

X Driver Systems

**Operating and
Maintenance Manual**

Hydraulic torque wrench
X Driver System

Operating and Maintenance Manual

Introduction

Congratulations on your purchase of a hydraulically operated **alkitronic® Norwolf X DRIVER SYSTEM** consisting of the **X driver** (hydraulic power head) the **A-Drive** (Hexagon output) and / or the **V-Drive** (Square drive). You have chosen a high-quality product that sets new standards worldwide and meets high safety standards. Your help is needed in order to maintain this high level. We therefore ask you to read this operating and maintenance manual carefully and to observe the following points:

alkitronic® Norwolf Hydraulic torque wrenches may only be serviced or maintained by the company alki TECHNIK GmbH or those instructed by alki TECHNIK GmbH or by certified companies.

Improper maintenance increases the risk of damage to health and damage to the **alkitronic® Norwolf** hydraulic torque wrench. In addition, any warranty for non-compliance with the above points becomes invalid.

This operating and maintenance manual contain basic instructions that must be observed during operation and maintenance. They must therefore be read by the operating staff prior to commissioning or maintenance. They must be constantly kept at the place where the **alkitronic® Norwolf** hydraulic torque wrenches will be used.

This operating and maintenance manual refer exclusively to the **alkitronic® Norwolf** hydraulic torque wrench.

Not only the general safety instructions listed under the section "Identification of instructions" are to be observed, but also, depending on the situation, the inserted special instructions or advice.

Definition of Symbols



Safety instructions.
Non-compliance may result in personal injury or death.



Safety instructions.
Non-compliance may result in damage to the **alkitronic® NOVA** Hydraulic Power Unit, its functions, or the environment.



IMPORTANT! Information for proper and safe operation.



NOTE!

Practical advice and information to make work easier.

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alkitronic® NORWOLF Hydraulic Torque Wrench System

A Incoming inspection and packaging



After receipt, the *alkitronic® Norwolf* hydraulic torque wrench must be checked for completeness and for possible transport damage. If damage is found, notify the carrier immediately. For returns, the original packaging must be used to prevent damage to the *alkitronic® Norwolf* hydraulic torque wrench.

B General description

The hydraulic *alkitronic® Norwolf* 2-hose system hydraulic wrenches are used to tighten or loosen heavy bolted connections. The hydraulic pressure applied to the wrench is converted into a torque via a hydraulic piston. The drive of both housing versions - *A Drive* and *V-Drive* - is effectuated via the power head *X-Driver*.

B 1 Model description

The convertible hydraulic drive head *X-Driver* snaps into the hexagon housing without pins and screws (*A-Drive*) or into the square housing (*V-Drive*).

The one-piece piston construction with only one O-ring with four screws is easy to change. New articulated coupling: Swivel-mounted by 360° or with only one additional element convertible to 360° x 360°.

Model A-Drive from 335 to approx. 83,000 Nm *, designed for cramped and difficult to access bolted joints from A/F 27 to 195 mm. Small housing radius and with patented latch lock. Extremely flat design with flush mounting.

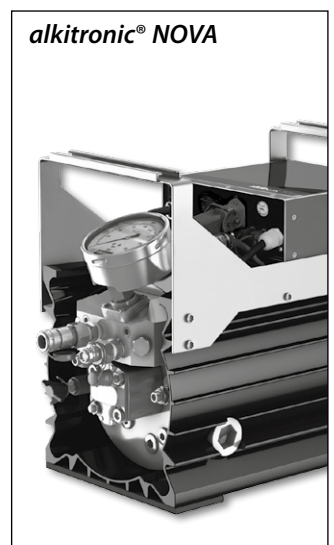
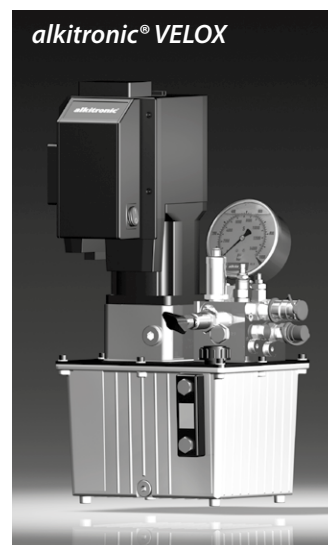
Model V-Drive of 260 Nm up to approx. 62,300 Nm * for threads from M 14 and larger. Torsion-resistant housing design in one-piece construction made of high-strength alloy. Easy movement of the output square from tightening to loosening. Versatile, patented reaction arm (*DMA*). Unlike comparable tools, the *DMA* does not have to be dismantled to use it.

* all torque specifications are model dependent

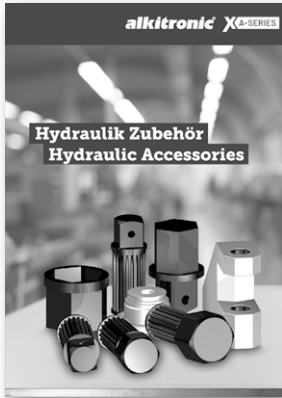
Recommendation: *alkitronic®* Hydraulic pumps

For a fast, reliable operation of the hydraulically operated torque wrench we recommend our innovative *alkitronic®* hydraulic pumps *VELOX* or *NOVA*. Operating pressure up to 700 bar, can be used worldwide on almost all power supplies. Depending on the model, two to four screwdrivers can be operated simultaneously. Lowest maintenance costs, robust and compact design, suitable for continuous operation.

Without solenoid valve control to ensure a long life. Choose from versatile demand-oriented operating modes.



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alkitronic® Accessories

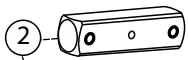
Through a targeted selection of the versatile accessories, many other fields of application open up for the user.

You can receive help with your individual solutions from your local *alkitronic®partner* or from alki TECHNIK GmbH.

alkitronic® Accessories for V-Drive housing



alkitronic® V-Drive output inserts



(1) Reduction to standard square



(2) AVS Square drive



(4) AIS Hexagonal output



alkitronic® Standard accessories

(3) STACO (Nut)



(5) STABI (Connector)

alkitronic® Accessories for A-Drive housing



alkitronic® A-Drive output inserts

(1) STACO (Standard Nut)



(2) Reduction to standard square



(3) Reduction to standard hexagon



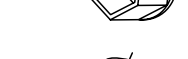
(4) STA Standard adapter



DMA Torque reaction absorber resp. reaction arm



(5) Long execution



1. Technical specifications

Operating pressure	Max. 700 bar
Ambient temperature	-20° C to +50° C
Repeatability	± 3%

2. Safety instructions

2.1 Intended use

alkitronic®Norwolf Hydraulic wrenches are built for continuously rotating, tightening, or loosening of heavy bolts. **Any other use may cause damage to the device and the operator and is considered improper use.**

2.2 Duties of the user

The user is obliged to read the operating and maintenance manual before carrying out any operation or service. The user must be at least 18 years old. The perceptive / reaction response of the user should not be affected by alcohol, other kinds of drugs or medications.

Operating and service operations may only be carried out by persons who are familiar with the purpose, consequences and exact execution of the respective process. If you have questions about safety measures and application areas, alki TECHNIK GmbH or your *alkitronic®partner* will be happy to assist you.



Improper operation, improper use, misuse or operation by unqualified personnel can cause serious personal injury and property damage.



The user is responsible to third parties within the work area.

When used in any work environment, observe local regulations.



Unauthorised modifications and changes to the *alkitronic®Norwolf* wrench are not permitted.

2.3 Possible dangers



When operating under high hydraulic pressure, component damage can lead to life-threatening injuries. Consequently, no commissioning is permitted if the wrench, connections or hydraulic hoses are damaged. Damaged components must quickly be checked for operational safety by a qualified person. Repairs may only be carried out by authorised personnel. Defects must be repaired before further operation.



Before starting repair work, the wrench must be disconnected from the hydraulic power unit and the hydraulic hoses must be depressurised.

alkitronic® NORWOLF Hydraulic Torque Wrench System



Oil leaks harm the environment. Any escaping oil must therefore be safely collected or absorbed and disposed of properly.

3. Operation



The *alkitronic® Norwolf* hydraulic wrench may only be used if the technical data (See the torque table) matches the pressure settings on the hydraulic unit.



The *alkitronic® Norwolf* hydraulic wrench and the hydraulic unit must be grounded to prevent potential electric shocks.



The operating pressure for the *alkitronic® Norwolf* hydraulic wrench and parts must not exceed 700 bar. Observe the load ratings for adapters and inserts in order to avoid property damage or personal injury.

3.1 Commissioning



Connection *X-Drive* power head with *A-Drive*, the procedure is identical to that of the *V-Drive* housing.

Fig. 1

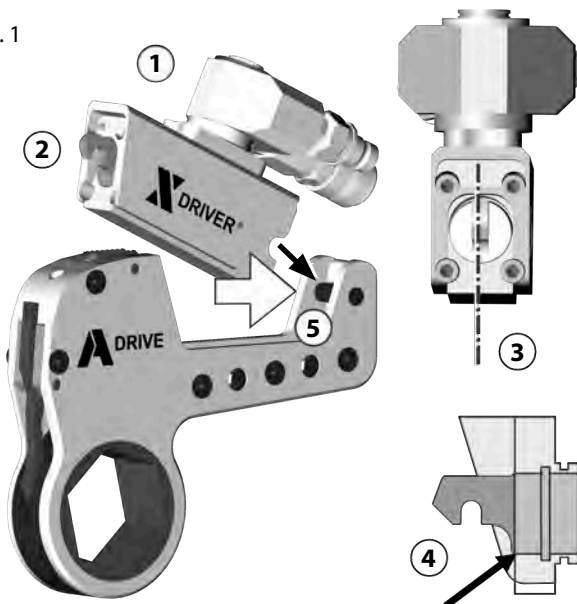


Fig. 1

- (1) X-Drive power head with hydraulic connections
- (2) Piston rod with hook
- (3) Vertically align piston rod with hook (4) Retract piston rod into cylinder Execution as shown in the image
- (5) Position X-Drive housing recess above the bolt

Fig. 2

- (6) Swivel X-Drive power head downwards
- (7) Spring-loaded sliding safety device
- (8) Pull back slide, firmly press the X-Drive downwards. Release the slider, the X-Drive is now locked. Check it again!

When removing the X-driver, proceed in reverse order.

Information: The V-Drive housing, in contrast to the A-Drive is laterally closed.



Always check the wrenches and connections for cleanliness and ease of movement. Clean and lightly grease joints, sliding surfaces and gears etc. Tighten fittings if necessary. See page 13, Lubricating points / parts maintenance.

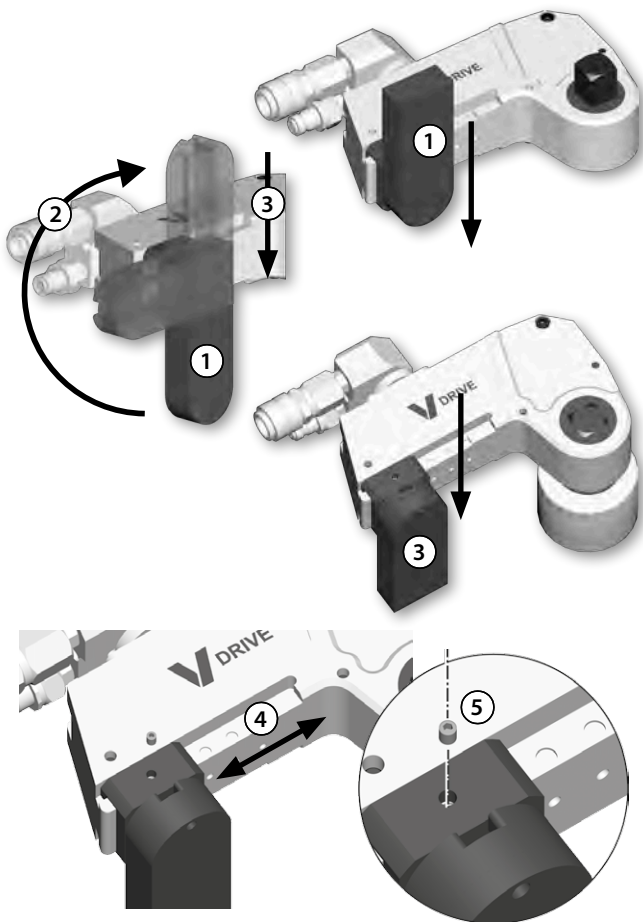
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3.2 Preparation Bolting model V-DRIVE

- Select the **V-Drive** housing according to the field of application.
- Connect the power head **X-Driver** with the **V-Drive**. Please see Page 5, paragraph 3.1 (Assembly **X-Driver** with **A-Drive** or **V-Drive** housing).

3.2.1 Positioning DMA (Reaction torque transducer)

The **DMA** does not have to be dismantled. For example, to bring it to an opposite position, it must first be pushed down (1) and then rotated 180° (2). Then it is pushed down again (3) until the ball lock engages.

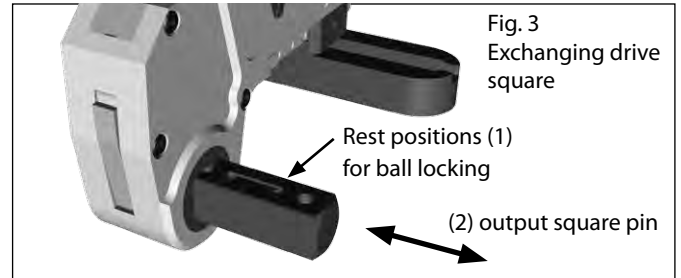


The **DMA** can be fixed lengthwise in 5 locking recesses (4). In order to move, one pin screw (5) must be loosened and tightened on both sides to secure the **DMA**.

3.2.2 Exchange square drive Model V-Drive

An exchange is necessary in the event of a damaged square drive or when using special output inserts from the accessory program. Slide the output square (2) completely out and replace it (Fig. 3).

When changing from loosening to tightening (see also 3.2.3, Fig. 4), the square is only pressed in until the ball lock engages again, depending on the direction of rotation(1).



After changing over, check inserts and adapters for a tight fit, otherwise injury to property or people may occur.



Proper positioning of the **alkitronic**® **DMA**, see page 7, point 3.2.4

3.2.3 Equipped with output inserts

Example **alkitronic**® **STACO** (Standard Nut)

First, prepare the wrench for the desired direction of rotation (tightening or loosening) (Fig. 4). Push the square drive (2) into the desired position. The direction of rotation is marked on the wrench housing.

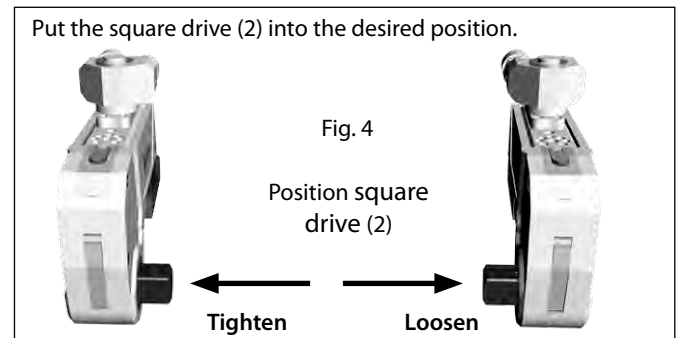
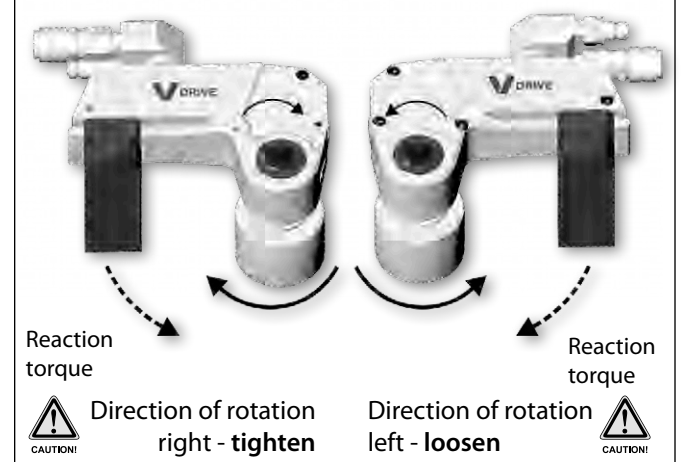


Fig. 5 - Rotational directions Tighten / release

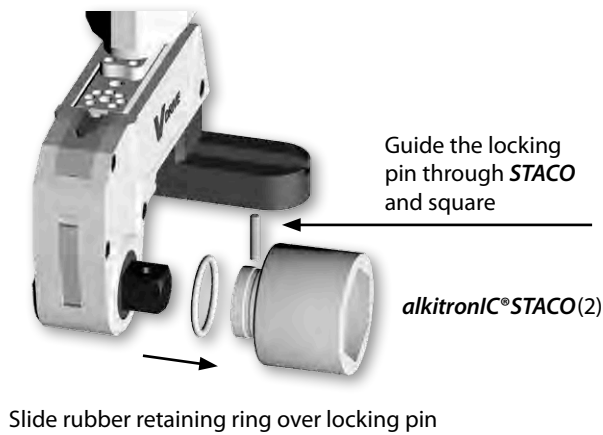




NOTE!

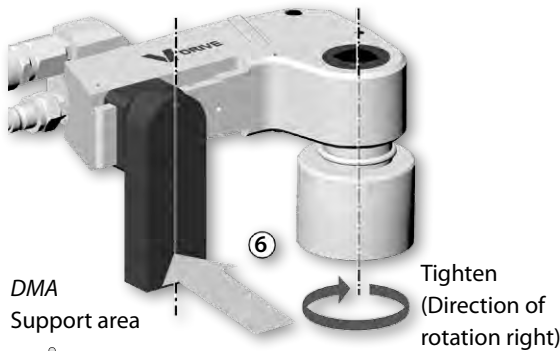
To change the direction of rotation, the square drive is generally pressed from one side of the wrench to the other side. The ball lock must engage so that the square is thus secured. See also Fig. 3 and Fig. 4.

Then push the *alkitronic® STACO* (2) onto the square (see picture below). Insert locking pin and secure with rubber ring.



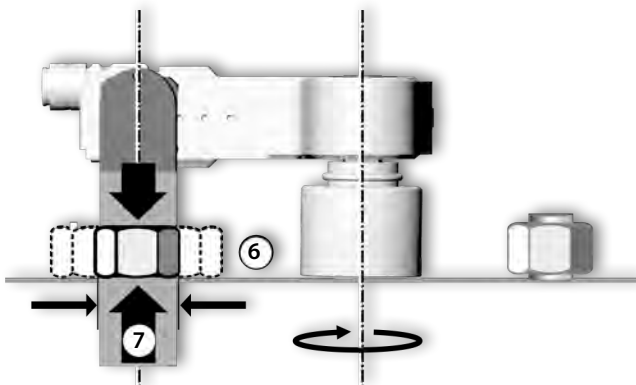
3.2.4 Support area Model V-Drive

Always place the DMA Support area parallel and perpendicular to the axis or *STACO*/adapter



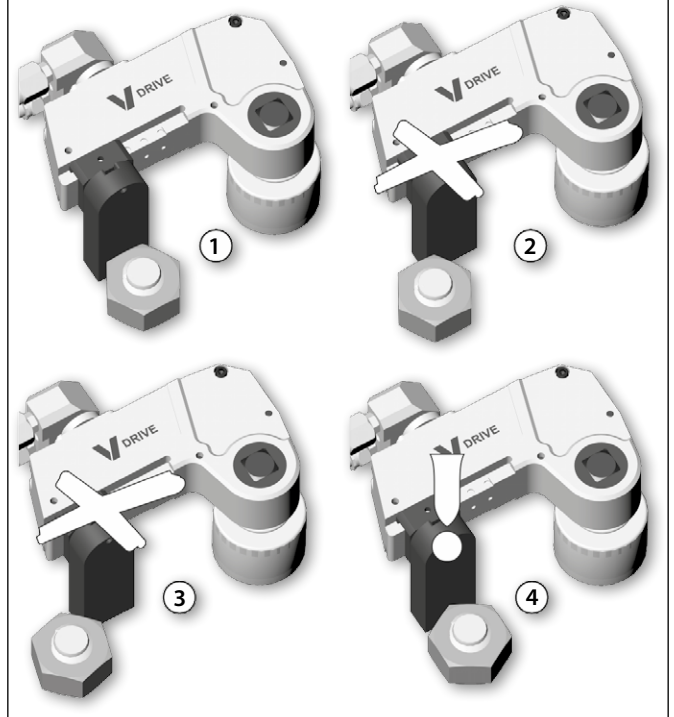
IMPORTANT!

The DMA must absorb the reaction torque at the same level as the nut / bolt to be turned (6).



Correct support point only in the marked area (7)

Fig. 6 - Examples of correct / incorrect support modes



3.2.5 Correct / incorrect V-Drive supports

Fig. 6 - Description of support modes

(1) Correct support mode



CAUTION!

(2) Support surface too small and outside the support area



DANGER!

(3) Lopsided support outside the support area - high risk - avoid in any case



CAUTION!

(4) Avoid sharp edged abutments as damage to the DMA may occur



CAUTION!

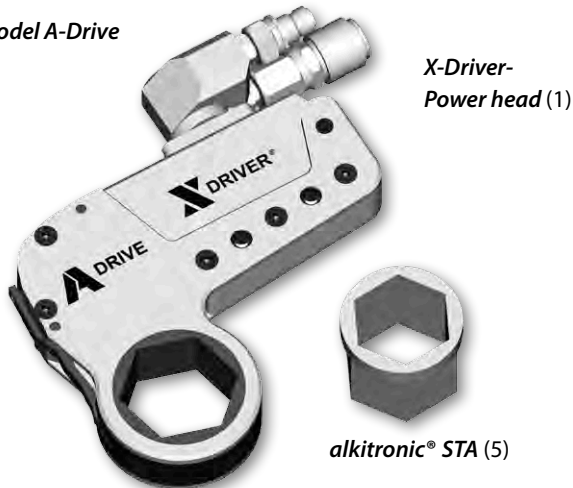
Due to different heights of a bolting connection and support point, dangerous tilting effects can occur, which must be avoided at all costs. If this is not possible in a particular application, the max. torque of the wrench can be reduced. In such cases, before starting work, ask your *alkitronic® partner* or alki TECHNIK GmbH for advice on safe solutions.

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3.3 Preparation for application model A-Drive

- Select the appropriate **A-Drive** housing for the particular application.
- Connect the power head **X-Driver** (1) with the **A-Drive**. Please see page 5, paragraph 3.1, Assembly **X-Driver** with **A-Drive** or **V-Drive** housing.

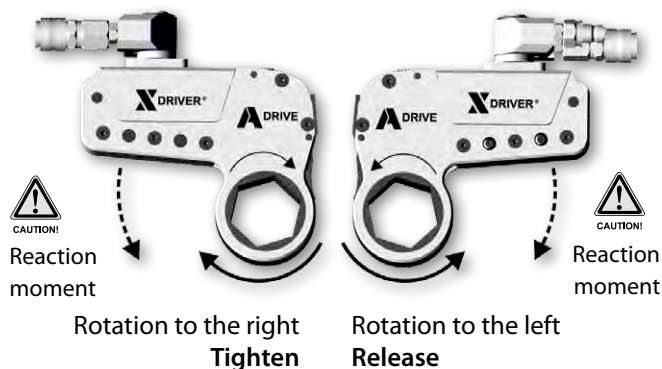
Model A-Drive



To reduce the wrench size an **alkitronic® STA** (5) can optionally be inserted into the hexagonal drive (accessory).

Selection of the direction of rotation (tightening / loosening)

The direction of rotation is changed by turning the **A-Drive** wrench by 180°. The bolting direction is marked on the hexagonal head housing.



3.3.1 Support area model A-Drive



To record the reaction torque, a stable, safe base must always be selected. Incorrect support can lead to property damage or personal injury due to the occurrence of high reaction forces.

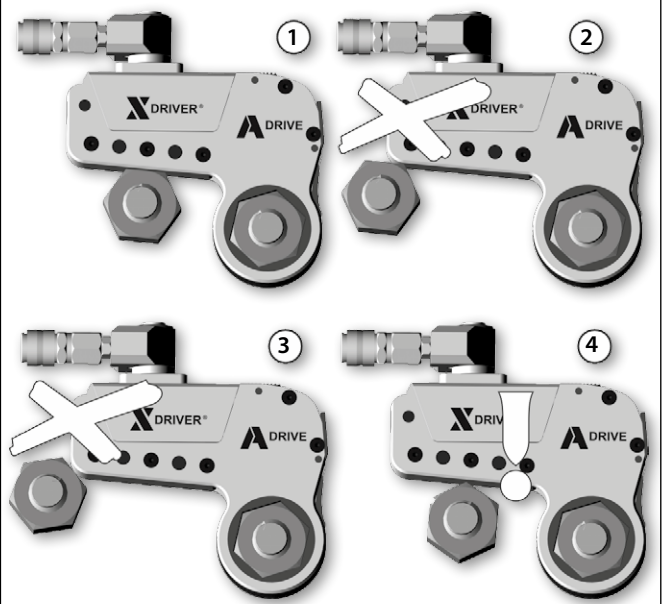
An adjacent bolt head, flange or highly stable construction element can be used for support and can be carried out directly on the support surface on the **A-Drive** housing (Fig. 7).

Fig. 7



Support surface for reaction torque

Fig. 8 - Examples of correct / incorrect support modes



3.3.2 Correct / incorrect A-Drive supports

Description Support modes

(1) Correct support mode



(2) Support surface too small and outside the support area



(3) Lopsided support outside the support area - high risk - avoid in any case



(4) Point-shaped loads or sharp abutments can cause damage to the housing



Due to different heights of bolted connections or support, dangerous tilting effects can occur which must be avoided at all costs. If this is not possible in a particular tightening procedure, the max. torque of the wrench can be reduced. In such cases, before starting work, ask your **alkitronic® partner** or alki TECHNIK GmbH for safe solutions.

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Check and ensure

- correct fit damage to the output inserts, *STACO*, *STABI*, *STA* and *DMA*. Do not reuse worn, damaged parts!
- Only use original *alkitronic*® spare parts.
- Adapter and insert sizes must correspond exactly to the nut / bolt size to be used.
- Couplings / connections of the hydraulic screwdriver and the hydraulic hoses must be properly connected.
- For hydraulic hoses, legal requirements must be complied with.



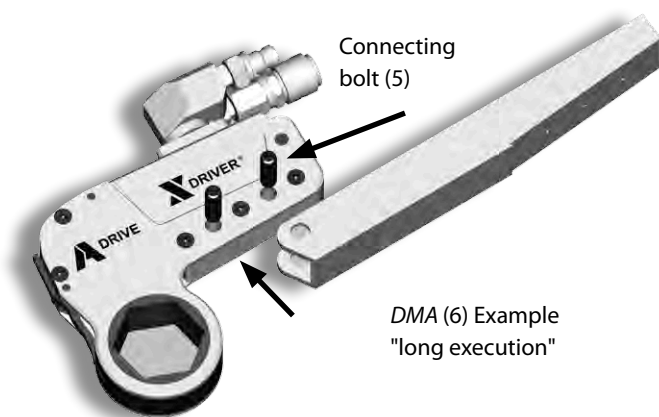
Depending on the particular type of bolting, special extensions or reaction torque transducers, *DMA* or *alkitronic*® *adapters* are required for tightening and loosening screw connections (available as accessories).



Modification / exchange of accessories or the preparation of a hydraulic hose connection should always be made without existing hydraulic pressure. Prepare for bolting applications **before the hydraulic unit is connected or in operation!**

3.3.3 Positioning *DMA* Extensions

Press the matching connecting bolt (5) out of the housing and position the *DMA* (6) in the correct position. Push the bolt again, thereby connecting the *DMA* with the *A-Drive* housing in a form fitting manner.



Depending on the application, different torque reaction arms are available as accessories.

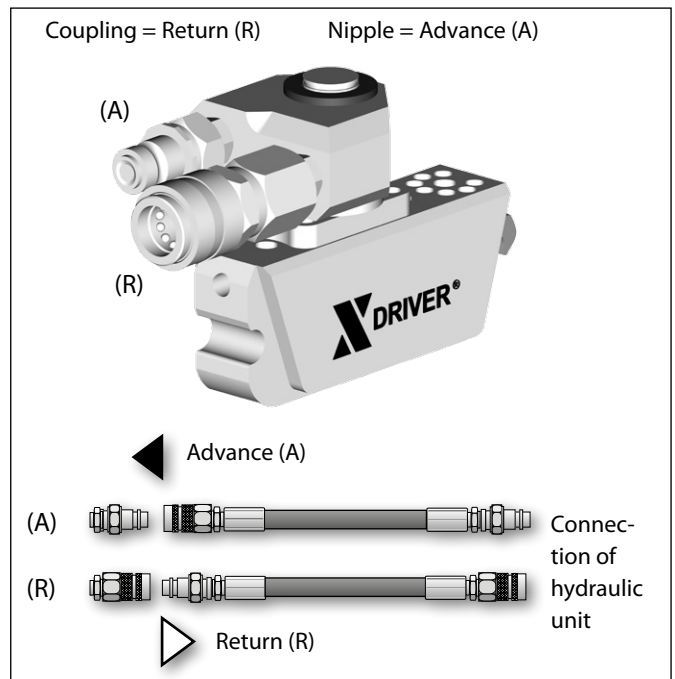


After conversion work, check inserts and adapters for tight fit, secure them properly if necessary, as otherwise property or personal injury may occur.

4 Operation

4.1 Connecting hydraulic hoses

The nipple on the drive head (two-hose system) is the connection for the advance (working stroke). The coupling is the connection for the return. Original *alkitronic*® hoses, couplings and hydraulic units are designed to ensure correct connection.



Do not lift or carry the *alkitronic*® *Norwolf* hydraulic wrench by the couplings or hoses. Avoid kinked hoses or using hoses with too small of a bend radius to ensure proper and safe operation. Make sure that no dirt gets into the quick-release couplings.



Check the integrity and functionality of the hydraulic wrench and hydraulic hose couplings and replace if necessary. Damaged or brittle hydraulic hoses must be replaced immediately. Do not try to repair. Always use new components!



To prevent hydraulic oil from spurting out under high pressure during operation, the hydraulic hoses must be securely and correctly connected to the hydraulic power pack and the screwdriver.

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Do not carry out any improper modifications to the hydraulic hoses or connections / couplings. Swapping the connectors results in reversing the direction of flow and control of the hydraulic wrench, This will cause malfunctions or damage and may also cause serious personal injury.

4.2 Tightening and loosening of bolts

4.2.1 Safety instructions



When commissioning, the local regulations and safety regulations must be observed. **Wear protective clothing and eye protection!**

Always perform functional and safety checks on the wrench and accessories - do not work with damaged parts!



Make sure there is enough space for hoses and connections (couplings).



The *alkitronic® Norwolf* hydraulic wrench should never be operated while unattended. The possibility to shutdown must always be ensured.



Observe safety distances. If a screw breaks off, the wrench or the screw can be thrown off the threaded connection and cause serious injury.

Be careful with freely rotating parts. Always keep loose clothing, long hair, jewelry and cables out of the danger zone.



During operation, do not hold the hydraulic wrench against the *DMA*, moving parts or couplings and hoses! The support for absorbing reaction torque must always be safe and stable.



For individual solutions your *alkitronic® partner* will be happy to help.



Always fit output inserts such as *STA / STACO* etc. **completely and vertically onto the bolt / nut.**

- Improper operation or improper support during the tightening process could lead to



- possible overload breaks in the output inserts, housings or drive elements
- faulty torque input
- bruising or life-threatening injuries from splintering parts

- Improper handling can also lead to the loss of warranty cover.

Danger zones:



Never reach between *DMA* and support point or under the (*A-Drive housing*). High risk of injury through crushing!

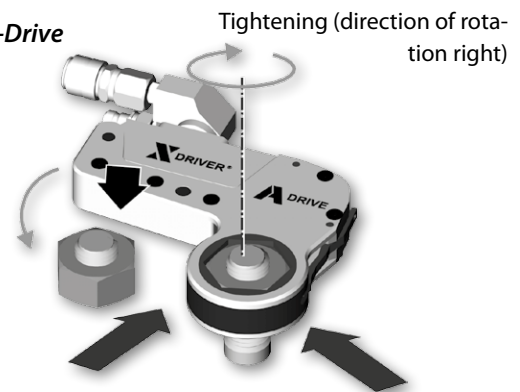


Marking of danger spots

Model A-Drive



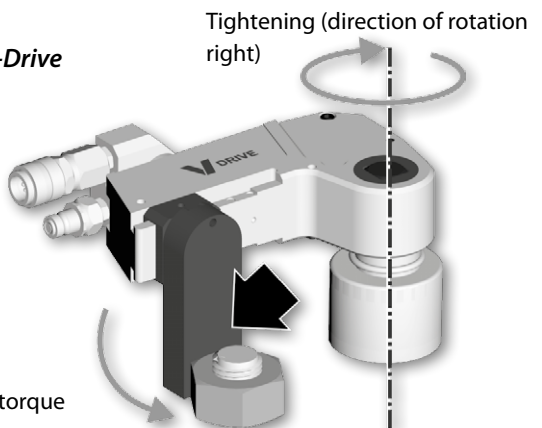
Reaction torque



Model V-Drive



Reaction torque



4.2.2 Commissioning of the hydraulic power unit

Measures

- during initial setup or startup
- when changing torque wrenches on the hydraulic unit



When adjusting the hydraulic pressure or torque, make sure that the maximum permissible values for the hydraulic wrench, output inserts and other accessories used are not exceeded.

Failure to do so may result in property damage or personal injury.

Observe the attached data sheets / torque tables of the *alkitronic® Norwolf* hydraulic wrench.



When using a quick-release coupling on the hydraulic wrench / unit / high-pressure hose, make



IMPORTANT! sure that the circlip clicks into place with an audible "click". Only then is a secure connection ensured, even at high hydraulic pressure.

4.2.3 Description tightening / releasing



IMPORTANT! Below is the description of a general operating manual. **Only the operating instructions of the hydraulic unit used are valid.** The user is obliged to read this operating and maintenance manual before carrying out any operation or service.

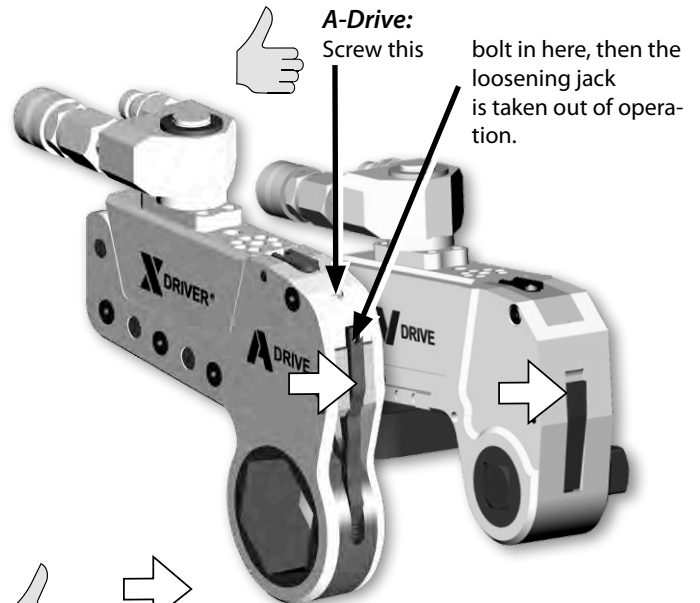


IMPORTANT! **Observe safety instructions and danger points,** see point 4.2.1

- Start the hydraulic unit according to the operating instructions.
- Adjust the pressure on the hydraulic power pack according to the torque table of the *alkitronic® Norwolf* Hydraulic Wrench.
- Before bolting on a bolt / nut, activate the wrench with no resistance a few times to vent the hoses and wrench, ensuring that they function properly.
- Place the wrench completely on the nut / bolt, press the button on the remote control. At the beginning of the process the *DMA* or the support surface (*A-Drive*) moves to the support point and the nut / bolt starts to turn. After the piston is fully extended, release the button. The piston will move back automatically and you will hear 1-3 "click" sounds.
- Now press the button on the remote control repeatedly until the output no longer turns, the pre-set pressure is reached and no more "clicks" are heard.
- Then press the button on the remote control once or twice until the pressure previously set has been reached (recommended to ensure that the applied torque is transferred to the connection and the wrench does not come to a stop only at the end of the hydraulic piston).
- Observe the gauge on the hydraulic power unit to ensure that the set pressure has been reached.
At this time, the specified torque is achieved with a repeat accuracy of +/- 3%.

Position the wrench on the next nut / bolt. If the wrench can not be moved:

The reaction pawl feature assures the ratchet will not turn back which effectively would undo torque applied. If the tool should lock on the nut, disengage the reaction pawl while under pressure. Use the lock screw, located as shown, insert it through the slot of reaction pawl so as to keep disengaged at all times.



NOTE!



Position the release latch on the *A-Drive* and *V-Drive* housing



Option: Disable the release latch

5. Finishing work / interruptions

(Also with change of accessories)

- Interruption of existing pressure on the wrench by switching off the hydraulic unit. Unintentional starting of the wrench is thus prevented.
- Do not carry the *alkitronic® Norwolf* hydraulic wrench by the hoses or couplings.
- At the end of use: Disconnect quick-release couplings on hydraulic unit.



DANGER!

In a hydraulic tightening system, wrenches and hydraulic supply lines are under very high pressure. To avoid damage to persons or property, only remove hydraulic hoses with no pressure inside. Therefore, always interrupt first the pressure supply on the hydraulic power unit.



CAUTION!

Oil leaks harm the environment. Any escaping oil must therefore be safely collected or absorbed and disposed of properly.



IMPORTANT!

Keep all moving parts, bearings, oil connections etc. clean and lubricated.

6. Functional test

6.1 Visual inspection

Before each use, check all connections (nipples / couplings) to ensure their perfect condition.

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6.2 Check tightness and impurities

- Check the condition of the wrench, high-pressure hoses and connections.
- Eliminate damage and dirt.
- Dirt particles in the hydraulic system can cause malfunctions and breakdowns.
- Check condition and tightness of hydraulic parts. Replace defective components professionally.

6.3 Expert inspection

- The *alkitronic® Norwolf* hydraulic wrench is an extremely powerful, robust product. To ensure durability and reliability for many years, the *alkitronic® Norwolf* hydraulic wrench should be regularly checked for mechanical defects by authorised or qualified personnel in accordance with legal requirements.
- For safety reasons, all hydraulic hoses must be renewed at the latest after 5 years (including a maximum of 2 years storage time), and for increased requirements (multi-shift operation, short cycle times, hand-held tools) after only 2 years.



In the event of a loss of power, unusual sounds or other identifiable damage must the *alkitronic® Norwolf* hydraulic wrench must be promptly returned in the original packaging to your *alkitronic® partner* or sent to alki TECHNIK GmbH.

7. Maintenance / storage / servicing

alki TECHNIK GmbH offers authorized personnel ready-to-use spare parts kits for repair and / or replacement. Spare parts lists with device cross section drawings and parts lists are available. Contact your *alkitronic® partner*.

7.1 Lubrication



Keep all moving parts, sliding surfaces, bearings, couplings, etc. clean and lubricated to protect them against corrosion and malfunction.

See page 13, Lubricating points / parts maintenance.

Recommendation Lubricant:

Liqui Moly Marine (Liqui Moly Boots Fat)

Maintenance Periods:

With continuous operation every 20 hours

Insufficient lubrication can significantly affect torque accuracy.

7.2 Storage



alkitronic® Norwolf hydraulic wrenches should be dried and cleaned then stored in an *alkitronic®* case or another lockable container. Moisture leads to oxidation on the housing, output as well as on internal parts. Consequences can include malfunctions and further damage.

- When storing, make sure that the hydraulic hoses are removed and the ends of the hoses and connecting parts (couplings / nipples) are closed with the protective caps.
- Store hydraulic hoses in a cool, dry and low-dust condition.
- Avoid direct sun and UV radiation and storage temperatures below -10°C.

7.3 Decommissioning



In the event of prolonged periods without use the *alkitronic® Norwolf* hydraulic wrench should be cleaned and stored in a dry, locked room - not accessible to children. Preserve the moving parts to prevent oxidation.

See measures item 7.2, Storage and page 13.

7.4 Maintenance intervals



The wrench must be inspected at least once a year. In the event of heavy use / loads / operating hours, wear and / or leaks, maintenance must be carried out at shorter intervals.

8. Technical information

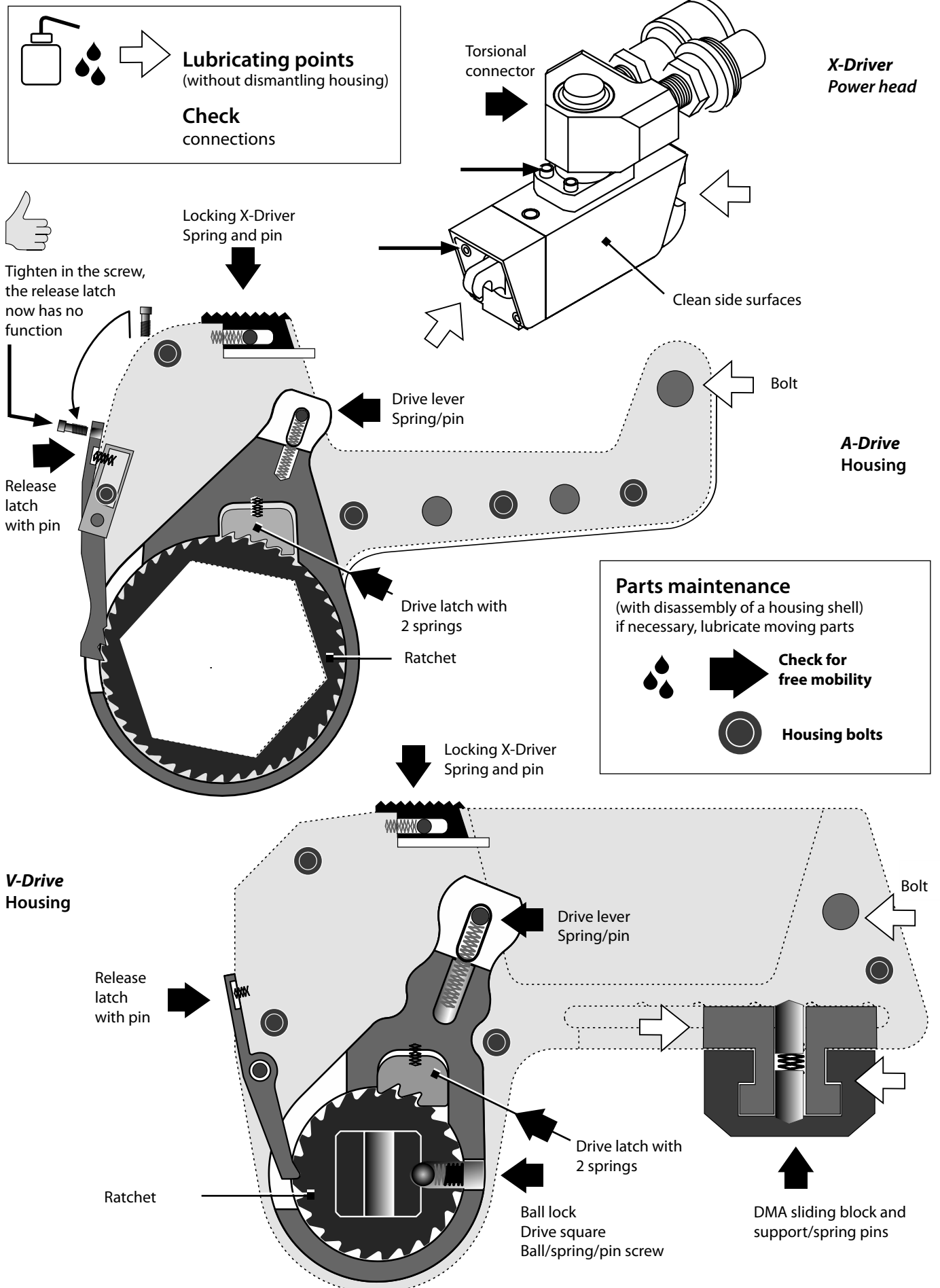
To avoid faulty connections and / or damage to the wrench, the following points must be observed

- The oil temperature must not exceed 65 °C.
- Regular checks of quantity and quality of the oil in the hydraulic unit.
- Check the accuracy of the manometer with the aid of a test gauge.

9. Annex

- Lubrication points / Parts maintenance 13
- Troubleshooting, page 14
- Technical data, page 15
- Torques / Characteristics data sheet (Supplement)

alkitronic[®] NORWOLF Hydraulic Torque Wrench System



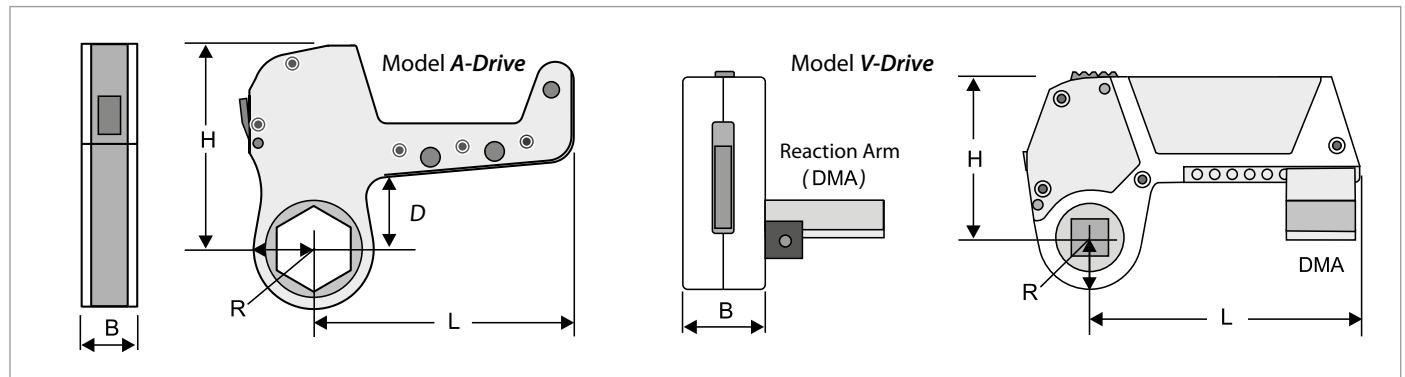
Operating and Maintenance Manual

Trouble shooting

Problem	Possible cause	Solution
X-Driver does not fit in the A-Drive or V-Drive X-Driver jams when connecting or disconnecting from A-Drive or V-Drive	1. X-Driver piston rod not correctly axially aligned (see 3.1 Fig. 1) 2. Parts are fixed	1. Align piston with adjustable wrench 2. Tapping with a rubber mallet
The wrench does not turn	1. Connections not connected properly 2. Damaged articulated couplings 3. Damaged hose connection 4. Contamination or foreign bodies in the hydraulic unit 5. Drive latch or ratchet teeth heavily soiled 6. Ratchet gearing or drive latch defective	1. Coupling/nipple must fully engage 2. Replace/exchange 3. Replace/exchange 4. Clean and remove 5. Clean or exchange 6. Replace/exchange
Wrench does not build up pressure	1. Cylinder does not retract 2. Motor coupling of the hydraulic pump is damaged 3. Seal damage in the cylinder 4. Seal damage to the hose coupling unit	1. Check connections 2. Exchange 3. Change seal 4. Change seal
Oil leaking from the wrench	1. Damaged round seals 2. Damaged articulated couplings	1. Change seal 2. Replace/exchange
The wrench turns while the piston needs to be retracted	Connections were installed incorrectly	Make sure the supply and return connections are correctly installed (page 9, point 4.1)
The wrench turns while the piston is retracted	Defective drive latch	Exchange
The wrench does not perform consecutive rotations	1. Loose or broken connection 2. Damaged articulated couplings 3. The operator initiated the next stroke before the oil could flow back into the container. The piston could not return to its original position 4. Broken drive latch	1. Coupling/nipple must be firmly connected or replaced 2. Replace/exchange 3. Wait until the oil has returned to the container of the pump and the piston has reached its initial position 4. Exchange
The wrench jumps off the nut	1. Improper support	1. Support <i>DMA</i> and output inserts must always be on one level (see page 7, section 3.2.4 / page 8, 3.3.1 - Reaction torque transducer). Get in contact with your alkitronic® Partner to see if an application specific support or a more suitable alkitronic® Norwolf hydraulic wrench is available.

alkitronic® NORWOLF Hydraulic Torque Wrench System

Technical Data



Models A-Drive (hexagonal drive)

A-Drive + X-Driver	Type	A - 2	A - 4	A - 8	A - 16	A - 32	A - 64
Torque range *	Nm	335-2240	805-5370	1560-10400	2690-17920	6600-44000	12450-83000
Torque range *	ft.lbs	247-1652	594-3961	1151-7671	1984-13217	4868-32453	9183-61217
Height	H	mm	104	139	174	208	347
Length (approx.)	L	mm	134	178	223	356	446
Distance	D	mm	38	51	63	76	102
Width	B	mm	29	38	48	57	95
Weight (approx.)	kg / lbs	2.3 / 5.0	5.0 / 11.0	10.5 / 23.5	17.0 / 37.5	33.0 / 72.5	76.0 / 167.0

*) When loosening a bolted connection, up to 20% higher torque may be required (loosening torque). We will gladly advise you in detail.

Type A 2-			SW 27	SW 32	SW 36	SW 41	SW 46	SW 50	SW 55	SW 60
Radius (approx.)	R	mm	25	28	31	33	36	39	42	45
Typ A 4-			SW 46	SW 50	SW 55	SW 60	SW 65	SW 70	SW 75	SW 80
Radius (approx.)	R	mm	39	42	45	48	50	53	56	58
Typ A 8-			SW 55	SW 60	SW 65	SW 70	SW 75	SW 80	SW 90	SW 100
Radius (approx.)	R	mm	49	53	56	59	63	66	70	73
Typ A 16-			SW 70	SW 75	SW 80	SW 90	SW 100	SW 105	SW 115	SW 125
Radius (approx.)	R	mm	61	62	65	70	75	81	87	93
Typ A 32-			SW 90	SW 100	SW 105	SW 115	SW 125	SW 135	SW 145	SW 155
Radius (approx.)	R	mm	77	82	88	93	99	104	110	115
Typ A 64-			SW 125	SW 135	SW 145	SW 155	SW 165	SW 175	SW 185	SW 195
Radius (approx.)	R	mm	105	111	116	122	127	133	138	144

SW ----> A/F

Models V-Drive (square drive)

V-Drive + X-Driver	Typ	V - 2	V - 4	V - 8	V - 16	V - 32	V - 64
Torque range *	Nm	265-1760	625-4174	1225-8155	2115-14100	5015-33420	9790-65280
Torque range *	ft.lbs	195-1298	461-3079	904-6015	1560-10400	3699-24649	7221-48148
Square drive		3/4"	1"	1 1/2"	1 1/2"	2 1/2"	2 1/2"
Height	H	mm	83	111	139	166	277
Length (approx.)	L	mm	140	190	240	290	490
Radius	R	mm	25	34	42	51	85
Width	B	mm	41	55	69	83	138
Weight (approx.)	kg / lbs	2.7 / 5.9	6.1 / 13.5	12.0 / 26.5	20.7 / 45.5	43.0 / 94.5	86.0 / 189.0

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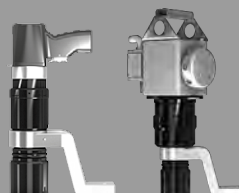
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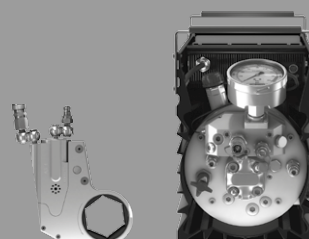
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