# Guidelines for the CAD-data exchange with BMS

Version: 16 February 2017

# Table of contents

# 1. INTRODUCTION

This document manages the transfer of CAD data between BMS and the external planners.

To manage this data transfer smoothly it is necessary to maintain the described settings and conventions.

Deviation of and differences with the described settings and conventions have to be coordinated with BMS in advance, and an authorization/approval is required.

# 2. DATA EXCHANGE FORMAT

As exchange format only the AutoCAD compatible DWG-format, version 2015 or earlier, should be used. BMS has to be notified in case of deviation of this version before the first transfer of data starts and everything has to be brought in agreement with BMS.

# 3. CONVENTIONS

## 3.1 General transfer parameters

- Only 2D-data are transferred
- Measurement Unit: centimeters
- Scale: 1:100

The Import/export should only be carried out from the “Model” area (no plans/layouts).

## 3.2 Transferable elements

The following elements will be transferred and therefore could be used:

- Point symbol
- Line
- Polygon
- Circle / ellipse
- Spline
- Text
- Labeled attribute
- Dimension line
- Hatching
- Pattern (with restrictions, see item 3.4.6)
- Macros / blocks
- Construction Lines

Detailed specifications to the individual elements are indicated under the items 3.4.2 through 3.4.10.

## 3.3 Complex elements / links

These are elements which can be composed of multiple individual elements (e.g. groups, blocks, etc.), or include additional non-graphical definitions (e.g. attributes) or their visual presentation and/or formatting are controlled by a higher instance (assignment: “From Layer”, “From Blocks”).

When exchanging data with BMS the following elements and links are dissolved and thus cannot be used:

- Elements which are dissolved are: *non-graphical attributes*
- Links which are dissolved are: *„From Blocks“*

## 3.4 Specific transferable attributes of elements (assignments)

In the following the element properties, the layers and the codifications are described in detail (e.g. colors, type of lines, fonts etc.). They all are referring to the AutoCAD system if it is not otherwise indicated

Attributes and codifications, which are listed in this document, have to be used mandatory. A complete data transfer is not possible should the elements be defined differently. Deviation and differences of the described settings and conventions have to be coordinated with BMS in advance and require their authorization.

BMS reserves the right to decline not conformable files and to demand the generation of files once again.

Format properties like line weight, line types and line colors must be assigned to the objects from layers. The setting “From Layer” has to be used (see item 3.3).

### 3.4.1 Layer

The following layer structure and the associated format properties have to be used. In principle these can be found in the data, which is made available by BMS. If the structure in the provided data files is not complete, it can only be amended by the layers listed-below, including their respective brief descriptions and format properties.

Own layer descriptions are forbidden or require the confirmation of BMS.

Only the layer's brief description can be used as layer name.

The used layer structure at BMS is based on the layer structure of "Building Construction" & "Building Services" of the Magistrate of the City of Vienna, issue 1998. The brief description of layer is to use as actual layer description in the AutoCAD system.

Type of line and number of color correspond to the AutoCAD-system and are specifically described under the items 3.4.2 through 3.4.4.

| ***Layer brief description*** | ***Layer long name*** | ***Thickness*** | ***Type of line*** | ***Color no.*** |
|---|---|---|---|---|
| **CAD-building construction Magistrate of City of Vienna** | | | | |
| Mauerwerk | | | | |
| M_A29 | Tragende+konstrukt.Elemente | 0.50 | continuous | 6 |
| M_A28 | Draufsicht tr.+ konst.Elem. | 0.25 | continuous | 7 |
| M_V29 | Fassadenverkleidung | 0.35 | continuous | 4 |
| M_A26 | Deckenspruenge, Gewoelbe,... | 0.25 | verdeckt | 7 |
| M_U29 | Unterzuege und Gurtboegen | 0.25 | verdeckt | 7 |
| M_R26 | Achsraster und -beschriftung | 0.25 | continuous | 250 |
| M_R26$ | Achsraster Untergeschoss | 0.25 | continuous | 250 |
| M_R26D | Raster abgehaengte Decke | 0.25 | continuous | 7 |
| M_R26DB | Raster Doppelboden | 0.25 | continuous | 250 |
| M_R26K | Aufstellungsraster Einricht. | 0.25 | continuous | 7 |
| M_R26Z | Zentralpunkt | 0.25 | continuous | 7 |
| M_A27 | Wandeinbauten(Rauchfaenge).. | 0.25 | continuous | 7 |
| M_A27-$ | Wandeinbauten (vorh. Plaene) | 0.25 | continuous | 7 |
| M_Z29 | Mauerwerk nicht tragend | 0.50 | continuous | 3 |
| M_Z28 | Draufsicht ntr. Mauerwerk | 0.25 | continuous | 7 |
| M_L29 | Leichtwaende | 0.35 | continuous | 4 |
| M_L28 | Draufsicht Leichtwaende | 0.18 | continuous | 7 |
| H_L27 | Einbauten (Aufzug,Rigol...) | 0.25 | continuous | 7 |
| H_L27$ | Aufzugsverkleidung | 0.25 | continuous | 7 |
| H_L26 | Einbauten (Vordaecher...) | 0.25 | verdeckt | 7 |
| H_L26-$ | wie vor (vorh. Plaene) | 0.25 | verdeckt | 7 |
| Decken | | | | |
| DE_29 | Deckenkonstruktion (Schnitt) | 0.50 | continuous | 3 |
| DE_29-$ | Deckenkonstr. (vorh. Plaene) | 0.25 | continuous | 7 |
| DE_28 | Deckenkonstruktion (Ansicht) | 0.25 | continuous | 7 |
| DE_27 | Fussbodenaufbau+abgeh.Decken | 0.25 | continuous | 7 |
| DE_27-$ | Fussbodenaufbau(vorh.Plaene) | 0.25 | continuous | 7 |
| DE_26DB | Deckendurchbrueche | 0.25 | continuous | 30 |

| Layer brief description | Layer long name | Thickness | Type of line | Color no. |
|---|---|---|---|---|
| Stiegen | | | | |
| S_S29 | Stiegen+Rampen (Schnitt) | 0.35 | continuous | 4 |
| S_29 | Umriss+Gehlinie,Podestkanten | 0.25 | continuous | 1 |
| S_26 | unsichtbar darzustellende BT | 0.18 | verdeckt | 250 |
| S_27 | Gelaender+Handlauf | 0.25 | continuous | 7 |
| SB_26 | Beschriftung Stiegen+Rampen | 0.25 | continuous | 7 |
| Dachkonstruktionen | | | | |
| DA_29 | Dachkonstruktionen Schnitt | 0.35 | continuous | 4 |
| DA_28 | Dachkonstruktionen Ansicht | 0.25 | continuous | 7 |
| DA_29S | Sparren Schnitt | 0.35 | continuous | 4 |
| DA_28S | Sparren Ansicht | 0.18 | continuous | 250 |
| DA_29D | Dachhaut Schnitt | 0.18 | continuous | 250 |
| DA_28D | Dachhaut+Verblechung Ansicht | 0.25 | continuous | 7 |
| DB_26 | Beschriftung | 0.25 | continuous | 1 |
| DAR26 | Achsen Hauptgespaerre | 0.25 | strichpunkt | 7 |
| Fenster | | | | |
| O_F26 | Graf.Darst. Fensteroeffnung | 0.25 | continuous | 1 |
| O_F26J | Fensterjalousien | 0.25 | continuous | 250 |
| OBF26 | Achsbeschr. Fensteroeffnung | 0.25 | continuous | 7 |
| OUF26 | Sturzdarst. Fensteroeffnung | 0.25 | verdeckt | 1 |
| Tueren, Durchgaenge | | | | |
| O_T26 | Graf.Darst. Tueroeffnung | 0.25 | continuous | 1 |
| OBT26 | Achsbeschr. Tueroeffnung | 0.25 | continuous | 7 |
| OUT26 | Sturzdarst. Tueroeffnung | 0.25 | verdeckt | 1 |
| Beschriftung | | | | |
| B_328 | Texthoehe 5,0 mm | 0.50 | continuous | 7 |
| B_227 | Texthoehe 3,5 mm | 0.35 | continuous | 7 |
| B_126 | Allgemeine Beschriftung | 0.25 | continuous | 7 |
| B_026 | Nummerierung Deckenpanele | 0.25 | continuous | 7 |
| MODUL | Modulnummer | 0.25 | continuous | 22 |
| ST_TK | Beschriftung Tragkerne | 0.25 | continuous | 7 |
| Bemassung | | | | |
| V_328 | Bemassung 5,0 mm | 0.18 | continuous | 250 |
| V_227 | Bemassung 3,5 mm | 0.18 | continuous | 250 |
| V_126 | Bemassung 2,5 mm | 0.18 | continuous | 250 |
| Raumwidmungen | | | | |
| B_127W | Mitarbeiter | 0.25 | continuous | 7 |
| B_127N | Raumnummer | 0.25 | continuous | 7 |
| B_227Z | Raumbezeichnung | 0.35 | continuous | 7 |
| B_127B | Bodenbelag | 0.25 | continuous | 7 |
| B_127M | Flaeche | 0.25 | continuous | 7 |
| B_127H | Raumhoehe | 0.25 | continuous | 7 |
| B_127V | Raumvolumen | 0.25 | continuous | 7 |
| B_127R | Raumbuchnummer | 0.25 | continuous | 7 |
| B_127I | Zusatzinformationen | 0.25 | continuous | 55 |

| *Layer brief description* | *Layer long name* | *Thickness* | *Type of line* | *Color no.* |
|---|---|---|---|---|
| Flaechenermittlung | | | | |
| Z_009 | Polylinie (Raumbegrenzung) | 0.70 | continuous | 5 |
| LUFTRAUM | Polylinie Luftraum | 0.70 | continuous | 3 |
| ARTIKEL | Artikellager | 0.25 | continuous | 7 |
| Einrichtungen | | | | |
| E_B26 | Beschriftung Einrichtung | 0.25 | continuous | 1 |
| E_S26 | Graf.Darst. Sanitaereinr. | 0.25 | continuous | 1 |
| E_M26 | Graf.Darst. Moebel | 0.25 | continuous | 1 |
| Plankopf/Planrahmen | | | | |
| KOPF | Planrahmen,-kopf,… | 0.25 | continuous | 7 |
| Brandschutz | | | | |
| BRA_SYMB | BMA Symbole | 0.25 | continuous | 7 |
| BRANDABS | Brandabschnitte | 0.25 | continuous | 30 |
| BRA_TEXT | Beschriftung Brandschutz | 0.35 | continuous | 7 |
| BRA_VERM | Bemassung und Hilfslinien | 0.18 | continuous | 250 |
| BRA_KOPF | Plankopf Brandschutz | 0.25 | continuous | 7 |
| BRA_WAND | Wandinformation (Schraffur) | 0.25 | continuous | 7 |
| BRA_GANG | Schraffur Verkehrsflaeche | 0.25 | continuous | 7 |
| Asbest | | | | |
| ASBS_CA | Asbestfundstelle Cafco | 0.25 | continuous | 2 |
| ASBS_CA$ | Bestand Asbest Cafco | 0.25 | continuous | 2 |
| ASBS_DB | Auszug Fundstellendatenbank | 0.25 | continuous | 7 |
| ASBS_E | Fundstelle nur entsorgt | 0.25 | continuous | 94 |
| ASBS_E_S | Fundst. entsorgt und subst. | 0.25 | continuous | 60 |
| ASBS_SC | Asbest schwach gebunden | 0.25 | continuous | 1 |
| ASBS_SC$ | Bestand Asbest schwach geb. | 0.25 | continuous | 1 |
| ASBS_ST | Asbest stark gebunden | 0.25 | continuous | 30 |
| ASBS_ST$ | Bestand Asbest stark geb. | 0.25 | continuous | 30 |
| ASBS_TXT | Fundstellen Beschriftung | 0.25 | continuous | 7 |
| BRA_ZUS | Ergänzungen Brandschutz | 0.25 | continuous | 4 |
| Kanal | | | | |
| I_S27KR | Regenwasserkanal | 0.35 | getrennt | 4 |
| I_S27KRE | Regenwasser Einlaeufe... | 0.25 | continuous | 7 |
| I_S27KS | Schmutzwasserkanal | 0.35 | strichpunkt | 4 |
| I_S27KSE | Schmutzwasser Einlaeufe... | 0.25 | continuous | 7 |
| IB_27 | Beschriftung Kanal | 0.25 | continuous | 7 |
| Flaecheninformation | | | | |
| 0_BESTAN | bestehende BT allgemein | 0.25 | continuous | 253 |
| 0_NTW_SC | Schraffur nichttrag. Waende | 0.18 | continuous | 250 |
| 0_STB_SC | Schraffur Stahlbetonwaende | 0.18 | continuous | 250 |
| 0_WD | Waermedaemmung, Schraff+Symb | 0.18 | continuous | 250 |
| 0_FA1 | Fassade 1 | 0.18 | continuous | 250 |
| 0_FA2 | Fassade 2 | 0.18 | continuous | 250 |
| 0_FA3 | Fassade 3 | 0.18 | continuous | 250 |
| 0_FA4 | Fassade 4 | 0.18 | continuous | 250 |
| BEL_1KN | Belastungsangabe (1 KN/m2) | 0.18 | continuous | 94 |
| BEL_2KN | Belastungsangabe (2 KN/m2) | 0.18 | continuous | 94 |

| *Layer brief description* | *Layer long name* | *Thickness* | *Type of line* | *Color no.* |
|---|---|---|---|---|
| BEL_3KN | Belastungsangabe (3 KN/m2) | 0.18 | continuous | 94 |
| BEL_4KN | Belastungsangabe (4 KN/m2) | 0.18 | continuous | 94 |
| BEL_5KN | Belastungsangabe (5 KN/m2) | 0.18 | continuous | 94 |
| BEL_6KN | Belastungsangabe (6 KN/m2) | 0.18 | continuous | 94 |
| BEL_7_5 | Belastungsangabe (7,5 KN/m2) | 0.18 | continuous | 94 |
| BEL_8KN | Belastungsangabe (8 KN/m2) | 0.18 | continuous | 94 |
| BEL_10KN | Belastungsangabe (10 KN/m2) | 0.18 | continuous | 94 |
| BEL_1015 | Belastungsangabe(10-15KN/m2) | 0.18 | continuous | 94 |
| BEL_12KN | Belastungsangabe (12KN/m2) | 0.18 | continuous | 94 |
| BEL_15KN | Belastungsangabe (15KN/m2) | 0.18 | continuous | 94 |
| BEL_30KN | Belastungsangabe (30KN/m2) | 0.18 | continuous | 94 |
| BEL_EINZ | Einzellasten | 0.18 | continuous | 94 |
| Symbole | | | | |
| H_XSYMBO | zus.Symbole (Heizkoerper...) | 0.25 | continuous | 7 |
| Lageplaene (Aussenanlagen) | | | | |
| G_G29 | Gebaeude- und Bauteilumriss | 0.50 | continuous | 6 |
| G_V29 | Daecher (Dachvorspr., First) | 0.18 | verdeckt | 250 |
| GB_29 | Beschriftung (inkl. Bemass.) | 0.35 | continuous | 4 |
| G_A29 | Aussenanlagen (Str.,Weg,Sti) | 0.25 | continuous | 7 |
| G_B29 | Baeume und Bepflanzung | 0.18 | continuous | 250 |
| G_E29 | Gestaltungselem.+Hilfslinien | 0.18 | continuous | 250 |
| G_K29 | Grundstuecksgrenzen+Beschrif | 0.25 | continuous | 1 |

**CAD-Haustechnik Mag Wien**

| | | | | |
|---|---|---|---|---|
| Heizung | | | | |
| B_026IH | Texthoehe 1.8 mm | 0.25 | continuous | 7 |
| B_126IH | Beschriftung Heizkoerper | 0.25 | continuous | 7 |
| B_227IH | Texthoehe 3.5 mm | 0.35 | continuous | 7 |
| B_328IH | Texthoehe 5.0 mm | 0.50 | continuous | 7 |
| I_H26AR | Armaturen, Pumpen, etc. | 0.25 | continuous | 1 |
| I_H26HZK | Heizkoerper | 0.25 | continuous | 7 |
| I_H26WVL | Warmwasserheizung Vorlauf | 0.25 | continuous | 22 |
| I_H26WRL | Warmwasserheizung Ruecklauf | 0.25 | gestrichelt | 174 |
| I_H26HVL | Heisswasserheizung Vorlauf | 0.25 | continuous | 1 |
| I_H26HRL | Heisswasserheizung Ruecklauf | 0.25 | gestrichelt | 174 |
| I_H26KW | Kaltwasserleitung | 0.25 | continuous | 94 |
| I_H26LU | Luftleitung | 0.25 | continuous | 250 |
| I_H26Z | Zirkulationsleitung | 0.25 | continuous | 202 |
| I_H26KUE | Kuehlwasserleitung | 0.25 | continuous | 134 |
| I_H26DAM | Nieder-, Hochdruckdampf | 0.25 | continuous | 1 |
| I_H26KON | Heizung - Tropfwasserleitung | 0.25 | continuous | 73 |
| I_H26SB | Sinnbilder | 0.25 | continuous | 1 |
| I_H26W | Wirkleitung | 0.25 | gestrichelt | 7 |
| I_H26WW | Warmwasserleitung | 0.25 | continuous | 30 |
| I_H26ABG | Abgasleitung | 0.25 | continuous | 250 |
| I_H26G | Kessel, Behaelter, etc. | 0.25 | continuous | 1 |
| I_H26GAS | Brennbare Gase | 0.25 | continuous | 55 |
| I_H26OEL | Brennbare Fluessigkeiten | 0.25 | continuous | 36 |

| *Layer brief description* | *Layer long name* | *Thickness* | *Type of line* | *Color no.* |
|---|---|---|---|---|
| V_026IH | Bemassungslinie,-Text 1.8 mm | 0.18 | continuous | 250 |
| V_126IH | Bemassungslinie,-Text 2.5 mm | 0.18 | continuous | 250 |
| V_227IH | Bemassungslinie,-Text 3.5 mm | 0.18 | continuous | 250 |
| V_328IH | Bemassungslinie,-Text 5.0 mm | 0.18 | continuous | 250 |
| Lueftung | | | | |
| B_026IL | Texthoehe 1.8 mm | 0.25 | continuous | 7 |
| B_126IL | Beschriftung Lueftung | 0.25 | continuous | 7 |
| B_227IL | Texthoehe 3.5 mm | 0.35 | continuous | 7 |
| B_328IL | Texthoehe 5.0 mm | 0.50 | continuous | 7 |
| I_L26WVL | Klima - Warmwasser Vorlauf | 0.25 | continuous | 22 |
| I_L26WRL | Klima - Warmwasser Ruecklauf | 0.25 | gestrichelt | 174 |
| I_L26KVL | Klima - Kaltwasser Vorlauf | 0.25 | continuous | 22 |
| I_L26KRL | Klima - Kaltwasser Ruecklauf | 0.25 | gestrichelt | 174 |
| I_L26KON | Klima - Tropfwasserleitung | 0.25 | continuous | 73 |
| B_126AKS | AKS-Nummer Brandschutzklappe | 0.25 | continuous | 1 |
| I_L26ABL | Abluftleitung | 0.25 | continuous | 32 |
| I_L26AR | Klappen, Jalousien etc. | 0.25 | continuous | 1 |
| I_L26AUL | Aussenluftleitung | 0.25 | continuous | 73 |
| I_L26FOL | Fortluftleitung | 0.25 | continuous | 32 |
| I_L26K | Kuehlleitung | 0.25 | continuous | 4 |
| I_L26MIL | Mischluftleitung | 0.25 | continuous | 30 |
| I_L26SB | Sinnbilder | 0.25 | continuous | 1 |
| I_L26UML | Umluftleitung | 0.25 | continuous | 32 |
| I_L26W | Wirkleitung | 0.25 | gestrichelt | 7 |
| I_L26ZUL | Zuluftleitung | 0.25 | continuous | 214 |
| I_L26G | Geraete | 0.25 | continuous | 1 |
| I_L26LTG | Umrisse Luftleitung | 0.35 | continuous | 4 |
| I__26RA | Leistung,Temp. ONORM H 5021 | 0.25 | continuous | 1 |
| V_026IL | Bemassungslinie,-Text 1.8 mm | 0.18 | continuous | 250 |
| V_126IL | Bemassungslinie,-Text 2.5 mm | 0.18 | continuous | 250 |
| V_227IL | Bemassungslinie,-Text 3.5 mm | 0.18 | continuous | 250 |
| V_328IL | Bemassungslinie,-Text 5.0 mm | 0.18 | continuous | 250 |
| Sanitaerinstallationen | | | | |
| B_026IS | Beschrift. Sanitaerinstall. | 0.25 | continuous | 7 |
| B_126IS | Texthoehe 2.5 mm | 0.25 | continuous | 7 |
| B_227IS | Texthoehe 3.5 mm | 0.35 | continuous | 7 |
| B_328IS | Texthoehe 5.0 mm | 0.50 | continuous | 7 |
| I_S26ABW | Abwasserleitungen | 0.25 | continuous | 7 |
| I_S26ALG | Anbindeleitung Gas | 0.25 | continuous | 7 |
| I_S26ALW | Anbindeleitung Wasser | 0.25 | continuous | 7 |
| I_S26AR | Armaturen | 0.30 | continuous | 1 |
| I_S26DL | Druckluftleitung | 0.25 | continuous | 7 |
| I_S26G | Sanitaergeraete | 0.25 | continuous | 1 |
| I_S26KLW | Klimakaltwasser | 0.30 | continuous | 214 |
| I_S26KW | Kaltwasserverrohrung | 0.30 | continuous | 94 |
| I_S26KWE | Kaltwasserver. enthaertet | 0.25 | gestrichelt | 5 |
| I_S26SBA | Symbole f. Putzstuecke, etc. | 0.25 | continuous | 1 |
| I_S26SBG | Auslass-Symbole etc. Gas | 0.25 | continuous | 1 |
| I_S26SBW | Auslass-Symbole etc. Wasser | 0.25 | continuous | 1 |
| I_S26SOL | Destiliertes Wasser | 0.25 | continuous | 1 |
| I_S26STG | Steigleitung Gas | 0.25 | continuous | 7 |

| *Layer brief description* | *Layer long name* | *Thickness* | *Type of line* | *Color no.* |
|---|---|---|---|---|
| I_S26STW | Steigleitung Wasser | 0.30 | continuous | 7 |
| I_S26VLG | Verteilleitung Gas | 0.25 | continuous | 7 |
| I_S26VLW | Verteilleitung Wasser | 0.25 | continuous | 7 |
| I_S26WW | Warmwasserverrohrung | 0.30 | continuous | 30 |
| I_S26Z | Zirkulation | 0.30 | continuous | 202 |
| I_S27HAG | (Haupt-) Anschlussleit. Gas | 0.25 | continuous | 7 |
| I_S27HAW | (Haupt-)Anschlussleit.Wasser | 0.25 | continuous | 7 |
| V_026IS | Bemassungslinie,-Text 1.8 mm | 0.18 | continuous | 250 |
| V_126IS | Bemassungslinie,-Text 2.5 mm | 0.18 | continuous | 250 |
| V_227IS | Bemassungslinie,-Text 3.5 mm | 0.18 | continuous | 250 |
| V_328IS | Bemassungslinie,-Text 5.0 mm | 0.18 | continuous | 250 |
| Energietechnik | | | | |
| B_026IE | Beschr. Schalter/Beleuchtung | 0.25 | continuous | 7 |
| B_126IE | Beschr. Steckdosen/Auslaesse | 0.25 | continuous | 7 |
| B_227IE | Beschr. StkD/Auslass DB | 0.25 | continuous | 7 |
| B_328IE | Beschr. Fluchtwegbeleuchtung | 0.25 | continuous | 7 |
| B_126IE$ | Beschr. Et/Sub/Ran.Verteiler | 0.25 | continuous | 7 |
| I_E26SE$ | Etagen/Sub/Rangierverteiler | 0.25 | continuous | 1 |
| I_E26JE | Schalter und Beleuchtung | 0.25 | continuous | 1 |
| I_E26JE$ | Sicherheit/Fluchtwegbeleucht | 0.25 | continuous | 1 |
| I_E26AL | Anbindeleitung | 0.25 | continuous | 7 |
| I_E26NOT | Notstromleitung | 0.25 | continuous | 7 |
| I_E26SE | Steckdosen & Auslaesse | 0.25 | continuous | 1 |
| I_E26SED | Steckdose & Auslass DB | 0.25 | continuous | 1 |
| I_E26STL | Steigleitungen | 0.25 | continuous | 7 |
| I_E26VL | Kabeltrassen Verteilleitungen | 0.25 | continuous | 7 |
| I_E26ZLT | Zentrale Leittechnik | 0.25 | continuous | 1 |
| I_E27HA | Hausanschluss, Trafo etc. | 0.25 | continuous | 7 |
| I_E28HS | Hochspannungsleitungen | 0.25 | continuous | 7 |
| V_026IE | Bemassungslinie,-Text 1.8 mm | 0.18 | continuous | 250 |
| V_126IE | Bemassungslinie,-Text 2.5 mm | 0.18 | continuous | 250 |
| V_227IE | Bemassungslinie,-Text 3.5 mm | 0.18 | continuous | 250 |
| V_328IE | Bemassungslinie,-Text 5.0 mm | 0.18 | continuous | 250 |
| Nachrichtentechnik | | | | |
| B_026IN | Beschriftung Konferenzanlage | 0.25 | continuous | 7 |
| B_026IND | Beschrift. Konf.Anlage DB | 0.25 | continuous | 7 |
| B_126IN | Beschriftung Telefonapparate | 0.25 | continuous | 7 |
| B_227IN | Texthoehe 3.5 mm | 0.35 | continuous | 7 |
| B_328IN | Texthoehe 5.0 mm | 0.50 | continuous | 7 |
| I_N26MOB | Konferenzraum-Moeblierung | 0.25 | continuous | 1 |
| I_N26BMA | Brandmeldeanlage | 0.25 | continuous | 7 |
| I_N26EDV | EDV | 0.25 | continuous | 7 |
| I_N26GEB | Gebaeudeueberwachung | 0.25 | continuous | 7 |
| I_N26S | Klingel,Sprechanl.,Tueroeffn | 0.25 | continuous | 7 |
| I_N26SI | Sicherheitsanlage | 0.25 | continuous | 7 |
| I_N26SIM | Konferenzanlagen | 0.25 | continuous | 7 |
| I_N26SID | Konferenzanlagen Doppelboden | 0.25 | continuous | 7 |
| I_N26TEL | Telefonanlage | 0.18 | continuous | 7 |
| I_N26UHR | Uhrenanlage | 0.25 | continuous | 7 |
| I_N26INT | Interkom | 0.25 | continuous | 7 |
| I_N26PA | Lautsprecheranlage | 0.25 | continuous | 7 |

| *Layer brief description* | *Layer long name* | *Thickness* | *Type of line* | *Color no.* |
|---|---|---|---|---|
| I_N26PAM | PAMEX-Anlage | 0.25 | continuous | 7 |
| I_N26TV | TV-Anlage | 0.25 | continuous | 7 |
| V_026IN | TV-Verkabelung | 0.18 | continuous | 250 |
| V_126IN | Telefonverkabelung | 0.18 | continuous | 250 |
| V_227IN | Alarmverkabelung | 0.18 | continuous | 250 |
| V_328IN | Bemassungslinie,-Text 5.0 mm | 0.18 | continuous | 250 |
| Maschinentechnik | | | | |
| I_T29G | Aktenfoerderanlage | 0.25 | continuous | 1 |
| I_T29ST | Staubsaugeranlage | 0.25 | continuous | 6 |
| I_T29T | Tragwerke (z.B.Fachwerkstr.) | 0.35 | continuous | 4 |

### 3.4.2 Colors

The following colors can be used:

AutoCAD number

| | |
|---|---|
| 1 | "red" |
| 2 | "yellow" |
| 3 | "green" |
| 4 | "cyan" |
| 5 | "blue" |
| 6 | "magenta" |
| 7 | "white / black" |
| 22 | "light reddish orange" |
| 30 | "very light satiated orange" |
| 32 | "light satiated orange" |
| 36 | "dark satiated orange" |
| 55 | "middle half satiated yellow" |
| 60 | "very light satiated yellowish chartreuse" |
| 73 | "light half satiated chartreuse" |
| 80 | "very light satiated greenish chartreuse“ |
| 94 | "middle satiated green" |
| 95 | "middle half satiated green |
| 134 | "middle satiated cyan" |
| 174 | "middle satiated blue |
| 202 | "light satiated purple magenta" |
| 214 | "middle satiated magenta" |
| 250 | "very dark gray" |
| 253 | "light gray" |

### 3.4.3 Pens (in mm)

The following pens can be used:

| AutoCAD No. | | | | |
|---|---|---|---|---|
| 1013 | "13" | - | "0.13" | mm |
| 1015 | "15" | - | "0.15" | mm |
| 1018 | "18" | - | "0.18" | mm |
| 1025 | "25" | - | "0.25" | mm |
| 1030 | "30" | - | "0.30" | mm |
| 1035 | "35" | - | "0.35" | mm |
| 1050 | "50" | - | "0.50" | mm |
| 1070 | "70" | - | "0.70" | mm |
| 1140 | "140" | - | "1.40" | mm |
| 1211 | "211" | - | "2.80" | mm |

### 3.4.4 Type of lines

The following line types can be used:

| AutoCAD terms | |
|---|---|
| "CONTINUOUS" | "_____“ |
| "VERDECKT" | "Verdeckt __ __ __ __ __ __ " |
| "KURZGESTRICHELT" | "Strichliert" |
| "GESTRICHELT" | "Strichliert" |
| "STRICHPUNKT" | "Strichpunkt __ . __ . __ . __ . _ " |
| "GETRENNT" | "Getrennt ____ . . ____ . . ____ " |
| "MITTE" | "Mitte ____ _ ____ ____ _ ____" |
| "PHANTOM" | "Phantom _____ __ __ _____ " |
| "PUNKT" | "Punkt . . . . . .. . ." |
| "RAND" | "Rand __ __ . __ __ . __ __ . __ “ |
| "LTYPE_11" | "Dash-dot" |
| "LTYPE_15" | "Dashed" |

### 3.4.5 Fonts

The following fonts can be used:

| AutoCAD terms | |
|---|---|
| TXT | txt SHX-Font |
| SIMPLEX | simplex SHX-Font |
| ISOCP2 | isocp2 SHX-Font |
| ISOCP3 | isocp3 SHX-Font |
| ISOCT3 | isoct3 SHX-Font |
| SCRIPTS | scripts SHX-Font |
| GOTHICI | gothici SHX-Font |
| ISOCP | isocp SHX-Font |
| ROMANS | romans SHX-Font |

AutoCAD terms

| | |
|---|---|
| MONOTXT | monotxt SHX-Font |
| ITALIC | italic SHX-Font |
| COMPLEX | complex SHX-Font |
| ISOCT | isoct SHX-Font |
| ISOCT2 | isoct2 SHX-Font |
| ROMANC | romanc SHX-Font |
| ROMANT | romant SHX-Font |
| ROMAND | romand SHX-Font |
| ITALICC | italicc SHX-Font |
| ITALICT | italict SHX-Font |
| SCRIPTC | scriptc SHX-Font |
| ARIAL | TrueType ARIAL |
| STYLU | TrueType STYLU |

### 3.4.6 Pattern

Patterns are treated differently in various systems. Therefore they should not be used as far as possible.

However if the use of patterns is necessary, this has to be coordinated with BMS in advance.

Nevertheless, for later differentiation different pattern have to be assigned to different layers since only one standard pattern will be transferred.

### 3.4.7 Hatching

3 hatchings are assigned directly. Please use these hatchings exclusively.

AutoCAD terms

| | | |
|---|---|---|
| ANSI31 | -> | for *„Walls, nonstructural“* |
| ANSI37 | -> | for *„nonstructural structural Elements“* |
| ANSI33 | -> | for *„reinforced concrete Walls “* |

### 3.4.8 Point Symbols

The following point symbols (e.g. for dimension lines) can be used:

AutoCAD terms

NSY140 Dimensioning: Arrowhead, line
NSY141 Dimensioning: Arrowhead, arrow
NSY142 Dimensioning: Arrowhead, circle

AutoCAD terms

NSY143 Dimensioning: Arrowhead, cross
NSY144 Dimensioning: Elevation, TLF (top level, finished surface)
NSY145 Dimensioning: Elevation, TLU (top level, unfinished surface)
NSY146 Dimensioning: Elevation, TL half filled
NSY147 Dimensioning: Elevation BLF (bottom level, finished surface)
NSY148 Dimensioning: Elevation, BLU (bottom level, unfinished surface)
NSY149 Dimensioning: Elevation, BL half-filled

### 3.4.9 Smart Symbol / Macros / Blocks

Self-defined new blocks (e.g. symbols for lamps) have to be documented and coordinated with BMS. Only after BMS's approval, they can be used. Block names, block design and layer assignments must be approved by BMS. It is not allowed to use other blocks within a block. Blocks must comprise only one layer.

Should a block be used or placed multiple times, the following should be taken into account (mandatory):

- The "Standard Blocks of BMS" must be used. These can be provided as a dwg template. If new blocks are required, a sample must be made available to BMS in the "dwg" format for approval so that they are then added to the catalog of the standard blocks of BMS and the "dwg" template.
- Blocks must always be created and placed without any scaling factor.
- The use of dynamic blocks is not permitted.
- The same block should always have the same name and labeling.
- Blocks must always be placed with the same placement reference point.
- If blocks are placed rotated, they must always have the same center of rotation.

### 3.4.10 Text Strings – special characters

The following special characters can be used:

AutoCAD terms

| String | Description |
|---|---|
| %%% | # Percent symbol |
| %%u | # Begin underline |
| %%u | # End underline |
| %%064 | # At character |
| ü | # Umlaut UE |
| ä | # Umlaut AE |
| Ä | # Umlaut AE |
| ö | # Umlaut OE |
| Ö | # Umlaut OE |
| Ü | # Umlaut UE |
| ⁰ | # Superscript 0 |
| ¹ | # Superscript 1 |
| ² | # Superscript 2 |
| ³ | # Superscript 3 |

| | |
|---|---|
| ⁴ | # Superscript 4 |
| ⁵ | # Superscript 5 |
| ⁶ | # Superscript 6 |
| ⁷ | # Superscript 7 |
| ⁸ | # Superscript 8 |
| ⁹ | # Superscript 9 |

AutoCAD terms

| **String** | **Description** |
|---|---|
| %%d | # Degree character |
| α | # Alpha |
| ß | # German S or Beta |
| § | # Paragraph character |
| %%c | # Diameter character |
| %%p | # Plus/minus character |