

Ultralex®

A new Ultra High Strength Aluminum



A new Ultra High Strength Aluminum: **Ultralex®**

Car body engineering challenge:

have a further lightweighting option vs. the best steel offer (ultra high strength steel)



Press-quenched B-pillar reinforcement prototype part (C-TEC internal)

- Constellium new **Ultralex®** provides approx. 15% weight savings vs. UHSS
- **Ultralex®** offers inter-granular, filiform and stress corrosion resistance best-in-class among the 7xxx family
- **Ultralex®** is formable using press hot forming & warm forming, and joinable using adapted mechanical fasteners

Ultralex®: performance and enabling technique

- Ultralex® strength properties depend of the final temper

	YS @T7	YS @T6	Rm @T6	A80 @T6	
Ultralex®	450 MPa	500 MPa	550 MPa	15%	Industrial trials

- lightweighting potential and enabling technique are investigated within Constellium and with forming and joining partners

Ultra high Strength Steel

- Hot forming
- Corrosion protection needed
- Welding & Mechanical fastening
- ...

Ultralex®

- Warm or Hot forming
- Corrosion protection needed
- Mechanical fastening
- 17% lighter (door side impact beam)



Side impact beam product	YS (MPa)	UTS (MPa)	A80 (%)	gauge for iso crash performance	% light-weighting vs. UHSS
UHSS (e.g. 22MnB5)	1100	1500	6	1,2	-
Ultralex®	500	550	15	2,9	-17%