



DIRECTORY FOR SPECIFYING TEXT

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PREDL® Manhole base-liners DN 1000 – DN 2000

Design features : Concrete Manhole base with base-liner and connection bells,
DN 1000/1200/1500/2000
With factory built-in PREDL® GRP / PP Manhole Base liner
Manhole upper section : Manhole sections according to DIN V 4034 – 1/EN 1917

Pos. Quantity Specification issued 03.05
The following text is also available on a CD or by email.

Manhole baseliner, inner width 1000/1200/1500/2000 mm,
according to DIN EN 476 for buried sewer pipes,
circular precast concrete construction with manhole base liner and bells
according to DIN V 4034-1/EN 1917 with a factory concreted-in
Plastic manhole liner (preferably polypropylene, specials made of GRP)
Including 2 PREDL® bells for a jointed pipe bonding in the manhole wall,
Channel soffit level, straight or curved, step in the height of the crown
Slope according to plan, additional inlets as well as dimension variation
In the channel, made at invert or soffit level,
including seals / connection bells / integrated seals for connecting pipes
officially tested and certified by the DIBT (Z 42.2-294),
PREDL® system or equivalent

Pipe type to be connected :

Manhole brand offered :

Concrete product producer :

Extras for manhole base

Extra for curved channel

Manhole diameter.....

Extra for slope in the channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Manhole diameter.....

Extra for slope in the bell from 6 % upwards

S 0 for bells DN150/200

S 1 for bells DN 250/300

Manhole diameter.....
Extra for slope in the bell from 2 % upwards
S 2 for bells > DN 300

Manhole diameter.....
Extra S 5 for dimension change in the main channel with channel tapering
Channel DN...../ DN.....

Manhole diameter.....
Extra S 6 for incorporating steps in the main channel

Manhole diameter.....
Extra S 8 for off-set channel

Manhole diameter.....
Extra S 9 for corrosion secured up stand with PP or GRP lining
until 1st spigot

Manhole diameter.....
Extra for additional inlets

Manhole diameter.....
Extra for lateral inlet lower than soffit level
S 3 until 50 mm
S 3a until 100 mm
S 3b until 200 mm
S 3c until 300 mm
S 3d until 500 mm

Manhole diameter.....
Extra for lateral inlet higher than soffit level
S 4 until 50 mm
S 4a until 100 mm
S 4b until 200 mm
S 4c until 300 mm
S 4d until 500 mm

Manhole sections according to DIN V 4034 – 1/EN 1917
Connector system according to choice

PREDL® Manhole base-liners DN 800

Design features : Concrete Manhole base with base-liner and connection bells, DN 800
With factory built-in PREDL® GRP / PP Manhole base liner
Manhole upper section : Manhole sections according to DIN V 4034 – 1/EN 1917

Pos. Quantity Specification issued 03.05
The following text is also available on a CD or by email.

Manhole baseliner, inner width 800 mm,
according to DIN EN 476 for buried sewer pipes,
circular precast concrete construction with manhole base liner and bells
according to DIN V 4034-1/EN 1917 with a factory concreted-in
Plastic manhole liner (preferably polypropylene, specials made of GRP)
Including 2 PREDL® bells for a jointed pipe bonding in the manhole wall,
Channel soffit level, straight or curved, step in the height of the crown
Slope according to plan, additional inlets as well as dimension variation
In the channel, made at invert or soffit level,
including seals / connection bells / integrated seals for connecting pipes
officially tested and certified by the DIBT (Z 42.2-294),
PREDL® system or equivalent

Pipe type to be connected :

Manhole brand offered :

Concrete product producer :

Extras for manhole base

Extra for curved channel

Extra for slope in the channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Extra for slope in the bell from 6 % upwards

S 0 for bells Ø150/200

S 1 for bells Ø 250/300

Extra for additional inlets

Manhole sections according to DIN V 4034 – 1/EN 1917
Connector system according to choice

PREDL® Manhole base-liners DN 600

Design features : Cleaning and inspection chamber as a
Concrete Manhole base with base-liner and connection bells, DN 600
According to DIN V 4034/EN 1917

With factory built-in PREDL® GRP / PP Manhole base liner

Manhole upper section : Manhole sections according to DIN V 4034 – 1/EN 1917

Pos. Quantity Specification issued 03.05
The following text is also available on a CD or by email.

Manhole baseliner, inner width 600 mm,
according to DIN EN 476 for buried sewer pipes,
circular precast concrete construction with manhole base liner and bells
according to DIN V 4034-1/EN 1917 with a factory concreted-in
Plastic manhole liner (preferably polypropylene, specials made of GRP)
Including 2 PREDL® bells for a jointed pipe bonding in the manhole wall,
Channel soffit level, straight or curved, step in the height of the crown
Slope according to plan, additional inlets as well as dimension variation
In the channel, made at invert or soffit level,
including seals / connection bells / integrated seals for connecting pipes
officially tested and certified by the DIBT (Z 42.2-294),
PREDL® system or equivalent

Pipe type to be connected :.....

Manhole brand offered :.....

Concrete product producer :.....

Extras for manhole base

Extra for curved channel

Extra for slope in the channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Extra for slope in the bell from 6 % upwards

S 0 for bells Ø150/200

S 1 for bells Ø 250/300

Extra for additional inlets

Manhole sections according to DIN V 4034 – 1/EN 1917

PREDL® Manhole base-liners and Corprotect lining DN 1000 – DN 1500

Design features : Concrete Manhole base with base-liner and connection bells,
 DN 1000/1200/1500
**With factory built-in PREDL® GRP / PP Manhole liner and PP / GRP
 Corprotect lining until 1st spigot**
 Manhole upper section : Manhole sections according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.05
		The following text is also available on a CD or by email.	

Manhole baseliner, inner width 1000/1200/1500 mm,
 according to DIN EN 476 for buried sewer pipes,
 circular precast wet cast concrete construction with manhole base liner and bells
 according to DIN V 4034-1/EN 1917 with a factory concreted-in
 Plastic manhole liner (preferably polypropylene, specials made of GRP)
 Until 1st. spigot **Corprotect system**, dry cast in the mould
 Including 2 PREDL® bells for a jointed pipe bonding in the manhole wall,
 Channel soffit level, straight or curved, step in the height of the crown
 Slope according to plan, additional inlets as well as dimension variation
 In the channel, made at invert or soffit level,
 including seals / connection bells / integrated seals for connecting pipes
 officially tested and certified by the DIBT (Z 42.2-294),
 PREDL® system or equivalent

Pipes to connect :

Manhole brand offered :

Concrete product producer :

Extras for manhole base

Extra for curved channel

Extra for slope in the channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Extra for slope in the bell from 6 % upwards

S 0 for bells DN150/200

S 1 for bells DN 250/300

Manhole diameter.....
 Extra for slope in the bell from 2 % upwards
 S 2 for bells > DN 300

Manhole diameter.....
 Extra S 5 for dimension change in the main channel with channel tapering
 Channel DN...../ DN.....

Manhole diameter.....
 Extra S 6 for incorporating steps in the main channel

Manhole diameter.....
 Extra S 8 for off-set channel

Manhole diameter.....
 Extra for additional inlets

Manhole diameter.....
 Extra for lateral inlet lower than soffit level
 S 3 until 50 mm
 S 3a until 100 mm
 S 3b until 200 mm
 S 3c until 300 mm
 S 3d until 500 mm

Manhole diameter.....
 Extra for lateral inlet higher than soffit level
 S 4 until 50 mm
 S 4a until 100 mm
 S 4b until 200 mm
 S 4c until 300 mm
 S 4d until 500 mm

Manhole sections according to DIN V 4034 – 1/EN 1917 with integral PP lining
Corprotect System wet cast in the mould (wall thickness of the PP lining 2,8 mm
 with approx.. 400 Studs / m² for the bonding to the concrete)
 Connector system according to choice
 Stainless steel ladders are recommended for entering the manhole.

Manhole ring DN 1000 / 1000 with Corprotect.....
 Manhole ring DN 1000 / 750 with Corprotect.....
 Manhole ring DN 1000 / 500 with Corprotect.....

Manhole ring DN 1200 / 1000 with Corprotect.....
 Manhole ring DN 1200 / 750 with Corprotect.....
 Manhole ring DN 1200 / 500 with Corprotect.....

Manhole ring DN 1500 / 1000 with Corprotect.....
 Manhole ring DN 1500 / 750 with Corprotect.....
 Manhole ring DN 1500 / 500 with Corprotect.....

Manhole cone according to DIN V 4034 / EN 1917 with GRP integral lining
Standard configuration wet cast Corprotect system

Manhole cone DN 1000 / 600 with Corprotect.....

Manhole cone DN 1200 / 600 with Corprotect.....

Manhole cone DN 1500 / 600 with Corprotect.....

Or

Manhole cone according to DIN V 4034 / EN 1917 with GRP integral lining
 And telescope max. 300 mm high for lining the compensation ring
Corprotect System wet cast

Manhole cone with telescope DN 1000 / 600 with Corprotect.....

Manhole cone with telescope DN 1200 / 600 with Corprotect.....

Manhole cone with telescope DN 1500 / 600 with Corprotect.....

Cover slab according to DIN V 4034 / EN 1917 with GRP integral lining
Corprotect System

Cover slab DN 1000 / 200 with Corprotect.....

Cover slab DN 1200 / 200 with Corprotect.....

Cover slab DN 1500 / 200 with Corprotect.....

Entrance hole DN 625 or DN 800 according to choice

The joints between the different sections will be welded at the building site by
 PREDL GmbH

Welding per joint DN 1000.....

Welding per joint DN 1200.....

Welding per joint DN 1500.....

Approach allowance.....

Text module „back drop“ for completing the specifying texts for manhole as a supplementary item

Addition for IPK – Back drop structures

Made out of plastic material – Polyethylene (PE) piece.

Due to the special design of this back drop, the sewage water makes a cyclone type downstream.

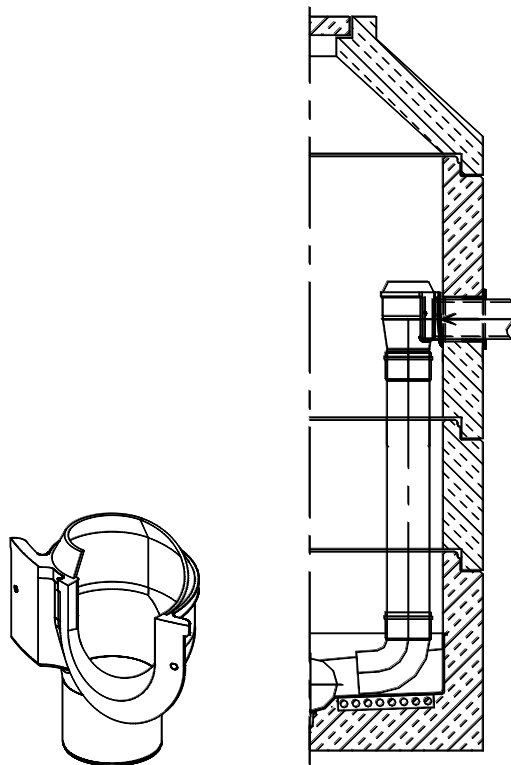
Therefore the flow energy is reduced.

In and outlet only designed for DN 150 plastic pipes.

Fastening equipment provided (Stainless steel screws and plastic plugs)

Left and right configuration possible.

Drawing below :

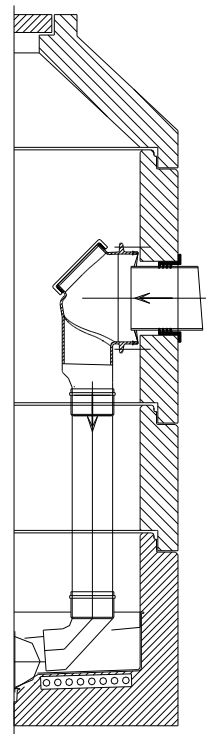
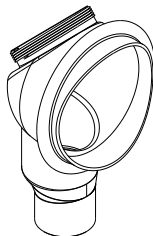


Addition for **Back drop structures inlet until DN 300**
Made out of plastic material (Inside Drop type DN 150/200)
With a screw-on maintenance lid
Fastening equipment provided (Stainless steel screws and plastic plugs)

Manhole inner diametermm (DN 1000 or DN 2000)
Back drop
Incoming pipe DN....., Pipe type.....
Back drop DN....., Pipe type.....
Drop heightmm
Outgoing pipe DN

Manufacturer: PREDL® GmbH (Tel. 035341-6190) or similar

Drawing below :



Addition for **Back drop structures inlet until DN 250**

Made out of plastic material (Inside Drop type DN 150/200/250)

Fastening equipment provided (Stainless steel screws and plastic plugs)

Manhole inner diametermm (DN 1000 or DN 2000)

Back drop

Incoming pipe DN....., Pipe type.....

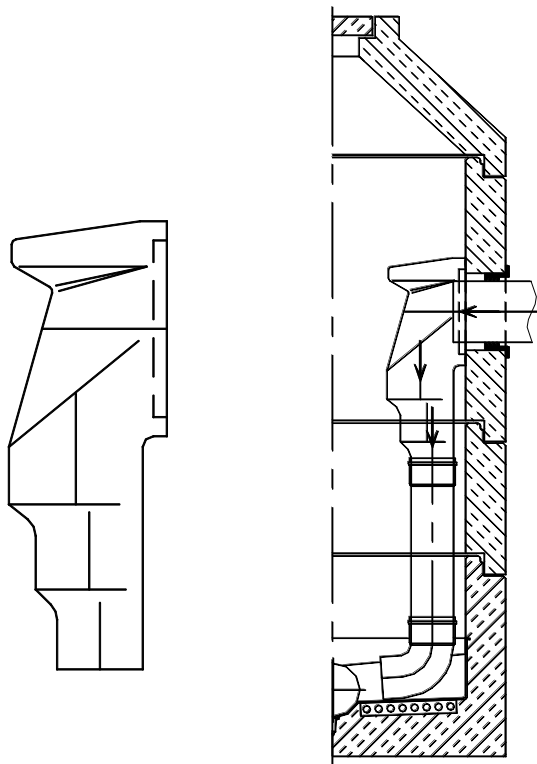
Back drop DN....., Pipe type.....

Drop heightmm

Outgoing pipe DN

Manufacturer: PREDL® GmbH (Tel. 035341-6190) or similar

Drawing below :



Text module „Outside drop structure“ for completing the specifying texts for manhole as a supplementary item

Manhole diameter.....

Addition for **outside drop structure PREDL® system Pipe Head**

Made out of plastic material – GRP / PE

Incoming pipe DN 150 until DN 500 possible

Outgoing pipe DN 150 until DN 300 possible

Maintenance opening to the manhole always DN 300

Pipe connections including PREDL bells.

Incoming pipe DN....., Pipe type.....

Back drop DN....., Pipe type.....

Drop heightmm

The complete drop structure has to be surrounded in C 16/20 (core drilling into the manhole ring 350 mm)

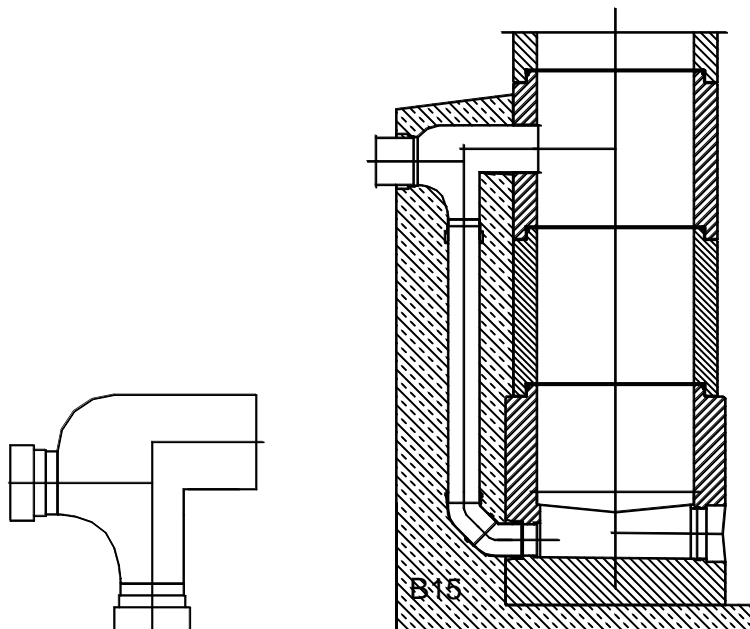
concrete

Manufacturer: PREDL® GmbH (Tel. 035341-6190) or similar

Addition for outside drop structure

Extra lateral inlet DN

Drawing below :



PREDL® GRP Universal Manhole description

Design features :

Concrete Manhole base DN 1000/1200/1500/2000

With factory built-in PREDL® GRP / PP Manhole base liner

GRP shaft pipe for heavy-duty traffic (SLW 60) concrete cover slab

With GRP liner underneath according to choice.

Pos.	Quantity	Specification	issued 03.03
		The following text is also available on a CD or by email.	

GRP Manhole Universal baseliner, according to DIN 19565
 DN 1000/1200/1500/2000
 And DIN EN 476 manholes for buried sewer pipes,
 circular construction PREDL® System or equivalent
 made as follow :

Precast concrete manhole base according to DIN V 4034-1/EN 1917
 with a factory concreted-in GRP / PP manhole base liner,
 Including 2 bells for a jointed pipe bonding in the manhole wall,
 Channel soffit level, straight or curved,
 step in the height of the crown, slope according to plan,
 additional inlets as well as dimension variation
 in the channel, made at invert or soffit level,
 according to plan, including seals / connection bells / integrated seals for
 connecting pipes
 with connectors laminated to the GRP base liner for the GRP pipe shaft
 pipe shaft SN 10 000 for heavy duty traffic (SLW 60) with GRP liner underneath
 and laminated GRP connector with 1 eccentrically placed opening 625 mm
 including ladder and 1 foldaway handhold entry pole
 high quality steel material V4A 1.4571
 The height goes from invert level in the channel up to the upper edge of the cover
 slab.

Additional text if needed:
 Hydrostatic uplift safe until.....m under Ground surface

Pipe type to be connected :.....

Extras for manhole base

Extra for curved channel

Manhole diameter.....

Extra for slope in the channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Manhole diameter.....
Extra for slope in the bell from 6 % upwards
S 0 for bells DN150/200
S 1 for bells DN 250/300

Manhole diameter.....
Extra for slope in the bell from 2 % upwards
S 2 for bells > DN 300

Manhole diameter.....
Extra S 5 for dimension change in the main channel with channel tapering
Channel DN...../ DN.....

Manhole diameter.....
Extra S 6 for incorporating steps in the main channel

Manhole diameter.....
Extra S 8 for off-set channel

Manhole diameter.....
Extra S 9 for corrosion secured up stand with GRP lining
until 1st spigot

Manhole diameter.....
Extra for additional inlets

Manhole diameter.....
Extra for lateral inlet lower than soffit level
S 3 until 50 mm
S 3a until 100 mm
S 3b until 200 mm
S 3c until 300 mm
S 3d until 500 mm

Manhole diameter.....
Extra for lateral inlet higher than soffit level
S 4 until 50 mm
S 4a until 100 mm
S 4b until 200 mm
S 4c until 300 mm
S 4d until 500 mm

Adjusting ring secured against side sliding, (AR-V)
Diameter 625 mm, construction height 40 – 100 mm

GRP Universal manhole as described before
Manhole diameter.....mm
Channel DN.....
Construction height until 1500 mm

GRP Universal manhole as before
Construction height until 1501 until 2000mm

GRP Universal manhole as before
Manhole diameter.....mm
Channel DN.....
Construction.....mm

Alternative proposal

For lower or higher construction (Manhole depth)
Per commenced 100 mm
Manhole diameter.....mm

“Begu” type Manhole lid.....

INFRA – House inspection manhole chamber for separate sewer systems

INFRA- manhole chamber system

1500– access 1000 mm

Manhole description

Design features :

Concrete Manhole base with base-liner and connection bells, DN 1500

including a factory built-in PREDL® GRP / PP Manhole liner made out of sewerage water resistant plastic

Foul water (SW) :

Open channel

Storm water (RW) :

Closed channel with cleanout access

Dimensions :

Manhole	DN 1500
Ø Foul Water (SW)	max DN 300
Ø Storm water (RW)	max DN 600
Optional Ø empty pipe	max DN 200

- a1 – access:** 1000 mm
- b 1 – distance between axes foul and storm water : 550 mm incl. storm water Ø400, 650 mm for storm water Ø500/600
- b 2 - invert level height difference foul and storm water : 0-850 mm

Manhole chamber sections :

Manhole chamber with bell according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.04
The following text is also available on a CD or by email.			

Manhole chamber for separate sewer systems, inner width 1500 mm according to DIN EN 476 for buried sewer pipes, made out of precast concrete according to DIN V 4034-1/EN 1917 circular construction including :

Manhole base section with base liner and bells
 Precast factory concreted-in GRP/PP base-liner,
 Including bells for a jointed pipe bonding in the manhole wall,
 With seals adapted to the connected pipe
 PREDL® system, - INFRA standard manhole chamber or equivalent officially tested and certified by the DIBT (Z 42.1-355)

Foul water:

Open channel at soffit level, straight through

Storm water :

Closed channel straight through
 With standard cleanout access lid (stainless steel frame 250 x 550 mm)
 Including gas control opening with pressure valve, with quick lever fasteners
 Channel for foul and storm water offset in height

Invert level height difference between storm and foul water.....mm

Extras for manhole base

Extra for curved foul water channel

Extra for curved storm water channel

Extra for additional foul water inlet DN.....

Extra for additional storm water inlet DN.....

Manhole diameter.....

Extra for slope in the foul channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Extra for slope in the storm channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Extra for slope in the bell from 6 % upwards (S 0 for bells Ø 150/200;
S 1 for bells Ø 250/400)

Extra for dimension change in the main channel (without channel tapering)
Foul water Channel DN...../ DN.....

Extra for dimension change in the main channel (without channel tapering)
Storm water Channel DN...../ DN.....

Extra for carrying out the cleanout access lid in an angle position
(800 x 350 x 220 mm) with rehabilitation access

Extra for storm water pipe DN.....

(For connecting steel reinforced concrete pipes, similar for other pipe types)
for spacing sleeve including 2 sleeve seals, for ex. Mücher PE Manschette Profile 3
or equivalent.

Extra for incorporating dog-legged steps

Or

Extra for incorporating single steps

Manhole sections according to DIN V 4034 – 1/EN 1917

The installation regulations for INFRA-/MULTRO manholes are to be respected

INFRASCHACHT – Manhole chamber for separate sewer systems

INFRA- manhole chamber system 1200– access 1000 mm

Manhole description

Design features :

Concrete Manhole base with base-liner and connection bells, DN 1200

including a factory built-in PREDL® GRP / PP Manhole liner made out of sewerage water resistant plastic

Foul water (SW) :

Open channel

Storm water (RW) :

Closed channel with cleanout access

Dimensions :

Manhole	DN 1200
Ø Foul Water (SW)	max DN 300
Ø Storm water (RW)	max DN 400
Optional Ø empty pipe	max DN 200

a1 – access:	1000 mm
b 1 – distance between axes foul and storm water	: 550 mm
b 2 - invert level height difference foul and storm water :	0-850 mm

Manhole chamber sections :

Manhole chamber with bell according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.04
		The following text is also available on a CD or by email.	

Manhole chamber for separate sewer systems, inner width 1200 mm according to DIN EN 476 for buried sewer pipes, made out of precast concrete according to DIN V 4034-1/EN 1917 circular construction including :

Manhole base section with base liner and bells

Precast factory concreted-in GRP/PP base-liner,

Including bells for a jointed pipe bonding in the manhole wall,

With seals adapted to the connected pipe

PREDL® system, - INFRA standard manhole chamber or equivalent officially tested and certified by the DIBT (Z 42.1-355)

Foul water:

Open channel at soffit level, straight through

Storm water :

Closed channel straight through

With standard cleanout access lid (stainless steel frame 250 x 550 mm)

Including gas control opening with pressure valve, with quick lever fasteners

Channel for foul and storm water offset in height

Invert level height difference between storm and foul water.....mm

Extras for manhole base

Extra for curved foul water channel

Extra for curved storm water channel

Extra for additional foul water inlet DN.....

Extra for additional storm water inlet DN.....

Manhole diameter.....

Extra for slope in the foul channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Extra for slope in the storm channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Extra for slope in the bell from 6 % upwards (S 0 for bells Ø 150/200;
S 1 for bells Ø 250/400)

Extra for dimension change in the main channel (without channel tapering)

Foul water Channel DN...../ DN.....

Extra for dimension change in the main channel (without channel tapering)

Storm water Channel DN...../ DN.....

Extra for storm water pipe DN.....

(For connecting steel reinforced concrete pipes, similar for other pipe types)
for spacing sleeve including 2 sleeve seals, for ex. "Mücher PE Manschette Profile
3" or equivalent.

Extra for steps shape E 1212

Or

Extra for steps according to DIN 19555 made out of steel and PE encapsulated

Manhole sections according to DIN V 4034 – 1/EN 1917

The installation regulations for INFRA-/MULTRO manholes are to be respected !

INFRASCHACHT® manhole chamber for separate sewer systems**INFRA- manhole chamber system– access 700 mm**

Manhole description

Design features :Concrete Manhole base with base-liner and connection bells, DN 1200 / 1500 **including a factory built-in sewage water resistant plastic manhole liner****Foul water (SW) :**

Open channel

Storm water (RW) :

Closed channel with cleanout access

Dimensions

Manhole	DN 1200	DN 1500
Ø Foul Water (SW)	max DN 300	max DN 300
Ø Storm water (RW)	max DN 400	max DN 600
Optional Ø empty pipe	max DN 200	max DN 200

a1 – access:

700 mm

b 1 – distance between axes foul and storm water : DN 1200 = 450 - 550 mm
DN 1500 = 450 - 650 mm

b 2 - invert level height difference foul and storm water : 0-850 mm

Manhole chamber sections :

Manhole chamber with bell according to DIN V 4034 – 1/EN 1917

Pos. Quantity Specification issued 03.04
The following text is also available on a CD or by email.

Manhole chamber for separate sewer systems, inner width 1200/1500 mm according to DIN EN 476 for buried sewer pipes, made out of precast concrete according to DIN V 4034-1/EN 1917 circular construction including :

Manhole base section with base liner and bells
Precast factory concreted-in GRP/PP base-liner,
Including bells for a jointed pipe bonding in the manhole wall,
With seals adapted to the connected pipe
PREDL® system, - INFRA standard manhole chamber or equivalent officially tested and certified by the DIBT (Z 42.1-355)

Foul water:

Open channel at soffit level, straight through

Optional covering for the Foul water channel (SW) with steel grating (extra)**Storm water :**

Closed channel straight through

With standard cleanout access lid (stainless steel frame 250 x 550 mm)

Including gas control opening with pressure valve, with quick lever fasteners

Channel for foul and storm water offset in height

Invert level height difference between storm and foul water.....mm

Extras for manhole base

Manhole diameter.....

Extra for curved foul water channel

Manhole diameter.....

Extra for curved storm water channel

Manhole diameter.....

Extra for additional foul water inlet DN.....

Manhole diameter.....

Extra for additional storm water inlet DN.....

Manhole diameter.....

Extra for slope in the foul channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Manhole diameter.....

Extra for slope in the storm channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Manhole diameter.....

Extra for slope in the bell from 6 % upwards (S 0 for bells Ø 150/200;
S 1 for bells Ø 250/400)

Manhole diameter.....

Extra for dimension change in the main channel with channel tapering foul water
(S 5)

Channel DN...../ DN.....

Manhole diameter.....

Extra for dimension change in the main channel without channel tapering storm
water

Channel DN...../ DN.....

Manhole diameter.....

Extra for dimension change in the main channel with channel tapering storm water

Channel DN...../ DN.....

Extra for incorporating dog-legged steps

Extra for incorporating single steps

Manhole diameter.....

Extra for carrying out the cleanout access lid in an angle position
(800 x 350 x 220 mm) with rehabilitation access

Manhole diameter.....

Extra for steel grating

Extra for storm water pipe DN.....

(For connecting steel reinforced concrete pipes, similar for other pipe types)
for spacing sleeve including 2 sleeve seals, for ex. Mücher PE "Manschette"
Profile 3 or equivalent.

Manhole sections according to DIN V 4034 – 1

The installation regulations for INFRA-/MULTRO manholes are to be respected !

INFRA – House inspection manhole chamber for separate sewer systems**INFRA- manhole chamber system for DN 1000 – access 600 mm**

Manhole description

Design features :

Concrete Manhole base with base-liner and connection bells, DN 1000 **including a factory built-in PREDL® GRP / PP Manhole Base liner**

Foul water (SW) :

Open channel DN 150

Storm water (RW) :

Closed channel DN 150 / alternatively DN 200 with cleanout access

a 1 – access	600 mm
b 1 – distance between axes	400 mm
b 2 - invert level height difference	0-650 mm

Manhole ring with bell, and / or manhole chamber with bell, and manhole shaft with bell or manhole chamber with bells made monolithic according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.04
		The following text is also available on a CD or by email.	

House inspection manhole chamber, inner width 1000 mm according to DIN EN 476 for buried sewer pipes, made out of precast concrete according to DIN V 4034-1/EN 1917 circular construction including :

Manhole base section with base liner and bells

Precast factory concreted-in GRP/PP base-liner,

Including bells for a jointed pipe bonding in the manhole wall,

With seals adapted to the connected pipe

PREDL® system, - INFRASCHACHT or equivalent officially tested and certified by the DIBT (Z 42.1-355)

Foul water:

Open channel DN 150, at soffit level, straight through

Optional covering for the foul water channel (SW) with steel grating (extra)

Storm water :

Closed channel straight through DN 150 or 200

With up to 0,5 bar watertight screwed on cleanout access lid

Invert level height difference b2 storm water – foul water 0-650 mm

Foul water :
DN 150, Pipe type to be connected :.....

Storm water :
DN 150, alternatively DN 200
Pipe type to be connected :.....

Extras for manhole base

Extra for additional storm water inlet DN 150

Extra for additional foul water inlet DN 150

Manhole diameter.....
Extra for slope in the foul channel up to 10% (S7)
Growth:
Slope until 15 % (S 7 a)

Manhole diameter.....
Extra for slope in the storm channel up to 10% (S7)
Growth:
Slope until 15 % (S 7 a)

Manhole diameter.....
Extra for slope in the bell from 6 % upwards (S 0 for bells Ø 150/200)

Manhole diameter.....
Extra for steel grating

Manhole sections according to DIN V 4034 – 1/EN 1917
The installation regulations for INFRA-/MULTRO manholes are to be respected !

Manhole chamber for modified separate sewer system for storm water (MTN-System)

Complete Manhole chamber description

Design features :

Concrete Manhole base with base-liner and connection bells, DN 1000/1200/1500/2000

Foul water : open channel With factory built-in PREDL® GRP / PP Manhole Base liner
Storm water : closed channel with cleanout access DN 150 according to DIN 19534 – T piece DN 150 mm
 Screw-on lid. Storm water invert level or lower than foul water.

Manhole upper section :

Manhole ring with bell, and / or manhole chamber with bell, and manhole shaft with bell according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.03
		The following text is also available on a CD or by email.	

Manhole chambers, inner width 1000/1200/1500 or 2000 mm, according to DIN EN 476 for buried sewer pipes, circular precast concrete construction with manhole base liner and bells according to DIN V 4034-1/EN 1917 with a factory concreted-in GRP/PP base liner, jointed pipe connection in the manhole wall bells for in-and outlet Slope according to plan, additional inlets as well as dimension variation in the channel, made at invert or soffit level, including seals / connection bells / integrated seals for connecting pipes officially tested and certified by the DIBT PREDL® system or equivalent

Foul water:
 Open channel at soffit level, straight through
 Pipe type to be connected :.....

Storm water :
 Closed channel straight through, DN.....

With cleanout access DN 150, screw cap, water tight until 0,5 bar,
 Pipe type to be connected : PVC KG/PP

Height for storm water level :
 Invert level foul water / minusmm = invert level storm water

Extras for manhole base

Extra for curved foul water channel

Manhole diameter.....
 Extra for slope in the foul water channel up to 10% (S7)
 Growth:
 Slope until 15 % (S 7 a)
 Slope until 20 % (S 7 b)
 Slope until 25 % (S 7 c)
 Slope until 40 % (S 7 d)

Manhole diameter.....
Extra for slope in the foul water bells from 6 % upwards
S 0 for bells DN150/200
S 1 for bells DN 250/300

Manhole diameter.....
Extra for slope in the foul water bells from 2 % upwards
S 2 for bells > DN 300

Manhole diameter.....
Extra S 5 for dimension change in the foul water channel with channel tapering
Channel DN...../ DN.....

Manhole diameter.....
Extra S 6 for incorporating steps in the foul water channel

Manhole diameter.....
Extra S 8 for off-set foul water channel

Manhole diameter.....
Extra S 9 for corrosion secured up stand with GRP lining
until 1st spigot

Manhole diameter.....
Extra for additional foul water inlets

Manhole diameter.....
Extra for foul water lateral inlet lower than soffit level
S 3 until 50 mm
S 3a until 100 mm
S 3b until 200 mm
S 3c until 300 mm
S 3d until 500 mm

Manhole diameter.....
Extra for foul water lateral inlet higher than soffit level
S 4 until 50 mm
S 4a until 100 mm
S 4b until 200 mm
S 4c until 300 mm
S 4d until 500 mm

Manhole diameter.....
Extra for curved storm water channel
Storm water DN.....

Manhole diameter.....
Extra for additional storm water inlet DN.....

Manhole sections according to DIN V 4034 – 1/EN 1917

House inspection Manhole chamber for modified separate sewer system for storm water (MTN-System)

Complete Manhole chamber description

Design features :

Concrete Manhole base with base-liner and connection bells, DN 1000

Foul water : open DN 150 channel With factory built-in PREDL® GRP / PP Manhole Base liner

Storm water : closed DN 150 or DN 200 channel with cleanout access DN 150 according to DIN 19534 – T piece DN 150 Screw-on lid.

Storm water invert level or lower than foul water.

Manhole upper section :

Manhole ring with bell, and / or manhole chamber with bell, and manhole shaft with bell according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.03
		The following text is also available on a CD or by email.	

House inspection manhole chambers, inner width 1000 mm, according to DIN EN 476 for buried sewer pipes, circular precast concrete construction according to DIN V 4034-1/EN 1917, including :

A factory concreted-in GRP/PP base liner, with jointed pipe connection in the manhole wall for in-and outlet

Slope in channel and bells, each with 10 ‰

including seals / connection bells for connecting pipes

officially tested and certified by the DIBT

PREDL® system or equivalent

Foul water:

Open DN 150 channel at soffit level, straight through

Pipe type to be connected :

Storm water :

Closed DN 150 channel straight through, DN.....

Alternatively: DN 200

With round cleanout access, screw cap, water tight until 0,5 bar,

Pipe type to be connected : PVC KG/PP

Height for storm water level :

Invert level foul water / minusmm = invert level storm water

Extras for manhole base

Extra for curved foul water channel

Manhole diameter.....

Extra for slope in the foul water channel up to 10% (S7)

Growth:

Slope until 15 % (S 7 a)

Slope until 20 % (S 7 b)

Slope until 25 % (S 7 c)

Slope until 40 % (S 7 d)

Manhole diameter.....
Extra for slope in the foul water bells from 6 % upwards
S 0 for bells DN150/200
S 1 for bells DN 250/300

Manhole diameter.....
Extra for slope in the foul water bells from 2 % upwards
S 2 for bells DN 350 / 800

Manhole diameter.....
Extra S 5 for dimension change in the foul water channel with channel tapering
Channel DN...../ DN.....

Manhole diameter.....
Extra S 6 for incorporating steps in the foul water channel

Manhole diameter.....
Extra S 8 for off-set foul water channel

Manhole diameter.....
Extra S 9 for corrosion secured up stand with GRP lining
until 1st spigot

Manhole diameter.....
Extra for additional foul water inlets

Manhole diameter.....
Extra for foul water lateral inlet lower than soffit level
S 3 until 50 mm
S 3a until 100 mm
S 3b until 200 mm
S 3c until 300 mm
S 3d until 500 mm

Manhole diameter.....
Extra for foul water lateral inlet higher than soffit level
S 4 until 50 mm
S 4a until 100 mm
S 4b until 200 mm
S 4c until 300 mm
S 4d until 500 mm

Manhole diameter.....
Extra for curved storm water channel
Storm water DN.....

Manhole diameter.....
Extra for additional storm water inlet DN.....

Manhole sections according to DIN V 4034 – 1/EN 1917

MULTRO®-manhole ring DN 1500

Design features :

Concrete base section according to DIN V 4034-1/EN 1917 DN 1500, storm water DN 250/ DN300/ DN 400 / DN 500 and DN 600, construction height 1000/1250 mm, with a factory casted GRP/PP monolithic built-in MULTRO-PREDL® unit with cleanout access, storm water height variable

Pos.	Quantity	Specification	issued 03.04
		The following text is also available on a CD or by email.	

MILTRO manhole ring DN 1500 mm
 With a Factory with a factory casted GRP/PP monolithic built-in MULTRO-PREDL® unit
 Certified and approved by DIBT (Z-42.1-355);
 With cleanout access as a standard lid (Stainless steel frame 250 x 550 mm) with quick lever fasteners and gas control opening including seals / connection bells / integrated seals for connecting pipes for jointed pipe connection in the manhole wall
 Storm water level Height variable, according to plan
 Storm water DN.....straight through
 Pipe type to be connected :

Extras for MULTRO manhole ring :

MULTRO manhole ring....
 Extra for offsetting the storm water duct
 Storm water channel DN.....

MULTRO manhole ring....
 Extra for additional inlet in storm water channel
 Storm water channel DN.....
 Lateral inlet DN.....

MULTRO manhole ring....
 Extra for slope in the connection bells of the storm water channel (6% upwards)

MULTRO manhole ring....
 Extra for channel dimension change in the main channel

MULTRO manhole ring....
 Extra for carrying out the cleanout access lid in an angle position (800 x 350 x 220 mm) with rehabilitation access

MULTRO manhole ring....

Security platform (landing area) made out of stainless steel with lockable
Access (1 m x 1m clear width) to foul water channel which can be made from a
height difference of 1400 mm onwards between foul and storm water unit.

Extra for storm water - pipe DN

For sleeve-seals (for ex. Mücher) or similar
(necessary for steel reinforced concrete pipes)

Extras for manhole base

Extra for offsetting the foul water channel in the manhole base in order to align it
to the storm water unit,

Channel axes of upper and lower pipe are vertically aligned

Channel in the manhole base DN.....

Extras for earth moving works

Extra for making and compacting the base grade of
the upper storm water pipe

Drop sounding according to DIN 4094 for execution of the self-supervision

Testing equipment : soil compaction tester

Number of tests : 1 nbr.

The test records have to be presented to the AG

The tests made accordingly to the ZTVE are made by an independent AG
appointed Legal Expert; in order to be able to compare the tests the above
mentioned testing equipment is obligatory

Manhole sections and manhole chamber construction according to
DIN V 4034 – 1/EN 1917

The installation regulations for INFRA-/MULTRO manholes are to be respected !

House Inspection Chamber DN 1000 – Separate Sewer system with MULTRO®-manhole ring

Design features :

Foul water : Concrete manhole base section DN 1000 with base liner and connection bells
Open channel DN 150, factory built-in PREDL® GRP / PP Manhole Base liner

Storm water : Concrete manhole base section according to DIN V 4034 – 1/EN 1917 closed DN 150
MULTRO-Manhole ring system

Storm water height : Variable above foul water

Manhole upper section : Manhole ring with bell, and / or manhole chamber with bell, and manhole shaft with bell according to DIN V 4034 – 1/EN 1917

Pos.	Quantity	Specification	issued 03.03
		The following text is also available on a CD or by email.	

House Inspection manhole chambers, inner width DN 1000 mm
According to DIN EN 476 for buried sewer pipes,
circular precast concrete construction according to DIN V 4034-1/EN 1917,
including :

Foul water:

Precast concrete manhole base with base liner and connection bells
according to DIN V 4034-1/EN 1917 with a factory concreted-in GRP / PP
manhole base liner, open DN 150 channel, soffit level, straight through
pipe connections for in- and outlet, for a jointed pipe bonding in the manhole wall,
Slope in channel and bells, each with 10 ‰
including seals / connection bells for connecting pipes
officially tested and certified by the DIBT
PREDL® system or equivalent
Pipe type to be connected :

Storm water :

MULTRO manhole ring DN 1000, construction height 500 mm
With a Factory with a factory casted GRP/PP monolithic built-in MULTRO-
PREDL® unit or equivalent
All verifications of suitability confirm to DIBT requirements
Closed DN 150 channel straight through,
With cleanout access according to DIN 19534, water tight until 0,5 bar,
Pipe type to be connected : PVC KG/PP

Height for storm water level :

Variable according to plan (minimum invert height level foul water + 750 mm)

Concrete manhole sections and according to DIN V 4034 – 1/EN 1917
The installation regulations for INFRA-/MULTRO manholes are to be respected !

Pumping manhole chamber

Design features :

Concrete manhole base section DN 1000 with connection bells and factory built-in PREDL® GRP / PP Manhole Base liner, cup shaped floor, emergency overflow, manhole ring with bell, manhole cone with bell or cover-slab

Pos.	Quantity	Specification	issued 03.03
		The following text is also available on a CD or by email.	

Pumping manhole chambers, inner width 1000 mm, according to DIN EN 476 manholes for buried sewer pipes, circular precast concrete construction according to DIN V 4034-1/EN 1917, including :

Manholes base section complete with connections bells, monolithically cast, construction height at least 1500 mm with 800 mm high cylinder shaped centric GRP liner, cup shaped base floor factory concreted-in, all in- and outlets jointed in the manhole wall PREDL system or similar

Manhole sections according to DIN V 4034 – 1/EN 1917

Including :

Manhole ring with connection bell

Manhole cone with connection bell or cover-slab

For heavy load traffic (SLW 60) (in case of shallow construction height)

Max, 1 slide-proof adjusting ring according to DIN V 4034 – 1/EN1917

Construction height corresponds to GRP cup floor invert level until upper-edge of adjusting ring

Joint sealing of the bells amongst all the manhole sections with elastomer dense structured slide seal rings according to DIN 4060 EN 681, factory lubricated.

An evenly distributed and non-springy load transmission according to DIN V 4034 – 1/EN1917 is to be achieved by using a Plastomer load transmitting ring, amongst all the manhole sections

The joint in the inner area must not exceed 15 mm.

All manhole sections with iron steps DIN 1212, dog-legged fitted, step height 250 mm

Alternatively :

With steps, material.....type.....
Single step, step height 250 mm

Alternatively :

Manhole ladder, factory built in
Including 1 foldaway Entry Pole
Material.....

Manhole as described above,
Construction height until 2000 mm
Inlet DN/.....Pipe
Outlet DN/.....Pipe
Emergency overflow DN 150 for PVC pipe
Invert level of inlet + 200 mm = invert level of emergency overflow
Cable entry DN 100 for PVC pipe

Manhole as above
But construction height 2010 – 2500 mm

Alternative proposal

For higher or lower construction height (manhole depth)
Per started 100 mm

Project: PREDL- Manhole chamber lining
Specification file : design specifications

First page

Specifications according tot he standard specification regulations for the construction (Bauwesen StLB)

PREDL-Manhole rehabilitation

DESIGN SPECIFICTIONS FOR THE REHABILITATION OF FOUL AND STORM WATER MANHOLES

Task :

Place :

State :

Constructor :

The specifications were processed accordingly to the fundamentals of the German Constructions Procedures VOB part B and C.

For the contract design, the German Official Contracting Terms for the Accomplishment of Construction Performance have to be taken as a basis, VOB Part B.

Subsequently are valid the agreements 1 to 8.

Only the specification description without any modification is valid for the contractor.

The tenderer is obliged to make a view oft he building site before he hands over his tender.

PREDL- Manhole chamber lining
Building site installation

Specification

Rank	nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total
1.		PREDL- Manhole chamber lining			
1.1.		Building site equipment			
1.1.10.		Stl-Nr.95000/004 01 00 01 Provide the building site with all the specified tender services	Allowance	.....
1.1.20.		Stl-Nr.77000/002 01 00 01 Setup and clear the building site For all the specified tender services	Allowance	.....
1.1.30.		Stl-Nr.95000/500 03 03 TA Setup and clear the traffic signs and traffic control devices including the road painting Accordingly to the German Traffic Regulation Authorities	Allowance	.....
1.1.40.		Stl-Nr.77000/100 41 00 30 01 Provide and erect a building site fence For the duration of the achievement and remove Model of barrier tot he choice oft he Contractor Barrier height 2,00m above ground.	1,000 m	.....
1.1.50		Stl-Nr.95009/866 11 06 14 03 TA Provisional deviation for DN "...." as a closed pipe, Material tot he choice oft he Contractor flow cross-section according to existing sewer pipe, deviation „ over two postures as a provisional solution to be cleared after use“ "For the discharge of the upper and lower connected manholes are to be sealed of with adapted sealing balloon“	1.000 St	.....
Summe 1.1.				-----	
Building site installation					

Specification file : design specifications

PREDL- Manhole chamber lining
Rehabilitation

Specification

Rank	nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total
1.2. Rehabilitation					
1.2.10		Stl.-Nr. 92013/900 01 630314 TA Complete demolition of the manhole cone, Road scarification and earth moving work, cross-section 600/700 Clear out incoming material in the trench, Waste disposal costs are paid by the Contracting Authority	1.000 St.	.....
1.2.20.		Stl.-Nr. 92013/900 71 11 05 14 TA Complete demolition of the „channel and benching“ Made out of mass concrete, thickness „approx. 20 cm To the manhole base unit“ Clear out incoming material, Waste disposal costs are paid by the Contracting Authority	1.000 St.	.....
1.2.30.		Stl.-Nr. 92013/900 71 65 05 14 TA Complete demolition of the cast iron steps in the manhole, Dimensions according to DIN 1211 Clear out incoming material, Waste disposal costs are paid by the Contracting Authority	1.000 St.	.....
1.2.40		Stl.-Nr. 95009/931 01 05 02 TA Clean manhole construction, average deposit height In the channel centre in .....cm, with high-pressure cleaner 130 bar, provide water.	1.000 St.	.....
1.2. 50		Plastic manhole base liner (for ex. PREDL® or equivalent) made out of hybrid resin with external quartz sand coating, to be fitted and adjusted on the manhole base	1.000 St.	.....
1.2.60.		Manhole shaft liner made out of GRP with external quartz sand Coating to be installed in the cleaned manhole and to be connected Coherently to the PREDL® manhole base liner	1.000 St.	.....
1.2.70.		Stl.-Nr. 95009/490 00 09 TA Additional lateral inlet in the manhole as an extra, lateral inlet DN "...".	1.000 St	.....

Project: PREDL- Manhole chamber lining
 Specification file : design specifications

PREDL- Manhole chamber lining
 Rehabilitation

Specification

Rank	nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total
1.2.80.		Grout manhole base and in liner with liquid concrete (For ex. PCI-Verguss-Fix), the manhole can be put in service again after a 4 hour drying period	1.000 St	.....
1.2.90.		Stl-Nr.95 009/498 01212001 TA Manhole shaft DIN 4034-1 with GRP in liner, diameter DN 1000 mm/ 625 mm, construction height 600 mm including adjusting ring and manhole cover class.....Deliver and restart rehabilitated manhole	1.000 St		.....
1.2.100		Fit in a stainless steel ladder after lining the manhole	1.000 St	.....
1.2.110		Fill in and compact the trench and rebuilt the road surface	allowance	.....
		Total 1.2.			-----
1.2		Building site advice			
1.3.1		Building attendance for advising and supervision	allowance	.....
		Total1.3.			-----

Manhole rehabilitation

Total 1.

This specification is composed of the pages 1 to 5

List of the used specification applications

LB/ Year Title

000/ 1977	Building site installation (Baustelleneinrichtung)
000/ 1995	Building site installation (Baustelleneinrichtung)
009/ 1995	Drainage works (Entwässerungskanalarbeiten)
013/ 1992	Concrete and reinforced concrete works (Beton- und Stahlbetonarbeiten)

Project: PREDL- Manhole chamber lining
Specification file : design specifications

First page

Specifications according tot he standard specification regulations for the construction (Bauwesen StLB)

PREDL-Manhole rehabilitation through the cone

DESIGN SPECIFICTIONS FOR THE REHABILITATION OF FOUL AND STORM WATER MANHOLES

Task :

Place :

State :

Constructor :

The specifications were processed accordingly to the fundamentals of the German Constructions Procedures VOB part B and C.

For the contract design, the German Official Contracting Terms for the Accomplishment of Construction Performance have to be taken as a basis, VOB Part B.

Subsequently are valid the agreements 1 to 8.

Only the specification description without any modification is valid for the contractor.

The tenderer is obliged to make a view oft he building site before he hands over his tender.

Project: PREDL- Manhole chamber lining
 Specification file : design specifications

PREDL- Manhole chamber lining
 Building site installation

Specification

-----					Rank
nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total	

1.	PREDL- Manhole chamber lining				
1.1.	Building site equipment				
1.1.10.	Stl-Nr.95000/004 01 00 01 Provide the building site with all the specified tender services	Allowance	.....	
1.1.20.	Stl-Nr.77000/002 01 00 01 Setup and clear the building site For all the specified tender services	Allowance	.....	
1.1.30.	Stl-Nr.95000/500 03 03 TA Setup and clear the traffic signs and traffic control devices including the road painting Accordingly to the German Traffic Regulation Authorities	Allowance	.....	
1.1.40.	Stl-Nr.77000/100 41 00 30 01 Provide and erect a building site fence For the duration of the achievement and remove Model of barrier tot he choice oft he Contractor Barrier height 2,00m above ground.	1,000 m	.....	
1.1.50	Stl-Nr.95009/866 11 06 14 03 TA Provisional deviation for DN "...." as a closed pipe, Material tot he choice oft he Contractor flow cross-section according to existing sewer pipe, deviation „ over two postures as a provisional solution to be cleared after use“ "For the discharge of the upper and lower connected manholes are to be sealed of with adapted sealing balloon“	1.000 St	.....	

Summe 1.1.

Building site installation

Project: PREDL- Manhole chamber lining
 Specification file : design specifications

PREDL- Manhole chamber lining
 Rehabilitation

Specification

Rank	nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total
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1.2. Rehabilitation

1.2.10.		Stl.-Nr. 92013/900 71 11 05 14 TA Complete demolition of the „channel and benching“ Made out of mass concrete, thickness „approx. 20 cm To the manhole base unit“ Clear out incoming material, Waste disposal costs are paid by the Contracting Authority	1.000 St.	
1.2.20.		Stl.-Nr. 92013/900 71 65 05 14 TA Complete demolition of the cast iron steps in the manhole, Dimensions according to DIN 1211 Clear out incoming material, Waste disposal costs are paid by the Contracting Authority	1.000 St.	.....
1.2.30		Stl.-Nr. 95009/931 01 05 02 TA Clean manhole construction, average deposit height In the channel centre in .....cm, with high-pressure cleaner 130 bar, provide water.	1.000 St.	.....
1.2. 40		Plastic manhole base liner (for ex. PREDL® or equivalent) made out of hybrid resin with external quartz sand coating, to be fitted, adjusted and assembled to the manhole base	1.000 St.	.....
1.2.50.		Manhole shaft liner made out of GRP with external quartz sand Coating to be installed in the cleaned manhole and to be connected Coherently to the PREDL® manhole base liner	1.000 St.	.....
1.2.60.		Manhole cone made out of hybrid resin (for ex. PREDL® or equivalent) with external quartz sand Coating to be installed in the manhole and to be connected to the manhole with stainless steel anchors, laminate together	1.000 St.	.....

Project: PREDL- Manhole chamber lining
 Specification file : design specifications

PREDL- Manhole chamber lining
 Rehabilitation

Specification

-----					Rank
nbr.	Specification text	Quantity in EUR	Unit Price in EUR	Total	

1.2.70.	Stl-Nr. 95009/490 00 09 TA Additional lateral inlet in the manhole as an extra, lateral inlet DN "...".	1.000 St	.....	
1.2.80.	Grout manhole base and in liner with liquid concrete (For ex. PCI-Verguss-Fix), the manhole can be put in service again after a 4 hour drying period	1.000 St	.....	
1.2.100	Fit in a stainless steel ladder after lining the manhole	1.000 St	.....	
Total 1.2.					-----
1.2	Building site advice				
1.3.1	Building attendance for advising and supervision	allowance	.....	
Manhole rehabilitation					
Total 1.					-----
PREDL-Manhole lining					

This specification is composed of the pages 1 to 4

List of the used specification applications

LB/ Year	Title

000/ 1977	Building site installation (Baustelleneinrichtung)
000/ 1995	Building site installation (Baustelleneinrichtung)
009/ 1995	Drainage works (Entwässerungskanalarbeiten)

Energy dissipater manhole system Predl® DN 1000

Pos.: Concrete manhole chamber according to DIN V 4034 / EN 1917
As an energy dissipater with a cone-shaped GRP base liner
With tangential inlet in the manhole wall and centric radial outlet in the round ground with factory built-in Predl® connection bells, round ground and the necessary piece for the direction change.
Maximum in and outlet size DN 300.
Construction height of the GRP unit approx. 900 mm

.....

Brand of the manhole base liner :.....

Concrete producer :.....

Drawing:

Connection bells

Pos.	Quantity	Text	Unit price	Total price
01		<p>Connection bells made out of PP/PS/GRP in heavy duty format (Support shoulder) for a jointed pipe connection with pipe shaped water barrier or external sand coating including SBR seals (<i>alternative sealing system</i>) tested according to DIN 4060 and approved by DIBT Z-42.2-294, standard construction length 150 mm</p> <p>Type of pipe</p> <p>Diameter DN</p>		
02		<p>Extra</p> <p>Lengthening of the connection bell for wide manhole wall</p> <p>Length .....mm</p>		

Connection bell with double lip sealing system

Pos.	Quantity	Text	Unit price	Total price
01		<p>Connection bells made out of PP/PS/GRP in heavy duty format (Support shoulder) for a jointed pipe connection with pipe shaped water barrier or external sand coating including a chamber fixed double lip sealing system, (SBR quality) Water tightness according to DIN 4060 Manufacturer : PREDL® Brand (Tel. : 035341/6190) or equivalent</p> <p>Type of pipe</p> <p>Diameter DN</p>		
02		<p>Extra</p> <p>Lengthening of the connection bell for wide manhole wall</p> <p>Length .....mm</p>		

DUPLEX specifying text

Project :
Description :

OZ	Quantity	item	unit price	total price
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PREDL DUPLEX Manhole DN 1000

- 01 Manhole for the sewer system, DN 1000, made out of PP/PE, according to DIN 13598-2 and suitable for (For example heavy duty 60). Secured against hydrostatic uplift thanks to the 80 mm outstanding base plate and the horizontal and vertical hollow rib structure, which can be filled out, with a minimum gap between the ribs of 40 mm and opened at an angle of 45°.
- Manhole ring and cone are equipped with an integrated ladder rail in order to receive a ladder if demanded accordingly to the health and safety specifications. The cone is equipped with an adjustable telescope in order to meet perfectly the slope of the road.
- Manhole base unit with PP / PE soffit height base-liner channel, anti slippery benching surface, integrated bells for a flexible sealed connection for any standard pipe.
- The manhole units are connected to each other with fasteners and screws, the complete manholes are delivered in one piece up to 2 m without being filled out. Bigger units can be pre-fastened together to a maximum total height of 2m30
- Water tightness between the units with elastomer seals according to EN 681-1.
- Weight buffer concrete ring with groove for receiving a standard ductile iron lid type LW 625.
- Maximum installation depth:m
Connecting pipes:
- Manhole delivery and installation on site accordingly to manufactures specifications.
- System: PREDL-DUPLEX Manhole DN 1000 or equivalent.

Extras :

- | | | | |
|-------|---|------|-------|
| 01.02 | Extra for curve in the channel | | |
| 01.03 | Extra for additional non-standard inlet DN... | | |
| 01.04 | Extra for slope in the bell DN 150 | ≥ 4% | -10 % |
| | DN 200 | ≥ 3% | -10 % |
| | DN 250 / 300 | ≥ 2% | -10 % |
| 01.05 | Extra for slope in the main channel >1 to maximum 10% | | |
| 01.06 | Extra for size difference between in- and outlet in the main channel (without reducing the size of the channel) | | |
| 01.07 | Extra for filing out the manhole base with concrete | | |
| 01.08 | Extra for filling out a manhole ring with concrete | | |

DUPLEX specifying text

Project :
Description :

OZ	Quantity	item	unit price	total price
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PREDL DUPLEX Manhole DN 800

01.01 Manhole for the sewer system, DN 800, made out of PP/PE, according to DIN 13598-2 and suitable for (For example heavy duty 60).
Secured against hydrostatic uplift with strongly ribbed base and outstanding base plate. Rings with horizontal and vertical hollow rib structure which can be filled out, with a minimum gap between the ribs of 40 mm and opened at an angle of 45°.
Manhole ring and cone are equipped with integrated threaded sleeves (M12) for an optional ladder installation. The cone is equipped with an adjustable telescope in order to meet perfectly the slope of the road.

Manhole base unit with PP / PE soffit height base-liner channel,
Anti slippery benching surface, integrated bells for a flexible sealed connection for any standard pipe.

The manhole units are connected to each other with fasteners and screws, the complete manholes are delivered in one piece up to 2 m without being filled out. Bigger units can be pre-fastened together to a maximum total height of 2m30.

Water tightness between the units with elastomer seals according to EN 681-1.

Weight buffer concrete ring with groove for receiving a standard ductile iron lid type LW 625.

Maximum installation depth:m
Connecting pipes:

Manhole delivery and installation on site accordingly to manufactures specifications.

System: PREDL-DUPLEX Manhole DN 800 or equivalent.

Extras :

- | | | |
|-------|---|------------|
| 01.09 | Extra for curve in the channel | |
| 01.10 | Extra for additional non-standard inlet DN... | |
| 01.11 | Extra for slope in the bell DN 150 | ≥ 4% -10 % |
| | DN 200 | ≥ 3% -10 % |
| | DN 250 / 300 | ≥ 2% -10 % |
| 01.12 | Extra for slope in the main channel >1 to maximum 10% | |
| 01.13 | Extra for size difference between in- and outlet in the main channel (without reducing the size of the channel) | |
| 01.14 | Extra for filing out the manhole base with concrete | |
| 01.15 | Extra for filling out a manhole ring with concrete | |

DUPLEX specifying text

Project :
Description :

OZ	Quantity	item	unit price	total price
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PREDL DUPLEX Manhole DN 600

01.01 Manhole for the sewer system, DN 600, made out of PP/PE, and suitable for (For example class A).

Twin wall base with horizontal and vertical hollow rib structure which can be filled out, with a minimum gap between the ribs of 35 mm and opened at an angle of 45°.

Horizontal and vertical ribbed manhole shaft (manhole shaft segments), with a rib gap of 45 mm ribs ring and an adjustable telescope in order to meet perfectly the slope of the road.

Manhole base unit with PP / PE soffit height base-liner channel, channel slope 2%, integrated bells for a flexible sealed connection for any standard pipe.

Water tightness between the units with elastomer seals according to EN 681-1.

Weight buffer concrete ring with groove for receiving a standard ductile iron lid type LW 625.

Maximum installation depth:m

Connecting pipes:

Manhole delivery and installation on site accordingly to manufactures specifications.

System: PREDL-DUPLEX Manhole DN 600 or equivalent.

Extras :

01.16 Extra for curve in the channel

01.17 Extra for additional non-standard inlet DN...

01.18	Extra for slope in the bell DN 150	≥ 4%	-10 %
	DN 200	≥ 3%	-10 %
	DN 250 / 300	≥ 2%	-10 %

01.19 Extra for slope in the main channel >1 to maximum 10%

01.20 Extra for size difference between in- and outlet in the main channel (without reducing the size of the channel)

01.21 Extra for filing out the manhole base with concrete

DUPLEX specifying text

Project :
Description :

OZ	Quantity	item	unit price	total price
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PREDL DUPLEX-Hybrid Manhole DN 1000

01.01 Manhole for the sewer system, DN 1000, made out of one concrete base (concrete quality DIN V 4034-1) with a factory casted PP/GRP base-liner (PREDL system or equivalent) with lining to the first ring joint (including liner return on the spigot).
Synthetic base-liner channel to soffit height, including bells for a flexible sealed connection for any standard pipe, anti slippery benching.
The base spigot is made to fit DUPLEX manhole rings with integrated threaded sleeves in order to connect the DUPLEX elements to each other.
DUPLEX Manhole ring and cone system with horizontal and vertical hollow rib structure, which can be filled out, with a minimum gap between the ribs of 40 mm and opened at an angle of 45°, with an integrated ladder rail in order to receive a ladder if demanded accordingly to the health and safety specifications
The cone is equipped with an adjustable telescope in order to meet perfectly the slope of the road.

Water tightness between the units with elastomer seals according to EN 681-1.

Weight buffer concrete ring with groove for receiving a standard ductile iron lid type LW 625.

Maximum installation depth:m

Connecting pipes:

Manhole delivery and installation on site accordingly to manufactures specifications.

Extras :

Extra for curve in the channel

Extra for slope in the main channel up to 10% (S 7)

Or

Slope up to 15% (S 7 a)

Slope up to 20% (S 7 b)

Slope up to 25% (S 7 c)

Slope up to 40% (S 7 d)

Extra for slope in the bell from 6% upward

S 0 for bells DN 150/200

S 1 for bells DN 250/300

Extra for slope in the bell from 2% upward

S 2 for bells > DN 300

Extra S 5 for dimension change in the main channel with channel tapering

Channel DN /DN.....

Extra S 6 for integrating steps in channel

Extra S 8 for off-centred channel

Extra for incoming branches

Extra for positioning incoming branch lower than soffit

S 3 until 50 mm

S 3a until 100 mm

S 3b until 200 mm

S 3c until 300 mm

S 3d until 500 mm

Extra for positioning incoming branch higher than soffit

S 4 until 50 mm

S 4a until 100 mm

S 4b until 200 mm

S 4c until 300 mm

S 4d until 500 mm