READYLOK™

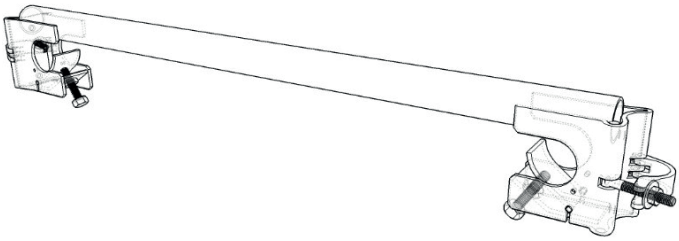
AN APPROVED AUDITED TESTED SCAFFOLD SYSTEM

Readylok Transom User Guide

VR

Issue 1 – February 2017

Contents

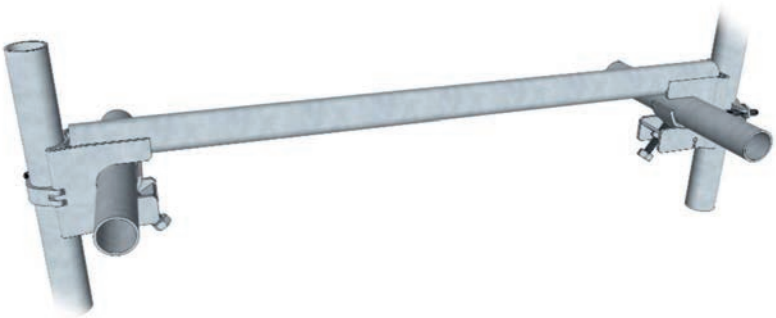


VR ACCESS SOLUTIONS LTD.

Introduction

VR Access Solutions Readylok transoms replace a loose tube transom and four couplers with a single, prefabricated unit, designed to increase the speed of erection and improve access along the working platform.

Readyloks are available in 3, 4 and 5 board widths, and can be combined with extendable transoms or extendable hop-up brackets to form inside board platforms.



NASC Compliance

VR Readylok transom units are fully compliant with the requirements of the NASC specification "Structural requirements and test procedures for TG20 compliant prefabricated structural transom units (version 4.0)"

The component capacities and safe working height data stated in this guide are produced using the test results specific to the VR Access Solutions Readylok transom, distinct from the NASC minimum requirements. Other products should not be substituted into scaffolds erected using the data contained within this guide.

NASC Requirement	Value	Exceeded
F_{sy}	10.00 kN	✓
F_{sx}	1.85 kN	✓
M_{ksx}	1.75 kN.m	✓
$C_{\varphi sz1}$	45.00 kN.m/rad	✓
M_{ksz}	1.65 kN.m	✓
$C_{\varphi sz1}$	24.00 kN.m/rad	✓
M_{kly}	0.70 kN.m	✓
$C_{\varphi ly1}$	7.5 kN.m/rad	✓

Safety Information

Safety guidance for Readylok transom scaffolds is as for general tube and fitting scaffolds, with no specific requirements due to the use of the prefabricated transom arrangement.

In accordance with current guidance and legislation, only competent trained individuals should erect, modify or dismantle scaffolds.

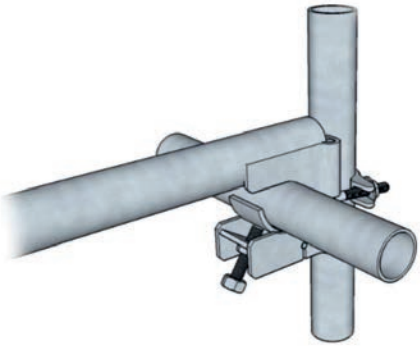
SCAFFOLD SAFETY

Scaffolds must only be erected, modified and dismantled by competent and appropriately trained operatives. The information contained within this guide is for general guidance only; requirements specific to the scaffold under construction must be considered in all cases

Component Details

Readylok Transoms

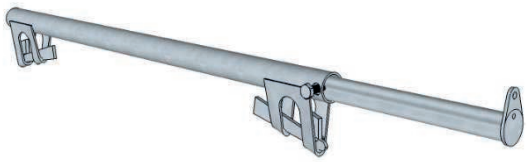
Used at bay length intervals (e.g. 2.0m centres) at each lift to form the joint of the standard, ledger and transom.



Product Code	Boarded width	Weight (Kg)
VRRLT-3	Three	6.4
VRRLT-4	Four	7.2
VRRLT-5	Five	8.0
VRRLT-SE	Single End	10.0

Extendable Transoms

Used within the bay to support the main deck, with an extendable section to support inside boards.



Product Code	Boarded width	Weight (Kg)
VREX43	Four (with wedge)	8.4
VREX53	Five (with wedge)	9.3
VREX43-T	Four (tube only)	6.7
VREX53-T	Five (tube only)	7.5

Extendable Hop-Up Brackets

An alternative method of supporting inside boards, the Extendable Hop-Up Brackets allow the inside platform to be raised/lowered from the main working platform, achieving a step onto the inside working platform.

Product Code	Boarded width	Weight (Kg)
VRS81	2+1	8.4

Component Load Capacities

Standards

When restrained in TG20:13 Tie Pattern B using suitable ties as described in this guide, the following safe working leg loads are applicable for scaffolds up to 16m in height:

Bay Length	Boards	Effective Length	Safe Working Load
2.0 m	5 Board	2893mm	14.2 kN
1.8 m	5 Board	2890 mm	14.3 kN
1.8 m	4 Board	2855 mm	14.6 kN

NB – table assumes 48.3 x 3.2 S355 cold formed tube to BS EN 10219-1:2006 is used for standards

Readylok Transoms

At up to and including five board widths, the VR Access Solutions Readylok transom unit can support a deck imposed load of BS EN 12811-1:2003 Load Class 4 (3.0 kN/m^2) when adjacent support (from intermediate or extendable transoms) is at a maximum of 1.0m centres.

Extendable Transoms

As recommended in TG20:13, we advise that internal board platforms should be loaded to a maximum 0.75 kN/m^2 imposed load.

If the NASC guidance is not followed, testing has shown that the extendable transoms can exceed this amount. When installed at maximum 0.9m centres, the VR extendable transom can accommodate BS EN 12811-1:2003 Load Class 4 (3.0 kN/m^2) at four and five board width, when extended to accommodate two inside boards.

When extended to accommodate +3 inside boards, the extendable transom can support a UDL of 1.8 kN/m.

Supporting ledgers must always be checked for adequacy with respect to the above loading.

Extendable Hop-Up Brackets

Designed for use in 1.2m bay scaffolds, the Extendable Hop-Up bracket is intended for use where lightly loaded inside boards are required, with an imposed load of 0.75 kN/m^2 on the inside boards. No materials or tools should be stored on inside boards supported on the Extendable Hop-Up brackets.

Deck Arrangements

The arrangements for forming the working platforms are as described below. The arrangements are specified to accommodate the full imposed load only, and the user should be aware that the build up of construction debris can significantly reduce the allowable imposed loading. Similar effects can occur from environmental factors such as snow and ice, and these should be cleared from the scaffold if required before commencing work.

No Inside Boards

For both 1.8m and 2.0m bay lengths, a single intermediate transom should be provided in the centre of the bay to support the working platforms.

One or Two Inside Boards

For both 1.8m and 2.0m bays, an extendable transom must be installed mid-bay and at either side of the Readylok transom at a distance of 0.1m between centres of Readylok and Extendable Transom. This ensures the Extendable Transoms are provided at a maximum of 0.9m centres.

Bracing and Tying

This section describes the bracing and tying requirements for scaffolds constructed using the VR Readylok transom units. Where the arrangements described cannot be provided, the advice of a competent scaffold design engineer should be sought.

Sheeted scaffold are not described in this guide; where a Readylok scaffold is to be sheeted, ledger bracing must be used and a scaffold design engineer should be consulted.

Ledger and Plan Bracing

One of the main advantages of the VR Readylok transom system is that it is not necessary to provide ledger bracing or plan bracing in the scaffold, allowing for easier access along the scaffold for the workforce. Where ties cannot be provided, or need to be removed, it will be necessary to introduce plan and/or ledger bracing, and any such additional bracing should be specified by a competent scaffold design engineer.

If a scaffold is to be sheeted, ledger bracing should always be provided and the scaffold designed by a comptent scaffold design engineer.

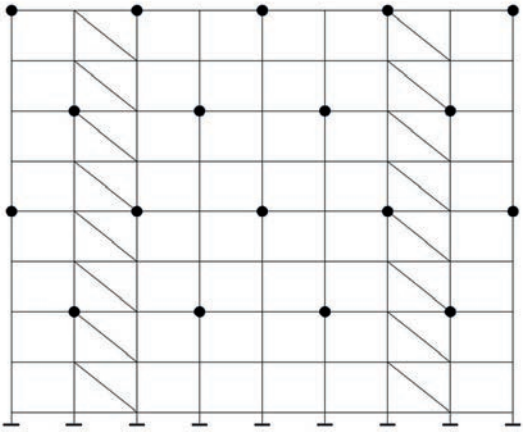
Diagonal Face Bracing

All scaffold structures require face bracing to prevent lateral sway and instability. It is necessary to provide one face braced bay for the full height of the structure in every 6 bays.

Tie Pattern

The safe working height data given within this guide is based on TG20:13 Tie Pattern B, shown indicatively below. If it is not possible to adopt this tie pattern consult a competent scaffold design engineer for advice.

Note that the tie pattern below differs from those given in the NASC document TG20:13

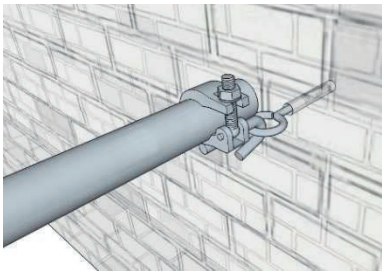


TG20:13 Tie Pattern B

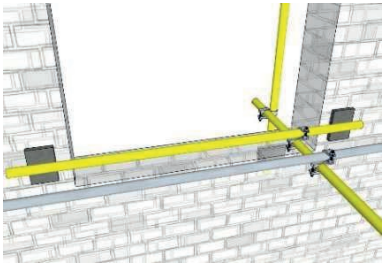
(for façade scaffolds only)

The form of tie should be selected after consideration of the supporting face against which the scaffold is erected. The following details show typical types of tie which may be appropriate dependent on the specific project.

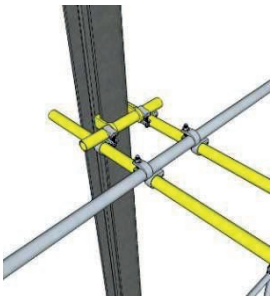
Masonry Anchors
Masonry fixings can be drilled into the wall, with these fixings used to restrain the scaffold using certified tubes and couplers. The supporting wall should be approved as suitable for the forces applied. Refer to TG4:11 for further information.



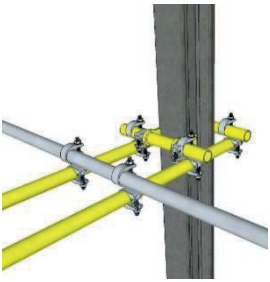
Through Ties
Through ties restrain the scaffold to the supporting structure through a structural opening. The adequacy of the opening should be approved by a suitably qualified engineer.



Girder Clamp Tie
Girder clamps are used to secure tube ties to a steel column, which then acts as a tie point for the scaffold. The column should be approved as suitable for the forces applied.



Box Tie
Tube and fitting is used to form a 'box' around the column, which can then act as a tie point for the scaffold. The column should be approved as suitable for the forces applied.



Tying Forces

When tying a scaffold, overall structural stability of the supporting structure must be considered, as should possible local failure at and around ties, which may be caused by weak finishes or poor strength around openings in the façade.

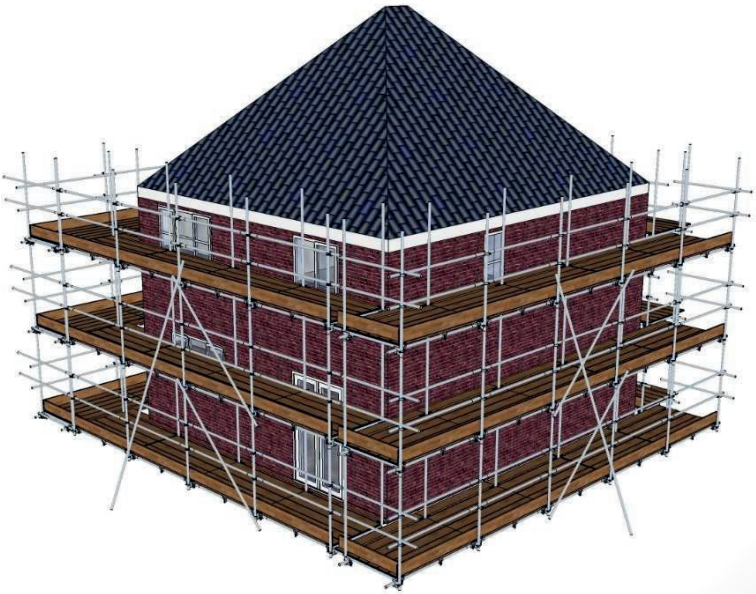
Tying forces will vary by site locations and exposure – further guidance on the design of ties can be found in TG20:13.

House Building Scaffolds

For scaffolds used in housing maintenance and construction, ties into the masonry façade can be omitted for the first two lifts if return corners are provided at the ends of the runs, and rakers are provided every second bay.

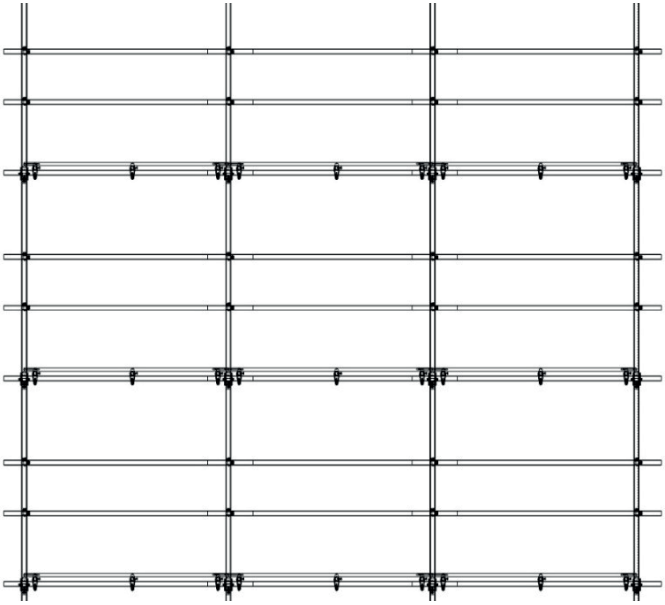
A minimum of two bays should be provided on the return corners, with a façade brace provided in each return.

Where a third lift is required, ties should be provided to the lower lifts, or alternatively rakers as detailed in TG20:13 should be erected.



Safe Working Heights

The component capacities and safe working height data stated in this guide are produced using the test results specific to the VR Access Solutions Readylok transom, distinct from the NASC minimum requirements. Other products should not be substituted into scaffolds erected using the data contained within this guide.



Scaffold Arrangement

The following safe working heights assume the following arrangements, with bracing and ties in Tie Pattern B as described previously in this guide:

- Lift heights are 2.0m in all cases.
- The scaffold is boarded at each lift.
- Two loaded platforms are permissible, one at 100% imposed load, one at 50% imposed load.
- Inside boards are lightly loaded (0.75kN/m^2) in all cases.
- Working platforms have toeboards and two guardrails to the outer face.
- Non-working platforms have a single guardrail only and no toeboards.
- Intermediate/extendable transoms are used to form the inside boards as shown earlier in this guide.
- Heights are applicable for both unsheeted scaffolds and those clad with high porosity debris netting only.

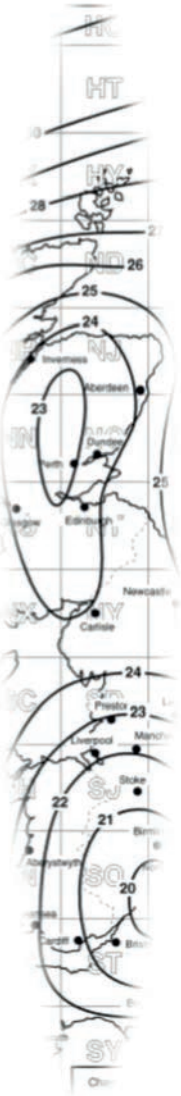
Refer to a competent scaffold designer if any of the above conditions are not suitable for the intended scaffold.

Wind Speeds

Heights under the wind velocities shown have been calculated in accordance with the guidance given in TG20:13. Site wind speeds can be significantly affected by local features such as hills, cliffs and adjacent tall building, and where these are present close to the site, a competent temporary works engineer should be consulted.

Heights are provided for sites in ‘Town’ and ‘Country’ locations. When a site is at least 2kM inside a town, and is shielded by buildings within 100m which are at least 5m high, the site is considered to be in ‘Town’ terrain. When a site does not comply with these requirements it is considered to be in ‘Country’ terrain.

Heights are calculated based on wind suction forces only. The tables assume that there is adequate face bracing to resist parallel wind loading, and that wind pressure is resisted by direct bearing of the tie tubes on the supporting face. Ties must therefore be detailed for bearing as necessary.



Maximum Heights

Heights have been calculated to a maximum height of 16m (8 lifts) under generic loading conditions.

For scaffolds above 10m, it is recommended that a site specific design which takes account of local conditions is sought from a competent scaffold design engineer.

For scaffolds over 16m, contact us for further advice.

2.0m Bay Five Board Scaffold

Designation	S (m/s)	Country	Town
3-5-0	20	16	16
	24	16	16
	28	16	16
	32	8	12
	36	4	8
3-5-1	20	16	16
	24	16	16
	28	16	16
	32	8	12
	36	4	8
3-5-2	20	16	16
	24	14	14
	28	10	12
	32	6	8
	36	4	6
4-5-0	20	16	16
	24	16	16
	28	16	16
	32	8	10
	36	4	6
4-5-1	20	16	16
	24	16	16
	28	16	16
	32	8	10
	36	4	6
4-5-2	20	12	12
	24	12	12
	28	10	10
	32	6	8
	36	4	6

1.8m Bay Five Board Scaffold

Designation	S (m/s)	Country	Town
3-5-0	**20**	16	16
	24	16	16
	28	16	16
	32	10	14
	36	6	8
3-5-1	**20**	16	16
	24	16	16
	28	16	16
	32	10	14
	36	6	8
3-5-2	**20**	16	16
	24	16	16
	28	12	12
	32	8	10
	36	4	6
4-5-0	**20**	16	16
	24	16	16
	28	16	16
	32	10	12
	36	4	8
4-5-1	**20**	16	16
	24	16	16
	28	16	16
	32	10	12
	36	4	8
4-5-2	**20**	14	14
	24	14	14
	28	10	12
	32	8	8
	36	4	6

1.8m Bay Four Board Scaffold

Designation	S (m/s)	Country	Town
3-4-0	20	16	16
	24	16	16
	28	16	16
	32	12	14
	36	6	8
3-4-1	20	16	16
	24	16	16
	28	16	16
	32	12	14
	36	6	8
3-4-2	20	16	16
	24	16	16
	28	12	14
	32	8	10
	36	4	8
4-4-0	20	16	16
	24	16	16
	28	16	16
	32	10	14
	36	6	8
4-4-1	20	16	16
	24	16	16
	28	16	16
	32	10	14
	36	6	8
4-4-2	20	16	16
	24	16	16
	28	12	12
	32	8	10
	36	4	6

Heights under Gravity Loads only

When omitting wind loads from the design process, the following maximum safe working heights are allowable under gravity loads only:

Inside Boards	Lifts	Height (m)
0	15	30
+1	13	26
+2	11	22

The following conditions are applicable to the above heights:

- Lift heights are 2.0m in all cases.
- Bay lengths are 1.8m or 2.0m, widths are 4 or 5 boards.
- The scaffold is boarded at each lift.
- Two loaded platforms are permissible, one at 100% imposed load, one at 50% imposed load.
- Inside boards are lightly loaded (0.75kN/m^2) in all cases.
- Working platforms have toeboards and two guardrails to the outer face.
- Non-working platforms have a single guardrail only and no toeboards.
- Intermediate/extendable transoms are used to form the inside boards as shown earlier in this guide.

NB – The above is provided for information only. Actual scaffolds will always be subject to site specific wind loads and these should always be considered in the design without exception.

Storage and Maintenance

Before erecting a scaffold and when dismantling, all parts should be carefully checked for damage and/or corrosion. Ensure that all bolts are free running, and that the sliding sections of the extendable transoms are moving freely within the main tube.

The sliding section of the extendable transom and the extendable hop-up bracket should be locked in place with the securing bolt before storing.

Further Information

This user guide incorporates the basic information on the capacities and safe use of the VR Access Solutions Readylok transom units for typical usage only. For specialist arrangements and locations of use it is recommended that you contact VR Access Solutions in the first instance for more specialist advice, or a competent scaffold design engineer.

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