

DIACON[®]
AUSTRALIA
PROTECTING YOUR PEOPLE

PRODUCTS CATALOGUE

www.diaconaust.com.au





Diacon Australia began the design and manufacture of its Diacon system products in 2010 after identifying a need for significant improvement in the areas of conveyor productivity and safety; machinery guarding; work area demarcation and fall protection.

All Diacon products are produced on a special order basis.

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1800 DIACON
3 4 2 2 6 6

EXCEEDING EXPECTATIONS

All DIACON Australia products are specifically designed and customised to meet or exceed the very individual needs and wants of our customers.

For that reason, we handpicked our team of committed professionals, fabricators and installers; namely, to meet or even exceed the expectations of our customers.

PRODUCT INNOVATION

Without the positive culture of invention and innovation at the heart of DIACON Australia, it simply would not exist.

Where “need is the mother of invention”, so too was “customer need” the inspiration for our novel range of industrial plastic products and our ongoing commitment to research, development and innovation into the future.

SERVICE EXCELLENCE

Fundamental to the success of our relationship with customers, is the DIACON Australia service ethic that service should be delivered at an exceptional standard.

Combined with our practice of taking on our customers' problems as our own, DIACON is extremely proud to achieve that standard of service on an ongoing, consistent basis.

QUALITY ASSURANCE

In order to satisfy our customers' expectation for innovative products and exceptional service, DIACON Australia adopts state-of-the-art methodologies in the manufacture and distribution of its products.

We also operate a regime of rigorous product testing to support our customers' expectations for excellence.



THE “DIACON SYSTEM” EXPLAINED

“THE KEY TO
PRODUCTIVITY
& SAFETY.”



DIACON CONVEYOR HUNGRY BOARD

The DIACON Hungry Board is an aluminium-reinforced, plastic panel that is used on conveyor belts to contain product, reduce spillage and increase conveyor capacity by up to 30%. From greenfield sites to existing plant upgrades, DIACON is your low cost, corrosion free, lightweight and easy to install alternative.



DIACON CONVEYOR GUARD

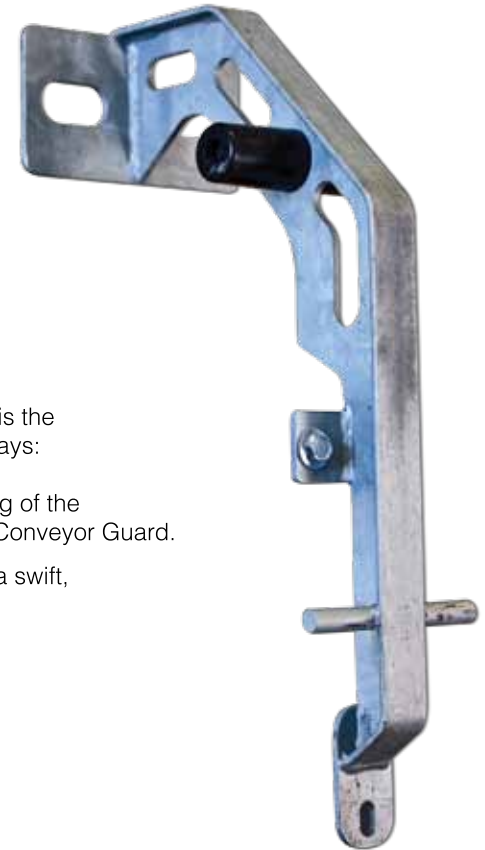
The DIACON Conveyor Guard is a plastic mesh, conveyor guarding system which improves safety in the materials handling industry. Complementing the DIACON Hungry Board, this corrosion free and lightweight guard requires no painting, is easily installed and allows for quick guard removal during maintenance operations.

“**DIACON
MOUNTING
BRACKET,
THE HEART
OF THE
SYSTEM.**”

DIACON CONVEYOR MOUNTING BRACKET

Fundamental to the effectiveness of the DIACON System is the DIACON Mounting Bracket. Its design is unique in two ways:

1. By providing a mechanism for simultaneous mounting of the DIACON Conveyor Hungry Board and the DIACON Conveyor Guard.
2. By attaching directly to existing troughing frames in a swift, straightforward process.



Step 1

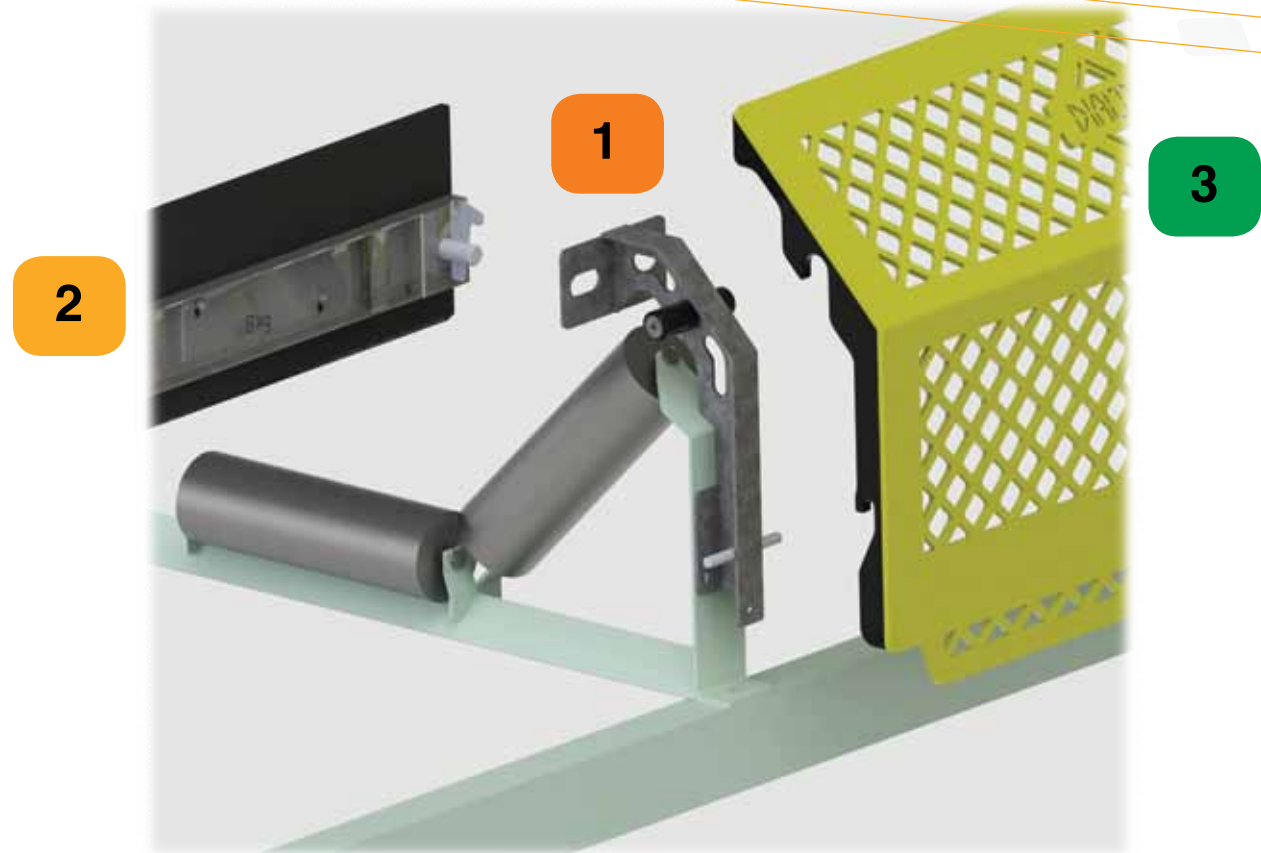
Bolt mounting bracket to existing troughing roller frame.

Step 2

Attach Hungry Boards to the Bracket with locking wedge.

Step 3

“Hook, Hang and Lock” the safety guard panel to the bracket.





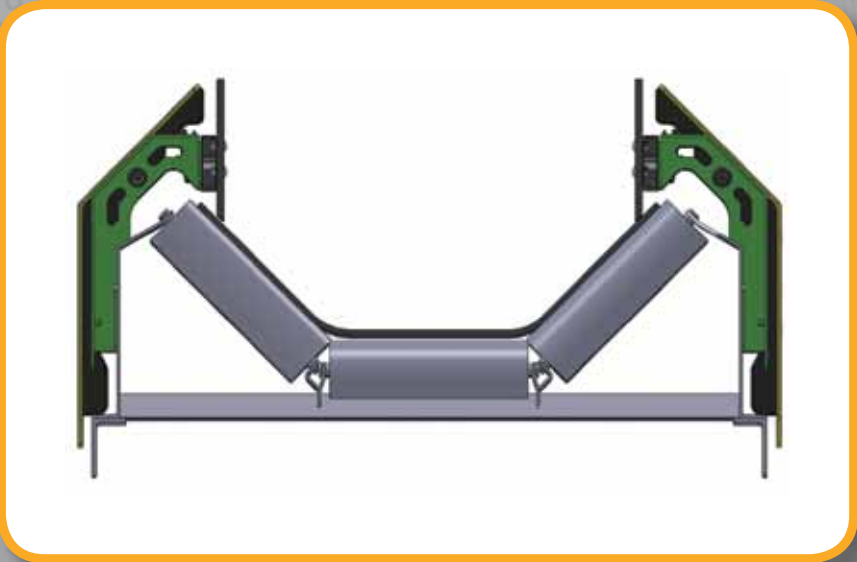
DIACON[®]
AUSTRALIA

Making *ideas* become **REALITY...**

body	Illustration	Opening	Safety distance (sr)		
			Slot	Square	Round
		$e \leq 4$	≥ 2	≥ 2	≥ 2
		$4 < e \leq 6$	> 10	≥ 5	≥ 5

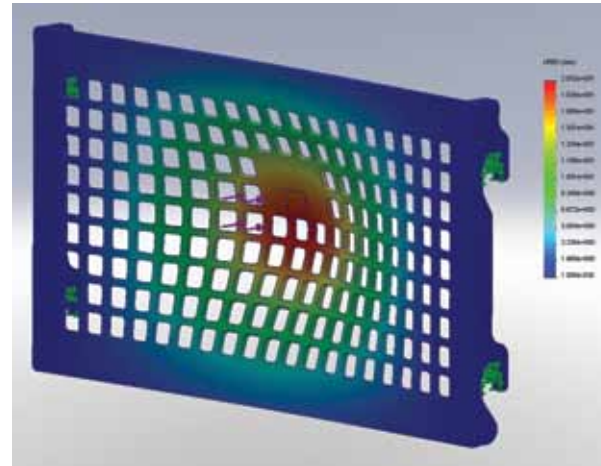
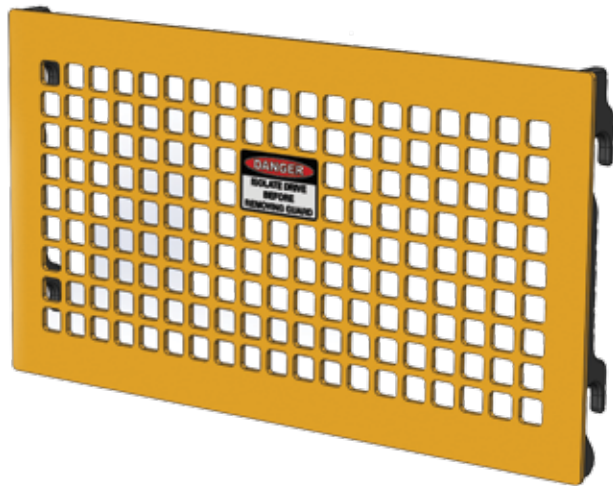


Engineered conveyor solutions, individually analysed to meet site requirements.



Utilising AutoCad and SolidWorks facilities for efficient custom design.

DIACON offer full in-house design of guarding products, reducing client's costs on drafting services.



Finite Element Analysis (FEA) is used to verify suitability to task and compliance to Aust Standards.



Manufactured using modern CNC equipment to achieve high accuracy, consistency and low costs.

Enhancing *tomorrow's* workplaces!



THE DIACON CONVEYOR HUNGRY BOARD



IMPROVING YOUR
CONVEYOR
PRODUCTIVITY.”



BENEFITS

	DIACON HUNGRY BOARD	TYPICAL STEEL FABRICATED HUNGRY BOARD
EASY TO REMOVE	✓	✗
LIGHTWEIGHT	✓	✗
100% CORROSION FREE	✓	✗
NO NEED TO PAINT	✓	✗
EASILY CUSTOMISED TO SUIT CONVEYOR	✓	✓
MOUNT USING PIN AND WEDGE SYSTEM	✓	✗
PANEL WEIGHT CAN BE MARKED ON EACH HUNGRY BOARD	✓	✗
SAFE DURING OPERATIONS AND MAINTENANCE PERIODS	✓	✗
EASILY REMOVED FOR TROUGH IDLER REPLACEMENT	✓	✗
HUNGRY BOARD DOES NOT REQUIRE A HEAVY SUPPORT STRUCTURE	✓	✗



MANUFACTURE

- Certified anti-static, ultra high molecular weight polyethylene plastic (FRAS approved material available).
- Aluminium channel support bar.
- Handles for easy removal.
- Panel sizes - up to 3000mm long.
- Lightweight; can be marked permanently if required.



PANEL WEAR ADJUSTMENT

WEDGES ALLOW FOR FAST REMOVAL



MOUNTING

- Mounted on DIACON Mounting Brackets and fastened by steel wedges inserted in aluminium slotted pins.
- Dual purpose – provides for simultaneous mounting for DIACON Conveyor Guards.



OPERATION

- Lower edge of panel is matched to the troughing angle of the conveyor belt.
- Downward adjustment allows for wear of Hungry Board skirt during operation.
- Hungry Board height is usually 300-400mm.
- Height is customisable to the conveyor's volume needs, belt drive capacity and headspace.
- Easily removed for belt splicing and trough idler change out.



THE DIACON CONVEYOR GUARD



PROTECTING
YOUR PEOPLE.”

BENEFITS

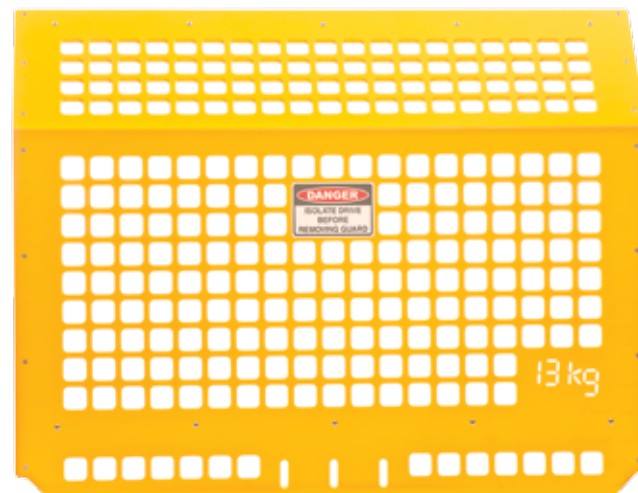
	DIACON CONVEYOR GUARD	TRADITIONAL CONVEYOR GUARDING
LIGHTWEIGHT & EASY TO REMOVE	✓	✗
100% CORROSION FREE	✓	✗
NO NEED TO PAINT	✓	✗
EASILY CONFIGURABLE INTO A VARIETY OF SHAPES	✓	✗
MOUNT USING DROP ON "HOOK AND HANG" SYSTEM	✓	✗
PANEL GUARD CAN HANG ON NEARBY HANDRAIL WHEN REMOVED	✓	✗
CUSTOM LABELLING IS COST EFFECTIVE	✓	✗
PANEL WEIGHT IS MARKED ON GUARD	✓	✗
HOLES AVAILABLE IN RANGE OF SIZES	✓	✗
HOLES CAN BE LOCATED SPECIFICALLY WHERE REQUIRED	✓	✗
PROVIDES LONG LIFE UV PROTECTION (20 YEARS PLUS)	✓	✓
MEETS AUSTRALIAN STANDARDS FOR LOAD/DEFLECTION REQUIREMENTS	✓	✗
SAFE DURING OPERATIONS AND MAINTENANCE PERIODS	✓	✗
SOUND DEADENING QUALITIES	✓	✗
MESH PANEL DOES NOT REQUIRE A FRAME CONSTRUCTION	✓	✗





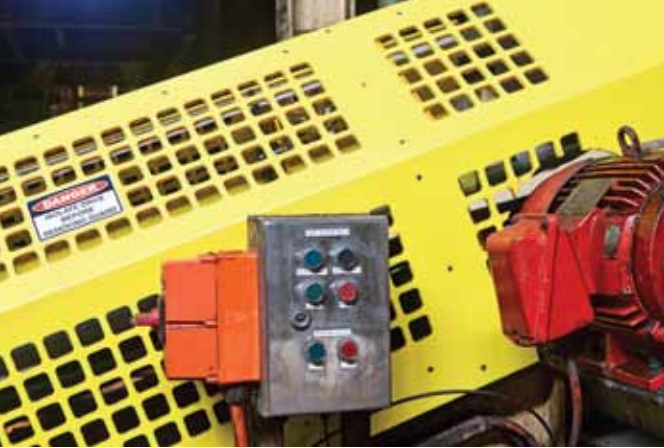
MANUFACTURE

- Custom shaped high density polyethylene guard panel with holes for visibility and ventilation.
- Multiple angle options possible for improved fitment.
- Use of "Hook, Hang and Lock" protocol.
- Hooks stiffen panel in vertical and SS angle iron gives strength in horizontal plane.
- Panel sizes - up to 3000mm long.



MEETS AUSTRALIAN STANDARD AS4024.1-2006 & AS1755-2000

- Attachment of guards to existing equipment.
- Removal of guards with a tool.
- Correct placement of signage on guard: safe isolation of equipment.
- Flexibility of signage location to meet other international standards or preferences.
- Reaching through openings on guards prevented.
- Preferred colour for guarding - AUST STD Y14 Golden Yellow.



OPERATION

- Weight of each guard is punched into the panel to help assess the manual handling risk during removal.
- Allows safe hanging on handrails during maintenance.

MOUNTING & INSTALLATION

- Custom shaped hooks neatly fit supports on the DIACON Mounting Bracket.
- Unsupported panelling at bottom edge provides for custom onsite fitment to equipment and thereby avoiding the need for onsite "hot work", permits, etc.





**“ HIGH QUALITY,
LIGHTWEIGHT
GUARDING THAT
WILL LAST! ”**



DANGER
ISOLATE DRIVE
BEFORE
REMOVING GUARD

13 kg

DANGER
ISOLATE DRIVE
BEFORE
REMOVING GUARD

13 kg

THE DIACON SAFETY PANEL



**AN INNOVATIVE
SOLUTION.**

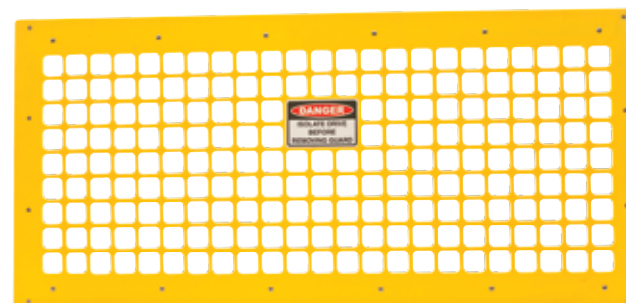
BENEFITS

	DIACON SAFETY PANEL	TRADITIONAL PANEL GUARDING
LIGHTWEIGHT	✓	✗
EASY TO REMOVE	✓	✗
100% CORROSION FREE	✓	✗
NO NEED TO PAINT	✓	✗
EASILY CONFIGURABLE INTO A VARIETY OF SHAPES	✓	✗
MOUNT USING DROP ON "HOOK AND HANG" SYSTEM	✓	✗
PANEL GUARD CAN HANG ON NEARBY HANDRAIL WHEN REMOVED	✓	✗
CUSTOM LABELLING IS COST EFFECTIVE	✓	✓
PANEL WEIGHT IS MARKED ON GUARD	✓	✗
HOLES AVAILABLE IN RANGE OF SIZES	✓	✗
HOLES CAN BE LOCATED SPECIFICALLY WHERE REQUIRED	✓	✗
PROVIDES LONG LIFE UV PROTECTION (20 YEARS PLUS)	✓	✗
MEETS AUSTRALIAN STANDARDS FOR LOAD/DEFLECTION REQUIREMENTS	✓	✓
SAFE DURING OPERATIONS AND MAINTENANCE PERIODS	✓	✗
SOUND DEADENING QUALITIES	✓	✓
MESH PANEL DOES NOT REQUIRE A FRAME CONSTRUCTION	✓	✗



MANUFACTURE

- Custom shaped high density polyethylene guard panel with holes for visibility and ventilation.
- Use of “Hook, Hang and Lock” protocol.
- Hooks stiffen panel in vertical and SS angle iron gives strength in horizontal plane.
- Panel sizes - up to 3000mm long.



MOUNTING & INSTALLATION

- Custom shaped hooks neatly fit boss supports.
- Unsupported panelling at bottom edge provides for custom onsite fitment to equipment and thereby avoiding the need for onsite “hot work”, permits, etc.





OPERATION

- Weight of each guard can be punched into the panel to help assess the manual handling risk during removal.
- Allows safe hanging on handrails during maintenance.

MEETS AUSTRALIAN STANDARD AS4024.1-2006 & AS1755-2000

- Attachment of guards to existing equipment.
- Removal of guards with a tool.
- Correct placement of signage on guard: safe isolation of equipment
- Flexibility of signage location to meet other international standards or preferences.
- Reaching through openings on guards prevented.
- Preferred colour for guarding - AUST STD Y14 Golden Yellow.



The background image shows an industrial setting, likely a wastewater treatment plant. It features large yellow metal grates on the floor and ceiling, with various pipes and structural elements visible. The scene is somewhat dimly lit, with a focus on the yellow color of the grates.

FREQUENTLY ASKED QUESTIONS



1. What are the specs on the UV Stability of HDPE?

This HDPE material has a life of 20 to 25 years in direct sunlight; longer term sunlight exposure will cause colour fading and slight chalking of the surface. The 10mm thick material will still have more than 7mm of structural strength after this time. Use of these guards inside CHPP plants, conveyor galleries etc, has given guards a long life due to their reduced sun exposure.

Although the DIACON Conveyor Guard is a relatively new product, our sister company, Consolidated Plastics & Epoxy (CPE), has been manufacturing Pump Guards, Drive Guards etc. from this material for the past 20 years, with all guards still providing appropriate protection in compliance with Australian Standards.

2. Are these guards compliant with the strength requirements detailed in AS1755?

DIACON guards are specifically engineered to meet 100% of the requirements of AS4024.1-2006 for Safeguarding of Machinery and AS1755-2000 for Conveyor Guarding. In this regard, we focus primarily on the following:

- Suitability of material for purpose,
- Aperture size considerations relative to reach distances,
- Deflection criteria when the guard is under load,
- Correct signage, and
- The ability of the guard to be unlocked for removal only through the use of a tool.

The DIACON guarding system is designed using FEA and has been tested in-house to ensure that required deflection criteria are met when loads of 450N vertical and 220N horizontal are applied simultaneously to the guard, as required by Section 3.2.3 Strength, AS1755-2000. Driven to continually improve, DIACON is closely monitoring revisions of the Aust Standards to ensure that compliance is also achieved in the future.

3. What are the effects on the plastic of burning coal, gasses and the melting point of HDPE?

Unlike the FRAS rated material available in DIACON Hungry Boards, the HDPE material in DIACON Conveyor Guards is not yet FRAS rated. We are currently working with suppliers to obtain such a FRAS rated, HDPE material.

The HDPE material currently used by DIACON does have some self-extinguishment properties, but it will burn when a burning fuel source is present. In the event of a dramatic coal belt fire, it could be legitimately argued that the additional fuel load provided by the DIACON guarding would only amount to a few percent, when compared to the fuel load provided by the coal and the rubber belting.

At present, HDPE melts at 130°C and as such, DIACON Conveyor Guards should only be used in ambient condition environments. As they are located a minimum of 150mm from the moving conveyor belt at all times, the DIACON guards never actually come into contact with the belt.



4. What is the thermal coefficient of the plastic, with respect to expansion issues?

Coeff of Exp = 0.000 059 mm/mm/C; In the heat of a 35°C day, a 1500mm guard might reach a temperature of up to 60°C at the core, significantly less than a comparable steel or aluminium guard. At these temperatures, the thermal growth of a DIACON conveyor guard would be 3.1mm more than its manufactured length at a temperature of ~ 25°C. DIACON's Conveyor Mounting Brackets are specifically designed to allow for a mounting tolerance of up to 15mm, thus negating the impact of thermal expansion on the guards.

5. Are there any creep issues with DIACON Conveyor Guards?

HDPE does creep but by using effective

engineering techniques, these effects are much reduced. Each guard is reinforced along its horizontal length with 304 S/S Angle, which is rebated into the upright 20mm thick HDPE Hook Mounting Stiffener. This rebate ensures that the load is transferred directly through the guard components without reliance on the S/S rivet fasteners. Taken together, these features minimise the effect of HDPE creep.

6. Since DIACON guards are mounted on idler frames, is there sufficient guard/support clearance to allow movement of those idler frames for belt tracking?

As mentioned previously, we allow for 15mm of movement for positioning adjustments on the idler frames. We have found this to be adequate for 98% of applications. In the

event of a specific problem, a special length guard would be produced to accommodate the gross variation.

7. What happens in belt weighing zones where you cannot mount your guards in the same way?

In fact, we do use the same guards in belt weighing zones and while we cannot attach them directly to the belt weigh idlers, a special bracket is made to mount directly onto the conveyor stringer. The profile of the guard does not normally have to change. In those circumstances, the belt weigher is still very easy to work on during maintenance due to the easy removability of the DIACON guards.

If, for example, the spacings between troughing frames in a belt weigh zone were 1000mm apart, but there were only two belt

weigh idlers, we would use a 3000mm guard to straddle from one fixed troughing idler to the next. We adopt the same approach at Belt Tracking idler frames, because it is not possible to mount guards at those points either.

8. How easy are the guards to store (considering guard geometry) when performing maintenance work from a conveyor walkway? Are there any trip hazard issues?

Being able to store DIACON conveyor guard on handrails during maintenance operations, is one of its most important design features. Because the diameter of the top mount bush is 44mm to accommodate the top Hook of the Guard, it can also be used to temporarily mount the guard on adjacent handrails (32nb Pipe).



The upper hook is positioned to allow the Guard to hang correctly on the top handrail. As well as keeping the guard safely off the ground or walkway, this feature provides safe personnel access along the walkway as well as effective access to the conveyor during maintenance operations.

9. What life can we expect to receive from these guards?

The corrosion-free properties of all materials used in the construction and fastening of our guards, mean they do not require painting or protective coating. In harsh environments therefore, DIACON Conveyor Guards will predominantly outlast steel and aluminium alternatives. The life of DIACON Conveyor Guards is effectively limited by just two things, namely the UV life of the HDPE material and the possibility of their being damaged by major impact.

All guards are manufactured from robust, impact resistant materials and on most occasions will readily bounce back into shape after impact. In the event of a panel being badly damaged however, it may be replaced at minimal cost. By retaining details of every panel guard it has ever made, DIACON is able to promptly reproduce any item according to its original manufacture specifications. When quoted the appropriate Part Number (engraved on the inside of the Guard), DIACON will have a replacement guard ready for installation during the customer's very next maintenance shutdown. In summary, DIACON guards are expected to provide 20-25 years of service under normal working conditions.

10. How do DIACON Conveyor Guards rate in terms of cost?

Unlike earlier failed attempts to achieve cost-effectiveness in large scale plastic

guard manufacture, DIACON's innovative production process now makes plastic guarding an economically viable alternative in large scale applications such as conveyors, etc.

DIACON industrial guarding is now less expensive than steel fabricated guards when you consider the following:

- the need for design drafting of each guard - process rationalised internally by our team.
- the higher than normal labour rates in Australian-made guards - reduced through manufacturing automation.
- the cost of modifying non-conforming or ill-fitting steel guards – allowance made in the design for simple, onsite modification.
- avoidance of double handling of DIACON guards during manufacture.
- no painting of DIACON guards during their lifetime.

11. Do you need to guard Hungry Boards or full lengths of conveyors?

DIACON Hungry Boards provide dramatic increases in belt capacity, cope with large load spikes caused by operational disruptions, and significantly reduce conveyor belt spillage. In general, it is only necessary to install guarding on the full length of conveyors in the following two instances:

1. When DIACON Hungry Boards are installed on the conveyor's full length for their capacity benefits. With the belt now contained under the Hungry Board's fixed skirt, nip points are created at each troughing frame

prompting the use of guards.

2. When guards are installed as a result of Risk Assessments which indicate the existence of significant hazards, such as where:

- A gallery walkway is substantially narrower than recommended by Australian Standards.
- The height of a catwalk in relation to troughing nip points makes the entry of limbs too easy.
- The frequency of use of the area is very high and the potential for harm is accordingly high.

12. How effective are DIACON Conveyor Guard panels in terms of weight?

Each DIACON Conveyor Guard is designed and produced with weight reduction in mind. The basic composition of HDPE, with its specific gravity of 998kg/m³, is up to 6.8 times lighter than steel. The strength properties of plastics relative to steel suggest a realistic weight saving of 2 to 3 times can be achieved, with good engineering design.

To provide users with information needed to correctly assess if a guard can be manually handled safely in any situation, each DIACON panel is individually marked (for the life of the guard) with its actual weight, rounded up to the nearest 1kg. A typical DIACON Conveyor Guard (1500mm long) weighs 13kg, while the largest guards (3000mm long) weigh in at no more than 27kg. Every attempt is made to design panels shorter than 2000mm long to make handling guards easier, as longer guards can be difficult to manoeuvre.



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