

LIQUIP LDP Series Overfill Probe Investigation

8th June 2021

Dear Valued Customers and Distributors,

It has come to Liquip's attention that there has been a small number of concerns raised regarding overfill probe (LDP series) reliability. Liquip International take these concerns seriously. During the first half of 2021 Liquip International have undertaken an extensive internal investigation to review our range of LDP probes and would like to provide a summary of our findings and recommendations to improve reliability.

Reason for investigation

Reported concerns that probes were being found with unexplained fuel/water ingress located inside probe housings and electrical components leading to reliability issues.

Investigation

Liquip requested returned probes to be sent back to our Head Office based in Wetherill Park, Sydney, where our quality and engineering teams could complete a detailed root cause analysis. The tests that were undertaken comparing returned probes vs new probes included: Product Soak testing; Pressure testing; Vibration testing and Production testing.

Findings

Our investigation found suspect probes were subject to one or more of the following:

1. Inappropriate/poor quality conduit gland fittings being used.
2. Probe extensions used without recommended locking thread (Loctite 243) applied.
3. Probes installed with incorrect, missing or reused O-rings.

Liquip confirm that the LDP series probes are 100% factory tested are suitable for continued use if installed in accordance with Liquip's recommended installation instructions.

Recommendation

Liquip recommend the below instructions when installing a LDP series probe:

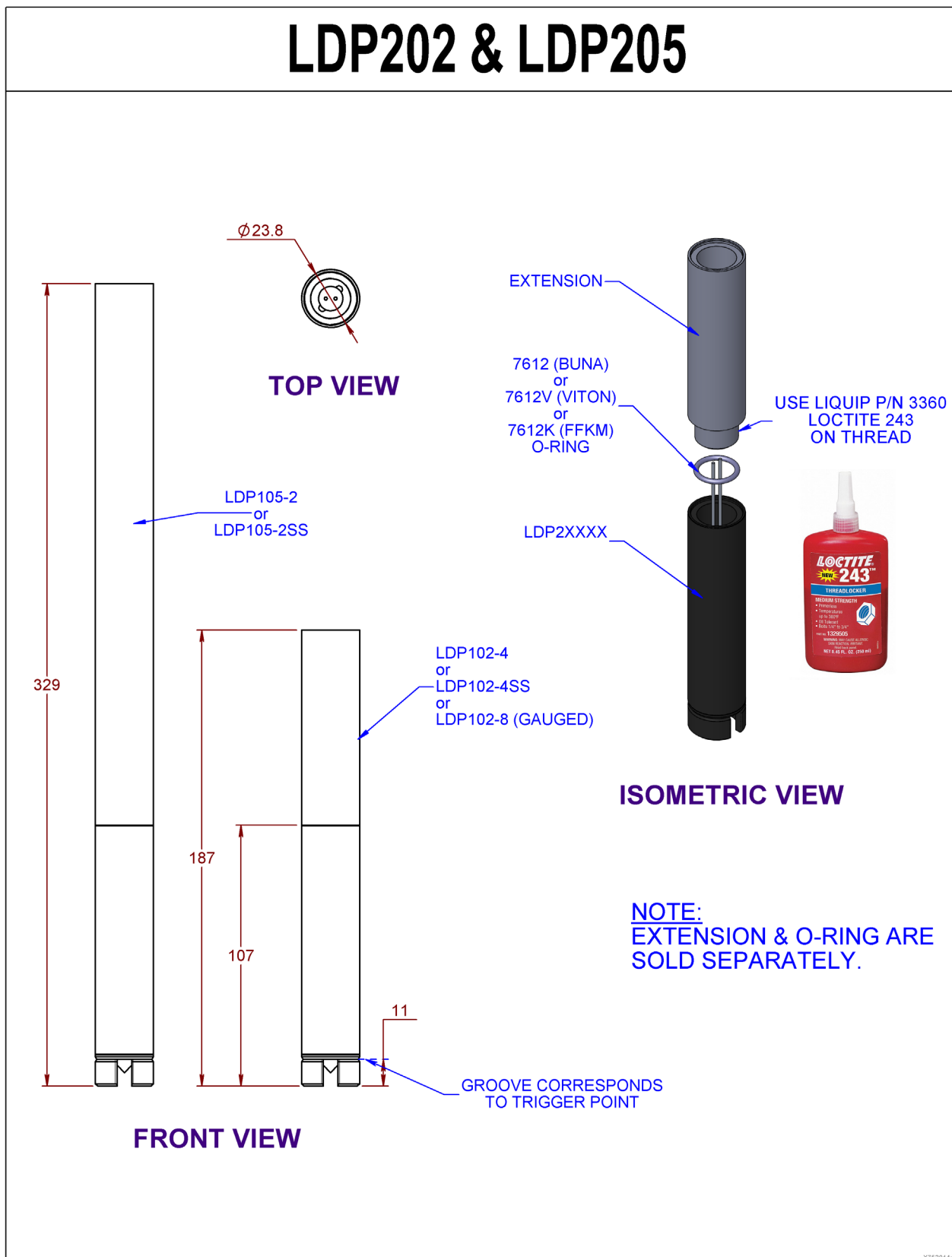
- Only genuine Liquip Parts are to be used to ensure correct mechanical sealing protection and to meet electrical approvals.
- It is the requirement of the ATEX Approval that the probe is installed in such a way that the probe is electrostatically grounded. Install the grubscrew in PJB500, PJB301 & VOH200-5 kit for this requirement.
- It is recommended to use Liquip PJB500, PJB301 or VOH200-5 series probe holder which are compatible with Liquip manhole covers. Probe can be removed from tank top without having to access interior.
- Installation should be in accordance with applicable standards such as EN60079-14 and EN60079-25 or IEC60079-14 and IEC60079-25 or ANSI/ISA RP12.06.01 and ANSI/NFPA 70 or CSA C22.1 Part 1, Appendix F or equivalent.
- Users shall avoid ignition hazards due to impact or friction on the apparatus when used in Zone 0 areas.
- Any free ends of cable not connected shall be appropriately terminated to ensure no contact with additional sources of power is possible.
- If replacing probes clean the areas thoroughly and replace with all new O-rings & gaskets supplied.
- If using an extension, replace with new extension/housing O-rings. The use of Loctite 243 is critical to lock & seal off the extension & thread area.
- Liquip recommend the use of a quality IP66 Electrical conduit/gland fittings for the wiring & box junction point area.
- If the probe area is subject to heavy spray water jets during cleaning then dual rated conduit/glands are recommended (IP68/IP69K).

Note: Failure to follow the above procedure could result in liquid ingress and premature failure of electrical components and void warranty.

Installation diagrams have been provided overleaf for reference

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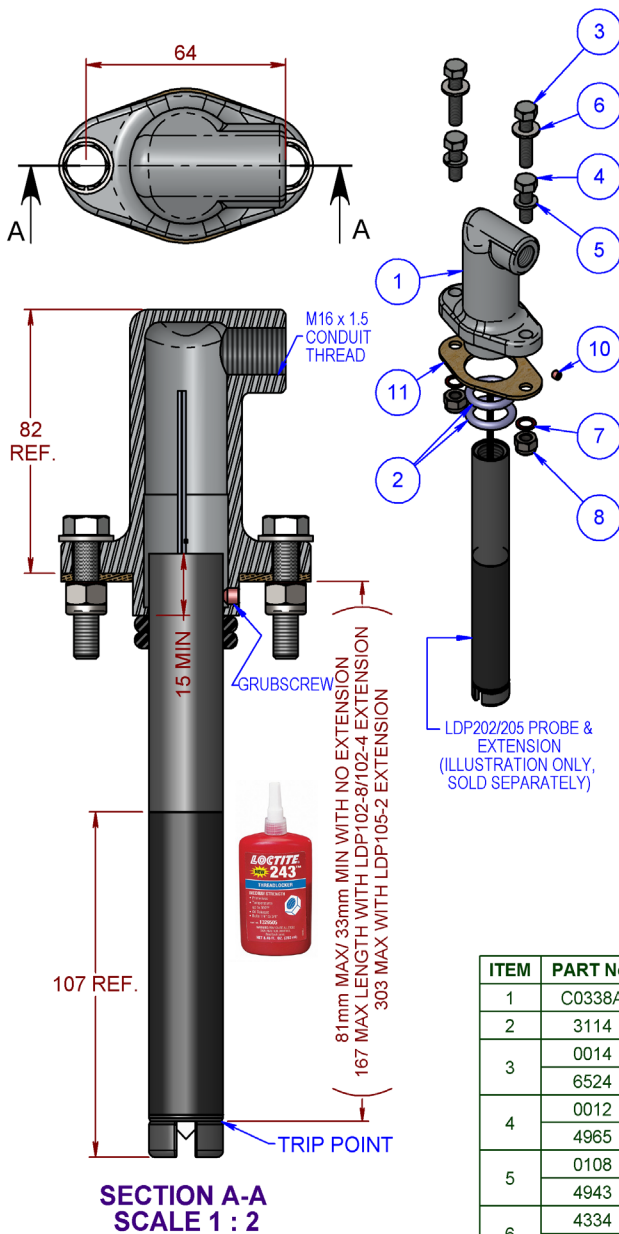
LDP202 & LDP205



METERS - VALVES - VENTS - MANHOLES - HOSEREELS - OVERFILL PROTECTION - LOADING ARMS - ELECTRONIC DIPSTICKS

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VOH200-5 & VOH200-5M KITS & INSTALLATION



LDP200 SERIES ASSEMBLY PROCEDURE:

1. INSTALL EXTENSION AS REQUIRED (REFER TO LDP INSTRUCTION LEAFLET P59005).
 2. SLIDE THE 2 O-RINGS (3114) OVER THE PROBE TIP AND ABOVE THE TRIP POINT AS INDICATED BY THE GROOVE. POSITION THE GASKET BETWEEN THE HOUSING AND THE MOUNTING POINT (MANHOLE COVER OR VRB-13).
 3. INSERT THE PROBE (TIP) INTO THE MOUNTING POINT (MANHOLE OR VRB-13) AND PUSH PROBE DOWN TO THE DESIRED TRIGGER POINT. TOP OF THE PROBE MUST BE 15mm MIN ABOVE THE O-RINGS. FOR LOWER SETTINGS AN EXTENSION MUST BE USED.
- NOTE: HOLD ONTO THE PROBE WIRES AND TAKE CARE NOT TO DAMAGE TIP OR DROP PROBE.**
4. CAREFULLY REMOVE THE PROBE FROM THE MOUNTING POINT AND SLIDE DOWN THE O-RINGS 3mm TOWARDS THE TIP TO ALLOW FOR O-RING BEDDING. ENSURE O-RINGS ARE STRAIGHT.
 5. THREAD THE PROBE WIRES THROUGH THE VOH200-5 HOUSING WITH THE WIRES COMING OUT OF THE ENTRY AND SLIDE THE PROBE INTO THE HOUSING, TAKING CARE NOT TO DISTURB THE O-RINGS.
 6. TIGHTEN GRUBSCREW (55056) TO APPROX 1Nm.
 7. FIT THE 2 BOLTS WITH WASHERS AND TIGHTEN EVENLY TO A TORQUE OF 15-20 Nm.
 8. CHECK THE PROBE HEIGHT.

NOTES:

1. WHEN MOUNTING USE APPROPRIATE FASTENERS FROM KIT (i.e. TO SUIT TAPPED OR THROUGH HOLES), DISCARD REMAINDER.
2. GRUBSCREW IN KIT IS FOR POSITIONING PROBE HEIGHT AND FOR LDP PROBE ATEX INSTALLATION REQUIREMENTS.
3. USE VRB-13 MOUNTING BASE IF NOT MOUNTING DIRECTLY TO A MANHOLE COVER.
4. IF EXTENSION IS USED PLEASE ENSURE LOCTITE 243 IS APPLIED TO THE EXTENSION THREAD AS PER INSTRUCTIONS LISTED IN DOCUMENT 59005.

ITEM	PART No.	DESCRIPTION	VOH200-5	VOH200-5M	MATERIAL
1	C0338A	BOX JUNCTION	1	1	ALUMINIUM
2	3114	O-RING	2	2	NITRILE
3	0014	SETSCREW HEX	2	-	Z/P STEEL
	6524	BOLT METRIC	-	2	Z/P STEEL
4	0012	SETSCREW HEX	2	-	Z/P STEEL
	4965	BOLT METRIC	-	2	Z/P STEEL
5	0108	WASHER SPRING	2	-	Z/P STEEL
	4943	WASHER SPRING	-	2	Z/P STEEL
6	4334	WASHER FLAT	2	-	Z/P STEEL
	6667	WASHER FLAT	-	2	Z/P STEEL
7	4341	WASHER FIBRE	2	-	FIBRE
	5390	WASHER FIBRE	-	2	FIBRE
8	0149	NUT NYLOC	2	-	Z/P STEEL
	4395	NUT NYLOC	-	2	Z/P STEEL
9	6403	INSTRUCTION LEAFLET	1	1	PAPER
10	55056	GRUBSCREW CUP POINT	1	1	ST STEEL
11	3097	GASKET	1	1	NBR CORK

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