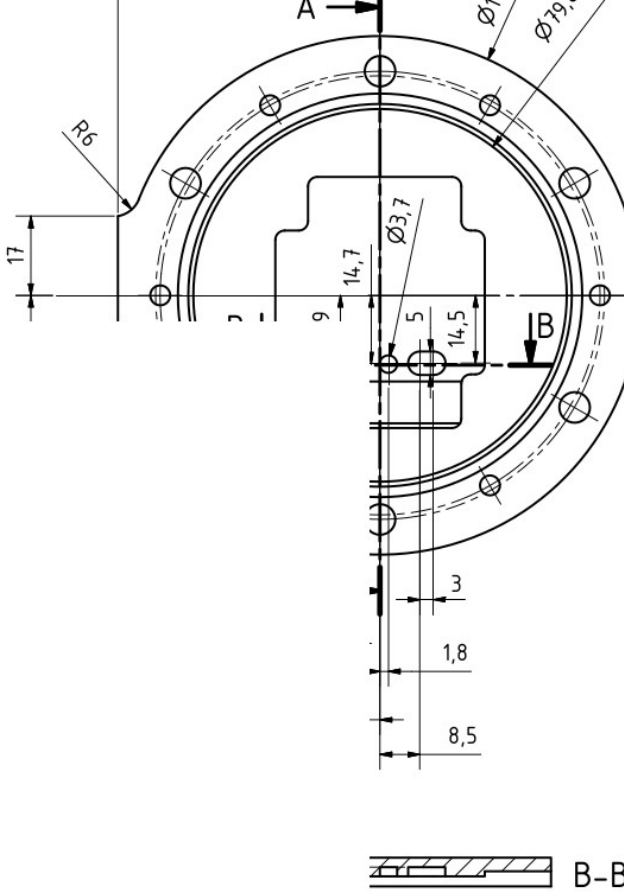
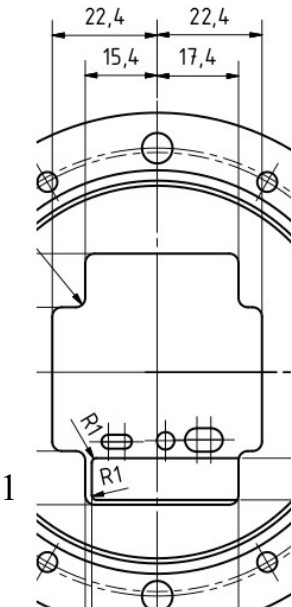


Polya discussion



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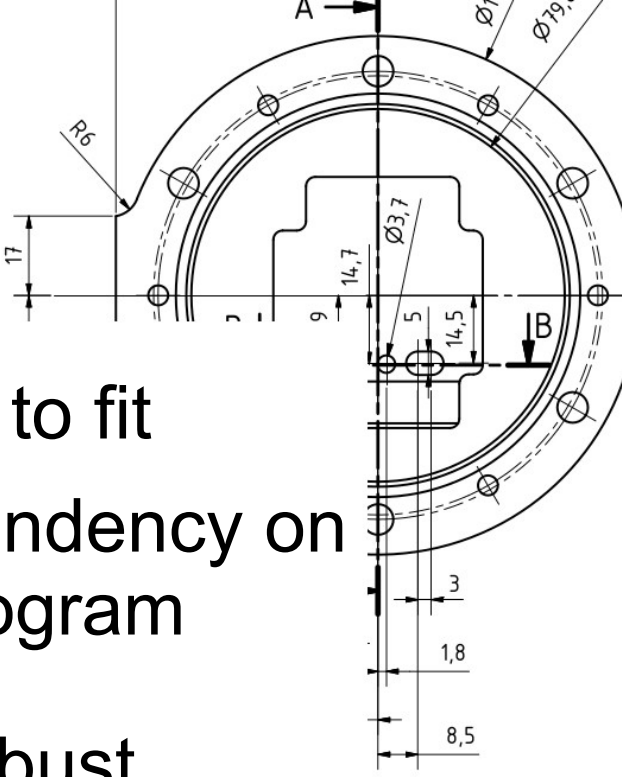
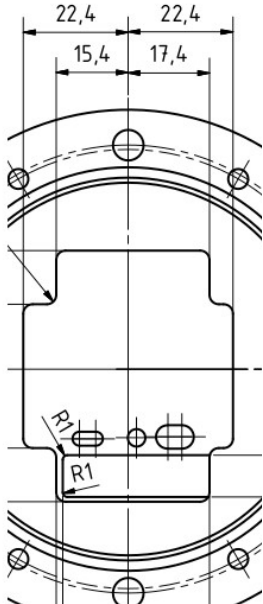
How to determine the gas gain G

- Fit Polya distribution to charge histogram
  - Problematic to fit
  - Strong dependency on peak in histogram
- Calculate mean ToT per pixel per event
  - Easy and robust
  - Errors due to double hits and threshold
- Divide peaks of Pixel and total charge histogram
  - Fits are easy
  - Dependence on amount of data





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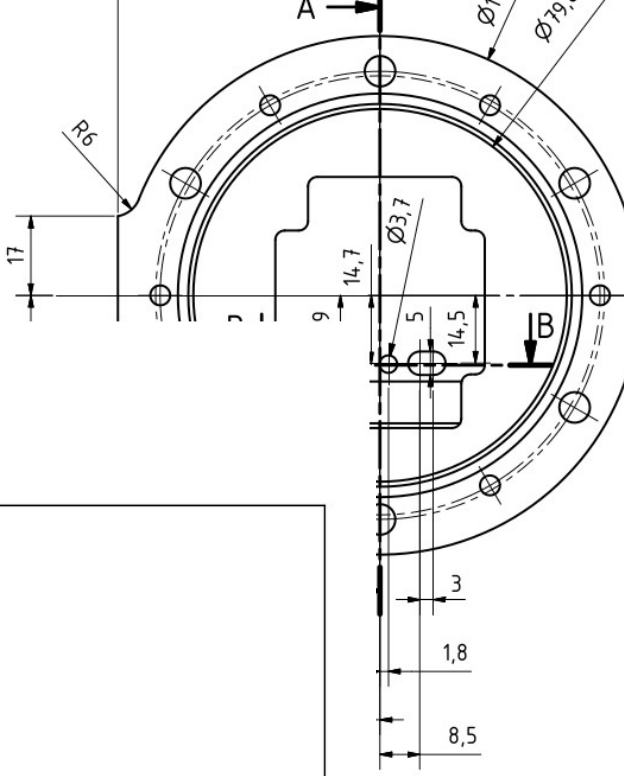
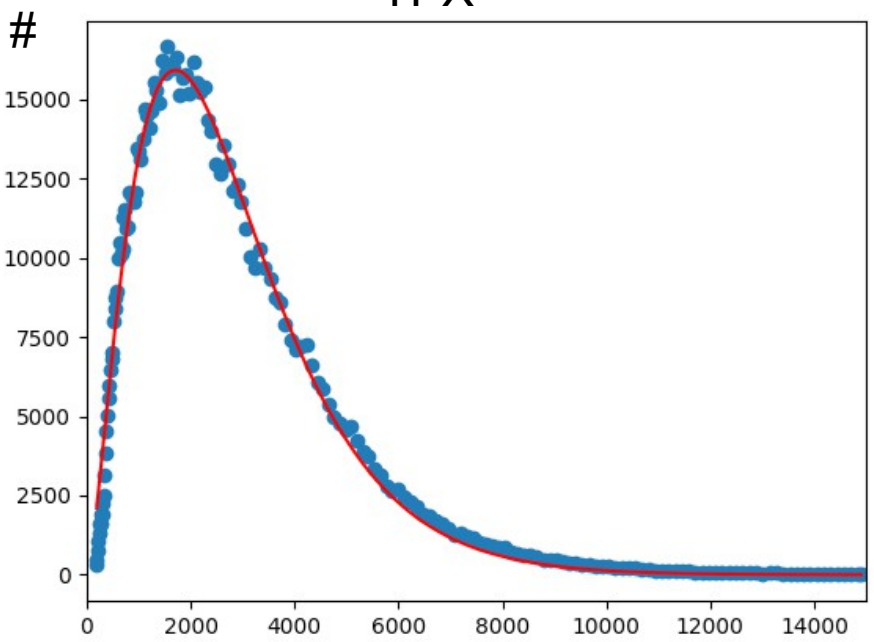
Polya



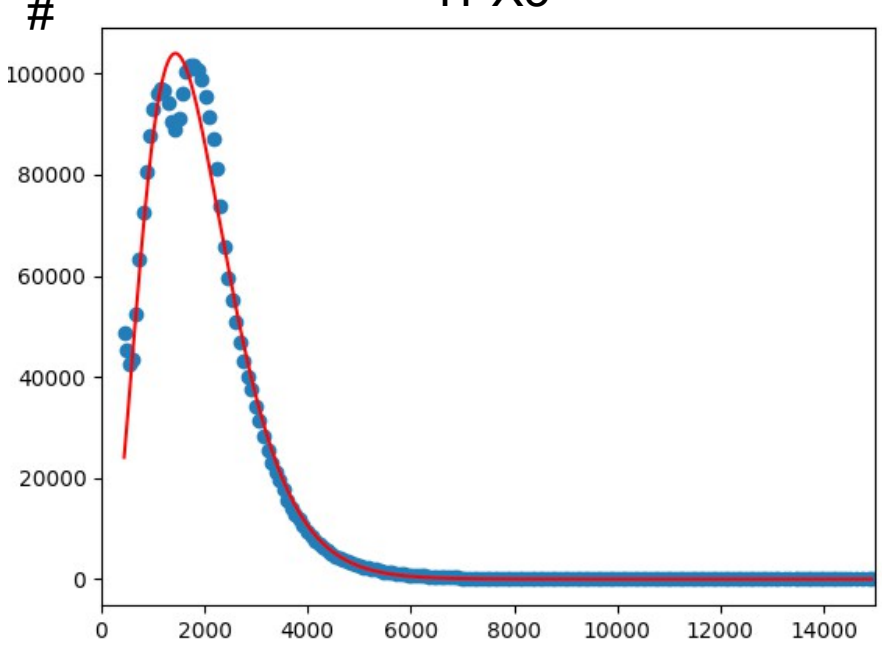
TPX



Charge in e^-

G_{polya} = 2811

TPX3



Charge in e^-

G_{polya} = 1914

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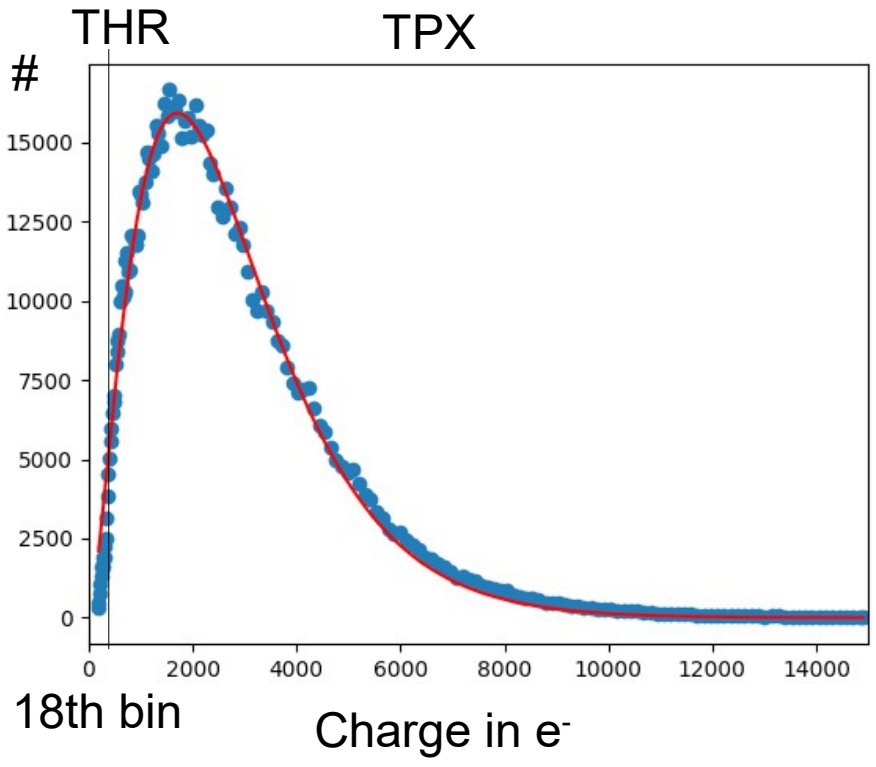
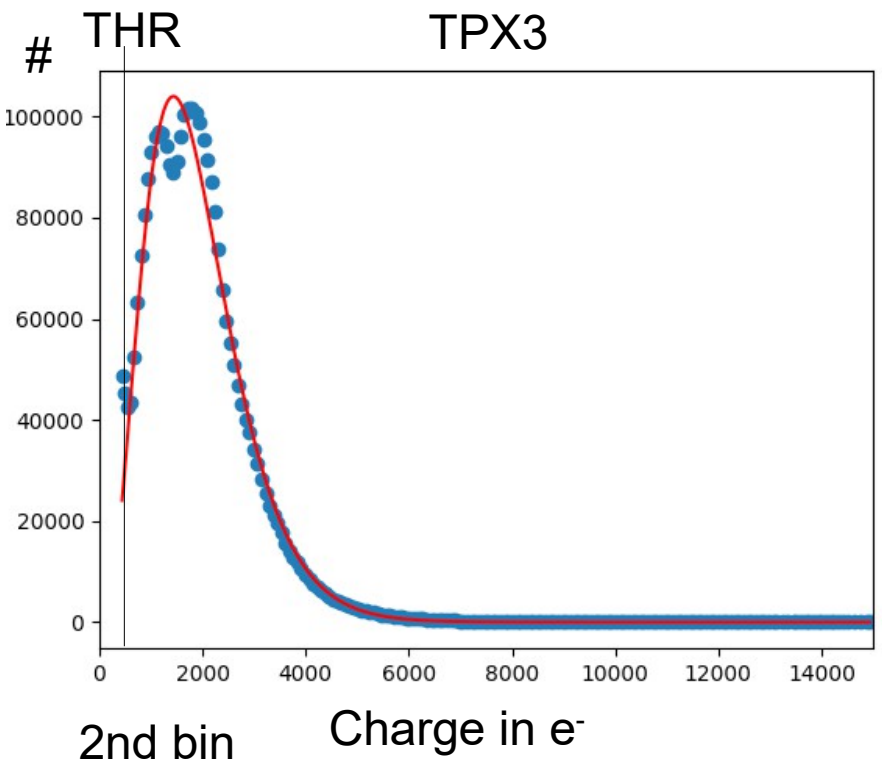
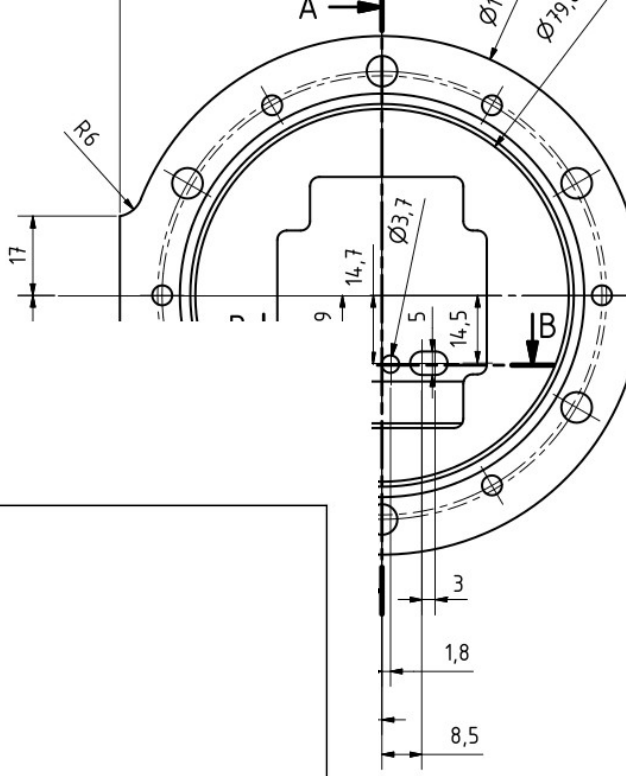
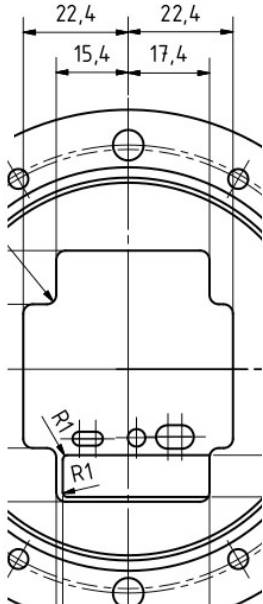
Polya





How does the THR influence the rest of the distribution?





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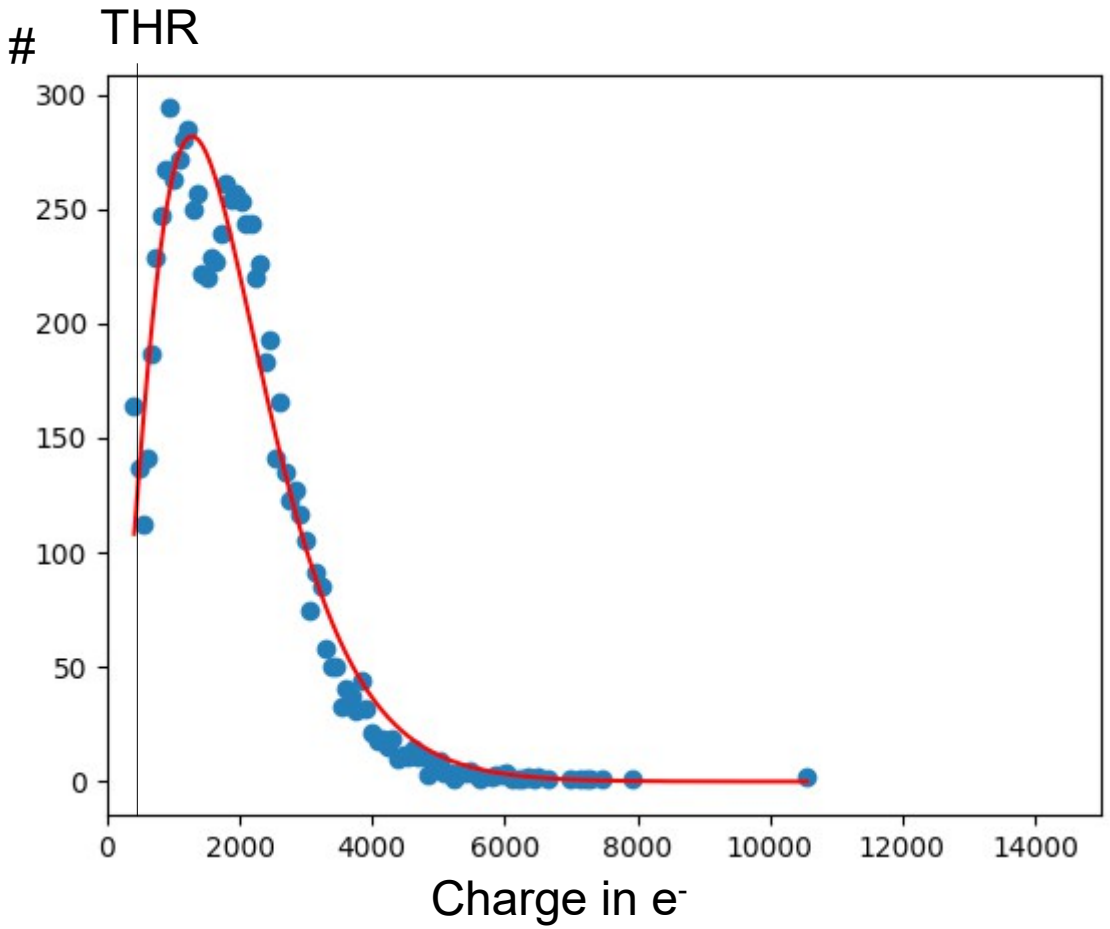
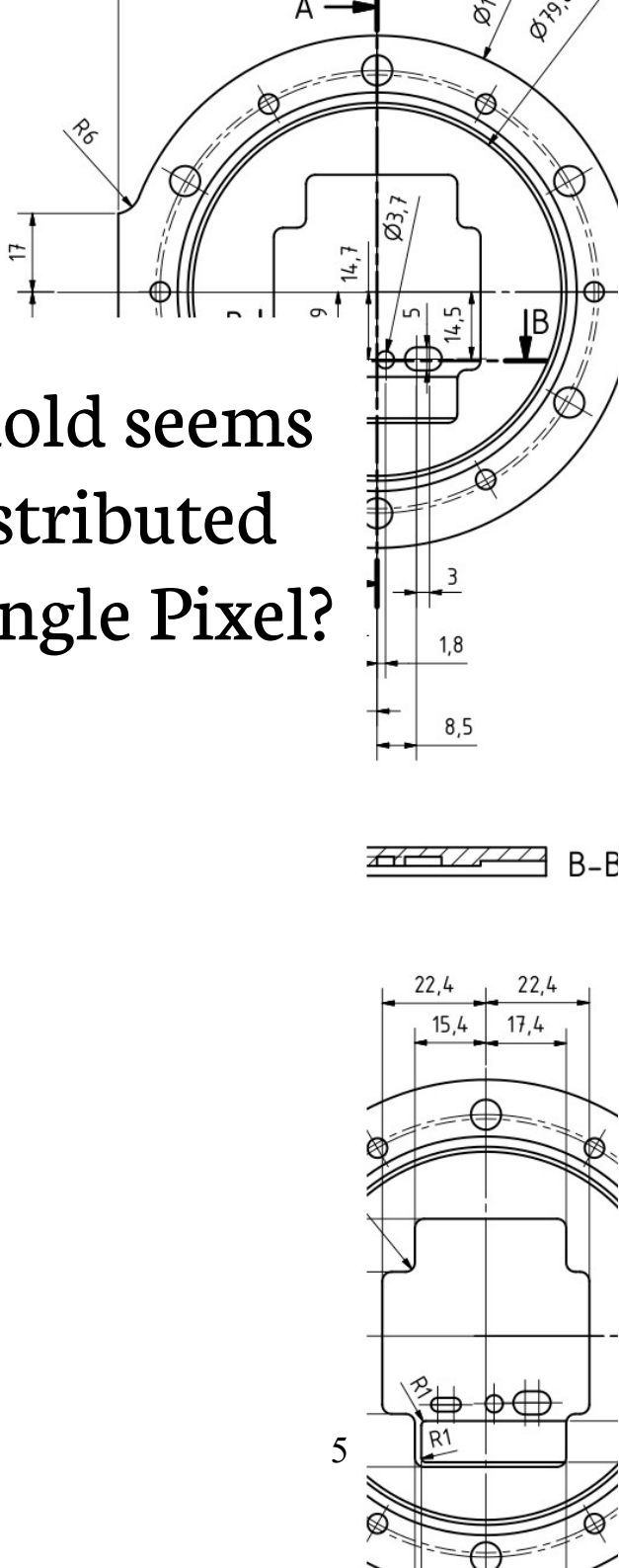
A single Pixel



Threshold seems also distributed for a single Pixel?



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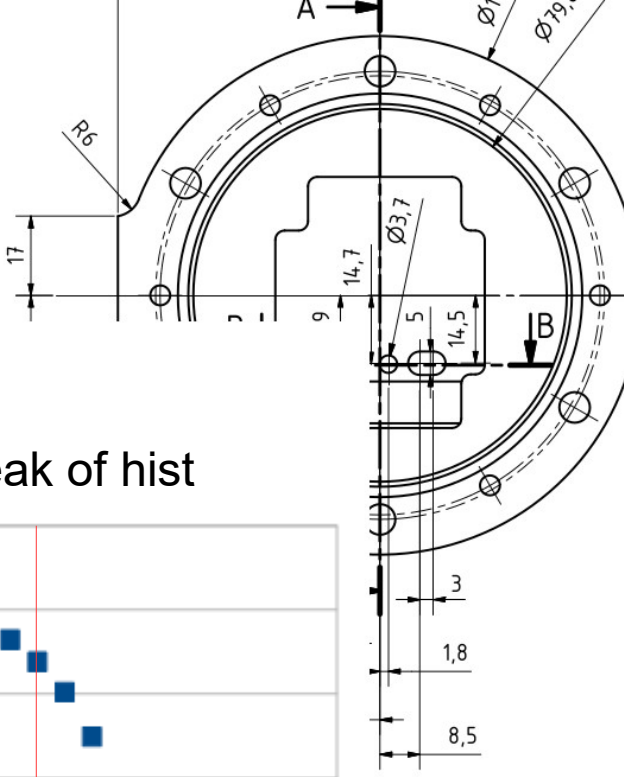
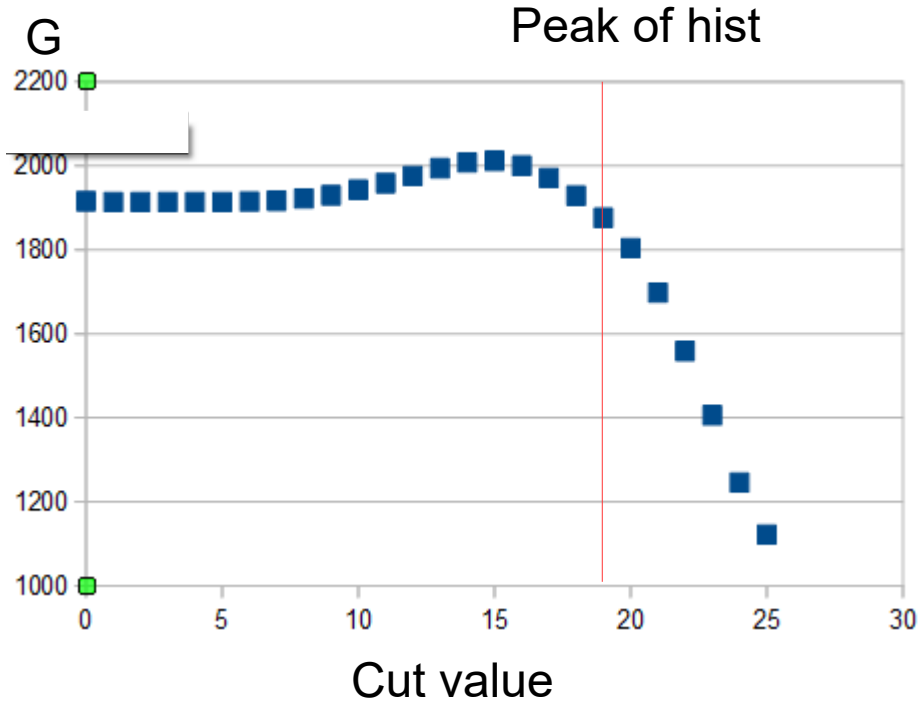
Peak dependence

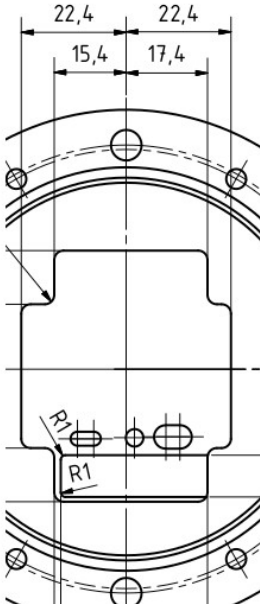


TPX

TPX3



Value for gain from Polya depends on cut, for TPX3 situation gets worse



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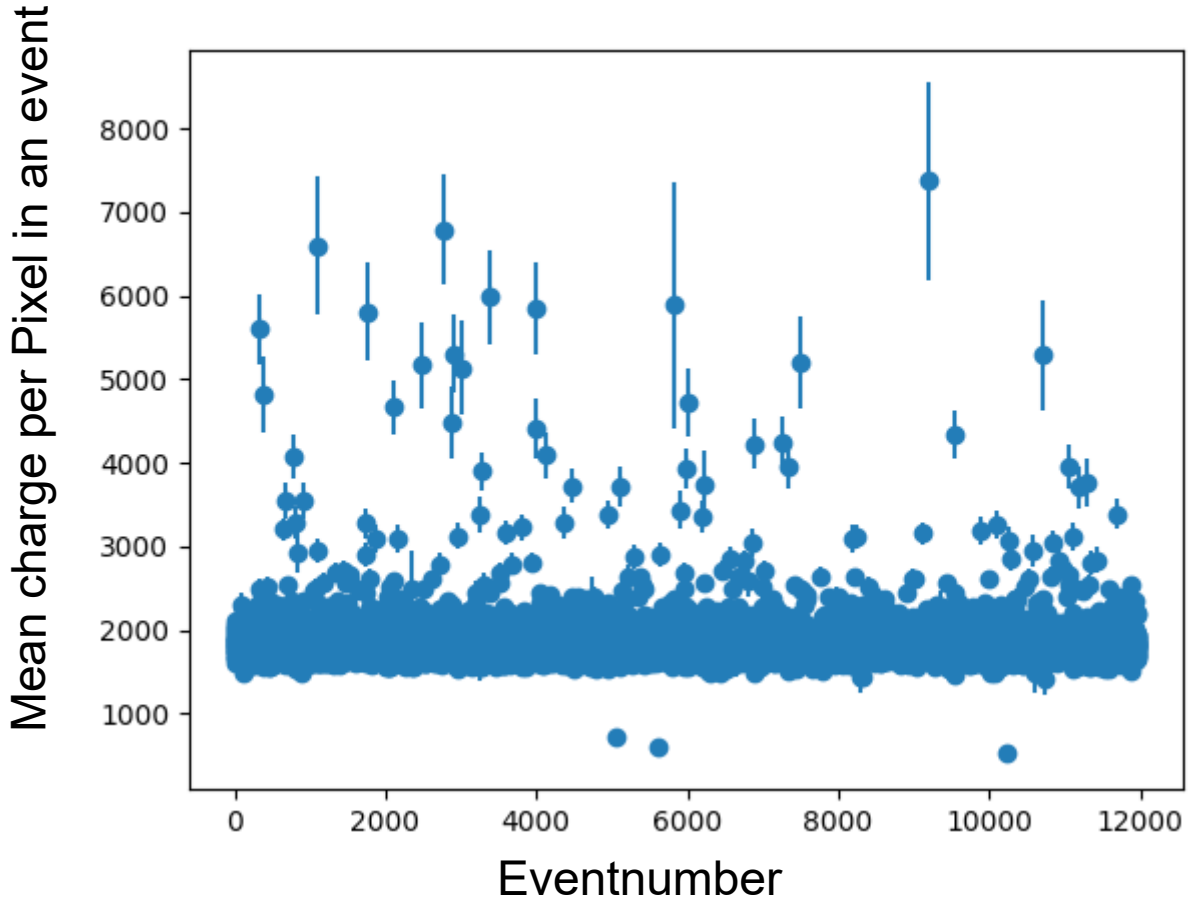
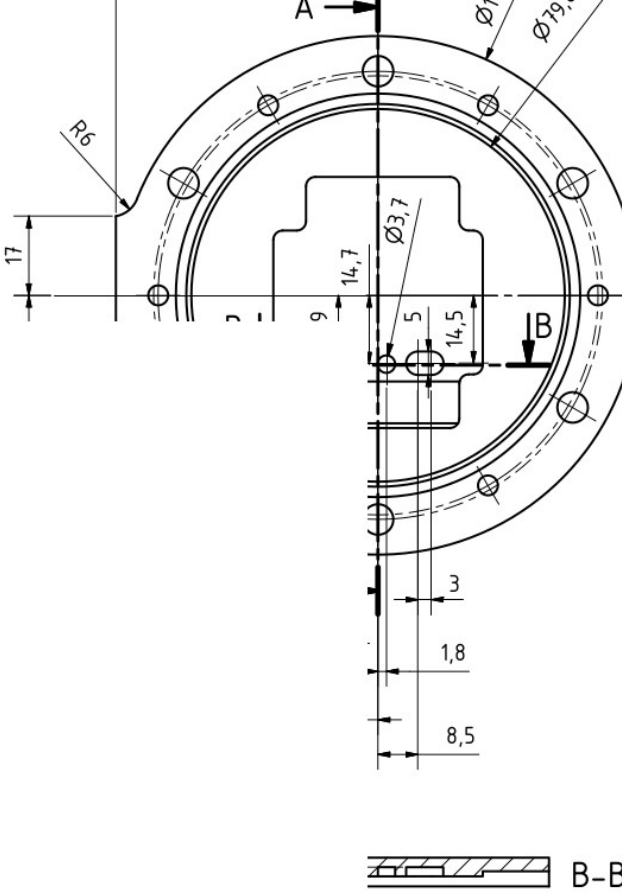
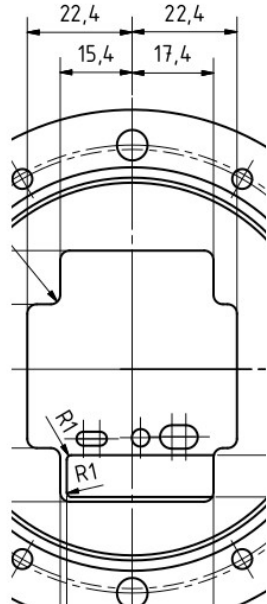
G from mean



$G_{mean,tpx}$ = 2213

$G_{mean,\ tpx3}$ = 1865





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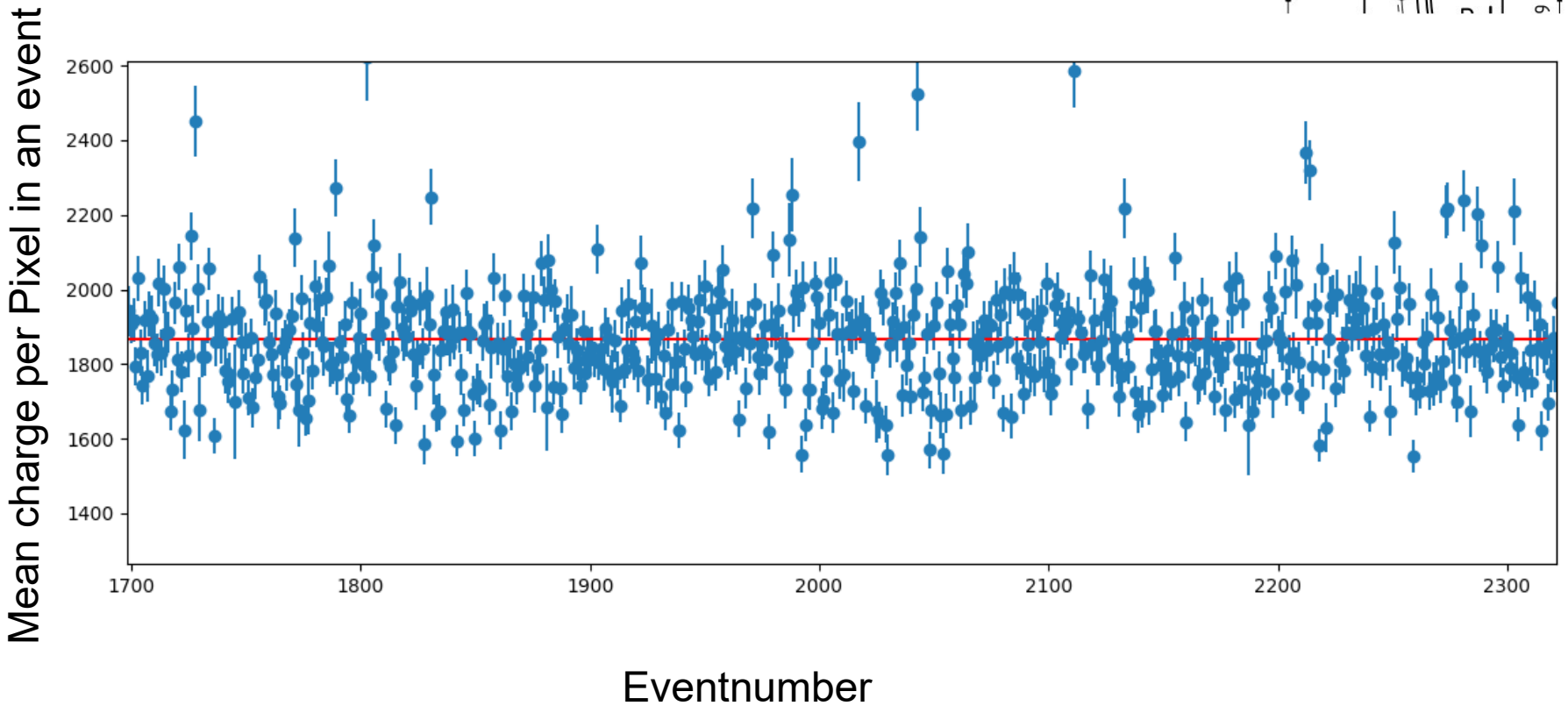
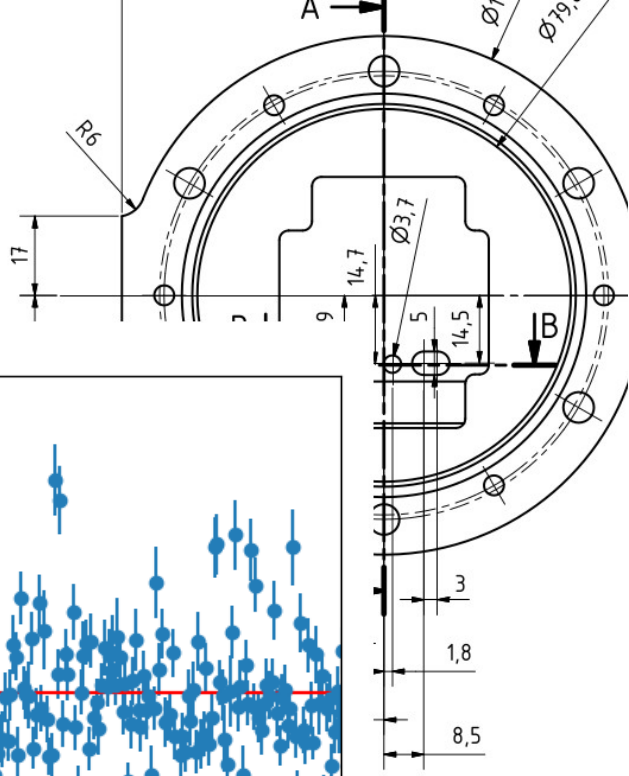
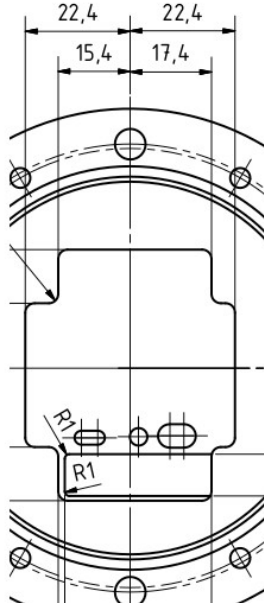
Zoom to mean







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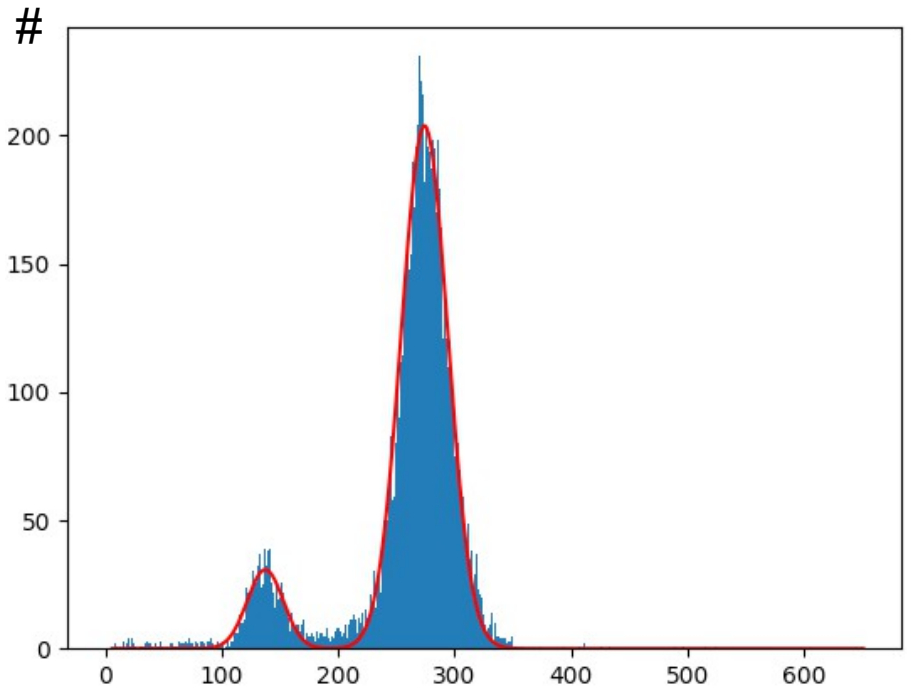
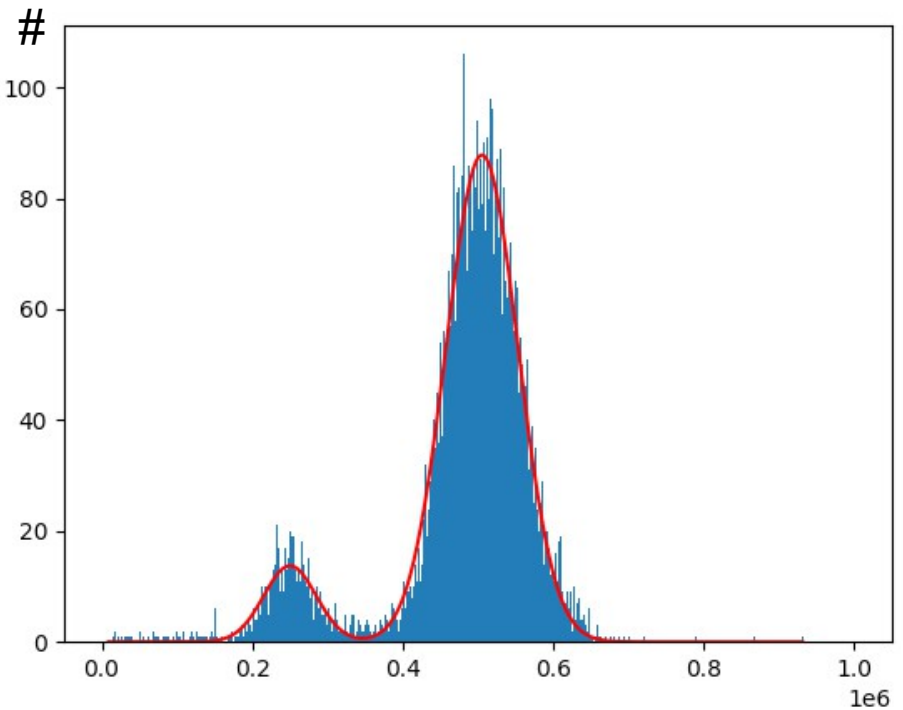
G from Peaks



Pixel per event



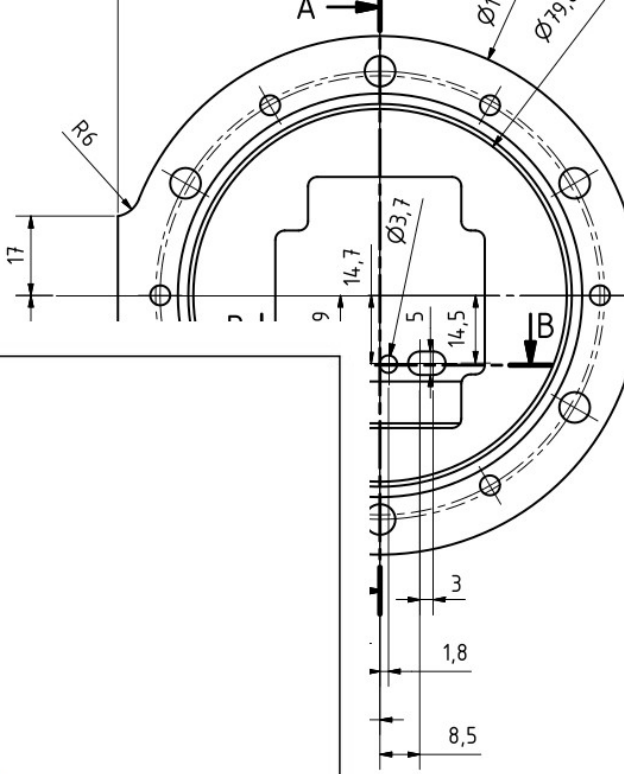
Charge per event

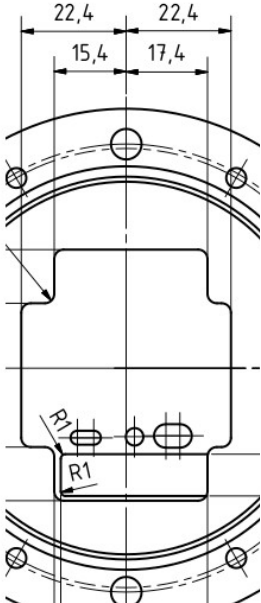
$G_{iron,tpx}$ = 2173

$G_{esc,tpx}$ = 2152

$G_{iron,tpx3}$ = 1843

$G_{esc,tpx3}$ = 1819





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Summary of gain

- TPX

  G_{polya} = 2811

  $G_{mean,tpx}$ = 2213

  $G_{iron,tpx}$ = 2173

  $G_{esc,tpx}$ = 2152

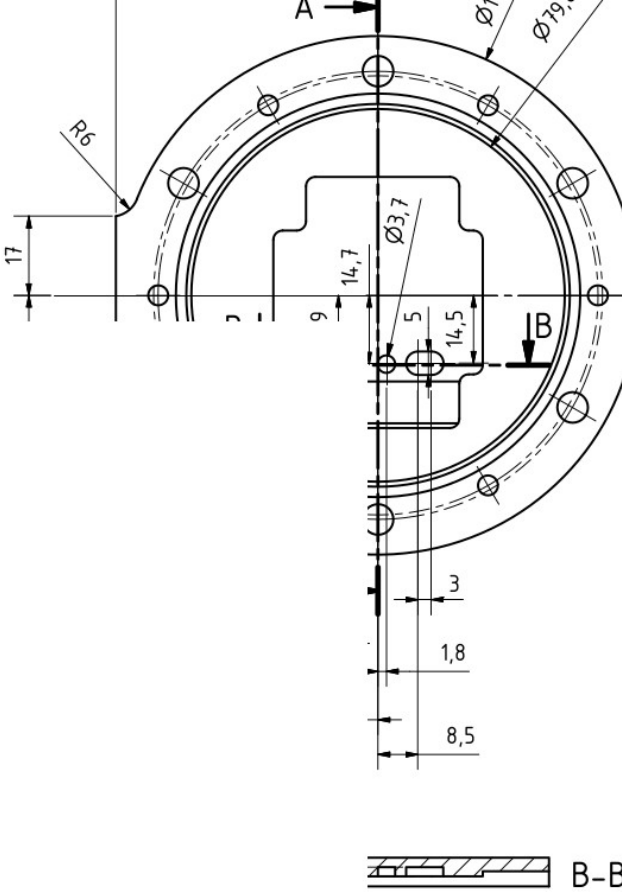
- TPX3

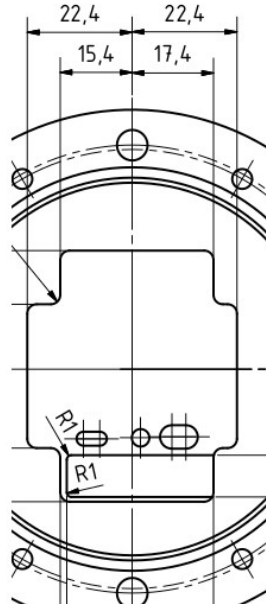
  G_{polya} = 1914

  $G_{mean,\ tpx3}$ = 1865

  $G_{iron,tpx3}$ = 1843

  $G_{esc,tpx3}$ = 1819





- What is the gain? 1,2 or 3?

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