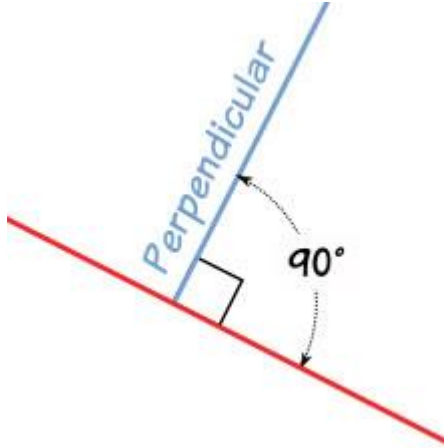


The newton metre is a unit of torque (also called "moment") in the SI system. One newton metre, sometimes hyphenated *newton-metre*, is equal to the torque resulting from a force of one newton applied perpendicularly (*Perpendicular* definition: *Perpendicular* simply means 'at right angles'. A line is *perpendicular* to another if they meet at 90 degrees.) to a moment arm which is one metre long.



1 kilogram-force metre = 9.80665 Nm (keep Simple 10Nm=1kg of force from a 1metre bar to pinch point, and a further movement to 90 Degrees)

Page 55 Operation Manual – Manufacturers Average (may Vary) 30 Nm – 68Nm

So a one (1) metre long bar pushed with the tip of your finger until stops moving and another push until it reaches 90 degrees = 30 Nm (3.059kgs of force)

- If the bar is 500mm – 30Nm (6.12kgs of force)
- If the bar is 250mm – 30Nm (12.24kg of force)
- If the bar is 125mm – 30Nm (24.48kg of force)
- If the bar is 62.5mm- 30Nm (48.96kg of force)-Spanner length
- If the bar is 31.25mm- 30Nm (97.62kg of force)-Spanner length

Now to get to 68Nm = 6.93kg of force

- If the bar is 250mm – 68Nm (27.72kg of force)
- If the bar is 125mm – 68Nm (55.44kg of force)
- If the bar is 62.5mm – 68Nm (110.88kg of force)-Spanner length

From strong to weak the average adult male can produce between 50 – 75kg pull and push. You can try this by kneeling beside an electronic scale and push with your arm putting slight body weight behind it, and or clamp a scale in a vice and pull the weighing hook.

Morale of the Story if you use d or e you could never over tighten the valve. Remember once you hit resistance tighten no further than 90 degrees.

Or

Better still purchase a torque wrench (which has to be calibrated yearly)



TOOL BOX 017- TORQUE & CORROSION

Aluminium and its alloys exhibit a wide range of corrosive attacks, varying from general etching of surfaces to penetrating attacks along the internal grain boundaries of the metal. The corrosion products of aluminium are seen as white-grey powdery deposits.

Copper and Copper Alloys Copper and its alloys are generally corrosion resistant, although the products of corrosive attack on copper are commonly known. Sometimes copper or copper alloy surfaces will tarnish to a grey-green colour, while the surface will remain relatively smooth. This discoloration is the result of the formation of a fine-grained, airtight copper oxide crust, called a patina. Patina (a small amount of surface rust, without pitting) offers good protection for the underlying metal in ordinary situations. However, exposure of copper alloys to moisture or salt spray will cause the formation of blue or green salts called verdigris (a bright bluish-green encrustation). The presence of verdigris indicates active corrosion.

Metal failures in service are often the result of the combined influence of corrosion and mechanical factors, the most common being stress corrosion, which occurs under the simultaneous action of high tensile stress and an appropriate corrosive environment, and corrosion fatigue which occurs under cyclic (fatigue) stressing in a corrosive environment. Brasses, for example, show high susceptibility to stress corrosion in the presence of even small quantities of ammonia.



When inspection is carried out on the cylinder, and the valve assembly.

- a. Pitting to the cylinder "O" ring seating – Condemn the extinguisher (Do not put thicker "O" ring on or over-tighten the valve assembly).
- b. If indications of a blue/green corrosion wipe clean (no abrasives to be used), and inspect for hair line cracking.- If cracking suspected condemn the valve – If blue/green corrosion does not clean of condemn the valve. If any pitting found – condemn the valve.

Presented By: Name: _____	Date _____	Signature _____
----------------------------------	-------------------	------------------------

NAME	SIGNATURE	NAME	SIGNATURE



TOOL BOX 017- TORQUE & CORROSION