DELTABLOC®

Deltabloc DB80 Barrier

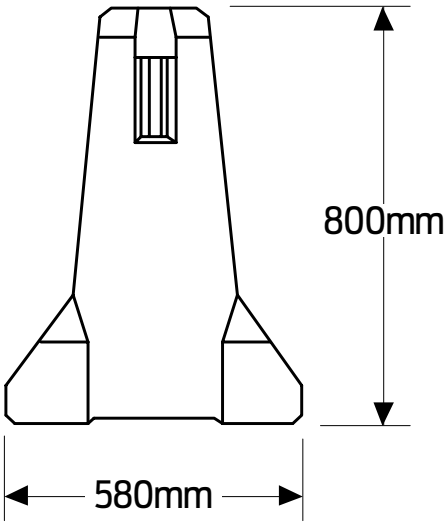
INSTALLATION MANUAL

jaybro.com.au

1300 885 364

Jaybro

Deltabloc DB80 Barrier



Introduction

Proper design, deployment and maintenance of the Deltabloc System is essential to ensure maximum performance.

It is critical for any user of the Deltabloc System to be familiar with the manufacturer's instructions for use.

Take the time to review this manual before performing the necessary work.

Do not attempt to install any longitudinal barrier without the proper plans and installation manual from the manufacturer.

If you need additional information, or have questions, please call:

DELTABLOC International GmbH at

+43 55715/470

for Australian enquiries, please contact:

Jaybro 1300 885 364

System Overview

The main advantages of the DB80 F-Shape System from Deltabloc over traditional portable concrete barriers are:

- Energy absorbing
- Quick and easy installation
- Economical
- No damage after low and medium impact because off butt joint inserts
- Easy replacement of damaged barriers
- Identical barrier connections at either end

Deltabloc Barriers are crashworthy and have been tested to MASH 2009 and EN1317 testing procedures.

DB 80 F-Shape has achieved Test Level 3 (TL3) as a redirecting longitudinal safety barrier for speeds up to 100 km/h.

Deltabloc DB80 Barrier

Function

The patented Deltabloc technology is based on the well-proven tension bar in combination with the unique coupling. The precast Concrete units are connected like a chain and provide a specific flexibility. Elastomer bearings between the single barriers ensure a controlled damping of peak loads. This guarantees reliable breakthrough prevention for heavy vehicles and soft impact behavior for small passenger cars. DELTABLOC technology has been optimized in more than 130 full scale crash tests, allowing DELTABLOC barriers to deliver the best impact severity results available.

Applications

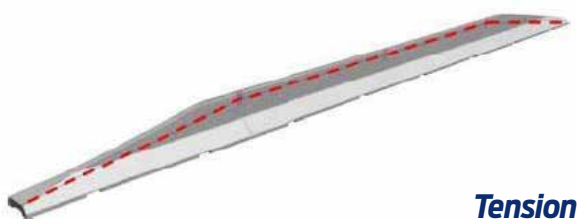
Deltabloc barriers can be used in many applications such as:

- General Road Maintenance
- Road Constructions
- Toll Plazas
- Road Resurfacing
- Excavation or culvert protection
- Bridge Repairs
- Median or verge installations

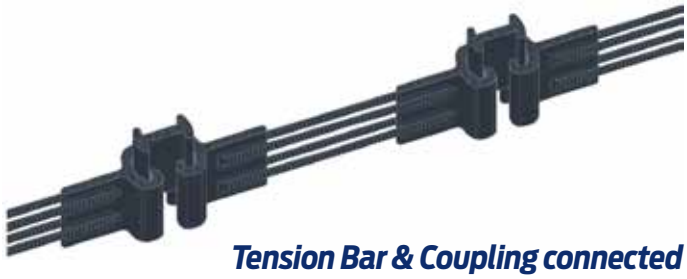
System Design

TENSION BAR

The patented tension bar is incorporated within each DELTABLOC barrier. Tension bars are available in different strengths to accommodate different containment levels required.



Tension Bar



Tension Bar & Coupling connected

COUPLING

The patented coupling is used to connect the tension bars within each barrier, enabling a continuous connection from the beginning to the end of the barrier deployment.

Coupling

DELTABLOC

Deltabloc DB80 Barrier

Minimum Length

All vehicle restraint systems need a certain minimum installation length to assure the complete protection.

The tested length and approved minimum installation lengths for DB 80 F-Shape are:

Barrier Length	Minimum Length
4m	**61m**
6m	**66m**

Length of Need

CALCULATION OF INSTALLATION LENGTH

The installation length has to be at least the minimum length of the system. For selective protection of pillars or similar the minimum length is equal to the installation length.

For securing a whole area the installation length is the minimum length plus the length of the area to secure.

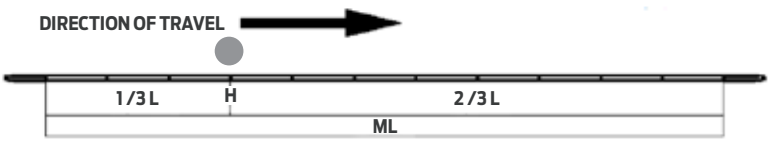
The minimum length (ML) represents the system length that guarantees full protection. To guarantee full protection 1/3 of minimum length has to be before the area to secure and 2/3 behind.

Terminals and transitions are not part of the minimum installation length.

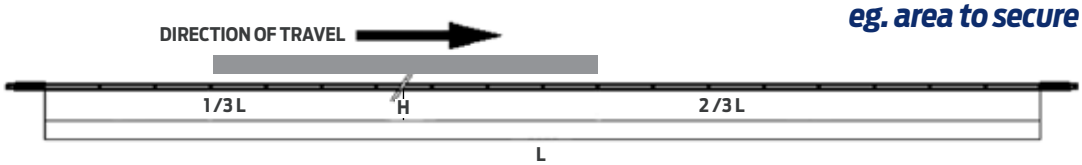
For all cases where the minimum system length cannot be provided a solution should elaborated in accordance with the local authorities.

KEY

- **ML** Minimum Length
- **H** Area to secure
- **L** Installation length (excluding terminals & transitions)



eg. area to secure

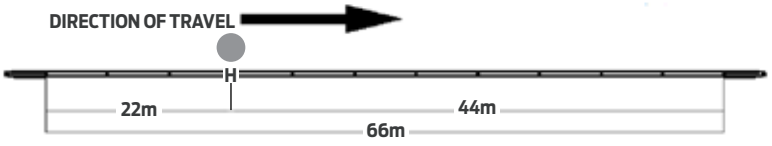


DELTABLOC®

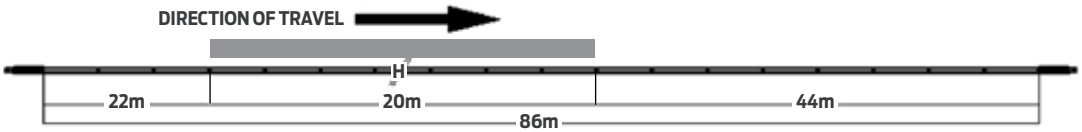
Deltabloc DB80 Barrier

Length of Need Examples

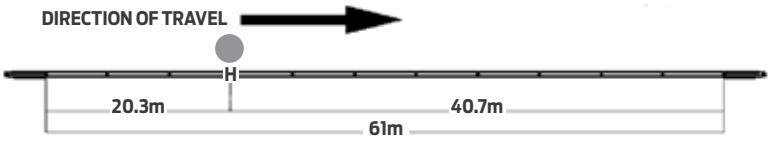
Protection of Pillar with 6m Barriers



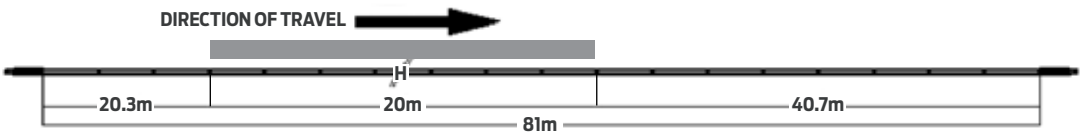
Protection of 20m Wall with 6m Barriers



Protection of Pillar with 4m Barriers



Protection of 20m Wall with 4m Barriers



DELTABLOC®

Deltabloc DB80 Barrier

Deflection

The tables below show the different system deflection and the working widths for different impact angles and speeds. Barrier displacement calculated according kinetic energy values of a 2000kg vehicle impacting (NCHRP 350).

Angle of Impact	5°	10°	15°	20°	25°
Design Speed km/h	Deflection (mm)				
40	4	18	41	72	110
50	7	29	64	112	172
60	10	42	93	162	247
70	14	57	126	220	336
80	19	74	165	288	439
90	23	94	209	364	555
100	29	116	257	449	686

Angle of Impact	5°	10°	15°	20°	25°
Design Speed km/h	Working Width (mm)				
40	584	598	621	652	690
50	587	609	644	692	752
60	590	622	673	742	827
70	594	637	706	800	916
80	599	654	745	868	1019
90	603	674	789	944	1135
100	609	696	837	1029	1266

Site Conditions

GENERAL

To achieve expected deflections, the minimum lengths of deployment as set out on page 4 under “Minimum Length” must be complied with.

At the beginning and the end of each DELTABLOC chain, the appropriate terminal barriers have to be fixed with anchors in the base (foundation or pavement). For connecting other restraint systems, the applicable special transition barriers must be used.

Before barriers are deployed, it is suggested that the principal contractor and site supervisor meet at the site where the barriers are to be placed. Agreement of placement should be agreed on and the site marked out accordingly. The foundation to which the barriers are to be placed onto should be inspected, along with the foundation within the working width of the barriers. Inspection results should be documented and signed off.

Installations are commonly carried out in accordance with site drawings. Any issues that present themselves on inspection of the site should be discussed and the solution signed off and drawings amended.

FOUNDATION

The requirements for the foundation are:

- **Load-Bearing Capacity**
  min. 200kN/m²
- **Evenness of Ground**
  ± 1cm deviation over a length of 6m
- **Frost Protection**
  Should comply with any national or local standards or guidelines

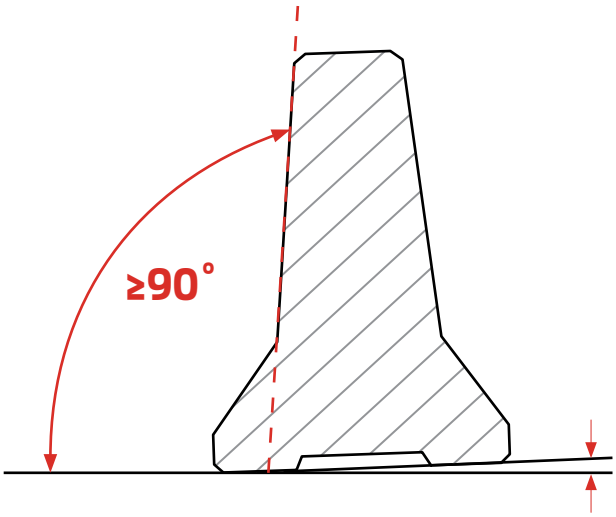
LONGITUDINAL

The crashworthy properties of Deltabloc barriers is not affected by Longitudinal Slope.

CROSS SLOPE

The cross slope of the carriageway mostly corresponds to the cross slope of the base area.

In areas where the carriageway and the area where the barriers are to be positioned experiences differences in cross slope, the long sloping side of the DELTABLOC barrier should not be placed so that it smaller than an angle of 90° to the roadway. **The maximum allowable Cross Slope is 10%.**



Long slopping side of barriers

Deltabloc DB80 Barrier

CONTACT AREA

The base area is usually a road pavement of either asphalt or concrete, or an unbounded, frost-proof base course.

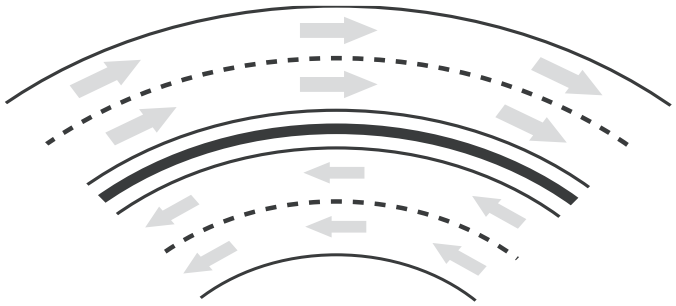
Any unevenness resulting in a height offset of more than ± 10 mm at the butt joints is to be compensated by means of elastomer strips, 5/8 chippings or equally suitable material. This chips have to be inserted under the base of the lower barrier to even up the height difference.

All other contact areas which comply with the requirements for the foundation (load-bearing capacity, evenness, frost resistance), such as compacted graded material, are in general also suitable and have no significant influence on the impact performance. In case of doubt, before taking the final decision for the foundation please contact your DELTA BLOC contact person, or Road Management Solutions.

CURVE RADII FOR SAFETY SYSTEMS

For installations, it is possible to reduce the curve radius by using an elongated couplings. The elongated couplings are 10mm or 20mm longer than the 'standard' supplied coupling(97mm). Radii can also be reduced by using shorter 2m and/or 4m barriers.

Please check with your local state road authority for the approval compliance of both the extended couplings and barriers shorter than 6m in length.



Barrier Type	DB80 F-Shape		
Barrier Length	2m	4m	6m
Curve radii with Standard coupling 97mm	40m	80m	120m
Curve radii with long coupling 107mm	24m	48m	72m
Curve radii with extra long coupling 117mm	16m	32m	48m

DELTABLOC

Deltabloc DB80 Barrier

Deployment

GENERAL

Thoroughly review where barriers are to be placed. This includes the location where the first barrier is to be placed, including and end treatments that will be positioned at the site. Barrier's orientation and layout should also be considered to ensure the traffic management plan is adhered to.

Cross-Fall should be re-checked. Unstable surfaces are to avoided, as well as uncompacted soil, ditches or sand.

The area behind the barriers within the expected deflection area should be free of gutters, ditches and be in a stable condition.

Barriers should be inspected for cracks or damage that deem them to be unsuitable for use. If in doubt, forward photos of the damage to Road Management Solutions.

TRANSPORT

Transport of the barriers to site with low loaders where possible to reduce any 'Working At Height' non-compliance

Unloading Process

PRE LIFTING INSPECTION

Before lifting a Barrier the following items must be inspected:

- **Lifting Anchors** wear, corrosion, deformation or cracking
- **Structural Damage** signs of impact/cracking
- **Coupling** has it already been removed

LIFTING OF BARRIERS

Barriers can be lifted using the integrated 'SwiftLift' anchors. Barriers should be lifted and lowered vertically only, lifting one barrier at a time only. Attempts to push/drag barriers and the like may result in damage to the barrier, rendering it unsuitable for use.

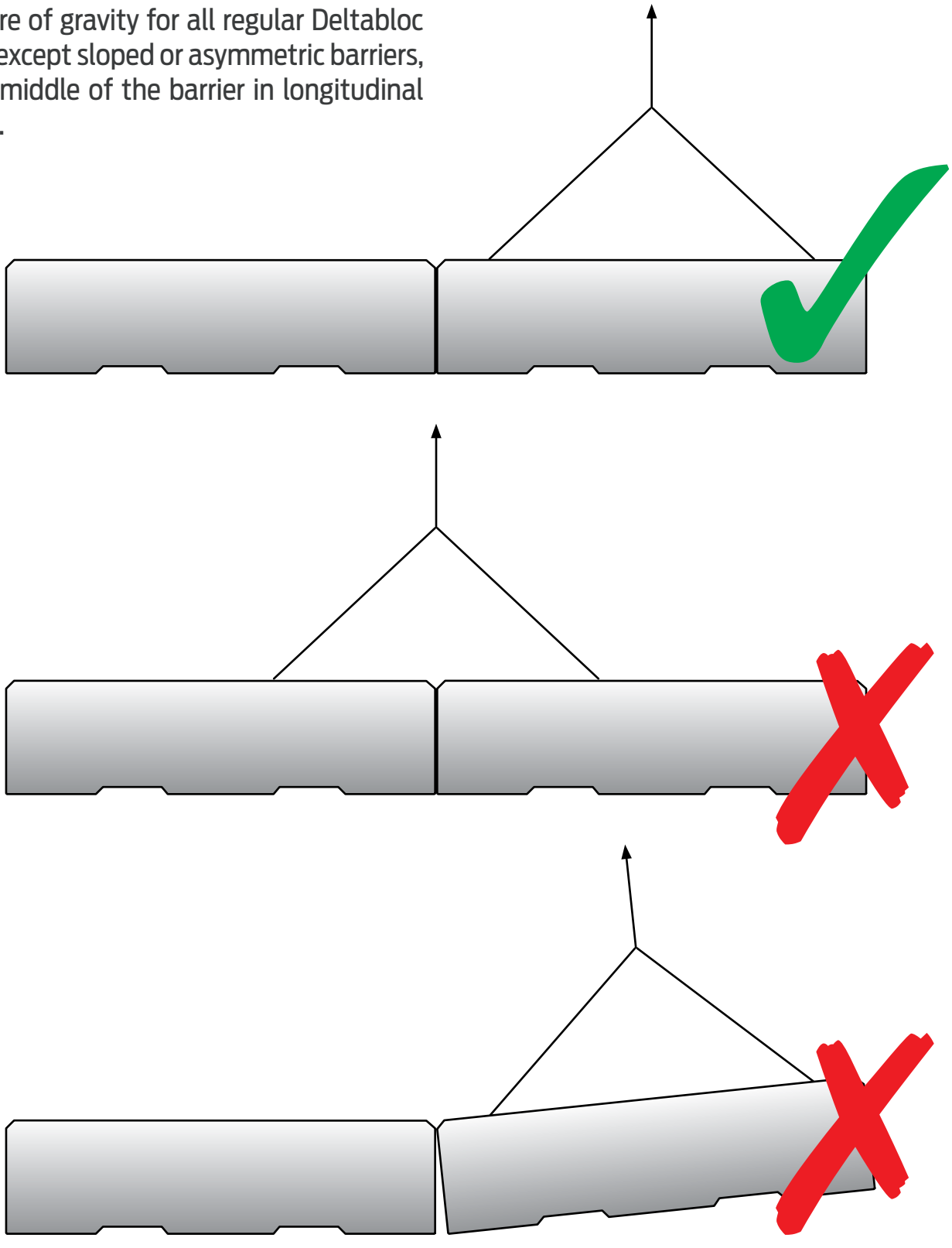
It is Essential that:

- The lifting clutches, chains etc are attached by suitably trained and experienced operators or personnel
- Only one barrier is lifted at a time
- The tabs of the lifting clutches are aligned with the chain sling
- The lifting point of the crane is located directly over the centre point of the barrier, prior to lifting
- Barriers are lifted evenly and horizontally
- The lift should be as smooth as possible, ensuring little or no damage to the barrier, crane or lifting chain etc occurs
- If the lift experiences a snag, the lift should be stopped and the snag point dealt with and/or the chain sling adjusted

Deltabloc DB80 Barrier

CENTRE OF GRAVITY

The centre of gravity for all regular Deltabloc barriers, except sloped or asymmetric barriers, is in the middle of the barrier in longitudinal direction.



DELTABLOC

Deltabloc DB80 Barrier

LIFTING INFORMATION

Reid
(A division of ITW Australia Pty Ltd)
ABN: 63 004 235 063

Tel: 1300 780 250
Fax: 1300 780 122
1Ramset Drive
Chirnside Park, Vic. 3116
PO Box 192, Croydon Vic 3136

To:	Simon Eastwell	**From:**	Steve Kikhel	
Company:	RMS	**Date:**	20/08/2013	
Fax/Phone:	(03) 9878 8700	**Cc:**	Vas Haitas	
Subject:	Lift Cert. for PC Barrier Units	**Pages:**	3	(including this page)

Simon,

RE: **Lift Certification for Precast Barrier Units (DeltaBloc Barriers). Project: General certification for barrier units (6m, 4m and 2m). Customer Job No: N/A. Customer Drawing No: B654227T, B705533T and B705534T, Sheet 1**

REF. No.: **8319**

A lifting anchor review/certification was undertaken as requested for the above-mentioned units as in accordance with Australian Standards and including TMR requirements. The design is based on the following:

General Conditions:

- **Min. Concrete strength at the time of lift to be 15MPa in yard and 32MPa on site**
- It is the responsibility of the contractor to ensure that the specified Reid cast-in inserts are positioned correctly
- Lift to be made using gantry crane in yard and franna or similar on site (stationary or moving at under 5km/h over smooth terrain)
- Dynamic impact factor taken as $\mathbf{K_d = 1.5}$
- Minimum factor of safety (FOS) is **5**
- Sling angle to be **60** degrees max.at the hook. Please note that short slings may overload the lifting anchors. Slings length = 3m long each
- Mass of the units estimated as 3.2 tonne max.

Lifting Anchors:

- Use two No.: 5 tonne Reid SwiftLift foot anchors, Reid Part No: **'5FA170'** – per unit – stripping anchors and rotation anchors
- Use two No.: 5 tonne Reid SwiftLift combination eye anchors, Reid Part No: **'5REA120'** – per unit – placement. Anchors installed with N16 x 700 leg length 'U' tension bars.
- Anchor locations: as per attached Reid Ref: 8319 computation drawing

The Reid 5 t lifting anchor system specified for the above mentioned precast units is certified for a safe lift. If any changes are made to the anchor locations or lifting methods employed, Reid must be contacted to reconfirm the adequacy of the lifting anchors. If you have any queries regarding this certification or our product range, please do not hesitate to contact me.

The designs are based on the precast unit geometry and hardware as detailed. Certification for lifting will be invalid should changes be made without our written approval. If changes are made without authority from Reid, Reid will accept no liability in the event of any unit failure.

Regards,
Steve Kikhel
Design Engineer B.E. MIEAust CPEng
RPEQ 12716

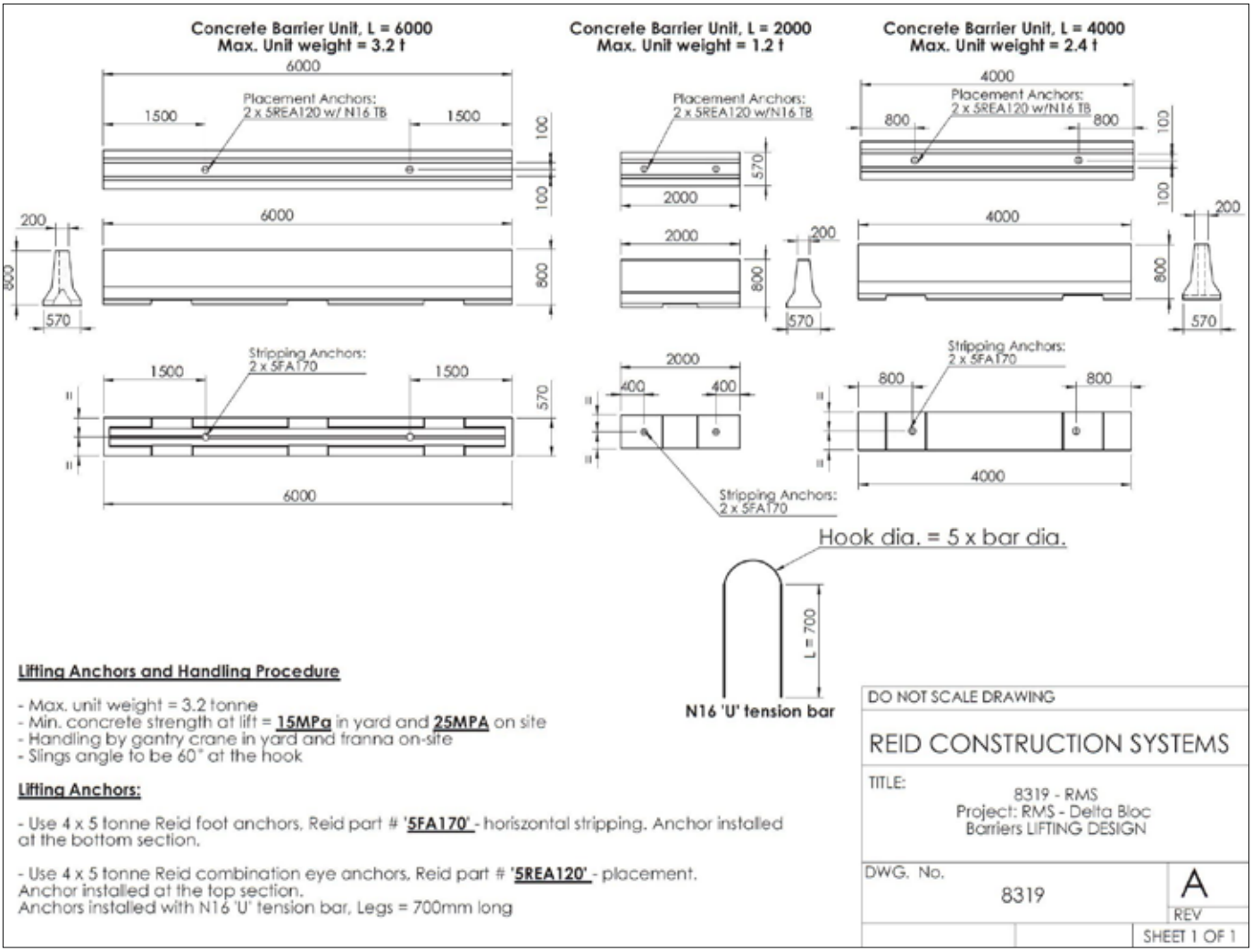
Steve Kikhel

REF. No.: 8319

References: For further information on the correct installation of Reid products please refer to Reid Safe Lifting for Precast/Tilt-Up Concrete Panels & Elements (Refer to www.reid.com.au)

DELTABLOC®

Deltabloc DB80 Barrier



Lifting Anchors and Handling Procedure

- Max. unit weight = 3.2 tonne
- Min. concrete strength at lift = **15MPa** in yard and **25MPA** on site
- Handling by gantry crane in yard and franna on-site
- Slings angle to be 60° at the hook

Lifting Anchors:

- Use 4 x 5 tonne Reid foot anchors, Reid part # **'5FA170'** - horizontal stripping. Anchor installed at the bottom section.

- Use 4 x 5 tonne Reid combination eye anchors, Reid part # **'5REA120'** - placement. Anchor installed at the top section.
Anchors installed with N16 'U' tension bar, Legs = 700mm long

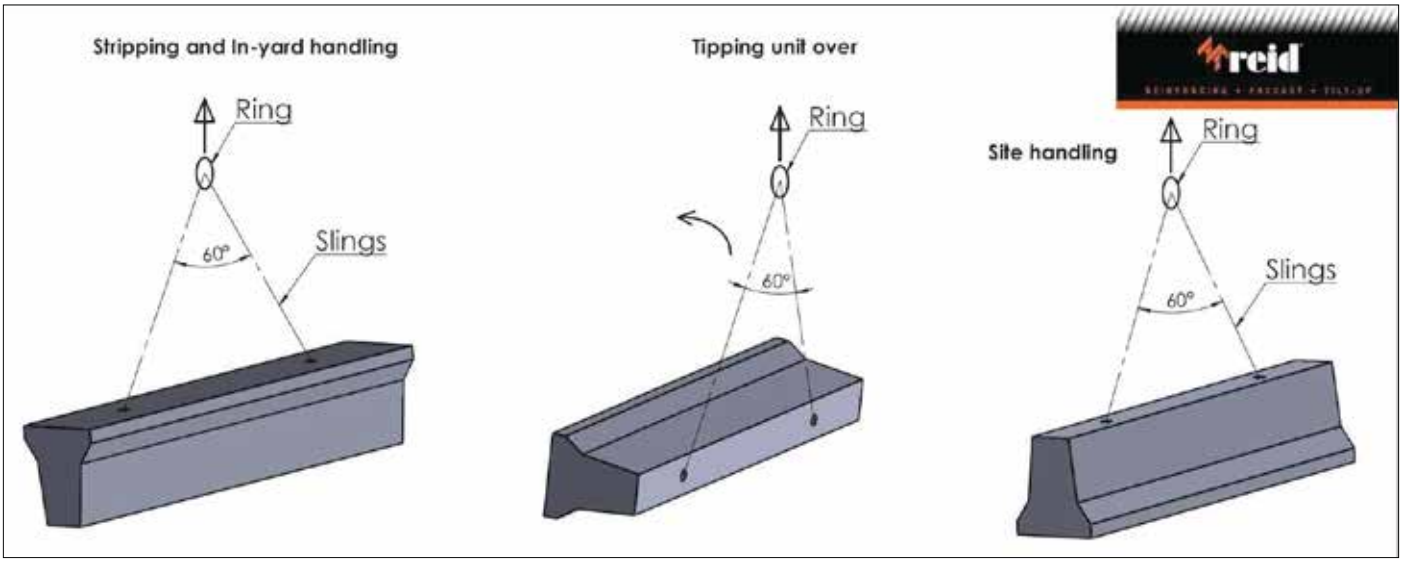
DO NOT SCALE DRAWING

REID CONSTRUCTION SYSTEMS

TITLE: 8319 - RMS
Project: RMS - Delta Bloc
Barriers LIFTING DESIGN

DWG. No. 8319 — A REV

SHEET 1 OF 1



DELTABLOC®

Deltabloc DB80 Barrier

Ancon®
BUILDING PRODUCTS

Ancon Building Products
98 Kurrajong Avenue
Mount Druitt NSW 2770

Tel: 1300 304 320
Fax: 02 9675 3390
Email: info@ancon.com.au
Web: www.ancon.com.au

PO Box 358
Blacktown NSW 2148

21st August 2017

Letter of Conformance

Customer Reference: Lifter in concrete barrier

Supply of: 5.0Tonne x 240mm Cone Anchors [CA05240]

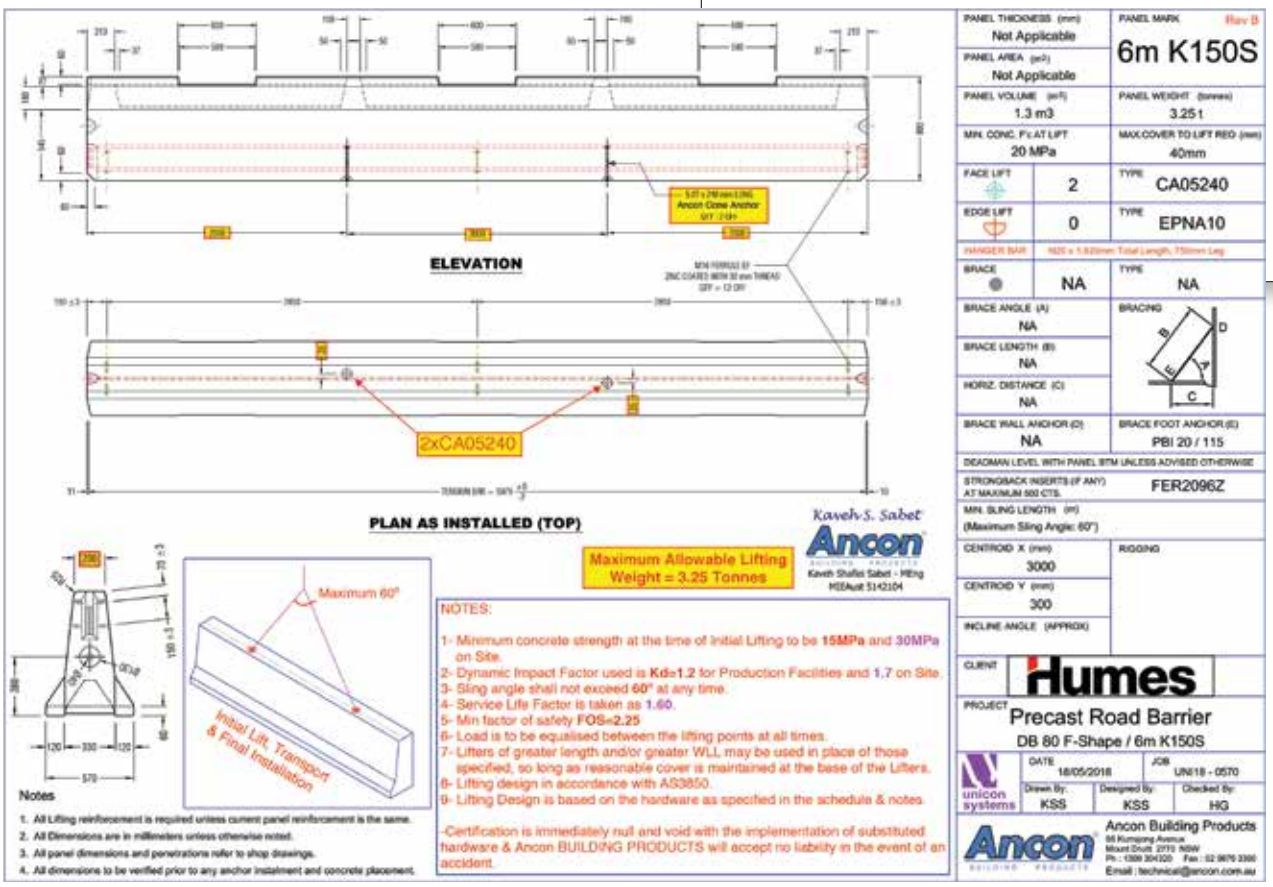
Ancon Building Products confirm that the abovementioned supplied products comply to:

- Dimensional and material requirements of customer purchase order, and
- Relevant approvals and load criteria as set out in AS3850:2015 and published literature, provided there are no changes to the current environment that are beyond our control.

Subsequently these have been released for delivery to site as required.

Whilst Ancon has no control of the installation, all product should be installed in accordance the recommended installation procedures.

Ian Butler
SHEQ MANAGER
Ancon Building Products



Deltabloc DB80 Barrier

INSTALLATION

Deployment of Deltabloc barriers should adhere to traffic management plans and should always commence at the upstream end of the deployment, working downstream with the traffic. Work crews should work from the 'non-traffic side of the barrier deployment whenever possible.

NOTE: A crashworthy approved End Treatment should always be installed to ensure full motorist safety and compliance with State Road Authority requirements.

The Deltabloc barrier are individually lifted from the transport vehicle. The Deltabloc coupling is already inserted while lowering an barrier. The barrier is aligned, using a suitable tool such as a crowbar, just above the base area. It is then put in its final position, with care being taken that the barrier chain is tensed by pulling the last barrier in a longitudinal direction.

The removal of the barriers is the reverse of the Installation instructions.

Fast Connection of barriers using patented coupling

BUTT JOINT INSERTS

Butt Joint Inserts are elastomer wedges. They are plugged in between the barriers and connected with an elastomer strap.

Joint inserts are used for three reasons:

- Reduction of working width through reduction of deflection because of the butt joint inserts
- Reducing of spalling through protection of the edges
- Direct force transmission in curves

Butt joint inserts have to be used for every DB80 F-Shape Delta systems. Without Butt Joint Inserts the specified deflections will not be achieved and spalling and damage to barriers will be increased in the event of an impact or even at installation.

When installing butt joint inserts, care must be taken as to exactly position the butt joint inserts into the joints between the barriers. The elastomer strap that keeps the butt joint inserts together can be pulled to the other side using a hook.

DELTABLOC®

Deltabloc DB80 Barrier

Mounting of a butt joint insert

There is a worker on each side pulling the elastomer strap using a metal hook

End Treatments

- TAU II by Barrier Systems
- ABSORB 350 by Barrier Systems

The Deltabloc end Barrier serves as transition to the crash cushions. It is a standard DB 80 safety barrier unit equipped with a special tension bar with an extended Yprofile on of the front ends (see appendix drawing V62101).

The anchorage of the Deltabloc end unit has no influence to the anchorage of the crash cushion and vice versa.

The Deltabloc End Barrier should be anchored after the Absorb 350 anchor plate has been set into position. If installed first, the Absorb 350 base plate cannot be inserted under the End Barrier.

If using the TAU-II crash cushion as an End Treatment, the Deltabloc End Barrier can be placed and anchored first, taking care to ensure enough room is left for the crash cushion.

DEVIATING BARRIER LENGTHS

Deltabloc recommends using only tested barrier lengths. Other barrier lengths may however be used after clarification with the technical division of Deltabloc.

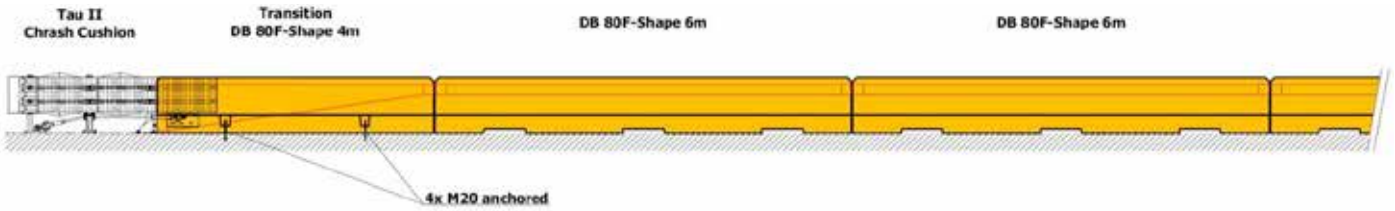
COUPLING TOLERANCES

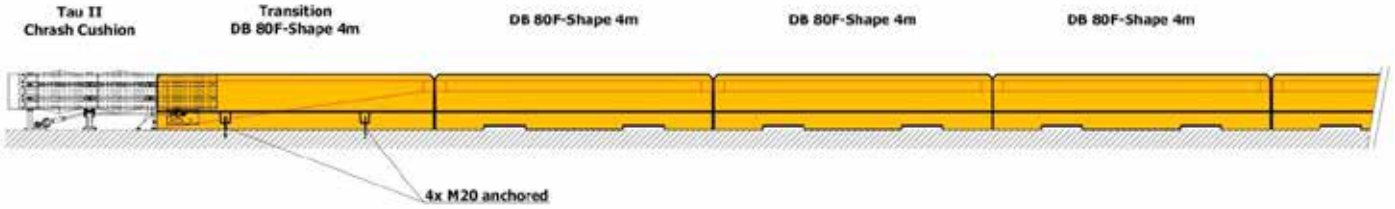
DELTABLOC portable concrete barriers are connected together via the Deltabloc patented coupling system. The gap between two joined barriers should be 14mm (+0mm /-14mm).

DELTABLOC®

Deltabloc DB80 Barrier

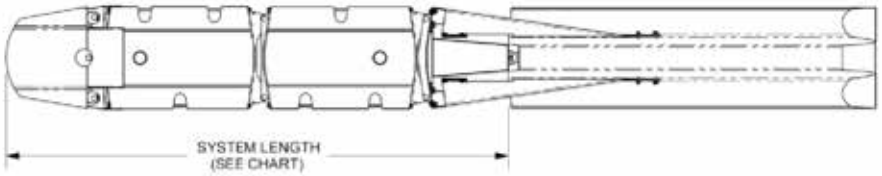
TRANSITION ABSORB 350



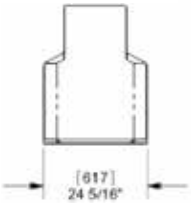


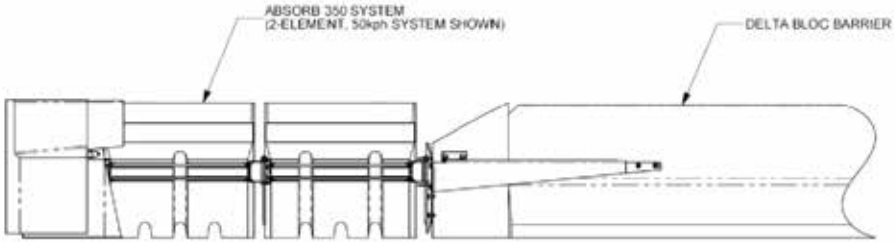
NOTES UNLESS OTHERWISE SPECIFIED

1. ABSORB 350 TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
2. DIMENSIONS SHOWN ARE REFERENCE. DIMENSIONS IN BRACKETS ARE IN mm.



DESIGN SPEED		NUMBER OF	SYSTEM
mph	kph	ELEMENTS	LENGTH
31	50	2	9' - 11"
37	60	3	13' - 1"
40	65	4	16' - 3"
44	70	5	19' - 5"
50	80	6	22' - 7"
56	90	7	25' - 9"
62	100	9	32' - 1"
65	105	10	35' - 3"
68	110	11	38' - 5"
75	120	12	41' - 7"





REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY.	ITEM
0	NEW DRAWING	06/12/08	JR			

SCALE: 1:25

	DATE	INIT.
DRAWN BY	06/12/08	JR
APPRD BY		GAD

Standard Tolerance: Angular ± 1/2° | Fractional ± 1/16" | Dec .XXX± ± .010 | Dec .XX± ± .030

TITLE: AB350 TRANSITION TO DELTA BLOC BARRIER

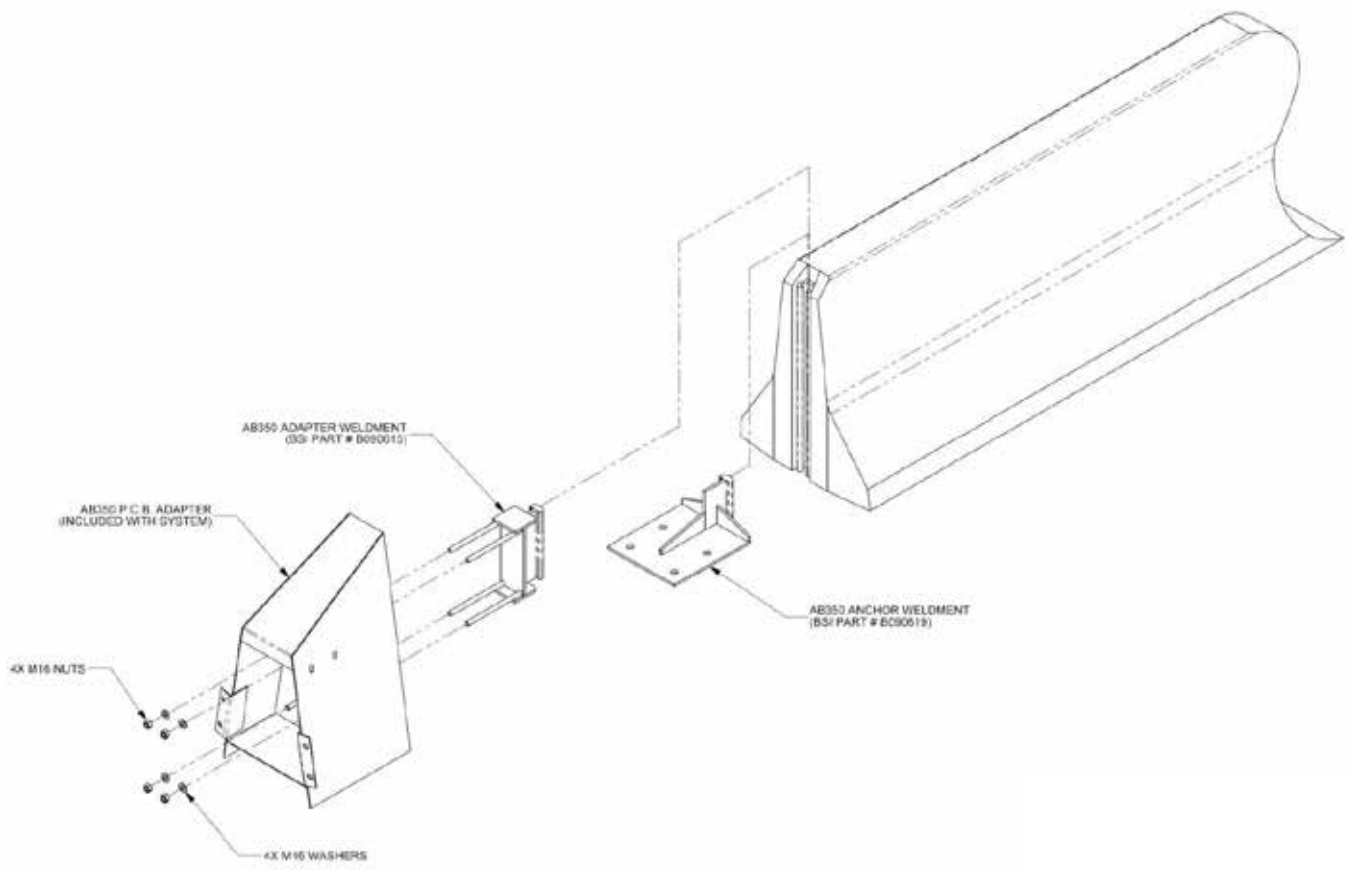
BARRIER SYSTEMS
A LINDSAY TRANSPORTATION SOLUTIONS COMPANY

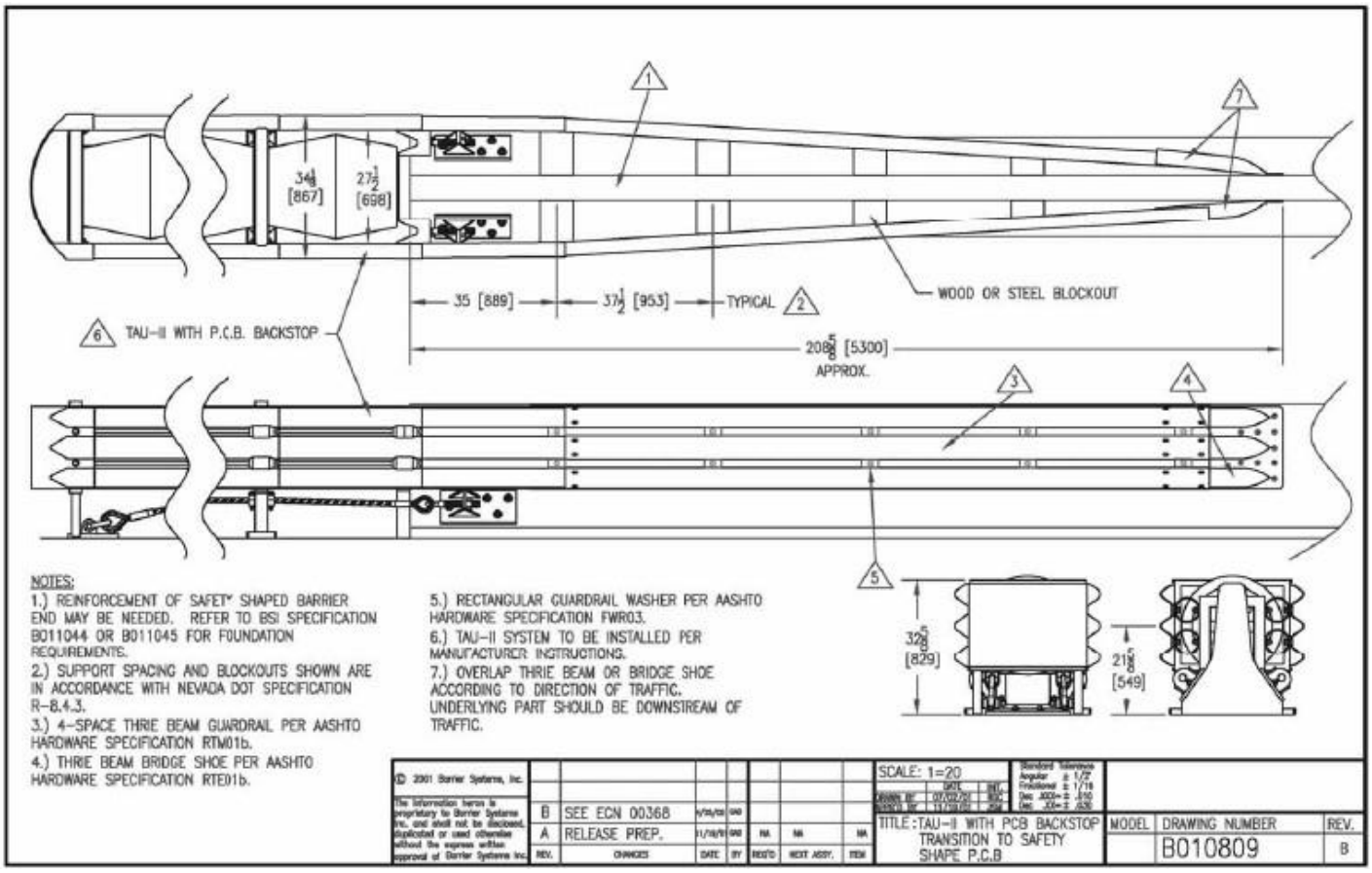
SHEET	DRAWING NUMBER	REV
1 OF 2	AP090606	0

DELTABLOC®

Deltabloc DB80 Barrier

TRANSITION TAU II





NOTES:

1.) REINFORCEMENT OF SAFET SHAPED BARRIER END MAY BE NEEDED. REFER TO BSI SPECIFICATION B011044 OR B011045 FOR FOUNDATION REQUIREMENTS.

2.) SUPPORT SPACING AND BLOCKOUTS SHOWN ARE IN ACCORDANCE WITH NEVADA DOT SPECIFICATION R-8.4.3.

3.) 4-SPACE THRIE BEAM GUARDRAIL PER AASHTO HARDWARE SPECIFICATION RTM01b.

4.) THRIE BEAM BRIDGE SHOE PER AASHTO HARDWARE SPECIFICATION RTE01b.

5.) RECTANGULAR GUARDRAIL WASHER PER AASHTO HARDWARE SPECIFICATION FWR03.

6.) TAU-II SYSTEM TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS.

7.) OVERLAP THRIE BEAM OR BRIDGE SHOE ACCORDING TO DIRECTION OF TRAFFIC. UNDERLYING PART SHOULD BE DOWNSTREAM OF TRAFFIC.

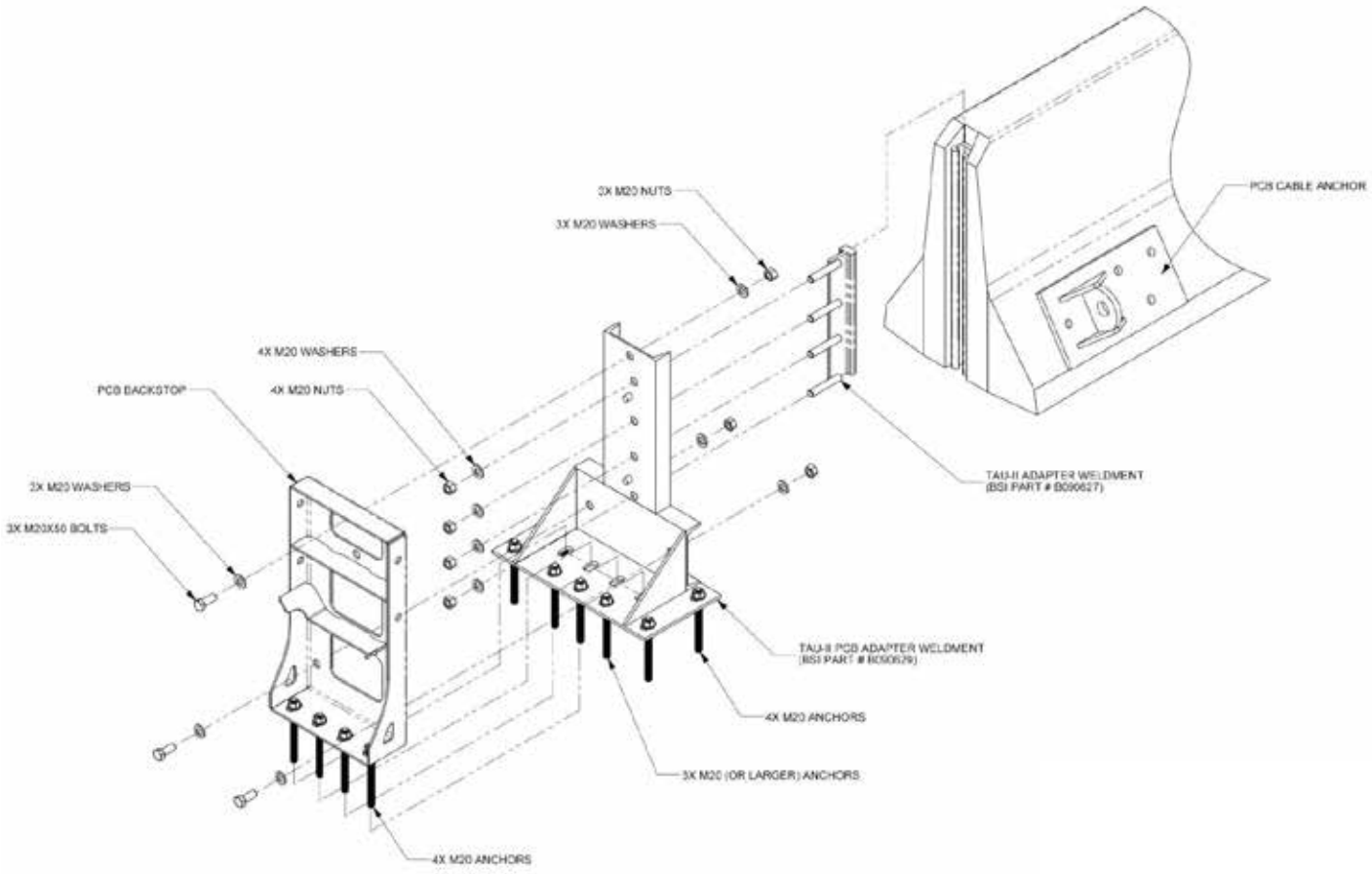
REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY.	ITEM
B	SEE ECN 00368	9/25/03	GAD	NA	NA	NA
A	RELEASE PREP.	11/19/01	GAD			

SCALE: 1=20

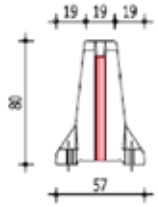
TITLE: TAU-II WITH PCB BACKSTOP TRANSITION TO SAFETY SHAPE P.C.B

MODEL	DRAWING NUMBER	REV.
	B010809	B

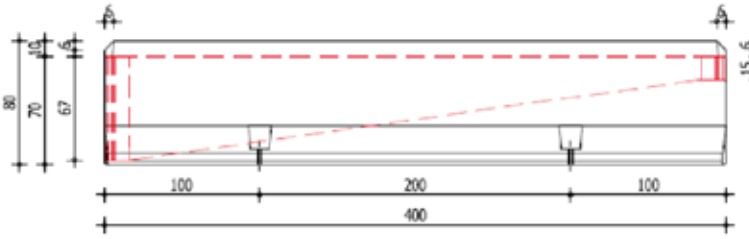
Deltabloc DB80 Barrier



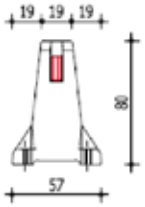
side view



front view



side view



top view

Transition DB 80F-Shape - TAU II	
tensionbar:	K150 - K570
dimensions (l/w/h):	400/57/80cm
weight:	24.00kg
containment level acc. to EN1317:	
drawing number:	M696486T.1-

Inspection & Maintenance

GENERAL

The EN1317 crash testing standard requires that the DB80 F-Shape barriers are maintenance free. This is the case with light and medium severity impacts, with the Butt Joint Inserts acting to protect the corners of the barriers from chipping/spalling. In the event of a heavy impact, please refer to the Inspection and Maintenance section for guidance.

DRAINAGE OPENINGS

The DB80 F-Shape barriers have integrated drainage channels in the base of the barriers. These channels should be checked regularly to ensure they are kept free from debris and obstructions to ensure water can freely flow beneath the barrier.

Inspection frequency should be determined according to individual site specific environmental conditions

DELINEATORS/REFLECTORS

To ensure delineators are seen by motorists regular cleaning should be conducted. Cleaning frequency should be determined according to individual site specific environmental conditions.

LIFE SPAN

Durability of the whole Deltabloc Barrier System is at least 25 years.

INSPECTION

An inspection of the entire system will be required in the event of an impact (accident). Depending on the intensity of the collision, repair or replace measures may have to be initiated (see chapter Procedure after an impact).

INSPECTION ACTIVITIES

The inspection of Deltabloc restraint systems has to take place in two steps:

- Inspection of total system
- Inspection of individual components

Completeness of the Restraint System

When inspecting the Deltabloc restraint system to ensure the system is complete and crashworthy, the presence of the following individual components must be verified:

- Couplings between consecutive barrier
- Butt Joint Inserts (wedges) are present on both sides of gap between each barrier and are connected by an elastomer band, stretched between the two Butt Joint Insertsscrew connections of anchors for terminals
- Butt Joint Inserts are not required to be present when barriers are positioned around a corner with barriers at maximum angle. There will not be a large enough gap between barriers to insert the Butt Joint Insert on one side of the barriers in this instance. They should be used in all other situations.
- End Terminal Barriers are anchored to the footing with allthread and chemical anchors (epoxy)

Component	Inspection Activity	Action Required
Entire System	Inspection of couplings for evident damage check for any displacement of barriers following each collision within the range 50m before & after the point of impact.	Where necessary, undertake repair or replacement.
Concrete	Visual inspection for cracks or spalling check for correct positioning of barriers.	Where necessary, undertake repair or replacement.
Coupling Connector	Check for completeness and damage.	Where necessary, undertake repair or replacement.
Butt Joint Inserts	Check for completeness and damage.	Where necessary, undertake repair or replacement.
Elastomer Band	Check for completeness and damage.	Where necessary, undertake repair or replacement.

Procedure after an Impact

To ensure durable effectiveness of the Deltabloc system after a crash, please read the recommendations below. In case of doubt, please contact Deltabloc or Road Management Solutions.

The condition of the individual barriers, after a crash, is described as follows:

NO DISPLACEMENT OF THE SAFETYBARRIER

Damage Pattern: The concrete barrier does not show visible cracks or spalling. Furthermore, no deformation of anchors (if applicable) or connector couplings has occured. Tyre abrasion as well as scratch and lacquer marks are the only signs for a vehicle contact.

Action Required: None

MINOR DAMAGE

Damage Pattern: The concrete barrier does not show visible cracks or spalling. Furthermore, no deformation of anchors (if applicable) or connector couplings has occured. Tyre abrasion as well as scratch and lacquer marks are the only signs for a vehicle contact.

Action Required: A small amount of cracking or damage that does not occur around the connector couplings or around the swift lift lifting anchors can be repaired using refurbishing mortar. The affected Deltabloc barriers are to be lifted according to the Lifting Instructions on page 9 under 'Lifting of Barriers' heading. A suitable lifting crane or the like should be used. If cracking in the coupling area is found, the barriers should be replaced. If cracking around the swift lift anchors is found, the affected barrier should be deemed unsafe to lift via the swift lift anchors and should be marked for disposal. These barriers should be lifted from underneath by a suitable forklift truck. Barriers either side of the damaged barrier/s may need to be moved to gain access to the damaged barrier.

SERIOUS DAMAGE

Damage Pattern: Barriers exhibit clearly visible damage such as cracking, concrete breakaway or damage to the connector couplings. If installed, soil anchors may also be damaged. .

Action Required: Barriers considered to have suffered Serious Damage should be replaced.

REPAIR MORTAR TO BE USED

Commercial repair mortar may be used to repair minor cosmetic damage. The mortar should be hydraulically setting, polymer modified dry mortar. Instructions for preparation of the surface should be followed as per the mortar instructions.

It is recommended that all repairs to DB80 barriers are done off-site once another DB80 is used to replace the damaged barrier(s).

DELTABLOC®

Deltabloc DB80 Barrier

BREAKAGE ABOVE THE TENSION BAR

Appearance of damage

Chipping off loose concrete and cleaning of breakage surface

A makeshift formwork is prepared before pouring SCC concrete or grout

Setting of the re-poured damage location

Location of damage after the repair

BREAKAGE LATERAL OF Y PROFILE

Common Damage: Broken Corner Close to the Y Profile

Application of Sikadur-31 adhesive

Result of step 1: rough shape

This is repaired in three steps:

- Rough Shaping
- Fine Filling
- Fine Sanding (if necessary)

Result of step 2: fine filling

Tension bar has been completely exposed

IRREPARABLE DAMAGE

In some cases repair of damaged elements is no longer possible. Irreparable damages are mainly the ones depicted below.

Operational Safety

GENERAL

Please refer to all the relevant regulations regarding occupational safety. The information below should be regarded as an addition to these State Road Authority regulations.

The condition of the individual barriers, after a crash, is described as follows:

MATERIAL, TOOLS & EQUIPMENT

- Reid Engineering lifting eye/clutch. Reid Precast Part Number '5LE'
- Lifting Sling(s) or Lifting Chain(s) as per Reid Engineering document in this manual NOTE: Sling angle not exceed 60 degrees or to be shorter than 3m each length.
- Tag/Control Line (optional at the discretion of dogman taking into consideration site layout, lifting procedure etc)
- 1 x Crane/Crane Truck capable of safely lifting 3200kg
- Crane or plant operator(s) with holding appropriate ticket/licence
- Dogman equipped with required PPE
- Traffic Control
- Any other Safety Equipment required by site assessment

SITE SAFETY

Safety at the worksite should be considered.

The site should be secured where possible against pedestrian or unauthorised vehicles. Fences, barriers and signs are typically used. A traffic management plan should be used to ensure both pedestrians and general traffic can move smoothly and safely past the worksite. All persons at the site should be inducted and be made aware of any potential hazards. All required PPE should be worn.

LOADING AND UNLOADING

The driver of the truck is responsible for securing their load. When unloading, before loosening securing straps, care should be taken to determine that the barriers are still stable. If not, the site supervisor should be contacted and a safe way of unloading the barriers should be determined and undertaken.

Lifting plant and equipment such as cranes, straps, chains etc. must be maintained as their manufacture directs and inspected prior to every use.

Dogman should be present prior to any lift taking place. No persons should be within the 'drop zone' of any lifted barrier.

CRANES AND OTHER LIFTING EQUIPMENT

Cranes should only be operated by suitably trained and experienced operators.

Special care should be taken to observe the location of any hazards present at the site, such as uneven ground, power-lines etc.

CLEANING

Protective goggles and a dust mask are to be worn when cleaning DELTA BLOC® barriers, thus avoiding injuries caused by small airborne particles.

DELTABLOC

Deltabloc DB80 Barrier

Tools & Equipment

EQUIPMENT REQUIRED

- Suitable Semi-Trailer(s) or Low-Loader(s)
- Mobile Crane capable of safely lifting 3200kg
- 2 x 5T SwiftLift Lifting Eye/Clutch (Reid Pt# 5LE)
- Lifting Chains etc
- Self made metal hook to pull elestomeric band though barrier gaps

MATERIALS REQUIRED

- Deltabloc Barriers
- 2 x Deltabloc End Anchor Barriers
- 1 x Coupling connector per barrier
- 2 x Butt Joint Inserts per barrier
- 1 x Elastomeric Band per barrier

TRANSPORT

- Suitable Semi-Trailers or Low-Loaders that have been inducted to site where required
- Suitable load securing Straps (Chains not recommended as they will damage concrete barriers)
- Applicable equipment fitted as required as per site requirements. This may include: Flashing Lights, Reversing Alarms, UHF Radios, driver PPE etc

Storage of Barriers

BARRIER STORAGE

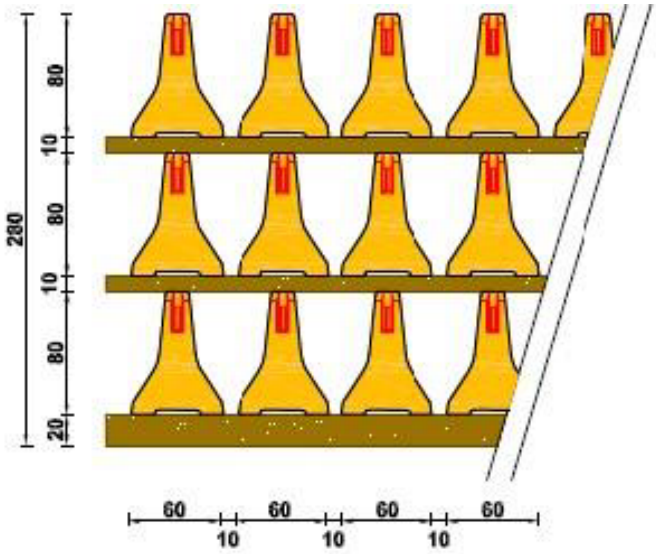
The following guidelines attempt pre-casters and barrier users to achieve:

- Safe Storage of their barriers
- Damage to barriers being avoided
- Safe and easy movement/handing of the barriers

STACKING

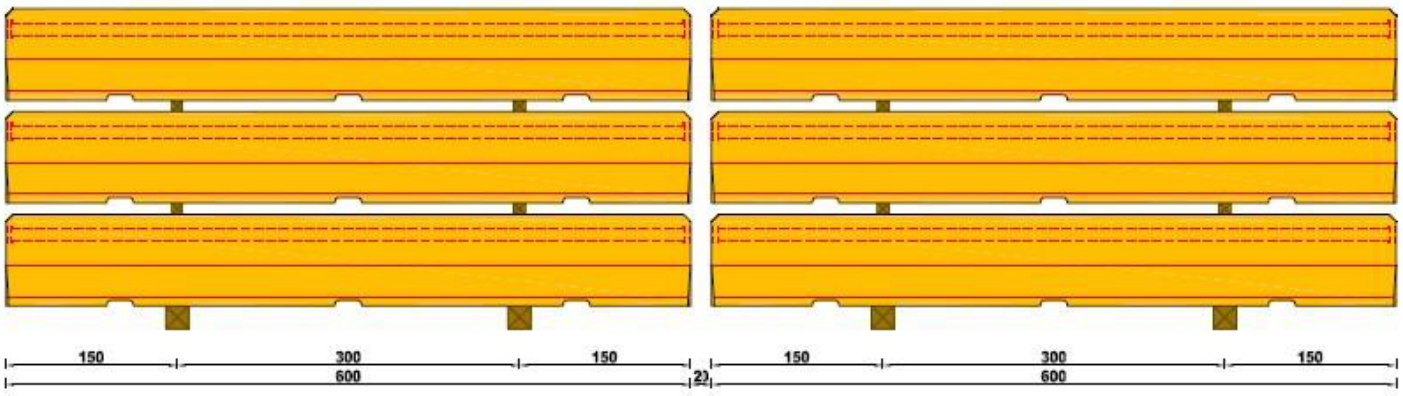
The following sketches show typical stacking of DB 80. The number of positions shown for each type of safety barrier constitutes the maximum storage height (stacking more than three units high is not possible for structural reasons). Two wooden slats (approx. 100x100mm) must be placed between each layer. Where a fork-lift truck is used, the size of the wooden slats depends directly on the fork-lift truck used: Larger capacity Forklifts usually have larger and thicker tynes, which may exceed the 100mm thickness suggested above. In this instance, consideration should be given to the thickness of timbers selected to ensure timbers are large enough to allow access of these larger tynes. It is recommended to place the bottom layer of barriers onto larger wooden constructions or concrete blocks (for better load distribution on the floor).

Deltabloc DB80 Barrier



IMPORTANT NOTICE:
For safety reasons & stacking stability, it is required that the number of barriers in each layer of the stack must be the same!

Frontal view, DB80 storage - distance between the barriers to be adhered to!



Lateral view, DB80 storage

Bottom layer stacked on concrete blocks
Slats between the top layers; bottom layer stacked on large wooden timbers

DELTABLOC®

Deltabloc DB80 Barrier

Requirements for Storage area

To create a safe environment for the stacking of Deltabloc barriers, a suitable area should be selected that has easy access for forklifts and trucks. The ground should be flat and solid. Consideration should be given to loading and unloading the barriers in all weather conditions. Delineation and signage should also be considered for the area.

CARRYING CAPACITY OF FLOOR

The load to be placed on the floor corresponds to the weight of the barriers and the weight of a loaded fork-lift truck. The maximum floor pressure depends on the contact surface of the lowest layer of slats or on the pressure exerted on the floor by the tyres of a loaded fork-lift truck.

Weight: DB80: 3115kg per unit

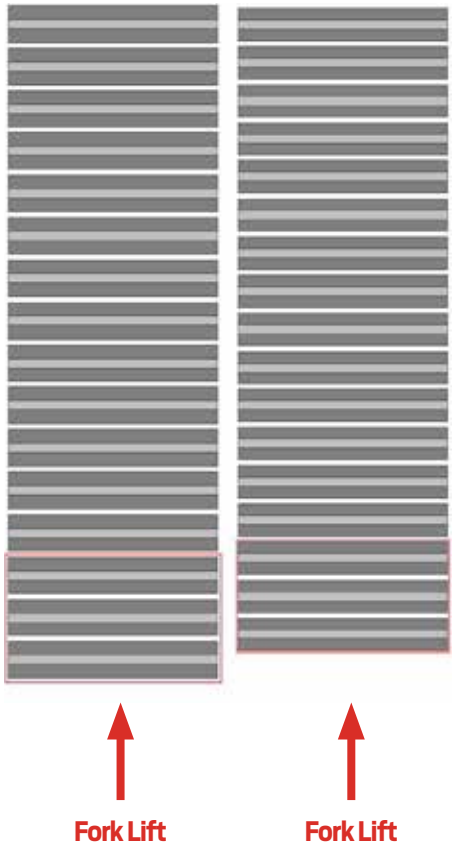
SPACE REQUIRED

Storage area required to store 9 units (3x3):

6m Barriers: 13m²

4m Barriers: 8.5m²

2m Barriers: 4.5m²



Typical Storage Area

Deltabloc DB80 Barrier

PRODUCT DATA SHEET

DELTABLOC® DB 80 F-Shape

high safety – small space requirements

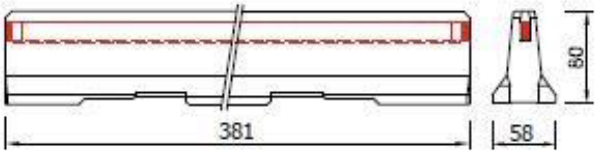
TL1 TL2 **TL3** TL4 TL5 TL6

The DB 80 F-Shape was specifically designed for markets, where the „Manual for Assessing Safety Hardware" (MASH) is the relevant testing standard applied.
The DB 80 F-Shape has been successfully tested according to the MASH Test Level 3 (TL-3)

Main features:

- temporary and permanent use
- no concrete foundation needed
- no fixation to the ground
- fast installation
- damaged elements can be replaced easily

With the patented DELTA BLOC® coupling system the DB 80 F-Shape allows a slight tilting of the impact energy in case of heavy impacts.



Technical specifications

Concrete qualities	resistant to frost and de-icing salt (depending on specific national regulations)
Coupling	patented coupling system, hot-dip galvanised
tension bar	patented steel tension bar, hot-dip galvanised
Special lengths	On request
Accessories	reflectors, traffic sign mounts, other accessories on request
Curve radii	3,81m-elements: r≥ 90m* * smaller radii available on request
Misc.	butt joint inserts to minimise displacement in case of impac

Test results acc. to MASH

System	DB 80 F-Shape
Element length	3,81m
Containment level	TL-3
Working width	W6
ASI	C
Tension bar	K150
Installation Method	A
System height	80cm
System width	58cm
max. System deflection	136cm
tested System length	61m
Terminal anchoring	no
Anchoring in the ground	no
Successfully tested	yes

Key facts	Tension bar	Weight	l / w / h
Standard DB 80 F-Shape	K150	2280kg	381 / 58 / 80cm

Product data sheet DB 80 F-Shape

PD028DB_EN, 2011-10-01, V3.0

DELTABLOC INTERNATIONAL

Deltabloc DB80 Barrier

DELTABLOC® DB 80 F-Shape

high safety – small space requirements

T1 | T2 | T3 | N1 | N2 | **H1** | H2 | H3 | H4a | H4b

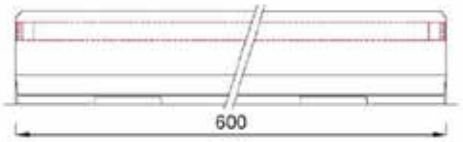
approved as TL3

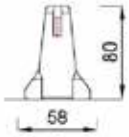
The DB 80 F-Shape is a state-of-the-art vehicle restraint system with the F-Shape profile. In conjunction with the continuous tension bar it prevents reliably any breakthrough of vehicles in case of impact

Main features:

- temporary and permanent use
- no concrete foundation needed
- no fixation to the ground
- fast installation
- damaged elements can be replaced easily

With the patented DELTA BLOC® coupling system the DB 80 F-Shape allows a slight tilting of the impact energy in case of heavy impacts.





Technical specifications

Concrete qualities	resistant to frost and de-icing salt (depending on specific national regulations)
Coupling	patented coupling system, hot-dip galvanised
tension bar	patented steel tension bar, hot-dip galvanised
Special lengths	2m, 4m
Accessories	reflectors, traffic sign mounts, other accessories on request
Curve radii	6m-elements: r≥ 120m* 4m-elements: r≥ 80m* 2m-elements: r≥ 40m* * smaller radii available on request
Misc.	butt joint inserts to minimise displacement in case of impact

Test results acc. to EN 1317

System	DB 80 F-Shape
Element length	6m
Containment level	H1 (≙ TL3)
Working width	W4
ASI	B
Tension bar	K150S
Installation Method	A
System height	80cm
System width	58cm
max. System deflection	63cm
tested System length	108m
Terminal anchoring	yes
Anchoring in the ground	no
Successfully tested	yes

Key facts	Tension bar	Weight	l / w / h
Standard DB 80 F-Shape	K150S	3110kg	600 / 58 / 80cm

Product data sheet DB 80 F-Shape

DELTABLOC

Deltabloc DB80 Barrier

AUS ROADS APPROVAL

Austroads

Safety Barrier System Conditions

DB80 Concrete Safety Barrier - Temporary

Australian Distributor	Orange Hire
New Zealand Distributor	Hynds Pipe Systems Limited
Date Issued	10 March 2017

Status	**Accepted** – May be used on the Australian/New Zealand classified road network. These acceptance conditions take precedence over any instructions in the Product Manual.
Product	DB80 Concrete Safety Barrier – Temporary (2, 4 and 6 metre units) consisting of Type F shape steel reinforced concrete barriers with tension bar coupling system, joint rotation limiting wedges and without intermediate ground attachment.
Product Manual reviewed	Version 3.1 dated 15 January 2013.
Variants NOT accepted	• DB80 Concrete Safety Barrier – Temporary with intermediate ground attachment. • DB80 Concrete Safety Barrier – Temporary without joint rotation limiting wedges. • Profiles other than Type F. • Variants that are not on the list above are not accepted. • Variants accepted in other jurisdictions, but not accepted in the local jurisdiction, are NOT permitted.

Speed limit (km/h)	Tested at 100 km/h (70 km/h if used with ABSORB 350 Plastic Terminal).	
Tested containment	MASH Test Level 3 (2,270 kg at 100 km/h and 25°) - 4 metre. EN1317-2 Higher Containment Level (13,000 kg at 70 km/h and 20°) - 6 metre.	
Tested dynamic deflection	100 km/h	1.44 metres.
	Note that deflections are measured in crash tests performed under controlled conditions. Designers should be aware that the deflection figures published as a test result may not be the deflection values achieved in the field for all impacts by errant vehicles dependent upon foundation conditions and roadside geometry.	
Working width	100 km/h	1.94 metres.
	Working width may be determined following a site specific risk assessment based upon type and speed of vehicles on the adjacent roadway. Working width (refer diagram) is the minimum width that is required to prevent an impacting vehicle from colliding with an object behind a road safety barrier system and includes both the dynamic deflection of the road safety barrier and the extra width to allow for vehicle roll.	
Point of redirection	Point of Need is 36 metres from the interface between the terminal and the barrier.	
Minimum length of barrier between terminals	60 metres (4 metre units). 108 metres (6 metre units). Minimum length is the tested article length.	

Deltabloc DB80 Barrier

System width (m)	0.57 metres.	
System conditions	1. Use of 2 metre units is restricted to tight radius curves and emergency openings. 2. Flaring across the clear zone without a terminal listed below is NOT permitted. 3. Installation on top of a kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate.	
Terminals and connections	W-Beam guardrail	Not permitted.
	Thrie-Beam guardrail	Not permitted.
	Proprietary product	1. UNIVERSAL TAU-II STEEL RAIL CRASH CUSHION • Permitted for use with DB80 Concrete Safety Barrier - Temporary. • See UNIVERSAL TAU-II Steel Rail Crash Cushion acceptance document for conditions of use. • The TAU-II TRANSITION TO DELTA BLOC BARRIER must be used to connect the terminal to the barrier. • Permitted as a terminal on a flare. 2. QUADGUARD CZ • Permitted for use with DB80 Concrete Safety Barrier - Temporary. • See QUADGUARD CZ acceptance document for conditions of use. • The QUADGUARD CZ SYSTEM TRANSITION must be used to connect the terminal to the barrier. • Permitted as a terminal on a flare. 3. ABSORB 350 PLASTIC TERMINAL - TEMPORARY • Permitted for use with DB80 Concrete Safety Barrier - Temporary. • The installation is restricted to a Speed Limit of 70 km/h or less. • See ABSORB 350 Plastic Terminal acceptance document for conditions of use. • The AB350 TRANSITION TO DELTA BLOC BARRIER must be used to connect the terminal to the barrier. • Not permitted as a terminal on a flare.
	Other	A terminal must be fitted to both ends of the barrier.
Gore area use	Refer to appropriate approved terminal conditions.	
Pedestrian area use	Permitted – consider potential for snagging and deflection.	
Cycleway use	Permitted – consider potential for snagging and deflection.	
Frequent impact likely	Permitted.	
Remote location	Permitted.	
Median use	Permitted.	
Flare	Refer to Austroads Guide to Road Design Part 6: Roadside Design,	

DELTABLOC®

Deltabloc DB80 Barrier

(See Explanation of Terms diagram)	Safety and Barriers Table 6.5 for design advice.
Offset to travel lane (m)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.5.
Hazard free area beside barrier or terminal (Working Width)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.16.

Installation	The DB80 Concrete Safety Barrier - Temporary must be installed and maintained in accordance with the Product Manual and Road Agency specifications. The Road Agency specifications and standards shall have precedence.	
Minimum distance to excavation	1.44 metres minimum distance between the edge of the barrier and the edge of an excavation. (Being the largest adopted dynamic deflection).	
Slope limit	Side slope limit: 15 Horizontal to 1 Vertical (7%). Side slopes must be considered to minimise manual handling risks and site conditions.	
Foundation pavement conditions	Concrete	Permitted.
	Deep lift Asphaltic Concrete	Permitted.
	Asphaltic concrete over granular pavement	Permitted.
	Flush seal over granular pavement	Permitted.
	Unsealed compacted formation	Permitted.
	Natural surface	Not permitted.
	Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product.	
Attachments and screens	In accordance with the requirements of Australian/New Zealand Standard AS/NZS 3845, road furniture such as headlight screens, signs, lighting posts and fences for pedestrians, visual screens, debris screens, platforms for workers and other non-product hardware must not be attached to the product. Screens may be placed adjacent to the side of the product not exposed to traffic. The distance between the screen and the product shall be determined by a site specific risk assessment that considers the deflection distance. Screens must not have horizontal members that present a risk of impeling errant vehicles that impact the product.	
Damaged components	Damaged components must be replaced. Repaired components must not be used.	
Delineation	The installed system shall include delineation as prescribed by Road Agency specifications and drawings.	
Traceability and markings	Product markings shall be in accordance with marking/s prescribed by the current Australian/New Zealand Standard AS/NZS 3845 Road Safety Barrier Systems and Road Agency specifications. Traceability details that must be permanently fixed to the ["terminal" or "product"] are: • Name of the product. • Manufacturer or distributor name. • Date of manufacture. • Model or version details of the product, if applicable. • Batch number, if applicable.	

DELTABLOC®

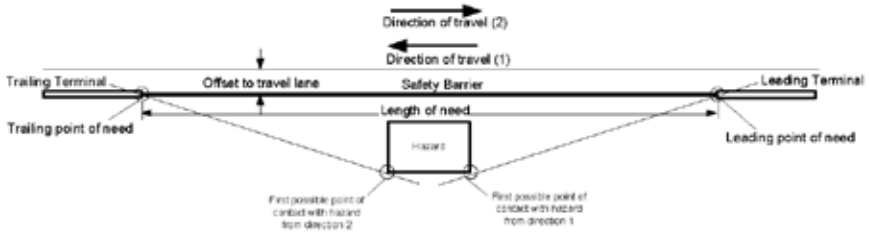
Deltabloc DB80 Barrier

	• Serial number, if applicable. Traceability details must be easily visible but unobtrusive and not be in a form that becomes prominent advertising. No advertising shall be displayed on the installation. Traceability must be in a form that will not be erased with use.

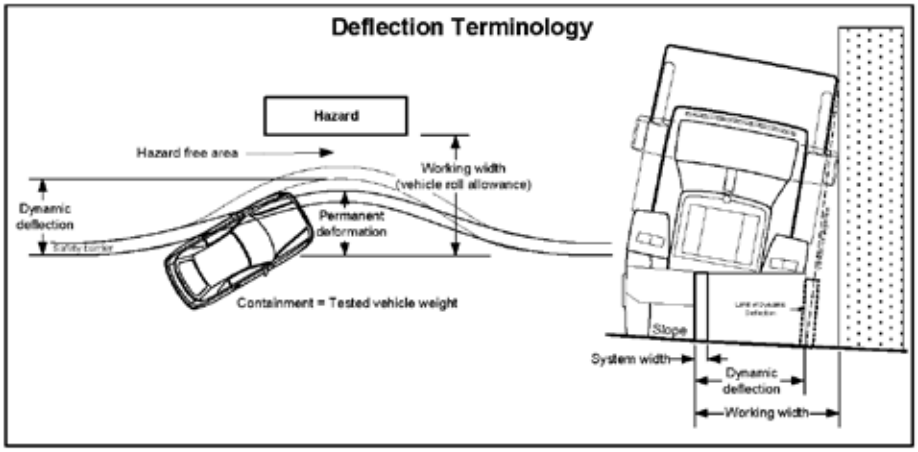
Notes	Conditions are based on drawings in the Product Manual supplied by the Proponent, dated 15 January 2013 (Version 3.1). This acceptance will cease if there is any change in the product design or specifications.
	Only the Product Manual authorised by the Proponent shall be used in any marketing of the product.
	Acceptance of the DB80 Concrete Safety Barrier - Temporary does not place any obligation on the Road Agency, or its contractors, to purchase or use the product.
	The Austroads Safety Barrier Assessment Panel may periodically re-assess the DB80 Concrete Safety Barrier - Temporary. The Road Agency may withdraw or modify at any time, the acceptance status or conditions of use of the product without notice. Users should refer to the Road Agency web site to ensure they have the latest version of the conditions related to this product.

Deltabloc DB80 Barrier

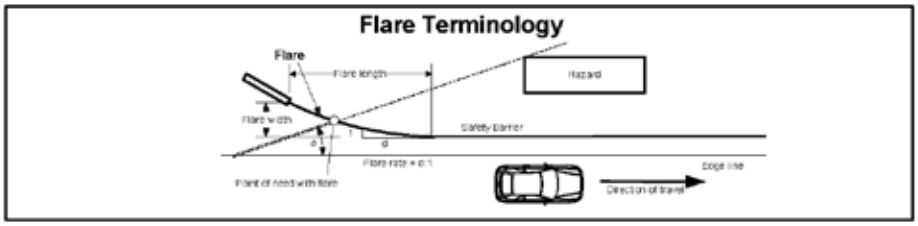
Design Terminology



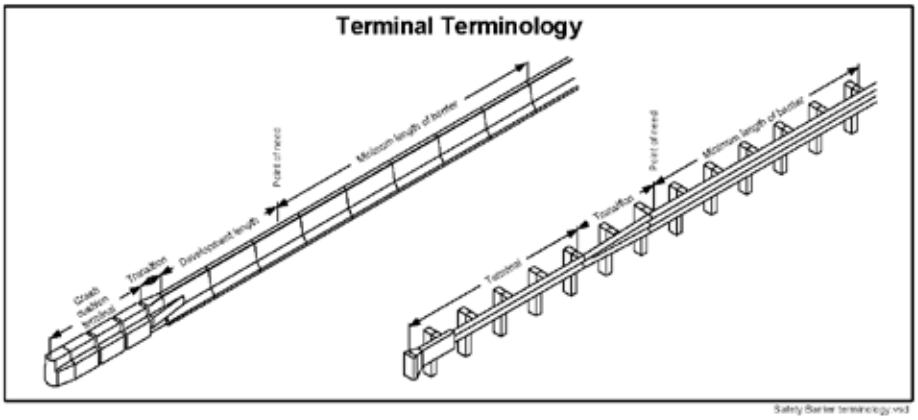
Deflection Terminology



Flare Terminology



Terminal Terminology



For more information, refer to
Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers

DELTABLOC

Deltabloc DB80 Barrier

VIC ROADS APPROVAL

APRIL 2015

vicroads

DETAIL SHEET

DB80 CONCRETE SAFETY BARRIER - TEMPORARY

VicRoads Requirements

Refer to Austroads - Safety Barrier System Acceptance Conditions for the DB80 Concrete Safety Barrier. All requirements listed by Austroads have been adopted by VicRoads for use on the Victorian declared road network.

In this instance, VicRoads applies additional requirements/conditions for use of DB80 Concrete Safety Barrier on the Victorian declared road network including:

- Where a high percentage of trucks are present, adopt a deflection of 1.94m. If deflection zones cannot be achieved, additional pinning of the units can be accepted after prior approval from VicRoads.

Please Note: VicRoads requirements take precedence over any Product Manual instructions and Austroads conditions where conflicting.

References

- Product Installation Manual and Product Operational Manual refer licensed product supplier website
- VicRoads Road Design Note 06-04 Accepted Safety Barrier Products
- Australian/New Zealand Standard AS/NZS 3845:1999 Cl.2.3.13

For further information please contact:

VicRoads Technical Services
60 Denmark Street
Kew, Vic, 3101
Telephone: 8391 7192

Accepted safety barrier products are subject to periodic review and the information provided in this document may be superseded. Please refer to *Road Design Note 06-04 – Accepted Safety Barrier products* for the current VicRoads acceptance status.

Victoria

keeping victorians connected

DELTABLOC

Deltabloc DB80 Barrier

NSW TRANSPORT APPROVAL

Transport Roads & Maritime Services
NSW GOVERNMENT

Safety Barrier System Acceptance Conditions

DB80 K150 Concrete Safety Barrier - Temporary

Distributor	Orange Hire
Date Issued	September 2017

Status	**Accepted** – May be used on the classified road network. These acceptance conditions should be read in conjunction with the Product Manual and Roads and Maritime Specification R132 – Safety Barrier Systems. These acceptance conditions take precedence over any instructions in the Product Manual. Roads and Maritime Services may withdraw or modify this acceptance at any time without notice. Users should refer to the Roads and Maritime Services website to ensure they have the latest version of the conditions related to this product.
Product accepted	***Accepted for temporary installations only*** • DB80 K150 Concrete Safety Barrier (2, 4 and 6 metre units) consisting of Type F shape steel reinforced concrete barriers with tension bar coupling system, joint rotation limiting wedges and without intermediate ground attachment.
Variants NOT accepted	• DB80 Concrete Safety Barrier with intermediate ground attachment. • DB80 Concrete Safety Barrier without joint rotation limiting wedges. • Profiles other than Type F. • Variants that are not on the list above are not accepted. • Variants accepted in other jurisdictions, but not accepted in the local jurisdiction, are NOT permitted.
Speed limit (km/h)	100 km/h (70 km/h if used with ABSORB 350 Plastic Terminal)
Tested containment	MASH Test Level 3 (2,270 kg at 100 km/h and 25°) EN1317 High Containment Level 1 (10,000 kg at 70 km/h and 15°)
Accepted dynamic deflection	All speeds: 1.44 metres Note: the accepted deflections are those measured in crash tests performed under controlled conditions. Crash tests represent an approximation of what is likely to be seen in the field. The use of interpolated/extrapolated deflection values is not accepted.
Accepted working width	All speeds: Not specified Refer to *Austroads Guide to Road Design Part 6: Section 6.3.16* for guidance. Working width is the distance between the traffic face of the road safety barrier system before the impact and the maximum lateral position of any major part of the system or vehicle during and after the impact. Note: the accepted working widths are those measured in crash tests performed under controlled conditions. Crash tests represent an approximation of what is likely to be seen in the field. . The use of interpolated/extrapolated

DELTABLOC

Deltabloc DB80 Barrier

NSW TRANSPORT APPROVAL

	values is not accepted.	
Point of need	Point of Need is 36 metres from the interface between the terminal and the barrier.	
Minimum length of barrier between terminals	60 metres (4 metre unit) 108 metres (6 metre unit) This is the tested article length.	
System conditions	1. Use of 2 metre units is restricted to tight radius curves. 2. Flaring across the clear zone without a terminal listed below is NOT permitted. 3. Installation on top of a kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate.	
Approved terminals and connections *[A terminal must be fitted to both ends of the barrier]*	W-Beam guardrail	Not permitted
	Thrie-Beam guardrail	Not permitted
	Type F Concrete Safety Barrier	Not permitted
	Proprietary Products	1. UNIVERSAL TAU-II STEEL RAIL CRASH CUSHION • Permitted for use with DB80 Concrete Safety Barrier. • May only be installed where reverse impacts are highly improbable and a risk assessment has been completed and steps undertaken to mitigate any risks identified. • Terminal must be anchored by a Compact Backstop in accordance with the installation instructions in the Product Manual. • The DB80 Concrete Safety Barrier adjacent to the UNIVERSAL TAU-II Steel Rail Crash Cushion must be anchored to the pavement as required by the Product Manual. • An accepted transition must be used to connect the terminal to the barrier. • A terminal must be fitted to both ends of the barrier. • Permitted as a terminal on a flare. • See UNIVERSAL TAU-II Steel Rail Crash Cushion acceptance document for conditions of use. 2. ABSORB 350 PLASTIC TERMINAL - TEMPORARY • Permitted for use with DB80 Concrete Safety Barrier. • The installation is restricted to a Speed Limit of 70 km/h or less. • The DB80 Concrete Safety Barrier adjacent to the ABSORB 350 Plastic Terminal must be anchored to the pavement as required by the Product Manual. • An accepted transition must be used to connect the terminal to the barrier. • A terminal must be fitted to both ends of

DELTABLOC

Deltabloc DB80 Barrier

NSW TRANSPORT APPROVAL

		the barrier. • Not permitted as a terminal on a flare. • See ABSORB 350 Plastic Terminal acceptance document for conditions of use.

Gore area use	Permitted	
Pedestrian area use	Permitted – consider potential for snagging and deflection	
Cycleway use	Permitted – consider potential for snagging and deflection	
Median use	Permitted	
Slope limit	Side slope limit: 15 Horizontal to 1 Vertical (7%)	
Foundation pavement conditions	Concrete	Permitted
	Deep lift Asphaltic Concrete	Permitted
	Asphaltic concrete over granular pavement	Permitted
	Flush seal over granular pavement	Permitted
	Unsealed compacted formation	Permitted
	Natural surface	Not Permitted
	Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product.	
Attachments and screens	In accordance with the requirements of Australian/New Zealand Standard AS/NZS 3845, road furniture such as headlight screens, signs, lighting posts and fences for pedestrians, visual screens, debris screens, platforms for workers and other non-product hardware **must not be attached** to the product. Screens may be placed adjacent to the side of the product not exposed to traffic. The distance between the screen and the product shall be determined by a site specific risk assessment that considers the deflection distance. Screens must not have horizontal members that present a risk of impaling errant vehicles that impact the product.	
	Acceptance of this product does not place any obligation on Roads and Maritime Services, or its contractors, to purchase or use the product.	

Deltabloc DB80 Barrier

QLD GOVERNMENT APPROVAL

Department of Transport and Main Roads

Road Safety Barrier Systems and End Treatments: Product Information Sheet

This information sheet shall be, where relevant, read in conjunction with the manufacturer's latest manual.

DB80

Created: Friday, 24 June 2016 9:57 AM

Status*: Accepted

Status Commencement Date: Not Set

Status Expiry Date*: Not Set

* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

Category:	**Longitudinal**	Gating/Non-Gating:	**Not Applicable**
Sub Category:	**Semi-Rigid**	Redirective/Non-Redirective:	**Redirective**
Main Material:	**Concrete**	Permanent/Temporary:	**Temporary**

Ownership:
Deltabloc International
28 Industristrase, Sollenau, 2601, Austria
www.deltabloc.com/en

Supplier:
Orange Hire
71 Lavarack Ave, Eagle Farm, QLD 4009
www.orangehire.com.au

Introduction:
DB80 is a F-shape steel reinforced concrete temporary barrier, comprising 6m unit lengths with tension bar coupling system and joint rotation limiting wedges without intermediate ground attachment.

The variants NOT accepted are:

- Systems with intermediate ground attachment
- Systems without joint rotation limiting wedges
- Profiles other than F-shape.
- Variants other than 6m.

Test Level:
NCHRP Report 350 TL-4 equivalence, based on EN1317 testing.

Note that 'F' type profile concrete barriers are only acceptable Queensland for use on state-controlled roads in Queensland with speed limits of 80 km/h or less.

Recommended End Treatments:
Tau II

DELTABLOC

Deltabloc DB80 Barrier

SA GOVERNMENT APPROVAL

Government of South Australia
Department of Planning, Transport and Infrastructure

Transport Services Division

ROAD DESIGN
Standards & Guidelines

Accepted Safety Barrier Products - GD 300

Type	Product	Test Level	Speed	Supplier	Comments
PERMANENT					
Wire Rope Safety Barriers (4 ropes)	Brifen	TL4	100	Hill & Smith	
	Sentryline	TL4	100	ACP	
	Flexfence	TL4	100	Ingal	
Steel Beam Guardfence	W-Beam	TL3	100	Public Domain	Structures Standard Drawings S-4050 sheets 36-37
	Thrie Beam	TL4	100	Public Domain	
	Ezy-Guard Smart	TL3	100	Ingal	• Deflection 1.5m for 2t @100km/h/25deg • Not in weak soils
W-Beam Terminals	SKT	TL3	100	Safe Direction	
	FLEAT	TL3	100	Safe Direction	
	ET2000Plus	TL3	100	INGAL	
	TREND 350	TL3	100	INGAL	No Flare Allowed
	X-Tension	TL3	100	ACP	
	Omni Stop End	TL2	70	Saferoads	
	MELT	TL3	100	Public Domain	Structures Standard Drawings S-4050 sheet 36
Concrete Barriers	F-shape, Const Slope	TL4	100	Public Domain	Structures Standard Drawings S-4064 sheets 1-3
	F-shape, Const Slope	TL5	100	Public Domain	
Median Gate	Armorguard	TL3	100	ACP	
	BarrierGuard Gate	TL3	100	Boylan	
Bollards	Omni Stop	TL2	70	Saferoads	
Motor Cycle Protection	Stack Cushion			Ingal	
	Ingal MPR			Ingal	
	HIASA SPM-ES2			ACP	
Pole Protection	EAPTB Stobie Buffer	TL2	70	ASE	
	TreeFend	TB32	70	Boylan	
WORK ZONE					
Plastic Water Filled	Armorzone	TL1	50	ACP	
Concrete Barriers	DB-80	TL3	100	RMS	
	J-J Hooks	TL3	100	ARB	
	T-Lok	TL3	100	Saferoads	
Crash Cushions	QuadGuard	TL3	100	Boylan	
	TRACC	TL3	100	Ingal	
	Universal TAU-II	TL3	100	ACP	
	Smart Cushion	TL3	100	LB Australia Pty Ltd	
Steel Barriers	Ironman - Hybrid	TL2	70	Saferoads	
	BarrierGuard	TL3&TL4	100	Highway Care	MDS available at TL3
	Zoneguard	TL3&TL4	100	Hill & Smith	MDS available at TL3

K-Net Doc: 891655
Version No.: 9
Issue Date: 08/10/2015
Doc. Owner: Manager Planning and Design

UNCONTROLLED COPY WHEN PRINTED

Page 1 of 1

When you know it just has to happen... call Jaybro and

CONSIDER IT DONE®

SYDNEY
29 Penelope Crescent
Arndell Park NSW 2148

MELBOURNE
Building A 1-7 Cyanamid Street
Laverton North VIC 3026

BRISBANE
71 Lavarack Avenue
Eagle Farm QLD 4009

CANBERRA
3 Daly Street,
Queanbeyan West NSW 2620

NEWCASTLE
100 Glenwood Drive
Thornton NSW 2322

ADELAIDE
391 Churchill Road,
Kilburn SA 5084

PERTH
Unit 1/94 Beringarra Ave,
Malaga WA 6090

AUCKLAND
8-10 Hannigan Drive,
St Johns Auckland 1072

CHRISTCHURCH
2 Kennaway Road,
Woolston Christchurch 8023

MACKAY
839 Mackay Bucasia Rd,
Rural View QLD 4740
(Limited stock available)

DISTRIBUTION CENTRES
Darwin

5% BETTER PRICE GUARANTEE

If you find a lower price for an equivalent to any product in our catalogue, Jaybro will better that price by 5%.

Jaybro®

CALL NOW
1300 885 364
jaybro.com.au

Jaybro Divisions

FORTRESS FENCING · RMS ROAD MANAGEMENT SOLUTIONS · GEOMASTA™ · Defender Safety · FENCE BANNER MESH · SuperiorSafety · WINUNITED