



A life without scratches?

Screen protector films under test

Translated by Bull Translation, Munich

Who has had to cough almost 700 Euro for his new state of the art smartphone, will not welcome the option of having it rub against car keys and loose change in trouser pockets and handbags. Even the hardened Gorilla Glass installed in many devices, does not provide for one hundred percent protection against scratches. Screen protector films made from multilayered plastic are intended to protect screens against environmental influences. We will hereby compare eight products.

Which film do I need?

Screen protector film can broadly be divided into three categories. Clear films (that are marketed under the trade name "Ultra Clear"), are with a market share of 80% of the films sold, in essence the most popular type. This is followed by anti-reflective films and ultimately screen protector products made of real glass – a relatively new development. We have in our test only considered clear protector film.

Clear films



+ High transparency

+ High sharpness

○ Medium scratch resistance

+ Very thin

○ Breaking resistance unchanged

+ Inexpensive

Anti-reflective films



- Diminished transparency

○ Medium sharpness

+ High scratch resistance

+ Very thin

○ Breaking resistance unchanged

+ Inexpensive

Real glass films



+ High transparency

+ High sharpness

+ Maximum scratch resistance

- Relatively thick

+ Enhanced breaking resistance

- Expensive

The straight alignment and plane sticking of screen protector films without bubbles and dust inclusions is a challenge - as is the case in so many other areas of life, amateur modelers have a clear advantage.

After you have thoroughly cleaned the screen - whereby all manufacturers under test with the exception of Mumbi attach a microfiber cloth and / or wet towels to the shipment - release the film at the short end from the backing film and start with the attachment from the top edge of the screen. All openings have to be aligned in the right position. Then gently brush over the film with the enclosed piece of cardboard or a debit card while pulling off the rest of the backing film. The products are held by static on the screen glass and are not glued - a falsely applied film and can therefore be care-

fully removed and re-applied again. Fortunately, most manufacturers attach at least two films to the shipment, so that the buyer has a second try, if all else fails. Somikon optionally provides an applicator, which is intended to make the process easier. Crocfol will shortly release something similar. In the case of Hama and Displex, the films are first "dry" positioned with adhesive on the screen, and then applied in a folding motion - under test, this method proved quite excellent. This is then ultimately followed by the brushing out of the inevitable air pockets.

It is advisable to wrap a debit card with a microfiber cloth and brush out gently towards the sides with medium pressure.

The fit of the products is consistently satisfactory, none of the films protruded over the edge or left far too much of the screen glass exposed. However, the number and shape of the blanc cuts significantly differ. Displex, Dipos, Mumbi and Krusell provide individual blanc cuts for each sensor, speaker and camera-opening. Somikon and Artwizz provide blanc cuts that allow for generous space at the top or else bottom, Artwizz even provides for a blanc cut for the Galaxy S5 test device, which is totally unnecessary. In the case of our test samples from Crocfol,

the blanc cuts were unfortunately somewhat not properly machined - the manufacturer claims it must have involved a bad batch. In the overview table on the

THE DIFFERENCES WITH REGARD TO THE BLANC CUT ARE IN PART SIGNIFICANT

following pages you will find a schematic representation to the blanc cuts of each film so that you can draw your own conclusions. In terms of feel and scrolling behavior no substantive differences could be ascertained between the candidates, whereas Dipos, Crocfol and Artwizz performed slightly worse than the rest in terms of scratch resistance. Krusell scores with a self-healing surface that was indeed able to provide for the inflicted superficial scratches within the framework of the test, to actually disappear within a few seconds.

This is how we tested

Application



The correctly aligned application of the film is not for the shaky finger. The product from Displex is secured laterally with adhesive strips.

Fit



The best films under test provide for individual blanc cuts for the camera and sensor openings on the front side.

Visual appearance / optical look



Poor protector films among others occasionally show iridescence - the dreaded rainbow effect. This was however not ascertained in the case of any of the films under test.

Scratch resistance



The car key is the natural enemy of the smartphone screens. Scratches are moreover in essence inevitable if minerals such as sand come into play.

Clear protector films under test



Displex Protector individual



Hama Screen Protector



Krusell Screen Protector



Mumbi CrystalClear

Price (Price/film):	EUR 9,99 (approx. EUR 5,-)	EUR 9,99 (approx. EUR 5,-)	EUR 9,90 (EUR 9,90)	EUR 2,99 (approx. EUR 0,70)
Content:	- 2 films - Application aid - Microfiber cloth - Instructions	- 2 films - Application aid - Microfiber cloth - Instructions	- 1 film - Microfiber cloth - Dump cleaning cloth - Card for brushing out	- 4 films - Instructions
Scratch resistance:	●●●●●	●●●●●	●●●●● (self-healing)	●●●●●
Optical look:	- no rainbow effect	- no rainbow effect	- no rainbow effect	- no rainbow effect
Instructions:	●●●●●	●●●●●	●●●●●	●●●●●
Application:	easy with the application aid	easy with the application aid	requires skill	requires skill
Fit: (Galaxy S5)	 - Individual blanc cuts for sensors, cameras - Individual blanc cuts for microphone, speaker	 - Individual blanc cuts for sensors, cameras - Individual blanc cuts for microphone, speaker	 - Individual blanc cuts for sensors, cameras - Individual blanc cuts for microphone, speaker	 - Individual blanc cuts for sensors, cameras - Individual blanc cuts for microphone, speaker
Film thickness:	135µm	135µm	200µm	No information
Value for money:	●●●●●	●●●●●	●●●●●	●●●●●
Pros and cons:	<ul style="list-style-type: none"> + Easy to apply + Excellent workmanship - Advantages of the laser-cut are not clear - High price category 	<ul style="list-style-type: none"> + Easy to apply + Excellent workmanship - Advantages of the laser-cut are not clear - High price category 	<ul style="list-style-type: none"> + Very scratch resistant + Self-healing surface - Relatively thick - Expensive 	<ul style="list-style-type: none"> + Brilliant value for money ration + Scratch resistant - Hard to mount with a straight alignment - No Cleaning cloth
Bottom line:	Films of Displex are scratch resistant and very easy to apply with the included application aid.	Hama arranges for its products to be manufactured by Displex, accordingly, the same result. Scratch resistant and easy to apply with application aid.	The films of the Swedish manufacturer Krusell are relatively expensive but are characterized by their self-healing surface.	The scratch resistance and fit the affordable Mumbi films are good, but the mounting requires some skill.
Assessment :	★★★★★	★★★★★	★★★★★	★★★★★



**Crocfol No. 2
Premium Glasklar**



**Somikon Glasklare
Display-Schutzfolie**



**Dipos
Display Schutz**



**Artwizz
SchratchStopper**

Price (Price/film):	EUR 12,95 (approx. EUR 6,50)	EUR 3,90 (EUR 3,90)	EUR 5,99 (approx. EUR 1,-)	EUR 9,99 (approx. EUR 5,-)
Content:	- 2 films - Instructions - Wet cloth - Dry cloth	- 1 film - Microfiber cloth - Card for brushing out	- 6 films - Instructions - Cleaning cloth - Dust remover	- 2 films - Instructions - Microfiber cloth - Dust remover
Scratch resistance:	●●●●●	●●●●●	●●●●●	●●●●●
Optical look:	- no rainbow effect	- no rainbow effect	- no rainbow effect	- no rainbow effect
Instructions:	●●●●●	●●●●●	●●●●●	●●●●●
Application:	requires skill	applicator available	requires skill	requires skill
Fit: (Galaxy S5)	 - Blanc cuts provided for the speakers at the top	 - Blanc cuts provided for the front camera, sensors at the top	 - Individual blanc cuts for all sensors - Blanc cuts for microphone, speaker	 - Blanc cuts provided for the front camera, sensors at the top
Film thickness:	125µm	No information	No information	140µm
Value for money:	●●●●●	●●●●●	●●●●●	●●●●●
Pros and cons:	<ul style="list-style-type: none"> ➢ Easy, bubble-free application ➢ Anti-static coating prevents dust ingress ➖ Inaccurately machined blanc cuts ➖ Not very scratch resistant 	<ul style="list-style-type: none"> ➢ Scratch resistant ➢ Straight application alignment with optional applicator ➖ Blanc cuts much too generous ➖ Only 1 film in the shipment 	<ul style="list-style-type: none"> ➢ More precise blanc cut ➢ Good value for money ratio ➖ Not very scratch resistant ➖ Bubble-free application was difficult 	<ul style="list-style-type: none"> ➢ Film is protected on both sides during the application ➖ Poor fit ➖ Not very scratch resistant
Bottom line:	It was easy to provide for a bubble-free application in the case of the tested products from Crocfol; however they were inaccurately machined and not all too scratch-resistant.	Somikon-films are scratch resistant and easy to apply with the applicator. Unfortunately, they are provided with much too generous blanc cuts.	Films from Dipos are very affordable, the blanc cut fits. They were however very conspicuous on account of their low scratch resistance.	The Artwizz films under test had unnecessary blanc cuts and showed deficiencies with regard to scratch resistance.
Assessment :	★★★★★	★★★★★	★★★★★	★★★★★