

# Materials under scope of Naming convention

## Refractories



## Table of contents

### Contents

1. Refractories .....	2
2. Key characteristics considered in VW .....	2
3. Common key characteristics considered in VW.....	2
4. Characteristics of Magnesite Bricks .....	8
5. Characteristics of Dolomite bricks.....	9
6. Characteristics of Alumina bricks .....	10
7. Naming convention in material description.....	11

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Ver 2.2a	First official version	Javier Conde / Htl	22.09.2014
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## 1. Refractories

In the category Refractories, we find three PCS belonging to bricks:

- 040106 Magnesite Bricks
- 040107 Dolomite Bricks and
- 040108 High Alumina Bricks

These three categories were defined in the Naming Convention project.

A material can be either in VW or in normal stock. It depends on the different mandatory and optional characteristics. Mandatory characteristics have to be completed in both cases.

In this handbook the three categories will be explained in detail.

## 2. Key characteristics considered in VW

As mentioned only bricks are taken into consideration. For the shape norm both, VDZ and ISO are allowed. The third major characteristic is the height of the brick (expressed in centimeter). In order to limit to the commonly used size the following values were chosen:

Shape height
16
18
20
22
25
30

## 3. Common key characteristics considered in VW

Some characteristics are the same for all brick types and will be discussed in this chapter. Only differences will be shown for the different brick types.

- **Commodity – Fixed value**

The commodity will be always defined as REFRA (abbreviation for refractory).

- **Type – Fixed value**

The type will be always defined as BRCK for this PCS, abbreviation of brick.

- **Raw material base – Mandatory only for VW**

This characteristic is different and is explained in the chapter related to the related brick.

- **Shape Norm - Optional**

- The shape norm refers to the specific regulation which was used to determine the shape/format of the bricks. For the Virtual Warehouse only Standard Formats in “ISO” or “VDZ” can be used. All others are defined by “NST” (non standard).

Shape Type	Abbrev
ISO	ISO
VDZ	VDZ
Non standard	NST

- **Shape Number/Shape Height/Shape Type - Mandatory**

These three characteristics define the shape of a brick. For each characteristic a number of possible entries was defined. Through a technical combination of numbers/letters every different model of brick is defined.

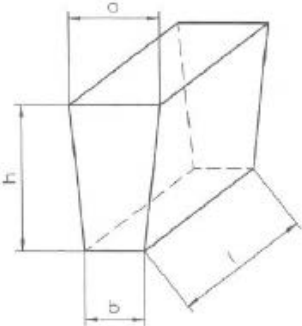
Through the three characteristics we can construct this type as:

Shape Number	Shape height	Shape Type
BLANK	16	BLANK
2	18	0
3	20	1
4	22	2
6	25	4
8	30	5
B2		1L
B3		2L
B4		4L
B6		5L
B8		A
BP		B
BP+		L
L		R
P		
P+		
RL		

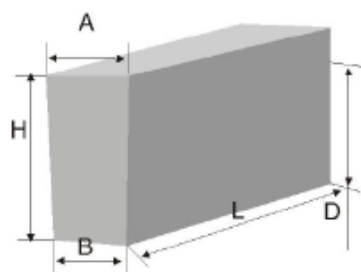
In the next tables an ISO format and VDZ format (both are possible in the Virtual Warehouse) are shown.

## ISO FORMAT

 Einheitsformate für Drehrohröfen  
 Standard Shapes for Rotary Kilns

Keilsteine Arch bricks	Kurzzeichen Symbols	Abmessungen in / Dimension in mm				Rauminhalt Volume dm <sup>3</sup>
		a	b	h	l	
/3-Norm Oberes Keilmaß = 103mm /3-standard upper wedge shape = 103mm  	118	103	66	180	198	3,01
	218	103	84	180	198	3,40
	318	103	90,5	180	198	3,45
	418	103	93,5	180	198	3,50
	518	103	95,5	180	198	3,54
	618	103	97	180	198	3,56
	718	103	97,7	180	198	3,58
	818	103	98,3	180	198	3,59
	P18	83	77	180	198	2,85
	P+18	93	87	180	198	3,21
	120	103	61	200	198	3,25
	220	103	82	200	198	3,66
	320	103	89	200	198	3,80
	420	103	92,5	200	198	3,87
	520	103	94,7	200	198	3,91
	620	103	96,2	200	198	3,94
	720	103	97	200	198	3,96
	820	103	97,8	200	198	3,98
	P20	83	76,2	200	198	3,15
	P+20	93	86,2	200	198	3,55
	122	103	66,9	220	198	3,48
	222	103	80	220	198	3,99
	322	103	88	220	198	4,16
	422	103	91,5	220	198	4,24
	522	103	94	220	198	4,29
	622	103	95,5	220	198	4,32
	722	103	96,5	220	198	4,35
	822	103	97,5	220	198	4,36
	P22	83	75,5	220	198	3,45
	P+22	93	85,5	220	198	3,89
	123	103	54,8	230	198	4,25
	223	103	78,9	230	198	5,20
	323	103	87	230	198	5,50
	423	103	91	230	198	5,66
	523	103	93,4	230	198	5,77
	623	103	95	230	198	5,81
	723	103	96	230	198	5,85
	823	103	97	230	198	5,88
	P23	83	75	230	198	4,62
	P+23	93	85	230	198	5,21

## VDZ FORMAT



Brick Tolerance

 $H = \pm 1\%$  $A, B, L = \pm 2\text{mm}$ 

Item	Measurements				Diameter	Volume
	mm				mm	
	A	B	H	L	D	Dm3
<b>VDZ-Shapes</b>						
B216	78	65	160	198	1920	2.27
B316	76	67	160	198	2702	2.27
B416	75	68	160	198	3429	2.27
B516	79	69	160	198	2528	2.34
B616	74	69	160	198	4736	2.27
B716	73	70	160	198	7787	2.27
B218	78	65	180	198	2160	2.55
B318	76.5	66.5	180	198	2754	2.55
B418	75	68	180	198	3857	2.55
B518	74.5	68.5	180	198	4470	2.55
B618	74	69	180	198	5328	2.55
B220	78	65	200	198	2400	2.83
B320	76.5	66.5	200	198	3060	2.83
B420	75	68	200	198	4286	2.83
B520	74.5	68.5	200	198	4967	2.83
B620	74	69	200	198	5920	2.83
B820	73.5	69.5	200	198	7350	2.83
B222	78	65	220	198	2640	3.11
B322	76.5	66.5	220	198	3366	3.11
B422	75	68	220	198	4714	3.11

- **Sub Raw Material Base - Optional**

Second main component in the composition of the brick. There are several options showed below for this field:

Sub Raw Material	Abbrev
Silicon Carbide	SIC
Corundum	CORU
Steel Fibers	STLF
Zirconium	ZRCO
Not Specified	NSPE
None	NONE

- **Type of bonding – Optional**

This characteristic indicates the bonding technique to produce a brick.

Type of Bonding	Abbrev
Chemical-ceramic	CHEM
Hydraulic-ceramic	HYDR
Direct-bonded	DRBD
Resin-bonded	RSBD
Phosphate-bonded	PHOS
Not Specified	NSPE
None	NONE



#### 4. Characteristics of Magnesia Bricks

The outline of the distribution of characteristics is as follow:

040106

Characteristic Name	Commodity	Type	Raw material Base	Shape Norm	Shape Number	Shape height	Shape Type	Sub raw material base	Type of bonding	Brand name	Warehouse Type
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_RAW_MATERIAL_BASE	ZNC_SHAPE_NORM	ZNC_SHAPE_NUMBER	ZNC_SHAPE_HEIGHT	ZNC_SHAPE_TYPE	ZNC_SUB_RAW_MATERIAL_BASE	ZNC_TYPE_OF_BONDING	ZNC_BRANDNAME	ZNC_WAREHOUSE
040106	M	M	O	O	M	M	M	O	O	O	M
040106_VW	M	M	M	O	M	M	M	O	O	M	M

- **Raw material base – Mandatory only for VW**

Main material present in the composition of the brick. In the standard naming convention different raw material bases are defined.

Raw Material Base	Abbrev
MgO-Hercynite	MGOH
MgO-Galaxite	MGOG
MgO-MA-Spinel	MGOS

- **Brand name – Mandatory for VW**

As in other categories, it is recommended to use the brand of the brick, not the company. There is a list of the most often used brands. With the evolution of the technique and new materials new brands are created. New values can be added after the approval of the Virtual Warehouse team:

ALMAG 85	ANKRAL R1	BNC 701
ALMAG A1	ANKRAL R2	BRA JP
ALMAG AF	ANKRAL RE	HAS 51
ALMAG SLC	ANKRAL T2	HAS 201
FERROMAG 90	ANKARL Z1	HAS 202
FERROMAG F1	ANKARL Z2	MAGNESITA
FORMAG 88	ANKARL ZE	MAGNUM E
PERILEX CF	ANKARL ZS	MAZ
REFRAMAG 85	REXAL 2S	PERELL MA
REFRAMAG AF	MLA	PSHPC 81
TOPMAG A1	MLS	PSHPC 81A
	MAGKOR B	
TOPMAG AF	LP	PSHPC 83
	MAGKOR B	
ANKRAL X2	RA	PSHPC 86
ANKARL XE	MAGCUT 30	QSMJ2
ANKRAL Q1	MAGKEY 30	SLIMA

ANKRAL QF

BNC 55

## 5. Characteristics of Dolomite bricks

The outline of the distribution of characteristics is as follow:

040107

Characteristic Name	Commodity	Type	Raw material Base	Shape Norm	Shape Number	Shape height	Shape Type	Sub raw material base	Type of boading	Brand name	Warehouse Type
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_RAW_MATERIAL_BASE	ZNC_SHAPE_NORM	ZNC_SHAPE_NUMBER	ZNC_SHAPE_HEIGHT	ZNC_SHAPE_TYPE	ZNC_SUB_RAW_MATERIAL_BASE	ZNC_TYPE_OF_BOADING	ZNC_BRANDNAME	ZNC_WAREHOUSE
040107	M	M	□	□	M	M	M	□	□	M	M
040107_VW	M	M	□	□	M	M	M	□	□	M	M

- **Raw Material Base - Optional**

Main material present in the composition of the brick. In this first category, will be only bricks of “Dolomite”.

Raw Material Base	Abbrev
Dolomite	DOLO

- **Brand name - Mandatory**

the group of possible brand names for this type of refractories, is the next, but as usual, new values can be included after the approval of the Virtual Warehouse team:

SINDOFORM K
INDOFORM Z40
SINDOFORM Z50

## 6. Characteristics of Alumina bricks

The outline of the distribution of characteristics is as follow:

040108

Characteristic Name	Commodity	Type	Raw material Base	Shape Norm	Shape Number	Shape height	Shape Type	Sub raw material base	Type of bonding	Brand name	Warehouse Type
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_RAW_MATERIAL_BASE	ZNC_SHAPE_NORM	ZNC_SHAPE_NUMBER	ZNC_SHAPE_HEIGHT	ZNC_SHAPE_TYPE	ZNC_SUB_RAW_MATERIAL_BASE	ZNC_TYPE_OF_BONDING	ZNC_BRANDNAME	ZNC_WAREHOUSE
040108	M	M	□	□	M	M	M	□	□	M	M
040108_VW	M	M	□	□	M	M	M	□	□	M	M

- **Raw Material Base - Optional**

Main material present in the composition of the brick. In this first category, will be only bricks of “Alumina”.

Raw Material Base	Abbrev
Fireclay (< 45% AL)	FCLY
Hi-Alumina (>=45% AL)	HALO
Bauxite	BAUX
Synthetic	SYN
Andalusite	ANDA
Corundum	CORU

- **Brand name – Mandatory**

The group of possible brand names for this type of refractories, is the next, but as usual, new values can be included after the approval of the Virtual Warehouse team:

KRONAL 50	KRONEX 60	RESISTAL B50Z	RESISTAL S65W	R 2000
KRONAL 50 AR	KRONEX 65	RESISTAL B50ZIS	RESISTAL SK60C	ALSIC 500
			RESISTAL	VICTOR
KRONAL 60	KRONEX 70	RESISTAL B65SIC	SK60CIS	60RK
KRONAL 60 AR	KRONEX 85	RESISTAL B75Z	SMAPREC 40	VIKING 330
KRONAL 63 AR	KRONEX 87	RESISTAL B80C	IZ15	VIKING 450
KRONEX 30	REFRALUSIT 63	RESISTAL B80Z	LY 40	VL41S
	REFRATHERM	RESISTAL		
KRONEX 40	150	M45SIC	LY 75	VL75C
		RESISTAL		
KRONEX 50	MAXIAL 334	M55SIC	ANDALUX 50	VL81C

## 7. Naming convention in material description

A specific language in SAP was developed to generate the material descriptions of the materials with Naming Convention, this language is called “Z2”. When a material is created, a standard description in Z2 language is generated automatically, based on the different characteristics.

The fields that complete the “Short description” and “Long description” in the Refractories are as follow:

Short Description:

<Commodity>;<Type>;<Shape Number>;<Shape Height>;<Shape Type>;<Brand Name>

Long Description:

<Commodity>;<Type>;<Shape Number>;<Shape Height>;<Shape Type>;<Brand Name>;<Shape Norm>;<Raw Material Base>;<Sub raw Material Base>;<Type of Bonding>;<Warehouse type>

An example of refractory is:

Short Description:

REFRA BRCK 3K6 20 N KRONEX 35

Long Description:

REFRA BRCK 3K6 20 N KRONEX 35 ISO HALO ST

