

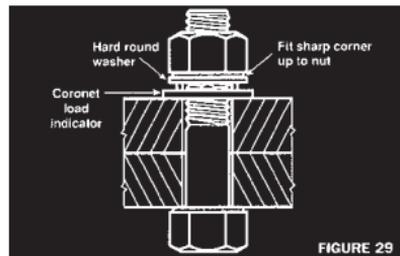
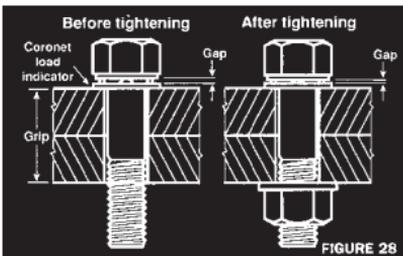
**For direct tension indication
tightening of Blacks Fasteners
High Strength Structural Bolts
AS 1252.**

Coronet Load indicators are designed for use with Blacks high strength structural bolts and they provide a simple and accurate aid to tightening and inspection. They can be supplied with galvanised coating for good corrosion resistance.

The Load Indicators are special hardened washers carrying 4 to 7 protrusions, depending on bolt diameter (Figure 27) and these are assembled with the protrusions bearing against the under side of the bolt head, leaving a gap. The nut is then tightened until the protrusions are flattened and the gap reduced to that shown in Table 37. The induced bolt tension at this average gap will be not less than the minimum specified tension in Table 38. In applications where it is necessary to rotate the bolt head rather than the nut in tightening, the Coronet Load Indicator can be fitted under the

nut using an extra hard round washer under the nut and protrusions bear against this washer (Figure 29). In tightening with Load Indicators it is still required that this tightening be carried out in two stages. First stage involves a preliminary tightening to a "snug tight" condition using a podger spanner or pneumatic impact wrench. The object of the preliminary tightening is to draw the mating surfaces into effective contact. On large joints take a second run to ensure that all the bolts are "snug tight". Carry out final tightening by reducing gap between bolt head and load indicator to 0.40mm or less and this can be checked with a feeler gauge.

MOST IMPORTANT: A nut should not be slackened after fully tightening with a Load Indicator. If this is necessary, fit a new Load Indicator for the second tightening.



**For direct-tension indication
tightening of Blacks Fasteners
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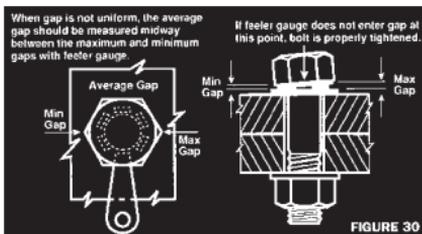


Table 37

Load indicator gaps to give required minimum shank tension

Load Indicator Fitting	AS 4100 (1511)
Under bolt head black finish bolts	0.4mm
All plating except galvanised bolts	0.4mm
Galvanised bolts	0.25mm
Under nut with hard flat washer, black and all flat washer coatings	0.25mm

Table 38

Load indicator gaps to give required minimum shank tension

Nominal Bolt Diameter	Outside Diameter D2	Inside Diameter D1	Thickness A Max.	Minimum Bolt Tension kN
M16	35.45	16.70	4.26	100
M20	41.67	20.84	4.26	150
M24	50.69	24.84	4.26	220
M30	59.59	30.84	4.26	350
M36	80.00	37.50	4.26	515