



OKA CONCRETE INDUSTRIES
SDN. BHD. (67634-M)



OKA PRECAST RC BOX CULVERT

OKA provides an extensive range of precast reinforced concrete box culverts from nominal width of 300mm to 3660mm, which are further categorized in accordance to the width of culverts as follow:

1. Standard Size Box Culvert (width from 300mm to 1800mm)

2. Supersize Box Culvert (width from 2135mm to 3660mm)

OKA box culverts are available with and without dry weather flow (DWF) channels. All box culverts are manufactured under controlled factory environment with stringent ISO 9001:2008 quality management system.

DESIGN CRITERIA

- Structural design of OKA box culverts are in accordance to:
 - a) BS 5400 : Part 4 : 1990
 - b) BD 31/01 – The design of buried concrete box and portal frame structures
 - c) MS 1293 : Part 1 : 1992
- OKA box culverts are designed to withstand a standard 2m (max.) of superimposed backfill depth and 45 units of HB vehicle live load.
- OKA standard size box culverts also complied to 112.5 kN proof load applied over an area of 320mm x 320mm at any position on the culvert's lid.
- Minimum backfill depth of 600mm over OKA box culverts are recommended to avoid undesirable direct impact load.
- Hydrostatic pressure is relieved by provision of weephole placed along the centerline of the invert wall.
- Please kindly refer to our marketing personnel for assistance if special design are required for other loading conditions to suit your project requirements.



MATERIAL SPECIFICATION

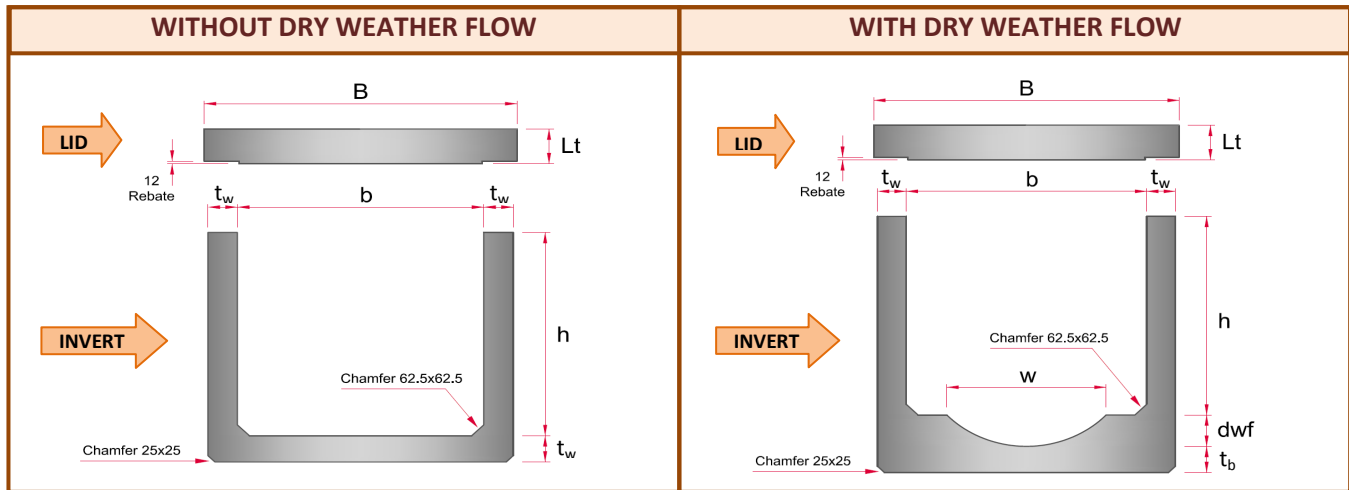
- Concrete characteristic strength at 28 days : Grade 30 to Grade 40
- Nominal cover for OKA Standard Size and Supersize Box Culverts are 25mm and 30mm respectively.
- Bulk density of backfill soil to be 19 kN/m³
- Coefficient of earth pressure at rest = 0.5
- Backfill material adjacent to invert wall should be granular type of soil. Backfilling sequence of even layer at alternate approach side of box culvert must be observed.

HANDLING, STACKING, LAYING & JOINTING

- **Handling:** A spreader beam is recommended to be used with steel pins and lifting cables to avoid cracking at junction of side wall and base slab.
- **Stacking:** Box culverts' invert and lid are to be stacked on level and stable ground or timber bearer to avoid cracking due to undesired localized load.
- **Laying:** Box culverts are to be laid on layered of well compacted granular materials, a surface blinding of the fine materials will assist leveling. RC capping slab shall be provided if piling is required.
- **Jointing:** OKA box culverts are supplied in butt joint. Gaps between box culverts are normally filled up with cement-sand mortar.

In view of continual improvement OKA reserves the right to alter the Specifications/ dimensions without prior notice.

OKA STANDARD SIZE BOX CULVERT

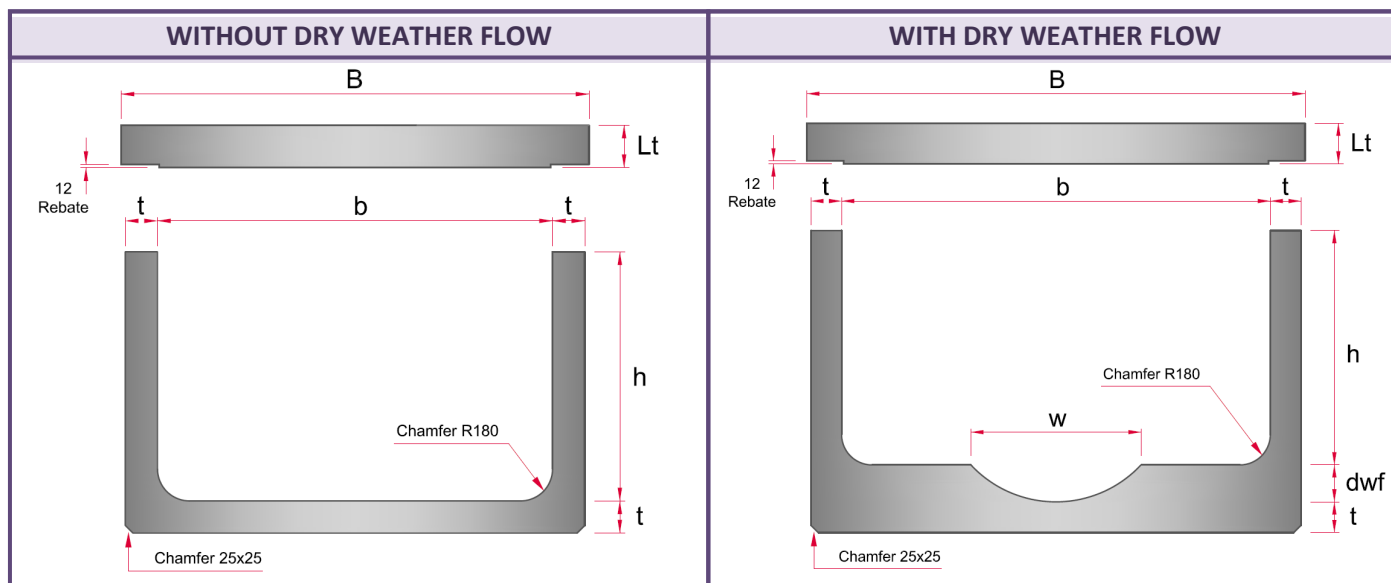


DETAILS OF OKA STANDARD SIZE BOX CULVERT

NOMINAL SIZE		DIMENSIONS (mm)							WEIGHT (ton)			
		h	b	tw/tb	dwf	w	Lt	B	W/O DWF		C/W DWF	
									LID	INVERT	LID	INVERT
300 x	300	300	300	65	70	140	110	430	0.12	0.16	0.12	0.22
	450	300	450	65	80	450	110	580	0.16	0.19	0.16	0.24
450 x	450	450	450	65	80	450	110	580	0.16	0.24	0.16	0.29
	600	300	600	65	80	450	125	730	0.22	0.22	0.22	0.30
600 x	450	450	600	65	80	450	125	730	0.22	0.26	0.22	0.34
	600	600	600	65	80	450	125	730	0.22	0.33	0.22	0.39
750 x	300	300	750	80	80	450	140	910	0.31	0.31	0.31	0.42
	450	450	750	80	80	450	140	910	0.31	0.36	0.31	0.47
	600	600	750	80	80	450	140	910	0.31	0.41	0.31	0.53
	750	750	750	80	80	450	140	910	0.31	0.47	0.31	0.59
900 x	300	300	900	80	80	450	140	1060	0.36	0.34	0.36	0.48
	450	450	900	80	80	450	140	1060	0.36	0.39	0.36	0.53
	600	600	900	80	80	450	140	1060	0.36	0.44	0.36	0.59
	750	750	900	80	80	450	140	1060	0.36	0.50	0.36	0.64
	900	900	900	80	80	450	140	1060	0.36	0.56	0.36	0.70
1200 x	300	300	1200	80/90	225	1070	140	1360	0.47	0.39	0.47	0.77
	450	450	1200	80/90	225	1070	140	1360	0.47	0.45	0.47	0.83
	600	600	1200	80/90	225	1070	140	1360	0.47	0.50	0.47	0.89
	750	750	1200	80/90	225	1070	140	1360	0.47	0.56	0.47	0.95
	900	900	1200	80/90	225	1070	140	1360	0.47	0.62	0.47	1.01
	1050	1050	1200	80/90	225	1070	140	1360	0.47	0.68	0.47	1.06
	1200	1200	1200	80/90	225	1070	140	1360	0.47	0.74	0.47	1.12
1500 x	600	600	1500	100	225	1070	160	1700	0.67	0.72	0.67	1.25
	750	750	1500	100	225	1070	160	1700	0.67	0.79	0.67	1.32
	900	900	1500	100	225	1070	160	1700	0.67	0.87	0.67	1.40
	1050	1050	1500	100	225	1070	160	1700	0.67	0.94	0.67	1.47
	1200	1200	1500	100	225	1070	160	1700	0.67	1.01	0.67	1.54
	1350	1350	1500	100	225	1070	160	1700	0.67	1.09	0.67	1.62
	1500	1500	1500	100	225	1070	160	1700	0.67	1.16	0.67	1.69
1800 x	900	900	1800	115	225	1070	180	2030	0.90	1.09	0.90	1.80
	1050	1050	1800	115	225	1070	180	2030	0.90	1.17	0.90	1.89
	1200	1200	1800	115	225	1070	180	2030	0.90	1.26	0.90	1.97
	1350	1350	1800	115	225	1070	180	2030	0.90	1.34	0.90	2.06
	1500	1500	1800	115	225	1070	180	2030	0.90	1.43	0.90	2.14
	1650	1650	1800	115	225	1070	180	2030	0.90	1.51	0.90	2.22
	1800	1800	1800	115	225	1070	180	2030	0.90	1.60	0.90	2.31

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OKA SUPER SIZE BOX CULVERT



DETAILS OF OKA SUPER SIZE BOX CULVERT

NOMINAL SIZE		DIMENSIONS (mm)							WEIGHT (ton)			
		h	b	t	dwf	w	Lt	B	W/O DWF		C/W DWF	
									LID	INVERT	LID	INVERT
2100 x	900	900	2135	180	225	1070	215	2495	1.31	1.93	1.31	2.90
	1050	1050	2135	180	225	1070	215	2495	1.31	2.06	1.31	3.03
	1200	1200	2135	180	225	1070	215	2495	1.31	2.19	1.31	3.16
	1350	1350	2135	180	225	1070	215	2495	1.31	2.33	1.31	3.29
	1500	1500	2135	180	225	1070	215	2495	1.31	2.46	1.31	3.43
	1650	1650	2135	180	225	1070	215	2495	1.31	2.59	1.31	3.56
	1800	1800	2135	180	225	1070	215	2495	1.31	2.72	1.31	3.69
	1950	1950	2135	180	225	1070	215	2495	1.31	2.85	1.31	3.82
	2100	2100	2135	180	225	1070	215	2495	1.31	2.99	1.31	3.96
2400 x	1050	1050	2440	180	225	1070	215	2800	1.48	2.20	1.48	3.33
	1200	1200	2440	180	225	1070	215	2800	1.48	2.33	1.48	3.46
	1350	1350	2440	180	225	1070	215	2800	1.48	2.46	1.48	3.60
	1500	1500	2440	180	225	1070	215	2800	1.48	2.59	1.48	3.73
	1650	1650	2440	180	225	1070	215	2800	1.48	2.72	1.48	3.86
	1800	1800	2440	180	225	1070	215	2800	1.48	2.86	1.48	3.99
	1950	1950	2440	180	225	1070	215	2800	1.48	2.99	1.48	4.13
	2100	2100	2440	180	225	1070	215	2800	1.48	3.12	1.48	4.26
	2400	2400	2440	180	225	1070	215	2800	1.48	3.39	1.48	4.52
2700 x	1200	1200	2745	180	225	1070	215	3105	1.64	2.46	1.64	3.77
	1350	1350	2745	180	225	1070	215	3105	1.64	2.59	1.64	3.90
	1500	1500	2745	180	225	1070	215	3105	1.64	2.73	1.64	4.03
	1650	1650	2745	180	225	1070	215	3105	1.64	2.86	1.64	4.16
	1800	1800	2745	180	225	1070	215	3105	1.64	2.99	1.64	4.30
	1950	1950	2745	180	225	1070	215	3105	1.64	3.12	1.64	4.43
	2100	2100	2745	180	225	1070	215	3105	1.64	3.26	1.64	4.56
	2400	2400	2745	180	225	1070	215	3105	1.64	3.52	1.64	4.83
	2700	2700	2745	180	225	1070	215	3105	1.64	3.79	1.64	5.09

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NOMINAL SIZE		DIMENSIONS (mm)							WEIGHT (ton)			
		h	b	t	dwf	w	Lt	B	W/O DWF		C/W DWF	
									LID	INVERT	LID	INVERT
3000 x	1350	1350	3050	180	225	1070	215	3410	1.80	2.73	1.80	4.20
	1500	1500	3050	180	225	1070	215	3410	1.80	2.86	1.80	4.33
	1650	1650	3050	180	225	1070	215	3410	1.80	2.99	1.80	4.47
	1800	1800	3050	180	225	1070	215	3410	1.80	3.13	1.80	4.60
	1950	1950	3050	180	225	1070	215	3410	1.80	3.26	1.80	4.73
	2100	2100	3050	180	225	1070	215	3410	1.80	3.39	1.80	4.86
	2400	2400	3050	180	225	1070	215	3410	1.80	3.66	1.80	5.13
	2700	2700	3050	180	225	1070	215	3410	1.80	3.92	1.80	5.39
3300 x	3000	3000	3050	180	225	1070	215	3410	1.80	4.18	1.80	5.66
	1500	1500	3355	180	225	1070	255	3715	2.32	3.00	2.32	4.64
	1650	1650	3355	180	225	1070	255	3715	2.32	3.13	2.32	4.77
	1800	1800	3355	180	225	1070	255	3715	2.32	3.26	2.32	4.90
	1950	1950	3355	180	225	1070	255	3715	2.32	3.39	2.32	5.03
	2100	2100	3355	180	225	1070	255	3715	2.32	3.53	2.32	5.17
	2400	2400	3355	180	225	1070	255	3715	2.32	3.79	2.32	5.43
	2700	2700	3355	180	225	1070	255	3715	2.32	4.05	2.32	5.70
3600 x	3000	3000	3355	180	225	1070	255	3715	2.32	4.32	2.32	5.96
	3300	3300	3355	180	225	1070	255	3715	2.32	4.58	2.32	6.22
	1650	1650	3660	180	225	1070	255	4020	2.51	3.26	2.51	5.07
	1800	1800	3660	180	225	1070	255	4020	2.51	3.39	2.51	5.20
	1950	1950	3660	180	225	1070	255	4020	2.51	3.53	2.51	5.34
	2100	2100	3660	180	225	1070	255	4020	2.51	3.66	2.51	5.47
	2400	2400	3660	180	225	1070	255	4020	2.51	3.92	2.51	5.73
	2700	2700	3660	180	225	1070	255	4020	2.51	4.19	2.51	6.00
	3000	3000	3660	180	225	1070	255	4020	2.51	4.45	2.51	6.26
	3300	3300	3660	180	225	1070	255	4020	2.51	4.72	2.51	6.53
	3600	3600	3660	180	225	1070	255	4020	2.51	4.98	2.51	6.79

Notes :

OKA box culverts with opening at Lid or Invert can be manufactured upon request.

Box culverts with others specified strength and dimensions can also be manufactured upon request. (Non standard products).



OKA CONCRETE INDUSTRIES SDN. BHD. (67634-M)

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