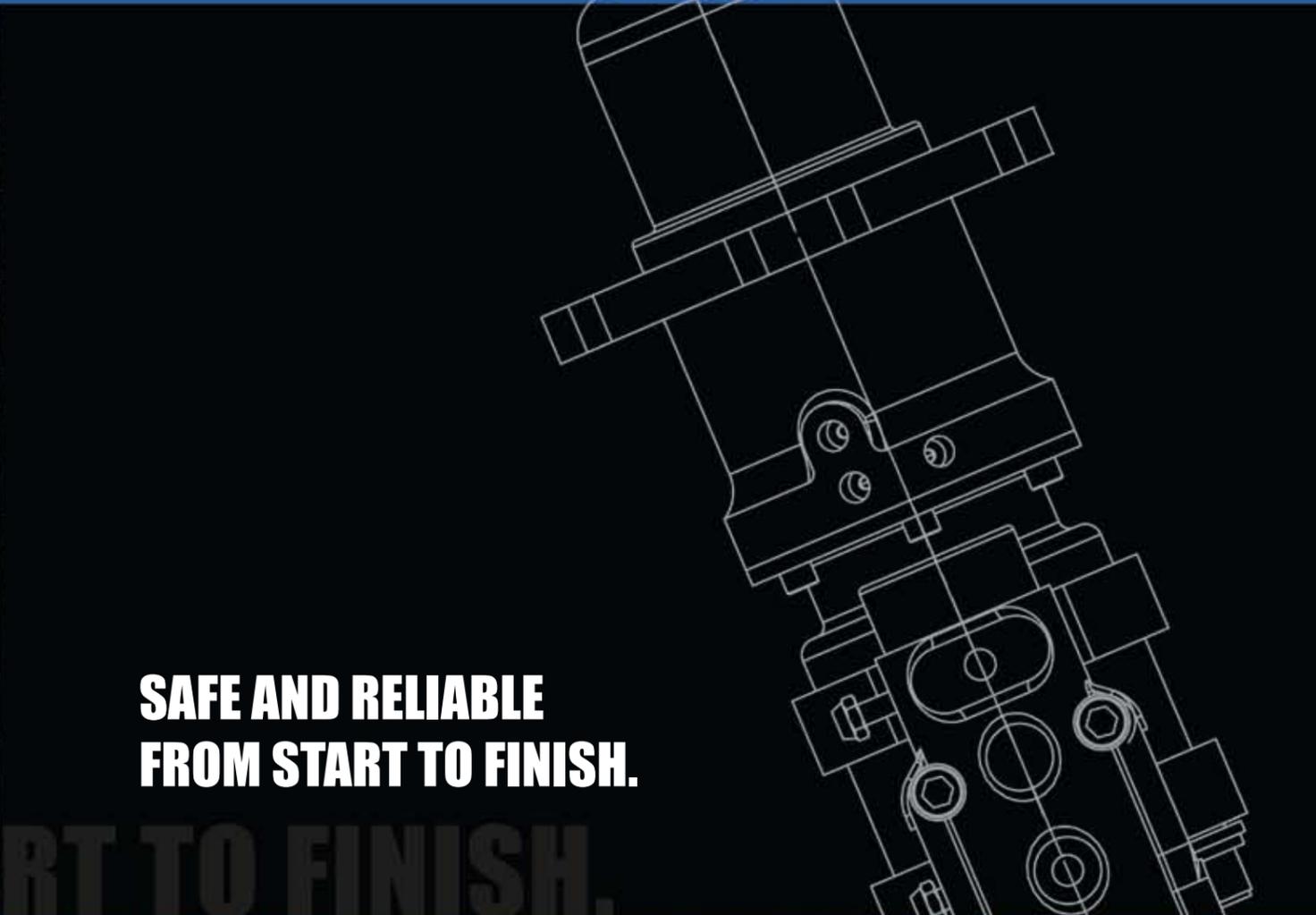
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Ice, snow, mud, sand,
explosive gases, stormy seas -
Just another working day for

AUSTART



GB/AUST/108



SAFE AND RELIABLE FROM START TO FINISH.

THE HAZARDOUS WORLD OF HARSH INDUSTRIAL ENVIRONMENTS AIR STARTERS ARE ESSENTIAL FOR SAFE ENGINE STARTING. AND NOW THERE'S A NEW KID ON THE BLOCK WHO IS SMARTER AND STRONGER. THAT'S WHY AUSTART IS THE FIRST CHOICE IN THE AUSTRALIAN MINING INDUSTRY. AND WHY THE REST OF THE WORLD IS STARTING TO RECOGNISE THE ADVANTAGES AUSTART OFFERS. AIR VS ELECTRIC AUSTART AIR STARTERS ARE SAFER AND MORE DURABLE. NO IN-LINE LUBRICATION IS NEEDED WITH AUSTART TURBINE AIR STARTERS. IN DIRTY AND POOR AIR QUALITY ENVIRONMENTS, DIRT AND AIRBORNE PARTICLES WON'T CLOG MOVEMENTS. THEY HAVE VERY FEW MOVING PARTS.

SAFE AND RELIABLE FROM START TO FINISH.

In the hazardous world of harsh industrial environments air starters are essential for safe engine starting. And now there's better options from a specialised manufacturer with over 20-years of air starting experience, who offer smarter and stronger starters to fit every engine and application. Austart not only offers a larger range, but due to our design and construction methods, Austart products are demonstrably better, safer and more durable.

That's why Austart is the first choice in the Australian mining industry. And why the rest of the world is starting to recognise the advantages Austart has to offer.

AIR vs ELECTRIC.

Austart Air Starter Motors have many advantages compared to electric options. They not only eliminate the risk of igniting explosions in

dangerous environments, they are far more reliable with longer life between services. You can depend on higher cranking torque, faster engine starting and extended cranking periods when required. Unlike batteries, air starters are not affected by low temperatures, (even sub-zero) and always deliver 100% cranking power.

No in-line lubrication is needed with Austart Turbine Air Starters, so in dirty and poor air quality environments, dirt and airborne particles won't clog components. They have very few moving parts, all are 100% friction free, they're quieter, and self-governing cranking speed ensures they can't over-speed. These features all add up to far greater reliability and operating life, and safer more productive workplaces.

WORLD'S SAFEST.

Of the many advantages air starters have over electric, safety against igniting explosions is paramount. For absolute safe starting in explosive environments the Austart 'Pre-engaged' starter is the proven performer.

The Australian Diesel Engine Systems – Explosion Protected Safety Standards AS/NZS 3584.2:2008 are the world's most stringent and the Austart 'Pre-engaged' range exceeds them all.

SERVICE ON THE SPOT.

Another Austart advantage is 'longer operating life between services'. And when maintenance is eventually required, the Austart range has been designed with an extra benefit in mind - 'No Special Tools Needed'. For example, to service some motors in our range, all that's required is one 7/16 spanner and a pair of circlip pliers to disassemble, service and reassemble the unit on location. A complete inventory of every Austart part is readily available at realistic pricing should the need arise.

ONLY AUSTART MEETS EVERY REQUIREMENT.

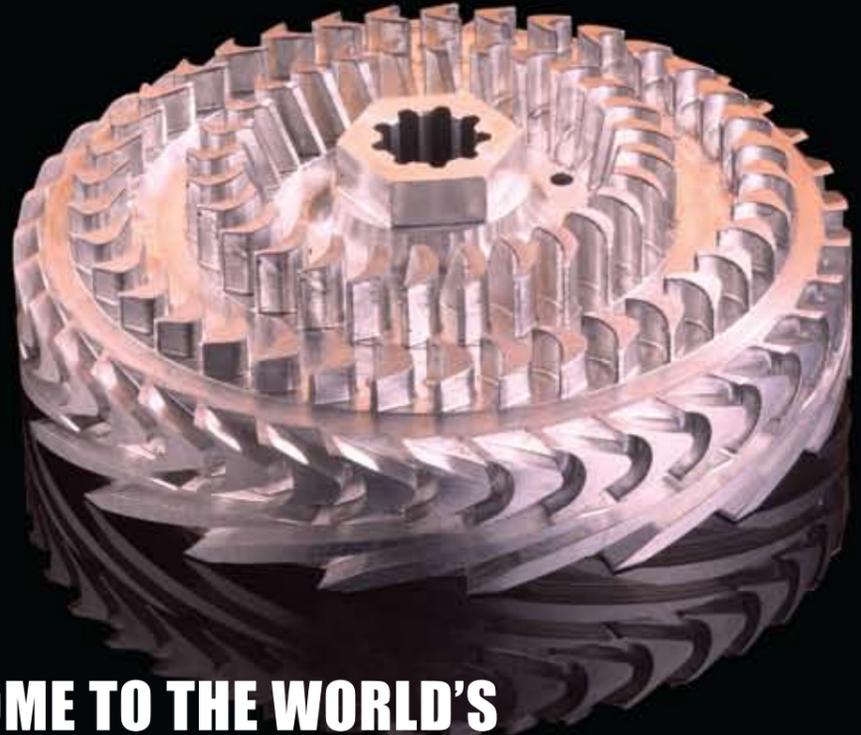
Austart not only have the largest range available, our design and manufacturing capability means we can supply special 'made to order'

requirements in large or small quantities. And Austart gives you a choice of turbine or vane type motors with pre-engaged and inertia style drives, which ensures we can supply the best solution to every air start problem.

Originally, vane type motors lead the way in the development of air starting systems. Now Austart turbine technology has proved to have a number of advantages compared with older products.

Generally vane starters need lubricant added into the air supply which causes an oily discharge, fumes, mess and slippery hazards on the workplace floor. Also dust and particles stick to and clog components.

Austart turbine starters also have no wearing parts from friction, which means less maintenance and longer life. Installation is simpler than vane because there is no need to install lube lines and lubricators. Also, standard Austart turbine starters are quieter, having an integral muffler.



WELCOME TO THE WORLD'S BEST TURBINE TECHNOLOGY.

TURBINES ARE THE FUTURE OF AIR STARTERS. AND WITH AUSTART, A BETTER FUTURE IS ALREADY HERE. WE BELIEVE OUR UNIQUE DESIGN FEATURES, QUALITY AND OPTIONS ARE THE WORLD'S BEST. WE WELCOME YOU TO COMPARE OUR PRODUCT TO ANY OTHER AIR STARTER - WE'RE SURE YOU WILL REACH THE SAME CONCLUSION. AUSTART HAS A WORLDWIDE PATENT ON THE INGENUOUS TURBINE MOTOR WE DESIGNED AND PRODUCE IN OUR MODERN FACILITY. IT UTILISES RADIAL AND AXIAL AIR FLOW TO PRODUCE A SMOOTHER AND MORE POWERFUL ROTATING MECHANICAL FORCE.

WELCOME TO THE WORLD'S BEST TURBINE TECHNOLOGY.

Austart Turbines are the future of air starting. We believe our unique design features, quality and options are the World's best. We welcome you to compare our product to any other turbine starter - we're sure you will reach the same conclusion.

Austart has extensive patents on our ingenious turbine motor, designed and produced in our modern facility. It utilises radial and axial air flow to produce a smoother and more powerful rotating mechanical force.

The unique features of our design result in benefits such as:

- Lighter weight, more efficient transfer of energy, easier transportation and installation.

- Self governing and no over-speed.
- Lubrication-free operation eliminates fumes, oily hazards and clogging of components.
- Friction-free movement with no touching parts increases performance and longevity.
- Standard integral muffler to reduce noise, (other exhaust options available).
- Three stage motor for maximum energy transfer and performance means Austart turbines can operate on lower air pressure.

BUILDING A BETTER STARTER BEGINS WITH BETTER MACHINERY.

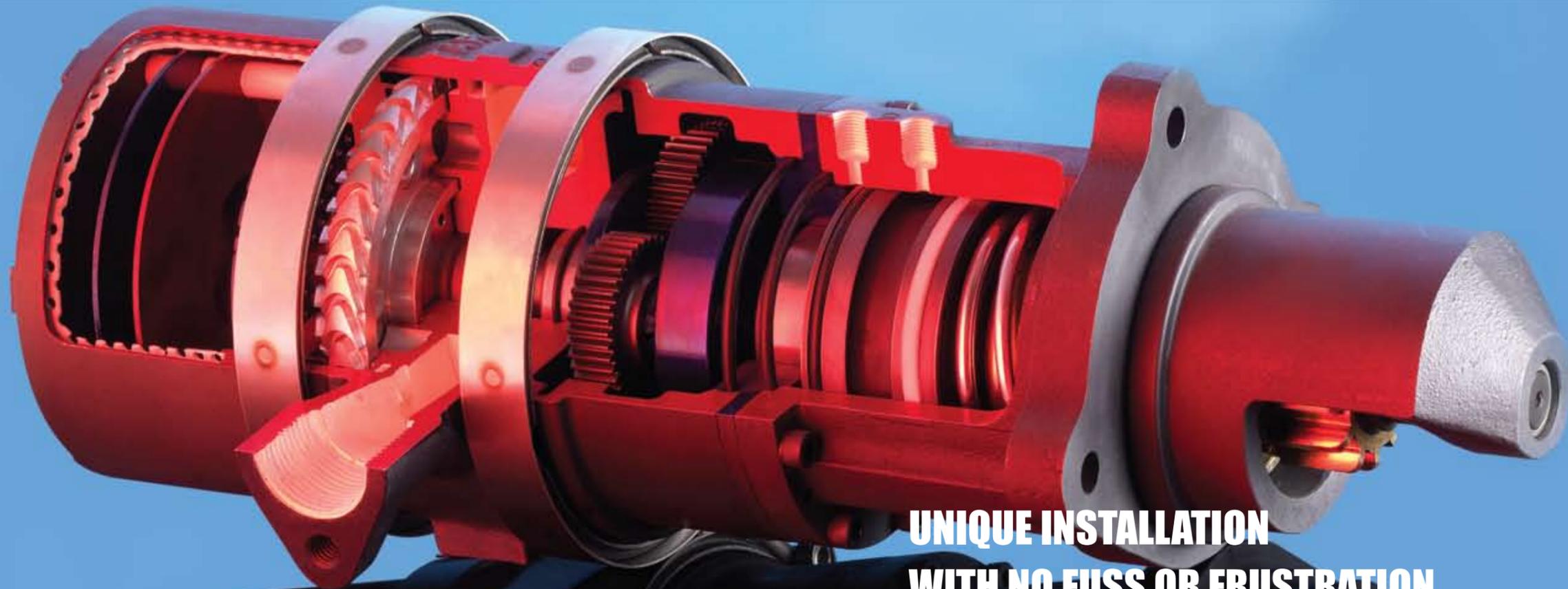
Air starters are required to operate in an extremely wide range of temperatures, so better design and fine tolerances in manufacturing are vital to their performance. The reliability built into every Austart unit begins with utilising the right tooling and machinery.

OUR SKILLED PEOPLE ARE EQUIPPED WITH OKUMA, THE VERY BEST.

Other than castings, every aspect of manufacturing is done in-house, so having the ultimate in equipment, tooling, machinery and software ensures our workforce produces and reproduces the highest results in the most accurate and effective manner.

At Austart we extensively researched the options and decided on what the industry rightly considers 'the Rolls Royce' of CNC machines, Okuma.

Okuma proved to be the indisputable choice. Their experience spans back over 110 years. Coupled with their determination to stay at the forefront of design with many CNC industry firsts, Okuma's on-going design features and benefits over their competitors translate to higher pride and satisfaction from our craftsmen, and superior results for our customers.



UNIQUE INSTALLATION WITH NO FUSS OR FRUSTRATION.

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The Austart range has a special design feature which guarantees easier, quicker installation. Our remarkable and unique 'Band Clamp' design is much appreciated by the end-users as it provides 360 degree indexing, which in turn means easier alignment and fitting to a wider range of engines. And because Austart motors weigh less, the ease of handling makes lighter work of transportation and installation.

WHATEVER YOUR OPTION, AUSTART OFFERS MORE.

In the Austart range there's a real choice from 30 to 150 psi operation. The Austart range is designed to encompass both high and low pressure output in every model, giving consistently reliable starting.

You can have clockwise and counter clockwise cranking. This is particularly important in marine applications, but also provides solutions to all needs.

Overhung pre-engaged options are another Austart advantage, especially considering European engine designers prefer this style. As more and more European designs are entering the world market Austart is meeting this growing demand.

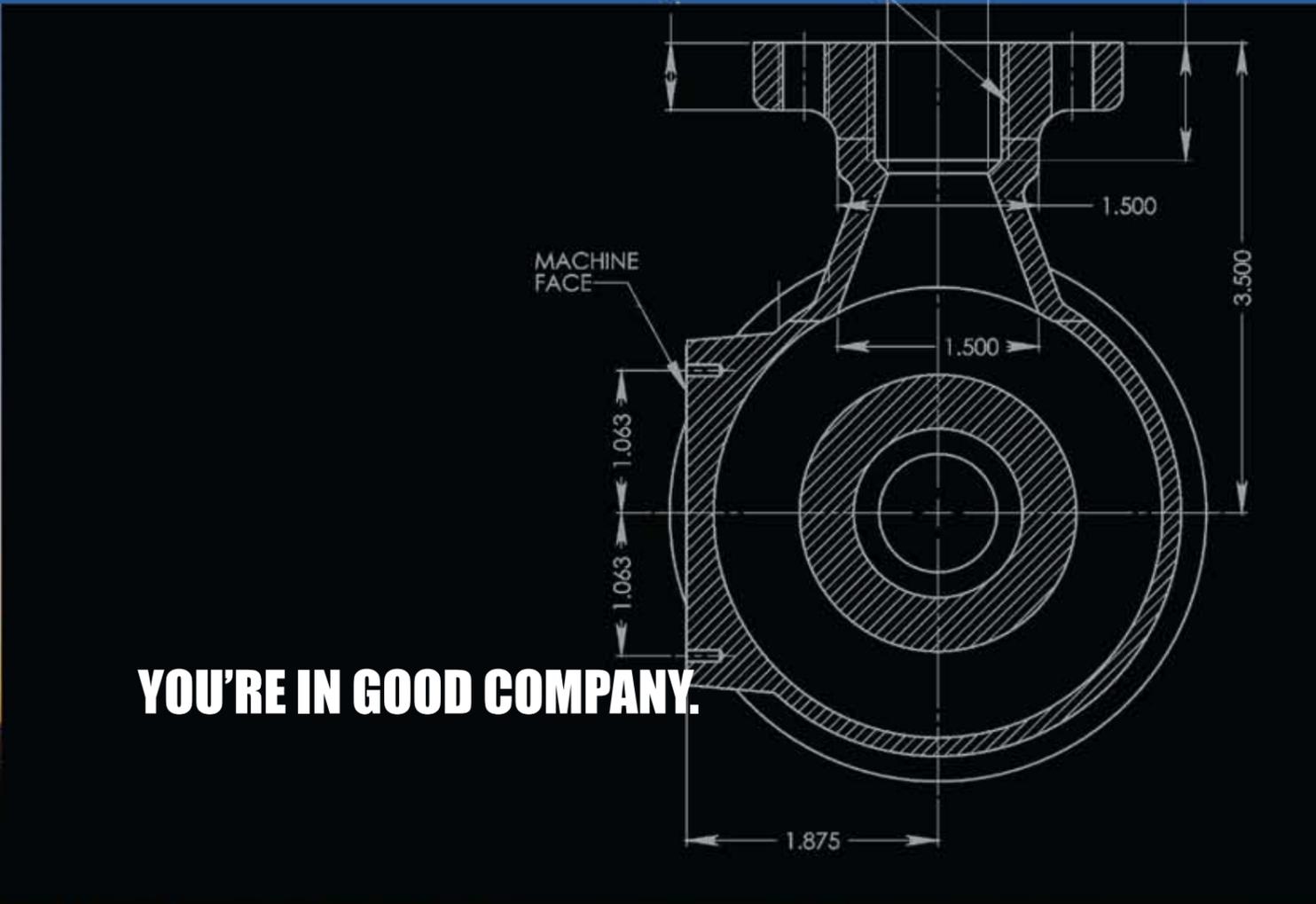
An extensive range of flange and pinion options allows fitment to a huge range of engines. In fact there isn't an engine anywhere in the world that we can't start, because Austart is the only company willing and able to design and produce special 'one-offs' and small production runs.

NO PLASTIC, NO INTERNAL CASTINGS.

Every component of an Austart motor, (excluding seals and 'O' rings) is made from the highest grade metals and machined from solid billets and castings in our state-of-the-art facility. For longevity and performance this makes a huge difference, especially for the turbine wheels. We machine from higher grade certified materials and utilise controlled heat treatment processes for consistency.

The many benefits of our 'machined metal' standard include:

- Stronger, safer and more durable product
- Guaranteed certified materials
- No faults or inclusion in material
- Vastly improved reliability
- Far longer service intervals
- More resistance to damage and abrasion
- Lighter products with less inertia and run on
- Correct balance without adding weights or removing excess material.



YOU'RE IN GOOD COMPANY.

A DIVERSE RANGE OF BUSINESSES BENEFIT FROM OUR QUALITY IN DESIGN AND MANUFACTURING, ESPECIALLY IN THE EXPLORATION, MINING, MARINE, MOTORSPORT, OIL AND GAS INDUSTRIES, WHERE FUNCTIONALITY, RELIABILITY AND PERFORMANCE IS A MUST. OUR FACILITY ALSO PROVIDES CONTRACT DESIGN, MANUFACTURING, MACHINING AND REPAIR WORK FOR GENERAL INDUSTRY.

YOU'RE IN GOOD COMPANY.

WE'RE OWNED AND OPERATED BY THE DECISION MAKERS.

When you work with Austart, an important difference becomes apparent immediately - you are talking to the decision makers.

Austart is a privately owned Australian company. You can be sure design, machining and assembly is performed under one roof in a state-of-the-art manufacturing facility.

For any need or specialised application your industry requires, decisions are made and commitments are met in an efficient, timely manner.

At Austart, we relish the challenge of special projects. Our design and manufacturing skills enable us to provide solutions to the precision engineering requirements industry demands.

FULL WARRANTY COVERAGE.

Austart offer a full 12-month conditional warranty policy on all in house manufactured products. We will replace or repair, without cost, any Austart starter found to be defective within 12-months of manufacture. If we are at fault, we will even cover the freight charges.

ABSOLUTE QUALITY IS ASSURED.

The prime objective of KH Equipment is to consistently provide solutions and product that meets customer, traceability and applicable regulatory requirements. We ensure these objectives are met by continual improvement and adherence to the latest revision of Australian/NZS ISO 9001:2000 'Quality Management Systems'.

ABOVE ALL, AUSTART STANDS FOR QUALITY - GUARANTEED!



AN IMPECCABLE SPECIALISED ENGINEERING PEDIGREE.

Austart is a brand of KH Equipment, a company which has been delivering innovative engineering solutions to industry since 1987. KH Equipment's reputation for precision work is highly regarded throughout Australia and the world.

A diverse range of businesses benefit from our quality in design and manufacturing, especially in the Exploration, Mining, Marine, Motorsport, Oil and Gas industries, where functionality, reliability and performance is a must. Our facility also provides contract design, manufacturing, machining and repair work for general industry.

KH Equipment's capabilities are equal to any in the world. We're proud to be an Australian producer/exporter and welcome the opportunity to further excel compared to any alternatives you'll find worldwide.

You can be sure you're working with the best when you know the calibre of the companies who benefit from our expertise.

- BHP
- Rio Tinto Limited
- Wesfarmers
- Esso
- Peabody Resources Limited
- Centennial Coal
- AMP Society
- Shell
- Santos Limited
- BP Australia
- Chevron
- Mount Isa Mines Limited
- Sandvik
- Bucyrus
- Caterpillar
- Halliburton
- Schlumberger
- Mack Trucks
- Kenworth
- Komatsu
- Cummins
- MTU Detroit
- Waukesha
- EMD

As you can see, you're in the very best company when you work with us.



**OUR RE-ENGINEERED
CLASSIC HAS AN AMAZING
RACE WIN AT DAYTONA.**

OUR RE-ENGINEERED CLASSIC HAS AN AMAZING RACE WIN AT DAYTONA.

EQUIPMENT OFTEN USES OUR INTERNATIONALLY SUCCESSFUL AUSTART RANGE TO ILLUSTRATE OUR DESIGN AND PRECISION ENGINEERING CAPABILITIES. UNFORTUNATELY, TO SOME, THE INTRICACIES WERE EITHER OVERLOOKED OR MISUNDERSTOOD, SO WE DECIDED ON A TRULY REMARKABLE 'MARKETING EXERCISE' WITH UNDISPUTABLE CHALLENGES TO BETTER DEMONSTRATE OUR ENGINEERING ABILITIES.

OUR RE-ENGINEERED CLASSIC HAS AN AMAZING RACE WIN AT DAYTONA.

KH Equipment often uses our internationally successful Austart range to illustrate our design and precision engineering capabilities. Unfortunately, to some, the intricacies were either overlooked or misunderstood, so we decided on a truly remarkable 'marketing exercise' with undisputable challenges to better demonstrate our engineering abilities.

From an engineering standpoint, a 'showcase exercise' is of little use if its accomplishment can't be clearly recognised. Therefore, we chose motorsport to demonstrate our design and engineering expertise where intricate movement, close tolerances in varied temperatures, performance and reliability are paramount. Naturally, a racing motorcycle requires all these attributes.

To really push the message home we wanted race wins. Daytona Race Week is amongst the world's most renowned events of the highest calibre. So aiming to win Daytona's 'Battle of the Twins' Championship was chosen as our Mount Everest to conquer.

There were many preparation levels, but in the first attempt, our new subsidiary HRD Engineering, (Horner Race Development) took on the world's best, including modern bikes, and won the 2008 Daytona 'Battle of the Twins'. An accomplishment which staggered even 'seasoned' Daytona racers. This 'part time' project took in a number of development phases in re-engineering a classic motorcycle. We named it the 'Irving Vincent' after Phil Irving, the legendary Australian design engineer employed by the Vincent Motorcycle Company in 1950 to deliver the fastest production-bike of the era.

The basic engine and motorcycle design was taken from the original 50 year-old Phil Irving design blueprints. Then the engine and all components were fully redrawn by Ken Horner applying modern technology improvements - which amounted to an increase of over 100 horse power from the original design. KH Equipment produced everything except the brakes, wheels and suspension.

It took three years of re-engineering, CAD drawing, pattern making, casting and machining to complete this superb machine. The Irving Vincent's classic good looks and race-winning performance have proved it was time very well spent.

SPECIFICATIONS.

- 1600cc
- V Twin Air Cooled Push Rod 2 Valves per Cylinder
- Bore: 100mm
- Stroke: 100mm
- Compression Ratio 11:1
- BHP: 165 at 6500 RPM
- Torque: 130 ft lb at 5800 RPM