

Specifications of sewer safety equipment

Sr. No	Item	Specification
1	Fresh compressed air line system at 300 bars (Compressed air cylinders to be filled by air compressor)	
	a) Compressed air line system	<p><i>Compressed air line system of USA / Europe /Japan origin or approved equivalent comprising of;</i></p> <ul style="list-style-type: none"> • Full face polyurethane mask meeting the requirements of EN 136:1998 with panoramic visor granting wide visibility and fitted with five arm head harness to properly fix the mask to the face and carrying strap to hang the mask around the neck during rest. • Flexible breathing corrugated hose having standard threads to connect with the mask on one side and with PVC manifold (interposing to the air regulator and the feeding hose) on the other side. • Air regulator to be fixed on the waist belt and easy operate able by hand while working in narrow places. • Feeding hose not less than 15m without joint as standards length and wound on a reel with pressure demand valve • Two compressed air cylinders (6 liters each with minimum 300 bars pressure mounted on 2-wheeled trolley) • Waist belt • Pressure reducer • Audible warning device • Case of personal outfits • One extra length (minimum 15m) of the feeding hose
	b) Single Phase Portable Air Compressor (including safety base to fill air cylinders at minimum pressure of 300 bars.	<ul style="list-style-type: none"> • USA/ Europe/Japan origin or approved equivalent • Electrically operated 220-230 volts. 50-60 cycles and single phase motor • Compressor equipped with all starting & protection devices for safe guard against low voltage & overloading current • Automatic shut off device/ facility • Charging medium: Air • Safe working pressure: 300 bars • Motor hours meter • Compressor will be supplied with one major overhauling kit & set of keys I spanners • The compressor should be capable to fill a 6 liter cylinder in 30 minutes.
2	Fresh air respirator (non assisted)	<p><i>Fresh air respirator of USA / Europe /Japan origin or approved equivalent meeting the requirements of EN 138:1994 and comprising of ;</i></p> <ul style="list-style-type: none"> • Full face polyurethane mask meeting the requirements of EN 136:1998 with panoramic visor granting wide visibility and fitted with five arm head harness to properly fix the mask to the face and carrying strap to hang the mask around the neck during rest. • Flexible breathing corrugated hose having standard threads to connect with the mask on one side and with PVC manifold (interposing to the feeding hose) on the other side. • Two numbers fresh air PVC feeding hose in 10 meter length and adequate internal diameter to provide comfortable breathing for one person at its end without the aid of air fan. The hose will have standard metallic threaded connectors to connect the hose with filter or with air turbine on one side and with manifold on the other side • Metallic connector with standard threads to connect both lengths of feeding hoses for making total hose length of 20 meters. • Adjustable harness fitted with a special ring allowing to keep the

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		<p>corrugated hose in position over the shoulder and along the back enabling the operator to move in narrow spaces.</p> <ul style="list-style-type: none"> • End filter of plastic body with a net to prevent the accidental penetration of external corpuscles, dust, pebbles and other air borne materials. • Metallic fixing peg to fix the feeding hose to the ground in case it is being used without the air turbine. • Plastic carrying case to house the mask, breathing hose and all above mentioned accessories along with 10 meter length of feeding hose.
3	Fresh air respirator (Assisted with air fan)	<p><i>Fresh air respirator of USA / Europe /Japan origin or approved equivalent meeting the requirements of EN 138:1994 and comprising of ;</i></p> <ul style="list-style-type: none"> • Full face polyurethane mask meeting the requirements of EN 136:1998 with panoramic visor granting wide visibility and fitted with five arm head harness to properly fix the mask to the face and carrying strap to hang the mask around the neck during rest. • Flexible breathing corrugated hose having standard threads to connect with the mask on one side and with PVC manifold (interposing to the feeding hose) on the other side. • Two numbers fresh air PVC feeding hose in 10 meter length and adequate internal diameter to provide comfortable breathing for one person at its end without the aid of air fan. The hose will have standard metallic threaded connectors to connect the hose with filter or with air turbine on one side and with manifold on the other side • Metallic connector with standard threads to connect both lengths of feeding hoses for making total hose length of 20 meters. • Adjustable harness fitted with a special ring allowing to keep the corrugated hose in position over the shoulder and along the back enabling the operator to move in narrow spaces. • End filter of plastic body with a net to prevent the accidental penetration of external corpuscles, dust, pebbles and other air borne materials. • Metallic fixing peg to fix the feeding hose to the ground in case it is being used without the air turbine. • Air fan electrically operated on 220-230 volts capable to supply enough air for the respiration of two persons through feeding hose of 20 meter length easily without least suffocation and having air delivery port capable to be coupled with feeding hose. • Plastic carrying case to house the mask, breathing hose and all above mentioned accessories along with 10 meter length of feeding hose except the air fan.
4	Multi Body Rescue Harness (Safety harness)	<ul style="list-style-type: none"> • The rescue harness will conform to CE EN361 and CE EN-358 specifications and will have under mentioned fittings and accessories • Dorsal anchorage point • 1 dorsal attachment D-Ring • 1 sternal attachment D-Ring • Ventral suspension D-Ring • 2 work positioning D-Ring • Padded thigh and shoulder straps • Padded ergonomic back panel • Adjustment: thigh and shoulder straps • Accessory rings • Maximum Load weight: 1000 kg
5	Safety Belt	Fully adjustable rear leg risers and chest harness adjusts to fit (25" to 55"

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		waists) with side and back D-ring Breaking Strength minimum 22 KN. <ul style="list-style-type: none"> • Load capacity (Minimum 150 Kg), • Rugged, Fire and all weather resistant.
6	Portable Multiple Gas Detector	<ul style="list-style-type: none"> • USA/ Europe/ Japan origin or approved equivalent • Must detect (CH₄, CO, O₂, H₂S) • TFT screen display for gas concentration • Response time less than 60 second • Working temperature (-22 to 50 C⁰). • Power supply: Lithium battery • Water proof • Alarm with LED buzzer & vibration
7	Tripod (Corrosion-resistant finish) Tripod Hand Winch (Corrosion-resistant finish)	<ul style="list-style-type: none"> • Minimum 02 anchorage point • Maximum height: 10 feet • Non slip bed plates • Load capacity (minimum): 250kg • 03 load locking pins in each pole of the Tripod • Material: Heavy duty aluminum alloy tripod • Chain/webbing set to secure the bottom legs of the tripod • NFPA I EN Standards <ul style="list-style-type: none"> • Heavy duty aluminum alloy body with handle • Load lifting capacity (minimum): 250kg • Length of galvanized or stainless steel wire not less than 6 mm thick = 100 feet • Attach to tripod with locking safety pins • 01 man set up • installable on any leg of tripod • Oil impregnated bearings • Manual safety lock • Corrosion-resistant finish • NFPA IEN Standards
8	SMD Head Lamp	<ul style="list-style-type: none"> • Easy to install at safety helmet • Rechargeable battery • Water proof
9	Air Blower & Exhaust (with Air Duct) (Portable)	<ul style="list-style-type: none"> • Electrically operated single phase • Power: heavy duty upto 01 hp motor, standard 220-230 volts 50 cycles • Equipped with rubber feet • Minimum air displacement in the assembly = 1100 m³/hour • Capable to be converted into air blower and air sucker as per need. • All component to be quoted for greater wear resistance • High quality collapsible duct minimum: 40 feet • NFPA IEN Standards

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10	SMD Flood Light with Stand (Emergency light)	<ul style="list-style-type: none"> • Type: SMD LED Floodlight • Light source: SMD LED /COB LED (Bridgelux,Epistar Cree/Osram/Philips LEDs) warm light • Capacity: 50 watts • Material: AL + tempered glass • Input voltage: 190-265 VAC 50 hertz • Equipped with highly stable non rustable non corrodible ground stand having 120⁰ swivel. • Weather protection --- Out door IP-67 	
11	Portable generator	<ul style="list-style-type: none"> • Alternator = Single phase 220-230 volts 50 Hertz • Capacity = 4 - KVAC • Engine = Imported 4-stroke air cooled hand start petrol engine directly coupled with alternator. • Power take off = Two Nos three pin and one No two pin outlet ports. • Instrumentation = Ammeter, voltmeter, power indication light, overload relay or circuit breaker 	
12	Dry Suit	Area of operation	Dry suit for underwater working in muddy, sewer water or sludge.
		Type	Dry suit made up of cut. abrasion water proof and chemical resistant material (say neoprene). Front or rear entry zipper with protective flaps. Inflator and relief valves in the suit. Extra padding on elbows and knees.
		Material	Tri-laminated one piece suit with latex seals on wrists and collar. Compressed rubber boots.
		Temperature	Storage temperature 0 C ⁰ to 60 C ⁰
		Certification	EN Standards and CE Certification for rescue/emergency service
		Accessories	Water proof detachable neoprene hood. a repair of separate abrasion resistant gloves. inflator hose and repair kit
		Colour	Orange / yellow fluorescent colour
13	Safety Shoes	Sole	Black direct injection sole made of Rubber PVC combination which should be acid. heat & oil resistant. anti-slippery and anti static.
		Upper Material	Black buff plain original leather (18mm to 2.0mm thick). Durable and comfortable.
		Lining	No lining except leather lining in vamp area.
		Steel Toe Cap	Imported, impact resistance capacity up to 200 Joules.
		Insole	Anti Static Texon 1.75mm (imported) + Steel plate to resist nail penetration
		Tongue	Soft leather tongue stitched with quarter (behind eyelet facing for laces from inside)
		Collar	inner synthetic collar with foam

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		padding_(Foam Sheet High Density) Back Counter GAMA Counter Sheet (Min. 1.2mm thick) Eyelets Aluminum Black Laces Plain Black Nylon Flat 36-Inches Shank Steel, thickness 0.9mm Shoe Height Minimum 12cm from inside without in sock
14	Safety Helmet	Outer shell made of high strength and impact proof material.Inner lining to be breathable with individual heard adjustment and chinstrap. High comfort durable and washable integral skin of P.U filled inner lining I padding of minimum 10 mm, on the top with grooves for ventilation
15	Long boots	Long rubber boots are required to be worn by the sewer men to eliminate the chances of any injury to the feet of the men because various kinds of sharp edges are present in the silt and muck of the manholes.
16	Hand gloves	The gloves are required for protection of hand of the workers. The gloves may be made of any inert, robust and lightweight material/fabric and will be easily maneuverable with the movement of hands.
17	Torch with dry cells	The torch is required to peep into the manhole during night from ground level. It will be equipped with three dry battery replaceable cells of "D" size. The body of the torch will be made of non rustable non corrodable material. The rear of the torch will have a hook for hanging it with some peg or human waist belt. The reflector will be made of good material and the reflective lining in it will not be subjected to any type of rusting or corrosion with passage of time.