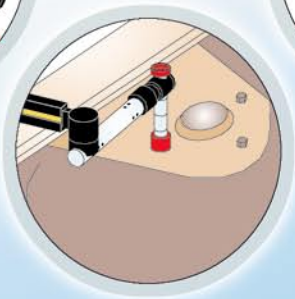
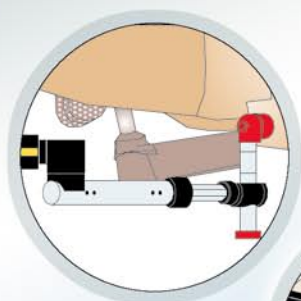
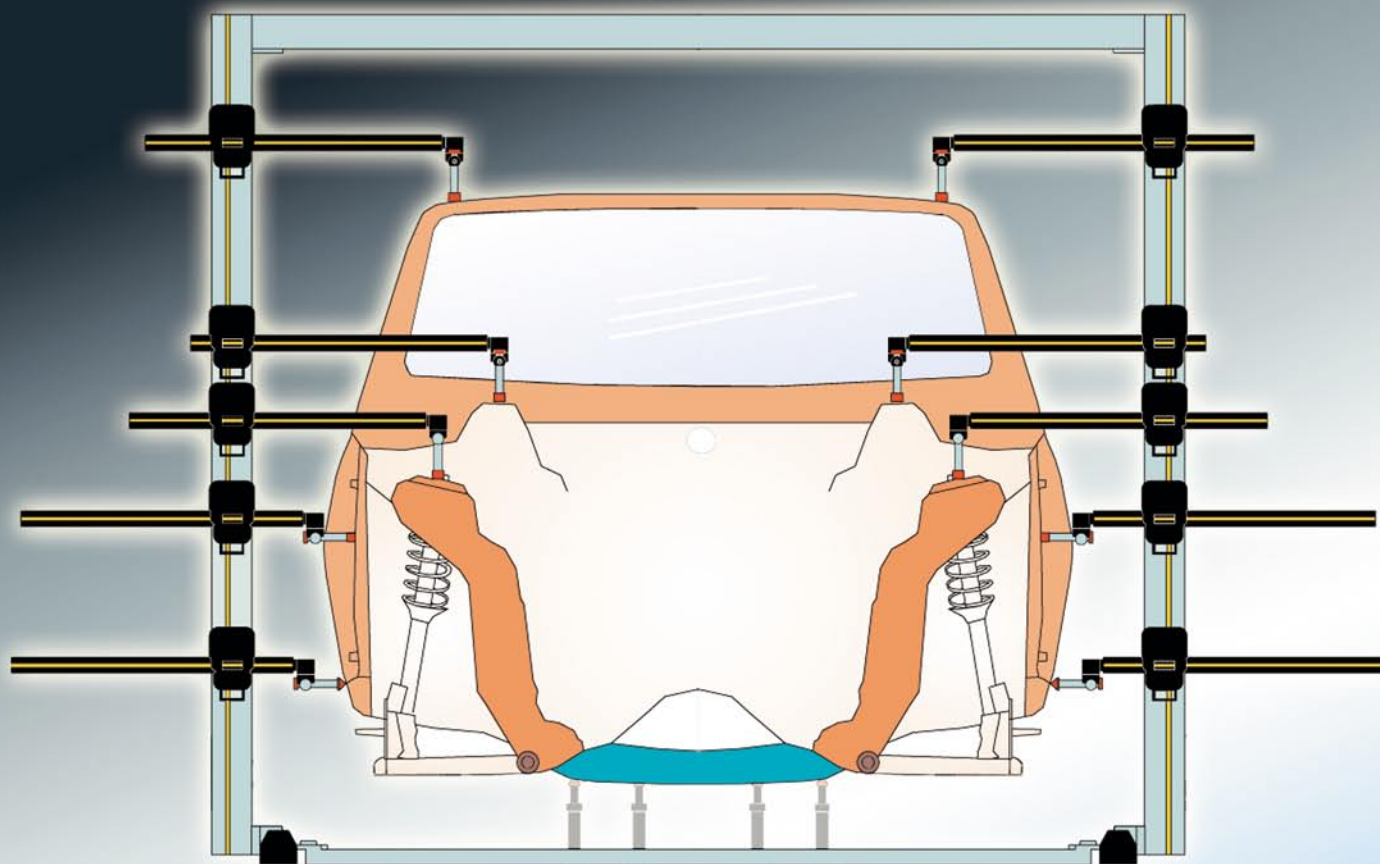


# Autorobot<sup>®</sup> Calipre

ELECTRONIC MEASURING



**Technology  
from FINLAND**



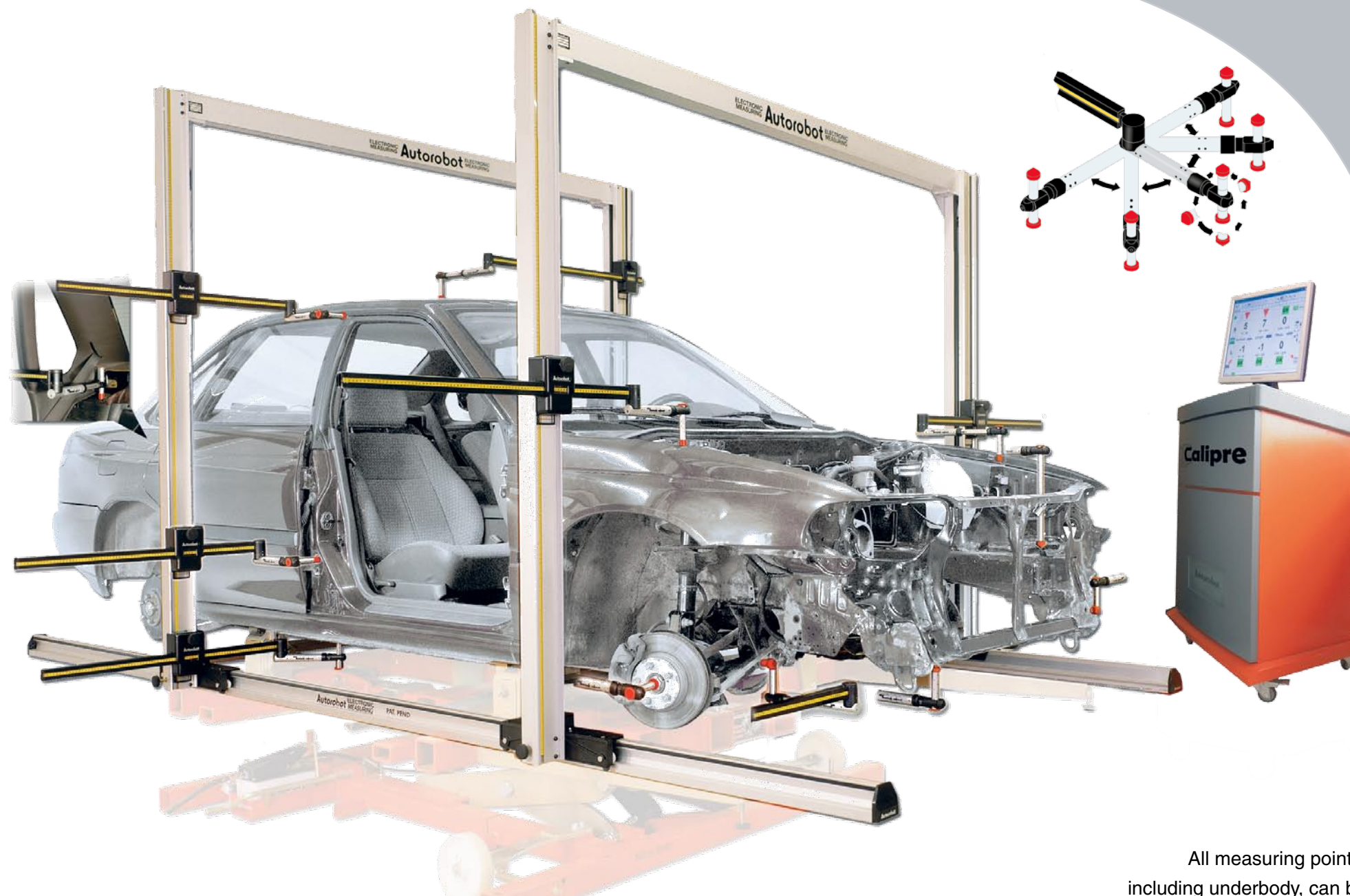
# Autorobot<sup>®</sup> Calipre

Calipre is Autorobot's advanced 3D electronic/mechanical measuring system. Its unique overhead arch moves over the entire vehicle, accurately measuring both chassis and body. Calipre's patented measuring heads streamline your shop's workflow, increasing production and ensuring accuracy.

Calipre's 3D measuring data is Autorobot's proprietary software; each vehicle's datasheet shows up to 60 measuring points per vehicle, plus mounting instructions. Our newest version includes photographs of late-model vehicles, detailing precise measuring points. Datasheet updates are available either on CD-ROM or online in Autorobot Extranet.

With Autorobot Calipre, measuring can be done either electronically or mechanically by hand (without computer). Vocational institutes, for example, find Autorobot Calipre perfect for teaching both measuring techniques with the same device. The system is easily moved between Autorobot benches and is workable in all circumstances. Calipre is unbeatable in speed and accuracy, for both the upper body and chassis measurements.

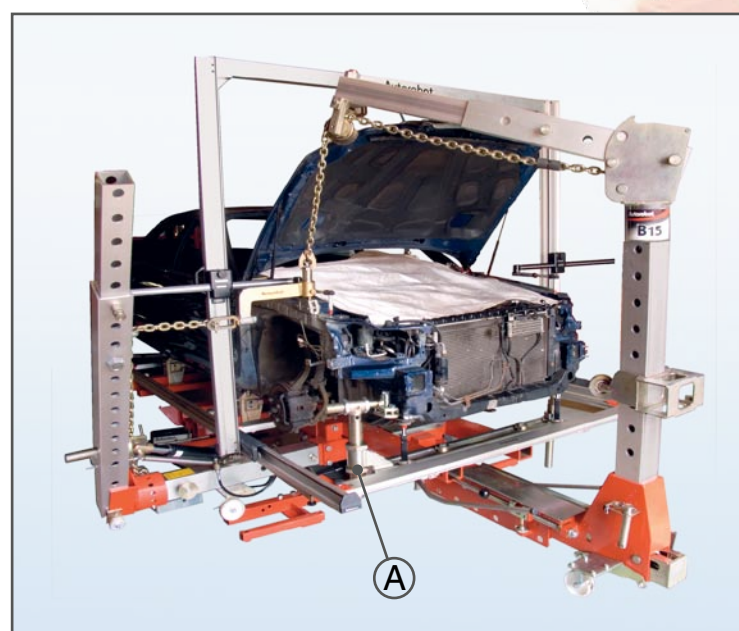
Autorobot Calipre 3D chassis and body measuring technique can be used also in other types of straightening systems by using an optional adapter kit.



All measuring points, including underbody, can be reached comfortably from side of vehicle.



**Cutting-edge repair with Autorobot B20, guided by Calipre.** Bench lift and tower movements are controlled by hand-held wireless remote control. Measuring results are also transferred wirelessly to the computer.



**Total straightening control with Calipre's 300ELH/1 electronic/mechanical measuring system.** Here, repair progress is tracked along the entire front of the vehicle, four points at a time: two points on the frame and two points at fender attachments. Initial repairs, such as frame straightening, can be held in place by a support jig (A) while body and suspension repairs are finished.



**Pull accurately the first time, every time.** Calipre's distinctive measuring system clearly displays necessary pull direction and travel length. Measuring reference points on Autorobot datasheets (some shown here in red) have all three length, width and height values. When all measurements have been pulled within accepted tolerance, with the help of the Calipre and datasheets, replacement parts fit accurately and the vehicle is restored to original condition.



**An Calipre specialty.** Datasheets have measuring points for fender mounting screws, as well. These points facilitate new-part positioning before welding.

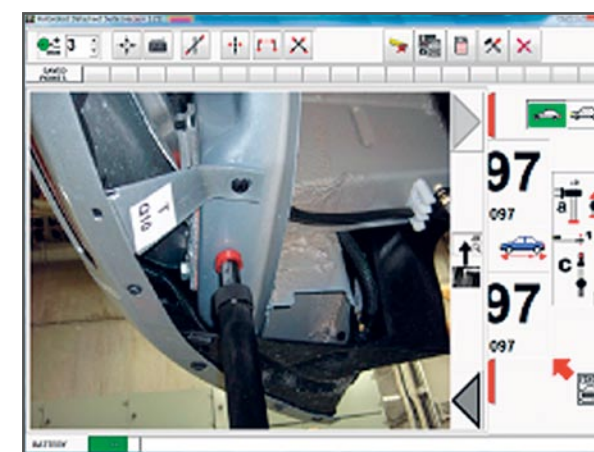
Patented



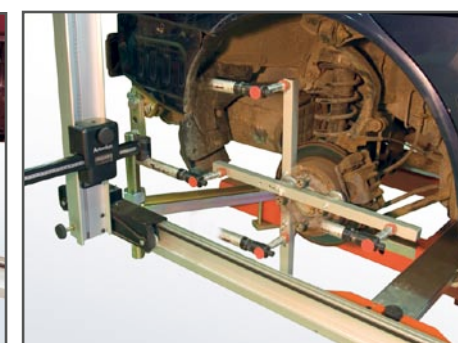
A close-up photograph of a mechanical component, possibly a valve or actuator, mounted on a blue surface. A red circle highlights a specific part of the mechanism, which appears to be a small, cylindrical component with a red cap or seal.



A diagram of a 5-bar linkage mechanism. It consists of five links: a fixed frame (link 1), two ground links (links 2 and 3), and three coupler links (links 4, 5, and 6). The mechanism is shown in a specific configuration with arrows indicating the direction of motion for each link. A slider block is attached to one of the coupler links, moving along a horizontal guide.

[illegible]

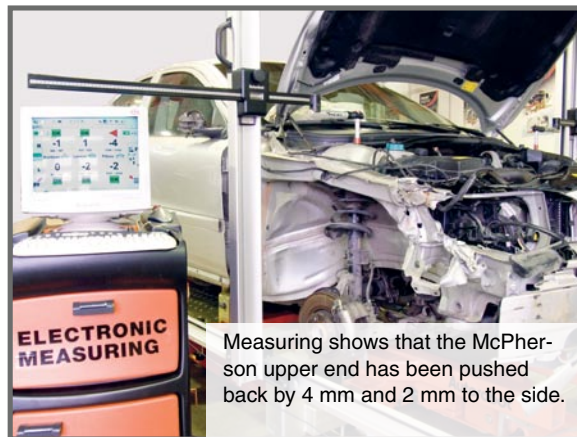
**Suspension/steering repair.** The 300ELH/3 package features an alignment bar for checking the condition of control arms and strut towers, among other things. Values from the sound side of the vehicle are compared to the damaged side. Axle distance measuring is easy, too. Please note: use of alignment bar needs mechanical system centering.





# Autorobot<sup>®</sup> Calipre

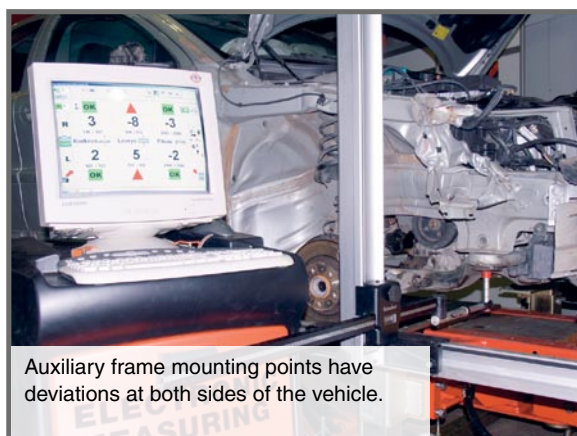
## Damage estimate and repair



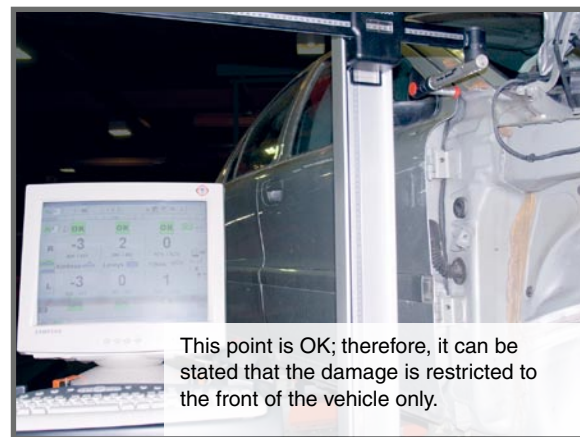
Measuring shows that the McPherson upper end has been pushed back by 4 mm and 2 mm to the side.



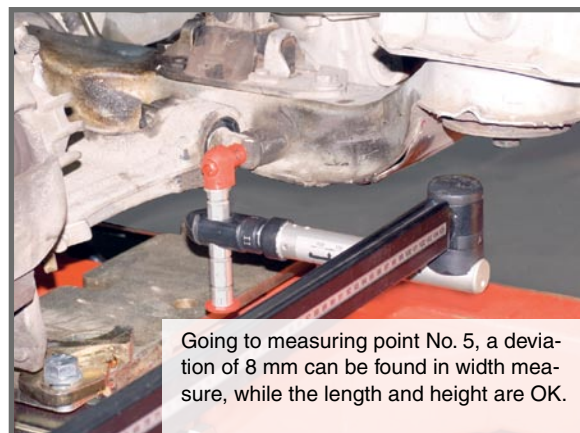
Further checking verifies that the chassis is also within tolerance in other areas except the front.



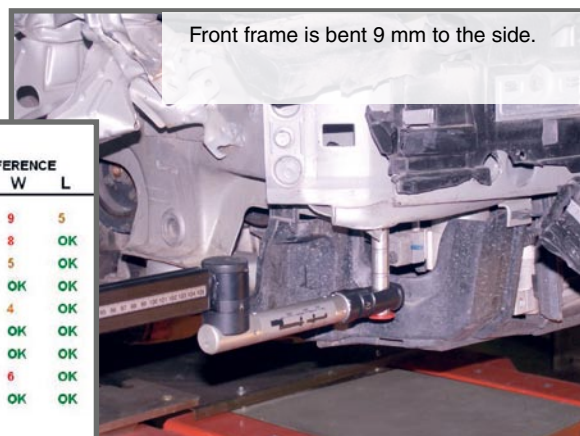
Auxiliary frame mounting points have deviations at both sides of the vehicle.



This point is OK; therefore, it can be stated that the damage is restricted to the front of the vehicle only.



Going to measuring point No. 5, a deviation of 8 mm can be found in width measure, while the length and height are OK.

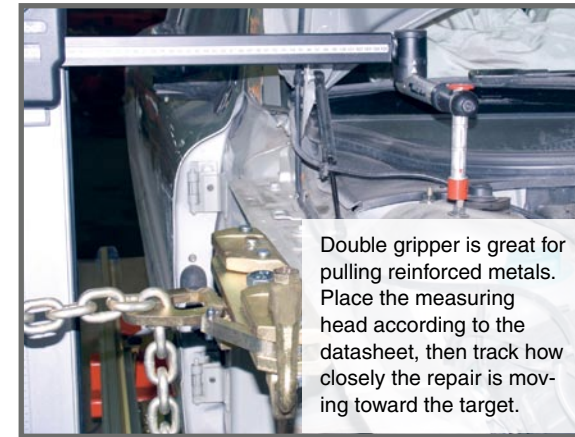


Front frame is bent 9 mm to the side.

UNDERBODY - BEFORE										
POINT #	TOLERANCE +/- mm	ACTUAL			DATASHEET			DIFFERENCE		
		H	W	L	H	W	L	H	W	L
2R	3	274	545	2838	276	554	2843	OK	9	5
5R	3	126	524	2563	123	532	2566	OK	8	OK
5L	3	125	537	2564	123	532	2566	OK	5	OK
6R	3	67	536	2319	66	534	2318	OK	OK	OK
6L	3	66	538	2321	66	534	2318	OK	4	OK
7R	3	45	434	1790	47	431	1793	OK	OK	OK
7L	3	45	431	1790	47	431	1793	OK	OK	OK
8R	3	44	526	1680	43	520	1680	OK	6	OK
8L	3	45	521	1682	43	520	1680	OK	OK	OK

After measuring analysis, sufficient information is available to conduct the actual repair – which direction to straighten and how far to extend the pull.

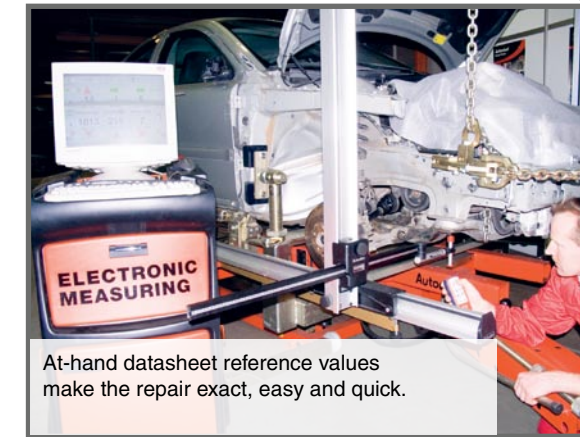
## Straightening with guidance from the measuring device.



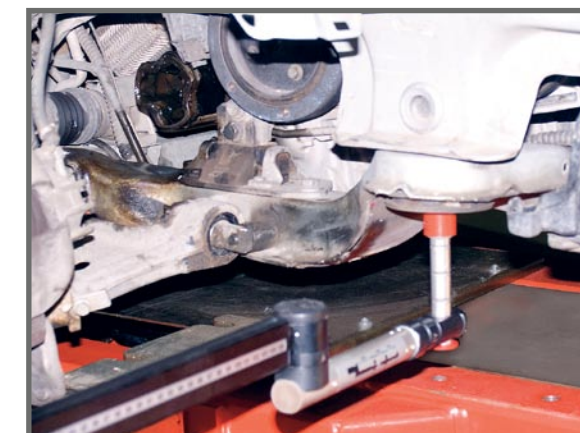
Double gripper is great for pulling reinforced metals. Place the measuring head according to the datasheet, then track how closely the repair is moving toward the target.



UNDERBODY - AFTER										
POINT #	TOLERANCE +/- mm	ACTUAL			DATASHEET			DIFFERENCE		
		H	W	L	H	W	L	H	W	L
2R	3	274	554	2842	276	554	2843	OK	OK	OK
2L	3	278	556	2841	276	554	2843	OK	OK	OK
4R	3	262	521	2741	260	523	2743	OK	OK	OK
4L	3	261	526	2743	260	523	2743	OK	OK	OK
5R	3	124	533	2564	123	532	2566	OK	OK	OK
5L	3	121	534	2566	123	532	2566	OK	OK	OK
6R	3	65	534	2317	66	534	2318	OK	OK	OK
6L	3	67	533	2321	66	534	2318	OK	OK	OK
7R	3	48	433	1795	47	431	1793	OK	OK	OK
7L	3	48	433	1795	47	431	1793	OK	OK	OK
8R	3	41	522	1681	43	520	1680	OK	OK	OK
8L	3	42	522	1680	43	520	1680	OK	OK	OK
9R	3	55	420	1573	54	418	1574	OK	OK	OK
9L	3	55	420	1573	54	418	1574	OK	OK	OK



At-hand datasheet reference values make the repair exact, easy and quick.

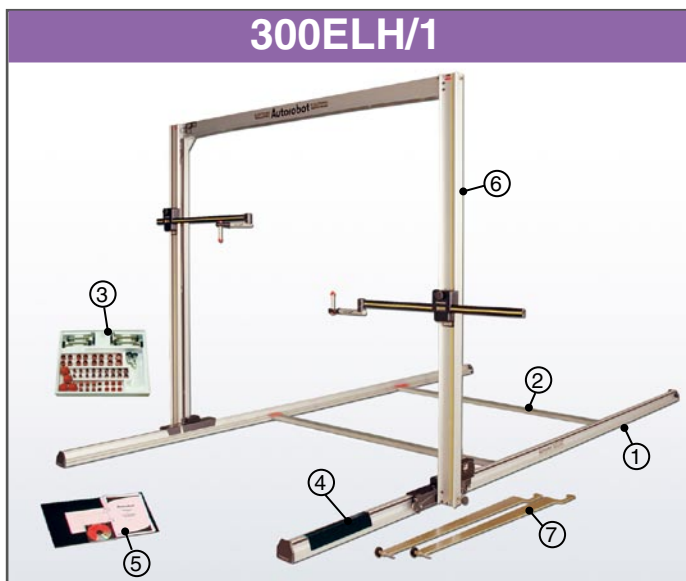


Straightening has been successful when all measuring points are within the tolerance of  $\pm 3$  mm as configured in the measuring software. A printed measuring document proves the top-quality results achieved by your body shop.



# Sets

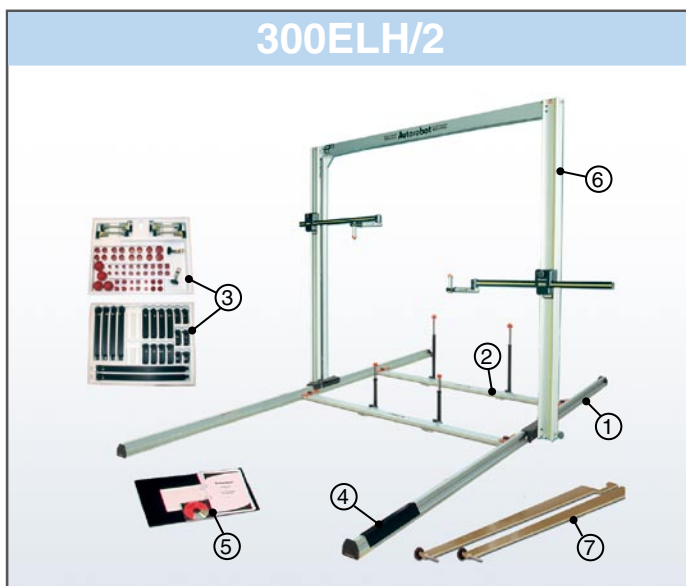
## 300ELH/1



### 300ELH/1 Calibre Bronze

300ELH/1 Electronic 3D measuring		Pc
Software centering		
1	Length beams	2
2	Distance bridge	2
3	Measuring instrument kit	1
4	Cover for length beam	1
5	CD-ROM datasheets	1
6	Electronic measuring arch	1
7	Holders for length beams	2

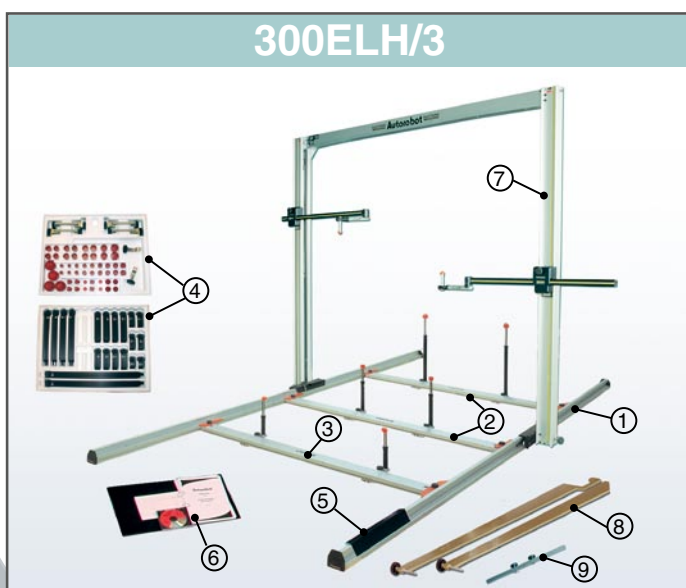
## 300ELH/2



### 300ELH/2 Calibre Silver

300ELH/2 Electronic/mechanical 3D measuring		Pc
Software and mechanical centering		
1	Length beams	2
2	Cross bridge, symmetrical	2
3	Mittavälinesarja	1
4	Cover for length beam	1
5	CD-ROM datasheets	1
6	Electronic measuring arch	1
7	Holders for length beams	2

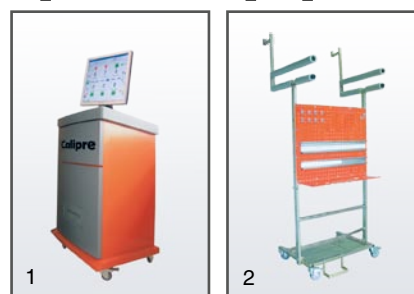
## 300ELH/3



### 300ELH/3 Calibre Gold

300ELH/3 Electronic/mechanical 3D measuring		Pc
Software and mechanical centering		
1	Length beams	2
2	Cross bridge, symmetrical	2
3	Cross bridge, adjustable	1
4	Complete measuring instrument kit	1
5	Cover for length beam	1
6	CD-ROM datasheets	1
7	Electronic measuring arch	1
8	Holders for length beams	2
9	Axle alignment bar	1

## Optional equipment



1	300EL+1C PC cabinet 300EL+2 PC and printer
2	731+1A Multi-purpose trolley

Manufacturer:

**Autorobot**  
FINLAND OY

Yrittäjätie 23, FI-70150 Kuopio, Finland  
Tel. +358-17-283 3711  
Fax +358-17-283 1623  
E-mail: autorobot@autorobot.com