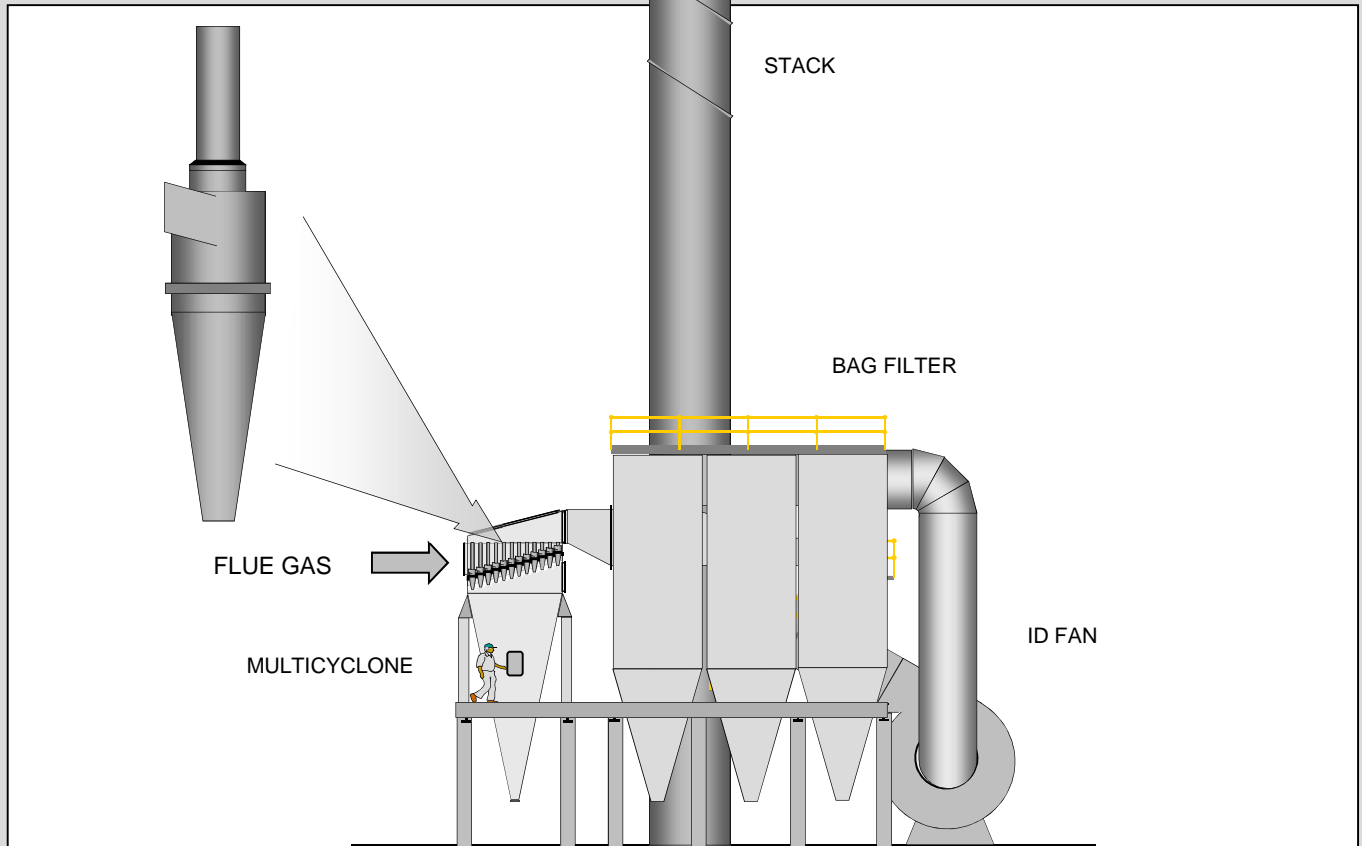
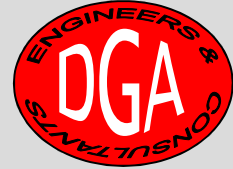


## PRODUCT DESCRIPTION P302

### DGA MULTICYCLONE



*This diagram shows the arrangement of the multicyclone with a Modular Bag Filter unit.*

#### **SOPHISTICATED EMISSION CONTROL EQUIPMENT**

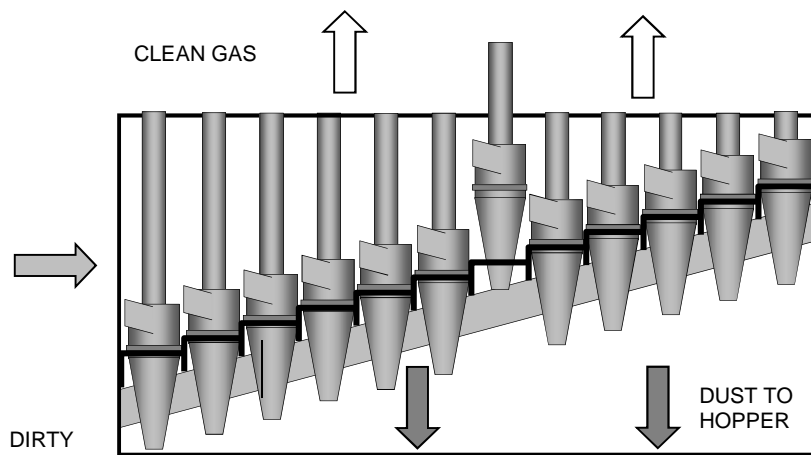
The Emission criteria of the European Union (EU) are met by using a multicyclone in tandem with a multi chamber bag filter unit

Control of particulate emissions is getting tougher and the EU is demanding that particulates from burning solid fuel should be controlled on larger boilers to  $\sim 10 \text{ mg/Nm}^3$ . This means that multicyclones cannot be used alone to manage the particulate emission requirements of most governments.

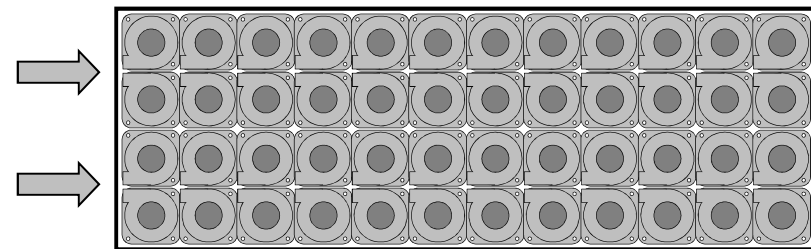
However there is life in this tried and tested system as a pre-filter for the most efficient particulate collection device in use on modern biomass boilers, the modular bag filter. Bag filters and even ESP's (electrostatic precipitators) both suffer from internal fires caused by the infamous sparklers that are put out, by particularly, wood fires. These can cause smoulder fires on the bags of the filters which are almost impossible to extinguish.

The most easy remedy is not prevent the fire happening which is by destroying or trapping the sparklers before they get to the filter. Sparklers tend to be larger more fragile particles of low density that fly in the flue gas which can carry ignition to the dust on the filter bags. If the sparkler can be broken down and cooled by contact with a cyclone before it gets to the filter, then the sparkler is extinguished and no fire.

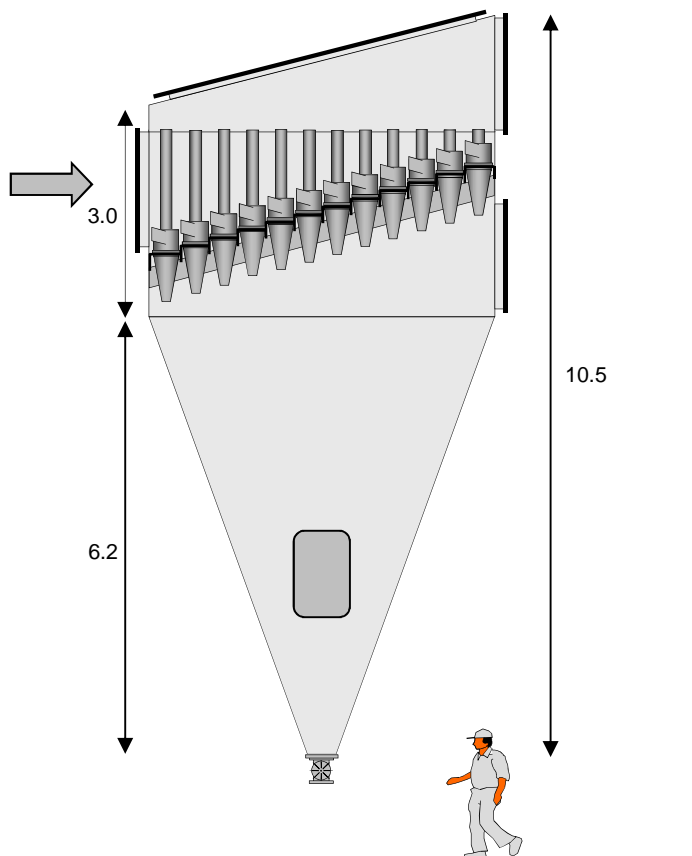
When flue gas recycling is used the multicyclone is also an efficient, low cost and robust mechanical separator which can be used to protect down stream fans and is therefore often used to clean the flue gas to this level before recycling the flue gas from the main gas stream.



ELEVATION OF CYCLONE BOX SHOWING WITHDRAWAL OF ONE CYCLONE  
 STAGGERED ARRANGEMENT OF CYCLONES IS SHOWN WITH SUPPORT BEAMS EVERY 3 ROWS



PART PLAN SHOWING NESTING OF THE CYCLONES  
 THE ARRANGEMENT ALLOWS GOOD GAS DISTRIBUTION TO EACH CYCLONE  
 SHAPE FOLLOWS STAIRMAND PRINCIPLE  
 CYCLONES CAST IN FC25 A WEAR RESISTANT CAST IRON



This diagrams shows a the size of Multicyclone for a ~ 100 tn/h steam boiler firing solid fuel.  
 The dust emissions from this alone would be down to 150 mg/Nm<sup>3</sup>. Not low enough to be installed alone, but enough to protect Downstream fans and to destroy 'sparklers' before they can set fire to dusty bags or electrodes.