

MDT 306 - Torque Wrench Tool VM 2Nm

1 General Description

The MDT 306 - Torque Wrench Tool VM 2Nm is used to tighten the screw connections within a VERMES Microdispensing System with the correct amount of torque. The tool is easily adjustable. Use it for the following screw connections:

Fluid box connector Luer-Lock	Screws for MDC front panel	Tappet guidance PEEK
DFM/DEM with top adjust	Tappet centering screw	Tightening screw
Screws for fluid box M 2,5 x 8	Tappet guidance H	Valve screws

These notes hold true for all systems from VERMES Microdispensing (except DDS 80, there you need MDT 319), but not all the screws are being used in all of the systems. For different screw sizes, you will need different inset bits. You can find the order numbers in the table in part 5 "Table of Torques".

2 Components

Torque Wrench Tool and Bits

Important note!

The MDT 306 - Torque Wrench Tool VM ist lubricated for life and therefore should not be oiled. Store it away from dirt and humidity.

MDT 306 - Torque Wrench Tool VM 2Nm

(Order no. 1014212)



Bit Adaptor 1/4" – Outer Square to Hexagon
(can be ordered separately, Order no. 1014214)



Bits VM

1. BitVM-A Tightening Screw (Order no. 1014519)
2. BitVM-B Tappet Guidance / BY (Order No. 1014521)
3. BitVM-C Tappet Centering Screw (Order No. 1014520)
4. Bit-Cross Head Screw M3 (Order No. 1013373)
5. Bit Hexagon Socket, size 8 (Order No. 1013374)
6. Bit Hexagon Key, size 2 (Order No. 1013294)
7. Bit Hexagon Key, size 2.5 (Order No. 1013941)
8. Bit Hexagon Key, size 3 (Order No. 1013942)
9. Bit Hexagon Socket, size 7 (Order No. 1014204, no picture)

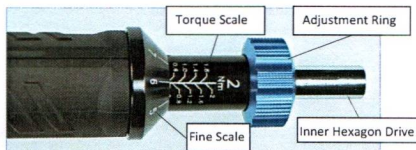


3 Calibration

The tool has been calibrated with an accuracy of testing equipment: $\pm 1.0\%$ (@20 °C), according to the testing standard DIN-ISO-6789. Testing is in compliance with International standards with test equipment and reference standards calibrated by a laboratory traceable to International standards.

4 Explanation of Handling

The following picture explains the details of the torque wrench tool.



- To set a given torque value (see table below), push the adjustment ring towards the grip.
- Then turn the handle with the outer ring of the scale, until the exact value is given as combination of outer ring (fine scale, $0 - 9 = 0.00 - 0.18 \text{ Nm}$, i.e. steps of 0.02 Nm) and inner part (rough scale, $0.4 - 2.0 \text{ Nm}$). E.g. to reach 0.72 Nm , you have to turn it in, until the outer ring sits between 0.6 and 0.8 , with the 6 ($= + 0.12 \text{ Nm}$) in line with the center of the scale as shown in the picture. So you have to calculate $0.72 \text{ Nm} = 0.6 \text{ Nm}$ (torque scale) + $6 \times 0.02 \text{ Nm}$ (fine scale).

IMPORTANT! Do not hold the tool at the torque scale!



5 Table of Torques

The values on the torque wrench are in Nm. You can transfer them into cN.m as $1 \text{ Nm} = 100 \text{ cN.m}$.

Element	Gearing profile	Inset bits Order no.	min. Torque		max. Torque	
			cN.m	Nm	cN.m	Nm
Nozzle Fixation Nut (hexagon screw, size 7)		1014204	150	1,5	180	1,8
Screws for MDC front panel (cross recess screws, size M3)		1013373	40	0,4	50	0,5
Screws for fluid box M 2,5 x 8 (hexagon socket, size 2)		1013294	80	0,8	100	1,0
Screws for valve M 4 (hexagon socket, size 3)		1013942	-	-	-	-
Fluid box connector Luer-Lock (hexagon screw, size M8)		1013374	100	1,0	120	1,2
Nozzle Adjustment Nut (with top adjust) (hexagon screw, size 7)		1014204	150	1,5	180	1,8
Tightening screw (gearing VM-A)		1014519	120	1,2	140	1,4
Tappet guidance H / Tappet guidance TS (gearing VM-B)		1014521	80	0,8	100	1,0
Tappet guidance PEEK (gearing VM-B)		1014521	40	0,4	60	0,6
Tappet centering screw (gearing VM-C)		1014520	100	1,0	140	1,4