Microperm Smart
Online Porosity Analyzer

Manufactured by Avatron Oy Ltd

FASTPAP

Features of Microperm Smart

- Excellent correlation to laboratory measurement
- Constant low pressure difference over the sheet
- Measurement will not damage the paper
- Design of measuring head based on 25 years of experience
- Special composite ceramic material used on measuring head (long life)
- Adjustable and programmable self cleaning method
- Wide range of applications:
  - Cigarette
  - Sack Kraft
  - Coated and Impregnated
  - Printing & Writing
  - Décor
  - SC Magazine
  - Bank Note
  - Filtration
  - other very porous materials

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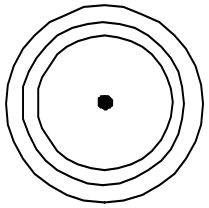
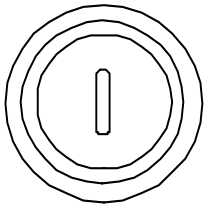
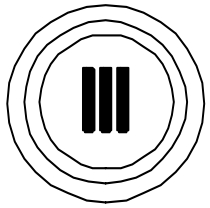
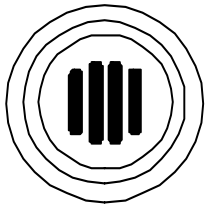
Features of Microperm Smart

- Measuring range is very large
  (Gurley s: 0,01 to 2100, Bendtsen: 6 to 1000000; and other 10 measuring methods can be selected)
- Paper grades can be calibrated individually
  (porosity measurement is non-linear)
- Paper machine speed is not limited
  (installation at Burgo Verzuolo, Italy; machine speed appr. 1700 m/min)
- Measuring head is cleaned automatically in regular intervals depending on the amount of dust in the process
- All historic data of every jumbo reel made will be available for years
- More than 170 installations
  (almost 20 competitor's systems have been replaced)

Measuring Range of Microperm Smart

Standard types of Measuring Heads

	A25	A250	A750	A2500
Measuring Area	**25 mm²**	**250 mm²**	**750 mm²**	**2500 mm²**
μm/Pa*s	13300- 125	1325- 5,5	440- 0,6	130- 0,07
Gurley	0,01- 1,1	0,11- 25	0,32- 240	1,10- 2100
Shopper	782000- 7400	78000- 320	25900- 34	7800- 4
Bendtsen	1172000- 11000	117000- 480	39000- 50	11700- 6
Frazier	4- 420	40- 9600	120- 91000	400- 784000
Coresta	78200- 740	7800- 30	2600- 3	780- 0,4
Borgwald	187700- 1840	18700- 75	6200- 8	1870- 0,9
Sheffield	112000- 1730	14700- 115	5600- 16	1925- 2,4
l/m2/s 1 kPa	13300- 125	1330- 5,5	440- 0,6	130- 0,1
Bekk	0,00- 0,16	0,01- 3,5	0,04- 34	0,15- 290
Oken	0,01- 1,3	0,14- 27	0,4- 240	1,30- 1900
Lhomargy	4266000- 40000	426000- 1750	141800- 185	42500- 22

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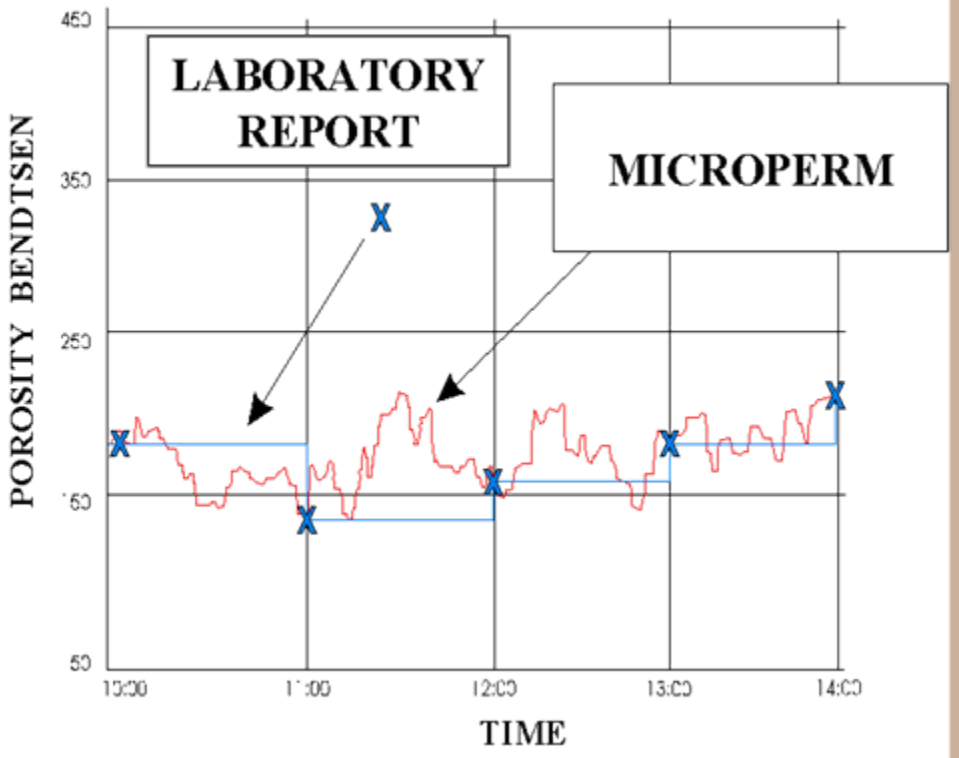
Microperm Smart vs. Laboratory

- Continuous porosity monitoring
- Production corrections can be made and seen quickly on the screen
- Effective in grade changes



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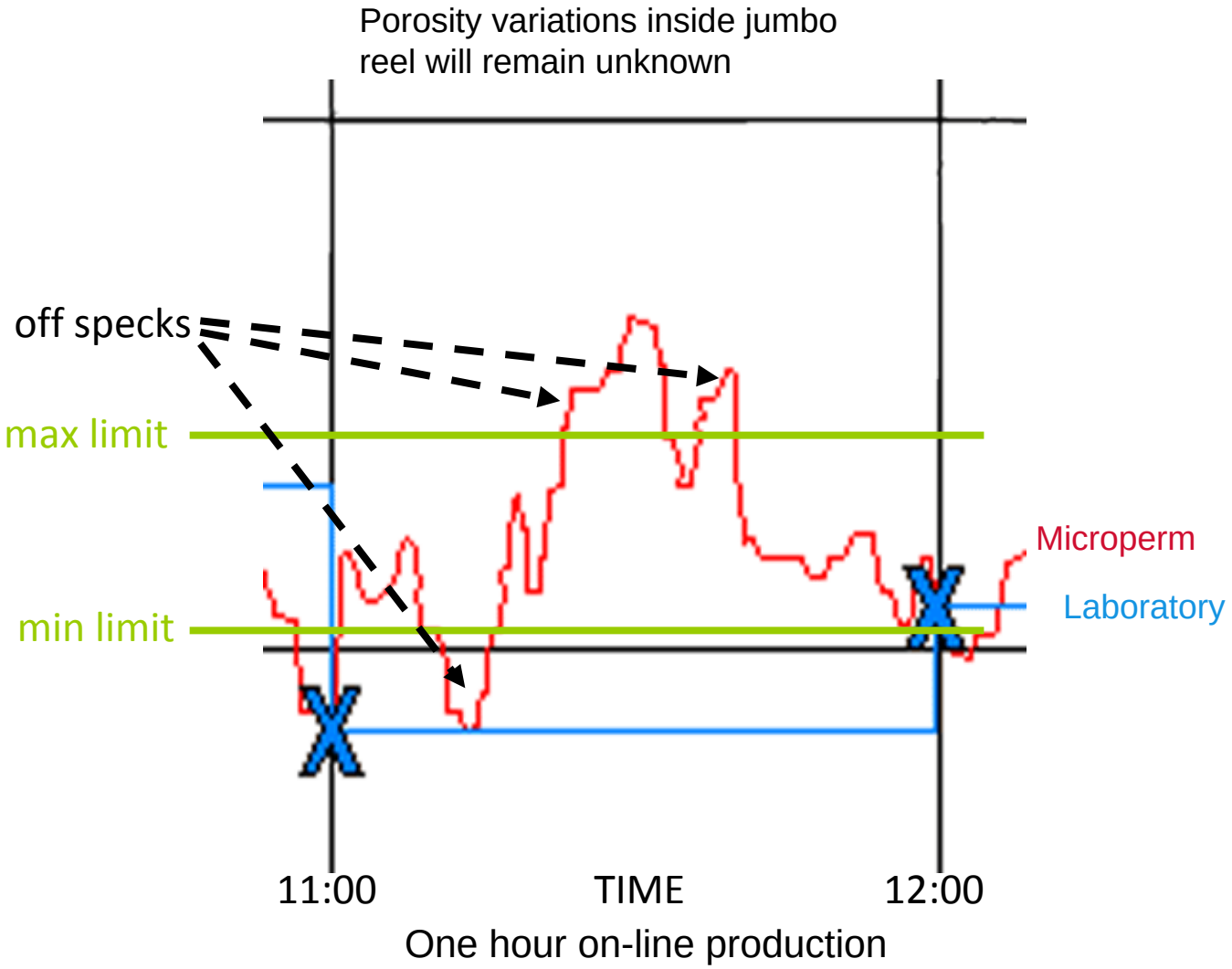
Microperm Smart vs. Laboratory



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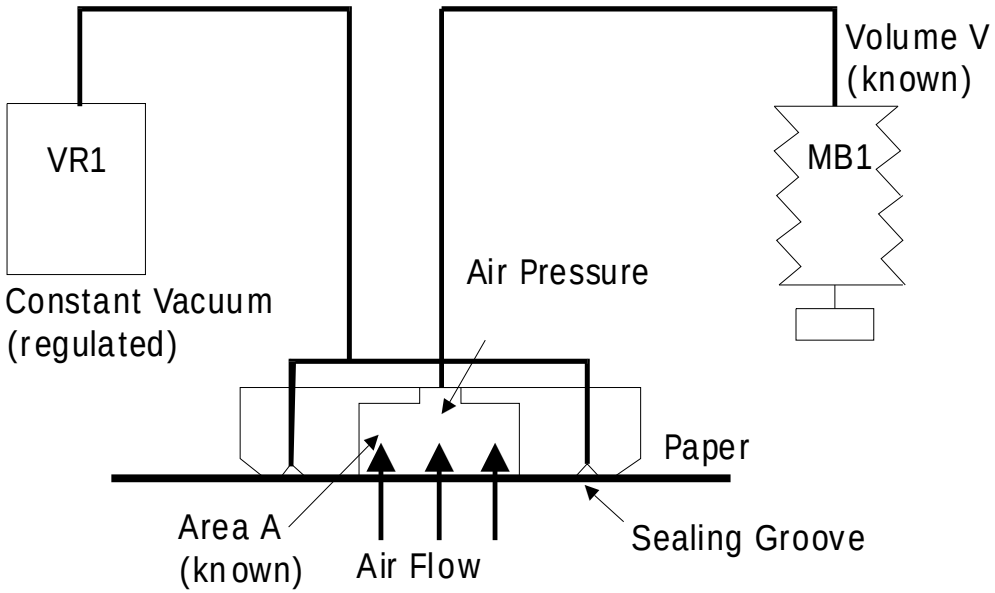
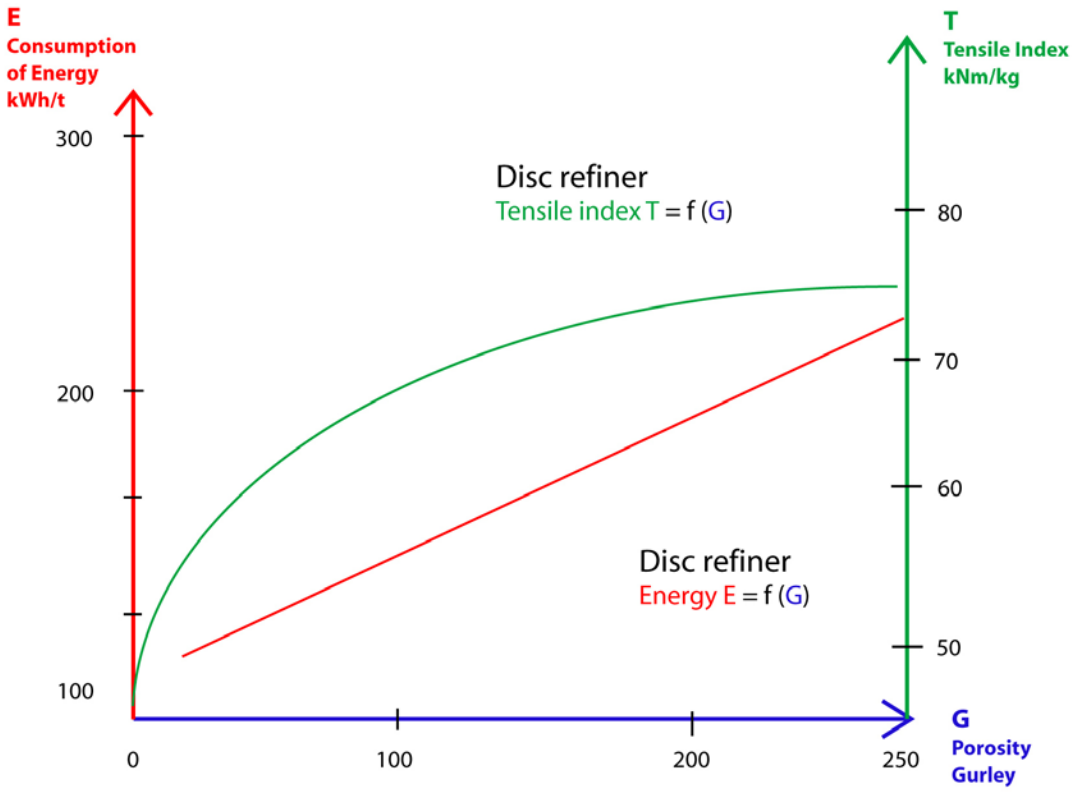
Measurement principle equivalent with Lab method



Microperm measures the time required for a known volume of air (V) at a very low and gentle vacuum (P = 1 kPa) to pass trough the measurement head and the paper web.

Air permeance and air resistance values are then calculated in the desired units.

Optimize energy consumption in refining process



Porosity measurement (G)
as an indicator of refining Energy consumption and Tensile index.

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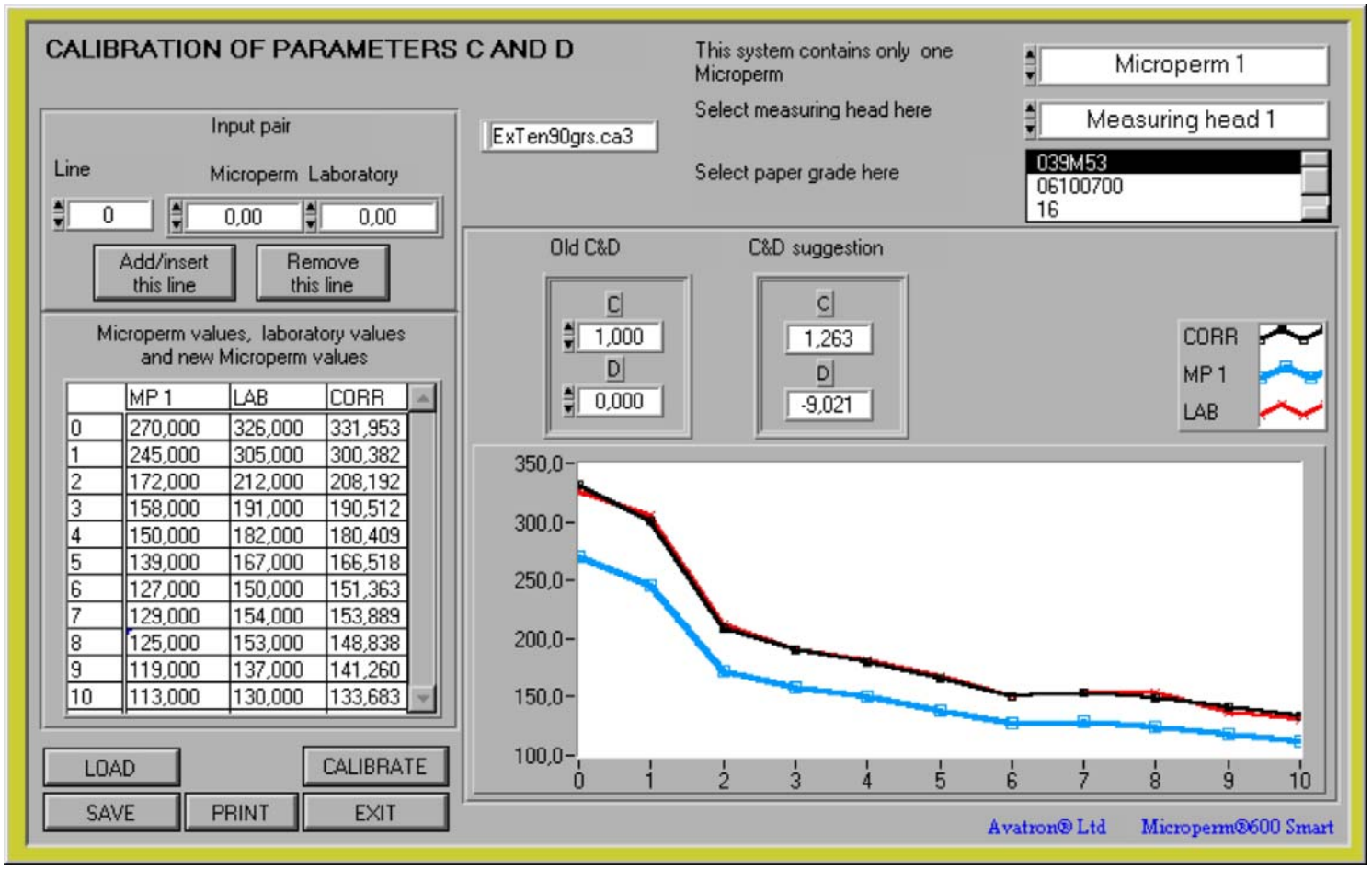
Calibration Program



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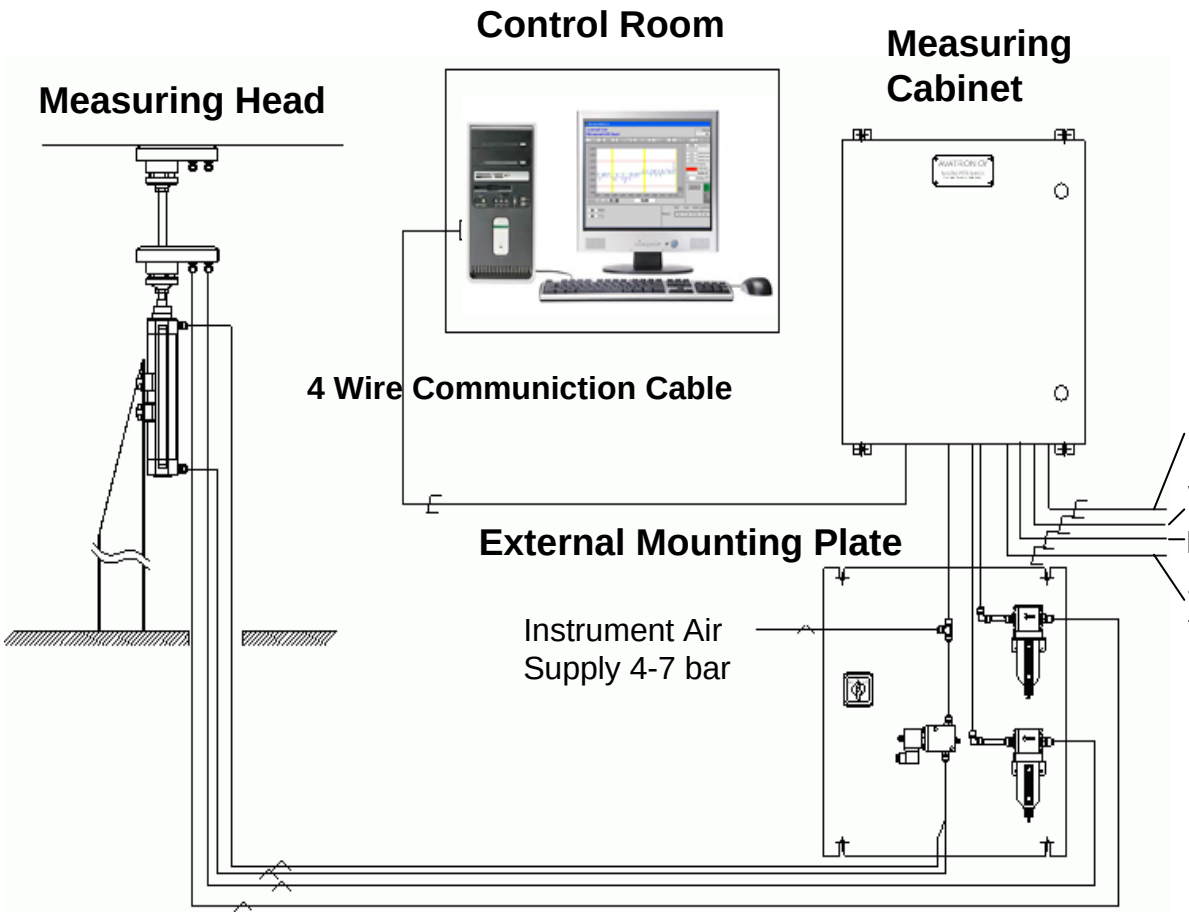
Microperm Smart connections



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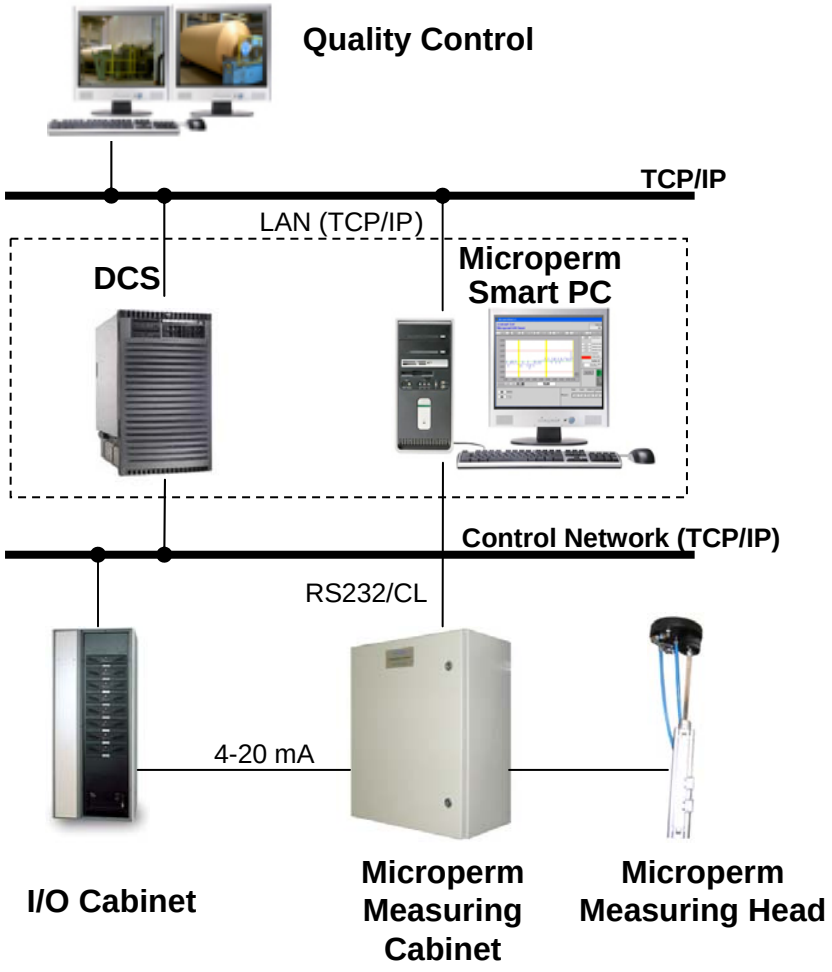
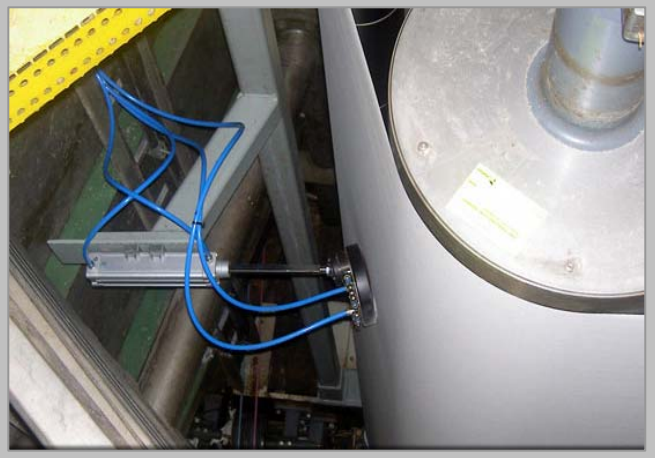
Communication into DCS

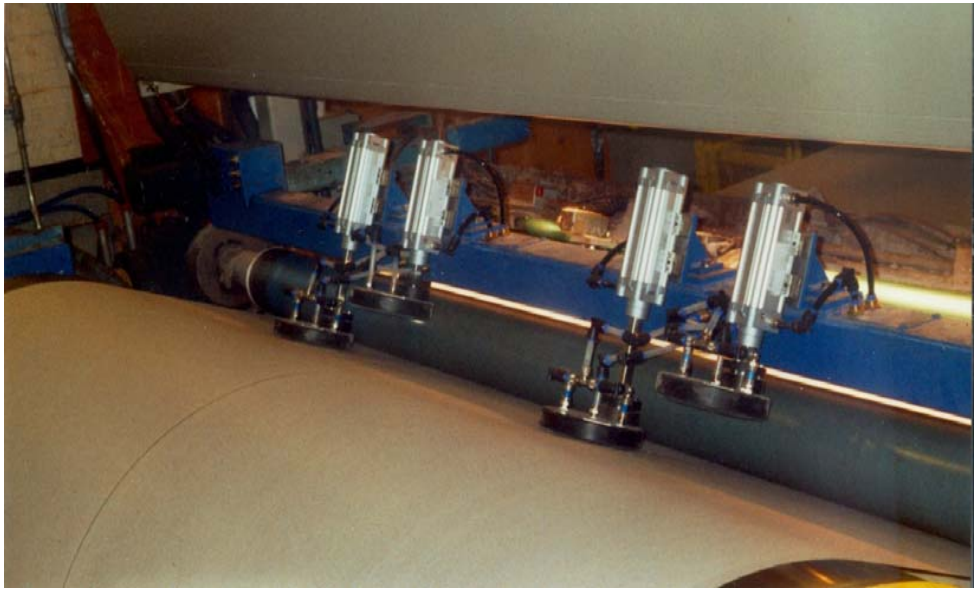
- Calibration & Maintenance are done from the Microperm Smart PC, but all information needed for continuous measurement without operator interaction can be automatically updated from DCS (grade qualities and reel number).
- Microperm can read ASCII files containing grade quality, reel number etc.
- Measurement value will be sent in 4…20 mA signal to DCS.



Installation positions



Multi-head installations



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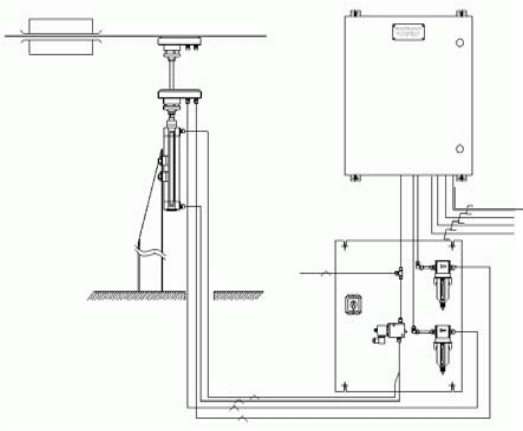
Measurements from two paper machines

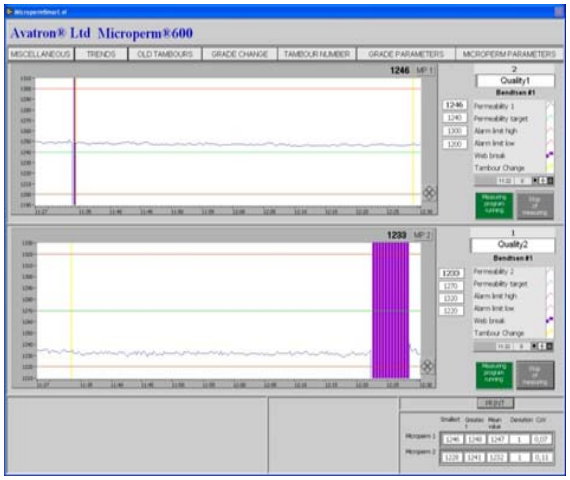
Microperm # 1



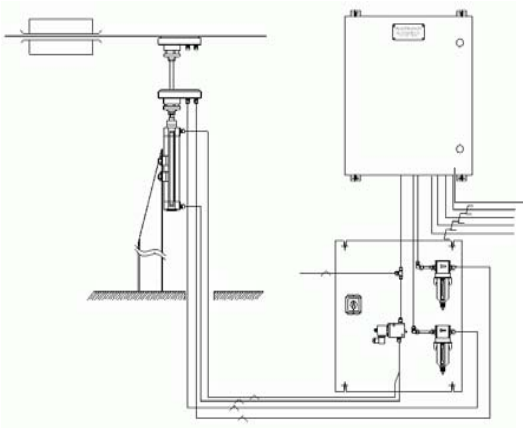
Supply Voltage
4-20 mA Signal to DCS
Web Brake Signal
Reel Change Signal

Control Room

Microperm Smart Program Display



Microperm #2



Supply Voltage
4-20 mA Signal to DCS
Web Brake Signal
Reel Change Signal

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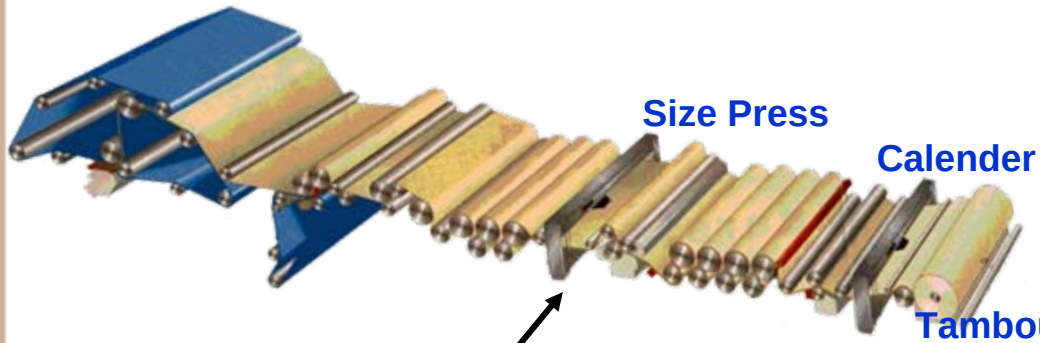
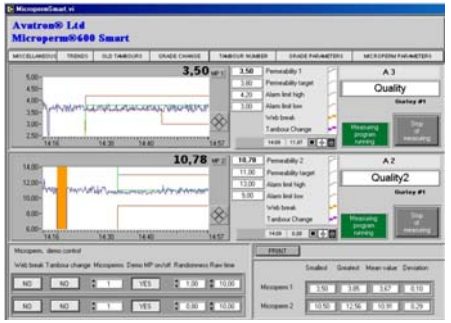
Two measurements from the same paper machine

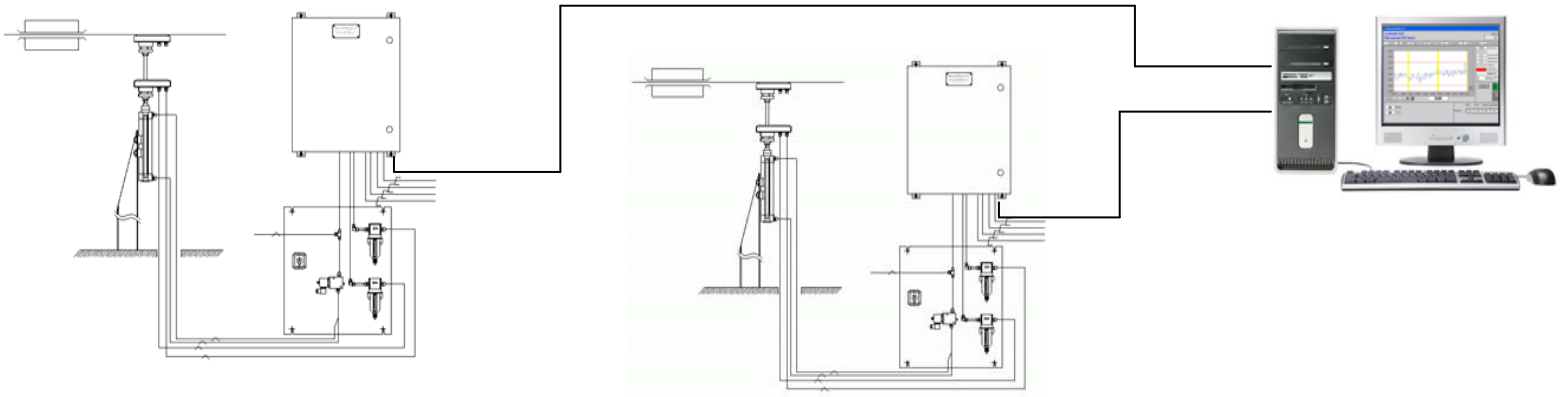




Microperm # 1

Microperm #2

Control Room



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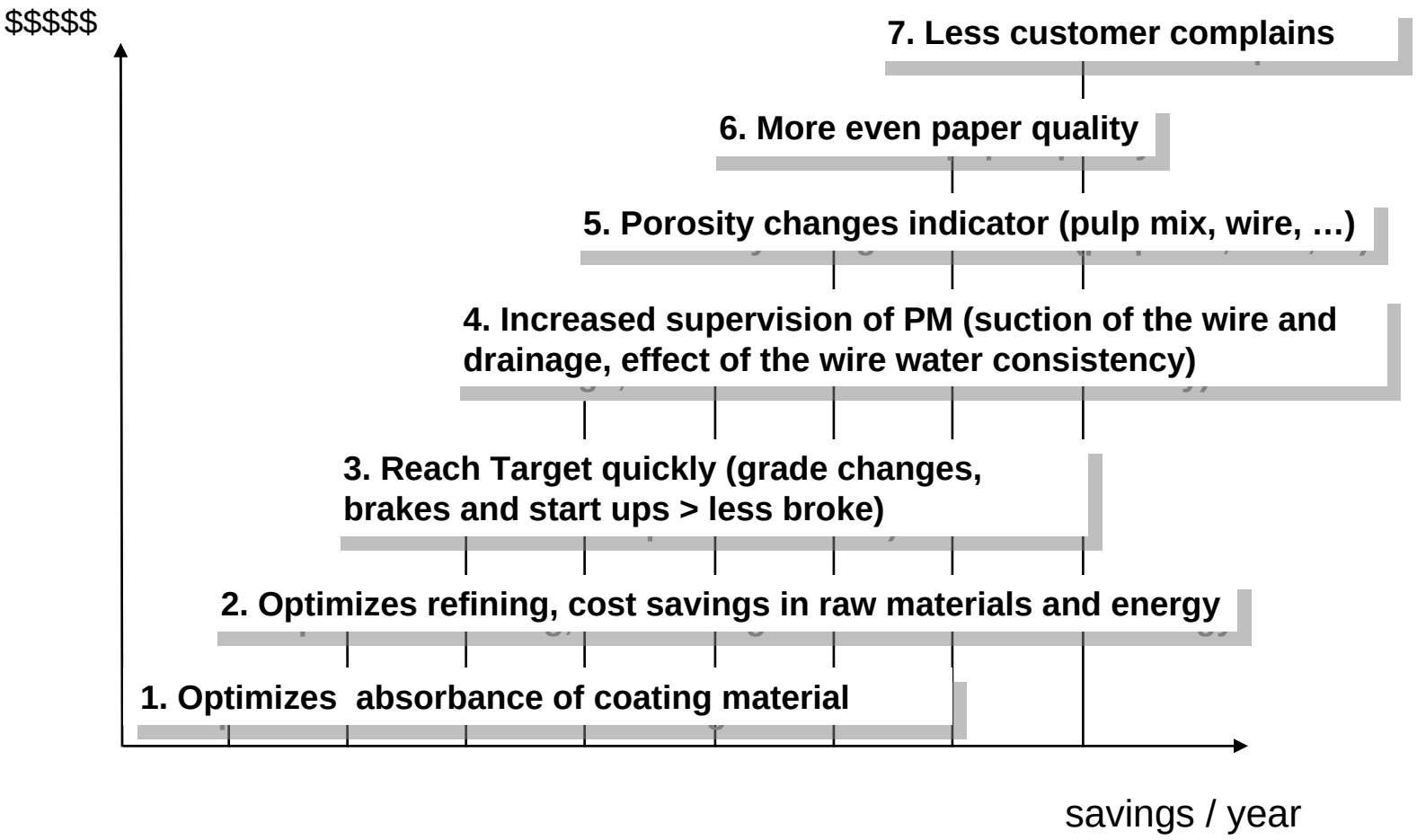
Benefits


$$$$$
7. Less customer complains
6. More even paper quality
5. Porosity changes indicator (pulp mix, wire, …)
4. Increased supervision of PM (suction of the wire and drainage, effect of the wire water consistency)
3. Reach Target quickly (grade changes, brakes and start ups > less broke)
2. Optimizes refining, cost savings in raw materials and energy
1. Optimizes absorbance of coating material
savings / year

Backs up environmental policy

- Saves energy
- Saves raw material
- Reduces broke
- Saves coating material & fillers
- Boosts the supervising of the paper machine

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History of Microperm

- ***NOKIA Forest Automation*** **to** ***Avatron*** **since 1989**
- **Developed together with cigarette paper mills**
- **Continuous development by Avatron**
- **Latest generation Microperm® Smart**
- **Over 170 installations globally**
- **In 2010** ***Fastpap*** **becomes the global reseller of Microperm Smart**

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Latest deliveries (more than 170 installations in total)

Mondi SCP Ruzomberok (3 pcs)	Slovakia	Offset and others
Åmotfors Bruk Ab	Sweden	Special papers
Hengfeng	China	Cigarette paper
M-real Kyro	Finland	Wall paper
Cartificio Ermolli di Moggio Udinese	Italy	LWC, Bible paper
Cartiere Burgo Stabilimento di Sora	Italy	Wood free
Sun Paper	China	Fine paper
Neu Kaliss (Smart upgrade)	Germany	Filter paper
Paper Factory Stambolijski	Bulgaria	Sack kraft
Zhe Jiang Min Feng Benkert Paper	China	Cigarette paper
PT Surya Zigzag (2 pcs)	Indonesia	Cigarette paper
Munksjö Paper S.A. (modification)	Spain	Decor paper
Portals Bathford	UK	Bank note
Sappi Ehingen GmbH	Germany	Fine paper
Coveright Surfaces	USA	Glass fibre
Wermland Paper Åmotfors	Sweden	Special papers
Mopak A.S.	Turkey	Cigarette paper
Smurfit Kappa	Colombia	Sack kraft
UPM Kymmene Changhsu	China	Fine paper
Anhui Jingfeng Paper	China	Cigarette paper
Wermland Paper Bäckhammars	Sweden	Sack kraft
PT Pindo Deli	Indonesia	Fine paper
Minfeng Robert Paper	China	Cigarette paper
Hollingsworth & Vose (modification)	Germany	Filtration
Hollingsworth & Vose Suzhou (2 pcs)	China	Filtration
Minfeng Special Paper (2 pcs)	China	Cigarette paper
Tervakoski Oy	Finland	Non-porous grades

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Fastpap

www.fastpap.com

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