Holcim

Strength. Performance. Passion.

Materials under scope of Naming convention

Motors

Table of contents

Contents

Version	Description / Changes	Person	Date
Ver 2.2a	First official version	Javier Conde / Htl	22.09.2014
Ver 2.2b	Minor changes in layout	Htl	12.01.2016

1. Motors

For the Motors, three PCS under the scope of the Naming Convention, 031002, 031003 and 031008 (slip ring, squirrel cage and gear motors) as they are the most commonly used categories.

The list of characteristics defined for the classification of the Motors is according to the Naming Convention Project. In this document it will be shown and explained.

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

031002 Slip Ring Motors

031002_vw

Characteristic Name	Commodity	Type	Power (KW)	Voltage (V)	Nominal Speed (RPM)	Construction Form	Protection	Insulation	Sense of Rotation	Cooling Type	Number of poles	Supplier / Producer
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_POWER	ZNC_VOLTAGE	ZNC_SPEED	ZNC_CONSTRUCTION_FORM	ZNC_PROTECTION	ZNC_INSULATION	ZNC_ROTATION_SENS	ZNC_COOLING_TYPE	ZNC_NUMBER_OF_POLES	ZNC_PRODUCER
031002	M	M	M	M	M	O	O	O	O	O	O	O
031002_VW	M	M	M	M	M	M	M	M	M	M	O	O
Data type	CHAR	CHAR	NUM	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	NUM	CHAR
Number of Charts	5	2	4	5	4	10	10	1	6	8	2	30
Decimal places	0	0	0	0	0	0	0	0	0	0	0	0
Unit			kW	V	rpm							

Shaft height	Frame size	Rotor Current	Rotor Voltage	Number of Shaft	Main terminal box	External Short Circuit	Temp. Control Winding	Temp. Control Bearing	Space Heater	Warehouse Type
ZNC_SHAFT_HEIGHT	ZNC_FRAME_SIZE	ZNC_ROTOR_CORRENT	ZNC_ROTOR_VOLT	ZNC_SHAFT_NUMBER	ZNC_TERMINAL_BOX	ZNC_EXTERNAL_SHORT_CIRC	ZNC_TEMP_CONTROL_WINDI	ZNC_TEMP_CONTROL_BEARI	ZNC_SPACE_HEATER	ZNC_WAREHOUSE
M	O	O	O	O	O	O	O	O	O	M
M	M	M	M	M	M	M	M	M	M	M
NUM	CHAR	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	Char	Char
4	2	4	4	12	3	6	6	2	2	2
0	0	0	0	0	0	0	0	0	0	0
mm		A	V							

031003 Squirrel Cage Motors

031003_vw

Characteristic Name	Commodity	Type	Power (KW)	Voltage (V)	Nominal Speed (RPM)	Constructio n Form	Protection	Insulation	Sense of Rotation	Cooling Type
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYP E	ZNC_POW ER	ZNC_VOL TAGE	ZNC_SPEE D	ZNC_CONS TRUCTION _FORM	ZNC_PROT ECTION	ZNC_INSU LATION	ZNC_ROTA TION_SEN S	ZNC_COOL ING_TYPE
031003	M	M	M	M	M	O	O	O	O	O
031003_VW	M	M	M	M	M	M	M	M	O	M
Data type	CHAR	CHAR	NUM	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR
Number of Charts	5	2	6	5	4	10	10	1	6	8
Decimal places	0	0	2	0	0	0	0	0	0	0
Unit			kW	V	rpm					

Number of poles	Supplier / Producer	Shaft height	Frame size	Motor Option	Shaft option	Number of Shaft	Main terminal box	Insulated bearing	Temp. Control Winding	Temp. Control Bearing	Warehou se Type
ZNC_NUM BER_OF_P OLES	ZNC_PRO DUCER	ZNC_SHAF T_HEIGHT	ZNC_FRA ME_SIZE	ZNC_MOTO R_OPTION	ZNC_SHAF T_OPTION	ZNC_SHAFT_N UMBER	ZNC_TER MINAL_B OX	ZNC_INSU LATED_BE ARING	ZNC_TEM P_CONTR OL_WINDI NG	ZNC_TEMP _CONTROL _BEARING	ZNC_WA REHOUS E
O	O	M	M	O	O	O	O	O	O	O	M
O	O	M	M	O	O	O	O	M	M	M	M
NUM	CHAR	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	Char
2	30	4	2	20	10	12	3	2	6	5	2
0	0	0	0	0	0	0	0	0	0	0	0
		mm									

031008 Geared Motors

031008_vw

Characteristic Name	Commodity	Type	Power (kW)	Voltage (V)	Input Speed (RPM)	Output Speed (RPM)	Mounting position	Output Torque [Nm]	Sens of rotation	Integrated Brake
Characteristic Technical Name	ZNC_COMMOD ITY	ZNC_TYP E	ZNC_POW ER	ZNC_VOL TAGE	ZNC_INPU T_SPEED	ZNC_OUT PUT_SPEE D	ZNC_CONS TRUCTION _FORM	ZNC_OUT PUT_TOR QUE	ZNC_ROTA TION_SEN S	ZNC_INTE GRATED_B RAKE
031008	M	M	M	M	O	M	O	O	O	O
031008_VW	M	M	M	M	M	M	M	O	M	M
Data type	CHAR	CHAR	NUM	NUM	NUM	NUM	CHAR	NUM	CHAR	CHAR
Number of Charts	5	4	6	3	4	6	4	5	6	2
Decimal places	0	0	3	0	0		0		0	0
Unit			kW	V	rpm	rpm		Nm		

Motor Shaft height	Motor Constructio n	Protection	Insulation	Type of Cooling	Shaft option	Output shaft [mm]	Angle of Shaft	Supplier / Producer	Integrated VFD	Temp. Control Winding	Warehou se Type
ZNC_SHAF T_HEIGHT	ZNC_MOTO R_CONSTR UCTION	ZNC_PROT ECTION	ZNC_INSU LATION	ZNC_COOL ING_TYPE	ZNC_SHAF T_OPTION	ZNC_SHAF T_DIAMET ER	ZNC_SHAF T_ANGLE	ZNC_PRO DUCER	ZNC_INTE GRATED_V FD	ZNC_TEM P_CONTR OL_WINDI NG	ZNC_WA REHOUS E
O	O	O	O	O	O	O	O	O	O	O	M
O	O	M	M	O	M	M	M	O	M	M	M
NUM	CHAR	CHAR	CHAR	CHAR	CHAR	NUM	CHAR	CHAR	CHAR	CHAR	Char
4	5	4	1	5	6	3	7	30	2	6	2
0	0	0	0	0	0	0	0	0	0	0	0
mm						mm					

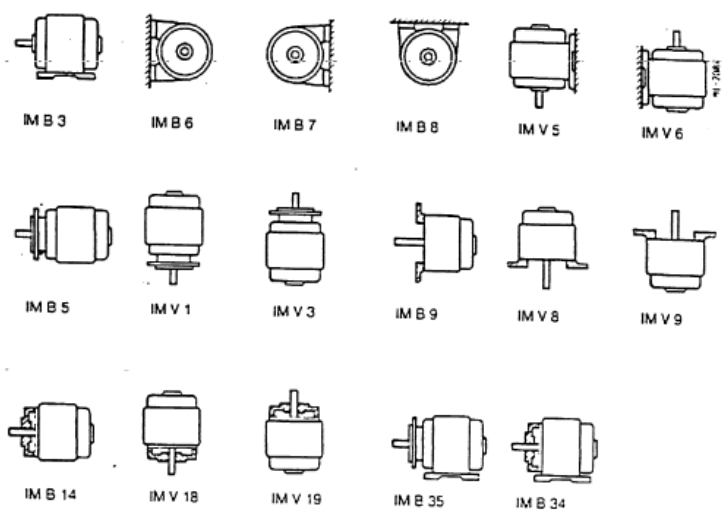
2. Commonly used characteristics

There are characteristics that are commonly used in all three categories. To avoid duplications, these characteristics will be explained in this chapter.

- **Construction Form (for motors) – Mandatory only in VW**

The construction form determines the type of installation, as for example: horizontal, vertical or flanged. Only standard constructions forms are taken into consideration:

DIN IEC 34 Teil 7 Code 1	Code 2	DIN 42950 alt
IM B3	IM 1001	B3
IM V5	IM 1011	V5
IM V6	IM 1031	V6
IM B6	IM 1051	B6
IM B7	IM 1061	B7
IM B8	IM 1071	B8
IM B35	IM 2001	B3/B5
IM B34	IM 2101	B3/B14
IM B5	IM 3001	B5
IM V1	IM 3011	V1
IM V3	IM 3031	V3
IM B14	IM 3601	B14
IM V18	IM 3611	V18
IM V19	IM 3631	V19
IM B10	IM 4001	B10
IM V10	IM 4011	V10
IM V14	IM 4031	V14
IM V16	IM 4131	V16
IM B9	IM 9101	B9
IM V8	IM 9111	V8
IM V9	IM 9131	V9



ANMERKUNG:
BEIM EINSATZ VON MOTOREN IN AUS-FÜHRUNG EEx-e UND EEx-d IN SENKRECH-TER ANORDNUNG IST ZUSÄTZLICH EIN SCHUTZDACH VORZUSEHEN!

Note:
For the use of the motors of the EEx-e and EEx-d configurations in the vertical psition, an additional protection roof is to be privided.

- **Protection – Mandatory only in VW**

The protection level is the indication in which environment a motor can operate and follow an international standard. The ones used in the Naming Convention Project are:

Protection
IP20
IP21
IP22
IP23
IP44
IP54
IP55

An explanation is shown in the attached picture:

Value	First Digit Protection against ingress of solids	Second Digit Protection against ingress of liquids
0	No protection	No protection
1	Protected against solid objects over 50mm e.g. hands, large tools.	Protected against vertically falling drops of water.
2	Protected against solid objects over 12mm e.g. hands, large tools.	Protected against direct sprays of water up to 15° from vertical.
3	Protected against solid objects over 2.5mm e.g.wire, small tools.	Protected against direct sprays of water up to 60° from vertical.
4	Protected against solid objects over 1.0mm e.g. wires.	Protected against water sprayed from any direction. Limited ingress permitted.
5	Limited protection against dust ingress (no harmful deposit)	Protected against low pressure water jets from any direction. Limited ingress permitted.
6	Totally protected against dust ingress.	Protected against high pressure water jets from any direction. Limited ingress permitted.
7		Protected against immersion between 15cm and 1M.
8		Protected against long periods of immersion under pressure.

- **Insulation – Mandatory only in VW**

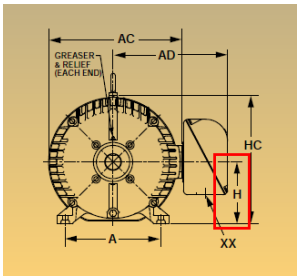
Range of temperatures where the motor operates correct. The insulation is defined by different letters. Depending on the letters, the motor will have different values for the temperature increase and maximum temperature.

Below you can find a table with the relation between the different values for the temperatures and the letters to define it:

Insulation class	A	E	B	F	F with B rise	H
Temperature rise	105	120	130	155	155	180
Max temp of the winding	100	115	120	140	140	165
Ambient temperature	40	40	40	40	40	40
Allowance of hot spots	5	5	10	15 (10)	15	15
Max temp of rise of winding	60	75	80	100 (105)	80	125
Thermal reserve	0	0	0	0	20	0

- **Shaft Height – Mandatory only in VW**

The shaft height is the distance from the center of the shaft to the mounting surface



The shaft height is an international defined standard measurement.

IEC Frame	Type	Foot Mounting A	B	C	H
63	300	100 3.937	80 3.150	40 1.570	63 2.480
71	300 400	112 4.409	90 3.543	45 1.770	71 2.980
80	400 500	125 4.921	100 3.937	50 1.969	80 3.150
90	S L	140 5.511	100 3.937 125 4.921	56 2.205	90 3.543

- **Sense of rotation – Mandatory only in VW**

Direction of the rotation of the shaft.

For SR and SQ motors this rotation is mostly linked to the design of the cooling fan. The best cooling effect is obtained when the motor rotates in the correct sense.

Geared motors can have an internal mechanical blockage to prevent an inverse rotation.

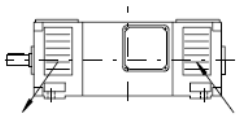
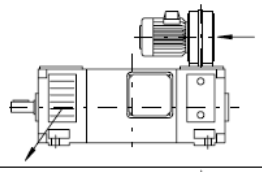
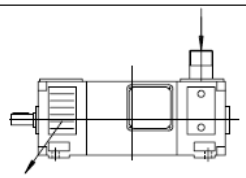
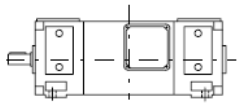
The abbreviations defined are:

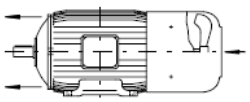
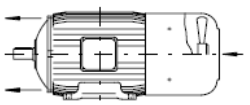
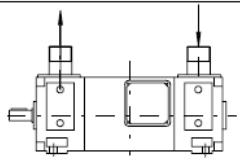
Sense of rotation	Abbrev
CW	Clock wise
CCW	Counterclockwise
CW/CCW	Both

- **Cooling type – Mandatory only in VW**

For VW there only air cooled motors are considered as these are widely used. The cooling can be either self-ventilated or forced ventilated. The type of cooling follows as well an international standard.

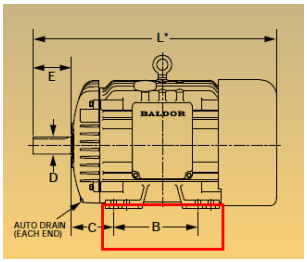
A list of the standard is shown in the attached picture:

IC 01		Enclosure IP 21- IP 23 (type G...) **Self-ventilated with integral fan cooling (DP)** Cooling air is blown through the motor by a fan mounted on the shaft.
IC 06		Enclosure IP 21- IP 23 (type G...I) **Separate ventilation with radial fitted fan unit (FV)** Cooling air is blown through the motor by a separately excited fan motor.The inlet side may be equipped with an air filter.
IC 17		Enclosure IP 21- IP 23 (type G..) **Single pipe ventilated (FV)** Cooling air is blown across the motor through the pipe connection with a separate customer provided external blower fan and discharges on the other side to open space.
IC 410		Enclosure IP 44 - IP 55 (type G..Z) **Totally-enclosed nonventilated (TENV)** Cooling without using a fan, only by natural ventilation and radiation on the totally enclosed motor surface.

IC 411		Enclosure IP 44 - IP 55 (type G..ZE) **Totally-enclosed fan-cooled (TEFC)** Cooling air is blown over the totally enclosed motor surface by a fan mounted on the shaft.
IC 416		Enclosure IP 44 - IP 55 (type G..ZO) **External surface cooling (TEFV)** Cooling air is blown over the totally enclosed motor surface by an separately excited fan motor.
IC 37		Enclosure IP 44 - IP 55 (type G..Z) **Double pipe ventilated (TEPV)** Cooling air is blown across the motor through a pipe connecting by means of a separate customer provided external blower fan and discharges on the other side's pipe connecting.

- **Frame size – Mandatory only in VW**

S, M & L in motor frame size designation stands for SMALL, MEDIUM & LARGE. It is the indication of the core length of the motor and influences the fixing position of the motor.



IEC Frame	Type	Foot Mo A	B
63	300	100 3.937	80 3.150
71	300 400	112 4.409	90 3.543
80	400 500	125 4.921	100 3.937
90	S L	140 5.511	100 125

- **Supplier/manufacturer – Optional**

Manufacturer of the motor, name of the company that supplies or produces the motor. This is an optional field in both cases. Motors are standardized according international standards, therefore the manufacturer is not an important information.

- **Number if poles – Optional**

The number of poles determines the speed of the motor and is directly proportional. The calculation in case of 50Hz (3000 1/min / (number of poles divided by 2) – 4 pole motor has a nominal speed of 1500 1/min). Attached is a table:

Velocidad Constante	Polos 2	4	6	8	10	Frecuencia Hz
n_m	3000	1500	1000	750	600	50
K_t	314	157	104	78	62	
n_m	3600	1800	1200	900	720	60
K_t	377	188	125	94	75	

3. 031002 Slip Ring Motors

031002_vw

Characteristic Name	Commodity	Type	Power (KW)	Voltage (V)	Nominal Speed (RPM)	Construction Form	Protection	Insulation	Sense of Rotation	Cooling Type	Number of poles	Supplier / Producer
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_POWER	ZNC_VOLTAGE	ZNC_SPEED	ZNC_CONSTRUCTION_FORM	ZNC_PROTECTION	ZNC_INSULATION	ZNC_ROTATION_SENS	ZNC_COOLING_TYPE	ZNC_NUMBER_OF_POLES	ZNC_PRODUCER
031002	M	M	M	M	M	O	O	O	O	O	O	O
031002_VW	M	M	M	M	M	M	M	M	M	M	O	O
Data type	CHAR	CHAR	NUM	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	NUM	CHAR
Number of Charts	5	2	4	5	4	10	10	1	6	8	2	30
Decimal places	0	0	0	0	0	0	0	0	0	0	0	0
Unit			kW	V	rpm							

Shaft height	Frame size	Rotor Current	Rotor Voltage	Number of Shaft	Main terminal box	External Short Circuit	Temp. Control Winding	Temp. Control Bearing	Space Heater	Warehouse Type
ZNC_SHAFT_HEIGHT	ZNC_FRAME_SIZE	ZNC_ROTOR_CORRENT	ZNC_ROTOR_VOLT	ZNC_SHAFT_NUMBER	ZNC_TERMINAL_BOX	ZNC_EXTERNAL_SHORT_CIRC	ZNC_TEMP_CONTROL_WINDI	ZNC_TEMP_CONTROL_BEARI	ZNC_SPACE_HEATER	ZNC_WAREHOUSE
M	O	O	O	O	O	O	O	O	O	M
M	M	M	M	M	M	M	M	M	M	M
NUM	CHAR	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	Char	Char
4	2	4	4	12	3	6	6	2	2	2
0	0	0	0	0	0	0	0	0	0	0
mm		A	V							

3.1 Key characteristics to consider a Slip Ring Motor part of the VW

- Power:

Slip ring motors with a rated power higher than 200KW are considered for VW.

- Voltage:

Only the voltages according to the below attached table are considered as they are widely used for medium voltage motors.

Voltage (V)
ZNC_VOLTAGE
3000
5500
6000

- Nominal Speed:

For “Nominal Speed” a closed list of values was defined. The agreement was to use the nominal speed calculated with number of poles and not the speed normally shown on the tag. For an example refer to the characteristic “number of poles”.

Nominal Speed (RPM)
ZNC_SPEED
750
1000
1500

3.2 Specific characteristics of slip ring motors

- **Commodity – Fixed value**

Commodity will be a fixed value to “MOTOR”

- **Type – fixed value**

Type will be a fixed value to “SR”

- **Power – Mandatory**

Power of the motor in kW. There is an extensive list of possible values. It can vary from one motor to another.

- **Rotor current and rotor voltage– Mandatory only in VW**

The rotor voltage and current is necessary to determine the starter resistance. These values are necessary in case of the installation of an alternative motor to check if the starter resistance and short circuit device is adequate.

Rotor Voltage (V)		1280
535	685	1310
192	835	1315
480	900	1633
560	1100	1710

- **Number of shaft – Mandatory only in VW**

Definition of the number of shafts of the motor, it can be single shaft or double shaft. Double shaft are mainly used in case of an auxiliary drives attached to the main motor.

Number of shaft
SINGLE SHAFT
DOUBLE SHAFT

- **Main terminal box – Mandatory only in VW**

Position where the main terminal box is located. This is important for the MV motors as the cables are not easy to move and to extend. The terminal box can be on the top, on the left or on the right side always seen from the D (drive) – side of the motor.

Main Terminal Box	Abbrev
TOP	TOP
LEFT FROM D SIDES	LDS
RIGHT FROM D SIDES	RDS

- **External short circuit – Mandatory only in VW**

Medium voltage motors can have an internal or an external short circuit device. In case of the installation of an alternative motor it is necessary to know which type of short circuit is available.

- **Temperature control winding – Mandatory only in VW**

MV voltage motors are usually equipped with temperature sensors installed to control and monitor the temperature of the motor windings.

- **Temperature control bearing – Mandatory only in VW**

MV voltage motors are usually equipped with temperature sensors installed to control and monitor the temperature of the bearing.

- **Space heater – Mandatory only in VW**

This characteristic provides the information related to the space heater. Are installed to prevent condensation inside the motor.

4. 031003 Squirrel Cage Motors

4.1 Key characteristics to consider a Squirrel Cage Motor part of the VW

031003 Squirrel Cage Motors

031003_vw

Characteristic Name	Commodity	Type	Power (KW)	Voltage (V)	Nominal Speed (RPM)	Constraction Form	Protection	Insulation	Sense of Rotation	Cooling Type
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_POWER	ZNC_VOLTAGE	ZNC_SPEED	ZNC_CONSTRUCTION_FORM	ZNC_PROTECTION	ZNC_INSULATION	ZNC_ROTATION_SENS	ZNC_COOLING_TYPE
031003	M	M	M	M	M	O	O	O	O	O
031003_VW	M	M	M	M	M	M	M	M	O	M
Data type	CHAR	CHAR	NUM	NUM	NUM	CHAR	CHAR	CHAR	CHAR	CHAR
Number of Charts	5	2	6	5	4	10	10	1	6	8
Decimal places	0	0	2	0	0	0	0	0	0	0
Unit			kW	V	rpm					

Number of poles	Supplier / Producer	Shaft height	Frame size	Motor Option	Shaft option	Number of Shaft	Main terminal box	Insulated bearing	Temp. Control Winding	Temp. Control Bearing	Warehouse Type
ZNC_NUMBER_OF_POLES	ZNC_PRODUCER	ZNC_SHAFT_HEIGHT	ZNC_FRAME_SIZE	ZNC_MOTOR_OPTION	ZNC_SHAFT_OPTION	ZNC_SHAFT_NUMBER	ZNC_TERMINAL_BOX	ZNC_INSULATED_BEARING	ZNC_TEMP_CONTROL_WINDING	ZNC_TEMP_CONTROL_BEARING	ZNC_WAREHOUSE
O	O	M	M	O	O	O	O	O	O	O	M
O	O	M	M	O	O	O	O	M	M	M	M
NUM	CHAR	NUM	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	CHAR	Char
2	30	4	2	20	10	12	3	2	6	5	2
0	0	0	0	0	0	0	0	0	0	0	0
		mm									

- Power:

Motors with a power higher than 15 kW (EE) and 45 kW (other regions) is considered for VW

- Voltage:

Only the voltages according to the below attached table are taken into consideration. For standardization reasons 380V is managed as 400V

Voltage (V)	
ZNC_VOLTAGE	
400	690
500	6000

- Nominal Speed:

Only nominal speed according to the values in the table are considered for VW:

Nominal Speed (RPM)	
ZNC_SPEED	
750	1500
1000	3000

4.2. Specific characteristics of squirrel cage motors

- **Commodity – Fixed value**

Commodity will be a fixed value to “MOTOR”

- **Type – Fixed value**

Type will be a fixed value to “SQ”

- **Power – Mandatory**

Power of the motor in kW. There is an extensive list of possible values. It can vary from one motor to another.

- **Nominal speed – Mandatory**

Number of complete rotations, revolutions, cycles or turns per time minute. Speed measure in RPM. The decision was to include the nominal speed based on the number of poles, knowing that the real speed can be slightly lower.

- **Motor option – Optional**

In this characteristic we can indicate if the motor has any specific special component, like can be an integrated break or if it is reversible. Here you can find some options:

Motor Option:
Integral driver electronics
Integral brake
Integral clutch
Brake/clutch combination
Servomotor
Multi-speed
Reversible

Special motors as for example for stacker / reclaimed can have integrated drive electronics, brake, etc.

- **Insulated bearing – Mandatory only in VW**

For motors connected to VSD it is recommended to use insulated bearing to prevent internal magnetic fields which can damage the bearing.

- **Temperature control winding – Mandatory only in VW**

We will indicate if the motor has temperature sensors installed to control and monitor the temperature of the motor windings.

- **Temperature control bearing – Mandatory only in VW**

We will indicate if the motor has temperature sensors installed to control and monitor the temperature of the bearing.

5. 031008 Gear Motors

031008 Geared Motors

031008_vw										
Characteristic Name	Commodity	Type	Power (kW)	Voltage (V)	Input Speed (RPM)	Output Speed (RPM)	Mounting position	Output Torque [Nm]	Sens of rotation	Integrated Brake
Characteristic Technical Name	ZNC_COMMODITY	ZNC_TYPE	ZNC_POWER	ZNC_VOLTAGE	ZNC_INPUT_SPEED	ZNC_OUTPUT_SPEED	ZNC_CONSTRUCTION_FORM	ZNC_OUTPUT_TORQUE	ZNC_ROTATION_SENS	ZNC_INTEGRATED_BRAKE
031008	M	M	M	M	O	M	O	O	O	O
031008_VW	M	M	M	M	M	M	M	O	M	M
Data type	CHAR	CHAR	NUM	NUM	NUM	NUM	CHAR	NUM	CHAR	CHAR
Number of Charts	5	4	6	3	4	6	4	5	6	2
Decimal places	0	0	3	0	0		0		0	0
Unit			kW	V	rpm	rpm		Nm		

Motor Shaft height	Motor Constructio n	Protection	Insulation	Type of Cooling	Shaft option	Output shaft [mm]	Angle of Shaft	Supplier / Producer	Integrated VFD	Temp. Control Winding	Warehou se Type
ZNC_SHAFT_HEIGHT	ZNC_MOTOR_CONSTRUCTION	ZNC_PROTECTION	ZNC_INSULATION	ZNC_COOLING_TYPE	ZNC_SHAFT_OPTION	ZNC_SHAFT_DIAMETER	ZNC_SHAFT_ANGLE	ZNC_PRODUCER	ZNC_INTEGRATED_VFD	ZNC_TEMP_CONTROL_WINDING	ZNC_WAREHOUSE
O	O	O	O	O	O	O	O	O	O	O	M
O	O	M	M	O	M	M	M	O	M	M	M
NUM	CHAR	CHAR	CHAR	CHAR	CHAR	NUM	CHAR	CHAR	CHAR	CHAR	Char
4	5	4	1	5	6	3	7	30	2	6	2
0	0	0	0	0	0	0	0	0	0	0	0
mm						mm					

5.1. Key characteristics to consider a Gear Motor part of the VW

All the Gear Motor with a rated power higher than 7,5 kW will be considered for the VW, with the special case of Eastern Europe, where all gear motors are managed via VW

Power (kW)	
ZNC_POWER	
In Virtual Scope	
Emerging Europe	all
Rest of Regions	≥ 7,5

5.2. Specific characteristics of the Gear Motors

- **Commodity – Fixed value**

Commodity will be a fixed value to “MOTOR”

- **Type – Fixed value**

Type will be a fixed value to “GEAR”

- **Power – Mandatory**

Power of the motor, in kW. There is a huge list of possible values, they van cary from one motor to another.

- **Voltage – Mandatory**

The voltage is indicated in V. Whereas 380V is treated like 400V in order to facilitate the search function

.

Voltage (V)
ZNC_VOLTAGE
400
500
690

- **Input Speed – Mandatory only for VW**

For geared motors the input speed of the gear or in other words the nominal speed of the motor and expressed in 1/min:

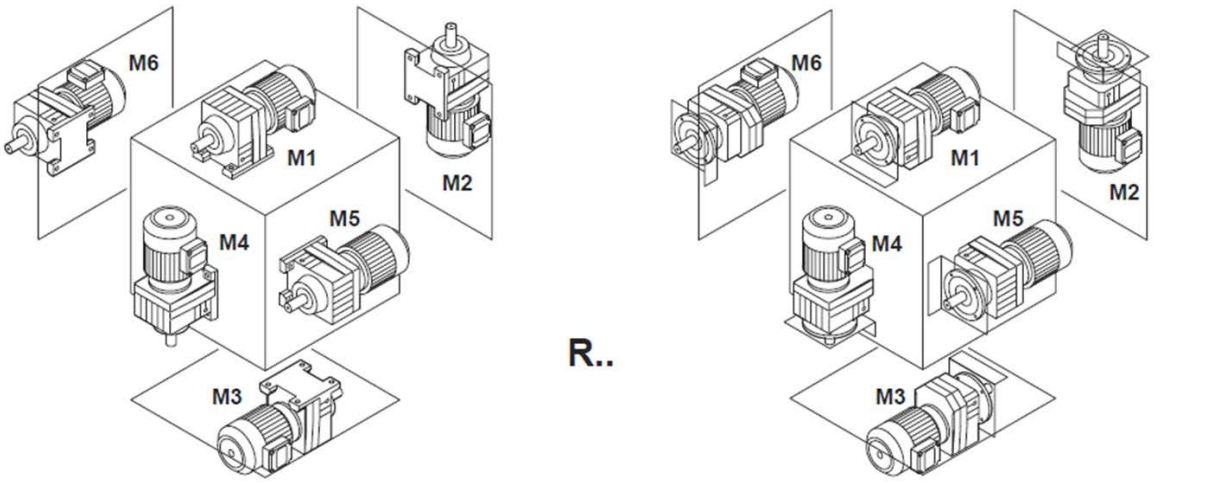
Nominal speed
750
1000
1500
3000

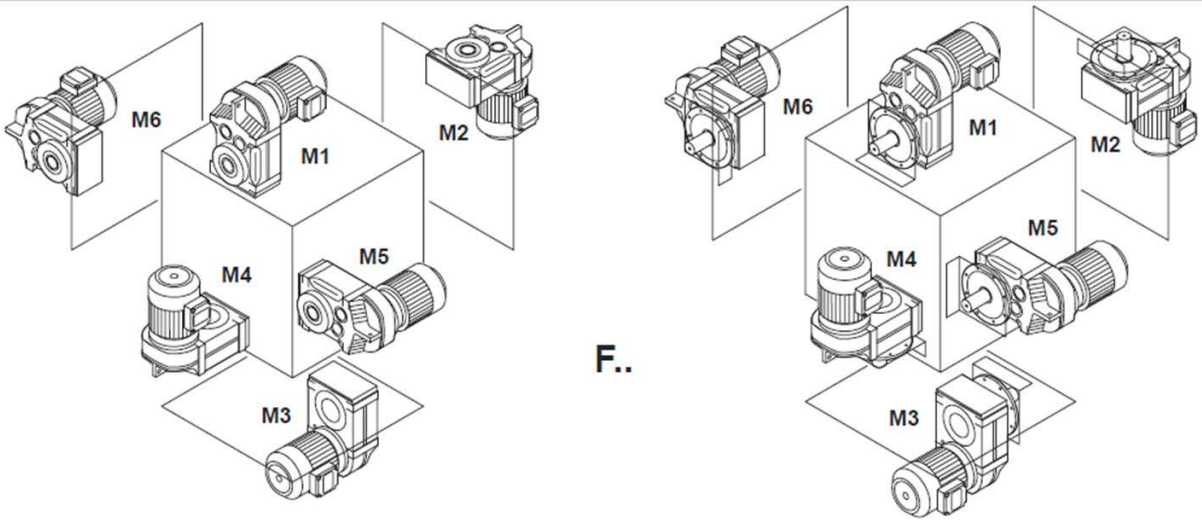
- **Output Speed – Mandatory**

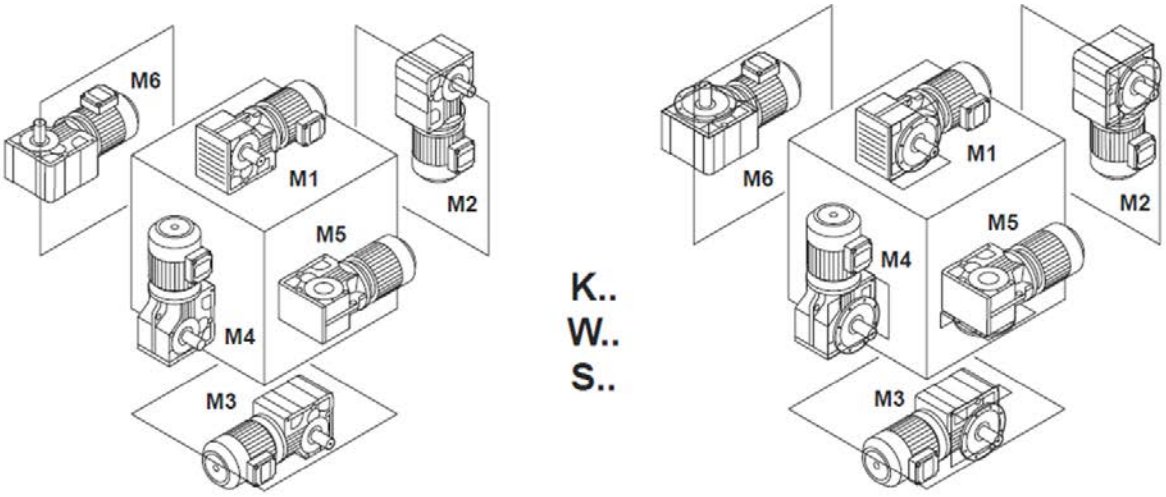
The output speed can be calculated, taking into the gear ratio or it is taken from the geared motor tag.

- **Mounting position – Mandatory only for VW**

The mounting position is the indicator how a gear motor is installed, see below attached sketch.







- **Output Torque – Optional**

Output torque is the indicator of the force which is applier to the driven element. The calculation of the output torque can be done using the power and the ratio between input and output speed of the gear unit. There is a theoretical and a simplified formula:

Theoretical calculation				
		P[kW] *1000 * 60		Inputspeed [1/min*
Calculation of Torque [Nm]	=		*	
		Inputspeed [1/min] * 2 * PI		Outputspeed [1/min]

Cimplified calculation		
		P[kW] * 9550
Calculation of Torque [Nm]	=	
		Outputspeed [1/min]

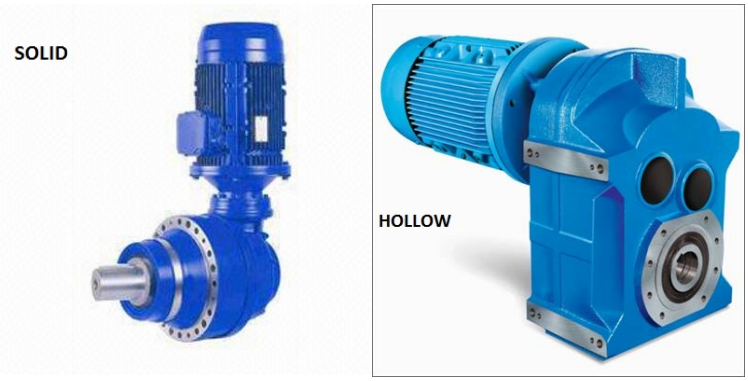
During the VW project the simplified formula was used to calculated the torque

- **Integrated brake – Mandatory only for VW**

This characteristic shows if the motor has any kind of integrated brake

- **Shaft option – Mandatory only for VW**

This characteristic has two possible options: solid and hollow. Solid means that a shaft is coming out of the gear, while hollow stands for the gear boxes which have a “hole” and driven element is pushed inside.



- **Output Shaft – Mandatory only in VW**

This characteristic indicates the diameter of the shaft.

- **Angle of shaft – Mandatory only in VW**

Angle of shaft indicates, if looking from the motor side, the shaft is lineal or has a 90º degree angle to the left or to the right. Below you can find two examples.

Black motor has an angle of shaft of 90º to the right side. The blue motor has a linear output.

- **Integrated VSD – Mandatory only for VW**

In new applications a VSD is integrated into the gear motor therefore the application is not universal. The VSD is a is a type of adjustable-speed drive used in electro-mechanical drive systems to control AC motor speed and torque by varying motor input frequency and voltage.

- **Temperature control winding – Mandatory only in VW**

We will indicate if the motor has temperature sensors installed to control and monitor the temperature of the motor windings.

6. 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” for motors are as follows:

031002

Short Description:

<Commodity> <Type> <Power> <Voltage> <Nominal Speed> <Shaft height>

Long Description:

<Commodity> <Type> <Power> <Voltage> <Nominal Speed> <Shaft height> <Frame Size><Construction Form> <Protection> <Insulation> <Sense of Rotation> <Cooling Type> <Rotor Current> <Rotor Voltage> <Number of shaft> <Main terminal Box> <External short circuit> <Temp. Control winding> <Temp. Control Bearing> <Space Heater> <Number of Poles> <Supplier/Producer>

Short Description:

MOTOR SR 400 KW 6000 V 1000 450 MM

Long Description:

MOTOR SR 400 KW 6000 V 1000 450 MM NS IMB3 IP44 F CW/CCW IC611 320 A 760 V SINGLE SHAFT RDS NO PTC NONE YES 6 HELMKE

031003

Short Description:

<Commodity> <Type> <Power> <Voltage> <Nominal Speed> <Shaft height> <Frame Size>

Long Description:

<Commodity> <Type> <Power> <Voltage> <Nominal Speed> <Shaft height> <Frame Size><Construction Form> <Protection> <Insulation> <Cooling Type> <Insulated Bearing> <Temp. Control winding> <Temp. Control Bearing> <Sense of Rotation> <Number of Poles> <Number of shaft> Supplier/Producer> <Motor Option> <Shaft Option Motor> <Main terminal Box> <Space Heater>

Short Description:

MOTOR SQ 132.00 KW 400 V 1500 PMI 315 M

Long Description:

MOTOR SQ 132.00 KW 400 V 1500 PMI 315 MM M IMB3 IP54 F IC411 NO NONE NONE CW/CCW 4 TOP

031008

Short Description:

<Commodity> <Type> <Power> <Voltage> <Output Speed>

Long Description: <Commodity> <Type> <Power> <Voltage> <Output Speed> <Sense of Rotation> <Mounting Position><Integrated Break> <Protection> <Insulation> <Shaft Option> <Output Shaft> <Angle of shaft> <Integrated VFD> <Temp. Control Winding> <Supplier> <Output Torque> <Cooling Type> <Input Speed>

Short Description:

MOTOR GEAR 11.000 KW 400 V 13.00

Long Description

MOTOR GEAR 11.000 KW 400 V 13.00 CW/CCW IMM1 NO IP54 F HOLLOW 105 MM LIN NO PTC SEW 8250 IC411 1500 PMI