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with **over 60**
SERVICE CENTRES
 ACROSS THE REGION



Explosion-Proof Equipment
 For Hazardous Environments





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Preventing the Spark

In industries such as chemicals and petrochemicals; gases, fuels and vapours are emitted during manufacturing, processing, transporting and storage. These inflammable fluids include alcohol, acetylene, propane, hydrogen and gasoline. Dusts such as wood, sugar, flour and aluminium are also potentially combustible substances.

When mixed with oxygen in the atmosphere these combustible substances can form an explosive mixture. If it is accidentally ignited by an electric spark, an explosion can result in injuries or deaths, and damage to properties. To ensure safe material handling in these environments MHE-Demag offers a special range of explosion-proof cranes and hoists.



The Highest Safety Standards

The European directive ATEX (Atmosphère Explosible) on the manufacture and use of equipment designed for explosion-prone environments has become mandatory in the European Union. Each piece of equipment, which bears the symbol Ex, must meet the requirements of directives 94/9/EC and 99/92/EC.

ATEX and IECEx requirements are enforced to ensure your safety.

IECEx is an International Certification directly referenced to IEC (International Electrotechnical Commission) Standards for explosion-proof equipment. Currently IECEx certified products are accepted in several countries.

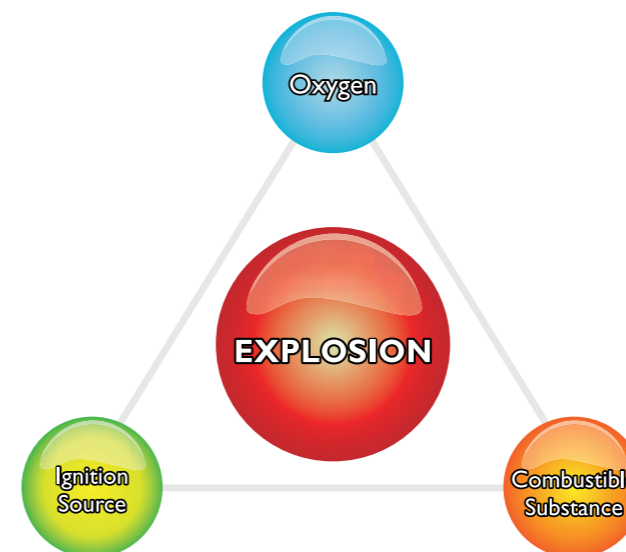
In compliance with the directives ATEX and IECEx, our manufactured equipment and components are subjected to stringent testing and assessment. Our manufacturing premises undergo mandatorily audits and surveillance audits regularly to ensure strict compliance. We are required to demonstrate our quality assurance and controls are strictly in place.

MHE-Demag's explosion-proof equipment is designed to provide protection against an explosion using design features in accordance with explosion-proof standards IEC60079-0, IEC60079-1, IEC60079-7 and IEC60079-31; as well as EN13463-1, EN13463-5 and EN13463-8.



Integrated Explosion Protection relies on one or all of the following:

- Prevent the formation of potentially explosive atmospheres.
- Prevent the ignition of potentially explosive atmospheres.
- Restrict the effects of an explosion to a negligible level.



Hazardous Area Classification

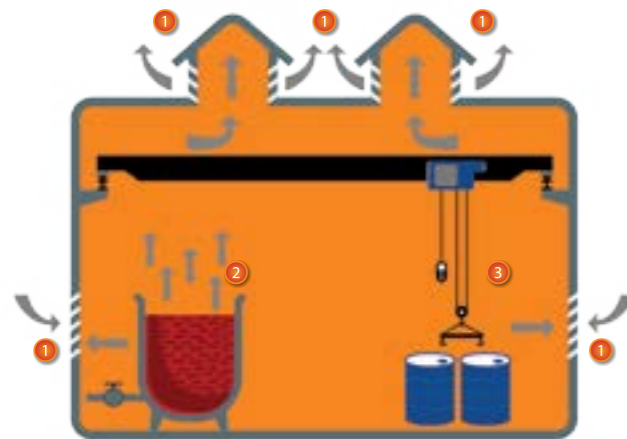
According to ATEX Directive 99/92/EC, end-users play a critical role in the protection of employees working in a potentially explosive environment. The end-user has the obligation to carry out a risk analysis by addressing the following potential hazards in the working environment:

- Types, properties and quantities of hazardous substances present.
- Circumstances of work processes and their interactions with the hazardous substances.
- Interactions of various substances in the atmosphere.
- The likelihood of an explosion due to these circumstances or through ignition sources.
- The scale of anticipated effects.
- Results of the hazard analysis enable end-users to provide a specification for suitable equipment based upon zone, ambient temperature and gas/dust groups.

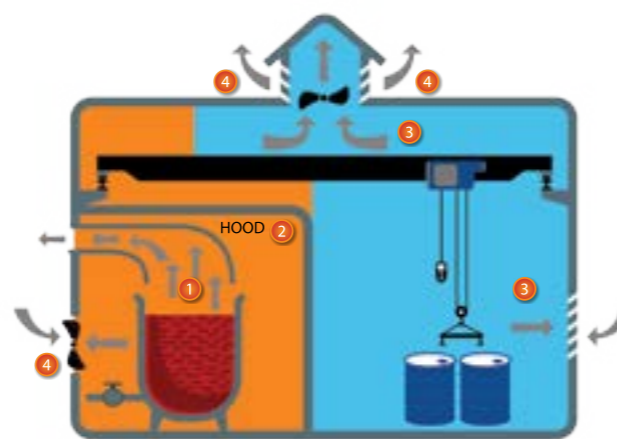
The following tables show the classification of hazardous zones, temperature class, gas and dust groups.

Classification Table

INFLAMMABLE GASES & VAPOURS		EQUIPMENT		
		GROUP I (MINE)	GROUP II (SURFACE)	
		PROTECTION LEVEL	GAS PROTECTION LEVEL	DUST PROTECTION LEVEL
Very high	Zone 0	Ma (M1)	Ga (1G)	Da (1D)
High	Zone 1	Mb (M2)	Gb (2G)	Db (2D)
Normal	Zone 2	Not provided for	Gc (3G)	Dc (3D)



- 1. Natural Ventilation
- 2. Zone 0 (Ga/Da)
- 3. Zone 1 (Gb/Db)



- 1. Zone 0 (Ga/Da)
- 2. Zone 1 (Gb/Db)
- 3. Zone 2 (Gc/Dc)
- 4. Forced Ventilation

Temperature Class

MAXIMUM SURFACE TEMPERATURE	T CLASS
450°C	T1
300°C	T2
200°C	T3
135°C	T4
100°C	T5
85°C	T6

Gas Group

TYPICAL GAS	
Hydrogen	Group IIC
Ethylene	Group IIB
Propane	Group IIA

Dust Group

TYPICAL DUST	
Combustible flyings	Group IIIA
Non-conductive dust	Group IIIB
Conductive dust	Group IIIC

MHE-Demag's electrical explosion-proof equipment meets the requirements of Equipment Group II, Protection Levels 2 and 3, Ex-de IIB T4 and Ex-de IIC T4.

INFLAMMABLE GASES & VAPOURS	IEC			
	ZONE*	GROUP	SUBDIVISION*	TEMP CLASS*
Acetylene	I or 2	II	C	T2
Hydrogen	I or 2	II	C	T1
Butadiene	I or 2	II	B	T2
Ethylether	I or 2	II	B	T4
Ethylene	I or 2	II	B	T3
Acetone	I or 2	II	A	T1
Benzene	I or 2	II	A	T1
Propane	I or 2	II	A	T1

* Hazardous area classifications to be specified by end-user for every enquiry.



In addition, ISO9001, ISO14001 and OHSAS180001 systems are globally recognised quality, environmental and safety standards governing the way our explosion-proof hoists are manufactured.

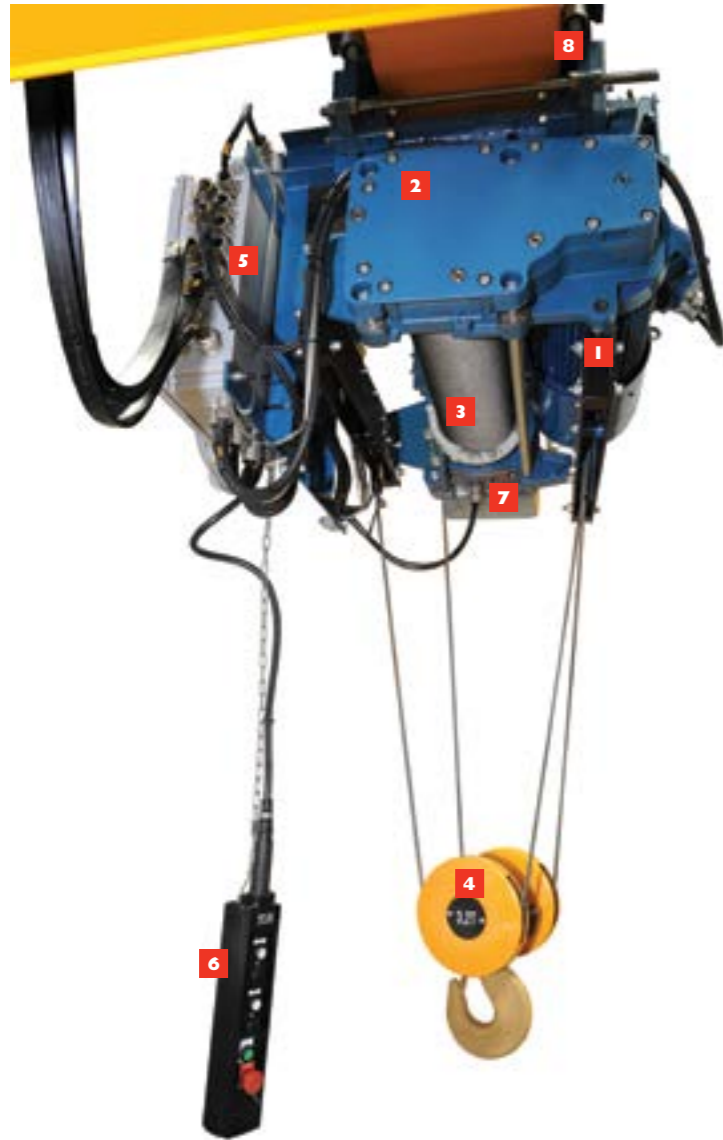
Therefore, in order to prevent any explosion, equipment used in potentially explosive environments must be designed and manufactured in strict compliance to ATEX directive 94/9/EC and IEC standards.

The following must be in place:

- Manufacturer must be certified by an approved authority supported by evidence of current certificates.
- All equipment must have the explosion-proof marking or coding.
- The name plate is to indicate the manufacturer, model (hoist designation) and execution type, serial number, voltage, frequency and others.



Safety Features



- 1** Hoist Motor & Brakes
- 2** Gearbox
- 3** Wire Rope & Rope Guide
- 4** Bottom Block
- 5** Electrical Enclosure
- 6** Control Station
- 7** Limit Switches
- 8** Wheels & Wheel Blocks



1 Hoist Motor & Brakes

The motor is totally enclosed in an IP55 cast iron frame with an IP65 terminal box as standard and class F insulation with class B temperature rise. Higher protection classes are possible. The frame and terminal box are separated to avoid transmission of explosion. The motor can be configured as pole changing or inverter control. Depending on applications, it can either be fan-cooled or non-ventilated. It is based on IEC60034, IEC60079-0, IEC60079-1 and IEC60079-7.

The brake uses the positive braking principle and can be AC- or DC-driven. It has a minimum torque of two times the motor torque. The brake is asbestos-free, designed against corrosion and has a high resistance to impact.



2 Gearbox

The gearbox is constructional safe and immersed in liquid (ck). Made of light alloy to reduce weight without losing its strength, its coupling and bearings are also built to be constructional safe (c).



3 Wire Rope & Rope Guide

The wire rope is selected for its appropriate safety factor based on the FEM Standard. Stainless steel wire rope is optional for special applications.

The rope guide is not only constructed to be electrostatic dissipative, making it safe in an explosive environment, but is also thermal resistant.



4 Bottom Block

The hook is bronzed to prevent the creation of sparks when slings rub against the hook.



5 Electrical Enclosure

Designed and built as flame proof and increased safety (de) per standard IEC60079-0, IEC60079-1 and IEC60079-7, the enclosure is available for IIB and IIC for both gases and dusts. The aluminium alloy enclosure ensures robustness as well as lightweight.



6 Control Station

Available as fixed, mobile or radio control, all stations fulfill IP65 and are designed according to standard IEC/EN60529.



7 Limit Switches

The geared switch, which limits the hook path, is a precision limit switch within standards IP65 and IEC/EN60529. It has a mechanical life of over one million operations and is configurable for up to four functions.

The travel limit switches are standard components for both cross travel and long travel and meets standards IP66 and IEC/EN60529.



8 Wheels & Wheel Blocks

The wheel blocks are designed to be constructional safe (c) with GGG material as standard.

Explosion-Proof Wire Rope Hoists



MHE-Demag supplies a wide range of safe working load (SWL) ranging from 1.0t to 100t and duty ratings from M3 to M8.

The robust and technological advanced DM series offer reliable, efficient explosion-proof hoist and safe operations in hazardous environments of gas and dust.

Its modular design provides a wide variety of configuration which can be tailored to meet end-users' operational needs.

Every explosion-proof hoist produced by MHE-Demag is designed and built according to ATEX or IECEx standards. Each component is thoroughly tested and accompanied by a type certificate. Because the end-users are provided with type certificates for every component, they can be assured that the components can operate safely in the pre-defined hazardous environment.

**Your versatile
and robust
ex-proof hoist**

Range of Wire Rope Hoists

SWL (KG)	MODEL	FEM	REEVE	HOOK PATH (M)	HOIST SPEED (M/MIN)
1,000	DM3	2m	4/1	9; 14; 19	4.0/1.33
1,000	DM3	2m	2/1	24; 34; 45	8.0/2.7
1,600	DM3	2m	4/1	9; 14; 19	4.0/1.33
1,600	DM3	2m	2/1	24; 34; 45	8.0/2.7
2,000	DM3	2m	4/1	9; 14; 19	4.0/1.33
2,000	DM3	1Am	2/1	24; 34; 45	8.0/2.7
2,000	DM3	1Am	4/2	9.5; 14.5; 20	8.0/2.7
2,500	DM3	1Am	4/1	9; 14; 19	4.0/1.0
2,500	DM5	2m	2/1	26; 34; 43	8.0/2.0
3,000	DM5	1Am	4/2	10; 14.2; 18.5	8.0/2.0
3,200	DM3	2m	4/1	9; 14; 19	4.0/1.0
3,200	DM5	2m	2/1	26; 34; 43	8.0/2.0
4,000	DM3	1Am	4/1	9; 14; 19	4.0/1.0
4,000	DM5	2m	4/1	10; 14; 18	4.0/1.0
4,000	DM10	2m	2/1	28; 37; 47	8.0/2.0
5,000	DM5	2m	4/1	10; 14; 18	4.0/1.0
5,000	DM10	1Am	2/1	28; 37; 47	8.0/2.0
6,300	DM5	1Am	4/1	10; 14; 18	4.0/1.0
6,300	DM10	1Am	2/1	28; 37; 47	8.0/2.0
6,300	DM10	1Am	4/2	10.8; 14.7; 20	8.0/2.0
8,000	DM10	2m	4/1	10; 14; 19	4.0/1.0
8,000	DM20	2m	2/1	32; 45; 58	8.0/2.0
10,000	DM10	2m	4/1	10; 14; 19	4.0/1.0
10,000	DM20	2m	2/1	32; 45; 58	8.0/2.0
10,000	DM20	1Am	4/2	11.2; 17.3; 24.3	8.0/2.0
12,500	DM10	1Am	4/1	10; 14; 19	4.0/1.0
12,500	DM20	2m	4/1	11; 17; 24	4.0/1.0
16,000	DM10	2m	6/1	4; 8.8; 11.5; 15	2.7/0.68
16,000	DM20	1Am	4/1	11; 17; 24	4.0/1.0
20,000	DM10	1Am	6/1	4; 8.8; 11.5; 15	2.7/0.68
20,000	DM20	1Am	4/1	11; 17; 24	4.0/1.0
25,000	DM10	1Am	8/1	6; 8; 10.8	2.0/0.5
25,000	DM20	2m	6/1	5; 10; 14; 19	2.7/0.68
25,000	DM20	1Bm	4/1	6; 8; 11; 17; 24	4.0/1.0
32,000	DM20	1Am	6/1	5; 10; 14; 19	2.7/0.68
40,000	DM20	1Am	8/1	3; 7; 10; 13.5	2.0/0.5
50,000	DM20	1Bm	8/1	3; 7; 10; 13.5	2.0/0.5
63,000	DM20	1Am	6/1	6; 9; 15.7	0.87/0.22
80,000	DM20	1Am	8/1	4.5; 6.8; 11.8	0.65/0.16
80,000	DM20	1Bm	6/1	6; 9; 15.7	0.66/0.17
100,000	DM20	1Bm	8/1	4.5; 6.8; 11.8	0.5/0.13

* Call us for applications beyond this range

* For voltages up to 690V

Explosion-Proof Chain Hoists

ELECTRIC CHAIN HOISTS

For users who prefer cost-effective lifting solutions, MHE-Demag's CH series of chain hoists offer SWL from 0.5t to 4t.

Like its counterpart the DM wire rope hoists, the modular design of the explosion-proof chain hoist provides a wide variety of configuration which can be tailored to end-users' operational needs. It can be designed as a stationary hoist, or with an electric, hand chain or push trolley.

The galvanised chain has a safety factor of five as standard, with stainless steel options for special applications.

MANUAL CHAIN HOISTS

In areas void of utilities, manual chain blocks are the ideal material handling solutions. They are designed with high safety margins used from Zone 0 to Zone 2.

The chain blocks are fitted with overload protection, using a slipping clutch. Hand and load chains are galvanised to resist corrosion.

COMBI HOISTS

When end-users require special applications we offer such solutions including the possibility of combining electrical hoisting and manual tranvesting.

AIR HOISTS

Explosion-proof air hoists driven by compressed air are very robust, with 100% duty rating, and therefore suitable for tough industrial applications even in continuous working processes. The air hoists are easy to operate and highly resistant to dust, humidity and temperatures ranging from -20°C to +70°C. For traversing loads there are also different trolley designs to meet special demands. According to requirements, various control systems can be configured.

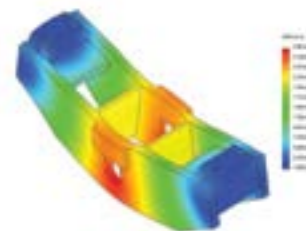
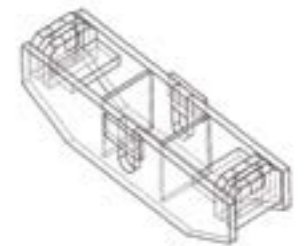


Customised Hoisting Solutions

In a fast paced and ever changing workplace, it is insufficient to provide just standard solutions. In many industries, particularly in petrochemical, sewage and waste water treatment, gas cylinder filling and storage, chemical, paints, adhesives, solvents and plants where powders and dust are produced, customised engineering solutions are becoming the norm. In an intense competitive business environment, customers expect innovative solutions from their partners.

MHE-Demag is following this trend by partnering with our customers and suppliers to tailor-make products which are appropriate for the end-user's exact specifications. Fully engaged with the end solution in mind, MHE-Demag has a team of dedicated & trained designers, project engineers and experienced installation team to ensure a smooth handover to the end-user.

MHE-Demag also believes in the philosophy that the supply of engineered solution is only the beginning of a long term partnership with its customers. It seeks to maximise the lifetime use of the explosion proof equipment. Equipped with the latest IT tools and a wide network of after-sales service, MHE-Demag works with its partners to ensure that the equipment is constantly operating at peak performance.





Overhead Cranes

Explosion-proof overhead travelling cranes are generally categorised into either single or double girder cranes. Single girder cranes are ideal for maximising space utilisation with optimal hook approach. Double girder cranes on the other hand are necessary when heavier loads are handled.

MHE-Demag's explosion-proof cranes are designed using the latest standards and to fully utilise the available space in any ex-proof environment. Our cranes are manufactured in compliance with ISO9001, OHSAS18001 and ISO14001, as well as ATEX and IECEx standards. While the ISO and OHSAS standards ensure high quality products which are environmentally friendly and workmen safety compliant, the ATEX and IECEx standards ensure that our cranes do not contribute to the endangerment of lives and equipment.

Due to the stringent requirement of explosion-proof cranes, the equipment is manufactured in a process-controlled environment by certified workmen with constant QA and QC by R&D engineers. Every process is therefore documented and every component has an EC-Type certificate or Certificate of Conformity.



Slewing Jib Cranes

Explosion-proof slewing jibs are a special breed of cranes. The process of designing and fabricating slewing jibs is similar to that of the explosion-proof cranes.

The slewing jib cranes are best used for spot and high frequency loading. Often they are used to lift pumps, motors and other heavy appliances from the ground to the top of a petrochemical tank or vice versa. In essence, they are ideally used when there is space constraints and when items need to be lifted to high places.

There are three generic models – A, G and M – that are either wall-mounted or pillar-mounted. Depending on requirements, explosion-proof slewing jib cranes can operate using a 330° slewing range or be restricted to a working angular range. For heavier loads, the slewing action is motorised to reduce fatigue and improve ergonomics.





360° Customer Care

To ensure proper usage of your equipment, we conduct trainings that cover all technical aspects as well as all safety issues and procedures for execution and maintenance.

If a machine needs to be repaired or rehabilitated, we are also ready to help you get the job done. To deliver speedy maintenance services, we keep an inventory of the most vital and frequently used parts. With over 60 service centres in the region, a team of more than 700 service engineers and technicians as well as a fleet of 300 service vans, we are there whenever you need us—around the clock, 24/7.

We are also able to conduct equipment audits, regularly or upon request, and provide a detailed report on the condition of your equipment. With our preventive maintenance services, you can be sure that your equipment will always be in good working condition.



Our in-depth training ensures you are familiar with all components and safety issues.



Stringent QC during manufacturing ensures only highest quality equipment is delivered.



The right service packages for your specific requirements

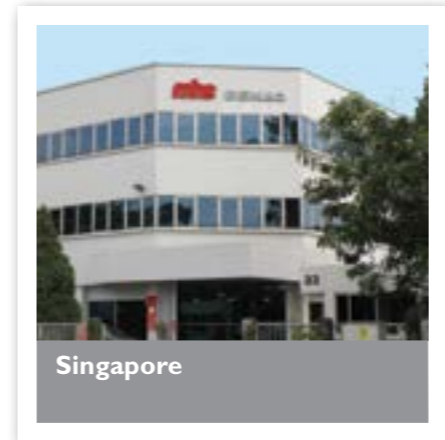


mhe DEMAG
The *name* for material handling

Since our establishment in 1972, MHE-Demag has been leading the way in the areas of design, manufacturing, sales, installation and the servicing of a comprehensive range of material handling systems and equipment in Asia-Pacific. This success is reflected by the selection of equipment and support facilities that we offer through our regional companies and our branches based in different countries.

Today, MHE-Demag is represented by over 60 locations throughout the region, including production facilities in Singapore, Malaysia, Indonesia, Thailand, the Philippines, Vietnam, Taiwan and Australia. We are a market leader in cranes and hoists, as well as in industrial products such as dock levellers and warehouse trucks, aerial platforms and building maintenance systems, goods lifts, car parking systems and of course, explosion-proof equipment. Moreover, we also provide the region's most comprehensive after sales service infrastructure with more than 700 service engineers and technicians and 300 service vans.

Leading the way since
1972



Singapore



Malaysia,
Klang



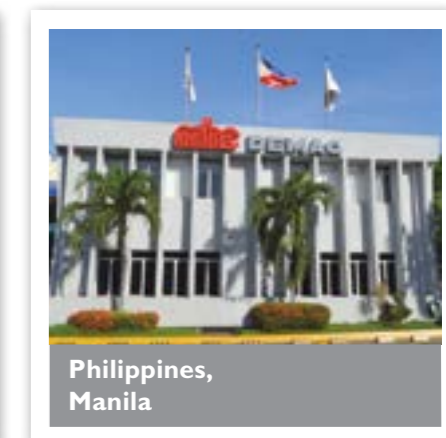
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Simpang Renggam



Thailand,
Bangkok



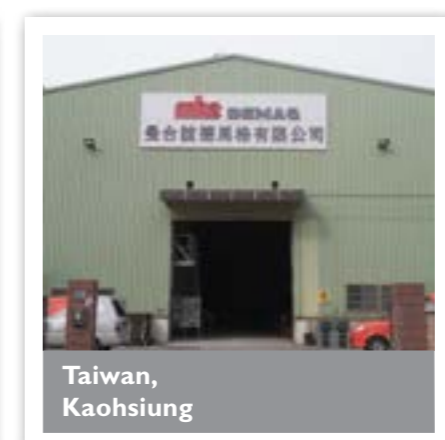
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Surabaya



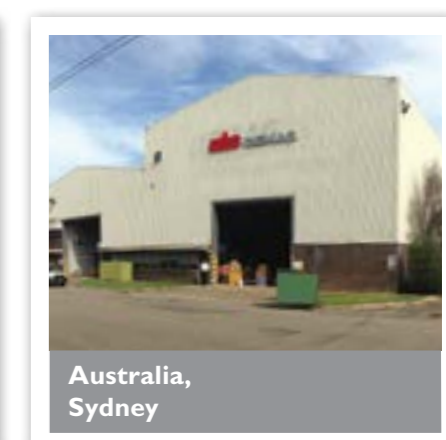
Philippines,
Manila



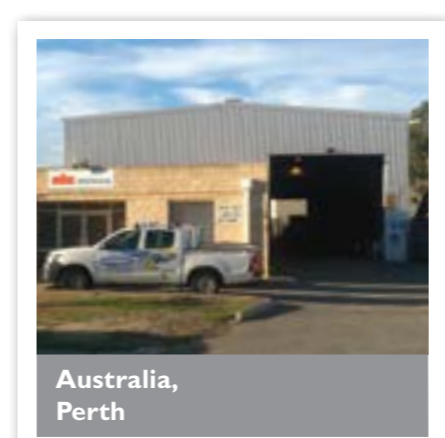
Vietnam,
Ho Chi Minh



Taiwan,
Kaohsiung



Australia,
Sydney



Australia,
Perth



Australia,
Brisbane

11 factories
throughout
Asia-Pacific