



The Art of Impossible
The Bang & Olufsen Design Story

Thames & Hudson



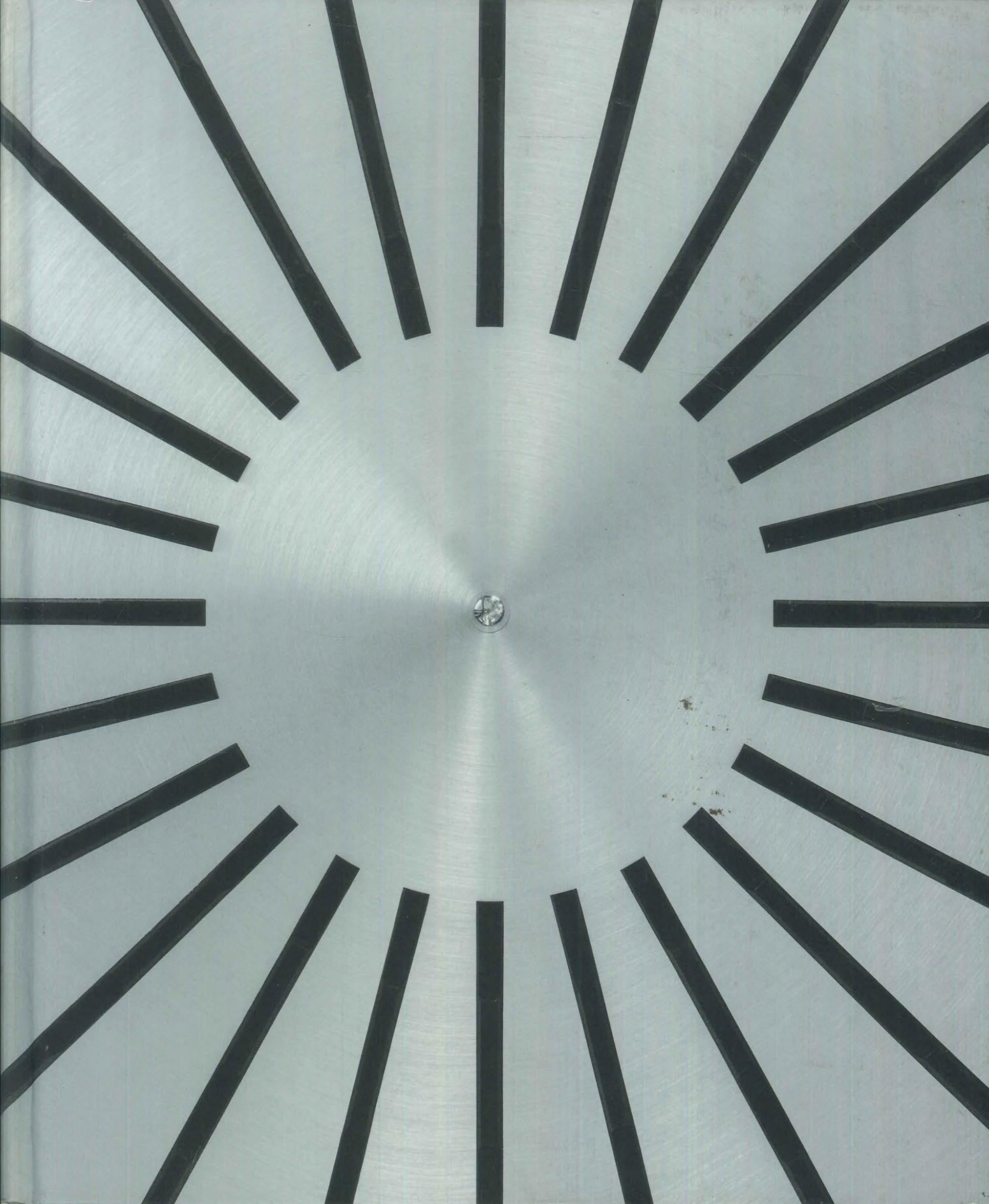
The official 90th-anniversary publication celebrating Bang & Olufsen, a brand whose excellence and innovation has shaped modern product design.

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Founded in 1925 by Danish innovators Peter Bang and Svend Olufsen, Bang & Olufsen is one of the world's foremost consumer electronics companies. For nearly a century, their audio products, television sets and loudspeakers have continually broken the rules and conventions of product design, dictating visual trends and altering irrevocably the appearance of our homes in the process. Both Steve Jobs and Jonathan Ive at Apple Inc. even cited Bang & Olufsen as a major influence upon the fundamental Apple design.

Written and produced with Bang & Olufsen's full involvement, this book takes you behind the company logo and delves into the stories behind the breakthrough, iconic Bang & Olufsen products. There is information on both the materials and manufacturing processes used, as well as profiles on the designers behind each innovative creation. The underlying philosophy, though, remains unwavering: that design must always serve a purpose. Featuring 250 specially commissioned photographs of archive products, sketches and prototypes, as well as an exclusive look into behind-the-scenes production, Bang & Olufsen's research and development facilities, and even models that never found their way onto the market, this is the definitive publication on a company whose design inventions are in a league of their own.

Alastair Philip Wiper is a British photographer and writer based in Copenhagen. From the laboratories of CERN in Switzerland to giant shipyards in South Korea and radio observatories in Peru, Alastair specializes in science, industry, architecture and exploring the unintentional beauty in infrastructure.







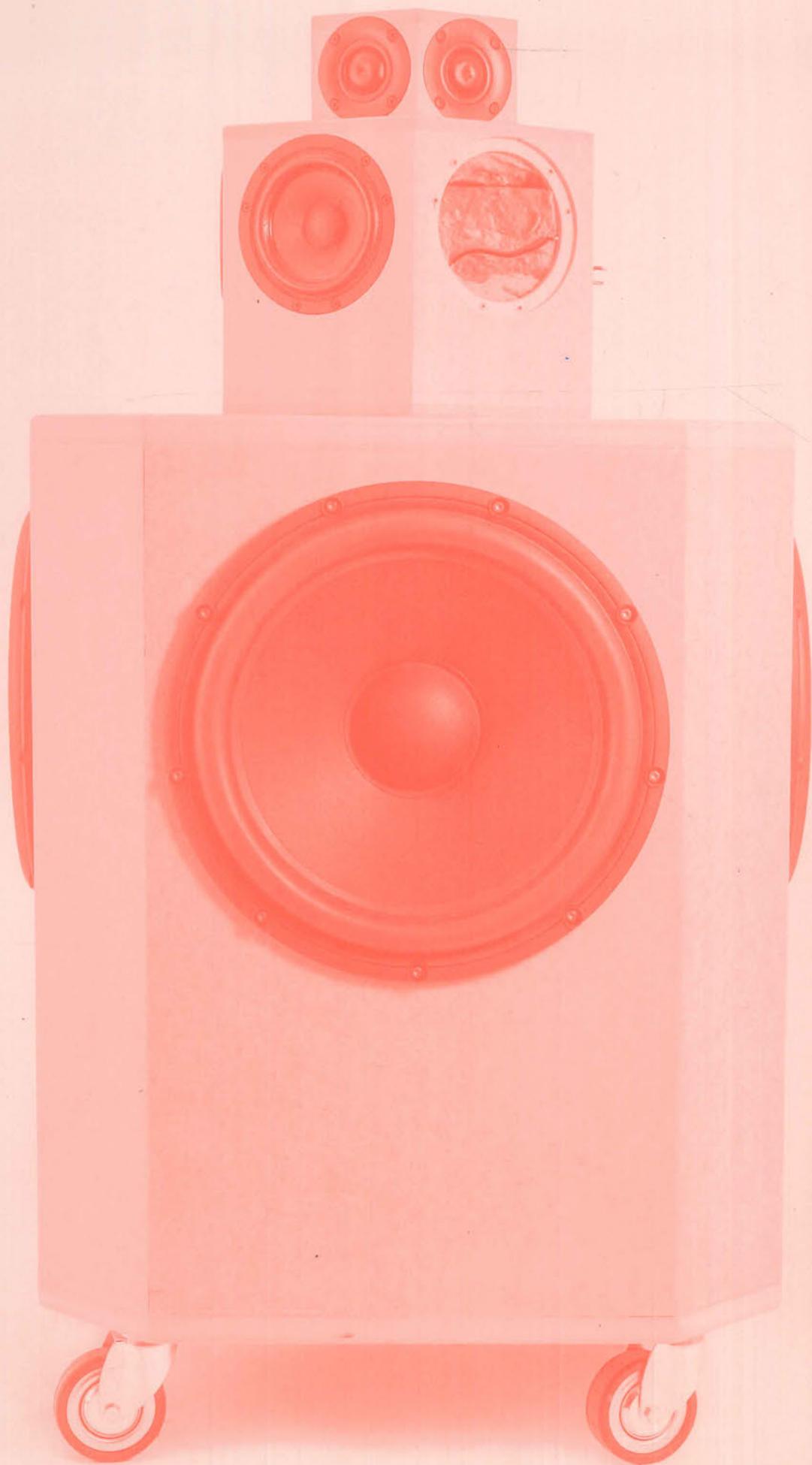
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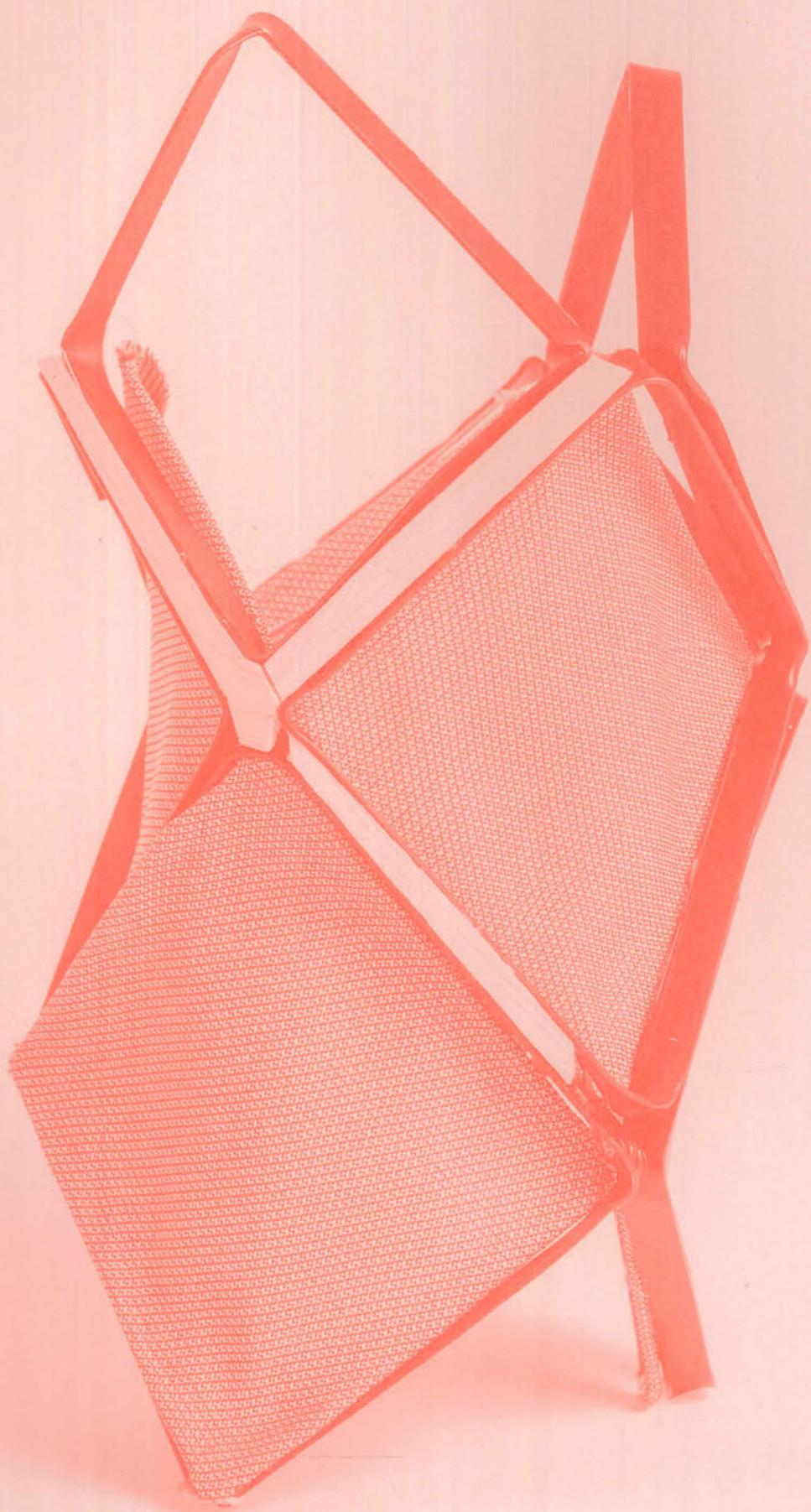




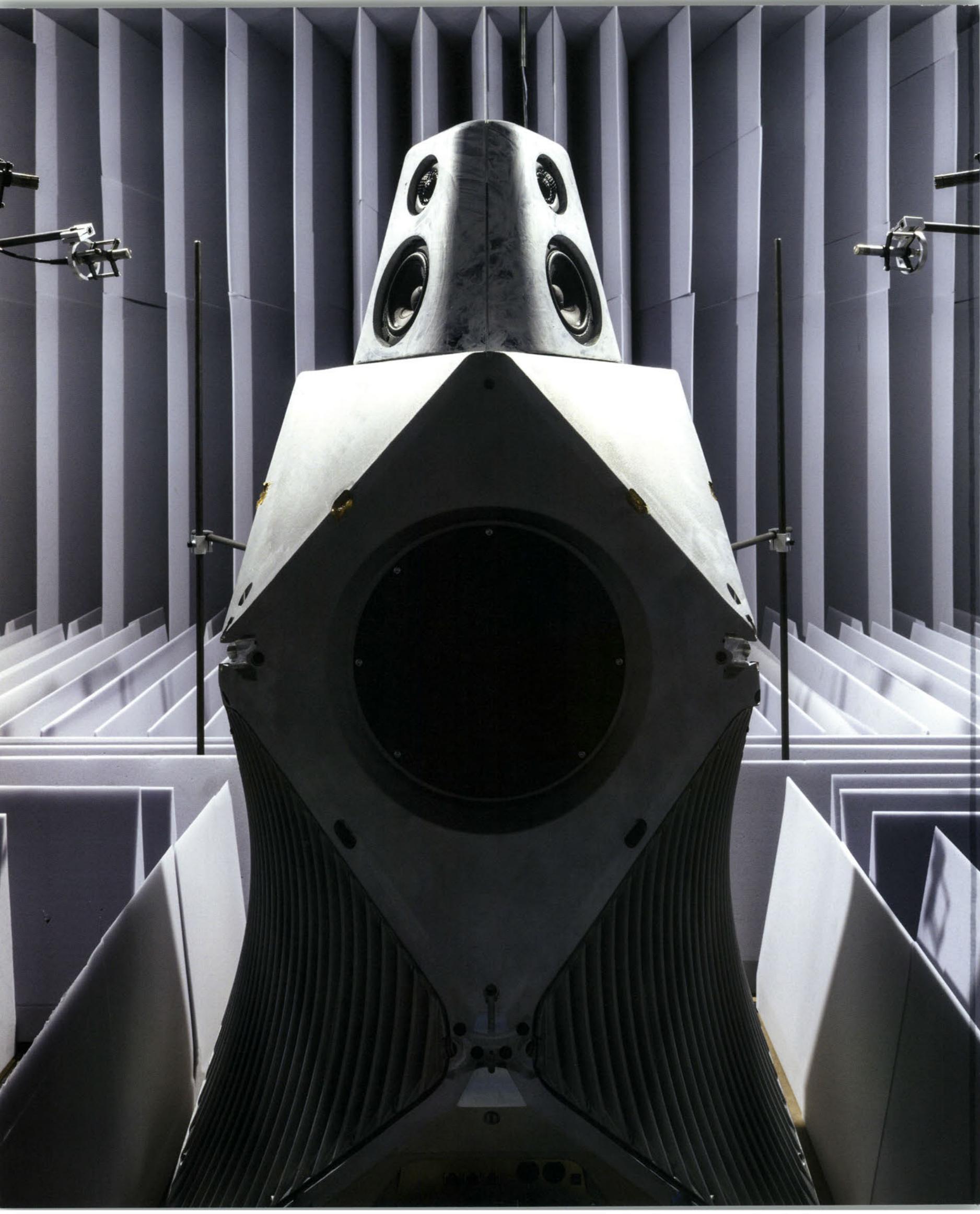








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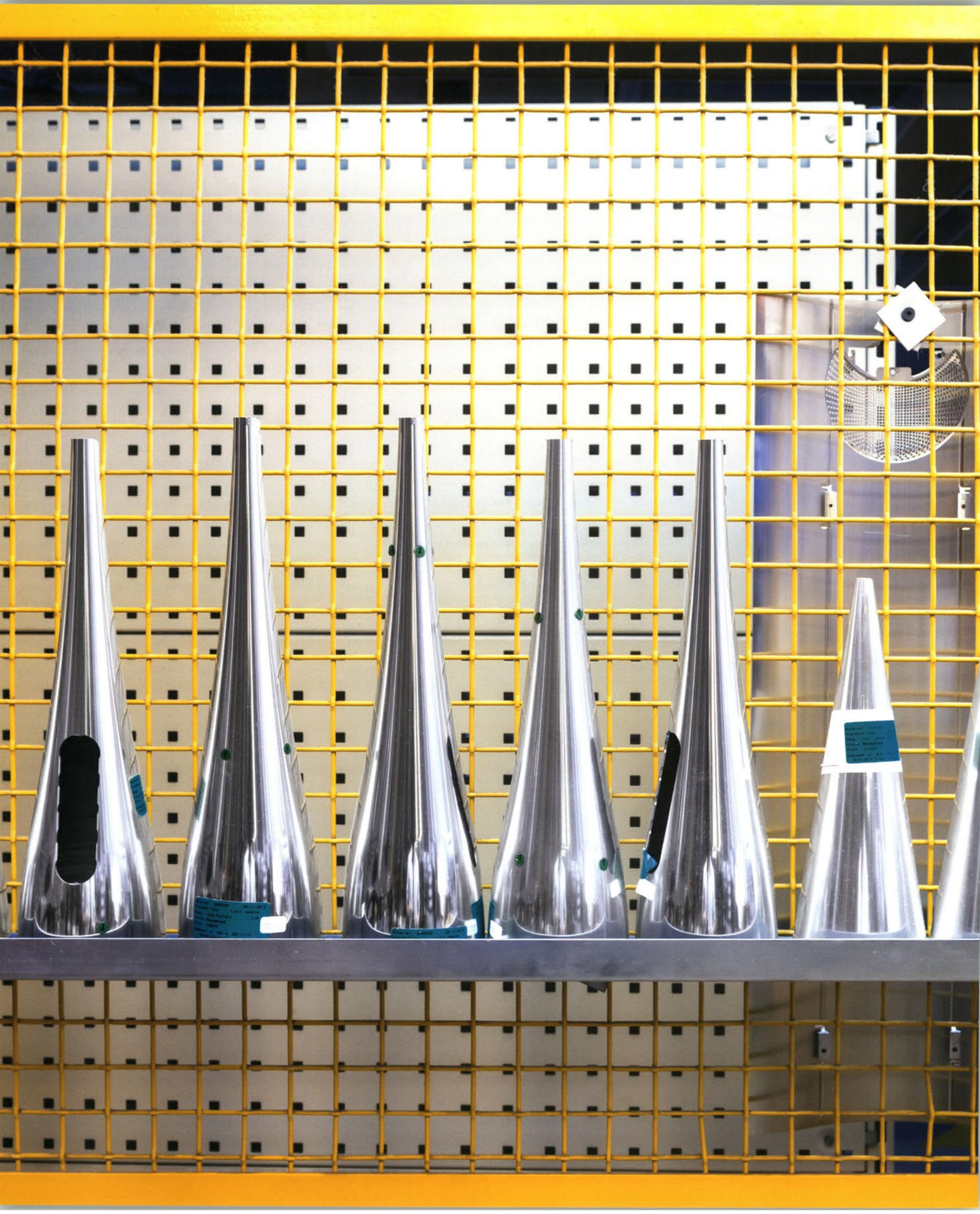


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Alastair Philip Wiper

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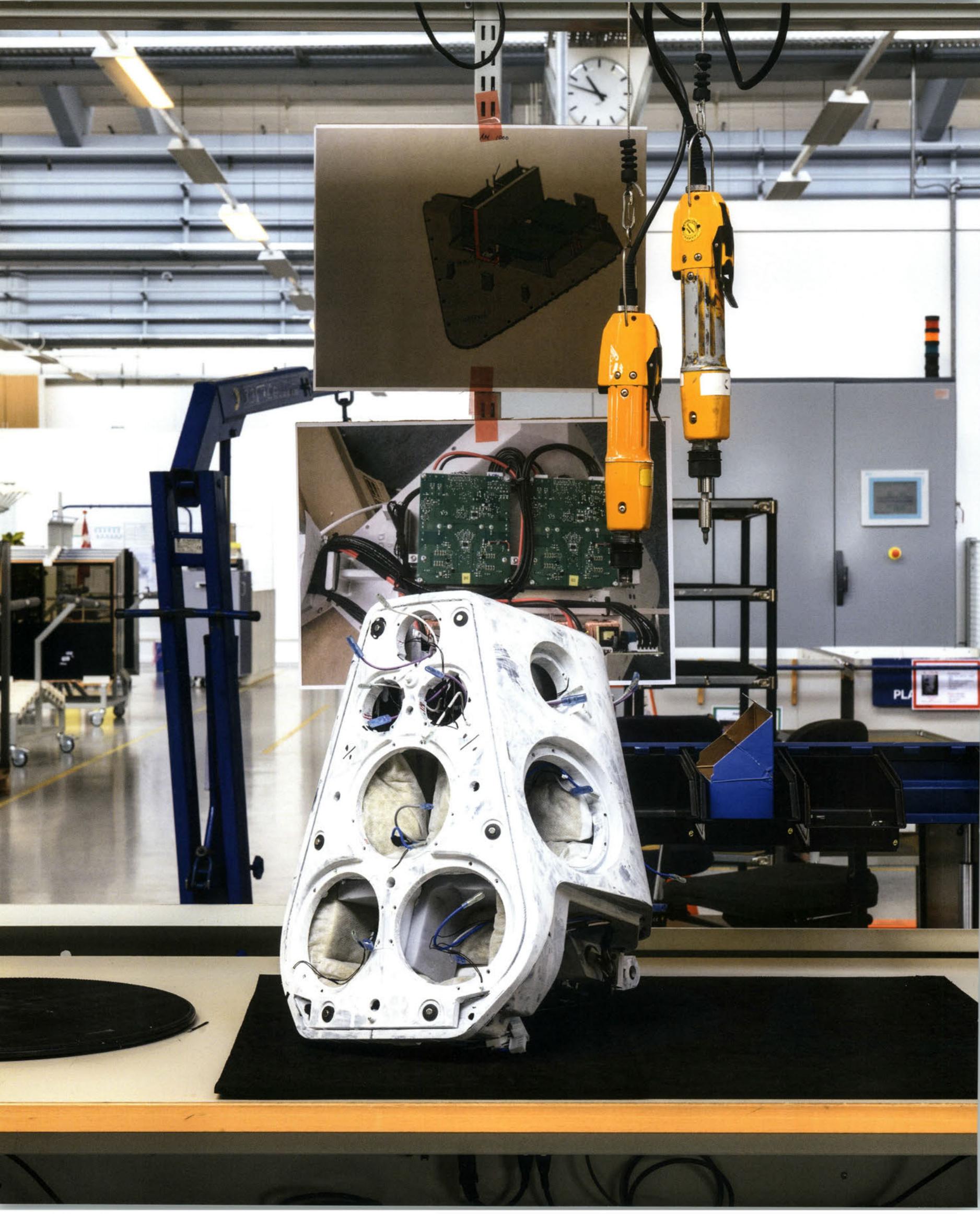
'We sum up our company values with the words "passion, pride and persistence". I'm sure that when you have read this book, you will realize that those words really count for the people who work at Bang & Olufsen – the passion, pride and persistence is real. In this day and age, we still believe in products that provide value for a long period of time.'

Tue Manton

CEO of Bang & Olufsen since 2011

A line-up of polished and anodized BeoLab 18 cones in Struer, used for quality-control reference.

BeoLab 90 in acoustic test box (page 2).



The Bumble Bee from Struer

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You have probably never heard of Struer, let alone have any idea where it is. On the west coast of Jutland, four hours' drive from Copenhagen, it is the home of Bang & Olufsen, the oldest consumer electronics company in the world.

Like many Danish companies, Bang & Olufsen is fuelled by litre upon litre of black filter coffee, but the coffee at Bang & Olufsen must have something special in it. On my visits to Struer I have come to warmly anticipate the ceremony at the beginning of an interview when my host asks eagerly if we shouldn't have a cup of coffee, while someone tries to find me the portion of UHT milk they thought they saw at the back of a cupboard a few months ago. I gave up on the milk early on and embraced the black stuff.

This book is the culmination of my experiences exploring the ins, outs, ups, downs, fronts and behinds of an eccentric and visionary company that has taken design and technology to unparalleled heights. Two and a half years ago I first pitched the idea of this book to Bang & Olufsen, and they have run with it all the way. No subject has been off limits, and I was given an unprecedented amount of freedom to research, photograph, interview and write about what goes on behind the scenes. This is not a polished marketing book and was not intended to be; it is an honest insight into the daily life of a special workplace. It should surprise you, inspire you, and make you smile.

'It's like the old theory about the bumble bee that shouldn't be able to fly, but it does anyway,' says Torsten Valeur, who is one of the many designers who have worked with Bang & Olufsen over the years. What Torsten means is that this small company in the outback of Denmark, among the farms and fjords, should not be able to compete with the big boys; and yet for ninety years a group of proud and dedicated specialists in Struer has been giving the world a lesson about what innovative design, superior technology and quality workmanship really mean. Elevating everyday products such as loudspeakers and telephones into objects that people develop emotional attachments to is no mean feat, and it is what has made Bang & Olufsen a brand unlike any other. The spirit of Struer has reached far and wide.

Generations

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'Oh no, not that bumble bee story again,' says Iza Mikkelsen as we sit having lunch with her parents at the house she grew up in, a few hundred metres from the Bang & Olufsen factory in Struer. Iza is Product Communications Consultant at Bang & Olufsen, and she has been my guide during the making of this book: together we have scoured dusty basements for prototypes of old products, driven around Jutland in the rain, explored every corridor of the Bang & Olufsen facilities and visited the local pub, The Happy Penguin, more than a couple of times. A second-generation Bang & Olufsen employee and former competitive ballroom dancer, Iza has grown up in the company and knows everybody in Struer, greeting them as we are out and about with a cheeky smile and a chat about how their parents are doing.

Top of BeoLab 90 ready for mounting of driver units in Factory 4, Struer.

During my first visit to Struer, Iza showed me the 'Wall of Fame' in the canteen of Factory 4, an epic 30-metre-long wall displaying the portrait of every Bang & Olufsen employee who has worked for the company for a period of at least twenty-five years; some even made it to a half-century. That wall became something of an inspiration for this book: there are an awe-inspiring 1,231 portraits on that wall. You can see them all on pages 226 to 239. Co-founder Peter Bang is the first portrait on the wall, but his partner Svend Olufsen didn't make it as he died a few months before his twenty-fifth anniversary. Rules are rules.

Seeing this wall is a humbling experience. 'The spirit that was created during the first twenty-five years of Bang & Olufsen's life has survived until now,' says Ronny Kaas, a third-generation Bang & Olufsen employee who has worked for the company since 1961, and who now serves as its history specialist. 'You could talk about it like an organism that has carried its spirit with it. Those might sound like big words, but there really is a Bang & Olufsen spirit. And if you come with an open mind, there is always the possibility of being a part of Bang & Olufsen.'

The company began life in the attic of a manor house in Struer in 1925, started by two young engineers with a passion for radio and a keen eye for an opportunity: Svend Olufsen and Peter Bang. Apart from a few diversions, design at Bang & Olufsen wasn't particularly radical for the first thirty years and they made products that looked pretty much similar to everybody else's, focusing instead on technology and innovation. But in the mid-1950s something happened, and the Bang & Olufsen that we know today began to take shape.

'There was an exhibition in Copenhagen in 1954 where the furniture industry in Denmark showed that there were new times coming,' says Ronny Kaas. 'The big architects like Arne Jacobsen and Hans Wegner were influencing all of the younger guys to be more daring, to reach for new shapes and new materials. Teak became very popular, colours began to be used more, and people began to change their home environments to be more cheerful and more happy.'

These new trends were shown to the public through exhibitions, and old-fashioned radio cabinets were put into the exhibitions because there were no alternatives. Those cabinets received a great deal of criticism for not moving with the times, and started a discussion about how radios should fit in with modern daily life. The most notable critic was the famous architect Poul Henningsen, who said: 'It is an insult to people who value modern furniture to force them to buy these monstrosities in order to enjoy the considerable cultural asset embodied by the radio. Has this thing been designed by fishmongers or potato wholesalers with nothing better to do in their spare time?'

Heeding the criticism, a few radio manufacturers started to work with architects, Bang & Olufsen among them. After four years of research, in 1958 Bang & Olufsen started to change the way it did things and began the close collaboration with external designers that would come to define the company's way of working. Architect Ib Fabiansen was one of the first to really instigate a new direction for the brand.

Beolit 39 (1938) was the first radio from Bang & Olufsen to be manufactured in Bakelite instead of wood, allowing it to be any shape or colour. The design was highly influenced by the



symbols of the time, such as streamlined cars and skyscrapers. Car dashboards and front grilles inspired the scale and the grille respectively. The radio was marketed with

great enthusiasm: 'Make her happy with the new streamline super Beolit 39 and she can see how elegant and refined it seems in the stylish black cabinet with the ivory coloured frames,

buttons and grid.' Beolit 39 was the first of Bang & Olufsen's products to use the prefix 'Beo'. This has since been used in the majority of the company's products.



'The Farm', the main building of the Bang & Olufsen headquarters in Struer, built in 1999.



No Compromise

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In the modern era Bang & Olufsen has worked only with external designers, and that collaboration has been an integral part of the success of the brand. 'All Bang & Olufsen designs have a built-in story and idea – and when we have done our job really well, you should be able to understand what the idea is by looking at the design,' says Marie Kristine Schmidt, Head of Brand, Design and Marketing. 'We are not trying to create design that pleases everyone, but we make a huge effort to try and understand how our customers live at home, enabling us to make the right choices based on these insights.'

A look at the products of the last fifty years will reveal the work of many talented designers, including Ib Fabiansen, Acton Bjørn & Sigvard Bernadotte, Henrik Sørig Thomsen, Lone & Gideon Lindinger-Löwy, Anders Hermansen and Steve McGugan. But two designers stand out from that crowd, each of whom has had an enormous influence on the design of Bang & Olufsen: Jacob Jensen and David Lewis. The two young men worked for Bang & Olufsen designer Henning Moldenhawer in the early 1960s before leaving to set up their own design firms, and later returning to Bang & Olufsen. Between them they designed many of the products that have made the company famous, Jacob from the 1960s to the 1990s on the audio side and David from the 1960s to the 2010s on the video and speaker side. They had very different personalities, and frequently clashed: Jacob had a reputation for being hard and demanding but also party-loving and charming, while David was quiet and reserved, but equally strong-willed.

Jacob Jensen began working on some small projects in 1965, and in 1967 he designed Beolab 5000, which proved to be a milestone product for the company. Ronny Kaas explains: 'Ten years later, he came with a demand like "I want a radio that is less than 7 cm high," and the engineers said it was not possible as the transformer was 8 cm high. "I want it!" said Jensen. It was like that a lot with Jensen. He never tried to be popular, he stuck to his ideas and convictions. Anyway, he was right to work like that because suddenly they found out that they could use a different type of transformer and he got his 7-cm-high radio.'

In 1978, MoMA staged an exhibition of the entire Bang & Olufsen portfolio, entitled 'Bang & Olufsen – Design for Sound by Designer Jacob Jensen'. J. Stewart Johnson, Curator of Design at MoMA, began his introduction to the exhibition with the following words: 'In seeking to domesticate sound equipment, Bang & Olufsen has visually de-emphasized the technical aspects of their components, making them virtual abstractions of the functions they are meant to perform. They are as well beautiful objects in their own right.'

Since that exhibition, several of David Lewis's designs have also been acquired for the museum's collection. Referred to by Peter Bang's son Jens (head of R&D for many years) as 'Bang & Olufsen's best-kept secret', David Lewis was, by all accounts, a very different character. A Londoner who met a Danish au pair in the 1960s and followed her to Denmark, David was a shy, softly spoken man, but was completely unwilling to accept compromise. Under David, the

concept of movement and light was refined, as was the understanding that the products needed to stand out as beautiful objects, and blend in with the home environment at the same time.

Torsten Valeur took over David Lewis's design studio after his death. 'I know they had a good relationship at the beginning,' he says of the relationship between David and Jacob. 'Over the years their personal relationship deteriorated, but they could still work together and in a lot of ways I think they were a very good team because they both had different qualities that brought something to the company.' Indeed, each in his own way, David and Jacob between them interpreted the spirit of Bang & Olufsen at exactly the right time.

Feeding the Engineers

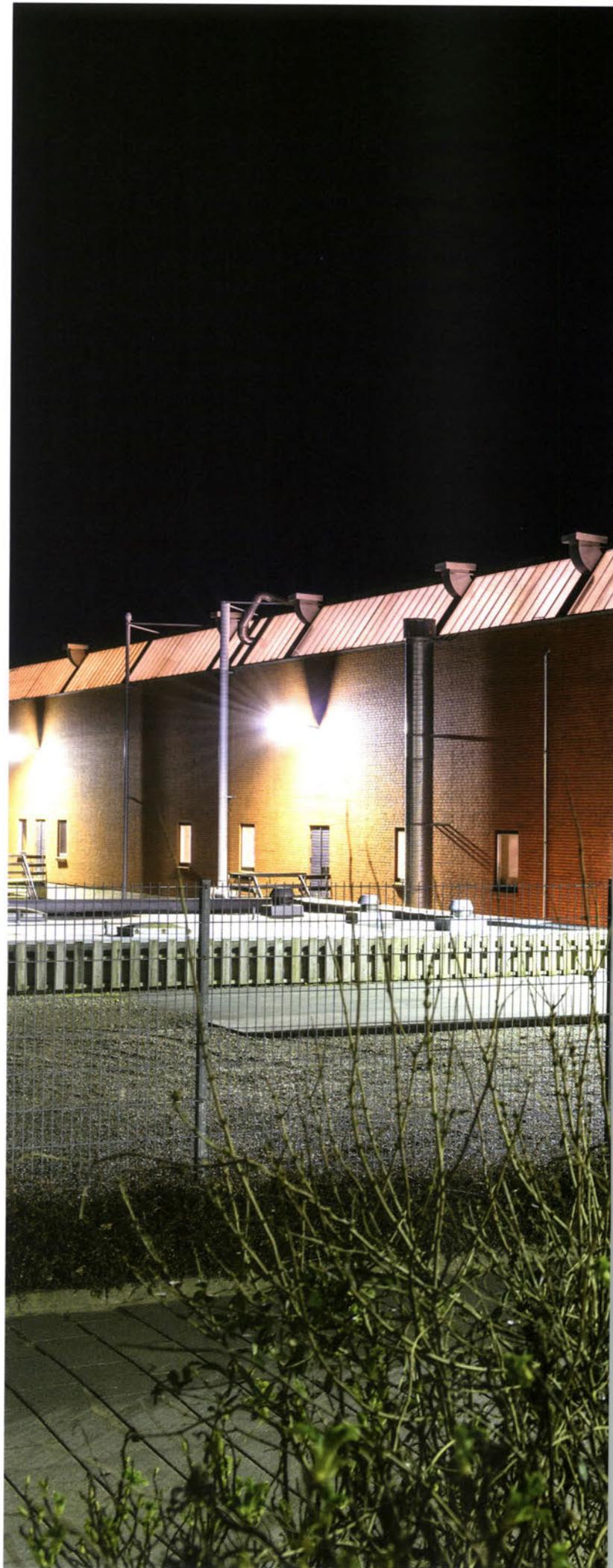
The struggle between designers and engineers that traditionally besets technology companies was turned into a co-operation that has been vital for Bang & Olufsen, and designers of all eras have spoken affectionately of the engineers at Bang & Olufsen. 'Good engineers are very open-minded,' Øivind Slaatto tells me when I am photographing him in his studio in northwest Copenhagen. Øivind designed the BeoPlay A9 speaker in 2012. 'At Bang & Olufsen the engineers are very open-minded. When you show a poor engineer something, they will just say "no, that is not possible." They are idea killers. At Bang & Olufsen, the engineers are idea generators.'

Torsten Valeur agrees: 'At Bang & Olufsen we can come with an idea that we know is impossible, but the engineers will feed off that and come up with something that no one has ever thought of before. With some of the engineers at Bang & Olufsen, I can sit with them and not have to say that much before they understand what my point is, where I am going with an idea. And then at the next meeting I will see that they have actually made my idea become reality, which is a wonderful thing. It is so different from other companies, where engineers come to meetings and just come with a list of problems.'

The flair for engineering and the desire to create high-quality products that was initiated by Peter and Svend in the early days have remained in the spirit of the company to this day, and have meant that throughout its history Bang & Olufsen has managed to attract talented and dedicated people to Struer, and keep them there. 'At Bang & Olufsen they have some real nerds. And in my opinion, nerds are one of the best resources a company can have. I really like the nerds,' says Øivind. Gert Munch started working for Bang & Olufsen in 1976, and when he is not selling his home-produced eggs from his desk he works as a specialist in electroacoustics.

'I like the collaboration with designers. Sometimes they come with ideas that are just not possible, but we tell them what is possible and come up with other solutions, and after a lot of back and forth we have

Factory 5 in Struer by night.







a product we all like. So the end product is better than what we started with, also in their eyes. We are all in the same boat, we want to get a marvellous product out of this, and you won't get that by just sitting back and saying "no". Of course we have "discussions", but they are never unfriendly – we can't bend the laws of physics, but we can find solutions and ways around them. That's how we get the unique products; we want to make things that are not possible. That's what we do every day, and why nobody else makes the unique products we do, because they give up way before us.'

Danish Blood

Bang & Olufsen runs through the veins of Danish society. 'Every Dane has a piece of Bang & Olufsen inside them,' says Cecilie Manz, who designed BeoPlay A2 and Beolit 12 for the company in recent years. 'I remember the feeling of turning the button on a radio in my parents' workshop, the quality was just so high and everything was so well thought through.' As the pride of Danish technology and design, the company has shared its ups and downs with the nation throughout its history.

Bang & Olufsen stands for old-school quality, products that are built with pride by people who care, and that is a valuable yet hard-to-grasp concept for today's society. On the one hand, educated consumers are crying out for a slowdown, for the world to return to a state where the things you purchase are important and add value to your life; and on the other they are looking for the newest technology every single day, meaning that the world is moving more quickly and disposably than ever before. Bang & Olufsen knows that doing things its own way has always been the key to its success, but that adaptation is also important.

The 'B&O PLAY' brand was launched in 2012 to cater to a younger audience, producing high-end portable speakers and products that are more affordable than the main Bang & Olufsen line-up. This allows the core brand to concentrate on investing time and money in creating products that are completely uncompromising – and with its latest top-of-the-range speaker, BeoLab 90, Bang & Olufsen believes it is doing what it does best: creating audacious products that no one else would make. BeoLab 90 is an absolute monster, in the best sense of the word, and it is a statement: a rejection of the disposable and an elevation of design and quality over all else.

Connectivity is also one of Bang & Olufsen's long-established strengths, and something that is important for its future as more and more devices are able to be controlled together in the modern home. Bang & Olufsen was the first company in the world to begin interconnecting its products in the 1980s with the BeoLink system. According to legend, in 1992 Sony founder Akio Morita visited

**Factory 5 in Struer
by night.**



Bang & Olufsen's stand at the World Exhibition in Seville and picked up a BeoLink 1000 remote control. Asked if he needed assistance, he replied, 'Thank you, but I have one at home.'

The BeoLink system evolved steadily as more and more products became connectable, and today almost every controllable product you can imagine can be hooked up to the system and managed with just one Bang & Olufsen remote. Lights, curtains, coffee machines, air conditioning, security cameras – you name it, it can be hooked up to the BeoLink system and controlled through your Bang & Olufsen remote control.

The Sound of Struer

While working on this book I have built up a huge amount of affection for this unconventional West Jutland company: the people who work there do care. They care about creating the best products, they care about each other, and they care about the customers who are going to live with those products. I know it sounds ridiculous in this day and age, but it is true. Bang & Olufsen wears its heart on its sleeve with nothing to hide, and this book is the proof of that.

On one visit to the archives in Struer I stumbled across something that instantly brought back a flood of feelings from my childhood: the Beovision Control Module, the advanced remote control that was supplied with many of the Bang & Olufsen televisions of the late 1970s and 1980s. My granddad had one as an accessory to the pride and joy of his life, his Beovision TV. Harry Wiper was a biscuit salesman from Yorkshire, and buying expensive luxury items was not his style – he even kept the plastic wrapping on the seats of his Honda so that it would retain its value when he sold it. But the plastic wrapping came off the Beovision remote control, and seeing the picture of that remote triggered memories that had long been buried at the back of my mind – I can still feel the cool metal of the remote and the reassuring (perhaps lethal) weight of the thing. Now I realize the amount of effort that went into making sure I would have these feelings twenty-five years later.

On my last day in Struer I decided that I needed to revive my vinyl collection, and what better way to do it than by bringing a Beogram record player back to Copenhagen from its spiritual home. So Iza took me to meet Viggo Kristensen of Bremdal Radio on the outskirts of Struer. Viggo opened his shop as a Bang & Olufsen dealer in 1978, and now he and his son run two departments next door to each other: one selling new Bang & Olufsen products and one selling old Bang & Olufsen products. Viggo gave us a tour of the fifty-odd record players he had in stock. My eyes fell on a white Beogram 1900 designed by Jacob Jensen in 1976, and after a demo and lengthy explanation about how to care for this marvel of the analogue age, I was on my way with my piece of history under my arm. Rest assured that this book has been put together with the spirit of Struer playing in the background.

Here's to the next ninety years.

BeoSound Moment
on the production line
in the Czech Republic.

BeoLab 18 final testing
(overleaf).



NESAHAŤ !!!
NEBEZPEČÍ POŠKOZENÍ !!!
DO NOT TOUCH !!!
DANGER NOX PARTS !!!

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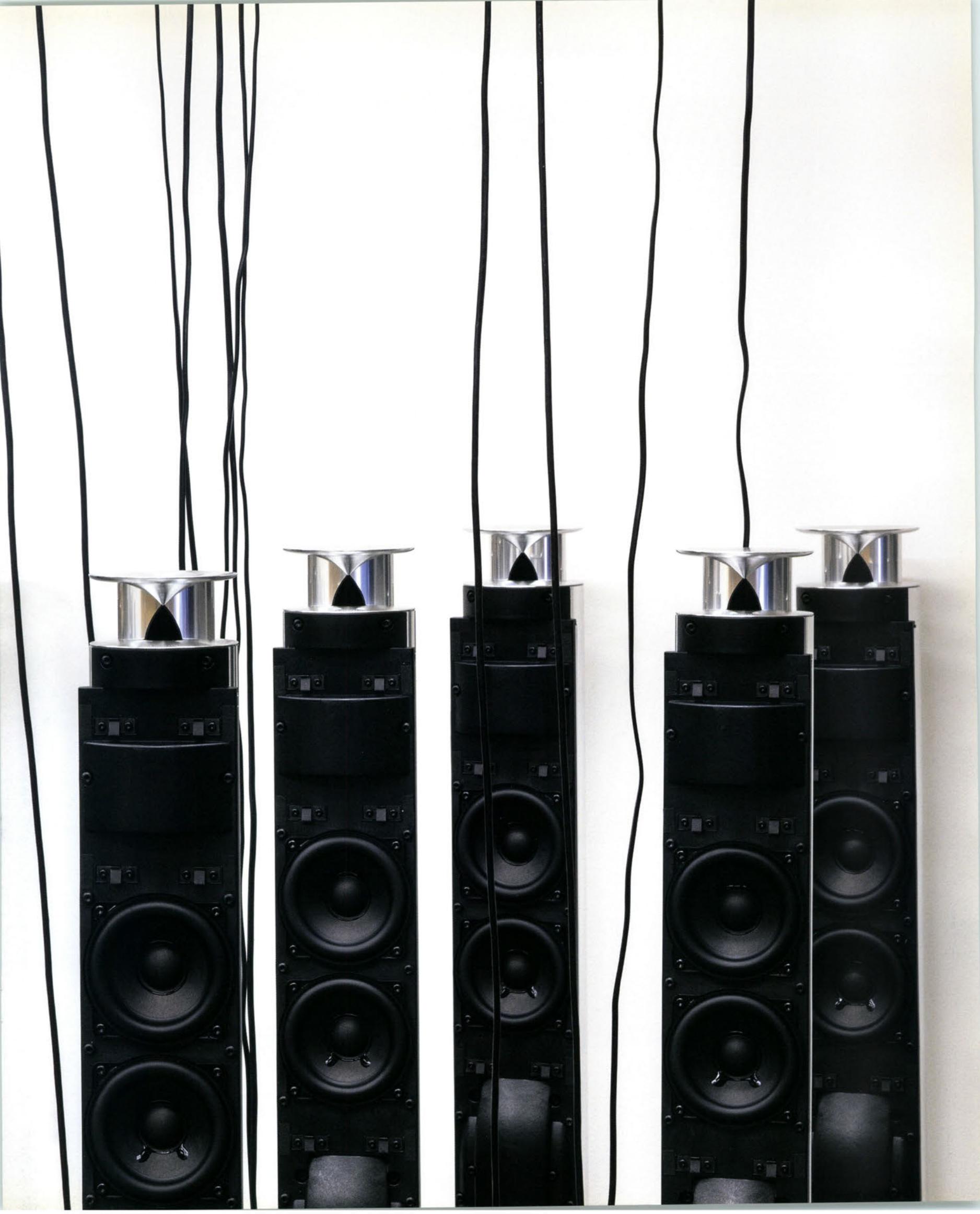
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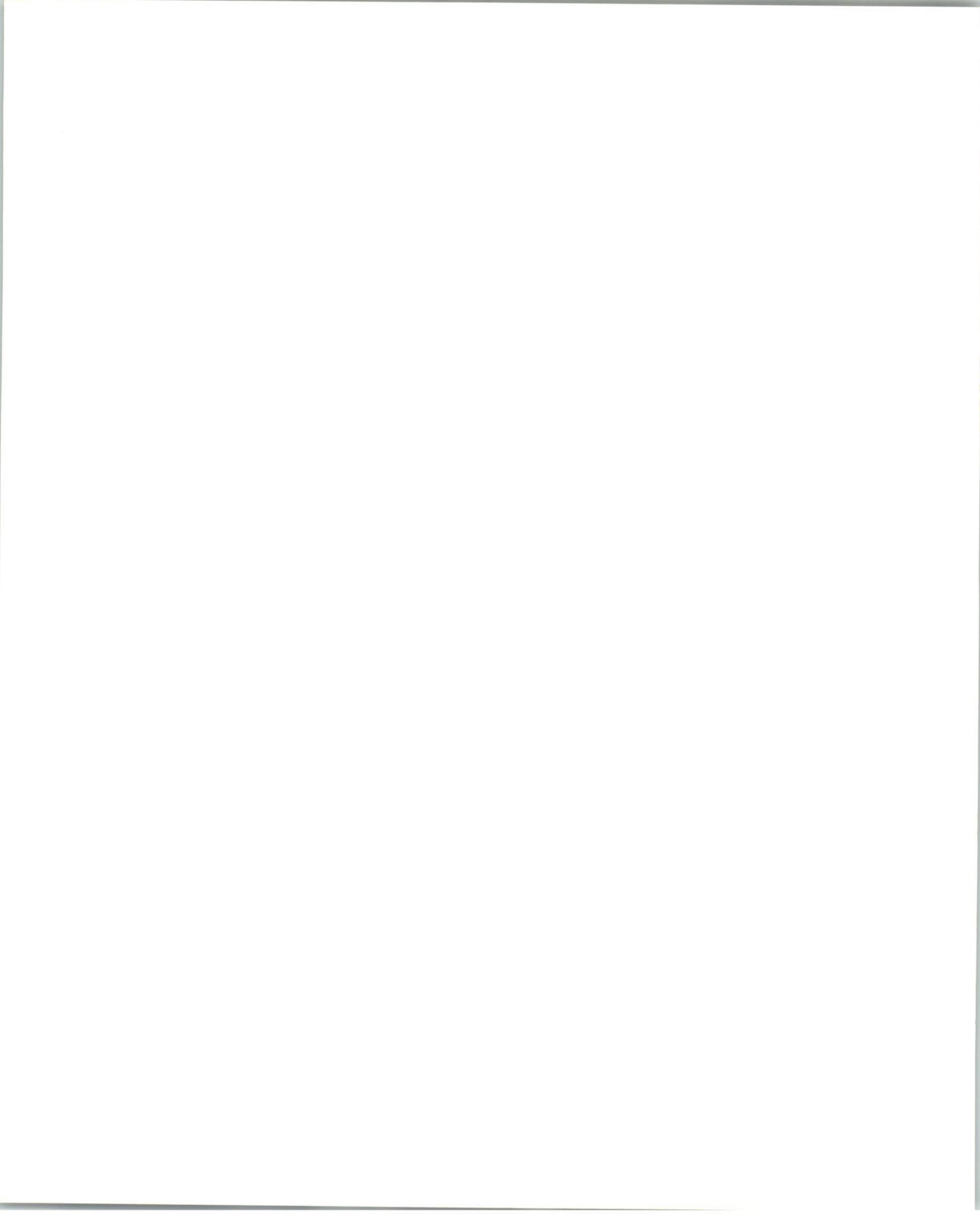
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The Creative Process

Introduction

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Sliders and Wheels

Remote Controls

Strange and Unreleased Products

TURN

STOP

PAUSE

33

45

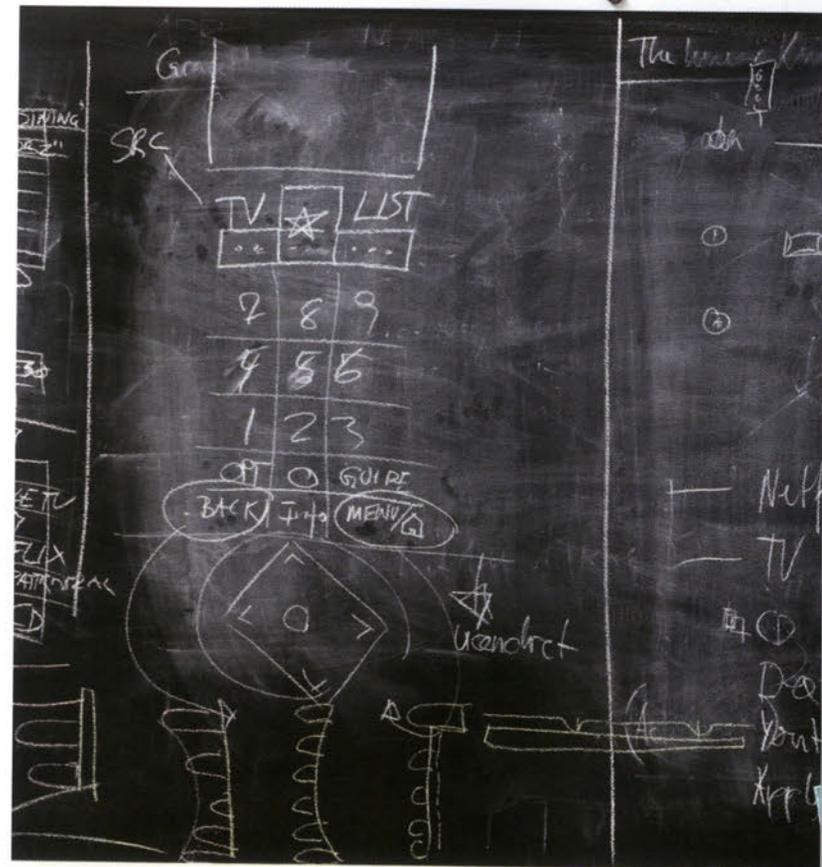
'Bang & Olufsen is a creative, design-driven company. We develop these well thought-through, beautiful designs that stand the test of time. All Bang & Olufsen designs have a built-in story and idea – and when we have done our job really well, you should be able to understand what the idea is by looking at the design. We do not try to create design that pleases everyone, but we make a huge effort to try and understand how our customers live at home, enabling us to make the right choices based on these insights.

'Throughout the design process we fight to remove things that get in the way so we can double down on what really makes the design and product experience unique and outstanding. This is how we create this feeling of luxurious simplicity that is very much what Bang & Olufsen is all about. And we go the extra mile to get the details right, because it matters.'

Marie Kristine Schmidt

Head of Brand, Design and Marketing

Beogram 1900 designed
by Jacob Jensen, 1976.



The user interface for the system setup of BeoVision Avant is designed on a blackboard.



BG = BEST GUESS

Stand by position still in Setup FTS++

EW = Exp Wizard
OSB = On Screen Menu on TV

JOIN ???

PVC ? option menu

LIST on EG ?
Long Press MENU

Button
Click/long/State

Kortbyk
Fm Shelly
Fm Audio exp on
Fm Video exp on
Fm TV exp on

Louet Tryk
Fm Standby
Fm Audio exp on
Fm Video exp on
Fm TV exp on

Notes :

TV
Action on TV + LIST in Display

BG TV Channel this moment
TV exp on Spk/Standby
do?
do?
BG TV channel only?

TV EW OSD
BG TV Channel
BG TV
+ BG TV
Nothing
Nothing

*Including

MUSIC
Action on TV + LIST in Display (BG)

BG MUSIC Play Back ? Pattern Play ???
"MUSIC" Exp on Spk/Standby
BG Music only
BG Exp
BG Exp
MUSIC EW OSD

BG MUSIC
Nothing
Nothing
BG MUSIC
BG MUSIC

? All SRC here anything only are Audio
TV from other

Video
LIST in Display (BG)

MUSIC SRC'S
TUNE IN FAV
SPOTIFY CONNECT
TUNE IN APP
DEEZER
CD
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Content Browser
Photos
Video

Nothing

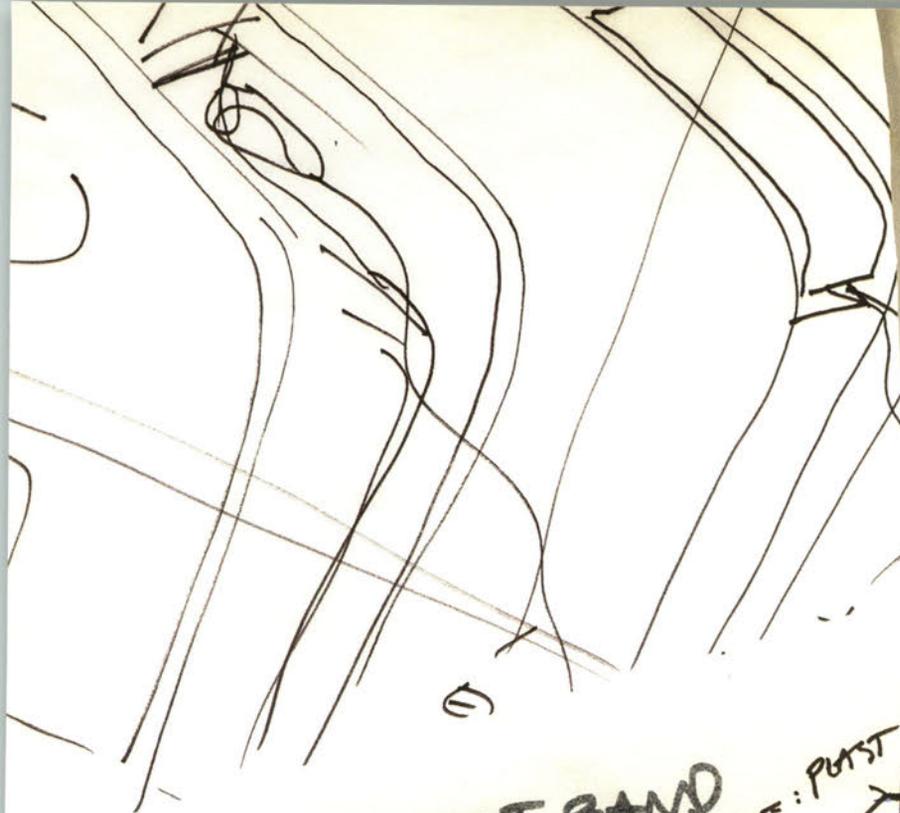
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HERE

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Video (TV SRC)
Apple TV
YouTube
Netflix
Content Browser
Photos
Video

ExpW OSD
where are SRC
can be chosen
or left out

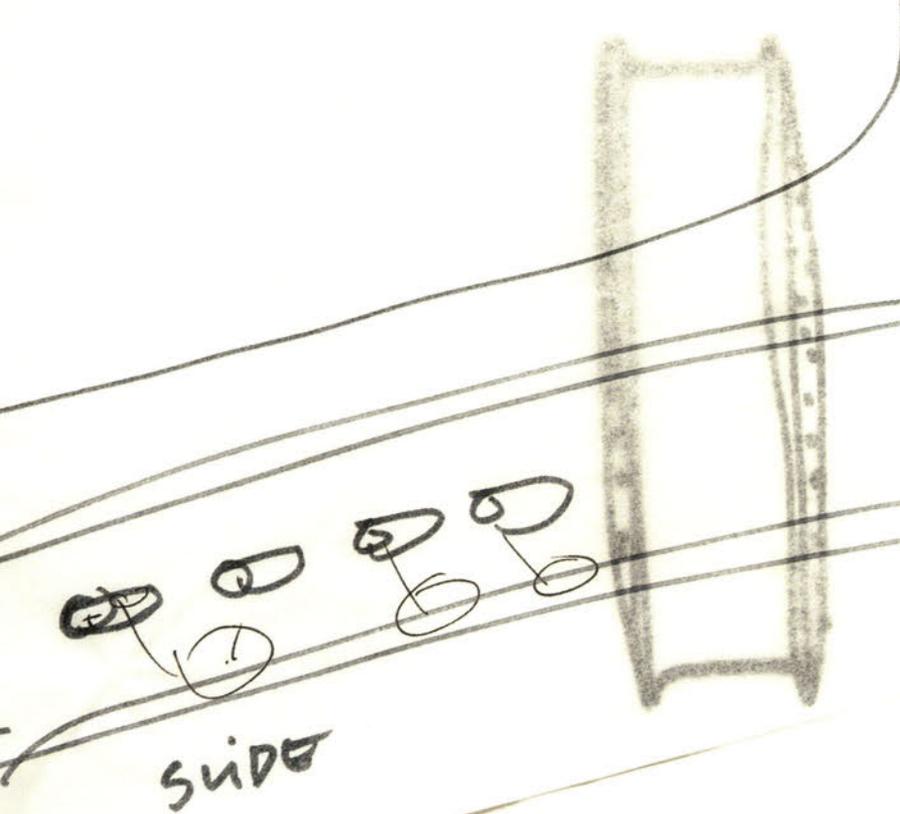




TRAFOT +
LEPN. ?

GRILL + PLAST BAND
STAF: PLAST

REKVAR
GRILL MATERIALE



INDRÆTT JERN
LØSNING SUNDRIEN
PÅ VORES TEMA?
(HVIS FÅR HELE
BUDGETTET incl. MÅL



Sketches for BeoPlay A2
by Cecilie Manz, 2014.

The materials lab, the playground of the design coordinators, where samples of many different materials are stored.

PROTOTYPEVÆRKSTED

UVEDKOMMENDE
INGEN ADGANG



Svend Aage Hansen**Senior manager in the innovation and prototyping department**

–

'We normally start with a sketch from a designer, and sometimes a very simple model made out of foil and cardboard just to show the idea,' says Svend Aage Hansen, senior manager in the innovation and prototyping department. 'Then we make initial models that have details on them – how the corners should be and so on. Then we make the final model and that will be very nice, almost identical to the real thing. Unless you look really closely you shouldn't be able to see any difference between the final design model and the first model that comes from production.'

'We are always under pressure because there are "gates" in the production plan and we cannot pass the gate without having the proper model to take the decision. Often there are only a couple of weeks to come up with a highly polished final model, and the designers and engineers have a habit of making small changes along the way up to the deadline. But that happens nearly every day, it's a part of the job. We need to be very patient and work very quickly at the same time.'

'We challenge the engineers who will have to produce the real thing by building the one that we think is perfect, and then they have to replicate that in production, something that can be very difficult. But we get help from them too, as sometimes they anodize and mill things for us that we can't do by hand.'

The door to the
prototyping workshop.



Miniature plastic model of BeoSound 9000 with ten-CD suggestion, designed by David Lewis. The finished product played back six CDs.

Model of 103-inch/262-cm BeoVision 4 made for an Arab sheikh to show him how big the television will be in relation to the bed in his London bedroom.



'The way that we look at a model or design changes every day,' says concept manager Tommy Nielsen. 'On the first day we might think it looks a bit strange, and on the second it looks a bit better. On the third day it looks fantastic. It's like music: the pop song you like the first time you hear it gets boring after five plays, but the songs that you need to listen to a few times before you like them are the ones that stay with you forever. We often have differing opinions within the company, with some loving a design and some hating it. But that's something the designers want – if people are

indifferent to a design, it is not good enough. Indifference is our enemy.

'When a product is doing something special, the feeling it gives you cannot be polluted by anything. For example on BeoSound 9000, when the big glass plate is magically opening up so you can load a CD, you need to have the feeling that this is solid craftsmanship. If it had a bit of wobbly plastic on there and you worried that it would break or that it wasn't closed properly, it would ruin the whole thing.'



Rear of BeoLab 20 loudspeaker, final product, designed by Torsten Valeur, 2014. A great deal of work goes into making sure Bang & Olufsen products look great from every angle.

Wooden model of the top of BeoLab 90, designed by Frackenpohl Poulheim, 2015.





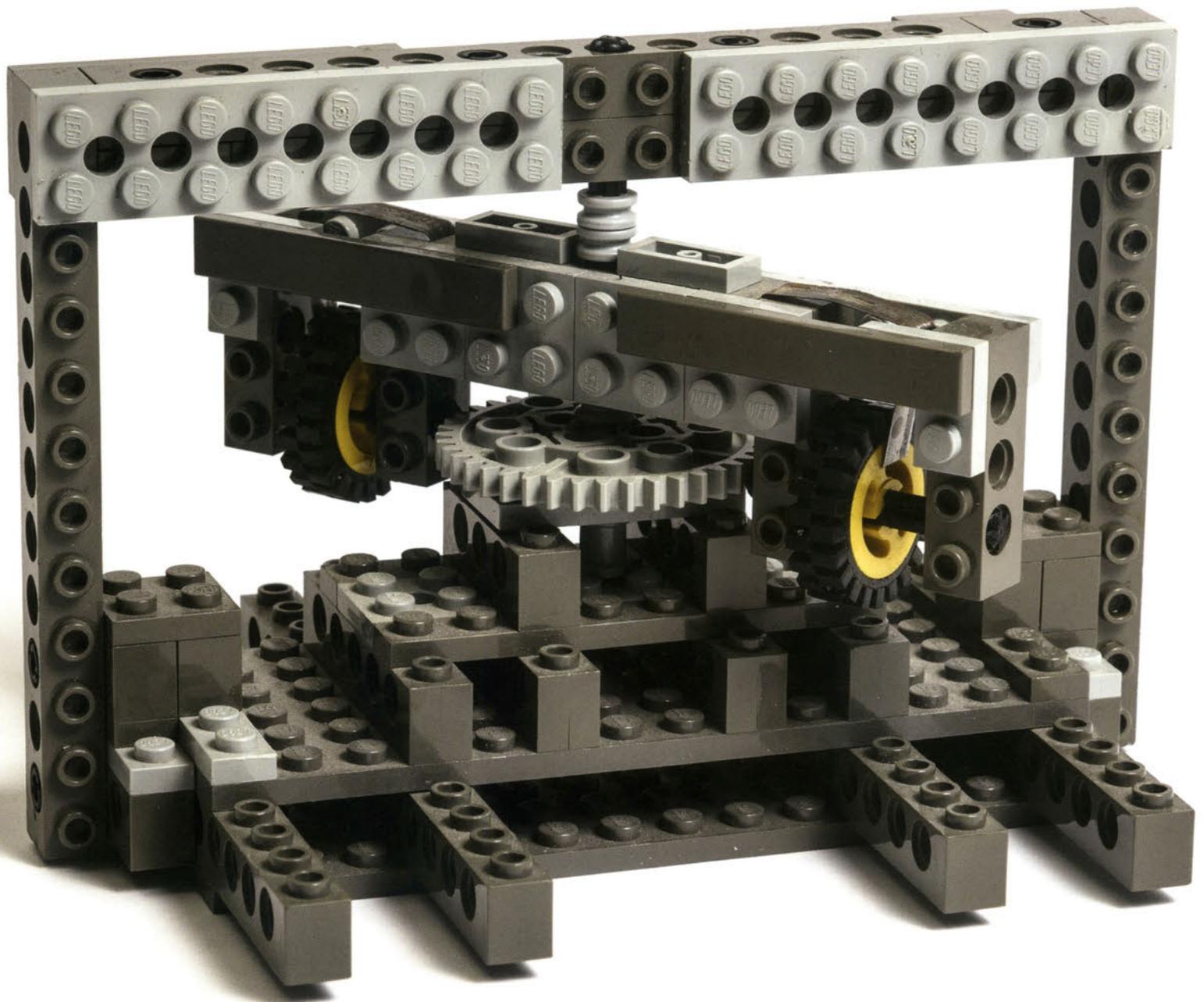


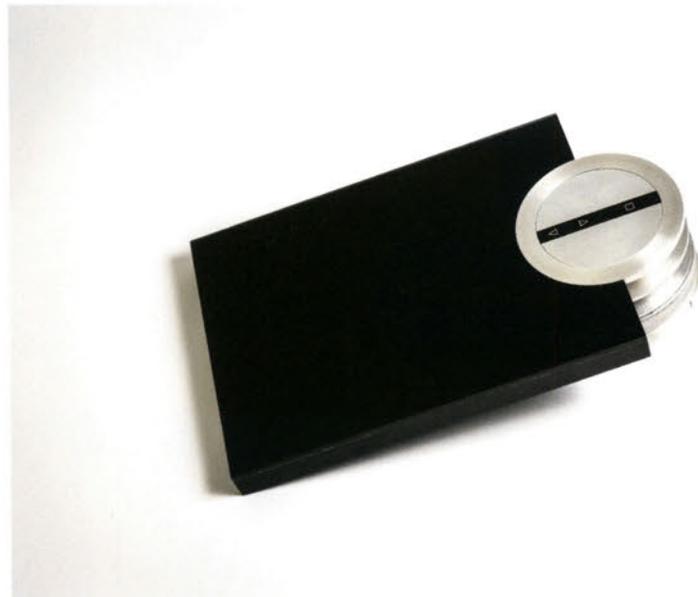
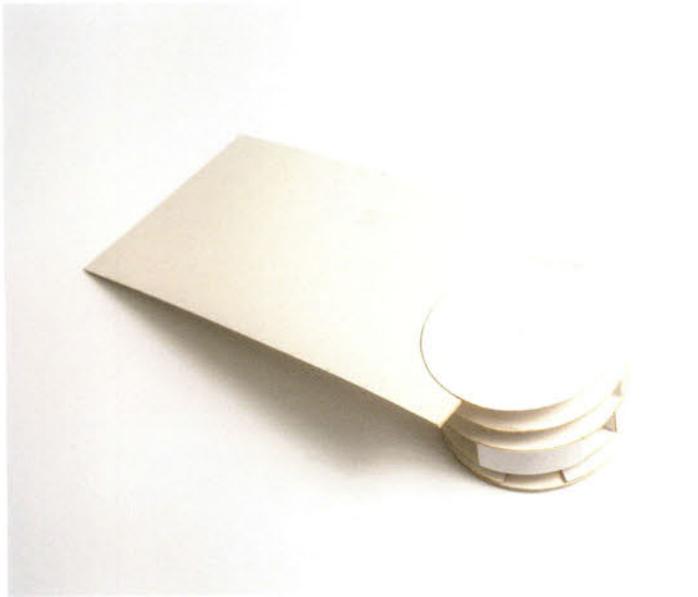
Original composition of ringtone for BeoCom 2 telephone, designed by Kenneth Knudsen, 2000.

'Having approached the ideal ringing tone as accurately as I could using a pile of digital synthesizers, I added a sample of the sound of the handset caressing the smooth surface of an aged Swedish cobblestone,' says composer Kenneth Knudsen. 'After moving the sound around in pitch and volume for some time, it suddenly felt right! The sparkling sound immediately correlated with the textural and visual feel of BeoCom 2.'

With regard to selecting the exact ringtone to use, David Lewis's judgment became more exact over time. He listened to the choice of sounds while driving in his Alfa Romeo in the hustle and bustle of Copenhagen traffic. The border of irritation is lower when someone is stressed – therefore such conditions were the perfect litmus test. While listening to the many options, if he became irritated or stressed in a traffic jam, the tone was rejected. Harmonious sound was the bottom line. A simple invitation to answer the phone.

BeoLab 4 PC cardboard design model, designed by David Lewis, 2005.





Lego engineering model used to test wheel movement for BeoSound 5.

BeoSound 5 music system design models made from cardboard, plastic and aluminium, designed by Anders Hermansen, 2008. Bottom right is the final design model, which will look and feel the same as the final product.

Design model experiments for BeoSound 1 movable loudspeaker concept in various materials, designed by David Lewis, 2000.

Overleaf, page 42

Cardboard model with integrated CD player mechanism.

Overleaf, page 43

Top left

First design model, judged to be too mainstream and conventional.

Top right

Second design model, judged to be too clumsy.

Middle left

Third design model detail, integrated headphone idea.

Middle right

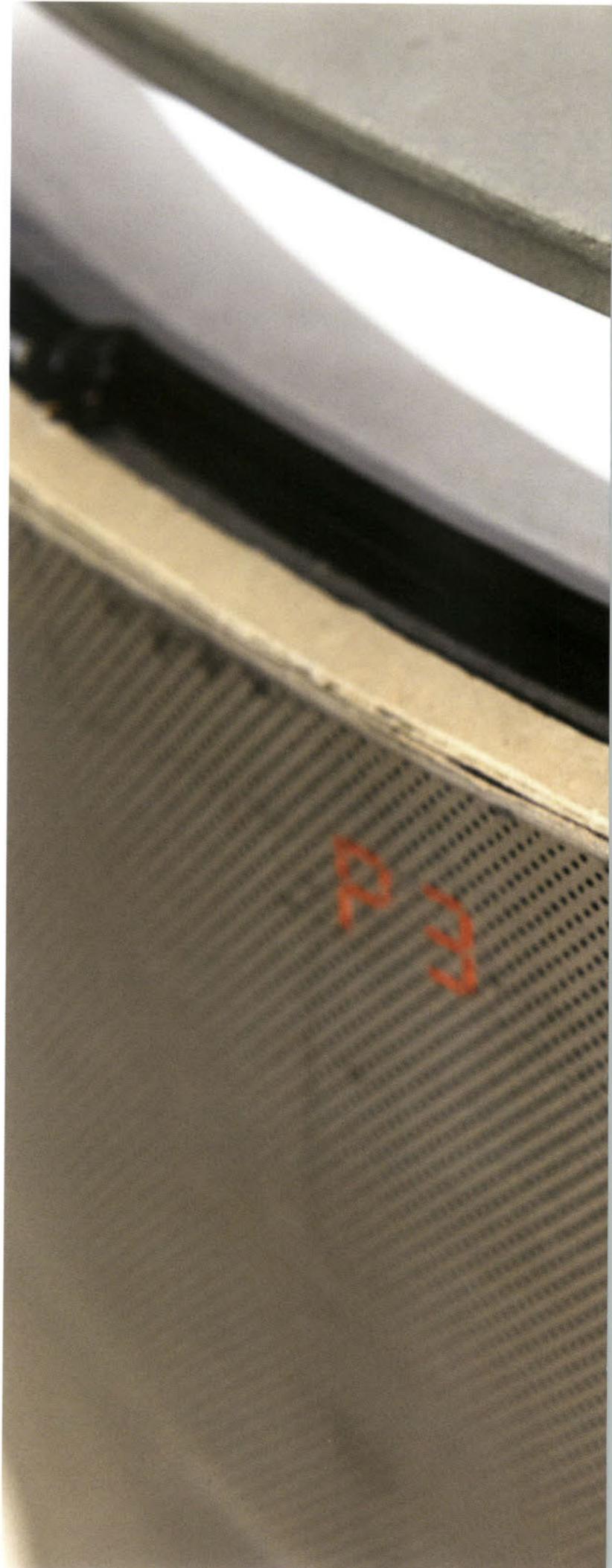
Third design model, not enough room for the acoustics.

Bottom left

Final cardboard design model.

Bottom right

The finished product.





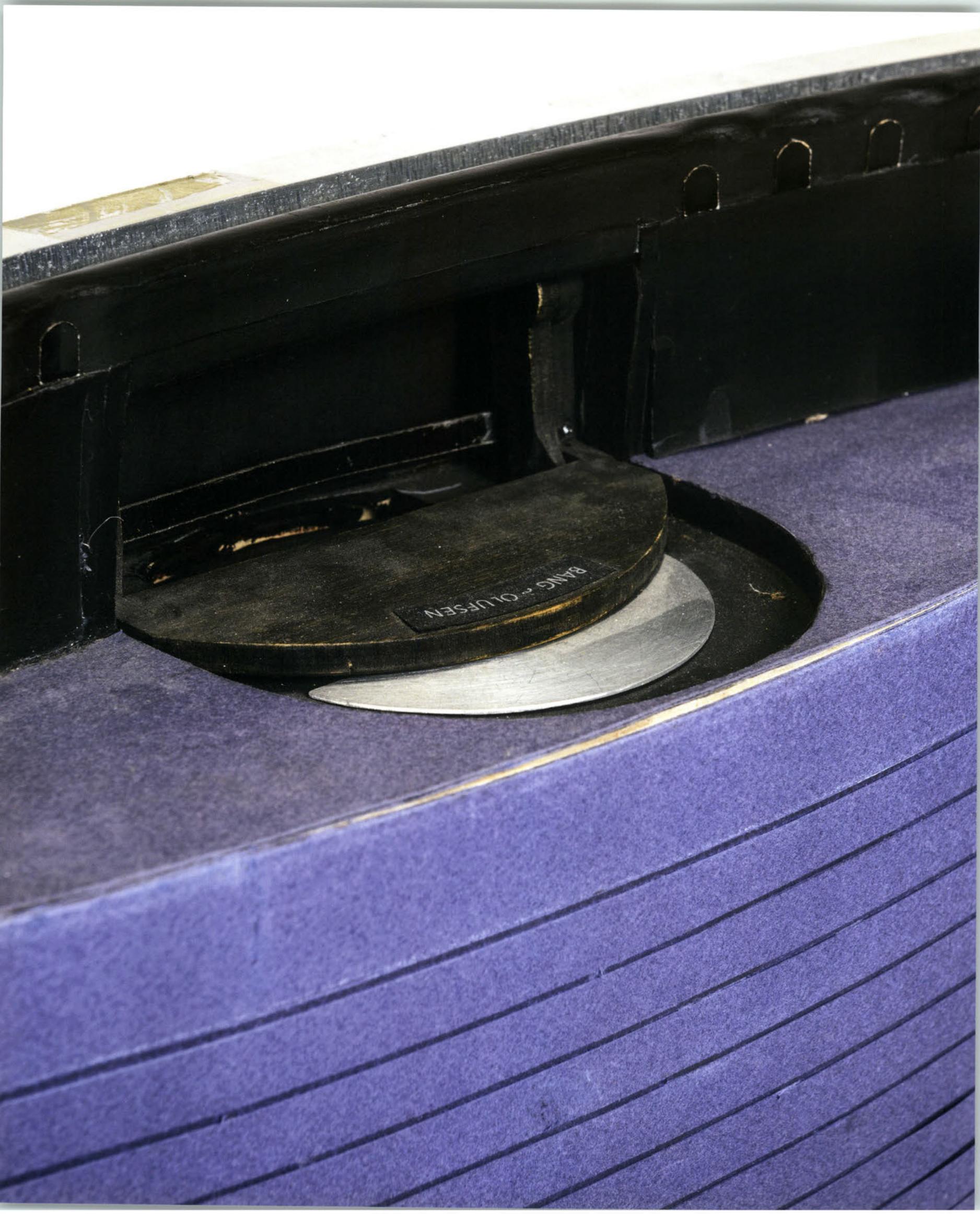
LOAD

MUTE

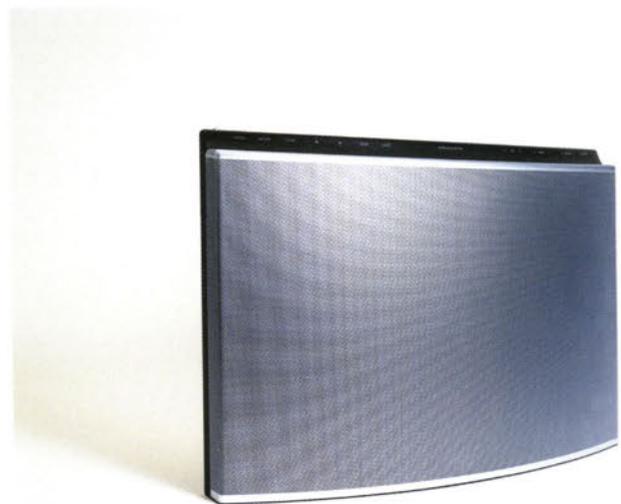
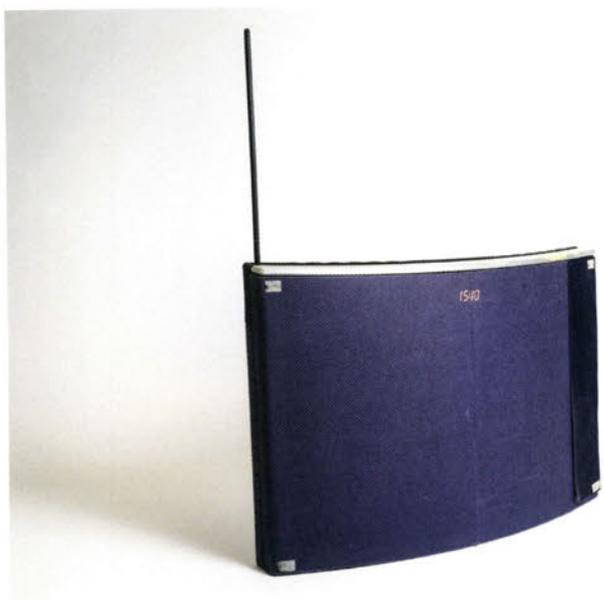
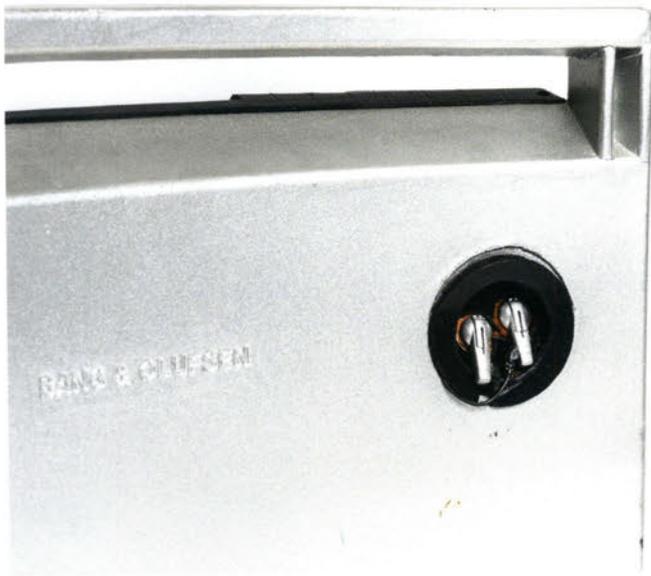
-

SOUND

+



BAING & OLUFSEN



Top left Strong candidate from early design suggestions made from cardboard, not chosen.

Top right Another early candidate: this design was chosen for the basic direction. Made from cardboard, foam and paper.

Middle left New model made from plastic, cloth and metal.

Middle right Next model in the process: it was found that the electronics could be fitted into a smaller space. Made from Cibatool (epoxy-based photocurable resin).

Bottom left New model made from plastic and wood. The design failed because the aluminium surrounding the electronics did not allow wireless signals in or out.

Bottom right Final product, double-sided with touch-sensitive wood surface.

BeoSound Moment, designed by Frackenpohl Poulheim, 2015. BeoLink integrated wireless music system with touch-sensitive wood.





Cardboard model
of BeoLab 18.



Torsten Valeur
Designer, in his studio in Copenhagen

—

Torsten Valeur took over David Lewis's studio when David died in 2011. 'I came to work for David Lewis in 1995. I walked into the studio with my CV and David said: "OK, you can start Monday, here is your desk, design a telephone." I was educated as an architect but after I graduated I carried on working in my previous job, making fireworks for Tivoli, until a few people started to ask me why I didn't use my education. So I started to get out there and one of the first people I visited was David, and he just gave me a job. I couldn't believe it, but I fell in love with the place and the process.

'The unique thing about working with Bang & Olufsen is how deeply involved you become when you work with them as a designer. You share their problems, but you also share their dreams and follow

the whole process through to the product ending up in the shop. There aren't many places where there is this interaction between the designers and the engineers. At other places the design concept can start off very well, but it is just a matter of convincing the management that it needs to be done and after that someone else takes over. At the end, something arrives in the shop that doesn't look at all like what you designed. At Bang & Olufsen there is a feeling of responsibility that goes beyond just the job. I have tried to take that feeling and put it into the work I do for other clients; I am very dependent on feeling that I am a member of a group who wants to do something.'



Cecilie Manz

Designer, in her workshop in Copenhagen with BeoPlay A2 models

'When Bang & Olufsen approached me I thought it was a mistake. At that time, they were very masculine in their styling, with a lot of aluminium and black – of course I loved Bang & Olufsen, every Danish person has a bit of Bang & Olufsen inside them – but I was not doing that sort of stuff. I told them that I wouldn't do that kind of thing, and they said that was fine but that I should just come to Struer and have a chat. So I did, and became completely fascinated by all these nerds and engineers and amazing specialists sitting in the middle of nowhere in the countryside. I'm glad I was able to experience that.'



Øivind Slaatto

Designer, in his studio in Copenhagen with BeoPlay A9

It had always been a dream for Øivind to work with Bang & Olufsen. 'I was calling them for about a year, and they always told me they were interested but that right now they had some other stuff to sort out,' he says. 'In the end I decided to just make three designs for them, and if they didn't want them they would never hear from me again.'

'So I went over to Struer and presented my stuff, and they kind of said, "thanks but no thanks". But I think they liked what I showed them because they called me back later with a brief and asked me if I would like to do some designs. The process of working with them

was probably better than I could have dreamed. They were very dedicated, very respectful, and it was always about making a good product and nothing else. There were two other very good designers making proposals for the same brief, and they chose mine, which I thought was very brave of them as I was not a very experienced designer – the A9 was my first design that ever went into production. But they go with their gut at Bang & Olufsen, and that is something I love. They have always done what they believed in rather than only doing what everybody else does, or what the market tells them to do.'



David Lewis

Designer for Bang & Olufsen from the 1960s until his death in 2011, pictured with BeoSound 9000

—

David Lewis designed many of Bang & Olufsen's most iconic products. David was an Englishman who met a Danish au pair in London in the 1960s and followed her back to Denmark, where he would spend the rest of his life.

'He would give me a lot of responsibility, with very little guidance, so I would have to figure things out for myself,' says Torsten Valeur, who started as David's apprentice in 1995 and took over the studio after his death. 'He would be very involved in the process, but in a strange way; one day he would pass my table and say "turn left", and the next day he would say "turn right". At first I didn't understand why he was doing this, and then I realized he was giving an instant message of what he felt at that moment. The responsibility for the design direction was mine, but he would give his instant, instinctive opinion, something that is very difficult for a designer to do when he is working on a project, as we will inevitably overthink things.'

'David was a man of action; his method was to just start doing something, anything, and things would flow from that. The analytical part of your brain needs to be switched off when you start sketching. You cannot think "it won't work because ..." – you will not get any new ideas like that. David used to say something I love: that every product needs to have its own unique reason to exist.'

Jacob Jensen

Designer for Bang & Olufsen from the 1960s until the 1990s. Interviewed at his home in Northwest Jutland a week before his death in 2015

Born in 1926, Jacob Jensen designed for Bang & Olufsen at the height of his career and created many of their most iconic designs. In 1978 an exhibition of his work for Bang & Olufsen was held at the Museum of Modern Art (MoMA) in New York, entitled 'Bang & Olufsen – Design for Sound by Designer Jacob Jensen', and the museum has fourteen of his products in its permanent collection.

The work of Jacob Jensen is a good example of the freedom with which Bang & Olufsen entrusts its designers, and the possibilities that can be realized by giving them the chance to make their masterpieces. He spoke to Alastair Philip Wiper at his home near Skive in Northwest Jutland, a week before his death in May 2015.

'Jacob's reputation as the impossible ingenious egotistical task-master who took Bang & Olufsen design to the world preceded him, so it was with some trepidation that Iza and I pulled up to his house on a sunny spring morning,' says Alastair. 'Jacob's wife Nanna greeted us at the door and showed us into their cosy, remarkably un-designer house, where we found a frail eighty-nine-year-old man with his feet up looking out of the French windows at a pretty view of the harbour in the distance. On the table in front of him were a few of his classic designs, a bowl of chocolates, a thermos of the ubiquitous black coffee and four cups. It quickly became apparent that his mind was not as frail as his body.'

Alastair Philip Wiper: How did you work at Bang & Olufsen?

Jacob Jensen: I was given every freedom a designer could wish for. I was sort of the customer spokesperson and I felt responsible for everything. In those days there were no customer insight studies, it was all down to the designer. It was important to keep the business going and to make high-quality products. High quality such as this Beomaster 2400 [Jacob gestures at the sound system on the table in front of him] – it is my favourite one.

APW: The Bang & Olufsen R&D director Bent Møller Petersen told us you had made more than forty-two design models when you made this product. Did you always make that many?

JJ: Yes, it is a must – you made a model, looked at it and made some changes and then made a new model. I always worked with physical models. I actually ONLY work with physical models – you make a few sketches, but then you quickly make it into a model: something you can put down, and walk around and look at and ask yourself – it this it? Nope, then you have to make a new one. It is essential for making the right decision.

An old trick when you make a model is that you place it on your desk and go to bed, and when you get up in the morning and switch

on the light, you have six to seven seconds to make up your mind if it is good or bad. If you have to keep looking at it and discuss with yourself and think about it, it is not good enough. You have to experience, judge and change. Therefore we sometimes made more than thirty models. I used my gut feeling.

APW: Did the engineers ever tell you – we cannot do it?

JJ: Well, no – or maybe a few times, e.g. if they wanted more space than I could give them, they argued their case. And sometimes it took more than a night's discussion to get to some kind of consensus. I have had a few nights with the R&D director like this.

APW: Seen from outside, it looks as if you took Bang & Olufsen to a whole new level: is that true?

JJ: Yes, I believe so. But it was also because they let me. I think the most important thing is that you believe in yourself. You have to stick with what you believe in, even sometimes when they question you – I do not give a damn, I know it is right.

APW: Are you proud of the things you achieved for Bang & Olufsen?

JJ: Yes, I believe my designs were part of the reason the company is here today. There were ten or fifteen factories like Bang & Olufsen in those days. What we achieved together was something different. I saw the opportunity to really make a difference, and I was allowed to do so. But you have to take the opportunity, show them so everyone can see that it is great. They were able to see that it was right.

At some point, I was making so many decisions that the CEO back then, Olav Grue, once said to me: 'I feel like a rubber stamp here. It does not matter what I think, your ideas are so good and convincing that all I can do is say yes.' He was a great man, because he saw the opportunity and he let me do my thing. And I can tell you, he was not normally known to be a pushover, ha ha. He was there when we did the MoMA exhibition. This was a great point in my career. I was also appointed 'Designer of the Year', so you can say it was a highlight, sure it was.

It is great to have achieved that in life. And as you can see, they [Bang & Olufsen] are still here – and they have given work to thousands of people, it is quite amazing I think, almost like a fairy tale.

APW: Were you ever asked to do something you did not like?

JJ: Yes, once. The Japanese flooded the market with technological products in those days and the board was getting nervous. I was



called in and asked to make a product 'like the Japanese do' – a product for the beanbag people – they meant hippies and bohemians. I refused and said no, but they kept pushing me and finally I decided to do it. I knew I had to do it properly or they would claim I was just obstructing the process – so I tried, really hard. You know the Japanese did impressive, tall bulky things with a lot of buttons and scales and I did flat and simple things.

At the board meeting I presented it and they sat in their chairs around it and they loved it, but I argued and said, 'Can't you see it is wrong?'. But they said, 'Maybe it will work.' I told them we should not copy the Japanese, they should copy us. In the end I only saw one solution. From 5 metres away I ran and jumped onto the model and crushed it to pieces and then I went home and did my flat

Beomaster 1900, which became the first in a very popular series of products such as the Beomaster 2400, which is my favourite today.

I love it because it is essential, all the complex stuff is hidden away elegantly, no mish-mash, no confusion. Access to that is covered and you open the lid elegantly and in the real Bang & Olufsen way. Sensitouch was on the front – something you see everywhere today with tablets. In this product there are a lot of exceptional solutions that I made that still live inside Bang & Olufsen products today.

APW: What do you think of design today – is it better or worse than back then?

JJ: I think design has developed in a positive direction.

APW: Do you have any regrets?

JJ: No. I did what I wanted, I was a good salesman and good at convincing people I was right, they say. And I made things that lasted. When I meet people today, they always tell me about the things they still have that I made, and how much they love them. I do appreciate that and I think they do as well.

APW: Do you remember it as a good time?

JJ: Yes, it was great fun – great fun for me. Design became the instrument for Bang & Olufsen to take over the market. It was not technology that was spectacular – it was the application and the design. Not bad, the boy from Vesterbro who became a local West Jutlander.

APW: Was there anyone in particular who influenced the way you designed?

JJ: The one person who really made the difference in my life was actually the Danish/Greenlandic polar explorer Knud Rasmussen. I heard a speech by him once and I was totally besotted. His stories and his work totally fascinated me, and it drove me to the books, and that is why I learned to read and study. It gave me the opportunities later on to do what I really wanted.

It took me away from my working-class background at Vesterbro in Copenhagen, with a violent father who had no interest in useless things such as drawing, which fascinated me so much. I tried to stay out of his way most of the time, but I had to work in his furniture workshop, and it was here that I started to design new pieces of furniture. A local architect suggested that I should go to the Danish Kunsthåndværkerskole, or the Danish Design School as it is known today.

There I was taught by men who later became famous furniture designers, such as Hans J. Wegner and Ejner Larsen. We were trained in basic disciplines – freehand drawing, geometry, spacial geometry, drawing in perspective and so on. And I was totally fascinated by Jørn Utzon, who taught mass fabrication and seeing the possibilities in industrial design.

Only one industrial design studio existed in Denmark: Bernadotte & Bjørn. I was hired and had Sigvard Bernadotte, the Swedish king's son, as a mentor for many years after. That was where I designed the Margrethe bowl, named after the Danish Queen Margrethe, niece of Sigvard Bernadotte, and it became probably my most successful product ever. That bowl is made in millions all over the world and I think it represents good design – you can use it, it works and is functional and it looks nice.

I have made a number of things over my long life that you can call good design. And I'm glad. I was given many chances, I travelled the world and I was allowed to do everything myself.

Beocenter 9000,
designed by Jacob
Jensen, 1986.

CD

2.33

Load CD

Stop



Radio

Tape 1

CD

Phono

Tape 2

Aux



Simplifying functions and showing the customer only what is really essential for a good control experience have been key to Bang & Olufsen's design philosophy since equipment began to get more complicated in the 1960s. Therefore many products have 'primary functions' on display and hidden 'secondary functions', so that full customization is still possible but is accessible only when it needs to be.

Following pages

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Beocenter 9000

designed by Jacob Jensen, 1986

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Master Control Panel 7000

designed by Jacob Jensen, 1984

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Beovision 8900

designed by Henning Moldenhawer, 1981

62 – 63

Beocord 8000

designed by Jacob Jensen, 1982

64 – 65

BeoVision Avant 32-inch

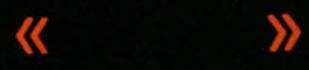
designed by David Lewis, 1997

CD

0.00



Load CD



Radio

Tape 1

CD

Phono

Tape 2

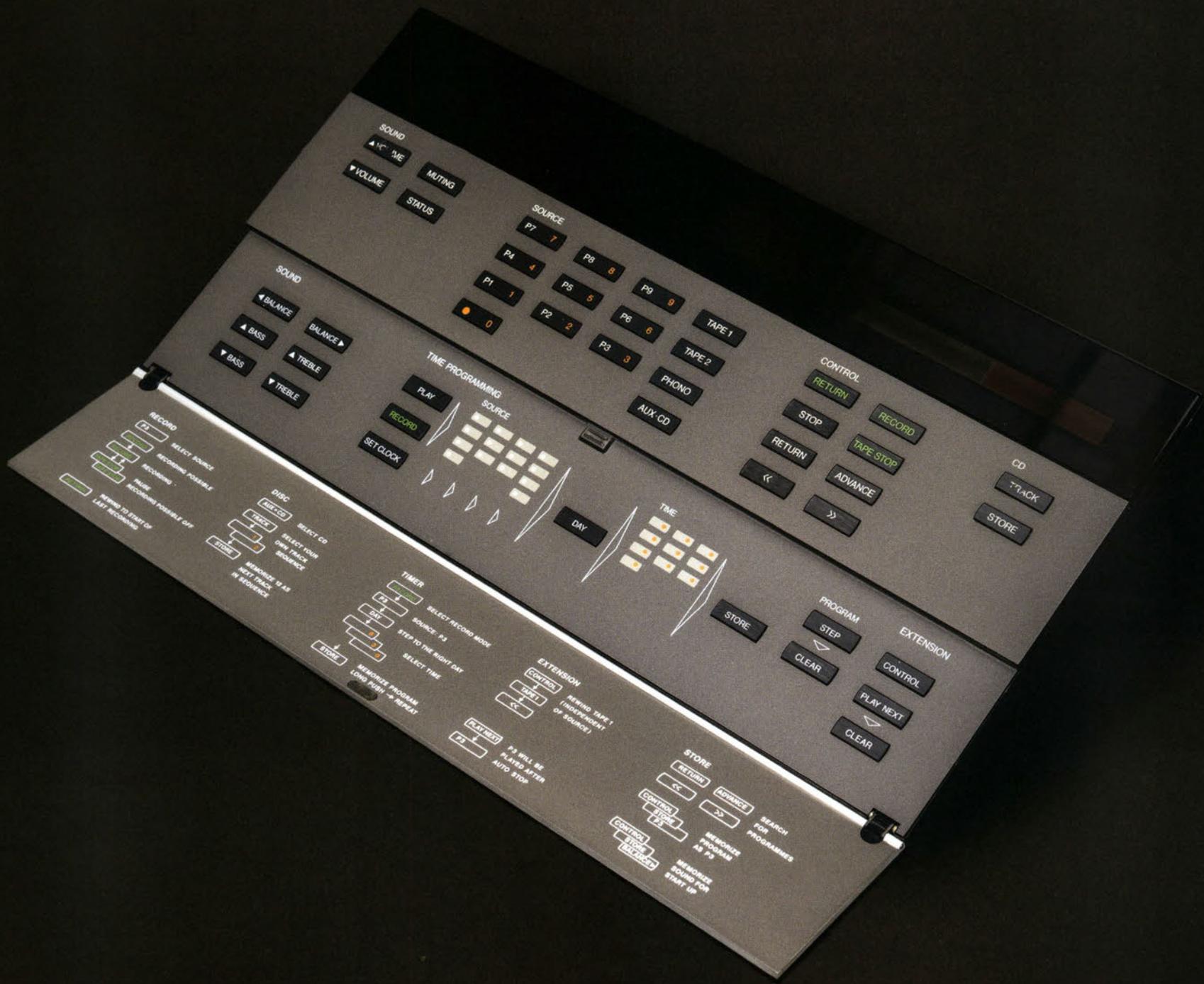
Aux





BANG & OLUFSEN
MASTER CONTROL PANEL 5000

PROGRAMMING



SOUND
▲ VOLUME
▼ VOLUME
MUTING
STATUS

SOURCE
P7 7
P4 4
P1 1
P8 8
P5 5
P2 2
P9 9
P6 6
P3 3
TAPES 1
TAPES 2
PHONO
AUX CD

SOUND
◀ BALANCE
▶ BALANCE
▲ BASS
▼ BASS
▲ TREBLE
▼ TREBLE

TIME PROGRAMMING
PLAY
RECORD
SET CLOCK

SOURCE
DAY
TIME

CONTROL
RETURN
STOP
RETURN
RECORD
TAPE STOP
ADVANCE
CD
TRACK
STORE

PROGRAM
STEP
CLEAR
EXTENSION
CONTROL
PLAY NEXT
CLEAR

STORE
RETURN
CC
ADVANCE
SEARCH FOR PROGRAMMES
MEMORY PROGRAM AS P3
MEMORY SOUND FOR START UP

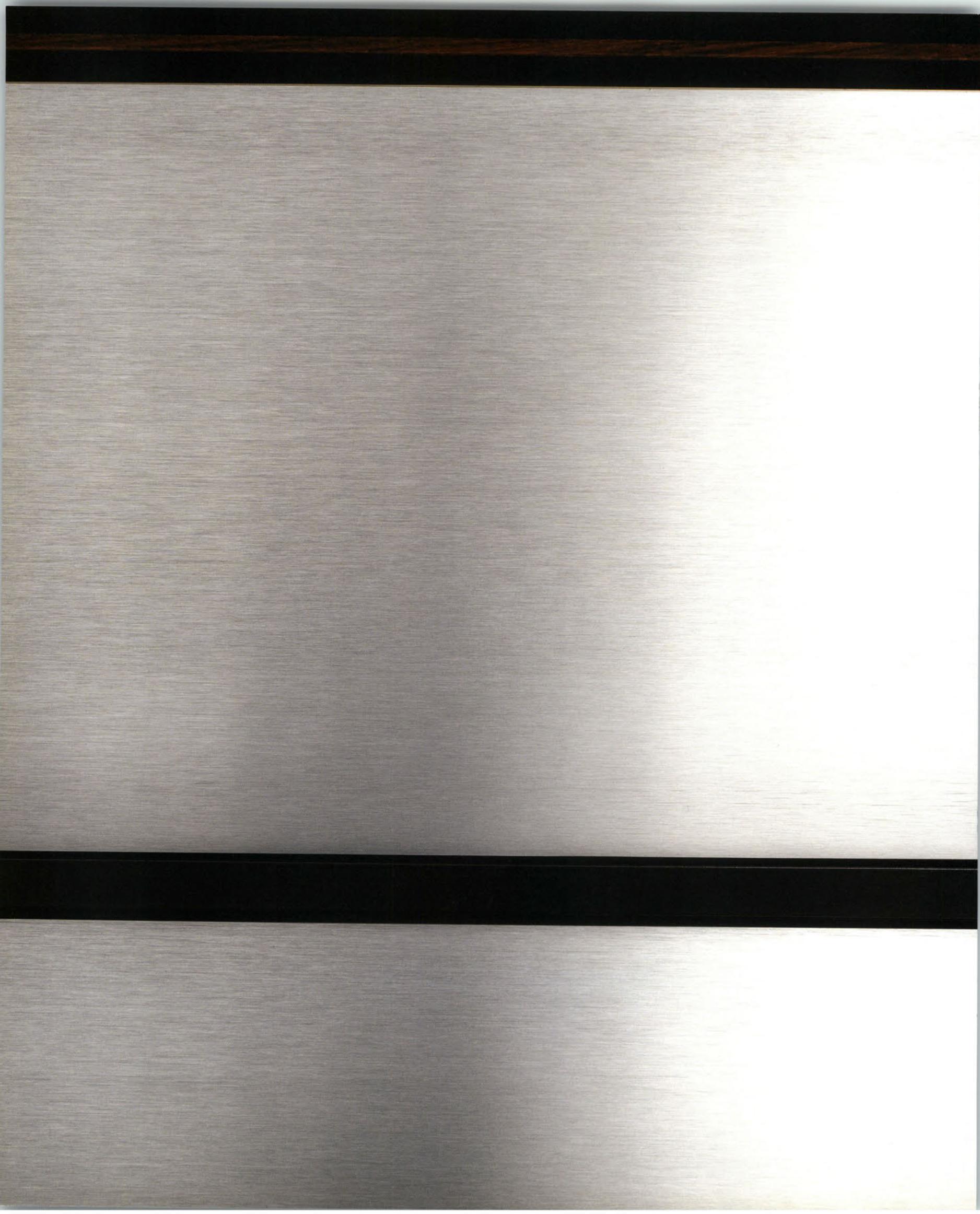
RECORD
CD
SELECT SOURCE
RECORDING POSSIBLE
RECORDING
TAPE
RECORDING POSSIBLE OFF
RECORDING
RECORDING POSSIBLE OFF
RECORDING

DISC
USE CD
SELECT CD
SELECT YOUR OWN TRACK SEQUENCE
MEMORY BY AS NEXT TRACK IN SEQUENCE
STOP

TIMER
SELECT RECORD MODE
SOURCE: P3
STEP TO THE RIGHT DAY
SELECT TIME
MEMORY PROGRAM LONG RUN → REPEAT

EXTENSION
REWIND TAPE 1 (INDEPENDENT OF SOURCE)
CONTROL
DISC
CC
PLAY NEXT
P3 WILL BE PLAYED AFTER AUTO STOP

STORE
RETURN
CC
ADVANCE
SEARCH FOR PROGRAMMES
MEMORY PROGRAM AS P3
MEMORY SOUND FOR START UP



TAPE



TIMER
START



REC
OPEN



DOLBY
NR OFF



DOLBY
NR ON





Preset

Off

On

Standby

Off

On

Channel selector with 16 positions (1-16) and two sets of frequency markings (1 III U, 2 5 21, 4 12 69).

program V

^ program

brilliance

Brilliance control knob with scale 0-10.

colour

Colour control knob with scale 0-10.

contrast

Contrast control knob with scale 0-10.

volume

Volume control knob with scale 0-10.

bass

Bass control knob with scale 0-10.

treble

Treble control knob with scale 0-10.





BeoVision Avant 32-inch was designed so that when viewed from the front it looked flat and did not appear to take up much space, long before the era of

flat-screen TVs. Viewed from the side, a clever visual trick is revealed – the TV was in fact very deep.

Sliders and wheels have played an important role in the design and user interface of Bang & Olufsen products over the last fifty years.

Following pages

67

Beomaster 1200

designed by Jacob Jensen, 1968

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Beomaster 1900

designed by Jacob Jensen, 1976

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Beomaster 2000

designed by Jacob Jensen, 1974

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Beomaster 2000

designed by Jacob Jensen, 1974

71

Beogram 1900

designed by Jacob Jensen, 1976

72

BeoSound Moment

designed by Frackenpohl Poulheim, 2015

73

BeoSound Moment

designed by Frackenpohl Poulheim, 2015

00

0

MONO

LW

MW

FM

180 200 220 240 260 280

1600

1400

1200

700

800

900

1000

450

400

350

300

92

94

96

98

20

30

BASS ^



4
3
2
1
0
1
2
3
4

TREBLE ^



4
3
2
1
0
1
2
3
4

BALANCE >



BASS v

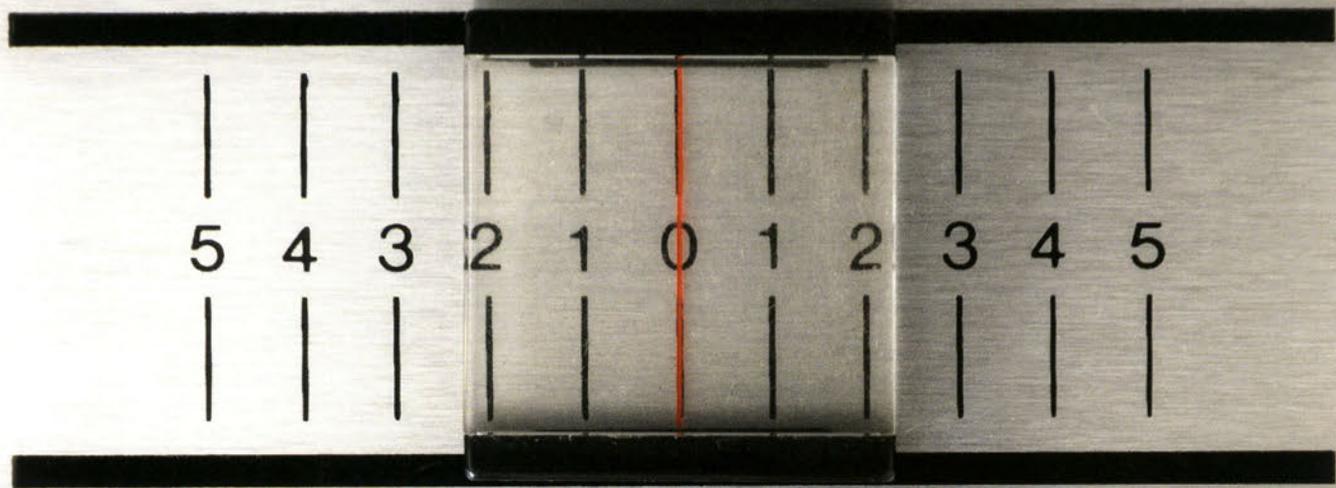
TREBLE v

BALANCE <

BASS

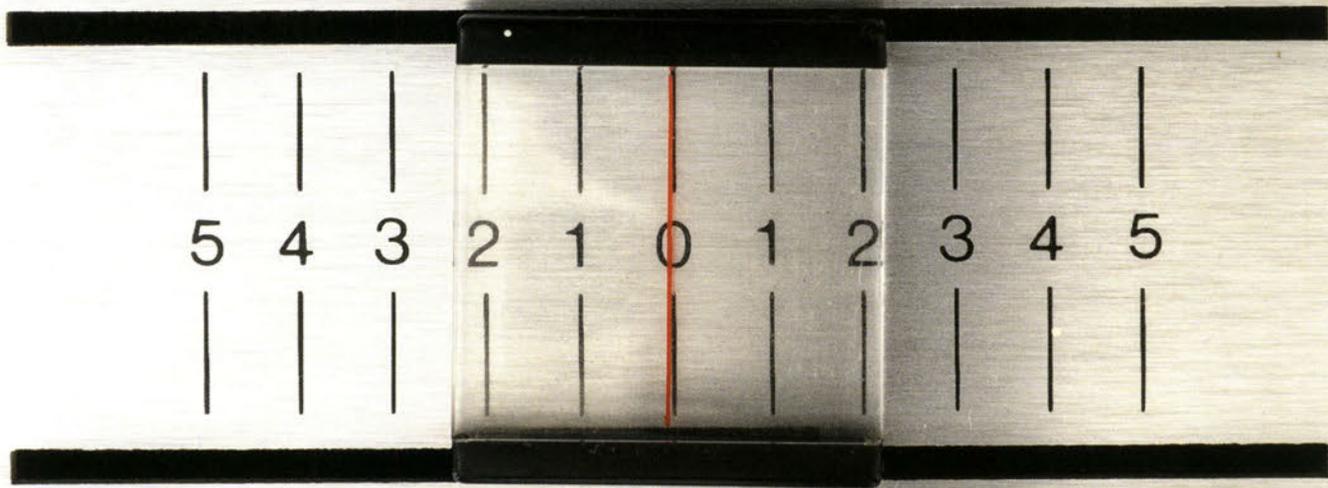
TREBLE

BALANCE



- TREBLE +

- BASS +



← LOUDNESS

PHONO

TAPE

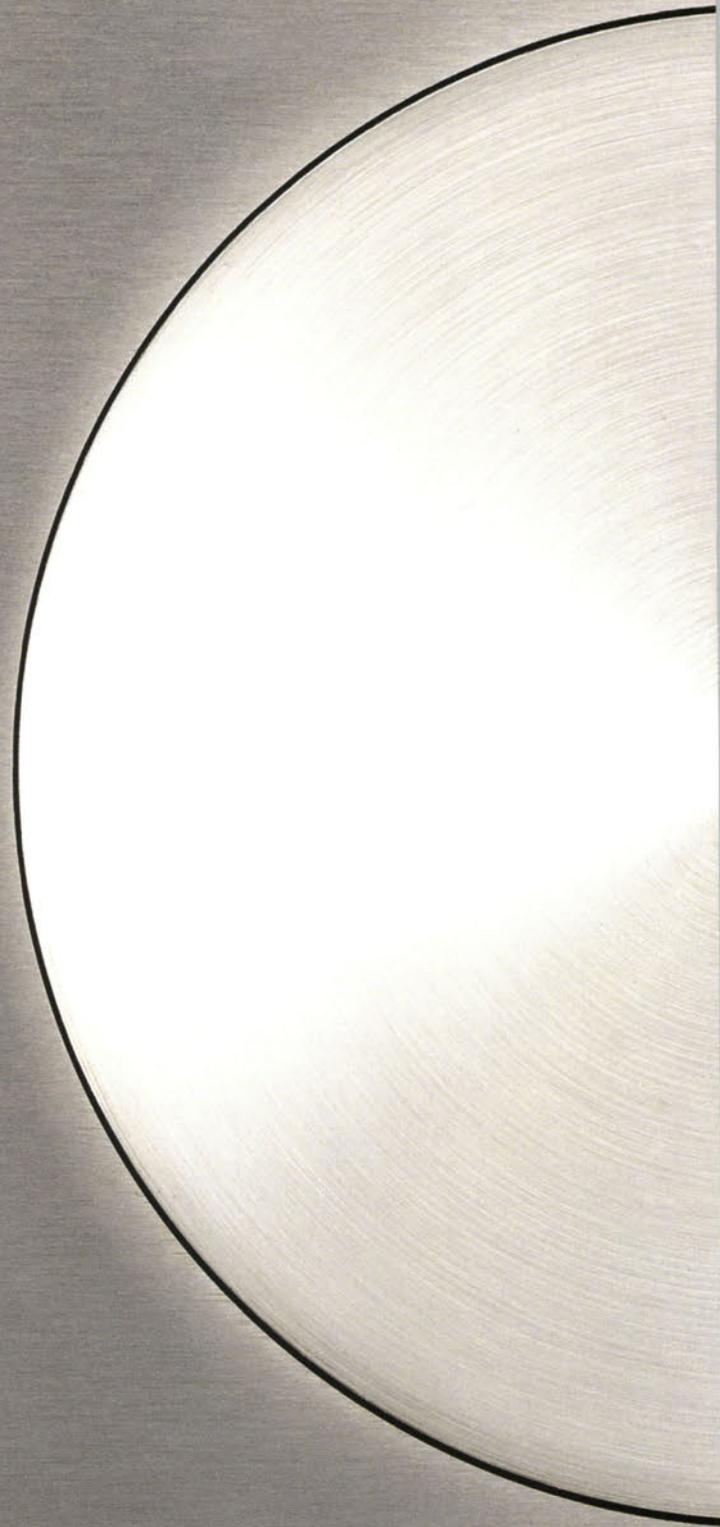


STEREO

ON

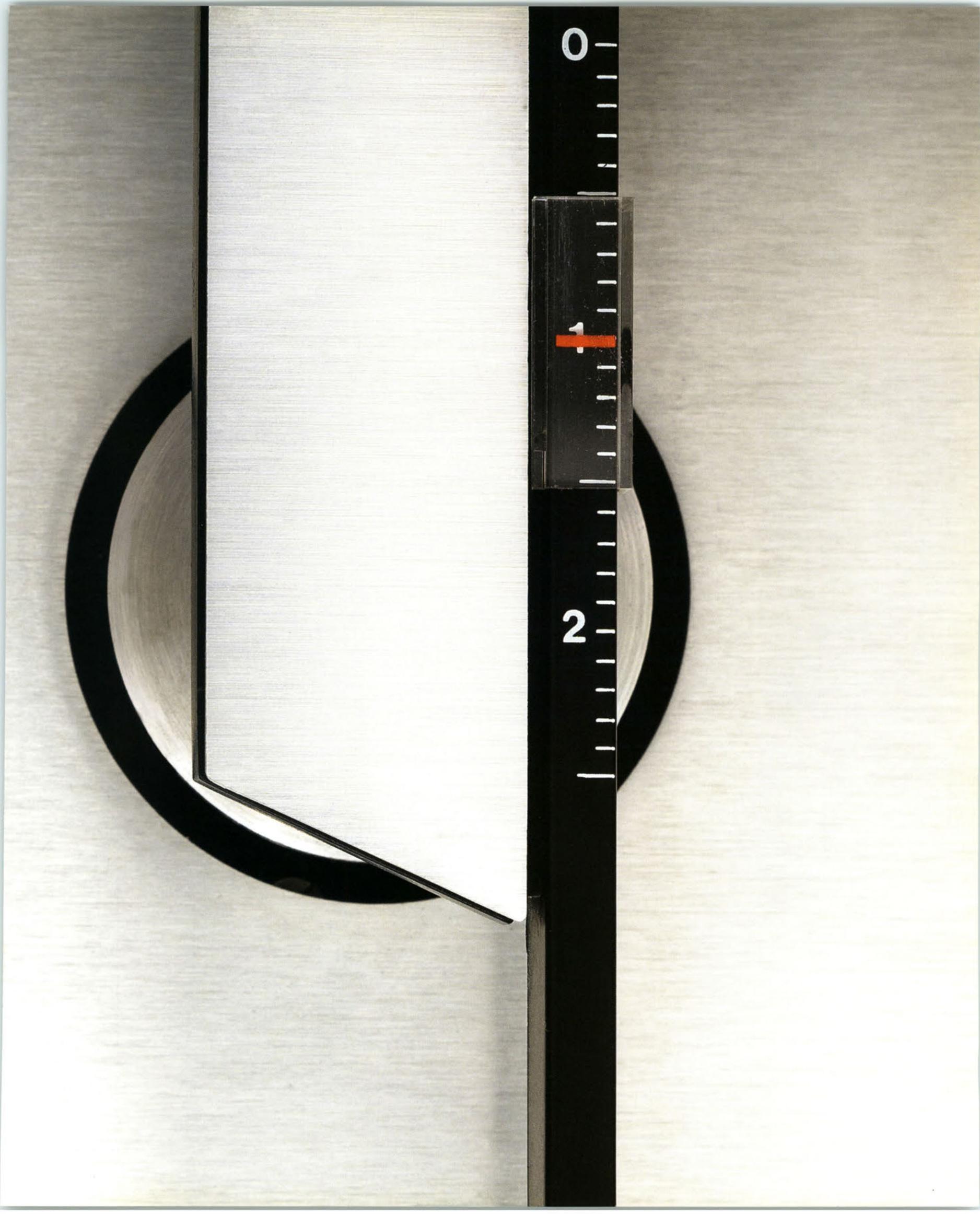


TUNING



FM PROGRAM →

BANG &





BANG & OLUFSEN



Beovision
Control module

7

8

9

4

5

6

1

2

3

0



text

large

page

mix

update

reveal

recall

reset



volume

colour

volume

program

'When we started to do remote controls, there was a lot of discussion about what features they should have, and we realized that we could do almost anything. But we very quickly decided that we needed to remove features and simplify things because we had to concentrate on what was useful and could be understood by the customers. We scaled it down to what was necessary, because that was how we would want to have it ourselves.'

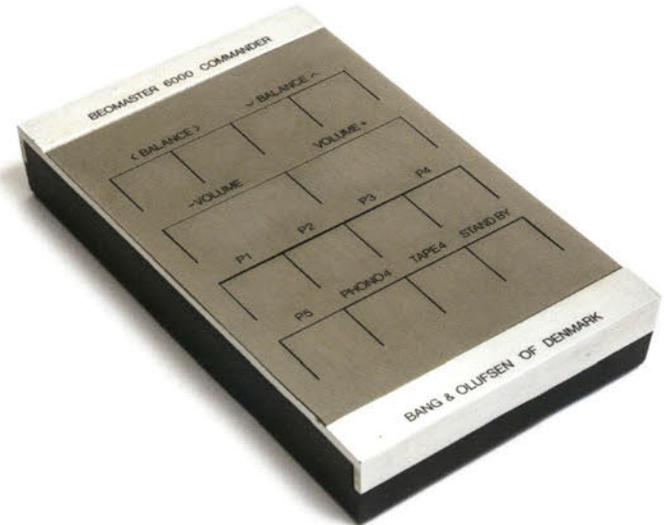
Ronny Kaas

Bang & Olufsen history specialist

Beovision Control Module,
designed by David Lewis, 1981.



1956
Bang & Olufsen's first wired remote with 5 m cable. Sound and light adjustment for a TV was possible.



1974
Beomaster 6000 Commander, the world's first hi-fi remote control, designed by Jacob Jensen.



1980
Beolab Terminal for Beolab 8000 system, designed by Jacob Jensen.



1981
Master Control Panel 7700, two-way remote control, designed by Jacob Jensen.



1985
A/V Terminal, designed by David Lewis.



1992
Beolink 7000, remote control, designed by David Lewis.



1994
Beo4, designed by David Lewis.



2014
BeoRemote One, designed by Torsten Valeur.



Respirator, 1952

-

At the end of 1952 Denmark experienced a widespread polio epidemic. At the same time, Bang & Olufsen engineer N.H. Nielsen was admitted to hospital in Skive, where he met a young doctor called Claus Bang who was working to improve conditions for polio patients. When Claus found out that his patient worked for Bang & Olufsen he explained his idea for making a mechanical solution for controlling the breathing of polio patients, which until then had had to be done manually by squeezing a rubber bladder. N.H. Nielsen involved Bang & Olufsen toolmaker Kaj Nielsen, who made the first valves, and when the doctor was convinced that the solution could work he approached Bang & Olufsen about a co-operation and offered it a licence to use the invention. The first respirator developed by Bang & Olufsen was a significant contribution to later developments in respiratory assistance.



Electric shaver Sh 510, 1955.

Microphones, BM 2, 1951
and BeoMic 2000, 1970
(overleaf).









FM radio to be plugged directly into an electricity socket, designed by Anders Hermansen, 1995. The project was never realized.

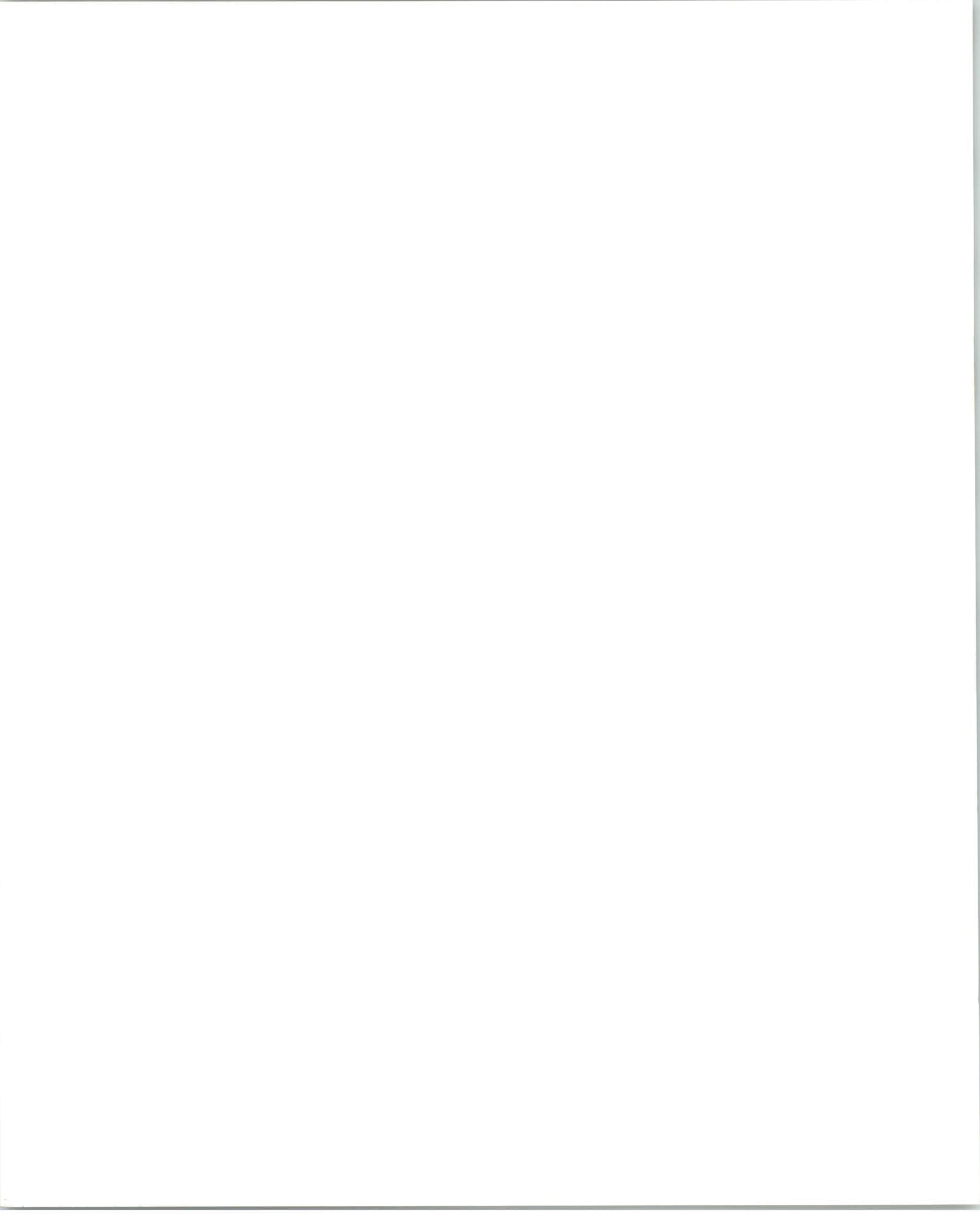
BeoCenter 5, a CD, DVD and DAB radio combination that was never realized, designed by David Lewis, 2004.



Keyboard experiments
designed by David Lewis,
a project that was never realized.



G & OLUFSEN



The History

Introduction

Bang & Olufsen and Struer

The Logo

BeoNists

The Collector



'The spirit that was created during the first twenty-five years of Bang & Olufsen's life has survived until now. You could talk about it like an organism that has carried the spirit with it. Those might sound like big words, but there really is a Bang & Olufsen spirit. And if you come with an open mind, there is always the possibility of being a part of Bang & Olufsen.'

Ronny Kaas

History specialist and third-generation Bang & Olufsen employee who has worked for the company since 1961

The old disused anechoic chamber in Factory 1, built in the 1950s.



The Beginnings

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Peter Bang and Svend Olufsen started Bang & Olufsen as young engineering graduates in 1925. The two men had much in common. Raised in well-off homes, both were qualified engineers and shared a profound interest in all things mechanical, radios in particular.

Yet in many ways they were very different. Peter was a technical innovator, a man who addressed problems and solved them, while Svend had the ability to see things in a broader perspective. 'What are you working on?' he often asked Peter. 'We should take out the patent rights for that.' To which Peter generally replied: 'Yes, I suppose so.' To him the challenge lay in making things work; what happened afterwards was Svend's responsibility. Once Peter had an idea, he worked on it day and night. In the early years when he lived at the factory, and later when he married and moved into his own house, he frequently got out of bed in the middle of the night to work on his experiments until the early morning. When the staff arrived the next day, they would find the director in his pyjamas, deeply absorbed in work.

The company began life in the attic of Quistrup Manor, the home of the Olufsen family and a fully functioning farm, a few kilometres from the current factory site in Struer. Radio was in its infancy and the two young men saw a chance to make products that nobody else was making. 'Bang and Olufsen started here because there was lots of

Hyperbo 5 RG Steel (1934) gramophone, radio and loudspeaker system in one. An early example of Bang & Olufsen thinking outside the box. In the 1930s, Peter Bang got married and moved into a new house, and he wanted some new furniture to decorate it. He could not just put all

his old Art Nouveau stuff in there, so he designed the Hyperbo 5 RG Steel, which was inspired by Marcel Breuer's 'B33' Bauhaus chair. It was not new technology, but the design was completely radical. He thought it would fit better into his own environment, and he knew that there

were many people with new houses who might feel similarly. It failed. Fewer than forty were sold, and today there is only one left. But it goes to show that he dared to do something because he thought it was right: and that has always been a hallmark of Bang & Olufsen.



space,' says Susanne Olufsen, Svend's niece, whose family lives in the house at Quistrup to this day.

'There had been a dairy here but it moved, so there were empty buildings. When the maid was finished peeling the potatoes, she would go and sit at one of the machines and work for Bang & Olufsen. All the employees – there were about twenty-five of them – also had to have a hot meal in the middle of the day.'

Although radio was their main interest, their first successful product was a component inside the radio, named the Eliminator. It allowed a radio to be connected to the mains instead of running on battery power as was the norm. By the time it launched in 1925 they needed to find a new location to produce it, as the cooks at the farm could not keep up with all those hot meals, and Svend's father was tired of the fact that when the phone rang, it was never for him. Peter and Svend both had wealthy fathers who gave them the money to get the business going – although they were sceptical, since radio was a new thing in those days. In 1925 they built Factory 1 on the site of today's factory, and at the insistence of their fathers the building was designed for a secondary function – as a school – in case the business did not work.

The factory was never turned into a school, and the business went from strength to strength producing high-quality radios, gramophones and cinema systems until the outbreak of World War II and the occupation of Denmark by Germany. Bang & Olufsen's refusal to co-operate with the Nazis, as well as Svend's reputed affiliation with the resistance movement and his helping Jews to escape from Denmark, soon drew the attention of Nazi sympathizers, who blew up the factory on a winter's day only six months before the war ended. Fortunately nobody was injured, and the employees rebuilt the factory, which reopened for business in 1946.

Svend Olufsen (1897–1949) and Peter Bang (1900–1957), the founders of Bang & Olufsen, in the 1920s. The story goes that Svend had his hand behind his back to hide a cigarette that he was smoking when the picture was taken.



B &
BO

Radio



The bottle opener was designed by fitter Holger Krogh in 1937. It has been produced in greater numbers than any other Bang & Olufsen product – and also stolen more than any other Bang & Olufsen product.

The Bang & Olufsen logo was designed by a sixteen-year-old painter's apprentice called Henning Dahl Mikkelsen (Mik). Mik grew up to be a famous cartoonist and was the creator of one of the world's most distributed comic strips,

Ferd'nand. One day Mik cycled to the factory, left his clogs outside, and asked to speak to the manager: 'I've designed a trademark.' He only wanted 5 kroner for the design but Svend Olufsen liked it so much he paid him 10 kroner.



The BeoNist Warehouse

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'This is the storage of all the old products that have been collected by the company,' explains Ronny Kaas, history specialist at Bang & Olufsen. 'We have decided that we want to have at least one model of each product that was produced, and some of the variants of models that have been on the market for more than a year. But some of them are very rare, there weren't many sold – back then Bang & Olufsen didn't keep examples of every product they made. In those days the history of the company wasn't acknowledged as such an important thing, but today we know that the heritage is very important. You don't know where you are going if you don't know where you are coming from.'

'For me, the importance of saving these products is almost too spiritual to explain. I took over the stock of old products in 2000 because there was a reorganization in the company. My department was moved to Copenhagen, but I have lived here all my life and didn't want to move there. So I got the job of organizing the visits of journalists and trade people, and I also got the job of organizing all the old products. The collection started in the 1930s because dealers began to return the demo products after they had finished with them. They thought they were too nice to just throw away, so they sent them back. That carried on happening and then we started to get contacted by customers who had had a product for twenty-five years and bought a new one, so they wondered if we wanted the old one back. There is still a constant stream of old products coming into the collection in this way. They used to be stored in the cellar and my grandfather was one of the people who were responsible for storing them. Then my father took over, so it seemed only right that I would also get the job of organizing them one day. We started to organize everything in the 1980s, but it happened very slowly, little by little, as it was only being done by those who were interested and had time for it. In 2006 a decision was made that the collection should be transferred out of the company into the public domain, so it was given to the Struer Museum.'

'Everyone working here is an ex-employee known as a BeoNist. They come voluntarily to sort the products, clean them, fix them up, photograph them and document them. Documenting the products is the most important thing we do, so that the museum knows what they have in the future. We only recently completed the list of products that have been produced by the company since 1925; there have been a lot of holes, especially in the early years. We are missing about six to seven per cent of that list at the moment.'



Ronny Kaas
History specialist and curator of the
Bang & Olufsen Museum collection

Ronny is a third-generation Bang & Olufsen employee. 'My grandfather started at Bang & Olufsen in 1935, and my father also joined when he was seventeen. He worked there until he died in 1986, and I joined in 1961, so there was a big overlap between the two of us. My grandfather was also an employee until 1965, so there

were four years where all three generations were working together. Even my mother worked there before the war, and one of my uncles was there for almost twenty-five years. There are lots of families that have had two generations working at Bang & Olufsen, but I think we are the only ones that made it to three.'



Two generations of Bang & Olufsen: Erik Mikkelsen, or 'Mini Mik' as he is known, retired mechanical designer and daughter Iza Mikkelsen, Product Communications Consultant.



Old Bang & Olufsen factory
fire truck.



BeoNist team at the Bang & Olufsen Museum warehouse – categorization and restoration of the Bang & Olufsen historical collection.



Jan Thøgersen, private collector of old Bang & Olufsen products.

From Alec Baldwin to an Arab Sheikh

On a rainy day, in an office just off a motorway outside Aarhus in East Jutland, Jan Thøgersen talks about how he came to own one of the largest private collections of Bang & Olufsen products.

'My father gave me a radio when I was about fifteen, and said: "Son, one day this is going to be worth money." I put it in the garage and didn't think about it much. In the late 1990s I was doing some work for Bang & Olufsen, and they were doing an exhibition of old products and I found out that the radio my father gave me was one they were missing – a Beolit 39, one of the classics – so they bought it from me. I'd grown fond of that one, so I managed to find another, and then before I knew it I was buying more and more. Suddenly I was surrounded. Sometimes when you do something you just have to do it all the way, maybe even overboard. I travelled all over the country looking for these old products. My wife was going nuts, the house was full.

'I lost a lot of money through an investment in the late 1990s, and one of the big Bang & Olufsen guys in the US called and asked if they could buy the collection. I didn't want to sell it, but he asked, "What's your price?" so I said 1 million Danish kroner (\$150,000), and they said yes. My bank manager was very happy, and so was my wife, but I had to start the whole collection again. So I spent a lot of that money making a new collection – fifteen years ago you could still find products here and there, but it's not possible any more. The collection I have is from 1925 until the early 1960s, when they started using transistors – those are the products I grew up with. I would love to carry it on to later periods, but I have to draw a line somewhere. As the collection grew, word started to spread and then one day I got an email from an Alec Baldwin in New York. It turned out to be *the* Alec Baldwin. He was looking for the same radio he had in his home when he was growing up, and I had it so I sold it to him. He blew the first one I sent because the voltage was different in the US, so I had to send him another one. We talked quite a lot, he even invited me over, but I never made it.

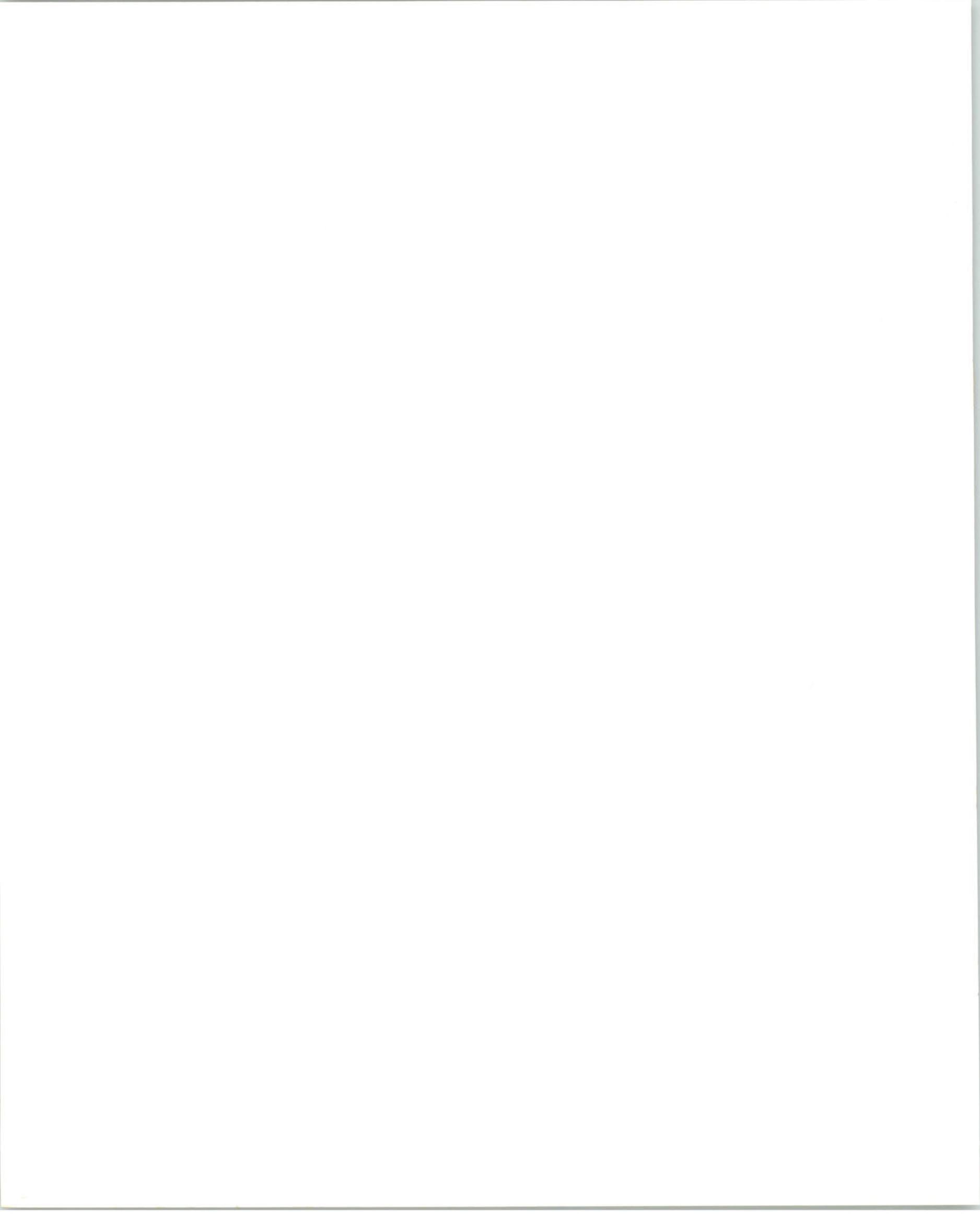
'In 2012 I got an email from the assistant to Sheikh Saud Bin Mohammed Bin Ali Al-Thani of Qatar. I was sitting at home at about 11pm when it came through, and I couldn't believe my eyes – he was asking if the sheikh could get an appointment with me within the next week. This was not just any old sheikh, he was known at the time as being the biggest art collector in the world, the former minister of culture of Qatar, and he was on a mission to fill up six museums in Qatar with art from all over the globe. I had sold him a radio through a dealer in London a few years ago, but I had never had any contact with him – and now he wanted to come and see me. He would arrive by private jet the next Saturday, and could I advise about where to hire a limo? Then I started to think about how I was supposed to receive an Arab prince in my little office. I put up all the radios really nicely so that they told a story, and then went to the Arab neighbourhood in Aarhus and bought some olives and some dates – I had no idea what I was doing, and I didn't know who I should ask,

so I just had to do it the best I could. I was driving a Honda Civic and thought it might not look so good, so I called my wealthy friend who has a big IT company and asked if he would be my personal assistant for the day, and bring his BMW sports car. He thought it would be great fun, and agreed.

'The sheikh's assistant called a couple of days before and asked if I could recommend something else to do in Aarhus while they were there, so I recommended visiting AROS, the modern art museum. He thought it was a good idea, so I got hold of the director and told him about the sheikh's visit. The director had flu, but he wouldn't miss it for the world, so he agreed to pull himself out of bed. Everything was set.

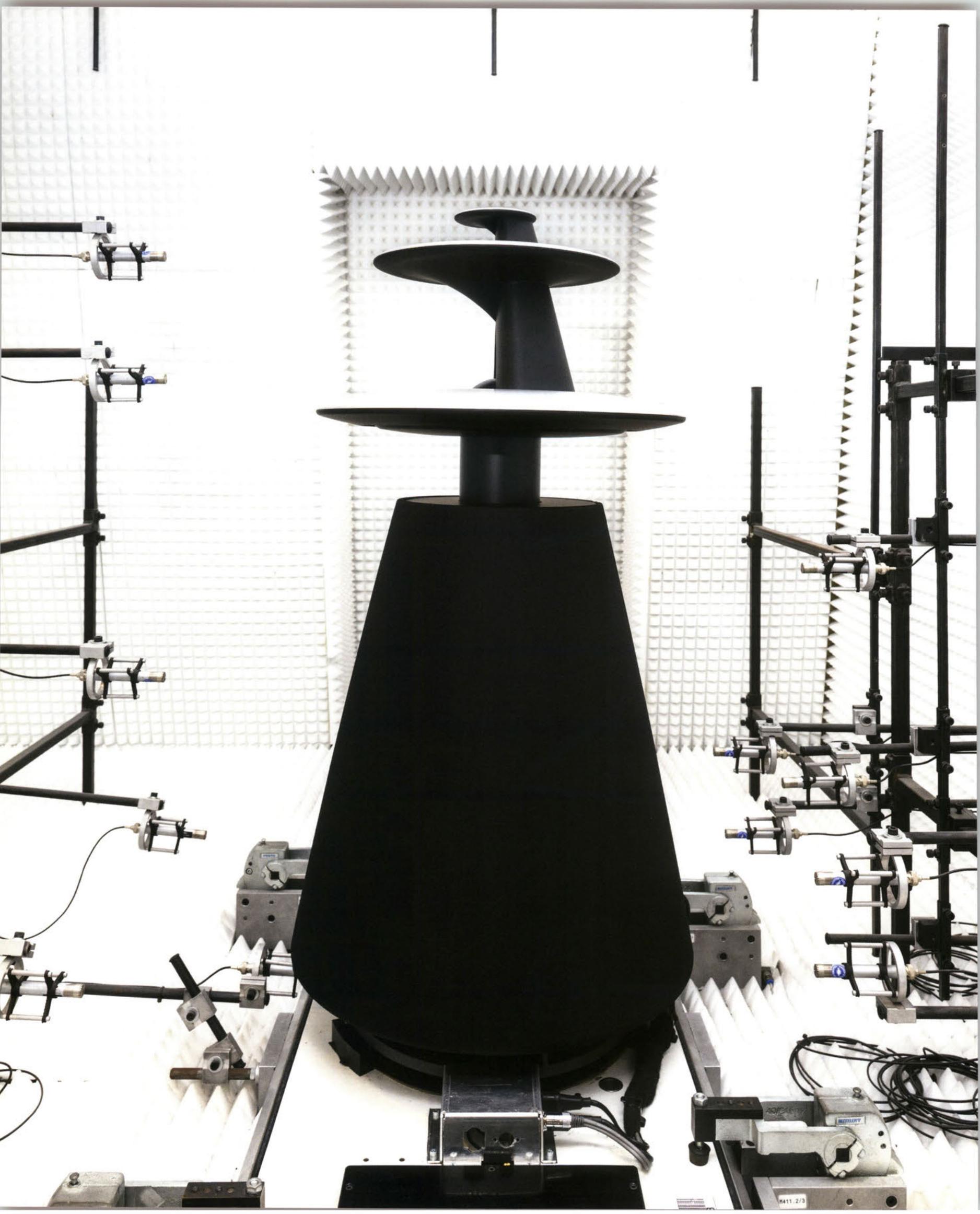
'The day came and two limos pulled up. The sheikh got out and said, "So, what do you have to show me?" I gave him the tour and he was really interested, we just hit it off, we got on great. We spent more than an hour looking around all the radios, and then we sat down and the first thing he said was, "Those olives. They are way too small. Where I come from the olives are four times bigger, and full of vitamins. Those dates, they are too big and they are dry. Where I come from they are like caramel and they will melt on your tongue." He said it with a smile though. The next thing he said was, "When can you come and visit me? Come with your wife, I will be your host." We carried on talking and suddenly I realized that the museum director was waiting for us. I told the sheikh, but he said, "Let's stay here, we are having such a good time." So someone had to call down to those poor people waiting at the museum and tell them we weren't coming. We talked for another two hours, and then he got up and went back to his private jet.

'Life became very ordinary again, and we hadn't talked about whether he wanted to buy the radios, but I did know he was building a big private collection. Then six weeks later, the phone rings and the sheikh's assistant tells me that the sheikh would like to invite me and my wife to stay with him next month. So he flew us down there and greeted us at the door of his desert residence. We came in and the place was full of Bang & Olufsen, and he was watching cartoons. He spent the next five days showing us around, entertaining us, banquets – it was like a fairy tale. I think he liked me, we had a great time. I've been back to Qatar four times since then; I have made some friends there through amateur radio. I agreed to sell him my collection for a museum he was building for his personal collection, but it was a couple of years away from being finished so we made a deal that I wouldn't sell it to anyone else and that we would discuss it again in February 2015. Unfortunately the sheikh passed away from a heart attack in 2014, aged forty-eight, so we never fulfilled the agreement. But you never know if his children will pick up his project. I have created this collection as a museum collection, so I want to see them go into an institution where people can learn about the history of Bang & Olufsen and radio design.'



Discovering
and Making

Introduction
Acoustics R&D
Product Cutaways
TV R&D
Torture Chamber
Aluminium and Factory 5
The Czech Factory



'I like the collaboration with designers. Sometimes they come with ideas that are just not possible, but we tell them what is possible and come up with other solutions, and after a lot of back and forth we have a product we all like. So the end product is better than what they started with, also in their eyes. We are all in the same boat, we want to get a marvellous product out of this, and you won't get that by just sitting back and saying "no". Of course we have "discussions", but they are never unfriendly – we can't bend the laws of physics, but we can find solutions and ways around them. That's how we get the unique products: we want to make things that are not possible. That's what we do every day, and why nobody else makes the unique products we do, because they give up way before us.'

Gert Munch

Technology specialist in electrical products
at Bang & Olufsen since 1976



The Cube

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Built in 1980 and nicknamed 'The Cube', although not quite cubic, this is the largest privately owned electroacoustic measuring facility in the world. It is used as an important tool for assessing sound quality in all stages of the development process.

The only way the engineers can find the pure characteristics of the loudspeakers they construct is by carrying out measurements that are not affected by reflections from ceilings, walls and floors. To be able to measure the sound from the loudspeaker before reflections from the ceiling or walls reach the microphone, the analyser opens up for the microphone signal just before the signal reaches the microphone, records the sound within 25 milliseconds, and then shuts again to avoid recording the sound coming back from the walls.

The loudspeakers are placed on a computer-controlled, movable platform, where they can be moved to and from the microphone and turned 360 degrees in both horizontal and vertical planes. This allows the engineers to measure the sound from the loudspeaker in every possible angle at the chosen distance – within the precision of 1 mm and 1 degree of rotation.

BeoLab 90 being tested
in The Cube.

Geoff Martin
Tonmeister

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Geoff is originally from Newfoundland in Canada, and moved to Struer in 2002. 'My job title is "sound designer", so I help to design how our loudspeakers sound instead of how they look. I'm involved at the beginning of the product development, helping to define parameters like frequency range and how loud it should be able to play, and then I come back in at the end to do the final "polishing" on the loudspeaker voicing. Normally, this means that the loudspeaker is put in our acoustical measurement room, "The Cube", and its performance is measured and corrected using filters created by the acoustical engineer. He'll then pass the loudspeaker over to me and I'll sit with him in the listening room and listen to music. I usually start by listening to the same small playlist of five or ten tracks at the same volume every time. If this reveals a particular problem, then this could lead to playing a different playlist. For example, on my hard drive, I have different collections of songs with labels like "punch", "mid-range", "imaging", "spaciousness", "clipping" and so on – each list has different songs that represent different attributes I'm listening for.

'Initially, the reason for listening to the loudspeakers is to find out if we can hear problems that don't show up in the measurements. If we can fix the problem, we do. Then we go back to the listening room, find a new problem, fix it, listen, and continue in this loop for up to a week. After that, it's back to the listening room for a final round of "tweaking" where I add filters to balance the sound of the loudspeaker in the listening room. When that's done, I move to a different room, start from scratch and do it again. This process of loudspeaker voicing happens in about four or five rooms because a large part of what you hear (and therefore, what I'm correcting) in a listening room is caused by the room itself. If your room at home is different from our rooms, then we'll be correcting problems that you don't have. So, to avoid this, we do the sound design of a loudspeaker in a number of rooms, and then analyse the different tunings to see what is common among them. Whatever is different in the tunings is thrown out, and whatever is common is incorporated into the final tuning of the loudspeaker.

'People often assume that I have better hearing abilities than "normal" people, but this is not true. What is different is that I've been trained to have a vocabulary that many people don't have. So, for example, where most people would say that a particular loudspeaker sounds "boomy", I might say that there is a problem with resonance at 78 Hz. We hear the same problem – we just express it differently. On the other hand, I do worry about protecting my hearing. I rarely travel on an aeroplane or go to a handball game with my family without earplugs – but I wouldn't say I'm paranoid about it. Many people don't realize that our ears can tolerate loud noises for a short period of time without being damaged – but once the damage is done, it's permanent ...

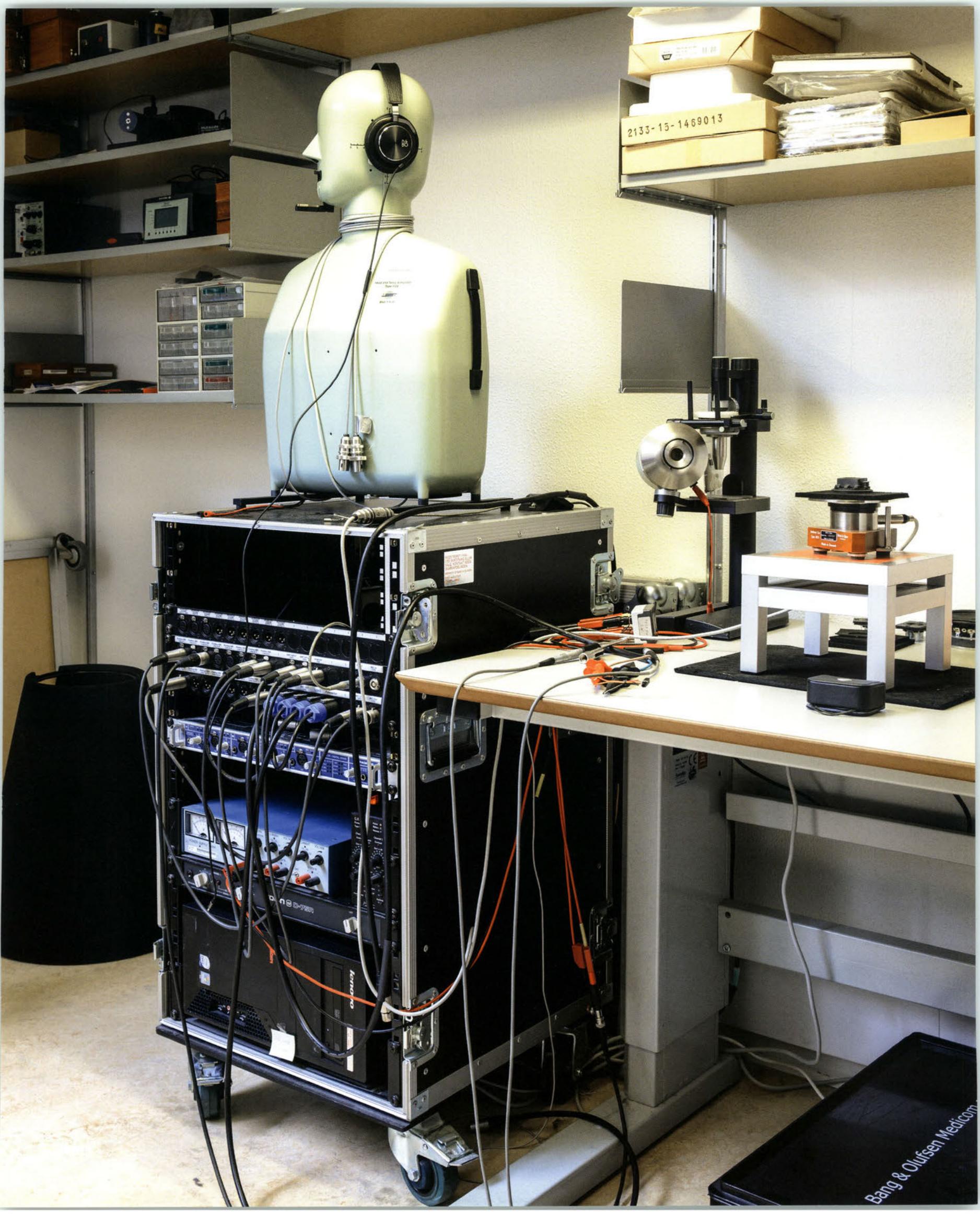






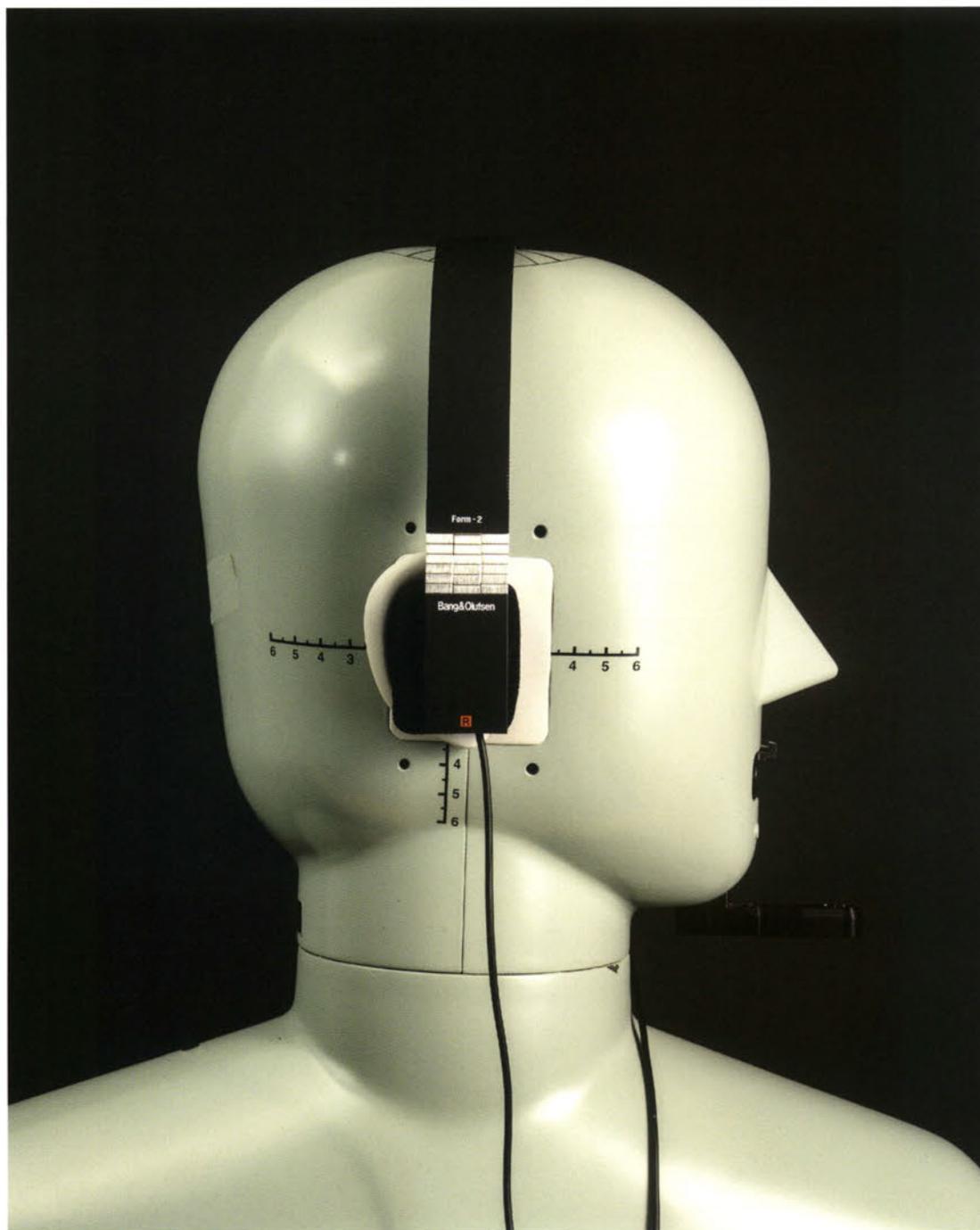
BeoLab 18 ready for testing in the Czech Republic.

BeoPlay H6 headphones on the Head and Torso Simulator (HATS) in the acoustics workshop in Struer.



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Bang & Olufsen Medicom



Form 2i, designed by Steve McGugan, 1985 (part of the MoMA collection), on the acoustic HATS doll.

BeoLab 20 loudspeaker with the cover off.



BANG & OLUFSEN

The inner workings of a selection
of Bang & Olufsen products.

Following pages

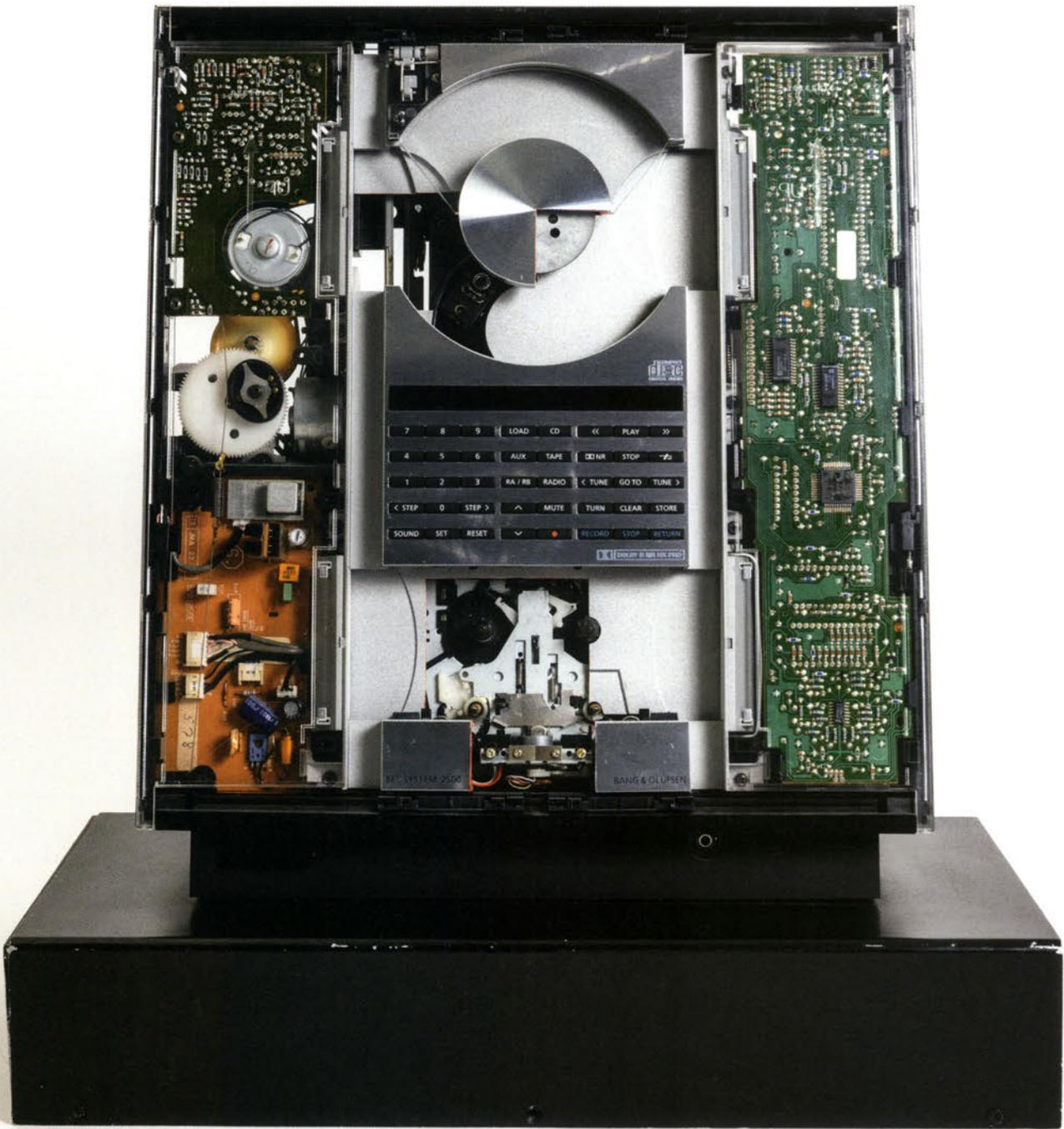
117	<u>BeoLab 4 PC</u>
118	<u>BeoLab 18</u>
119	<u>BeoLab 2</u> subwoofer
120	<u>Beosound Overture</u>
121	<u>BeoPlay A9</u>
122	<u>BeoLab 8000</u>
123	<u>BeoLab 5</u>
124	<u>BeoLab 14</u> subwoofer
125	<u>BeoLab 20</u> loudspeaker







When the acoustics department has its Christmas party, they fill up one of the latest speakers they have made with water, with all the electronics inside, and then take bets on the volume the speaker contains. Then they pour out the water at the end to see how much there was – they have done it with several of the speakers. The different departments have their own Christmas parties, and then everyone goes around to everyone else's party, and everybody always passes the acoustics department, where some of the acoustic engineers play live music in a band: although they never practise, it is said they know how to create a party.

















Television R&D Department

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'We take care of all the hardware and software related to the TVs,' explains Ben Verbraak, senior manager in Research and Development in Picture and Display Technology. 'It is essential for Bang & Olufsen that we make sure that the customer gets the best picture in all circumstances, depending not just on the source, but also on the viewing environment. A very important part of a Bang & Olufsen TV is that it can adjust to the light in the room: the intensity of the light and the colour of the light. So the picture quality will be the same if you have warm late evening sun coming into the room, or cold grey light. Our latest Avant changes colour tone, depending on the colour of the ambient light: we call this Chromatic Room Adaptation. It is very important that the customer doesn't have to readjust the TV to get the best picture – it should be a relaxing experience to watch TV, and when you watch over a long period of time your eyes should not get tired. One of the key things we try to do is make colours (skin tones, nature) look as natural as possible, and some of our competitors try to make the colours look very aggressive so that they stand out in the store when they are sitting next to a lot of other TVs. It doesn't mean that setting is the best for your home environment. When we sell our TVs, we sell them from our own stores where we can sit down quietly with the customer and show the TV in a real living-room situation rather than in a very bright store.'

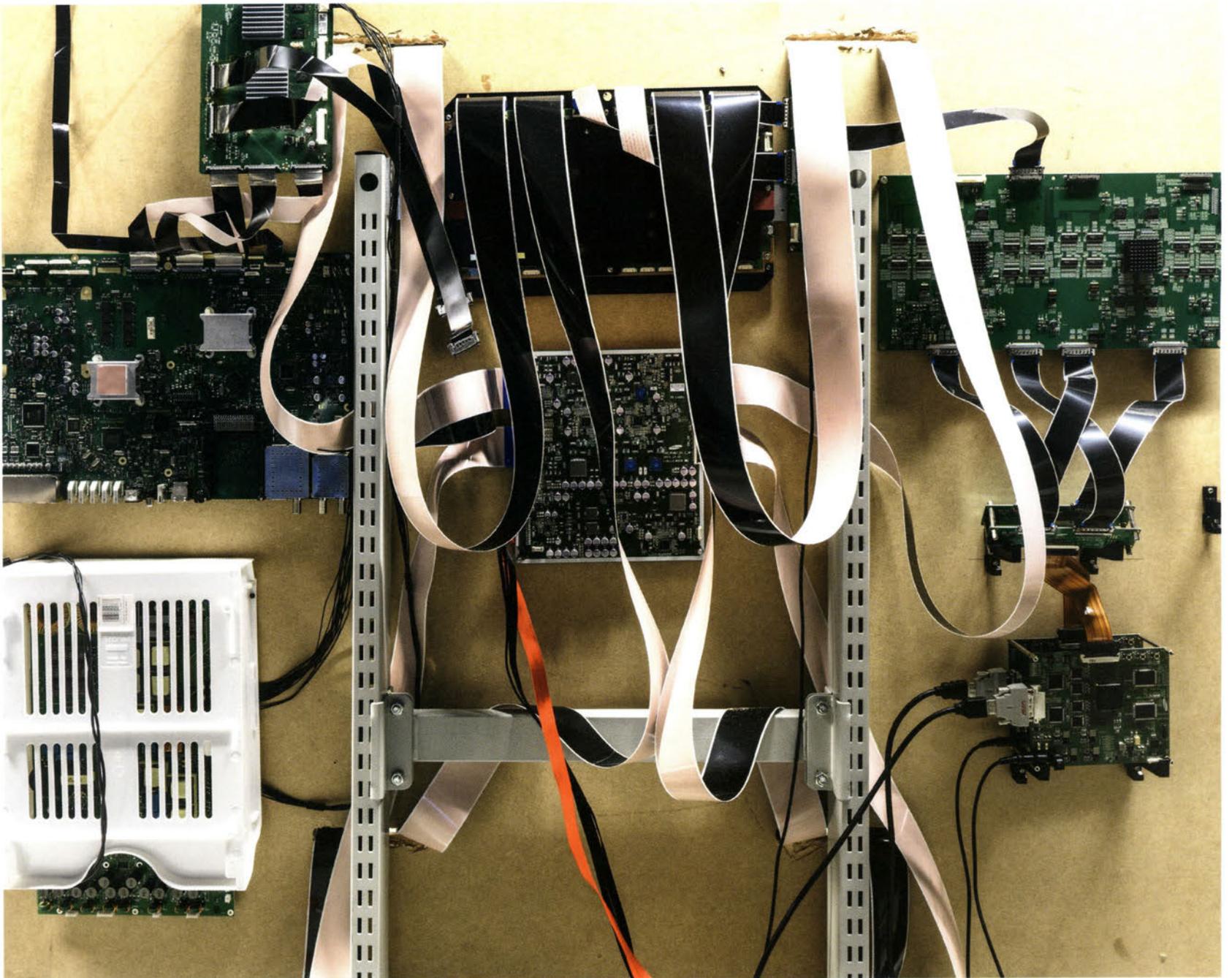
'There has been a huge change in TV technology in the time I have been here. The first change came at the end of the 1990s when digital broadcasting came along; and then flat screens came along, and all of the different types of flat-screen technology that keep on evolving. It meant we could start making much bigger TVs.'

'We still build our TVs to last, but there are new technologies coming all the time. That is why it is so important that our TVs are able to connect to external sources, and that they can be upgraded so that customers don't have to buy new TVs all the time. In the rest of the industry people buy a new TV every five years, but we don't think that is good for anybody – not for the customer, for the environment, or the quality of the product. We still focus on longevity, so connectivity is very important – but nobody in the industry knows what kind of connectivity standards we will have in five years, so we just have to try and future-proof the TV as much as possible.'

BeoVision Avant in the TV R&D department in Struer.



Electronics in the TV reliability-testing department in the basement of R&D, Factory 1, Struer.



Experimental TV electronics testing.



10506

10506

DO NOT OPEN
WHILE RUNNING

10506

Freezing a BeoVision Avant in the 'torture chamber'.

Televisions are tested for their ability to handle a transition from -25 degrees C to $+40$ degrees C within three minutes. This is done by putting them into a freezer and immediately afterwards into an oven, to

make sure the screens do not fall off merely because the glue cannot stand hot temperatures. Products may be moved from the cool cargo hold of an aeroplane to a hot and humid airport in a tropical climate, so extreme temperature shifts are not unrealistic.





Transport is important. It is no good if the products are the best in the world when they leave the factory but break during transport to the customer. This is one of the reasons why what is known as the 'mechanical test' is carried out. The test includes a bump tester with 5,000 bumps,

a transport simulator that tests a packed product for two three-hour periods and a random vibration test of three twenty-minute periods. Bang & Olufsen ensures that all mechanical and electronic parts are still in good shape after this test procedure.

The Torture Chamber

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In the basement just below the R&D department lives a team of dedicated engineers with a vivid imagination. Formally named the 'Environmental Laboratory', the area is popularly referred to as the 'Torture Chamber' – a reference to the way the engineers treat the rather expensive products.

Bang & Olufsen needs to make sure that products remain in good working order for many years ahead, and one way of selecting the right solution to ensure this is to test the options being researched. Take, for example, the buttons on the remote control. Bang & Olufsen engineers have developed a test setup that simulates pushing a button, and the buttons are pressed as many times as estimated relevant for ten years of use, making sure the print remains visible and the buttons fully functional. Coca-Cola, hot soup and water are poured over the remote controls and no malfunction is accepted.

The products are tested for their ability to be resistant to whatever they might be subjected to in customers' homes. Surfaces are tested for their ability to handle cleaning agents, hand lotion and cosmetics. They are also exposed to a simulation of one year of sunlight, and no colour changes will be accepted.

Highly Accelerated Life Test (HALT), by which products and product parts are subjected to extreme temperatures and vibrations to discover their breaking point. A close-up view is seen overleaf.









'Sour sweat' and 'alkaline sweat' are used to test how different types of sweat, such as from people's fingers, react with different surfaces.

The anodizing plant in Factory 5 in Struer, where humans and robots come together to take the processing and finishing of aluminium to levels unobtainable anywhere else in the world.

Anodizing Aluminium in Factory 5

Anodizing is a surface treatment that makes soft aluminium surfaces very robust so that they can last for more than a hundred years. It is typically the first process the aluminium undergoes for protection before milling; sometimes parts are anodized four times here. Besides surfaces for Bang & Olufsen products, these tanks have anodized brake callipers for Lamborghini, camera housings for Hasselblad and footplates for BMW.

'The competences we have here in Struer have been developed for more than fifty years, since we started anodizing in 1960,' explains Ib Kongstad, specialist in surface treatments at Bang & Olufsen. 'The designer says, "I want that", and we say, "aye aye sir!" and then we start figuring out how we do it. By doing it that way, step by step we have become world leaders in anodizing aluminium. We can also polish and mill here in a way you can't see anywhere else. We have tried to outsource some of this stuff; it didn't work, people just tell us it is not possible, so we have to do it ourselves.'

In connection with the anodizing processes, Bang & Olufsen has invented BeoSpray, a highly advanced dyeing principle enabling dye pigments to blend with any specific colour scheme. With BeoSpray, it is possible to dye aluminium in up to 250 nuances.

The anodizing plant consists of fifty baths in a 50-metre-long dip-line. Each bath contains 4,000 litres of liquid. The waste water is chemically cleaned before it is led to the purifying plant in Struer.







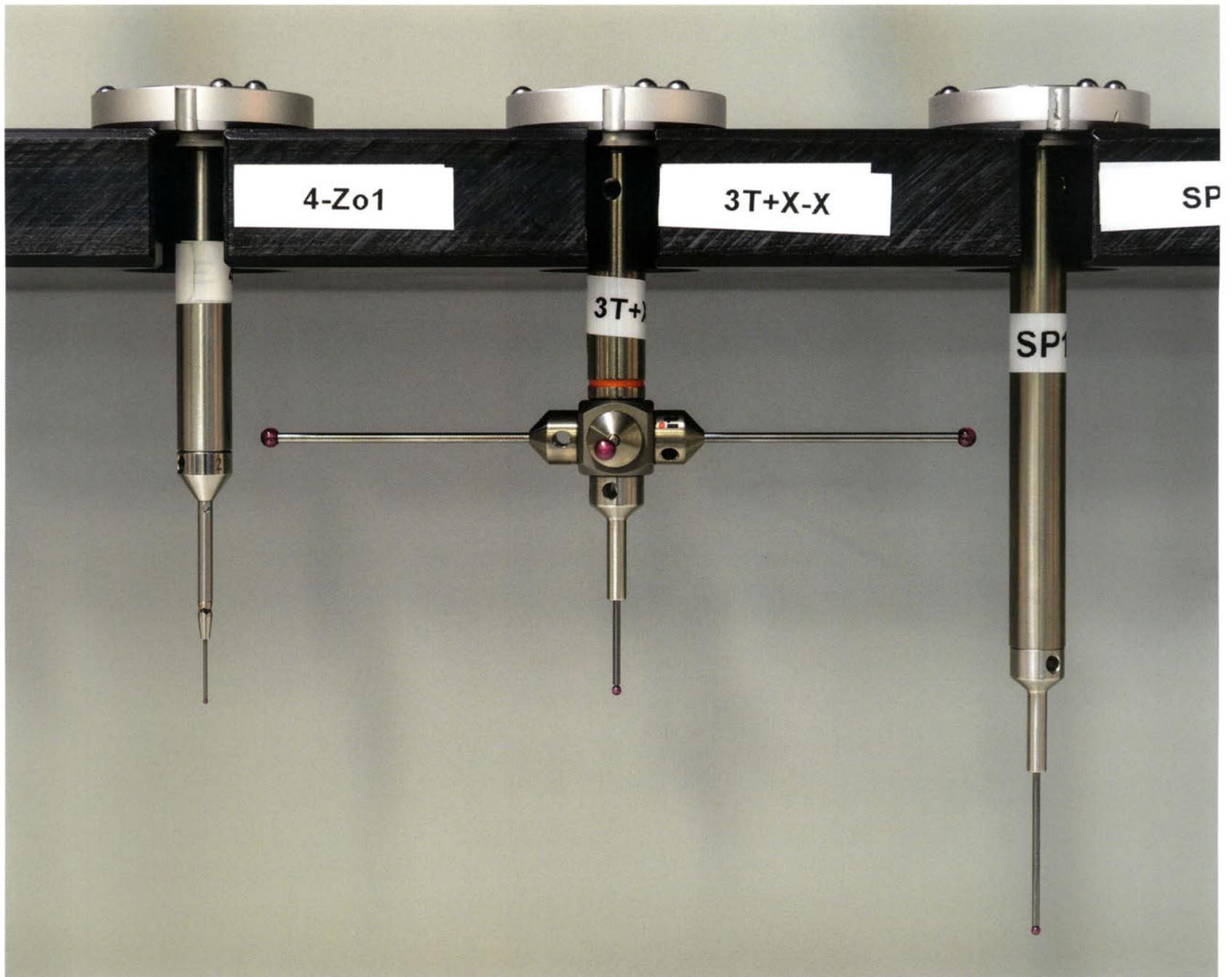


Specially designed titanium racks are required to hold the aluminium parts when they are ready for anodizing. This one is holding parts of BeoLab 6000s.

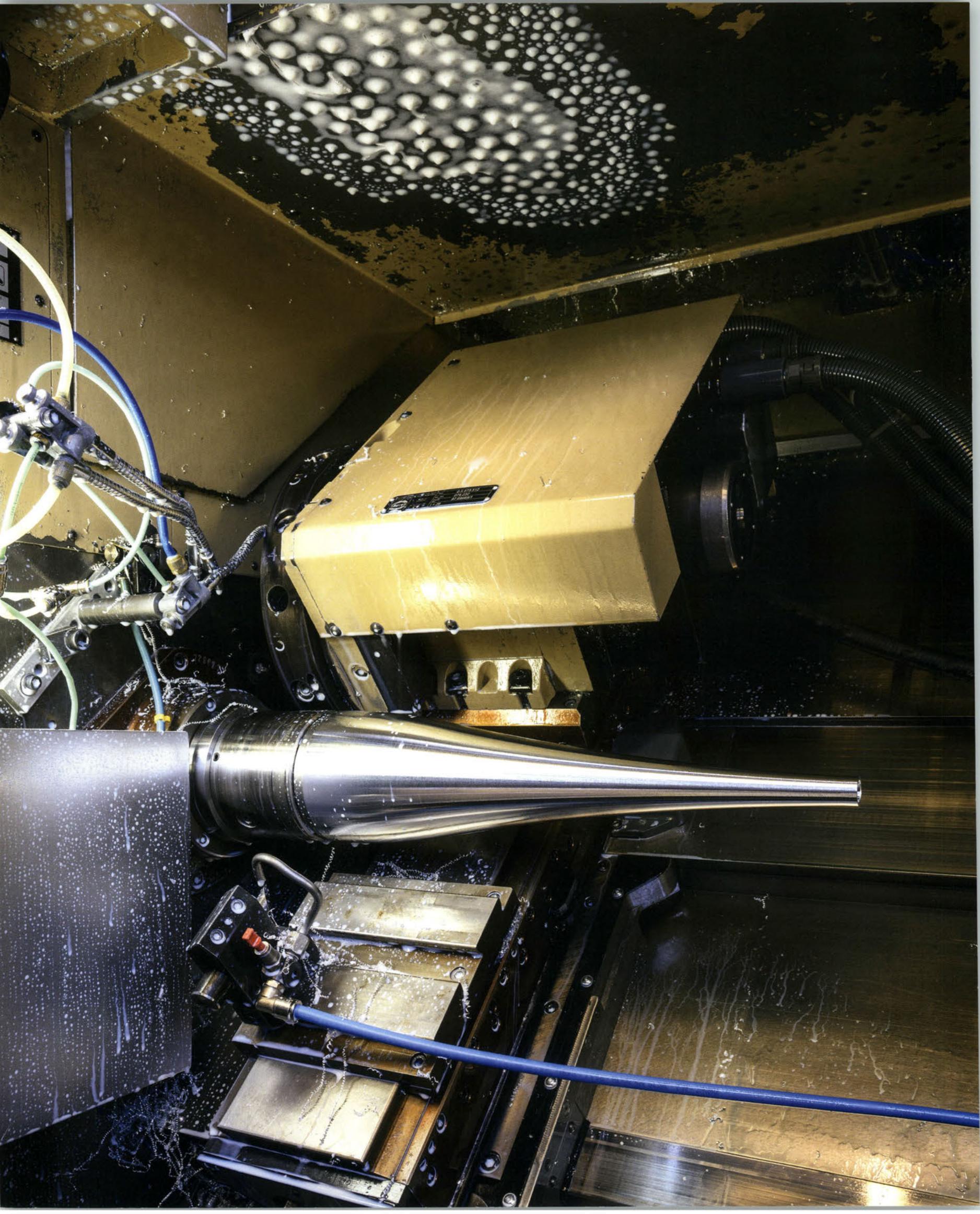
The factory floor of the aluminium production plant in Factory 5.



White gloves used by production employees when handling products and items during the production process.



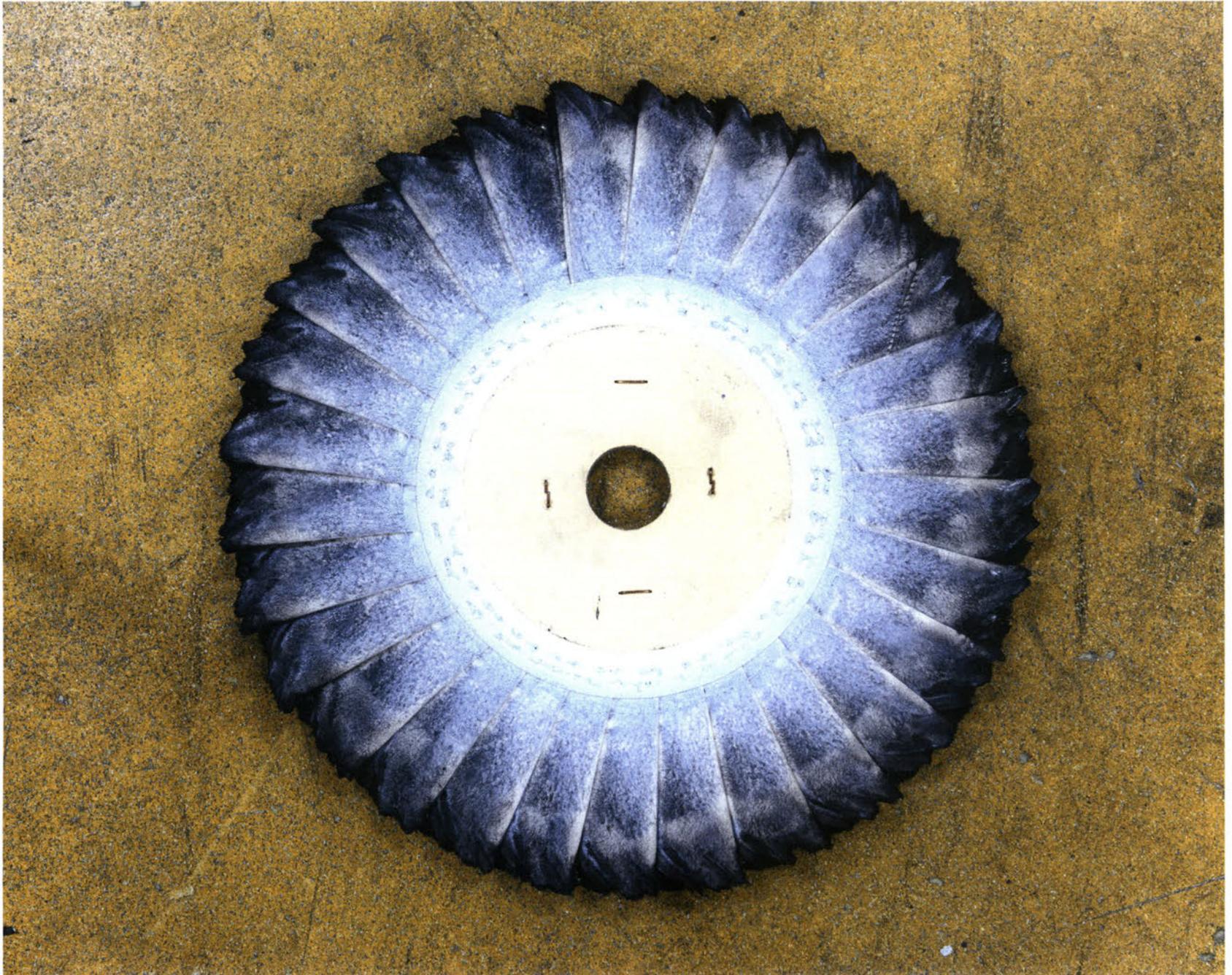
Probes used in production to measure the geometry of parts with precision.





Cone for BeoLab 18
being milled.

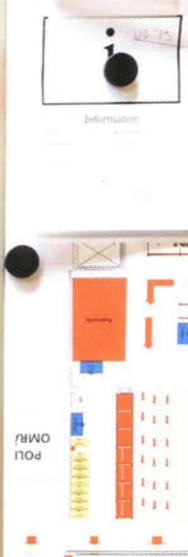
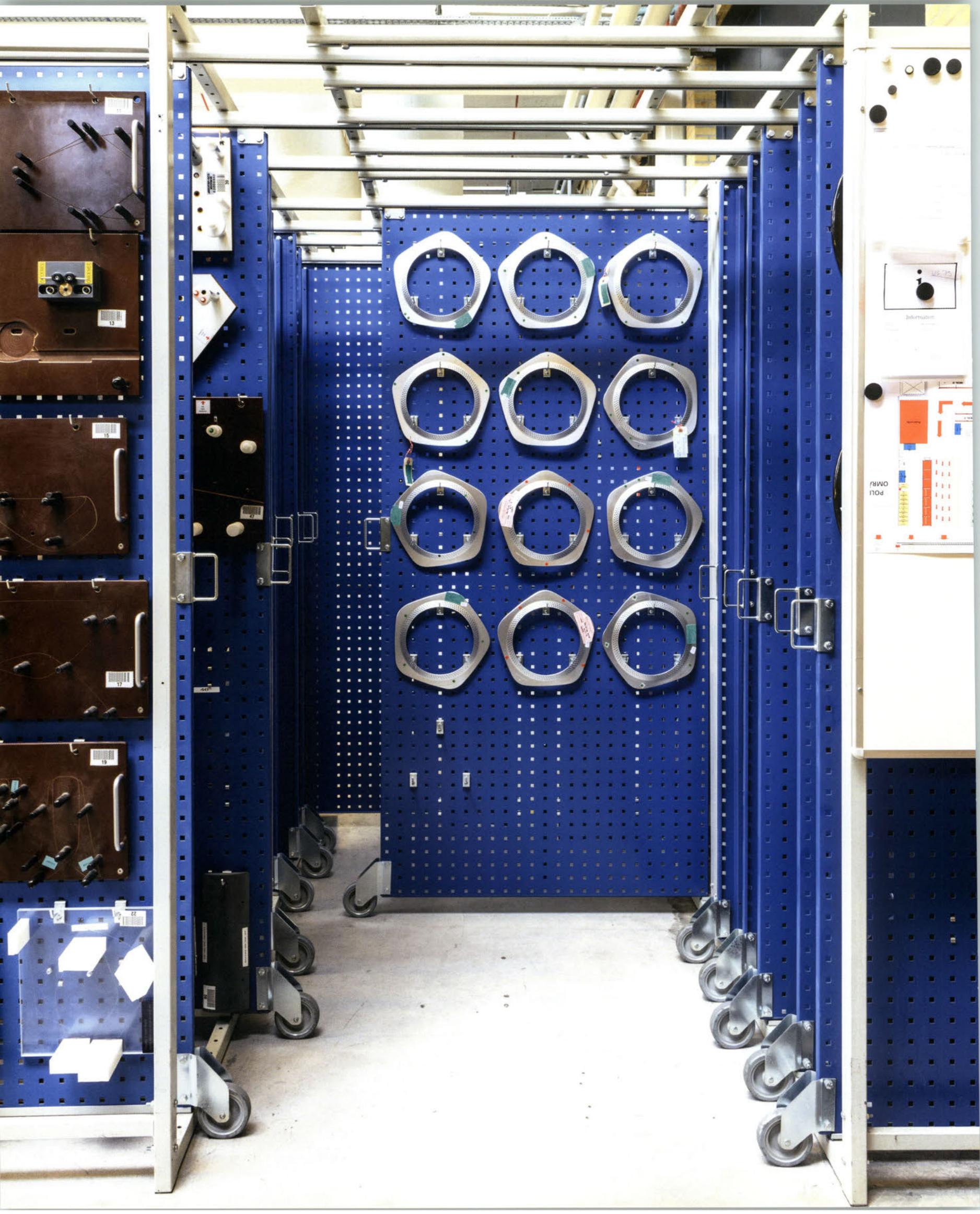
A robot processing BeoLab 14
aluminium parts.



Polishing cloth. Polishing is a unique skill in Factory 5, which over the years has been perfected to such an extent that many other manufacturers come to Bang & Olufsen for advice.



Fixtures used in production to hold parts for measuring their geometry with precision.





Yolanda Díez Moral
Technical Project Manager in Factory 5

‘We have a great communication with the design department – the guys who we talk to understand the mechanical limitations that we have to deal with and understand the compromises that have to be made to actually produce something, but they are also good at challenging us and saying, “no, this is not acceptable, try it again”. Sometimes it is very difficult to understand how some things are so important, minute details that you would not think make any

difference – if this is a little bit thicker here or thinner there – but it is amazing how some people can see those imbalances, and when I see the final product I understand why it was so important to get it just perfect. They want to get the best, so they will always push as hard as they can, but they are also good at realizing when something cannot be done.’



Finn Nørgaard Klint
Polishing specialist

Polishing specialist Finn Nørgaard Klint and his polishing machine. 'He knows everything about polishing, and he can also programme the robots to do exactly what he does. He is essential to Bang & Olufsen,' says his colleague, technology specialist Ib Kongstad.



SPECIAL CLEANER

3065 Boro 6
Special Cleaner (B&O Clean)
Special Cleaner (B&O Clean)
Special Cleaner (B&O Clean)
Special Cleaner (B&O Clean)

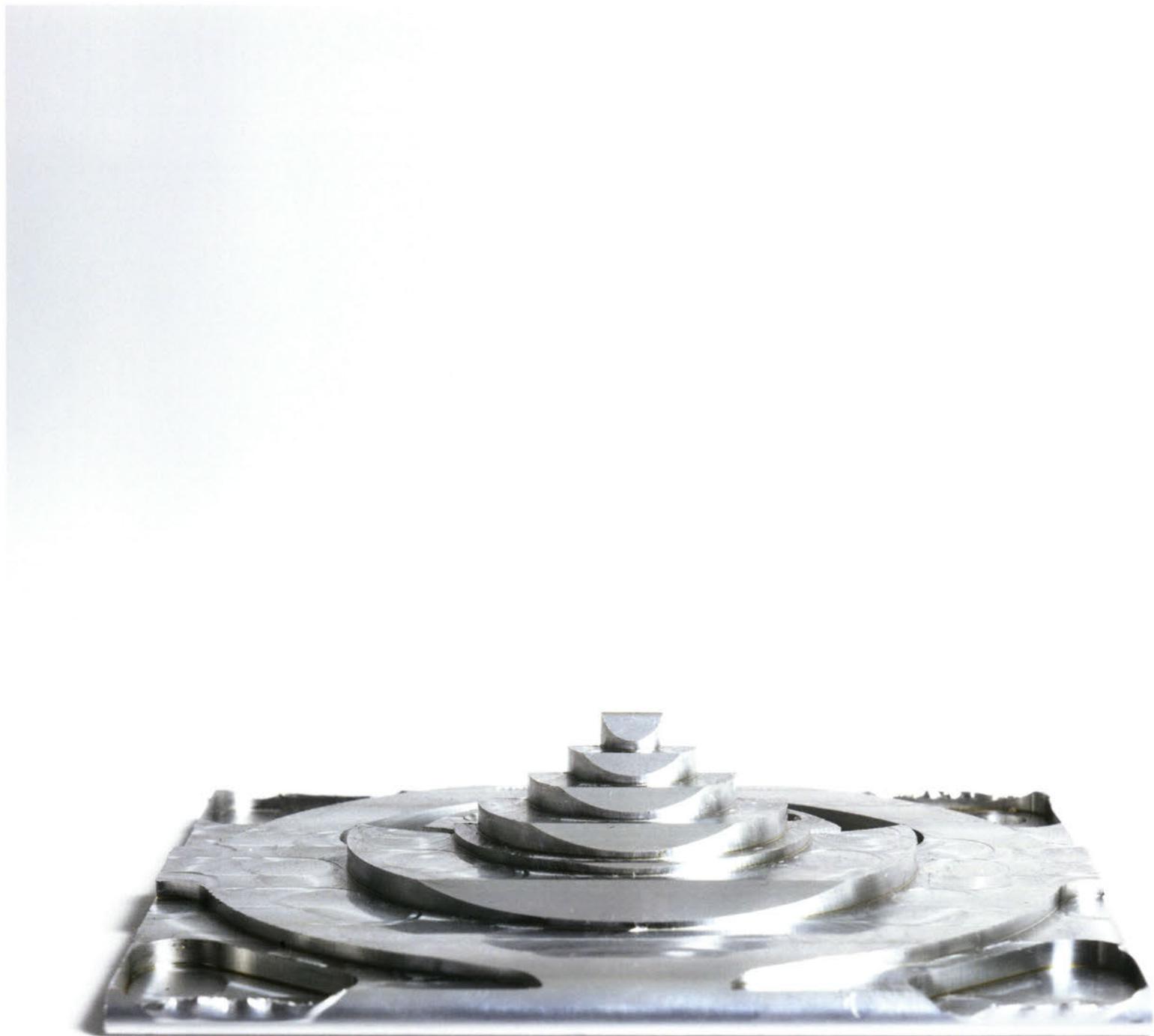
SPECIAL-BUTIK
SPRAYE
624310





Visual quality inspection of parts in both artificial and natural light.

'Quality control is extremely high here,' says Yolanda Díez Moral, Technical Project Manager in Factory 5. 'Our checkers look at every piece in extreme detail under different types of light, and they detect things that people normally can't see. When we start a new project, we usually set a tolerance for imperfections – after a while of producing the BeoRemote One, for example, we had to change the tolerance because we weren't getting any returns and we were throwing away so many pieces, pieces that even our supervisors could not detect problems with. So it is always a balance. Also, the machine operators really take responsibility for and are proud of the parts that they make. Most of them have been here for a long time and come with ideas for the products, asking "Why is it like that?" and so on. They want to see and understand the products and find out what is important. That feedback from the operators, who in most other places would just do their job and nothing more, is fantastic.'





Previous pages

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Before: Raw unmilled part of acoustic lens for BeoLab 18.

155

After: Milled top part of acoustic lens for BeoLab 18, anodized in rose-gold colouring.

The Czech Factory

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'The Czech factory is becoming more and more important for Bang & Olufsen,' says Pavel Merhout, the man in charge there. 'In 2005 we slowly started to transfer some of the production from Denmark, and by 2008 there were about 200 people working here. In 2012 we decided to move more of the production to the Czech Republic, so now there are around 600 employees at the factory.'

'Bang & Olufsen is quite unusual for this area, it is what we call "high mix low volume". That means there is a wide portfolio of products, but the volume of production on each of those is quite low. Here we are very flexible, and we try to produce products that already have customers rather than building stock. In our quiet months we produce about one third of the amount we do during the busy period, so we are very focused on being flexible and maintaining high-quality standards at the same time.'

'This factory is very different from the other factories in the area, because we have the same culture as Struer. We have a very informal, very flat structure, and this can be hard for newcomers to understand: that they can speak up at any time, use their initiative and take responsibility. We are like a small Danish island in the Czech Republic.'



Pavel Merhout
Responsible for the Czech factory

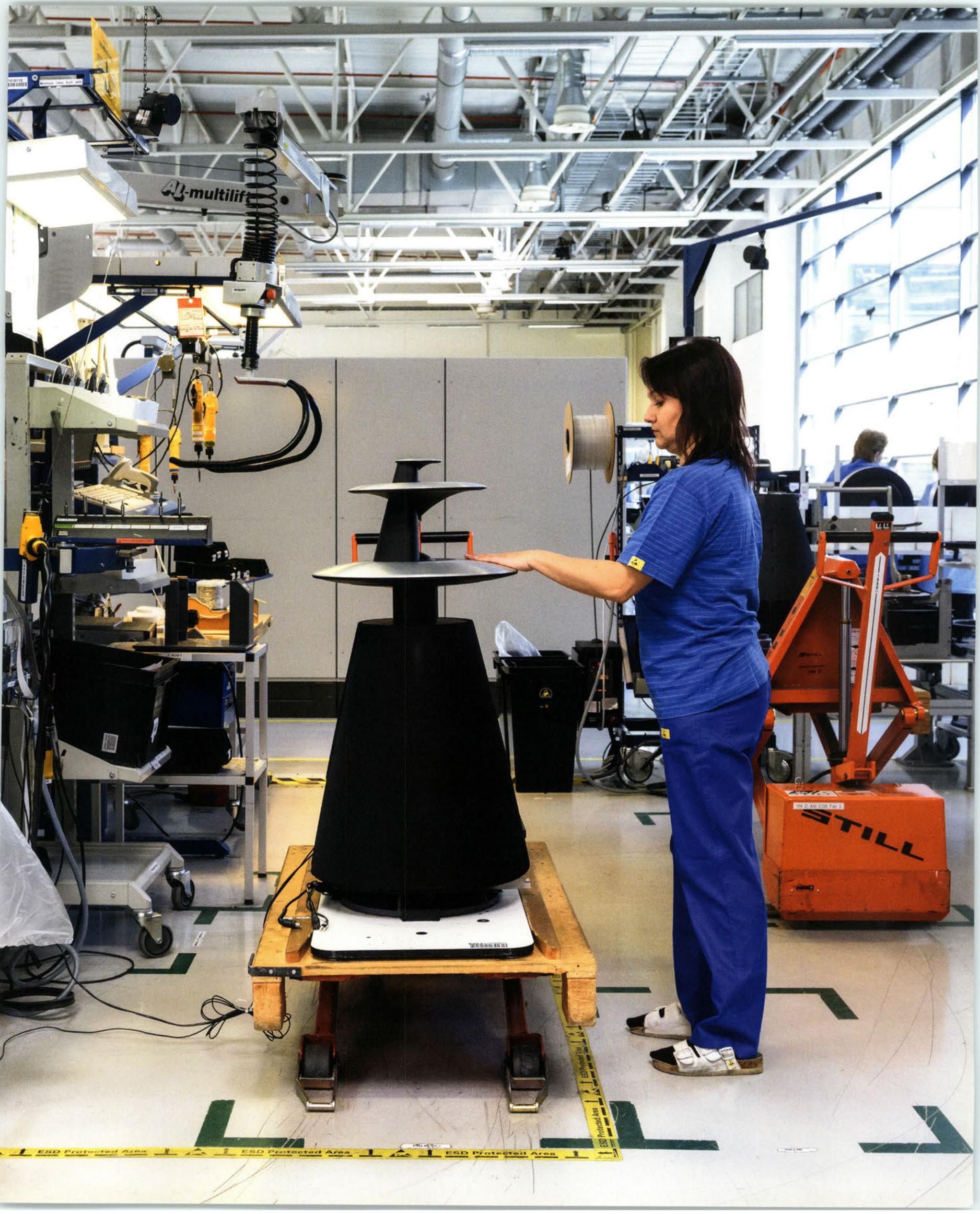
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Pavel joined Bang & Olufsen in 2005. 'I worked for Phillips in a factory nearby, and we produced picture tubes for TVs. I came to learn about Bang & Olufsen because we produced the best picture tubes for them – I didn't know the brand before, they did not have a big presence in the Czech Republic. I decided I would like to work for them, and when I found out that they wanted to open a factory in this area I immediately sent an email to Struer telling them I wanted to join them.'



BeoPlay A9 production.

Assembly of BeoLab 5.



AL-multilift

STILL

ESD Protected Area



Production line at the assembly plant in the Czech Republic.



Assembly line of BeoLab 19.

The factory floor at the Czech factory (overleaf).









Television Production in the Czech Republic

—

'We colour-calibrate our TVs in the factory, which is quite unusual in this industry,' says Ben Verbraak, a senior manager in the R&D department in Struer. 'It takes a while to colour-calibrate a TV, it has to warm up for at least half an hour and then the test takes some time. Some of our competitors are churning out TVs at such a high volume that it costs too much to spend time calibrating them. But with our production line we can fit that in, so that every TV comes out looking exactly the way we want it.'



A worker listens for mechanical noise being made by BeoVision Avant sound system unfolding. Every television set is checked like this, as only the human ear can decide if it sounds just right.

Precious anti-reflection coated front glass for BeoVision Avant 55.

The BeoVision Avant 55 production line (overleaf).









Eleven Designs
that Shaped B&O

Introduction

Beogram 4000

Beosystem 5000

Beosystem 2500

BeoSound 9000

BeoCom 6000

BeoPlay A9

BeoLab 8000 and BeoLab 18

BeoPlay A2

BeoRemote One

BeoVision Avant

BeoLab 90



'Bang & Olufsen will never be a brand whose products are disposed of after a short period of time: we believe that people are still interested in holding on to the beautiful products they buy from us, knowing that the technology behind them is one hundred per cent up to date.'

Tue Mantoni

CEO of Bang & Olufsen since 2011

Miniature model for BeoLab 90.
This design was selected out of many as the starting point for the BeoLab 90.



SPINDLE LOCK RELEASE

TONEARM FORCE ADJUSTMENT

33

BECKGRAM 4002

45

START <<

<

V A

>

>> STOP

Year	1972
Designer	Jacob Jensen
Product	Gramophone

Beogram 4000

Beogram 4000 is considered to be one of Jacob Jensen's most fundamental designs and is a fine example of his purist approach. It is one of the most-awarded industrial designs in the world and an example of both technical and aesthetic breakthroughs in one product. The concept was to create a vibration- and dance-proof, easy-to-use gramophone with 'sound so good that advanced listeners can hear in which concert hall the recording was made'.

The approach was to completely forget the way that gramophones had previously been built, and concentrate on how to play back a record in the best and most simple way. As Jacob said at the time, 'no one should care about how bridges are built – the point is to find out how to get to the other side in the best possible way'.

Beogram 4000 was intelligent and fully automatic, and featured two very special arms. The tone arm with the pickup was controlled by a photocell on the other, smaller arm. The photocell read the turntable to register if it had a record on it and which size. The speed of the turntable was then automatically adjusted and the pickup lowered in the right place. The two arms moved in a straight line at a tangent to the centre of the record, allowing the pickup to have the same angle to the groove as the cutter had during recording, giving perfect reproduction of sound and minimal wear on the record.

Jacob came up with the idea for the 'slave' arm to add power to the visual expression. He compared it to a car – having two exhaust pipes rather than a single one signals power and competence. A small Bang & Olufsen logo was added at the end of the 'slave' arm that lit up when the gramophone was activated, so there was visual feedback that could be seen from a distance.

The turntable itself was made of a heavy zinc chassis suspended on leaf springs in a system that isolated the sensitive parts of the gramophone from external vibrations, making it dance-proof. You could jump around and it would continue to play unaffected.



OPEN BANG & OLUFSEN BEOGRAM 5000

PLAY

OPEN BANG & OLUFSEN BEOGRAM 5000

PLAY

EJECT BANG & OLUFSEN BEOGRAM CD 50

OPEN

PLAY

MUTE PLAY

BANG & OLUFSEN

Year	1984
Designer	Jacob Jensen
Product	Modular Hi-Fi System

Beosystem 5000

In the 1970s and '80s, Japanese companies were flooding the market with high-tech, stacked hi-fi systems, while Bang & Olufsen made flat, minimal systems. The board of Bang & Olufsen asked Jacob Jensen to design a hi-fi like the Japanese, despite Jacob's insistence that the Japanese should be copying Bang & Olufsen rather than the other way round. Jacob designed a system that they were happy with, and then in a characteristic move jumped all over his prototype models, smashing them to pieces in protest.

Despite his reluctance, however, Jacob designed a modular system that could be either stacked or laid side by side, depending on the desire of the user: the Beosystem 5000. It was a typical Jacob Jensen solution – a rebellion against the complex sound systems of the time, with their buttons and knobs showing off technology rather than user-friendliness.

Jacob designed the units as industrial modules, where repetition became a reminder of eternity – cool rational expressions in industrial materials such as aluminium, steel and glass. The modules were regular, systematic arrangements of rectangular shapes with no trace of decoration or old-fashioned craftsmanship.

All operation was moved away from the actual units and into an operation panel called the Master Control Panel, a glorified remote control that became the visible product standing on the coffee table. The individual units could be moved to the back of the room or even put away in a cupboard, and when operated only the relevant functions lit up, in a black display reminiscent of lightning in city windows at night. All programming and secondary operation was hidden under a lid on the Master Control Panel, keeping the design as simple and uncluttered as possible.



Year	1991
Designer	David Lewis
Product	All-in-One Compact Sound System

Wood and cardboard
design model,
Beosystem 2500.

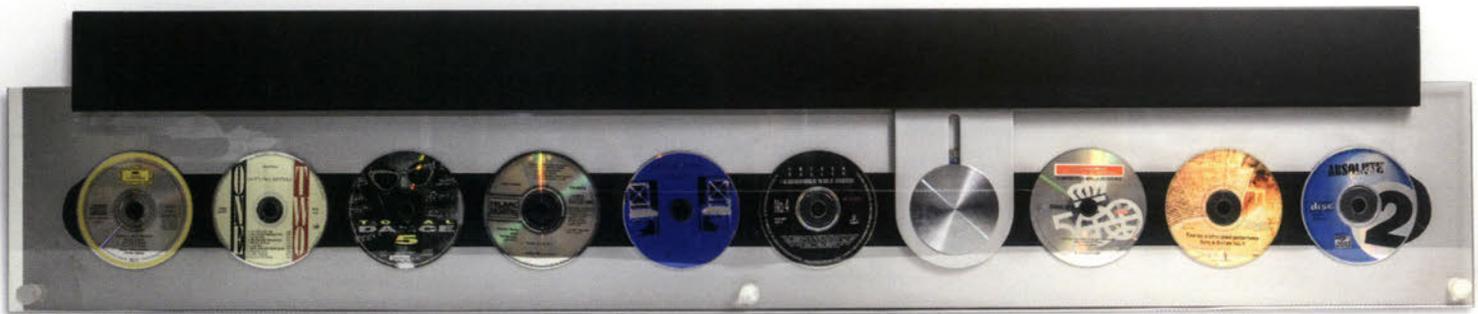
Final product,
Beosystem 2500.

Beosystem 2500

David Lewis was the architect of 1991's Beosystem 2500, which evolved into Beosound Overture and Beosound 3200. Once again, Bang & Olufsen distanced itself from what had become the industry standard of flat and anonymous CD players, by launching an upright 'all-in-one' system. The CD player was centrally located behind elegant glass doors that glided open when a hand approached them and allowed the new laser tone arm to be seen scanning the CD.

David Lewis cited the 'open sesame' episode from the story 'Ali Baba and the Forty Thieves' as the original inspiration for Beosystem 2500. The glass doors allowed access to the treasure inside, and as the user approached the doors they would magically open. David searched for a long time for a way to do this, until one day he stopped outside the local supermarket and the doors opened up to him. This is what he had been looking for, and an infrared system was used to detect the hand approaching. Of course, a simple on/off button would have worked, but where would the fun have been in that? Beosystem 2500 is a great example of Bang & Olufsen going to great lengths to give the user a magical experience when interacting with its products.

The magic doors were not the only challenge for the engineers: a complete redesign of the CD suspension system needed to be made in order to make the CD mechanism stand up vertically. Beosystem 2500 also featured the first active speakers made by Bang & Olufsen, with a dedicated amplifier for each driver placed inside the cabinet, to achieve a sound quality usually associated with large systems in a compact design.



Year	1996
Designer	David Lewis
Product	CD Changer

BeoSound 9000

BeoSound 9000 started with the idea of revisiting the constantly playing automatic record changer, but with CDs instead of records; a library machine to hold an entire music collection. Unfortunately, early CDs did not contain electronic information about their contents, so it was not possible to make a catalogue of what was inside and give the user an option to choose what he or she wanted to hear. The idea was abandoned.

Two years later, David Lewis passed a record store in London where CDs were placed on the shelves next to one another, and looking through the window he had the basic design idea for BeoSound 9000. The CDs were placed next to one another on a long surface protected with a glass lid, and the first design model for BeoSound 9000 was made. 'When I heard B&O were going to make a six-CD changer, I thought, "Oh no, that sounds awful, they are going to do what everybody else does,"' says Torsten Valeur. 'I just thought about those ugly CD changers that were on the market at the time. And then I went for a meeting at Struer and saw the prototype of BeoSound 9000, and I was just blown away. It was amazing.'

The first model was made with ten CDs, and everybody loved the design. Another was made with only six CDs and a choice was made between them. As the ten-CD version was limited by only one placement option, the six-CD version was selected as it gave the user as many as eight different placement options to choose from. The display and button area was a loose module that could be taken out and turned through 180 degrees, so that no matter how you positioned BeoSound 9000 it was possible to read the keys and the display. Technically, BeoSound 9000 included many breakthrough mechanical solutions – for example the totally controlled and silently moving CD sledge going from 1 to 100 km/h in just 5.7 seconds, thereby letting you listen to individual tracks from different CDs as though you were listening to one CD only; the softly opening glass lid; the precise positioning of the CD, so its cover was always readable. The mechanical team was truly challenged in this product – and delivered to the designer's goal.

Final product,
BeoSound 9000.

Early 1:1 model of
BeoSound 9000 design
with ten-CD solution.



BANG & OLUFSEN

Year	1998
Designer	Henrik Sørig Thomsen
Product	Cordless Telephone

BeoCom 6000

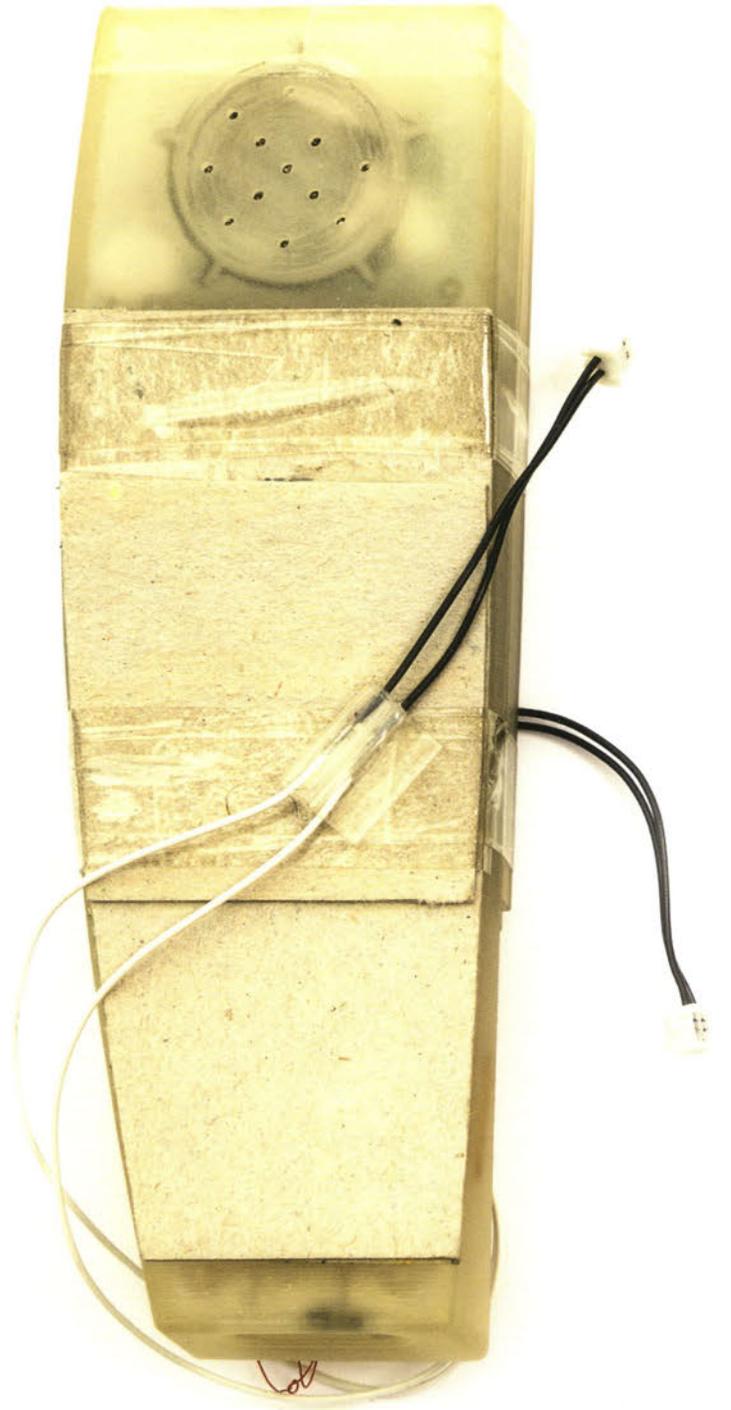
BeoCom 6000 was a direct challenge to the traditional idea of how a cordless telephone should look and function. BeoCom 6000 used an intuitive navigation wheel – said to be the inspiration for the iPod wheel – to give speedy access to various lists (such as stored numbers, recently dialled numbers and caller display lists). The slightly curved ergonomics lets you hold BeoCom 6000 firmly and comfortably in your hand, allowing you to operate the keypad and the wheel using the thumb.

Bang & Olufsen had been using wheel technology for decades, but with BeoCom 6000 it introduced a unique approach to operating a telephone. The wheel set new standards in user comfort and moved the focus away from the traditional centre of a telephone, the numbered keypad.

The clear and logical layout of the handset ensured an accelerated and natural operation. Audible and tangible feedback was provided by employing electronic click points in the wheel and mechanical click points on the keys. The engineers came up with the idea of making the click sound come from the loudspeaker.

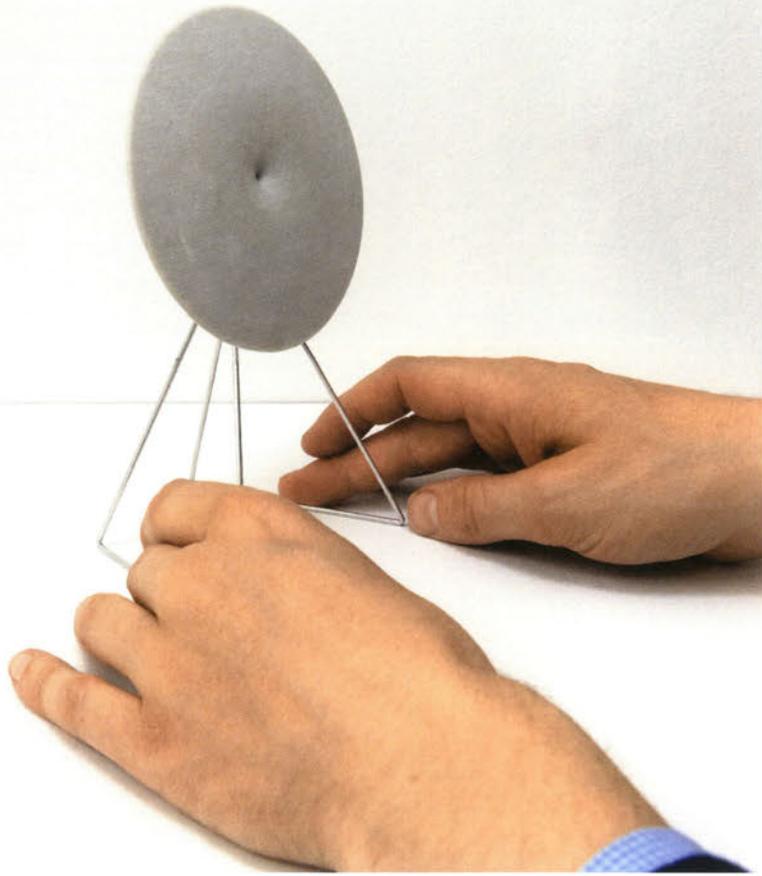
Inspired by the wheel of an old Dymo label maker, the wheel and audio click was not patented by Bang & Olufsen, but it has inspired other great brands since then to use a wheel as a central operational feature.

BeoCom 6000 was made using moulded thermoplastic, which has many benefits. It is strong, lightweight and durable, so a large amount of material was not needed to create a rugged construction. Furthermore, the textured surface does not show fingerprints and thus maintains a constant clean look. The brushed anodized aluminium of the base unit reflects the ambient light and colours of its surroundings. Brushing produces small nuances in the surface, which cause the reflections to vary depending on the viewing angle.



Acoustic models of
BeoCom 6000 cordless
telephone.





Year	2012
Designer	Øivind Slaatto
Product	One-point wireless music system that streams via AirPlay, DNLA and Bluetooth

Miniature model of BeoPlay A9.

Final product, BeoPlay A9.

BeoPlay A9

'The brief for A9 was quite open,' says designer Øivind Slaatto. 'I got the units that had to be in there, and specifications for the volume of air that needed to be in there to make a proper bass. It had to be one unit, and it was aimed at a younger audience. I think that was pretty much it. I gave them three proposals that went in different directions, one radical one, and two more conventional. The radical one became the A9. That was my favourite one, and luckily it was theirs too. I chose a very simple shape, the circle, because I tried to make a picture of sound. The A9 is about sound, and sound travels in circles. The circle also has no gravity, and neither does sound. Almost all other objects have this gravity, a 90-degree angle that places them on the floor or makes them stand somehow. The round thing was very clear to me: CDs are round, LPs are round, drums are round ... but for some reason no one has ever done a round speaker before. Speakers are always boxes, but it seems so obvious to make it round when you think about it.

'I think good design is about using as few elements as possible as much as possible. So the circle is important in the A9, we use it to turn the volume up and down by sliding your hand on the circle. (The sound is increased in four strokes to the right and reduced in a single stroke to the left. By resting the hand in the volume control area MUTE is activated.)

'I also think of the A9 as like a human body, with hard back to the wall and a soft tummy facing outwards.'

Both the fabric cover and the legs of the A9 can be changed to give it a different look. It can also be placed on the floor or hung on the wall.



Year	1992 (BeoLab 8000) 2013 (BeoLab 18)
Designer	David Lewis (BeoLab 8000) Torsten Valeur (BeoLab 18)
Product	Speakers

BeoLab 8000 and BeoLab 18

BeoLab 8000 has been one of the most successful speakers that Bang & Olufsen has ever produced.

Inspired by an organ pipe found at a local flea market, the design for BeoLab 8000 was driven by two things: the desire to put a big driver into a small tube and camouflage it, and the desire to make it connect elegantly to the ground. Nicknamed 'Gamba' after the organ pipe it took its inspiration from, the speaker was one of the first used in connection with a home cinema solution.

The very first BeoLab 8000 looked just like the speaker that ended up in the stores at launch – except that it was only 40 cm tall and made of brass. David Lewis had a weakness for brass – the warmth and character appealed to him. A choice had to be made between brass or aluminium for the body; so one version was made in aluminium and one in brass. The decision was easy and the aluminium version was chosen, as everybody agreed it adapted to the colours of the room it was in and fitted in better.

Summing up the design philosophy of Bang & Olufsen, David said: 'Our BeoLab range of speakers is a revolt against indifference and heavy wooden boxes humming away in the corners of our homes, dictating the furnishings and the way we live. Who says a loudspeaker should be hidden away in the dark?'

BeoLab 8000, 1992.



BeoLab 18, 2013.

BeoLab 18 is an update of BeoLab 8000, and was B&O's first wireless speaker.

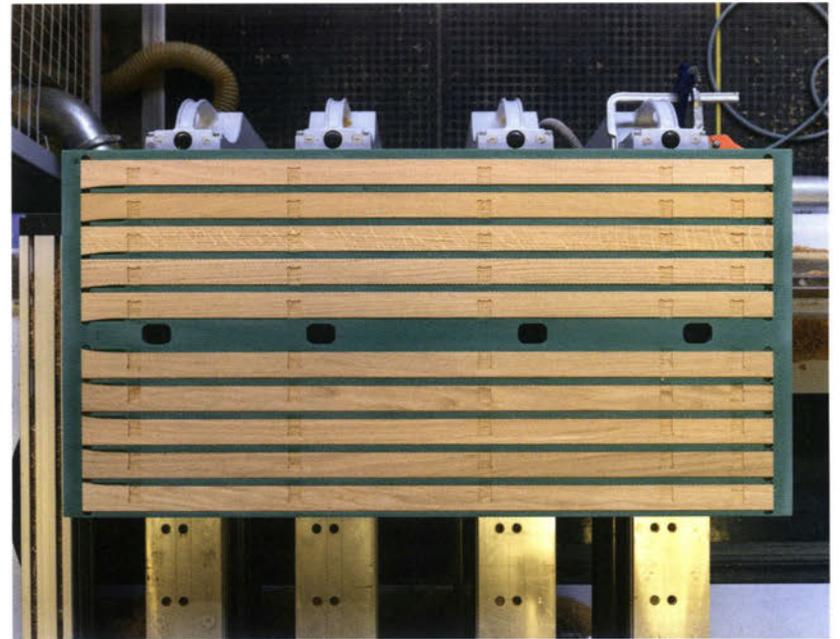
Designer Torsten Valeur was not very happy about getting the job of designing the new speaker. 'The brief for BeoLab 18 was quite an irritating one in a way,' he says. 'We had BeoLab 8000, this incredibly well-selling product that has been key to B&O's survival for a number of years: I heard its return on investment is one of the biggest for any product ever made. But it was getting to the end of its life and B&O wanted to update it. I didn't want to do that, I wanted to make a new speaker, it felt so wrong to try and redesign something David Lewis had done. David had just passed away, and I really didn't want to be the guy who was messing everything up. But in the end I had to say yes.

'So I looked at how to redo the inventions of the 8000. The new acoustic lens looked natural on top, and freed up space inside the tube. We put the wood lamellas on to give the impression of waves of sound coming out from the tube, and I like the way that the vertical lines make the object feel lighter. I also love unpainted wood, and I think the warm material meeting the wood looks lovely. We showed it to them, and I thought they would say it was too expensive or too difficult, but they loved it.

'Now I'm really glad I did it, and I'm glad I was pushed to do it. I think it has its own uniqueness, but still pays homage to the original.'

First miniature model of BeoLab 8000 in brass, designed by David Lewis.

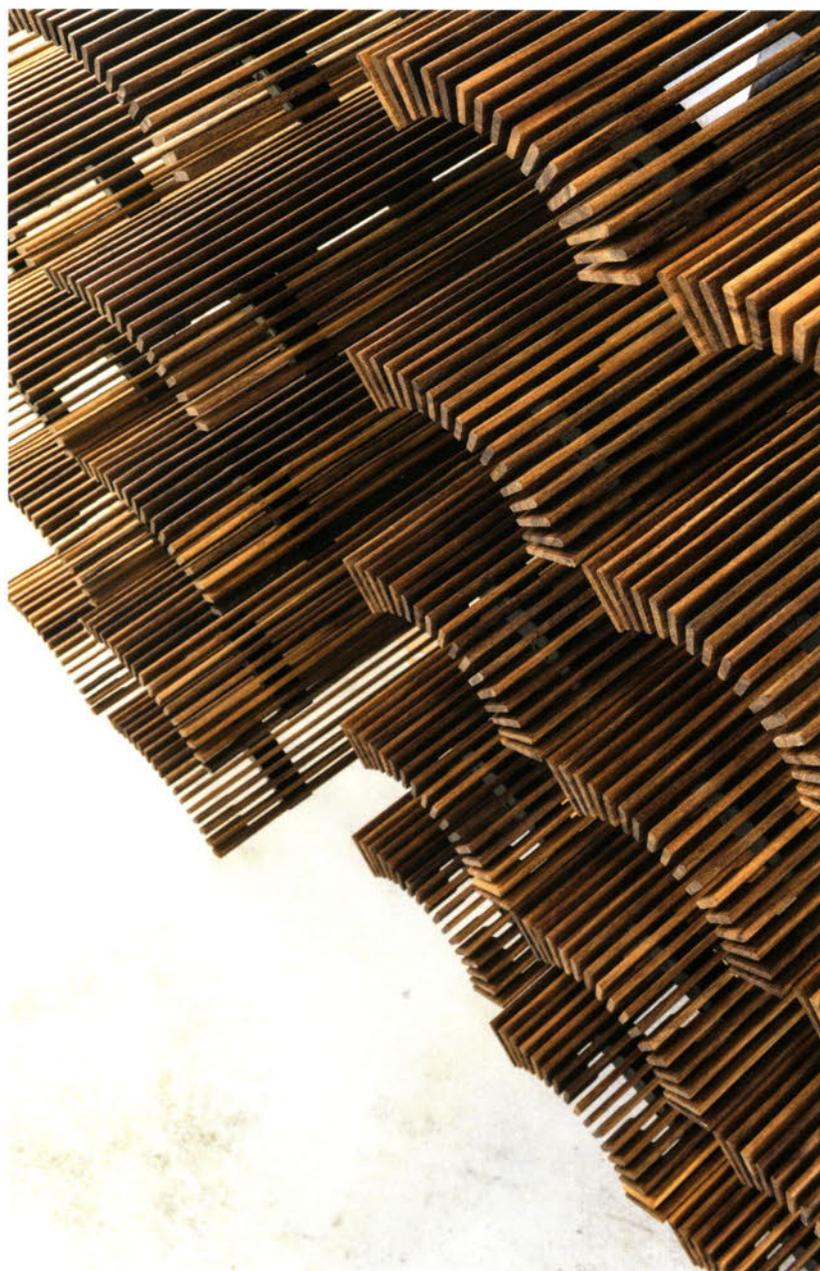








DE ERSTE WERKSTADT
VON DER WELT DER WÄRMEN
UND DER KÜHLEN
VON DER WELT DER WÄRMEN
UND DER KÜHLEN



Production of lamellas for BeoLab 18 at Bjerrum Nielsen, supplier to Bang & Olufsen for more than fifty years in Bramming, West Jutland (this spread and previous spread)

Ultra-thin precision work lies behind the wooden front of BeoLab 18. 'It is a design that goes all the way to the limit of what the material can do physically,' says John Bjerrum Nielsen of the unique lamellas that create the front panel. 'Bang & Olufsen approached the Danish Technological Institute to calculate if the construction was possible and then we were hired to realize it. We are talking about lamellas so thin that it is almost like making matches. You have to have a perfect piece of wood. A piece of wood with knots or growth rings will have to be discarded. It is important to use only flawless material of first class, and you know how hard that is to come by in nature.'



Year	2014
Designer	Cecilie Manz
Product	Ultra-Portable Bluetooth Speaker

BeoPlay A2

'The B&O PLAY brand was formed to give more people access to the design and sound qualities of the Bang & Olufsen brand,' says CEO Tue Manton. The goal with BeoPlay A2 was to create a portable speaker that could be taken anywhere and was optimized for social listening. Therefore, it was important that the sound was great wherever the speaker was placed and wherever people were listening from. The width of BeoPlay A2 is approximately 45 mm – a size that ensures stability so that the speaker will not fall over easily, but also a size that keeps it narrow enough to fit most bags. The overall size of the speaker reflects the amount of volume needed to fill an outside picnic area with amazing sound.

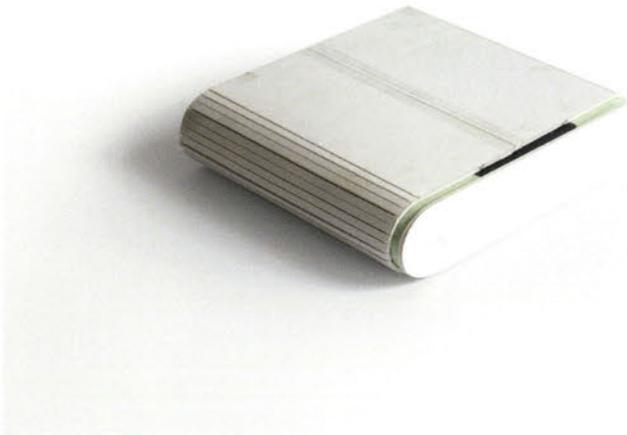
Both sides have the same colour, as it was important for designer Cecilie Manz to emphasize the flexibility of the speaker: the same sound is experienced no matter how the speaker and listeners are placed. The leather strap can be used to hang the A2 from a hook, a parasol or whatever is convenient.

Cecilie Manz says, 'When I was working on Beolit 12 [Cecilie's first design for Bang & Olufsen], I was already thinking it could be cool to do a little sister for it. Then the brief came from B&O, and it was more or less the same idea, so we were on the same page from day one. A lot of the inspiration comes from the brief, the restrictions about the size of the tweeters and the volume of air that needs to be in it and so on – but restrictions can be very nice because they get you started. We found the final shape very quickly, and then it was a matter of detailing – we were sure we would continue with the leather strap, and we wanted to keep the aluminium somewhere so it has the aluminium band around it.

'It was very important to work closely with the engineers. If we got an idea for a new detail, we needed to know very quickly if we were harming the sound or the structure. The guys I work with now are very fast, and that is important in this day and age – things move so quickly, you can't spend the same time developing products as you could twenty years ago.'

Two speaker drivers are placed on each side – a ¾-inch tweeter and a 3-inch full-range driver – which ensures a full two-channel experience from both sides of the BeoPlay A2 and a very balanced sound when the speaker is placed on its edge. The battery gives up to twenty-four hours' playback time.

First BeoPlay A2 design model, made by cutting the top and bottom off a Beolit 12 and gluing them together.



BeoPlay A2 design models made of cardboard, plastic and metal. The bottom right image shows the final product.

Potential materials for the BeoPlay A2.



Year	2014
Designer	Torsten Valeur
Product	Remote Control

'The Bang & Olufsen remote is a physical manifestation of a core Bang & Olufsen value – we clean up the mess, remove complexity and give our customers a feeling of luxurious simplicity.'

–
Tue Manton, CEO

BeoRemote One

BeoRemote One is designed as a one-hand-operated remote control with exceptional ergonomics providing easy and logical access to all sources in a Bang & Olufsen system. A great deal of thought goes into the keypad layout and functionality to make the operation of all Bang & Olufsen products as simple and intuitive as possible. It should be possible to recognize and immediately use a Bang & Olufsen remote regardless of the product it works with.

New features are based on existing well-known principles, thereby taking users on an evolutionary journey rather than teaching people something new every time.

BeoRemote One is made of one solid piece of extruded aluminium that is slightly angled for comfortable handling with one hand, while buttons are operated with the thumb. The solid aluminium is milled to make room for the electronics and batteries. This is done to ensure stability and robustness in the housing and gives a design where there are no visible screws or joints. A bonded OLED (organic light-emitting diode) display gives a clear visual performance. The remote is scratch-resistant and on the rear is a window through which the two infrared transmitters provide exceptional range and convenience when operating the system.

'The Beo4 remote control was due for an upgrade, but B&O wanted to keep the layout and features as similar as possible to the old remote. So it was a matter of taking that concept and refining it,' explains designer Torsten Valeur. 'The old remote was surprisingly slim, so let's make it even more surprisingly slim. The old remote felt really solid, so let's make the new one surprisingly solid. Let's make it from one solid block of aluminium. When you design a remote

Design studies for BeoRemote One.



for B&O, you need to be ahead of the game, you need to make sure that what you design will be relevant for the next twenty years. So you need to look at what the trends are today, and improve on them, change them radically enough to stay relevant in the future.'

To get the exceptionally clean surface, a high-quality aluminium alloy is used. The aluminium housing is first milled, then polished and anodized for strength and durability. To achieve a robust construction, the keypad is an entity of its own, made with plastic keys placed on a rubber membrane. The combination of a discreet click sound and tactile feedback gives a perfect sensory experience when the buttons are operated.

Yolanda Díez Moral, Technical Project Manager in Aluminium Production, explains how the remote is produced: 'Before we decided to produce the remote here in Struer, we asked other suppliers to give a quote for the production. No one even gave a price, because they all said it wasn't possible to make, it was too difficult, they just gave up. That happens to us quite a lot compared to other companies. We always complicate our own lives, and the designers help us with that too. But a remote is very important to make absolutely perfect, as it will be such a big part of our customers' daily lives – they will hold it in their hands every day, it is probably the thing that they will have most physical contact with.

'The hardest part about producing this remote has been the milling and the polishing. Almost every surface has to be milled, and drilling the holes for the battery compartment was a very difficult process. The drills needed to be very long and very stable, and the aluminium is only 0.5 mm thick in some places, so there is no room for error. Then we have to find a way to take the metal chips out of the cavity without scratching anything. Normally we can also polish the pieces very hard so that if there is an imperfection from the milling we could polish it out – but this time we have to use very low pressure because the parts are so thin and we can't risk damaging them. It took us almost a year to get the milling and polishing aligned.

'We also had to make sure that the plastic and electronics part, made in Austria, fitted perfectly with the aluminium part, so that it feels like one piece. When the customer changes the batteries, the part needs to slide apart perfectly, and there are suddenly interior surfaces that would not normally be visible that can now be seen, so we need to make sure those surfaces look good.

'This remote was much more popular than we expected it to be – at first it was only possible to get one with a BeoVision Avant, but now we sell them separately and we can't make enough.'







Polishing robot with BeoRemote One in Factory 5, Struer. These extremely high-tech machines do not stay shiny for long owing to the dust produced in the polishing process, but the object that comes out of the other side could not possibly be shinier.

Bending and milling BeoRemote One.



The viewing experience is preceded by the opening of theatre-like electronic curtains that is carefully choreographed with the appearance and unfolding of the speakers below the screen.

Year	2014
Designer	Torsten Valeur
Product	Television

BeoVision Avant

'I started by thinking, "What does a television do for you?"' says designer Torsten Valeur. 'It's a kind of servant. Like a butler. The best butler stands invisible, ready to serve. On your command, he steps forward and performs for you. So we wanted to make a TV that was reduced to as little as possible when it was switched off, and when switched on it steps out and unfolds itself to entertain you. Another inspiration was the way that actors come on to a stage, bow and open their arms, so we designed the speakers to unfold in a similar way, to prepare you for your experience.'

BeoVision Avant turns to where you are, rather than the other way around. When you switch it on, it unfolds and takes you on a carefully choreographed journey ending up in the position that you want it. Even the huge 85-inch version can rotate 90 degrees to suit your seating position in a marvel of strength and engineering. When placed on the stand, it will rotate to display where you want it, while opening its electronic curtains and unfolding the hidden speakers from its bottom. The speaker design includes eight drivers (three tweeters, three mid-range drivers and two woofers) each with their own dedicated amplifiers, and it is possible to connect up to eighteen external speakers of which eight can be wireless, meaning there has never been a TV that has come close to the sound of this one. It takes more than 160 unique mechanical parts to create the unfolding mechanism for the integrated loudspeakers in BeoVision Avant.

The frame of BeoVision Avant is split up into a sandwich-like shape, giving a light and thin appearance. The aluminium front profile is flush with the glass screen and anodized black, so that it practically disappears. The rear part of the profile is made in high-gloss polished aluminium. The rear part of the cabinet is totally clutter-free with no visible screws, and ventilation holes are completely concealed to make sure the TV looks good from every angle.

'We want to give the customer a theatre experience, we want to open the scene for them as we fade the sound in,' explains Ben Verbraak, senior manager in the TV R&D department. 'So there is a total experience with sound and picture and the movement of the swivel stand that are synchronized like fine choreography. It's not just design – it is also to make sure we show the picture when the source is ready so that there are no blinks or bleeps when you turn the TV on. Nothing should happen abruptly with a Bang & Olufsen product, everything should feel natural and fade elegantly in and out when it is turned on or off. The time it takes to open the curtains depends on the screen size, and we try to mimic real curtains with a certain weight to them, so the curtains start slowly and then speed up a little, then slow down again, like they would in real life – we have developed a complicated mathematical formula to work out how the curtains should move depending on screen size.'

'The first curtain we made was actually a mechanical curtain made from steel foil that was drawn in from off the screen, and was featured on the AV 9000 in the early 1990s. Because of the way it was designed, it couldn't be repaired once the TV was put together, so it was tested to an extremely high degree to make sure it didn't break down. It was a real headache to make it work because in those days the TV had a tube that gave off static electricity when it was turned on, so the curtains would stick to the screen, and it took a long time to find out how to stop that. After it was released they decided it was a bit of a risky way to do it, so they came up with a graphical version when digital signal processing came along. But we never had any problems with the AV 9000 because it was tested so thoroughly. It shows the length to which Bang & Olufsen sometimes goes to fulfil an idea.'

Table-stand design model
for BeoVision Avant 55, made
from cardboard and wood.







Year	2015
Designer	Frackenpohl Poulheim
Product	Loudspeaker

BeoLab 90

'We have realized a dream with this speaker,' says Gert Munch, technology specialist in electroacoustics at Bang & Olufsen.

'BeoLab 90 is an extremely ambitious and innovative project. It is a statement for Bang & Olufsen.'

'BeoLab 90 started as a collection of ideas that some of us in the Acoustics Department had been thinking about for a long time – such as controlling directivity and multichannel room compensation. So it was more like a river – a bunch of little streams coming together into one large system,' says Tonmeister Geoff Martin.

BeoLab 90's real innovation lies in the way that it can analyse the room that it is in and perfect the sound for the appropriate situation in that room. Just like with BeoLab 5 before it, microphones analyse the reflections in the room and the right filter for the speaker's position can be applied. BeoLab 90 gives the option of choosing how wide the sound beam from the speaker is: very narrow (45 degrees) for a personal listening experience in the sweet spot; wide (90 degrees) for listening with guests; or 360 degrees for filling the whole room. It is possible to choose the direction of the sound, and a light on top of the speaker indicates the direction the sound is being beamed.

Designers Thorsten Frackenpohl and André Poulheim were inspired by the properties of aluminium as the core raw material, which is both light and solid, to hold all the central elements (the drivers). Around it they created intriguing shapes, inspired by the Olympiastadion in Munich and the Gina BMW concept car, both of which employed fabric as their external 'skin'.

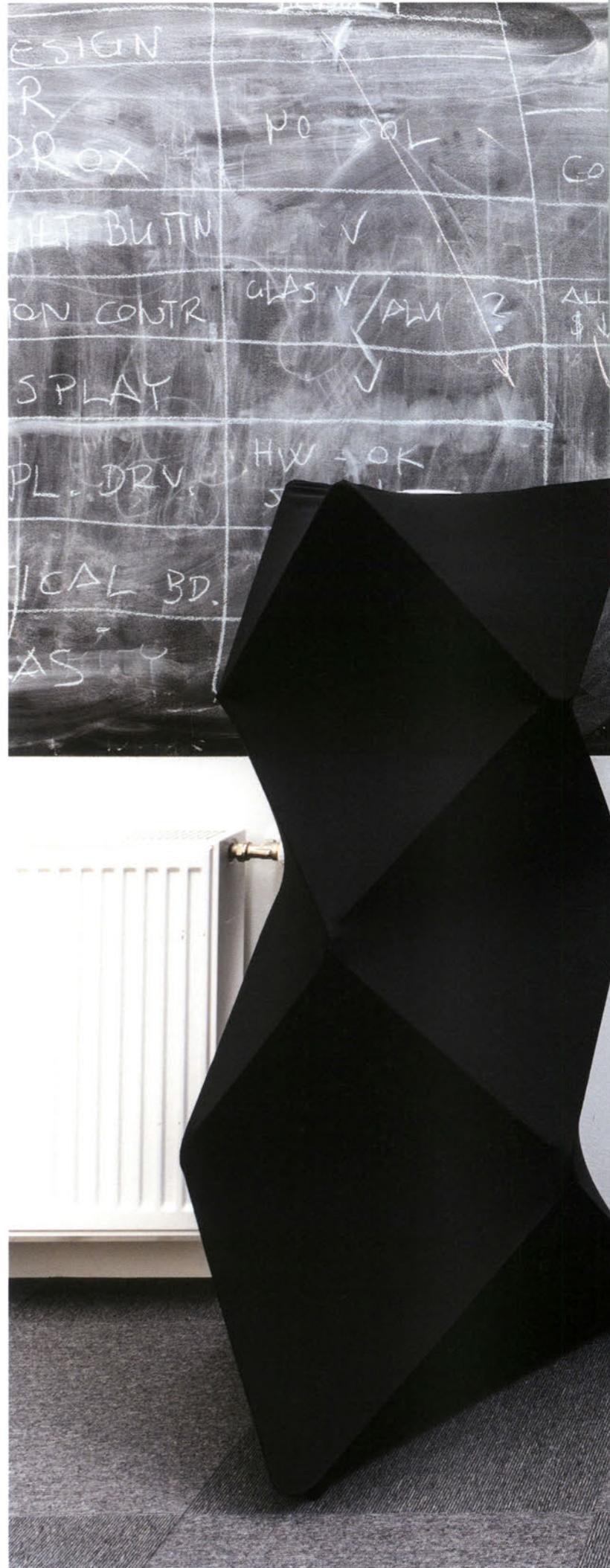
By using fabric stretched out as sails hovering above the driver units, the air can move freely in front of the drivers, creating a speaker with a pure sound performance. The fabric used is extremely

transparent acoustically and visually so you can see the technology behind it, and also gives a shiny surface that emphasizes the speaker's shape. Since the drivers are placed facing all directions, it is important that the speaker does not have a visual front.

The aluminium crowns designed to resemble sound waves divide the large surface up into areas, which hold the driver units. They separate the bass drivers from the tweeters and mid-range drivers, and this gives the design lightness despite the relatively large physical size of the loudspeaker. The lightness is further underlined by using a curved wooden base, inspired by Scandinavian furniture traditions, that lifts up the large structure from the floor and allows it to fit in with the interior design of a home.

Bang & Olufsen CEO Tue Mantonni explains why this new speaker is so important for the company: 'BeoLab 90 is a technology lighthouse – a vision of sound – like nothing else. In the coming years people will experience the innovations of the BeoLab 90 as it drills down into other products, enabling more people to get a piece of this amazing sound technology.'

Early prototypes
of BeoLab 90.



Beolab 3500

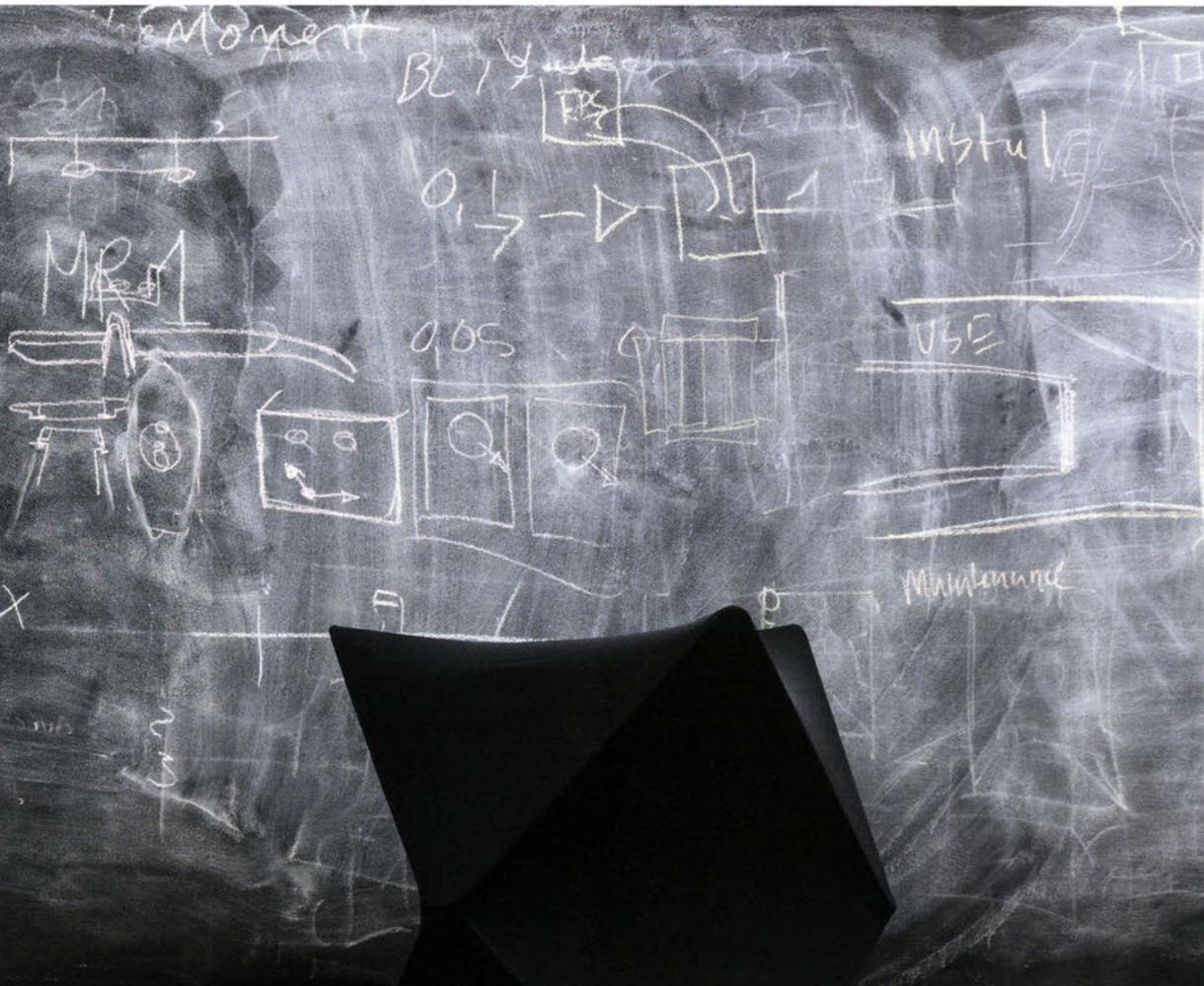
Beolab 350x

Beolab MR35

Beolab L35

Beolab 35L

Beolab 3500-x

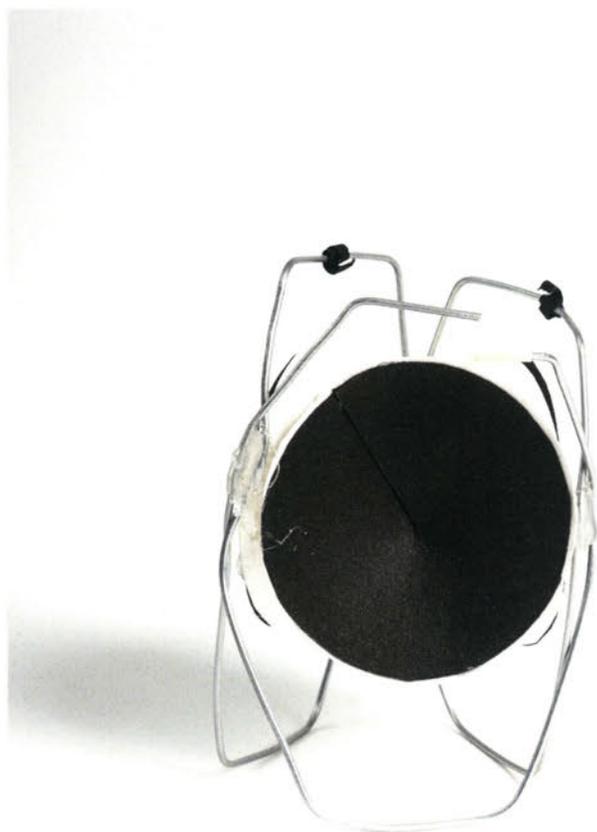


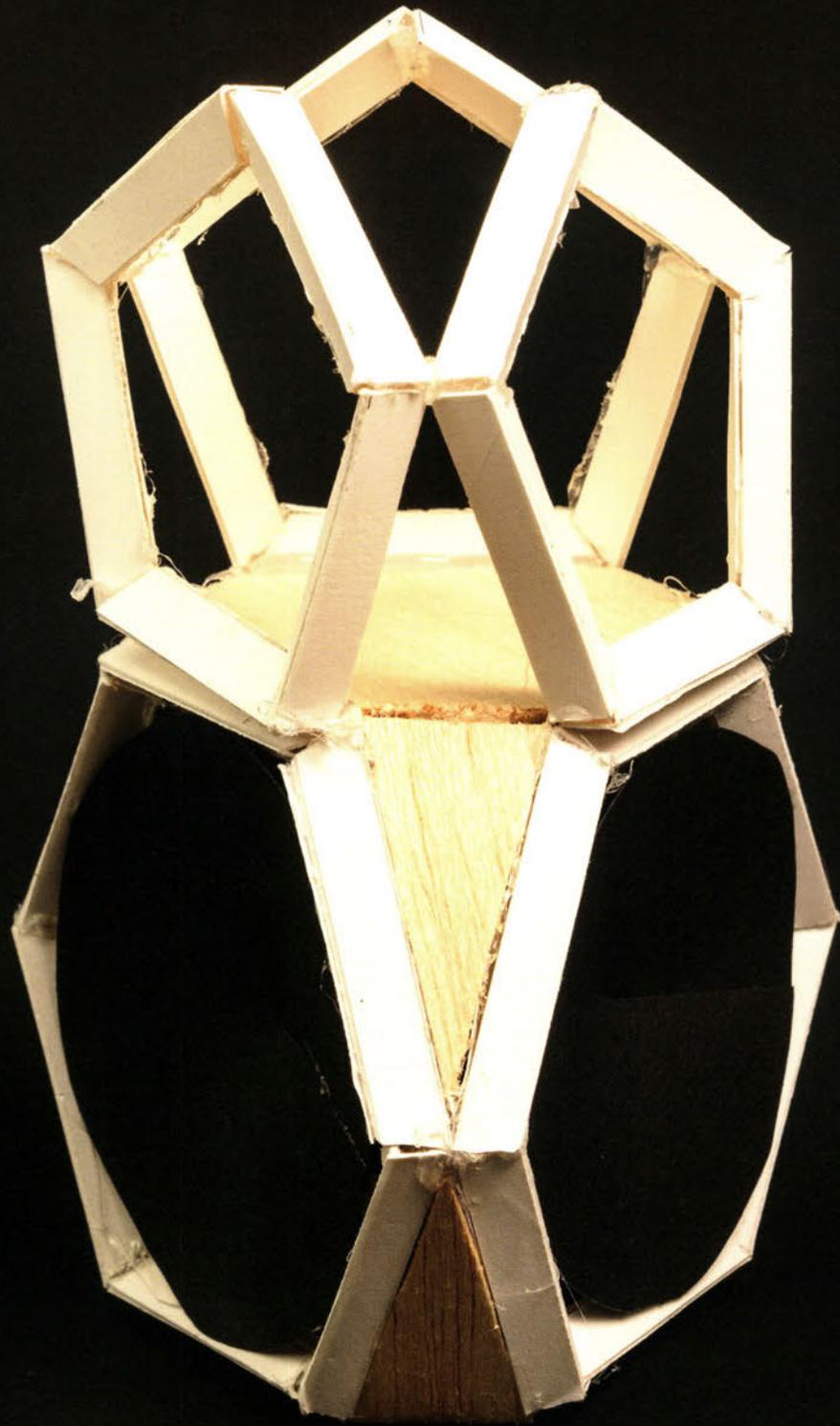


Acoustic models for BeoLab 90.
A great many different models
have to be made to find the right
solution for a particular design.



Miniature design models for BeoLab 90 made from wood, glue, paper, foam and metal. Numerous different designs are tried before a final direction is chosen (see also overleaf).













Designers

- 1934 Henning Dahl Mikkelsen, logo
1937 Holger Krogh, bottle opener

Industrial Designers

- 1959 Ib Fabiansen
Sigvard Bernadotte
Acton Bjørn
1964 Henning Moldenhawer
1967 Jacob Jensen
1970 David Lewis
1985 Steve McGugan
1986 Gideon & Lone Lindinger-Löwy
1992 Martin Iseli
1994 Anders Hermansen
2001 Designit a/s
2004 Henrik Sørig Thomsen
2009 Steffen Schmelling
2012 Øivind Slaatto
Cecilie Manz
Torsten Valeur, David Lewis Designers
(with DL since 1995)
2013 Jakob Wagner
2014 Smedegaard & Weis
Frackenpohl Poulheim

The creative world of the Bang & Olufsen naming strategy: thinking up new naming systems is a time-honoured tradition at Bang & Olufsen. Whoever said making life easier would be fun?

1920s

It started out with The Eliminator, a name that described exactly what the product did technically: it eliminated the use of batteries in the radio.

Products that followed had the same pragmatic approach: the 3-lamper, the 4-lamper and the 5-lamper radios – which indicated how many lamps were inside.

1930s

Hyperbo marked the beginning of a more subtle naming approach, referring to the 'hyper' (super-good) technology, plus 'bo', which means 'living' in Danish (and thus referred to the user living with this new technology), or maybe stood for Bang & Olufsen – no one really knows.

Superbo – Superheterodyne was the construction principle behind the radio and 'bo', again, was B&O or the word for 'living'.

Junior 36 was the small version of a radio and the number refers to the year it was sold – 1936.

Master 37 launched at the World Exhibition in Paris in 1937 and won a gold medal in the Grand Prix d'Art et Technique. The radio was renamed the Grand Prix after that.

Master 39 was a bigger radio than the Junior, dating from 1939.

Master de Luxe was new, bigger, larger and more luxurious than the Master.

The Beolit radio was designed as a result of using Bakelite for the first time. The name derived from a combination of the terms 'B&O' and 'Bakelite', and versions were named according the launch year: Beolit 39, Beolit 40, Beolit 41.

During the war Bakelite was not available and radios were again made out of wood, so the name Beolit was abandoned.

BeoLab 90 in
acoustic test box
(previous spread).

1940s – 1960s

This is where things start to get complicated.

From 1949 to 1964 many product names included a three-digit number as a code. The first digit was the decade: 4 for the 1940s and 5 for the 1950s. This digit is subtracted from the next two digits to give the exact year. For example, if the number was 412, $12 - 4 = 8$, revealing the year to be 1948.

Products called Standard used standard technology. Master was better than Standard and de Luxe suggested upgraded technology.

Simultaneously, emotional names were given to certain products:

Jet – modern and speed.

Capri TV – the Italian island of Capri was a hip place to be.

Viking – this had to be renamed after the war, as the word 'Viking' had referred to a regiment of Danes that fought with the Germans. The product was renamed 'Standard', and a label was made to cover the name Viking.

Horizon TV – after Danish broadcast called *Horizon*.

Junior became Mini – This lasted from 1943 to 1964. Examples include Mini Moderne and Mini Ultra.

1960s and onwards

The prefix Beo was used in front of product names from 1964, in recognition of the fact that in Danish 'B&O' was pronounced similarly to 'Beo'. It was difficult to find new names for the increasingly diverse product range, so categories that were invented were given the Beo prefix. From the 1990s, the word after the prefix started with a capital letter, so Beolab became BeoLab, for example.

Beomaster – radio, Beovision – television, Beovox – passive speaker, Beocord – tape recorder, Beogram – gramophone, Beocenter – radio and tape recorder in one solution.

Beosystem included the speakers. Beosystem 2500 had a twist as it was renamed Beosound Overture.

Beolab – amplifier, referring to the fact it was made in the laboratory. When the amplifiers were moved to speakers and they became active in the 1990s, the speakers were called BeoLab.

Beovox C – C stood for compact speaker; Beovox CX – compact speaker with upgraded technology.

Beovision M – M stood for monitor; Beovision MX – monitor with extra features (contrast screen); BeoVision L – L stood for Long; BeoVision LX – upgraded with extra features (contrast screen).

Serene and Serenata – mobile phones that were outside other product categories, and for which emotional names were chosen.

2000s

From this point the products were named according to chronology – almost: BeoVision 1, but then BeoVision 3, 4, 5 ... BeoVision 11, BeoVision 12, BeoLab 17, 18 and 19 ... BeoSound 1, 2, 3, 4, 5

2012

The B&O PLAY brand is launched with new names:

Beolit 12 – a reference to historic portable sound and the year it was launched.

BeoPlay V1 – V for video.

BeoPlay A2, A9, A3 – A for audio.

BeoPlay H2, H3, H6, H8 – H for headphones.

BeoPlay S8 – S for speakers.

2014

A return to emotional names is introduced:

BeoVision Avant – the name is borrowed from another ahead-of-its-time TV from the 1990s.

BeoSound Moment – for sharing the moment.

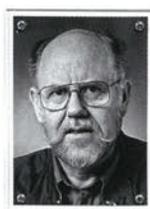
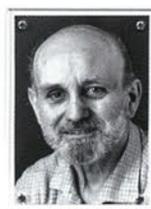
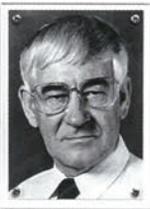
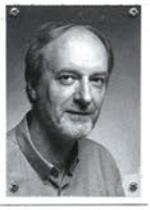
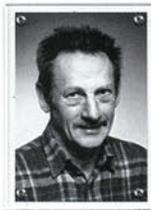
BeoSound Essence – for focusing on the essentials.

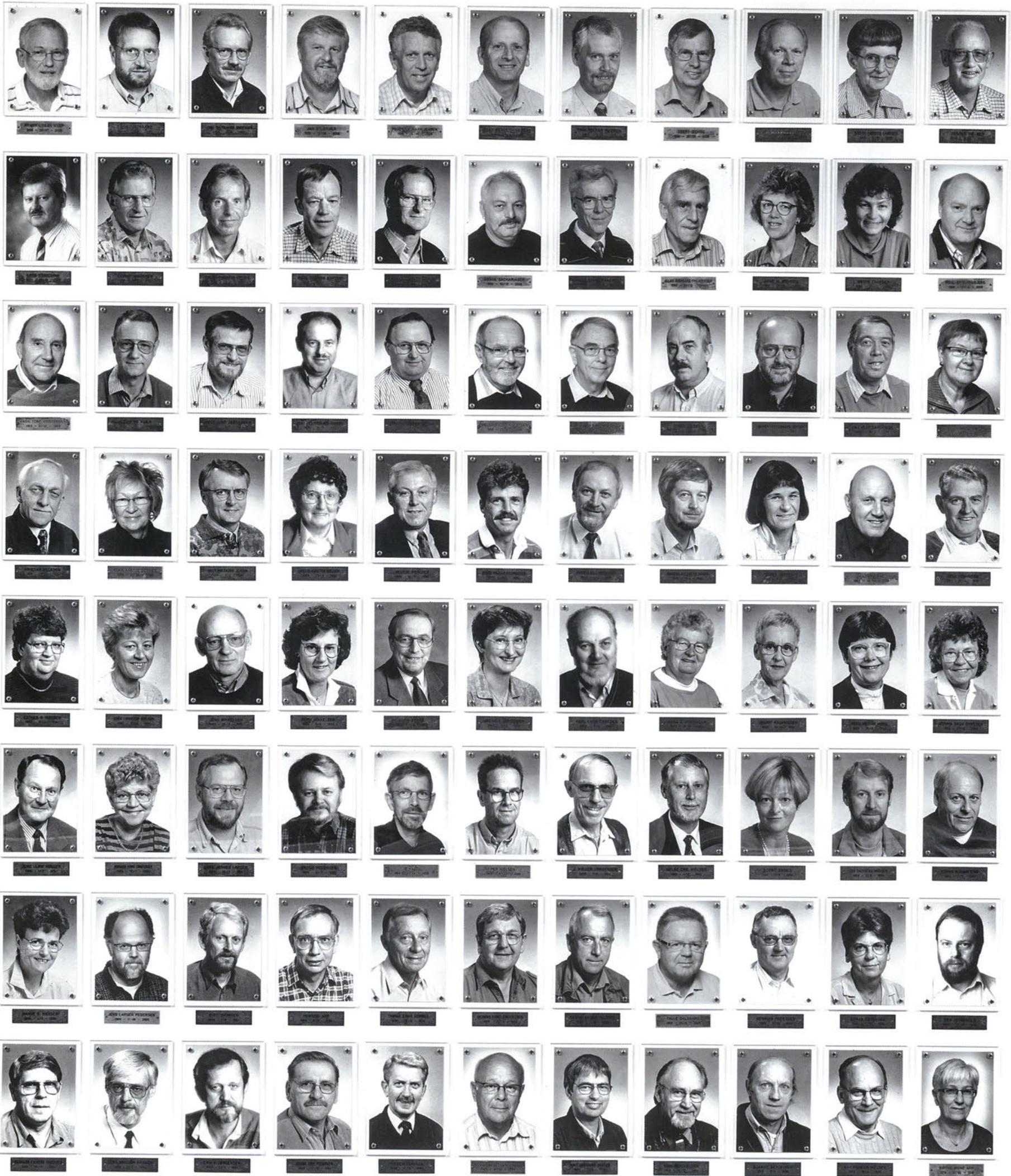
BeoRemote One – one remote control for all.

BeoLab 90 – for the ninetieth birthday.

The Wall of Fame (pages 226–239)

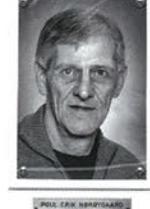
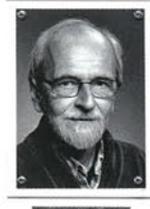
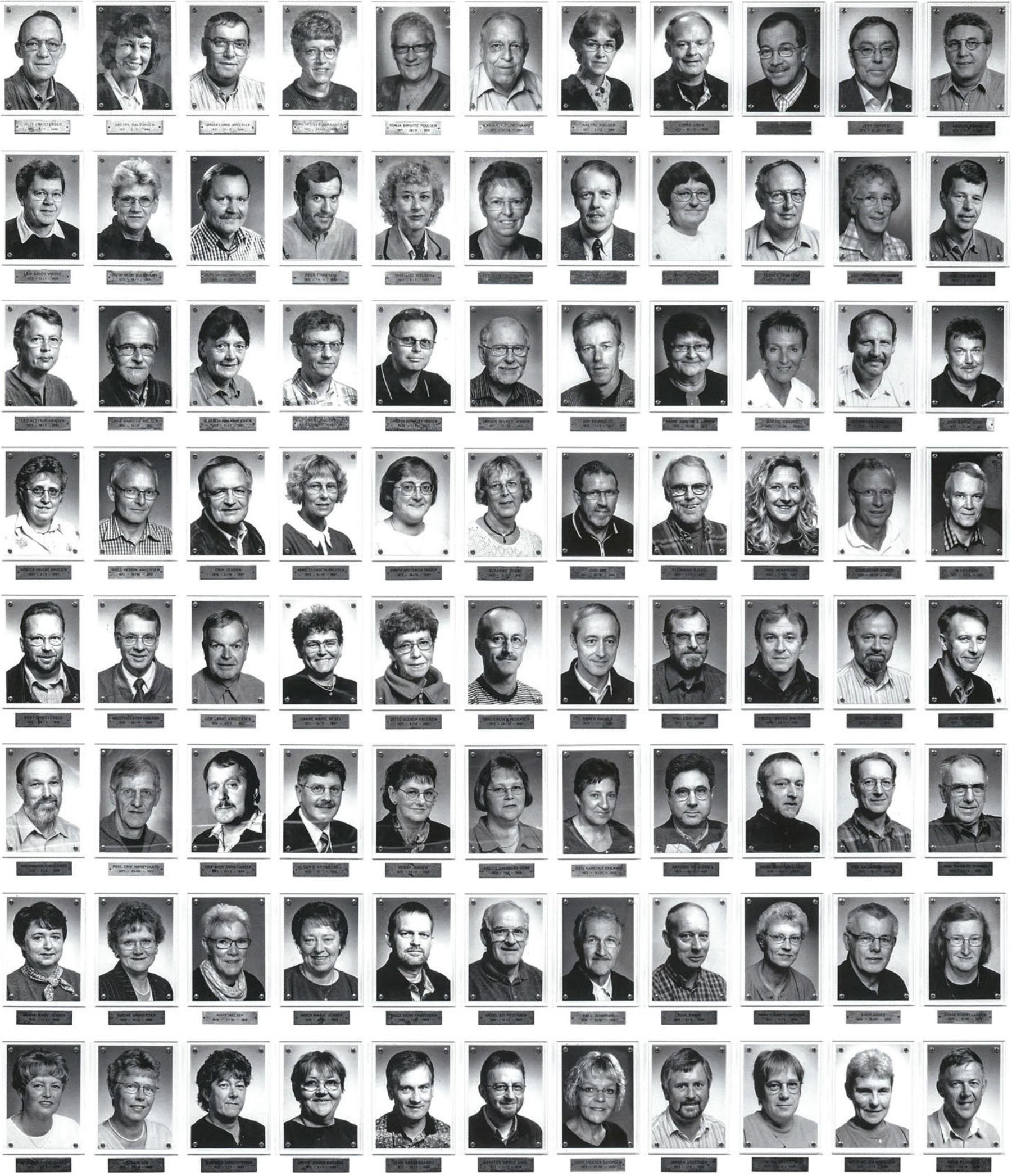
Employees get their portrait on the wall of the canteen in Factory 4 when they have worked at Bang & Olufsen for at least twenty-five years. The first person on the wall is Peter Bang. At the time of writing, there are 1,231 pictures on the wall.







ALFRED J. JENSEN





Row 1 names: [Illegible names]



Row 2 names: [Illegible names]



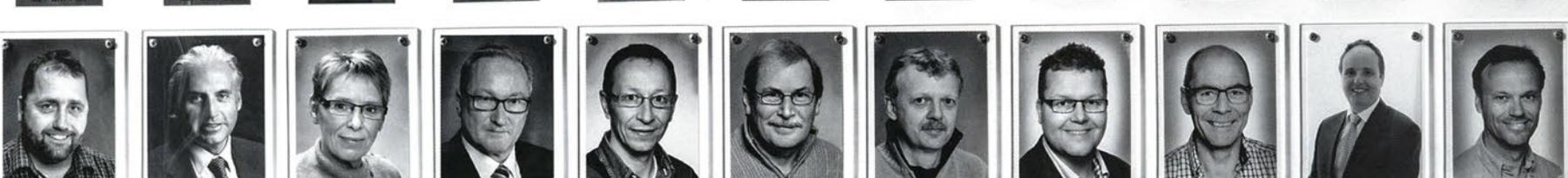
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Row 4 names: [Illegible names]



Row 5 names: [Illegible names]



Row 6 names: [Illegible names]



Row 7 names: [Illegible names]



Row 8 names: [Illegible names]

Row 9 names: [Illegible names]

Bang & Olufsen

–

Bang & Olufsen was founded in 1925 in Struer, a small town in the northwestern part of Denmark, by two enterprising young engineers, Peter Bang and Svend Olufsen. They created the business that was to become an international design icon and a global symbol of audiovisual excellence.

Today, Bang & Olufsen a/s is world-renowned for its distinctive range of quality televisions, music systems and high-performance loudspeakers: products that combine technological excellence with emotional appeal in an outstanding design language.

Alastair Philip Wiper

–

Alastair Philip Wiper (1980) is a British photographer and writer based in Copenhagen. From the laboratories of CERN in Switzerland to giant shipyards in South Korea and radio observatories in Peru, Alastair specializes in science, industry, architecture and exploring the unintentional beauty in infrastructure.

Thanks

John Bjerrum Nielsen for opening up his facilities; Jan Thøgersen for participating with his collection; Ronny Kaas the history specialist; the BeoNists and Struer Museum for helping us with finding models and products from the collection and getting the detailed facts in place; Claudiu Christensen at Beostæren for helping with a last-minute photoshoot. Thanks to our external designers for willingly participating in the creation of the book, and last but not least the Bang & Olufsen employees who have happily shared their stories of products and people.

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The Bang & Olufsen Design Story*
© 2015 Bang & Olufsen a/s, Struer, Denmark

Designed by Claus Due/Designbolaget
Text and photography by Alastair Philip Wiper

Additional photography by:
Jesper Jørgen (p.180, top, BeoSound 9000)
Ib Sørensen (p.188, BeoLab 8000)
Søren Krogh (p.190, BeoLab 18, p.206, right,
BeoVision Avant)

On the cover, front: Beogram 4000
turntable, 1972

Back: BeoLab 90 design model, 2015

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