ANABEEB GRP

Quality Gives Greatest Value

GRP MANHOLES AND CHAMBERS

أركان

ARKAN

BMTRADA

UKAS

WRAS

Water Regulations Advisory Scheme

ANABEEB GRP Manholes and Chambers

ANABEEB has designed, produced and tested a 'Solid GRP Structural CHAMBERS / MANHOLES' that holds phenomenal advantages for contractors, consultants, clients and operating authorities alike. Centrifugally Cast GRP Manhole is manufactured in accordance with EN 15383 and with this system, quality is assured, erection and installation is simplified and hastened (for deep CHAMBERS / MANHOLES), and the old problem of dealing with leaking joints, connections, and shaft rings is eliminated. Durability is increased and the old problem of internal shaft laminations peeling off and liners bulging is eliminated. Only Centrifugally Cast GRP pipes are better suited for this purpose as having highly compacted impermeable wall structure with a sand and resin protective outer layer and a pure resin corrosion-proof inner liner. Solid GRP Structural CHAMBERS / MANHOLES have been proposed for many reasons as a better alternative to the old conventional manhole system of reinforced concrete requiring an additional inner liner of GRP for corrosion resistance and external water proofing tanking.

Product Range

- The products pertaining to GRP Chamber and Manholes range from 200mm diameter waste traps, through Inspection Chambers of 600 and 800mm diameter, Collection Chambers / MANHOLES from 900 to 1200mm diameter, Standard MANHOLES from 1500 to 2000mm diameter, special Tangential access MANHOLE shafts on culverts or large trunk sewers, road gullies, valve chambers cess-pits, discharge chambers and other such chambers.
- For standard GRP STRUCTURAL CHAMBERS / MANHOLES, the shafts are made from centrifugally cast GRP pipes of required rating to meet strength suitable to withstand imposed (traffic) loads, soil loads, ground water pressure. ≥

TYPE OF MANHOLEs / CHAMBERs

1. MANHOLE/CHAMBER with Flat base. (without anti-floatation box-out)
2. MANHOLE/CHAMBER with Box-Out base for anti-floatation.
3. MANHOLE/CHAMBER with reducer slab and with Box-Out base for anti-floatation.
4. TANGENTIAL MANHOLE built on large diameter pipe line. (Most suited for micro tunneling works).
5. GRP INSPECTION SHAFT from conventional concrete manhole in the lower portion (shaft embedded in lower reducer slab)

Advantages:

- Safe Structural Design
- Adequate anti-floatation
- Easy handling and Installation
- Less Excavation Required
- No Waterproofing
- Sustainable Product
- High Chemical Resistant
- Flexibility to Modification
- Less Maintenance Cost
- Better Safety

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Note: Below table is showing different proposed stiffness's of Manhole Shaft for required wall thickness as per installation depth.

GRP MANHOLE DEPTH LIMIT vs SHAFT THICKNESS and PROPOSED STIFFNESS

DN	OD	Type	Base dia. / Conc.		≤ 1.5	> 1.5 ≤ 2.5	> 2.5 ≤ 4.0	> 4.0 ≤ 6.0	> 6.0 ≤ 8.0	> 8.0 ≤ 10.0	> 10.0 ≤ 12.0	> 12.0 ≤ 14.0	> 14.0 ≤ 16.0	> 16.0 ≤ 18.0	> 18.0 ≤ 20.0	> 20.0 ≤ 24.0
	mm		mm		mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²	mm N/m²
600	**616**	**MH -FL**	616	Thickness	**12.2**	**12.2**										
		FLAT BASE	**150**	Stiffness	5000	5000										
800	**820**	**MH -FL**	820	Thickness	**15.7**	**15.7**	**15.7**									
		FLAT BASE	**200**	Stiffness	5000	5000	5000									
900	**924**	**MH -FL**	924	Thickness	**17.5**	**17.5**	**17.5**									
		FLAT BASE	**200**	Stiffness	5000	5000	5000									
1000	**1026**	**MH -FL**	1026	Thickness	**19.2**	**19.2**	**19.2**									
		FLAT BASE	**300**	Stiffness	5000	5000	5000									
1000	**1026**	**MH -AFL**	1434	Thickness	**19.2**	**19.2**	**19.2**	**19.2**								
		Box-out	**300**	Stiffness	5000	5000	5000	5000								
1200	**1229**	**MH -FL**	1229	Thickness	**22.9**	**22.9**	**22.9**									
		FLAT BASE	**300**	Stiffness	5000	5000	5000									
1200	**1229**	**MH -AFL**	1638	Thickness	**22.9**	**22.9**	**22.9**	**22.9**	**26.6**	**28.3**	**30.9**					
		Box-out	**300**	Stiffness	5000	5000	5000	5000	8000	10000	12500					
1400	**1434**	**MH -FL**	1434	Thickness	**26.5**	**26.5**	**26.5**									
		FLAT BASE	**400**	Stiffness	5000	5000	5000									
1400	**1434**	**MH -AFL**	1842	Thickness	**26.5**	**26.5**	**26.5**	**26.5**	**31.0**	**32.7**	**35.8**	**36.8**				
		Box-out	**400**	Stiffness	5000	5000	5000	5000	8000	10000	12500	15000				
1500	**1535**	**MH -FL**	1535	Thickness	**28.4**	**28.4**	**28.4**									
		FLAT BASE	**500**	Stiffness	5000	5000	5000									
1500	**1535**	**MH-AFL**	2047	Thickness	**28.4**	**28.4**	**28.4**	**28.4**	**33.0**	**35.1**	**38.3**	**40.0**	**43.1**	**49.0**	**49.0**	**49.0**
		Box-out	**500**	Stiffness	5000	5000	5000	5000	8000	10000	12500	15000	20000	32000	32000	32000
1600	**1638**	**MH -FL**	1638	Thickness	**29.2**	**29.2**	**29.2**									
		FLAT BASE	**500**	Stiffness	5000	5000	5000									
1600	**1638**	**MH-AFL**	2100	Thickness	**29.2**	**29.2**	**29.2**	**29.2**	**35.1**	**36.1**	**39.5**	**44.4**	**48.0**	**52.0**	**52.0**	**52.0**
		Box-out	**500**	Stiffness	5000	5000	5000	5000	8000	10000	12500	20000	25000	32000	32000	32000
1800	**1842**	**MH-AFL**	2300	Thickness		**32.6**	**32.6**	**32.6**	**39.6**	**40.3**	**45.5**	**49.7**	**49.7**	**59.0**	**59.0**	**59.0**
		Box-out	**500**	Stiffness		5000	5000	5000	8000	10000	12500	20000	20000	32000	32000	32000
2000	**2047**	**MH-AFL**	2600	Thickness		**36.0**	**36.0**	**36.0**	**44.0**	**44.6**	**46.5**	**50.5**	**55.0**	**65.0**	**65.0**	**65.0**
		Box-out	**500**	Stiffness		5000	5000	5000	8000	10000	12500	15000	20000	32000	32000	32000

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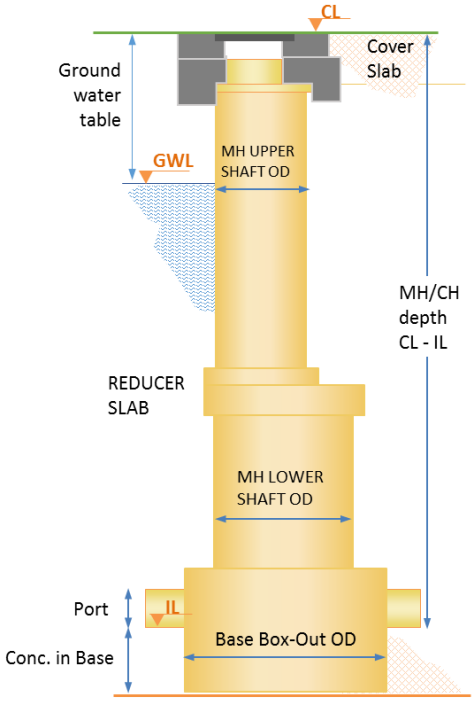
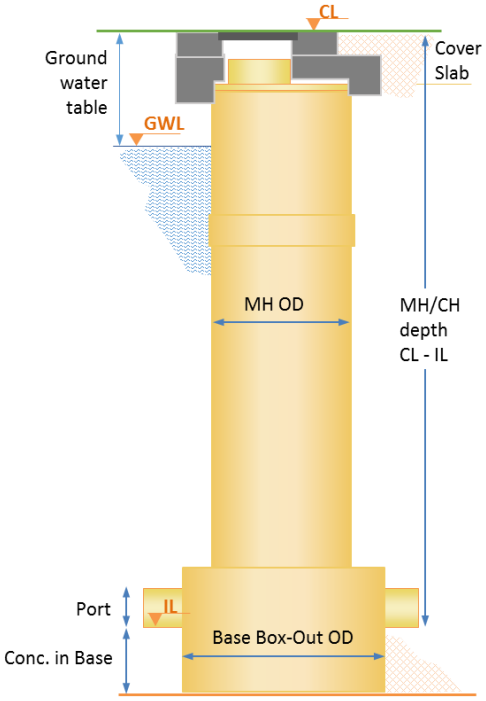
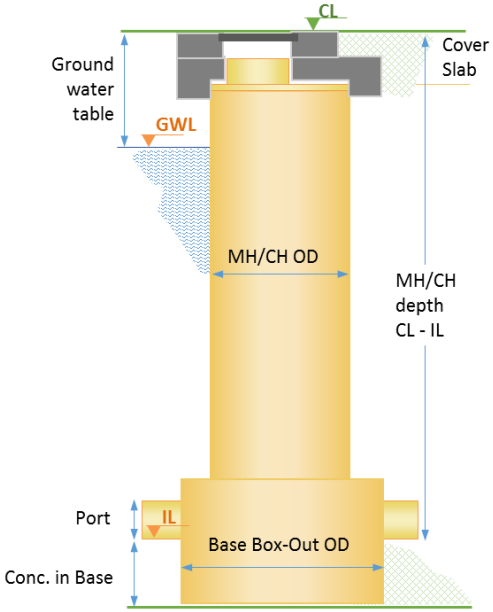
TYPES OF
GRP Chambers & Manholes



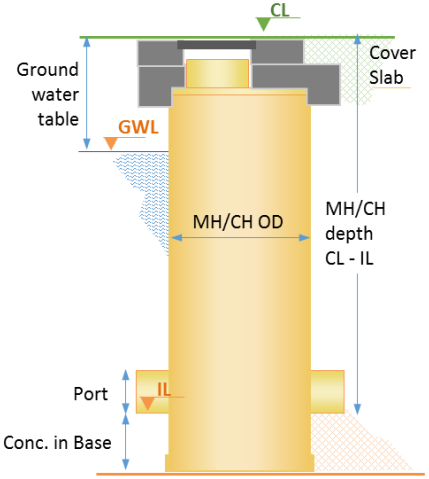
Manhole with reducer slab and Box-out base



Deep Manhole with Box-out base



Manhole / Chamber with Box-out base



Manhole / Chamber with Flat base

IMPORTANT NOTE:

1. The above Manhole & Chamber designs are only guidelines and can be adapted with required alteration depending on the site requirements
2. The above system with combination of conventional concrete manhole system in the lower portion is also possible where upper shaft shall be provided after reducer slab with GRP shafts.
3. For Micro-tunneling works tangential shaft system are available on request.

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GRP TANGENTIAL MANHOLE DEPTH LIMIT

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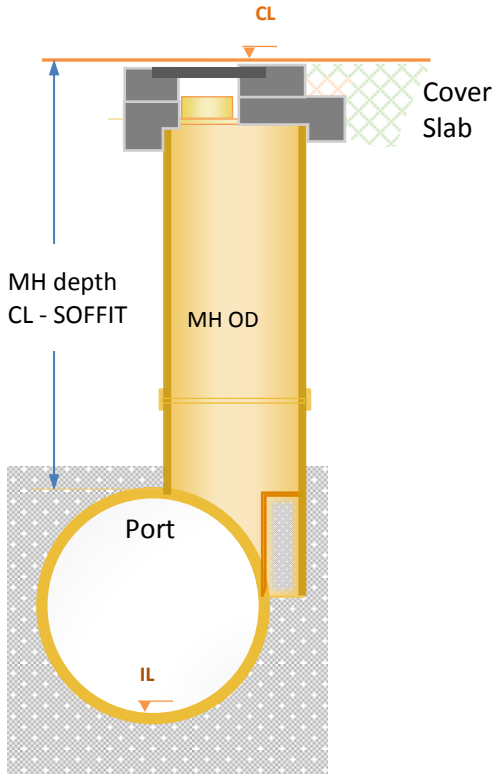
SHAFT THICKNESS and PROPOSED STIFFNESS

SHAFT DN	OD mm	NOMINAL DIA. RANGE OF MAIN LINE	Depth CL to SOFFIT of Main Line	> 8.0 ≤ 10.0	> 10.0 ≤ 14.0	> 14.0 ≤ 16.0	> 16.0 ≤ 18.0	> 18.0 ≤ 20.0	> 20.0 ≤ 24.0
				mm	mm	mm	mm	mm	mm
				N/m^2	N/m^2	N/m^2	N/m^2	N/m^2	N/m^2
1000	**1026**	**≥ 1000**	Thickness	**23.0**					
			Stiffness	10000					
1200	**1229**	**≥ 1000**	Thickness	**28.3**	**33.7**				
			Stiffness	10000	20000				
1400	**1434**	**≥ 1000**	Thickness	**32.7**	**36.8**	**40.7**			
			Stiffness	10000	15000	20000			
1500	**1535**	**≥ 1000**	Thickness	**35.1**	**40.0**	**43.1**	**49.0**	**49.0**	**49.0**
			Stiffness	10000	15000	20000	32000	32000	32000
1600	**1638**	**≥ 1200**	Thickness	**36.1**	**44.4**	**48.0**	**52.0**	**52.0**	**52.0**
			Stiffness	10000	20000	25000	32000	32000	32000
1800	**1842**	**≥ 1400**	Thickness	**40.3**	**49.7**	**49.7**	**59.0**	**59.0**	**59.0**
			Stiffness	10000	20000	20000	32000	32000	32000
2000	**2047**	**≥ 1600**	Thickness	**44.6**	**50.5**	**55.0**	**65.0**	**65.0**	**65.0**
			Stiffness	10000	15000	20000	32000	32000	32000



Tangential Manhole on large pipe line lines