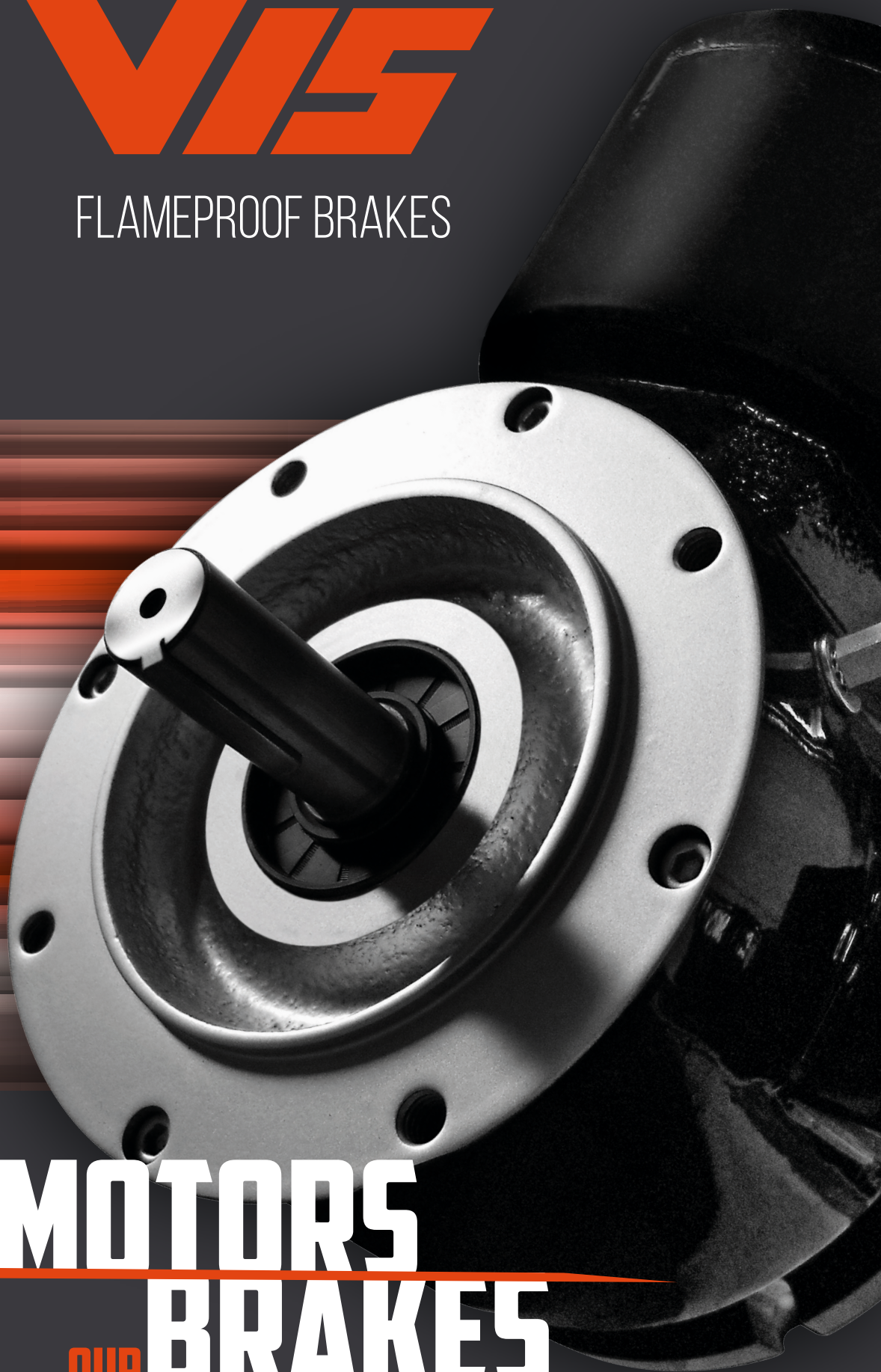




FLAMEPROOF BRAKES



YOUR MOTORS
OUR BRAKES





COEL offers a wide range of exclusive products focused on dedicated industrial sectors.

Explore **COEL INDUSTRIAL SOLUTIONS** on

www.coel-is.com



Brake motors



Flameproof brakes



Flameproof limit switches

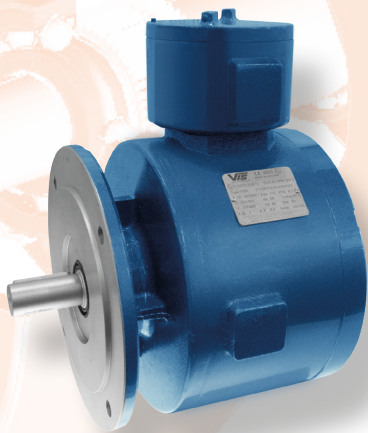


Flameproof pendant control stations

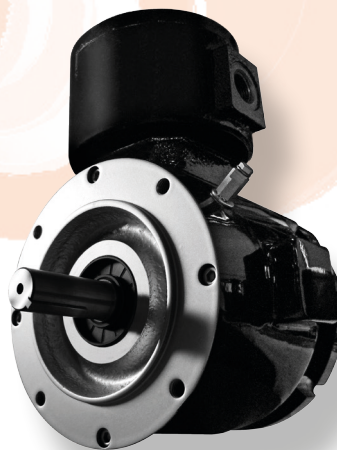


Hoist drives

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IEC LINE



NEMA LINE



COMPACT LINE



ABOUT VIS

VIS is a product of COEL Italy.

Since 1976 COEL designs and manufactures brake motors and electromagnetic brakes producing all the components including the brake units in its facilities (see www.coelmotori.it for further details).

Thanks to this large experience, we invented on 2005 VIS, the modular brake system for hazardous location.

Our idea was based on the market demand of an easy solution in order to obtain a brake motor without modification of the motors or extension of the certificates.

With more than 30 years of experience in manufacturing brakes, we defined a new oversized standard, able to guarantee a range of modular brakes designed for heavy duty.

More than 35 controls made in the production process make of each VIS brake a top quality braking unit.

The VIS brakes range is in continuous development in order to make its quality and performance better and better.

Our range includes today various versions with braking torques between 3 to 16.000 Nm, suitable for any application.

For hoisting, travelling, positioning in hazardous location, the VIS brakes are the safe and reliable solution.

WHAT'S VIS

The VIS brake is an innovative modular flameproof spring applied disc brake unit.

The new concept is to apply an independent brake unit to a standard flanged explosion proof motor or to a transmission unit. The flanges input and output follow both IEC or NEMA standards.

Beside the face to face lines (IEC and NEMA), it is also available the COMPACT LINE version, suitable to be applied to the NDE of an electric motor or to any transmission unit.

The VIS brakes are certified as independent components. It means that there are not coupling procedures in order to define the certification.

WHY VIS?

The VIS brake is available in IEC flange face to face version (B5 63 to 315), NEMA standards (56 to 405) and COMPACT LINE for the mounting in the rear part of an electric motor or to a transmission unit.

The assembling is very fast.

Choosing the VIS brake, it's very easy to make an explosion proof brake motor, reducing costs and delivery time.

The performance of VIS brakes is particularly high and the strong structure makes them suitable for very heavy duty and for every kind of application (hoisting, travelling, positioning...).

VIS brakes don't need periodical maintenance such as adjustment of gap on work site.

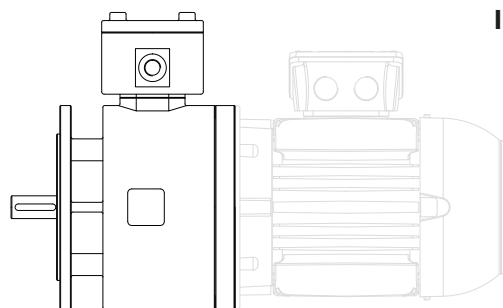
The braking torque values are included between 3 to 16.000 Nm* and the electromagnets fitted inside the VIS brakes can be AC three phase or DC with built in rectifier*.

The cost of a standard explosion proof motor plus the VIS brake is considerably lower than an explosion proof brake motor and the lead time and reliability are much better.

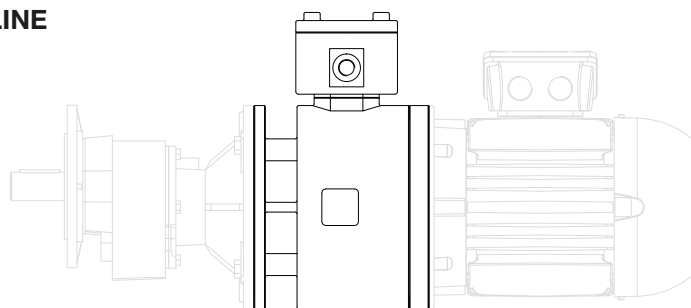
*depending on frames and sizes

APPLICATION EXAMPLE

IEC LINE

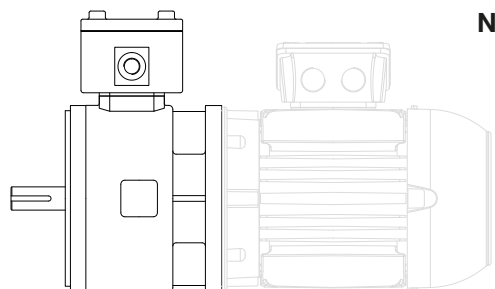


Standard IEC motor + VIS brake

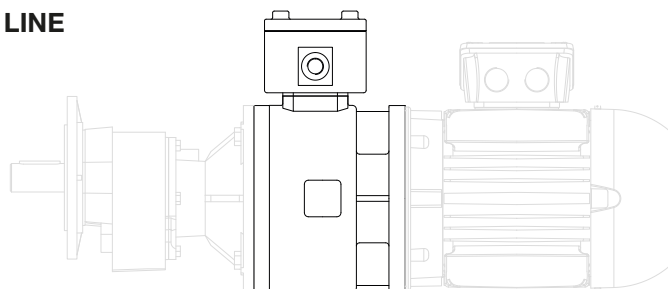


Standard IEC motor + VIS brake + gearbox unit

NEMA LINE

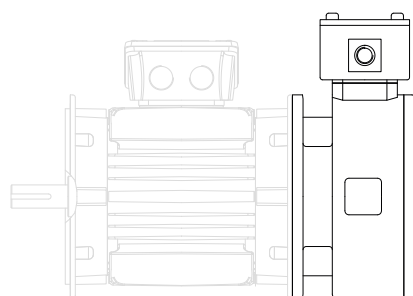


Standard NEMA motor + VIS brake

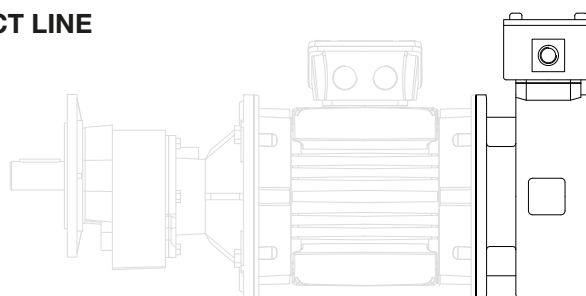


Standard NEMA motor + VIS brake + gearbox unit

COMPACT LINE



Standard motor + VIS brake



Standard motor + VIS brake + gearbox unit

MAIN FEATURES

- Patent pending design and concept system
- Three phase AC or single phase DC electromagnets*
- Totally closed
- IP66
- Power supply VAC24 to 690 50-60Hz three phase or VDC 24 to 300 with built in rectifier*
- F class insulation
- Thermally protected with bimetal protectors as standard
- Large terminal box with terminal board
- Very high resistance structure
- Designed for S1 duty without ventilation*
- Cast iron construction (Steel frame for IEC 315 type)

*depending on frames and sizes



STANDARDS

	ATEX certification	IECEX certification	INMETRO certification	KTL certification	TCRU certification	CSA US certification
IEC						
63 71	s	a	a	a	a	na
80 90	s	a	a	a	a	na
100 112	s	a	a	a	a	na
132 160	s	a	a	a	a	na
180 200 225	s	a	a	a	a	na
250 280	s	a	a	a	a	na
315	s	a	na	na	na	na
NEMA						
56 143	na	na	na	na	na	s
182 213	na	na	na	na	na	s
254 284	na	na	na	na	na	s
324 364	na	na	na	na	na	s
404	na	na	na	na	na	s
COMPACT						
25 150	s	a	na	na	na	na
350	s	a	na	na	na	na
750	s	na	na	na	na	na
D18	s	a	na	na	na	na
D216	s	a	na	na	na	na

s = standard
a = available
na = not available



ATEX and IECEx brakes are approved for the following areas:

GAS
II 2 G Ex db P 1 T P 2 Gb Tamb. : -50°C ÷ +55(for T5 Tamb:+60°C) or -20°C ÷ +55(for T5 Tamb: +60°C).

DUSTS
II 2 D Ex tb IIIC T P 3 Db IP66 Tamb. : -50°C ÷ +55(for classe T100°C Tamb: +60°C) or -20°C ÷ +55(for class T100°C Tamb: +60°C).

GAS and DUST
II 2 GD Ex db II P 1 T P 2 Gb
Ex tb IIIC T P 3 Db IP66
Tamb. : -50°C ÷ +55(for class T5 or T100°C Tamb: +60°C) or -20°C ÷ +55(for class T5 or T100°C Tamb: +60°C).

MINE gr I
I M2 Ex db Mb Tamb. : -50°C ÷ +55°C oppure -20°C ÷ +55°C (not applicable for VIS II P25-P150-P350-P750)-(-50°C not applicable for VIS II 250/280).

Marking mine gr I
Ex db I Mb Tamb. : -50°C ÷ +55°C oppure -20°C ÷ +55°C (not applicable for VIS II P25-P150-P350-P750)-(-50°C not applicable for VIS II 250/280).

Marking for gas
Ex db II P₁ T P₂ Gb Tamb. : -50°C ÷ +55(for the class T5 Tamb: +60°C) or -20°C ÷ +55(for the class T5 Tamb: +60°C).

Marking for dust
Ex tb IIIC T P₃ Db IP66 Tamb. : -50°C ÷ +55(for the class T100°C Tamb: +60°C) or -20°C ÷ +55(for the class T100°C Tamb: +60°C).

Marking of gas and dust
Ex db II P₁ T P₂ Gb Ex tb IIIC T P₃ Db IP66
Tamb. : -50°C ÷ +55(for the class T5 or T100°C Tamb: +60°C) or -20°C ÷ +55(for the class T5 o T100°C Tamb: +60°C).

0051 = number organism notified surveillance ATEX (IMQ)
II = group II (surface)
III = zone 21

Pn are subjected to the following variations:

P1 for GAS groups if:
- P1 = B : gas group IIB.
- P1 = C : gas group IIC.

P2/P3 for temperature classes/surface temperature:
- P2 = T3 (not applicable for VIS II P25-P150-P350-P750) P3 = T200°C (not applicable for VIS II P25-P150-P350-P750)
- P2 = T4 P3 = T135°C
- P2 = T5 P3 = T100°C

- -20°C or -50°C/50°C ÷ +55°C (for class T5 o T100°C Tamb: +60°C) = Amb Temp. for VISII 63/71 , VISII 80/90, VISII 100/112, VISII 132/160, VIS II 180/200, VIS II P25,VIS II P150,VIS II P350,VIS II P750.
- -20°C+55°C (for class T5 o T100°C Tamb: +60°C)=Amb Temp. for VISII 250/280,VIS II 315.
T.cable : 80°C= Cable temperature

Notes:
INMETRO, KTL, TCRU approvals are related to IECEx specification.

NEMA LINE

Nema brakes are CSAUs approved in the following areas
Class I, Div 1, Groups C, D. Class II, Div 1, Groups E, F, G; Class III

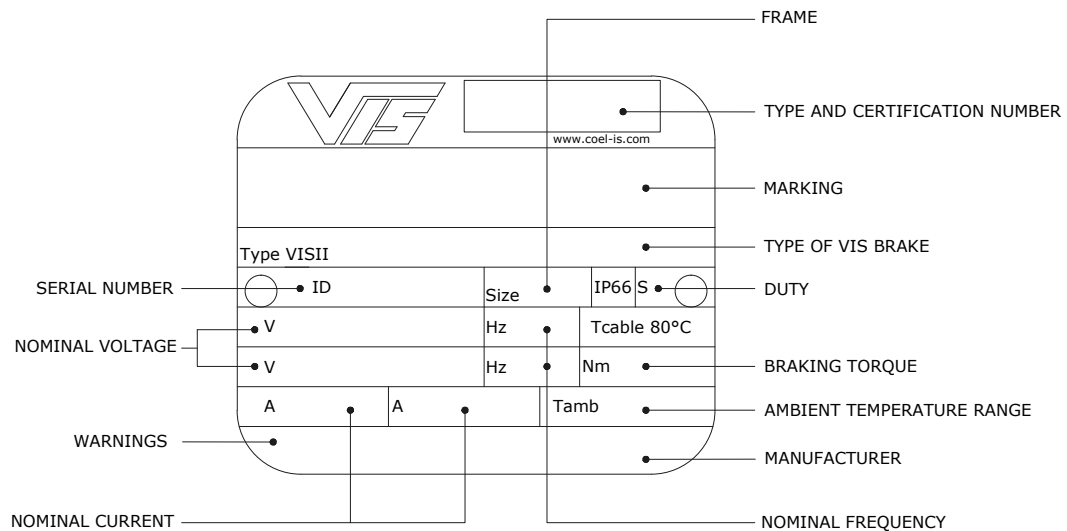
OPTIONS and AVAILABLE FEATURES

	Hand release	Ready for Hand release	PTO thermistor	PTC thermistor	Anti condensation heater	Open/close micro switch	Open/close Inductive proximity	AC 3ph magnet	DC Magnet	DC Magnet with multi voltage system	Encoder application	Controlled emergency braking device	Special output flange and shaft coupling
IEC													
63 71	a	a	s	a	a	a	a	na	s	na	na	na	a
80 90	a	a	s	a	a	a	a	s	a	na	na	na	a
100 112	a	a	s	a	a	a	a	s	a	a	na	na	a
132 160	a	a	s	a	a	a	a	s	a	a	na	na	a
180 200 225	a	a	s	a	a	a	a	na	s	a	na	na	a
250 280	na	na	s	a	a	a	a	na	s	na	na	na	a
315	na	na	s	a	a	a	a	na	s	na	na	na	a
NEMA													
56 143	a	a	s	a	a	na	a	na	a	s	na	na	a
182 213	a	a	s	a	a	a	a	na	a	s	na	na	a
254 284	a	a	s	a	a	a	a	na	a	s	na	na	a
324 364	a	a	s	a	a	a	a	na	a	s	na	na	a
404	a	a	s	a	a	a	a	na	a	s	na	na	a
COMPACT													
25 150	a	a	s	a	a	a	a	na	s	a	na	na	a
350	a	a	s	a	a	a	a	na	s	a	na	na	a
750	a	a	s	a	a	a	a	na	s	a	na	na	a
D18	a	a	s	a	a	a	a	na	s	a	a	na	a
D216	a	a	s	a	a	a	a	na	s	a	a	na	a
E14	a	a	s	a	a	s	a	na	s	a	a	s	a
E18	a	a	s	a	a	s	a	na	s	a	a	s	a
E216	a	a	s	a	a	s	a	na	s	a	a	s	a

s = standard a = available na = not available

NAME PLATES

Nameplates are made in stainless steel and secured on the brakes body





General information

The spring-applied brake VIS is a single or multi disk brake system with two friction surfaces for each disc mounted.

The compression springs create the braking torque by friction locking the disc.

The brake is released electromagnetically.

The spring-applied brake is designed for the conversion of mechanical work and kinetic energy in heating. For operation characteristics ask to us about admissible work and duty cycle.

Manual Release

The manual release is an available option, it gives the possibility to release the brake in absence of current.

Monitoring Switch

The VIS brakes can be equipped with a switch (electro mechanical or inductive) for monitoring the operation of the mobile anchor inside the brake and the consequent open or closed status of it. The user must provide the corresponding electrical connection.

Thermistors

All the VIS brakes are equipped with a PTO thermal protection with temperature limit related to the temperature class of the brake required. It must always be connected when operating in order to prevent extra heating in hazardous areas.

It is also available the application of a PTC thermistor in order to get a constant monitoring of the brake temperature through an external PLC.

Controlled Emergency Braking Device*

The **VIS Controlled emergency braking device** consists in a patent pending system able to monitor the rpm of the brake disc and able to generate the braking of it if such rotation speed exceeds a pre configured value.

The brakes are so suitable to be used as emergency operation units with all in one built in control system.

The brakes are equipped with an electronic device, head of the system, and 2 encoders (one as operating device and one as safety device to control the first one).

The user can set the maximum RPM allowed in normal operation condition and the "out of safe" RPM values.

If the speed of the load connected to the brake exceeds the set value, the braking operation will be automatically activated.

This device is suggested to be applied on HOISTS and MATERIAL HANDLING APPLICATION in general as safety feature and in any application where it is necessary to get an automatic emergency braking operation.

Brakes equipped with the **VIS Controlled emergency braking device** are also provided with hand release screw for manual brake release.

*compact line only

IEC LINE

The IEC line brakes are easy and immediate to be installed. They can be mounted onto IEC B5 motors without any modification.

Recommendation: in order to avoid alignment deviations, we always recommend to use electric motors with output flanges and shafts work out in precision class in particular for frames 225 to 315.

Always control the output tolerance of the motor shaft and flange and orthogonality between them before assembling the VIS brake.

Before positioning the brake and inserting the shaft to the VIS hub, we suggest to add grease on them.

NEMA LINE

The NEMA line brakes are easy and immediate to be installed. They can be mounted onto NEMA C-face motors without any modification.

Recommendation: in order to avoid alignment deviations, we always recommend to use electric motors with output flanges and shafts work out in precision class in particular for frames 324 and above.

Always control the output tolerance of the motor shaft and flange and orthogonality between them before assembling the VIS brake.

Before positioning the brake and inserting the shaft to the VIS hub, we suggest to add grease on them.

COMPACT LINE

The VIS compact line is supplied with an hollow shaft with key suitable to be assembled to a keyed shaft.

The VIS input shaft is mounted on 2 bearings; it is important to avoid any axial load on the shaft.

Before positioning the brake and inserting the shaft to the VIS hub, we suggest to add grease on them.

Once the shaft is positioned, secure the VIS flange to the coupling flange checking the absence of air gap between them.

The surface where brake is coupled must be a solid cast iron or steel or aluminum one.

The size of the brake is mainly determined by the braking torque and the relevant inertia of the load, braking time, speed, number of starts per hour.

For further detailed calculation regarding your application please contact us.

Before ordering a VIS Brakes fulfill the checklist as shown in page 19 of this catalogue.

Brake Torque And Braking Time

It is possible to define the braking time of the motion using the following formula

$$\frac{J_{tot} \times n}{9.55 (M_f \pm M_{load})} + \frac{t_x}{1000}$$

J_{tot}: inertia moment at the motor shaft (Kg^m2)
t_x: brake time response (ms)
M_{load}: resistant moment to the load applied (Nm), positive or negative depending on concordance with braking moment.

Note: for calculation of sliding time of the disc, consider the "t_x" value at "0". **M_f**: braking moment (Nm) **n**: speed r.p.m.



VOLTAGES

The VIS brakes are available in many voltages. The following chart indicates the available range.

IEC LINE				
Frame	3 ph. AC 230/400/50	DC187**	3 ph.AC 24 to 690/50 - 60	DC 24 to 300**
63 71	na	s	na	a
80 90	s	a	a	a
100 112	s	a	a	a
132 160	s	a	a	a
180 to 315	na	s	na	a
NEMA LINE	DC multi voltage*		DC 24 to 300	
All frames	s		a	

*One single reconnectable winding suitable for voltages AC 210 - 230 400 - 480 driven with WR type rectifier

**AC supply with built in rectifier.

COMPACT LINE			
All frames	DC187	DC 24 to 300	DC multi voltage*
	s	a	a

*One single reconnectable winding suitable for voltages AC 210 - 230 400 - 480 driven with WR type rectifier

s = standard a = available na = not available

RECTIFIERS

All the VIS brakes with DC magnet are supplied with built in rectifier fitted into the terminal box.

The standard rectifier is half wave for voltages between VDC 50 to 300 and full wave for lower voltages.

The standard half wave rectifier (WR type) provides both pick in engagement and fast action in braking; it means that there is no need of external connections (DC side cutting) to be done in order to get the fast action of the brakes.

Full wave rectifiers (4440 type) are equipped with an additional wire for DC cutting in order to obtain the fast action of the brake.

CONNECTIONS

<p>A TERMINAL BOARD WITH 2 AUXILIARY DEVICE CONNECTION</p>	<p>B TERMINAL BOARD WITH 2 AUXILIARY DEVICE CONNECTION</p>	<p>C DC BRAKE CONNECTION</p> <p>NOTE: IF VERSION WITHOUT RECTIFIER IS REQUIRED, JUST SUPPLY DC VOLTAGE TO U2 V2</p>	
<p>LEGEND</p> <p>TRM: THERMISTORS F: MAGNET RAD: RECTIFIER MICRO: MICROSWITCH OR INDUCTIVE SENSOR ACH: HEATER L1 L2 L3: AC 3PH INPUT L4 L5: RECTIFIER AC 1PH INPUT</p>			<p>*RECTIFIER CODE 4440/5 AND 2440/5 CONNECTION FOR FAST BRAKING</p>
<p>THERMISTORS TO BE CONNECTED TO THE NON-AUTOMATIC RESET DEVICE.</p> <p>NOTE: DC VIS BRAKES ARE NORMALLY EQUIPPED WITH HALF WAVE RECTIFIER HAVING 4 WIRES TYPE WR 2008 HAVING FAST ENGAGEMENT AND SWITCHING AUTOMATIC FUNCTION. IN CASE OF BRAKES REQUIRED WITH FULL WAVE RECTIFIER, BRAKES WILL BE EQUIPPED WITH RECTIFIER CODE 4440/5*. IN CASE OF BRAKES REQUIRED WITH HALF WAVE RECTIFIER WITH STANDARD ENGAGEMENT AND RELEASE TIME RESPONSE, BRAKES WILL BE EQUIPPED WITH RECTIFIER CODE 2440/5*.</p>			

**IEC LINE
COMPACT LINE**

<p>D CONNECTION 190/230VDC</p>	<p>E CONNECTION 100/125VDC</p>
<p>F CONNECTION 210/277VAC</p>	<p>G CONNECTION 370/480VAC</p>

NEMA LINE

PERFORMANCE DATA

FRAME IEC	Nm (min/max)*	W (DC)	VA (Ac 3ph)	Engagement time (ms)**	Braking time DC magnet**	Braking time AC magnet	Maximum rpm S1 duty	Maximum rpm S3 40 duty
63 71	3 to 8	40	na	na	20	na	3600	4320
80 90	12 to 22	50	100	18	40	8	3600	4320
100	30 to 40	80	240	18	90	9	3600	4000
112	30 to 60	80	240	18	90	9	3600	4000
132	70 to 150	105	320	23	180	12	3600	4000
160	100 to 180	105	320	23	180	12	3600	2900
180	180 to 335	180	na	na	230	na	2500	2800
200 225	300 to 460	180	na	na	230	na	2500	2800
250	700 to 1000	240	na	na	360	na	1800	2200
280	700 to 1200	240	na	na	360	na	1800	2200
315	1500 to 2200	340	na	na	420	na	1800	2200

*factory adjustment and relative values are related to a tolerance of + - 10% **values obtained with WR2008 type rectifier

FRAME NEMA	NM (min/max)*	W (DC)	Engagement time (ms)**	Braking time DC magnet**	Maximum rpm S1 duty	Maximum rpm S3 40% duty
56	10 to 15	50	12	20	3600	4100
143	15 to 25	50	20	20	3600	4200
182	25 to 50	65	25	9	3600	4200
213	50 to 80	65	30	90	3600	4200
254	100 to 160	75	40	180	3600	4000
284	160 to 240	100	50	180	2400	3600
324	250 to 370	210	90	230	1800	2200
364	400 to 650	210	90	230	1800	2200
404	560 to 780	220	160	360	1800	2200

*factory adjustment and relative values are related to a tolerance of + - 10% **values obtained with WR2008 type rectifier

FRAME COMPACT	Nm (min/max)*	W (DC)	Engagement time (ms)**	Braking time DC magnet**	Maximum rpm S1 duty	Maximum rpm S3 40% duty
25	10 to 25	50	35	40	3600	4500
150	80 to 150	85	50	90	3600	4200
350	180 to 350	115	80	150	3000	3800
750	350 to 750	180	110	180	1800	2200
D18	750 to 1200	210	140	250	1800	2200
D216	2000 to 3600	360	180	360	1800	2200
E14***	1000 to 4000	160	110	150	300	300
E18***	4000 to 8000	210	150	180	300	300
E216***	8000 to 16000	360	240	310	300	300

*factory adjustment and relative values are related to a tolerance of + - 10% **values obtained with WR2008 type rectifier

***brake must be inspected after every operation if used as emergency braking device or as safety brake with dynamic application having sliding of the disc over 3 seconds

Note: for braking time or number of starts and stops allowed, please contact us

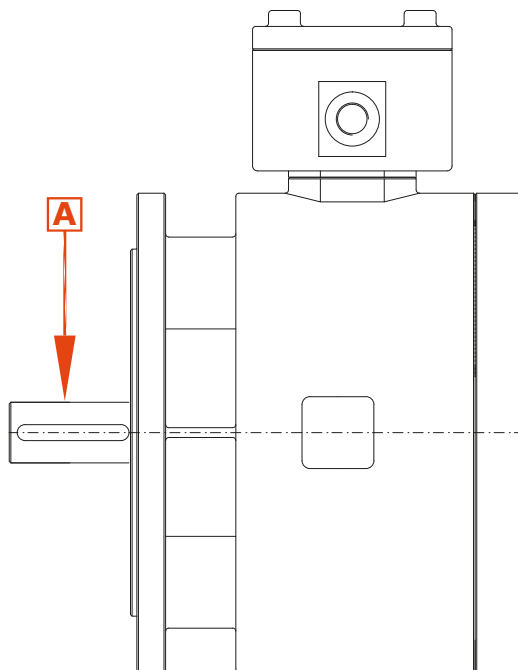
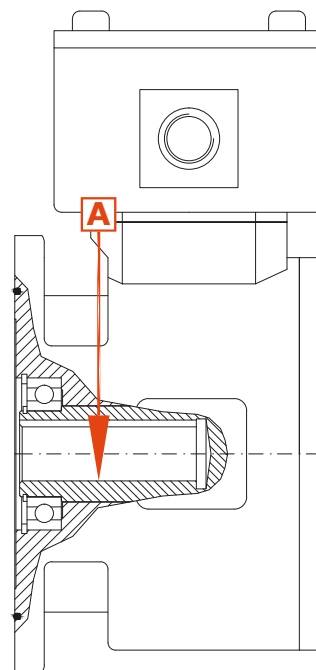
IEC and NEMA line

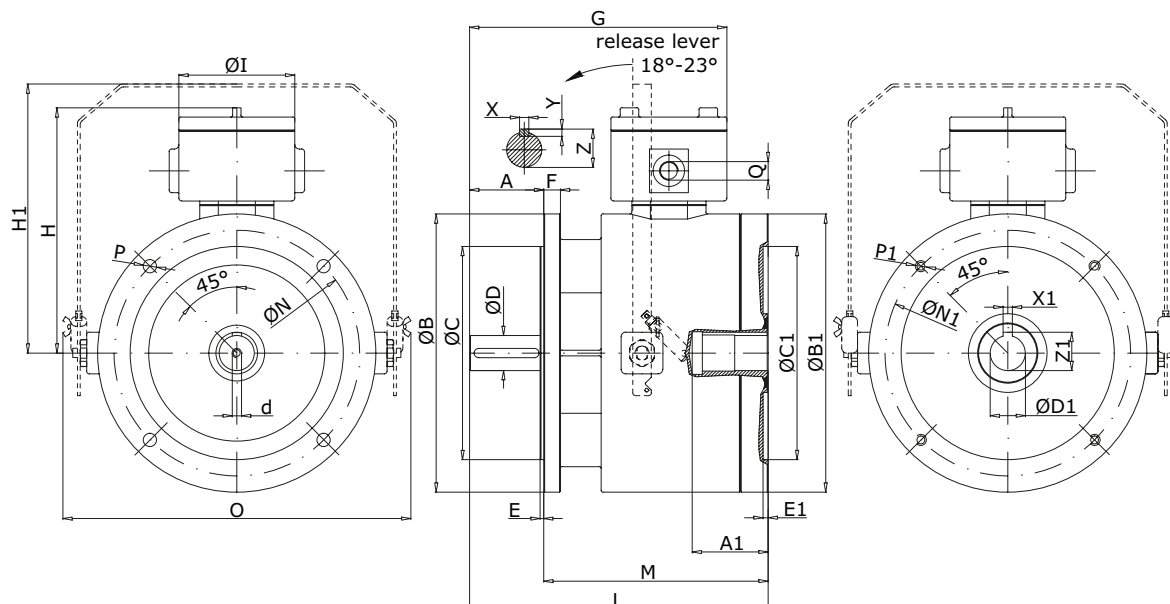
IEC and NEMA VIS brakes line is designed to be mounted in front of a flanged motor; the bearing used in the input shaft has the only function to support the coupling between the motor and brake shafts and cannot be subjected to additional axial or radial loads.

COMPACT line brakes are designed without output traction shaft.

The output shaft admissible radial loads of IEC and NEMA and input shaft COMPACT LINE allowed radial loads are described in the following tab.

IEC	N (A)	NEMA	N (A)	COMPACT	N (A)
63 71	250	56 146	400	25	310
80 90	380	182 213	610	150	550
100 112	550	254 284	790	350	810
132 160	790	324 364	1700	750	1500
180 225	1700	404	2600	D18	1450
250 280	3400			D216	1580
315	3800			E14	580
				E18	1450
				E216	1580

IEC LINE - NEMA LINE

COMPACT LINE


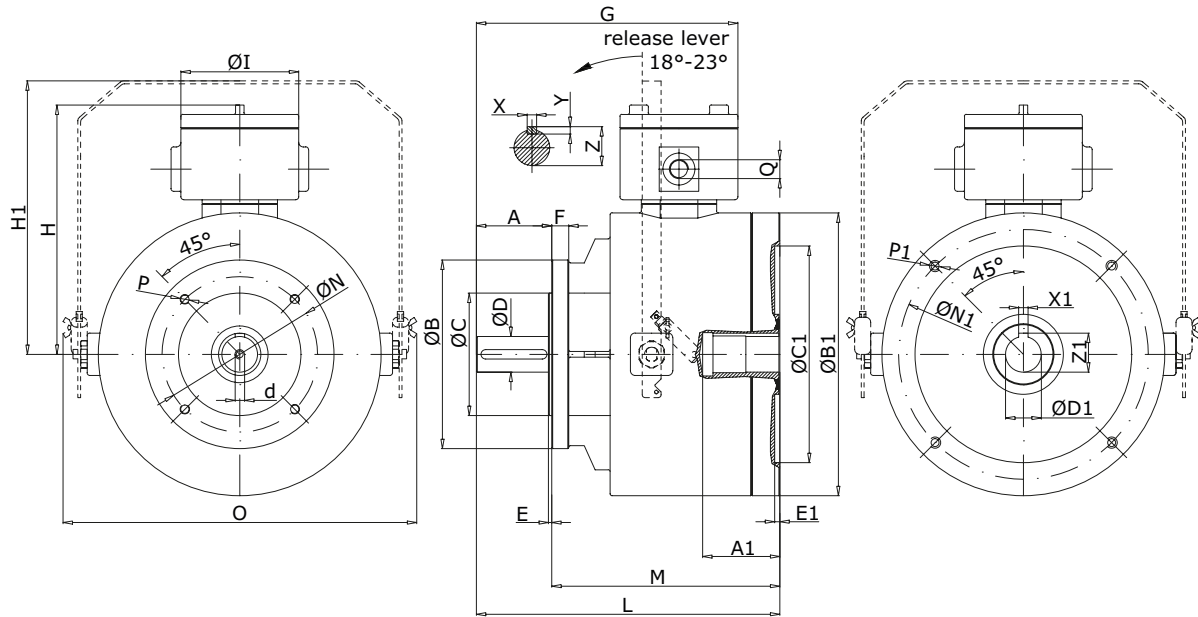


TYPE B5	63	71	80	90	100-112	132	160	180	200	225	250	280	315
(Kg)	15	16	32	34	50	78	82	135	150	175	265	265	460
A (+0/-1)	23	30	40	50	60	80	110	110	110	140	140	140	170
A1	25	31	41	51	61	81	111	111	111	450	141	141	174
ØB (+/-1)	140	160	200	200	250	300	350	350	400	448	550	550	660
ØB1 (+/-1)	140	160	200	200	250	300	350	350	400	450	550	550	660
ØC (h8)	95	110	130	130	180	230	250	250	300	350	450	450	550
ØC1 (H8)	95	110	130	130	180	230	250	250	300	350	450	450	550
ØD	11 j6	14 j6	19 j6	24 j6	28 j6	38 k6	42 k6	48 k6	55 m6	60 m6	65 m6	75 m6	80 m6
ØD1 (E6)	11	14	19	24	28	38	42	48	55	60	65	75	80
d	M4X10	M4X10	M6X20	M6X20	M8X20	M10X25	M10X25	M20X30	M20X30	M20X30	M20X30	M20X30	M20X30
E	2,5	3,5	3,5	3,5	4	4	5	5	5	5	5	5	6
E1	4	4	4,15	4,15	5	5,5	5,5	6	6	8	8	8	9
F	10	10	12	12	14	18	18	21	21	21	26	26	30
G	169,5	176,5	207	217	236,5	277,5	309,5	366,5	366,5	396,5	378,5	378,5	240
H	185	185	215	215	240	265	265	282	282	282	328	328	225
H1	205	205	230	230	255	290	290	320	320	320	-	-	-
I	125	125	125	125	125	125	125	125	125	125	125	125	125
L	168	175	236	246	276	322	352	408	408	438	447	447	502
M	145	145	196	196	216	242	242	298	298	298	307	307	332
ØN	115	130	165	165	215	265	300	300	350	400	500	500	600
ØN1	115	130	165	165	215	265	300	300	350	400	500	500	600
O	245	245	290	290	345	395	395	410	410	410	-	-	-
ØP	9,5	9,5	11,5	11,5	14,5	14,5	18	18	18	18	18	18	22
ØP1	M8X16	M8X16	M10X18	M10X18	M12X18	M12X18	M16X21	M16	M16	n°8XM16	n°8XM16	n°8XM16	n°8XM20
Q	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20
X	4	5	6	8	8	10	12	14	16	18	18	20	22
X1	4	5	6	8	8	10	12	14	16	18	18	20	22
Y	4	5	6	7	7	8	8	9	10	11	11	12	14
Z	12,5	16	21,5	27	31	41	45	51,5	59	64	69	79,5	85
Z1 (+0,1/-0)	12,8	16,3	21,8	27,3	31,3	41,4	45,4	51,9	59,4	64,4	69,4	79,9	85,4



Overall Dimensions

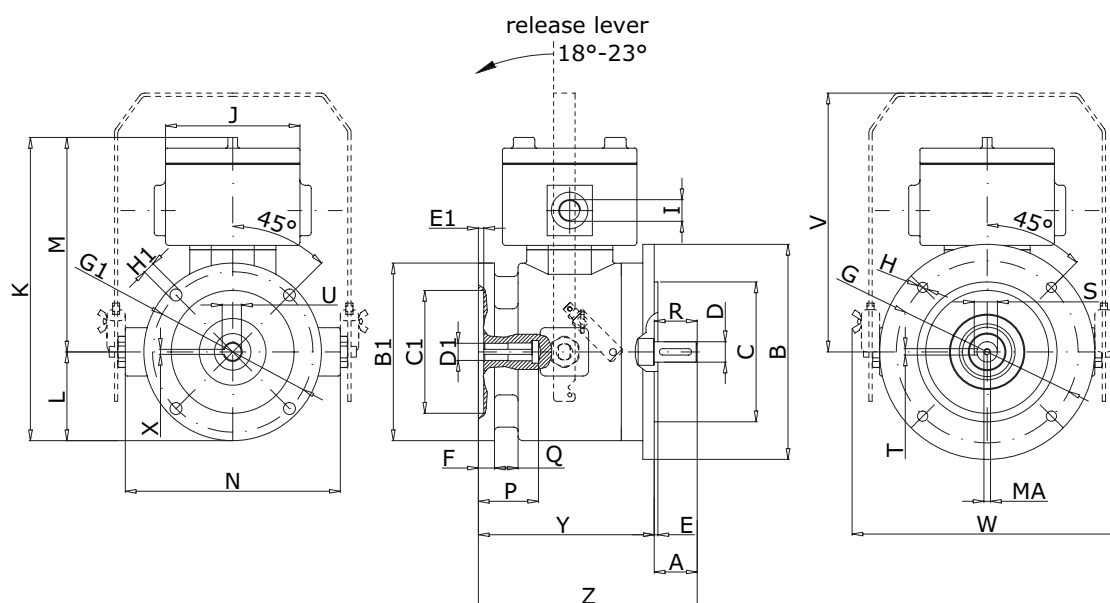
IEC LINE B5 to B14



TYPE B14	63	71	80	90	100-112	132
(Kg)	15	16	32	34	50	78
A (+0/-1)	23	30	40	50	60	80
A1	25	31	41	51	61	81
ØB (+/-1)	90	105	120	140	160	200
ØB1 (+/-1)	140	160	200	200	250	300
ØC (h8)	60	70	80	95	110	130
ØC1 (H8)	95	110	130	130	180	230
ØD	11 j6	14 j6	19 j6	24 j6	28 j6	38 k6
ØD1 (E6)	11	14	19	24	28	38
d	M4X10	M4X10	M6X20	M6X20	M8X20	M10X25
E	2,5	2,5	3	3	3,5	3,5
E1	4	4	4,15	4,15	5	5,5
F	10	10	12	12	14	18
G	169,5	176,5	207	217	236,5	277,5
H	185	185	215	215	240	265
H1	205	205	230	230	255	290
I	125	125	125	125	125	125
L	168	175	236	246	276	322
M	145	145	196	196	216	242
ØN	75	85	100	115	130	165
ØN1	115	130	165	165	215	265
O	245	245	290	290	345	395
ØP	M5	M6	M6	M8	M8	M10
ØP1	M8X16	M8X16	M10X18	M10X18	M12X18	M12X18
Q	1XM20	1XM20	1XM20	1XM20	1XM20	1XM20
X	4	5	6	8	8	10
X1	4	5	6	8	8	10
Y	4	5	6	7	7	8
Z	12,5	16	21,5	27	31	41
Z1 (+0,1/-0)	12,8	16,3	21,8	27,3	31,3	41,4

Overall Dimensions

NEMA LINE C face to C face



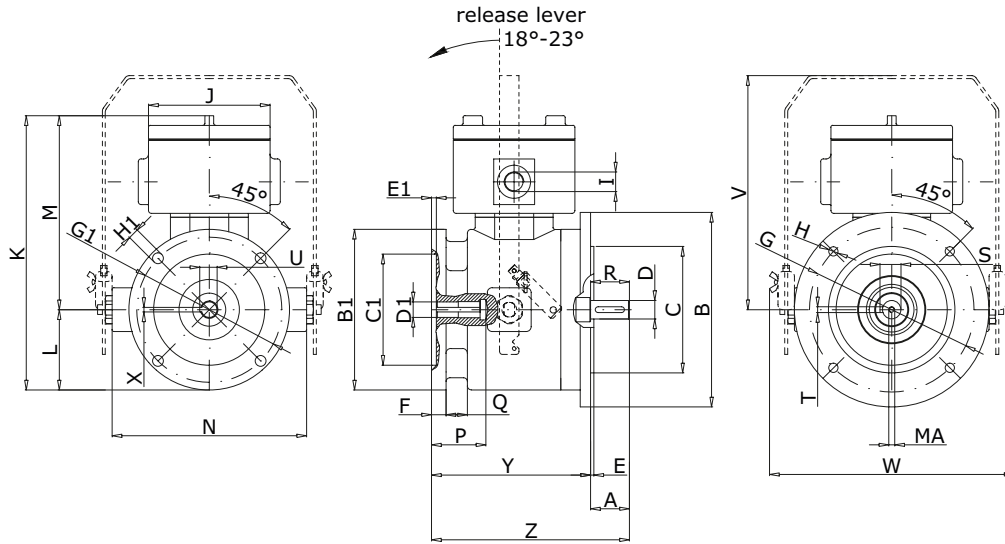
NEMA FRAME	56	143/145	182/184	213/215	254/256	284/286	324/326	364/365	404/405
(Kg)	20,5	20,5	42	42	51	78,8	133	134	135,5
A	2-1/16	2-1/8	2-5/8	3-1/8	3-3/4	4-3/8	5	5-5/8	7
ØB	6-1/2	6-1/2	9	9	10	11-1/4	13-3/8	13-3/8	13-7/8
ØB1	6-1/2	6-1/2	9	9	10	11-1/4	13-3/8	13-3/8	13-7/8
ØC	4-1/2	4-1/2	8-1/2	8-1/2	8-1/2	10-1/2	12-1/2	12-1/2	12-1/2
ØC1	4-1/2	4-1/2	8-1/2	8-1/2	8-1/2	10-1/2	12-1/2	12-1/2	12-1/2
ØD	5/8	7/8	1-1/8	1-3/8	1-5/8	1-7/8	2-1/8	2-3/8	2-7/8
ØD1	5/8	7/8	1-1/8	1-3/8	1-5/8	1-7/8	2-1/8	2-3/8	2-7/8
E	1/8	1/8	1/4	1/4	1/4	1/4	1/4	1/4	1/4
E1	0,196"	0,196"	0,220"	0,220"	0,220"	0,220"	0,220"	0,220"	0,220"
F	0,59"	0,59"	0,71"	0,71"	0,71"	0,79"	0,79"	0,79"	0,79"
ØG	5-7/8	5-7/8	7-1/4	7-1/4	7-1/4	9	11	11	11
ØG1	5-7/8	5-7/8	7-1/4	7-1/4	7-1/4	9	11	11	11
H	3/8"-16NC	3/8"-16NC	1/2"-13NC	1/2"-13NC	1/2"-13NC	1/2"-13NC	5/8"-11NC	5/8"-11NC	Nº 8 X 5/8"-11NC
ØH1	0,43"	0,43"	0,550"	0,550"	0,550"	0,550"	0,669"	0,669"	Nº 8 X 0,669"
I	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT
ØJ	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"
K	11,1"	11,1"	13,48"	13,48"	14,53"	15,785"	17,6775"	17,6775"	17,9275"
L	3,25"	3,25"	4,5"	4,5"	5"	5,625"	6,6875"	6,6875"	6,9375"
M	7,85"	7,85"	8,98"	8,98"	9,53"	10,16"	10,99"	10,99"	10,99"
N	7,87"	7,87"	10,35"	10,35"	11,10"	12,59"	/	/	/
P	2,244"	2,401"	2,972"	3,326"	4,094"	4,625"	5,393"	5,925"	7,16"
Q	0,86"	0,86"	1,57"	1,57"	1,57"	1,73"	1,81"	1,81"	1,81"
R	1-7/8	2-1/4	2-3/4	3-3/8	4	4-5/8	5-1/4	5-7/8	7-1/4
S	33/64	49/64	63/64	1-13/64	1-13/32	1-19/32	1-27/32	2-1/64	2-29/64
T	3/16	3/16	1/4	5/16	3/8	1/2	1/2	5/8	3/4
U	0,714"	0,965"	1,246"	1,527"	1,802"	2,105"	2,356"	2,657"	3,215"
V	9,85"	9,85"	10,98"	10,98"	11,53"	12,16"	/	/	/
W	10,44"	10,44"	12,92"	13,66"	13,66"	15,16"	/	/	/
X	3/16	3/16	1/4	5/16	3/8	1/2	1/2	5/8	3/4
Y	6,023"	6,023"	7,322"	7,322"	7,244"	8,832"	11,844"	11,844"	11,844"
Z	8,086"	8,148"	10,197"	10,697"	11,244"	13,286"	16,844"	17,469"	18,844"



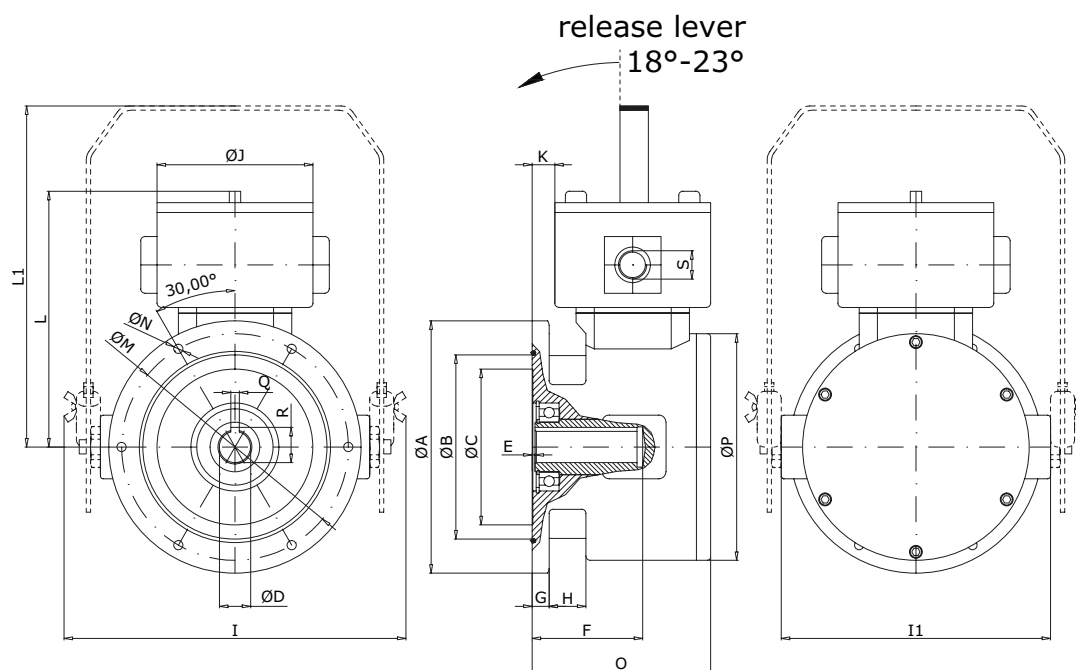
Overall Dimensions

NEMA LINE

C face to IEC B5



NEMA FRAME	OUT IEC 80 B5		OUT IEC 132 B5			OUT IEC 160 B5	OUT IEC 200 B5
	56	143/145	182/184	213/215	254/256	284/286	324/326
(Kg)	20,5	20,5	42	42	51	78,5	133
A (mm)	40	40	80	80	80	110	110
ØB (mm)	200	200	300	300	300	350	400
ØB1 (inch)	6-1/2	6-1/2	9	9	10	11-1/4	13-3/8
ØC (mm)	130	130	230	230	230	250	300
ØC1 (inch)	4-1/2	4-1/2	8-1/2	8-1/2	8-1/2	10-1/2	12-1/2
ØD (mm)	19	19	38	38	38	42	55
ØD1 (inch)	5/8	7/8	1-1/8	1-3/8	1-5/8	1-7/8	2-1/8
E (mm)	3,5	3,5	4	4	4	5	5
E1 (inch)	0,196"	0,196"	0,220"	0,220"	0,220"	0,220"	0,220"
F (inch)	0,59"	0,59"	0,71"	0,71"	0,71"	0,79"	0,79"
ØG (mm)	165	165	265	265	265	300	350
ØG1 (inch)	5-7/8	5-7/8	7-1/4	7-1/4	7-1/4	9	11
H (mm)	M10	M10	14	14	14	18	18
ØH1 (inch)	0,43"	0,43"	0,550"	0,550"	0,550"	0,550"	0,669"
I (inch)	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT
ØJ (inch)	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"	4,92"
K (inch)	11,1"	11,1"	13,48"	13,48"	14,53"	15,785"	17,6775"
L (inch)	3,25"	3,25"	4,5"	4,5"	5"	5,625"	6,6875"
M (inch)	7,85"	7,85"	8,98"	8,98"	9,53"	10,16"	10,99"
N (inch)	7,87"	7,87"	10,35"	10,35"	11,10"	12,59"	/
P (inch)	2,244"	2,401"	2,972"	3,326"	4,094"	4,625"	5,393"
Q (inch)	0,86"	0,86"	1,57"	1,57"	1,57"	1,73"	1,81"
R (mm)	40	40	80	80	80	110	110
S (mm)	21,5	21,5	41	41	41	45	45
T (mm)	6	6	10	10	10	12	16
U (inch)	0,714"	0,965"	1,246"	1,527"	1,802"	2,105"	2,356"
V (inch)	9,85"	9,85"	10,98"	10,98"	11,53"	12,16"	/
W (inch)	10,44"	10,44"	12,92"	13,66"	13,66"	15,16"	/
X (inch)	3/16	3/16	1/4	5/16	3/8	1/2	1/2
Y (mm)	163,5	163,5	197	197	195	231	294,5
Z (mm)	203,5	203,5	277	277	275	341	404,5
MA (mm)	M6X20	M6X20	M10X25	M10X25	M10X25	M10X25	M20X30

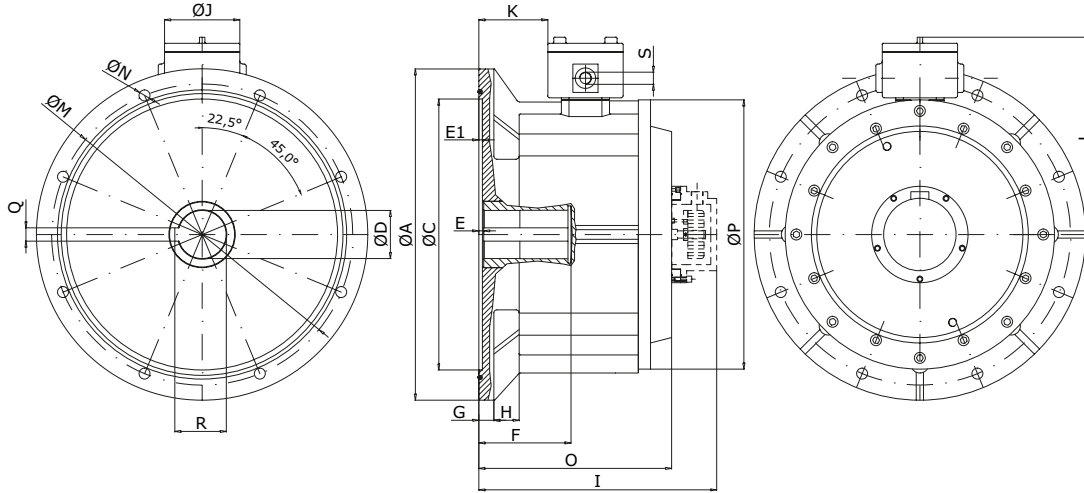


TYPE	25	150	350	750
(Kg)	23	32	64	175
ØA(+/-1)	178	245	330	425
ØB	130	180	258	335
ØC	110	160	240	300
ØD (E6)	14 to 22	22 to 40	40 to 60	60
E	2	1	1	1
F	78	96	106	120
G	12	13	15	18
H	26	36	41	60
I	250	342	390	465
I1	190	282	330	405
ØJ	110	110	110	110
K	16	34	41	63
L	181	226	249	286
L1	241	286	309	346
ØM	160	225	305	395
ØN	n°6x6,5	n°6x8,5	n°6x10,5	n°8x12,5
O	126	149	159	184
ØP	160	250	305	380
Q	6	10	20	22
R	24,8	38,3	74,9	85,4
S	1XM20	1XM20	1XM20	1XM20



Overall Dimensions

COMPACT LINE



TYPE	E14	D-E18	D-E216
A(+/-1)	300	400	550
C	230	300	450
D (E6)	50	65	80
E	6	8	8
E1	5	6	6
F	106	148	153
G	17	21	25
H	44	46	42
I	339	399	400
J	125	125	125
K	72	115	115
L	267	280	328
M	265	350	500
N	14,5	18	18
O	259	319	320
P	300	335	347
Q	14	18	22
R	53,8	69,4	85,4
S	M20	M20	M20

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