



## **TECHNICAL BULLETIN**

### **ETI NOZZLE PERFORMANCE CHART**

CIRCULATION: ETI distributors and associated technical staff.

The ETI Fire System is a Listed Engineered Fire System that requires calculations be performed to confirm nozzle types and quantities together with adequate volumes of fire fighting agent to meet the listed design rules. These rules are defined in chapter 10 Design procedures and may be performed manually or with the use of the ETI approved design program being currently version 11.

However ETI has always provided a “Quick Selection” process with a nozzle performance chart. It is intended as a guide only where a representative is consulting with a customer and may not have the approved program available. It is also used in training and related exams to assess candidates’ proficiency in understanding this critical part of design of the ETI engineered fire system. It was pointed out recently that the chart had not been updated to include changes and additions to available cylinders currently supplied by ETI. I am pleased therefore to enclose that chart now updated.

## ETI FIRE SYSTEMS NOZZLE PERFORMANCE CHART Release 11 & 12.

This chart is used by accredited designers of the ETI fire system for estimates only of nozzle and foam quantity against known areas of risk to be protected. Values in colored cells represent approximate discharge times for each selection. This does not replace the calculations required in the ETI technical manual or those performed by the approved ETI design program.

| G.P Nozzle 4.1 litres per/sq mtr/minute each                                                                                                                                                                                                                                                                                                                                                                                       |                      | APPLIES TO NOZZLE DESIGN PARTS NOZCAPBRASSY60 & NOZCAPBRASSY120<br>RELATES FOAM & NOZZLE SELECTION TO AREA AND DISCHARGE TIME (SECONDS) |     |     |     |          |     |     |     |     |     |     |     |    |    |          |                                                                            |    |    |    |    |    |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|-----|----|----|----------|----------------------------------------------------------------------------|----|----|----|----|----|----|
| No of Nozzles →                                                                                                                                                                                                                                                                                                                                                                                                                    |                      | 2                                                                                                                                       | 3   | 4   | 5   | 6        | 7   | 8   | 11  | 13  | 14  | 18  | 24  | 30 | 36 | 44       | 54                                                                         | 62 | 68 | 75 | 80 | 84 | 90 |
| Max area →                                                                                                                                                                                                                                                                                                                                                                                                                         |                      | 1.5                                                                                                                                     | 2.3 | 3.0 | 3.8 | 4.5      | 5.3 | 6.0 | 8.3 | 9.8 | 11  | 14  | 18  | 23 | 27 | 33       | 41                                                                         | 47 | 51 | 56 | 60 | 63 | 68 |
| CYLINDER SELECTION                                                                                                                                                                                                                                                                                                                                                                                                                 | 1 X14 L = 11.5L FOAM | 111                                                                                                                                     | 74  | 55  | 44  | 37       | 31  | 27  |     |     |     |     |     |    |    |          | NUMBERS SHOWN IN COLORED CELLS ARE APPROXIMATE DISCHARGE TIMES IN SECONDS. |    |    |    |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 X30 L = 24L FOAM   |                                                                                                                                         | 154 | 116 | 93  | 77       | 66  | 58  | 42  | 35  | 33  | 25  |     |    |    |          |                                                                            |    |    |    |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 X45 L = 30L FOAM   |                                                                                                                                         |     | 169 | 135 | 113      | 97  | 85  | 62  | 52  | 48  | 38  | 28  | 23 | 19 | 15       |                                                                            |    |    |    |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 X65 L = 50L FOAM   |                                                                                                                                         |     |     | 194 | 161      | 138 | 121 | 88  | 74  | 69  | 54  | 40  | 32 | 27 | 22       | 18                                                                         | 16 |    |    |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 X106 L = 85L FOAM  |                                                                                                                                         |     |     |     |          | 235 | 206 | 150 | 127 | 118 | 91  | 69  | 55 | 46 | 37       | 30                                                                         | 27 | 24 | 22 | 21 |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2 X65 L = 100L FOAM  |                                                                                                                                         |     |     |     |          |     | 242 | 176 | 149 | 138 | 108 | 81  | 65 | 54 | 44       | 36                                                                         | 31 | 28 | 26 | 24 | 23 |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2 X106 L = 170L FOAM |                                                                                                                                         |     |     |     |          |     |     | 253 | 235 | 183 | 137 | 110 | 91 | 75 | 61       | 53                                                                         | 48 | 44 | 41 | 39 | 37 |    |
| INDICATED PERFORMANCE RISK SCORE                                                                                                                                                                                                                                                                                                                                                                                                   |                      | HIGH                                                                                                                                    |     |     |     | MODERATE |     |     |     |     |     | LOW |     |    |    | VERY LOW |                                                                            |    |    |    |    |    |    |
| NOTE: The risk score is indicative only, and relates the weighted risk assessment process used by ETI . It is a guide to fire system performance based on endurance of discharge time. Discharge times of more than 50 seconds are recommended; however where the risk assessment indicates a simplified direct application, and prompt automatic engine shutdown is used, then discharge times down to 28 seconds are acceptable. |                      |                                                                                                                                         |     |     |     |          |     |     |     |     |     |     |     |    |    |          |                                                                            |    |    |    |    |    |    |

### SUMMARY OF MINIMUM DISCHARGE TIMES TO ETI LISTED RULES

| FOAM APPLICATION    | ENGINE SHUT-DOWN- AUTOMATIC   | MINIMUM DISCHARGE TIME  |
|---------------------|-------------------------------|-------------------------|
| DIRECT ONLY         | Six (6) seconds – Automatic   | Twenty Six (26) Seconds |
| DIRECT ONLY         | Six (12) seconds – Automatic  | Thirty Two (32) Seconds |
| DIRECT ONLY         | Six (24) seconds – Automatic  | Forty Four (44) Seconds |
| DIRECT ONLY         | No Automatic Shutdown         | Fifty (50) Seconds      |
| DIRECT AND INDIRECT | Regardless of engine shutdown | Fifty (50) Seconds      |



**PT ETI FIRE SYSTEMS**  
**www.etifiresystems.com**  
**info@etifiresystems.com**

**TECHNICAL BULLETIN**  
**ISSUED: 22 Oct 2010.**  
**DOCUMENT: TB 025**

Please also note that in training we nominate 50 seconds as the normal minimum design discharge time being the worst case. The summary at the bottom of the chart outlines where discharge times may be reduced in carefully controlled circumstances. If designing for less than 50 seconds, I strongly recommend that this be carefully detailed in the mandatory risk management process and that the residual risk score to WRAC be carefully considered to account for this.

Please place a copy of the amendment in Chapter 10 “Design procedures” of the current technical manual – sixth Edition June 2010. Any future re-prints of this manual will include this amendment.

Yours sincerely

LEIGH WALDON  
Technical Director