



Description: CONTACTOR

Material Code	406050130413T	PU	7
TYPE	---	ZONE	41
Drawing No.	G.C	ITEM	01M708
Drawing .Pos	---	QCTM No.	RDSI406050130413
MANUFACTURE	AEG		
APPLICATION	N series contactors are particularly suitable for heavy duties and for all services where a high degree of reliability is required further more. They allow for a wide selection in the number and type of main poles. Anti-arc devices, auxiliary contacts and control voltages. Contactors N series can be fitted with the following type:V,S,FS.		
MATERIAL	Plate=ASTM B663-B Contact=Cu99.9		
DIMENSION	B=13mm C=95mm D=170mm E=45mm Other dimension refer to Drawing No.481QMM010301&481QMM010302		
Ith (A)	270		
Ich (A)	7000		
MAX.OPERATIONAL POWER	164 kw		
MAX.OPERATIONAL CURRENT	Iem = 250 A		
WORKING PRESSURE	1 bar		
WORKING TEMPERATURE	Max : +50 °C Min: -10 °C		

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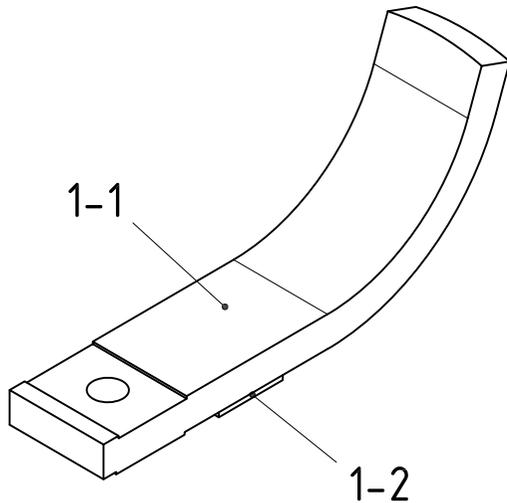
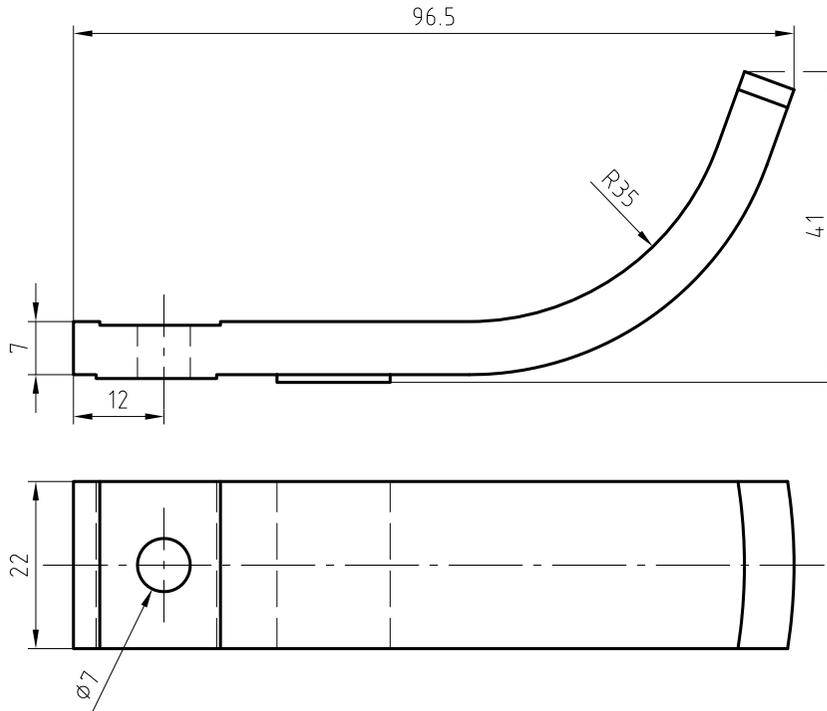
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REV.	DATE	REVISION NOTE	DRAWN	CHECKED	APPROVED
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1-2	1	PLATE	ASTM B663-B	-	-	
1-1	1	CONTACT	Cu99.9	-	-	
1	1	CONTACT ASSY.	-	0.15	0.15	
Pos.	Qty.	Description	Material	Weight(KG)		Remark
				Unit	Total	



DRAWING TITLE:
SET OF MAIN CONTACTS FOR CONTACTOR TYPE:HSS 270

General Tolerances Acc. to ISO 2768-mK
ISO 128 First Angle Projection Method

MATERIAL CODE	PU	ORDER NUMBER	SCALE	SIZE
406050130413T	07	VI: 212	1:1	A4

	SIGNATURE	DATE	IKA DRAWING NO.				SHEET	REV.								
DRAWN	JAVADI	94/06/28	4	8	1	Q	M	M	0	1	0	3	0	1	1/2	1
CHECKED	JAMSHIDYAN		REFERENCE DRAWING NO.													
APPROVED	JAMSHIDYAN															

NOTE:
 1-Break all machined sharp edges by:0.5×45°
 2-Casting tolerances Acc. to ISO 8062 CT11
 3-All surfaces must be covered with Ag with thickness 0.1-0.2mm

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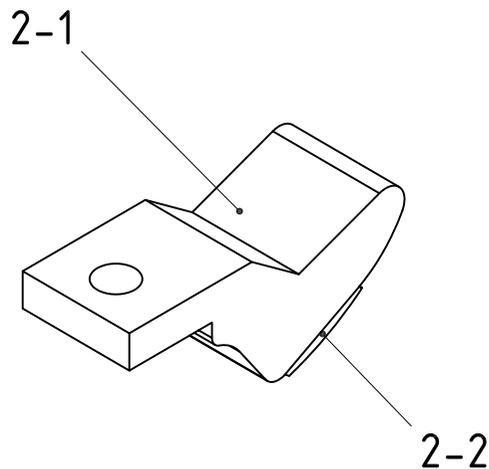
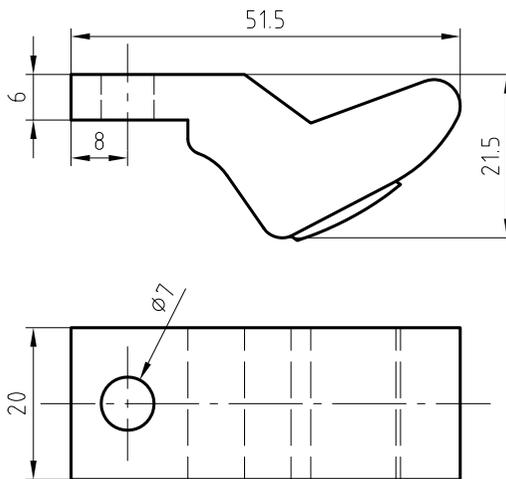
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REV.	DATE	REVISION NOTE	DRAWN	CHECKED	APPROVED
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2-2	1	PLATE	ASTM B663-B	-	-	
2-1	1	CONTACT	Cu99.9	-	-	
2	1	CONTACT ASSY.	-	0.10	0.10	
Pos.	Qty.	Description	Material	Unit	Total	Remark
				Weight(KG)		



DRAWING TITLE:
SET OF MAIN CONTACTS FOR CONTACTOR TYPE:HSS 270

General Tolerances Acc. to ISO 2768-mK
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	SIGNATURE	DATE	IKA DRAWING NO.				SHEET	REV.								
DRAWN	JAVADI	94/06/28	4	8	1	Q	M	M	0	1	0	3	0	2	2/2	1
CHECKED	JAMSHIDYAN		REFERENCE DRAWING NO.													
APPROVED	JAMSHIDYAN															

NOTE:

- 1-Break all machined sharp edges by:0.5×45°
- 2-Casting tolerances Acc. to ISO 8062 CT11
- 3-All surfaces must be covered with Ag with thickness 0.1-0.2mm

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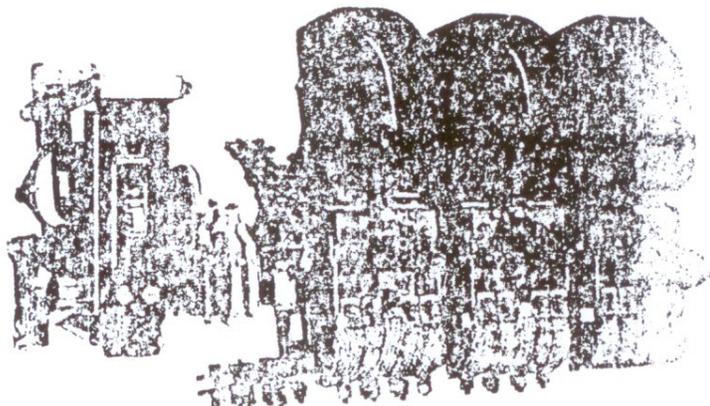
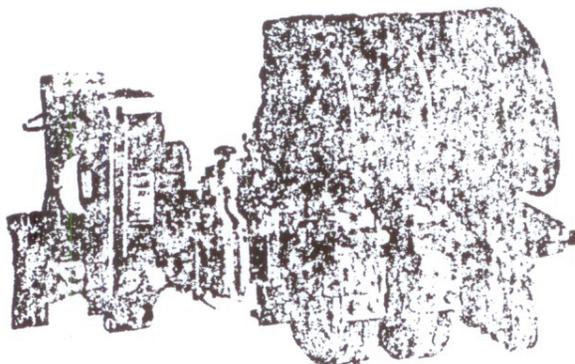
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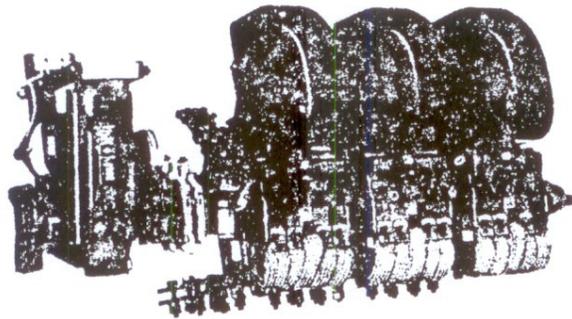


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BAR TYPE CONTACTORS



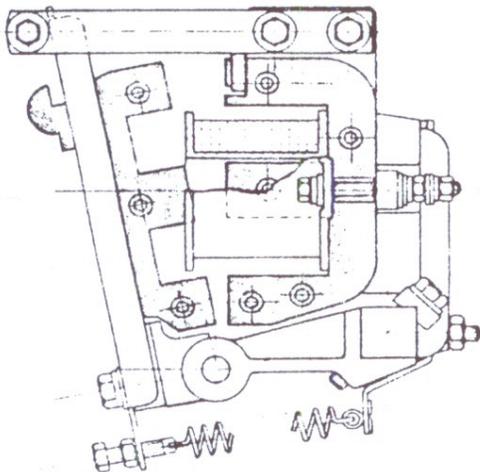
N SERIES CONTACTORS



CONSTRUCTION CHARACTERISTICS

Due to their strong construction and highly efficient performance, the N series Contactors are particularly suitable for heavy duties and for all services where a high degree of reliability is required. Furthermore, due to the bar assembling system, they allow for a wide selection in the number and type of main poles, anti-arc devices, auxiliary contacts and control voltages.

They also allow for very easy inspection and servicing with immediate access to all component parts, without removing the contactor or disconnection of the electrical circuit. All metal parts, including bolts and springs are oxidation proofed and all insulating materials are made of anti-fungus synthetic fibres.



CONTROL CIRCUIT

The laminated magnetic circuit, in the moveable as well as the fixed part, is made with three limbs in which the coil is housed.

The supply can be in AC or DC with economy resistor, and the unique design provides very strong attraction with low coil consumption and very regular movement.

Special care has been applied in the design of the magnetic circuit, to assure that the closing and opening of the contacts is performed in a single continuous movement, without vibration or bounce, even with relatively unstable voltages.

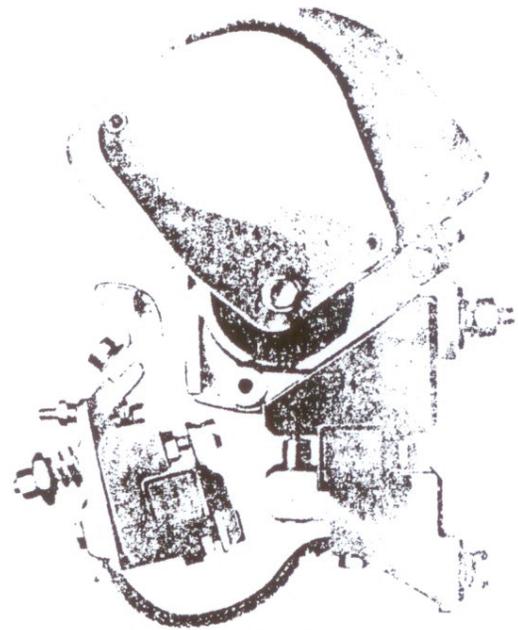
Quiet continuous operation is also maintained even with drops in voltage, whilst still maintaining strong pressure on contacts. Coils are safely constructed of choice materials, insulated according to the latest standards and are normally tropicalised.

POLES

Depending upon their use, type N contactors can be fitted with the following type of poles:

- "V", without magnetic blow-outs and without arc chutes, for switching at no-load, or under resistive load. Suitable for control of starting resistors.
- "S", with magnetic blow-outs and arc chutes, for switching under inductive load up to 10 times the rated current with voltage up to 500 V. Suitable for control of squirrel-cage motors.
- "FS", with special magnetic blow-outs, deflectors and arc chutes with spark arresting sheets for switching under inductive load up to 10/20 times the rated current, and voltages above 500 V. Suitable for control of AC and DC motors and as line circuit breakers.

For all above types, the pressure and the contacts gaps are widely adjustable so realising the possibility of recovering the back-lash produced by the normal wear of contacts.



CONTACTS OF MAIN POLES

The poles of the type N contactors (namely: the anti-arc devices, pressure springs, shape of contacts, the pole's dynamics and arc chutes) have been carefully designed so that the following prerogatives are granted:

- Very low contact bounce;
- Relative brushing of the contact's surfaces with the resulting self-cleaning effect;
- Low probability of arc re-priming, even with current, voltage and inductance particularly high;
- Regular wear of the contacts.

The poles of the type N contactors are normally fitted with very hard copper contacts and the application of sintered contacts is not needed. However, depending upon the application, the following types of contacts are recommended:

- Copper contacts: for every purpose with breaking current up to 6-8 times Ith and voltage up to 600 V.
- Silver contacts: for a low number of operations; low voltage and low breaking current. Suitable where a very low and constant contact resistance is required.
- Sintered contacts in silver-tungsten: for an extremely high number of operations or for voltages above 600 V and with high breaking current, where a low contact resistance is not needed.

AUXILIARY CONTACTS

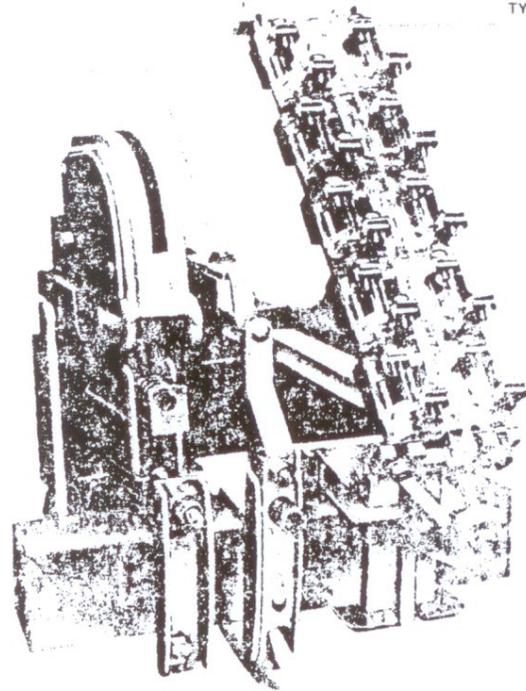
Like the main contacts, the auxiliary contacts can be easily varied to meet most requirements. Three types of auxiliary contacts are available:

- **Type P** - single contact instantaneous, mounted on the axles, with adjustable contact gap and pressure and with contact elements in silver; N/O (normally open), N/C (normally closed) and C/O (changeover) executions are available.
- **Type B** - set of 10 instantaneous contacts (5 N/O + 5 N/C), double interruption moulded type, mounted together on a single frame and simultaneously controlled. Each set type B takes the same space as two type P contacts.
- **Type L** - same as type B but with 6 aux. contacts. Each of them convertible in N/O as well as N/C type and with possibility of early or late operation.
- **Type T** - timing device with delay on closing as well as opening. The C/O contact is of the quick action type with a rating of 5A and with pneumatic or clockwork adjustable control. Each device type T is fitted with up to two C/O contacts and takes the space of two contacts type P.

Moreover, all the contactors of the sizes 270A and larger can be fitted with auxiliary poles rating 46A or 60A with or without magnetic blow-outs and N/O or N/C type.

TYPE P

60 A



Ratings of the auxiliary contacts

(Table n. 1)

Contactor Type ~ S S	Aux. cont. Type	Rated curr. [A]	Breaking capacity in AC Cos φ = 0,5				Breaking capacity in DC L/R = 30ms		
			110V	220V	380V	500V	48V	110V	220V
N46 +N60	P	5	5	3	3	—	2	1	0,5
	B/L	—	—	—	—	—	—	—	—
N170 +N190	P	10	20	15	10	2	5	3	2
	B/L	10	10	8	3	1,5	3	2	1
N270 +N650	P	10	20	15	15	3	7	5	2
	B/L	10	10	8	3	1,5	3	2	1
N800 +N3000	P	15	20	20	15	5	8	5	2
	B/L	10	10	3	3	1,5	3	2	1
N46 +N3000	T	5	5	3	3	—	2	1	0,5

CORRESPONDANCE TO IEC STANDARDS

The N series contactors are constructed and designed according to the Standards CEI 252 and to the corresponding RECOMMENDATION of the INTERNATIONAL ELECTRO-TECHNICAL COMMISSION - IEC 158-1.

Moreover they have the official approval of the ITALIAN SHIPPING REGISTER (R.I.Na.) and meet the requirements of the LLOYD'S REGISTER OF SHIPPING, the AMERICAN BUREAU OF SHIPPING and the BUREAU VERITAS (French shipping Register).

They also meet the requirements of other international Standards such as ASE (Switzerland), VDE (Germany), CSA (Canada), NEMA (USA) and BSI (Gt. Britain).

MECHANICAL INTERLOCK

All the contactors of the N series are mechanically interlockable two by two, between types of the same size and number of poles as well as between types of different size and number of poles. The mechanical interlock, normally provided for contactors mounted one above the other, works directly on the electromagnets for the contactors of the type, N46/N190. For contactors of the bigger sizes, the mechanical interlock works by means of a rod connected to the movable axles. This type of mechanical interlock is adjustable for the clearance as well as the distance of the contacts. On request it is possible to interlock contactors mounted side by side. Moreover, interlocks among more than two contactors can be investigated on request.

All N series contactors can be supplied in a withdrawable execution. This execution allows the three positions «Service», «Test» and «Out of Service», with mechanical and optical indication.

The connection of the main poles is made by spring clamps safely designed, that take into account the thermal effects as well as the electrodynamic stresses imposed.

The control circuit and the auxiliary contacts are connected through brush contacts that move together with the main poles.

If necessary, additional contacts can be connected to plug-in contacts, so that when the contactor is in the «out of service» position, all servicing or the substitution of the complete contactor, can be made without disconnecting the main and auxiliary wiring.

ELECTRICAL CHARACTERISTICS

Standard CEI 252 and the Recommendation IEC 158-1. The A.C. breaking capacity given is the R.M.S. value of the symmetrical component of the current and the making capacity given is the peak value of the total asymmetrical current.

(Table n. 2)

General Ratings

The table below gives the general performances and ratings of the contactors, with reference to the requirements of

Contactor Type	I _{th} [A]	Breaking capacity						Making capacity I _{ch} [A]	Consumption of coils				Operation time (m sec.)		Mech. endurance in million operations
		A.C. cos φ = 0.5 I _{ca} [A] RMS value			D.C. L/R = 15 ms I _{cc} [A]				A.C. [VA]		D.C. [W]		Closing	Opening	
		440 V	750 V	1000 V	220 V	440 V	660 V		Pick-up	Holding	Pick-up	Holding			
N 46	46	900	400	350	1000	500	400	1500	220	38	100	10	28	10	15
N 60	60	1200	500	400	1200	650	500	2000	220	38	100	10	28	10	15
N 85	85	1600	700	600	1700	1000	800	2750	350	50	110	15	26	13	15
N 125	125	2100	1000	900	2500	1500	1000	3500	450	60	130	15	23	13	15
N 190	190	2500	1600	1300	3000	2000	1400	4200	450	60	130	15	23	12	15
N 270	270	4300	2500	2000	4500	3000	2500	7000	1300	110	180	12	30	18	15
N 350	350	4800	3000	2500	5000	3500	3000	8500	1300	110	180	12	30	18	15
N 550	550	6000	4500	3900	7000	5000	4000	10000	1500	110	300	20	65	15	15
N 650	650	8000	5500	4500	9000	6000	5000	12000	—	—	300	20	65	15	10
N 800	800	9500	6500	6000	10000	7000	6000	16000	—	—	650	30	80	16	10
N 1000	1000	12500	8000	7000	12000	9000	7500	21000	—	—	650	30	80	16	10
N 1250	1250	15000	10000	9000	16000	12000	10000	30000	—	—	1000	50	90	10	10
N 1600	1600	20000	15000	10000	25000	15000	12000	35000	—	—	1000	50	95	11	10
N 2000	2000	20000	15000	10000	30000	20000	15000	35000	—	—	1500	80	90	10	10
N 3000	3000	30000	15000	10000	35000	25000	19000	50000	—	—	1500	80	90	10	10
N 4000	4000	35000	20000	10000	45000	30000	20000	50000	—	—	2500	100	90	10	10
N 6000	6000	40000	20000	10000	40000	35000	20000	80000	—	—	2500	100	90	10	10

OVERLOAD CAPACITY OF CONTACTORS

The contactors can withstand for short time durations, current much higher than the rated; in this instance two different phenomena must be considered; the thermal and the electrodynamic.

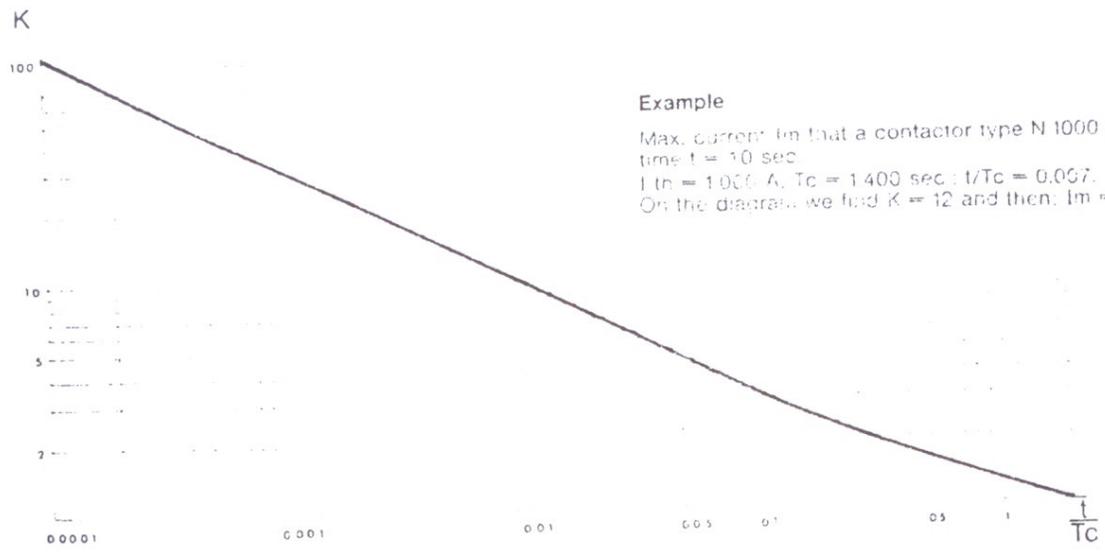
Dynamically the contactors can withstand current peaks to a limit where repulsion of the contacts may occur. The current which causes the repulsion of the contacts could be higher than the making capacity of the contactor as it is considered that this phenomenon arises when the contactor is already closed and operating.

Therefore, the electrodynamic stress in this case is not superimposed to the mechanical bounce effect that can arise during the closing operation which is the principal cause of the contacts melting.

Of course, the intensity of this dynamic current must also be thermally tolerable for the contactor and therefore, in the table below, the values "I_d" of the maximum acceptable dynamic currents are given providing that their duration is no more than 100 ms.

From the thermal point of view the intensity of the tolerable overload is inversely proportional to the duration and depends essentially upon the time constant T_c of the winding-up curve of the contactor when its rated current is applied. The diagram below gives the ratio I/T_c (where I is the duration of the overload) and the factor K which, when multiplied to the nominal current of the contactor, determines the intensity of the tolerable overload.

Contactor Type	N	46	60	85	125	190	270	350	550	650	800	1000	1250	1600	2000	3000	4000	6000
I _d (Peak val.)	KA	2,5	2,5	3,5	4,5	5,5	9	11	13	15	20	29	40	40	40	55	—	—
T _c	sec	1500	1500	2150	1200	1500	2150	1300	2000	1500	1500	1400	1500	1600	1700	2000	—	—



Example

Max. current I_m that a contactor type N 1000 can withstand for a time t = 10 sec.
 I_{th} = 1000 A, T_c = 1400 sec; I/T_c = 0,007.
 On the diagram, we find K = 12 and then: I_m = K I_{th} = 12 x 1000 = 12000 A.

RATINGS FOR CONTROL OF MOTORS

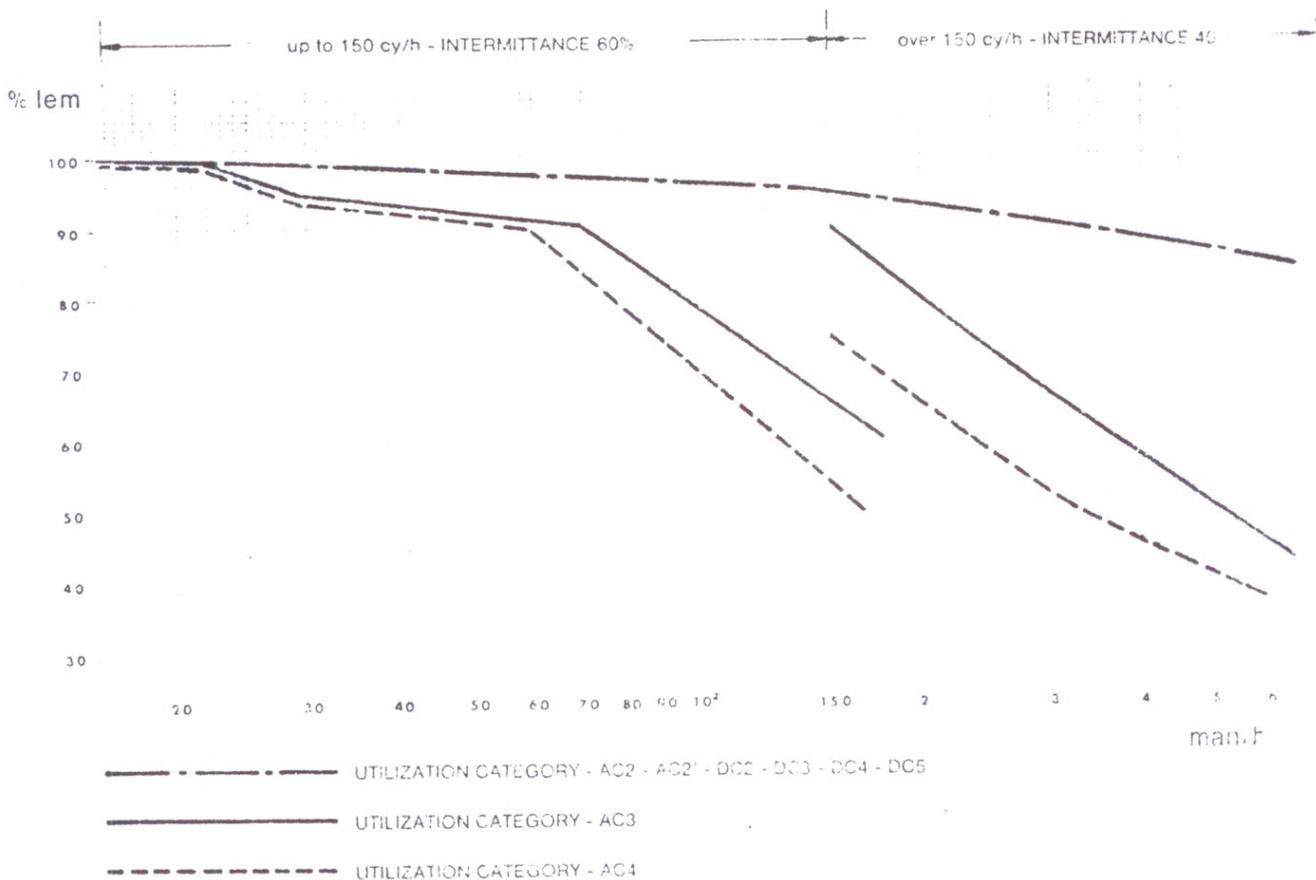
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(Table n. 4)

TYPE <i>HSS</i>	A.C. motors						D.C. motors					
	Utilization category AC2 & AC3			Utilization category AC4			Max. operational curr I_{em} [A]					
	Maximum operational current I_{em} [A]	Max. operational power [kw]			Maximum operational current I_{em} [A]	Max. operational power [kw]			CAT. DC2-DC3 220V-1 Pole 600V-2 Poles		CAT. DC4-DC5 220V-1 Pole 600V-2 Poles	
220 V		380 V	500 V	220 V		380 V	500 V	220V-1 Pole	600V-2 Poles	220V-1 Pole	600V-2 Poles	
N 48	43	12	21	27	40	12	20	24	43	40		
N 60	56	16	28	36	50	15	25	30	56	50		
N 85	80	23	40	52	75	22	38	45	80	75		
N 125	110	32	55	72	95	28	48	57	110	95		
N 190	180	52	90	118	170	50	85	100	180	170		
N 270	250	72	125	164	210	61	105	124	250	210		
N 350	320	92	160	210	270	79	136	160	320	270		
N 550	500	145	250	328	450	130	227	270	500	450		
N 650	600	173	300	394	550	160	278	330	600	550		
N 800	750	220	380	500	650	190	330	390	750	650		
N 1000	900	260	450	590	800	235	405	480	900	800		
N 1250	1100	320	550	720	1000	300	510	600	1100	1000		
N 1600	1400	400	700	920	1250	365	630	746	1400	1250		
N 2000	1800	520	900	1180	1600	470	810	960	1800	1600		
N 3000	2500	720	1250	1640	2350	660	1140	1350	2500	2350		

The above ratings are the maximum permissible for normal duty with reference to the making and breaking capacity stated by the I.E.C. standard N. 158-1. The maximum operational current I_{em} is referred to a class

of intermittent duty up to 20 operating cycles per hour. For intermittent duty higher than 20 cy/h, the curves below give the corresponding derating.



ELECTRICAL ENDURANCE OF MAIN CONTACTS

The maximum number of operations the main contacts can perform before their replacement is necessary, in practise is not affected by the class of intermittent duty but, substantially depends upon the value of the current that the contacts have to break and consequently it is strictly in relation with the utilization category and the percentage of inching operations. With reference to the maximum operational current I_{em} of the contactors (see table No. 4), it is possible to determine the medium endurance of contacts as shown in the table n. 5.

For the contactors type N 1600 to N 3000 the duration concerns only the arcing contacts as on these units the main contacts are separated and not involved in the breaking of the current.

Therefore, in this case the endurance of the main contacts is practically unlimited.

As already mentioned the endurance shown in the table is related to the maximum operational current I_{em} ; if the contactor is used at lower ratings, the coefficient K must apply.

Electrical endurance in million-operation when $I_e = I_{em}$ (Table n. 5)

Utilization category	Type of contacts	% of inching operation							
		0%	5%	10%	20%	40%	60%	80%	100%
AC1 - DC1	Copper	2,5							
	Sintered	3							
AC2 - AC3	Copper	2							
DC2 - DC4	Sintered	2,5							
	Copper	2	1,8	1,7	1,5	1,2	1	0,9	0,8
DC3 - DC5	Sintered	2,5	2,2	2,1	1,8	1,5	1,2	1,1	1
	Copper	2	1,5	1,2	0,9	0,6	0,5	0,4	0,3
AC4	Sintered	2,5	1,8	1,5	1,1	0,8	0,6	0,5	0,4
I_{em}/I_e		1	1,5	2	2,5	3	4	5	
K		1	1,7	2,5	3,5	4,5	7	10	

BACK-UP PROTECTION BY H.R.C. FUSES

For applications in which fault currents larger than the contactor's breaking capacity, or with peak values higher than those which cause the repulsion of the contacts are experienced, protection is entrusted to H.R.C. fuses that do not operate with currents within a limit which the contactor can withstand but that, on the contrary, with higher currents grant

the full protection or a limited damage of the contactor itself. The table below shows for the different types of contactor the corresponding size of fuses recommended to obtain respectively the full protection or a damage limited to the contacts' welding.

Contactor Type N	46	60	85	125	190	270	350	550	650	800	1000	1250
Max. Fuse Rating - [Amps.]	A 50	63	100	125	160	225	250	355	425	500	600	750
	B 80	100	125	160	200	300	355	500	630	800	1000	1250

A = Full protection B = Possibility of contacts welding

OVERALL DIMENSIONS AND WEIGHT

The overall dimensions are given below and refer to standard contactors up to 3000 A. and 660 V.

For higher ratings in current, as well as in voltage or special executions, please ask our Technical Department.

The length of the contactors, i.e. the distance between fastening bolts, depends upon the composition of the unit as follows:

- Number of poles: 1 - 2 - 3 or 4 poles.
- Control circuit in A.C. or D.C.: the contactors of size over the N 350 are always fitted with D.C. coils; if A.C. control is required, a selfcontained rectifier unit is available.

- Number and type of auxiliary contacts: as already described three types of auxiliary contacts are available:
 - Type P: single contact adjustable N/C, N/O or C/O.
 - Type B: set of 5 N/O + 5 N/C contact.
 - Type T: Timed device with two delayed contacts.

The minimum clearance B_m between two contactors mounted one above the other corresponds to the clearance necessary for mechanical inter-locking. The distance B_m is the minimum clearance between the contactor and an earthen frame. (See drawings at page 8 and 9 for details)

WEIGHT (Kg)

Type	N 46	N 60	N 85	N 125	N 190	N 270	N 350	N 550	N 650	N 800	N 1000	N 1250	N 1600	N 2000	N 3000
1 pole	1,3	1,5	2,7	2,9	4,2	10,5	11,4	15,5	16,5	22	23	24	26	31	41
2 poles	1,7	2	4	4,4	6,1	14,5	15,6	21,5	23	34	36	38	46	53	70
3 poles	2,3	2,5	5,1	5,8	8,8	19,0	19,5	27	29	50	53	56	65	74	95
4 poles	2,7	3	6	7	11	22,5	24	33	35	63	68	72	85	95	125

Distance "A" between the fastening bolts (mm.)

3360/100

(Table n. 8)

Contactor Type	Auxiliary contacts arrangement	1 POLE CONTROL		2 POLES CONTROL		3 POLES CONTROL		4 POLES CONTROL		
		A.C.	D.C.	A.C.	D.C.	A.C.	D.C.	A.C.	D.C.	
		H35								
N 46	1P / 2P	155	185	205	205	230	260	290	290	
	3P / 1T	185	185	205	230	260	260	290	310	
	4P / 1P+1T	185	205	230	260	260	290	310	310	
	N 60	5P / 2P+1T	205	230	260	260	290	290	310	-
		6P / 3P+1T / 2T	230	230	260	290	290	310	-	-
	7P / 4P+1T / 2T	230	260	290	290	310	-	-	-	
N 85	0	200	200	250	250	300	300	350	350	
	1P	200	250	250	300	300	350	350	400	
	2P / 1T / 1B	250	250	300	300	350	350	400	400	
	N 125	3P / 1P+1T / 1P+1B	250	250	300	300	350	350	400	400
		4P / 2P+1T / 2P+1B / 1B+1T	250	300	300	350	350	400	400	450
	5P / 3P+1T / 1P+2T / 3P+1B / 3P+1T+1B	300	300	350	350	400	400	450	450	
	6P / 4P+1T / 2P+2T / 3T / 4P+1B / 1P+1T+1B	300	350	350	400	400	450	450	-	
N 190	0	200	200	250	300	300	350	400	400	
	1P	200	250	300	300	350	350	400	400	
	2P / 1T / 1B	250	250	300	300	350	400	400	450	
	3P / 1P+1T / 1P+1B	250	300	300	350	400	400	450	450	
	4P / 2P+1T / 2P+1B / 1B+1T	300	300	350	350	400	400	450	450	
	5P / 3P+1T / 1P+2T / 3P+1B / 3P+1T+1B	300	300	350	350	400	450	450	-	
	6P / 4P+1T / 2P+2T / 3T / 4P+1B / 1P+1T+1B	300	350	350	400	450	450	-	-	
N 270	0	250	250	300	300	350	400	450	450	
	1P	250	250	300	350	400	400	450	500	
	2P / 1B / 1T	250	300	350	350	400	450	500	500	
	N 350	3P / 1P+1B / 1P+1T	300	300	350	400	450	450	500	500
		4P / 2B+2T / 2P+1B / 2P+1T / 1B+1T	300	350	400	400	450	450	500	500
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	350	350	400	400	450	500	500	550	
N 550	0	250	250	350	350	450	450	550	550	
	1P	250	300	350	400	450	450	500	500	
	2P / 1B / 1T	300	300	400	400	450	500	500	600	
N 650	3P / 1P+1B / 1P+1T	300	350	400	400	500	500	600	600	
	4P / 2B / 2T / 2P+1B / 2P+1T / 1B+1T	350	350	400	450	500	550	600	600	
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	350	350	450	450	500	550	-	-	
N 800	0	300		400		500		600		
	1P	300		400		500		600		
	2P / 1B / 1T	350		450		550		650		
	N 1000	3P / 1P+1B / 1P+1T	350		450		550		650	
4P / 2B / 2T / 2P+1B / 2P+1T / 1B+1T		400		500		600		700		
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	400		500		600		700		
N 1250	0	300		400		550		600		
	1P	300		450		550		600		
	2P / 1B / 1T	350		450		550		600		
	3P / 1P+1B / 1P+1T	350		500		600		700		
	4P / 2B / 2T / 2P+1B / 2P+1T / 1B+1T	400		500		600		700		
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	400		500		650		700		
N 1600	0	300		450		600		800		
	1P	350		450		600		800		
	2P / 1B / 1T	350		500		600		800		
N 2000	3P / 1P+1B / 1P+1T	400		500		650		800		
	4P / 2B / 2T / 2P+1B / 2P+1T / 1B+1T	400		550		650		800		
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	400		550		700		-		
N 3000	0	350		550		800		1000		
	1P	400		550		800		1000		
	2P / 1B / 1T	400		600		800		1000		
	3P / 1P+1B / 1P+1T	450		600		800		1000		
	4P / 2B / 2T / 2P+1B / 2P+1T / 1B+1T	450		600		-		1000		
	5P / 1P+2B / 1P+2T / 3P+1B / 3P+1T / 1P+1B+1T	450		650		-		1000		

For mechanically latched TAN execution (see catalogue B), notice that distance "A" must be that corresponding to contactors with D.C. control plus one aux. contact besides those you need.

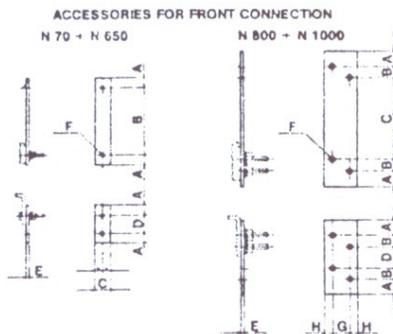
Overall dimensions of contactors (mm.)

Type H.S.S.	Drawing N.	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U	V	W	Z	K	Bm*	Is*	Bo*
N 46	1	10	55	70	15	90	6,5	20	85	37	38	28	28	28	14	-	-	-	-	-	-	-	-	200	130	-
N 60		10	55	80	15	95	6,5	20	90	37	38	28	28	28	14	-	-	-	-	-	-	-	-	200	130	-
N 85	2	12,5	60	105	35	120	8	60	130	55	50	46	40	33	18	-	-	-	18	-	M6	-	-	220	155	-
N 125		12,5	60	115	35	120	8	60	130	55	50	46	40	44	18	-	-	-	18	-	M6	-	-	220	155	-
N 190		12,5	70	135	40	130	8	60	150	60	60	48	42	49	18	-	-	-	20	-	M8	-	-	220	185	-
N 270		13	95	170	45	170	8	80	195	60	70	57	50	55	18	-	-	-	25	-	M8	-	-	300	240	110
N 350		13	95	180	45	170	8	80	200	60	70	57	50	65	18	-	-	-	25	-	M8	-	-	300	245	110
N 550	3	13	105	195	70	190	8	80	230	70	90	70	52	70	18	-	-	-	40	-	M12	-	-	360	265	110
N 650		13	120	200	70	190	8	80	230	70	90	70	52	75	18	-	-	-	40	-	M12	-	-	360	270	110
N 800	4	35	120	245	75	225	8	100	300	80	100	70	47	85	18	25	18	117	50	-	M10	-	-	440	345	165
N 1000		35	120	245	75	225	8	100	300	80	100	70	47	85	18	25	18	117	50	-	M10	-	-	440	345	165
N 1250	5	35	135	245	120	225	8	100	300	80	110	25	30	100	18	15	30	105	15	10	M8	-	-	440	345	165
N 1600	6	35	135	280	145	275	8	100	330	80	120	92	50	82	18	15	40	125	15	8	M10	10	50	500	390	165
N 2000		35	135	280	145	275	8	100	330	85	130	92	50	92	18	15	40	125	20	8	M10	10	50	500	360	165
N 3000	6	35	135	280	195	275	8	100	330	105	170	92	50	133	18	15	40	125	20	8	M10	10	50	500	390	165

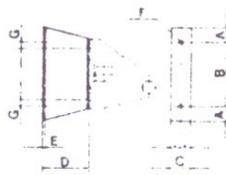
Bm = Distance needed for vertical mechanical interlock.
Is = Minimum clearance between contactor and earthed frame.

Overall dimensions of accessories (mm.)

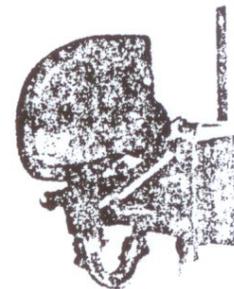
Type H.S.S.	Drawing N.	Accessories for front connection								Accessories for plate mounting						
		A	B	C	D	E	F	G	H	A	B	C	D	E	F	G
N 46/60		10	60	12	30	3	8,25	-	-	-	-	-	45	-	-	-
N 85		10	100	18	40	4	6,25	-	-	12,5	100	30	65	3	8	20
N 125		10	100	18	40	4	6,25	-	-	12,5	100	30	65	3	8	20
N 190		10	100	20	40	4	8,25	-	-	12,5	100	30	80	3	8	20
N 270	0	15	140	25	50	5	8,25	-	-	15	120	30	80	3	8	20
N 350		15	140	25	50	5	8,25	-	-	15	120	30	80	3	8	20
N 550		20	170	40	65	6	12,5	-	-	15	120	30	100	3	8	20
N 650		20	170	40	65	6	12,5	-	-	15	120	30	100	3	8	20
N 800		15	18	180	70	8	10,5	25	12,5	20	140	30	110	4	10	20
N 1000		15	18	180	70	8	10,5	25	12,5	20	140	30	110	4	10	20



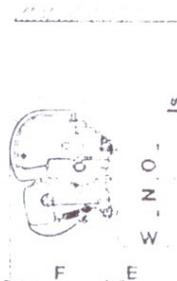
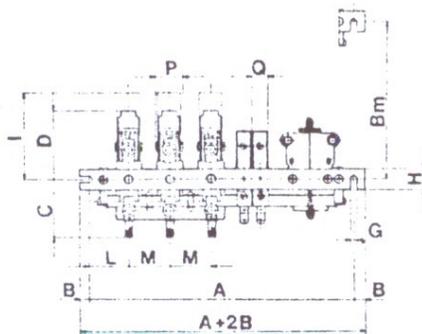
ACCESSORIES FOR PLATE MOUNTING FOR N 70 - N 1000



DRAWING 0 - ACCESSORIES



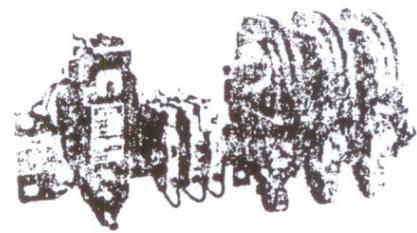
CONTACTORS TYPE N 46 - N 60



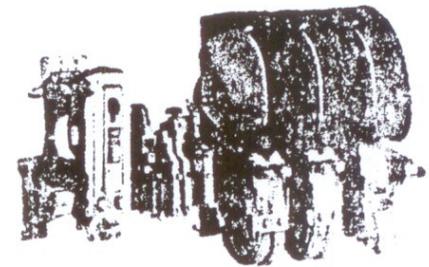
DRAWING 1 - BACK VIEW



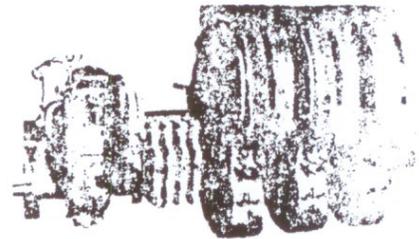
HSS CONTACTORS TYPE
N 85 - N 125 - N 190 - N 270 - N 350
N 550 - N 650



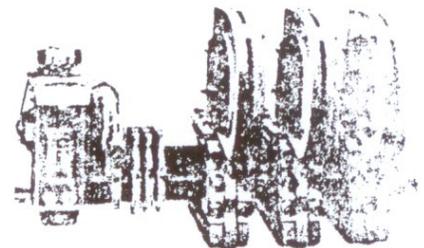
CONTACTORS TYPE N 800 - N 1000
HSS



CONTACTORS TYPE N 1250



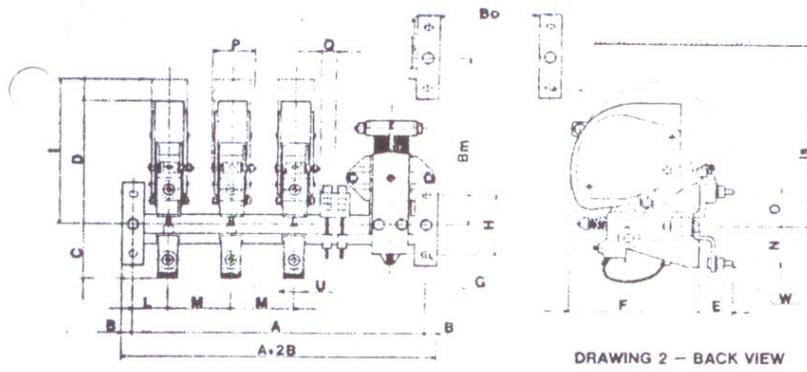
CONTACTORS TYPE N 1600 - N 2000
HSS



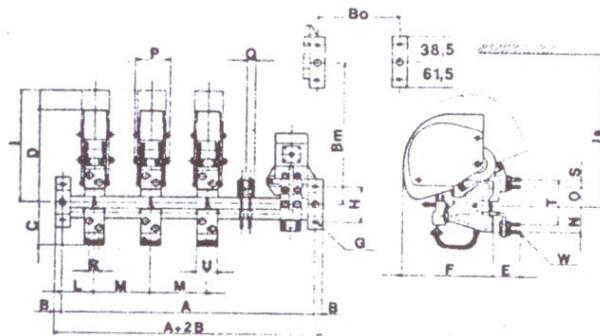
CONTACTORS TYPE N 3000



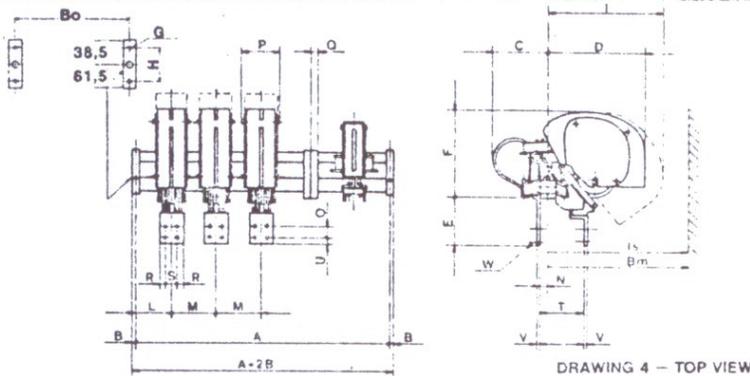
Four-pole execution is made with magnet at center. Between two poles there is a 20 mm dimension, which is unchanged and the clearance between two poles is 10 mm. In six-pole for each unit of contactor, distance between center of poles on magnet's opposite sides is M1 = 450 mm.



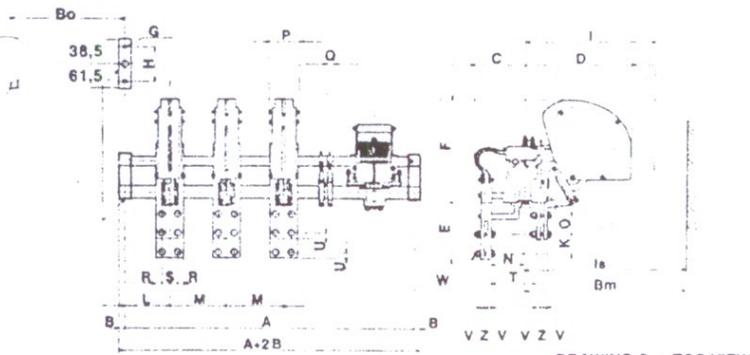
DRAWING 2 - BACK VIEW



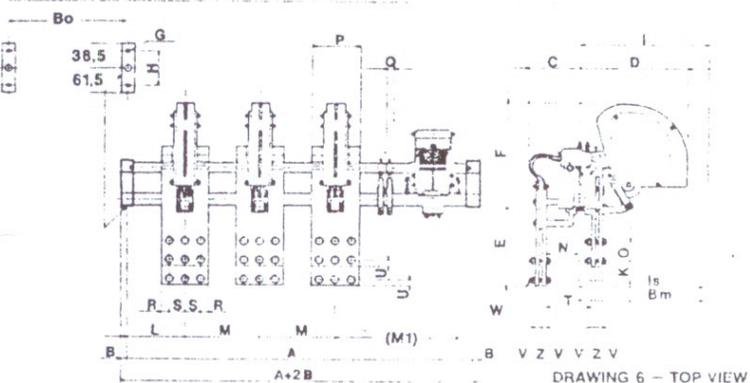
DRAWING 3 - BACK VIEW



DRAWING 4 - TOP VIEW



DRAWING 5 - TOP VIEW



DRAWING 6 - TOP VIEW