



# Advanced Compressor Technology FOR THE WORLD

*This is how Unicla  
does its field research*

Heads down in the engine room of this coal dozer are Unicla Design Director Mr Kato who has played a leading role over the past 20 years in the development of the most reliable and efficient compressors for mobile equipment, and Unicla Production Director Mr Yano, who has worked with Unicla since the original Japanese company was founded almost 45 years ago.

At top left is Mr Peter Yee Managing Director and major shareholder in Unicla International, and top right is Rob Greco of Sigma Coachair. Standing below Mr Yee is Peak Downs workshop refrigeration mechanic Mick Ditto.

**T**he Peak Downs open cut coal mine in Central Queensland, Australia, is one of the biggest in the country, with a production capacity of 9 million tonnes of coking coal per year.

Operated by the BHP Billiton Mitsubishi Alliance, the mine depends totally on its fleet of equipment, from the massive draglines which rip the overburden from the top of the coal seam, to the shovels,

excavators and trucks which recover the coal and carry it to the processing plant.

Tropical heat, abrasive coal dust and round the clock operations can bring the hardest of equipment to its knees, so there can be no second best.

If the air conditioning system in a giant hydraulic excavator fails, it means costly downtime.

This is one of the reasons Unicla compressors were selected by Sigma Coachair Group, a world leader in the design, manufacture, supply and service of specialised heavy-duty air conditioning equipment for the Peak Downs and other mine sites.

As Rob Greco, Sigma Coachair's Regional Sales Manager for northern Australia explains, "This is a heavy-vibration and high dust load

environment. Over the years Sigma has used a few brands of compressors, but what Unicla delivers is reliability and service. It's vital to be able to work with a company which provides experienced staff to assist with all technical requirements.

"All Sigma off-engine drive systems on our mining installations use the UNICLA UP150, UP170, UP200 series of compressors."

# Field visits vital to design improvements

**U**nicla compressors earn their reputation for robustness and operating efficiency as a result of field studies, which are carried on around the world.

Wherever Unicla compressors are in service, technical members of the team depend heavily on feedback from the equipment users, especially from mine sites and other punishing environments.

The 2010 visit to the Peak Downs open cut coal mine by the team drawn from China, Hong Kong and Australia, will lead to continuing improvements in design and dust prevention measures.

The specialised manufacturer of heavy-duty air conditioning equipment for the transport, earth moving, mining and defence industries, Sigma Coachair Group, is used to designing for high ambient temperatures, severe vibration, dense particulate and corrosive environments.

As Sigma's Rob Greco says, "It was a pleasure to meet the Unicla team and escort them to a typical large mine site in Queensland's Bowen Basin. The trip, organised by Mark Mitchell, head of SCA Australia and Unicla director, was to inspect a standard Sigma mining hydraulic excavator air conditioning installation where heavy vibration and high dust loads are experienced.

***"Unicla representatives obtained a better understanding of the customer requirements as a result of the visit"***

"Because of high dust problems, clutch protection is most important. Unicla will be



During the official visit to the Australian distributor of Unicla products, Mr Yano, production director at the Unicla International factory in China gives some assembly tips to SCA apprentices Ryan Travis (left) and Daniel Drennan



In the party were (from left), Mark Mitchell – Managing Director of SCA Australia and Unicla International Director of Global Marketing and Technical Support; Rob Greco – Sigma Coachair Regional Sales Manager covering Group Mining, Industrial and Defence; David Barrett – BHP Billiton Mitsubishi Alliance; Peter Yee – Managing Director Unicla International; Mr Yano – Production Director Unicla International; Mr Kato – Design Director Unicla International; Ms Hui – Unicla International interpreter

looking at new designs to provide improved clutch life with specifically designed clutch covers. The new design should provide increased service life for specific off-road and mining industries for all SIGMA Systems," added Rob.

At the Peak Downs open cut coal mine, the Unicla team was able to see at first hand the operating conditions which can play havoc on components like air conditioning compressors.



Peter Yee inspects a Unicla compressor, still working efficiently under layers of fine coal dust in a coal excavator

Unicla technical experts appreciated experiencing first hand the extreme conditions under which their compressors must function at a coal mine.

This visit will help them design more efficient dust inhibitors around the drive shaft.



From left, Mark Mitchell, Mr Kato, Mr Yano and Peter Yee



In the cabin of a huge excavator, Peter Yee, Mark Mitchell and Rob Greco inspect the air delivery end of the Sigma air conditioning system which depends on the Unicla compressor

**H**igh profile trade shows, wherever they are in the world, provide an ideal and professional platform for meeting current Unicla customers and generating new ones.

The Unicla team combine their expert resources out of Hong Kong and Australia to mount colourful displays at venues from India to USA, Australia to Germany.

For the balance of 2010, Unicla can be found at two major events, the Wire & Gas Training Convention and Trade Show at

## Unicla on show

the international tourist city of Gold Coast in Australia, and the 63<sup>rd</sup> IAA Automotive Fair in Hanover, Germany.

Wire & Gas is held every two years and is the biggest show specifically for the automotive air conditioning and auto electrical aftermarket industries in Australasia and the Pacific. Unicla has traditionally featured at these shows since they began in the mid 1990s.

Dates are from 11-14 June 2010, at Royal Pines Resort, Gold Coast.

The IAA (Internationale Automobil-Ausstellung) is the largest automotive trade fair in the world, both for passenger cars and commercial vehicles. Commercial vehicles: efficient, flexible, future-proof is the headline for the show this September. It will focus on innovations from the entire international commercial vehicle industry. Unicla has teamed with another great technology, Euroscan temperature recording solutions for refrigerated transport to exhibit at this show.

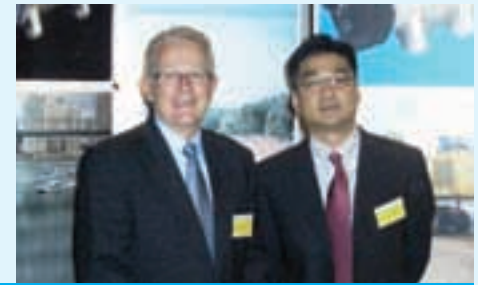
Dates are from 23-30 September 2010 at the Exhibition Center in Hanover, Germany.

Since some of these events are quite large, quality time with Unicla personnel is sometimes difficult to find, which is why we encourage potential visitors to let us know in advance, so that we can book some time with you.

For any of these shows, email your request direct to our Hong Kong based global sales and marketing manager Lody Yuen at [lyuen@unicla.hk](mailto:lyuen@unicla.hk)



Unicla International Director of Global Marketing and Technical Support, Mark Mitchell from Australia, with customers at a Wire & Gas Trade Show



Mark Mitchell and global sales and marketing manager, Lody Yuen, from Hong Kong

## Only one oil for high performance

**A** great deal of research and precision engineering goes into the development of every Unicla compressor, so why would anyone want to compromise performance by using any old oils.

There's no such thing as a 'cheap' oil, or an 'alternative' oil for a highly tuned compressor. Going cheap will eventually cost more money than you bargained for, and will certainly limit the performance of compressors.

Failure to use only the recommended refrigerant and oil in a Unicla compressor may result in dramatically reduced oil circulation rates with subsequent starvation of the compressor.

Warranty is void if non-approved oils and refrigerants are used.



Unicla engineers have real concerns about the use of non-genuine oil, because most of the warranty or performance issues can be traced back to sub-standard lubricant.

Realising also that a lot of oil packaging limits the shelf life of oils, Unicla has gone back to the reliable metal containers with a proper resealable lid.

The Unicla oils are now available in more convenient sizes, from four litre down to 250cc. The former 20 litre containers are still available, but are now a special order.

The new oil range in the smart blue tins is:

- Unidap 6 POE oil 4 litre**
- Unidap 6 POE oil 1 litre**
- Unidap 7 PAG oil 1 litre**
- Unidap 7 PAG oil 250cc**

# Take a website tour

Everybody knows that there's a lot of rubbish on the world wide web, but for those in the know, there is an incredible wealth of information which can help guide the trouble free operation and maintenance of high technology equipment – like Unicla compressors.

The website, [www.unicla.hk](http://www.unicla.hk) is divided into easy-to-navigate sections, covering products, performance information, FAQs and product brochures.

But probably the most visited section is Downloads, where technical booklets, service bulletins, newsletters and product brochures can be quickly downloaded to your computer for printout or on-screen reference.

**In the Technical Booklets section, you will find the following:**

**Unicla UWX550 and UWX440 Installation Guidelines** - to help technicians on installation and commissioning.

**General Service Information** - a handy reference to the correct compressor for specific applications and to ensure correct fitting procedures.

**Unicla Compressor Selection Criteria** – to guide technicians in the selection of a compressor to ensure adequate capacity of the system to cater for the expected heat loads.

**Unicla Compressor Fitting Guidelines to New Applications** - describes fitting procedures and design guidelines for new applications.

Also under the Downloads drop-down menu, you will find a detailed brochure for **every series of Unicla compressor**, as well as parts and accessories.

Each brochure is a complete reference to the compressor model, covering mounting procedures, clutches, hose ports, service valves and oil return ports, as well as technical specifications, performance data and a clutch selection guide.

**3. Fitting of discharge hose manifold**

- Choose either left or right hand discharge port.
- Remove shipping cap from discharge port to be used.

**Fig. A.** Discharge Ports, Manifold Valve (Suction Port)

**Fig. B.** Snap-ring pliers

**Fig. C.** M6 x L65 Bolt. Install the bolt then pull out

**Fig. D.** Install the gasket

**Fig. E.** Install Manifold Valve (this is right hand M10 x L60 Bolt Tightening tension 34.3 Nm (355 kg/cm.

**Fig. F.** Clutch Wire. Connect the clutch wire with the sensor from Discharge Manifold Valve before operation. **Warning: Do not directly connect power to clutch wire.**

**Removed port**

Compressor type	Mounting description	Minimum requirements
UC	Alternator or swing type	Three lugs
UP	Lug type	Four lugs
UX	Direct or bolt through type	Four points
UWX	Multiple direct mounting	Six points

**Graph 1. Cooling capacity**

Heat load vs. Cooling capacity kcal/hr. The graph shows a downward-sloping line with a point labeled 'BP' (Best Point) at approximately 20°C.

**Mounting angle**

The mounting angle for each model must be as follows: within 45°.



## Unicla International Limited

Unit 1209-1210, 12F, Manhattan Centre, 8 Kwai Cheong Rd, Kwai Chung, N.T., Hong Kong. Phone (852) 2422 0180 Fax (852) 2422 0680 Email: [sales@unicla.hk](mailto:sales@unicla.hk) Website: [www.unicla.hk](http://www.unicla.hk)

Unicla Cat. No. N1001