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Your Insulation Solution



PRODUCT CATALOGUE



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PRE-INSULATED ALUMINIUM DUCT



**TD Pre-insulated Aluminium Duct** is a new invention that specializes in the air distribution system and insulating purpose. It has been developed as an alternative to the galvanized sheet metal used traditionally.

TD Pre-insulated Aluminium Duct is a sandwich panel made of polyisocyanurate foam (PIR) covered in smooth or embossed aluminium foil of 80 microns in thickness on both sides. TD Pre-insulated Aluminium Duct is equipped

with standardized accessories and tools that will support its structure and usage. It's easy to construct, modify and installed. The end result of fabrication gives not just the exquisite look but also long durability, better fire resistance, and excellent insulation material.

## Product Specification

Thickness of panel	20 mm
Density of PIR	52 +/- 2 kg/m <sup>3</sup>
Compressive strength	200 N/mm <sup>2</sup>
Thermal conductivity	0.017 W/m°C
Flame retardant	Class O
Friction coefficient	0.0135
Weight	1.46 Kg/m <sup>2</sup>
Working temperature	-60 – +80°C
Humidity	0 - 100 %
Pressure max in duct	2,000 Pa
Air flow max in duct	12 m/s
Green product	Non CFC and "0" Ozone Depleting Potential Aluminium Sheet Coated With Anti-Bacterial Coating



## Product Characteristics and Advantages



### THERMAL INSULATED PROPERTY

TD Pre-Insulated Aluminium Duct has 52 +/- 2 kg/m<sup>3</sup> in density, which is better if compared to conventional sheet metal duct. TD Duct is applicable in area within the range of -60°C – +80°C. This is suitable in any climate condition area.

### AIR SEAL

TD pre-insulated is covered by aluminium layer on both sides, thus is completely air-tight sealed. There is absolutely no air leakage when the air static pressure is under 500Pa.

### FRICTION LOSS

Is very low, which reduces the continuous loss of cold air volume. The air characteristics transported in the duct can be maintained at original level.

### ACOUSTICS

It has micro porous structure and uniform combination. Its thickness is 20 mm, which result in better soundproof and anti vibration-damping effect.

### AIR QUALITY & HYGIENE

The sheet is covered by corrosion, acid & alkali -resisting aluminium foil on its both sides, thus is harmless; no moulds, viruses & bacteria grow on its surface; its both sides can be cleaned with water. Therefore sanitation and hygiene are guaranteed.

### LIFE SPAN

Is applicable for 20 years without exchange, reduction of the use function, thus needs basically no cost for maintenance and exchange; its service life is 4 – 6 times of the traditional ducts.

### SAFETY & CONFORMITY TO REGULATIONS

Contains no HCFC, thus exerts no injury to human body and no influence on natural environment in use period. It is can be re-use, therefore is an environmental friendly material.

### TRANSPORT, MANUFACTURE & MONTAGE.

Its weight is only 1.46 Kg/m<sup>2</sup> leading effective reduction in transport cost, manufacture and montage costs, also project finishing period (1 set of hanger for every 3-5 meter of duct).

### EFFECTIVITY

The manufacture speed can be reached 30m<sup>2</sup> – 50m<sup>2</sup>/day/person and the montage speed 15m<sup>2</sup> – 20m<sup>2</sup>/day/person. Its construction efficiency is 5 – 8 times more than traditional duct.

### ECONOMIC BENEFITS

The usage of TD Duct has considerable good economic benefit because of its long life-span, short construction period, small investment for equipment, less quantity of workers needed thus saving man power and montage costs for hanging and supporting structure, simple daily maintenance and decrease in long-term investment.

### COMPETITIVENESS

It can be made in geometric shapes according to various specifications in practical condition. It can also be revealed as decoration since the surface can be covered with paint.

### ENERGY SAVING

TD Duct is manufactured through special technology, with lowest thermal conductivity of 0.017W/M.K in comparison with recent all thermal insulation material for air conditioner and obviously economizing electricity in normal work.

### TD Pre-Insulated Aluminium Duct is:

- **Fire safety** – fire retardant class “o”.
- **Excellent** – constant thermal insulation thanks to the high density panel (52 +/- 2 kg/m<sup>3</sup>).
- **Light weight** – TD Duct weight 1,46Kg/m<sup>2</sup> compared to 9,8Kg/m<sup>2</sup> metal duct.
- **Silent operation** – vibration and reverberation are minimized, increasing system comfort.
- **Hygienic and does not absorb humidity.**
- **Air tight seal** – very low air leakage, the leakage test result is only 0.98 m<sup>3</sup>/h.m<sup>2</sup>.
- **Simple and easy** but highly productive fabrication and installation.
- **Easy maintenance and modification can be performed on site** – cut & gluing can be applied in any section of the ducts.
- **Excellent appearance and long lasting** – life expectancy is 20 years.



Beauty at appearance



Easy maintenance



Healthy air flow

# Product Comparison of Properties

	TD Pre-Insulated Aluminium Duct	Polyethylene	Rock Wool	Ducts from Fiberglass	Rubber	Related factors
Standard specification	4 x 1.2 x 0.02 m	2.06 x 1.03 m	0.63 x 1.2 m		1.2 x 1.2 m	loss
Common thickness	20mm	12,15,20,25,30mm	30,40,50mm	30mm	9,13,19mm	thermal insulation property
Fire resistant	class O	refractory grade B1 (non-inflammable)	grade A	grade A	refractory grade B1	fire control requirement
Thermal conductivity	0.017 W/m <sup>2</sup> C	0.032W/M.K	0.0328W/M.K	0.038W/M.K	0.034W/M.K	thermal insulation property
Apparent density	52 +/- 2 kg/m <sup>3</sup>	59Kg/m <sup>3</sup>	60-120Kg/m <sup>3</sup>	120Kg/m <sup>3</sup>	65-85Kg/m <sup>3</sup>	thermal insulation property
Whole weight	1.46Kg/m <sup>2</sup>	9.28Kg/m (including iron sheet)	12Kg/m (including iron sheet)	12Kg/m	9.32Kg/m	degree of difficulty in montage
Void structure	closed void rate: 99.5%	closed void rate about: 85%	opened void	compact entity	closed void rate about: 80%	all lifetime thermal insulation
Water absorption	0.05 - 0.06 %	0.8 - 1.2 %	easy water absorption	easy moisture absorption	1.5 - 3.0 %	all lifetime thermal insulation
Working temperature	-60°C – +80°C	-55°C – +90°C	7°C – 300°C	0°C – 150°C	-40°C – 105°C	suitable range
Environmental protection prop.	meets the requirement	meets the requirement	bad	has tiny fiber	better	suitable range
Use range	within & without doors	within doors	within doors	within doors	within doors	suitable range
Aging resistance	good	common	powdered	powdered	better	life-span
Appearance	beauty	common	worse	common	better	sensory
Appearance color	aluminium	grey	aluminium	white	white	sensory
Use condition	independent use (integration)	in combination with galvanizing iron sheet	in combination with galvanizing iron sheet	independent use (intergration)	in combination with galvanizing iron sheet	construction quality
Manufacture & montage	simple	complicate	complicate	more complicate	complicate	construction management limit
Construction quality	easy construction and control	many links, difficult control	many links, difficult control	many links, difficult control	many links, difficult control	time limit
Re-use rate	90 %	0	0	0	0	investment
Life-span	over 20 years	8-10 years	6 years	6 years	10-15 years	multiple investment
Maintenance & repair	basically unnecessary	more frequent	frequent & complicate	less maintenance	less maintenance	multiple investment

TD Pre-Insulated Aluminium Duct // product comparison of properties

## Testimonials

As a commercial user, we are very satisfied with how the TD Pre-Insulated Aluminium Duct turned out for our new office and showroom. As a user with architectural design background, I can appreciate how TD product had provided us with a design solution aligned with the industrial theme in our new office and showroom.

Our new office was designed to be industrial minimalist facility with exposed structures and finishes. When I was first introduced to TD products, my original thought was that it was just another insulated panel product and I kept my expectations low. But as the installation process continued, my team and I were quite impressed with our new discoveries. The installation team was professional, courteous and knowledgeable and supported by responsive main office team whom always keep track of the

progress and issues on site. There was consistency in the workmanship and installation processes. The simplicity, speed and cleanliness of the whole process was something to take note on.

The best part was that it was completed with everything turned out and working as promised and more. The finishes at the joints, turns, curves and sloping of the ducts; they can be work of art on its own.

Now we have a literally cool new office and showroom with low noise level AC system that will support our operation and public image as one of the leading furniture retailer in our region.

~ Djohan Lawer, Indonesia



It has been our pleasure to introduce the TD range of Pre Insulated ducted sheets and accessories to the Australia and New Zealand air conditioning market.

Since introducing the TD products to Australia all of our feedback from installers and clients has been very positive. Aspects such as; consistency in product quality, reduced lead times, lower handling/transport costs and a very professional looking and efficient final product reinforce our customers' commitment to using the Pre Insulated TD products.

The high thermal qualities of the TD ducted sheet allows the product to be used from the sub zero "snowy mountains" region to the high humidity tropical areas of Australia's north.

As a result, users from city to remote areas of Australia benefit from this cost effective application.

The transformation of light weight TD sheets to an air handling ducted system without the need of heavy machinery or highly skilled workforce has provided Australia with a cost effective alternative to insulated sheet metal. TD Pre Insulated sheet exceeds the Australian Government's standards, reduces our carbon footprint and has a zero ozone depletion factor.

We are confident and enthusiastic about the future growth of TD products in Australia's highly competitive market and look forward to ongoing benefits to the industry, users and the environment.

~David Wright, Australia



In Iran, sheets of galvanized iron is used for making duct, pre-insulated ducts in comparison with those ducts have advantages that I brought in below :

1. Saving energy to 25%
2. Low conductivity
3. Not need to insulate

4. Low weight (1/7 of galvanized duct weight)
5. Noise neutering to 20 dB
6. High speed of construction
7. Tonality

~Mansour, Iran

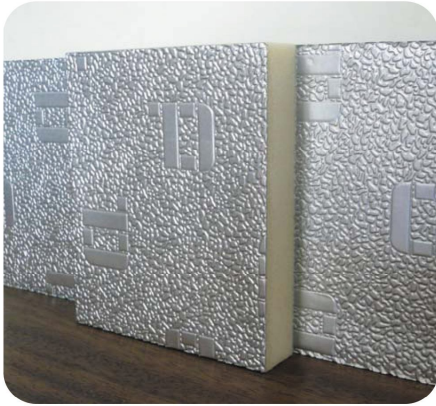


1. Save ceiling space because no need to leave space to wrap fiber glass insulation
2. Light weight , very suitable for building with weak roofing
3. Fast installation
4. Pre-fabrication can be done before sending to the job site which complies to the "Industrialized building system"

5. Easy to maintain site cleanliness
6. Low leakage
7. Can construct high pressure duct and test easily
8. Very good for exposed duct in aesthetic wise
9. Low investment cost for tooling
10. Easy duct modification (after installation)

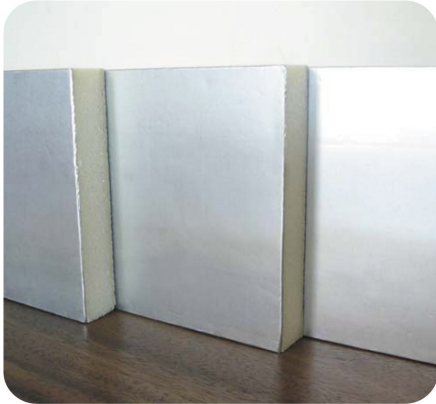
~Pang Win Cheong, Malaysia

## Product Variants



**TD duct panel (embossed + embossed)**  
with 52 +/- 2Kg/m<sup>3</sup> density, 20mm thickness, coated on both side with 80 micron embossed aluminium foil and coupled with layers of corrosion resistant paint.

TD-48/20



**TD smooth panel (smooth + embossed)**  
with 52 +/- 2Kg/m<sup>3</sup> density, 20mm thickness, coated on both side with 80 micron thick aluminium foil, embossed on one side, smooth on the other side, both coupled with layers of corrosion resistant paint.

TDS-48/20



**Super TD (smooth + embossed) outdoor use**  
with 52 +/- 2Kg/m<sup>3</sup> density, 20mm thickness, coated on one side with 80 micron thick aluminium foil coupled with layers of corrosion resistant paint, and 225 micron aluminium composite colour coupled on the other side.

TDC-48/20

## Product Accessories



Invisible Flange  
(4m)

IFO-0120

Tee Connector  
Flange (4m)

TC-0130

Bayonet  
(4m)

BY-01

Cover Angle  
(pcs)

CA-0120

Chair Section Bar  
Aluminium (4m)

SB-C20/3

"F" Section Bar  
Aluminium (4m)

SB-F20/3

Hanging Bracket BJLS  
(pcs)

HB-001

Tiger Claw BJLS  
(pcs)

TC-001

Corner Joint  
1 Corner, 2 Cliplock (set)

CJ-001

Shaped Disc  
Aluminium (pcs)

SD-01

Reinforcement  
(4m)

RF-01/4

Ball Joint Damper  
(pcs)

BJ-001

Aluminium Tape  
(roll)

AT-001

Zinc Coated (90°)  
(pcs)

ZC-001

## Special Glue and Sealant



**TD Glue (11 Kg)**

This special glue has been specifically formulated to obtain perfect adhesion on TD pre-Insulated Alluminium Duct panel foam.

GL-01



**Sealant Neutral (white color)**

Special sealant (Neutral-Non Corrosive) to ensure air quality inside duct and prevent air leakage.

SL-01

## Special Tools for TD Duct Installation



**1. 45° Left or Right and 90° Straight Cutter Knife**  
Cast aluminium cutter knife with special ergonomic shape that permit 45° dan 90° cuts to be followed with speed and precision. It supplied in different colors according to the angle blade.



**2. V Cutter Knife**  
This comfortable and handy jack planes is supplied in painted cast aluminium. The correct blade length also permits V cut in the panels without marking the inferior aluminium foil. It's particularly easy to manoeuvre and is used supported by rulers, while the slotted holes at the sides permit rapid blade replacement.



**3. Manual Bending Tools**  
The manual bending tools is used to make radius elbow and fittings. Best result can be obtain because of the simple usage of this tool and no electricity needed.



**4. Aluminium Ruler (1200 mm & 4000 mm)**  
This aluminium ruler with locking system for an easy and fast locking of the panel to work table. This ruler serves as a guide for the cutter knife and permits to make precise and straight cuts.

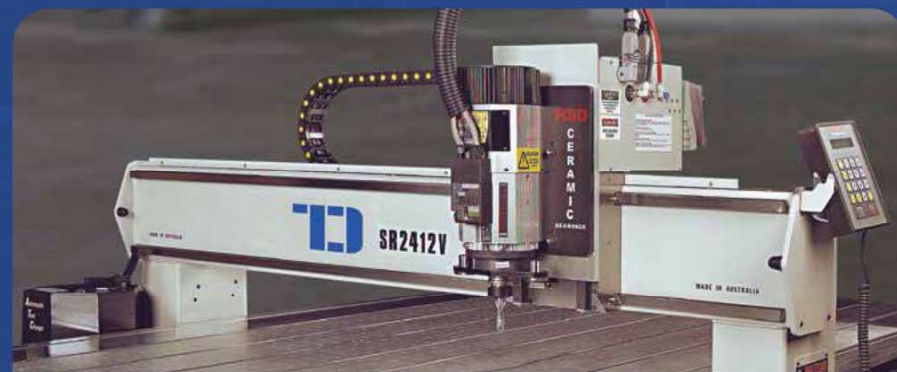


**5. Table complete with carpet for cover (4 x 1.2 m)**  
The table is effective tool used to cut and construct the TD Duct. It is design ergonomically to provide easy and best result. The carpet is used to ensure smooth cutting process and to protect the blade to a more long term use.



**6. Electric Bending Machine**  
This bending machine is an innovation of the manual bending that gives faster result and precision with the usage of electricity.

## CNC Routing Cutting Machine



This machine is a specially designed solution to help revolutionize the production and manufacture of pre-insulated aluminium duct construction. The machine powered by cam-duct & tool path software that bring a complete solution for the fabrication of TD duct, using duct maker series of routers and specifically designed automatic tool changer, "V" cutting and cutting the panel shapes can be done in one process, giving massive saving in all aspects of manufacture.





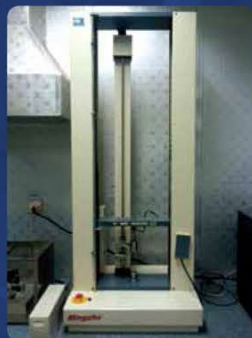
# TD Duct Laboratory



Thermal Conductivity Machine



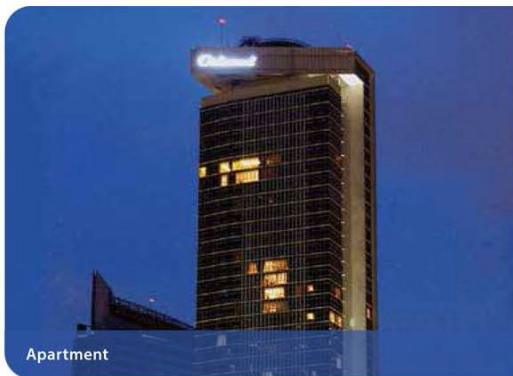
Fire Tester Machine



Pressure Machine

## Product Application in Project

### Building Blocks



Apartment



TD Duct Installation



Apartment



TD Duct Installation

### Industrial Activities



Factory



TD Duct Installation

### Mall



Mall



TD Duct Installation

### Public Building

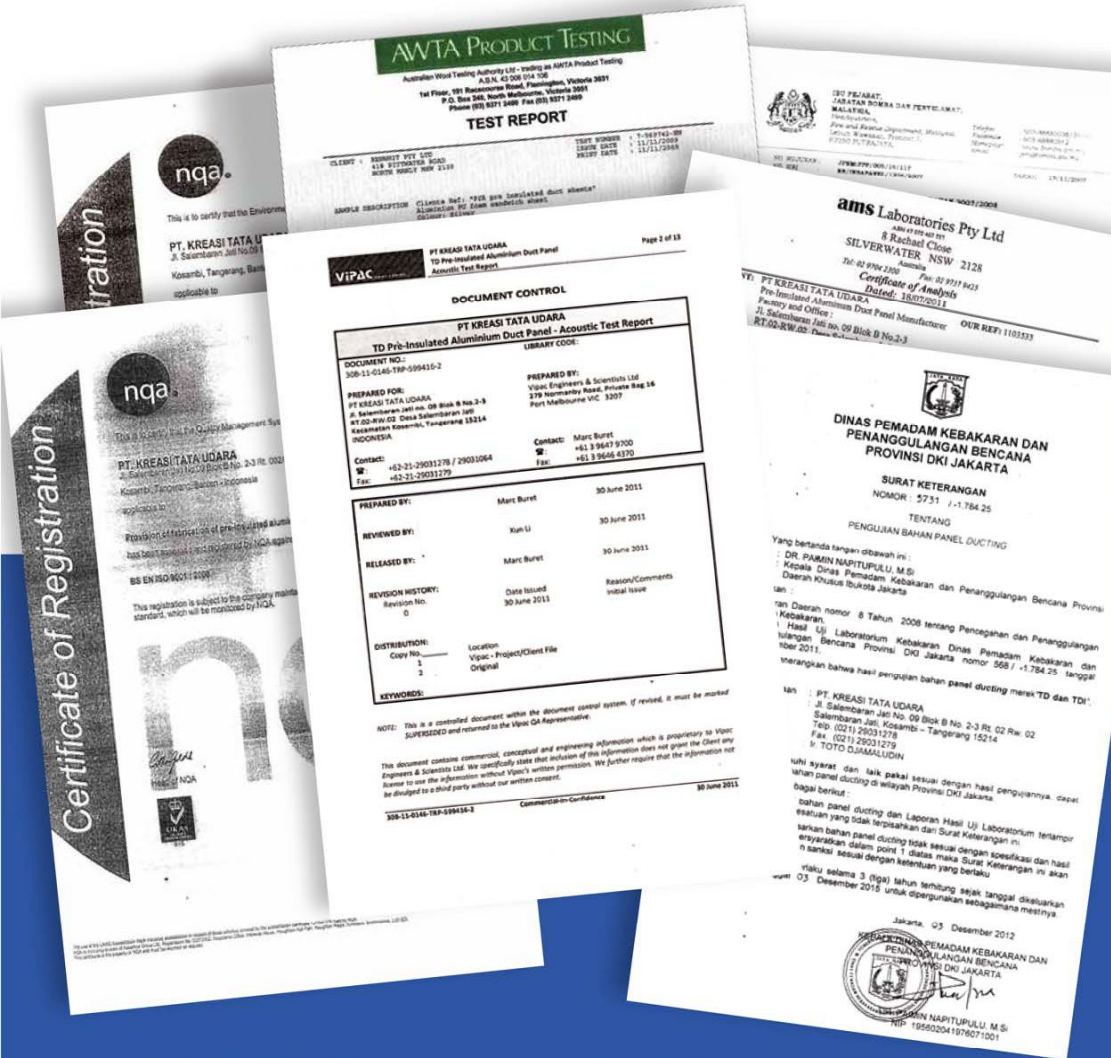


Education Institution



TD Duct Installation

## Certification



- BS EN ISO 9001 : 2008 by NQA
- BS EN ISO 14001 : 2004 by NQA
- AWTA (Australian Wool Testing Authority Ltd) Certification
- Malaysia Fire and Rescue Department: Product and Material Certification

- Indonesia Fire and Rescue Department: Product and Material Certification
- VIPAC Engineers & Scientists, Australia: Acoustic Test Certification
- AMS Laboratories, Australia: Certificate of Analysis

## Other Product

### TD Flex - Flexible Round Duct

TD Flexible Duct is a high standard flexible duct recommended to be used in air conditioning system and ventilation system. TD Flexible Duct is made up of layer aluminium core which consists of mechanical spring wire helix. The core is later wrapped in glass wool with a density of 24 Kg/m<sup>3</sup> or 16 Kg/m<sup>3</sup> held by strong double layer aluminium sleeve.

The use of glass wool for insulation will result a good temperature insulation and noise reduction. The flexible

duct is wrapped in such way to ease delivery and storage. It is also covered with a plastic bag to avoid any damages due to dampness.

The use of TD Flexible Duct will result a small friction loss if calculated and installed properly.

TD Flexible Duct is also available with acoustic specification, with the core manufactured in such a way that allows some of the entrapped noise in the air stream to be absorbed into the insulation layer.



### PRODUCT SPECIFICATION

- Core** : Layers aluminium around a mechanical spring wire helix
- Insulation** : Glass wool 24 Kg/m<sup>3</sup> or 16 Kg/m<sup>3</sup>
- Sleeve** : Aluminium double layer with glass cloth
- Composition** : Adhesive CHT tuboid in the core
- Size** : Standard size of 100mm (4") to 400mm (16")
- Length** : 10m
- Package** : Plastic bag

### RECOMENDATION OF USAGE

- Maximum velocity of air is 20m/seconds
- Maximum air pressure is 1000 Pa
- Maximum temperature: 80°C
- Minimum temperature: -10°C

### PRODUCT ADVANTAGE

- TD Flexible Duct is fire resistant flexible duct
- Easy to install and modify fittings
- Easy to cut and connect
- Help to reduce noise
- Guaranteed high quality fabrication
- High quality of glass wool for good insulation
- Length of 10m
- Able to reach places that duct could not reach
- Easy to transport and storage
- Low friction loss if calculated and installed properly
- Cheap installation cost

