HAUPTWERK VI

VIRTUAL PIPE ORGAN

milan DIGITAL AUDIO

Theater- und Philharmonie (TUP) Essen

User Manual v2.2.5

TUP Essen User Manual version 2.2.5. Copyright VOXUS Virtual Organs 2021

The information contained in this user guide may be subject to change without notice. No part of this document may be transferred or reproduced, digitally or otherwise, including photocopying and recording without prior consent from VOXUS Virtual Organs.

Copyright © 2021 VOXUS Virtual Organs. All rights reserved.

'Hauptwerk', 'Hauptwerk Virtual Pipe Organ', 'Milan Digital Audio' and the Hauptwerk logo are trademarks of Milan Digital Audio LLC.

Visit VOXUS Virtual Organs on the Internet at `https://voxusorgans.com`.
Visit Hauptwerk-Organ.com on the Internet at `https://www.hauptwerk-organ.com`.

Table of Contents

List of Figures

List of Tables

Section I: Welcome

Welcome to the Theater und Philharmonie (TUP) Essen sample set and congratulations on your purchase! The Theater und Philharmonie (TUP) Essen sample set is a modern concert hall virtual pipe organ chromatically sampled stop-by-stop.

The organ has 62 speaking stops, 85 ranks, 4502 pipes, 2 tremulants, 3 manuals and pedal. Two divisions (Positiv and Schwellwerk) are placed in swell boxes. The organ was built in 2004 by Orgelbau Kuhn, Männedorf, Switzerland.

Highlights

The sample set has many special and unique features, including:

- Four channels (two stereo channels) of chromatically sampled stop-by-stop pipes, including recorded tremulants for all Positiv and Schwellwerk stops.
- All screens are optimized for single and dual touchscreens in landscape and portrait format in 4K resolution.
- The sample set offers multiple photorealistic screens. The original organ has two consoles: a mechanical console on the balcony and a mobile console on the stage. Both consoles have been implemented as virtual screens. The landscape screen shows the mobile console, and the portrait screen the mechanical console. The photorealistic dual jambs also show the jambs of the mobile console (dual landscape screens) and the mechanical console (dual portrait screens).
- Simple screens. Simple screens in both landscape and portrait orientation are available for single and dual-monitor systems.
- The sample set offers modeled (Hauptwerk, Positiv and Schwellwerk) and recorded tremulants (Positiv and Schwellwerk).
- The sample set adds two carefully selected transmissions to the pedal stops.
- The Tuba 8, which is living on the Hauptwerk in the original organ, can be also played from the Positiv and the Schwellwerk.
- Enclosures for all 4 divisions.
- A user-programmable crescendo.
- Sostenuto for all 4 divisions.
- A user-adjustable fixed and automatic pedal divide.

Section II: Requirements

Hardware and Software Requirements

The Essen Philharmonie (TUP) sample set requires the Advanced Edition of the Hauptwerk™ V or Hauptwerk™ VI virtual pipe organ software, available for both PC and Mac computers from Milan Digital Audio. Hauptwerk™ V is supported on Apple computers running macOS X 10.15 'Catalina', macOS X 10.14 'Mojave' or macOS X 10.13.6 'High Sierra', and on personal computers running 64-bit Windows 10 or 64-bit Windows 7. Hauptwerk™ VI also runs on macOS X 11.0 'Big Sur', although not officially supported. A high-performance computer is required to experience full, flawless and convenient operation of this sample set. As the Advanced Edition of the Hauptwerk™ V virtual pipe organ software is copy protected, an iLok account is required. Hauptwerk is licensed either by means of an iLok dongle (v2 or v3), or via 'iLok Cloud'. The Essen Philharmonie (TUP) sample set license can be also stored either on an iLok dongle or in the iLok cloud.

Storage (Hard-Disk or SSD)

A minimum of 62 GB of free storage space is required to use Hauptwerk with the Theater und Philharmonie (TUP) Essen sample set. The installation package requires almost 48 GB of free storage space, you have to add another 13 GB (sample resolution 16-bit, lossless compression, all available sample loops, all available release samples, no recorded tremulants) to 35 GB (sample resolution 24-bit, lossless compression, all available sample loops, all available release samples, recorded tremulants) for the cache file.

Only the speed of your storage determines the time it will take Hauptwerk to load the sample set; real-time performance should not be affected once the sample set is loaded into memory. SSD drives or RAID 5 hard-disk arrays can be used if you want sample sets to load quickly. (RAID 5, RAID 1 or RAID 0+1 may also make your system more resilient to the failure of a hard disk.)

For further information please refer to the Hauptwerk User Guide.

RAM and Number of Loadable Stops

Since Hauptwerk™ loads the sample data into the computer's random access memory (RAM) — for speed reasons the software does not stream data from hard disk or SSD — the amount of (free) RAM determines the number of stops, which can be loaded for playing at a given time.

Hauptwerk™ allows loading sample sets with different options for each rank, thus allowing to trade off the number of loadable ranks with varying degrees of realism (e.g, to save RAM it is possible to load only single release samples). Loading all ranks in their most complete multi-looped versions with full release samples will require significantly more RAM than loading them with single loops and / or truncated release tails. It is highly recommended to load the sample set with the highest possible sample resolution, all loops and all releases.

Please refer to the Hauptwerk™ User Guide for a detailed description on how to maximize performance on your computer using these features.

Please refer to the VOXUS Virtual Organs website for further information about RAM requirements.

CPU and Polyphony

It is essential that your computer has a high-performance CPU in order to experience full polyphony without dropouts or audio distortion. A high polyphony capability is required when many stops are drawn and many notes played at the same time. We recommend a polyphony setting of at least 8,000.

Note: Polyphony is defined as the number of stops being selected, times the number of notes held per stop, including the duration release tails to sound, at any given time.

A series of fast staccato chords in tutti will stress your computer the most, because the initial release tails will continue to sound as additional staccato chords are being played.

For the most flawless operation, we recommend the use of a 4-core CPU or better, equipped with the most RAM that you can afford. As your CPU power increases, you can achieve more polyphony.

Please refer to the Hauptwerk™ User Guide for a complete description of how to achieve maximum polyphony with your computer.

Section III: Installation

Installation of the Sample Set

Installing the Theater und Philharmonie (TUP) Essen sample set requires that you own a registered and installed copy of the Hauptwerk V virtual pipe organ software and a registered iLok account.

The software is provided either as download or USB stick. If you received the Theater und Philharmonie (TUP) Essen sample set as a downloadable product, please make sure that you download all installation files before you begin with the installation. It is required to place all files into the same folder. If you received the sample set on an USB stick it is highly recommended to copy all files into a folder on your hard disk.

1. Launch the Hauptwerk software.
2. From within Hauptwerk go to the File menu and select "*Install organ, sample set, temperament or impulse response ...*"
3. The program will prompt you to select the file to install.
4. Navigate to the folder with the installation files and select the first file to install.
5. Click "*Open*" and then click "*OK*" on the next screen.
6. After Hauptwerk has finished installing the selected file proceed with the installation of the next file.

Updating the Sample Set

Updates of the sample set are installed following the same steps as described above. There is no need to un-install the previous version. All settings will be preserved.

Table 1: Screens for the Theater und Philharmonie (TUP) Essen sample set. L = landscape screen, P = portrait screen

Screen	Description	L	P
Console	Photorealistic representation of the mobile console (landscape screen) and of the mechanical console (portrait screen)	●	●
Left Jamb	Photorealistic representation of the left jamb of the mobile console (landscape screen) and of the left jamb of the mechanical console (portrait screen)	●	●
Right Jamb	Photorealistic representation of the right jamb of the mobile console (landscape screen) and of the right jamb of the mechanical console (portrait screen)	●	●
Simple	Screen optimized for readability for single screen systems with only one screen	●	●
Simple Left	Screen optimized for readability for dual screen systems with two or more screens	●	●
Simple Right	Screen optimized for readability for dual screen systems with two or more screens	●	●
Settings	Tremulant switch (recorded (standard) / modeled) and volume sliders for the front channel, the rear channel, ambience noise, blower noise, key action noise and stop action noise	●	●
Crescendo	User programmable crescendo function	●	●
About	Photo of the Theater und Philharmonie (TUP) Essen concert hall organ	●	●

Section IV: Using the Sample Set

Screens

The organ the Theater und Philharmonie (TUP) Essen has two consoles, a mechanical console on the balcony close to the organ and an electrical actuated mobile console for the stage. Both consoles have been implemented in the sample set. Users of landscape screens will see images of the mobile console, and users of portrait screens will see the mechanical console.

A total of nine different screens have been implemented in the sample set. See Table 1 for detailed information about the screens.

Divisional Cancel

"Divisional Cancel" is available on all screens. On the photorealistic screens this function can be activated with the white pistons near the stop tablets. On the simple screens "Divisional Cancel" can be activated by clicking on the corresponding division plaques.

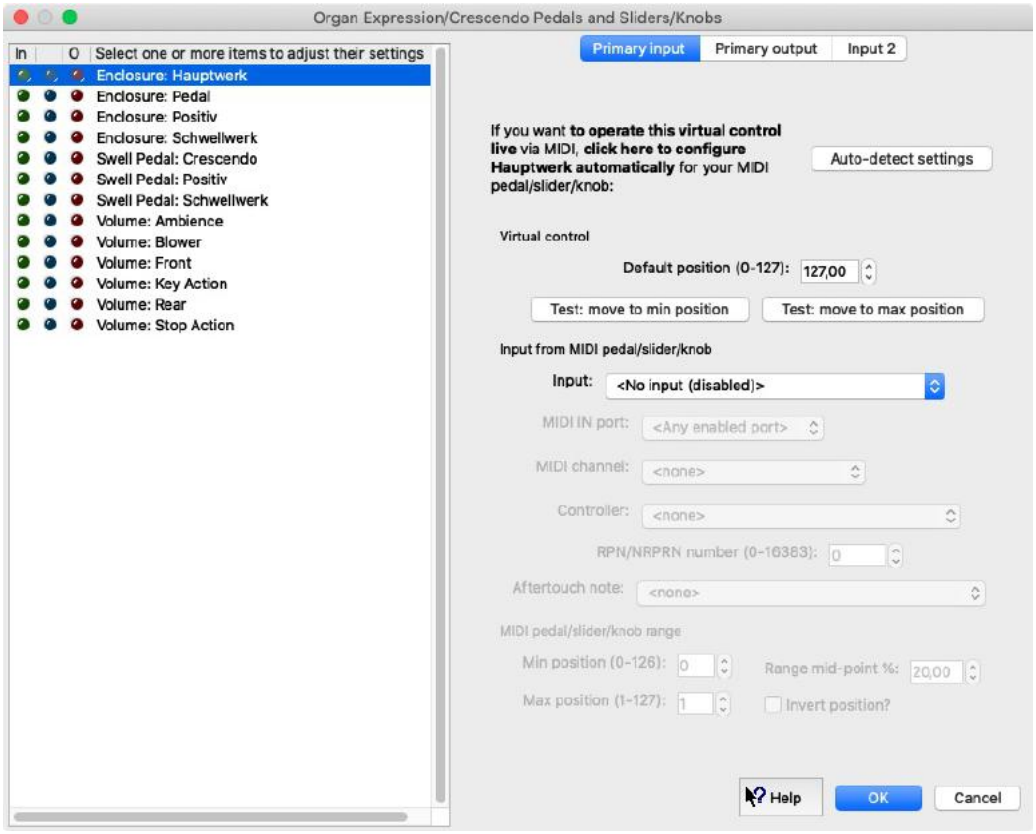
Enclosures

The original organ has two enclosed divisions: Positiv and Schwellwerk. The sample set provides enclosures for all four divisions. The façade pipes (Pedal Principalbass 16' and Octave 8' and Hauptwerk Principal 16' and 8' and Octave 4') and the Tuba are not enclosed. The enclosures for the two original divisions can be MIDI learned from the console screen or from the Hauptwerk menu (*Hauptwerk* > *Organ settings* > *Expression/crescendo pedals and sliders/knobs ...* > Enclosure: Pedal / Enclosure: Hauptwerk). The two additional enclosures can only be MIDI learned from the Hauptwerk menu (Fig. 1 on the next page).

Tremulants

The Theater und Philharmonie (TUP) Essen sample set offers two sets of tremulants: recorded and modeled. The switch for these two tremulant types lives on the "Settings" screen. The Hauptwerk, which is not tremmed in the

Figure 1: Hauptwerk: Organ Expression/Crescendo Pedals and Sliders/Knobs ...



original organ, has also a tremulant in this sample set (all stops except for the high pressure reed Tuba 8'). This tremulant has to be MIDI learned from the Hauptwerk menu (*Hauptwerk* > *Organ settings* > *Stop/coupler/tremulant switches and pistons/buttons ...* > Tremulant: Hauptwerk) (Fig. 2).

The modeled tremulants sound best, when both front and rear ranks are loaded together. The recorded tremulants can be used also in pure stereo (front or rear ranks) configurations.

Transmissions

The pedal division has two carefully selected soft transmissions: Lieblich Gedackt 16' and Bourdon 8'. Both ranks are taken from the Positiv. Moreover, the Tuba 8 can be also played from the Positiv and the Schwellwerk. The transmissions are located on the simple screens. To respect the design of the original consoles, they are not available on the photorealistic screens.

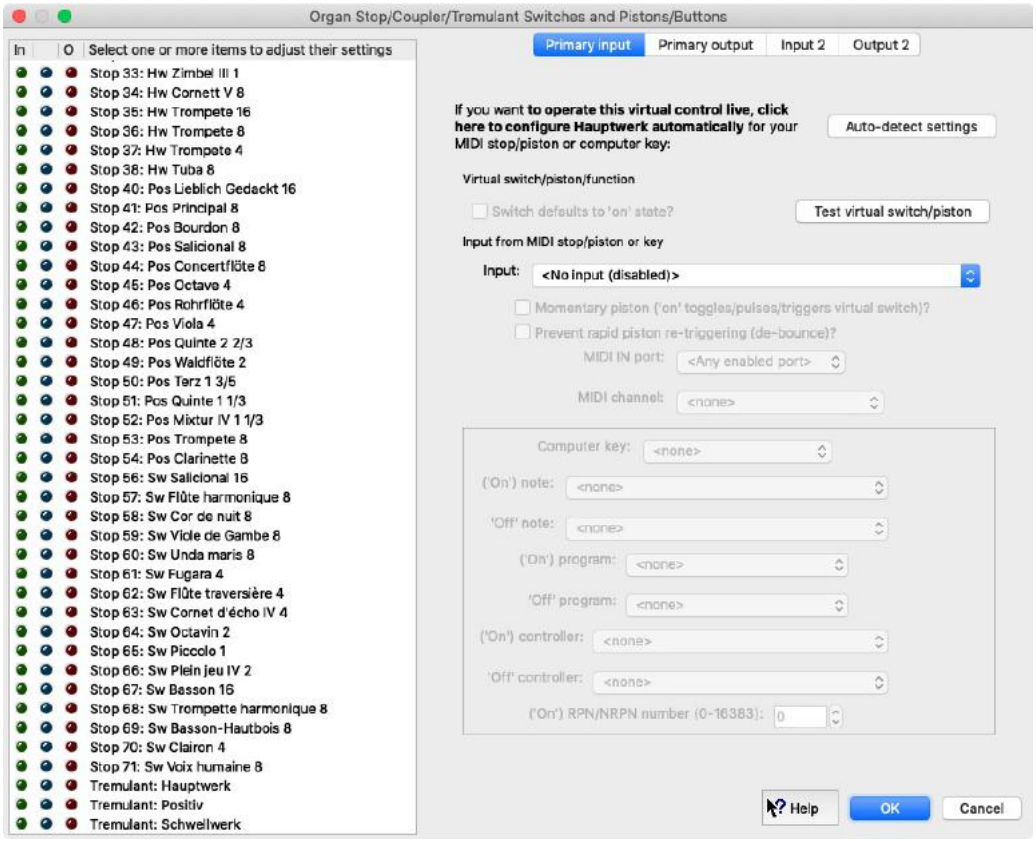
Crescendo

The sample set offers a native crescendo function, independent from the internal Hauptwerk crescendo. The stops and couplers of the crescendo can be programmed on the Crescendo screen. The Hauptwerk internal crescendo can be used alternatively if desired. If this is the case the swell shoe has to be MIDI learned to the slider on the "Registration" tab.

Combination Stepper

The sample set uses the internal Hauptwerk combination stepper. Please refer to the Hauptwerk™ User Guide to learn more about the use of the Hauptwerk combination stepper (section Registration menu: combination stepper (registration sequencer)).

Figure 2: Hauptwerk: Stop/Coupler/Tremulant Switches and Pistons/Buttons ...



Sostenuto

The sample set introduces a new feature for all divisions including pedal, which is mainly used for improvisations: "Sostenuto". When activated, played notes or chords are sustained until the next note or chord is played. This function can be activated for each division individually by pressing the "S" in the lower right corner of the simple screen and the buttons "S" near the division plaques on dual simple screens. It can be turned off with the same button, "General Cancel", and the corresponding "Divisional Cancel" buttons (see IV:.0.2 on page 9).

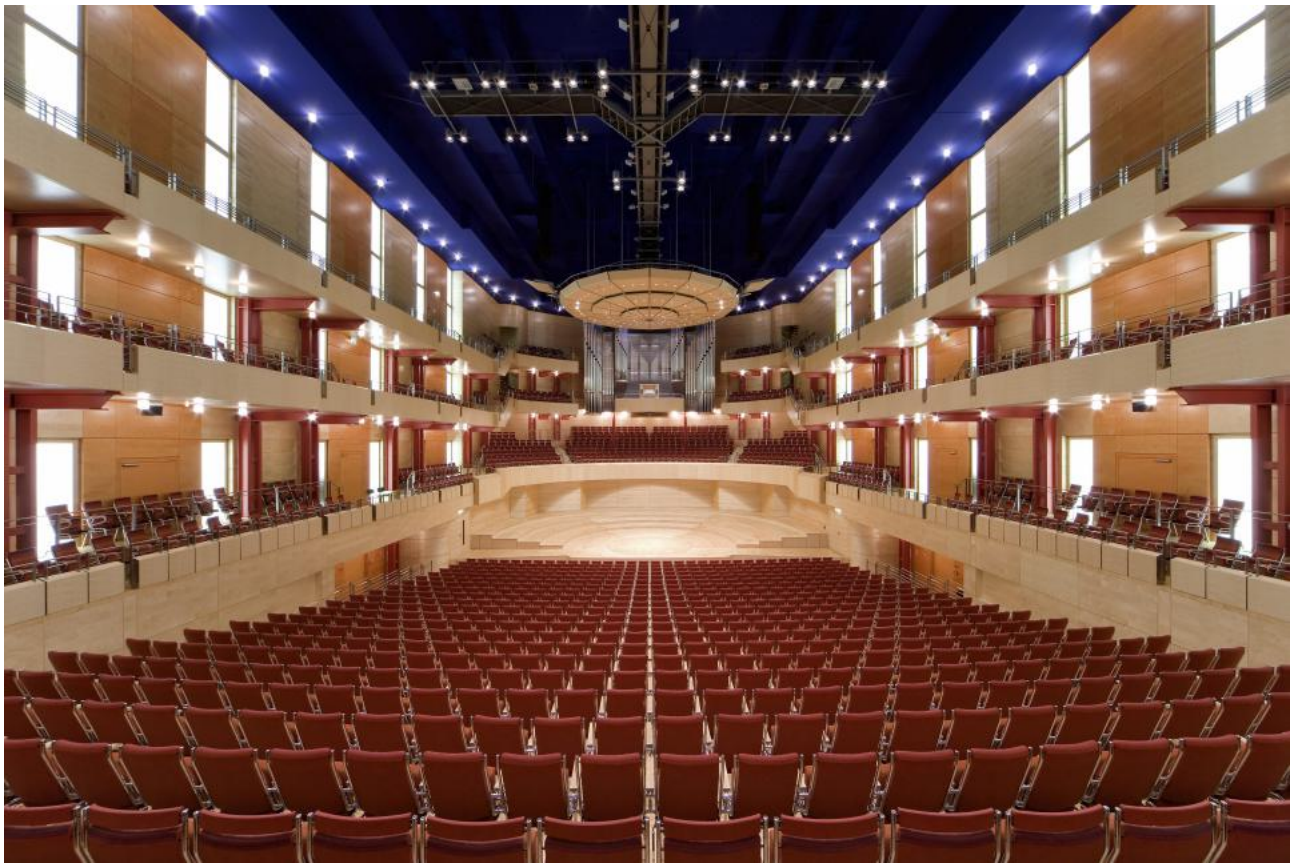
Pedal Divide

The "Pedal Divide" feature allows the organist to play the bass line and a solo line on the pedal at the same time with different registrations. This function splits the pedalboard into half. When engaged, the lower part of the pedal plays the pedal stops, while the upper part plays whatever is coupled to the pedal. This function can be activated with the button "PD" on the single and dual simple screens. The split point can be chosen on the "Settings" page. The default split point is between c (NormalMIDINoteNumber 48) and c# (NormalMIDINoteNumber 49). Once changed the split point will be stored. "Pedal Divide" can be turned off with the same button, "General Cancel", or "Pedal Cancel" (see IV:.0.2 on page 9).

The "Automatic Pedal Divide" feature splits the pedal automatically. If two pedal keys are pressed the lower plays the pedal stops, while the upper key plays whatever is coupled to the pedal. This function can be activated with the button "PDa" on the single and dual simple screens. "Automatic Pedal Divide" can be turned off with the same button, "General Cancel", or "Pedal Cancel" (see IV:.0.2 on page 9).

For obvious reasons it is not possible to activate "Pedal Divide" and "Automatic Pedal Divide" at the same time.

Figure 3: Theater und Philharmonie Essen. The Room



Section V: Theater und Philharmonie (TUP) Essen

Anyone seeing the Philharmonie Essen for the first time often perceives the building as "new and time-honored at the same time". These were the words the "Frankfurter Allgemeine Zeitung" used in June 2004 to describe the newly opened concert hall. This refers to a decisive feature: It is precisely this successful synthesis of the musically historic hall building and the acoustically and aesthetically modern Philharmonic Hall that is a trademark.

But what would a house, no matter how beautiful it is, with its "outstanding acoustics" ("Tagesspiegel") be without its great artists? Here, too, the Philharmonie continues a tradition of over 100 years. After all, it was nobody else than Richard Strauss who opened the Saalbau in 1904. And just two years later, Gustav Mahler was at the podium, conducting the premiere of his own Sixth Symphony. Largely destroyed in the Second World War, the Saalbau was rebuilt at the beginning of the 1950s, incorporating preserved elements.

After a fundamental renovation of the listed building and the complete redesign of the concert hall, the building was ceremonially reopened on June 5, 2004. Since then, audiences in the acoustically outstanding Philharmonie have been able to enjoy wonderful music.

The Kuhn Organ

The large Kuhn organ is the jewel of the Philharmonie. It was inaugurated on September 24, 2004, a few months after the opening of the building. The Swiss organ building company Kuhn wrote about the work of art with its 4502 pipes:

"When building the new concert hall organ for the Essen Philharmonic, we had to meet many different demands: The work had to reflect the international, sophisticated character of the place without neglecting the convincing principles of traditional organ building. We also wanted to incorporate the musicians' suggestions while remaining true to our own ideals. The symphonic instrument with mechanical action and 4502 pipes combines all these goals. As an excellent partner of the orchestra, this organ is capable of giving gravity and sonority to a wide range of musical styles.

The facade is not bound to the work, which allows certain creative freedom. These were also exploited in intensive cooperation with the architects. We were able to give the 'Tuba' a very special place: horizontally, it shines under the gallery. In order to optimally meet the requirements of modern concert business, the instrument is equipped with an additional mobile console.

Thanks to balancers and Kuhn levers, the high wind pressures are kept at an easily playable level. Two additional octave couplers support the effective swell so that the tonal resources can be used to the best advantage. In contrast to the church organ, the sound gradation is based on the hierarchy of the manuals; mensuration and intonation are designed for ensemble effect.

What existed in the beginning only as an idea in people's heads and on paper has been transformed into reality by our organ builders, pipe makers and carpenters in untiring detail work. They have paved the way for artistic flights of fancy, moments of evening gowns and unforgettable performances".

Stop List

The organ has 62 speaking stops, 85 ranks, 4502 pipes, 2 tremulants, 3 manuals and pedal:

I. Hauptwerk **C – c4**	**II. Positiv** **C – c4**	**III. Schwellwerk** **C – c4**	**P. Pedal** **C – g1**
1. Principal 16'	1. Lieblich Gedackt 16'	1. Salicional 16'	1. Untersatz 32'
2. Principal 8'	2. Principal 8'	2. Flûte harmonique 8'	2. Principalbass 16'
3. Flauto major 8'	3. Bourdon 8'	3. Cor de nuit 8'	3. Subbass 16'
4. Bourdon 8'	4. Salicional 8'	4. Viole de Gambe 8'	4. Violonbass 16'
5. Gambe 8'	5. Concertflöte 8'	5. Unda maris 8'6. Fugara 4'	5. Octave 8'
6. Dolce 8'	6. Octave 4'	7. Flûte traversière 4'	6. Bassflöte 8'
7. Octave 4'	7. Rohrflöte 4 '	8. Cornet d'écho 4f. (ab C) 4'	7. Violoncello 8'
8. Offenflöte 4'	8. Viola 4 '	9. Octavin 2'	8. Kornettbass 4f. 5 1/3'
9. Quinte 2 2/3'	9. Quinte 2 2/3	10. Piccolo 1'	9. Octave 4'
10. Superoctave 2'	10. Waldflöte 2'	11. Plein jeu 4f. 2'	10. Hintersatz 3f. 2 2/3'
11. Mixtur 4f. 2'	11. Terz 1 3/5'	12. Basson 16'	11. Kontraposaune 32'
12. Zimbel 3f. 1'	12. Quinte 1 1/3'	13. Trompette harmonique 8'	12. Posaune 16'
13. Cornett 5f. (ab f 0) 8'	13. Mixtur 4f. 1 1/3'	14. Basson-Hautbois 8'	13. Trompete 8'
14. Trompete 16'	14. Trompete 8'	15. Voix humaine 8'	14. Schalmei 4'
15. Trompete 8'	15. Clarinette 8'	16. Clairon 4'	
16. Trompete 4'	*Tremulant*	*Tremulant*	
17. Tuba (en chamade) 8'			

Couplers:

II-I, III-I, III-II, III-I subI-P, II-P, III-P, III-P super

Figure 4: Theater und Philharmonie Essen. The Organ

Organ Portrait

Orchestral Sonority for the Philharmonie Essen

The organ was not always an instrument of the church. Its origins are entirely profane in nature, such as musical accompaniment to festivities, theatre performances and parades, and other forms of entertainment.

Especially in 19th century England, organists have made history on concert hall organs. In addition to the usual accompanying tasks, it was the custom to present transcriptions of popular orchestral works to a wide audience in solo concerts on the organ. It almost seems as if this art form, like the performance of orchestral concerts with the organ as soloist, is experiencing a renaissance today.

Universality and Stylistic Diversity

Building a new organ for a concert hall is different from that of a church organ. With its infrastructure, the concert hall offers possibilities that one has to do without in the church: Space for large orchestras, stage equipment and specialized personnel. The concert programs have a rather secular character. They are cross-cultural and inter-religious and are more varied in style than in the church. The sophisticated ambience of the concert hall also attracts a different audience. In addition, the organ is usually enthroned in a prominent location in front of the auditorium.

Sophisticated Architecture

Because of its striking placement, the architectural appearance of the organ plays an extremely important role. A work brochure, i.e. a traditional design as in the heyday of organ building in the 17th and 18th centuries, was not in demand here. The modern design of the organ in the Alfred Krupp Hall of the Essen Philharmonic Hall was therefore

developed in close cooperation with the architects of this room according to free, purely aesthetic criteria. Behind the façade, of course, the strict organ-building rules still apply.

Sound Characteristics of the Concert Hall Organ

Probably the naming for the stops - the different voices and timbres of the organ - is largely identical to that of the church organ. But the sound design is oriented towards orchestral effects. Homophony is more important than polyphonic transparency. In the tonal gradation, the hierarchy of the individual works - groups of stops assigned to a keyboard - is in the foreground, in complete contrast to the 18th century organ's division according to pitches. In contrast to the church organ, which is characterized by a polyphonic rhetoric, the sound here is primarily oriented towards ensemble effect. A special feature of this concert hall organ is the colorful string choir from pianissimo to mezzoforte, a typical sound element of the symphonic organ. And hardly anywhere else can a cornet bass of the pedal be better integrated into a sound concept than in this large choir of the fundamental voices in normal and sub-octave register. Another special feature is the infinitely variable dynamics of the organ sound. This is achieved by means of two swell-able works and, as the culmination of expressiveness, the "tuba", a full-sounding reed stop. With its extraordinary place under the organ gallery, it resounds horizontally into the auditorium.

How Individual Can an Organ be?

Of course, a concert hall organ must be an adequate partner of the orchestra in terms of timbre and sound volume. But a large number of stops alone does not make a large organ. Above all, it must be the "right" stops, so the tonal orientation of the instruments must naturally be based on the musical requirements of the relevant literature. Nevertheless we do not see the solution in simply copying successful historical organ builders. They do serve us as a trend-setting inspiration. But we are convinced that the expectations of our time must find a counterpart in the tonal structure of our organs. So we are not afraid to express our personal intuition within a defined style spectrum. We also claim this scope because of the realization that artistic freedom within an epoch has always led to individual and outstanding performances.

Dieter Rüfenacht
Geschäftsleiter Orgelneubau
Orgelbau Kuhn AG

(translated from: Kultur in Essen. Die Kuhn-Orgel)

Credits

VOXUS Virtual Organs

Marien Stouten *Recording Engineer*
Bert-Jan de Waard *Programmer*
Roland van den Berg *Audio Engineer*

Recording:
Marien Stouten

Recording Assistants:
Bert-Jan de Waard
Roland van den Berg

Technical Advisor:
Bert-Jan de Waard

Audio Editing:
Roland van den Berg

3D Modeling:
Christoph Schmitz
Roland van den Berg

Grapical User interface:
Christoph Schmitz

Programming:
Christoph Schmitz

Special Thanks to:
Christian Schmitt *Organist*
TUP Essen
Orgelbau Kuhn
Ralph Richter *Photography*