Bolting Systems®
SPXFLOW®

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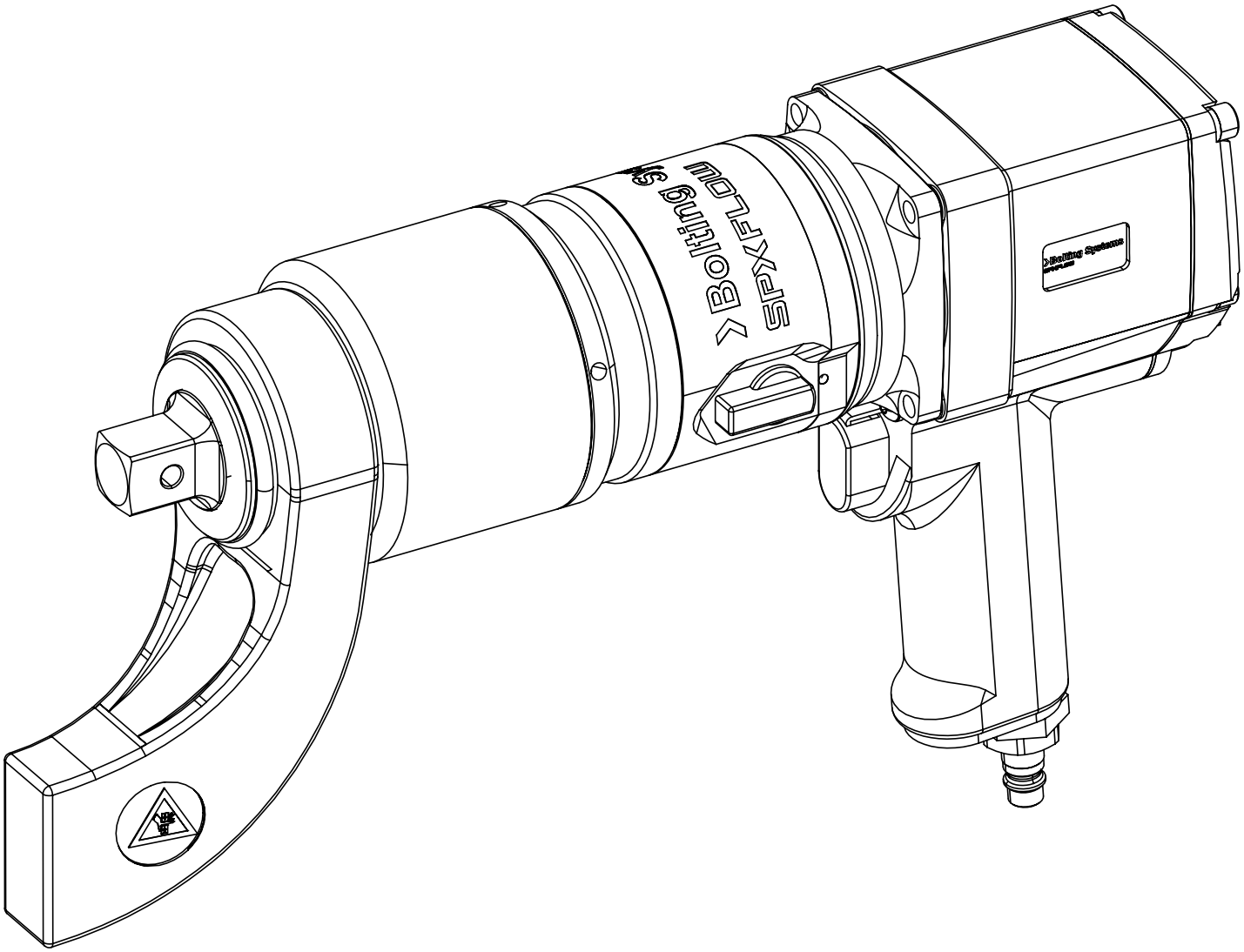
Operating Instructions and Parts List For:

CE UKCA

NRP Series

PNEUMATIC TORQUE WRENCH

with adjustable torque



Model Shown for NRP-15

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SAFETY SYMBOLS AND DEFINITIONS

The safety signal word designates the degree or level of hazard seriousness.

⚠ DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

IMPORTANT: Important is used when action or lack of action can cause equipment failure, either immediate or over a long period of time.

SAFETY PRECAUTIONS

General Safety

⚠ WARNING: To prevent personal injury,

- **The following procedures must be performed by qualified, trained personnel who are familiar with this equipment. Operators must read and understand all safety precautions and operating instructions included with the device. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language.**
- **The owner of this tool must verify that safety-related decals are installed, maintained, and replaced if they become hard to read.**
- **Improper operation or application not in line with the intended use or operation by untrained personnel presents a hazard of injuries of death for both operators and adjacent personnel!**
- **These products are designed for general use in normal environments. These products are not designed for use in special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this product in these conditions or extreme environments. SPX FLOW Bolting Systems will supply information necessary to help make these decisions. Consult your nearest SPX FLOW Bolting Systems facility.**

- **Safety glasses must be worn at all time by the operator and anyone within sight of the unit. Additional personal protection equipment may include: face shield, goggles, gloves, apron, hard hat, safety shoes, and hearing protection.**

- **Do not use the tool for anything other than its intended use.**
- **Always use SPX FLOW Bolting Systems replacement parts.**
- **All instructions stipulated in this manual with regard to operation, maintenance and repair must be strictly observed.**
- **The guide cannot cover every hazard or situation so always do the job with SAFETY FIRST.**

Pneumatic Torque Wrench Safety

⚠WARNING: To prevent personal injury,

Intended Use:

The pneumatic torque wrench with adjustable torque is a tool for manual handling and can be used exclusively to tighten and loosen bolted connections.

- **The maximum and minimum torque levels corresponding to a compressed air pressure and the tool settings are summarized in the calibration certification provided with the product.**
- **The tool can be operated only with the reaction arm supplied with the tool, or that supplied by SPX FLOW Bolting Systems. Prior to replacement of a reaction arm please consult the tool manufacturer since replacement of the arm may lead to uncontrolled operation of the tool (a 'capsizing' torque), presenting a risk of an accident! The reaction arm must be also suitable for a specific bolted connection.**
- **Torque wrenches must be always operated together with the Compressed Air Control Unit, furnished with a pressure regulating device, an oiler, a filter and a water separator.**
- **To prevent accidents on the job, torque wrenches with reaction arms should be used with extreme caution. Operators must be trained and thoroughly informed about all details related to the operation and use of their tools.**

Never place a hand or any other part of your body nearby the reaction arm when the torque wrench is in use.

- **The tool can be operated only with square drive sockets that are designed for mechanical driving equipment (so called Impact Sockets).**
- **All general rules applicable to operation of pneumatic tools must be observed and adhered to.**
- **Disconnect the product from the air source before making any adjustments.**
- **Never use oxygen, carbon dioxide or other bottled gasses as a power source for air tools. Only use clean, dry air at the specified pressure.**
- **Never carry the tool by the air hose or pull the hose to move the tool or a compressor. Keep hoses away from heat, oil and sharp edges. Replace any hose that is damaged, weak or worn. Personal injury or tool damage could occur.**
- **In the event that a nut or bolt breaks off during operation of the tool, it may become a high-velocity projectile.**
- **To prevent equipment damage or injury, please use the manufacturer-supplied carrying case for storage and transportation. The fully loaded carrying case is to be manually handled by two people using the side handles provided on the case.**

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Possible Hazards:

- **The hazard of entrapment exists between a reaction arm and a support (see Fig. 2.1). The reaction arm must always reliably rest against a support (e.g., a bolt).**

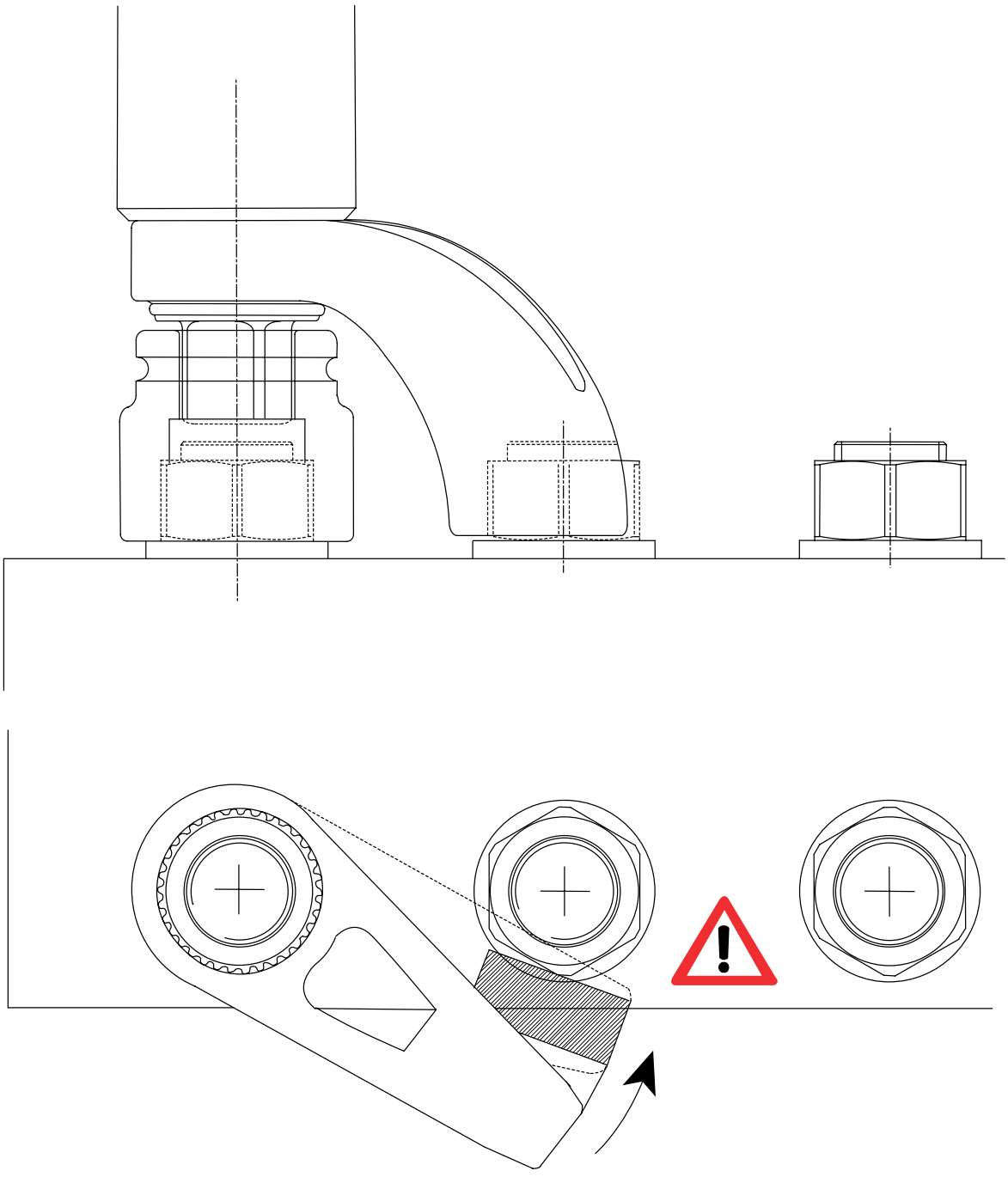

Fig. 2.1. Reliable Support of a Reaction Arm

- **If the reaction arm is not properly supported, it can be damaged. Fig. 2.2 shows the proper and incorrect reaction arm support methods.**
- **The compressed air hose must be routed far away from the reaction arm! Reaction arms must always be positioned on the opposite side of the torque wrench rotation.**
- **There is a risk of entrapment between the driving unit handle and local structural components. Thus, the torque wrench handle and driving unit can rotate separately allowing the user to use the handle in a safe position.**

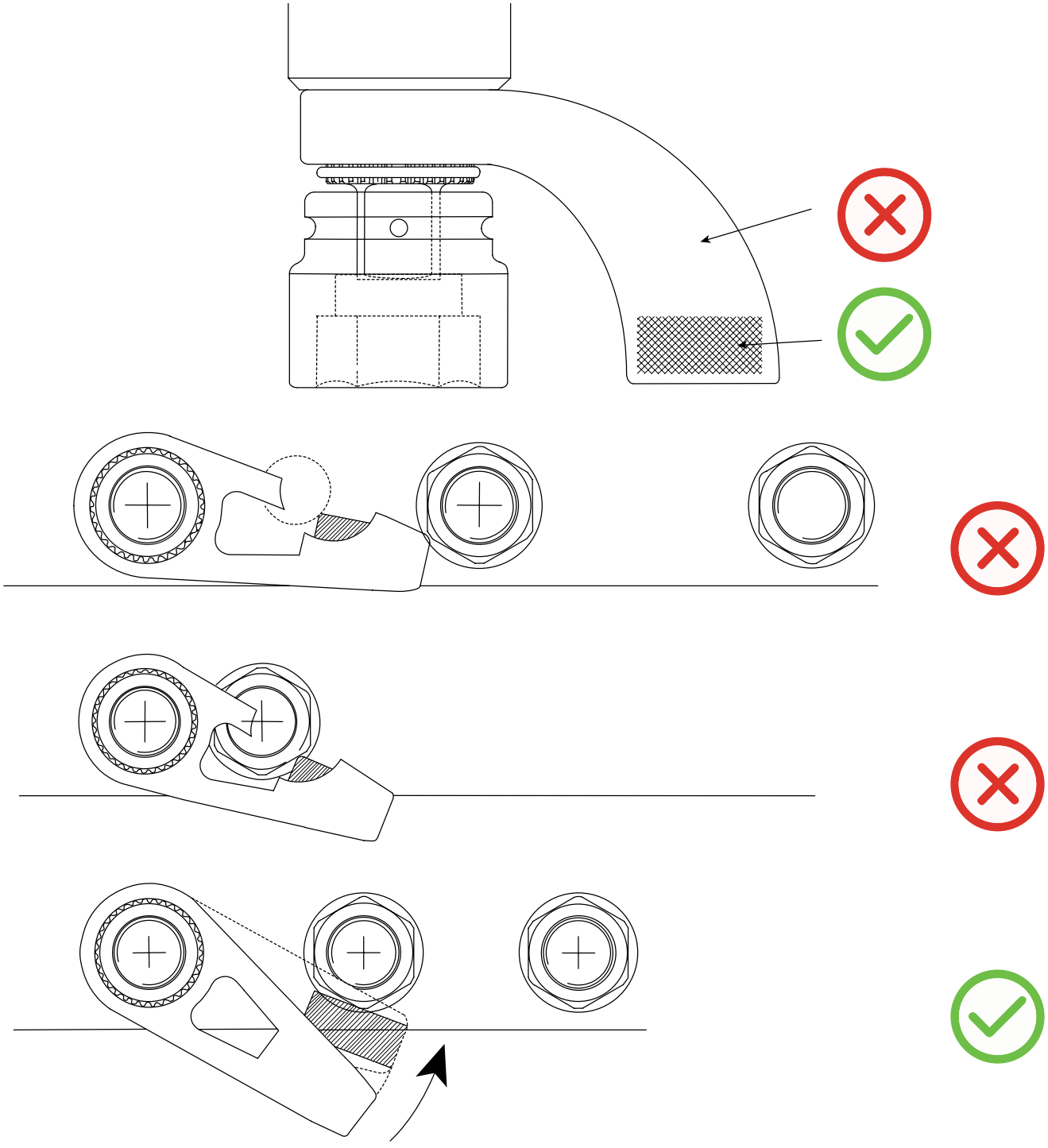

Fig. 2.2. Correct Positioning of a Reaction Arm

- **A collapsing torque can be caused by excessive extensions added to the socket, replacement of a reaction arm or inverse positioning of the reaction arm (see Fig. 2.3). Such a collapsing torque may lead to skewing of the tool and detachment of a socket and the entire tool with eventual damage of the reaction arm, driving square or gear transmission of the tool.**

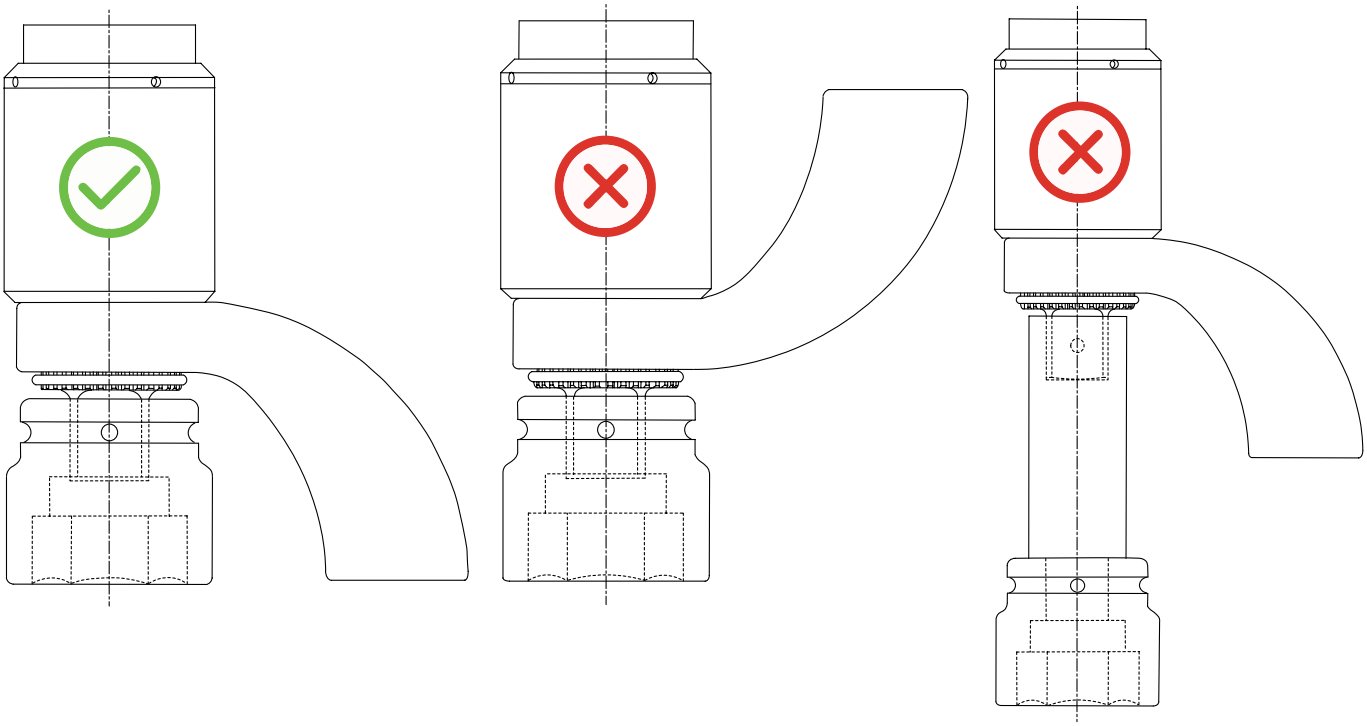

Fig. 2.3. Setting Up to Avoid a Collapsing Situation

- **Do not place the tool on the bolted connection in skewed manner**

  For instance in case of confined space (see Fig. 2.4). Wrong positioning of the tool may lead to its damage or to detachment of the socket.

- **The tool must be aligned parallel to the central axis of the bolt connection (see Fig. 2.4)**

  The tool is only safe to use when the operator has been properly trained, and is competent in its application and use. The tool must be mounted and maintained in alignment with the bolt / nut central axis, not tilted or skewed, and with the reaction arm firmly positioned against a rigid structure.

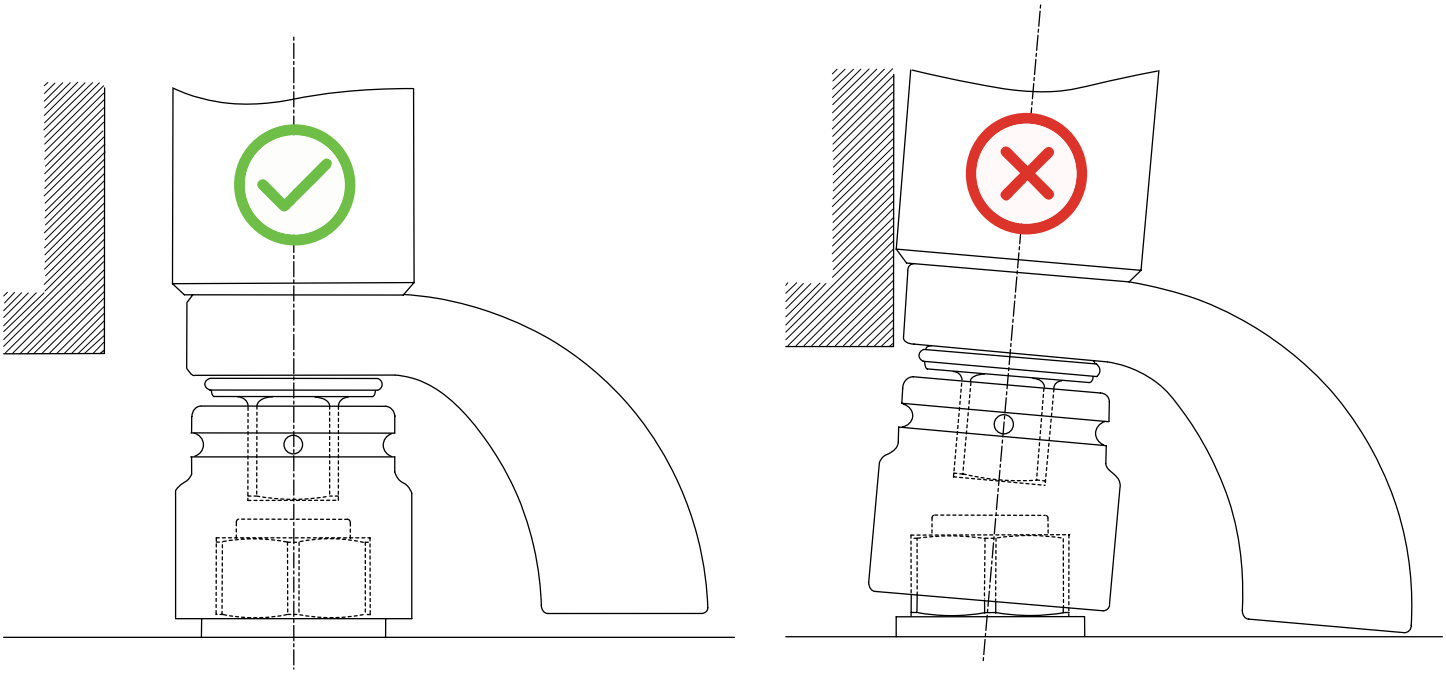

Fig. 2.4. Avoid Skewed Positioning of the Tool

- **Interruption of compressed air supply:**

  When the supply of compressed air is interrupted, release the start trigger (6). Securely remove the tool from the bolted connection. When the air supply is restored, undo the bolted connection that was previously tightened and tighten again.

⚠WARNING : Do not carry the torque wrench by lifting it merely with the handle!

- **When the tool is to be lifted or transferred to another bolted connection it must be carried with two hands, with the second hand placed nearby the centre gearbox. Lifting the tool merely with the handle may cause the equipment to be dropped due to weight, resulting in damage to the handle or the motor**.

OPERATION

1. Pneumatic Torque Wrench Operation Principle

The NRP series pneumatic torque wrench is a continuous rotation tool, capable of high torque outputs in both clockwise and anti-clockwise directions. Its two-speed user selectable transmission provides high and low rotation speeds, the pneumatic motor giving three further power levels allowing variable torque outputs to be achieved with automatic switch off when the desired torque is reached.

To achieve sufficient accuracy of the torque applied to the bolted connection, the nut / bolt must be tightened from loose to tight in one continuous operation and without interruption (until torque wrench stops rotating / stalls)

As part of the tightening operation, the torque wrench must achieve full rotation speed prior to applying the torque to load the bolt, the nut should be loose to start with to allow full speed to be achieved.

⚠ WARNING : When tightening of bolts is prematurely interrupted, the bolt must be loosened, and the tightening procedure must be repeated. When any bolt (nut) is tightened with a specific torque, it must not be tightened continuously with the same torque (tightening of bolted connections). Such improper operation can lead to an unacceptable (undesirable) increase in tightening torque.

To ensure good repeatability, and accurate switch off at the pre-determined torque, the air pressure should be monitored continuously. Oscillations of the air supply will affect the accuracy of the tool stall out, and may lead to deviations in the tightening torque.

NOTE: Air consumption at maximum tool load is 980 L/min (35 CFM), ensure the air supply is capable of achieving this consistently.

When the compressed air pressure is constant, the torque accuracy (repeatability) for switching the tool off falls within the limit ±3%.

The calibrated torque levels (for various settings of the torque wrench) refer to hard bolt connections with a short compression distance. Bolted connections of other types, such as those with thick soft gaskets, whereby nut travel may be excessive, the torque level may require adjustment.

2. Extremely Hazardous Conditions

To remove bolts with unknown tightening torque and especially corroded bolts, **do not set the tool to more than 75% of maximum power.** If the bolt does not break free at 75% of maximum tool power, do not attempt to increase the tool torque setting, select a larger tool with higher torque capacity.

Should any abnormal jerks or shocks take place during tightening or loosening the bolt connection, DO NOT use the torque wrench, and seek advice from the tool supplier before any further use.

3. Torque Setting (refer to Figs. 2.5 and 2.7)

⚠ WARNING : The operating pressure (and thus torque output) must be set using the pressure gauge on the air control unit, with the start trigger (6) on the torque wrench held depressed, and the torque wrench running at full rotation speed (and not applied to a bolt)

For clockwise rotation (tightening) the torque settings can be varied from minimum to maximum in accordance with calibration / torque output chart supplied.

For anti-clockwise rotation (loosening), the torque wrench will always operate at maximum power. Ensure that the air pressure is set to deliver 80% of available power (4.7 Bar / 73 psi) to ensure safe use and protection of the internal gears.

Several power settings can be applied to the pneumatic torque wrench. For each two speeds of the transmission gear (1 – working speed, 2 – fast speed) one of three settings can be selected for the pneumatic motor (see Fig. 2.5) and for each of these settings the air supply can be adjusted to achieve the required torque in accordance with the calibration / torque output chart supplied with the tool.

Levels of the tool torque as a function of the compressed air pressure and the transmission gear settings are summarized in the calibration certification provided with the product.

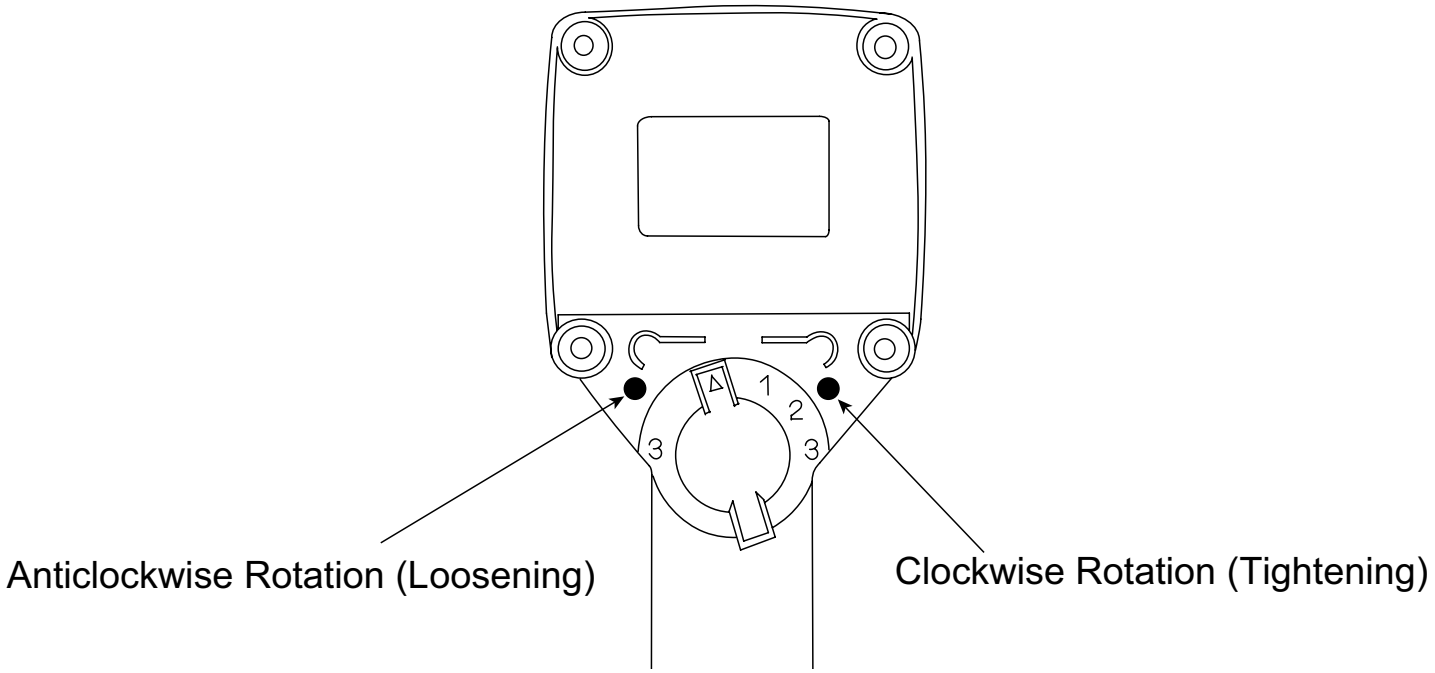

Fig. 2.5 Pneumatic Motor Settings for the Tightening / Loosening Torque

Torque values can be adjusted in-between of the calibrated values to obtain the required torque output using linear interpolation (proportioning between two values).

4. Air Control Unit Operation

To assure high accuracy of the final torque the torque wrench must be operated only with the air control unit (which includes a pressure regulator, water separator, lubricator and pressure gauge) and a compressed air hose supplied by SPX FLOW Bolting Systems.

Oil grades with the following viscosity parameters are recommended for the air control unit:

- 32 mm²/s (cST) at 40 ºC (0.00034 ft²/s at 104 ºF)
- ISO – Class VG 32, class HM/HLP

Number of oil drops

The number of oil drops supplied by the lubricator is adjusted by means of a control screw located on the top of the lubricator. The range from 6 to 8 drops of oil per minute is recommended.

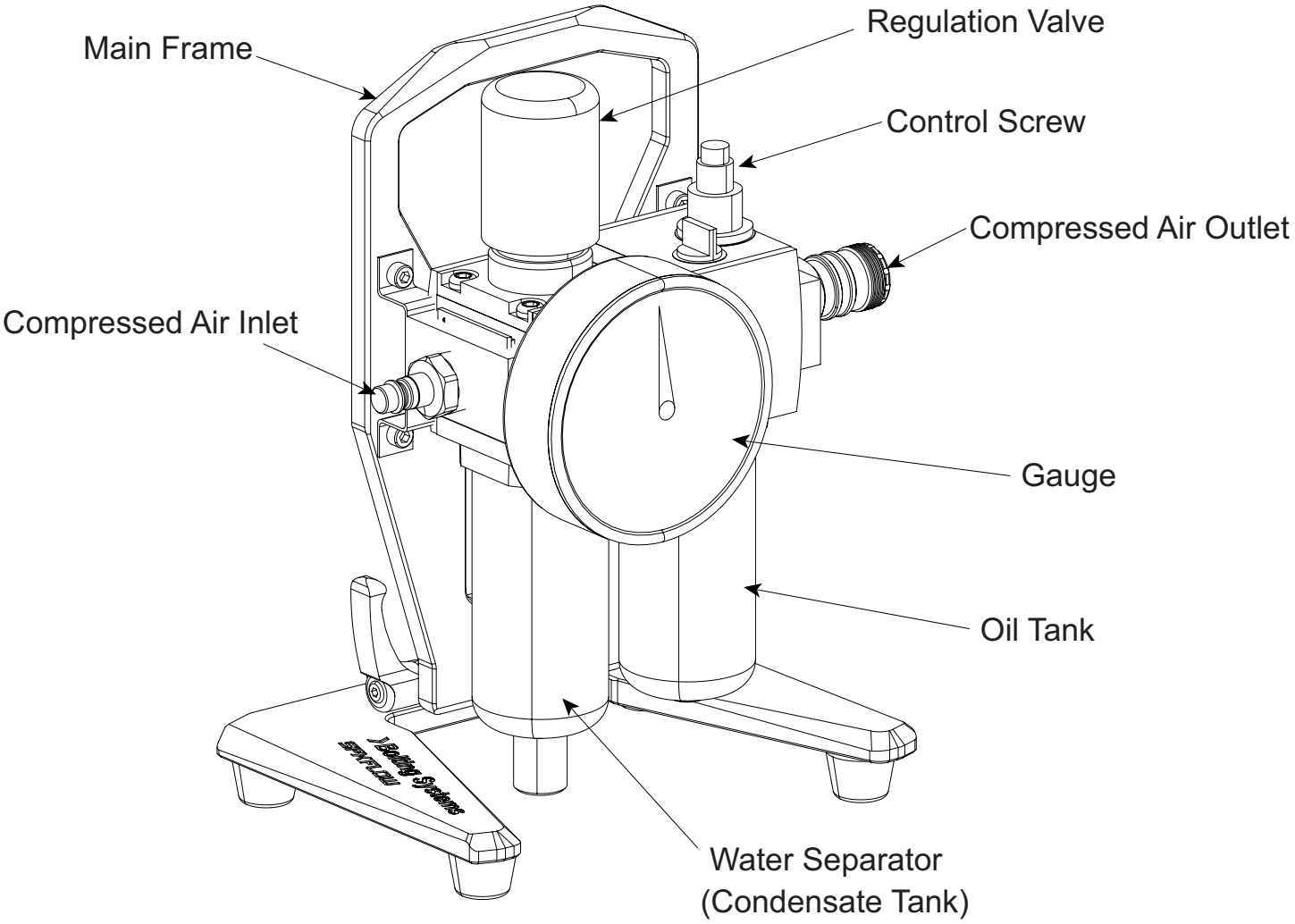

Fig. 2.6 Air Control Unit

Any water accumulated in the separator / condensate tank should be emptied each time that the air inlet/supply line is disconnected, or when the tank is full (disconnect inlet air supply before emptying).

5. Using the Pneumatic Torque Wrench

- Attach the reaction arm (1) to the tool by aligning the splines (2), slide fully into position and secure with the ring (5) (see Fig. 2.7)
- Attach a socket (3) onto the square drive (4) and reliably secure using an attachment pin or similar. Use only impact grade sockets, and ensure that the socket A/F (Across Flats) size is correct for the bolt / nut being tightened.
- Select the desired rotation speed using the gear selector switch (8). Referring to the torque calibration chart supplied with tool, select the motor setting and corresponding air pressure to achieve the required torque for the application. Position the motor setting switch (7) as required.
- Connect the tool to the air control unit using the supplied hose, and connect the air control unit to the main air supply.
- With the tool NOT applied to the nut / bolt, depress the start trigger (6), and adjust the air pressure using the air control unit to achieve the desired torque, WITH THE TOOL ROTATING AT FULL SPEED (Idle Speed).

NOTE : After the air pressure has been set with the tool running, when stopped, the air pressure will increase slightly. THIS IS NORMAL, DO NOT RE-ADJUST THE AIR PRESSURE.

- Ensure that the nut / bolt on the application to be tightened is LOOSE.
- Place the tool onto the nut / bolt head, ensuring the socket is fully engaged, and the tool is correctly aligned / positioned as indicated in Fig. 2.4.

NOTE : When the tool is started, the reaction arm will rotate towards the nearest rigid structure, in the opposite direction to the drive rotation, and lock against it. Ensure that the point at which the reaction arm touches the rigid structure is as indicated in Figures 2.1 and 2.2, and at the same level as the socket.

- Start the tightening operation by depressing the start trigger (6). Hold the trigger depressed, the nut rotation will begin, and continue to hold the trigger depressed until the drive is automatically switched off (stops rotating or stalls). When the drive automatically switches off, the target torque has been reached.

NOTE : If the tightening operation is interrupted, or stopped mid-way, the nut / bolt must be loosened and the tightening operation started again.

- Detach the tool from the bolted connection. If the tool cannot be removed (Reaction Arm locked), change the direction of the drive using the motor setting switch (7), press the start trigger (6) momentarily to release the reaction arm from the support structure.

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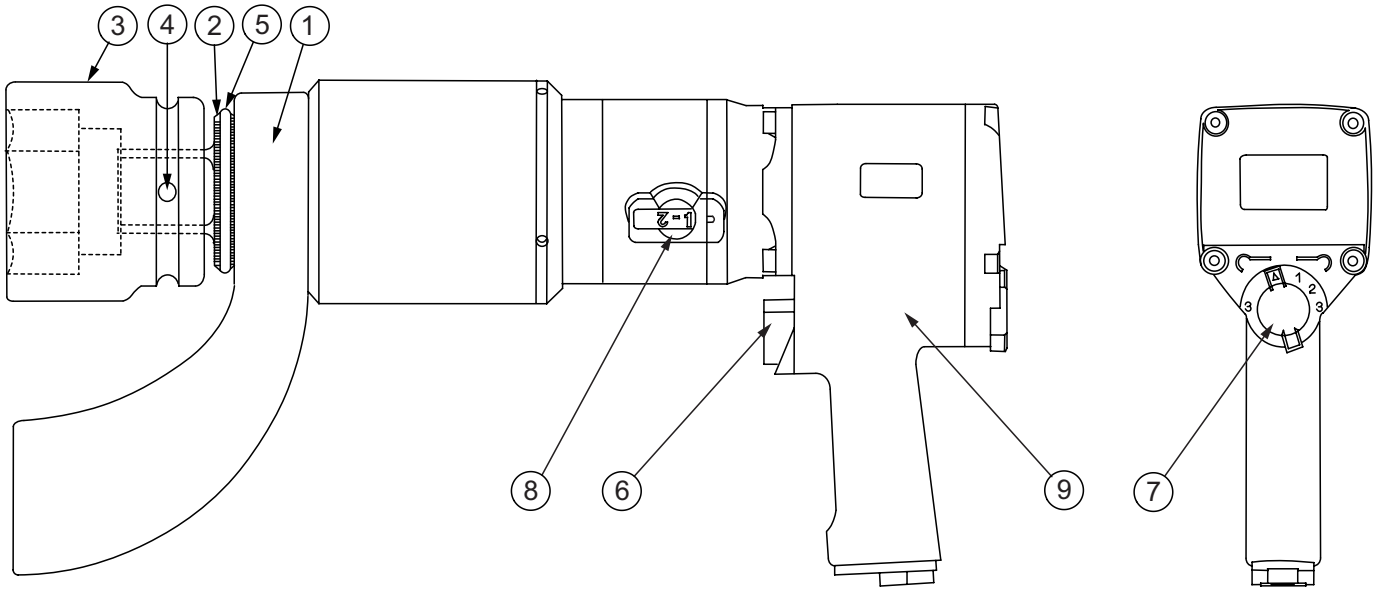


Fig. 2.7. NRP Series Pneumatic Torque Wrench

ITEM	DESCRIPTION
1	Reaction Arm
2	Splines
3	Impact Socket
4	Square Drive
5	Ring (O-Ring)
6	Start Trigger
7	Motor Setting Switch
8	Gear Selector Switch
9	Air Motor

INSPECTION, MAINTENANCE AND REPAIR OF THE EQUIPMENT

To ensure that the pneumatic torque tool and ancillary equipment maintain consistent accuracy, particularly under heavy duty conditions with frequent and intense use, it is recommended that inspection and servicing be carried out by the manufacturer or authorized service centers. The time interval should depend upon the intensity of use, but typically between 6 months to one year is recommended.

Tools will be calibrated at the time of service, and the calibration should only be done using test equipment suitable for continuous rotation torque tools.

To achieve the maximum possible lifetime of the equipment it is recommended to limit its power to 80% of its maximum capacity.

All repairs must be carried out by the manufacturer or authorized service center, since replacement of parts may lead to alteration of the torque accuracy. Therefore any repair must be followed with checking of the torque output, tool calibration and a function test.

TECHNICAL PARAMETERS

1. Pneumatic Torque Wrench

- Consumption of compressed air - **980 L/min (35 CFM)**
- Inlet pressure **up to 6.3 bar (91.37 PSI)**
- Range at ambient temperatures: **0°C to +50°C (32°F to +122°F) Operation**
  -20°C to +60°C (- 68°F to +140°F) Storage
- Maximum operation humidity – **Not more than 85% of relative humidity in 30°C (86°F)**
- Compressed air preparation: **Lubricator with supply of 6 drops /min**
- Oil grade: **Viscosity class ISO VG 32 and Quality class: HM/HLP**
- Dimensions of hoses to connect the torque wrench to the air control unit: **Inner diameter not less than 16 mm (0.63 inch); length between the air control unit and the wrench not more than 30m (98 ft.)**
- Torque tolerance **± 3%**

Dimensions of hoses to connect the air preparation unit to the compressed air supply pipeline: inner diameter not less than 16 mm (0.63 inch) and length not more than 30 m (98 ft.). The wrench can also be operated with longer hoses, but under such circumstances a recalibration is needed and a new torque table must be developed since torque levels are reduced.

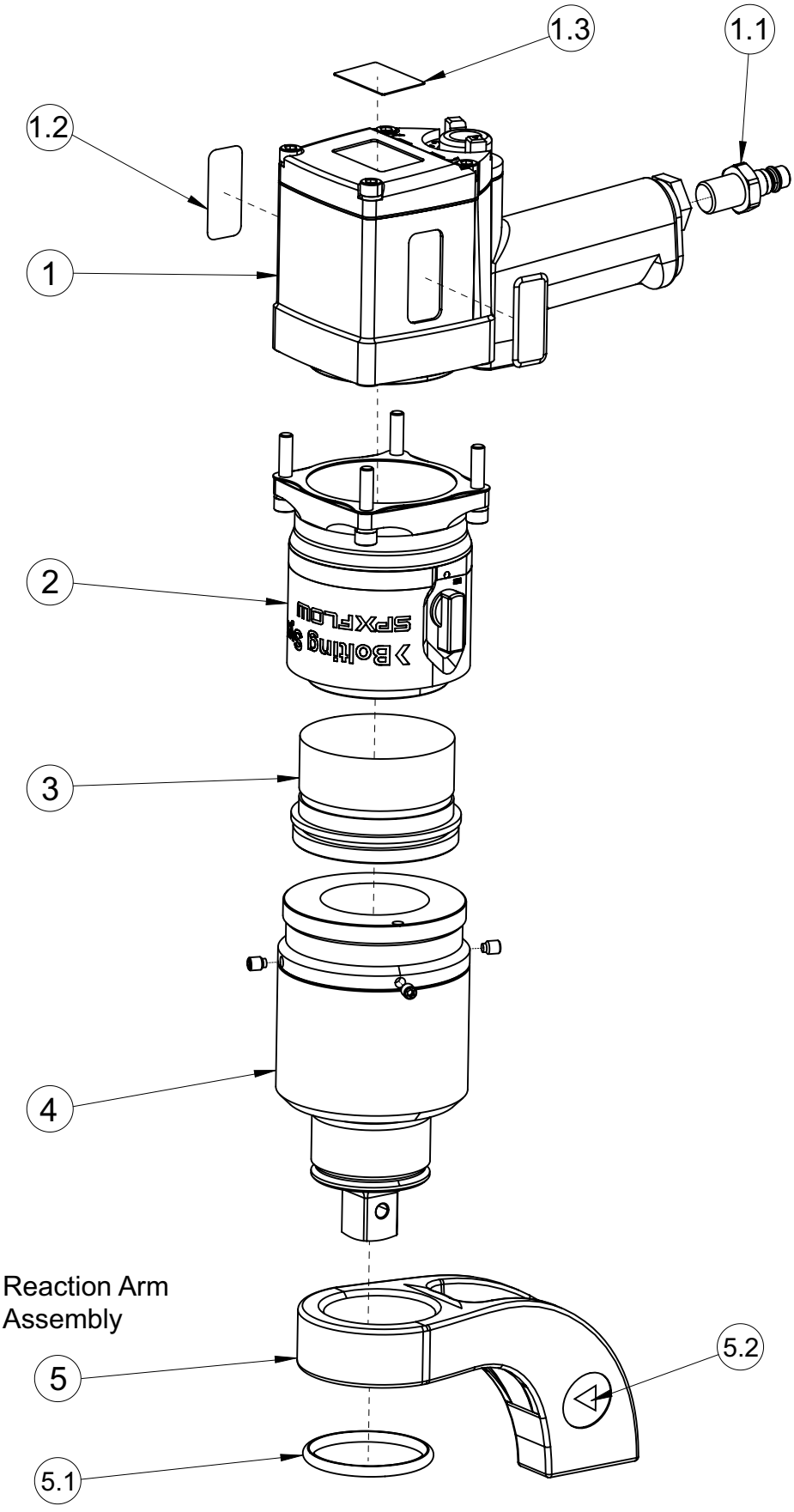
Model	Min. Torque		Max. Torque		Rotation Speed	Square Drive		Diameter		Height/ Length (*)		Weight (†)	
	ft-lbs	Nm	ft-lbs	Nm	rpm	Inch	mm	Inch	mm	Inch	mm	lbs	kg
NRP-9	44	60	664	900	40	3/4	19	3.5	88	14	350	20.2	9.2
NRP-15	74	100	1106	1500	28	3/4	19	3.5	88	14	350	20.2	9.2
NRP-30	140	190	2213	3000	13	1	25.4	3.5	88	15	391	22.9	10.4
NRP-45	221	300	3319	4500	9	1½	38.1	4	102	16	410	31.1	14.1
NRP-60	354	480	4425	6000	6	1½	38.1	4	102	16	410	31.1	14.1
(*) Height/Length dimensions do not include reaction arm.													
(†) Includes reaction arm weight.													

2. Air Control Unit

- Max working pressure **6.3 bar (91.37 PSI)**
- Max inlet pressure **up to 12 bar (174 PSI)**
- Range at ambient temperatures: **0°C to +50°C (32°F to +122°F) (Operation)**
  -20°C to +60°C (-68°F to +140°F) (Storage)
- Lubricator with supply of **6 drops /min**
- Oil grade: **Viscosity class ISO VG 32 and Quality class: HM/HLP**
- Oil tank capacity: **0,1 L (33.8 oz)**
- Condensate tank capacity: **0,1 L (33.8 oz)**

⚠ WARNING : **The unit for compressed air preparation can be connected to the compressed air pipeline with the maximum pressure of 12 bars (174 PSI). No pressure levels above 6.3 bars (91.37 PSI) should be set when the torque wrench is operating / running under load. Operation with higher levels of compressed air pressure may lead to damage of the equipment!**

Main Assembly



Parts List Continued

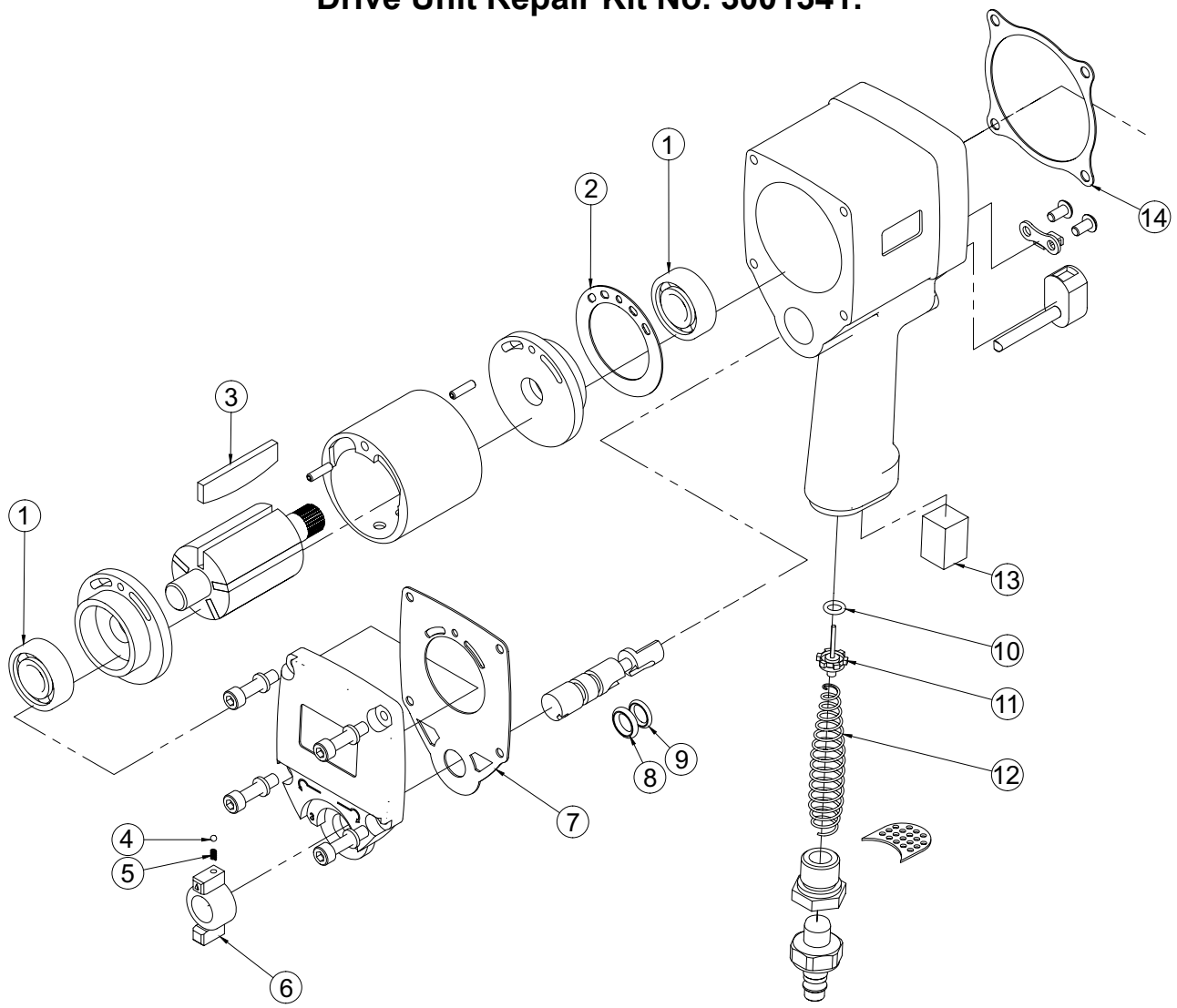
ITEM	PART NO.					DESCRIPTION	QTY.
	NRP-9	NRP-15	NRP-30	NRP-45	NRP-60		
1	3001322-9	3001322-15	3001322-30	3001322-45	3001322-60	DRIVE UNIT, NRP SERIES	1
1.1	2010891					MALE ADAPTOR	1
1.2	1001311					DECAL, BOLTING SYSTEMS (NRP SERIES)	2
1.3	1001282	1001283	1001293	1001305	1001297	DECAL, SPECIFICATION	1
2	3001323					GEAR BOX, NRP SERIES	1
3	3001327	3001328	3001329	3001330	3001331	INTERMEDIATE GEAR ASSEMBLY	1
4	3001324		3001325	3001326	3001355	MAIN PLANETARY GEAR ASSEMBLY	1
5	3001332		3001333	3001334		REACTION ARM ASSEMBLY	1
5.1	2010885			2010886		O-RING (50X5 NBR70; for NRP-9, NRP-15 and NRP-30) O-RING (65X5 NBR70; NRP-45 and NRP-60)	1
5.2	1000749					DECAL, SAFETY, PINCH POINT	1

Refer to any operating instructions included with this product for detailed information about operation, testing, disassembly, reassembly, and preventive maintenance.

Items found in this parts list have been carefully tested and selected. **Therefore: Use only genuine Bolting System replacement parts!**

Additional questions can be directed to our Technical Services Department.

Drive Unit Repair Kit No. 3001341.



ITEM	DESCRIPTION	QTY.
1	BEARING, SET (2 PCS.)	1
2	END PLATE GASKET	1
3	ROTOR BLADE, SET (5 PCS.)	1
4	STEEL BALL	1
5	SPRING	1
6	REVERSE VALVE KNOB	1
7	REAR GASKET	1
8	O-RING	1
9	O-RING	1
10	O-RING	1
11	THROTTLE VALVE ASSEMBLY	1
12	SPRING	1
13	MUFFLER	1
14	FRONT GASKET	1

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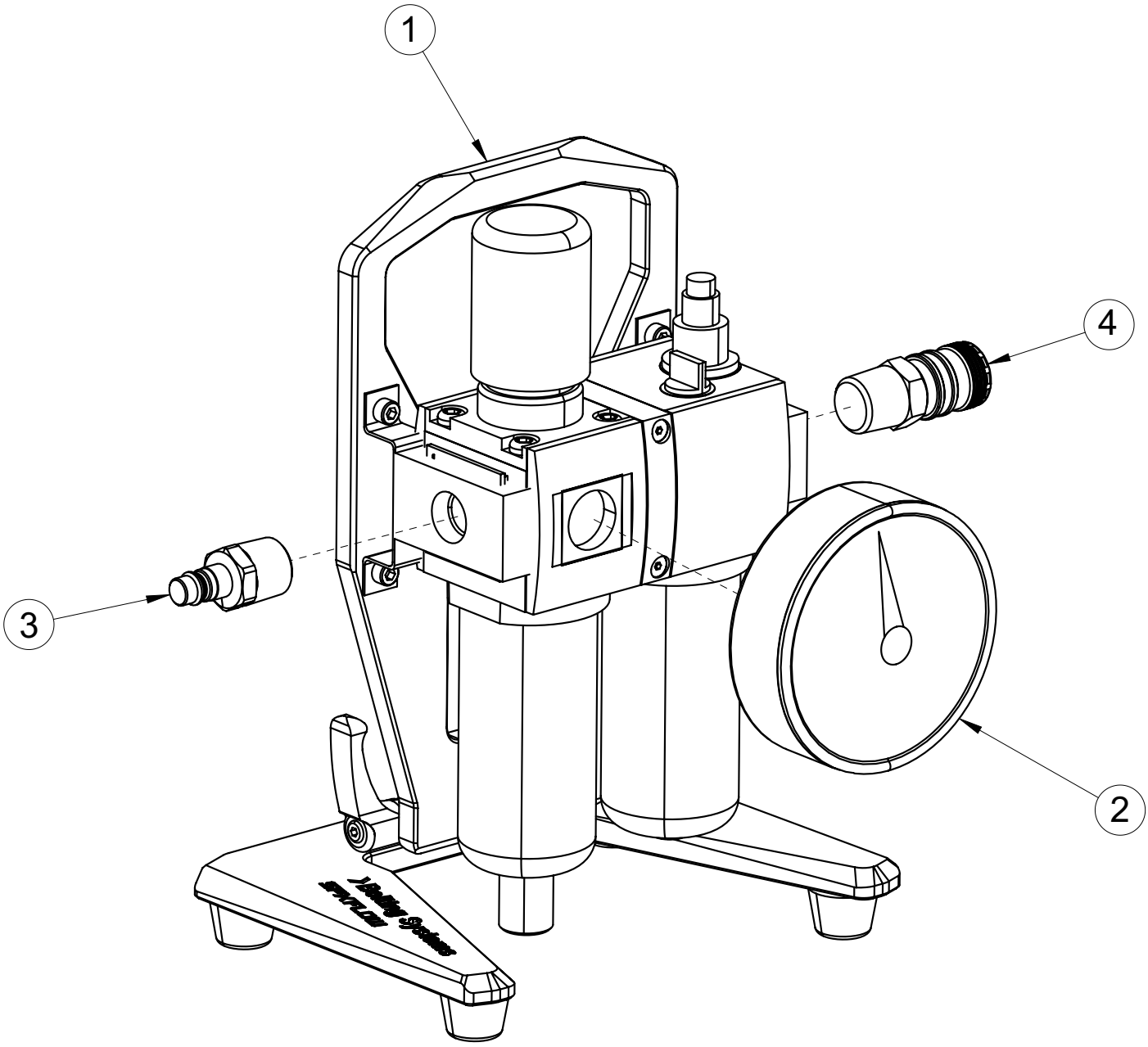
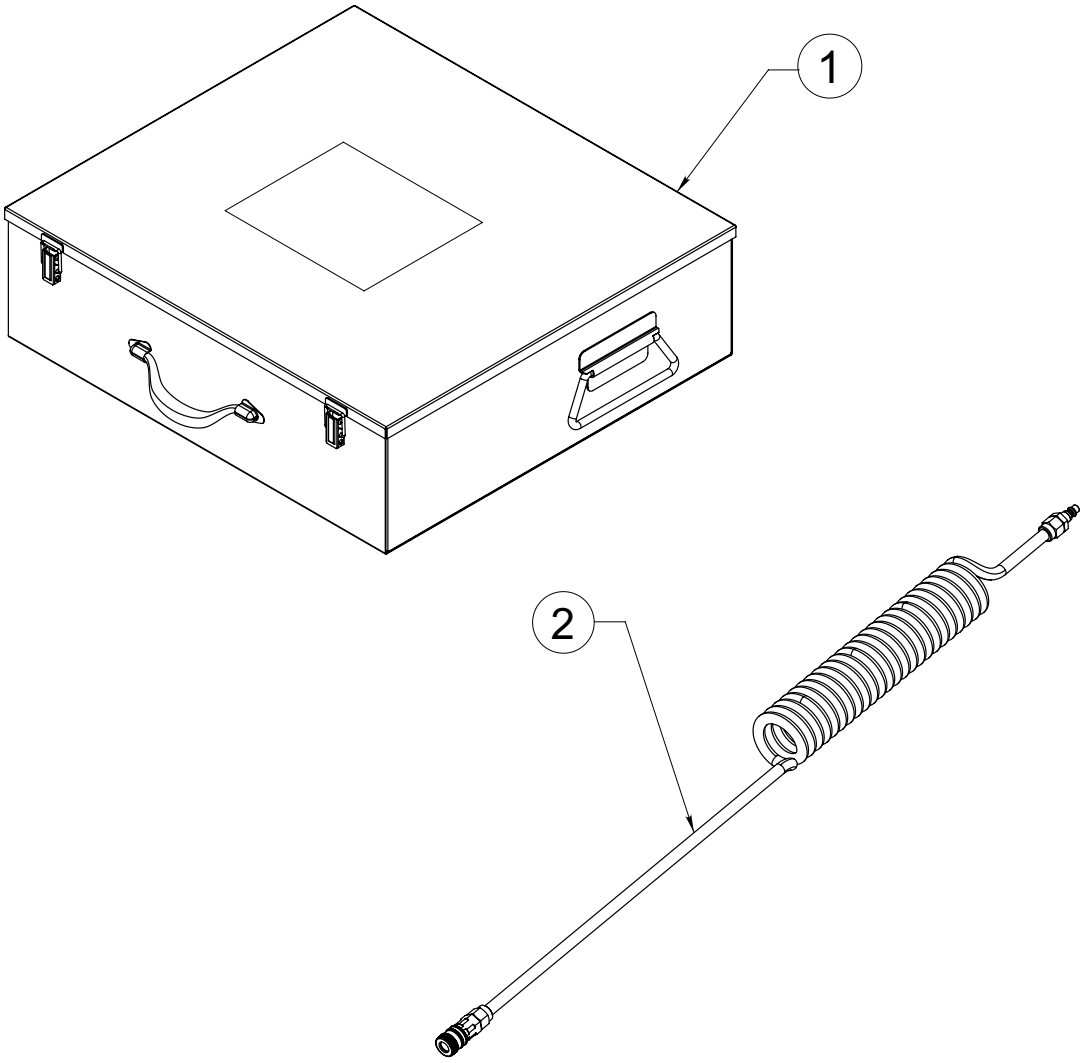
Air Control Unit Assembly



ITEM	PART NO.	DESCRIPTION	QTY.
1	NRP-CU	AIR CONTROL UNIT (FOR NRP)	1
2	2010894	GAUGE, 140 PSI 4" DIA (SPXFLOW)	1
3	2010892	MALE ADAPTOR	1
4	2010893	FEMALE COUPLER	1

Carrying Case and Air Hose



ITEM	PART NO.	DESCRIPTION	QTY.
1	2010883	CASE, CARRYING (NRP KIT)	1
2	AH4M	AIR HOSE (GREEN), SPIRAL 4M	1

BOLTING SYSTEMS FACILITIES AND CONTACT

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boltingsupport@spxflow.com

English Original

EC DECLARATION OF CONFORMITY

We declare under our sole responsibility that our Pneumatic Torque Wrench models :

*** NRP-9, NRP-15, NRP-30, NRP-45, NRP-60**

to which this declaration relates are in conformity with the following:

EN, EN-ISO, ISO standards	**Title**
Per the provisions of the Machinery Safety Directive	**2006/42 EC**
EN_ISO 12100	Safety of machinery, basic concepts, general principles for design, risk assessment & risk reduction
EN 11148-13	Hand-held non-electric power tools – Safety requirements part 13 : Fastener driving tools
EN 4414	Pneumatic Fluid Power – general rules and safety requirements for systems & their components

We hereby declare that the equipment specified under * conforms to the above quoted European Community Directive(s) and Standard(s) as per the currently valid revision.

SPX FLOW Europe Ltd. - Netherlands is certified and registered to ISO 9001: 2015.

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The Netherlands February 15th, 2023

Andreas J. Klemm, PhD

English original

UKCA DECLARATION OF CONFORMITY

We declare under our sole responsibility that our Pneumatic Torque Wrench models :

*** NRP-9, NRP-15, NRP-30, NRP-45, NRP-60**

to which this declaration relates are in conformity with the following:

Legislation & standards	**Title**
The Supply of Machinery (Safety) Regulations 2008 No. 1597 and amendments	
BS EN_ISO 12100	Safety of machinery, basic concepts, general principles for design, risk assessment & risk reduction
BS EN 11148-13	Hand-held non-electrical power tools – Safety requirements part 13 : Fastener driving tools
BS EN 4414	Pneumatic Fluid Power – general rules and safety requirements for systems & their components

We hereby declare that the equipment specified under * conforms to the above quoted UK Legislation and international Standard(s) as per the currently valid revision.

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