

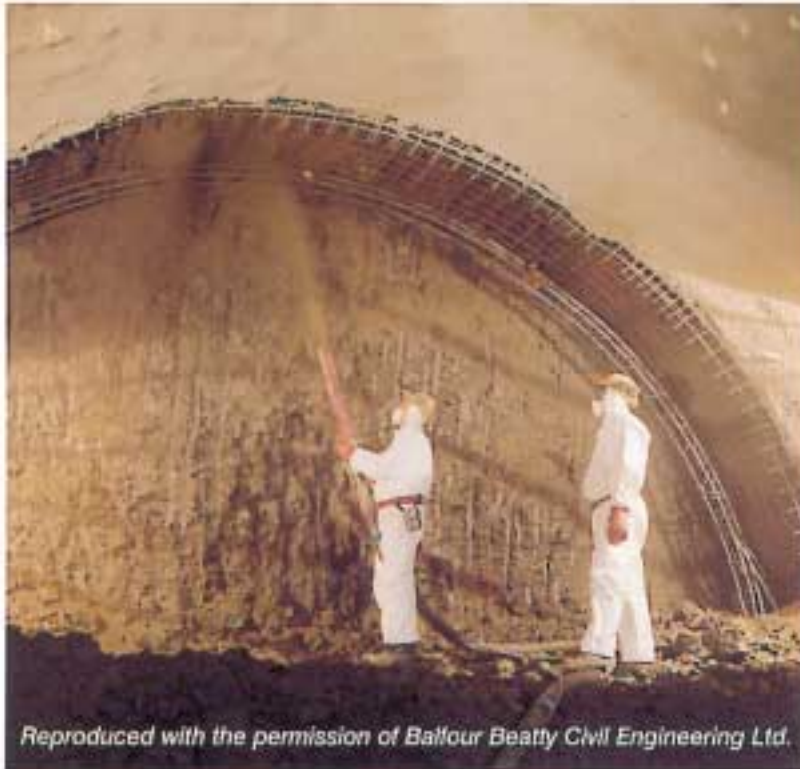
TUNNELING



onesteel
reinforcing

Australian Licensee

OSR507



Reproduced with the permission of Balfour Beatty Civil Engineering Ltd.

TUNNELLING

Tunnelling by its very nature requires that all elements involved in the process, whether by design, construction or the supply of materials, be fully responsive to ever changing requirements.

ROM Limited's investment in people and modern production techniques provides the flexibility in approach that keeps **ROM** as the most cost effective and versatile reinforcement supplier and fabricator in the U.K.

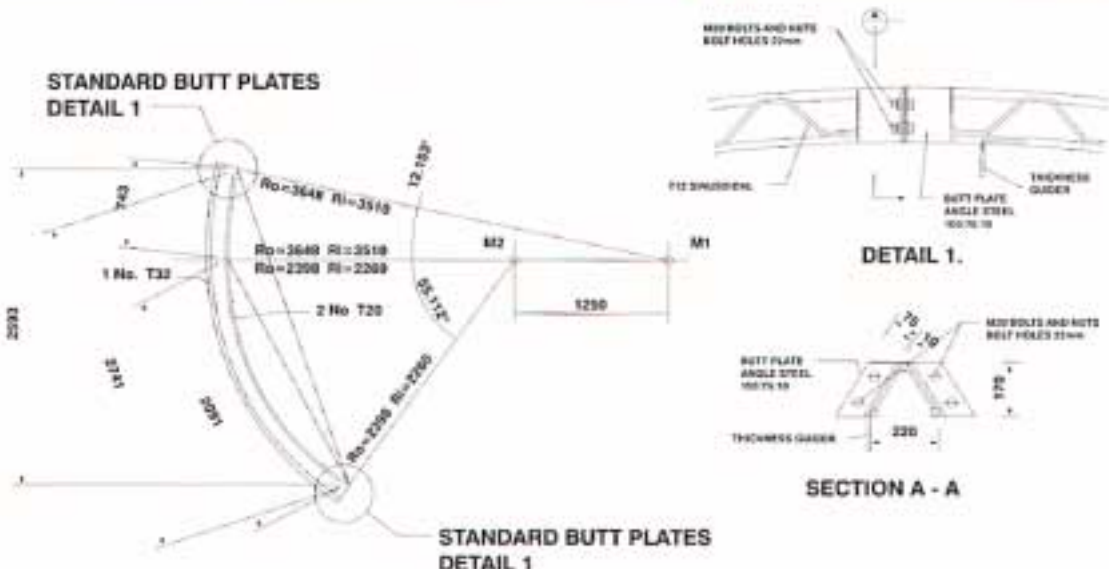
Quality and service are the prime considerations in **ROM**'s management policy as demonstrated by our achievement of BS EN I.S.O. 9002 operating at locations covering the whole of the U.K.

ROM provides an extensive range of tunnelling products that include lattice girders and fabrics for sprayed concrete applications and prefabricated segment cages for precast elements. No other U.K. company offers this complete range to your industry.

These products are further complimented by a wide range of accessory items which include concrete, plastic and wire spacers and hydrophilic joint sealants. The complete range can be found in our 'Accessory Guide' which can be sent to you on request by contacting our offices or engineering departments.

CONTENTS

Lattice Girders	Page 3
Fabrics for Sprayed Concrete	Page 6
Support Ladders	Page 7
Segmental Cages	Page 7
Prefabrication	Page 7



ROM LATTICE GIRDERS

INTRODUCTION

ROM lattice girders are offered in a range of sizes and strengths to suit all sprayed concrete tunnelling linings. Any configuration or bespoke design accommodated to suit proposed tunnelling sequence or method of operation.

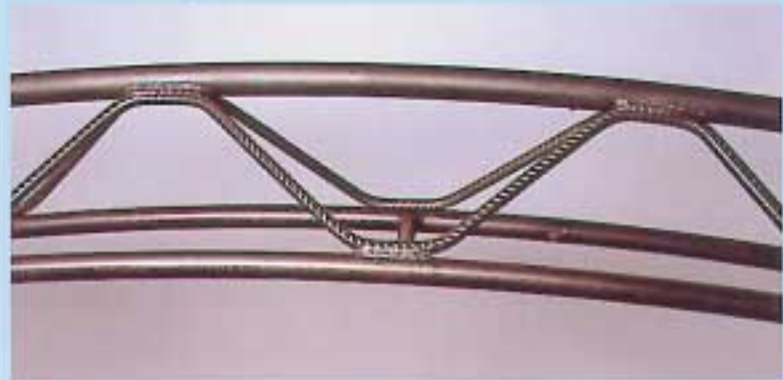
Advantages of **ROM** girders include:

- Jig manufactured to ensure dimensional accuracy of finished components.
- Fully approved by a leading world-wide N.A.T.M. consultant and various other authorities and tested at an approved UKAS approved laboratory.
- Designed to produce a minimum shadow profile to ensure effective shotcrete placing operations.
- Technical assistance provided.
- Dedicated factory with national and export distribution network.
- All welding is carried out in accordance with BS7123 and BS5135 with welding personnel and our prefabrication facility C.A.R.E.S. approved.
- Full in-house testing facilities are available including micro-analysis equipment to verify quality and consistency of the product and service.
- BS EN I.S.O.9002 Quality assured manufacturing process.

MATERIAL SPECIFICATION

BAR

- Plain round profile, high yield bar to DIN488 BST500S. (Grade 500).
- Deformed Type 2, high yield bar to BS4449: 1988 (Grade 460).
- C.A.R.E.S. Approved steel manufacturers.



PLATES

- Flat or angle steel to BS EN 10025:1990 grade FE430B or to customers requirements.



ROM LATTICE GIRDERS

Type A



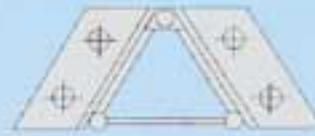
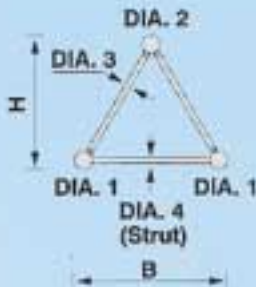
A	Type A1	Type A2
Diameter 1	20mm	20mm
Diameter 2	25mm	32mm
Diameter 3	10mm	10mm
Diameter 4	16mm	16mm
Strut Centres	373mm	345mm
AST 1 (mm ²)	628.4	628.4
AST 2 (mm ²)	490.9	804.2
H (mm)	95	95
B (mm)	100	100
Ex (mm)	41.80	48.70
Ixx (cm ⁴)	148.40	174.66
zXX (cm ³)	27.88	37.75
Iyy (cm ⁴)	104.02	107.25
Zyy (cm ³)	20.80	21.45
Weight (kg./m)	10.324	12.799

B	Type B1	Type B2	Type B3
Diameter 1	20mm	20mm	25mm
Diameter 2	25mm	32mm	32mm
Diameter 3	10mm	10mm	10mm
Diameter 4	16mm	16mm	16mm
Strut Centres	290mm	295mm	300mm
AST 1 (mm ²)	628.4	628.4	981.8
AST 2 (mm ²)	490.9	804.2	804.2
H (mm)	100	110	120
B (mm)	150	150	150
Ex (mm)	44.00	57.20	53.70
Ixx (cm ⁴)	169.01	255.61	379.11
zXX (cm ³)	30.28	48.37	57.18
Iyy (cm ⁴)	268.95	272.18	392.48
Zyy (cm ³)	35.86	36.29	52.33
Weight (kg./m)	10.839	13.292	16.013

C	Type C1	Type C2	Type C3
Diameter 1	20mm	20mm	25mm
Diameter 2	25mm	32mm	32mm
Diameter 3	10mm	10mm	10mm
Diameter 4	16mm	16mm	16mm
Strut Centres	335mm	340mm	345mm
AST 1 (mm ²)	628.4	628.4	981.8
AST 2 (mm ²)	490.9	804.2	804.2
H (mm)	120	130	140
B (mm)	175	175	175
Ex (mm)	52.80	68.40	62.71
Ixx (cm ⁴)	265.46	388.24	558.60
zXX (cm ³)	39.48	63.01	72.27
Iyy (cm ⁴)	380.87	384.10	561.22
Zyy (cm ³)	43.53	43.90	64.14
Weight (kg./m)	10.913	13.365	16.090

ROM LATTICE GIRDERS

Type B, C, D, E and F



D	Type D1	Type D2	Type D3
Diameter 1	20mm	20mm	25mm
Diameter 2	25mm	32mm	32mm
Diameter 3	12mm	12mm	12mm
Diameter 4	16mm	16mm	16mm
Strut Centres	360mm	365mm	375mm
AST 1 (mm ²)	628.4	628.4	981.8
AST 2 (mm ²)	490.9	804.2	804.2
H (mm)	140	150	160
B (mm)	175	175	175
Ex (mm)	61.50	79.61	71.72
I _{xx} (cm ⁴)	383.96	549.09	773.45
Z _{XX} (cm ³)	48.93	78.01	87.61
I _{yy} (cm ⁴)	380.87	384.10	561.22
Z _{yy} (cm ³)	43.53	43.90	64.14
Weight (kg./m)	11.557	14.003	16.742

E	Type E1	Type E2	Type E3
Diameter 1	20mm	20mm	25mm
Diameter 2	25mm	32mm	32mm
Diameter 3	12mm	12mm	12mm
Diameter 4	16mm	16mm	16mm
Strut Centres	420mm	425mm	430mm
AST 1 (mm ²)	628.4	628.4	981.8
AST 2 (mm ²)	490.9	804.2	804.2
H (mm)	160	170	180
B (mm)	220	220	220
Ex (mm)	70.30	90.80	80.70
I _{xx} (cm ⁴)	524.50	738.16	1023.67
Z _{XX} (cm ³)	58.48	93.25	103.11
I _{yy} (cm ⁴)	631.81	635.04	942.26
Z _{yy} (cm ³)	57.44	57.73	85.66
Weight (kg./m)	11.675	14.141	16.871

F	Type F1	Type F2	Type F3	Type F4	Type F5
Diameter 1	20mm	20mm	25mm	25mm	32mm
Diameter 2	25mm	32mm	32mm	32mm	40mm
Diameter 3	12mm	12mm	12mm	12mm	12mm
Diameter 4	16mm	16mm	16mm	16mm	16mm
Strut Centres	440mm	445mm	450mm	470mm	445mm
AST 1 (mm ²)	628.4	628.4	981.8	981.8	1608.4
AST 2 (mm ²)	490.9	804.2	804.2	804.2	1256.6
H (mm)	170	180	190	200	200
B (mm)	220	220	220	230	240
Ex (mm)	74.70	96.50	85.22	89.70	87.90
I _{xx} (cm ⁴)	603.04	843.28	1162.05	1309.26	1920.32
Z _{XX} (cm ³)	63.27	100.94	110.91	118.73	171.35
I _{yy} (cm ⁴)	631.81	635.04	942.26	1040.43	1762.61
Z _{yy} (cm ³)	57.44	57.73	85.61	90.47	146.88
Weight (kg./m)	11.668	14.107	16.86	16.879	25.357



SYDNEY

Telephone: 02 9792 9000

Facsimile: 02 9772 1689

BRISBANE

Telephone: 07 3845 5655

Facsimile: 07 3845 5697

www.reinforcing.com

**AUSTRALIAN
PROJECTS
COMPLETED:**

Buranda Tunnel Brisbane

South East Transit

Vulture Street Y Junction

Brisbane South East Transit

onesteel
reinforcing
Australian Licensee

