

Cristini Group Proposal for the Pressing Area

- Press felts focused on technical over sophistication are no longer the optimized answer to paper makers needs and constraints.*
- Real up-to-date press felts must take into account, first of all, the core data of the pressing area.*
- As a consequence, these PMC will support paper makers in their economical results.*
- These PMC will also contribute to the planet preservation by reducing energy consumption.*

Pulp and Paper Technology Trends in the Pressing Area

- *Paper machines speeds continuously increased*
 - *Dwell times shorter and shorter*
 - *Excludes obsolete technical issues*
- *Paper machines efficiency maximized*
 - *New felts start-up the soonest at maximum speed*
 - *Highest possible dryness after press section*
 - *Absolute felts reliability between scheduled changes*
- *New press section concepts*
 - *Shoe press and double shoe press*
 - *Single nip press*
- *Needs for advanced dewatering systems*
 - *From divided to nip dewatering*
 - *From uncompressible to highly compressible thin felts*

Pressing Parameters

- *Basic parameters*
 - *Specific pressure*
 - *Pressure applied*
 - *Nip width (shoe, covering hardness...)*
 - *Paper machine speed*
 - *Paper g/m²*
 - *Average produced*
 - *Mini/maxi*
- *Parameters for optimisation:*
 - *their incidence is real, but not enough to compensate a lack of one of the basic parameters.*
 - *T°*
 - *Felt design*
 - *Conditioning/washing*
 - *circuits*
 - *Covers drilling grooving...*

Pressing Parameters: Specific Pressure

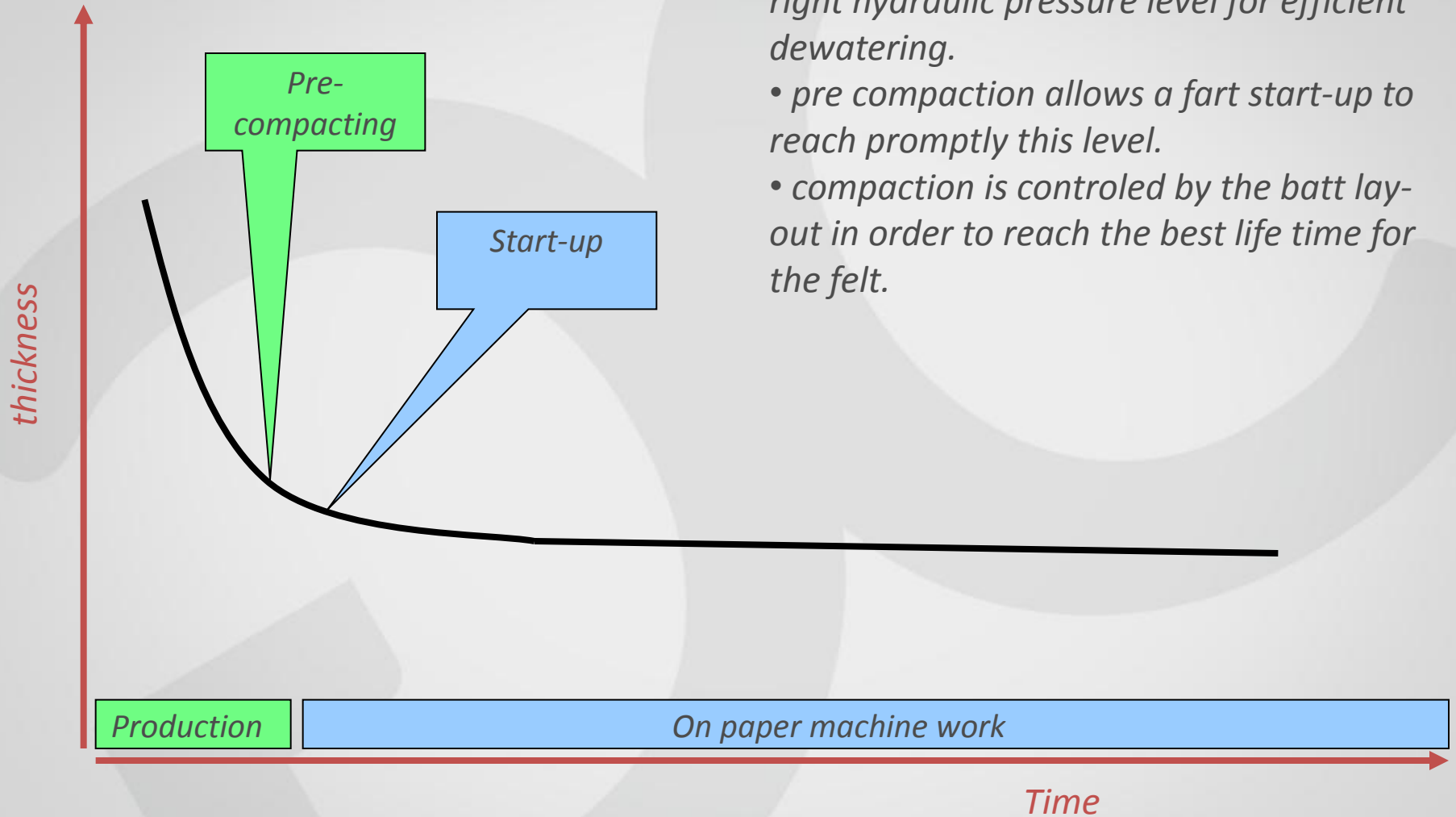
	P1	P2	P3
All grades	21 – 28	-	-
Kraft liner	21 – 28	32 – 42	47 – 63
Newsprint	28 – 35	42 – 53	63 – 80
Fine papers	21 – 28	32 – 42	47 – 63
Grey boards	14 – 21	21 – 32	32 – 53
Pulp	21 – 28	32 – 42	47 – 63
PPO	28 – 35	56 – 63	-
White board	11 – 18	18 – 27	25 – 42

Directly related to the nip width and the pressure applied, the specific pressure allows the water to be separated from the fibers. Thus it is not the same value for all paper grades, nor press position in the press section. The specific pressure is expressed in kgf/cm^2 , representing the effective pressure received by the paper in the nip. Even if related to, it is different from the linear pressure which is not a correct physical concept, just an easy daily way to express a professional parameter.

Basic mechanical parameters

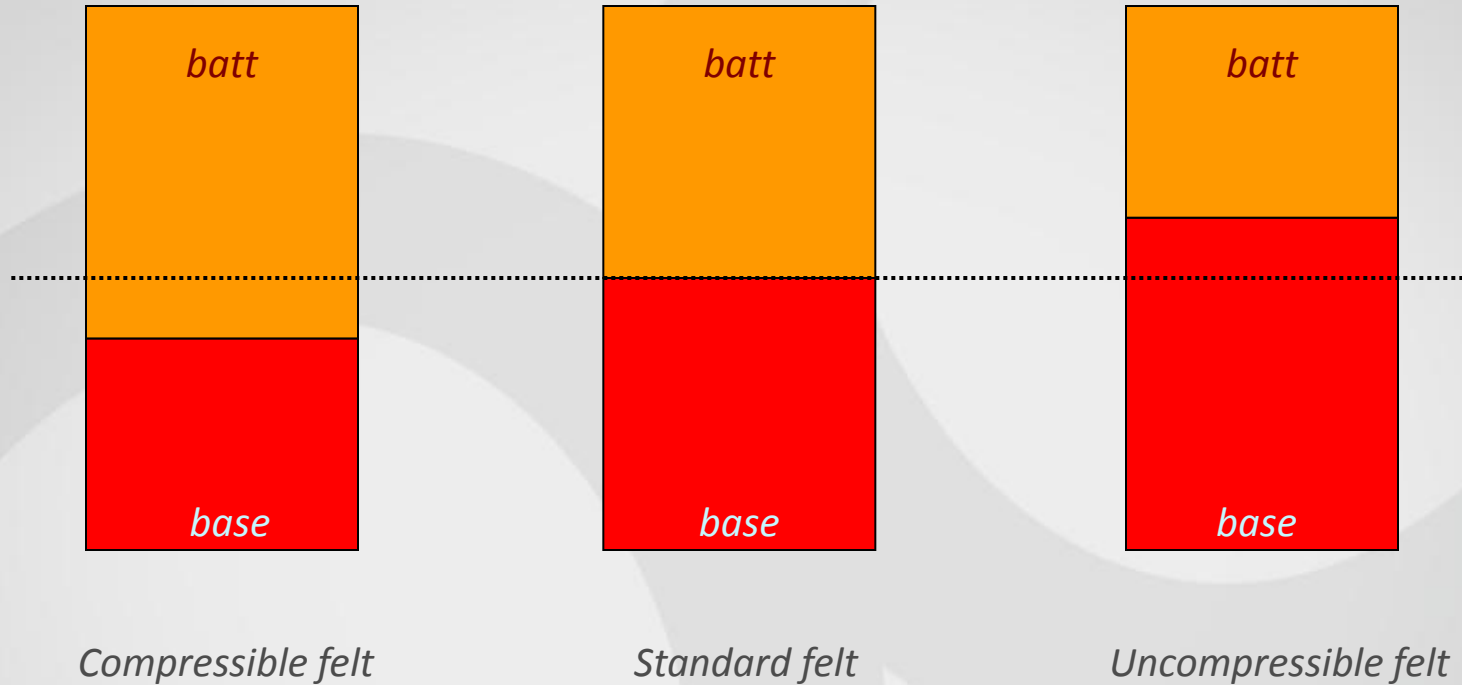
	<i>Classical nip</i>	<i>Shoe</i>	<i>Suction boxes</i>
<i>Width (mm)</i>	<i>15 - 25</i>	<i>150 - 250</i>	<i>10 – 12 (1 ou 2)</i>
<i>500 MPM</i>	<i>1,8 to 3 millisecondes</i>	<i>18 to 30 millisecondes</i>	<i>1,2 to 1,4 millisecondes</i>
<i>1000 MPM</i>	<i>0,9 to 1,5 millisecondes</i>	<i>9 to 15 millisecondes</i>	<i>0,6 to 0,7 millisecondes</i>
<i>1500 MPM</i>	<i>0,6 to 1 millisecondes</i>	<i>6 to 10 millisecondes</i>	<i>0,4 to 0,5 millisecondes</i>
<i>Pressure (bar)</i>	<i>30 - 55</i>	<i>30 - 45</i>	<i>0,3 – 0,6</i>
<i>Felt thickness %</i>	<i>60 - 70</i>	<i>60 - 70</i>	<i>100</i>

Pressing: compaction



- compaction allows the felt to reach the right hydraulic pressure level for efficient dewatering.
- pre compaction allows a fast start-up to reach promptly this level.
- compaction is controlled by the batt layout in order to reach the best life time for the felt.

Pressing: compressibility

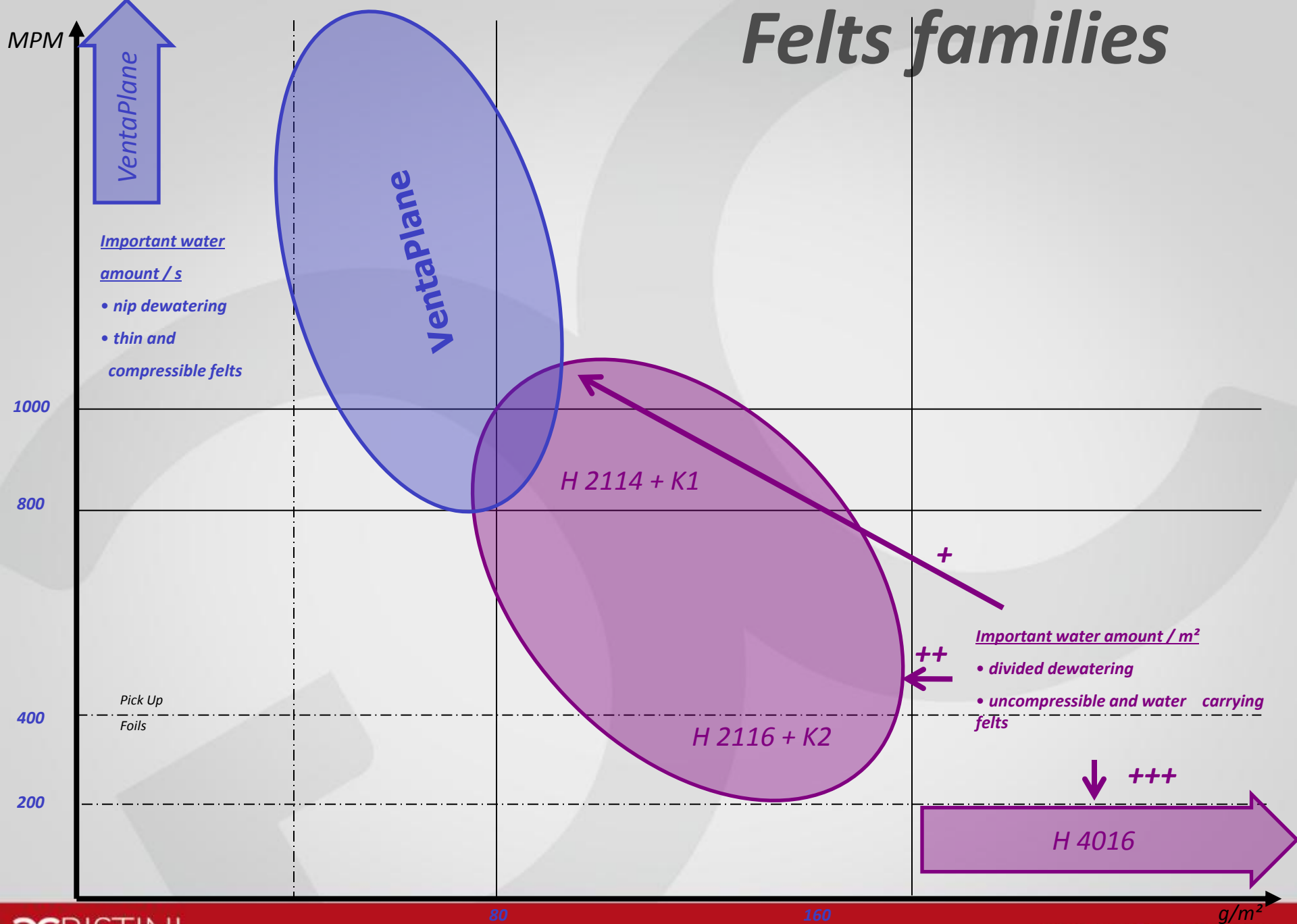


- *all batts are compressible, more for low decitex, less for high decitex.*
- *no base is compressible.*
- *the compressibility is the dynamic engine of the felt for hydraulic work within the nip.*
- *the compressibility ratio is a basic parameter for felts designs understanding.*

Dewatering type by paper grades

- *Nip dewatering*
 - *Tissue*
 - *Cigarette*
 - *Fine papers: newsprint, SC, LWC*
- *Mixed dewatering*
 - *Printing/writing*
 - *Packaging: kraft, liner, corrugated*
- *Divided dewatering*
 - *Board*
 - *Pulp*

Felts families



Pressing: parameters for results optimization

- T°
→ *play directly on water rheology to facilitate flows and decrease superficial tension.*
- *Felts conditioning*
→ *showers type and positionning, uhle box design and capacities are the main items to contrôle. All details available in separate Cristini littérature.*
- *Felts washing*
→ *extremely sensitive on felts results in particular when in situation of divided dewatering. All details available in separate Cristini littérature.*
- *Press covers and belts*
→ *(drilling, grooving, material, hardness...) have a great influence on pressing efficiency. All details available in separate Cristini littérature.*