



THE MASTER CASTER

AN ISO 9001-2000 COMPANY

CAST IRON MANHOLE COVERS, FRAMES & GRATINGS

STORAGE TANK COVER



SIZE (mm)	WEIGHT (kg)
450	14
525	18
600	21

GRATINGS WITH FRAME



SIZE (mm)	WEIGHT (kg)
450x450	50
450x500	**90(LD)
450x600	**100(LD)
600x600	145(MD)
600x900	245(HD)

GRATINGS



SIZE (mm)	WEIGHT (kg)
100x100	0.50
150x150	0.50
225x225	1.50
300x300	3.00
300x600	25.0
450x600	38, 56
550x600	38.0
500x700	43.0
600x600	80.0(LD)
600x810	70.0(LD)
700x700	60.0(LD)

FOOTSTEP & GULLY TRAP

NOMINAL MASS : 4.5 & 5.3 (kg)

Widely used for chambers etc.



NOMINAL MASS : 10.7 (kg)



Replacement of Stoneware
Now made available in long
lasting Cast Iron with maximum
water seal of 70 mm.

RECTANGULAR COVER WITH FRAME



SIZE (mm)	WEIGHT (kg)
225x300	3.5, 5.7
300x450	7
400x550	13
450x600	15, 25, 38, *50, 75, 100(LD), 150(MD)
450x900	30, 40, 50 75, 100(LD) 125, 150, 175(MD) 250(HD)
600x900	75, 100(LD) 125, 150, 175(MD) 250, 310(HD)
900x1200	970(EHD)

CIRCULAR COVER WITH FRAME



CIRCULAR COVER WITH CIRCULAR FRAME	
SIZE (mm)	WEIGHT (kg)
450	8, 16, 20 30, 40, 50
500	12
525	50, 75, 100(LD)

CIRCULAR COVER WITH SQUARE FRAME	
SIZE (mm)	WEIGHT (kg)
500	116(MD), 230(HD)
525	100(LD), 125, 175(MD)
560	128(MD), 208, 250(HD)

SQUARE COVER WITH FRAME



SIZE (mm)	WEIGHT (kg)
200x200	3.5
225x225	4
250x250	5
300x300	7, 10, 13
375x375	12
400x400	14
450x450	10, 16, 25 30, *38, 50
500x500	22
550x550	25
600x600	32, 42, 50 *60, *75, *100(LD) *110, *115(MD), *210, 250(HD)
700x700	80, 100(LD), 250(HD)
750x750	240(HD)
800x800	165(LD), 300(HD)
900x900	165(LD)

MULTI & LONG ARM NAHANI TRAP

SIZE (mm)	WEIGHT (kg)
100x75x50	8 & 12



SIZE (mm)	WEIGHT (kg)
100x75x50	9



- INSPECTION CHAMBERS - 3.5 kg. to 50 kg.
- LIGHT DUTY - Max. load 2.5 Tonns
- MEDIUM DUTY - Max. load 10 Tonns
- HEAVY DUTY - Max. load 20 Tonns
- EXTRA HEAVY DUTY - Max. load 35 Tonns
- > SELECTION CRITERIA : Size, Weight, Loading and Application should be the important criteria while deciding the appropriate product.

- * These Manhole Covers are also available in Double Seal and
- ** Hinged Gratings with Frame

Note : Tolerance on weight for Manhole Covers, Frames and Gratings is -5%.

Models shown are just an indication. Company reserves a right to change the design of the specified models according to the latest technological changes without any prior notice.

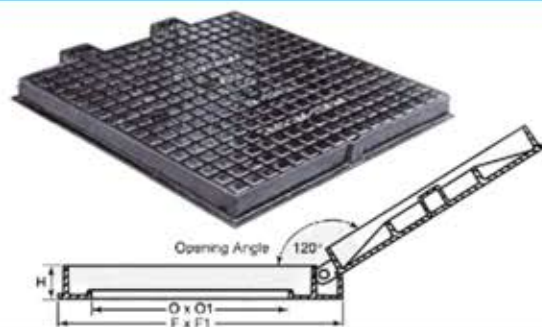
USED BY :
BMC/CIDCO
MES/CPWD
PWD/RBI
/MAP

1 CIRCULAR COVER WITH SQUARE FRAME



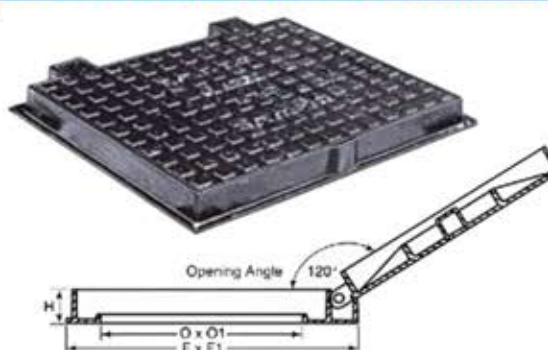
Item Code	Size (mm)	Grade	Frame Dimensions			Weight approx (kg)
			Clear Opening	Frame Outer	Height (mm)	
			OxO1	FxF1	H	
MC1	350 Dia	A-15	350 Dia	470x470	40	22
MC2	450 Dia	C-250	450 Dia	600x600	100	55
MC3	500 Dia	A-15	500 Dia	625x625	40	25
MC4	500 Dia	B-125	500 Dia	650x650	75	45
MC5	500 Dia	C-250	500 Dia	650x650	100	65
MC6	525 Dia	A-15	525 Dia	650x650	40	33
MC7	525 Dia	B-125	525 Dia	665x665	75	50
MC8	525 Dia	C-250	525 Dia	685x685	100	75
MC9	560 Dia	A-15	560 Dia	690x690	40	38
MC10	560 Dia	B-125	560 Dia	710x710	75	55
MC11	560 Dia	C-250	560 Dia	710x710	100	80
MC12	600 Dia	A-15	600 Dia	730x730	40	42
MC13	600 Dia	B-125	600 Dia	755x755	75	60
MC14	600 Dia	C-250	600 Dia	760x760	100	85
MC15	600 Dia	C-250/S	600 Dia	770x770	75	100
MC16	600 Dia	C-250/H	600 Dia	790x790	100	85
MC17	600 Dia	D-400	600 Dia	765x765	100	95

2 SQUARE COVER WITH FRAME



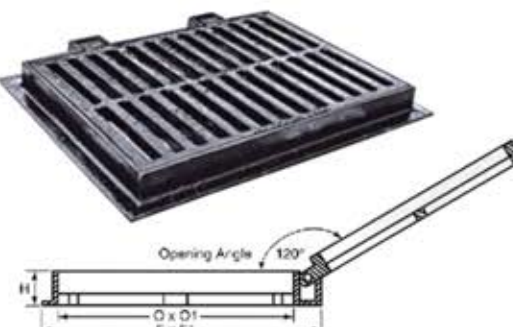
Item Code	Size (mm)	Grade	Frame Dimensions			Weight approx (kg)
			Clear Opening	Frame Outer	Height (mm)	
			OxO1	FxF1	H	
MS1	300X300	A-15	300X300	385x385	30	8
MS2	300X300	C-250	300X300	445x445	75	33
MS3	450X450	A-15	450X450	560x560	40	22
MS4	450X450	B-125	450X450	590x590	75	45
MS5	560X560	C-250/S	560X560	740x740	75	90
MS6	600X600	A-15	600X600	730x730	40	40
MS7	600X600	B-125	600X600	750x750	75	65
MS8	600X600	C-250	600X600	750x750	100	90
MS9	750X750	C-250	750X750	895x895	75	125
MS10	800X800	B-125	800X800	950x950	75	115
MS11	800X800	C-250	800X800	970x970	100	140
MS12	900X900	B-125	900X900	1050x1050	75	125
MS13	900X900	C-250	900X900	1070x1070	100	170
MS14	900X900	C-250	900X900	1060x1060	100	198
MS15	300x300	D-400	300x300	460x460	100	40
MS17	600x600	D-400	600x600	775x775	100	105
MS19	900x900	D-400	900x900	1070x1070	100	195
MS20	300x300	B-125	300x300	445x445	75	28
MS21	450x450	C-250	450x450	590x590	75	58
MS22	750x750	B-125	750x750	895x895	75	100

3 RECTANGULAR COVER WITH FRAME



Item Code	Size (mm)	Grade	Frame Dimensions			Weight approx (kg)
			Clear Opening	Frame Outer	Height (mm)	
			OxO1	FxF1	H	
MR1	450x600	A-15	450x600	580x730	40	30
MR2	450x600	B-125	450x600	675x825	75	70
MR3	450x600	C-250	450x600	675x825	100	100
MR4	450x900	A-15	450x900	585x1030	40	50
MR5	450x900	B-125	450x900	600x1055	75	75
MR6	450x900	C-250	450x900	615x1060	100	125
MR7	600x900	A-15	600x900	745x1040	40	65
MR8	600x900	B-125	600x900	755x1050	75	105
MR9	600x900	C-250	600x900	775x1070	100	150
MR10	450x900	D-400	450x900	615x1060	100	160
MR11	600x900	D-400	600x900	775x1070	100	170

4 GRATING WITH FRAME



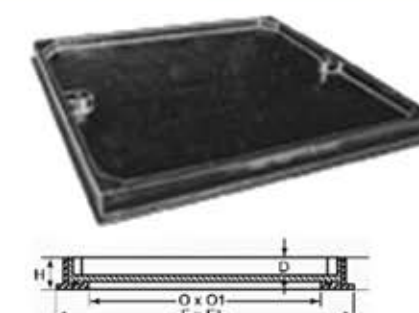
Item Code	Size (mm)	Grade	Frame Dimensions			Weight approx (kg)
			Clear Opening	Frame Outer	Height (mm)	
			OxO1	FxF1	H	
GF1	450x450	A-15	450x450	555x555	50	32
GF2	450x450	C-250	450x450	630x630	90	56
GF3	450x500	C-250	450x500	550x600	100	58
GF4	450x600	A-15	450x600	560x705	50	38
GF5	500x600	C-250	500x600	685x780	90	80
GF6	525x700	B-125	525x700	650x800	75	70
GF7	525x700	C-250	525x700	650x800	75	90
GF8	600x600	B-125	600x600	700x725	75	70
GF9	600x600	C-250	600x600	700x725	75	90
GF10	750x750	C-250	750x750	850x850	100	130
GF11	800x800	B-125	800x800	900x900	75	135
GF12	800x800	C-250	800x800	900x900	75	180
GF13	300x300	A-15	300x300	350x350	40	12
GF14	550x550	C-250	550x550	650x650	75	85
GF15	600x900	C-250	600x900	750x1050	100	120
GF16	900x900	C-250	900x900	1050x1050	100	150
GF17	750x750	D-400	750x750	930x930	100	165

5 ONLY GRATING



Item Code	Size (mm)	Grade	Frame Dimensions		Weight approx (kg)
			Grating Outer	Height (mm)	
			GxG1	H	
G1	100x450	B-125	100x450	25	5
G2	300x600	A-15	300x600	40	12
G3	300x600	C-250	300x600	40	35
G4	340x600	A-15	340x600	40	15
G5	450x600	A-15	450x600	40	16
G6	450x600	C-250	450x600	40	40
G7	550x600	C-250	550x600	40	56
G8	400x400	A-15	400x400	40	15
G9	400x400	C-250	400x400	50	40
G10	500x500	A-15	500x500	50	33
G11	500x500	C-250	500x500	50	48
G12	600x600	A-15	600x600	40	21
G13	600x600	C-250	600x600	40	60
G14	700x700	C-250	700x700	50	90
G15	800x800	C-250	800x800	50	120
G16	380x600	B-125	380x600	25	28
G17	380x600	C-250	380x600	25	38
G18	545x600	D-400	545x600	40	43
G19	645x600	D-400	645x600	40	58
G20	500x600	C-250	500x600	40	38
G21	370x500	D-400	370x500	40	38
G22	520x500	D-400	520x500	40	50
G23	670x500	D-400	670x500	40	64
G24	370x500	F-900	370x500	65	64
G25	670x500	F-900	670x500	65	124

6 RECESS COVER WITH FRAME



Item Code	Size (mm)	Grade	Frame Dimensions				Weight approx (kg)
			Clear Opening	Frame Outer	Depth (mm)	Height (mm)	
			OxO1	FxF1	D	H	
RC1	450x450	A-15	450x450	595x595	30	50	35
RC2	450x450	B-125	450x450	595x595	35	60	42
RC3	600x600	A-15	600x600	755x755	30	50	45
RC4	600x600	B-125	600x600	755x755	35	65	65
RC5	450x450	B-125	450x450	610x610	70	100	55
RC6	450x450	C-250	450x450	610x610	70	100	62
RC7	600x600	D-400	600x600	760x760	70	100	90

MAX. LOAD : * Grade A-15 = 1.5 MT. (LD) * Grade B-125 = 12.5 MT. (MD) * Grade C-250 = 25.0 MT. (HD) * Grade D-400 = 40.0 MT. (EHD) * Grade F-900 = 90.0 MT. (EHD) * Pictures and Drawings shown are just an indication. * All dimensions are in mm. * Tolerance on Weight : -5%

'DUCTILE IRON' MANHOLE COVERS, FRAMES & GRATINGS

ADVANTAGES OF 'DUCTILE IRON' MANHOLE COVERS, FRAMES & GRATINGS :

- 1) High Strength, results in More Life and Durability.
- 2) Available with Elegant Checkers Design, offers Good Anti-skid Grip and Nice Appearance.
- 3) Due to it's Hinge type Design, Chances of Theft are Less.
- 4) Suitable for Heavy Traffic Loading and at High speed.
- 5) Chances of Accidents are almost Reduced, as it Does Not Break Suddenly.
- 6) Due to High Strength, 'Ductile Iron' Minimises the Risk of Failure during normal uses and offers Resistance to Impact.
- 7) Ductile Iron's High Strength to Weight ratio allows the manufacturers to relatively manufacture Light Weight Castings, offering up to 50% Weight Savings over Grey Iron Castings, subsequently Saving in Cost Per Piece.
- 8) Light Weight Castings offer Cost Benefits, from Transportation to Installation, providing Ease of Handling and Maintenance during service.



DUCTILE IRON'S EXTRA BENEFITS :

- Light Weight, More Strength • Very Easy to Handle
- More Load Bearing Capacity • Costs Less as compared to Cast Iron

Why 'Ductile Iron' :

'Spheroid Graphite' or 'Ductile Iron' is a unique form of Iron, which prior to the metal casting process receives crucial mineral additives to produce an exceptionally strong resistance and durable metal, the molecular structure of 'Ductile Iron' gives rise to excellent additional strength and shock load resistance, within structure carbon steel, without steel inheriting corrosion. In today's roads, Covers & Gratings are required to carry increasingly heavy and fast moving traffic, yet the need to keep the roads in service, places free from accidents and theft, additional demands on those Covers and Gratings in terms of speed and ease of access for maintenance of services is essential. 'Ductile Iron' Manhole Covers, Gratings and Frames are fast replacing the conventional 'Grey Iron' Manhole Covers, Gratings and Frames on account of uniqueness in its Strength to Weight ratio, Design, Weight and the Cost benefit.

Convenience of 'Ductile Iron' Manhole Covers :



Easy Opening, Strong and Durable



Anti-theft Hinged Design

OUTSTANDING ADVANTAGES OF 'DUCTILE IRON' :

Sr. No.	Points	'Ductile Iron' (DI)	'Cast Iron' (CI)
1.	DEFINITION	A specially prepared Iron treated in the molten condition with a small percentage of Magnesium, Cerium & Other agents that will cause a large proportion of its Carbon to occur as Spheroidal type of Graphite form.	An Iron having a chemical composition such that, after solidification a large portion of its Carbon is distributed through the casting as Free or Graphitic Carbon in Flake form.
	a) Other popular Name	'Spheroidal Graphite' (SG) or 'Nodular Iron'.	'Grey Cast Iron' (FG).
	b) Microstructure	 Spheroid	 Flake
2.	FRACTURED SURFACE	'Ductile Iron' presents a bright steely surface when fractured.	'Cast Iron' always present a gray sooty surface when fractured.
3.	CHEMICAL COMPOSITION Elements :	Percentage : 1) Carbon (C) 3.5 - 4.0 2) Silicon (Si) 2.4 - 2.8 3) Manganese (Mn) 0.3 - 0.5 4) Sulphur (S) 0.02 Max. 5) Phosphorus (P) 0.05 - 0.07 6) Magnesium (Mg) 0.03 - 0.045	Percentage : 2.5 - 4.0 1.0 - 3.0 0.4 - 1.0 0.05 - 0.25 0.05 - 1.0
4.	SPECIFICATIONS	1) Product EN - 124 2) Raw Material IS - 1865/1991	IS - 1726/1991 IS - 210/1993
5.	MATERIAL GRADE	SG - 500/7	FG - 150
6.	TENSILE STRENGTH	500 N/mm ²	150 N/mm ²
7.	HARDNESS	160 - 240 HBS	130 - 180 HBS
8.	ELONGATION (%)	7% min. due to elongation, material is ductile, hence does not give sudden fracture.	No elongation, hence material is brittle, can give sudden fracture.
9.	IMPACT RESISTANCE	'High' sudden impact resistance. 	'Low' sudden impact resistance. 
10.	SECTION THICKNESS	Lesser section thickness, hence lesser weight.	More section thickness, hence more weight.
11.	LOAD BEARING CAPACITY	More load bearing capacity in test condition, impact load & movable load. Light duty - 1.5 MT load Medium duty - 12.5 MT load Heavy duty - 25 MT load	Comparatively less load bearing capacity, although weight & section thickness is more. Light duty - 2.5 MT load Medium duty - 10 MT load Heavy duty - 20 MT load
12.	HANDLING	Due to lesser weight, easy in handling during transportation, installation & maintenance during service conditions.	Due to more weight, comparatively difficult to handle during transportation, installation & maintenance during service conditions.
13.	LOCKING ARRANGEMENTS	One end of the Cover is hinged with frame, hence no extra cost is incurred.	Galvanised chain alongwith hook can be provided to Cover & Frame, hence incurs extra cost.
14.	COST	Overall cost is less by @ 10 - 20% than 'CI'.	Comparatively more costly than 'DI'.
15.	YIELD STRENGTH	320 N/mm ²	...

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THE MASTER CASTER

JAYASWAL NECO INDUSTRIES LTD.

CORPORATE OFFICE :

F-8, MIDC, Industrial Area, Hingna Road, Nagpur-440016 M.S. (INDIA)

Phone : (07104) 237276, 237471, 237461, 235002 Fax : (07104) 237583, 236255

E-mail : contact@necoindia.com, b.praveen@necoindia.com Website : www.necoindia.com

BRANCH OFFICES :

AHMEDABAD : (079) 22169620 AURANGABAD : 09325225173 BANGALORE : (080) 26743721
BHILAI : 09373109604 BHUBANESWAR : 9692945577 CHANDIGARH : (0172) 2556041
CHENNAI : 09382722422 COCHIN : 09349277907 DELHI : (011) 46068255 GOA : 09323077483
GURGAON : (0124) 4115245 HYDERABAD : (040) 24658000 INDORE : (0731) 2533510
JAIPUR : (0141) 2812223 KANPUR : 09336821868 KOLKATA : 09339972301
LUCKNOW : (0522) 4065376 MUMBAI : 09324282514 NAGPUR : (0712) 235002 PUNE : 9371080703

'DUCTILE IRON' MANHOLE COVERS, FRAMES & GRATINGS



MORE STRENGTH, MORE DURABILITY



AS PER EN-124 STANDARDS

JAYASWAL NECO INDUSTRIES LTD.

F-8, MIDC, Industrial Area, Hingna Road, Nagpur-440016

Phone : (07104) 235002, 237276 Fax : (07104) 236255

E-mail : contact@necoindia.com Website : www.necoindia.com