Guide Sheet No. 6

# Booster Inlets — Single Insert Boosters

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This guide sheet outlines the position of Fire & Rescue NSW (FRNSW) in relation to the use of single insert boosters as booster inlets.

FRNSW acknowledges that single insert boosters are being used for booster inlets in fabricated fire hydrant booster assemblies as these pre-fabricated units offer easy installation and maintenance as well as reduced costs (see Figure 1).

***Note:*** *An insert booster is designed to be inserted straight into piping of a fabricated booster assembly. Traditional boosters include a cast body/chamber designed to AS 2419.3.*

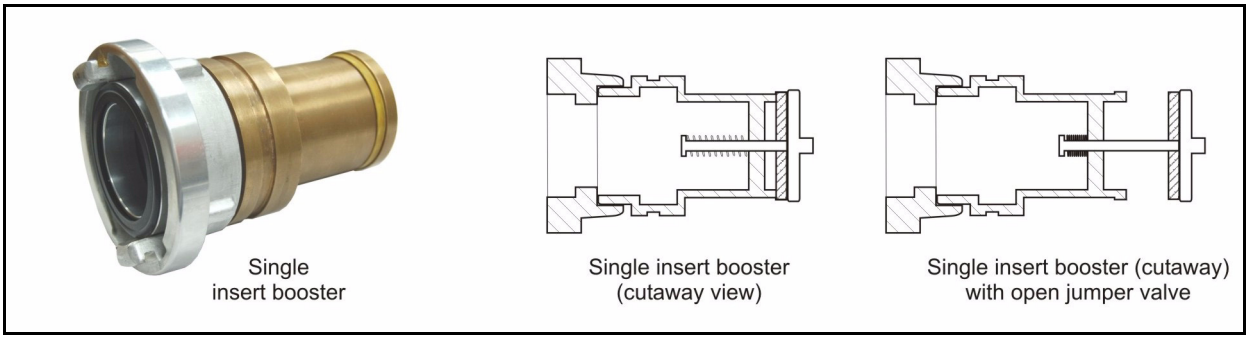


*Figure 1 Side view and cutaway of single insert booster including plunger valve operation*

FRNSW currently has concerns regarding the quality of insert boosters being installed. Standards Australia consider insert boosters as a component of a booster assembly which do not meet any identified standard.

Insert boosters are considered an innovative new design not complying with the prescriptive requirements of AS 2419.3. FRNSW therefore considers the use of insert boosters in any booster assembly as a performance based design.

Single insert boosters must be compliant with the relevant requirements of AS 2419.3 (e.g. tested for correct materials, valve spring pressure, orifice diameter, pressure and flows).

Single insert boosters compliant with AS 2419.3 must include an appropriate mark of compliance that is visible when the booster is installed (i.e. around the neck so that it is visible in-situ with the flange collar fitted). The mark of compliance must include:

(a) the standard to which it complies (i.e. AS2419.3);

(b) the Class rating to which it was pressure tested (e.g. Class 14, 21 or 33);

(c) the Standards mark (i.e. the five ticks).

FRNSW also has concerns regarding incorrect methods of installation of single insert boosters which result in insufficient pressure and flow not being provided (see Figure 2).

***Note:*** *When an insert booster is fitted inside DN80 piping the clearance around the jumper valve inside the pipe wall is only 35% of the required cross section area.*

Single insert boosters must be installed in a manner which allows the jumper valve to fully open and provide the maximum pressure and flow as designed (i.e. as per AS 2419.3)(see Figure 3).

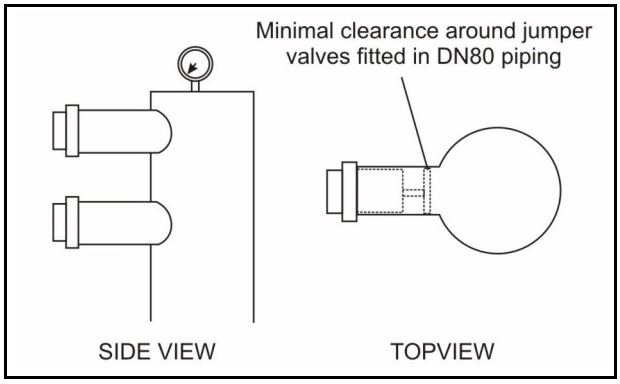


*Figure 2 Example of reduced flow around valve*

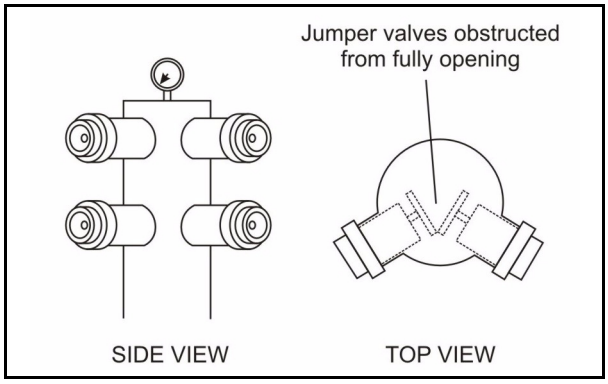


*Figure 3 Example of obstructed valve operation*

Each single insert booster should be fitted to 100mm pipe (DN100) which meets the requirement of AS 2419.1. The insert booster should be fitted to the pipe using an 80mm to 100mm step-up (e.g. a reducer fitted in reverse) flanged collar (see Figure 4).

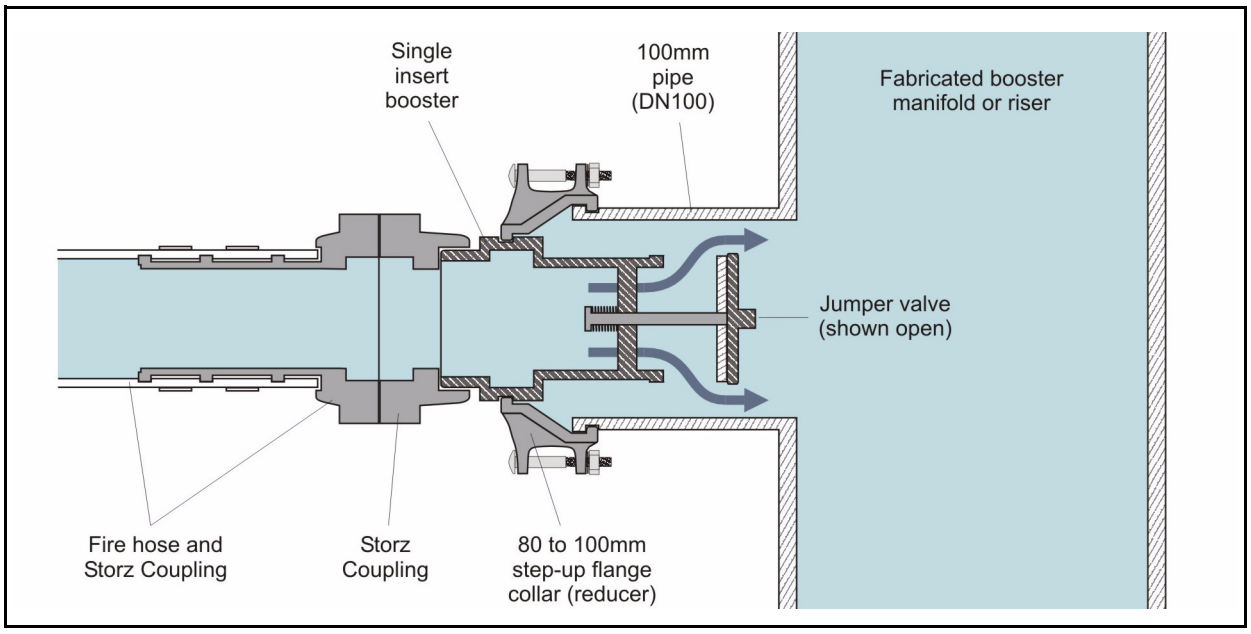


*Figure 4 Cutaway of single insert booster fitted to DN100 piping using an 80 to 100mm step-up*

When insert boosters are utilised, the fire hydrant booster assembly must be commissioned and tested in accordance with Australian Standard AS 2419.1 to ensure the flow and pressure requirements are met. The hydrant booster assembly must be capable of supplying 10 litres per second at 700kPa for each number of simultaneous outlets identified by Table 2.1 of AS 2419.1 (e.g. if 3 simultaneous outlets are required, then the booster assembly must supply a minimum flow of 3 x 10 litres per second = 30 litres per second at 700kPa).

***Note:*** *Section 10 of Australian Standard AS2419.1 details the requirements for commissioning a fire hydrant system.*