A Unique Overview of Basic "Reference Number" Models with Model Descriptions, Contents and Application Explanations as well as Applicable Control Number Calculation Modules

For the purpose of providing a clearer explanation of payment references in national payments, the numerical codes "model" and "payer reference number" and "receiver reference number" as a whole made up of two parts (model number and model content) in the total length of up to 26 characters.

"Model" and "payer reference number" and "receiver reference number" are entered in place designated for entering numerical codes of the following elements: "model" and "payer reference number" and "receiver reference number" on the payment order.

In the message pain.001.001.03 the "model" and "payer reference number" are entered into the "unique identifier" field (field 2.65 End to End Identification), and "model" and "receiver reference number" are entered into the field "Remittance Information/Structured/Creditor Reference Information/Reference" (field 2.133/2.135/2.138/2.144 Remittance Information/Structured/Creditor Reference Information/Reference).

In the message pain.001.001.03 the "model" and "payer and receiver reference number" are entered as a sequence, without spaces between the model and the reference number.

The first part of the "model" consists of four characters representing the "HR" code and the basic model number. These characters are entered into the "model" field, while the model content in the length of up to 22 characters is entered in the "payer reference number" or "receiver reference number" field. The datum content in the "reference number" must match the entered model number.

If the "reference number" content is expressed using less data than prescribed, it will be considered that the data are expressed in a sequence starting with Datum P1 and so forth. In that case, if the content is expressed using only one datum, it will be considered that the relevant datum is Datum P1; if it is expressed using two data, it will be considered that those data are Datum P1 and Datum P2; and if it is expressed using three data, it will be considered that those data are Datum P1, Datum P2 and Datum P3.

The "reference number" content can be entered using one, two or three data (P1 - P2 - P3), except in the case of models HR23, HR24, HR26, HR28, HR31, HR43, HR62, HR64 and HR65 which may be entered using four data (P1 - P2 -P3 - P4). In the case of models HR25, HR27, HR35, HR68, HR69, HR83 and HR84, the content must be expressed using at least two data; in the case of models HR16, HR26, HR28, HR29, HR30, HR33, HR34, HR62, HR63, HR64 and HR65, the content must be expressed using at least three data; while model HR43 requires the use of four data.

The data contained in the basic "reference number" model content are separated by a dash (-), and the total number of all data and dashes which separate them may not exceed 22 characters. In models with two data, the total length of all data is limited to 21 digits and one dash, in models with three data to 20 digits and two dashes, and in models with four data to 19 digits and three dashes.

The length of one datum is limited to 12 digits, except in models HR12, HR24, HR41 and HR83. Datum P1 in models HR12 and HR41, and Datum P2 in models HR24 may contain up to 13 digits and Datum P2 in model HR69 may contain 11 digits for the OIB number (Personal Identification Number). Datum P2 in model HR83 consists of 16 digits.

The last digit in the datum represents its control number, except in the case of model HR40. Datum P1 in model HR40 contains two control numbers (the last two digits). Depending on the basic model number, control numbers are used to control a part, several parts or the entire "reference number" content. Data transmission accuracy is secured only in the case of data controlled by means of a control number.

The model and the number of data for numerical coding of the "reference number" content are determined by the payment service user. If the payment service user wants to have a part or the entire "reference number" content controlled by means of a control number, he/she must use the basic "reference number" models. If the payment service user does not want to have the model content controlled by means of a control number, he/she must enter in the "model" field the model "HR00". If there is no model content, the payment service user must enter the "HR99" basic model number.

Payment service users use models HR23, HR24, HR26, HR27, HR28, HR29, HR62, HR63, HR64, HR65 and HR68 only in accordance with the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs. (*Naredba o načinu uplaćivanja prihoda proračuna, obveznih doprinosa te prihoda za financiranje drugih javnih potreba*); models HR30, HR31, HR33 and HR34 are used in accordance with the model descriptions; model HR69, in accordance with the model description, is used also for personal income payment, while other models are used according to the client's choice. Models HR25, HR83 and HR84 are used exclusively by FINA and the model HR50 is used exclusively by the bank Privredna banka Zagreb (PBZ).

If the "reference number" data content does not match the model, the payment order will not be processed.

1) Basic "Reference Number" Models List

Model Number	Model Content (order of fields and position of the control number in the model)						
BASIC MODELS							
HR00	P1	-	P2	-	P3	-	
HR01	(P1	-	P2	-	P3)K	-	
HR02	P1	-	(P2)K	-	(P3)K	-	
HR03	(P1)K	-	(P2)K	-	(P3)K	-	
HR04	(P1)K	-	P2	-	(P3)K	-	
HR05	(P1)K	-	P2 or P2K	-	P3	-	
HR06	P1	-	(P2	-	P3)K	-	
HR07	P1	-	(P2)K	-	P3	-	
HR08	(P1	-	P2)K	-	(P3)K	-	
HR09	(P1	-	P2)K	-	P3	-	
HR10	(P1)K	-	(P2	-	P3)K	-	
HR11	(P1)K	-	(P2)K	-	P3	-	
HR12	(P1)K	-	P2	-	P3	-	
HR13	(P1)K	-	P2	-	P3	-	
HR14	(P1)K	-	P2	-	P3	-	
HR15	(P1)K	-	(P2)K	-		-	
HR16	(P1)K	-	(P2)K	-	P3	-	
HR17	(P1)K	-	P2	-	P3	-	
HR18	(P1)K	-	P2	-	P3	-	
HR23	(P1)K	-	P2	-	P3	-	P4
HR24	(P1)K	-	P2	-	P3	-	P4
HR26	(P1)K	-	(P2)K	-	(P3)K	-	P4
HR27	(P1)K	-	(P2)K	-		-	
HR28	(P1)K	-	(P2)K	-	(P3)K	-	P4
HR29	(P1)K	-	(P2)K	-	(P3)K	-	
HR30	P1	-	P2	-	P3	-	
HR31	(P1)K	-	P2	-	P3	-	P4
HR33	(P1)K	-	(P2)K	-	P3	-	
HR34	(P1)K	-	(P2)K	-	(P3)K	-	

HR35	(P1)K	-	(P2)K	-		-	
HR40	(P1)K 1 K 2	-	P2	-	P3	-	
HR41	(P1)K	-	(P2)K	-	P3	-	
HR42	(P1	-	P2	-	P3)K	-	
HR43	P1	-	(P2)K	-	P3	-	P4
HR55	(P1)K	-	P2	-	P3	-	
HR62	(P1)K	-	(P2)K	-	(P3)K	-	P4
HR63	(P1)K	-	(P2)K	-	(P3)K	-	
HR64	(P1)K	-	(P2)K	- P3 or - (P3)K		-	P4
HR65	(P1)K	-	(P2)K	-	(P3)K	-	P4
HR67	(P1)K	-	P2	-	P3	-	
HR68	(P1)K	-	(P2K)	-	P3	-	
HR69	(P1)K	-	(P2)K	-	P3	-	
HR99	-	-		-		-	
SPECIAL MODELS							
HR25 For FINA's purposes only	P1	-	P2	-		-	
HR83 For FINA's purposes only	(P1)K	-	P2	-	P3	-	
HR84 For FINA's purposes only	(P1)K	-	P2	-	P3	-	
	(P1)K	-	P2	-		-	
HR50 (used only at PBZ)	(P1)K	-	P2	-	P3	-	

2) Explanation of the Basic "Reference Number" Models Application

Model HR00 – the content may be expressed using one, two or three data. The model is used when the "reference number" field content is not controlled by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in the Model			
	P1	- **P2**	- **P3**	-
Datum Content	-	-	-	
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	-	-	-	-

Model HR01 – the content may be expressed using one, two or three data. The model is used when the entire "reference number" content is controlled by means of the control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR01			
HR01	**(P1**	**- P2**	**- P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models (a single control number used to control all three data)			-

Model HR02 – the content may be expressed using one, two or three data. The model uses two control numbers calculated separately for Datum P2 and Datum P3. Datum P1 does not contain a control number. If the content is expressed using two data, it will be considered that Datum P1 and Datum P2 have been entered.

Model Number / Datum Description	Model Content / Datum Content in Model HR02			
HR02	**P1**	**- (P2)K**	**- (P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	-	MOD11INI – for initial models	MOD11INI – for initial models	-

Model HR03 – the content may be expressed using one, two or three data. Each datum contains its own control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR03			
HR03	**(P1)K**	**- (P2)K**	**- (P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	MOD11INI – for initial models	-

Model HR04 – the content may be expressed using one, two or three data. Datum P1 and Datum P3 contain separate control numbers. The content of Datum P2 is not controlled by means of the control number. If the content is expressed using two data, it will be considered that Datum P1 and Datum P2 have been entered.

Model Number / Datum Description	Model Content / Datum Content in Model HR04			
HR04	**(P1)K**	**- P2**	**- (P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD111INI – for initial models	-	MOD111INI – for initial models	-

Model HR05 – the content may be expressed using one, two or three data. The content of Datum P1 is controlled by means of the control number.

Datum P2 is controlled by means of the control number for specific accounts from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs, only if Datum P1 contains the numerical code of the city/municipality with the control number (Annex 6 of the Order), in which case Datum P2 contains 11 digits and represents the OIB number assigned by the Ministry of Finance – Tax Administration (11 digits, including the control number). If the content is expressed using one or two data, it will be considered that Datum P1, that is Datum P1 and P2, respectively, have been entered.

If datum P1 represents the identification number of a legal entity, Datum P1 needs to be entered with 8 digits. If the identification number of a particular legal entity consists of less than 8 digits, Datum P1 is entered with leading zeros.

Model Number / Datum Description	Model Content / Datum Content in Model HR05			
HR05	**(P1)K**	**- P2 or P2(K)**	**- P3**	**-**
Datum Content	-	-	-	
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	ISO 7064 (module 11,10) – 1983(E) OIB for 11 digits (if P1 is the numerical code of the city/municipality with the control number – CN)	-	-

Model HR06 – the content may be expressed using one, two or three data. Datum P1 is not controlled by means of a control number, and a common control number is calculated for Datum P2 and Datum P3. The contents that are controlled by means of a control number are separated in such a way that Datum P3 has no leading zeros. If the content is expressed using two data, Datum P2 will be controlled by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR06			
HR06	**- P1**	**- (P2**	**- P3)K**	**-**
Datum Content	-	-	-	
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	-	MOD11INI – for initial models	-	

Model HR07 - the content may be expressed using one, two or three data. Datum P2 is controlled by means of a control number. If the content is expressed using only one datum, it will be considered that it is Datum P1.

Model Number / Datum Description	Model Content / Datum Content in Model HR07			
HR07	**P1**	**- (P2)K**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	-	MOD11INI – for initial models	-	-

Model HR08 – the content may be expressed using one, two or three data. Datum P1 and Datum P2 are controlled by means of a common control number. Datum P3 contains a separate control number. If the content is expressed using two or three data, it will be considered that Datum P2 has no leading zeros.

Model Number / Datum Description	Model Content / Datum Content in Model HR08			
HR08	**(P1**	**- P2)K**	**- (P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models		MOD11INI – for initial models	-

Model HR09 – the content may be expressed using one, two or three data. Datum P1 and Datum P2 contain a common control number and Datum P3 does not contain a control number. If the content is expressed using two data, it will be considered that Datum P1 and Datum P2 have been entered. If the content is expressed using two or three data, it will be considered that Datum P2 has no leading zeros.

Model Number / Datum Description	Model Content / Datum Content in Model HR09			
HR09	**(P1**	**- P2)K**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models		-	-

Model HR10 – the content may be expressed using one, two or three data. Datum P1 contains a separate control number, while Datum P2 and P3 have a common control number. If the content is expressed using two data, it will be considered that those are Datum P1 and Datum P2. Both Datum P1 and Datum P2 are then controlled by means of a control number. If the content is expressed using three data, it will be considered that Datum P3 has no leading zeros.

Model Number / Datum Description	Model Content / Datum Content in Model HR10			
HR10	**(P1)K**	**- (P2**	**- P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models		-

Model HR11 – the content may be expressed using one, two or three data. The model includes two data controlled by means of a control number which are calculated separately for Datum P1 and Datum P2.

Datum P3 does not contain a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR11			
HR11	**(P1)K**	**- (P2)K**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	-	-

Model HR12 – the content may be expressed using one, two or three data. Datum P1 consists of 13 digits and can have leading zeros. Datum P1 contains a control number calculated using a special algorithm. Its accuracy is checked by multiplying the 13-digit code from the right to the left starting with number 1 as the weight and then increasing the weight by 1 until number 7. The rest of the sequence is weighted starting with weight 2 until the end of the code and the weight increases by 1 until number 7. The control number is accurate if the sum of the products is divisible by 11 without a remainder.

Model Number / Datum Description	Model Content / Datum Content in Model HR12			
HR12	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	13 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11JMB-JMBG	-	-	-

Model HR13 − the content may be expressed using one, two or three data. Datum P1 contains a control number calculated using a special algorithm: from the left to the right the first number is multiplied by 4, the second by 3, the third by 2, the fourth by 7, the fifth by 6, the sixth by 5, the seventh by 4, the eighth by 3, the ninth by 2. The sum of the separate products is divided by 11 and the division is limited to integers. The remainder after division is deducted from number 11 and the result is the control number. Exceptions: if the remainder is 0, the control number is 5; and if the remainder is 1, the control number is 0.

Datum P1 consists of 10 digits, the first one being number 3 and the last one the control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR13			
HR13	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	10 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11P7 for Reference Number Model 13	-	-	-

Model HR14 – the content may be expressed using one, two or three data. Datum P1 contains a control number calculated using a special algorithm: from the right to the left the numbers are alternately multiplied by weights 1 and 2. The sum of the product is divided by 10. The remainder after division is the control number. Datum P1 consists of 10 digits, the last one being the control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR14			
HR14	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	10 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD10ZB-control number calculation performed applying MODULE 10 for ZABA	-	-	-

Model HR15 – the content may be expressed using one, two or three data. Datum P1 consists of 8 digits, including the control number. Datum P2 consists of 11 digits, including the control number. Datum P3 is never entered.

The control number is calculated using the algorithm in accordance with MODULE 10. The datum digits are multiplied from the right to the left alternately using number 2 and number 1 as weights. The sum of the products obtained is divided by 10. The difference between number 10 and the remainder after division is the control number. If the remainder is 0, the control number is also 0.

Model Number / Datum Description	Model Content / Datum Content in Model HR15			
HR15	**(P1)K**	**- (P2)K**	**-**	**-**
Datum Content	-	-	-	-
Type	Fixed	Fixed	-	-
Datum length	8 digits	11 digits	-	-
Control Number Calculation Module	Control number calculation performed applying module 10	Control number calculation performed applying module 10	-	-

Model HR16 – the content must be expressed using three data. Datum P1 consists of 5 digits, including the control number. Datum P2 consists of 4 digits, including the control number. Datum P3 consists of 8 digits and does not contain a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR16			
HR16	**(P1)K**	**- (P2)K**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Fixed	Fixed	-
Datum length	5 digits	4 digits	8 digits	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	-	-

Model HR17 – the content may be expressed using one, two or three data. Datum P1 contains a control number calculated using the algorithm prescribed by the ISO 7064 (11, 10) - 1983(E) international standard and it varies in length up to 12 digits. Datum P2 and Datum P3 are also of variable length but contain no control numbers.

Model Number / Datum Description	Model Content / Datum content in Model HR17			
HR17	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	ISO 7064 (11, 10) - 1983(E)	-	-	-

Model HR18 – the content may be expressed using one, two or three data. Datum P1 contains a control number calculated using a special algorithm (as in the case of model 13) and consists of up to 12 digits, the last one being the control number.

Model Number / Datum Description	Model Content / Datum content in Model HR18			
HR18	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11P7 for Reference Number Model 13	-	-	-

Model HR23 – the content may be expressed using one, two or three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs. The first left digit in Datum P1 is number 6.

Datum P2, Datum P3 and Datum P4 can together contain 15 digits. Each one separately, however, can contain up to 11 digits only.

Model Number / Datum Description	Model Content / Datum Content in Model HR23			
HR23	**(P1)K**	**- P2**	**- P3**	**- P4**
Datum Content	Type of Income specified in the Order	-	-	-
Type	Fixed	Variable	Variable	Variable
Datum length	4 digits	Up to 12 digits	Up to 12 digits	Up to 12 digits
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Model HR24 – the content may be expressed using one, two or three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

There may or may not be a datum entered after Datum P1. If any data are entered after Datum P1, they are not controlled by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR24			
HR24	**(P1)K**	**- P2**	**- P3**	**- P4**
Datum Content	Type of Income specified in the Order	-	-	-
Type	Fixed	Variable	Variable	Variable
Datum length	4 digits	Up to 13 digits	Up to 12 digits	Up to 12 digits
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Model HR25 – the content must be expressed using two data. The model is used when allocating shared income for the benefit of statutory receivers. Datum P1 is the statistical code of the town/municipality from the content of the number of the account that is being allocated.

Datum P2 is the type of income from the content of the number of the account that is being allocated.

Model Number / Datum Description	Model Content / Datum Content in Model HR25			
HR25	**P1**	**- P2**	**-**	**-**
Datum Content	Code of the town/municipality whose income is being allocated	Shared income which is being allocated	-	-
Type	Fixed	Fixed	-	-
Datum length	3 digits	7 digits	-	-
Control Number Calculation Module	-	-	-	-

Model HR26 – the content must be expressed using at least three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 and Datum P3 are not limited in terms of the number of digits and each contains its own control number. If Datum P2 or Datum P3 consists of 11 digits, it then represents the OIB number assigned by the Ministry of Finance – Tax Administration (11 digits, including the control number). Datum P4 may or may not be entered. If it is entered, it is not controlled by means of a controlled number.

Model Number / Datum Description	Model Content / Datum Content in Model HR26			
HR26	**(P1)K**	**- (P2)K**	**- (P3)K**	**- P4**
Datum Content	Type of Income specified in the Order	-	-	-
Type	Fixed	Variable	Variable	Variable
Datum length	4 digits	Up to 11 digits	Up to 11 digits	Up to 12 digits
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI-for initial models up to 10 digits; ISO 7064 (11, 10)- 1983(E) OIB for 11 digits	MOD11INI-for initial models up to 10 digits; ISO 7064 (11, 10)- 1983(E) OIB for 11 digits	-

Model HR27 – the content must be expressed using two data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 also contains a control number and its length varies.

Model Number / Datum Description	Model Content / Datum Content in Model HR27			
HR27	**(P1)K**	**- (P2)K**	**-**	**-**
Datum Content	Type of Income specified in the Order	-	-	-
Type	Fixed	Variable	-	-
Datum length	4 digits	Up to 12 digits	-	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	-	-

Model HR28 – the content must be expressed using at least three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 consists of 3 digits, including the control number, and contains the code of the sub-type of income which is being deposited. Datum P3 consists of 6 digits, including the control number, and Datum P4, which is not controlled by means of a control number, can contain up to 6 digits.

Model Number / Datum Description	Model Content / Datum Content in Model HR28			
HR28	**(P1)K**	**- (P2)K**	**- (P3)K**	**- P4**
Datum Content	Type of Income specified in the Order	Income subtype to be paid	-	-
Type	Fixed	Fixed	Fixed	Variable
Datum length	4 digits	3 digits	6 digits	Up to 6 digits
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	MOD11INI – for initial models	-

Model HR29 – the content must be expressed using three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 and Datum P3 each contain a separate control number and are of variable length.

Model Number / Datum Description	Model Content / Datum Content in Model HR29			
HR29	**(P1)K**	**- (P2)K**	**- (P3)K**	**-**
Datum Content	Type of Income specified in the Order	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	4 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	MOD11INI – for initial models	MOD11INI – for initial models	-

Model HR30 – the content must be expressed using three data. The Model is used in the "payer reference number" field on orders for the payment of expenses from the Croatian State Budget account and in the "receiver reference number" field in the case of cancelled expenses.

Datum P1 must contain 10 digits, Datum P2 must contain 4 digits, and Datum P3 may contain up to 6 digits.

Model Number / Datum Description	Model Content / Datum Content in Model HR30			
HR30	**- P1**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	
Type	Fixed	Fixed	Variable	-
Datum length	10 digits	4 digits	Up to 6 digits	-
Control Number Calculation Module	-	-	-	-

Model HR31 – the content may be expressed using one, two or three data. The Model is used in the "payer reference number" field on orders for the payment of expenses from the Treasury Single Account and the account of the Croatian Health Insurance Fund (HZZO) and the "receiver reference number" field in the case of cancelled expenses. Datum P1 may contain up to 6 digits, including the control number, and it represents the expense code according to the economic classification.

The contents of data P2, P3 and P4 are not controlled by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR31			
HR31	**(P1)K**	**- P2**	**- P3**	**- P4**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	Variable
Datum length	Up to 6 digits	Up to 12 digits	Up to 12 digits	Up to 12 digits
Control Number Calculation Module	ISO 7064 (11, 10) - 1983(E)	-	-	-

Model HR33 – the content must be expressed using three data. The model is used for the "receiver reference number" field in the case of refunds paid into the Croatian State Budget account or the account of the Croatian Health Insurance Fund. Datum P1 may contain up to 6 digits, including the control number, and it represents the expense code according to the economic classification.

Datum P2 may contain up to 7 digits, including the control number, and it represents the code of activity from the Croatian State Budget or the Croatian Health Insurance Fund. Datum P3 may contain up to 7 digits and it is not controlled by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR33			
HR33	**(P1)K**	**- (P2)K**	**- P3**	**-**
Datum Content	Expense code according to the economic classification	Activity code from the State Budget/HZZO	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 6 digits	Up to 7 digits	Up to 7 digits	-
Control Number Calculation Module	ISO 7064 (11, 10) - 1983(E)	ISO 7064 (11, 10) - 1983(E)	-	-

Model HR34 – the content must be expressed using three data. The model is used by specific budget beneficiaries for the payment of salaries and current expenses from the special-purpose accounts (account type 15). The model is also used in the case of refunds paid into special-purpose accounts for the payment of salaries and current expenses.

Datum P1 may contain up to 6 digits, including the control number, and it represents the expense code according to the economic classification. Datum P2 may contain up to 7 digits, including the control number, and it may represent the numerical code of activity with the control number or the code of the head level of organisational classification, also with the control number. Datum P3 may contain up to 5 digits, including the control number, and represents the budget beneficiary code from the Register of budget beneficiaries and extra-budgetary beneficiaries. The first digit may not be a zero.

Model Number / Datum Description	Model Content / Datum Content in Model HR34			
HR34	**(P1)K**	**- (P2)K**	**- (P3)K**	**-**
Datum Content	Expense code according to the economic classification	Activity code from the State Budget/head level of organisational classification	Budget beneficiary code from the Register of budget beneficiaries	-
Type	Variable	Variable	Variable	-
Datum length	Up to 6 digits	Up to 7 digits	Up to 5 digits	-
Control Number Calculation Module	ISO 7064 (11, 10) - 1983(E)	ISO 7064 (11, 10) - 1983(E)	ISO 7064 (11, 10) - 1983(E)	-

Model HR35 – the content must be expressed using two data. Datum P1 contains its own control number and consists of up to 10 digits, including the control number. Datum P2 contains the OIB number (Personal Identification Number) of a business entity, citizen or a foreign legal or natural person, assigned by the Ministry of Finance – Tax Administration. It contains 11 digits, including the control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR35			
HR35	**(P1)K**	**- (P2)K**	**-**	**-**
Datum Content	-	Personal Identification Number (OIB):	-	-
Type	Variable	Fixed	-	-
Datum length	Up to 10 digits	Contains 11 digits		-
Control Number Calculation Module	MOD11INI – for initial models	ISO 7064 (11, 10) - 1983(E)	-	-

Model HR40 – the content may be expressed using one, two or three data. Datum P1 contains 11 digits including the two control numbers K1 and K2, with zero being the first digit. The 10th digit, control number K1, is calculated applying module 10, and the 11th digit, control number K2, is calculated applying module 11.

Model Number / Datum Description	Model Content / Datum Content in Model HR40			
HR40	**(P1)K1K2**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	It contains 11 digits, including the two control numbers K1 and K2	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	Two control numbers module 10 and module 11	-	-	-

Model HR41 – the content may be expressed using one, two or three data. The model is used at the special request of the payment service user. Datum P1 contains a control number calculated using a special algorithm (as in the case of model 12). Datum P1 consists of 13 digits. Datum P2 contains a control number calculated applying module 11.

Model Number / Datum Description	Model Content / Datum Content in Model HR41			
HR41	**(P1)K**	**- (P2)K**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Fixed	Variable	Variable	-
Datum length	13 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11JMB-JMBG	MOD11INI – for initial models	-	-

Model HR42 – the content may be expressed using one, two or three data. The model is used at the special request of the payment service user. It is used when the entire content of the "reference number" is controlled by means of a single control number calculated using a special algorithm as in the case of model 12.

Model Number / Datum Description	Model Content / Datum Content in Model HR42			
HR42	**(P1**	**- P2**	**- P3)K**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11JMB- JMBG			-

Model HR43 – the content must be expressed using four data. Datum P1 does not contain a control number and consists of 3 digits. It contains a selected constant which represents the bank account. Datum P2 consists of 8 digits, including the control number. Datum P3 does not contain a control number and consists of 5 digits. Datum P4 does not contain a control number and consists of 3 digits.

The Model is used when delivering orders for the payment of checks under citizens' current accounts for products and services sold.

Model Number / Datum Description	Model Content / Datum Content in Model HR43			
HR43	**P1**	**- (P2)K**	**- P3**	**- P4**
Datum Content	-	-	-	-
Type	Fixed	Fixed	Fixed	Fixed
Datum length	3 digits	8 digits	5 digits	3 digits
Control Number Calculation Module	-	MOD11INI – for initial models	-	-

Model HR50 – the content must be expressed using three data. The Model is used for the purposes of PBZ (Privredna banka Zagreb). Datum P1 contains its own control number, while Datum P3 is the control number of Datum P2.

Model Number / Datum Description	Model Content / Datum Content in Model HR50			
HR50	**P1(K)**	**- P2**	**- P3**	
Datum Content	-	-	-	-
Type	Fixed	Fixed	Fixed	-
Datum length	5 digits	12 digits	1 digit	-
Control Number Calculation Module	MOD11	-	Special control number calculation algorithm	-

Model HR55 – the content may be expressed using one, two or three data. The Model is used when the payment service user pays according to a list of several separate payment references (several invoices, suspensions for more than one worker, and similar) in the case of which the datum in the "reference number" cannot be entered using other models due to its length. The list of payments made is delivered by the debtor to the creditor, receiver of funds, in the prescribed or agreed manner.

The content of the "reference number", according to this model, can be expressed using one, two or three data. Datum P1 contains only the number of the list and its content is controlled by means of a control number. Datum P2 and Datum P3 do not contain a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR55			
HR55	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	-	-	-	-
Type	Variable	Variable	Variable	-
Datum length	Up to 12 digits	Up to 12 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Model HR62 – the content must be expressed using at least three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 contains up to 5 digits, including the control number, and represents the budget beneficiary code from the Register of budget beneficiaries and extra-budgetary beneficiaries. The first digit may not be a zero. The budget beneficiary independently determines the datum P3 which contains a control number and up to 6 digits. Datum P4 may or may not be entered. If entered, it is not controlled by means of a control number and it may contain up to 12 digits.

Model Number / Datum Description	Model Content / Datum Content in Model HR62			
HR62	**(P1)K**	**- (P2)K**	**- (P3)K**	**- P4**
Datum Content	Type of Income specified in the Order	Budget beneficiary code from the Register of budget beneficiaries	-	-
Type	Fixed	Variable	Variable	Variable
Datum length	4 digits	Up to 5 digits	Up to 6 digits	Up to 12 digits
Control Number Calculation Module	MOD11INI – for initial models	ISO 7064 (11, 10) - 1983(E)	MOD11INI – for initial models	-

Model HR63 – the content must be expressed using three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 contains up to 5 digits, including the control number, and represents the budget beneficiary code from the Register of budget beneficiaries and extra-budgetary beneficiaries. The first digit may not be a zero. The length of datum P3 can vary. The final digit is the control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR63			
HR63	**(P1)K**	**- (P2)K**	**- (P3)K**	**-**
Datum Content	Type of Income specified in the Order	Budget beneficiary code from the Register of budget beneficiaries	-	-
Type	Fixed	Variable	Variable	-
Datum length	4 digits	Up to 5 digits	Up to 12 digits	-
Control Number Calculation Module	MOD11INI – for initial models	ISO 7064 (11, 10) - 1983(E)	MOD11INI – for initial models	-

Model HR64 – the content must be expressed using at least three data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 contains up to 5 digits, including the control number, and represents the budget beneficiary code from the Register of budget beneficiaries and extra-budgetary beneficiaries. The first digit may not be a zero. Datum P3 contains up to 12 digits. If datum P3 contains 11 digits, it represents the OIB assigned by the Ministry of Finance - Tax Administration (11 digits, including the control number), and if it contains less or more than 11 digits, it is not subject to control. Datum P4 may or may not be entered. If entered, it is not subject to control.

Model Number / Datum Description	Model Content / Datum Content in Model HR64			
HR64	**(P1)K**	**- (P2)K**	**- P3 or - (P3)K**	**- P4**
Datum Content	Type of Income specified in the Order	Budget beneficiary code from the Register of budget beneficiaries	-	-
Type	Fixed	Variable	Variable	Variable
Datum length	4 digits	Up to 5 digits	Up to 12 digits	Up to 9 digits
Control Number Calculation Module	MOD11INI – for initial models	ISO 7064 (11, 10) - 1983(E)	ISO 7064 (11,10)-1983(E) OIB for 11 digits	-

Model HR65 – the content must be expressed using at least three data. Datum P1 consists of 4 digits, including the control number, and it represents the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs.

Datum P2 contains 3 digits, including the control number and represents the income type to be paid.

Datum P3 contains up to 5 digits, or 11 digits. If datum P3 contains up to 5 digits, including the control number, it represents the budget beneficiary code from the Register of budget beneficiaries and extra-budgetary beneficiaries, in which case the first digit may not be a zero. If datum P3 fixedly contains 11 digits, it represents the OIB assigned by the Ministry of Finance - Tax Administration (11 digits, including the control number).

Datum P4 may or may not be entered. If entered, it is not subject to control.

Model Number / Datum Description	Model Content / Datum Content in Model HR65			
HR65	**(P1)K**	**- (P2)K**	**- (P3)K**	**- P4**
Datum Content	Type of Income specified in the Order	Income subtype to be paid	Budget beneficiary registration number in the Register of budget beneficiaries/OIB	-
Type	Fixed	Fixed	Variable	Variable
Datum length	4 digits	3 digits	Up to 5 digits / 11 digits	Up to 12 digits
Control Number Calculation Module	MOD11INI - for initial models	MOD11INI - for initial models	ISO 7064 (11, 10) - 1983(E)	-

Model HR67 – the content may be expressed using one, two or three data. Only the content of datum P1 is controlled by means of the control number. Datum P1 is the OIB of a business entity, citizen or a foreign legal or natural person, assigned by the Ministry of Finance – Tax Administration. Datum P1 contains 11 digits, including the control number.

Data P2 and P3 may or may not be entered. If entered, they are not subject to control by means of a control number.

Model Number / Datum Description	Model Content / Datum Content in Model HR67			
HR67	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	Personal Identification Number - OIB			
Identification Number – (OIB):	-	-	-	
Type	Fixed	Variable	Variable	-
Datum length	11 digits	Up to 10 digits	Up to 8 digits	-
Control Number Calculation Module	ISO 7064 (11, 10) - 1983(E)	-	-	-

Model HR68 – the content must be expressed using at least two data. Datum P1 consists of 4 digits, including the control number, and contains the numerical code of the type of income from the Order on the Manner of Depositing Budget Income, Compulsory Contributions and Income for Financing Other Public Needs. Datum P2 contains the OIB of a business entity, citizen or a foreign legal or natural person, assigned by the Ministry of Finance – Tax Administration. It contains 11 digits, including the control number.

Datum P3 is not controlled by means of a control number and it is not mandatory, except in cases of payment under a certain numerical code of the income type from the Order. In such case, Datum P3 contains 4 digits, as well as the R-Sm form identifier code or 5 digits, and it also contains the JOPPD form code.

Model Number / Datum Description	Model Content / Datum Content in Model HR68			
HR68	**(P1)K**	**(P2)K**	**- P3**	**-**
Datum Content	Type of Income specified in the Order	Personal Identification Number (OIB):	-	-
Type	Fixed	Fixed	Variable	-
Datum length	4 digits	11 digits	Up to 5 digits	-
Control Number Calculation Module	MOD11INI - for initial models	ISO 7064 (11, 10) - 1983(E)	-	-

Model HR69 – the content must be expressed using two or three data. Model with three data is used for personal income payment.

Datum P1 contains 5 digits, including the control number. Datum P2 contains the OIB of a business entity, citizen or a foreign legal or natural person, assigned by the Ministry of Finance – Tax Administration. Datum P2 contains 11 digits, including the control number. Datum P3 is entered in case of personal income payment.

Variant I of Model HR69 – with two data (P1)K and (P2)K.

Model Number / Datum Description	Model Content / Datum Content in Model HR69			
HR69	**(P1)K**	**(P2)K**	**- P3**	**-**
Datum Content	Type of Activity	Personal Identification Number (OIB):	-	-
Type	Fixed	Fixed		
Datum length	Contains 5 digits	Contains 11 digits		
Control Number Calculation Module	MOD11	ISO 7064 (11, 10)	-	-

Variant II of Model HR69 – with (P1)K, (P2)K and P3 is used as the "receiver reference number" for personal income payment. Datum P(1)K contains the fixed 40002 datum, Datum P2 contains the OIB of the personal income payer (e.g. in case of school income payment from the account of the Ministry of Finance, the school's OIB is entered). Datum 3 contains the code of the personal income from the Codebook of the types of personal income.

Codebook of the types of personal income:

Code	Types of personal income
100	Personal income paid in full
110	Partial payment of personal income
120	Personal income minus the secured part
130	Service contract
140	Working during education
150	Dividend payment
160	Compensation of Members of the Management Council, General Assembly, Supervisory Board
170	Income from tourist capacity rental
180	Lease
190	Transport
200	Business trip
210	Field work bonus
220	Separation allowance
230	Sick leave benefits
240	Allowance for the use of own vehicles for business purposes
250	Overtime payments, bonuses, incentives, other remunerations
260	Vacation allowance
270	Christmas bonus, Easter bonus
280	Benefits for children
290	Scholarships, aid for student equipment, books, etc.
300	Financial aid for newlyweds, financial aid in case of the death of an employee or the employee's family member
310	Childbirth benefit
320	Severance payment
399	Other types of personal income

Model Number / Datum Description	Model Content / Datum Content in Model HR69			
HR69	**(P1)K**	**(P2)K**	**- P3**	**-**
Datum Content	40002	Personal Identification Number – OIB of the personal income payer	Type of personal income from the Codebook of types of personal income	-
Type	Fixed	Fixed	Fixed	-
Datum length	Contains 5 digits	Contains 11 digits	Contains 3 digits	-
Control Number Calculation Module	MOD11	ISO 7064 (11, 10)	-	-

Model HR83 – the content may be expressed using two or three data. The model is used for the purposes of FINA accountancy, more precisely, for paying fees to FINA.

Datum P1 contains 4 digits, including the control number and represents the fee type calculated according to the FINA price list. Datum P2 contains either 5 or 7 or 16 digits. The first digit in Datum P2 may be 0 or 3. Datum P3 contains 6 digits, and the first digit may be 1 or 2. Datum P3 is entered only when Datum P2 consists of 5 digits.

Model Number / Datum Description	Model Content / Datum Content in Model HR83			
HR83	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	Fee type calculated according to the FINA price list	-	-	-
Type	Fixed	Variable	Fixed	-
Datum length	4 digits	Up to 16 digits	6 digits	
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Model HR84 – the content may be expressed using two or three data. The Model is used for FINA's accounting purposes, i.e. in case of errors made when processing non-cash payment orders at FINA, the removal of which requires debiting or crediting FINA's account.

Variant I of Model HR84 – with (P1)K, P2 and P3 is used as the "payer reference number" on internal orders to debit FINA's account for the purpose of correcting erroneous credit orders.

Model Number / Datum Description	Model Content / Datum Content in Model HR84			
HR84	**(P1)K**	**- P2**	**- P3**	**-**
Datum Content	Operating unit number of the FINA subsidiary	Bank code (the first four numbers of the VBDI code left to right)	Bank client's account number	-
Type	Fixed	Fixed	Fixed	-
Datum length	4 digits	4 digits	10 digits	-
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Variant II of Model HR84 – with (P1)K and P2 is used as the "receiver reference number" on internal orders to credit FINA's account for the purpose of correcting erroneous credit orders.

Model Number / Datum Description	Model Content / Datum Content in Model HR84			
HR84	**(P1)K**	**- P2**	**-**	**-**
Datum Content	Operating unit number of the FINA subsidiary	Date of debiting FINA's account	-	-
Type	Fixed	Fixed	-	-
Datum length	4 digits	8 digits	-	-
Control Number Calculation Module	MOD11INI – for initial models	-	-	-

Model HR99 - used when there is no datum to be entered in the "reference number" field.

If Model HR99 is entered, the data concerning the payer must be transmitted (name or first and last name, registered address or address, payment description).

3) Examples of Control Number Calculations

The manner of entering data in the "reference number" box on payment orders is determined by the payment service user, depending on his/her needs. If the payment service user uses an 11-digit "reference number" content, the relevant digits being 10230578901, to describe his/her business operation, he/she can decide:

a) to enter the content in accordance with model HR01, in which case a single control number is calculated for the entire expression; in this case the control number would be 6 since:
2 x 1 + 3 x 0 + 4 x 9 + 5 x 8 + 6 x 7 + 7 x 5 + 8 x 0 + 9 x 3 + 10 x 2 + 11 x 0 + 12 x 1 = 214; 214:11 = 19 + a remainder of 5; 11 - 5 = 6 = K. If the remainder is zero, i.e. there is no remainder, or if the remainder is 1, the control number is K=0!

The content can be entered in the following form:

HR01 102 - 3057 – 89016
HR01 10230578 – 9016
HR01 10 – 2305789016
HR01 10 - 230578901 - 6, etc.;

b) to enter the content in accordance with the model HR02 with two data. The control number is calculated for Datum P2. The content of the "reference number" can be entered in the following form:

HR02 1023 – 5789010
HR02 578901 - 10235, etc.;

c) to enter the content in accordance with the model HR02, separating the sequence of digits which is not controlled by means of a control number, and dividing the rest of the data, controlled by means of a control number, again in two parts. The data are then expressed in the following form:

HR02 1023 - 5789 - 9016
HR02 1023 - 57894 - 19, etc., depending on how the number is divided;

d) to enter the content in accordance with the model HR06, leaving some of the data not controlled by means of a control number, while the rest of the data, regardless of the manner in which they are divided, will be controlled by a common control number. If the participant decides to enter 102 in Datum P1, the content can be entered in the following form:

HR06 102 - 3057 – 89015
HR06 102 - 30 – 5789015
HR06 102 - 30578 – 9015
HR06 102 - 30578901 - 5, etc.;

e) to enter the content in accordance with the model HR06 with two data. In this case, Datum P2 is controlled by means of a control number. The content can be entered in the following form:

HR06 102305 – 789011
HR06 102 – 305789015
HR06 10230578 - 9016, etc.

4) Control Number Calculation Modules and Their Applicability to Specific Models

4.1.

MOD11JMB - JMBG (Citizen's Unique Identification Number)			
Models	**HR12**	**HR41**	**HR42**

The last digit in the input datum is not separated. A control algorithm is applied to the entire code.
The possibility that all digits in the code are the same must be checked.

The length of the code is weighted from the right to the left starting with number 1 as the weight and then increasing the weight by 1 until number 7.
After reaching weight 7, the following sequence is weighted starting with weight 2 until the end of the code.
The products obtained by weighting are added to the sum of products in each iteration.
The sum of products is then divided by 11.
The number is accurate if the sum of products is divisible by 11 without a remainder.
Control number calculation example for datum number 2004940339319:

     2 0 0 4 9 4 0 3 3 9 3 1 9
     x x x x x x x x x x x x x = 154 : 11 = 14
     7 6 5 4 3 2 7 6 5 4 3 2 1

4.2.

MOD11P7 for Reference Number Model 13	
Models	**HR13**	**HR18**

The first character to the left in the input code must be checked. The code is inaccurate if the "FIRST CHARACTER" is not number 3.
The farthest digit to the right in the code (KBU) is separated and stored for comparison purposes.
The length of the code is weighted from the right to the left starting with number 2 as the weight and then increasing the weight by 1 until number 7.
After reaching weight 7, the following sequence is weighted starting with weight 2 until the end of the code as in the case of algorithm used under 4.1.
The products obtained by weighting are added to the sum of products in each iteration.
The sum of products is then divided by 11.
The remainder after division is verified as follows:
-         if the remainder is 0, the control number is 5
-         if the remainder is 1, the control number is 0
-         in other cases, the control number is obtained from the following expression: 11 – remainder = KBR
The obtained control number (KBR) is then compared to the saved number (KBU).
The code is accurate if KBU = KBR.
Control number calculation example for datum number 3456789012:

3 4 5 6 7 8 9 0 1
x x x x x x x x x = 196: 11 = 17 and the remainder of 9   11- 9 = 2 (KBR)
4 3 2 7 6 5 4 3 2

4.3.

MOD10ZB-Control Number Calculation Applying MODUL10 for ZABA
Models	**HR14**

The weight value is set to 1.
The farthest digit to the right in the input code (KBU) is separated and stored for comparison purposes.
The length of the code is weighted from the right to the left alternately using weights 1 and 2 (starting with weight 1). The products obtained by weighting are added to the sum of products in each iteration.
The sum of products is then divided by 10.
The remainder after division is the control number (KBR).
The obtained control number (KBR) is then compared to the storage content (KBU).
The code is accurate if KBU=KBR.

Control number calculation example for datum number 2233445568:
2 2 3 3 4 4 5 5 6
x x x x x x x x x = 48:10 = 4 and the remainder of 8 is (KBR)
1 2 1 2 1 2 1 2 1

4.4.

Determining the Control Number Applying the ISO 7064 (11, 10) - 1983(E) Standard											
Models	HR05	HR17	HR26	HR31	HR33	HR34	HR62	HR63	HR64	HR65	HR67	HR68

The farthest digit to the right in the input code (KBU) is separated and stored for comparison purposes.
The remaining length of the code after separating the last digit (KBU) is weighted from the left to the right in the following manner:
The weight value is 2.
The first digit is multiplied by 2. If the first digit = 0, it is set to 10 and then multiplied by 2. The weighting is continued with the following iteration until the end of the code: the product obtained by weighting is divided by 11. The following digit in the code is added to the remainder after division.
The obtained sum is then divided by 10, and the remainder (if the remainder = 0, it is set to 10) is then multiplied by 2.

For example:
2 3 4 0 0 0
2*2 = 4

(4:11= 0 and the remainder = 4) 4+3 = 7 (7:10= 0 and the remainder = 7) 7*2= 14
(14:11= 1 and the remainder = 3) 3+4 = 7 (7:10= 0 and the remainder = 7) 7*2= 14
(14:11= 1 and the remainder = 3) 3+0 = 3 (3:10= 0 and the remainder = 3) 3*2= 6
(6:11= 0 and the remainder = 6) 6+0 = 6 (6:10= 0 and the remainder = 6) 6*2= 12
(12:11= 1 and the remainder = 1) 1+0 = 1 (1:10= 0 and the remainder = 1) 1*2= 2
2:11 = 0 and the remainder = 2

When the last digit in the code is reached (excluding the control number), it is divided by 11 and the remainder after division is checked as follows:

- if the remainder is 0, the control number is 1
- if the remainder is 1, the control number is 0
- in other cases, the control number is obtained from the following expression: 11 minus remainder. (11-2=9)

The obtained control number (KBR) is then compared to the storage content (KBU).
The code is accurate if KBU=KBR.

4.5.

MOD11INI - for Initial Reference Number Models MAT_BR											
Models	HR01	HR02	HR03	HR04	HR05	HR06	HR07	HR08	HR09	HR10	HR11
	HR16	HR23	HR24	HR26	HR27	HR28	HR29	HR41	HR43	HR55	HR62
	HR63	HR64	HR65	HR68	HR83	HR84					

The farthest digit to the right in the input code (KBU) is separated and stored for comparison purposes.
The length of the code is weighted from the right to the left starting with number 2 as the weight and then increasing the weight by 1.
The products obtained by weighting are added to the sum of products in each iteration.
The sum of products is then divided by 11.
The remainder after division is verified as follows:
- if the remainder is 0, the control number is 0
- if the remainder is 1, the control number is 0
- in other cases, the control number is obtained from the following expression: 11 minus remainder = KBR.
The obtained control number (KBR) is then compared to the storage content (KBU).
The code is accurate if KBU=KBR.
Control number calculation example for datum number 334445556669:

3   3   4   4   4   5   5   5   6   6   6

x   x   x   x x x   x x   x   x   x = 321:11 = 29 and the remainder of 2   11-2 = 9 (KBR)
12 11 10 …9 . 8. 7. . 6. 5. 4.   3. 2

4.6

TWO CONTROL NUMBERS MODULE 10 AND MODEULE 11	
Models	**HR40**

The second farthest digit to the right in the input code (KBU1) is separated and stored for comparison purposes. The farthest digit to the right in the input code (KBU2) is also separated and stored for comparison purposes.

Verification whether there are three identical digits in a row, not counting the control numbers. If yes, the input datum is inaccurate.

CONTROL NUMBER 1 (MODULE 10)

The length of the code is weighted from the right to the left alternately, starting with weight 2.
The products obtained by weighting are processed in each iteration in such a way that the sum is increased by each position of the numerical expression obtained by weighting (for example, if the product consists of two digits, the sum of values of the separate digits is then added to the sum).
For example:

```
5   4   3   7   0   3   9   5
1   2   1   2   1   2   1   2
5   8   3   14  0   6   9   10
```
Sum=5+8+3+(1 +4)+0+6+9+(1 +0)=37

The sum of products is then divided by 10.
The remainder after division is verified as follows:
-       if the remainder is 0, the control number is 0
     - in other cases, the control number is obtained from the following expression: 10 – the remainder = KBR1

CONTROL NUMBER 2 (MODULE 11)

The length of the code is weighted from the right to the left starting with number 2 as the weight and then increasing the weight by 1 until number 7.
After reaching weight 7, the following sequence is weighted starting with weight 2 until the end of the code as in the case of the algorithm used under 4.1.
The products obtained by weighting are added to the sum of products in each iteration.

For example:

```
5   4   3   7   0   3   9   5
3   2   7   6   5   4   3   2
15  8   21  42  0   12  27  10
```

Sum= 15 + 8 + 21 + 42 + 0 + 12 + 27 + 10= 135

The sum of products is then divided by 11. (135:11 = 12 with a remainder of 3)
The remainder after division is verified as follows:
-       if the remainder is 0, then control number 2 (KBR2) is INACCURATE
-       if the remainder is 1, then control number 2 (KBR2) must be 0 (11-1 = 10; 0 serves as the control number)
-       in other cases, control number 2 (KBR2) is obtained from the following expression: «11- remainder»
(11-3 = 8 ==> KBR2 = 8) The obtained control numbers (KBR1 and KBR2) are then compared with the stored numbers (KBU1 and KBU2) from sections 1 and 2.
The code is accurate if KBU1 = KBR1 and KBU2 = KBR2

4.7.

CONTROL NUMBER CALCULATION APPLYING MODULE 10	
Models	**HR15**

The farthest digit to the right in the input code (KBU) is separated and stored for comparison purposes.
The length of the code is weighted from the right to the left, starting with weight 2. The code is weighted alternately using weights 2 and 1.

The products obtained by weighting are processed in each iteration in such a way that the sum is increased by each position of the numerical expression obtained by weighting (for example, if the product consists of two digits, the sum of values of the separate digits is then added to the sum).

```
5   4   3   7   0   3   9   5
1   2   1   2   1   2   1   2
5   8   3   14  0   6   9   10
```

Sum=5+8+3+(1 +4)+0+6+9+(1 +0)=37

The sum of products is then divided by 10.
The remainder after division is verified as follows:
- if the remainder is 0, the control number is 0
- in other cases, the control number is obtained from the following expression: 10 – the remainder = KBR

The obtained control number (KBR) is then compared to the stored number (KBU).
The code is accurate if KBU=KBR.