6 Headrests

Product Range					
ø (OD)	Range diameter	Tolerance	Wall thickness	Thickness range	Tolerance
	12 - 16 mm.	± 0,06 mm.		1,00 to 1,25 mm	±0,05 mm
				1,26 to 1,50 mm	±0,06 mm
				1,50 to 2,00 mm	±0,08 mm
				2,00 mm or above	±0,10 mm

ID (inner ø) tolerance	Total range of requested tolerance, will be 0,10 mm plus twice the wall thickness tolerance and in direct relation to OD and its tolerance

Mechanical Properties . Tensile test acc. ISO 6892-1

Standard	Grade	Rp(0,2)MPa	Rm MPa	A(5)%
EN 10305-3	E235+CR1	≥ 235	≥ 390	≥ 7
	E275+CR1	≥ 275	≥ 440	≥ 6
	E320+CR2	≥ 690	≥ 780	≥ 19
	E370+CR2	≥ 370	≥ 450	≥ 15
	E420+CR2	≥ 420	≥ 490	≥ 12
	E500+CR2	≥ 500	≥ 540	≥ 10
	E550+CR2	≥ 550	≥ 590	≥ 10
	E600+CR2	≥ 600	≥ 640	≥ 6
Delivery condition: +CR2				

Standard	Grade	Rp(0,2)MPa	Rm MPa	A(5)%
EN 10305-3 EN 10338 (VDA 239-100)	HCT590X (CR330Y590T-DP)	≥ 650	≥ 700	≥ 12
	E600HRF	≥ 690	≥ 780	≥ 12
	E600HRF-ED®	≥ 610	≥ 700	≥ 14
	HCT780X (CR440Y780T-DP)	≥ 650	≥ 800	≥ 7
TOYOTA BSDG3156	STKM-470	≥ 275	≥ 470	≥ 10
	STKM-650	≥ 500	≥ 650	≥ 10
	STKM-750	≥ 600	≥ 750	≥ 10
	STKM-850	≥ 650	≥ 800	≥ 10
Delivery condition: +CR2				

Chemical composition	According standards.
Surface condition	The surface free from marks and scratchs. Cut to length tube deburred and washed. Roughness Ra ≤ 0,6µm (Rz ≤ 4µm)
Straigthness	The tube with higher straightness level; maximum bending of 1 mm/m.
Weld bead	Outer darker welding seam available, for computer vision tube positioning systems. Inner weld bead free of unevenesses and height may vary from 0,25 to 0,6 mm.
Testing methods	Eddy current ISO 10893-2 (NDT) only for weld seam. Flattening test acc. ISO 8492 Drift-expanding test acc. ISO 8493 Bening test (up to 180°) (only after feasibility study
Remarks	**Further requirements to the above detailed, should be approved with a feasibility study.**

Special grades

In our permanent objective of providing important technological improvements, the company as a whole is focused on R&D activities to develop new solutions and products.

"Normal" and "Extraductile" products are shown as a solution, given the perception that DP materials intended for headrests cause difficulties in the processes due to their limited plasticity.

These are the fruit of years of experience added to a lot of research, and thanks to the close and constructive collaboration we have with steel manufacturers. These products always exceed regulatory requirements.

Extraductile

E600HRF-ED

The Extraductile tube allows double bending with close bends and lower bending radii. The deformation and wall reduction are lower. The surface finishing maintains its quality. This means less wear on the tools and it behaves better when deforming it.

Normal

E600 HRF

The Normal tube allows a bending of the tube with a medium radius and a minimum deformation, maintaining the quality of surface finishing and enough wall thickness.