

STAINLESS STEEL TUBES & FITTINGS PRODUCT BROCHURE

Version 2 April 2015



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Disclaimer:

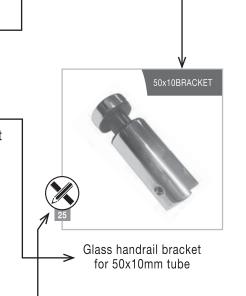
- METFORCE assumes no risk and shall not be subject to any liability for any indirect, special, incidental, or consequential damages or for any loss of profits sustained by buyers or any party dealing with buyers in connection with the information contained in this report or resulting from the use or application of any of the recommendations contained in this report.
- The buyer is ultimately responsible for making all decisions and applying the appropriate technology based on good engineering practices.
- METFORCE also do not assume the accuracy of the below data in terms of specification.
- E&OE. All the products featured in this brochure were available at the time of publication.
- METFORCE reserves the right to add or remove products as they see fit, without prior notification.

HOW TO USE THIS PRODUCT BROCHURE

Each product is featured independently and is fitted with a PRODUCT CODE,

to be used when ordering and as a quick reference in Section 2: Product check lists.

TECHNICAL DRAWINGS and more information can be found in Section 4. The icon at the top of the display box will tell you if there is a technical drawing available for that product and on which page it appears.





If the featured products on the page are NATA approved, the official logo will appear at the top of that page. We are constantly testing and certifying our products, so

please enquire whether any other products have received the NATA stamp of approval since the publication of this brochure.

Please note: all measurements are in millimetres (mm) unless otherwise stated.



1 | ABOUT US



We recognise that the stainless steel industry is unlike any other and is not for the feint-hearted or the unprepared.

We understand to make a project successful, you need good quality materials at reasonable prices, you need to partner with suppliers who understand what it takes to make a project successful and share in your passion for perfection.

Metforce Australia prides itself on being that partner.

As an importer and stockist of stainless steel and glass, supplying the handrail, balustrading, pool fencing and lifting industries, work with you to ensure that the end product is the best quality now and in the future. This is also why all critical items are NATA certified.

All our spigots come with NATA (National Association of Testing Authorities) accredited engineering certificates and all critical components such as brackets, slotted tubes and standoffs, have been certified too. Regular in-house quality checks have marked us being the only importer performing 'salt spray testing' on all stainless steel wire ropes to ISO9227 criteria.

All our wire ropes, fittings and tubes will comply with Australian standards 1170.0 / 1170.1 / 1170.2 / 1926.1 and 1926.2 codes and all our glass is to Australian standards ASNZS2208, while all our balustrade glass is heat soaked.

Our commitment to product longevity, customer satisfaction and timeous delivery with an eye on the bottom line, has seen Metforce grow from strength to strength over the past 7 years and are proud to be the preferred supplier to some of Australia's top engineering and construction firms.

Our branches in Perth, Sydney and Adelaide ensure accessibility to our warehouses and knowledgeable sales staff. Contact us on our share call number: **1300 4 METFORCE (638 367 23)** or at one of our regional offices:

Perth

86 Furniss Road Landsdale, WA 6065 Phone: 08 9302 3686

Facsimile: 08 9200 5673

Sydney 56 Bav Road

Taren Point 2229, NSW Phone: 02 9524 2003

Facsimile: 02 8072 1303

Adelaide

8-16 Hocking Street Brompton, SA, 5007 Phone: 1300 4 METFORCE Facsimile: 08 9200 5673





Top: Metforce's glass and stainless steel balustrading in Bondi, NSW. Middle & Bottom: Our warehouses hold a wide range of products to ensure we always have stock and deliver on time.

2 | PRODUCT CHECK LIST

All measurements are in millimetres unless otherwise stated.

STAINLESS STEEL ROUND TUBE

		304			316	6 / L	
Size	320#	600#	800#	320#	600#	800#	1000#
12.7 x 1.5	•	•	•	•	•	•	
15.9 x 1.5	•	•	•	•	•	•	
19 x 1.5	•	•	•	•	•	•	
22.2 x 1.6	•			•		•	
25.4 x 1.6	•		•	•		•	
31.8 x 1.6	•			•		•	
38.1 x 1.6	•		•	•		•	•
38.1 x 3.0						•	
44.5 x 1.6						•	
50.8 x 1.6	•		•	•		•	•
50.8 x 3				•		•	
63.5 x 1.6						•	
76.2 x 1.6						•	
88.9 x 1.6					•		
101.6 x 1.6					•		

STAINLESS STEEL SQUARE TUBE

	304		316) / L
Size	320#	Mirror	320#	Mirror
12 x 12 x 1.5			•	•
15 x 15 x 1.5			•	•
19 x 19 x 1.5	•		•	•
25.4 x 25.4 x 1.5	•	•	•	•
31.8 x 31.8 x 1.5	•	•	•	•
38.1 x 38.1 x 1.5	•	•	•	•
38.1 x 38.1 x 2.5				
(heavy wall)				•
50.8 x 50.8 x 1.5	•	•	•	•
50.8 x 50.8 x 3			•	•
100 x 100 x 3			•	

STAINLESS STEEL RECTANGULAR TUBE

40 x 10 x 1.5			•	•
50 x 10 x 1.5			•	•
70 x 10 x 1.5			•	•
25 x 50 x 1.5	•	•	•	•
25 x 50 x 2.5				•
60 x 40 x 2			•	•
80 x 40 x 2			•	•
100 x 50 x 3			•	•



2 | PRODUCT CHECK LIST



All measurements are in millimetres unless otherwise stated.

O-741111 -				31	6 / L
STAINLE	SS STEEL	SLOTTED	TUBE	320#	Mirror
Round	6m lengths	25.4 x 1.5	Single Slot (13 x 13)		•
	6m lengths	38.1 x 1.5	Single Slot (14 x 14)	•	•
	6m lengths	50.8 x 1.5	Single Slot (15 x 15)	•	•
	6m lengths	50.8 x 1.5	Double Slot 180° (15 x 15)	•	•
	3m lengths	50.8 x 1.5	Double Slot Corner (14 x 14)	•	•
Square	4m lengths	50 x 50 x 1.5	Single Slot (14 x 14)	•	•
	4m lengths	50 x 50 x 1.5	Double Slot 180° (14 x 14)	•	•
	4m lengths	50 x 50 x 1.5	Double Slot Corner (14 x 14)	•	•
Rectangle	6m lengths	21 x 25 x 1.2	Single slot (14 x 14)	•	•
	4m lengths	25 x 50 x 1.5	Single Slot (14 x 14)	•	•
Channel	4m lengths	Inside 15 x 14 Pressed from	x 2 sheet (slot 14 x 14)	•	•
In-Fill strip for round slot tube (Slot strip for 15 x 15 slots)					•
Slot strip (PV	C) for round & squ	ıare		•	•

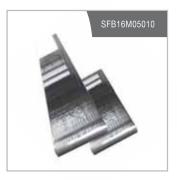
PVC CHANNELS

Channel Lite	4m lengths 14 x 14	For 10 or 12mm glass	•	•
Channel	3m & 4m lengths 14 x 14	For 10 or 12mm glass	•	•
Channel	3m lengths 15 x 15	For 10 or 12mm glass	•	•

STAINLESS STEEL OVAL TUBE

OVAL	38 x 23 x 1.5	•
	62 x 38 x 1.5	•
	75 x 42 x 1.5	•

3 | FLAT BARS







Solid flat bar Mirror polished with 11 holes for wire rope

STAINLE FLAT BA	316 / L Mirror		
POLISHED	50 x 10	1.1m lengths	•
	50 x 10 with holes	1.2m lengths	•
	50 x 10	5.8m lengths	•



3 | BRACKETS





Glass handrail bracket for 50x10mm tube



Wall handrail bracket for a balcony



Parapet rail support Size: 50.8mm



Post Bracket for stairs or balcony wall mounting Size: 38.1mm | 50.8mm



Wall handrail bracket with cover



Adjustable wall handrail bracket



Square wall adjustable handrail bracket



Adjustable handrail bracket for round or square post



Wall flange for handrail Size: 38.1mm | 50.8mm



Lag screws



3 | BRACKETS





Glass handrail support bracket Standoff 38mm x 50mm



Square-shaped glass handrail bracket



Diamond-shaped glass handrail bracket



Square-profiled shaped glass handrail bracket



Glass handrail pins



Flat glass handrail bracket for flat tubes



Glass or wall handrail bracket



Adjustable glass handrail bracket with cradle



Glass handrail support bracket



3 | END CAPS



Radiused end cap Size: 38.1mm | 50.8mm



Flat end cap Size: 25.4mm | 38.1mm | 50.8mm



Domed end cap Size: 38.1mm | 50.8mm



Flat end cap Weld on Size: 38.1mm | 50.8mm



90° End cap Size: 50.8mm



45° End cap Size: 50.8mm



Slightly domed Weld-on end caps Size: 38.1mm | 50.8mm



End cap Light knock in Size: 25.4mm | 38.1mm | 50.8mm



180W bend Size: 38.1mm | 50.8mm



180W bend with extended leg Size: 38.1mm | 50.8mm



3 | RAIL CONVERTERS



Perpendicular joiner Internal, into post Size: 25.4mm to 50.8mm 38.1mm to 38.1mm 38.1mm to 50.8mm 50.8mm to 50.8mm



Perpendicular joiner External, onto post Size: 38.1mm to 50.8mm 38.1mm to 38.1mm 50.8mm to 50.8mm



Perpendicular joiner Over post, 37° for stairs Size: 38.1mm to 50.8mm 50.8mm to 50.8mm



Adjustable rail support Internal, into post Size: 38.1mm to 38.1mm 38.1mm to 50.8mm 50.8 mm to 50.8mm 50.8mm to flat



Adjustable rail support External, onto post Size: 50.8mm to 50.8mm



2205 Rail converter Size: 38.1mm | 50.8mm



Rail converter Domed with M6 hole Size: 50.8mm



Flat rail converter Size; 38.1mm | 50.8mm



3 | BASES & COVERS



Cast base plate Size: 38.1mm | 50.8mm



Heavy duty base plate Size: 38.1mm | 50.8mm



Slightly domed cover Size: 38.1mm | 50.8mm



Round based plate with cover Size: 38.1mm | 50.8mm



Round base plate with 3 holes Size: 25.4mm | 38.1mm | 50.8mm



Oblong base plate Size: 38.1mm | 50.8mm

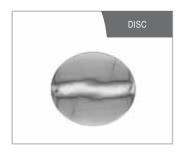
3 | BASES & COVERS



Internal fitting base plate Size: 38.1mm | 50.8mm



Internal base plate with thread hole Size: 38.1mm | 50.8mm



Flat polished blank disk Size: 60.3mm



Threaded rods Size: M10 | M12 | M16 | M20



Adjustable base plate Size: 50.8mm



3 | STEMS & CRADLES



Stem
Standard & adjustable
47mm high



M8 cradles for round and square tubes



M8 cradles 90° for round tubes



M6 double screws M6 lag screws



Round end cap with M8 threaded hole Size: 38.1mm | 50.8mm



Flat end cap with M8 threaded hole Size: 50mm x 50mm



Rail converter Domed with M6 hole Size: 50.8mm



316 Mirror & Satin ROUND



90° Bend Size: 38.1mm | 50.8mm



90° Elbow Size: 38.1mm | 50.8mm



Adjustable elbow Size: 38.1mm | 50.8mm



35° & 45° Bend Size: 38.1mm | 50.8mm



Tee Size: 38.1mm | 50.8mm



90° Tee Size: 38.1mm | 50.8mm



135° Tee Size: 38.1mm | 50.8mm



4-way Tee Size: 50.8mm



316 Mirror & Satin ROUND



Flush joiner Size: 25.4mm | 38.1mm | 50.8mm



Weld-on 90° bend Size: 25.1mm | 31.8mm | 38.1mm | 50.8mm



180° Bend Size: 38.1mm | 50.8mm



Weld-on short bend Size: 50.8mm



Joiner Size: 50.8mm



Rotational bend Size: 50.8mm





316 Mirror & Satin ROUND | SLOTTED



End cap for corner post slotted tubes Size: 50.8mm



End cap for single and double slotted tubes Size: 25.4mm | 38.1mm | 50.8mm



PVC slot strip for round and square slotted tubes



Slot tube joiner Size: 25.4mm | 50.8mm



Slotted elbow Size: 25.4mm | 38mm | 50mm

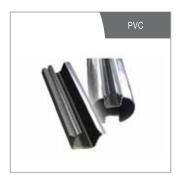


In-fill strip for slotted tubes





ROUND | SLOTTED



PVC channel for slotted tubes and glass



Slot tube converter Size: 38.1m | 50.8mm



Wall flanges Size: 25.4mm | 38.1mm | 50.8mm



Swivel Size: 25.4mm



Slotted tube perpendicular joiner Size: 50.8mm





316 Mirror & Satin RECTANGULAR

for regular and slotted tubes



90° Elbow for 25mm x 50mm tubes



End cap for 25mm x 50mm tubes



Wall flange for 25mm x 50mm tubes



Joiner for 25mm x 50mm tubes



Rail converter for 25mm x 50mm tubes



Base plate and cover for 25mm x 50mm tubes



Base plate for 25mm x 50mm tubes





316 Mirror & Satin RECTANGULAR

for regular and slotted tubes



Wall flange for 21mm x 25mm rectangle



Elbow for 21mm x 25mm rectangle



End cap for 21mm x 25mm rectangle



Joiner for 21mm x 25mm rectangle



Adjustable elbow for 21mm x 25mm 25mm x 50mm



Swivel for 21mm x 25mm 25mm x 50mm

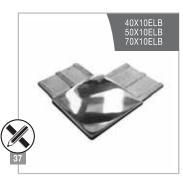


316 Mirror & Satin RECTANGULAR

for 40mm x 10mm | 50mm x 10mm | 70mm x 10mm RHS tubes



Swivel for 50mm x 10mm



90° Elbow for 40mm x 10mm 50mm x 10mm 70mm x 10mm



Adjustable knuckle for 50mm x 10mm



End cap for 40mm x 10mm 50mm x 10mm 70mm x 10mm



Glass handrail bracket for 50x10mm tube



Wall flange for 40mm x 10mm 50mm x 10mm 70mm x 10mm



Base plate and cover for 50mm x 10mm



Rail converter for 50mm x 10mm



Joiner for 50mm x 10mm





316 Mirror & Satin OVAL

for regular and slotted tubes



End cap Size: 62mm x 38mm



Flush joiner Size: 62mm x 38mm



Wall flange Size: 62mm x 38mm



Elbow Size: 62mm x 38mm



316 Mirror & Satin SQUARE



90° Elbow Size: 50mm x 50mm



Tee Size: 50mm x 50mm



90° Tee Size: 50mm x 50mm



Internal base plate with M16 thread hole Size: 38mm x 38mm 50mm x 50mm



Base plate with 2 holes Size: 50mm x 50mm



Base plate with 4 holes Size: 50mm x 50mm



In-line connector Size: 50mm x 50mm



SQUARE



Flat end cap Size: 38mm x 38mm 50mm x 50mm



Cover plate
Fits over base plate
Size: 38mm x 38mm
50mm x 50mm



Slightly domed cover Size: 38mm x 38mm 50mm x 50mm



Square base plate Thick cast Size: 38mm x 38mm 50mm x 50mm



Domed cover plate to fit cast base plate Size: 38mm x 38mm 50mm x 50mm



Rail converter Size: 38mm x 38mm 50mm x 50mm



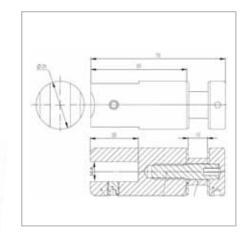
Adjustable rail support with flat cradle Size: 50mm x 50mm





50X10BRACKET

BRACKETS
Glass handrail
bracket for
50x10mm tube

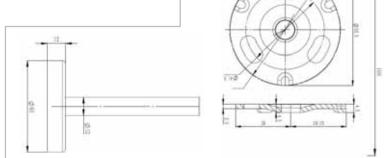


WALLBRACKET PIN

BRACKETS

Wall handrail bracket
for a balcony



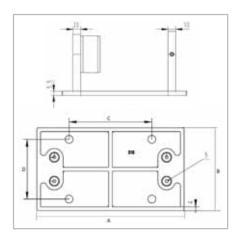


BBACKET

BRACKETS
Bracket for
stairs or balcony
wall mounting

	A	В	С	D
38.1mm	120	90	60	63
50.8mm	160	90	90	65

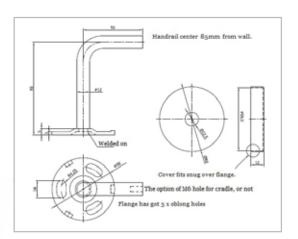




WALLBRACKET

BRACKETS
Wall handrail
bracket with
cover

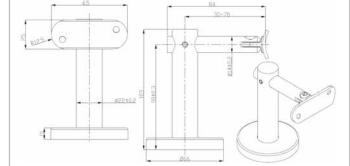






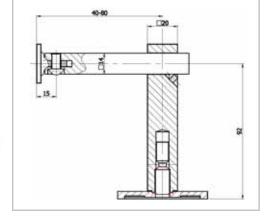


BRACKETS | Adjustable wall handrail bracket

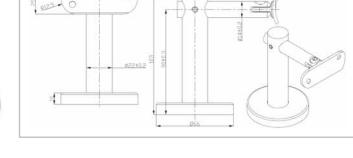


WALLSQUARE

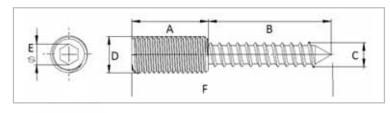
BRACKETS **Adjustable** square wall handrail bracket





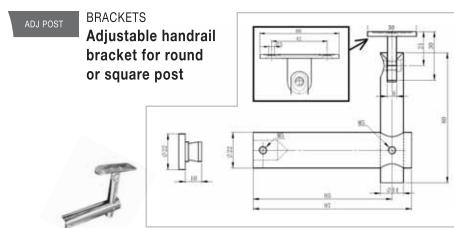


BRACKETS Lag screws





	Α	В	C	D	E	F
M10	18	50	10	10		75
M10 long	55	95	10	10		150
M12	25	40	8	12	6.8	65
M12 long	65	40	8	12	5.5	105



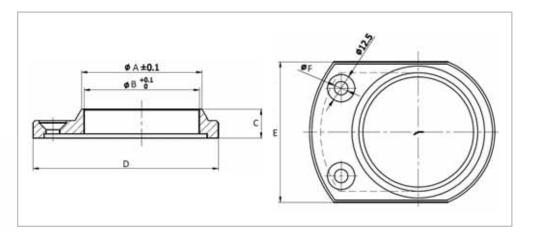


WALLFLANGE

BRACKETS Wall flange for handrail

	Α	В	С	D	E	F
38.1mm	42	39.3	11	69	50	6.2
50.1mm	54	52.2	13	84	64	6.2

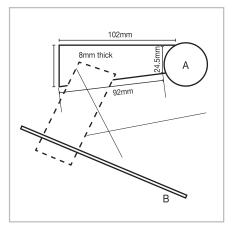




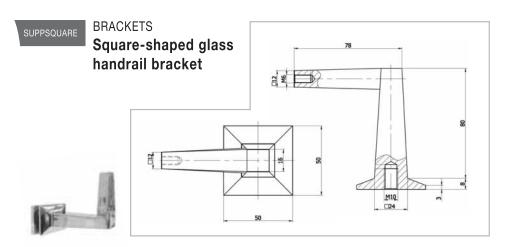
SUPPFRONT10

BRACKETS Glass handrail support bracket standoff





A: 50.8 handrail tube B: 12mm glass

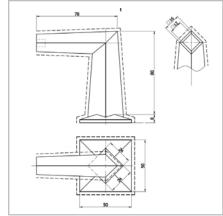




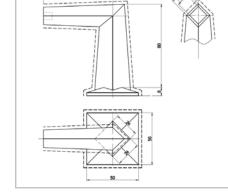


SUPPDIAMOND

BRACKETS Diamond-shaped glass handrail bracket



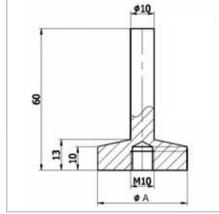


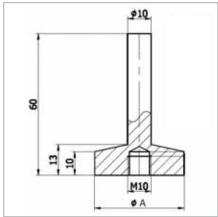




BRACKETS Glass handrail pins

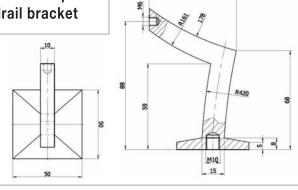
	Α
38.1mm	38
50.8mm	50







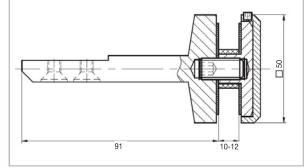
BRACKETS Square-profiled shaped glass handrail bracket





BRACKETS

Flat glass handrail bracket for flat tubes







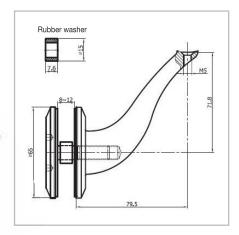
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SUPPGLASS

BRACKETS

Glass or wall

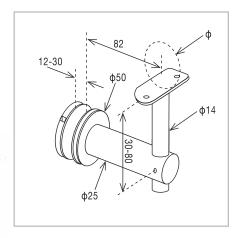
handrail bracket



ADJGLASS

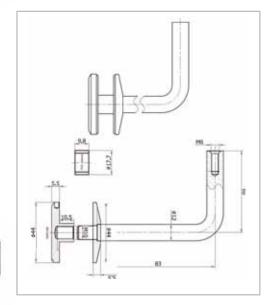
BRACKETS

Adjustable glass
handrail bracket
with cradle



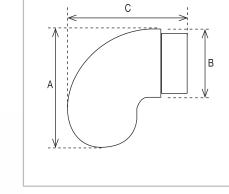






POEND END CAPS 90° End cap

	Α	В	С
90END	89	50.8	89





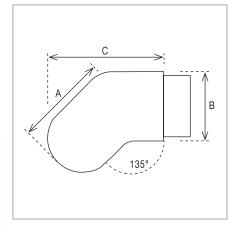




END CAPS 45° End cap

A B C 45END 70 50.8 70

BEND180WLONG

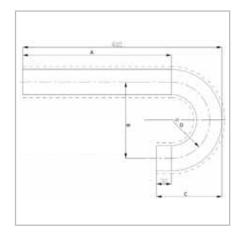






	A	В	С	D
38.1mm	323.75	114.4	106.25	57.2
50.8mm	298.4	152.4	131.6	76.2



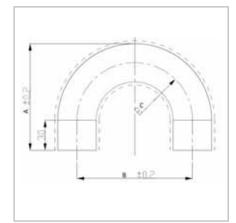




END CAPS
180W bend

	Α	В	С
38.1mm	106.3	114.4	57.2
50.8mm	131.6	152.4	76.2





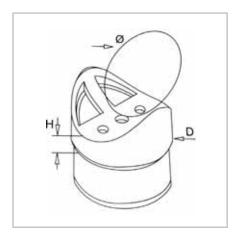
PERP

RAIL CONVERTERS

Perpendicular joiner
Internal into post

	0	Н	D
PERP3838	38.1	7.5	38.1
PERP3850	50.8	7.5	38.1
PERP5050	50.8	16.5	50.8









PERPE

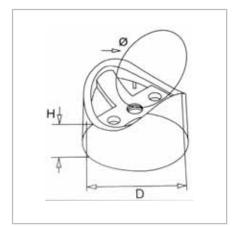
RAIL CONVERTERS

Perpendicular joiner

External onto post

	0	Н	D
PERPE3838	38.1	11.5	38.1
PERPE3850	50.8	14	38.1
PERPE5050	50.8	22.5	50.8





PERPA

RAIL CONVERTERS

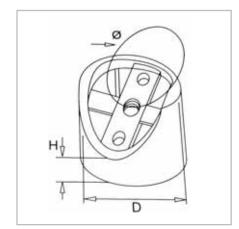
Perpendicular joiner

Over-post

37° for stairs

	0	Н	D
PERPA3850	50.8	12	38.1
PERPA5050	50.8	14.5	38.1





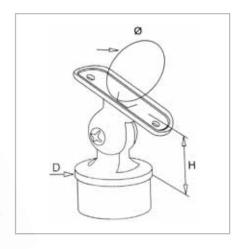
4 D 1 D

TUBE FITTINGS

Adjustable rail
support with cradle
Internal into post

	0	Н	D
ADJR3838	38.1	45	38.1
ADJR3850	50.8	45	38.1
ADJR5050	50.8	51	50.8





ADJE

TUBE FITTINGS

Adjustable rail
support
External onto post

	0	Н	D
ADJE5050	50.8	51	50.8









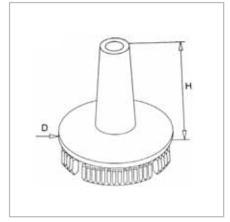
CONV

RAIL CONVERTERS

2205 Rail converter

	Α	В
CONV38	38.1	39
CONV50	50.8	51





CONVMN

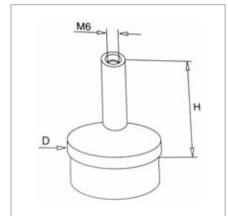
RAIL CONVERTERS

Rail converter

Domed with M6 hole

	В	R
CONV50MN	50.8	55





CONVF

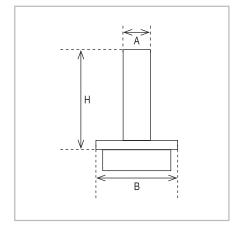
RAIL CONVERTERS

Rail converter

with M6 hole

	0	Н	D
CONVF3812M	12	38.1	87
CONVF5015M	15	50.8	87





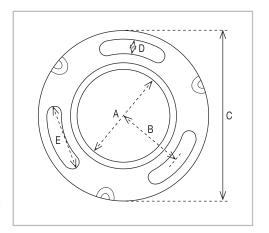
BASEPLATE

BASE PLATE
Cast base
plate

	Α	В	С	D	Ε	F
BASEPLATE38						
BASEPLATE50	52	40	99	9	39	3

F = thickness in mm



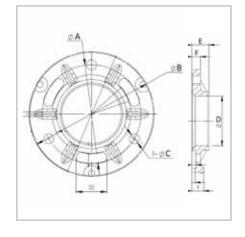




BASEPLATEXL

BASE PLATE Heavy duty base plate

	Α	В	С	D	E	F
BASEPLATE38XL	64	81	6.5	38.5	13	6.5
BASEPLATE50XL	80	101	9	51	15.2	7.5



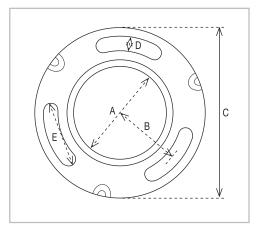


BASE PLATE & COVER Round base plate with cover

	Α	В	С	D	Е	F
BASEPLATE38	39	32	78	7.5	26	2.5
BASEPLATE50	52	40	99	9	39	3

F = thickness in mm

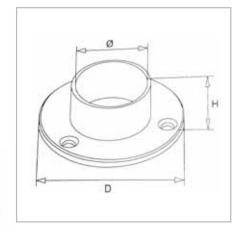






BASE PLATE
Round base plate
with 3 holes

	0	Н	D	HOLES
BASERND38	38.1	25	76	5.5
BASERND50	50.8	31	102	9

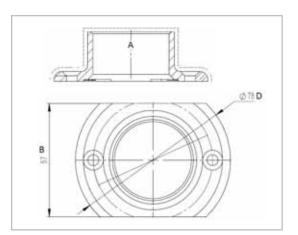




BASE PLATE Oblong base plate

	Α	В	R
BASEOB38	69.1	50	21.1
BASEOB50	50.8	69	100









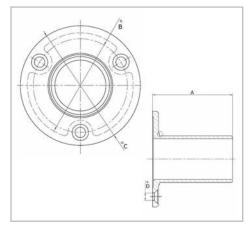


BASEMM

BASE PLATE Internal fitting base plate

	Dia	Α	В	С	D
BASE38MM	38.1	60	60	78	5.5
BASE50MM	50.8	81	76.5	98	7.5



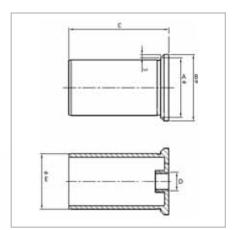




BASE PLATE Internal base plate with thread hole

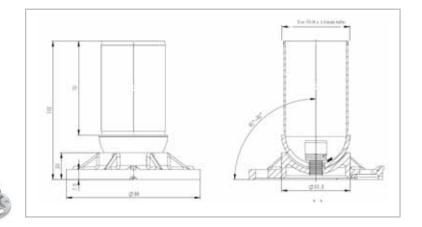
	Α	В	С	D	E
BASERND38MM	38.1	55	60	M12	34.8
BASERND50MM	50.8	56.8	86	M16	47.4





BASEADJ

BASE PLATES **Adjustable base plate**

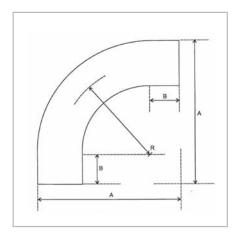




ROUND TUBE FITTINGS
90° Bend

	Α	В	R
38.1mm	106.2	30	57.2
50.8mm	131.6	30	76.2







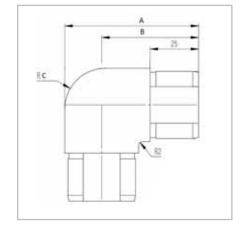


ELB

ROUND TUBE FITTINGS

90° Elbow

Tube	Wall	A	В
50.8mn	1.5mm	50mm	50mm

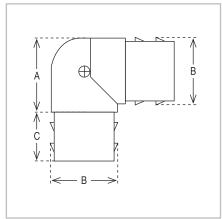




ROUND TUBE FITTINGS **Adjustable elbow**

	Α	В	С
ELBADJ38	41	38.1	29
ELBADJ50	47	50.8	38



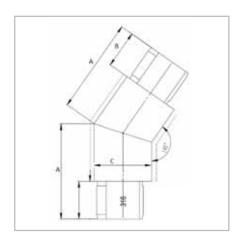




ROUND TUBE FITTINGS **35° Bend**

	Α	В	С
38.1mm	63	25	38.1
50.8mm	74	25	50.8



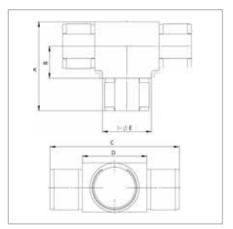




ROUND TUBE FITTINGS **Tee**

	Α	В	С	D
38.1mm	77	35	110	60
50.8mm	80	60	115	68





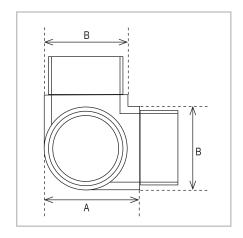




ROUND TUBE FITTINGS **90° Tee**

Tube	Wall	Α	В	Weight
38.1mm	1.5mm	51mm	38.1mm	275g
50.8mm	1.5mm	57mm	50.8mm	435g

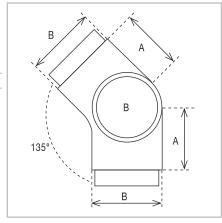






ROUND TUBE FITTINGS **135° Tee**

Tube	Wall	Α	В	Weight
38.1mm	1.5mm	41mm	38.1mm	340g
50.8mm	1.5mm	45mm	50.8mm	500g



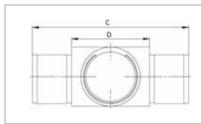




ROUND TUBE FITTINGS 4-way Tee



	Α	В	С	D
50.8mm	80	60	115	68



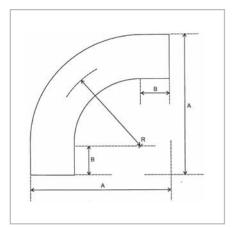




TUBE FITTINGS Weld-on 90° bend

	Α	В	R
38.1mm	106.2	30	57.2
50.8mm	131.6	30	76.2





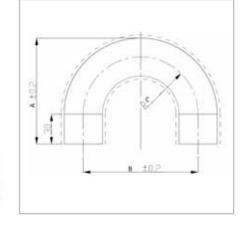




BEND180W

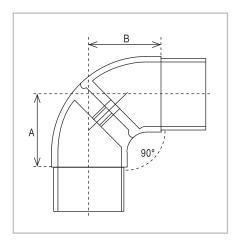
TUBE FITTINGS 180° Bend

	Α	В	С
38.1mm	106.3	114.4	57.2
50.8mm	131.6	152.4	76.2



TUBE FITTINGS
Rotational bend

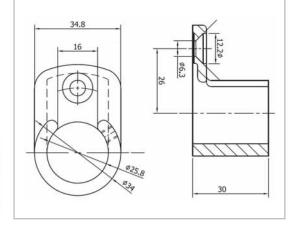
	A	В
JOINROT50	50	50





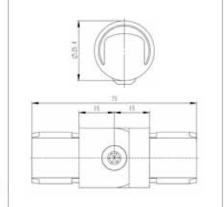
TUBE FITTINGS

Wall flanges 25.4mm



SWIVEL

TUBE FITTINGS
Swivel

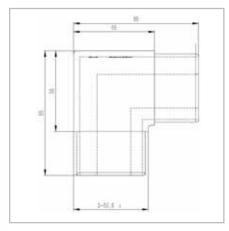






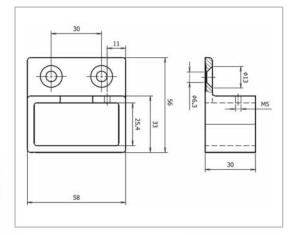


TUBE FITTINGS 90° Elbow for 25x50mm tubes



25X50WALLFLANGE

TUBE FITTINGS Wall flange for 25x50mm tubes

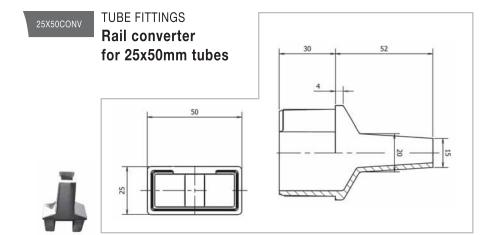


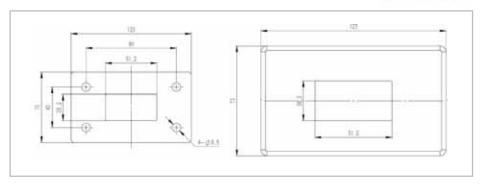




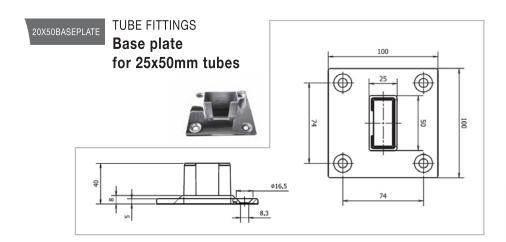
TUBE FITTINGS Base plate & cover for 25x50mm tubes



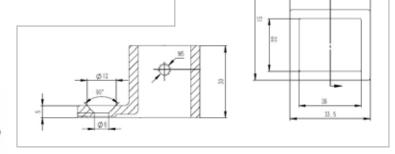




METFORCE

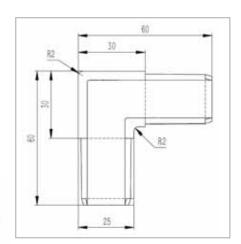


21X25WALLFLANGE TUBE FITTINGS
Wall flange
for 21x25mm
tubes



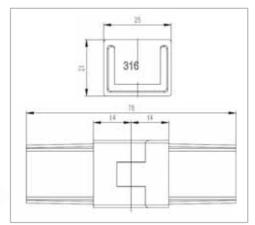


TUBE FITTINGS
Elbow for
21x25mm tubes



20X25ELBADJ 25X50ELBADJ TUBE FITTINGS
Adjustable
elbow for
21x25mm &
25x50mm



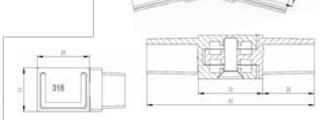




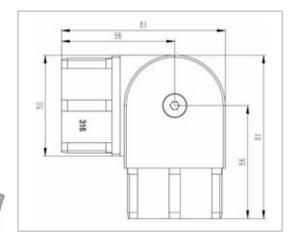


21X25SWIVEL 25X50SWIVEL

TUBE FITTINGS Swivel for 21x25mm & 25x50mm



TUBE FITTINGS Swivel for 50x10mm



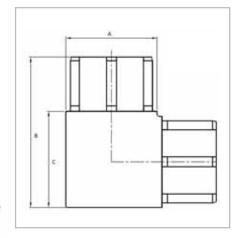




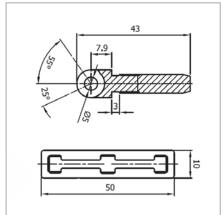
TUBE FITTINGS 90° Elbow for 40x10mm 50x10mm 70x10mm

	A	В	С
40X10ELB	40	68	73
50X10ELB	50	83	53
70X10ELB	70	100	75





TUBE FITTINGS Adjustable knuckle for 50x10mm



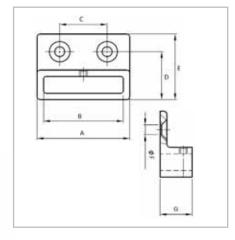






40X10WALLFLANGE 50X10WALLFLANGE 70X10WALLFLANGE TUBE FITTINGS
Wall flange for
40/50/70x10mm

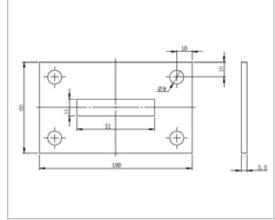
	Α	В	С	D	Е	F	G
40x10WALLFLANGE	48	41	25	30	41	6.3	18
50x10WALLFLANGE	58	50.4	30	30	41	6.3	15
70x10WALLFLANGE	78	70.4	40	30	41	6.6	15



50X10BASECOVER

TUBE FITTINGS

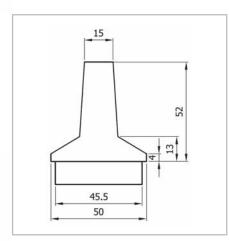
Base plate
& cover
for 50x10mm





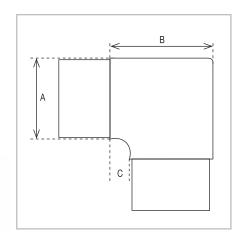
TUBE FITTINGS

Rail converter for 50x10mm



TUBE FITTINGS 90° Elbow

	Α	В	С
50.8mm	50.8 x 50.8	62	11.2





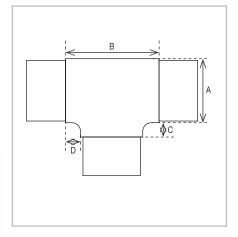




TEES

TUBE FITTINGS **Tee**

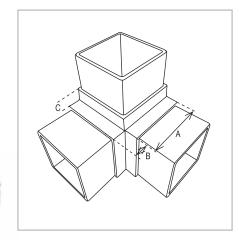
	Α	В	С	D
38.1mm	77	35	110	60
50.8mm	80	60	115	68





TUBE FITTINGS **90° Tee**

	Α	В	С
50.8mm	50.8 x 50.8	11	11

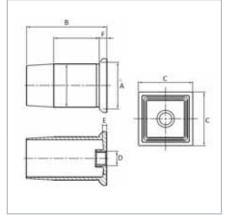






	Α	В	С	D	Ε	F
BASESQUARE38MM	38.1x38.1	85	55.4	M16/M12	4	8
BASESQUARE50MM	50.8x50.8	88	58.8	M16	4	8





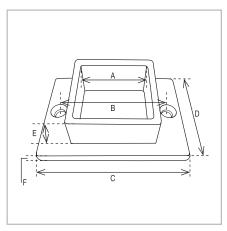


TUBE FITTINGS Base plate with 2 holes

	A	В	C	D	E	F
BASES502	50.8x50.8	5	105	79	23	6.5

Hole diameter: 8mm





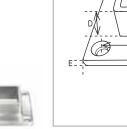


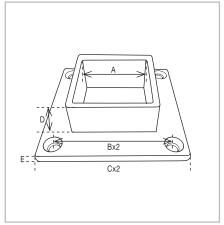


TUBE FITTINGS Base plate with 4 holes

	A	В	С	D	E
BASES504	50.8x50.8	80	99	23	6.5

Hole diameter: 8mm

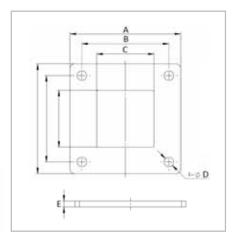




TUBE FITTINGS Square base plate Thick cast

		Α	В	С	D	Ε
BASESC	UARE38	75	59	38.8	6.5	4
BASESC	UARE50	100	76	51	8	5

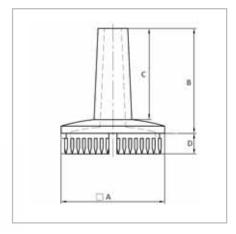




TUBE FITTINGS Rail converter

	Α	В	С	D
CONVSQ38	38.1x38.1	51	45	10
CONVSQ50	50.8x50.8	54.5	45	10





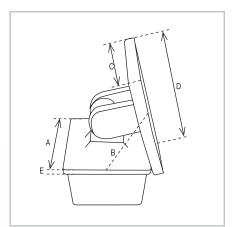


ADJSF 50.8x50.8 45 49 65 4.5

CRADLE:

Hole center to center: 45mm Hole diameter: 6mm







5 | INFO & FAQ's

Type of stainless steel:

304

Also known as 1.4301, this material has a full Austenitic structure and has sufficient corrosion resistance to act as a stainless steel in most general environments. Used predominantly in kitchens, transport, hospitals, architecture, etc.

316/L

Also known as 1.4401 (or 1.4435 for 316L), this material also has a full Austenitic structure and is superior in corrosion resistance to grade 304 due to a higher Nickel content and also added Molybdenum, which also makes this material more expensive. Used mainly in more corrosive areas such as marine environments or more polluted or acidic areas.

2205

Also known as S31803 or 1.4462, this material is a stainless steel which has enough Chromium to form an Austenitic crystal structure and therefore it consists of a mixed structure which is both Austenitic and Ferritic. With the controlling of Nitrogen in the composition, the structure is around 50% Austenite and 50% Ferrite. Failure to control the Nitrogen may hinder the Austenite formation which will affect the weldability and other properties. Due to its high Chrome content, it has superior corrosion resistance in most environments to grade 316 or 316L. Invented only recently (in the last 30 years) it is replacing grade 316 in many marine environment applications.

Frequently asked questions:

Q: How good is it in marine conditions?

A: Illustrated by using SWCC.gov tables:

In natura	l sea	wa	ter	at	50°(С
Litres I	F	nit	mν			

LILIES	(resistance to pittin
304L	94
316L	154
2205	629

For coastal areas 2205 is far superior to grade 304, 316 or 316L. It may still stain if not maintained, but pitting will take longer to occur.

Q: What does it contain?

A: Min %:	304	316	2205
Chrome	18%	16%	21%
Nickel	8%	10%	4.5%
Molybdenum	-	2%	2.5%

Q: What are the mechanical properties?

304	316L	2205
515	515	700
205	205	570
200	200	290
	515 205	515 515 205 205

Q: Differences to machine and cut?

A: Machining of 2205 is harder than 304 or 316 and you will use more consumables. Cutting speed is about 20% slower on 2205.

Q: Clamping products, such as glass clamps and spigots?

A: From our experience, "Splaying" is around 50% less than 304 or 316L when using 2205.

Q: What is the cost?

A: Generally 2205 costs around 20% more than 316, and 316 is \pm 40% higher than 304.



Care against tea-staining

All stainless steel will discolour, stain or rust if not maintained correctly. Even marine grade 316 stainless steel or Duplex 2205 will discolour and stain if installed in an aggressive environment and not maintained properly. The more aggressive an environment is, the more maintenance is required. Aggressive environments include:

- Coastal areas which have sea spray
- Downwind from rubbish dumps or chemical plants
- On main roads with excessive carbon monoxide
- Near mining dumps and filtration plants
- Below an air conditioner unit
- · Below a wood beam
- Below a steel gutter
- Washing glass or tiles with certain chemicals
- · Some borehole waters
- Continuous temperatures in excess of 500°C

1. Maintaining stainless steel:

Stainless steel should be washed down at least monthly with a mild cleaning solution. This should wash away all grime that could contaminate the surface. If the grime is left on the surface, it could result in discolouration. Don't use an aggressive cleaning solution unless you are an experienced and professional trades-person. Don't wash down stainless steel with acids, powders, sodas, grinding discs, abrasive papers or cloths, etc. unless you are an experienced and professional trades-person.

Just a simple wash down and rinse is required.

2. Protection for stainless steel:

There are 3 or 4 brands of stainless steel coatings which are available, which add even more corrosion resistance to the stainless steel. Speak to your installer for advice and a quote.

3. Knowing if tea staining has become rust:

Not always that easy to tell, but generally *tea staining* is a light brown color and can be scratched off with your nail, while rusting can be a very dark red or brown color and if you try to scratch it off, you may see a small hole under it.

4. If my tea staining has already turned to corrosion, can this be repaired?

Possibly yes, but with some work. Speak to your installer about a quote on chemical cleaning and re-polishing.

Why grade 304 raw base plates?

Metforce are dedicated to providing the correct stainless steel grade for the relevant application. That is why our glass clamps, spigots and rail convertors are Duplex 2205, as these are most prone to tea staining out in the field. To this end, all our raw weld-on base plates are grade 304.

Will 304 rust quicker than 316?

It will *tea stain* a bit quicker than 316 (so instead of *tea staining* in 3 years, it might *tea stain* in 2 ½ years) but seeing that these base plates are always covered with cover rings, it is not a concern.

And no, they won't rust because they are 304.

Grade 304 is still a good stainless steel and very corrosion resistant. Many of the 316 raw base plates installed a few years ago are already *tea stained*, but as they are covered, you wouldn't notice. The raw surface will make it susceptible to *tea staining*, regardless of the grade.

Why not make them from 316?

Grade 304 has a greater ability to deform and absorb energy without breaking or tearing, which is really important for base plates welded onto posts. Because grade 304 increases its strength more than 316 as it is work hardened. Grade 304's chemical composition provides a better structural advantage than 316 and is more durable.

All Mirror and Satin polished base plates are naturally 316. Only the Raw weld-on base plates are 304.

Remember, if you live in an aggressive environment and you look after your stainless steel balustrade, it should outlive you.



Why use Duplex 2205?

- Also known as S31803 or 1.4462, this material is a stainless steel which has enough Chromium to form an Austenitic crystal structure and therefore it consists of a mixed structure which is both Austenitic and Ferritic.
- With the controlling of Nitrogen in the composition, the structure is around 50% Austenite and 50% Ferrite.
- Failure to control the Nitrogen may hinder the Austenite formation which will affect the weld-ability and other properties.
- It has superior corrosion resistance in most environments to grade 316 or 316L because of its high Chrome content.
- Invented only recently (in the last 30 years) it is replacing grade 316 in many marine environment applications.

Frequently asked questions:

Q: How good is it in marine conditions?

A: Illustrated by using SWCC.gov tables:

1. In a salt spray fog chamber -

Grade	Corrosion rate	x 10-3 mpy
	After 3024 hours	After 4824 hours
316L	2,9150	4,4475
2205	0,1909	2,1731

2. In natural sea water at 50°C -

Liters	E pit (resista	mv nce to pitting)
304L	94	
316L	154	For coastal areas it is far superior
17-4PH	156	to grade 316 or 316L. It may still stain if not maintained, but pitting
2205	629	will take longer to occur.

Q: What does it contain?

A:	Min %:	316	2205
Chrome		16%	21%
Nickel		10%	4.5%
Molybdenum		2%	2.5%
Nitrogen		-	0.08%

Q: What are the mechanical properties?

A:	316	2205
Ultimate Tensile MPa	515	700
0.2% Proof Strength	205	570
Hardness HRB	95	235

Q: Is it easy to weld?

A: 2205 can be welded using most forms of welding, however you should use filler material. Distortion and associated stresses should be less with 2205 due to the lower coefficient of thermal expansion due to its duplex structure.

Q: How easy it is to machine and cut?

A: Machining is harder than 304 or 316 and you will use more consumables. Cutting speed is about 20% slower.

Q: Typical Applications?

- Marine environments where excessive chloride is present
- · Pulp and Paper plants
- Chemical plants
- Hot water systems
- · Oil and Gas plants and platforms

Q: Is it better for clamping products, such as glass clamps and spigots?

A: Definitely. From our experience, "Splaying" is around 50% less when using 2205.

Q: What is the extra cost?

A: Generally 2205 costs around 20% more than 316L. The additional cost is not only caused by using superior casting mills, but extra machining, extra polishing and more consumables.

Also, 2205 raw material used in casting is harder to find. Some manufacturers cheat and do not offer a real duplex, where the duplex molecular structure is not achieved because the Nitrogen is not managed. Very few mills can manage the Nitrogen which is generally only achieved in using a Vacuum furnace. Testing equipment used to measure Nitrogen accurately is also not your typical Spectrometer.



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