

Manual torque multiplier

XVK

XVR / -D 45



Operating manual



Store for future reference.

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1. Manufacturer

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2. Notes

2.1. Authorized and unauthorized use

Torque multipliers made by PLARAD multiply the input torque by means of gear reduction.

These torque multipliers may only be used in combination with manual ratchet wrenches and socket wrenches. Do not use a motor-powered tool to drive the torque multiplier. Do not connect the torque multiplier to motor-powered output shafts. Applications of this nature result in unforeseeable risks and will destroy the torque multiplier.

2.2. Instructions on use

Proper handling and care will extend the service life of your device. For this reason, follow the instructions below carefully:

1. Do not put the torque multiplier into operation until you have read the manual in its entirety.
2. When choosing a torque multiplier for your bolted connections, select a multiplier capable of generating twice the level of torque that is necessary for your application. Keep in mind that the release torque can exceed the tightening torque by a multifold.
3. Protect the torque multiplier from overloading. The service life varies with the mode of operation and the level of the applied torque. Frequent use and applications near the rated or maximum torque will reduce service life.
4. The shear pin integrated into the power head is intended to protect the gearbox from overloading. However, it will only respond to high overload levels. Yet, the gearbox will also be damaged by frequent low levels of overload.

If the shear pin tears off, do not replace it with a shear pin other than one that has been approved and tested by PLARAD. Do not use an ordinary pin under any circumstances! The shear pin needs to be installed in a precisely centric position! Overload primarily occurs when screws are loosened in an uncontrolled manner. It is therefore essential that you control the release torque using a torque wrench.

5. Avoid accidental operation! Pay particular attention to the instructions on how to change the direction of rotation!
6. You will achieve accurate torque levels if you move the torque wrench very slowly and evenly without any jerking before reaching the set value. To achieve accurate torque levels, we recommend that you use our torque wrenches PH - 36 Z as they are designed to work with our torque multipliers.

7. XVR-D 45:

The XVR-D 45 is a 2-speed torque multiplier with two gear stages which can be selected without the need to engage a changeover mechanism or relieving the device prior to toggling the gear stages. Only the driving tool will have to be switched.

1st stage Gear ratio 1:22;
Md 1000 - 4700 Nm ½" drive

2nd stage Gear ratio 1:45;
Md 2100 - 10,100 Nm AF 41 drive

The 1st stage allows you to work relatively fast at low torque levels. When working at low torque levels, insert the torque wrench (PLARAD PH 36 Z) into the ½" square drive. If higher torque levels are required for tensioning or loosening, you need to select the 2nd stage which you can actuate in combination with the hexagon drive after fitting the included adapter socket (1/2", AF41).



Attention! XVR-D 45

Since you can achieve different output torque levels with the same input torque based on the gear stage you selected, you need to take the respective gear stage into account when evaluating the generated torque.

The drive in the 2nd gear stage (AF41) is secured by a set screw with peg that acts as a shear pin. It protects the tool from overloading at the input of the device.

When the tool is overloaded, the shear pin (peg of the set screw) will tear off, allowing you to rotate the AF41 power head without effect.

This overload protection device can easily be replaced using an Allen key (AF 4 mm).

2.3. Instructions on maintenance and care

1. The torque multiplier will undergo changes throughout its service life that are brought about by reduced friction inside the gearbox. If your work requires precise output torque levels, have your PLARAD torque multiplier calibrated at least twice a year and following every repair incident if the device is used frequently.

2.4. Symbols and warnings



CE mark



Follow the instructions for installation and use.



Crushing hazard warning

3. Operation XVR

1. Slip the support onto the teeth of the torque multiplier and secure it with a lock ring – depending on the type used.
2. Slip the wrench socket onto the drive of the torque multiplier and lock it in place with a pin if necessary.
3. Place the wrench socket fitted with the torque multiplier onto the nut or bolt you wish to turn and pivot the support against the counter bearing (avoid canting if possible).
4. Slip the ratchet or torque wrench onto the square drive of the torque multiplier. Turn the head of the torque multiplier to loosen or tighten the screw.
5. You achieve the highest level of torque control by using an electronic transducer for each screw application.



Attention!

Destruction of the torque multiplier if too much release torque is applied.

- **Never exceed the maximum permissible torque even when loosening screws!**

Please note for XVR torque multiplier:



Attention!

If the rotational direction is set incorrectly, the torque multiplier will be damaged by jamming. Breakage of the shift segment.

- **Switch the operating ratchet to the same rotational direction as the anti-reversing device inside the torque multiplier.**

When switching to clockwise or counter-clockwise rotation, always change over the operating ratchet and the shift lever of the torque multiplier.

Shift lever positions:

- R = rotational direction clockwise
- L = rotational direction counter-clockwise
- M = neutral

When tightened, the torque multiplier is held in place between screw and support by the anti-reversing device. Do not apply force when removing the torque multiplier, but proceed as follows:

1. Use the operating tool to quickly retighten and hold in place the torque multiplier.
2. Change over the shift lever.
3. Move the operating tool back slowly until the torque multiplier is relieved.

Follow the included table to generate the desired levels of torque!

4. Operation XVR-D 45

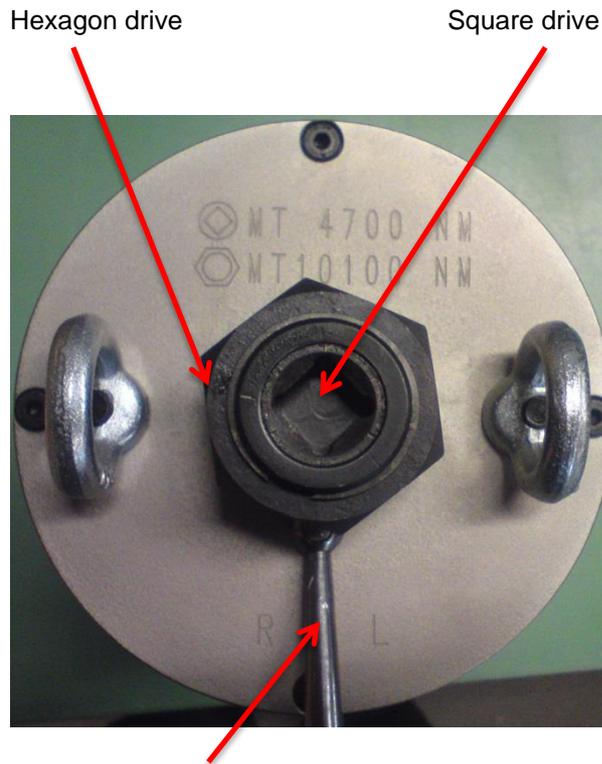
1. Slip the support onto the teeth of the torque multiplier and secure it with a lock ring – depending on the type used.
2. Slip the wrench socket onto the drive of the torque multiplier and lock it in place with a pin if necessary.
3. Place the wrench socket fitted with the torque multiplier onto the nut or bolt you wish to turn and pivot the support against the counter bearing (avoid canting if possible).
4. Slip the ratchet or torque wrench onto the square drive (up to 4700 Nm) of the torque multiplier. Turn the head of the torque multiplier to loosen or tighten the screw.
5. If you reach or need to exceed a torque level of approx. 4700 Nm, you need to fit the ½" adapter socket, AF41 to actuate the second gear stage until you reach the desired final torque level.
6. Proceed in reverse order to the tensioning process when loosening bolted connections. This means that you apply the second gear stage to achieve the higher release level necessary for loosening after properly adjusting the anti-reversing device. Once the torque level drops below approx. 4700 Nm, you can select the first and faster gear stage.
7. You achieve the highest level of torque control by using an electronic transducer for each screw application.



similar to illustration



XVR-D 45



Anti-reversing device XVR-D 45



Max. torque as indicated on XVR-D 45



XVR-D 45 with CE mark and service sticker



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Shift lever positions:

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1. Use the operating tool to quickly retighten and hold in place the torque multiplier.
2. Change over the shift lever.
3. Move the operating tool back slowly until the torque multiplier is relieved.

Follow the included table to generate the desired levels of torque!

5. Maintenance

Lubrication:

Re-apply lubricant at the designated points after approx. 10 hours of operation. We recommend MOLYKOTE or similar lubricants.

Calibration:

Keeping the set torque within a tolerance of approx. $\pm 5\%$ requires that the torque multiplier be calibrated together with the torque wrench used. The calibration may have to be repeated depending on the frequency of application. We recommend performing a calibration no later than every 6 months. We recommend that you use our special PLARAD torque wrench for this purpose.

6. Instructions on disposal

Dispose of the product as required by local regulations.



... a successful
connection!

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