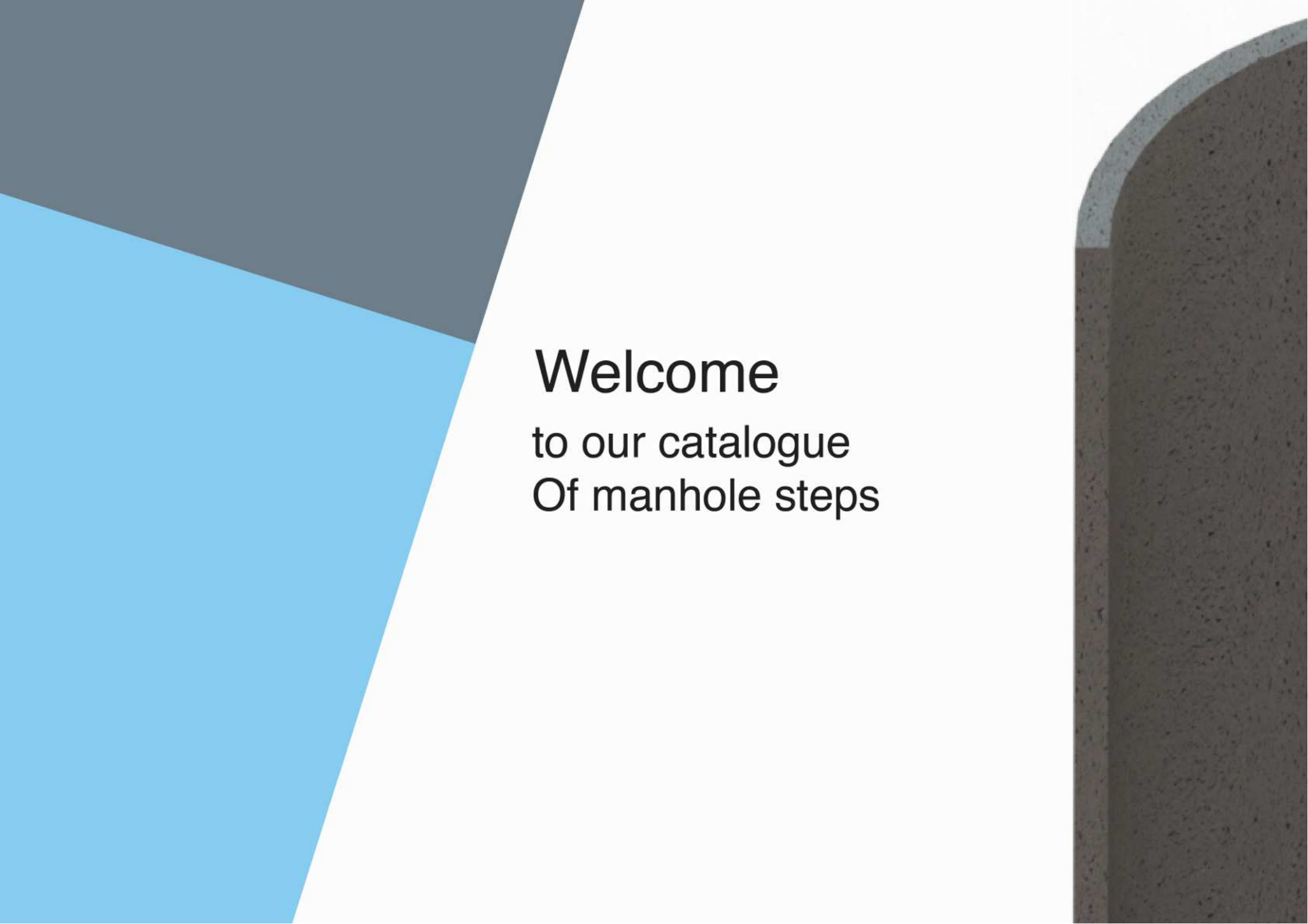


# Manhole Steps Catalogue



The background features a white central area. On the left, there are two overlapping geometric shapes: a light blue triangle pointing towards the center and a dark grey triangle pointing away from the center. On the right, there is a vertical, dark grey, textured image of a manhole step with a rounded top edge.

**Welcome**  
to our catalogue  
Of manhole steps

Who we are ?

Astral Engineering, combining the up-to-date Plastic Injection Moulding and Mould Manufacturing abilities with its experience, created a world-wide acceptance of reliability in its field.

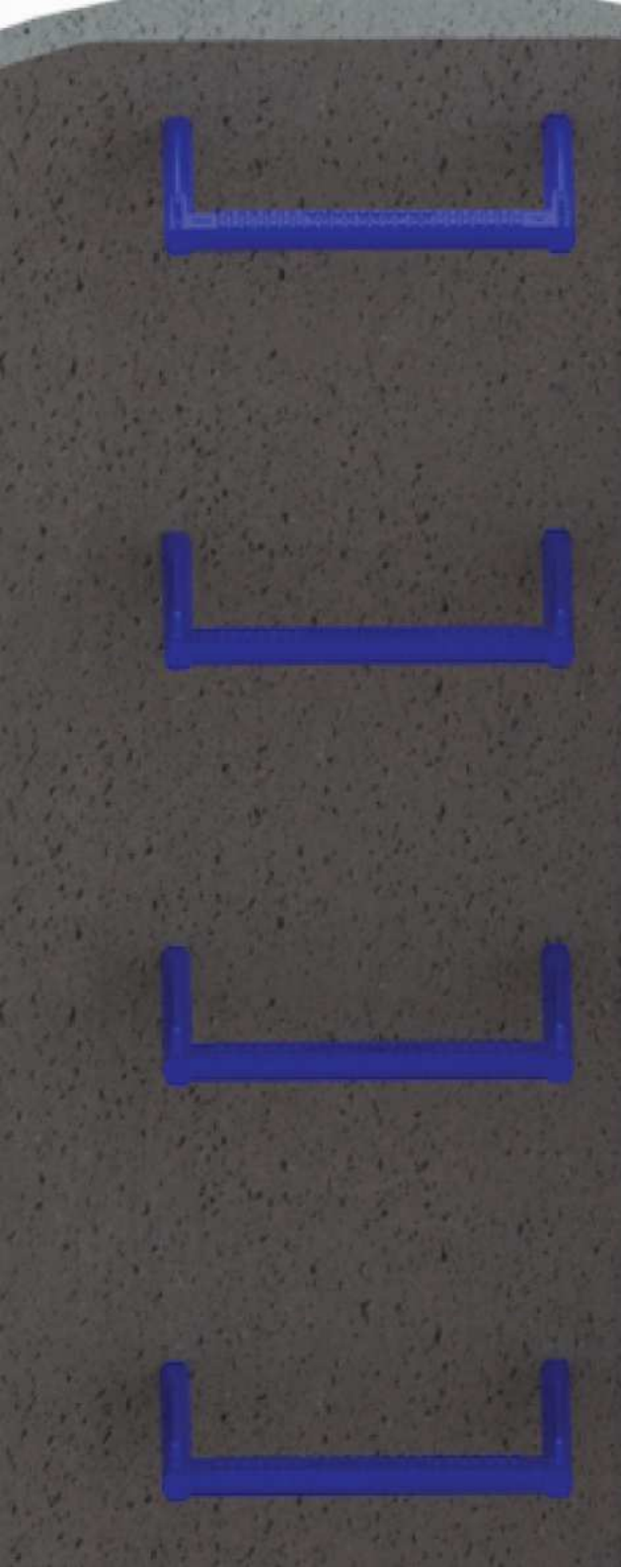
The Astral products are used in countries like USA, Austria, Germany, Japan, France, Cyprus, Saudi Arabia, Yemen and Turkey with a register of quality confirmation according to their standards.

Astral step rungs are produced by plastic coating (either PE or PPCP water and impact resistant reinforced plastic) on metal bars of optional sizes and grades like corrugated steel, st. steel, aluminium bars and pipes. They are used and preferred in waste water removal systems, pools, manholes, etc. due to their easy assembling and corrosion and impact resistance.

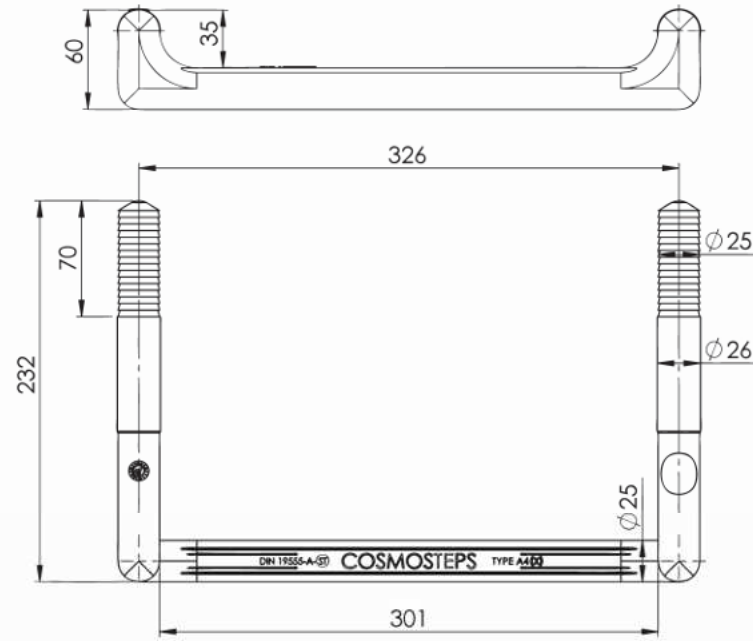
Astral manhole safety steps are manufactured according to following international standards:

- EN13101
- DIN19555
- ASTM-C478
- AASHTOM-S-199
- OSHA STD.1-1.9

Since Astral is designing and developing his own moulds, we are capable of offering you different sizes and dimensions upon request.



## MS-100Series - CosmoStep A400



## SPECIFICATIONS

Model	CosmoStep A400
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	600 pieces/crate
Dowel distance	326 mm
Dowel length	70 mm
Leg length	232 mm

## PRODUCT ADVANTAGES

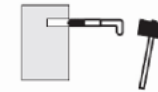
- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 24mm hole. The holes must be kept parallel (326mm distance) and 75mm deep.



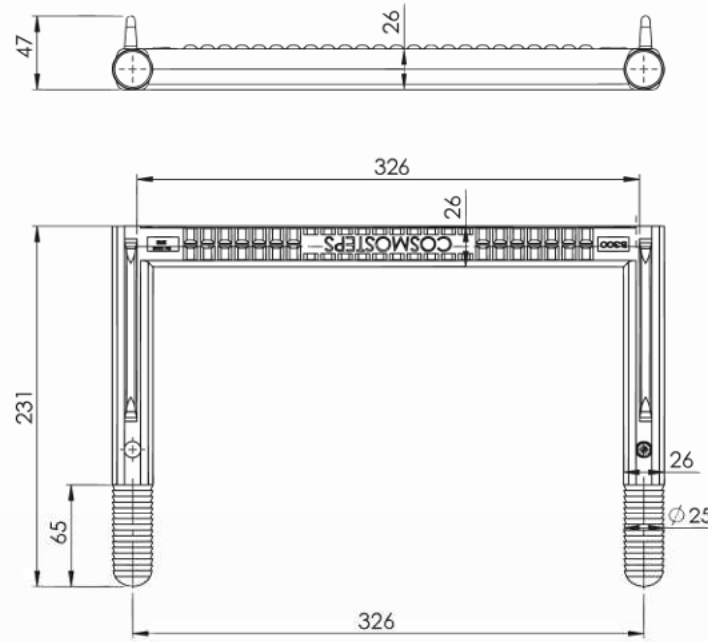
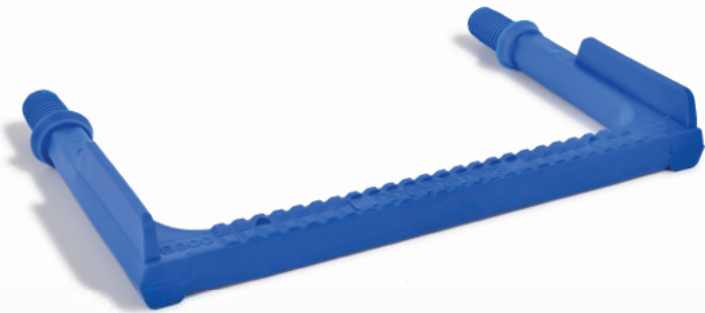
**b) Formed holes:** Use a 24mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-101	Steel	12mm	1,00 kg
MS-102	Steel	14mm	1,25 kg
MS-103	Steel	16mm	1,50 kg
MS-104	Galvanized Steel	12mm	1,00 kg
MS-105	Galvanized Steel	14mm	1,25 kg
MS-106	Galvanized Steel	16mm	1,50 kg
MS-107	Stainless Steel	12mm	1,00 kg
MS-108	Stainless Steel	14mm	1,25 kg
MS-109	Stainless Steel	16mm	1,50 kg

## MS-200Series - CosmoStep B300



### SPECIFICATIONS

Model	CosmoStep B300
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	500 pieces/crate
Dowel distance	326 mm
Dowel length	65 mm
Leg length	231 mm

### PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 24mm hole. The holes must be kept parallel (326mm distance) and 70mm deep.



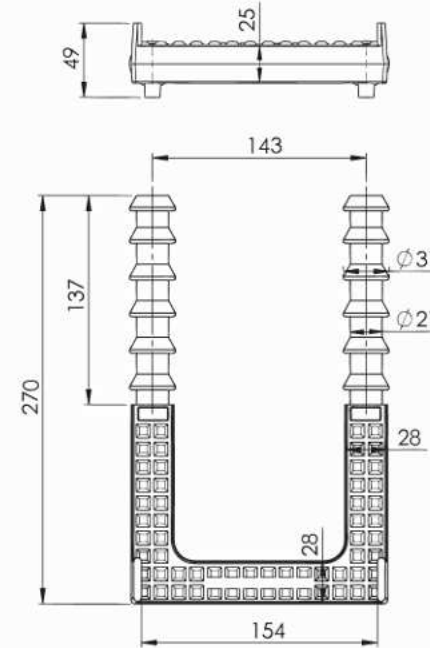
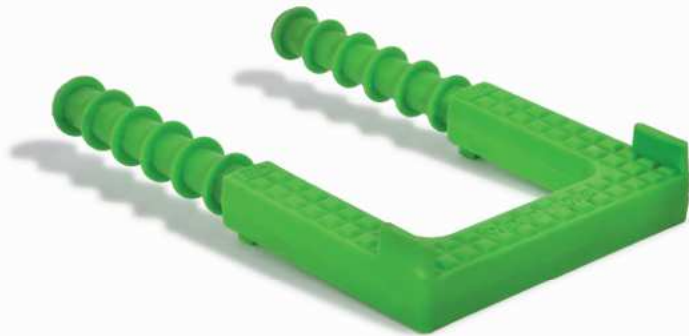
**b) Formed holes:** Use a 24mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-201	Steel	12mm	1,00 kg
MS-202	Steel	14mm	1,20 kg
MS-203	Steel	16mm	1,45 kg
MS-204	Galvanized Steel	12mm	1,00 kg
MS-205	Galvanized Steel	14mm	1,20 kg
MS-206	Galvanized Steel	16mm	1,45 kg
MS-207	Stainless Steel	12mm	1,00 kg
MS-208	Stainless Steel	14mm	1,20 kg
MS-209	Stainless Steel	16mm	1,45 kg

## MS-300Series - CosmoStep B143



## SPECIFICATIONS

Model	CosmoStep B143
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Green, Black, Blue, Orange, Red
Packaging	700 pieces/crate
Dowel distance	143 mm
Dowel length	137 mm
Leg length	270 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

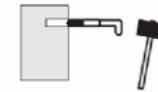


## Installation

**a) Drilled holes:** Use a masonry bit to drill a 30mm hole. The holes must be kept parallel (143mm distance) and 142mm deep.



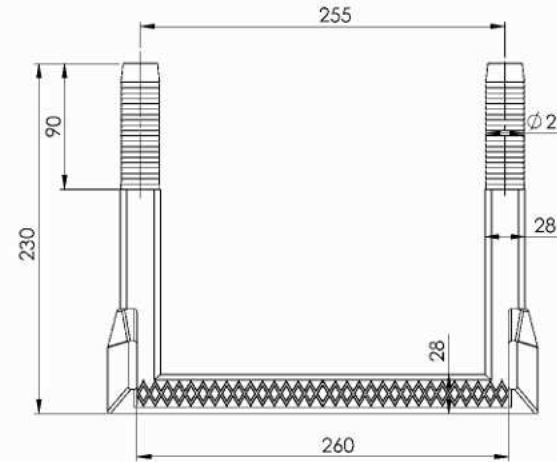
**b) Formed holes:** Use a 30mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-301	Steel	12mm	0,90 kg
MS-302	Galvanized Steel	12mm	0,90 kg
MS-303	Stainless Steel	12mm	0,90 kg

## MS-400Series - CosmoStep B255



## SPECIFICATIONS

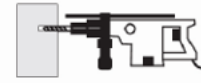
Model	CosmoStep B255
Design standard	ASTM-C418
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	450 pieces/crate
Dowel distance	255 mm
Dowel length	90 mm
Leg length	230 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 26mm hole. The holes must be kept parallel (255mm distance) and 95mm deep.



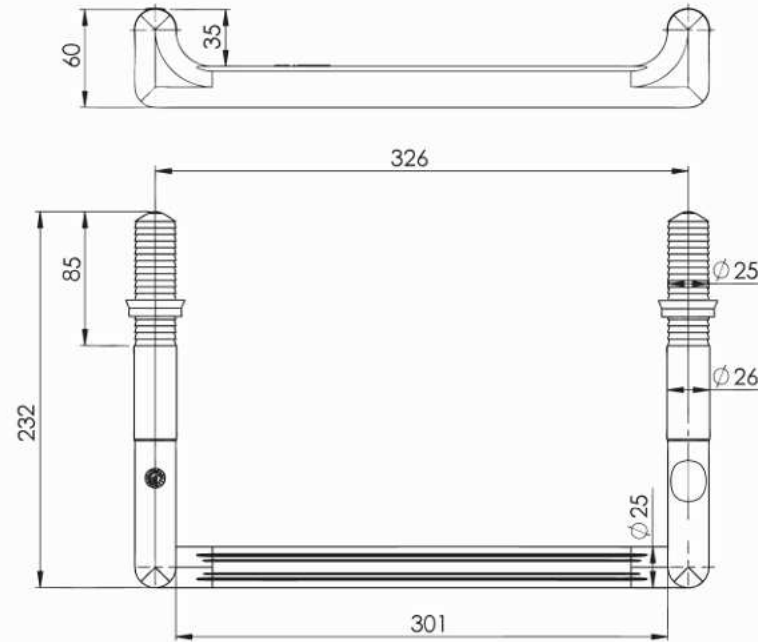
**b) Formed holes:** Use a 26mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-401	Steel	12mm	0,95 kg
MS-402	Steel	14mm	1,15 kg
MS-403	Galvanized Steel	12mm	0,95 kg
MS-404	Galvanized Steel	14mm	1,15 kg
MS-405	Stainless Steel	12mm	0,95 kg
MS-406	Stainless Steel	14mm	1,15 kg

## MS-500Series - CosmoStep A400 L



### SPECIFICATIONS

Model	CosmoStep A400 L
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	600 pieces/crate
Dowel distance	326 mm
Dowel length	85 mm
Leg length	232 mm

### PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

a) *Drilled holes: Use a masonry bit to drill a 24mm hole. The holes must be kept parallel (326mm distance) and 90mm deep.*



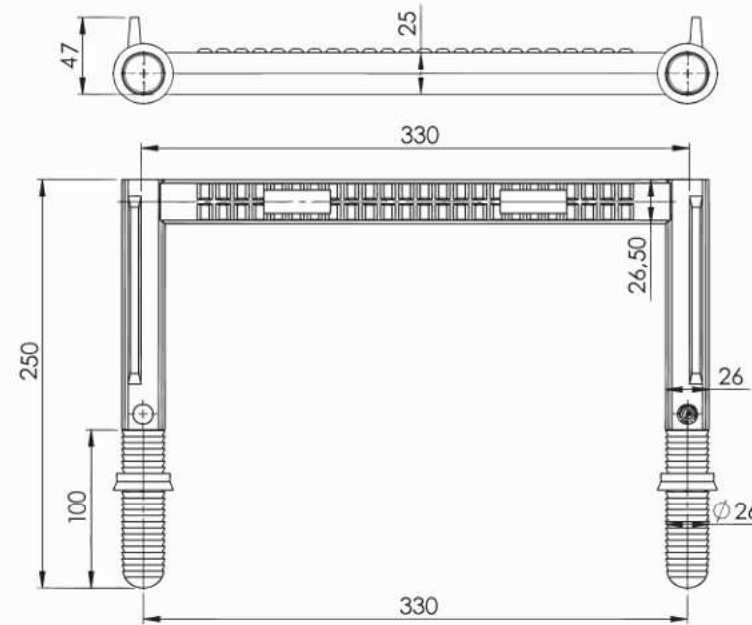
b) *Formed holes: Use a 24mm pipe to form holes in the concrete product.*



***Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.***

Product Code	Core Material Type	Material Diameter	Product Weight
MS-501	Steel	12mm	1,00 kg
MS-502	Steel	14mm	1,25 kg
MS-503	Steel	16mm	1,50 kg
MS-504	Galvanized Steel	12mm	1,00 kg
MS-505	Galvanized Steel	14mm	1,25 kg
MS-506	Galvanized Steel	16mm	1,50 kg
MS-507	Stainless Steel	12mm	1,00 kg
MS-508	Stainless Steel	14mm	1,25 kg
MS-509	Stainless Steel	16mm	1,50 kg

## MS-600Series - CosmoStep B300 L



## SPECIFICATIONS

Model	CosmoStep B300 L
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	500 pieces/crate
Dowel distance	330 mm
Dowel length	100 mm
Leg length	250 mm

## PRODUCT ADVANTAGES

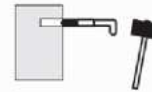
- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (330mm distance) and 105mm deep.



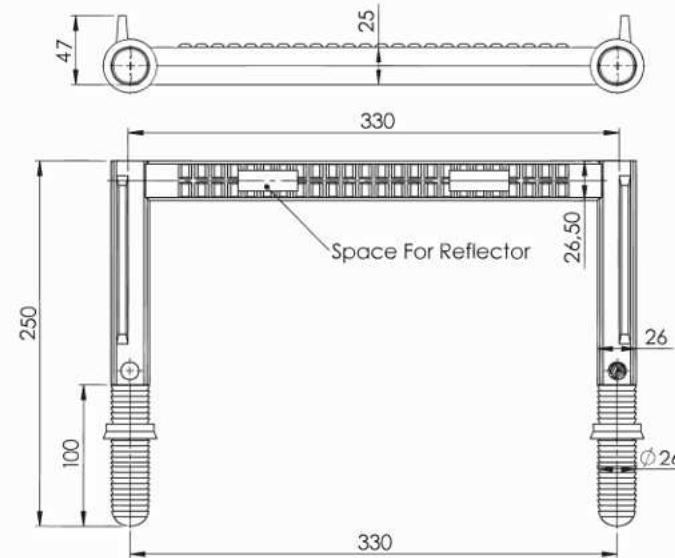
**b) Formed holes:** Use a 25mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-601	Steel	12mm	1,05 kg
MS-602	Steel	14mm	1,25 kg
MS-603	Steel	16mm	1,50 kg
MS-604	Galvanized Steel	12mm	1,05 kg
MS-605	Galvanized Steel	14mm	1,25 kg
MS-606	Galvanized Steel	16mm	1,50 kg
MS-607	Stainless Steel	12mm	1,05 kg
MS-608	Stainless Steel	14mm	1,25 kg
MS-609	Stainless Steel	16mm	1,50 kg

## MS-610Series - CosmoStep B300 L with reflectors



## SPECIFICATIONS

Model	CosmoStep B300 L with reflectors
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	500 pieces/crate
Dowel distance	330 mm
Dowel length	100 mm
Leg length	250 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface
- . Light reflection



## Installation

**a) Drilled holes:** Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (330mm distance) and 105mm deep.



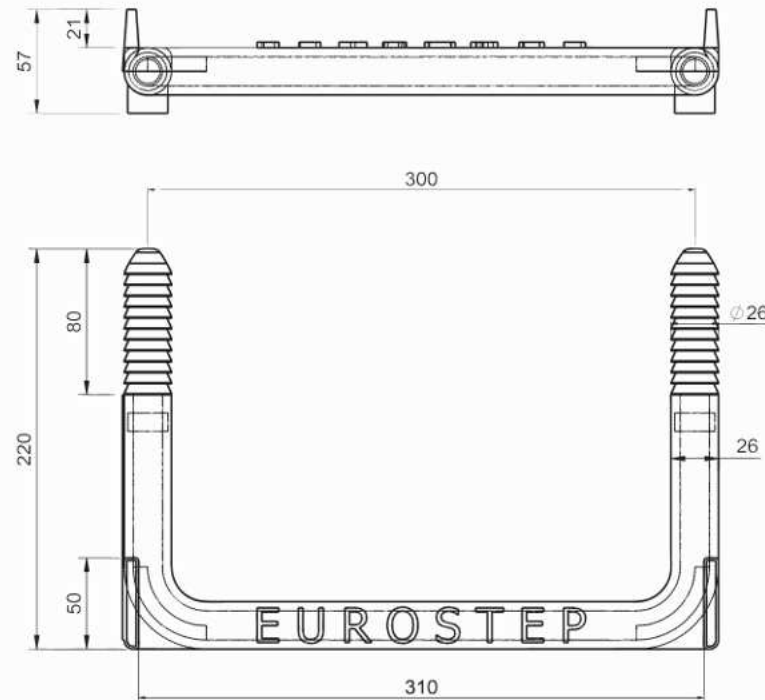
**b) Formed holes:** Use a 25mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-611	Steel	12mm	1,10 kg
MS-612	Steel	14mm	1,30 kg
MS-613	Steel	16mm	1,55 kg
MS-614	Galvanized Steel	12mm	1,10 kg
MS-615	Galvanized Steel	14mm	1,30 kg
MS-616	Galvanized Steel	16mm	1,55 kg
MS-617	Stainless Steel	12mm	1,10 kg
MS-618	Stainless Steel	14mm	1,30 kg
MS-619	Stainless Steel	16mm	1,55 kg

## MS-700Series - EuroStep 300



## SPECIFICATIONS

Model	_____	EuroStep 300
Design standard	_____	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	_____	Polypropylene Copolymer, ASTM D-4101
Color	_____	Black, Blue, Orange, Red
Packaging	_____	500 pieces/crate
Dowel distance	_____	300 mm
Dowel length	_____	80 mm
Leg length	_____	220 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (300mm distance) and 85mm deep.



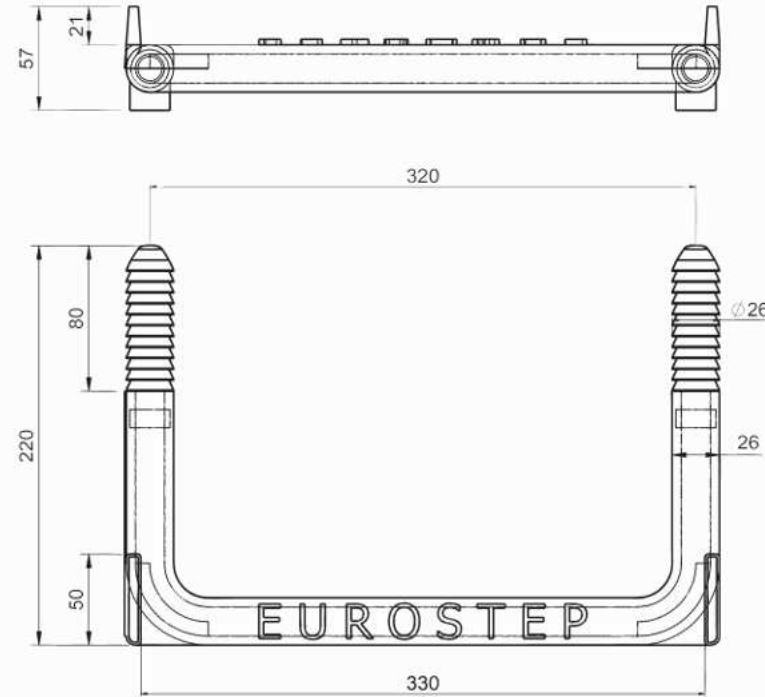
**b) Formed holes:** Use a 25mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-701	Steel Pipe	16mm	0,67 kg
MS-702	Steel	16mm	1,40 kg
MS-703	Galvanized Steel	16mm	1,40 kg
MS-704	Stainless Steel	16mm	1,40 kg

## MS-720Series - EuroStep 320



### SPECIFICATIONS

Model	EuroStep 320
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	500 pieces/crate
Dowel distance	320 mm
Dowel length	80 mm
Leg length	220 mm

### PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (320mm distance) and 85mm deep.



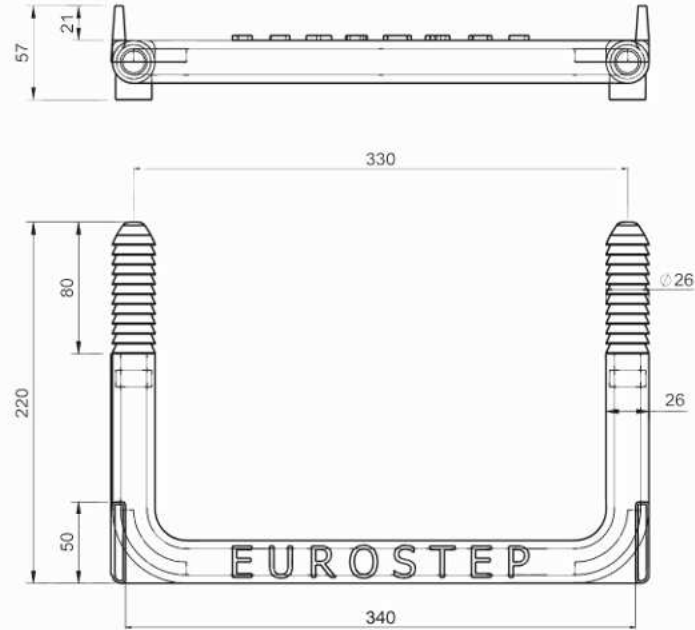
**b) Formed holes:** Use a 25mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-721	Steel Pipe	16mm	0,68 kg
MS-722	Steel	16mm	1,44 kg
MS-723	Galvanized Steel	16mm	1,44 kg
MS-724	Stainless Steel	16mm	1,44 kg

## MS-730Series - EuroStep 330



## SPECIFICATIONS

Model	EuroStep 330
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	500 pieces/crate
Dowel distance	330 mm
Dowel length	80 mm
Leg length	220 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

**a) Drilled holes:** Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (330mm distance) and 85mm deep.



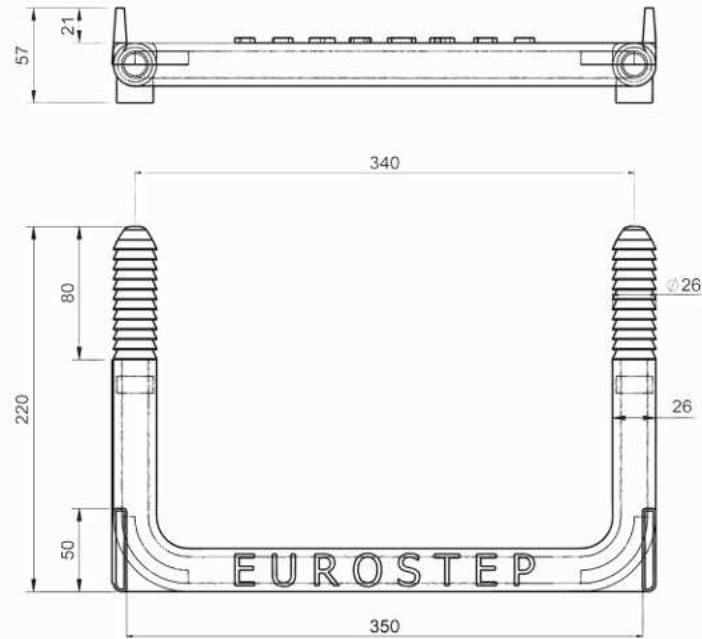
**b) Formed holes:** Use a 25mm pipe to form holes in the concrete product.



**Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.**

Product Code	Core Material Type	Material Diameter	Product Weight
MS-731	Steel Pipe	16mm	0,70 kg
MS-732	Steel	16mm	1,46 kg
MS-733	Galvanized Steel	16mm	1,46 kg
MS-734	Stainless Steel	16mm	1,46 kg

## MS-740Series - EuroStep 340



### SPECIFICATIONS

Model	_____	EuroStep 340
Design standard	_____	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	_____	Polypropylene Copolymer, ASTM D-4101
Color	_____	Black, Blue, Orange, Red
Packaging	_____	400 pieces/crate
Dowel distance	_____	340 mm
Dowel length	_____	80 mm
Leg length	_____	220 mm

### PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface



## Installation

a) *Drilled holes: Use a masonry bit to drill a 25mm hole. The holes must be kept parallel (340mm distance) and 85mm deep.*



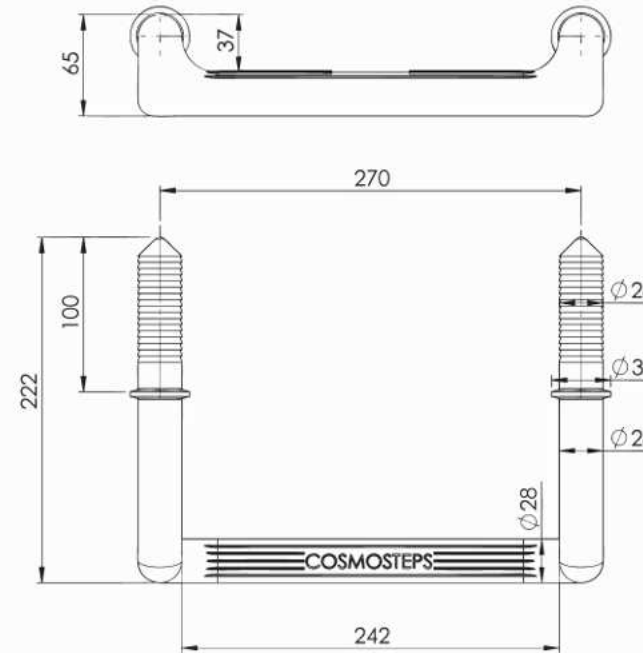
b) *Formed holes: Use a 25mm pipe to form holes in the concrete product.*



***Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.***

Product Code	Core Material Type	Material Diameter	Product Weight
MS-741	Steel Pipe	16mm	0,71 kg
MS-742	Steel	16mm	1,48 kg
MS-743	Galvanized Steel	16mm	1,48 kg
MS-744	Stainless Steel	16mm	1,48 kg

## MS-800Series - CosmoStep A270



## SPECIFICATIONS

Model	CosmoStep A270
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	650 pieces/crate
Dowel distance	270 mm
Dowel length	100 mm
Leg length	222 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

a) *Drilled holes: Use a masonry bit to drill a 27mm hole. The holes must be kept parallel (270mm distance) and 105mm deep.*



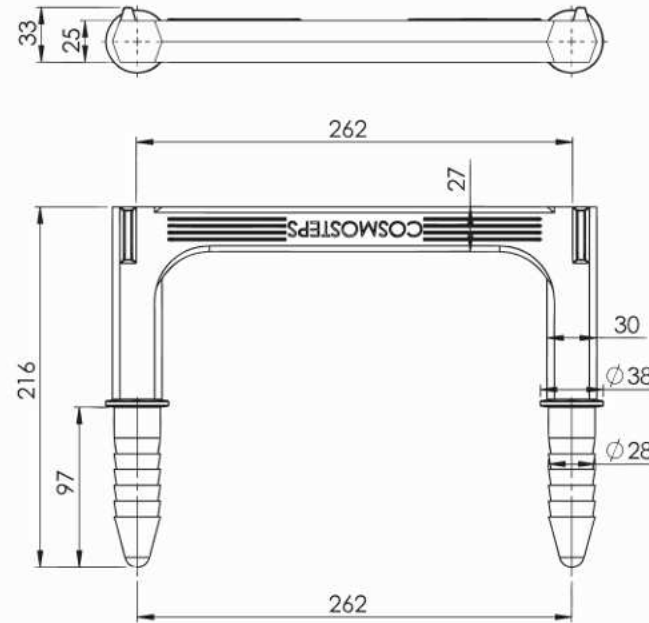
b) *Formed holes: Use a 27mm pipe to form holes in the concrete product.*



***Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.***

Product Code	Core Material Type	Material Diameter	Product Weight
MS-801	Steel	12mm	1,00 kg
MS-802	Steel	14mm	1,20 kg
MS-803	Steel	16mm	1,40 kg
MS-804	Galvanized Steel	12mm	1,00 kg
MS-805	Galvanized Steel	14mm	1,20 kg
MS-806	Galvanized Steel	16mm	1,40 kg
MS-807	Stainless Steel	12mm	1,00 kg
MS-808	Stainless Steel	14mm	1,20 kg
MS-809	Stainless Steel	16mm	1,40 kg

## MS-900Series - CosmoStep B260



## SPECIFICATIONS

Model	CosmoStep B260
Design standard	DIN19555 / EN13101 : 2002 - TYPE D
Coating material	Polypropylene Copolymer, ASTM D-4101
Color	Black, Blue, Orange, Red
Packaging	650 pieces/crate
Dowel distance	262 mm
Dowel length	97 mm
Leg length	216 mm

## PRODUCT ADVANTAGES

- . Completely covered by PPCP for corrosion protection
- . Superior pullout resistance, complying the recommended safety standards
- . Spark proof
- . High impact polymer coating
- . No sharp corners or edges
- . Anti-slip surface

## Installation

a) *Drilled holes: Use a masonry bit to drill a 27mm hole. The holes must be kept parallel (262mm distance) and 102mm deep.*



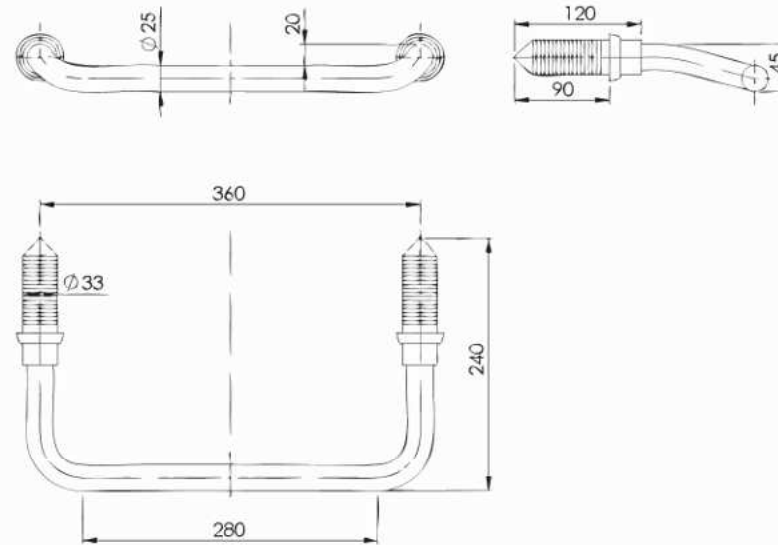
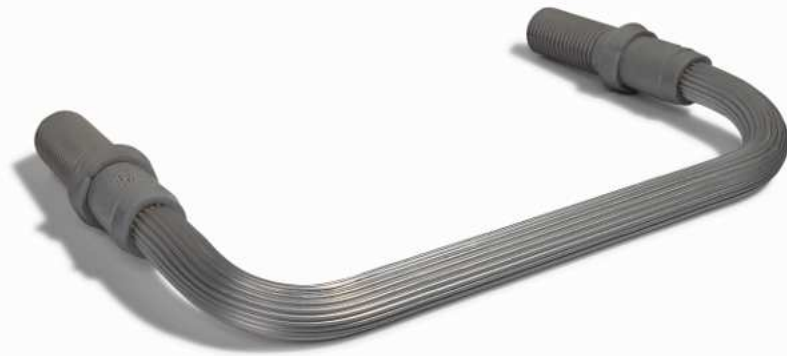
b) *Formed holes: Use a 27mm pipe to form holes in the concrete product.*



***Insert the step to the holes until the end of the dowel by using preferably plastic covered hammer. The steps can be also inserted automatically during the manhole production manually or by machines.***

Product Code	Core Material Type	Material Diameter	Product Weight
MS-901	Steel	12mm	0,90 kg
MS-902	Steel	14mm	1,10 kg
MS-903	Galvanized Steel	12mm	0,90 kg
MS-904	Galvanized Steel	14mm	1,10 kg
MS-905	Stainless Steel	12mm	0,90 kg
MS-906	Stainless Steel	14mm	1,10 kg

## MS-1000Series - AluminiumStep



## SPECIFICATIONS

Model	AluminiumStep
Design standard	DIN19555 / EN13101 : 2002 - TYPE B
Coating material	Polypropylene Copolymer, ASTM D-4101
Packaging	500 pieces/crate
Dowel distance	360 mm
Dowel length	90 mm
Leg length	240 mm
Product weight	0,60 kg

## PRODUCT ADVANTAGES

- . Corrosion resistance aluminium body
- . PPCP coated dowel for corrosion protection
- . Superior pullout resistance, complying the recommended safety standarts
- . No sharp corners or edges
- . Anti-slip surface

This is the end of our Manhole Steps Catalogue, if you have any questions regarding our products please contact us.

If you want to have more information about Astral Engineering Company please visit our website. [www.ast-ral.com.tr](http://www.ast-ral.com.tr)



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*designed by Astral Engineering Company*