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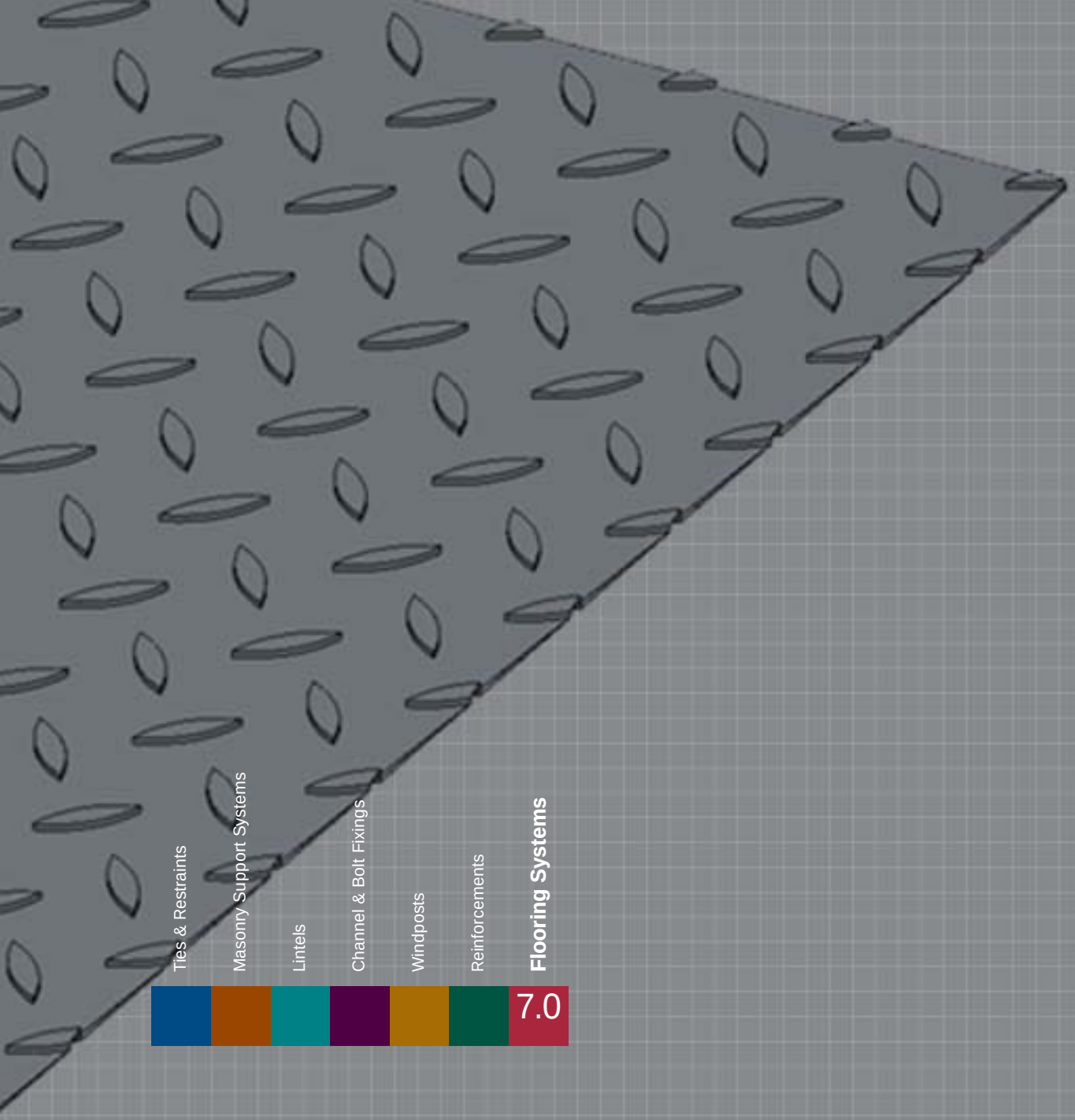
series/0.1

7.0

Flooring Systems

WINCRO



FLOORING SYSTEMS

We supply an extensive range of stainless steel flooring systems, including SUREGRIP floorplate, open grid, plank and balustrading to many prestigious projects. Our ranges are used in many environments providing a long term corrosion resistant solution.

COMPANY PROFILE

Wincro Metal Industries is a long established company founded on the principles of innovative design, quality manufacture and outstanding customer service. Our steadfast commitment to those values over the years has firmly established Wincro as one of today's leading designers and manufacturers of Stainless Steel Building Products. It has also earned the company an excellent reputation for quality and reliability amongst the many architects, specifiers, engineers and building contractors that the business serves.

Wincro is based in Sheffield, the home of stainless steel. We produce a wide range of corrosion resistant fixings, support systems, flooring and access equipment. Our range is constantly evolving and developing in order to keep pace with the demands of a fast-moving industry and the changing needs of our clients.

DESIGN SERVICE

All designs and details are supplied by Wincro's team of experienced technical design professionals who work closely with architects, engineers, specifiers, designers and contractors. Assistance can range from simple guidance or advice on standard product selection to a fully computerised design service and detailed consultations on incorporating special designs. Site visits can also be arranged.

MAINTAINING HIGH STANDARDS

We maintain the highest standards both in terms of the materials from which our products are made and the techniques we employ in manufacturing. Our products comply with and, in many cases, exceed all relevant British standards. We have invested in some of the most advanced machinery in the industry to help assure product quality and to enable us to provide a rapid turn-round of all orders, large or small, standard or bespoke.

QUALITY STAINLESS STEEL

All our flooring systems are manufactured from high quality grade 1.4301 (304) stainless steel for optimum performance and long life. Grade 1.4401 (316) stainless steel can be specified for use in corrosive environments.

CONTENTS

NBS Plus

WINCRO

FLOORING PRODUCT RANGE

Wincro is the UK's leading supplier of stainless steel flooring and it's comprehensive range of SUREGRIP Floorplate and Open Grid flooring has been used effectively around the world.

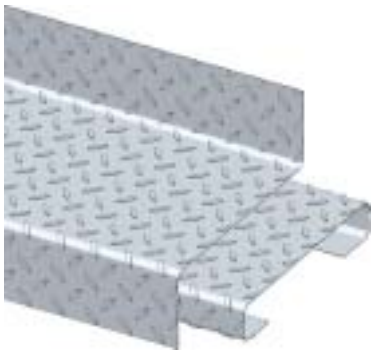
Wincro offers a full fabrication service including plates cut to size, with drilled or punched holes, stair treads, pre-assembled stairways, ladders or components for site assembly.

1.0
SUREGRIP Floorplate

Flooring systems are available in Grade 1.4301 (304) and 1.4401 (316) stainless steel.

The Wincro SUREGRIP flooring systems can be used in a wide range of applications.

For further information go to pages 3-7



1.0

2.0
SUREGRIP Thin Gauge Floorplate

This flooring system offers a combination of features which make it the most versatile and effective high performance flooring system currently available.

For further information go to pages 8-9

2.0

3.0
Open Grid Flooring

This flooring system offers a high strength, light weight open grid flooring system for use where additional drainage or ventilation is required with high load capacity.

For further information go to pages 10-13

3.0

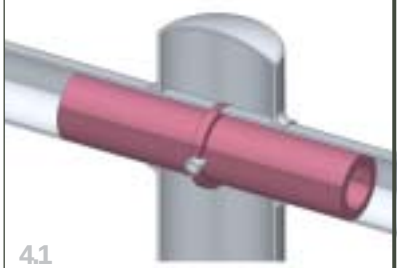
4.0 / 4.1 / 4.2
Other Products

4.0 **Plank Flooring** Plank flooring systems provide excellent flexibility in design. (See page 15).

4.1 **Handrailing** Handrailing systems are manufactured to meet the ever increasing demand for safety and hygiene throughout industry. (See page 18).

4.2 **Fabricated Sections** A wide range of cold formed angles and channels are available to provide a cost effective solution for supporting floors. (See page 20).

4.0



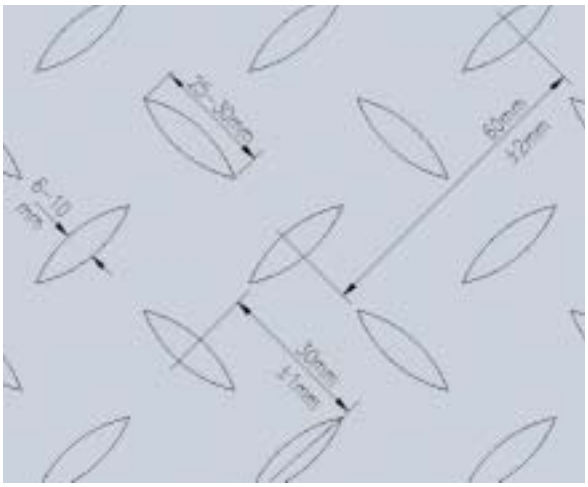
4.1

4.2

SUREGRIP FLOORPLATE

The Wincro SUREGRIP flooring has been used by a wide range of industries, as a proven long term, corrosion resistant solution in most environments.The durability of stainless steel flooring systems provide a cost effective, low maintenance, high durable solution for floors, platforms and access equipment.

BENEFITS: The distinctive tear-shaped, raised tread pattern of Wincro SUREGRIP stainless steel flooring provides positive traction for both pedestrian and wheeled traffic. The integrally formed 'teardrop' tread is in the height range 1.0mm-2.00mm and is 'grip effective' for any angle of approach.



SELECTION
Our SUREGRIP floorplate is available in two types of stainless steel. Wincro will assist with technical advice on the correct grade of stainless steel for your application taking into account key points such as structural strength, design life, operating conditions and surface finish for appearance.

Grade 1.4301 (304) stainless steel
(18% chromium – 10% nickel)
Austenitic, non-magnetic. This grade is ideal for both internal and external applications where good strength and corrosion resistance are required.

Grade 1.4401 (316) stainless steel
(18% chromium – 10% nickel – 3% molydenum)
Austenitic, non-magnetic. This grade has enhanced corrosion resistance due to the addition of molybdenum and a higher nickel content. Ideally used in aggressive conditions where the risk of corrosion or pitting attack may be high.

LOW MAINTENANCE
The necessity for painting or protective coating is eliminated, allowing low maintenance, cost effective solution for the life of the installation. There are considerable potential maintenance savings using Wincro SUREGRIP.

CORROSION RESISTANCE
Wincro SUREGRIP is the natural choice for the most arduous industrial flooring applications giving exceptional corrosion resistance needing little or no maintenance during its service life. Grade 1.4401 (316) is recommended for highly corrosive and marine environments.

HYGIENIC
The tear-shaped pattern of the Wincro SUREGRIP enables cleaning of waste liquid and surface cleaning much easier as well as excellent sanitary and hygiene qualities, where a sterile environment is important.

HARD WEARING
Excellent wear resistance, durability and toughness is achieved in most environments providing a better solution than mild steel or aluminium.

ANTI-STATIC
Wincro SUREGRIP has a low magnetic permeability which is particularly important for applications where sensitive machinery is used in hospitals or areas where low flashpoint chemicals are handled.

PROVEN VERSATILITY
Wincro SUREGRIP has been used in chemical processing plants, underground rail stations, refineries, food processing, abattoirs, dairies, breweries, paper-making industries, marine decking, hospitals, nuclear power decontamination areas and many more situations where high resistance to wear, coupled with superior hygiene qualities are necessary.

SUREGRIP FLOORPLATE

PRODUCT FORM: Wincro SUREGRIP floorplate is available in thicknesses of 1mm-3mm in cold pressed form (SUREGRIP Thin Gauge), and from 3mm-10mm thick in hot rolled form. SUREGRIP standard stock length of plates is normally 3000mm but longer lengths of up to 6m are available to special order.

1.0 STAINLESS STEEL GRADE 1.4301 (304) / 1.4401 (316) THICKNESS (MM)

■ Cold pressed product (CP) ▲ Hot rolled product (HR)	1.0	2.0	3.0	4.5	6.0	8.0	10.0
1000mm wide	■	■	■▲	▲	▲	▲	▲
1250mm wide	■	■	■▲	▲	▲	▲	▲
Theoretical weight (Kg/m²)	8.2	16.4	24.6/26.7	38.7	50.7	66.7	82.7

ENDORSEMENTS: Wincro SUREGRIP has been specified, and used in many prestigious applications and by major organisations:

- Westminster Station, Jubilee Line Extension
- Waterloo Station, Jubilee Line Extension
- ICI Petrus Project, Wilton
- Lever Bros. Chemical Plant, Shanghai
- Spent Etchant Recycling Plant, Le Havre
- Walkers Crisps Factory, Leicester
- British Nuclear Fuels, Sellafield
- Baby Food Factory, St Petersburg
- Virgin Mega Store, London
- Capehill Brewery for Bass Breweries
- Simco Pharmaceutical, Guernsey

FABRICATION SERVICES: Wincro has a full design and fabrication service and offers a bespoke service to suit specifiers' requirements.

Shearing & Profiling

SUREGRIP can be supplied cut to size by shearing, plasma profile cutting or laser cutting to accurate tolerances across the full range of plate thicknesses. The Wincro service includes the provision of profiled cut-outs and shaping to allow for easy installation around other plant, pipework or equipment.

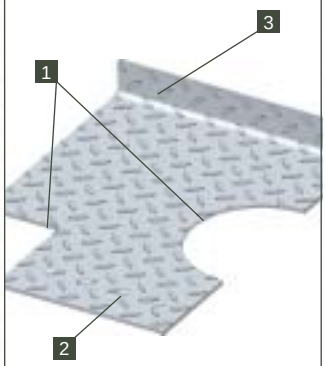
Bi-metallic Corrosion

Care should be taken to avoid direct contact between stainless steel floorplate and structural mild steelwork. Wincro recommend an insulation gasket should always be placed between the adjoining metal interface to avoid accelerated corrosion of the mild steel structural members.

1.0 Holes & Slots

SUREGRIP can be supplied with plain or countersunk holes or elongated slots as required in all thicknesses.

1. Plasma Profile Cut Outs
2. Holes for fixing down
3. Formed upstand



1.0


2.0

2.0 Shaping & Forming

SUREGRIP can be bent to specified angles to form kickflats, upstands and stair treads etc. up to 3.5m long.

Welding

Wincro services include: stitch, fillet and butt welding, using MIG and TIG facilities.

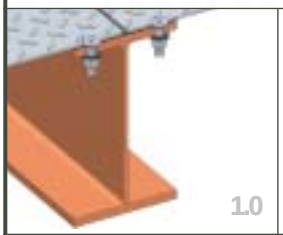
3.0 Staircase Application

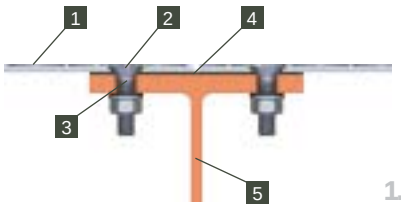
Design

Wincro has wealth of experience in solving flooring problems. Our Engineers and Designers can advise on the most efficient and effective use of SUREGRIP flooring, supplying layout details, structural drawings and calculations where required.


3.0

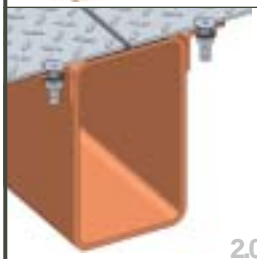
FIXING METHODS: Wincro recommend the use of the Floorfast fixing when fixing to steelwork. The Floorfast is designed to enable the SUREGRIP to be secured from above using a simple tee-handled hexagon key. This fixing eliminates the need for access from below and does not require any site drilling or welding.

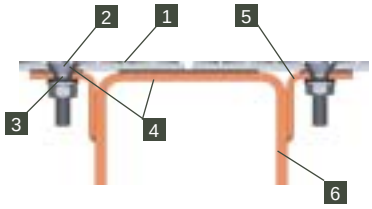




1.0 / 1.1

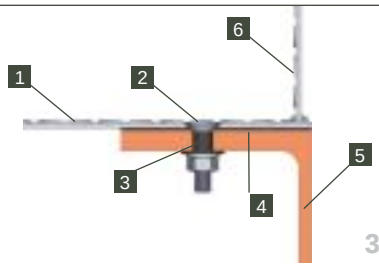
1. Wincro Suregrip Floorplate
2. Stainless Steel Countersunk Setscrew
3. Top Hat Isolation Washer
4. Continuous Isolation Strip
5. Steel Beam





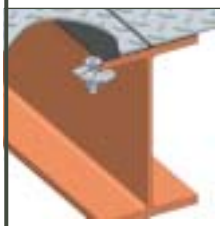
2.0 / 2.1

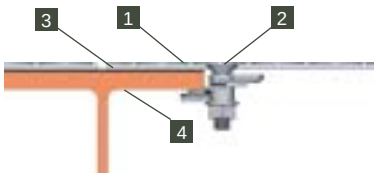
1. Wincro Suregrip Floorplate
2. Stainless Steel Countersunk Setscrew
3. Top Hat Isolation Washer
4. Continuous Isolation Strip
5. Steel Cleat welded to RHS
6. Steel RHS



3.0 / 3.1

1. Wincro Suregrip Floorplate
2. Stainless Steel Countersunk Setscrew
3. Top Hat Isolation Washer
4. Continuous Isolation Strip
5. Steel Section
6. Welded Kicking Plate





4.0 / 4.1

1. Wincro Suregrip Floorplate
2. Stainless Steel Floorfast fixing
3. Continuous Isolation Strip
4. Steel Beam

SURFACE FINISHES: The surface finish of the stainless steel is important from both a corrosion resistance and hygiene point of view. Generally the smoother the surface the better the corrosion resistance and hygienic qualities. Wincro will advise on the correct surface finish for any given application, taking into account the environment in which the application will be used.

5.0

MILL FINISH: This finish is achieved by immersion in a mixed acid solution which removes scale (high temperature oxide) leaving the surface with a grey clean finish. A mill finish is suitable for most applications both internal and external.

BEAD BLAST FINISH: This finish is achieved by blasting the surface with dry glass beads, producing a dull and consistent smooth finish. Wet shot blasting is also available using an iron free abrasive to avoid surface contamination. This method produces a consistent abraded surface finish. Glass beaded finish enhances corrosion resistance and gives an overall surface consistency.

ELECTROPOLISHED FINISH: Electropolishing is a well proven method and is achieved by immersion in an electrolytic bath of various solutions. This method produces a high lustrous finish with a consistent smooth surface. The tread pattern retains its non-slip properties. An electropolish finish enhances corrosion resistance and is ideal where a fully hygienic surface is required or for aesthetic purposes.

OTHER FINISHES: There are other surface finishes which are not particularly appropriate to flooring applications including mechanical polishing, electroplating, and colouring.

SUREGRIP FLOORPLATE – SAFE WORKING LOADS

1.0 FLOORPLATE SIMPLY SUPPORTED ALL FOUR EDGES MAXIMUM SAFE WORKING LOAD IN KN/M²

NOTE: THE LOADS MARKED IN BOLD TEXT CAUSE DEFLECTIONS GREATER THAN SPAN/100

	Span (mm)						
	200	400	600	800	1000	1200	Width (mm)
Thickness = 3mm	142	**93**	**81**	**69**	**57**	**45**	200
		36	**27**	**24**	**22**	**21**	400
			18	**15**	**13**	**11**	600
				11	**10**	**8**	800
							1000
							1200
Thickness = 4.5mm	319	210	182	155	128	100	200
		80	**52**	**52**	**49**	**46**	400
			36	**30**	**26**	**24**	600
				22	**19**	**16**	800
					15	**14**	1000
						11	1200
Thickness = 6mm	567	373	324	275	227	178	200
		142	93	**93**	**87**	**81**	400
			63	**49**	**41**	**41**	600
				36	**31**	**27**	800
					25	**22**	1000
						18	1200
Thickness = 8mm	1008	662	576	490	403	317	200
		252	166	166	155	**144**	400
			112	**86**	**74**	**74**	600
				63	**52**	**41**	800
					41	**36**	1000
						29	1200
Thickness = 10mm	1575	1035	900	765	630	495	200
		394	259	259	242	225	400
			175	135	115	**115**	600
				98	**82**	**65**	800
					63	**54**	1000
						44	1200

2.0 FLOORPLATE ENCASTRE ON ALL FOUR EDGES MAXIMUM SAFE WORKING LOAD IN KN/M²

NOTE: THE LOADS IN THIS TABLE DO NOT EXCEED DEFLECTIONS GREATER THAN SPAN/100

	Span (mm)						
	200	400	600	800	1000	1200	Width (mm)
Thickness = 3mm	156	113	113	113	113	113	200
		40	30	28	28	28	400
			20	17	15	15	600
				14	12	11	800
							1000
							1200
Thickness = 4.5mm	351	253	253	253	253	253	200
		88	67	63	63	63	400
			40	33	29	28	600
				25	21	18	800
					18	16	1000
						14	1200
Thickness = 6mm	623	450	450	450	450	450	200
		156	119	113	113	113	400
			69	58	52	50	600
				40	34	30	800
					27	24	1000
						20	1200
Thickness = 8mm	1101	800	800	800	800	800	200
		277	212	200	200	200	400
			123	102	92	89	600
				69	60	53	800
					45	40	1000
						33	1200
Thickness = 10mm	1731	1250	1250	1250	1250	1250	200
		433	331	313	313	313	400
			192	160	144	139	600
				108	94	83	800
					69	62	1000
						48	1200

SUREGRIP FLOORPLATE – SAFE WORKING LOADS

3.0 FLOORPLATE ENCASTRE ON TWO OPPOSITE EDGES*

Thickness (mm)	Span (mm)	Safe load (kN/m²)	Deflection (mm/kN load)
3	200	80	0.01
3	300	35	0.05
3	400	20	0.2
3	500	12	0.4
3	600	8	0.8
3	700	6	1.5
3	800	4	3.0
3	900	3	4.9
3	1000	3	6.0
3	1100	2	10.7
3	1200	2	12.5
4.5	200	181	0.003
4.5	300	80	0.01
4.5	400	45	0.05
4.5	500	28	0.1
4.5	600	19	0.2
4.5	700	14	0.4
4.5	800	11	0.7
4.5	900	8	1.3
4.5	1000	6	2.0
4.5	1100	5	2.9
4.5	1200	4	4.3
4.5	1300	3	6.7
4.5	1400	3	7.7
4.5	1500	2	13.0
6.0	200	323	0.001
6.0	300	143	0.007
6.0	400	80	0.02
6.0	500	51	0.05
6.0	600	35	0.1
6.0	700	25	0.2
6.0	800	19	0.3
6.0	900	15	0.5
6.0	1000	12	0.8
6.0	1100	10	1.1
6.0	1200	8	1.7
6.0	1300	7	2.2
6.0	1400	6	2.9
6.0	1500	5	4.0
8.0	200	575	0.001
8.0	300	255	0.003
8.0	400	143	0.008
8.0	500	91	0.02
8.0	600	63	0.04
8.0	700	46	0.08
8.0	800	35	0.1
8.0	900	27	0.2
8.0	1000	22	0.3
8.0	1100	18	0.5
8.0	1200	15	0.7
8.0	1300	13	0.9
8.0	1400	11	1.2
8.0	1500	9	1.7
10.0	200	899	0.003
10.0	300	399	0.001
10.0	400	224	0.004
10.0	500	143	0.01
10.0	600	99	0.02
10.0	700	72	0.04
10.0	800	55	0.07
10.0	900	43	0.1
10.0	1000	35	0.2
10.0	1100	28	0.2
10.0	1200	24	0.3
10.0	1300	20	0.5
10.0	1400	17	0.6
10.0	1500	15	0.8

*Design Stress = 180 N/mm²

4.0 FLOORPLATE SIMPLY SUPPORTED ON TWO OPPOSITE EDGES**

Thickness (mm)	Span (mm)	Safe load (kN/m²)	Deflection (mm/kN load))
3	200	53	0.05
3	300	23	0.3
3	400	13	0.8
3	500	8	2.0
3	600	5	4.5
3	700	4	7.5
3	800	3	12.8
3	900	2	23.9
4.5	200	121	0.01
4.5	300	53	0.1
4.5	400	30	0.2
4.5	500	19	0.6
4.5	600	13	1.2
4.5	700	9	2.3
4.5	800	7	3.8
4.5	900	5	6.6
4.5	1000	4	10.0
4.5	1100	3	15.9
4.5	1200	3	18.5
4.5	1300	2	32.0
4.5	1400	2	36.3
6.0	200	215	0.006
6.0	300	95	0.03
6.0	400	53	0.1
6.0	500	34	0.2
6.0	600	23	0.5
6.0	700	17	0.9
6.0	800	13	1.5
6.0	900	10	2.5
6.0	1000	8	3.8
6.0	1100	6	6.1
6.0	1200	5	8.6
6.0	1300	4	12.4
6.0	1400	3	18.9
6.0	1500	3	21.3
8.0	200	383	0.003
8.0	300	170	0.01
8.0	400	95	0.04
8.0	500	60	0.1
8.0	600	42	0.2
8.0	700	30	0.4
8.0	800	23	0.7
8.0	900	18	1.1
8.0	1000	14	1.7
8.0	1100	12	2.3
8.0	1200	10	3.3
8.0	1300	8	4.8
8.0	1400	7	6.2
8.0	1500	6	8.3
10.0	200	599	0.001
10.0	300	265	0.007
10.0	400	149	0.02
10.0	500	95	0.05
10.0	600	65	0.1
10.0	700	48	0.2
10.0	800	36	0.3
10.0	900	28	0.5
10.0	1000	23	0.8
10.0	1100	19	1.2
10.0	1200	15	1.8
10.0	1300	13	2.4
10.0	1400	11	3.2
10.0	1500	9	4.5

**Design Stress = 180 N/mm²

DESIGN RECOMMENDATIONS FOR PEDESTRIAN LOADINGS

Use	UDL
A. LIGHT DUTY – access limited to one person	3.0 kN/m²
B. GENERAL DUTY – regular two way pedestrian traffic	5.0 kN/m²
C. HEAVY DUTY – high density pedestrian traffic	7.5 kN/m²

SUREGRIP THIN GAUGE FLOORPLATE

Thin Gauge Wincro SUREGRIP is the ultimate light weight safety flooring, giving maximum resistance to corrosion and virtually maintenance free use.

Manufactured from high grade austenitic stainless steel its performance is far superior to materials such as aluminium and resins and is also more cost effective.

BENEFITS

SUREGRIP Thin Gauge offers a combination of features which make it the most versatile and effective high performance flooring system currently available.

- Light weight does not detract from payloads.
- Interlocking tear drop pattern gives an excellent non-slip surface for pedestrian and wheeled traffic without restricting drainage.

It is suitable for use in a wide range of industries and applications, including brewing, food processing, petro-chemicals, water treatment, swimming pools, dairies, agriculture, harbours and land and sea transport – wherever hygiene, safety and corrosion resistance are important.

1.0 / 2.0 / 3.0

SUREGRIP Thin Gauge is extremely versatile as a flooring or cladding material and can be used in:

1.0 Thin Gauge Floorplate

Sheet Form: The material can be resin bonded in sheet form to timber decks, formed as cab steps, flashings, wear-pads, thresholds and door sills on all types of transport.

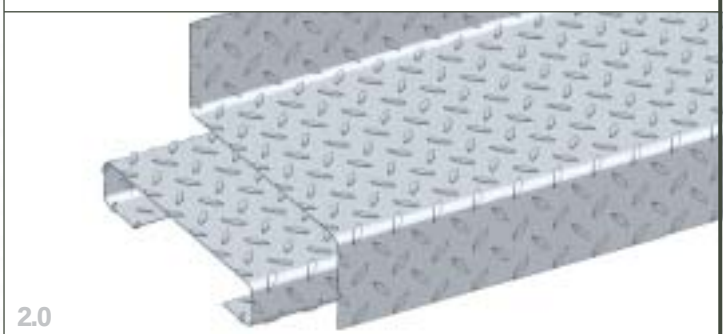
2.0 Preformed Sections

Pre-formed sections: Steps, plank flooring units and modular decking can be installed in new structures or bonded to existing fabrications, eg. to re-cover worn stairways on ships.

3.0 Bonded Thin Gauge

Thin Gauge can be bonded to virtually any surface, including steel, concrete, tiles and timber. Wincro will advise on the appropriate adhesive to use along with standard methods of installation such as welding, bolting and screwing for any application.

1.0



2.0

3.0

1.0 WINCRO THIN GAUGE FLOORPLATE

Thickness	1.0mm	1.5mm	2.0mm	3.0mm
Width	1000, 1250	1000, 1250	1000, 1250	1000, 1250
Length	2000, 2500, 3000mm	2000, 2500, 3000mm	2000, 2500 3000mm	2000, 2500 3000mm

Wincro Thin Gauge Floorplate is available in Grade 1.4301 (304), Grade 1.4401 (316), Galvanised Mild Steel, Aluminium and Cromweld 3CR12

FABRICATION: Thin Gauge SUREGRIP can be supplied in standard sheet form or cut to size, cold formed, drilled and plasma or laser cut to individual requirements. The mechanical properties of the material are considerably higher than those specified in BS1449: Part 2 because of the amount of work-hardening achieved during the manufacturing process. Our Technical Design Team will assist in determining your floor loadings.

2.0

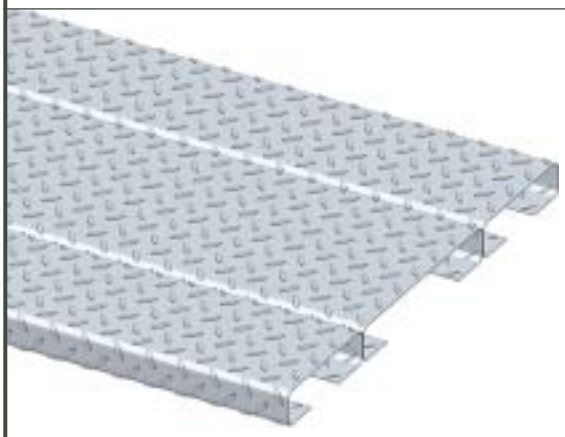
2.0
Recladding Existing Floors

Thin Gauge is easily bonded or bolted to existing floors of concrete, tiles, mild steel or other materials, providing a cost effective stainless steel floor without the need for major structural support work.

2.1

2.1
Transport Applications

Used in commercial vehicles, Thin Gauge is far more durable than aluminium yet still offers a combination of strength with lightness.



2.2

2.2
Plank Flooring

The deflection of Thin Gauge can be reduced by forming the material into plank sections. A double fold often eliminates the need for additional bearers. Plank widths can be made to suit specifiers' requirements.

Other Applications

Staircases and Platforms: Thin Gauge can be formed accurately into many shapes and provides a simple and cost effective method of repairing worn treads.

Swimming Pool Steps: Thin Gauge Type 1.4401 (316) is ideal for use in highly corrosive areas where steps and flooring material must be light weight as well as strong.

OPEN GRID FLOORING

Wincro stainless steel Open Grid is a high strength, light weight, open grid flooring system for use where additional drainage or ventilation is required with high load capacity.

It is especially suitable for use as mezzanine flooring where its open design ensures minimum obstruction of light from one level to another. The combination of high strength and great durability ensures Wincro Open Grid is a highly cost effective alternative to coated mild steel and aluminium grid floor equivalents.

The strength of the product is established with the use of computer controlled production which ensures that the transverse bars are pressed into the notched load bearing bars under high pressure. Additionally the large number of connections and an automatically welded frame guarantee a strong product.

The Grid can be supplied in easy to handle and economical standard panel sizes or to customers' special requirements. The use of special fittings or brackets with standard nuts and bolts enables the Grid to support structures. It can also be welded on site.

1.0 STAINLESS STEEL TYPE: 1.4301 (304) OR 1.4571 (316) ALUMINIUM AND GALVANISED MILD STEEL

Specification	Bearer Bar	Transverse Bar Size	Pitch for Bearer & Transverse Bar	Approx. Weight
	(mm)	(mm)	(mm)	(Kg/m^2)
20/2	20 x 2	10 x 2	33 x 33	15.6
25/2	25 x 2	10 x 2	33 x 33	18.3
25/3	25 x 3	10 x 3	33 x 33	24.6
30/2	30 x 2	10 x 2	33 x 33	21.1
30/3	30 x 3	10 x 3	33 x 33	28.6

2.0 MESH WIDTH

Load Bearing bar distance (mm)	Centre to Centre (mm)							
Centre to Centre	11^{11}	16^{66}	22^{22}	33^{33}	44^{44}	49^{99}	66^{66}	99^{99}
16^{66}	–	x	x	x	x	x	x	x
22^{22}	–	x	x	x	x	x	x	x
33^{33}	x	x	x	x	x	x	x	x
44^{44}	x	x	x	x	x	x	x	x
49^{99}	x	x	x	x	x	x	x	x
66^{66}	x	x	x	x	x	x	x	x
99^{99}	–	x	x	x	x	x	x	x

Standard width of mesh 33^{33} x 33^{33}

3.0 STAINLESS STEEL 1.4301 (304) OR 1.4571 (316)

Load Bearing Bars (mm)	20 x 2 25 x 2 30 x 2	30 x 3
Transverse Bars (mm)	10 x 2 18 x 2	10 x 3
Finishing: pickled and passivating coat		

OPEN GRID FLOORING: A list is given below, to assist with the design and ordering of Open Grid Flooring. It gives explanations of the most commonly used technical terms.

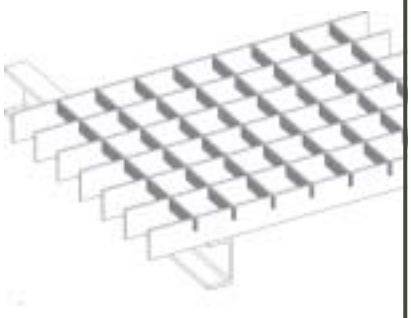
1.0
Load Bearing Bars

Load bearing bars must bear the load and be supported at both ends. When ordering, please quote the length of the bearing bars first.

2.0
Transverse Bars

The transverse bars serve to join the load bearing bars

1.0



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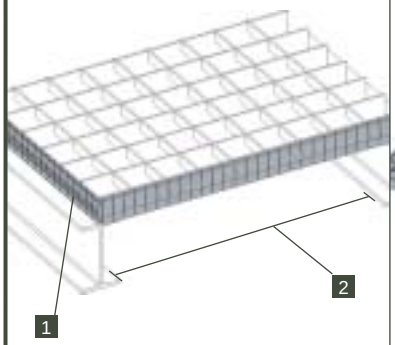


3.0

4.0

3.0
Clear Span / Edging

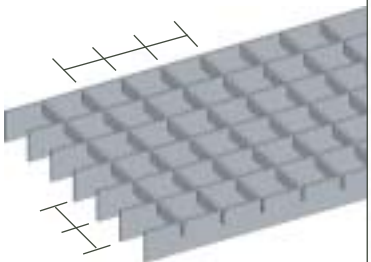
The distance between two supports. Important when calculating the bearing capacity of grids. At the ends of the load bearing bars and the transverse bars (all around) a binding bar is fitted. Please contact Wincro for advice on the various types of binding bars.

1 Edging
2 Clear Span

4.0
Cut-out / Notching

An area of flooring removed to permit pipes, columns etc, to pass through or to clear obstruction. If the height of the grating exceeds the space available, it is possible to notch the load bearing bars to compensate for this.

5.0



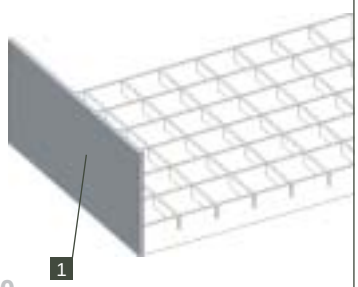
6.0

5.0
Serrations

A greater non-slip effect can be accomplished by serrating the load bearing bars. In addition the transverse bars are pressed in a sunken position and so the protruding parts of the serration form the upper surface. This results in a reliable non-slip effect in all directions.

6.0
Pitch

The distance between the centres of the load bearing bars, followed by the distance between the centres of the transverse bars. The former one in underlined. Standard pitch is 33mm x 33mm.



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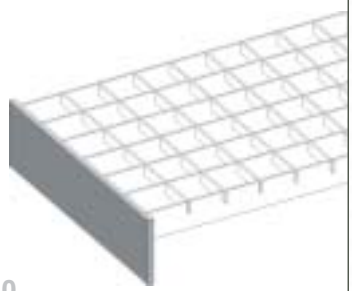


8.0

7.0
Kicking Plates

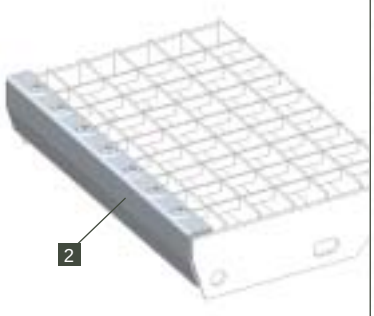
A raised welded on strip projecting above the top of the load bearing bars

1 Kicking Plate

8.0
Deep Binding Bar

A welded on strip protruding below the bearing bars

9.0



10.0

9.0 / 10.0
Stairtread

Non-slip nosing. At the front of the Wincro Open Grid stair treads a non-slip nosing is fitted. This special nosing increases the bearing capacity and results in an additional non-slip effect, while at the same time there is a clear visual marking of each individual tread.

Sideplates

Wincro stair treads are supplied with welded on sideplates for easy fitting to stringers. These side plates are supplied with the necessary holes.

1 Sideplates
2 Non-Slip Nosing

OPEN GRID FLOORING

Wincro Open Grids are regularly used in the offshore, chemical and petrochemical industries, dairies, food and bottling plants and in places with extreme heavy traffic load.

The offshore industry require very stringent standards in respect of load, non-slip, durability and mesh sizes. Wincro Open Grids contribute to a safer working environment as the design enables the free draining of surface liquids such as rain, ice, dirt and oil.

1.0 UNIFORMLY DISTRIBUTED LOAD KG/M²

Span	Load Bearing Bars (mm)				
(mm)	20 x 2	25 x 2	25 x 3	30 x 2	30 x 3
200	13227				
300	5879	9185	13778	13227	19840
400	3307	5167	7750	7440	11160
500	2116	3307	4960	4762	7142
600	1470	2296	3444	3307	4960
700	972	1687	2531	2429	3644
800	651	1271	1907	1860	2790
900	457	893	1340	1470	2204
1000	333	651	977	1125	1687
1100	250	489	734	845	1268
1200	193	377	565	651	977
1300	152	296	444	512	768
1400	121	237	356	410	615
1500	99	193	289	333	500
1600	81	159	238	275	412
1700	68	133	199	229	343
1800	57	112	167	193	289
1900	49	95	142	164	246
2000	42	81	122	141	211
2100	36	70	105	121	182
2200	31	61	92	106	158
2300	27	54	80	92	139
2400	24	47	71	81	122
2500	21	42	62	72	108

2.0 CONCENTRATED LOAD IN KG ON AN AREA OF 200MM X 200MM AT MIDSPAN

Span	Load Bearing Bars (mm)				
(mm)	20 x 2	25 x 2	25 x 3	30 x 2	30 x 3
200	853	1333	2000	1920	2880
300	427	667	1000	960	1440
400	284	444	667	640	960
500	213	333	500	480	720
600	171	267	400	384	576
700	128	222	333	320	480
800	96	186	281	274	411
900	75	146	219	240	360
1000	60	117	175	202	302
1100	49	95	143	165	247
1200	41	80	119	137	205
1300	34	67	101	116	174
1400	30	56	87	100	150
1500	26	50	75	86	130
1600	22	44	66	76	113
1700	20	39	58	67	100
1800	18	34	51	59	89
1900	16	31	46	53	80
2000	14	28	41	46	72
2100	13	25	38	43	65
2200	12	23	34	39	59
2300	11	21	31	36	54
2400	10	19	29	33	49
2500	9	18	26	30	45

Above bold line: max material stress 16ookg/cm² Below bold line: max deflection 1/200th of the span Mesh size: 33mm x 33mm

3.0 DESIGN RECOMMENDATIONS FOR PEDESTRIAN LOADINGS

Use		U.D.L
A. LIGHT DUTY	– access limited to one person	306 kg/m²
B. GENERAL DUTY	– regular two way pedestrian traffic	510 kg/m²
C. HEAVY DUTY	– high density pedestrian traffic	765 kg/m²

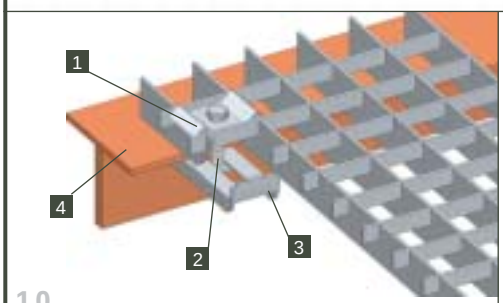
4.0 PRODUCT AVAILABILITY

Use	
Stainless Steel	1.4301 (304)
Stainless Steel	1.4571 (316)
Galvanised Mild Steel	NEN-ENISO-1461
Aluminium	Anodised as required

TYPICAL APPLICATION OF OPEN GRID FLOORING USED AS BALUSTRADING INFILLS

OPEN GRID FIXING METHODS

FIXING METHODS: Special fastening systems have been developed for Wincro Open Grid. They can be easily fitted from the top and simply tightening the screw secures their position. This page shows a few examples of Wincro fastening systems: simple, effective and safe.



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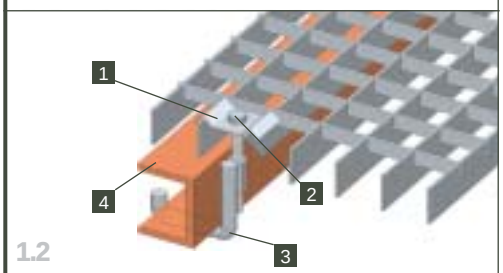

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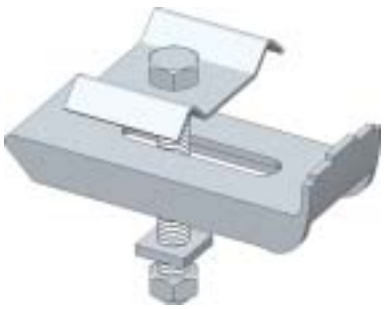

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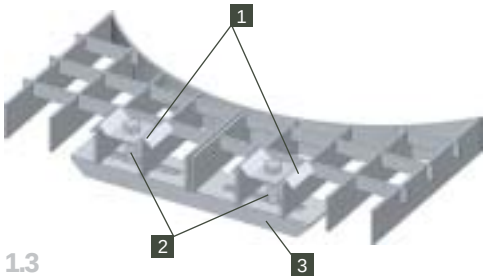

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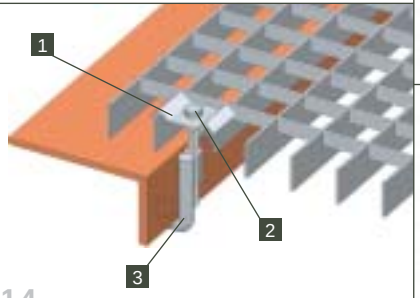


1.4

1.0 / 1.1
Fastener Set

1. Top Clip (Saddle)
2. Bolt c/w nut
3. U-profile (Fixing Clip)
4. Steel Beam

1.2
Extended Clip Set

1. Top Clip (Saddle)
2. Hexagon Bolt
3. Square Bend Hook
4. Steel PFC

1.3
Coupling Set

1. 2 x Top Clip (Saddle)
2. 2 x Bolt c/w Nut
3. 1 x Coupling U-profile (Coupling Link)

1.4
Angle Clip

1. Top Clip (Saddle)
2. Hexagon Bolt
3. Hook bolt

OPEN STEEL FLOORING

Wincro Open Steel Flooring is frequently used in the offshore, chemical and petrochemical industries, dairies, food and bottling plants, and in places with extremely heavy traffic loads.

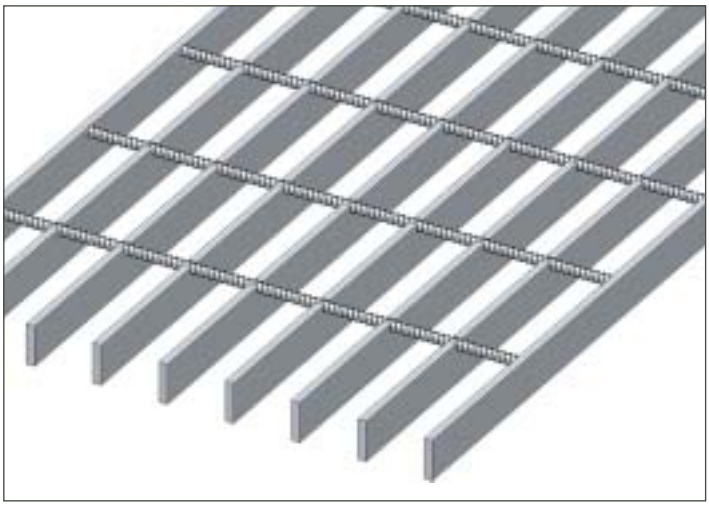
Standards are set in respect of load, non-slip, durability and low maintenance properties. Wincro OSF contributes towards a safer working environment, as the design ensures the free drainage of surface liquids such as rain, ice, dirt and oil.

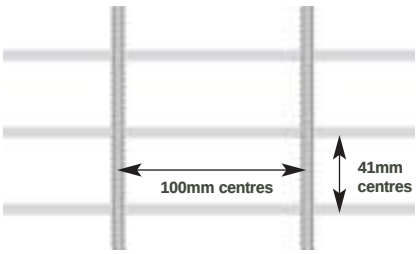
SPECIFICATION

- Stainless Steel 1.4301 (304)
- Stainless Steel 1.4401 (316)
- Transverse Bar centres: 100mm
- Approx. Weight: 30 Kg/m^2
- Load bearing Bar size: 25 x 5mm
- Load bearing Bar centres: 41mm

WINCRO OSF MAY INCLUDE

- Choice of mill finish, pickle and passivated or electro polished
- Incorporated kick plates to special order
- Cut-outs to special order





SPAN: Up to 1500mm
LENGTH: Up to 1973mm Max
NB: Load bearing Bars must run in the Direction of Span

Wincro stainless steel OSF is a high strength, lightweight, open grid flooring system for applications and uses where additional drainage or ventilation is required with high load capacity.

It is especially suitable for use as mezzanine flooring, where its open design ensures minimum obstruction of light from one level to another.

The combination of high strength and great durability ensures Wincro OSF is a highly cost effective alternative to coated mild steel and aluminium grid floor equivalents.

The flooring can be supplied in either economical standard panel sizes, or to customers special requirements.

It can be attached to support structures using either special fittings or brackets with standard nuts and bolts. It can also be welded on site.

1.0 UNIFORMLY DISTRIBUTED LOAD 25 X 5 BAR @ 41MM CENTRES

Span (mm)	300	450	600	750	900	1050	1200	1350	1500
Safe Load (Kn/m^2)	160	72	40	26	18	13	10	8	6.5

PLANK FLOORING

Wincro Plank is manufactured in 2mm thickness material with a range of added features to accommodate specific requirements.

These include:

■ A wide range of plank widths ■ Variable depths of plank ■ Sideplates
■ Available in straight and spiral stairtread form or rungs for ladders ■ Sheet form

In order to achieve the most cost effective solution to meet your specification, Wincro recommend that our Technical Design Team be involved at an early stage in the project.

Special fastening systems have been developed for Wincro Plank. This includes a special fixing clip, together with countersunk head screw and nut, which locates in the drain hole of the pattern.

Exceptional drainage, ventilation and slip resistance is achieved with the pierced form pattern which makes the Wincro Plank particularly suitable for pedestrian walkways and stair treads or where a light system is required.

Available in stainless steel 1.4301 (304) and 1.4401 (316)

Typical situations:

- public buildings and factories
- chemical, petrochemical and processing plants
- offshore and ship building industries

1.0 STAIR TREAD			
Bmm	155	255	280
Cmm	95	195	220

Our Technical Design Team will advise on the correct selection of Wincro Plank and details on load performance.

1.0

1.0 Clear Span

The distance between two supporting carriers. Important when calculating the load capacity of Wincro platforms.

2.0

2.0 Flat Binding Bar

Any commercial profile may be used.

3.0

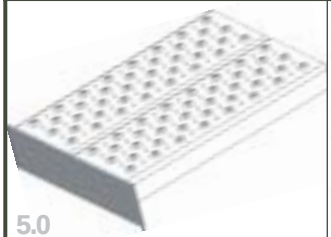
3.0 Notches

This term is referred to for all cutting work in the grid. The lines indicate the total area of flooring before it is cut to size and provided with possible notches.

4.0

4.0 Kicking Plates

A strip is welded on and protrudes above the Wincro Platform.



5.0

5.0 Deep Binding Bar

A strip is welded on and protrudes below the platform.

6.0

6.0 Non-Slip

Wincro non-slip effect can be achieved with the raised punch holes forming the top surface. This results in an effective non-slip effect in all directions.

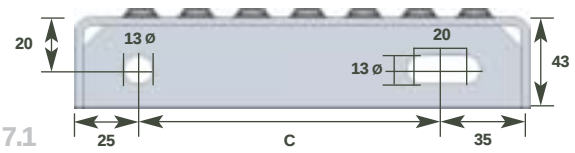
7.0

7.0 / 7.1 / 7.2 Standard Stairtread

Complete with welded end plates as required.

7.1 / 7.2

Please refer to table 1.0 for dimensions B and C



7.1

7.2

STAIR TREADS

We have developed comprehensive range of stair treads to suit a variety of situations and requirements.

Wincro stair treads have been specified throughout a variety of Industries including pharmaceutical, food, marine, petrochemical and many others where safety and durability are important.

Available in standard sizes to suit all applications, these bolt fixed stair treads are ideal as a replacement in existing access equipment. The treads can be supplied complete with isolation gaskets for use in mild steel structures and are also available for weld fixing into new access equipment.

Wincro stair treads are available in solid SUREGRIP floorplate or Open Grid. These cost effective stair treads can be produced for maximum performance to suit any particular application.

The Open Grid stair treads have a special profile at the front to ensure a strong non-slip effect. Non-slip serrations can also be manufactured where additional safety requirements apply.

1.0
SUREGRIP Stair Tread

A solid, raised patterned stair tread complete with welded end plates where required

1.0

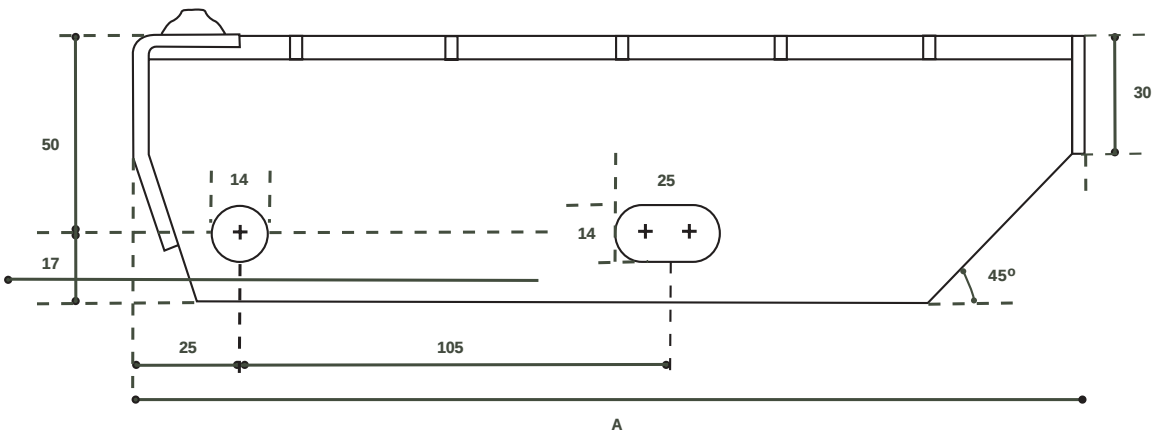
2.0
Typical Open Grid Detail

An Open Grid stairtread complete with welded end plates where required

2.0

Stair treads can be incorporated into new or existing staircases, and supplied in SUREGRIP floorplate, Open Grid or Plank form

TYPICAL OPEN GRID DETAIL: When ordering please specify tread width A.



STAIRCASES & LADDERS

Wincro staircases, ladders and stair treads have been designed to ensure safety and durability in a wide range of applications. Our range is available as a standard unit, or tailor made to suit specific requirements.

Staircase stringers are manufactured by Wincro for easy installation by customers, using nut and bolt fixings for on site assembly.

For situations where clean conditions are essential, stairs can be fitted with backplates to stop material falling into the area beneath. Again, the backplates can be attached with bolts to enable easy dismantling for cleaning.

Where a staircase leads to a landing or walkway, Wincro can supply the flooring system to suit in either our SUREGRIP floorplate or Open Grid, which will be designed and manufactured to fit the existing structure. Suitable handrailing can also be supplied.

SPIRAL STAIRCASES

Spiral staircases are tailor-made to any height requirement using Wincro SUREGRIP flooplate, Open Grid or Plank. As the position of each tread is critical, assistance from our Technical Design Team is recommended at an early stage in the design.

LADDERS

In order to avoid accidents by slipping on and from ladders, rungs should meet the highest requirements of stability and grip under extreme working conditions.

The Wincro Plank system offers maximum safety and ensures workers will not lose their foothold.

It is recommended that ladders with a height exceeding 5 metres are provided with a cage construction.

Ladders can be fitted with rectangular or circular safety cage loops and with various types of extended sides or retractable tubular hand holes. The ladder rungs can be manufactured from our specially rolled stainless steel ribbed bar or plank.

All staircase and ladder products are manufactured to British Standard specification.

1.0 STANDARD SECTION RUNGS

B (mm)	32	41	46
H (mm)	41	55	80

Thickness of material: 2mm. The clear width measured between stringers should be between 380mm and 450mm.

2.0 RECOMMENDED DIMENSIONS FOR STAIR TREADS

Angle of inclination	60º	57º	55º	52º	50º	47º	45º	42º	40º	37º	35º	32º	30º
Usable tread rise (mm)	240	235	230	225	220	215	210	205	200	190	185	175	170
Usable tread going (mm)	150	160	170	180	190	200	210	220	230	250	260	280	290
Usable tread width (mm)	160	170	200	200	200	233	233	233	266	266	300	300	300
Ratio basic length/height	0.58	0.65	0.70	0.78	0.84	0.93	1.00	1.11.	1.19	1.33	1.43	1.60	1.73

Dimensions in the above table are applicable for stair treads manufactured in both SUREGRIP and Open Grid flooring

HANDRAILING

Any unprotected edge of a walkway or staircase where a person could fall more than 0.5m must be fitted with a guardrail.

The hygienic and aesthetic properties of the Wincro stainless steel handrails make it suitable for all conditions and offers a corrosion resistant, maintenance free solution.

The handrails can be tubular, solid or a combination of both and they can be supplied with our staircase ranges, platforms or similar structures to suit individual customer requirements. Component parts are tailor made in convenient lengths, marked clearly to enable ease of site assembly.

A full design service is available. Alternatively customers' own designs can be manufactured.

Tubular and solid ball-type stanchions are available in various heights to suit single or double handrails together with a full range of base plates, to suit the required fixing.

Gates to match adjoining handrails are available for use where loading access is needed for a mezzanine floor or for protection across openings at the head of stairs or ladders. Alternatively stainless steel safety chains, smooth welded, can be fitted. Our handrail systems are specifically designed for safety at work and conforms to BS6180:1982 Table 2, as well as Design Council approval.

STANDARD STANCHIONS

1.0 Platform mounted two rail

2.0 Side mounted two rail

3.0 Concrete mounted one rail

4.0 Side mounted angled two rail – specify angle of stair

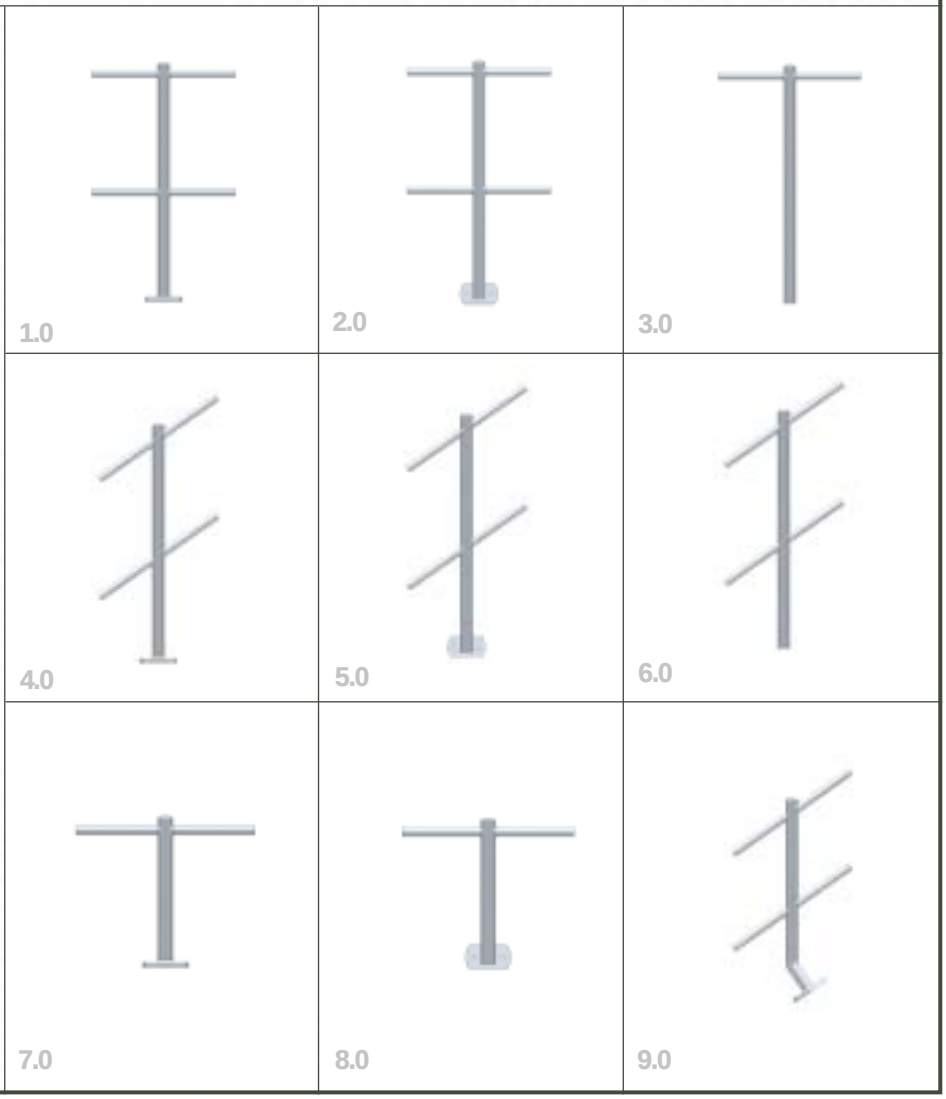
5.0 Side mounted angled two rail – specify angle of stair

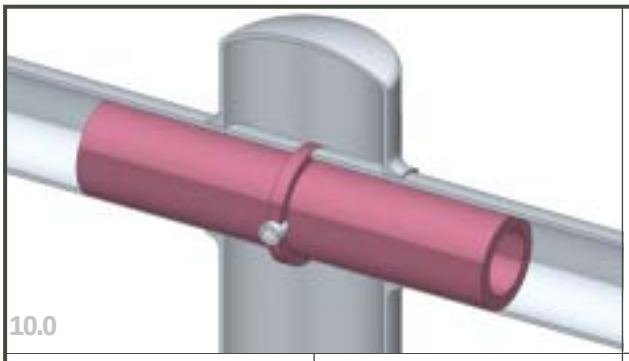
6.0 Concrete mounted angled two rail – specify angle of stair

7.0 Platform mounted one rail

8.0 Side mounted one rail

9.0 Stringer mounted angled two rail – specify angle of stair




10.0


11.0


12.0


13.0


14.0

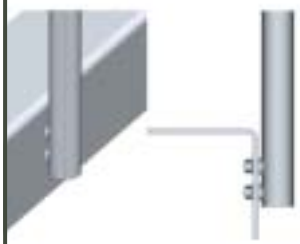

15.0


16.0


17.0


18.0


19.0


20.0


21.0


22.0

10.0
Tubular Connector

11.0
Standard base

12.0
End cap/Wall Connector

13.0
45º bend

14.0
Any Angle Bend –
specify bend angle

15.0
Angle Closure –
specify bend angle

16.0
Standard Closure

17.0
Tubular side fixing

18.0
Side plate fixing

19.0
Angled base fixing

20.0
Application showing tubular side fixing
to structure

21.0
Application showing side plate fixing to structure

22.0
Platform mounted base fixed to concrete with WBEB Expansion Bolts

FABRICATED SECTIONS

STAINLESS STEEL ANGLES, CHANNELS & SPECIAL FABRICATIONS

A wide range of cold formed sections are available in stainless steel grades: 1.4301 (304) and 1.4401 (316) and in various dimensions.

The sections can be drilled, slotted, welded, profiled and curved as required, which can provide an economical system for supporting floors. All sections are manufactured to order from our considerable stocks of stainless steel, giving high flexibility in the size and range.

TYPICAL SECTION SHAPES INCLUDE

Angle, Channel, Zed

To complement the range of standard formed sections, we are experienced in the manufacture of fabricated sections including:

■ I Section ■ T Section ■ RHS/SHS

Please contact our Technical Design Team for further information.

ANGLES

Sizes, lengths max 3500mm

Leg length min 20mm to 90mm depending on angle thickness

Leg length max normally 300mm (larger sizes are available on request)

Thickness from 4mm to 12mm (other thicknesses are available on request)

15mm thick angle can be manufactured to order in maximum 1500mm lengths

1.0 STANDARD MANUFACTURING TOLERANCES (+/-) FOR COLD FORMED ANGLE

		Plate thickness (mm)							
	Tolerance	3	4	5	6	8	10	12	16
Length/m	(+/-mm)	1.0	1.0	1.5	1.5	2.0	2.5	3.0	4.0
Angle leg	(+/-mm)	1.0	1.0	2.0	2.0	2.5	2.5	3.0	4.0
Slot centre	(+/-mm)	1.0	1.0	2.0	2.0	2.5	2.5	3.0	4.0
90° Angle	(+/-°)	2°	2°	2°	2°	2°	2°	2°	2°
Mitre Rake	(+/-°)	1°	1°	1°	1°	1°	1°	1°	1°

1.0 Cold Formed Angle complete with horizontally slotted holes

2.0 Fabricated Radius Angle (on elevation) – Please consult our Technical Design Team with your specific requirements

3.0 Cold Formed Gusseted Angle Cleat complete with slots and holes as required.

4.0 Cold Formed Angle

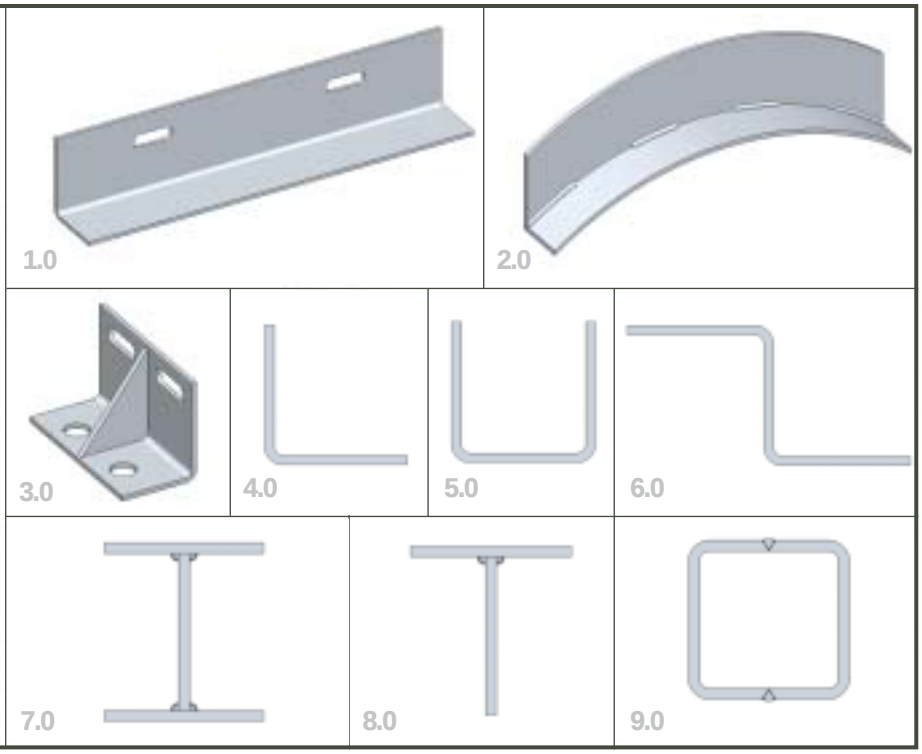
5.0 Cold Formed Channel

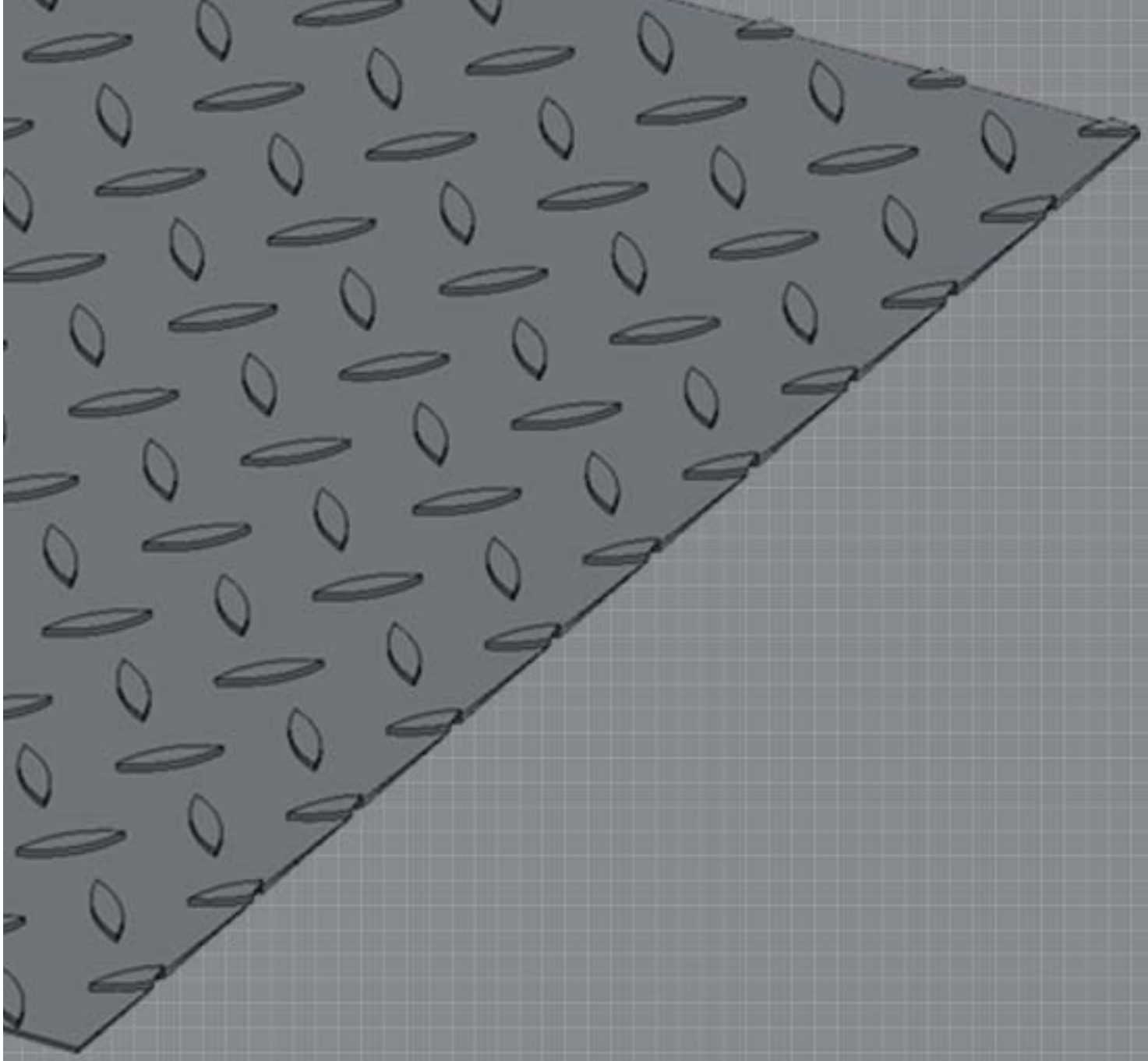
6.0 Cold Formed Z Section

7.0 Fabricated I Section

8.0 Fabricated T Section

9.0 Fabricated Box Section





SUMMARY OF SERVICES

- Full Technical Support including layout details and support calculations.
- Fabrication Service including: shearing to size and shape, forming and bending, plasma arc and laser profiling, drilling and punching, countersinking, MIG and TIG welding.
- Manufacture of supporting structural members, angles, RSJs, staircases and access platforms.
- Sub assembly of flooring systems, with part assembly at our own works for completion at the customer's plant.
- Floorplate normally supplied with mill finish. Shotblasted and electropolished finishes available on request.
- All the above services apply to our SUREGRIP, Grid and Plank Flooring
- A full range of handrailing systems

Designed by The Bright Partnership Ltd. 0114 296 2500

Wincro Metal Industries Ltd.

Wincobank Works > Fife Street > Sheffield > S9 1NJ > UK

tel: +44 (0) 114 242 2171 fax: +44 (0) 114 243 4306 email: sales@wincro.com

www.wincro.com

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