



For
**Technology,
Quality & Value**

Steering

- Steering Column
- Intermediate Shaft



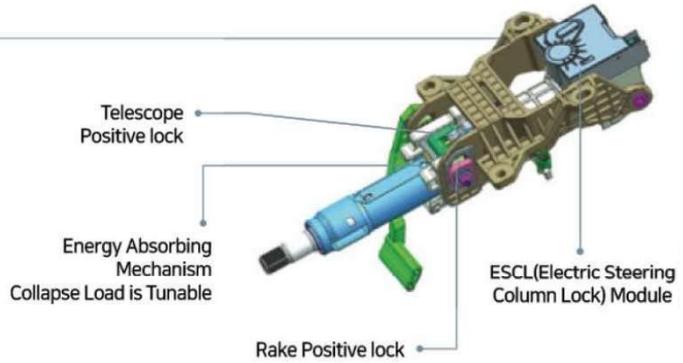
Rake and Telescope Column

Features

- Rake and Telescope Column
- Energy absorbing mechanism
- Rake & Telescope Positive lock
- ESCL Module

Customer Benefits

- High column stiffness
- Good NVH performance
- Cost competitive



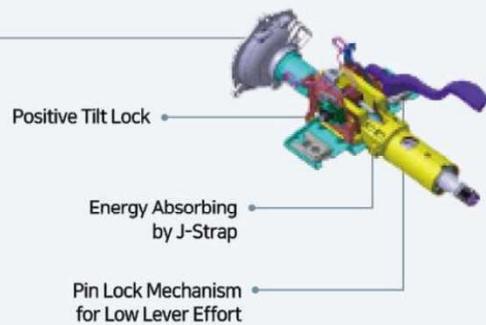
Tilt and Telescope Column (for CEPS)

Features

- Positive Tilt Lock
- Energy absorbing by J-Strap
- Pin lock mechanism for low lever effort

Customer Benefits

- Light weight & Compact design
- Smooth telescope operation
- Good NVH performance



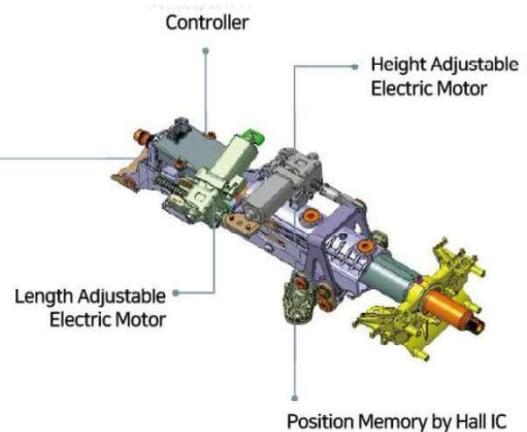
Electric Tilt and Telescope Column

Features

- Electrically adjustable in height and length
- Position memory function by hall IC
- Controller available

Customer Benefits

- PWM Motor control available (Operation Noise Enhancement)
- Good NVH performance



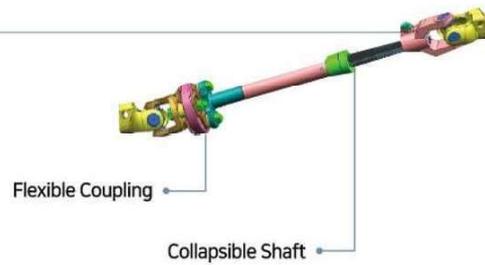
Collapsible Intermediate Shaft with Coupling

Features

- Collapsible I-Shaft
- Vibration absorption by coupling

Customer Benefits

- Low lash
- Stiffness tunable coupling



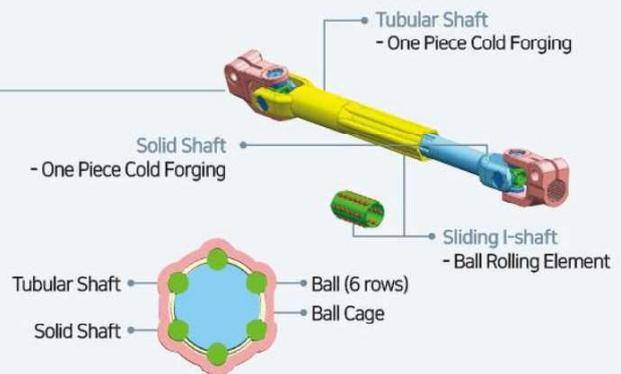
Low Friction Intermediate Shaft

Features

- Ball rolling element
- One piece solid yoke (Cold forging)

Customer Benefits

- Low sliding force
- Low lash
- High stiffness



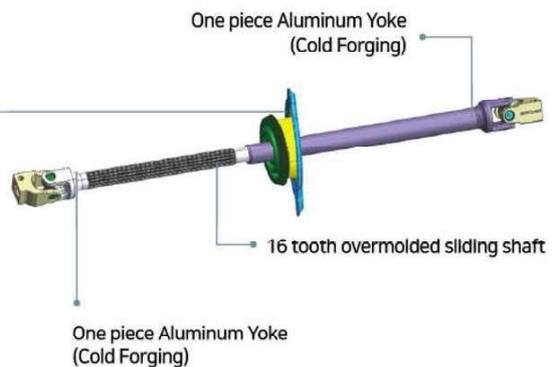
Aluminium Intermediate Shaft

Features

- Sliding spline
- Cold forged aluminum one piece yoke

Customer Benefits

- Low lash
- Light weight



Steering Column



Lower Tilt & Telescope (Friction Lock)



Lower Tilt & Telescope (Positive Lock)



Tilt and Telescope Column (for CEPS)



Electric Tilt and Telescope Column



Controller (Electric Tilt & Tele. Column)

Type	Position Locking Mechanism	Tilting Angle Tele. Length	Energy Absorbing Mechanism
Tilt & Tele. Column	Friction Lock	4.5° / 40mm	Ball Sleeve
	Positive Lock	4.5° / 40mm	J-Strap / Tolerance Ring
Tilt & Tele. Column (for CEPS)	Tilt Positive Lock Tele. Friction Lock	50mm / 50mm	J-Strap
Electric Tilt & Tele. Column	Motor Position	40mm / 60mm	Tear Strap

Intermediate Shaft



Sliding I-Shaft (Low Friction)



Sliding I-Shaft with Rubber Coupling



Sliding I-Shaft (Medium Friction)



Sliding I-Shaft with Concentric Isolator



Collapsible I-Shaft



Collapsible I-Shaft with Rubber Coupling



Collapsible I-shaft

Type		Collapse Load	Sliding Force	Isolator Availability	Applicable Yoke Type
Sliding I-Shaft	Low Friction	-	10~30N	Rubber Coupling Concentric Isolator	Hot Forged Yoke Cold Forged Yoke Press Yoke Cold Forged One Piece Yoke
	Medium Friction	-	50N Max		
Collapsible I-shaft		1,000 ~ 4,000 N Adjustable	-		
Fixed I-Shaft		-	-		

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**For Technoligy,
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Start with Hansae Mobility**