

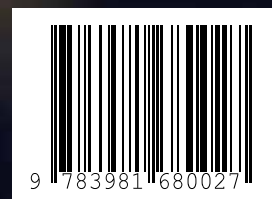
URBAN RITUALS

THE SOUND ARTIST
CHRISTOF SCHLÄGER

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 VERLAG HANNO EHRLER



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TEXTS: HANNO EHRLER, CHRISTOF SCHLÄGER

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 **VERLAG HANNO EHRLER**

BOCHUM, 2015

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HANNO EHRLER : ANNOTATIONS TO MACHINE MUSIC

RUHR REGION

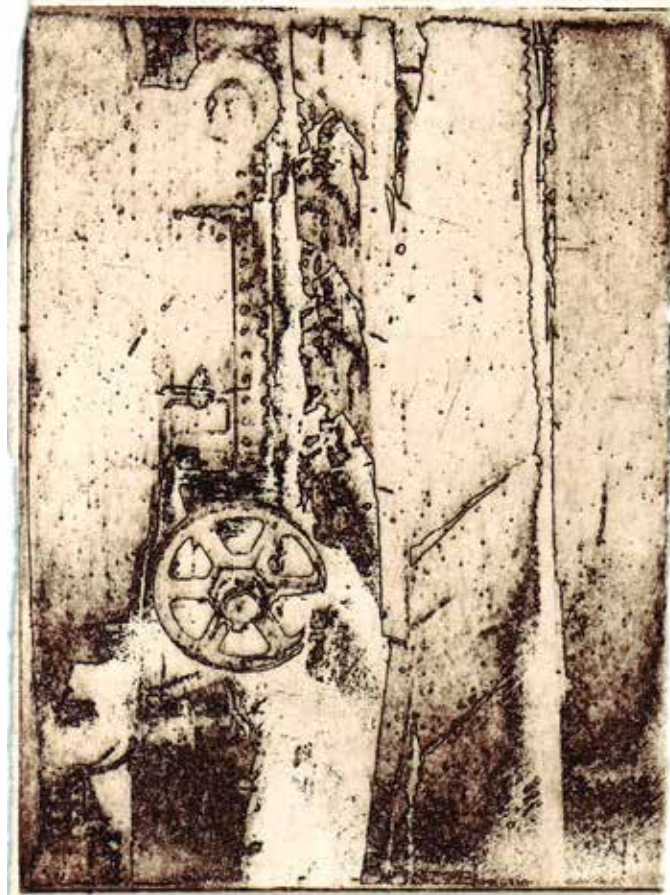
"High above forests of industrial chimneys smoke plumes weave in a hazy sky. The region's air quality is identified by its smell. On the many constantly over-trafficked and poorly maintained highways an endless, ruthless traffic roars. [...] The iconic image of a field of waving wheat in front of a bleakly rising steel mill, of towering smoke stacks belching fumes over the agricultural landscape as a farmer drives his tractor through the field, of white billowing clouds emitted from cooling towers of nearby mines drifting across the skyline are still a frequent sight."

WALTER VOLLMER AND HUGO SCHÜTTRICH, DIE RUHR, ISERLOHN 1958, PP. 47/48, ENGL. TRANSL. UTA HOFFMANN.

Since 1996, Christof Schläger and his wife Marjon have lived in the Netherlands, presently in Amstelveen, a suburb of the city of Amsterdam. Schläger was born in Beuthen, Poland in 1958 and moved to the Federal Republic of Germany in 1968. Since 1987, he has built his sound machines and realized installations in the machine hall of the former coalmine "Teutoburgia" in Herne. Prior to 1968 he lived in a similar region, having spent his childhood and youth in Konin, a sister city to Herne in central Poland and a stop on the Berlin-Warsaw-Moscow railroad line. Konin is a center of lignite mining and aluminum smelting. In the Ruhr region lignite and steel production play only a minor role these days, yet the region is still thought of in terms of its industrial past when tall chimneys dominated the landscape.

Of the many things that connect Christof Schläger with the Ruhr region some seem to be quite obvious. The artist is a builder, a constructor of instruments. However, he does not call his creations instruments but rather machines, and this is precisely what they look like. They are constructed from utilitarian technical, partly electrical construction elements. One can discover steel pipes, hoses, rough springs, bells, small motors, and many varieties of electrical cables, which, carefully bundled and fastened, spread over the machines like blood vessels supplying them with electricity. The appearance of the machines suggests that they will somehow issue technical sounds and noises and indeed, their sound quality tends to go in that direction so that besides other aspects it is particularly the nature of the sounds that characterize the industrial impression of the Ruhr region. But Christof Schläger also works directly with the sounds of the region. He utilizes ship's horns for instance that can be heard routinely on the important local waterways like the Rhine-Herne-Canal.

In the meantime, Schläger shows his sound machines all over the world: in New York, Warsaw, Ghent, Amsterdam, Ramallah, Sofia, Luxemburg, Tel Aviv, Barcelona, Helsinki, Shanghai, and other cities, where he presented installations and concerts. He also participates in new music festivals such as the ISCM (International Society for Contemporary Music) World New Music Days, the Grame Days Electronic Music Festival in Lyon, or Klangspuren – the Tirol New Music Festival in Schwaz.



Christof Schläger, Machine Room II, Impression after visiting a coal excavator, 1984. Etching, 16 x 10 cm (6 ¼ x 4 in.)

Christof Schläger started out in the Ruhr region where his works can be experienced time and again, most recently for example in a solo exhibition entitled "Urban Rituals" at the Flottmann Hallen in Herne, at the end of 2014, in which a number of sound machines from all of the artist's work phases could be seen and listened to. And on the occasion of Ruhr.2010 – European Capital of Culture where Essen represented the 53 towns of the Ruhr region, Schläger realized "Schwingungen" (Vibrations), an installation of several groups of ship's horns that were transported on railroad cars along the Rhine-Herne-Canal.

CONSTRUCTION OF INSTRUMENTS

"At home Denise placed a moist bag of garbage in the kitchen compactor, she started up the machine. The ram stroked downward with a dreadful wrenching sound, full of eerie feeling. Children walked in and out of the kitchen, water dripped into the sink, the washing machine heaved in the entranceway. Murray seemed engrossed in the incidental mesh. Whining metal, exploding bottles, plastic smashed flat. Denise listened carefully, making sure the mangling din contained the correct sonic elements, which meant the machine was operating properly."

DON DELILLO, WHITE NOISE, NEW YORK 1999 (AS QTD. IN THE PENGUIN BOOKS INTERNET EDITION, UNPAGINATED.)

The construction of individual, self-made instruments has its origin in the experimental music movement of the twentieth century. Perhaps the most famous builder of such instruments was the U.S. American, Harry Partch (1901-1974), who constructed whimsical, often quite large acoustic sound generators the tuning of which was based on microtonal scales that divide the octave into 43 unequal tones that are derived from the natural harmonic series. Partch used scales that allowed for more tones of smaller intervals than the standard Western tuning which uses twelve equal intervals to an octave. He used a quite different, microtonal harmony. This opening and exploration of new sound worlds inspired many musicians and artists to build their own instruments. Christof Schläger is one of them.

Schläger feels that classical instruments despite their present level of perfection resulting from several centuries of development have a limited sound capacity/range. *"The piano is no longer sufficient for me,"* he says. As his like-minded colleagues he feels constricted by the standardization of the instrument and the tuning system it represents. With his self-constructed machines the artist wants to leave the foundation on which Western music is based and move toward an unknown terrain into an unstructured, uncharted sound space – anarchical in its original intention, without a beginning, without a history. Experiences with sound inspired Christof Schläger to pursue this path. *"In the end, I found the piano simply too limiting,"* he claims. *"When I look at it now, Pythago-*

Cauterization of sound tongues in a steel kettle.
Studio in the machine hall of the former mine
Teutoburgia, Herne, 2015



ras is in the forefront of my mind, the harmony of sounds, their relationships, and so on. This contradicted causally a completely different experience, which I had found in my surroundings. This world was filled with machines, sounds, a universe of clamor, of noise, often threatening of course, but at the same time fascinating."

Christof Schläger originally studied process and constructional engineering and enjoyed some years of piano lessons. After deciding to discontinue his engineering studies to devote his time to his art, he began to make sound recordings in industrial facilities, coalmines, on canals, and on/under autobahn bridges. When he replayed these recordings he found himself dissatisfied by what he realized was the inevitable difference between the actual sounds he was hearing and the quality of the audio reproduction which lacked the immediacy of the experience of live sound and the essential mystery inherent in it. From that time he knew what he wanted to achieve, he wanted to create something that could be experienced immediately, directly, and spontaneously.

Schläger began altering the piano by inserting thumbtacks into the area of felt on the hammers that comes into contact with the strings; he further attached metal chains to the strings. Later he abandoned the "prepared piano" (John Cage) completely and created larger than man-sized air sculptures from inflatable hosepipe systems. In the process, he explored the acoustical aspects of these architectural sculptural objects. In 1984, the

first sound machines materialized. Their acoustical emanations initially had no clear pitch. The instruments produced a whole universe of differing sounds, to which the typical environmental noises of the Ruhr region can be constantly traced. Later machines began to evolve which at least partially generated clear sound pitches, yet colored by the materials and the construction of the instruments.

For his sound machines Schläger uses component parts from other machines such as small motors or magnets of the type found in electric typewriters. He is always looking for such parts just as a violin builder looks for suitable wood. He places parts of various functions and derivation into new contexts and develops completely new machines. The record player motors used for Flatterbaum no longer serve as rotation mechanisms for the playing of phonograph records, but rather for the streaming of paper discs. Schläger chose these specific motors, because they are small and designed to produce a rotation velocity that lets the plastic or paper discs of Flatterbaum produce sound without destroying them. If the component parts do not fit and are therefore unable to function properly, he alters them in whatever way is necessary until they fit precisely.

In order to play these machines, Schläger initially used an industrial control system by Klöckner Möller, which is still in use for the regulation of waterworks, railways, and traffic lights. However, this method of programming pro-

ved to be cumbersome, he therefore decided to apply the data transfer protocol MIDI (musical instrument digital interface) which offered him much more convenient options. However, it is necessary to interpose a laptop with sequencers, compositional and notation programs between the two. With MIDI the programming of the operations of motors and magnetic pickups is enabled. Although the sound machines are then ready for use in performances and in installations, they are not considered completed, rather they are subject to an ongoing process of modification, a constant fine-tuning and adjustment of their sound characteristics. The construction of a machine is not a completed process, but a never-ending exploration of the best-possible form. On a pragmatic level Christof Schläger knows in advance the kinds of components he requires and he will search until he finds the precise part he is looking for; usually it will require some physical alteration to fit into the structure of his sound machine. On an artistic level, while Schläger has a sound in his imagination and which he strives for, he is not rigid in his intention. The sounds evolve and come into being in the interplay of imagination, the constant adjustment of the sound machines, and the listening experiences of the sounds produced.

The sound machines are the result of artistic creation, at the same time they are also technically produced objects. Compared to many everyday machines Schläger's machines are designed to be efficiently functional to the smallest detail. Some of their parts, particularly the

Repair of sound tongues in a steel kettle



Assembly of a group of horns with synthetic resin bells



electronics, can be hard to find and expensive to obtain. Nevertheless, they also have a significant esthetic quality. As art objects they show a close harmony between construction and function and as such, they can be understood as an allegory for a sensible/intelligent use of technology. *"If you treat machines well, they treat you well,"* says Ralf Hütter, founding member of the electronic-music band Kraftwerk.

NOISE

"Where do you find an absence of noise? Strictly speaking nowhere. Thermic noise exists everywhere, except at the unreachable absolute zero point. Each observation and measurement is influenced by random interferences, even if they are infinitesimally small. Even in the determinist system of computers necessary round-off mistakes arise during calculations with irrational numbers the extent of which cannot be determined, these are therefore random noise. Even nothingness, the absolute vacuum, is subject to the uncertainty principle of quantum-mechanical deviation. Again noise. To put it another way: Where does silence reign? The answer is nowhere. Each room has a clearly audible basic noise, even in a supposed complete silence. Even in a thoroughly sound-proofed room we would be aware of the sound of our own blood circulation."

ROBERT HÖLDRICH, IN: SABINE SANIO AND CHRISTIAN SCHEIB (EDS.), DAS RAUSCHEN, HOFHEIM 1995, P. 137, ENGL. TRANSL. UTA HOFFMANN.



Workshop in the machine hall of the former mine Teutoburgia, Herne, 2015



"Because sounds must be semanticized in order to be meaningful, our main aural concerns as a culture have been language and music. Sounds in themselves have not been regarded as having communicative effectiveness' (qtd. from Claude Levi-Strauss, The Raw and the Cooked). [...] The world of everyday sound is full of semantic ambiguity. Most people approach this experience without recognizing patterns in everyday sound. Noise is the resulting interpretation given to the normal experience of unsemanticized sounds. [...] The task of acoustic art and acoustic design is to fundamentally challenge all of the old historical definitions of noise and the resulting preconceptions that most people have about the sounds they live with."

BILL FONTANA, SONIC ECOLOGY AND THE TRANSFORMATION OF NOISE, ZEITGLEICH INSTALLATION: SIMULTANEOUS RESONANCES. WWW.KUNSTRADIO.AT/ZEITGLEICH/CATALOG/ENGLISH/FONTANA-E.HTML.

In reality, many sound art projects formulate a contextual relationship to environmental noise as the U.S. American sound artist Bill Fontana has demanded. This relationship is not in the foreground in Christof Schläger's work, but it is certainly an essential component. In the Ruhr region industrial noise was once an acoustic given. Today, after the decline of the Ruhr industry, the acoustic ambiance of the region has a different form and is less characteristic. The high population density and the close-meshed highway network generate traffic noise that can be constantly perceived as a faint background murmur, even at night. In addition to industrial noise, it is especially what the sonic world is owed by the process of civilization

that fascinates and inspires Christof Schläger. The sound artist speaks about nocturnal noise as something mysterious that goes far deeper than the phenomenon's apparent simplicity. He is interested in the structures that can be discovered in noise, its variations and different colors and hues. The presence of noise establishes an esthetic attitude, which is fundamental to Schläger's work. Noise symbolizes something unordered, obscure, disorganized, multi-layered, pre-formed, unsystematic, free, open, and undetermined.

Noise can be described and interpreted quite differently, musically, technically, sociologically, medically, and philosophically. *"As noise we understand all those elements, which interfere with the signal of a message. This includes every kind of technically based interference, not only for example the noise caused by static electricity occurring as a result of poor radio or television reception, but also uncertainties of a discursive and linguistic nature. Black image distortion during a television transmission, stains on a daily newspaper, but also rumor in a sociological thesis, all of these can be understood as noise."*

ANNIBALE PICICCI, NOISE CULTURE, BERLIN 2001, P. 11 [ENGL. TRANSL. UTA HOFFMANN].

Physical acoustics describes noise on the basis of how the frequencies of the signal power contained in it are distributed. The most well-known noise is so-called white noise which describes a sound that contains all audible frequencies whose signals have equal intensity. White noise, however, does not exist in a pure form. In nature as

well as in electrical equipment, the noise that is primarily generated is known as pink noise, in which many but not all frequencies occur, but – so the definition of physics – are distributed uniformly by octave range throughout the audio spectrum.

The Canadian sound artist R. Murray Schafer emphasizes the musical component of noise. *"In a large quantity of rhythms one rhythm will be extinguished by another. The main characteristic of the urban soundscape is random movement, and it can be heard most clearly from a distance or in the deep of the night. It is the continuous low frequency sound that can be heard from a neighboring hill or through an open window in the early morning hours."*

R. MURRAY SCHAFER, KLANG UND KRACH, FRANKFURT/MAIN 1988, P. 284 [ENGL. TRANSL. UTA HOFFMANN].

In 1827, the Scottish botanist Robert Brown observed that grains of pollen suspended in water execute irregular movements. They are kicked off by the water molecules which depending on their temperature move either slower or faster. This so-called Brownian molecular motion can only be described statistically. It is not predictable in detail and because of its uncertainty can be described as noise. Structural uncertainty, regardless of whether it concerns an acoustic, optical, physical, or theoretical issue, defines noise.

Noise is therefore also an art-esthetic and a philosophical category. In relationship to art the philosopher Martin Seel interprets noise as a borderline example of per-

ception, an optical or acoustic event, between which it is completely impossible or very difficult to differentiate. *"It is, however, rare that nothing could be differentiated in noise; often it occurs as a diffusion of the distinguishable, as a permanent shrinkage or transformation of gestalt, which makes a safe execution of the transformation that occurs impossible. [...] Furthermore in regard to noise, specific values can be distinguished at any time – noise is loud or quiet, roaring or cracking, creaking or wheezing, whining or swirling, flickering or flowing, spinning or streaming, swishing or roaring, etc. – but they all are characteristic of the event, which can be perceived or stated, without actually being able to say something specific about what is actually occurring."*

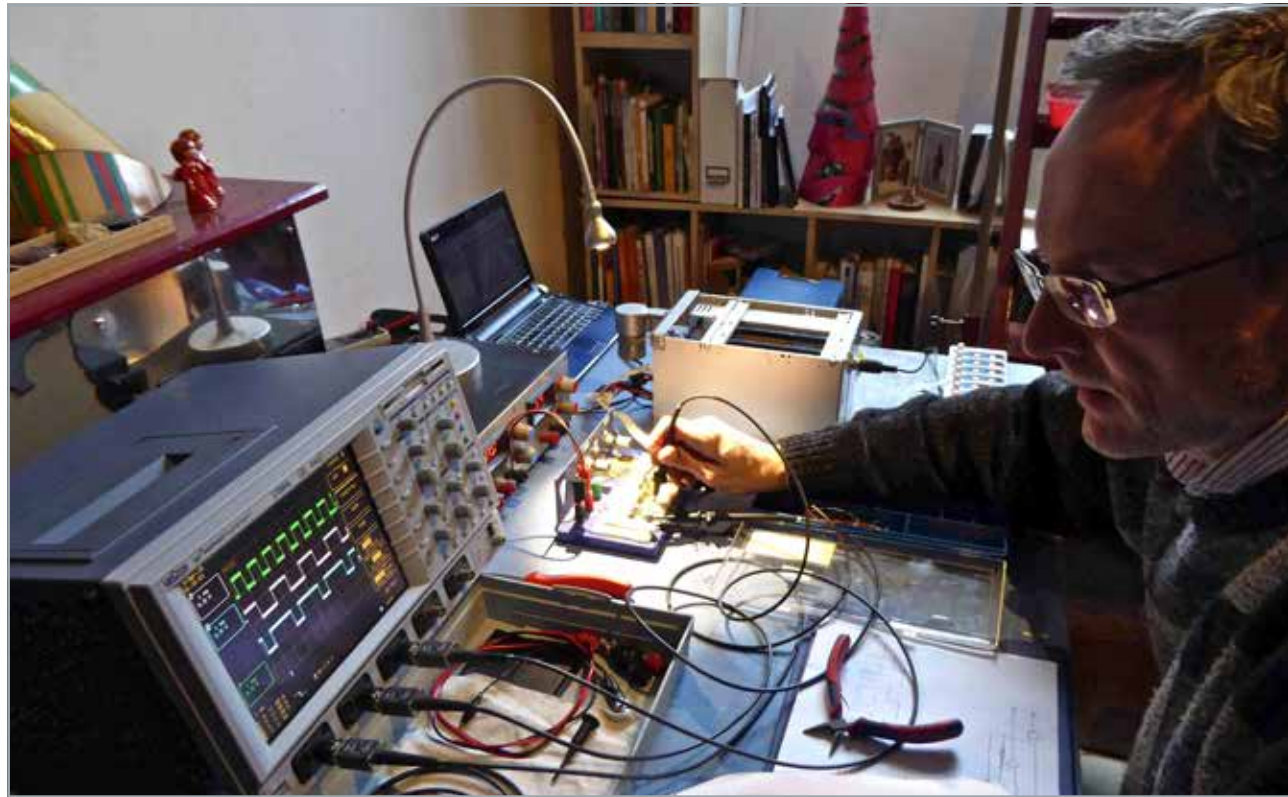
MARTIN SEEL, ÄSTHETIK DES ERSCHEINENS, MUNICH & VIENNA 2000, P. 232 [ENGL. TRANSL. UTA HOFFMANN].

SOUND

"Despite everything I seem to have gone asleep once more. Only a basso continuo unnoticed before remains, the hum of the refrigerator, the basso continuo becomes soloist – impeccable entry, grandiose vibrato, long breath, heavenly lengths. What an organ. Now the consequently streaming tone stops, a spasm, a purr, quiet in the house. It would be beautiful. The traffic noise rumbles about in the hum of the central heating, the body of the refrigerator is taking a breath, silence, a quarter of an hour. Air, in order to consequently sing again, without ruffle and

excitement and without speculation for applause. The even song, that which sounds from the square bosom, is a reward that is very worth while and is not irritated by anything, by no voice of descent, consider the telephone that rings incessantly, irrespective of whether I choose to listen."

ULRICH HOLBEIN (WRITER), DER BELAUSCHTE LÄRM, FRANKFURT/MAIN 1991, PP. 21/22 [ENGL. TRANSL. UTA HOFFMANN].



For *Helix Horn* it was necessary for an independent electronic control system to be developed. This problem was solved by the physicist Alexander Lahmann, who is also a friend, with the aid of his special oscilloscope.

"European music is based on an artificial construct of tones and scales, it embodies the antithesis of counter pole to the raw, objective sounding of the world."

MILAN KUNDERA, "PROPHET DER GEFÜHLLOSIGKEIT, IN: MUSIKTEXTE 89/2001, P. 3 [ENGL. TRANSL. UTA HOFFMANN].

Around the middle of the twentieth century, however, even the raw sound of the world became music-capable material. A significant portion was accounted to the emergence of electronic music, the concept of the musique concrète, the development of noise-generating play techniques on classical instruments, and compositional theories and concepts, including for example John Cage's postulation that all sound regardless of its provenance is music.

The decisive difference between both the tones that escape from highly cultivated instruments and the disharmonious, often unwanted and disturbing everyday noises is their ability to be systematized. The musical tradition formulates tonal systems, in which each tone or each tonal pitch has been designated a precisely defined place with a specific meaning, regardless of the instrument and eventually independent of the concrete sound. In this sense, musical meaning is defined by abstract melodic (horizontal) and harmonious (vertical) relationships of tonal pitches. The parameter of tonal color plays only a subordinate role in occidental music. On the other hand, it dominates the essence of noise, for it is predominantly defined by its sound characteristic. While tonal sys-

tems like the twelve-tone tempered scale can be systematically described through their interval relationships, this is impossible with the sound values of noises. In the *Traité des objets musicaux* published in 1966, the French composer and founder of the musique concrète, Pierre Schaeffer, had tried to classify noises according to their characteristics. But each noise as similar as it may be to others remains a unique phenomenon, an always singular, unique sound occurrence. That is contradictory to the formulation of a musical system and is based on the infinitude and freedom that Christof Schläger claims for his work.

Contrary to other instrument builders, Schläger is not interested in developing a musical system. The construction of his sound machines and their sound worlds therefore does not follow any system. He follows his intuition. He concentrates on materials and their sound characteristics, he lets the results be a surprise letting them unfold in the concrete artisanal work to a detailed, precisely formulated gestalt.

The artist is inspired by the sounds and noises that he encounters in his living environment. He can recount an experience about each of his individual sound machines whose varied construction is informed by this inspiration and the sound world that is evoked includes metallic sounds, buzzing, whizzing and whistling noises, clicking sounds, rattling and ringing in addition to tonal signals. In the sculpture *Schwirrer* for example, the noise part

is subsumed into the tonal pitch. This sound- and noise characteristic is a result of the technical construction of the sound machines, but does not include any intention on the part of the artist to use these devices to imitate technical noises. Their technical impression establishes rather a symbolic, even allegoric dimension of the sound world, in that it refers to the world in which we live. Above all, it opens up an experiential space that underlines the intrinsic value of these sounds and their beauty. The technical instruments and sounds mutate in Christof Schläger's compositions into creations of fantasy, which allows the emergence of something completely new.

COMPOSITION

"We prefer to use machines rather than guitars. I consider the electric guitar to be completely ridiculous. I despise rock music. Ultimately, two turntables and a mixer provide the potential for excitement more than the six strings of a guitar. And I haven't heard of any musician who has bloodied his hands on computer keys – a clear advantage."

NEIL TENNANT OF THE PET SHOP BOYS, IN: SZ-MAGAZIN, JANUARY 21, 1994 [ENGL. TRANSL. UTA HOFFMANN].

Christof Schläger has found inspiration in both the noises of the modern world and the work of contemporary artists and composers. He is particularly fascinated by the

work of Conlon Nancarrow, who uses mechanical pianos in order to bring extremely fast, highly complex rhythmic structures to sound. But he is also excited about Mauricio Kagel's concept of instrumental theater, which puts the action of making music as a scenic element into the foreground. In 1982, Schläger bought a record with pieces by Luc Ferrari who used recordings of different noise worlds in his compositions, and in 2003, he performed with Ferrari in a concert in Herne. The composer Trimpin's installations with self-designed sound generators and sculptor Jean Tinguely's colorful, self-destructing kinetic machines have also influenced his work. Christof Schläger conceives these art phenomena as a spiritual cloud that has moved him forward and influenced his compositions.

Schläger's compositions are distinguished superficially by a concise percussive aspect that supports the technical quality of the sound and makes reference to machine rhythms, while going far beyond them. Its origin lies within a musical gesture in minimal music to which the artist feels a great affinity. Here repetitive structures dominate the music, they are isolated and edited linearly. Slight variations in their interior structure occasionally cause small changes, which lead to new combinations and processes. Much is reminiscent of design principles of music styles such as Hip-hop or Techno, where individual sound elements are strung together and layered and result in more or less complex, rhythmically interlaced aural architecture. Schläger uses graphic models

for the generation of such complex sequences and layers. For example he draws a series of rollers of different sizes, which are painted with patterns and which revolve against each other. In the process the patterns repeat, but always in new combinations. Other drawings show cogs adorned with symbols of various sizes. They intertwine in various arrangements and generate complex structures of symbols, which constantly change.

In 2007, it became even more complex when Schläger began to work with ship's horns in exterior spaces sounding them in areas of square kilometers within the landscape by placing several groups of the horns at a distance from each other, and aligning the fixed sites with mobile positions on trains or ships. Because of the low sound velocity of 343.46 meters per second at a temperature of 20° Celsius [68°F] in dry air, time plays an important role. Depending on the location of the listener, while the sound from one group of horns may be heard immediately, up to two seconds may pass before the sound emitted from a more distant group is heard. The tonal sequences of the ship's horn groups from various points in the performance area blend in different ways and the tonal combinations experienced depends on the position of a listener in relation to the horn group. The reception of the horn tone is also affected by objects in its path, such as high buildings for example, and its encounter with such obstacles and the elements existing in the space itself will contribute to the evolving piece and inevitably change the timbre of the sound that the listener ultimately hears.

This music has a three-dimensional nature, through the fact that the sounds reach the listener from several directions. The delicately woven timbres that develop in the exterior spaces spread as an acoustic ambiance over the landscape and form an interactive relationship with other sounds and noises that are integral to the landscape.

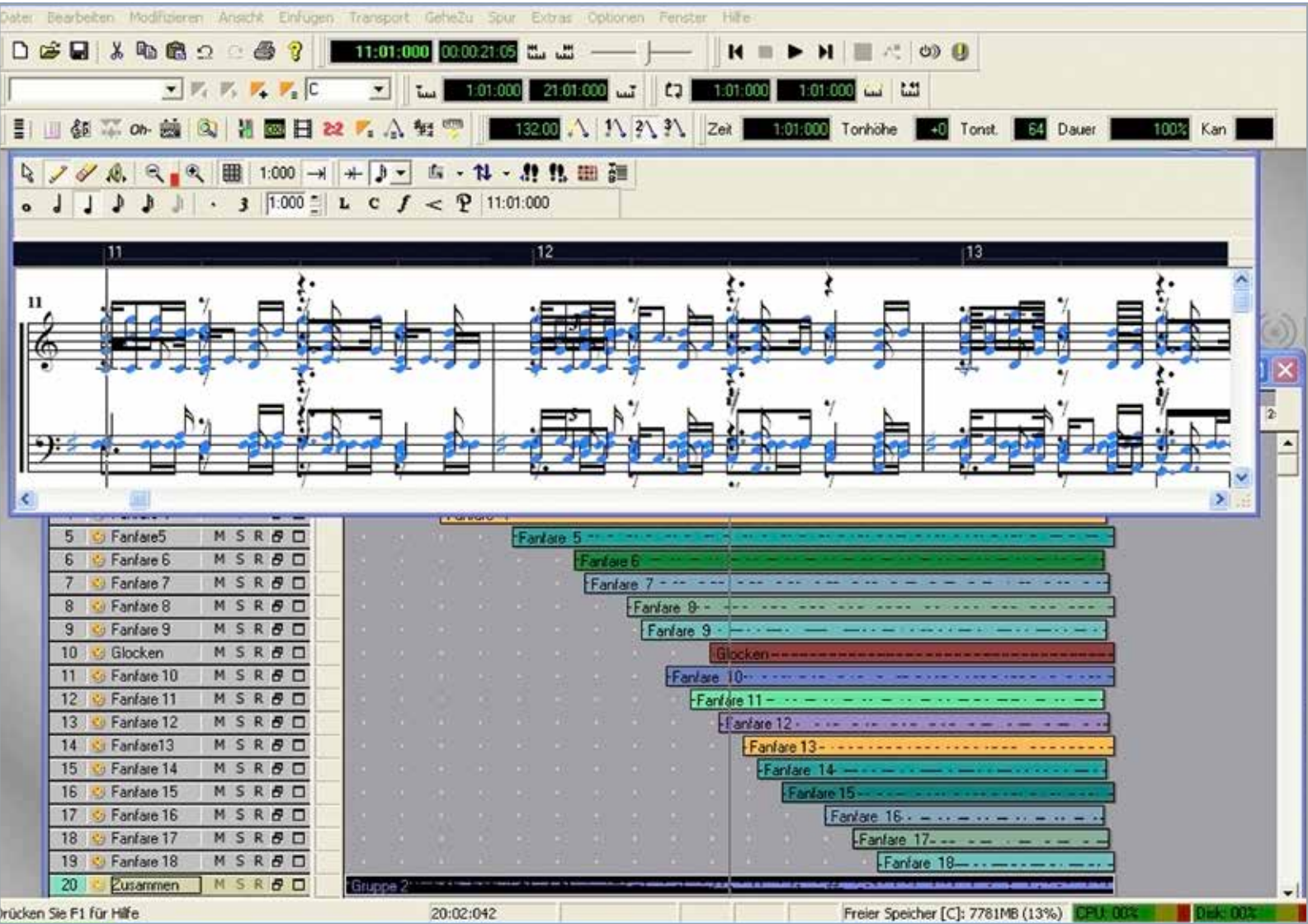
SCULPTURE

"I don't come from Music. I have emphasized that time and again, my approach starts from architecture, the examination of space and space-specific work. [...] I design the container as primary architecture, in which the secondary architecture evolves as a consequence, not in valency: sound architecture."

BERNHARD LEITNER, IN: CHRISTOPH METZGER (ED.), SONORIC ATMOSPHERES, OSTSEEBIENALE DER KLANKUNST, BAD DOBERAN. SAARBRÜCKEN 2004, P.119 [ENGL. TRANSL. UTA HOFFMANN].

Through the three-dimensional architecture of his sound installations, Christof Schläger's music also has a sculptural component. As one can walk around a sculpture and view it from different viewpoints so the listening experience of his music, too, changes as one moves around. Esthetic impression is also an important facet of Schläger's sound machines and even though their sound may be the principal purpose the sculptural quality of the

Ultimately, the machine instruments can be played with the use of commercially available composition software such as "Sonar"



devices have their own value. And although the artist is mainly oriented on the usefulness of the instruments in relation to sound, he has always an eye on their optical effect as well. Perhaps this is shown most strikingly in one of his earliest machines, *Federine*. The supporting structure of *Federine* is in the form of a steep pyramid and as such it embodies a classical motif of architectonic iconography. Almost tenderly, Schläger mounted metal springs, wires, and rods to the pyramid. In the process a sculpture reminiscent of a human form emerged the visual aspect of which is in no way secondary to its function as a sound generator. Both the tonal and the technological aspect are based in technology yet represent the foundation on which other levels are enabled to come into being; in fact *Federine* reveals quite non-technical characteristics of Schläger's work: an infatuation with detail, a sense of playfulness, and a trace of humor. A similar example is *Brauser*. Motors fitted with synthetic foils have been mounted on tall poles, when activated, the foils gyrate generating soft whistling and swishing sounds. Several of these poles each standing a little more than head-height and close together form the appearance of a tree-like sculptural form, which like the elements of *Federine*, reveal the artist's tendency toward filigreed and fragile structures.

Christof Schläger references different esthetic signatures to painting, forms, and statures, which have their origin in modern art movements. The technical affinity of his sound machines references Futurism with its glorifi-

cation of technology and Cubism with its angular, interlocking forms. Schläger's constructions are also slightly reminiscent of sculptures by Alexander Calder and Yves Tinguely. Like Calder, Schläger designs his sculptures with clear geometric forms which often appear to be curvaceously broken and through their movements and trembling in play evade technological geometry. Tinguely inspired the color components of his sound machines. And although color forms only a subtle element, it essentially characterizes the optical experience. Suggestions of Surrealism can be found in the synergy of the forms, especially, when one examines the details of the sound machines: the interconnections and tangles of small motors, specifically formed dowels and anchors, multi-colored wires and cables, compressor hoses, rods and mounts, which often resemble the extremities of insects. Finally, one discovers references to the genre of science fiction with fantasy figures that get out of hand and relieve Schläger's objects of their further technological bond contributing essentially to their enigmatic impact.

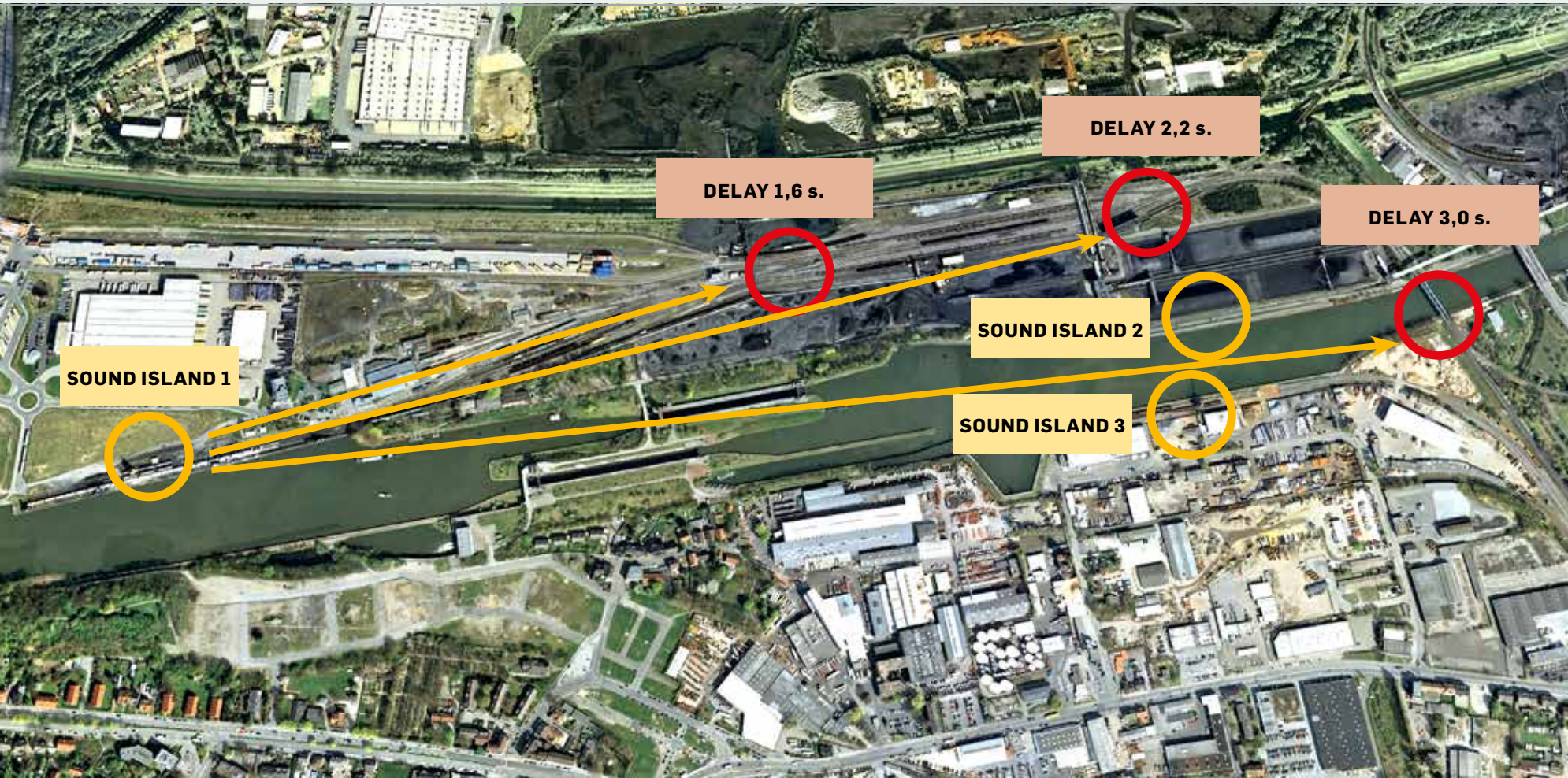
In his early works, Christof Schläger used air-architectural "elementary" cells, which served as a point of departure for works in the urban space defining their own sound spaces. From these structures visitors experienced the emanation of most unusual sounds. Sometimes the sound source was a huge cube, at other times a tetrahedron. For the "Summernight's Dream" Festival in Essen in 1986, Schläger built a more than 20 meter high air sculpture, at the center of which a drum workshop was held.



SCHWINGUNGEN (VIBRATIONS) CONCERT FOR SHIP'S HORNS, BRANE, AND CEMENT PUMPS OCTOBER 2010, RHUR 2010 / RHINE-HERNE-CANAL

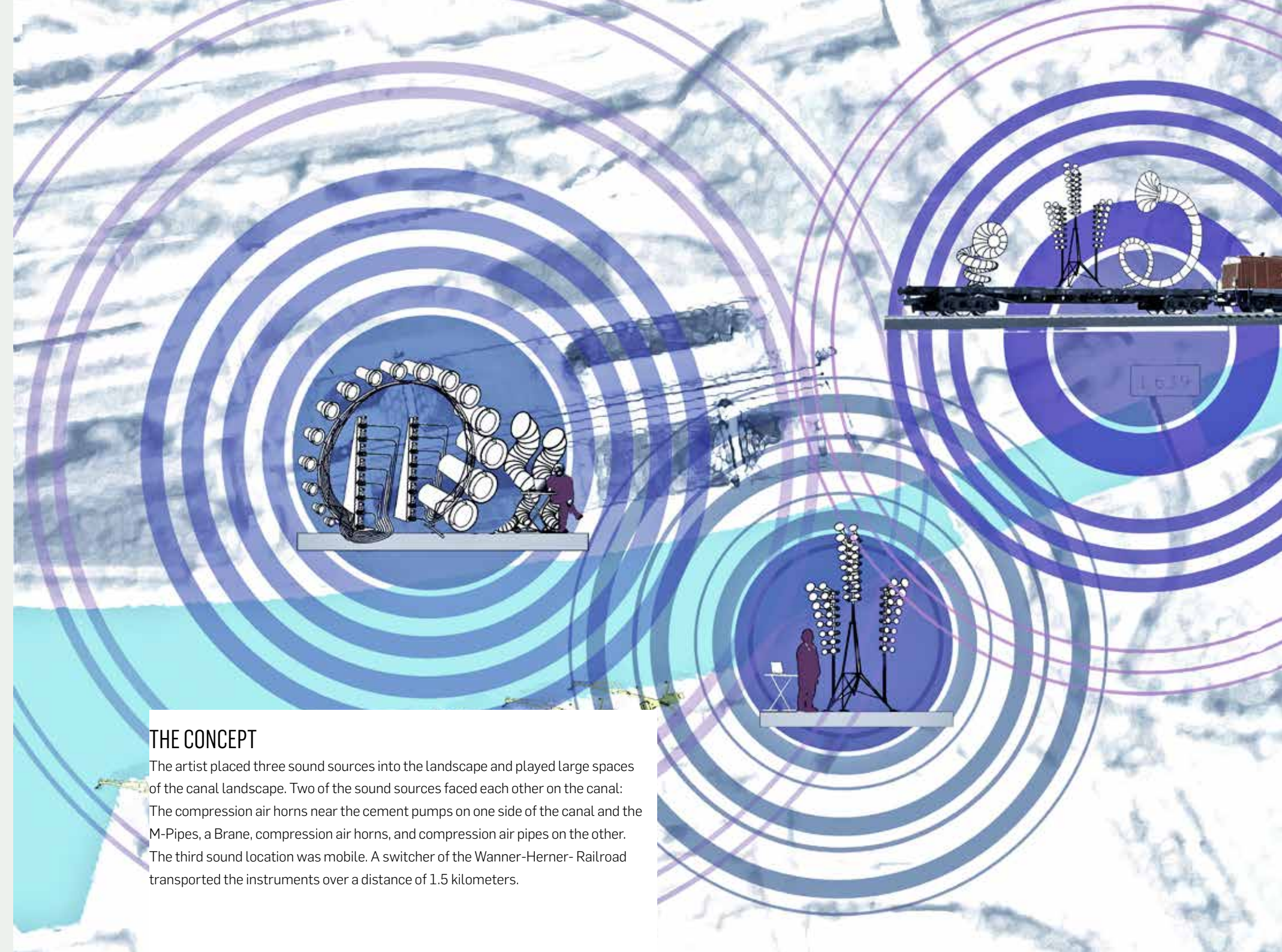
An hour of music – space – art. More than 3.000 visitors. Admission free. Three years of planning. Christof Schläger's art can be considered a form of land art. The ship's horn, heavy industrial equipment, canal landscape – the project Schläger calls "Schwingungen" ("Vibrations") is the first systematic artistic manifestation of this form of acoustic-sculptural land art.

SCHWINGUNGEN (VIBRATIONS)



THE LOCATION

The Rhine-Herne-Canal in the center of the Ruhr area serves as both stage and actor during an exciting concert, and as a concert hall the aura of which determines the character of the piece, which in covering an area of several square kilometers requires several seconds for sound to reach the listener-viewer.



THE CONCEPT

The artist placed three sound sources into the landscape and played large spaces of the canal landscape. Two of the sound sources faced each other on the canal: The compression air horns near the cement pumps on one side of the canal and the M-Pipes, a Brane, compression air horns, and compression air pipes on the other. The third sound location was mobile. A switcher of the Wanner-Herner- Railroad transported the instruments over a distance of 1.5 kilometers.

SCHWINGUNGEN (VIBRATIONS)

SOUNDS FLOATING ABOVE WATER

„Dance of the Concrete Pumps“, der Tanz der Betonpumpen. Nach einer sekundengenauen Choreographie hatte Marjon Smit für die Betonpumpen eine dramatische Folge aus sechzig Figuren kreiert. Eine große Industrie-Oper, bei der die sieben Betonpumpen von zwei Greif-Baggern, einer Rangierlokomotive und den Bewegungen des pyramidenförmigen Kohle-Rechens begleitet wurden.



SCHWINGUNGEN (VIBRATIONS)



EXCERPT FROM THE CEMENT PUMPS CHOREOGRAPHY

"All sections slanted and inclined at an angle of 45° towards the lock / Flyer 90° across the water / Beginning of light-change after Magenta / Pumps 1, 2, 6, and 7 unfold the third section vertically and Flyer 90° above the water / Pumps 3 and 5: third section 90° above the water and Flyer vertical / Pump 4: third section vertical and fourth section and Flyer 90° above the water / Duration 35 seconds / Time: 4:40 / All pumps vertical and Flyer 90° towards the water / Pumps 1 and 2 and 5 and 6 turn standing mast 90° towards water / Pumps 3 and 4 and 5 remain in position / Duration 40 seconds / Time: 8:10 / All pumps move back to form a triangle / Duration 25 seconds."



Final discussion of the choreography with Marjon Smit, Christof Schläger's Dutch life partner – organizer and manager of the often logistically demanding projects.



In radio contact with all the project teams: Christof Schläger remains relaxed, seldom seeming to lose his concentration.



"Each cement pump driver steers the huge hinged brackets with two joysticks. Additionally, each driver had his own prompter. This was the only way to transform the movement instructions into steering impulses. The most remarkable thing, however, were the inter-personal meetings and the force developing from trust and the excitement to collaborate in a great work. We were a terrific team."
Christof Schläger

SCHWINGUNGEN (VIBRATIONS)

Sound location No.1 was mobile. A switcher of the Wanner-Herner-Railroad (WHR) pulled a flatcar with the instruments across the 1.5 kilometer-long distance, stopping at three predetermined track sections in order to play interlinked parts of the composition.



ON STANDBY

(Top left)

Horns, compression pipes, M-Pipes, and a Brane were installed at location No. 2.

(Top right)

Start position of the cement pumps immediately before the beginning of the concert.

(Bottom left)

Thousands of people had secured a place for themselves on the canal early.

SCHWINGUNGEN (VIBRATIONS)



THE ILLUMINATION (Above) A brilliantly illuminated part of the staging was the almost baroque pyrotechnical illumination of the fully-functioning industrial area along the canal.
(Right) For a moment, a stream of sparkles poured from the jointed-arms on top of the cement pumps into the water.



HELSINKI FESTIVAL

URBAN HORNS & URHO

AUGUST 2013

A sounding city, on the land, in the water, and in the air! More than one hundred ship's horns sounded at the opening of the Helsinki Festival 2013. This spatial composition sounded simultaneously in five locations.



HELSINKI FESTIVAL



THE PLANNING

(Top) A nautical map for the icebreaker served as the basis for the time schedule. Timmo, the first officer of the UHRO, had marked the positions of the ice-breaker with a ballpoint pen.

THE LOCATION

(right) For Helsinki's centrally located harbor the idea emerged of using five locations for the "Sounding Islands". They were positioned on the land, on the water, and in the air. With this spatial installation "Sounding City" became reality.



HELSINKI FESTIVAL

THE TEAM

(Bottom left) The meeting with the URHO team was very cordial. Straightforward friendly looks, carefully assessing every challenge and executing everything exactly as discussed, regardless of whether it was an iceberg or a concert. The URHO is not a simple icebreaker, the team and the ship are legendary. In the harbor, the floating power package of 105 meters in length and with a water displacement of 10,000 tons, performed the daring choreography in an almost playfully light way.

(Top and bottom right) On board of the URHO, Mikko Fritze maintains contact with the other sound islands.



ON STANDBY

(Bottom left) All sound islands were ready for the concert. Marjon Smit coordinated the start of the operations of all members: The ladies from the women's choir "Philomena" with their energizing presence as well as the icebreaker, main stage No. 1, sound island No. 2, and the balloonists.

(Bottom right) Hyökätä! Hullutus! Uskalla! Urho! Vahva! Rohkea! Torjumaan! All Finnish masculine power words, with which the megaphone men made their voice heard as a counterpoint to the women's choir power.





Concluding greeting to the ship and the URHO vanishes in the evening sun.



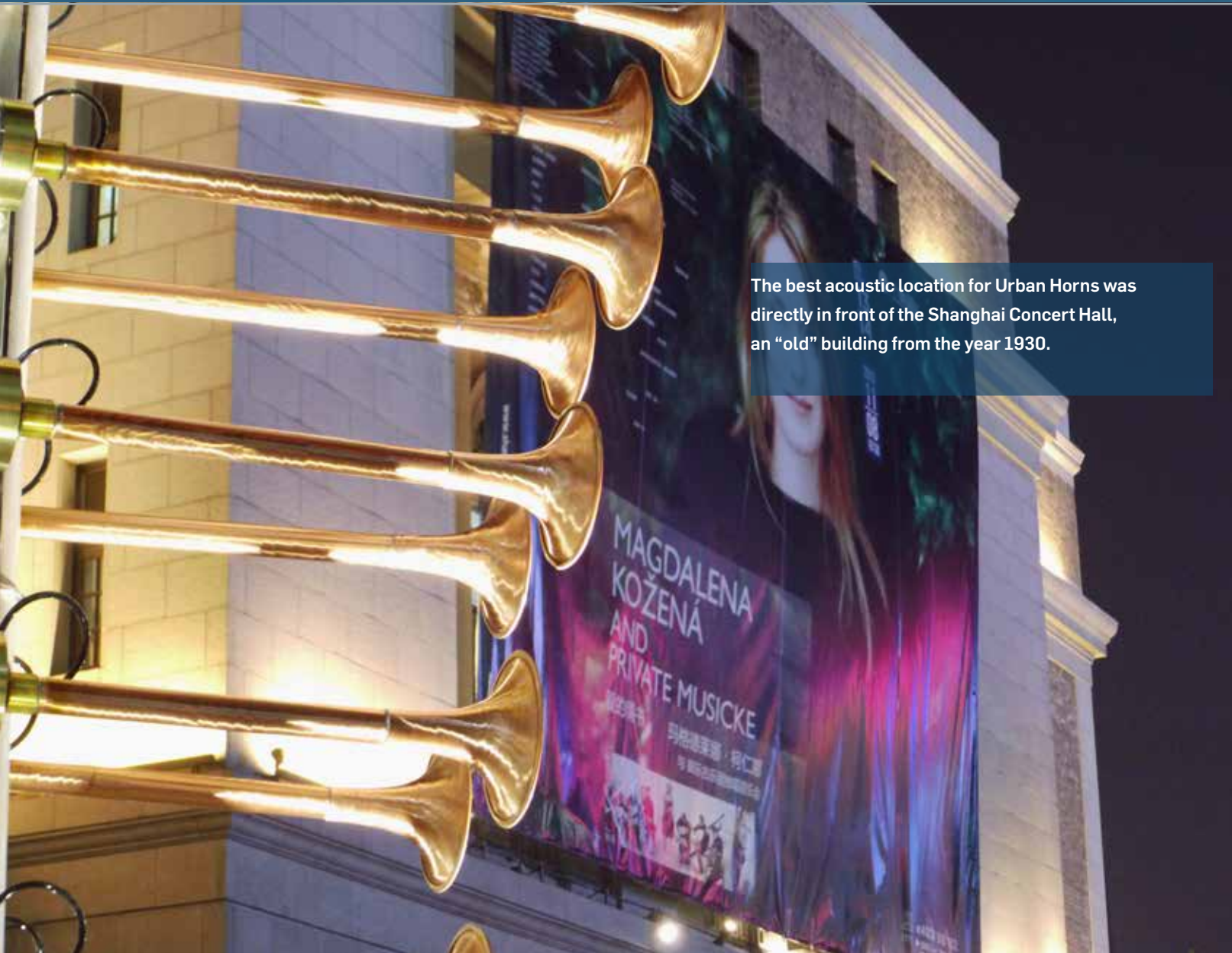
ON THE WATER AND IN THE AIR

The wind blows as it wills. The balloonists know it full well. The wind speed was marginal, the balloonists took off at high speed. Jazz singer Mara Minjoli's solo voice sounded from all the balloons floating across the entire city.

SHANGHAI MAGIC SQUARE OCTOBER 2013

“Magic Square” was the title of a composition for the Electronic Music Week Shanghai 2013 presented jointly by Christof Schläger and Marjon Smit. A specially conceptualized group of 64 compression horns was installed in the four cardinal directions intended to play with the acoustic reflections from the high glass facades of the skyscrapers. These powerful echoes were so present that they sounded like independent instruments, the multiplication creating a musical cathedral of sounding skyscrapers.

SHANGHAI



The best acoustic location for Urban Horns was directly in front of the Shanghai Concert Hall, an "old" building from the year 1930.



"There is hardly any metropolis that recreates itself as quickly and permanently as Shanghai. A student led me to an abandoned building: 'This is the oldest building in the quarter and will soon be demolished, it is already twenty years old.' Everything is new and will be even newer. Modernity in its highest and fastest form, that's Shanghai. Even here, urbanity pure means a continuous stream of traffic and light." C.S.

SHANGHAI

(Right) The concert in front of the Shanghai Concert Hall could be performed as a kind of test run in two different locations in Shanghai. The acoustic reflections in front of giant skyscrapers could not be planned in detail. This experience was important in order to perform the concert “Magic Square” in front of the Concert Hall optimally.

(Bottom left) “Taidzi was our almost always happy assistant and companion. His dedication and circumspection greatly supported our project and provided insights into the life in this metropolis.” C.S.



Shanghai is extremely densely built-up. The installation of Urban Horns in front of the Shanghai Concert Hall made use of the free space in front of the hall optimally to give the sound the necessary space.

THE SOUNDMACHINES | 1984 — 2015



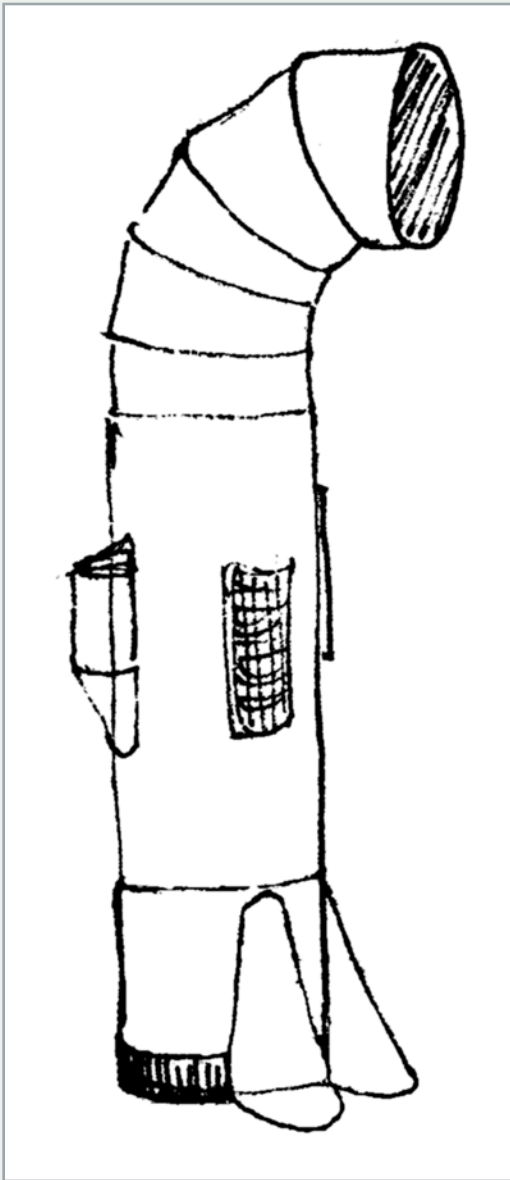
1984 | KLANGMASCHINE (SOUND MACHINE)

The first sound machine was constructed over thirty years ago. It consisted of three elements: The sound sculptures named Klangmuschel (Sound Shell), Gewittersäule (Thunderstorm Column), and Sirene. All have mechanical sounders and can be activated directly by switches and regulators. The Sound Shell has a rotating disc with a scratcher, a rotating ring consisting of springs, a hammer, sounders, magnet horn, and drilling motor. The Thunderstorm Column has rotating chains on two garage gate springs, a metal rod carousel, a buzzer, and a beater. Sirene consists of a wind machine and three perforated disc motors.

"The preparation of the piano was no longer sufficient enough to create a sound machine instrument. The sound machine was the first instrument completely eschewing electronic sound generation. All sounds and tones were generated mechanically in a direct physical manner. No meta-level, only pure sound." C.S.



MATERIAL: Metal bodies, motors, blowing machines, switches, controls
WEIGHT: 150 kg [ca. 330 pounds]
DIMENSIONS: Sirene 1.40 m [55.1 in.], Sound Shell 1.20 m [47.2 in.], Thunder Storm Column 2.50 m [98.4 in.], control panel 0.90 m [35.4 in.]



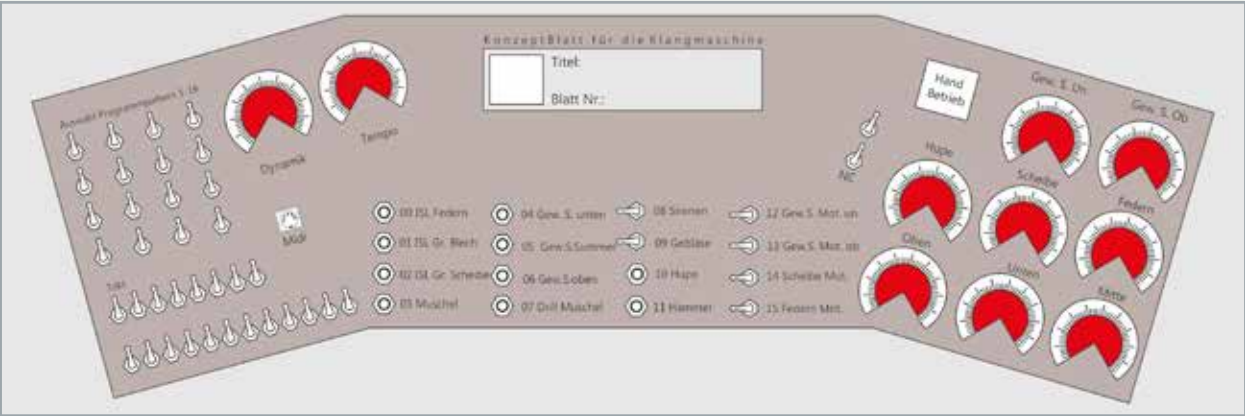
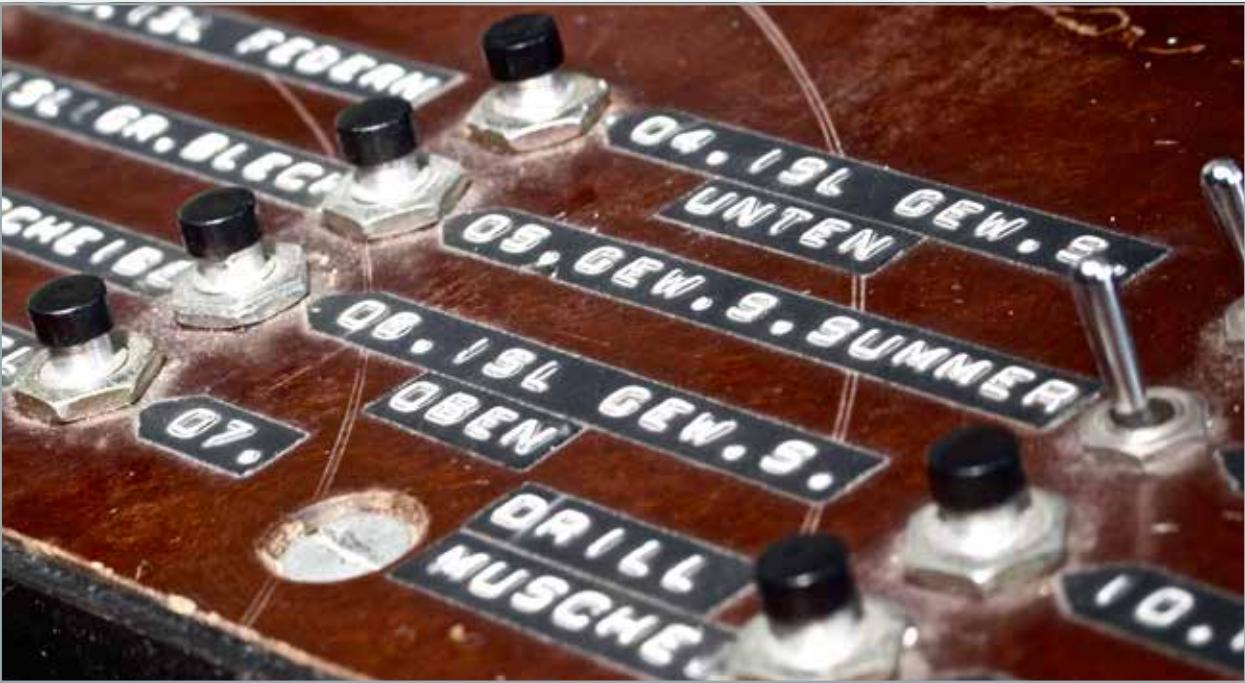
Sound Machine at the Ruhr Triennale 2002 in the coal wash of (the former mine) Zeche Zollverein Essen



1984 | SOUND MACHINE (2) CONTROL TECHNIQUE

Sound machines must be controllable in order to be played. The control board is analog. Encoder knobs and switches control blowing machines, chains, rattles, pulling magnets, windscreen wiper motors, and electric hammers.

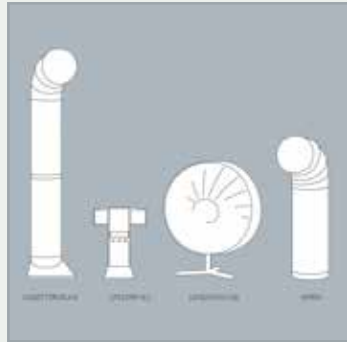
Even a machine concert needs a score. Thus “Score for a Sound Machine” came into being.



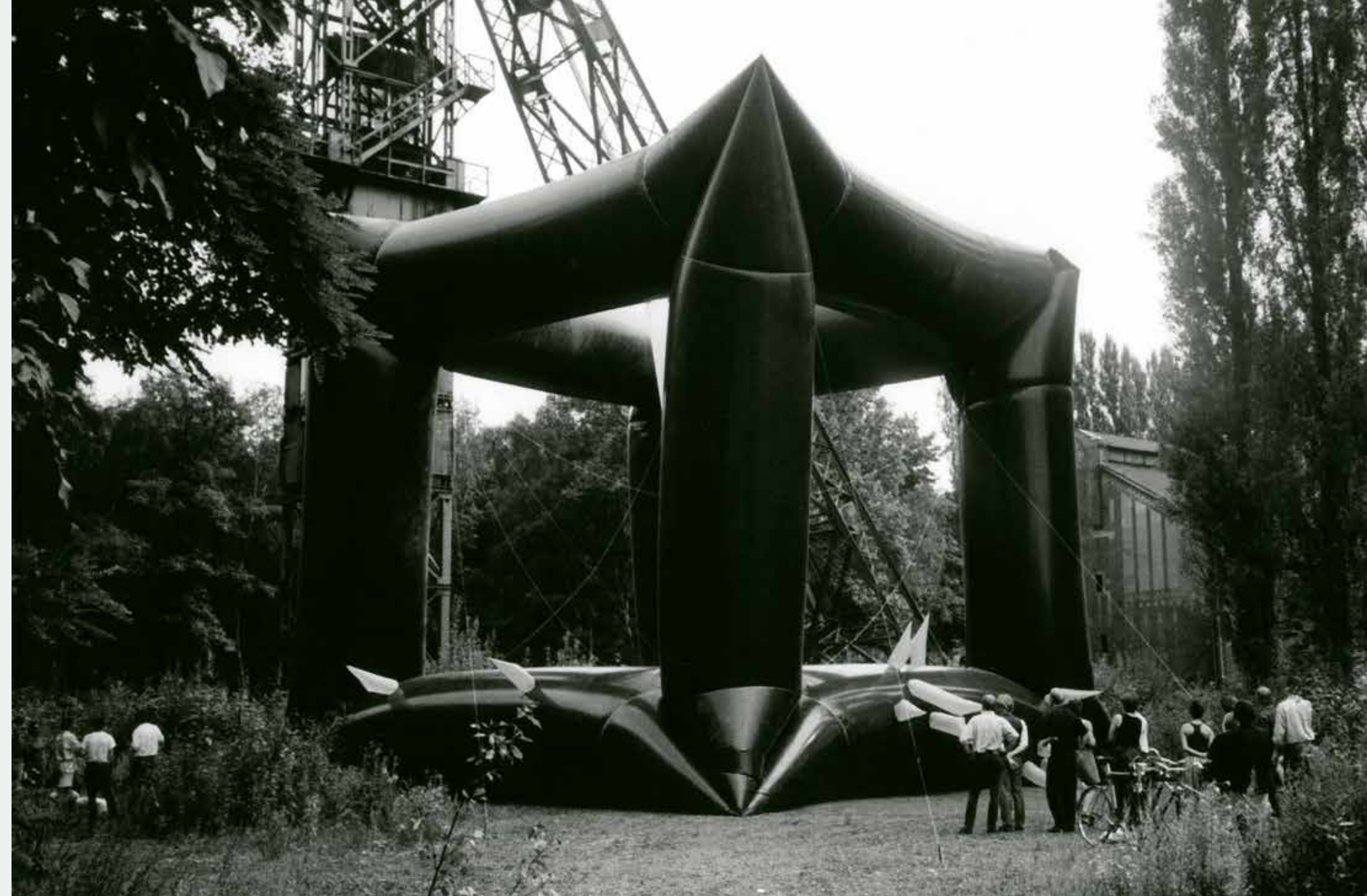
A 1.50 meter-thick ventilation hose used in mining transformed the air sculpture Tetrahedron [Tetraeder]. In their first life, weather – the air underground – streamed through the hoses into the tunnels of the 1.000 meter deep mine. Now Tetrahedron constituted a musical performance space for Sound Machine.

1984 | SOUND MACHINE (3) / INSTALLATIONS WITH AIR OBJECTS

The concert with Sound Machine and Tetrahedron that took place in Herne's Schlosspark in 1985 was called "Lutte and Sound." The air object Tetrahedron is 20 meters high and was built from air-ducting system components, so-called Lutten, whose form was created by a very strong blowing machine. The concert was part of the "Atanata" exhibition presented in Herne in 1984. Here, a new sound space developed from air architecture, in the center of which stood Sound Machine, constituting a temporary "sound cell" in the urban space in which live music was performed.



Thunderstorm Column, control board, Sound Shell, and Sirenes were the machine instruments constituting Tetrahedron. To obtain a better sound, the instruments were arranged on a triangular steel stage.

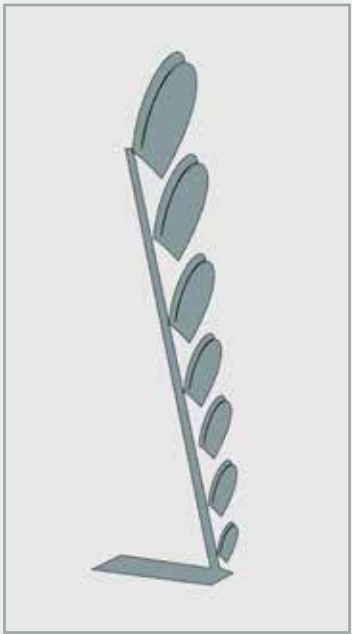


Cube (Kubus) was presented in 1989 during the IBA (International Building Exhibition) on the former areal of the mine Teutoburgia. A walkable air sculpture built in collaboration with Junges Forum Ruhr Festival Recklinghausen.

1987 | KLAPPERRAPPEL

“Klapperrappel has its perception-psychological origin in the continuously repeating background noise in front of the house, in which I used to live. The approaching garbage workers who unloaded metal buckets from trucks in the morning – the rattling and clatter of the lids of garbage cans that collided with steel sheets.” C.S.

Elliptically cut metal cones colliding in pairs, including small amounts of air in the process. Seven pulling magnets from a former pneumatic dispatch that have received a new function.



MATERIAL: 7 pulling magnets, steel
WEIGHT: 36 kg
DIMENSIONS: 2.40 m x 0.80 m x 0.70 m [94.5 x 31.5 x 27.5 in.]



1987 | KLAPPERRAPPEL (2) | CONSTRUCTION

„Ich hatte mir zwölf ausgediente Mülltonnen für Klangversuche besorgt. Bei den Experimenten zeigte sich jedoch, dass sie enttäuschend dumpf klangen und gar nichts mit der Straßen-Geräuschkulisse gemein hatten. Erst nach einigen Versuchen mit neuen Stahlblechen ist die Austern-Muschel fast zufällig entstanden. Eigentlich handelt es sich um zwei schräg angeschnittene Kegel, die beim Zusammenschlagen Luft einschließen. Das entfaltete die klingenden Assoziationen, die ich mir gewünscht hatte.“

Christof Schläger

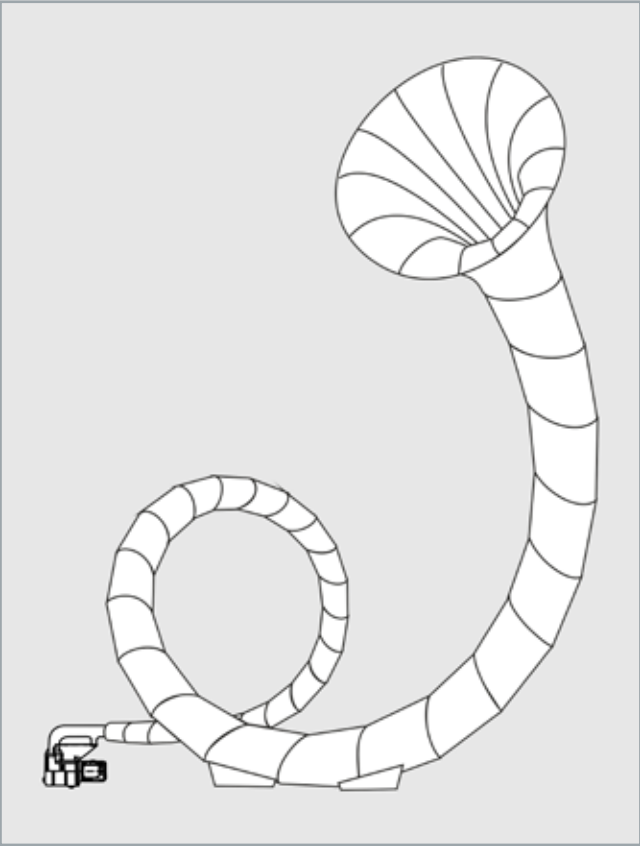
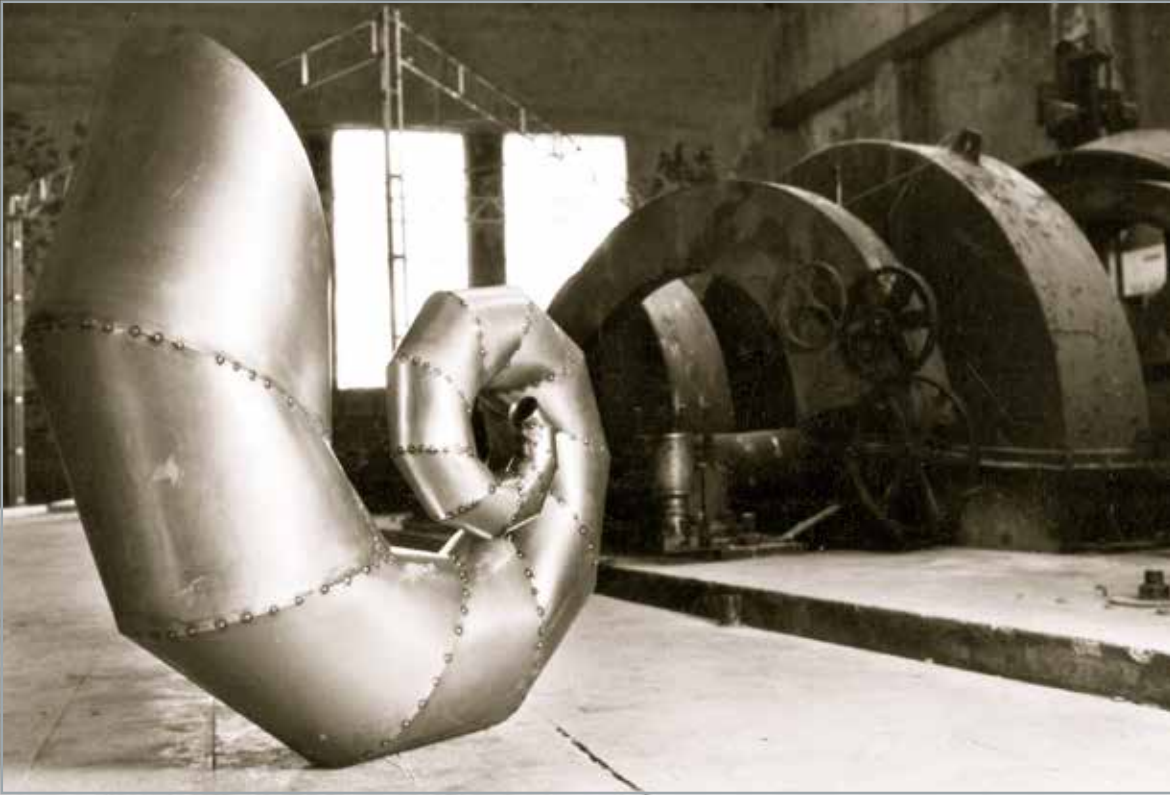


In 1994, for the Intro Foundation [Stichting Intro] Maastricht, Christof Schläger presented a larger installation in the cave of Saint Pietersberg in which Klapperrappel played a special part.



1989 | HELIX HORN

"Forms in nature are based on fascinating mathematical principles like the Fibonacci sequence, which represents the growth rules of plants and animals. A folded sine wave results in a form resembling natural horns. I wondered how such a form would sound. In 1988, I began to construct mathematically based Helix Horns. Principally, the horn is an infinite sine wave. I shaped a section of a steel sheet into a Helix Horn." C.S.



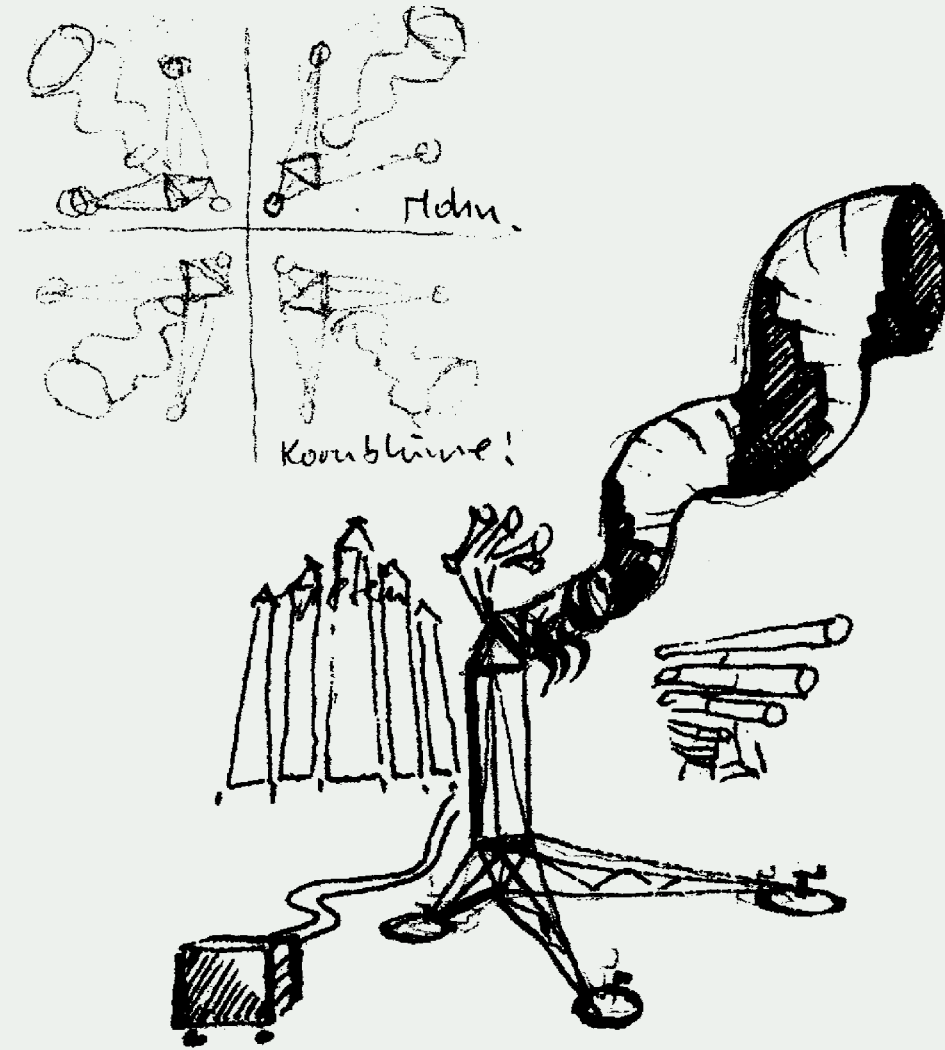
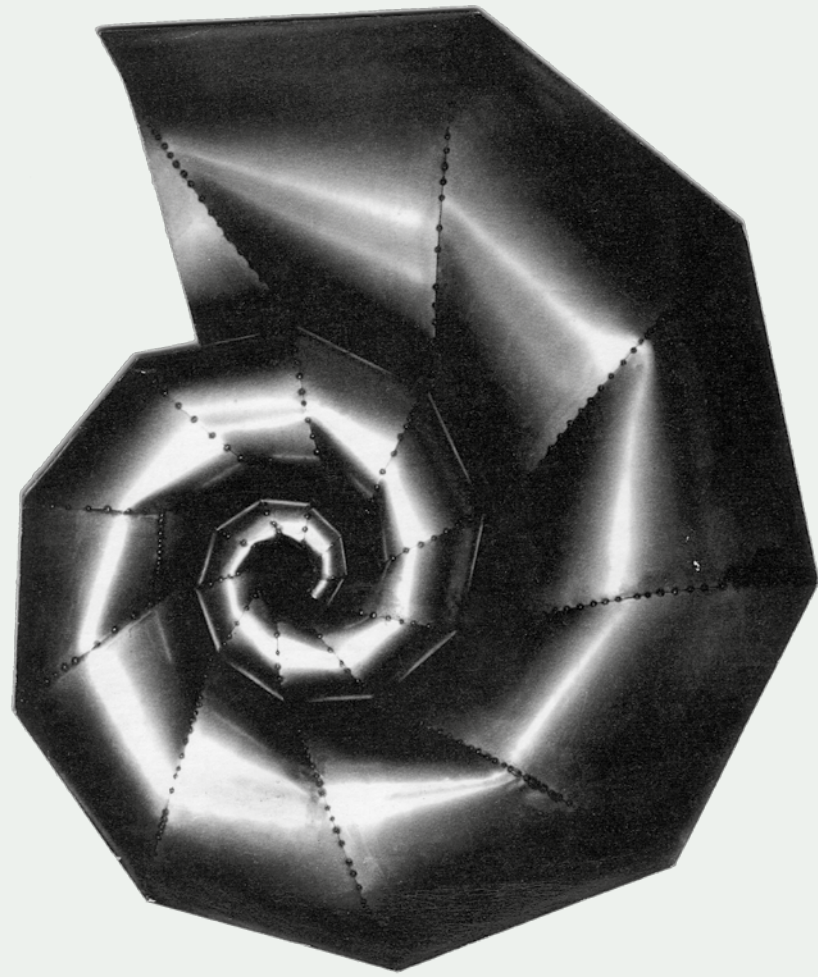
(Above) In order to generate sound tone generators of the type used for ship's horns or sirens are connected to the helical coils of the horn.

"The initial idea for Helix Horn developed from sojourns in harbor cities like Amsterdam, Rotterdam, and Hamburg, where the distant ship's horn is part of the characteristic soundscape. For many years I lived at the marine terminal in Amsterdam. At close range, one can hear multifaceted sounds and overtones shortly before the actual sound of the ship's horn. Was it possible that the ship's horn could produce even more sounds? However, the realization of an appropriate sound generator for Helix Horns still required a long development process." C.S.



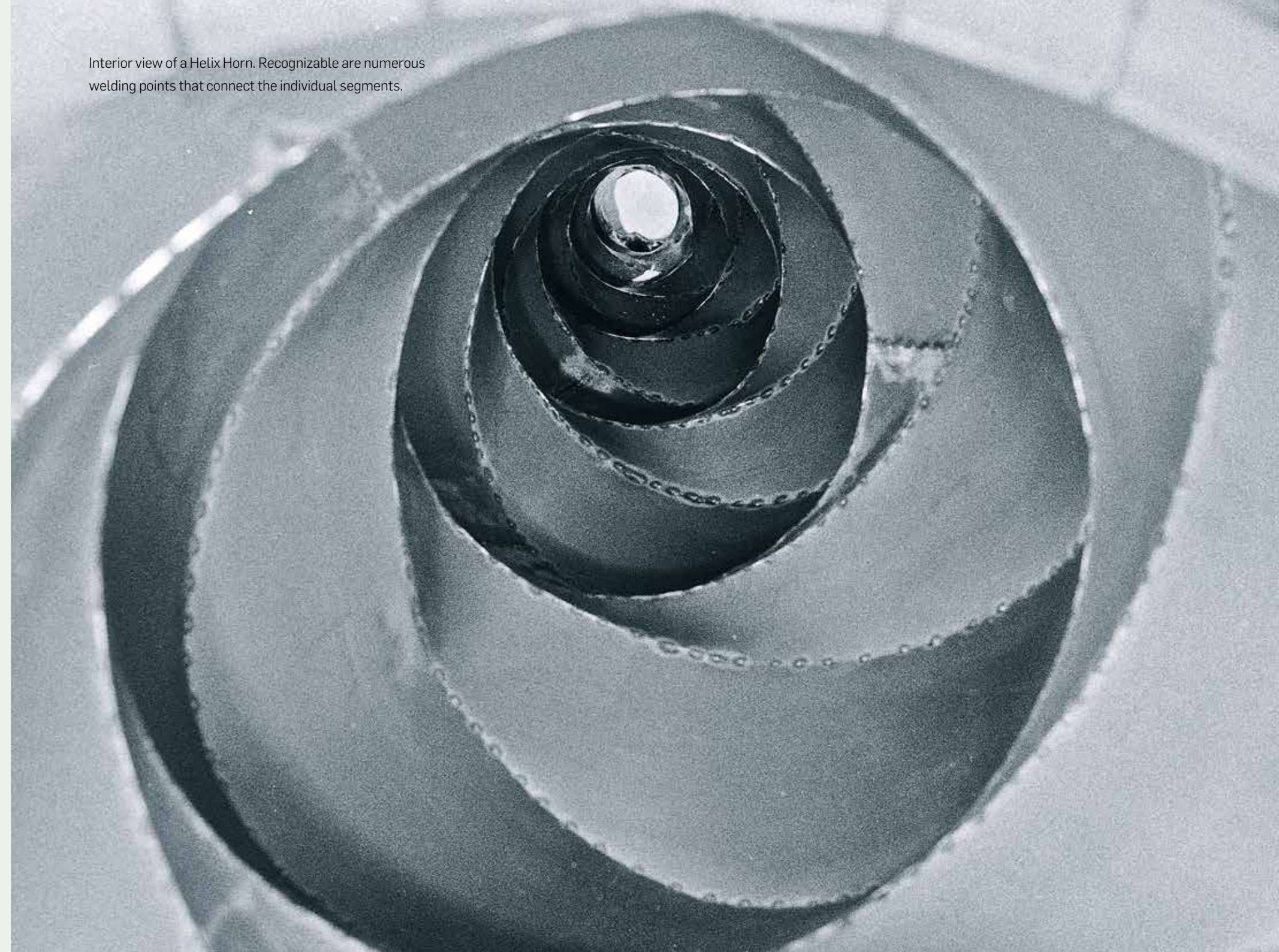
1989 | HELIX HORN (3)

Over the years, the testing and experimenting with this building principle resulted in a tremendously rich multitude of forms. Snail forms developed, but also conical forms which went beyond their use as instruments and asserted themselves as sculptures with a value of their own.



"A concept had to be developed, as to how the Helix Horns were to be presented in the urban landscape. The ideas ranged from horns on rafts to sounding Zeppelins. A solution on the ground was to play toward the four cardinal directions. For a better sound propagation the horns stand on columns. The composition developed for them contains pauses matching the spatial situation into which the echoes in the landscape integrate." C.S.

Interior view of a Helix Horn. Recognizable are numerous welding points that connect the individual segments.



1989 | HELIX HORN (4)



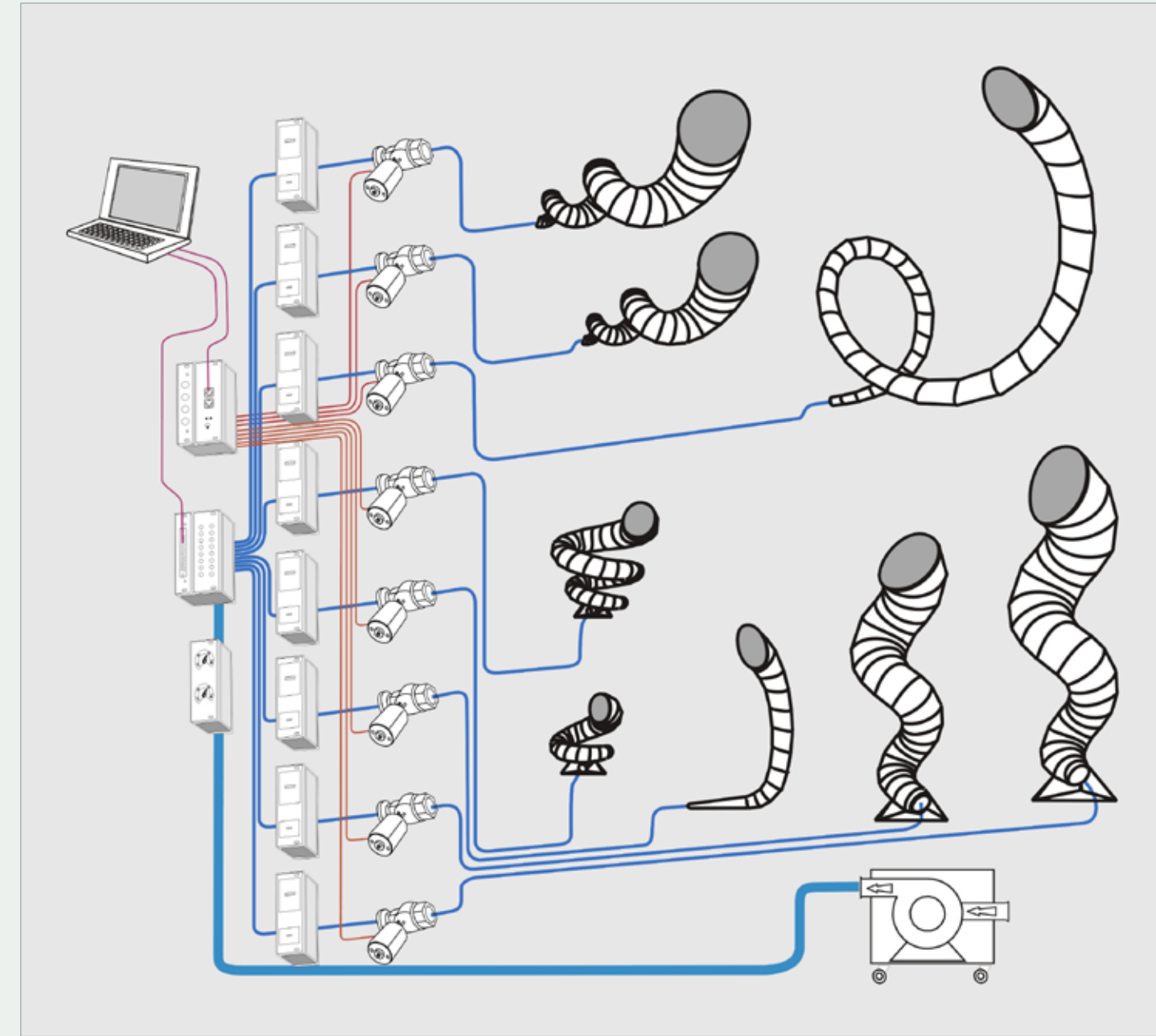
(Top left) "Eisenhans," alchemistic machine music concert with pigments, hand clappers, and Helix Horn at the Music Center Vredenburg in Utrecht 1992



(Bottom left) For the Festival "Schwingungen" ("Vibrations") Ruhr2010, a landscape concert at the Rhine-Herne Canal, two Helix Horns were mounted on a moving train.



The Horns welded from steel sheets and galvanized in a silvery sheen were produced in several sizes; the more slender design is 3.50 meters [11.5 feet] high, has a total length of 12 meters and weighs only 110 kilos.



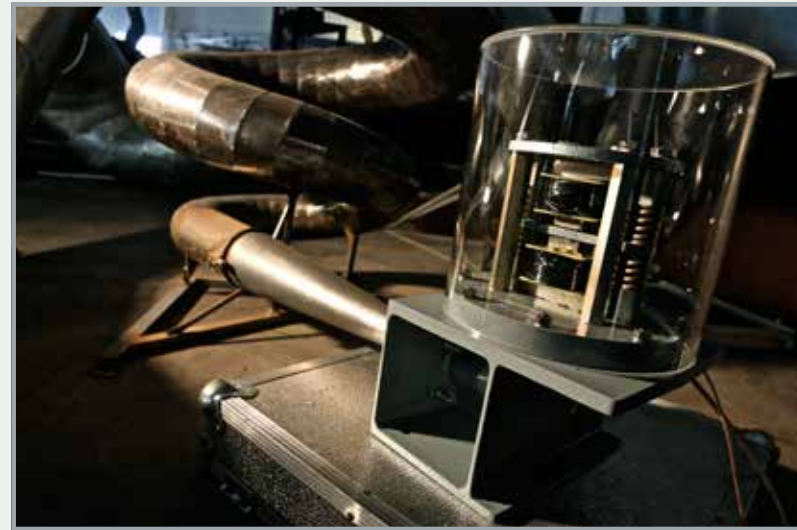
The development of the sound generator for the Helix Horns took several attempts, the last and best solution was the "Zetfon," the sound generator for a classic ship's horn produced by the Zöllner Company and which was adapted for the Helix Horn.

There are eight Helix Horns in different sizes and fundamental notes, each fitted with its own electrical pneumatic sound generator. A specially constructed MIDI-control allows each Helix Horn to play several notes and their overtones.

1989 | HELIX-HORN (5)



(Left) Like all other horns, Helix Horns too have bells so that the sound can better escape. 26 years after its first commissioning, Helix Horn had been completely reworked. The construction had proved extremely stable over this long period of time. For a better sound, the horns were fitted with newly built bells. At the same time, a revision of the welding seams had become necessary.



(Above) After a long pause, a new electrical pneumatic sound generator "Zetfon 400", again, a ship's horn design produced by the Zöllner Company, was substituted. Specific sounds now generate the resonance of the clear sound of a natural horn.



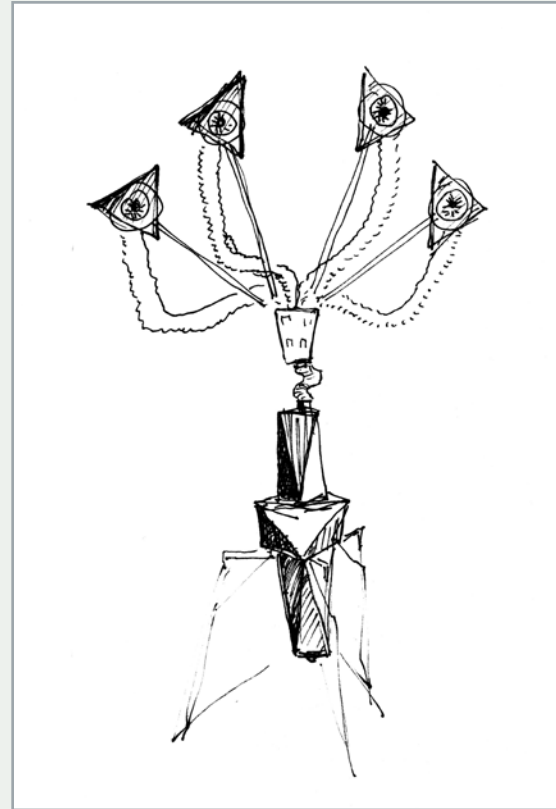
The old, newly reworked Helix Horn in the machine hall of the former mine Teutoburgia in Herne waiting to be played on the plaza in front of the baroque Markgravian Palace at the closing event of the celebrations for the 300th birthday of the City of Karlsruhe in September 2015.

1989 | SIRENS

Air passing through rapidly rotating perforated discs produces a characteristic siren sound. The instrument, which was built in 1989 and reworked in 2002, is futuristic in appearance, somewhat resembling an alien or some other figure from a science fiction film. The siren is 2.40 meters high and 3.50 meters wide and consists of eight discs, which can be triggered by eight throttle flaps and 16 motors.



"Once a year at predetermined hours, sirens were once tested on city roofs. For this test, I used to walk regularly across the fields on the outskirts of town. The sirens from neighboring cities kilometers away generated a fascinating spatial resonance, certainly the most spatial acoustic sound space I have experienced so far." C.S.



MATERIAL: Steel, tubes, 8 hoses, 8 valves, 8 throttles, 16 motors

WEIGHT: 140 kg

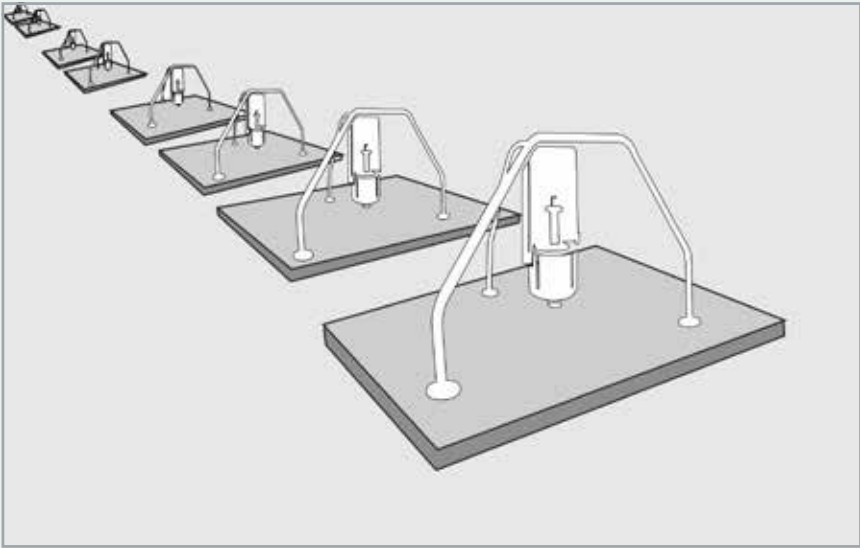
DIMENSIONS: 3.50 m x 2.40 m [11.5 x 7.9 feet]

Wind machine blowing air into the valve box. The valves distribute the air to the eight hoses.



1993 | HOPPER

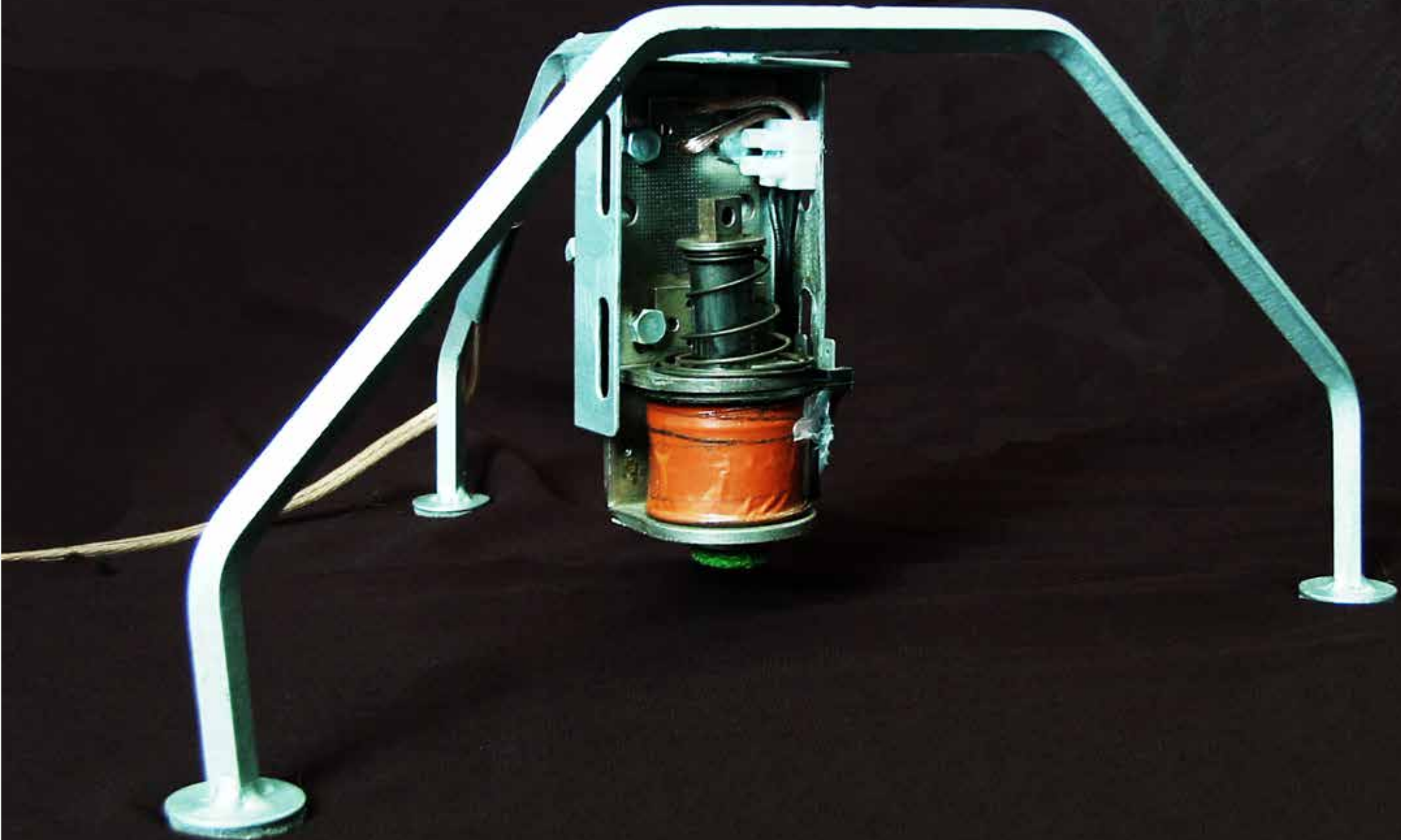
"When our attic was expanded, a serial knocking caught my attention. I followed the noise and found a carpenter using a defective electric nail gun that didn't shoot just one nail at a time, but drove an entire series of nails into the wood simultaneously. Involuntarily, the dangerous duo produced a fascinating percussion piece." C.S.



MATERIAL: Iron profiles, 8 magnets, control system
WEIGHT: 2 kg each
DIMENSIONS: 20 cm x 80 cm x 80 cm
[7.9 x 31.5 x 31.5 in.]

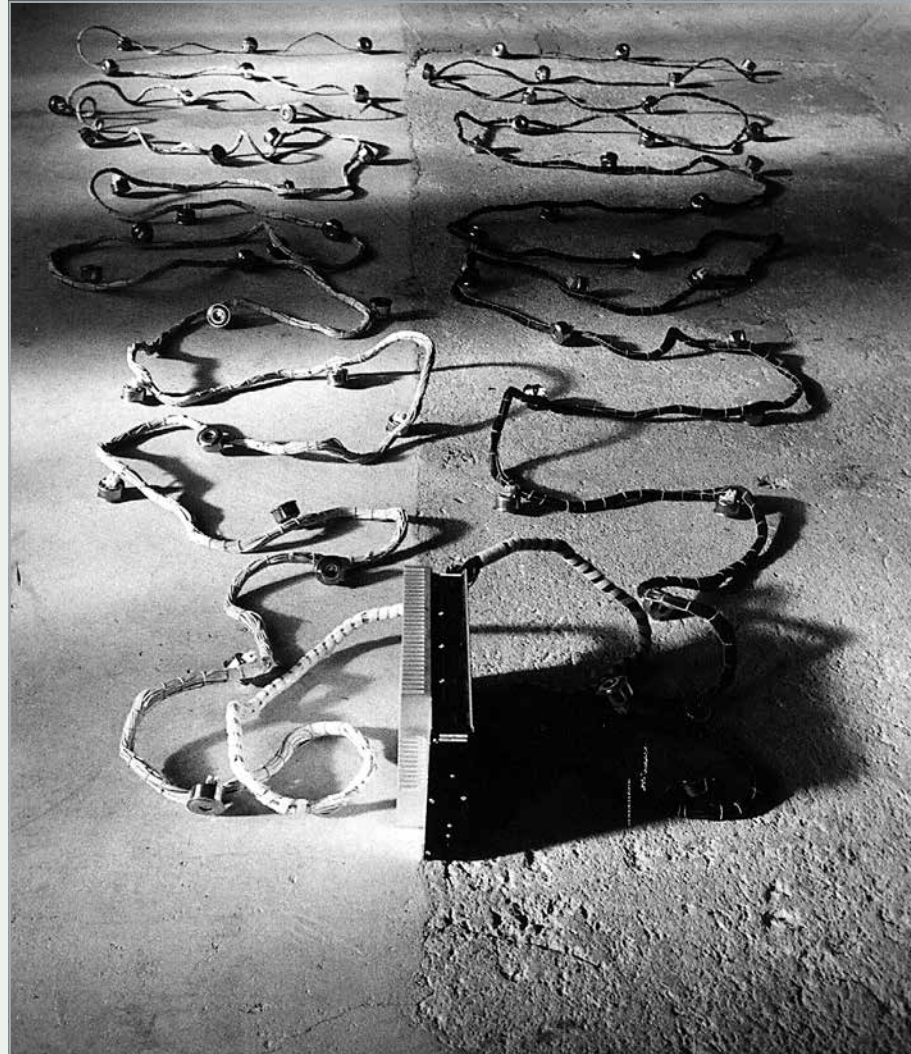
(Left) In a concert Hoppers and Zirr-instruments were combined to a rather close-to-the-earth sound machine group.

Magnets taken from nail guns have been screwed to a small tripod. Eight Hoppers knock and jump on prepared wooden boards. Depending on the underground conditions, the Hoppers can touch the ground directly as a resonating surface.



1993 | KNACKDOSEN (CRACKBOXES)

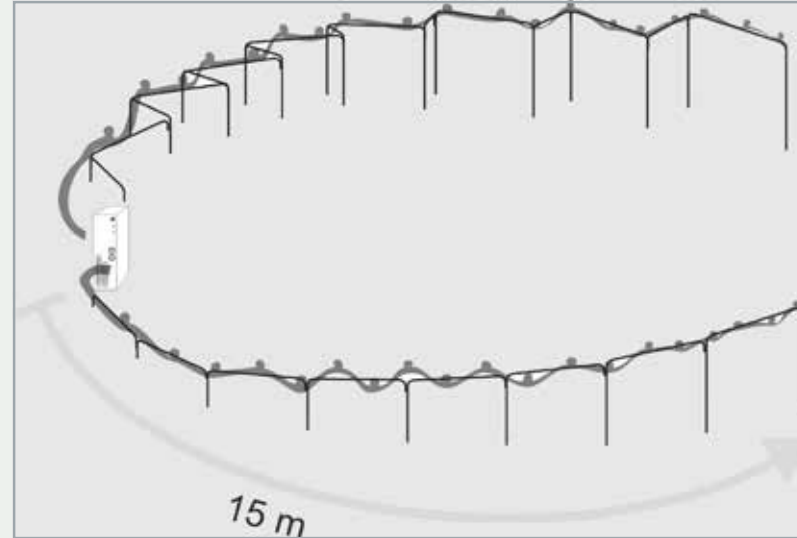
The Crackboxes are “shape-shifters” the form of which inconspicuously follows the lines, edges, and columns of a performance space. They only become “visible” when they sound and their cracking sounds move swiftly through the space.



MATERIAL: Transducer, signal source, cable

WEIGHT: 15 kg

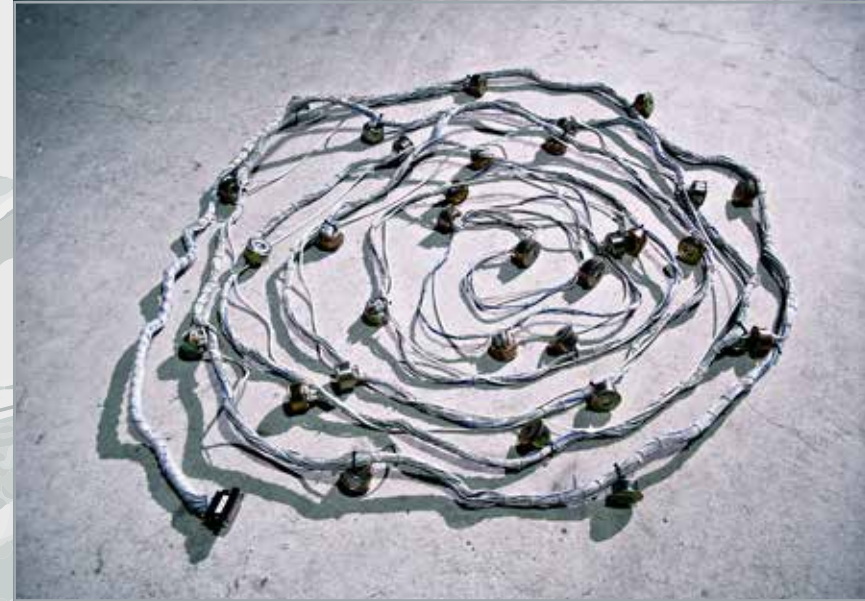
DIMENSIONS: 32 meters



Connected by a cable electromagnetic signal generators are mounted at intervals of 0.50 meters. Close-circuited, they generate a cracking sound. The 32 meter long cable of the Crackboxes chain can be arranged in various ways. Schläger places the chain either inconspicuously in the room or he constructs with them objects on carriers.



1993 | KNACKDOSEN ZICKZACK (CRACKBOXES ZIGZAG) (2)



(Left) A second variant of the crackboxes is ZigZag. The cracking sound frequencies, the same for all crackboxes (right), can be varied from high to low through the use of plastic tubes. Their arrangement on a metal rack lifts the song from the ground to ear-height.



Crackbox with a longer tube element producing respectively deeper tones

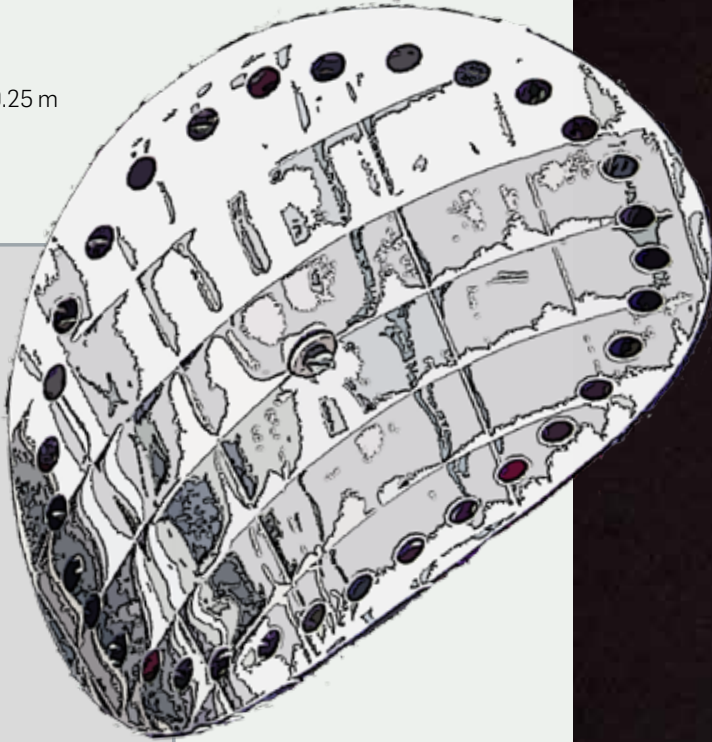
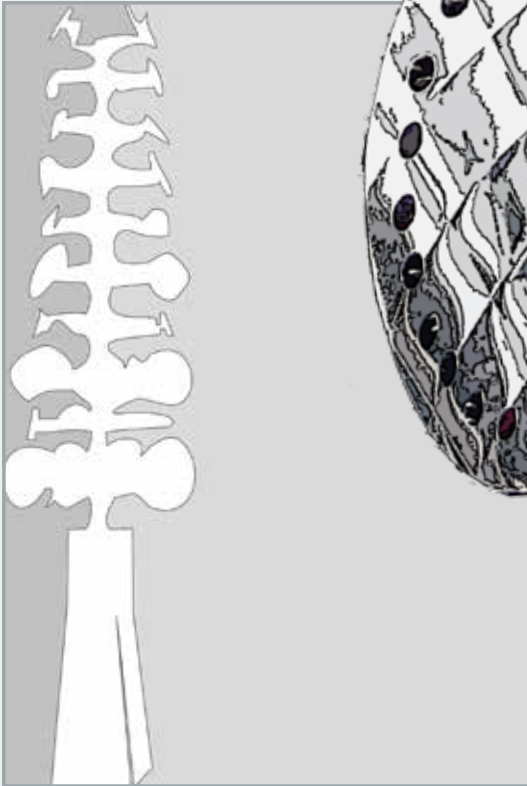
1993 | KNISTER (CRACKLE)

“The new fruit brand was shrink-wrapped in cellophane. Removing the fruit from the transparent foil, became a noisy sound performance. The innovative cellophane wrap surprised me with its pervasively loud rustling and crackling noises. Work on the object revealed that there ought to be a minimum number of crackling sounds. I chose sixty motors, which in addition could also be used to perform an optical role.” C.S.

60 motors cause plastic wrapping and papers to rotate generating whooshing and crackling sounds.



MATERIAL: 60 motors, metal, foil
WEIGHT: 15 kg
DIMENSIONS: 1.80 m x 0.25 m x 0.25 m
[5.9 x 0.8 x 0.8 feet]



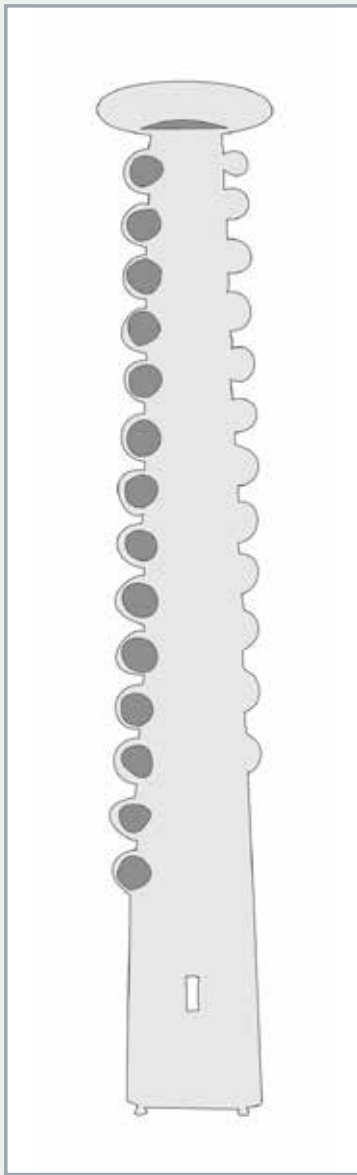
1993 | SCHELLENBAUM (BELL TREE)



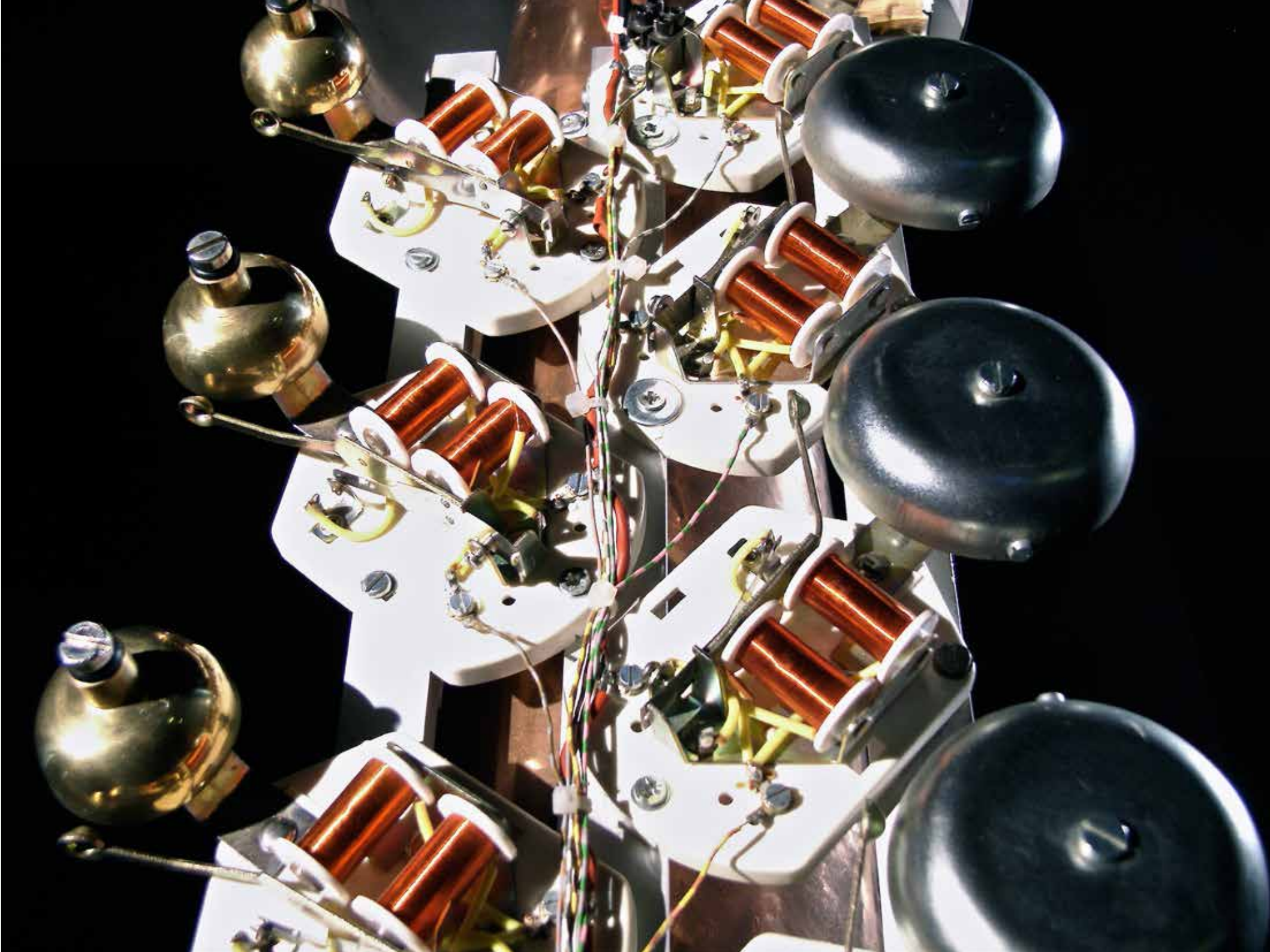
Twenty-eight modified doorbells are fastened to a column of copper sheet. Bell magnets strike steel and brass bells. The brass bells enrich the sound, which occasionally is reminiscent of bicycle bells, leading to the later variant Telewald.



"Visiting friends in an apartment block, I noticed that all apartments had the same doorbell. All bells in the apartment block ringing their cycles in the course of the day together generated a rhythm of coming and going."
C.S.

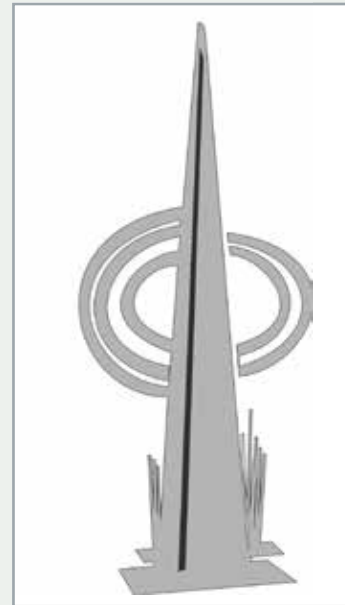


MATERIAL: copper sheet, 28 doorbells, 2 bell magnets
WEIGHT: 17 kg
DIMENSIONS: 2.00 m x 0.60 m x 0.50 m [6.6 x 2.0 x 1.6 feet]



1994 | FEDERINE

A 2.57 meter-high steel pyramid serves as the platform for Federine. Its 1994 construction was inspired by the droning and groaning noises of the springs of a garage door. Vibration of similar springs is activated by seven drills set in motion by motors. Schläger furthermore mounted poles and wires to the pyramid which are struck by 25 magnets from spinning machines.

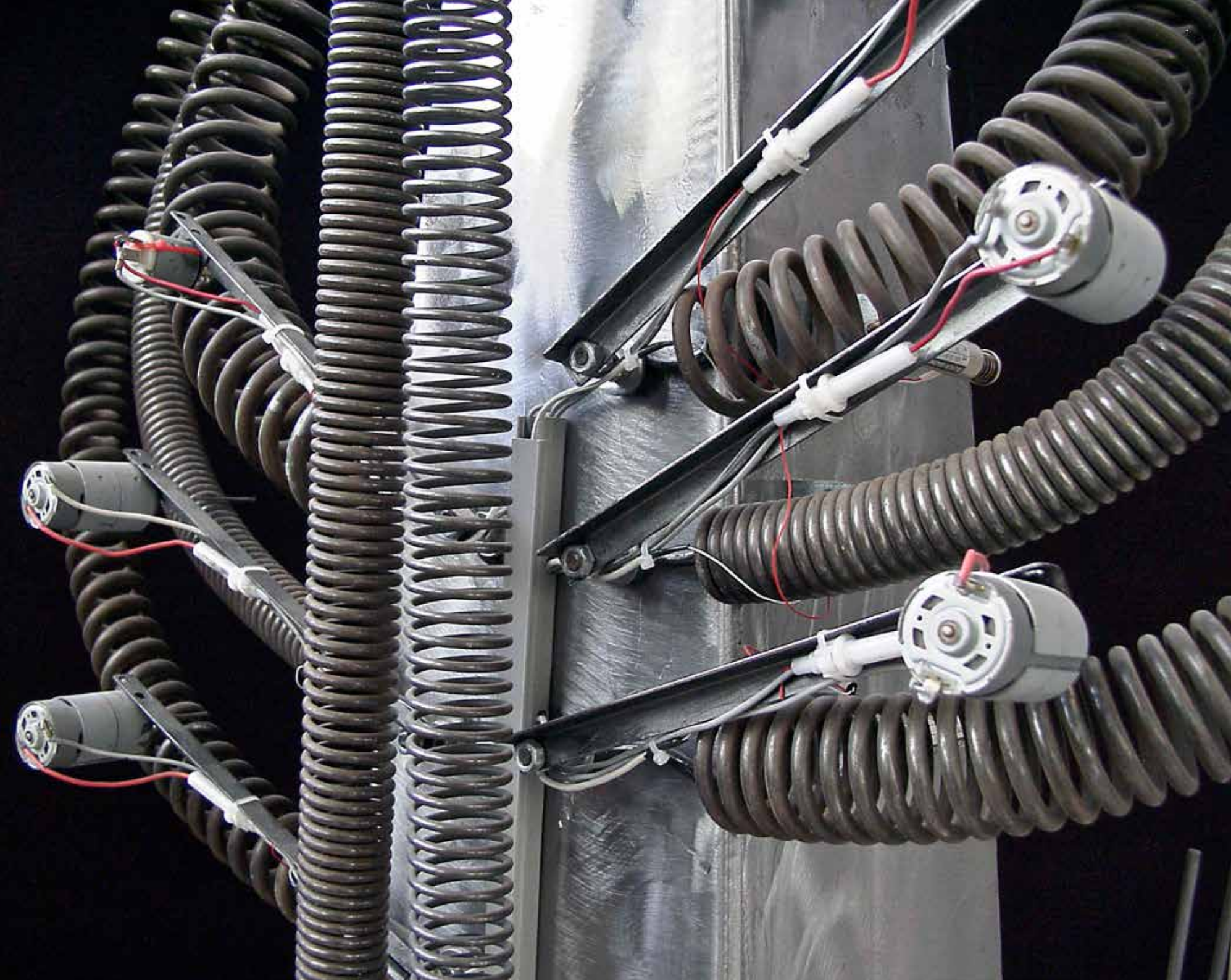


MATERIAL: 25 magnets from spinning machines, 7 motors, steel, garage door springs

Weight: 110 kg

DIMENSIONS: 2.57 m x 1.30 m x 1.10 m [8.4 x 4.2 x 3.6 feet]

"Opening a garage door, I was surprised by the droning and groaning sound of the springs." C.S.



1994 | FEDERINE (2)

At the Art Cologne 2004, Federine made a special appearance with the presentation of four short compositions for Federine written for this performance.

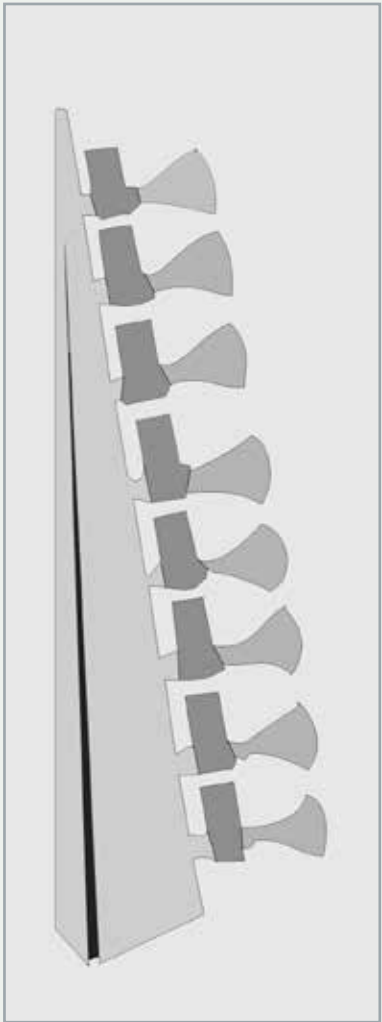


During the exhibition at the Flottmannhallen in Herne in 2014, visitors could start new pieces by themselves.

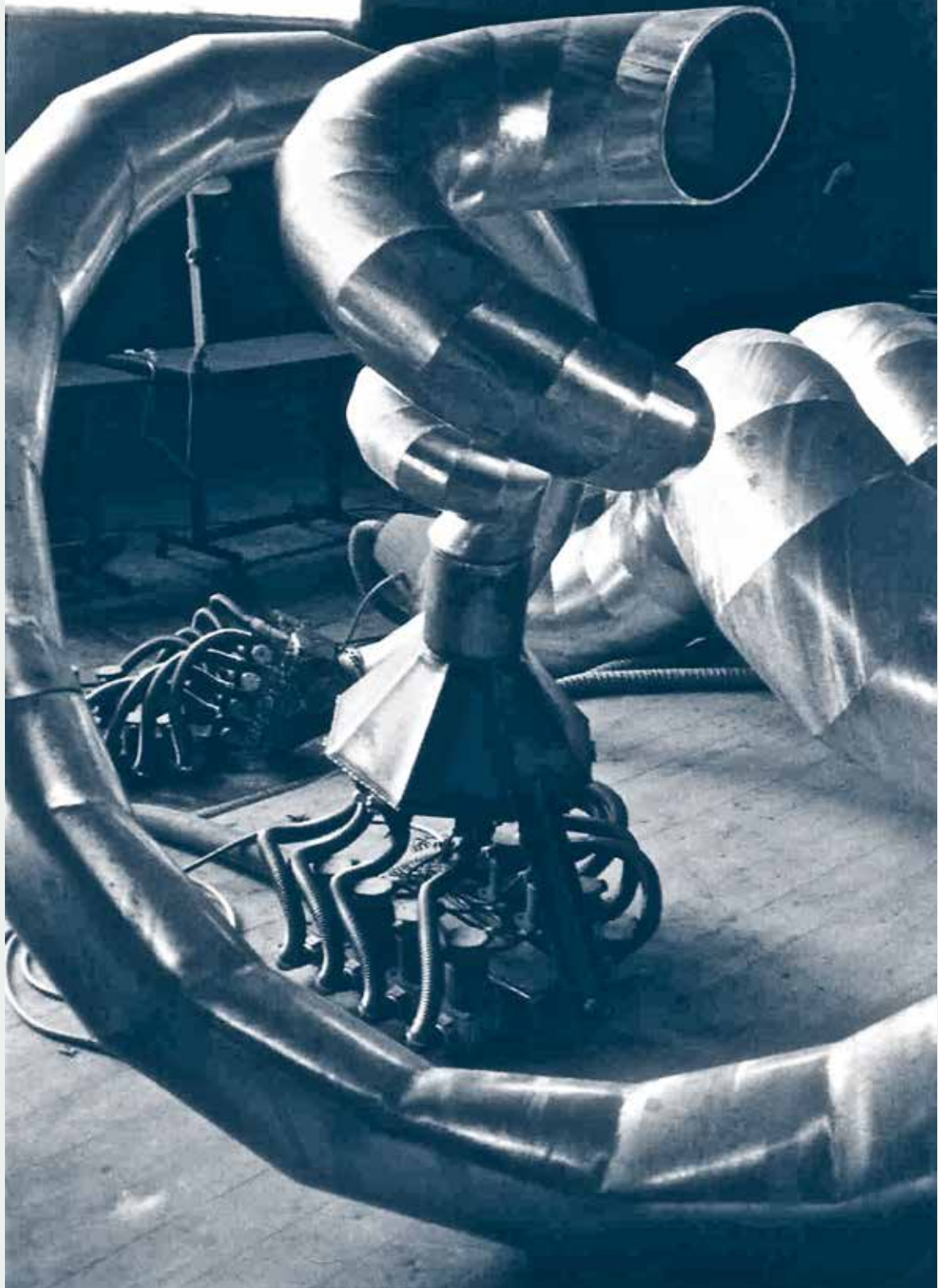
1994 | QUÄKER

Air directed through eight valves blows through a rubber strip, which is extended between two wooden beams. The tension can be changed and an animal-like sound resonates. During concert the tension of the “vocal cords” can be increased directly by means of the use of bicycle brake levers. The instrument is to be played live.

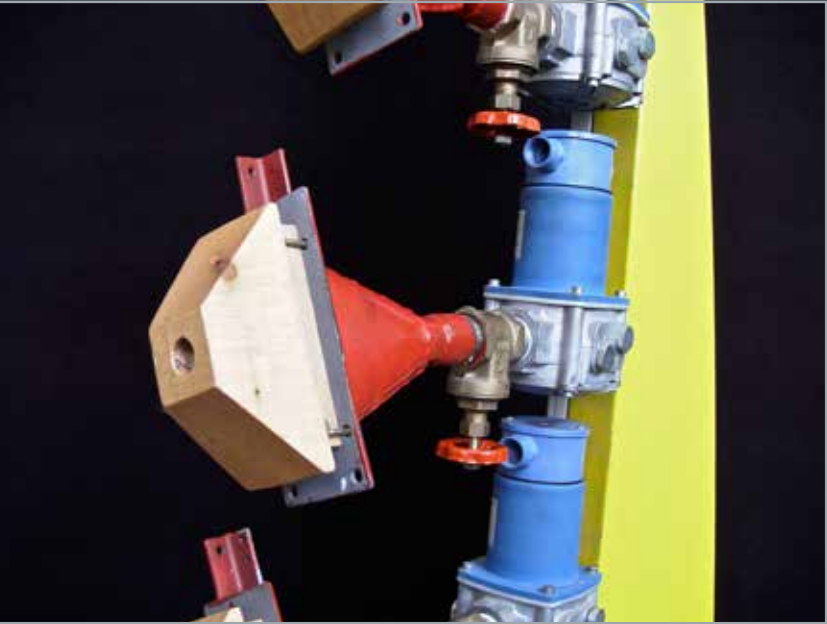
“While vacuum cleaning the bathroom the suction tube made contact with the shower curtain. The aperture of the suction tube nozzle made a seal against the stretched plastic sheet thereby generating a deep droning noise.” C.S.



MATERIAL: Steel and 8 air valves
WEIGHT: 50 kg
DIMENSIONS: 2.00 m x 0.65 m x 0.60 m [6.6 x 2.1 x 2.0 feet]



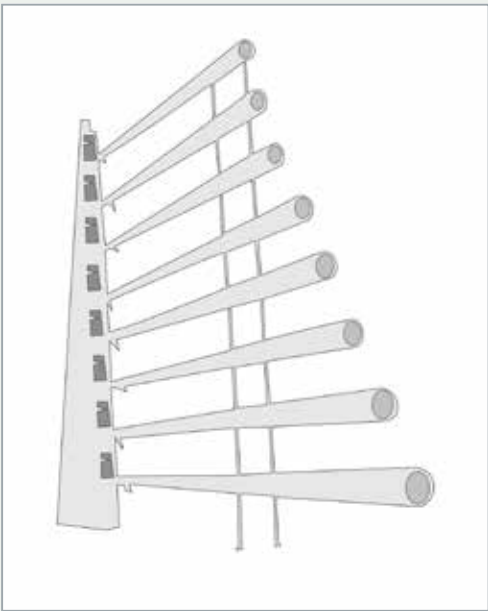
Quäker had a precursor. All eight “vocal cords” were sounded from the helical horn (Helix Horn).



Intellectual reflection on listening experiences inspired various experiments. I remembered the squawking sound made by a blade of grass, stretched taut between thumbs and forefingers, held to the lips and blown into. Following this model I built Quäker in which a strip of foil is extended between two wooden beams.” C.S.

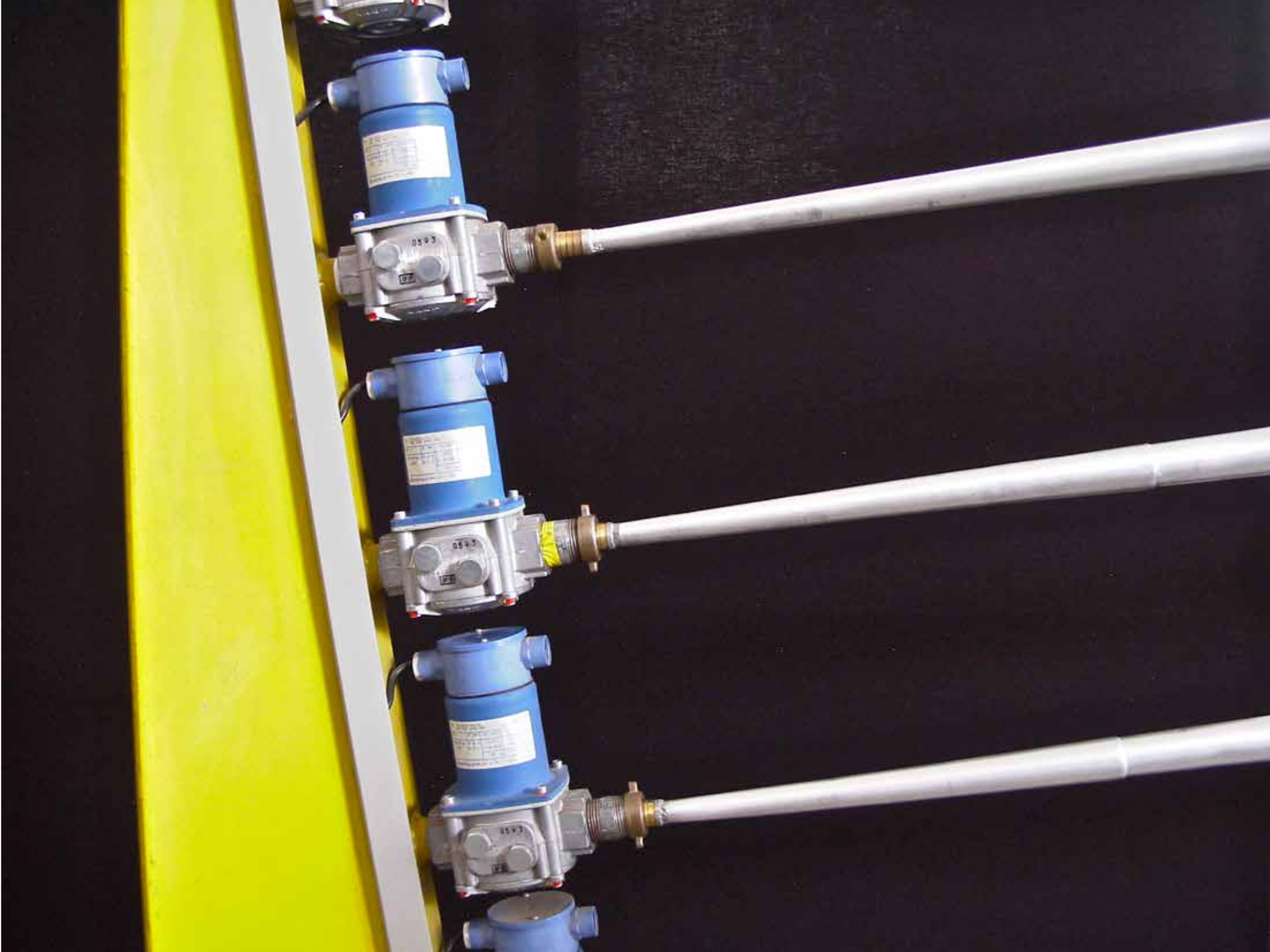
1994 | RAUSCHER

Rustling, hissing sounds through pure airflow and short air blasts. Bells are connected to eight suction valves through which wind flows from a wind machine.



MATERIAL: Steel, conical tubes, suction valves
WEIGHT: 45 kg
DIMENSIONS: 2.00 m x 2.50 m x 0.60 m
[8.8 x 8.2 x 2.0 feet]

“On the way to my traineeship I rode on an old bus, the doors of which opened and closed by means of compressed air, telescoping in several sections and in doing so, causing a very loud hissing; the hissing sound of discharged air under pressure. Rauscher acoustically enhances this sound by means of long tubes.” C.S.

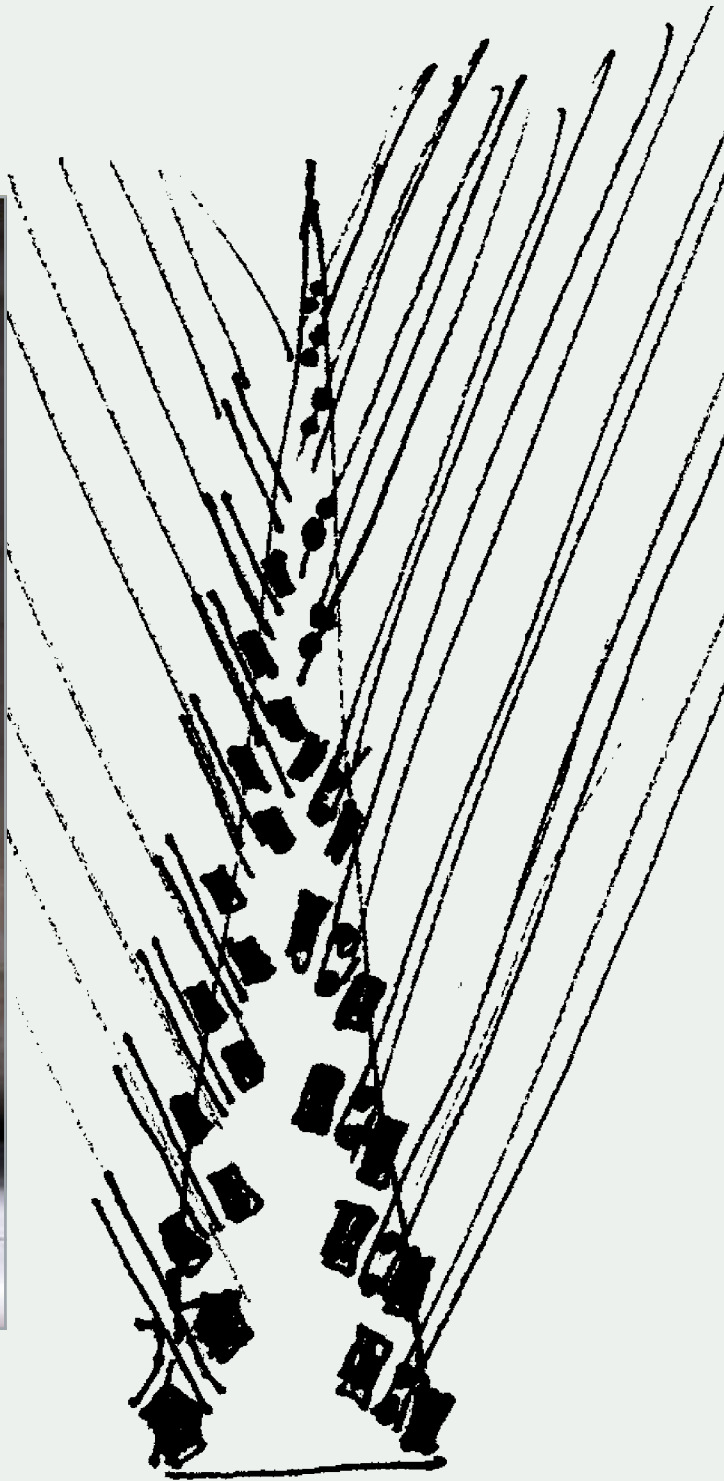


1994 | STANDZEIT

The mechanical principle of sound generation.
Disassembled bell magnets strike steel spring rods.

MATERIALS: 32 bells, metal pyramid, spring rods
WEIGHT: 29 kg
DIMENSIONS: 2.50 m x 1.00 m x 0.90 m [8.2 x 3.3 x 3.0 feet]

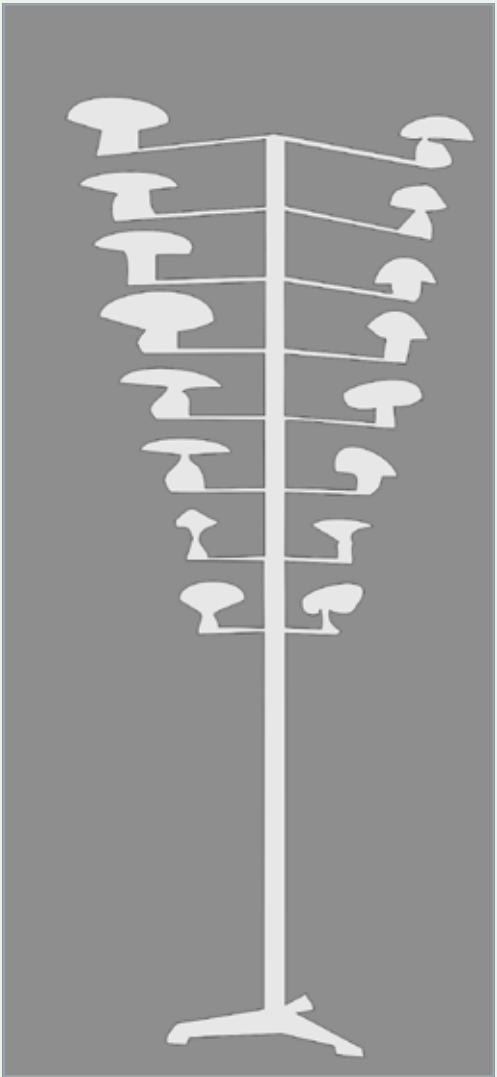
"A large bundle of construction rods on a passing truck played a clanking sound piece. I lined up the bundle and mounted it to a metallic sound body. The sound is generated by disused bells buzzing at the metal rods." C.S.



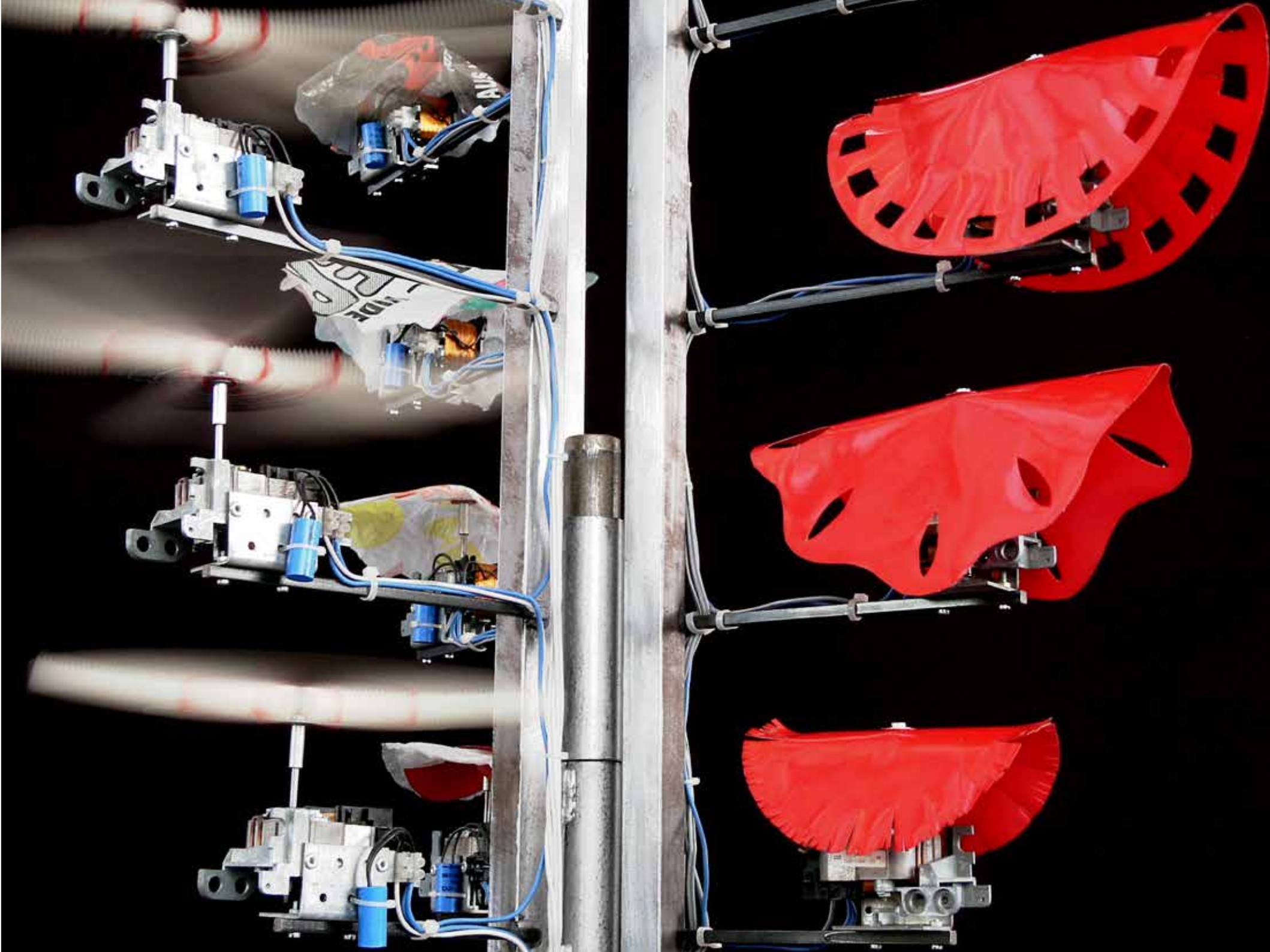
1995 | FLATTERBAUM

Record player motors rotate vinyl discs or other materials generating whooshing and roaring sounds.

“During a visit to New York, I discovered the “sleep sound machine” in a store. It is a simple white noise generating machine that is placed on the nightstand and generates an even murmur supposedly helping people in one of the world’s noisiest metropolises to sleep soundly. Mounted to the machine was a small motor with a propeller.” C.S.



MATERIAL: 3 rods with a total of 24 motors: wind sauser, rill sauser, paper sauser, steel, foils
WEIGHT: 60 kg
DIMENSIONS: 3.20 m x 2.10 m x 1.70 m [10.5 x 6.9 x 5.6 feet]

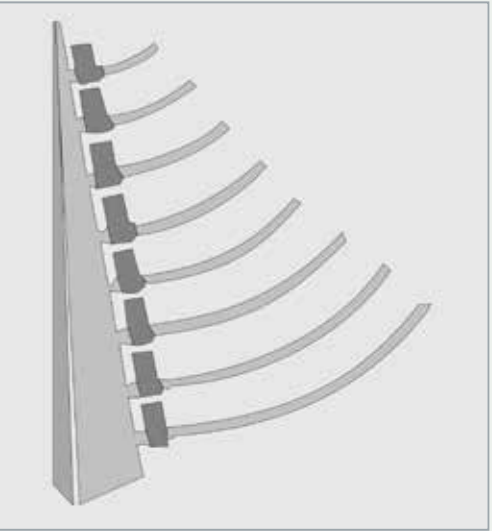
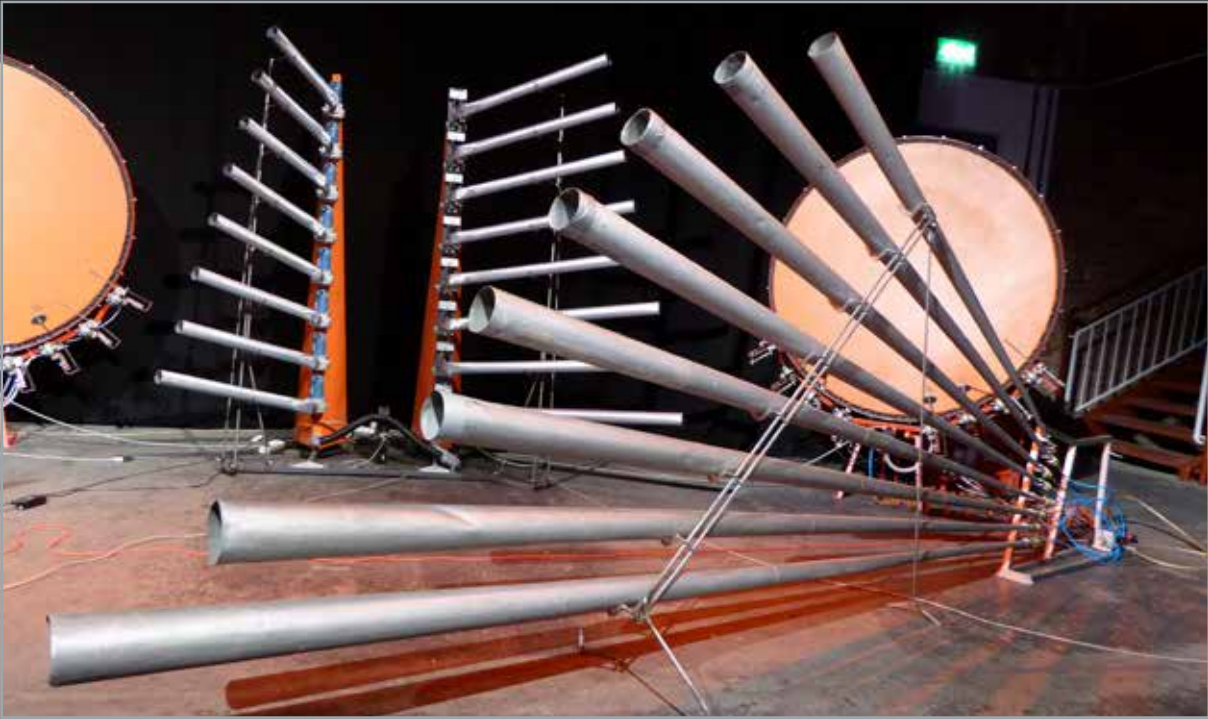


1996 | WOPPER

Roaring deep Wopp sounds are generated through sudden interruption of the air stream.

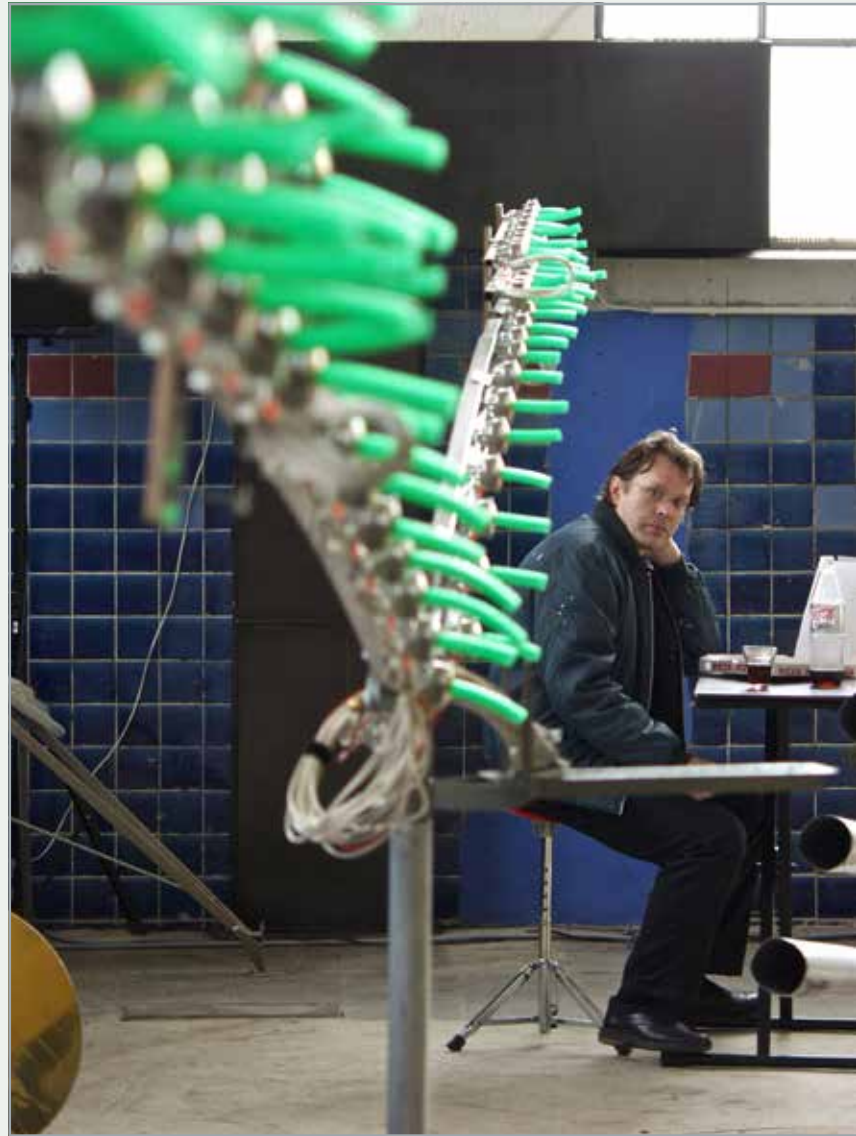
“A thick water pipe stuck out of the wall. When I struck with my flat hand against the end I generated a deep sound. A simple way to produce a sound! Initially I had also worked with water pipes. In the course of time the last Wopper emerged: long sound bells generate sound through very short air impulses.” C.S.

The last version of the Wopper emerged quite late in 2014. It was played at the “Urban Rituals” exhibition.



MATERIAL: 8 valves, steel, synthetic water pipe or conical led pipe
Weight: 25 kg
DIMENSIONS: length 3.00 m [9.8 feet], height 1.40 m [4.6 feet]





Metal membranes in small metal boxes are vibrated. On the arms, which can have a span of up to 16 meters [52.5 feet], sound moves up through the space.



MATERIAL: 64 boxes, steel pipe, metal sheets, flexible tubes

WEIGHT: 60 kg

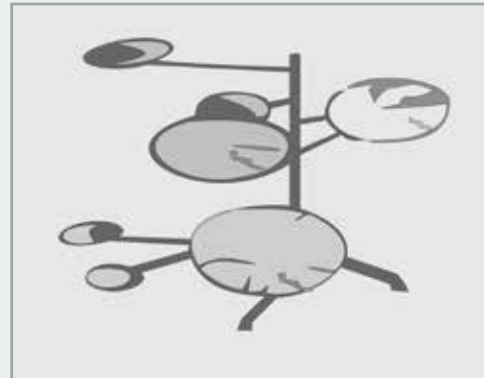
DIMENSIONS: 16 m x 4 m x 1.2 m [52.5 x 13.1 x 3.9 feet]

"A group of kids could already be heard around the corner of the house playing with crack frogs which produce short penetrating crack sounds. I had searched for the crack for quite a while and eventually accidentally short-circuited an alarm horn and heard the sought sound. Through the flexible tube the pitch of the sound can be varied. Whupi plays with these cracking sounds, letting them run along a spatial line over the listeners' heads." C.S.





"Some instruments are compatible. So was the droning of a defective transformer station at the roadside a source of inspiration. Zirr vibrates the horizontal stainless steel plates with car horn magnets." C.S.



Sound principle is the deep droning and high-frequent vibrating of circular metal sheets. Eight electro magnets vibrate horizontally arranged stainless steel sheets.
The Zirr could be heard at the World Music Days in Hong Kong in 2002.

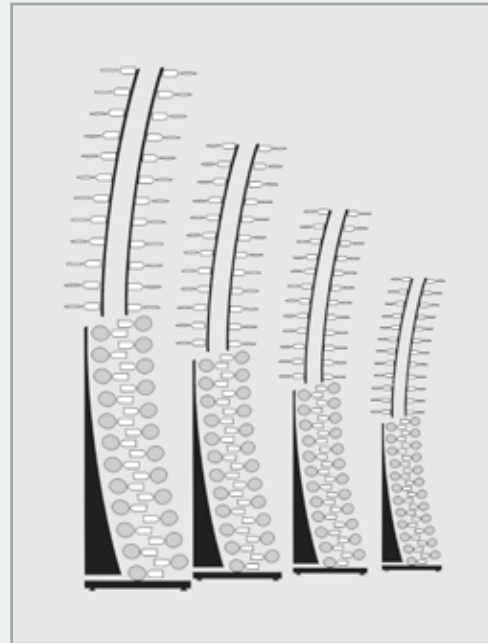
MATERIAL: 6 swinging magnets, steel, V2A-sheets
WEIGHT: 40 kg
DIMENSIONS: 1.50 m x 1.40 m x 1.40 m
[4.9 x 4.6 x 4.6 feet]



1999 | TELEWALD

72 telephone bells have been mounted on a slightly concave carrier of 3.10 meters in height and are struck by magnets. In addition to these standard telephone bells, the artist also uses prepared bells in the form of flat metal discs, which produce a rattling sound. Telewald is reminiscent of a group of bicycles, each with its bell being rung, paving its way. Eight carriers with a total of 576 bells constitute the renewed, complete instrument, 72 bells forming an object subdivided into four groups of 18 bells each group simultaneously producing "one tone".

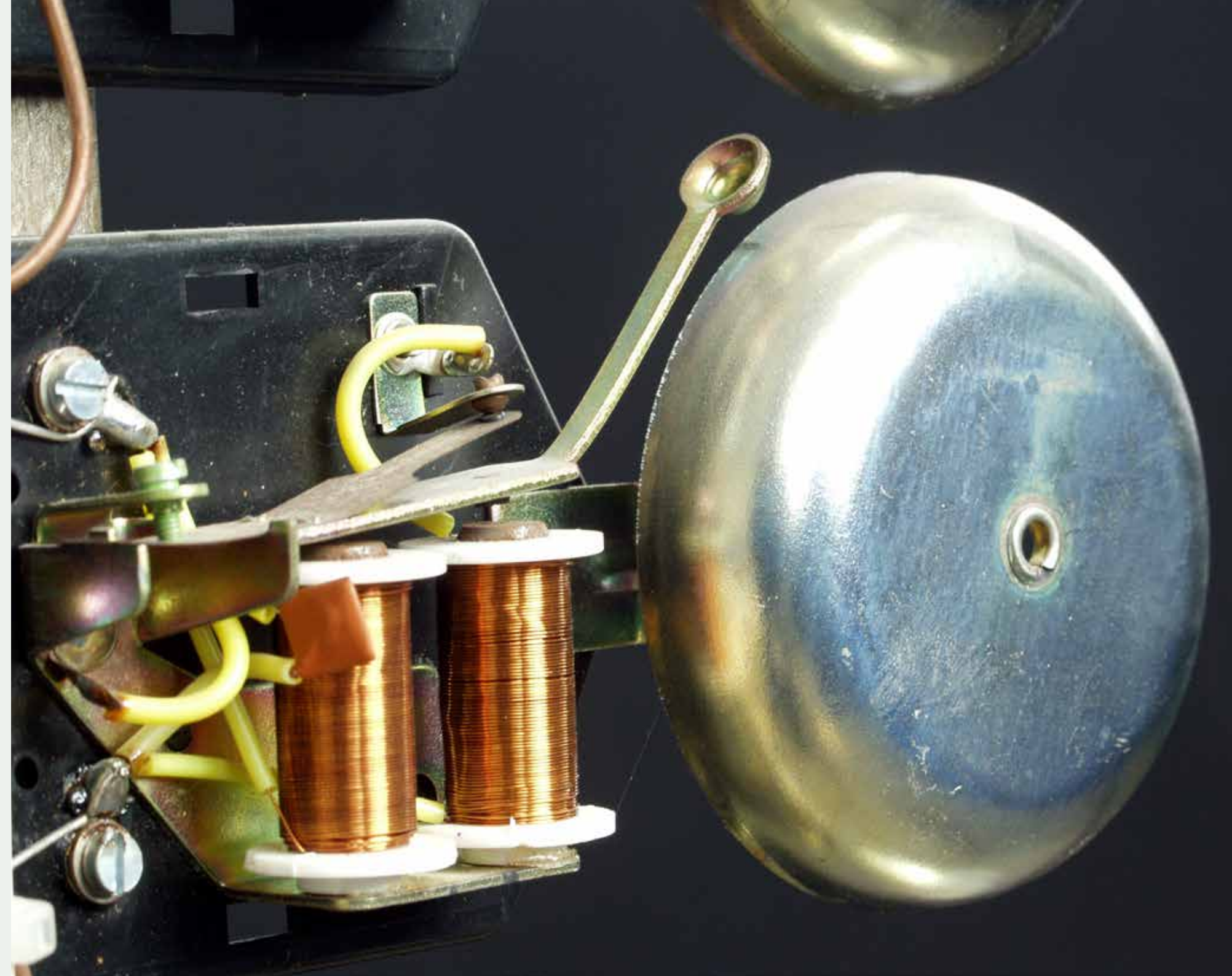
Schläger presented the renewed instrument for the first time in the exhibition "Urban Rituals" in 2014 in Herne.

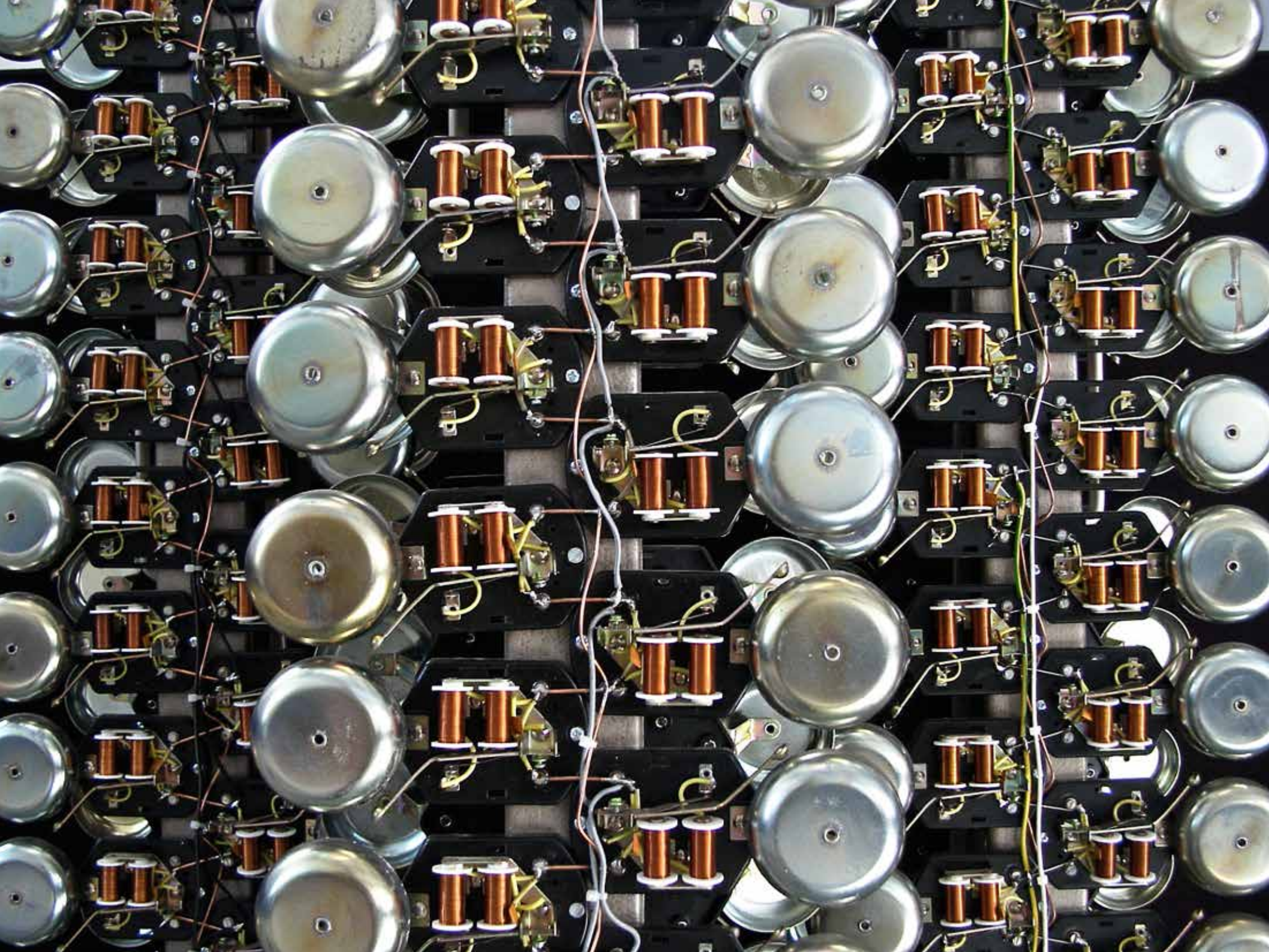


MATERIAL: Steel profiles, 576 bells

WEIGHT: Each object 15 kg

DIMENSIONS: each object 3.10 m x 0.45 m x 0.40 m [10.2 x 1.5 x 1.3 feet]



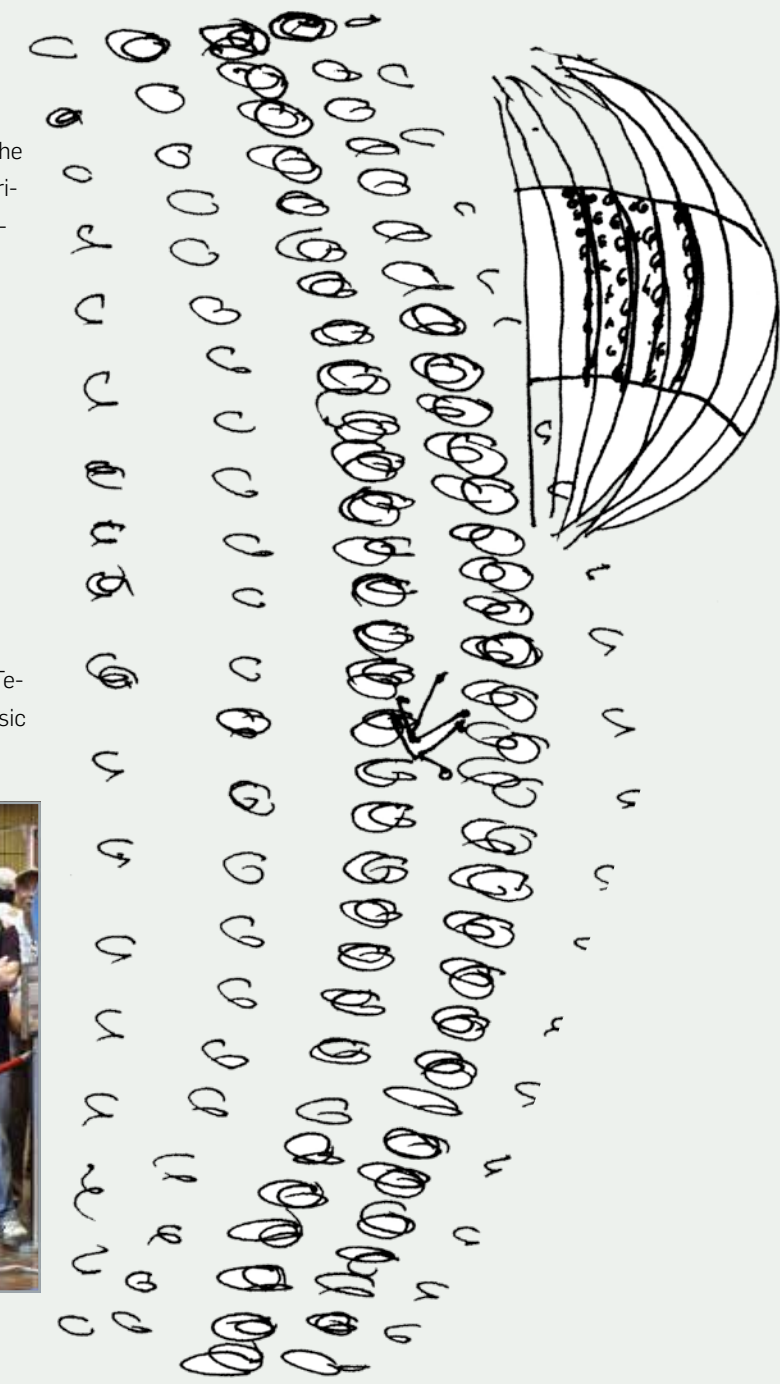


1999 | TELEWALD (2)

(left) In its original form, all of the bells sounded the same. The bell cluster was divided into only four sound intensity groups. It was a purely spatial instrument, which at the time consisted of four objects. Placed in each corner of the room, they could throw "acoustic balls" to each other and in this way play the room.

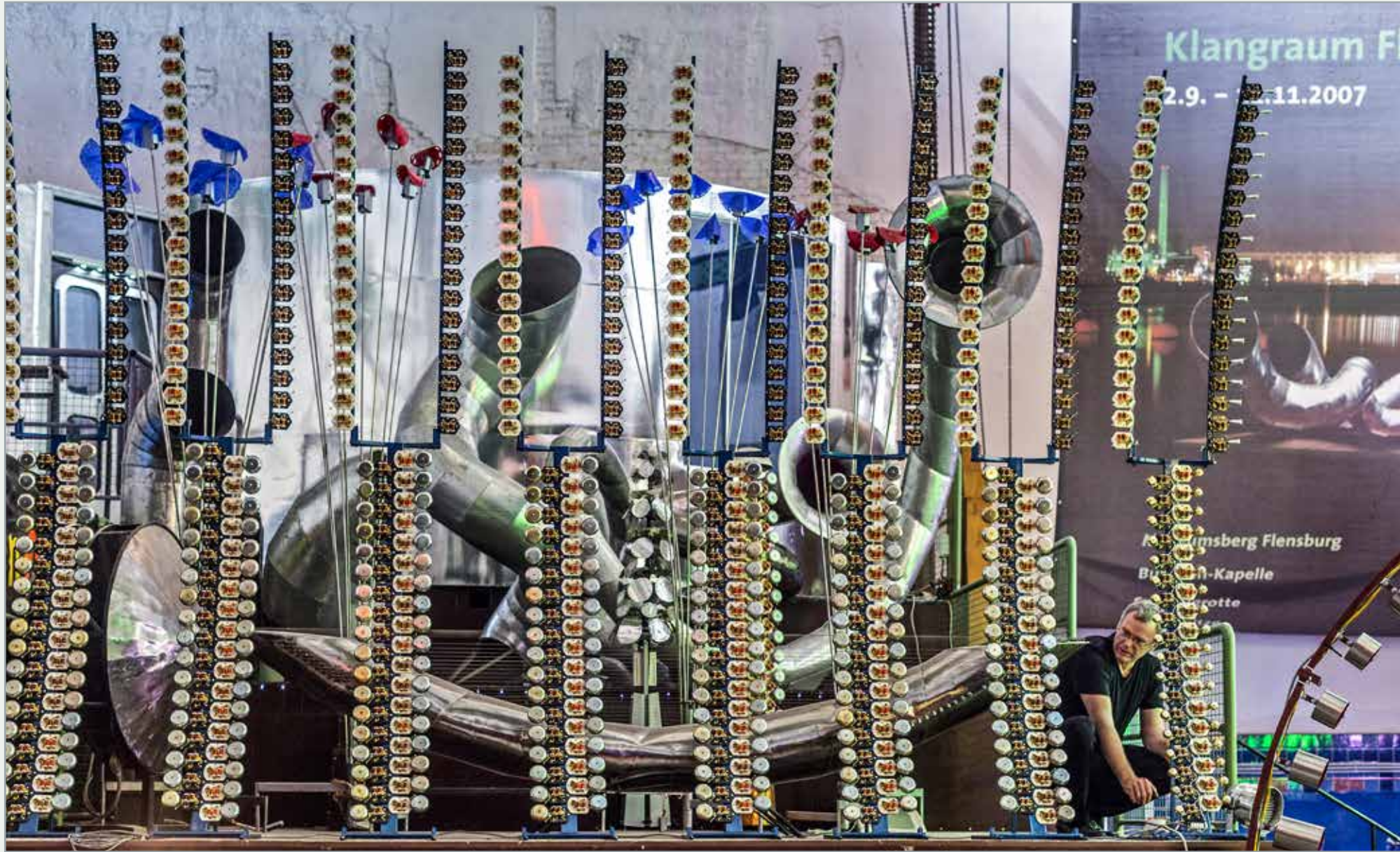


(Right) First sketch for the design of the current Telewald. The eight bent elements permit various sound-architectonic installations.



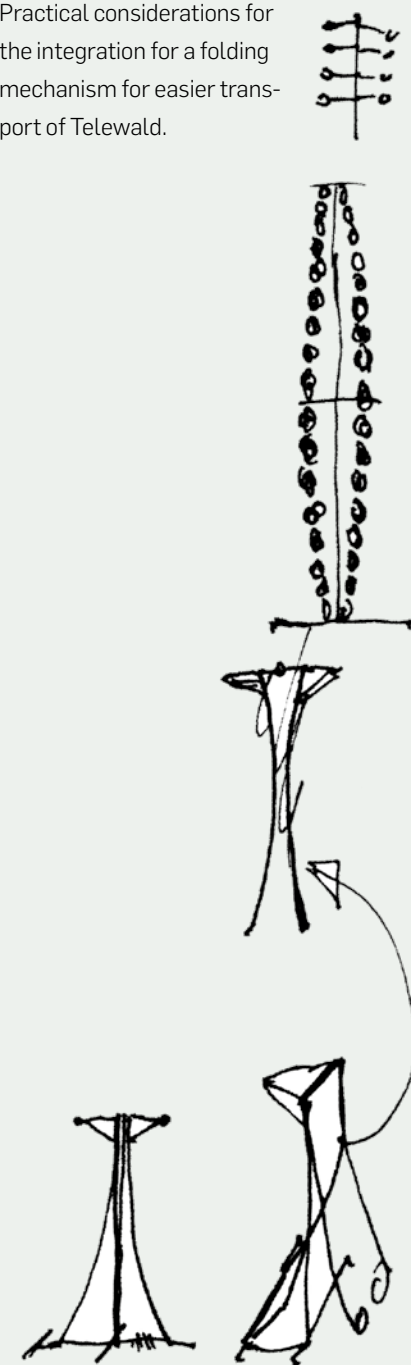
(Bottom) The original form of Telewald played at the World Music Days Hong Kong 2002.



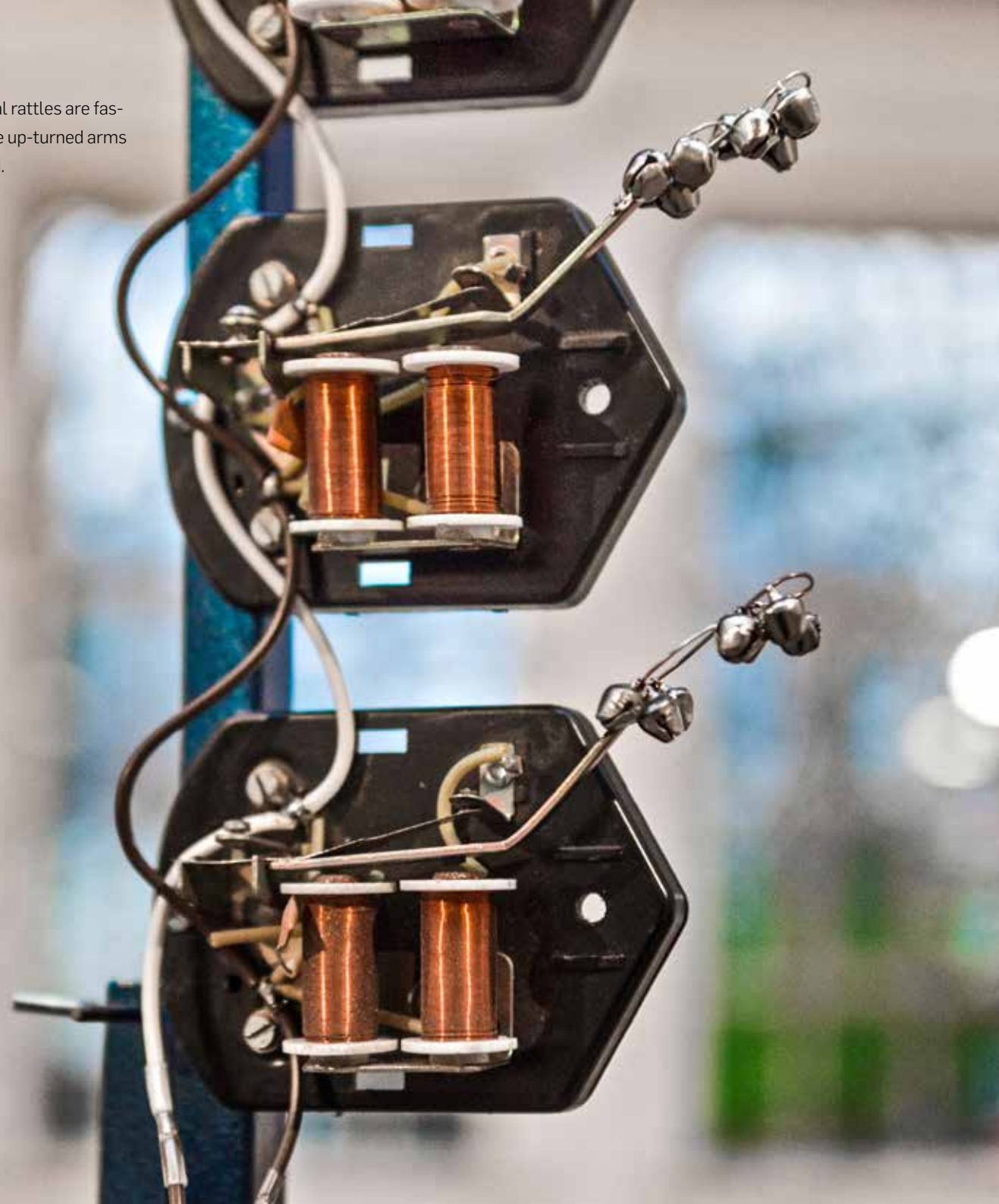


Final rehearsal for Telewald in the studio for the exhibition "Urban Rituals."

Practical considerations for the integration for a folding mechanism for easier transport of Telewald.



Small metal rattles are fastened to the up-turned arms of Telewald.

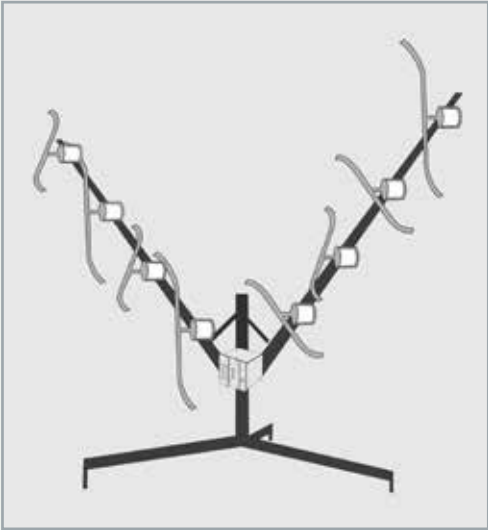


2000 | SCHWIRRER

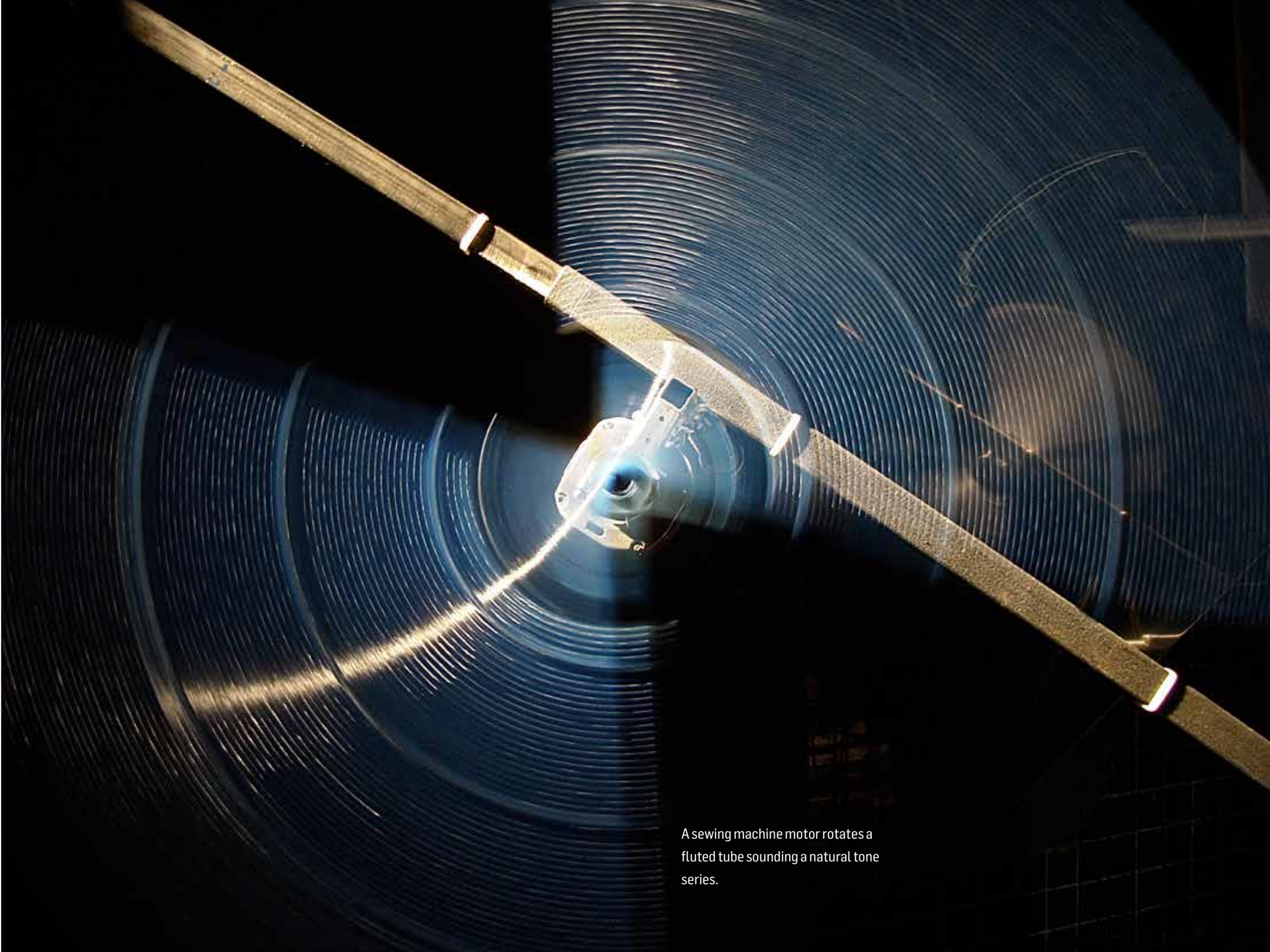


"I wanted to clean the interior of my car and the electrical cord of the vacuum cleaner was too short. Rather than use an extension cord, I added an additional tube to the vacuum cleaner hose; a quite surprising sound ensued." C.S.

Schwirrer, built in 2000, is based on a principle similar to that of an organ or flute in which a column of air is caused to vibrate when air is forced into a tube. For Schwirrer, Christof Schläger uses internally fluted tubes rotated by motors. The action of rotating causes air to flow through the fluted tubes. The parallel fluting within the tube generates standing waves of air similar to the aquatic action in a small brook where extending from the banks crosswise overlapping waves are formed on the surface of the water. This rhombic pattern of the brook generates visible standing waves. In the same way sound waves are formed in the tube where the junctions are perceived as sounds. A higher airflow generates a natural overtone series. A Schwirrer of seven meters in width and three and a half meters high supports eight of these rotating tubes of various thickness and length in order to be able to produce basic sounds of various pitches. Schläger combines up to eight Schwirrers and therefore has 64 sounds plus their respective overtones available.



MATERIAL: Steel, cable conduits and pipe bends, 8 sewing machine motors
WEIGHT: each instrument 80 kg
DIMENSIONS: 7.0 m x 3.50 m [23 x 11.5 feet]



A sewing machine motor rotates a fluted tube sounding a natural tone series.

2000 | SCHWIRrer (2)



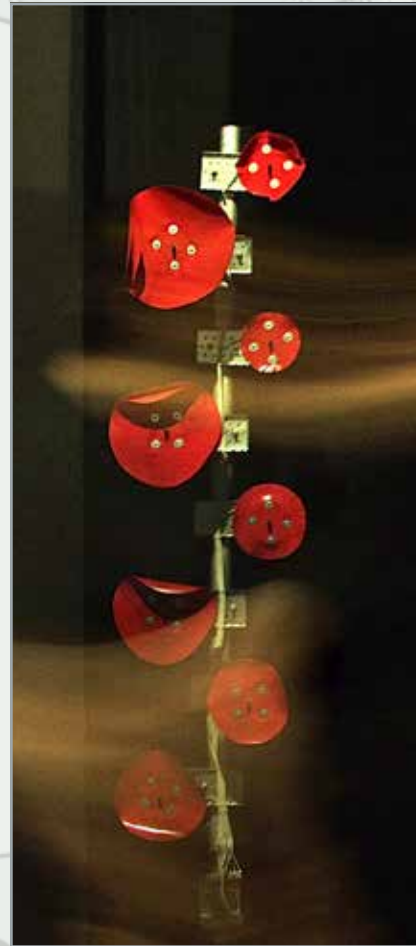
The entire group consists of eight instruments with eight rotors each, sixty-four rotating fluted tubes. The rotation speed of the sewing machine motors determines the tone.

For "Audioframes 2005" at Museum Tri Postal in Lille I had constructed a circular variant of Schwirrer. During fast rotation the tubes expanded and an additional vibrato could be heard.

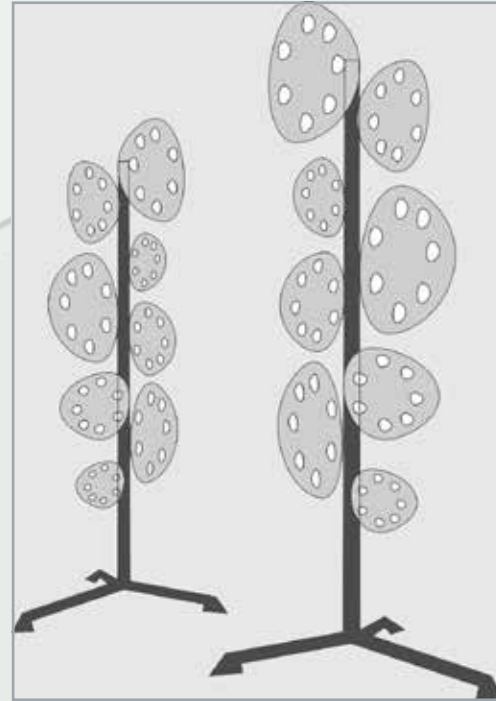
At an exhibition at the Flottmannhallen in Herne, Schwirrer was installed with a total width of 20 meters. In the space-taking installation visitors could start four compositions by themselves.



2000 | WRUMMER



The mechanical principle: drilling machine motors allow circular truck foils to rotate fast.



"Once a piece of fabric became entangled in my drilling machine. Through the rapid rotations the fabric generated both vibrations and interesting humming sounds. As appropriate sound bodies for Wrummer, I found fabric foils used for truck tarpaulins. If the foils are perforated, they vibrate stronger with various overlays/superimpositions. The sound ranges from whooshing, to wrumming to almost drumming fluttering." C.S.

MATERIAL: 8 motors, steel, fabric foil

WEIGHT: 40 kg

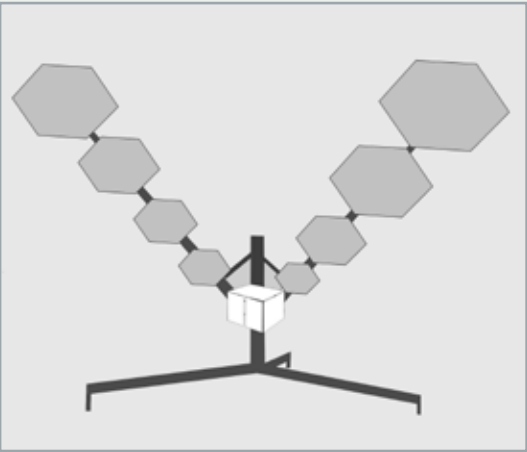
DIMENSIONS: 2.50 m x 0.60 m x 0.40 m [8.2 x 1.9 x 1.3 feet]

2001 | CHROMIX

Its square original form was used in the studio concert "Audiosphere."



"I was standing at the traffic light when I heard a floating whooshing. It came from a defective transformer box at the side of the road. It was not the typical 50-Hz humming, something else happened, a beat with slightly changing singsong." C.S.



MATERIAL: 32 magnets, stainless steel-chrome sheets, metal
WEIGHT: 60 kg
DIMENSIONS: 3.30 m x 7.60 m [10.8 x 24.6 feet]

The mechanical principle: Magnetic generators let V2-A metal sheets resonate.

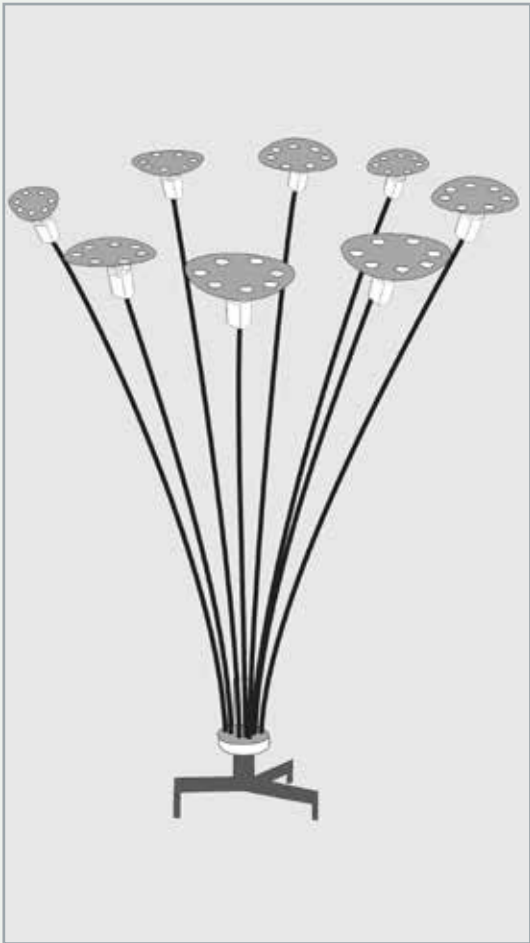
Chromix built in 2001 consists of eight large, hexagonal stainless steel-chrome sheets mounted to a carrier with two supporting arms of 3.30 meters in height and 7.60 meters wide. Chromix exists in four executions. Sound is produced by means of magnets that stimulate the steel sheets' intrinsic resonances. The metallic sound produced varies between made by a transformer and that made by a thunder sheet.



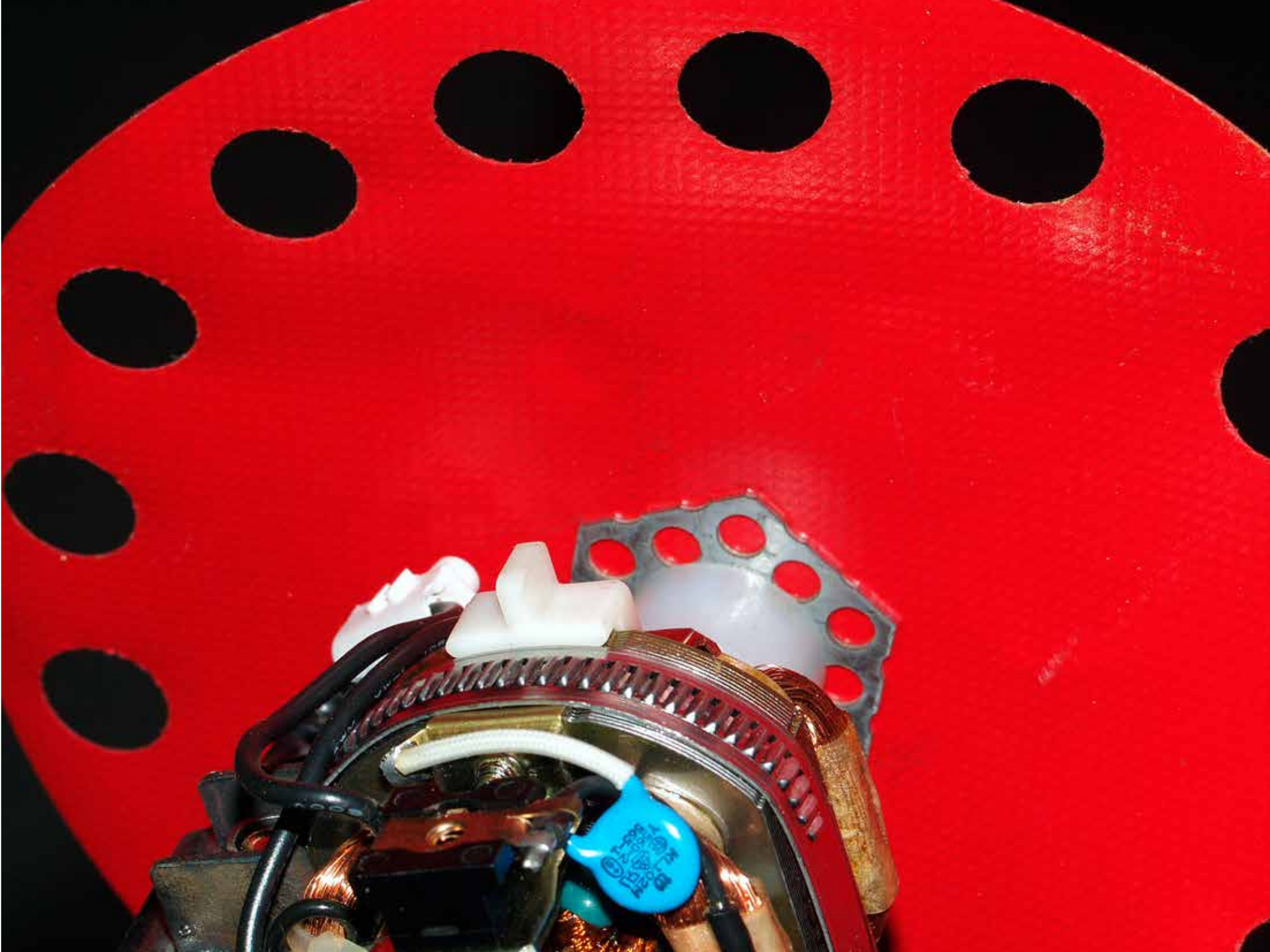
"A piece of fabric became entangled in my drilling machine; apart from the vibration it caused an interesting sound." C.S.



Brauser belongs to a series of instruments that play with the rotation of discs. Motors are mounted on perforated synthetic foil stretched over eight three-meter-plus high poles. When the motors are activated, they cause the foil to rapidly rotate which generates a robust, clamorous sound. The eight poles stand on a carrier and the foil, which is red, makes them appear like long-stemmed plants in a vase. The almost floral, delicate object has a total height of 3.30 meters.



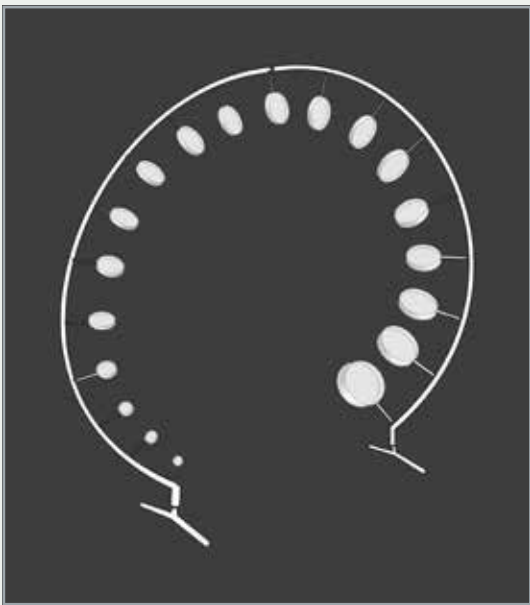
MATERIAL: Steel rods, 8 motors, foils
WEIGHT: 20 kg
DIMENSIONS: 3.30 m x 1.60 m [10.8 x 5.2 feet]



2005 | TYPEDRUM



In the exhibition “Urban Rituals” which took place in Herne in 2014, Schläger presented three head-high semicircular metal frames calling the installation Soundgate (in reference to the film Stargate). Soundgate consists of a Typedrum, which had been developed in 2005 and optimized in 2008. The clattering backdrop of electric daisy wheel typewriters has become an acoustic museum’s rarity. This particular sound environment was revived here. For Typedrum small level arms strike membranes of print foil mounted on round tires.



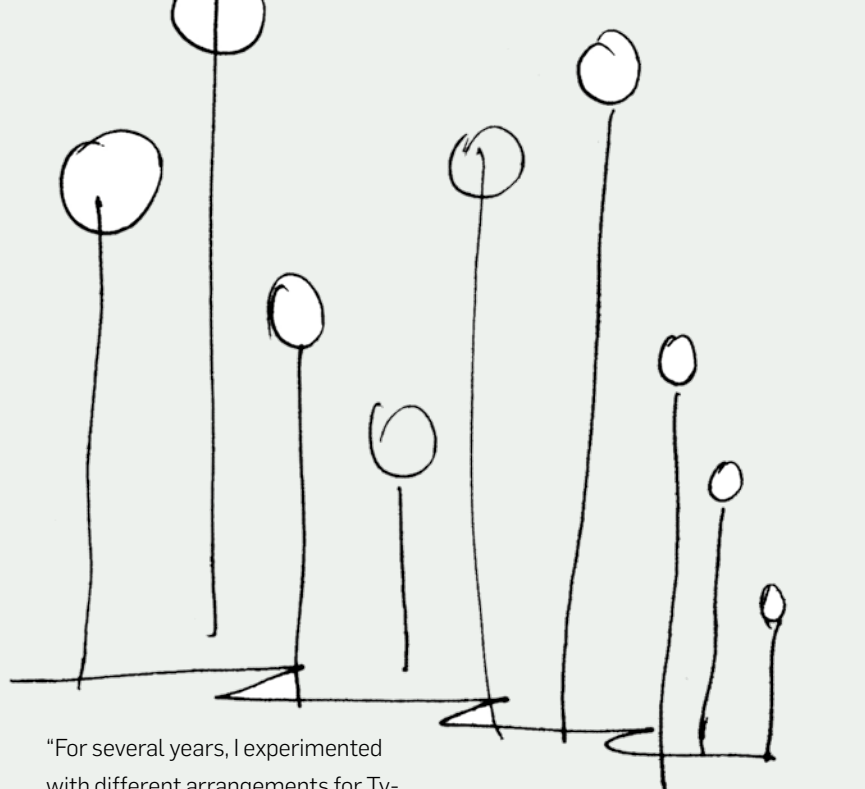
MATERIAL: 16 magnets, metal, foil
WEIGHT: 40 kg
DIMENSIONS: 3.80 m x 3.0 m x 0.80 m
[12.5 x 9.8 x 2.6 feet]

The first Typedrum membranes were arranged horizontally around an axis.

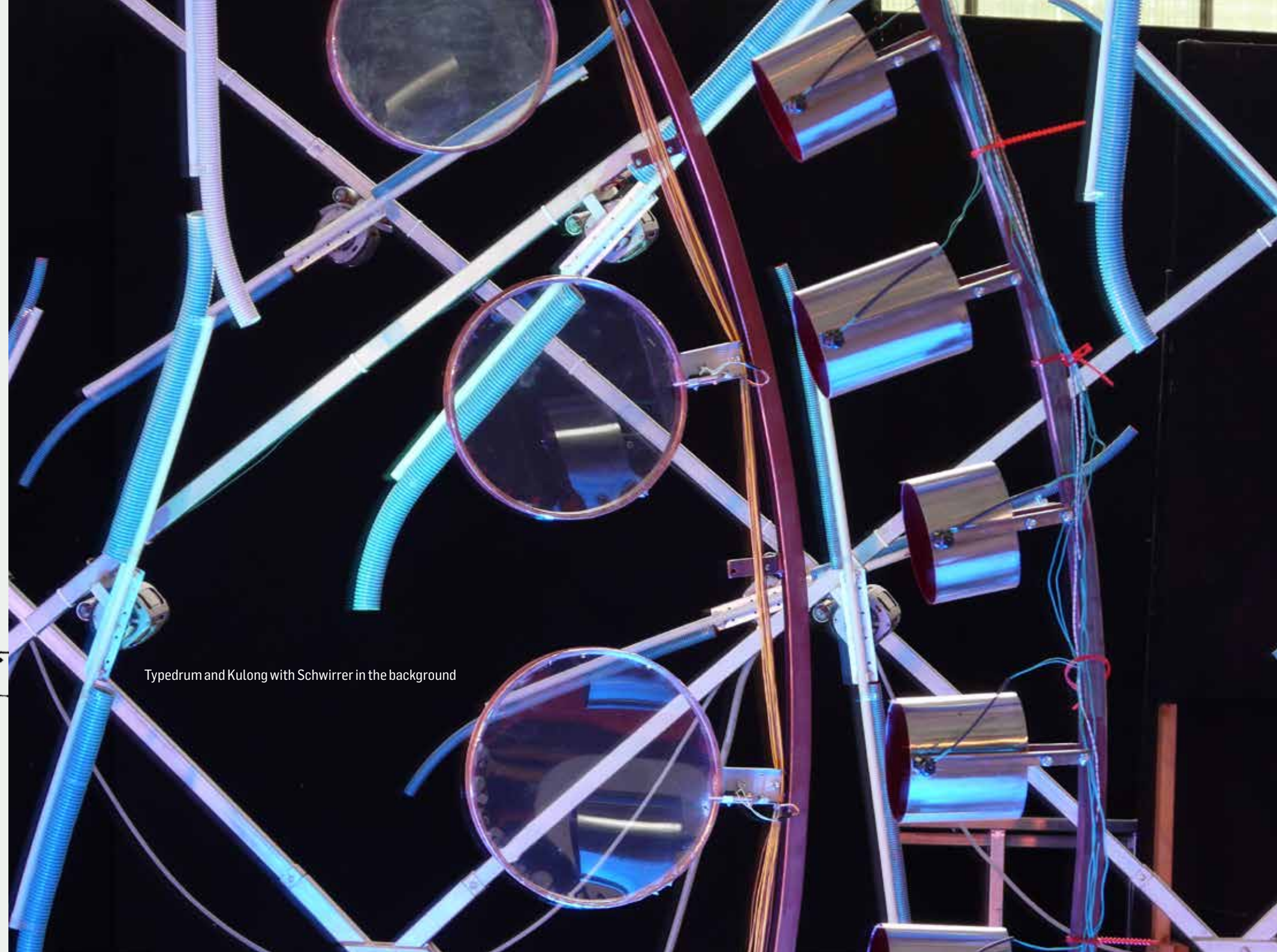
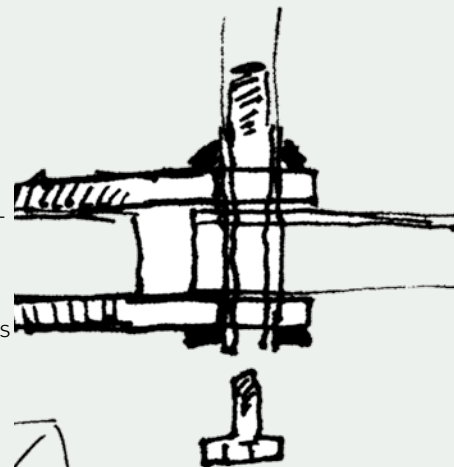




Typedrum as slightly curved line in space



"For several years, I experimented with different arrangements for Typedrum. Spiraling up around an axis, or following a slightly curved line, or as a ZigZag placed in the center of a room. These experiments with the form resulted in the Soundgate group. Soundgate is a spatial arrangement that places the listener directly into the center of the sound experience. All sound instruments are arranged at the same distance from the listener's ears. Sound movements are playable from floor to ceiling levels." C.S.



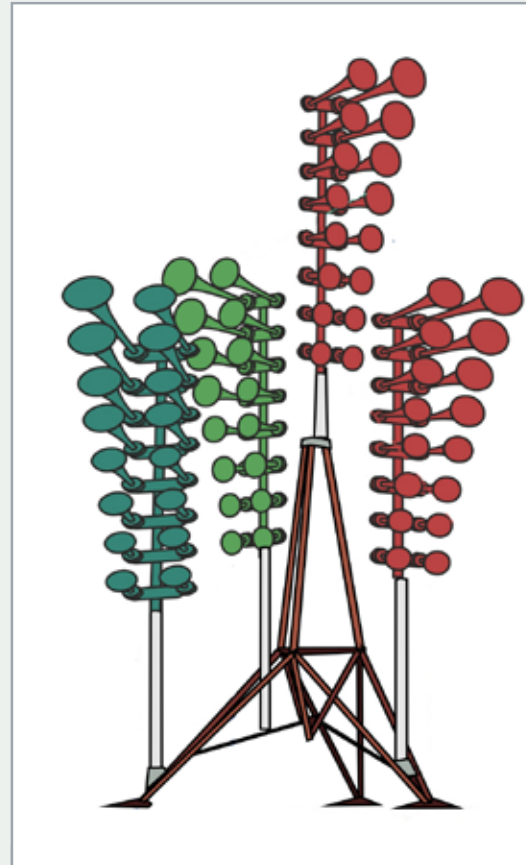
Typedrum and Kulong with Schwirrer in the background

2007 | GROUP OF HORNS

"During a night walk along the canal, when everything is acoustically more intense in the darkness, I heard an impressive exchange between a ship's horn and the horn of a distant freight train." C.S.



A horn group consists of 64 horns, small, modified ship's horns. 32 horns have copper bells whose sound color is reminiscent of trumpets. Additional 32 horns have glass fiber and synthetic resin bells whose sound color is reminiscent of English horns. Each wind machine is powered by a portable air compressor of the type used in road construction with a minimum pressure of 7 bar or 100 psi (pounds per square inch) and an air flow capacity of 1.000 to 2000 CFM (cubic feet per minute). These units have an operating dBA as low as 64 db which significantly reduces the incidence of unwanted noise. The ship's horns are tuned diatonically and are controlled by a computer.



MATERIAL: Steel, copper, glass fiber synthetic

WEIGHT: 150 kg

DIMENSIONS: 4.0 m x 2.0 m [13.1 x 6.6 feet]

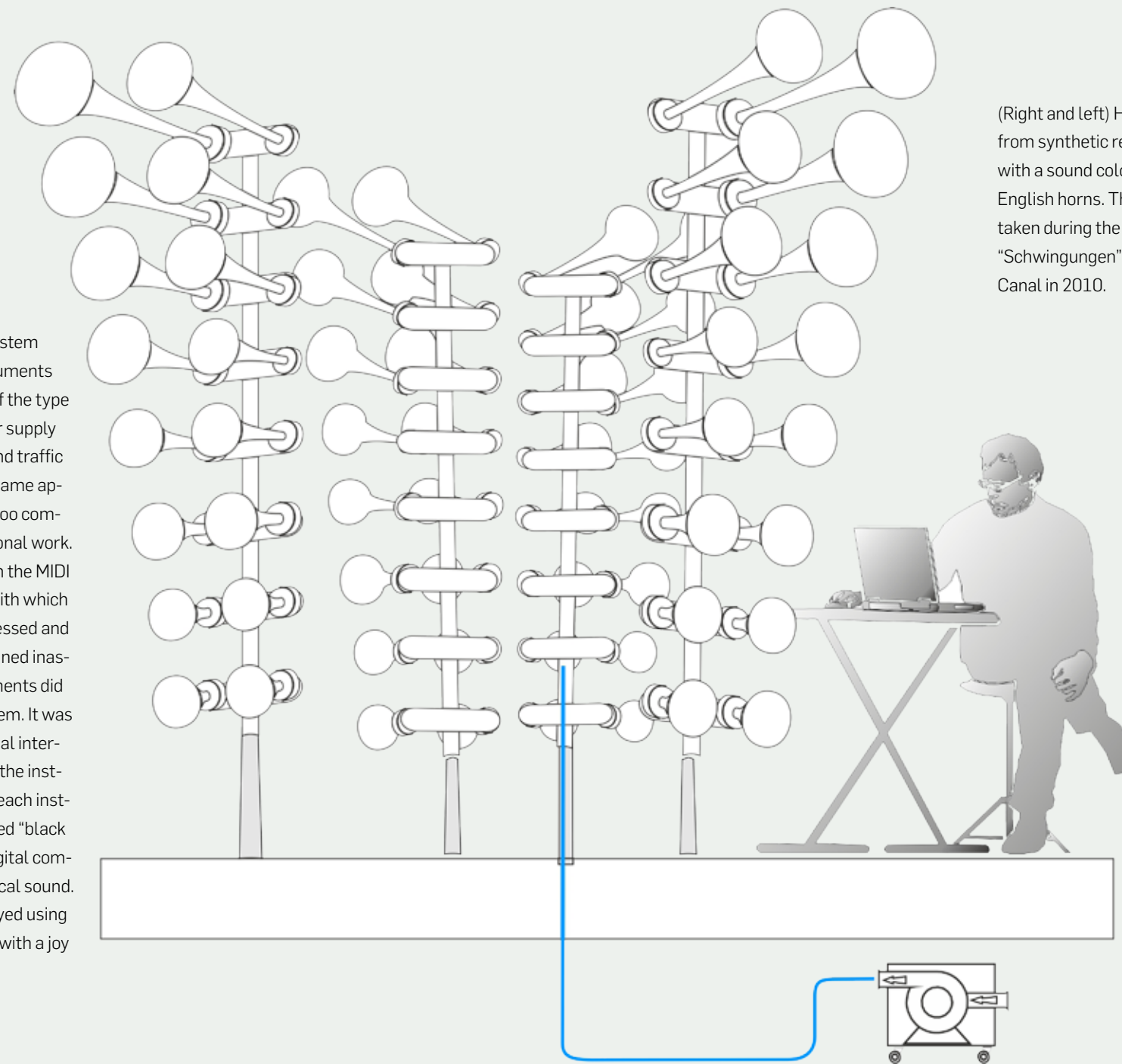
For one horn group up to 64 ship's horns are mounted on tripods to form up to 4-meter-high columns. Each group of horns requires its own air and energy supply.



2007 | HORNGRUPPE (2)



(Right) Initially, the control system chosen for the machine instruments was an industrial computer of the type used in the operation of water supply systems, railroad signaling and traffic lights. However, it quickly became apparent that this system was too complex to be used for compositional work. A better solution was found in the MIDI systems of the early 1980s with which compositions are easily processed and saved. However, a snag remained inasmuch as the machine instruments did not understand the MIDI system. It was necessary to develop individual interfaces between notebook and the instruments with the result that each instrument has a custom-designed "black box" which transforms the digital composition signals into mechanical sound. The instruments are now played using an electronic keyboard fitted with a joy stick.



(Right and left) Horn Group made from synthetic resin sound bells with a sound color reminiscent of English horns. The photographs were taken during the final rehearsal for "Schwingungen" on the Rhine-Herne-Canal in 2010.



2007 | HORNGRUPPE (3)



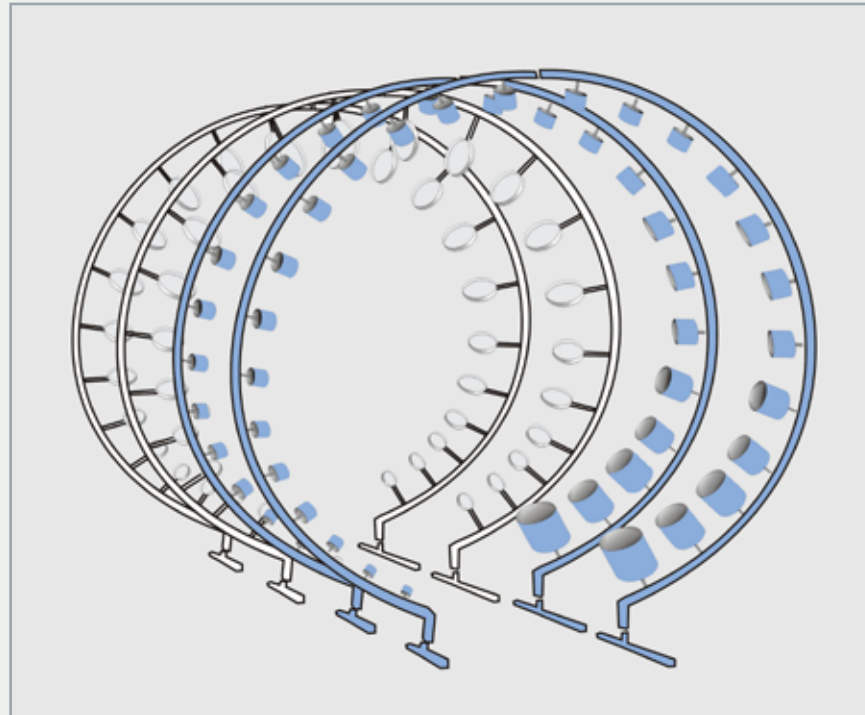
For "Schall und Rauch" ("Sound and Smoke") in 2001, a sound bridge of 2 kilometers in length was constructed between two former mine shaft elevator towers. Visitors walking on the road between the towers could experience time periods of up to five seconds in which the sound traveled, creating a remarkable spatial sound within the landscape.



In 2011 at the "Audio Art" Festival in Krakow, 128 ship's horns presented the composition "Against the Stream" on two moving ships. This musical dance on the water was performed in front of the medieval castle.



"The rubber lagging of the printing cylinder of an old machine had disintegrated causing the hammer to make a clangorous sound on the bare metal cylinder."
C.S.



In the exhibition "Urban Rituals" which took place in the Flottmannhallen in Herne in 2014, Christof Schläger presented three head level semicircular metal frames calling the installation Soundgate. This Soundgate consisted of a Typedrum and two Kulongs, which Schläger had developed in 2007. Both machines are operated with typewriter magnets.

MATERIAL: 32 magnets, steel
WEIGHT: 50 kg
DIMENSIONS: 3.80 m x 3.00 m x 0.80 m [12.5 x 9.8 x 2.6 feet]

32 Typewriter magnets strike custom-made oval metal cylinders. There are two versions: One tuned B to F#, one tuned G to D.

Already in an early phase, Christof Schläger had combined the two instruments Typedrum and Kulong, even when the final form had not yet been found.



In each Kulong, thirty-two specially made bells serve as sound body, which are struck by high speed acting typewriter magnets. The metal bells have an oval cross section for a slightly distorted overtone sound.



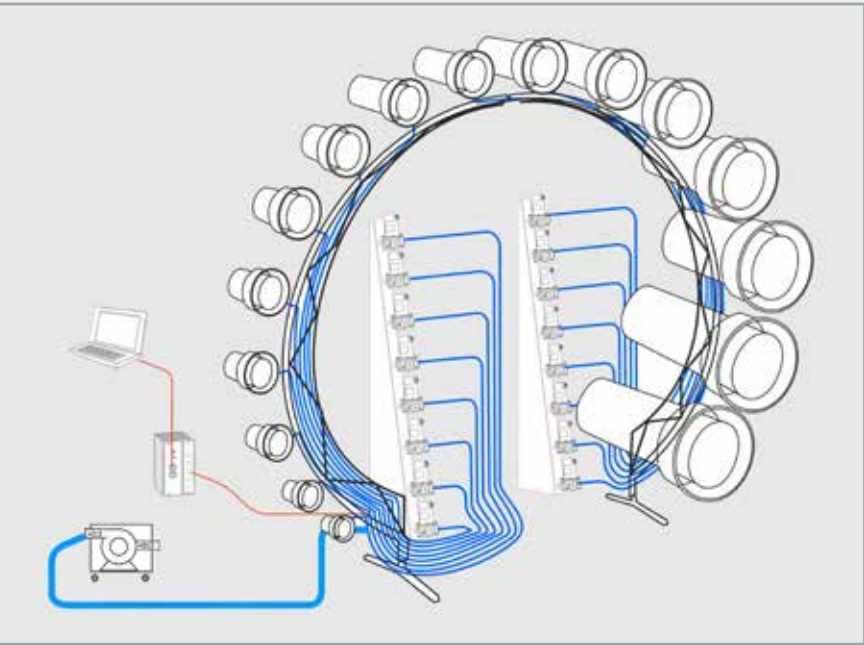
Numerous instruments were arranged in the bunker of Zeche Zollverein for the Festival Folkwang Medial 2011. The cathedral built from reinforced concrete has no particular interior space surprises, but does have many rectangular throughways, which seemed particularly predestined as locations for Soundgates.

2010 | BRANE

Brane during the concert “Schwingungen” (Vibrations)
on the occasion of Culture Capital Ruhr 2010



In 2010, these experiments with tightly stretched foils culminated in the development of Brane, which exists in various sizes. Each Brane consists of a membrane, which is vibrated by an air stream moving over a circular mounting. Brane’s acoustic color and pitch level is determined by the sounds occurring at the end of a tube. Schläger bundled sixteen Branes and mounted them – similar to Kulong and Typedrum – on a ring at a height of 3.40 meters.



MATERIAL: Steel profiles, rubber membranes, valve block
GEWICHT: 120 kg
DIMENSIONS: Width 4.6 m [15.1 feet], height 3.4 m [11.2 feet]

“While using a vacuum cleaner in my bathroom, the proximity of the suction nozzle to the shower curtain caused a portion of the curtain to be drawn tightly over the nozzle opening causing a seal which resulted in a deep grumbling sound. This inspired me to experiment with tightly stretched foils.” C.S.



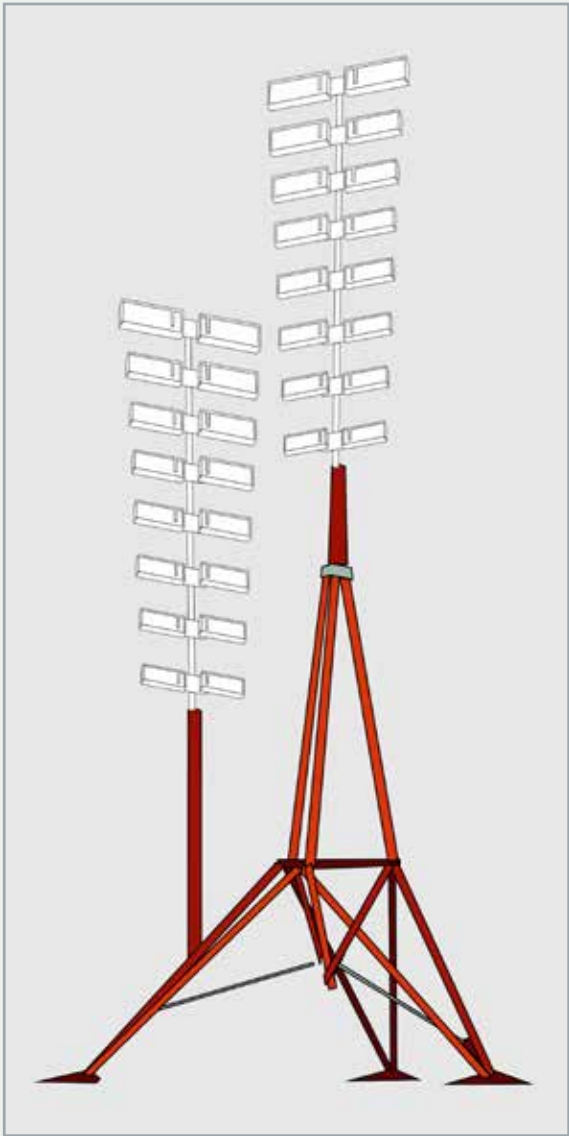
2010 | DRUCKLUFT-PFEIFEN (AIR COMPRESSOR PIPES)

"Dusting my workbench in the studio, I like to use a compressed air canister. On one occasion I moved the airstream accidentally over the covered rear end of a pipe and initiated a short high-pitched sound. With some experimentation I was able to find the angle and direction of the nozzle to repeat this sound at will. This observation resulted in the development of the air compression pipes that are the suitable supplement to air compression horns. Their sound is slightly reminiscent of steam engines/locomotives." C.S.

There are two groups, consisting of sixteen rectangular pipes, each of which are served by a valve-block. The compressed air is released through a nozzle into the open pipe. The overtones can be achieved by subtle variations in air pressure and direction. A compressor serves as a wind machine.



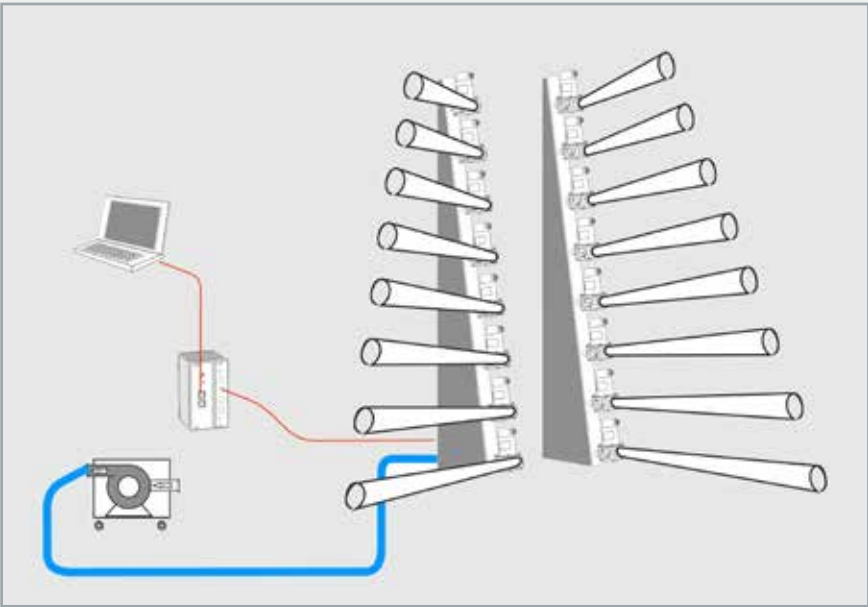
MATERIAL: Rectangular pipes, nozzles, valve island
GEWICHT: 30 kg
DIMENSIONS: 2.20 m x 0.40 m [7.2 x 1.3 feet]



2010 | M-PIPES



"On a very stormy day, I noticed how the hollow mast of a street sign generated a sound. The strong wind blew over the open upper end of the pipe. For the M-Pipes I have investigated the phenomenon of the air sidestream. The rough blown sound is generated with specially built valves, which blow at the opening at specific angles, and is reminiscent of a transverse flute or at times even the deep sound of a cello. It is the same basic principle as the organ pipe, however, the execution is very different. The pipes are open and made of drainpipes of rain gutters." C.S.



MATERIAL: Steel, pipes, 8 gas valves, 300 mbar blower
WEIGHT: 145 kg
DIMENSIONS: [L x W xH] 2.0 m x 3.5 m x 2.0 m [6.6 x 11.5 x 6.6. feet]



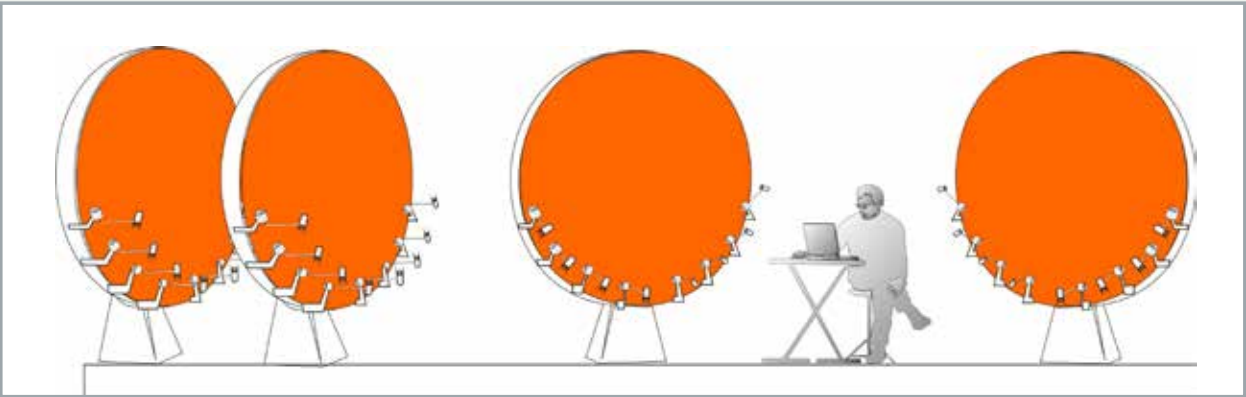
Specially built nozzles enhance the blow noises of the air stream, the tone appears rough. Drainpipe tubing is mounted to sixteen valves, the controllable air stream generates strong sounds.

A completely open pipe is the sound body of the M-Pipes, blown at through special nozzles.

2014 | HAMMERWERK (HAMMERWORK)

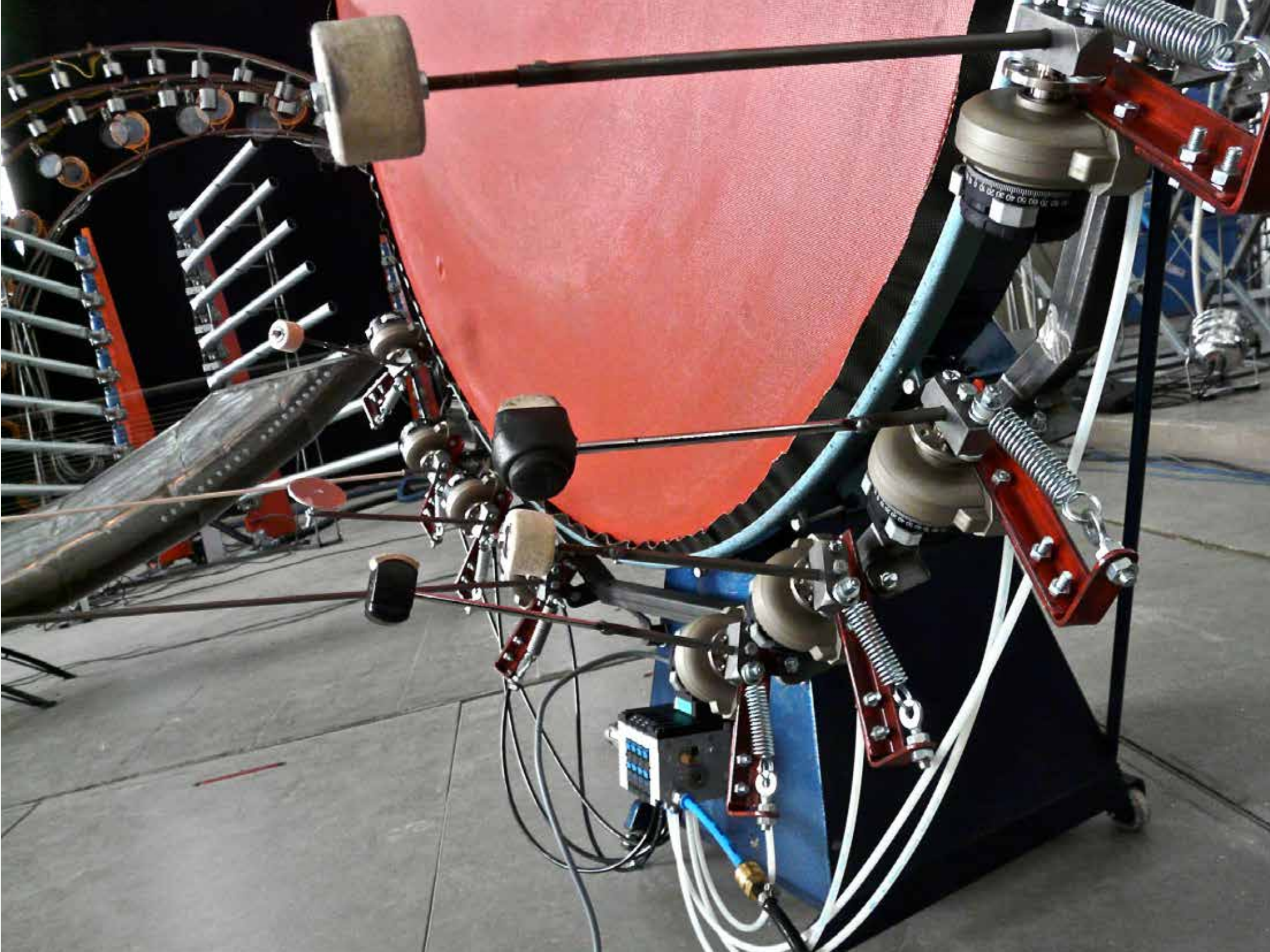


"I was fascinated by a package sorting system, which used compressed air powered swivel arms to sort the packages. Clattering and hissing sorting arms unceasingly shoved packages on the conveyor belts in many directions. A peculiar percussion concert filled the hall." C.S.



Hammerwerk, which Schläger developed in 2013, consists of four air drums with eight pneumatically powered hammers for which he stretched membranes of Kevlar – a synthetic fiber of high tensile strength – over a circular mounting with an internal diameter of 1.50 meters. Attached to each drum are sixteen hammers each of which are fitted with a pneumatically operated rotational joint the heads of which covered with various materials, strike the membrane. The flaming orange color of the membranes with their small insectile hammer arms gives Hammerwork, especially when in movement, the appearance of a delicate, organic being.

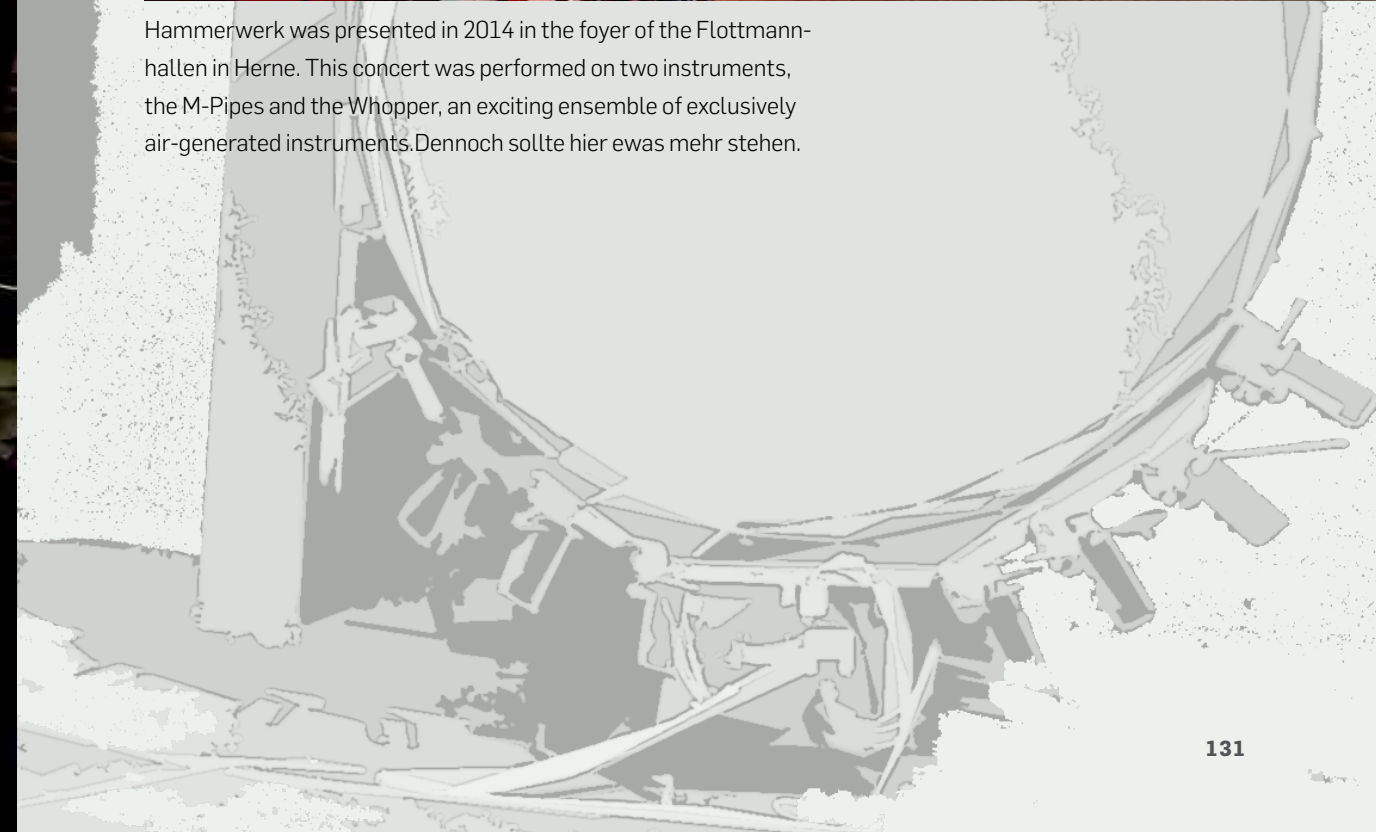
MATERIAL: Steel sheet, pneumatic Fest swivel drives, valve islands, control
WEIGHT: 55 kg
DIMENSIONS: each drum 2.20 m x 1.50 m x 0.50 m [7.2 x 4.9 x 1.6 feet]

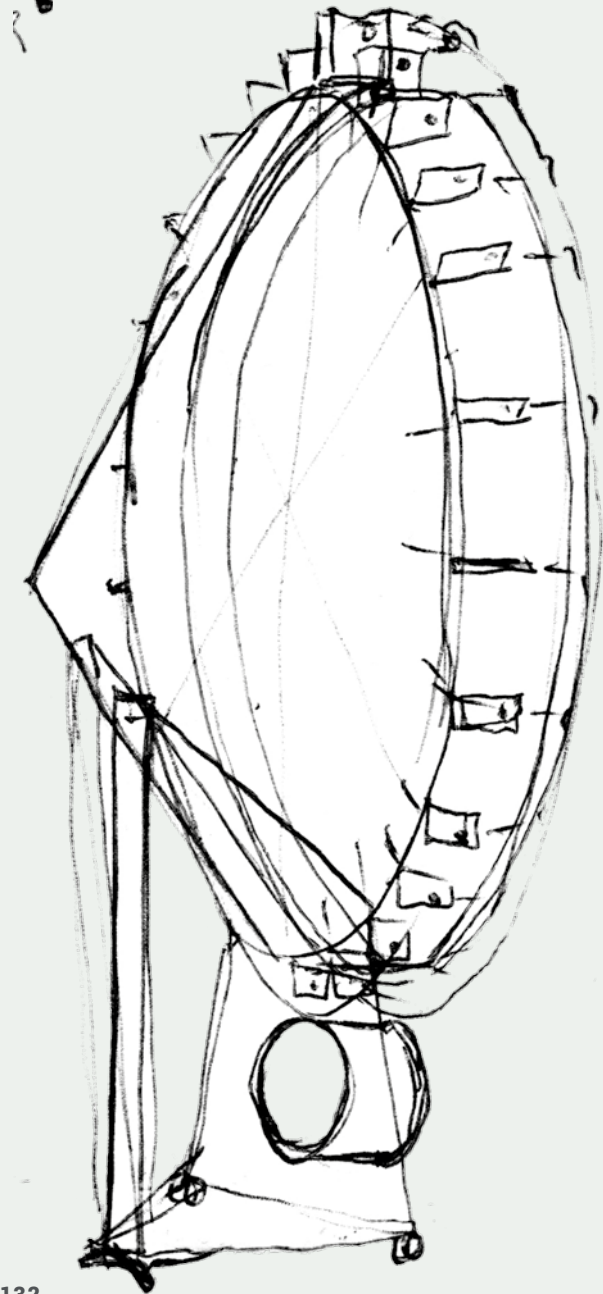


2014 | HAMMERWERK (2)



Hammerwerk was presented in 2014 in the foyer of the Flottmannhallen in Herne. This concert was performed on two instruments, the M-Pipes and the Whopper, an exciting ensemble of exclusively air-generated instruments. Dennoch sollte hier etwas mehr stehen.





Hammerwerk consists of four "air drums" and has gone through many transformations. The main element is the membrane for which after numerous experiments I found the high tensile synthetic fiber Kevlar to be most suitable. I also designed and constructed a device that would enable the Kevlar fabric to be stretched to the optimum degree.



CHRONOLOGY

1984 Klangmaschine (Sound Machine)	2000 Wrummer
1987 Klapperrappel	2000 Schwirrer
1989 Helix Horn	2001 Chromix
1989 Sirenen (Sirens)	2001 Memdrum (no illustration)
1993 Hopper	2004 Brauser
1993 Knackdosen (Crackboxes)	2005 Klöpper (no illustration)
1993 Knister	2005 Typedrum
1993 Schellenbaum (Bell Tree)	2007 Horngruppe (Group of Horns)
1994 Federine	2009 Kulong
1994 Quäker	2010 Brane
1994 Rauscher	2010 Druckluftpfeifen (Air Commpres-sor Pipes)
1994 Riller (no illustration)	2010 M-Pipes
1994 Standzeit (Standing Time)	2012 Injektor (Injector; no illustration)
1995 Flatterbaum (Flutter Tree)	2014 Hammerwerk (Hammerwork)
1996 Whopper	2014 Klöpperboden (no illustration)
1996 Whuppi	2014 E-Bell (no illustration)
1998 Zirr	
1999 Telewald	

CONCERTS / INSTALLATIONS (SELECTION)

2014	Breslau, "Siren Chants", Concert for the World Music Days 2014 with two ships
2013	Shanghai, "Magic Square", Concert for the Electronic Music Week 2013
2013	Helsinki, Opening concert of the Helsinki Festival with Horns and icebreaker URHO
2011	Krakow, "Gegen den Strom", Concert with two ships and ship's horns
2010	Herne, "Schwingungen", Concert with concrete pumps for Cultural Capital RUHR 2010
2007	Flensburg, Klangraum Flensburg with installation and first horn concert in the harbor
2004	Cologne, Installation for "Sound Art" at Art Cologne 2004
2004	Tel Aviv, "Audiosphere" with Cloud Machine
2002	Hong Kong, Opening concert with "Electric Motion" for the World Music Days 2002
2002	Amsterdam, Concert at Stedelijk Museum Amsterdam
2001	Regensburg, "Electric Motion", Solo exhibition at Museum Ostdeutsche Galerie
2001	Donaueschinger Musiktage, "minus 4omega", Concerts for new sound forms
2000	Barcelona, "Basic Machines", Concert at AUDITORI of the Philharmonic
2000	Luxembourg, Concert and installation, World Music Days 2000 of IGNM Luxembourg
1999	Tel Aviv, "Humus", Gallery for Modern Art, Concerts with Sound Forms
1999	Munich, "Basic machines", Concert at Gasteig for Musica Viva and BR-Radio
1998	Amsterdam, "Klappern und Flattern", Installaton, concert, and reading at Stedelijk Museum
1997	Sofia, Goethe Institute, Sound Forms for Musica Nova of ISC Music Bulgaria
1996	Lyon, Musique en Scène, Concerts for GRAME at Palais Boundy, Goethe Institute Lyon
1995	Amsterdam, Opening concert of TripleX Festivals with Sound Forms

BIOGRAPHY

1958	Born in Beuthen, Upper Silesia, Poland
1960	Moved to central Poland
1968	Escape through the so-called "Iron Curtain" to the former Federal Republic of Germany, first to Unna
1978-80	Study of Process and Constructural Engineering at Fachhochschule der Westfälischen Bergwerkschaftskasse Bochum
since 1976	Works as an artist in Herne
since 1996	Lives and works in Amstelveen, The Netherlands and in Herne, North Rhine-

A SPECIAL THANK YOU TO SUPPORTERS & SPONSORS

Seta Guetsoyan, Jo Wüllner, Hanno Ehrler, Jonas Krikhaar, Jo Scherpenisse, Alexander Lahmann
Festo, Zöllner, Magnet Schulz, CompAir, Stahl Scheibe Service, Arctia Shipping, Klöckner Möller, Johnson Controls u.a.

PUBLISHER

© Verlag Hanno Ehrler
Bessemerstr. 61
44793 Bochum
Germany
+49 234 92 33 57 87
www.hanno-ehrlers-verlag.de

Printed in Germany
ISBN 978-3-9816800-2-7

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