

## Digital Hungarian Watermark Dadabank

### Introduction

The foundation of the Hungarian Watermark Database, as it's the basic database of the Digital Hungarian Watermark Database, was started in 1995. In 2010 we opened our first database with 30.000 data of 1200 watermarks.

By 2019 we have increased the number of watermarks to 40.000 in MVA. MVA is written record of the descriptions and drawings of reconstructed and drawn watermarks during watermark researches on a data sheet. In the MVA on the one hand the documentation works by documenting of the watermarks with continuous registration number based on motifs in an alphabetical order and on other hand by collecting based paper mills connection with determined, identified watermarks in a paper chronological order.

The „DMVA” (in English: DHWD) is the computerized record and digitalized catalogue of the selected watermarks from MVA. By the end of 2020 we are going to increase the number of digitalized Hungarian watermarks by five times available on the Internet.

### General information

The name of the Database

Digital Hungarian Watermark Dadabank

Abbreviated names: DHWD

The Hungarian filigranological typology system

The motif-based typological index of IPH classifies the watermarks from A to Z in 25 classes and creates several subclasses. We use such a method of Hungarian filigranological systematization – the typological index of MVA and DMVA (DHWD) – act on the point of the international motif-based systematic principles – that follows an easier, natural-based division.

In the DMVA (DHWD) the Hungarian filigranological typology applies an easy-to-use index by consisting of fewer categories, in which instead of classes, 14 types of watermark strain are the basis of the typological system and the taxonomic polihierarchy is built from these same 14 type strains. The strains move from simpler watermark shapes to more complex ones. All Hungarian and European watermarks can be classified into one type strain. The 14 type trains are the followings:

1. Punctuation mark watermarks
2. Letter watermarks
3. Number watermarks
4. Monogram watermarks
5. Name watermarks
6. Notice watermarks
7. Emblem watermarks
8. Coat of Arms watermarks
9. Portrait watermarks
10. Watermarks with human figures
11. Non-figurativ (abstract) watermarks
12. Symbol watermarks
13. Mythical (imaginary being) watermarks
14. Geometric watermarks

## Punctuation mark watermarks

The punctuations are the tiniest, inseparable elements and graphemes of the conventional graphic mark-system and written language – memory, thought, recording . They have defined typological forms and they are dispensable units in the writing system of the national language including alphabet (letters) and digits (numbers). The development of today punctuation marks started in the 15th century, as well during the century after the ancient watermarks came up.

In filigranological terms we mean punctuation marks are the graphemes, insharing, various signs of linking and dividing, delimitation or other additional signs, which play important roles in the writing of watermarks (watermarking: letter watermarks, number watermarks, monogram watermarks, notice watermarks) .

The punctuation mark watermarks are appeared as watermarks strains rarely in a separate type (watermark motifs). Mostly their watermarks appear in main motifs, co-motifs and sub-motifs of complex watermarks motifs. So far 16 punctuation mark have been explored from Hungarian watermark material. There are two maintypes of punctuation marks: odd punctuation marks and even-numbered ones.

## Letter watermarks

The letter is one of the basic units of the writing system. The alphabet of national language is built consists of single-digit and multi-digit letters. The grapheme of filigranologic writing (watermark writing) is the watermark-letter. In the filigranological sense, a letter (= watermark letter) is a shape (character) that can be interpreted as a punctuation mark in watermarks. Letters that occur in watermarks belong taxonomically to the type body of letter watermarks. Letter watermarks also form independent types (watermark motifs) (monograms). We distinguish two basic watermark shapes. The watermark can be:

Capital letters (versal, mayus),  
– low-case letter (current, minuscule).

Capitalization can be based on its role in the watermark:  
- initials (first letter, often larger than the others),  
- other letters (subtitle, not initial),  
- initial (ornate initial).

In filigranology, watermark-letters can be characterized by the structure, shape, geometry, spelling and position of the font. Watermarks in the form of planar shapes may have a single line or double outline. When displayed as a three-dimensional shape, it is shaded, as well its structure is perspective. The shape of the font may be unsigned or blocked. Its spelling is general (the letter is a normal, regular, average-looking watermark), written (handwritten watermark) or calligraphic (ornamented watermark). The font geometry is angular (straight lines) or rounded (curved lines). The font is narrow, normal or wide in width. The position or position of the font is straight or italic. Its shape can be a whole or a fragment (detail, cut).

The first watermark-letters and watermark inscriptions were written in the Latin language of ancient Latium and Rome. The early Hungarian monogram-, name, and subtitle watermarks were also made in Latin letters using the 21 accented letters of the Latin script. The first Hungarian literate masters of writing made their notes in the official languages of the given period, first in Latin and German, then in Hungarian, and made their watermarks accordingly. The use of the Hungarian language and the Hungarian language watermarks is basically only in the 19th century. It became popular with paper makers during the 20th century, when the national feeling became stronger throughout the country during in Reform Era.

Capital letters, or versal letters, are common elements in watermarks. According to Latin letters, the Romans and Latin-speaking peoples initially used only capital letters to write their inscriptions. This custom has also become a feature of European watermarking. Therefore, the font of the early Hungarian watermarks consists of all capital letters. A special form of the verbal font, the so-called small capital, which appears in the Hungarian name and subtitle watermarks. The point is that the initials are larger in size than the others and have no low-case letters, but are also replaced by a versal form. The small capital letter combination is found on most paper mills and papermakers' name watermarks and paper shape labels in a solid, double-contoured version.

Capital letters can be straight, italic and calligraphic letters for watermark typography. All three forms occur in Hungarian watermarks, but italics are less frequent and appear much later. As for the style of the letters, the palette consists of a wide variety of types, varying in age. From the initial, simpler-skinned, capless capital letters, to the different base and calligraphic capital letters, to the unique, decorated and extremely diverse fonts of modern font families. The fonts that appear in Hungarian watermarks, like the typeface letters, can be identified by their style features. Due to the special situation of independent Hungarian watermarking, overlaps can be observed in many cases. When Hungarian watermarking begins to use letters based on Polish and German models, Renaissance fonts are already gaining ground in Europe in both handwriting, book writing and print font culture. The Renaissance goes back to the work of the ancient ancestors in the font style, renewing Roman majuscules as capital letters, and Carolingian minuscules as low-case letters. In the world of watermarks, Renaissance fonts, like watermarks, radiate from Italy.

The first watermarkers also take their basic samples from here, so

- the 16th century Venetian and Dutch antiquity,
- the 17th. century French, Baroque and Rococo antiquity,
- the 18th. century, classicist antiquity, baseless grotesque and various written fonts,
- the 19th. century linear antiques with and without soles, handwriting (cord writing) letters,
- the 20 th century, loose antique and other special antique variations, handwriting-type and custom-designed fonts were used.

Low-case letters, also known as current letters, are relatively late, in the 19th century. They appeared in the first half of the 19th century among Hungarian watermarks, primarily in papermaking and paper mill name watermarks, and later in factory watermarks. The ornate initials of the initials, inscriptions or paper mill names date back to the 18th century. They occur from the 16th century, but only in the name watermarks of a few Hungarian paper mills.

### 3. Number watermarks

The number is the basic unit of writing, one of the basic units of the written language writing system, used to describe quantities. The national language set consists of one-digit, two-digit and multi-digit numbers. The graph of the filigranological number-set is the watermark-number. In filigranological terms, we consider numbers (= watermark-number) as shapes (characters) that can be interpreted as digits in watermarks. The numbers in watermarks are systematically of the type strain of numeric watermarks. Number watermarks also form separate types (watermark motifs): corner marks, serial (factoring) numbers. We distinguish between two basic types. The watermark number can be:

- Arabic number,
- Roman number.

Arabic numerals consist of Hindu-Arabic and Indian digits and form a decimal system based on place values. The so-called Western-Arabic version of Arabic numerals appeared in Western civilization at the end of the 10th century (976). In the second half of the 19th century (1456, seal of László V.). The Arabic numeral set consists of ten digits: 1, 2, 3, 4, 5, 6, 7, 8, 9 (Hindu-Arabic digits) and 0 (Indian digits).

In filigranology, we distinguish 2 main types of Arabic watermarks. There can be single-digit (single-digit) and multi-digit (multi-digit) numbers. One-digit watermarks are usually single-cornered numbers (for example 2) or serial numbers (for example 1). Watermarks include two-digit (two-digit number, such as paper number 58), three-digit (three-digit number, such as size label serial number 104), and four-digit (four-digit number such as 1659) watermarks.

Roman numerals are alphanumeric digits of the Ancient Roman additive numeral system. In essence, verbal letters (letters) from the Latin alphabet were assigned a numerical value and numbers (numerical sequences) were formed by a combination of these. By combining the signs of the seven-digit Roman numeral system, any real numeric value can be generated. Not all Roman numerals appear in watermarks.

The watermark-number is characterized by the structure, shape, geometry, spelling and position of the numeral body. The numeric bodies of watermark-numbers represented as planar shapes can be single-line or double-contoured. When displayed as a three-dimensional shape, it is shaded, as well its structure is perspective. The shape of the numeral body can be either insole or block. Its spelling is general (the number is a normal, regular, average-looking watermark), written (handwritten watermarks) or calligraphic (ornamented watermarks). The geometry of the numeric body is rectangular (consisting of straight lines) or rounded (consisting of curved lines). Narrow, normal, or wide in width. The position or position of the figure is straight or italic. Its structure is simple or complex, with framed numbers common among the latter. Their shape may be whole or fragment (cut).

The number watermarks can be independent motifs, main motifs, co-motifs, auxiliary motifs and watermark elements according to their role in the watermark.

The earliest date watermarks appeared in Hungarian watermarks as early as the 16th century (1547). Corner and shape watermarks are shown in Section in the 17th century, while the factory figure, Roman numerals watermarks of the 19th century.

#### 4. Monogram watermarks

A monogram is a single or multiple letter form with a single meaning or concealment. From a filigranological point of view, a monogram (= watermark monogram) is an abbreviation consisting of one or more letters formed by the initials of names, hidden names, rankings, subtitles, sayings, shapes, types or quality designations. The various monograms that appear in watermarks belong to the type body of monogram watermarks. There are 12 main types known in Hungarian watermark material:

1. papermaking monogram (for example AM = András Martinyi),
2. paper mill monogram (for example BB = Bibersburg: Redstone),
3. paper mill owner monogram (for example GBK = Count Bethlen Kata),
4. paper mill tenant monogram (for example CSH = Christoph Stein-Hauser),
5. paper merchant monogram (for example RJE = Rigler József Ede),
6. paper quality monogram (for example F = fine, FM = wood free),
7. paper size monogram (for example M = median),
8. paper shape monogram (for example N, Nr, No, Sz, MSZ),
9. hidden monograms (for example MRI = Virgin Mary),
10. monarch monogram (for example FI. = Ferenc I., L = Hungarian King Lipót),
11. institution monogram (for example bank: MNB, printing houses, public limited companies),
12. other monograms.

In the world of watermarks, monograms are very important, because they impersonate and protect paper. They identify the maker of the paper, the place of origin, the mill, the owner, the lessee or dealer, the merchant. Its function is related to the concepts of trademark, master mark, creative mark,

proprietary mark, delivery slip, trademark. Its gradual development and development over almost half a millennium goes from the simple indication of the origin and quality of the product to its trademark. The meaning of secret, hidden, or magic monograms was known and understood only by the initiates.

Among the Hungarian watermarks already in the 16th century various watermark shapes of monograms appeared. In Hungarian paper mills, the writing of monogram watermarks is largely in line with German orthographic writing, following the customs and professional language of the time: followed by the first name and then the first letter of the family name (for example IL = József Lennert). The two-letter and three-letter Hungarian papermaking monograms are therefore usually translated in reverse, for example, the WAR monogram is the name of Antal Rösner Wencel, or Rösner Vencel Antal of BOBÓT paper mill. In the 18th century onwards, there are monographs of Hungarian writing, such as GBK (1759) by Graf Bethlen Kata, owner of the OLTBOGÁT paper mill, where the order of letters no longer follows German orthography, but corresponds to Hungarian.

## 5. Name watermarks

The name is the linguistic consensus of things, concepts, living things. In the case of living beings, a proper name (surname, surname, first name, personal name) may be a common name for inanimate things (object name, geographical name). In the philigranological sense, a name (= name-watermark) is any watermark shape consisting of letters and punctuation that is a person (paper maker, paper manufacturer, paper merchant, historical figure) or building (paper mill, paper mill, famous building), settlement (city, municipality), administrative unit (county, district), institution (archive, library, financial institution), company (public, private), geographical location (landscape, region), geographical formation (river, stream) displays real or fantasy names

Filigranological names are classified into the strain type of name watermarks, which include twelve main types. According to this, the name watermarks can be:

1. papermaking names,
2. paper mill names,
3. paper mill owner names,
4. paper mill tenant names,
5. Paper trader names
6. dominant names,
7. geographical names,
8. names of geographic formations,
9. settlement names
10. fantasy names,
11. institution names,
12. other names.

Paper-making watermarks, like monograms, are usually all vertex letters, but as early as the 17th century. From the 20th century onwards they also have a written and calligraphic version. Later, the current letters will appear in the names along with the verbal initials, followed by the initial, more ornate, larger-sized initials. The paper mill names in the 18th century. In the 20th century, the use of chicory-like initials became widespread. Until the 20th century, the name watermarks are without accents.

The spelling of papermaking personal names in the first period, similar to monogram watermarks, follows the German orthographic order (followed by the first name, followed by the family name), and later by the eastern Hungarian name order (followed by the first name, first names). In the era of handmade paper making, the names of paper-makers are always mixed, in German and Hungarian. There are basically four types of watermarks, the full name, the abbreviated name the partial name, and the extended name:

full paper maker name watermark: Oswald Wenko  
abbreviated paper maker name watermark: O. Wenko  
partial paper maker name watermark: Oswald  
expanded paper maker name watermark: O & O. Wenko.

There are also German and Hungarian names in the paper mill's name watermarks. There are paper mill names that are written in Hungarian from the beginning (GÖRGÉNY, DÉVA, IGLÓ, DIÓSGYŐR) and are written in German (DECHTITZ, DECHTICE) in the first period and later in Hungarian (DEJTE). There are paper mill names where the name of the paper mill is the same as the name of a nearby town (KASSA) or a geographical name such as the river on which it operated (IPOLY: River Ipoly).

## 6. Inscription watermarks

The inscription is a characteristic product of writing, literacy, writing culture. It consists of words, words that have been written down, written, written on a writing medium for a specific purpose in human history (papyrus, paper, cardboard, silk, canvas, wood, clay board, wall, stone, etc.). In the filigranological sense, an inscription (= inscription watermark) is any one- or more-line watermark shape consisting of letters, punctuation, and numbers that includes one or more words.

Label watermarks include, for example, all paper shapes, paper sizes, paper thicknesses, paper types, word quality words that represent the name of paper quality (for example: MEDIAN, REGEST, DIÓSGYŐR POSTA). Special type of banner and text watermark.

## 7. Logo Watermarks

The emblem is a word of Greek origin, meaning: inlaid ornament, overlaid ornament, badge, emblem, symbol. Originally, they were figural images (opus vermiculatum) of ancient, Hellenistic, or Roman wall and floor mosaics. Modern versions of the logo are logos. From a filigranological point of view, an emblem (emblem watermark) is any graphically concise, comprehensible form of letters, punctuation, numbers, monograms, names, inscriptions, stylized figural, non-figurative, ornamental, symbolic and geometric elements that make up an institution, symbolizes a company or product. The paper mill emblems date back to the 17th century, while the paper mill emblems of the 19th century. They first appeared in the 19th century manufacturing era. Of these, paper mills in the 19th century. Since the second half of the 20th century, many have also been registered as watermark marks.

## 8. Coat of arms watermarks

The coat of arms is primarily a heraldic category. A colored shield worn on a shield, constructed in accordance with specified rules and used by its owner for identification purposes, with a permanent and hereditary right. The historical discipline dealing with the scientific processing and systematization of coats of arms is heraldry (heraldry). It got its name from the medieval herald experts working in the royal courts, the heralds. The name herald comes from the Old German words hariwalt and the French word herault. The heralds were messengers in the battle, the recipient of the message was identified by their coats of arms, and in peacetime, knightly games were organized. In the filigranological taxonomic sense, however, a distinction must be made between a heraldic and a filigranological coat of arms because the two are very different from each other.

In terms of the shape, conceptual and symbol system of the heraldic coat of arms, it is a hereditary, colored badge attached to a natural or legal person, shielded according to special (heraldic) rules.

The filigranological coat of arms differs significantly in form, conceptual and content from the heraldry (which in some cases can be considered as a starting figure), most of the time it is irregular,

highly stylized and incompleting, it does not meet heraldic standards and therefore cannot be called a heraldic coat of arms.

There are many and varied depictions of coats of arms in the Hungarian watermark treasure. Importantly, not all filigranological coats of arms have a heraldic antecedent. For example, paper mill coat of arms watermarks are usually fantasy coat of arms shapes that do not follow any heraldic rules and have never been shielded like heraldic coats of arms. Their basic goal is to identify the paper mill and serve its commercial aspects.

From a filigranological taxonomic point of view, the watermark forms depicting the coats of arms (Hungarian and Hungarica: Hungarian related) belong to the main type of coat of arms watermarks. There are 13 main groups of coat of arms watermarks: 1. country (state), 2. part of the country, 3. county, 4. city, 5. settlement, 6. paper mill, 7. paper maker, 8. paper merchant, 9. paper mill owner, 10. paper mill tenant, 11. family, 12. church and 13. other coat of arms watermarks.

8.1. The country coat of arms (*insignia regnorum*) is the official coat-of-arms of a state that can be used by its authorities. It can be: small coat of arms (only the most important part of the coat of arms), middle coat of arms (simplified large coat of arms, contains only the most important fields) and large coat of arms (full coat of arms of the country, including all provincial and other coats of arms). At the dawn of the development of European watermarking, at the end of the 13th century. At the end of the 19th century, the term *Regnum Hungariae* (Hungary) was already in use, so from then on the Hungarian royal coat of arms was considered the coat of arms of the country. Its current form dates back to the 16th century recorded at the beginning of the century.

The Hungarian coat of arms is one of the main symbols of the Hungarian state. Parts: pointed shield, split shield; in its first field were barns of barley, a shield field seven times cut, two-color, red-silver bands of the flags of the kings of the house of Árpád; double cross (*crux gemina*) on a triple mound (sign of the apostolic kingdom of King St. Stephen); the Hungarian Holy Crown rests on the shield. The Hungarian coat of arms watermarks followed the changes in the title resulting from the current political situation. Therefore, the 200 Hungarian paper mills used a wide variety of coat of arms watermarks during the half-thousand years of independent Hungarian paper making.

8.2. The coat of arms of a part of the country is the coat of arms of one of the partner countries, provinces or parts of the state with special status (the free royal port of Rijeka). Coats of arms of the country may be included in the middle and large coats of arms. Coats of arms of the Kingdom of Hungary: Transylvania, Dalmatia, Slavonia, Croatia, Bosnia and Rijeka. Part of the country coat of arms watermarks have already been presented in the Hungarian watermark treasure since at the beginning of the 17th century.

8.3. The coat of arms of the county is the coat of arms of the larger administrative territorial units of the country. The county (*comitatus*) was a territorial-administrative organizational unit of the Kingdom of Hungary (created by István I.), its coat of arms was also an official coat of arms. Not all of the Hungarian counties use only the county coat of arms watermark.

8.4. The coat of arms of a city is a smaller territorial unit, a kind of coat of arms carrying the symbols of the city. A city is a level of human settlement organization (urbanized geographical area) that has a specific legal status. Among them, the free royal city has a special status. In the 16th century the first Hungarian paper mills created the coat of arms watermarks of the first city from the coats of arms of the cities near them or participating in their foundation (Brassó, Kolozsvár).

8.5. The coat of arms of the settlement is the coat of arms representing the symbols of a territorial unit (village, village) smaller than the city. The coat of arms watermarks of the settlement are rare among

the Hungarian watermarks, but they already appeared in the second half of the 16th century (Liptószentmihály).

8.6. A paper mill coat of arms is a type of coat of arms made from the paper mill's own symbols, tied to the paper mill in some form, used only by that paper mill. Paper mill coat of arms watermarks are relatively rare (e.g. RED) among Hungarian watermarks, because paper mills usually used some highly stylized watermark shape of the owner's or tenant's coat of arms. For this reason, in some cases, it is not easy to separate paper mill coats from family coats of arms.

8.7. A papermaking coat of arms is a type of coat of arms used by papermakers whose use is tied exclusively to its owner, most often to a master who owned a paper mill. A papermaker's coat of arms watermark is a stylized watermark that comes from the emblem of a nobleman (for example, TEPLIC paper mill: the noble coat of arms of Benedek MATAVOVSKY, a papermaker), family or fantasy (TEPLIC). A special, general type is the coat of arms of Hungarian papermakers (corporate coat of arms watermark).

8.8. The paper merchant coat of arms is the type of coat of arms used by paper merchants. It occurs mainly in the watermarks of paper merchants who did not have their own paper mill or factory, but made their family or fantasy coat of arms primarily for the purpose of commercial advertising or paper trade trademark.

8.9. The paper mill owner's coat of arms watermark is usually made from the coat of arms or marriage coat of arms of the founding owner's (noble, noble) family.

8.10. The paper mill tenant coat of arms watermark was generated when the tenant of the paper mill and the person of the lead papermaking master were not the same and the tenant required the use of his own (family or fantasy) coat of arms.

8.11. The family coat of arms is the distinguishing badge of noble families. Heraldic figure, drawing, painting or engraving depicting the coats of arms of historical families. The practice of using them in military and political life was created by the strengthening of the role of power in families. We distinguish between ancient (recorded) and donation coats of arms. Ancient coats of arms are the noble family coats of arms that were voluntarily added (until the Middle Ages). Later, the donation coats of arms, which were given to families by royal donations (after 1526 the so-called Armalist nobility). A special type of family coat of arms is the marriage coat of arms (insignia matrimonii), which is the unified coat of arms of the spouses.

The family coat of arms watermark is a watermark motif depicting an ancient or Armalist family coat of arms. His drawing (watermark shape) was rarely made according to the original coat of arms donation. Watermarkers mostly used only the highlighting of some of the graphic elements of the most typical main motif (s) instead of a detailed coat of arms that covered every detail. The display of coat colours in family coat of arms watermarks is rare. It occurred only in a few cases, especially in trademark watermarks, when masters marked the colours of the coat of arms or the background color of the coat of arms with known heraldic colour-marking lines.

8.12. The ecclesiastical coat of arms represents the coat of arms of a church (Catholic, Reformed, Lutheran) or a church person (high priest). The ecclesiastical coats of arms appear primarily among the watermarks of the church-founded Hungarian paper mills.

8.13. Other coats of arms can be civil, official, institutional, corporate coats of arms.

Heraldic elements and the various symbols that can be derived from heraldry, which can be co-motifs or ancillary motifs in watermarking forms, are not only contained in coat of arms watermarks. Such heraldic categories are often found in emblems, portraits, human figures, and symbol watermarks. In the latter type strain, they occur in large numbers in almost all major types. Therefore, in addition to



the main type of filigranological coats of arms, it is necessary to treat the so-called heraldic components separately from a taxonomic point of view.

## 9. Portrait watermarks

A portrait is a human image that depicts the face of a living, non-living, or non-existent, fictional person (fantasy). In terms of its appearance, it can be a drawing, a painting, a sculpture, a relief, a small sculpture. From a filigranological point of view, a portrait (portrait watermark) is a watermark shape depicting the image (face) of any existing or non-existent (but non-mythical) person. It can be a portrait of a ruler (king, queen, emperor), prince, politician, famous person and fantasy person. Examples of portrait watermarks depicting the ruler: István I., Mátyás, Ferenc I., II. Watermark portrait of King Francis, Franz Joseph I. These were relatively large in the craft era, encased in a double circle or some kind of wreath, and later smaller in size. For example, a portrait watermark depicting a prince: György I. Rákóczi, Prince of Transylvania, depicting a politician: Ferenc Deák, capturing a famous person: József Katona and depicting a fantasy person: passport, banknote portrait watermark.

## 10. Human figure watermarks

The object of human representation is one of the manifestations of the human body itself, the human body, stature, physique, physical, spatial form and vision. From a filigranological point of view, we consider as human-shaped (human-shaped watermark) all watermarks depicting the full or fragmentary form of a human being that exists and does not exist (fictional, fantasy). Whether the human body is represented in a general, abstract, or specific form, with or without its attributes and props.

A distinction must be made differences between human figure and figural representation. The fundamental difference is that a figural can represent not only a human figure, but also any other figure (e.g., unicorn, centaur, lion) that is non-figurative. In principle, imaginary beings (angel, archangel) or human figures of mythical watermarks (Hungária, Justitia, Fortuna, Atlas, Hermes) could also be classified here, but they do not belong here, because they form a characteristic, separate taxonomic category.

The four main types of human-shaped watermarks include all the forms of representation that occur. These are: male, female, child, and human couple watermarks, which form four main groups of types: secular figures, church figures, fantasy, and other figures.

Among the existing human body types, the figures of man and woman appear in watermarks in the form of a lady and a gentleman. Among the occupations are the figures of hunter, soldier, martini, and papermaker. Among the general figures are the wanderer and the rider. In human-pair watermarks, two or more human figures are present in pairs: a twin pair, an engaged couple, a married couple.

## 11. Nonfigurative watermarks

The word nonfigurative means formless, figureless, abstract, amorphous, abstract form. In the filigranological sense, we consider non-figurative (non-figurative watermarks) representations of regular or irregularly structured, mostly unreal, abstract, abstract fantasy world shapes, non-naturalistic, without figures, usually complementary, space-filling or decorative.

Non-figurative watermarks are classified into a type body of non-figurative watermarks, which are divided into two main types, regular and irregular non-figurative watermarks. The most common manifestations of its watermark shapes are nonfigurative shape watermarks and non-figurative pattern watermarks arranged in two main groups of types.

A non-figurative shape watermark is a vector pattern of regular or irregularly structured straight and / or curved lines that does not form a surface-filling pattern. Nonfigurative shape watermarks include ornament, line pattern, frame, ornament, and garland.

A non-figurative pattern watermark (texture watermark) is a pattern of straight and / or curved lines with a regular or irregular structure that forms a surface-filling pattern. Texture from the Latin word *text* means fabric, structure. In the world of watermarks, a non-figurative pattern watermark depicts some abstract, often meaningless, unnamed, full-surface, enveloping, contiguous line structure, intertwined grid, textured, patterned surface.

## 12. Symbol watermarks

The symbol sign, emblem, meaning carrier. Greek word: *syn* = combine, *co-* and *ballein* = throw. The type of report associated with a symbol depends on the intended use and context. Symbolic: symbolic, symbolizes something, symbolizes, displays, embodies, personifies it, its imagination, figure, drawing, meaning can be associated with something.

In the filigranological sense, we consider as symbol watermarks all universal, general, national, local and special watermark motifs that represent an iconic, indexial or symbolic sign, symbol and are related to or expressed by some definable symbolic, symbolic meaning content.

Each discipline, including filigranology, has its own symbolic language, a particular system of symbols that contains many general and many unique signs and symbols. The complex symbol system of filigranology is made up of symbol watermarks that can symbolize beings, objects, things, concepts.

Iconic signs are clear symbols that represent the symbolized being, object, or thing itself. Common types of signs in European filigranology, such as: animal, plant, object, and building watermarks.

Index marks are symbols that refer primarily to content and do not represent the object or thing itself, but a symbolic association or symbol that can be associated with the meaning of the mark, such as an anvil watermark, hammer watermark: blacksmith, blacksmith's workshop.

Symbolic signs are symbols that bear no resemblance to the thing, object, or concept they symbolize at all. Their meaning is based on public consciousness, consensus, tradition, custom (convention), such as anchor watermark: a symbol of hope, a dove: a symbol of peace.

Symbol watermarks can basically be divided into five major groups according to their sign system, meaning, and distribution:

Universal symbol watermarks, which are widespread and, based on the meaning content associated with the depicted motif, have symbolized the same throughout the world for centuries (cross, sword, crown, anchor, post horn watermarks).

Common symbol watermarks, which are common, but have different meanings in some places (paper mill, paper factory, paper trade, world, religious, animal, and plant watermarks).

National symbol watermarks that are country-specific. Their use developed there, their meaning is closely connected to the history of the given country, as well as to the history of paper and watermark history (tools of use, natural images, architectural watermarks).

Local symbol watermarks that have either lost their original, universal meaning over the centuries or have changed their meaning have faded and can only be interpreted in a few countries or in quite a narrow area. Or their meaning varies locally, ie the same watermark symbol has different meanings in different places or places of origin (church, object, commercial watermarks).

Special (special, rare) symbol watermarks that are not widely used or have only been used for a very short time (building, vehicle watermarks). Based on these, we distinguish 10 main types of symbol watermarks:

1. animal watermarks,
2. plant watermarks,
3. natural image watermarks,
4. church watermarks,
5. secular watermarks,
6. heraldic watermarks
7. commercial watermarks,
8. object watermarks,
9. building watermarks,
10. means of transport watermarks.

### 13. Mythical watermarks

Mythology (myth science) is a system of myths, myths, olds, religious myths, the science of beliefs. In historical interpretation, myth always means the myth of a historically existing community, society (culture), and mythology always means the mythology of an existing and larger territorial, ethnic or religious community (cultural circle) (e.g. Egyptian, Greek, Roman mythology).

The characters in the myths are non-existent, fictional, mythical creatures. In the filigranological sense, we consider as mythical (mythical-watermark) the watermark representations of non-existent, fictional, human, animal, biblical and supernatural beings of myths, legends, ancient origins, folk and religious legends, beliefs, olds and tales. Whether their shape is represented in general, abstract, or specific form, with or without their attributes and properties. There are three main types of mythical watermarks, imaginary human, imaginary animal, and spiritual watermarks, which form five main groups: religious, secular, tale, fairy-tale, and spiritual mythical watermarks.

### 14. Geometric watermarks

Geometry is a discipline based on a deductive axiom system that deals with the study of planar and spatial mathematical regularities and relationships. Geometric (regular) shapes can be described by the methods of geometry. In the filigranological sense, in summary terms, we consider geometric (geometric-watermark) watermark shapes containing regular, closed drawing elements. In terms of their structure, they can be straight-line: consisting entirely of straight lines, curved-line: consisting exclusively of curved lines, and mixed-line: containing both straight and curved lines. According to their type group, they are polygons or curves. Based on their position, they are in standing or lying format or set to edge. They are single-line, double-contoured or shaded according to their base shape.

### **Reconstruction methods**

The true visual appearance of watermarks can be displayed in a variety of ways. However, imaging is often hampered by dark text and decorative prints, punctuation, sealing wax, paper thickness, and watermark (poor) quality that cover one or both sides of the paper. . If the prints densely cover the surface of the paper, or the paper is too thick, or the watermark is blurred and poorly visible, it is difficult to decipher the correct direction of the lines, meeting and intersection points, the true position of the letters, and their meaning or legibility. If the watermark is fragmentary and shows only a very

small detail in the paper (because it was cut to size), then watermarks of unknown design are difficult or impossible to reconstruct at all. The situation is slightly easier from a drawing point of view if both surfaces of the paper are blank and all the lines of the watermark are clearly visible.

For the visual display and archiving of different types of watermarks, during the 19th. and 20<sup>th</sup> century a variety of methods were developed worldwide. These include photographic (contact copying, traditional or digital photography, X-ray, radiography, etc.), drawing (manual, machine) and computing (digitization, mathematical modeling) methods.

The starting point is the same in all cases, as well the original watermarked paper, the original translucent watermark. For most methods, the four watermark review types also determine the toolbar that can be used. Therefore, the type of watermark should always be considered when preparing reconstruction drawings. The easiest and fastest way to create dimensionally and visually true watermark drawings is to combine traditional hand-drawing and state-of-the-art procedures offered by computer technology. It has three phases: 1. raw drawing, 2. scanning, 3. digitalisation. For DMVA watermarks, this method is used.

#### 1. Preparation of the raw drawing

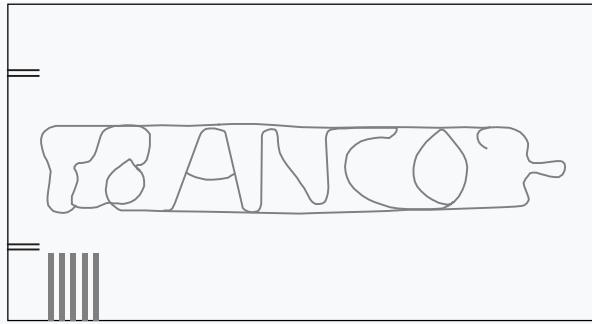
Different media and different methods must be used to draw different types of watermarks. One of the best carriers of the so-called raw drawing is dimensional tracing paper, but it is not advisable to use it only to a limited extent for combined watermarks and at all for tinted watermarks. Instead, a variety of thin papers for general graphics purposes are appropriate. For certain types of very thin, pressed watermarks, instead of a pause, the initial raw drawing can only be made in good quality on a completely transparent flat film. The raw drawing must be perfectly dimensionally accurate.

Raw drawing of negative watermarks can be achieved in basically three ways. One possible solution is a centerline drawing, the other is a double contour drawing, and the third is a full contour drawing. However, neither drawing mode can be applied automatically. The choice is determined by the quality of the watermark (visibility, drawability) and the aspects of further processing. For example, is it a simple or complex watermark with a thin or wide line system?

Negative watermarks with more complex designs, such as letters or ornaments that do not consist of a single line (double, triple), have a more complex dimension, which is usually an area of regular or irregular extent delimited by a closed contour. For these watermarks, the centerline drawing cannot be applied, only the double contour or full contour drawing leads to results.

The centerline drawing can only be used for negative watermarks where the line width is uniform and not variable. When making a centerline drawing, you must traverse the optical centerline of the line width of the illuminated watermark with the 0.3 mm graphite tip. The advantage is that it takes less time to create than a double-contour drawing and also facilitates subsequent digitization by paying attention to only one line, the centerline. The disadvantage is that small line changes, protrusions and small bends cannot be followed as smoothly in drawing as with double contours.

In the case of a centerline drawing, the line width of the watermark must be indicated separately or marked on a line segment because it is not visible or measurable in the drawing. The dark-visible part of the watermark background wiring in the overview should be fixed in its original size, and the main stiffeners should be fixed with two lines drawn next to the two outer edges.

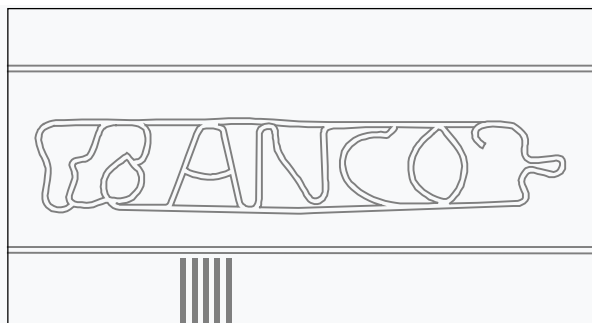


*Középvonal rajz*

The centerline drawing

The double contour drawing both outer and inner contour lines of the watermark must be drawn. This freehand-drawn double contour accurately plots the direction, width, angle, location, and position of each line of the watermark. It also shows the slightest changes in the direction of the original watermark and the shape of the smaller or larger watermark elements that make up the watermark (e.g., tiny heraldic elements, lions, eagles, and similar, highly stylized figures of only a few lines) that are often poorly visible inside coat of arms. In the double-contour drawing, it is possible to better trace the direction, affiliation or separation of details that are less well interpreted due to line breaks or line deficiencies.

The position and width of the main stiffeners and the width of the screen wires must be indicated here, similarly to the center line drawing.



*Kettoskontúr rajz*

The double contour drawing

#### The full contour drawing

It can be used for versions of complex, multi-element negative watermarks where the line thickness is constantly changing and the watermark can only be imaged by drawing the entire line contour.

The full contour drawing contains all the important data about the original watermark that can be measured at any time on the drawing itself, so they do not need to be recorded separately. The watermark background can be fixed in the same way as before.

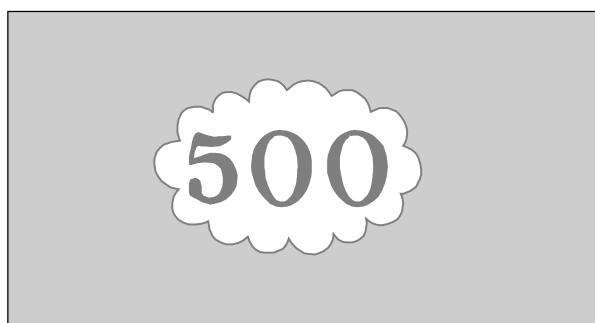


*Teljeskontúr rajz*

The full contour drawing

#### Raw drawing of positive watermarks

Positive watermarks with a darker view than the paper background can also be drawn with a double contour or centerline drawing. However, complex positive watermarks with continuously varying line widths or bounded by regular or irregular areas are more common in this base case. These can only be properly reconstructed with a full contour drawing.

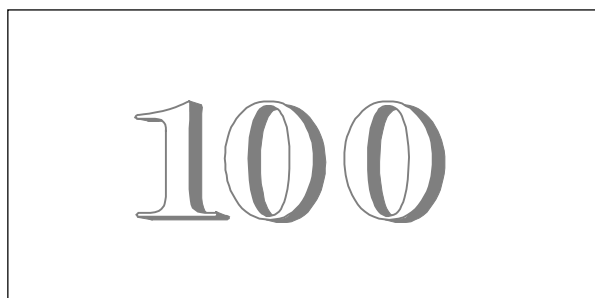


*Pozitív vízjel rajz*

The positiv watermark drawing

#### Raw drawing of combined watermarks

In the case of combined watermarks containing negative and positive watermark elements, not separately, but in combination, the light and dark watermark elements are in direct contact with each other, therefore their drawing can only be realized with a full contour drawing. The review of the combined watermarks forms a peculiar transition from the line and the shaded systems. The multi-level combined watermark view shows not only two-tone (light and dark), but also multi-tone fields with multiple light and dark tones together. Combined watermarks with a rare tonal difference show a hard watermark, while those more densely articulated show a soft watermark.



*Kombinált vízjel rajz*

The combined watermark drawing

## Raw drawing of shaded (tonal) watermarks

The drawing of true halftone watermarks consisting of stepless tones is the same as the techniques used in traditional graphite drawing. The choice of backing paper is important to demonstrate the richness of the hue.



*Árnyalatosvívjel rajz*

The shaded (tonal) watermark drawing

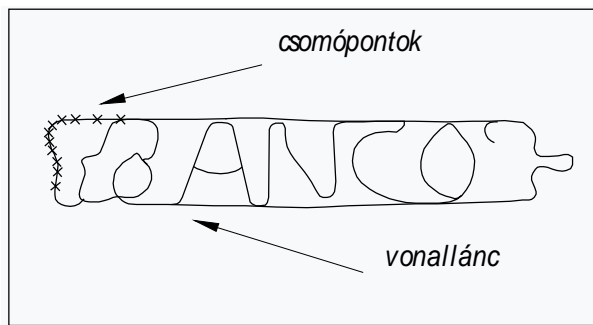
### 1. Scanning

The raw drawing is technical in nature compared to the original appearance of the watermark, but can be considered a very accurate drawing. In order to display the watermark in a visual way, the final version must be made based on the raw drawing. To develop this, the raw drawing must be transferred to a computer in its original size. The easiest way to do this is with flatbed scanning. The raw drawing, recorded on a white paper background, can be scanned in halftone or black and white with a minimum resolution of 360 dpi when placed in the flatbed scanner. From the two options, choose the type and quality (coverage) of the raw drawing. This method of processing can only be used for negative, positive and combined watermarks, not for shaded watermarks.

The scanned and computer-recorded image hereinafter serves as an auxiliary illustration of the digitization operation.

### 3. Digitization

An important aspect of casting the raw drawing into the final form is the conversion of the bitmap into vector graphic (line) graphics by digitization. In the first step, the scanned bitmap must be imported (called up) into a graphics program suitable for digitization. Then, depending on the method used to create the raw drawing (as a double-contour, centerline, or full-contour drawing), the digitization operation can be performed in different ways. The essence of digitization is to create the digital lines of the watermark in the computer by drawing simple Bézier curves = arranging the nodes we have selected along the direction tangents in a polyline. Its trace should be formed from nodes placed along the imaginary centerline of the raw drawing, taking into account changes in the direction (angle) (flat, pointed, short, long sections) of the curves of the watermark curve. Nodes should be included more densely at sharper vertices and less frequently at flatter curves, nodes

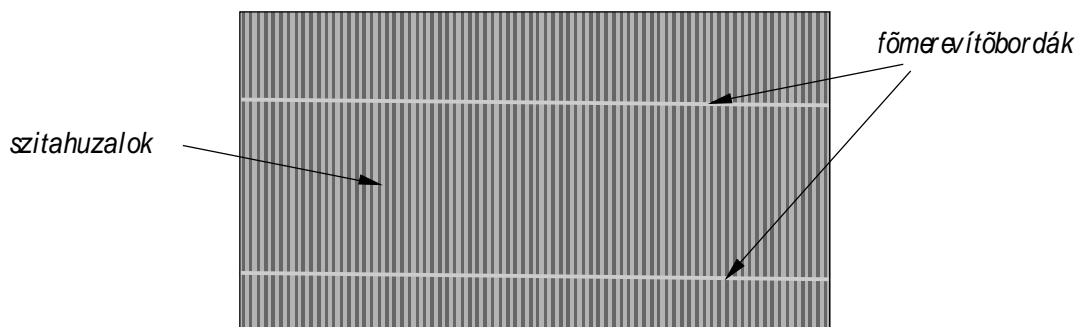


Vízjelrajz digitalizálása

Digitalisation of watermark line-chain

#### 4. Create background elements

In addition to the watermark, the traces of the immersed papers also show the technical traces of the immersion screen. The negative and positive linear parts created by the main stiffening ribs and the screen wires, which can be considered as background elements for the watermark. In reality, they are located in the background, behind the immersion screen, under the watermark tool. The spacing of the screen wires shows the base colour of the paper (positive surface). The wires of the sieve wires form a dense negative line network in the paper, and the main stiffening ribs, like the watermark, are also negatively translucent.



sieve wire

Háttérelemek  
Background elements main stiffening ribs

Technical specifications

Recorded data for each watermark): 15 data

Technical specifications

Registration data included in the DMVA database recorded data for each watermark: 15 data

Example of a DMVA watermark data:

database number: D-21671  
 tipological strain: betű-vízjel  
 watermark name/motif: A betű  
 place for watermark: R (right sheet)



main motif: verzál A  
companion motif: circle and line  
watermark pair: L (left sheet),  
watermark size: 30×73 mm  
date of original: 1310  
original type: document  
paper type: moulded writing paper  
paper size: 230×340 mm  
paper mill: PIEMONTE (Italy)  
papermaster): unknown  
source: MVA

## Bibliography

- BOGDÁN István (1959): A vízjelkutatás problémái (vízjelgyűjtésünk módszertana). – *Levéltári Közlemények*, Budapest, 30: 89–108.
- BOGDÁN István (1963): *A magyarországi papíripar története (1530–1900)*. – Akadémiai Kiadó, Budapest, 485 oldal, 2 térkép.
- BOGDÁN István (1974): Vízjellel az irathamisítás ellen. – *Papíripar*, Budapest, XVIII. évf., 1: 30–36.
- BOGDÁN István (1979): Papírkészítőink mesterségszavai, a 16–19. században. – MTESZ Papír- és Nyomdaipari Műszaki Egyesület, Az Ipari Hagyományok Védelmét Szervező Bizottság 2. sz. közleménye, Budapest. 38 oldal.
- BRIQUET, Charles Moise (1907): *Les Filigranes: dictionnaire historique des marques du papier dès leur apparition vers 1282 jusqu'en 1600*. Tome I–IV. – Genève, 836 oldal.
- DECKER, Viliam (1982): *Dejiny ručnej výroby papiera na Slovensku*. – Matica Slovenska, Martin, 223 oldal.
- EINER, Georg (1960): *The Ancient Paper-Mills of the Former Austro-Hungarian Empire and their Watermarks*. – The Paper Publications Society, Hilversum, VIII. sorozat. 188 oldal.
- FAZAKAS József (1959): A magyar papírtörténeti irodalom bibliográfiája. – Országos Széchényi Könyvtár Évkönyve, Budapest, 287–309. oldal.
- HORVÁTH József – PELBÁRT Jenő – BUNCSÁK Katalin (2008): Magyar filigranológiai bibliográfia. – *Magyar Vízjel*, Grafon Kiadó, VI., 10: 9–26. oldal.
- Internationale Norm für die Erfassung von Papieren mit oder ohne Wasserzeichen. Version 2.0 (1997): Typological Index. Wasserzeichen-Typenindex nach Klassen/Unterklassen, illustriert, hg. v. der Internationalen Arbeitsgemeinschaft der Papierhistoriker, Marburg o. J. [2000].
- PELBÁRT Jenő (2003): Adatok a vízjel definíciójához. – *Magyar Vízjel*, Grafon Kiadó, I. évf., 1: 13–20. oldal.
- PELBÁRT Jenő (2003): A vízjelek átnézetéről és az átnézeti típusokról. – *Magyar Vízjel*, Grafon Kiadó, I. évf., 1: 21–29. oldal.
- PELBÁRT Jenő (2003): A történelmi magyar papírmalmok elnevezéseinek és névváltozatainak áttekintése. – *Magyar Vízjel*, Grafon Kiadó, I. évf., 1: 31–41. oldal.
- PELBÁRT Jenő (2004): A papírív és a vízjel identifikációban fontos részei. – *Magyar Vízjel*, Grafon Kiadó, II. évf., 2: 39–44. oldal.
- PELBÁRT Jenő (2004): A vízjel helye, helyzete és állása a papírívben. – *Magyar Vízjel*, Grafon Kiadó, II. évf., 2: 45–50. oldal.
- PELBÁRT Jenő (2005): A digitális Magyar Vízjel Adatbank (MVA) célja, szerepe, okumentációs és kereső rendszere. – Tanulmány, Grafon Kiadó, 1–33. oldal.
- PELBÁRT Jenő (2006): A papírháttér és a vízjel viszonya I. rész: A papírháttér jellegzetességei a papírmalmok korában. – *Magyar Vízjel*, Grafon Kiadó, IV. évf., 6: 27–46. oldal.
- PELBÁRT Jenő (2006): A vízjelek felhasználási cél szerinti felosztása. – *Magyar Vízjel*, Grafon Kiadó, IV. évf., 7: 19–24. oldal.
- PELBÁRT Jenő (2006): Vízjeles papírok kategorizálása és a nyilvántartási kódok rövidítéseinek feloldása. – *Magyar Vízjel*, Grafon Kiadó, IV. évf., 7: 25–26. oldal.

- PELBÁRT Jenő (2007): A Magyar Vízjel Adatbank (MVA) vízjel adatlapja. – *Magyar Vízjel*, Grafon Kiadó, V. évf., 8: 11–14. oldal.
- PELBÁRT Jenő – BUNCSÁK Katalin (2008): Válogatás a nemzetközi papír- és vízjeltörténeti irodalomból. – *Magyar Vízjel*, Grafon Kiadó, VI., 10: 9-26. oldal.
- PELBÁRT Jenő (2010): Filigranológiai fogalomtár. – *Magyar Vízjel*, Grafon Kiadó, VII. évf., 14: 3–55. oldal.
- PELBÁRT Jenő (2010): *Hét évszázad papírtitkai*. – Aurea Kiadó, Budapest. 412 oldal.
- PELBÁRT Jenő (2013): Heraldikai eredetű motívumok és motívum-elemek a filigranológiában. – *Magyar Vízjel*, XI. évf., 25: 3–14. oldal.
- PELBÁRT Jenő (2014): Krisztogramok a filigranológiában. – *Magyar Vízjel*, XII. évf., 26: 21–34. oldal.
- PELBÁRT JENŐ (2015): XXI. századi filigranológia – egy tudományág reneszánsza. I. rész: A filigranológia fogalma, tárgya, forrásai és hat tudományos pillére. – *Magyar Vízjel*, XIII. évf. 31: 3-52. oldal.
- PELBÁRT JENŐ (2015): XXI. századi filigranológia – egy tudományág reneszánsza. II. rész: A filigranológia kronológiája, eszköztára, kutatási irányai és kapcsolatrendszere. – *Magyar Vízjel*, XIII. évf. 32: 3-24. oldal.
- PELBÁRT JENŐ (2017): *Egyetemes és magyar vízjeltörténet*. – Magyar Papírmúzeumért Alapítvány, Papír Akadémia jegyzet, 47 oldal.
- PINTÉR Márta szerk. (1974): A vízjelkutatás a könyvtári munka szolgálatában. – In: Régi könyvek és kéziratok. Tanulmánygyűjtemény, Országos Széchényi Könyvtár, Budapest.
- SZŐNYI Ignác László (1908): *14. századbeli papiros-okleveleink vízjegyei*. – Athenaeum, Budapest. 99 oldal + 17 vízjeltábla melléklet.
- VÁMOS György szerk. (1964): *Papíripari műszaki értelmező szótár*. – Terra Kiadó, Budapest. 107 oldal.
- VÁMOS György szerk. (1980): *Papíripari kézikönyv*. – Műszaki Könyvkiadó, Budapest. 1261 oldal.