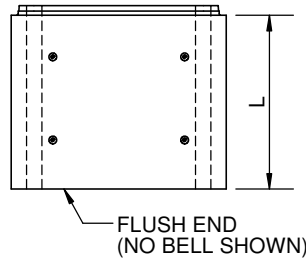
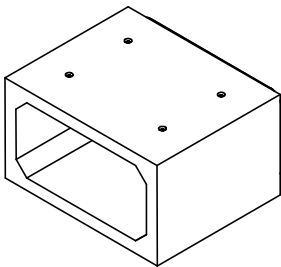


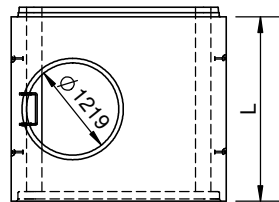
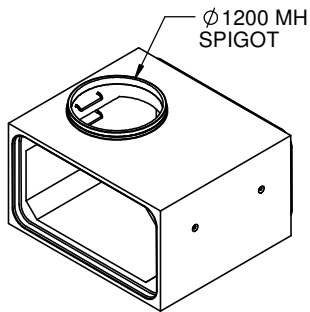
- DESIGNED AND MANUFACTURED TO OPSS 1821, APRIL 2013.
- AVAILABLE IN 9 STANDARD SIZES LISTED IN OPSS 1821.
- DRY CAST PRODUCTION PROCESS.
- SWIFT LIFT ANCHOR SYSTEM BY DAYTON/SUPERIOR OR EQ. EQV.
- TYLOX SUPERSEAL RUBBER GASKET BY HAMILTON KENT OR EQ. EQV.
- PRODUCED WITH WELDED WIRE REINFORCEMENT.
- INSTALLED WITH SPIGOT END DOWNSTREAM.
- STANDARD LAY LENGTH (L) = 2438.
- MIN LAY LENGTH (L) = 610.
- LAY LENGTH INTERVAL = 152.

STANDARD UNIT



- FLUSH END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- STANDARD LAY LENGTHS (L):
- = 2438 FOR FLUSH END, NO SPIGOT.
- = 2300 FOR FLUSH END, NO BELL.

FLUSH END UNIT



- MAINTENANCE HOLE TEE AS PER OPSD 707.010.
- ACCOMMODATE STANDARD 1200 mm DIA. MH COMPONENTS.
- STANDARD LAY LENGTH (L) = 2438.
- MANHOLE TEE RIGHT IS SHOWN
- MANHOLE TEE LEFT IS ALSO AVAILABLE

MANHOLE TEE

ALL DIMENSIONS ARE IN mm
DRAWINGS ARE NOT TO SCALE

MIN. CONC STRENGTH 35 MPa
CLEAR COVER = 40mm ± 5 mm
TOLERANCES TO OPSS 1821

CON CAST PIPE (CCP) STANDARD DRAWING

STD. OPSS 1821

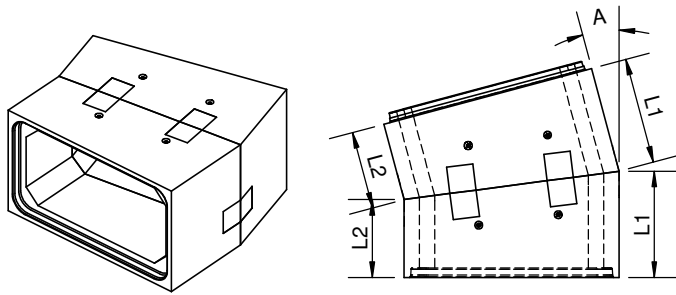
DOC ID BA-FIT

TITLE

**PRECAST BOX UNITS
END TREATMENTS
AND FITTINGS**

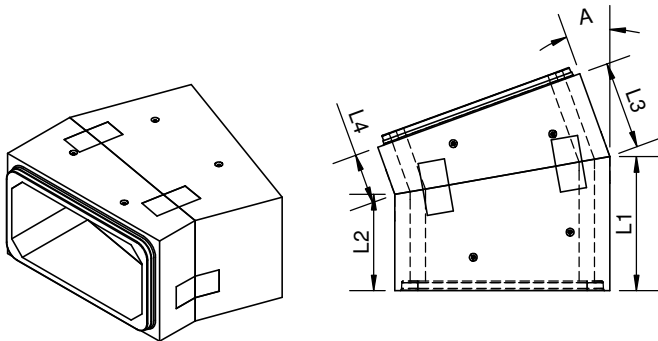
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0	ORIGINAL RELEASE	PI	8/MAR/05
REV.	DESCRIPTION	ENG.	DATE

DRAWN BY KE	CHECKED BY SW	DATE 8/MAR/15	FILE BA FIT	PAGE 1 OF 4
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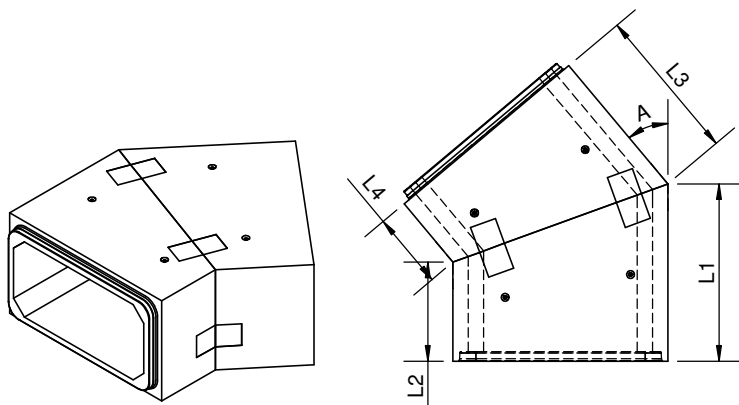
- TYPICAL DEFLECTION ANGLE (A) IN A SINGLE BOX UNIT IS FROM 15 UP TO 45 DEGREES.
- ACTUAL MAXIMUM DEFLECTION ANGLE DEPENDS ON SPAN
- LENGTHS $L1 + L2 = 2438$.
- FOR SMALLER DEFLECTION ANGLE THAN (A) $<10^\circ$, ALSO CONSIDER RADIUS BOX.

BEND (EVEN)



- UNEVEN BEND UNIT ACCOMODATES CULVERTS WITH MULTIPLE BEND POINTS
- LENGTHS $L1 + L4 \leq 2438$ AND $L2 + L3 \leq 2438$.
- FOR SMALLER DEFLECTION ANGLE THAN (A) $<10^\circ$, ALSO CONSIDER RADIUS BOX.

BEND (UNEVEN)



- EXTRA LONG BEND UNIT IS MADE FROM TWO STANDARD BOX UNITS FOR SPECIAL APPLICATIONS
- ACTUAL MAXIMUM DEFLECTION ANGLE DEPENDS ON SPAN
- LENGTHS $L1, L3 \leq 2438$
- FOR SMALLER DEFLECTION ANGLE THAN (A) $<10^\circ$, ALSO CONSIDER RADIUS BOX.

BEND (EXTRA LONG)

ALL DIMENSIONS ARE IN mm
DRAWINGS ARE NOT TO SCALE

MIN. CONC STRENGTH 35 MPa
CLEAR COVER = $40\text{mm} \pm 5\text{ mm}$
TOLERANCES TO OPSS 1821

CON CAST PIPE (CCP) STANDARD DRAWING

STD. OPSS 1821

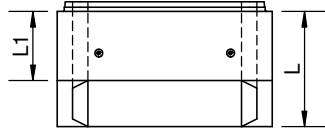
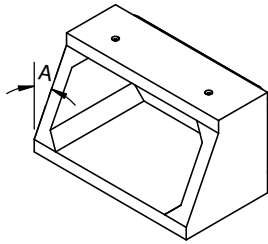
DOC ID BA-FIT

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**PRECAST BOX UNITS
END TREATMENTS
AND FITTINGS**

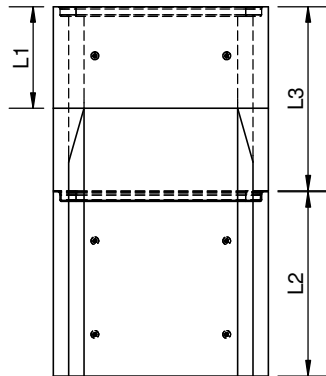
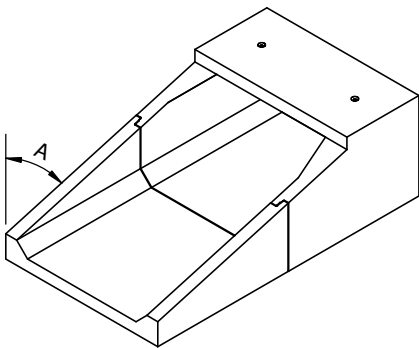
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0	ORIGINAL RELEASE	PI	8/MAR/PI
REV.	DESCRIPTION	ENG.	DATE

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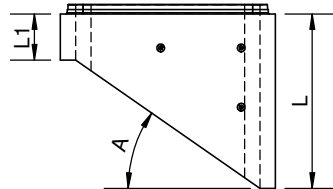
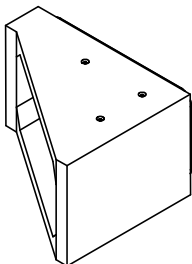
- SLOPED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- STANDARD LAY LENGTH (L) = 2438 WITH SPIGOT.
(L) = 2300 WITH BELL.
- MAXIMUM SLOPE (A) DEPENDS ON RISE
GIVEN L1 = 610 IS MAINTAINED

SLOPED END (STYLE 1)



- SLOPED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- LAY LENGTH (L2) = 2438 WITH SPIGOT.
2300 WITH BELL.
(L3) = 2438 MAX.
- MAXIMUM SLOPE (A) DEPENDS ON RISE
GIVEN L1 = 610 IS MAINTAINED

SLOPED END (STYLE 2)



- BEVELLED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- STANDARD LAY LENGTH (L) = 2438 WITH SPIGOT.
(L) = 2300 WITH BELL.
- MAXIMUM SLOPE (A) DEPENDS ON RUN
GIVEN L1 = 610 IS MAINTAINED

BEVELLED END

ALL DIMENSIONS ARE IN mm
DRAWINGS ARE NOT TO SCALE

MIN. CONC STRENGTH 35 MPa
CLEAR COVER = 40mm ± 5 mm
TOLERANCES TO OPSS 1821

CON CAST PIPE (CCP) STANDARD DRAWING

STD. OPSS 1821

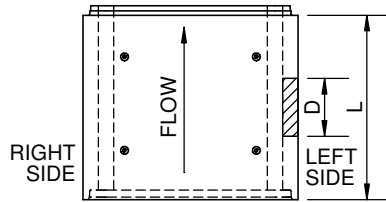
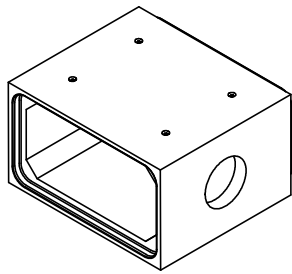
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**PRECAST BOX UNITS
END TREATMENTS
AND FITTINGS**

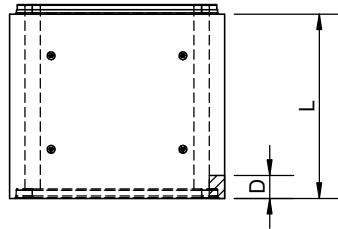
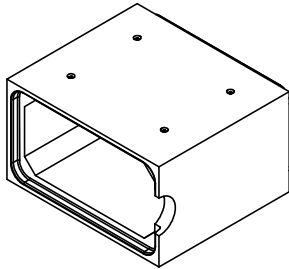
1	SW RELEASE	KE	10/AUG/15
0	ORIGINAL RELEASE	PI	8/MAR/05
REV.	DESCRIPTION	ENG.	DATE

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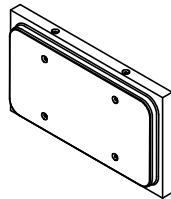
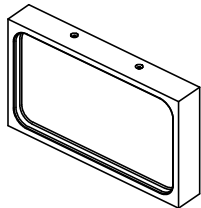
- LEFT OR RIGHT SIDE IS REFERENCED LOOKING UPSTREAM.
- STANDARD LAY LENGTH (L) = 2438
- MAXIMUM HOLE DIAMETER (D) = RISE OF BOX OR 1/2 L WHICH EVER IS SMALLER

SCRIBED OR CORED HOLE

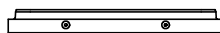
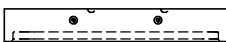


- STANDARD LAY LENGTH (L) = 2438
- MAXIMUM HOLE DIAMETER (D) = RISE OF BOX OR (L) WHICH EVER IS SMALLER

SCRIBED OR CORED PARTIAL HOLE

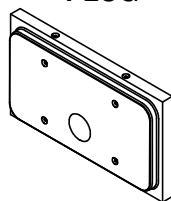
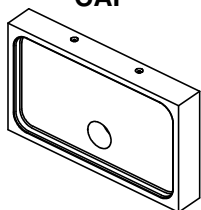


- CAP INSTALLED ON SPIGOT END OF BOX UNIT.
- PLUG INSTALLED ON BELL END OF BOX UNIT (INCL. GASKET).
- MIN. THICKNESS = 300 mm.
- CAP/PLUG STYLE TRANSITION TO SMALLER CIRCULAR, ELLIPTICAL, OR BOX UNIT AVAILABLE.
- CAP AND PLUG MADE OF WET CAST CONCRETE.

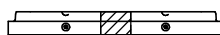


CAP

PLUG



- CAP INSTALLED ON SPIGOT END OF BOX UNIT.
- PLUG INSTALLED ON BELL END OF BOX UNIT (INCL. GASKET).
- MIN. THICKNESS = 300 mm.
- CAP/PLUG STYLE TRANSITION TO SMALLER CIRCULAR, ELLIPTICAL, OR BOX UNIT AVAILABLE.



CAP WITH HOLE

PLUG WITH HOLE

ALL DIMENSIONS ARE IN mm
DRAWINGS ARE NOT TO SCALE

TOLERANCES TO OPSS 1821

CON CAST PIPE (CCP) STANDARD DRAWING

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