

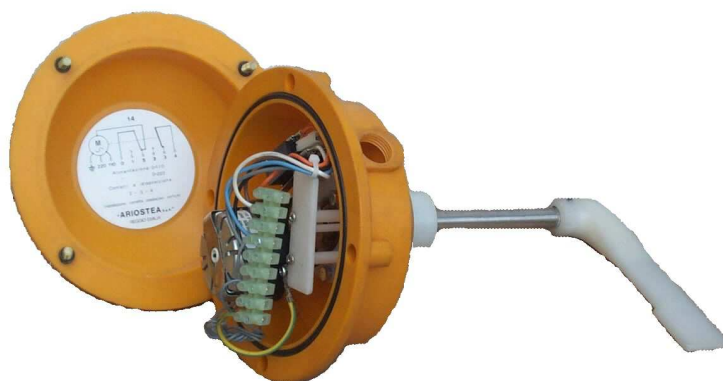


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Certified management system DIN EN ISO 9001:2008 TÜV Nord Cert

# **INDICATORE DI LIVELLO mod. "IL"** **LEVEL GAUGE mod. "IL"**

## **Istruzioni di uso e manutenzione** **Use and Maintenance Manual**



**ISTRUZIONI ORIGINALI**  
**ORIGINAL INSTRUCTIONS TRANSLATED**



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# 1 – INTRODUZIONE - INTRODUCTION

## 1.1 DESTINAZIONE D'USO - INTENDED USE

L'indicatore di livello "IL" è destinato al controllo della presenza o la mancanza di un prodotto solido in polvere o in granulo all'interno di un recipiente.

In particolare, l'apparecchio serve per segnalare se il prodotto all'interno del recipient (silo, tramoggia, ecc.) raggiunge l'altezza del punto d'installazione dell'indicatore stesso.

Ogni altro uso o modifica verrà considerato "non conforme" da Ariostea SpA e tale condizione farà decadere ogni garanzia e responsabilità in corso fra il costruttore e l'utilizzatore.

L'indicatore di livello "IL" NON è stato progettato per operare in condizioni o con materiali pericolosi come:

- polveri di tipo combustibile come materie plastiche PE, PP, PS, ecc),
- polveri organiche come zucchero, farine, ecc.
- materiali tossici,
- materiali esplosivi,
- materiali nocivi e/o simili.

**Nel dubbio sulla installazione contattare Ariostea SpA per chiarimenti.**

*The "IL" level gauge is designed to check for solid powder or granular products in a container.*

*In particular, the device is used to signal whether the product in the container (silo, hopper, etc.) reaches the height of the point of installation of the gauge.*

*Any other use or modification will be considered by Ariostea SpA as "not conforming" and this condition will forfeit all warranty and responsibility between the manufacturer and the user.*

*The IIL level gauge has NOT been designed to operate under conditions or with materials that are hazardous, such as:*

- *combustible type powders such as plastics (PE, PP, PS, etc.),*
- *organic powders such as sugar, flour, etc."*
- *toxic materials,*
- *explosive materials,*
- *harmful and/or similar materials.*

*If there is any doubt about installation, contact Ariostea SpA for explanations.*

## 1.2 AVVERTENZE GENERALI - GENERAL INFORMATION

- PRIMA DI RENDERE OPERATIVO IL DISPOSITIVO LEGGERE ATTENTAMENTE LE ISTRUZIONI TECNICHE CONTENUTE NELLA PRESENTE PUBBLICAZIONE E SEGUIRNE ATTENTAMENTE LE INDICAZIONI RIPORTATE.
- CONSERVARE IL PRESENTE MANUALE E TUTTE LE PUBBLICAZIONI ALLEGATE IN UN LUOGO ACCESSIBILE E NOTO A TUTTI GLI UTILIZZATORI (OPERATORI ADDETTI ALLA INSTALLAZIONE ED ALLA MANUTENZIONE).
- NEL CASO SI RISCOVRISSERO DISCORDANZE TRA QUANTO DESCRITTO NEL PRESENTE MANUALE ED IL DISPOSITIVO IN VOSTRO POSSESSO, CHIEDERE CHIARIMENTI AL FABBRICANTE.
- LA DITTA COSTRUTTRICE DECLINA OGNI RESPONSABILITÀ PER LA MANCATA OSSERVANZA DELLE NORME DI SICUREZZA E DI PREVENZIONE INFORTUNI. DECLINA INOLTRE OGNI RESPONSABILITÀ PER DANNI CAUSATI DA UN USO IMPROPRIO DEL DISPOSITIVO O DA MODIFICHE ESEGUITE.
- TUTTE LE INFORMAZIONI TECNICHE CONTENUTE NEL PRESENTE MANUALE SONO DI ESCLUSIVA PROPRIETÀ DELLA DITTA ARIOSTEA S.P.A. E DEVONO ESSERE CONSIDERATE DI NATURA RISERVATA.



PERTANTO SI FA DIVIETO LA SUA RIPRODUZIONE E DIVULGAZIONE ANCHE PARZIALE SENZA AUTORIZZAZIONE SCRITTA DELLA DITTA COSTRUTTRICE.

- INOLTRE SI VIETA L'UTILIZZO DEL PRESENTE MANUALE PER SCOPI DIVERSI DA QUELLI STRETTAMENTE LEGATI ALLA INSTALLAZIONE, ALL'UTILIZZO ED ALLA MANUTENZIONE DEL DISPOSITIVO OGGETTO DEL PRESENTE MANUALE.

- BEFORE MAKING THE DEVICE OPERATIONAL, CAREFULLY READ THE TECHNICAL INSTRUCTIONS GIVEN IN THIS PUBLICATION AND FOLLOW THESE DIRECTIONS CAREFULLY.
- KEEP THIS MANUAL AND ALL THE ATTACHED PUBLICATIONS IN AN ACCESSIBLE PLACE KNOWN TO ALL USERS (OPERATORS ASSIGNED TO INSTALLATION AND MAINTENANCE).
- IF YOU FIND ANY DIFFERENCES BETWEEN THE CONTENTS OF THIS MANUAL AND THE DEVICE IN YOUR POSSESSION, ASK THE MANUFACTURER FOR CLARIFICATION.
- THE MANUFACTURER CANNOT BE HELD LIABLE FOR ANY FAILURE TO OBSERVE THE SAFETY AND ACCIDENT PREVENTION STANDARDS. FURTHERMORE, THE MANUFACTURER CANNOT BE HELD LIABLE FOR ANY DAMAGE CAUSED BY IMPROPER USE OF THE DEVICE OR BY ANY MODIFICATIONS MADE.
- ALL THE TECHNICAL INFORMATION CONTAINED IN THIS MANUAL BELONGS EXCLUSIVELY TO ARIOSTEA S.P.A. AND MUST BE CONSIDERED CONFIDENTIAL. THEREFORE, NO PART OF IT MUST BE DUPLICATED OR DISCLOSED WITHOUT WRITTEN AUTHORIZATION FROM THE MANUFACTURER.
- IN ADDITION, IT IS PROHIBITED TO USE THIS MANUAL FOR ANY PURPOSES OTHER THAN THOSE STRICTLY CONNECTED WITH THE INSTALLATION, USE AND MAINTENANCE OF THE DEVICE FEATURED IN THIS MANUAL.



## 2 - DESCRIZIONE - DESCRIPTION

### 2.1 DESCRIZIONE DELL'APPARECCHIO - DESCRIPTION OF THE DEVICE

L'indicatore di livello è principalmente costituito da:

- una custodia che racchiude i meccanismi quali il motoriduttore e due microinterruttori e relativa camma di comando. La custodia dell'indicatore di livello è provvista, sul lato dell'asta porta paletta, di un mozzo filettato esternamente di 2"½, che serve al fissaggio dell'indicatore al recipiente. (Fig. 2.1)
- Un corpo centrale, che alloggia i cuscinetti di supporto all'albero porta paletta,
- il corpo frizione che si interpone tra l'albero ed il motoriduttore per evitare sovraccarichi a quest'ultimo,
- un albero porta paletta,
- una paletta in plastica o acciaio inox,
- un coperchio, fissato per mezzo di viti al custodia, con funzione di carter di chiusura e di tenuta.

*The level gauge chiefly comprises:*

- *a casing that encloses mechanisms such as the gearmotor and two microswitches with the associated control cam. The level gauge casing, on the side of the paddle-holder rod, has a hub with an outside thread of 2"½, which is used to secure the gauge to the container. (Fig. 2.1)*
- *A central body, which houses the supporting bearings to the paddle-holder shaft,*
- *The clutch body between the shaft and the geared motor to avoid overloads,*
- *a paddle-holder shaft,*
- *a plastic or stainless steel paddle,*
- *a cover, fastened with screws to the casing, acting as an airtight casing.*

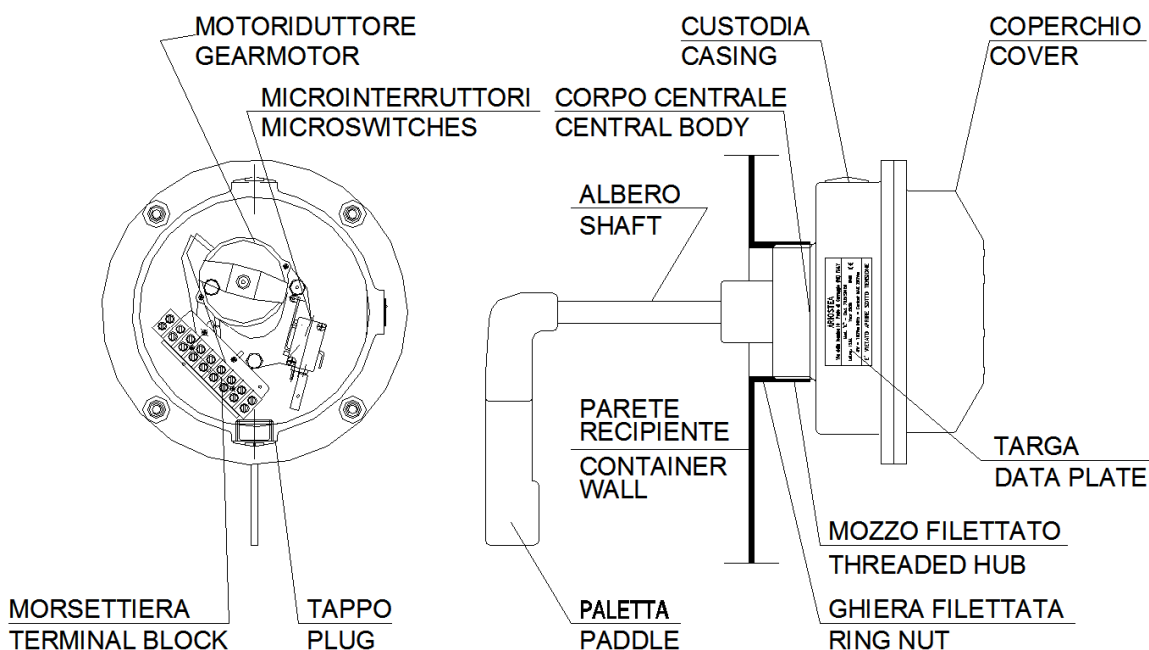
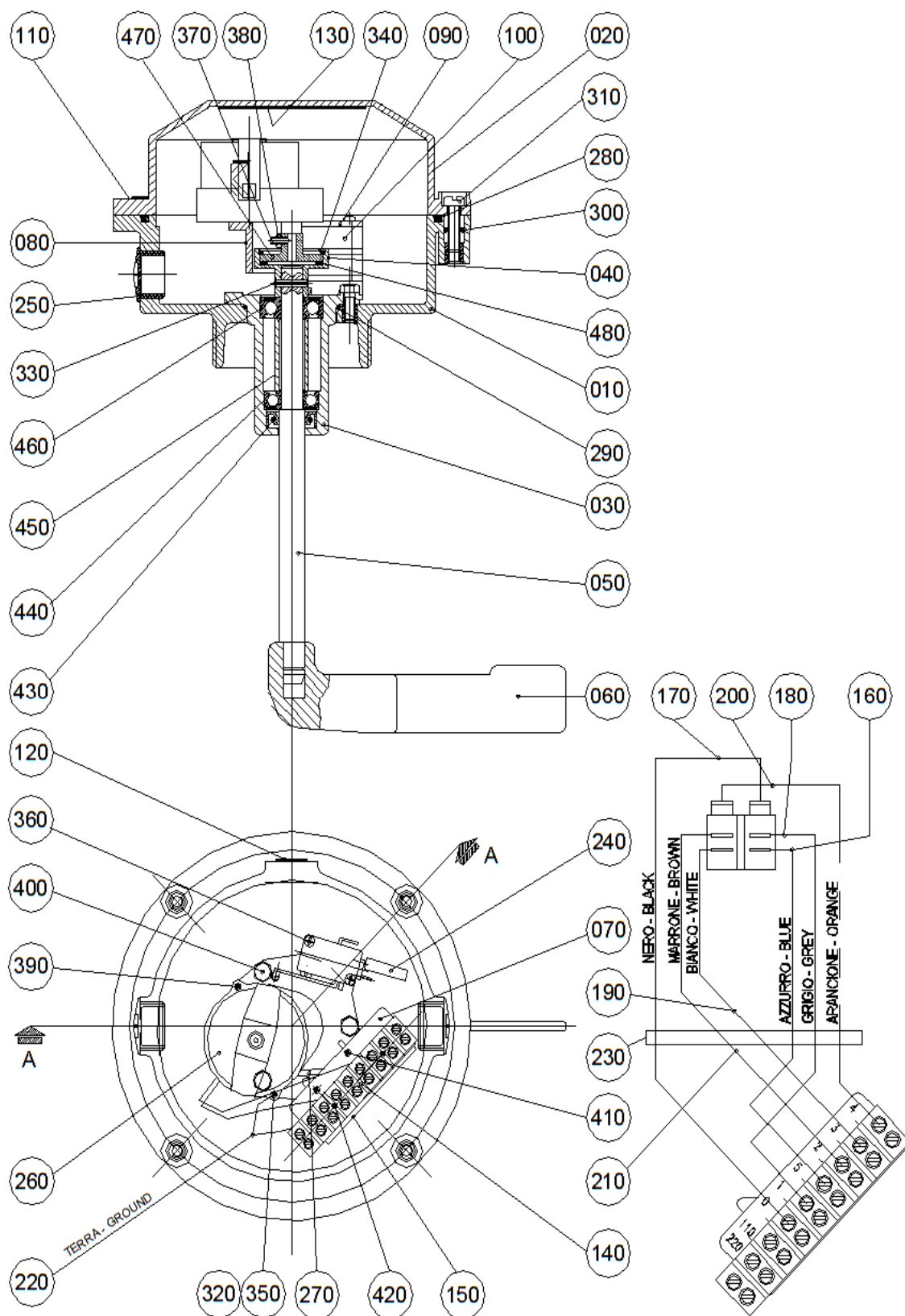


fig.2.1



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SCHEMA PER COLLEGAMENTO ELETTRICO MORSETTIERA-MICRO  
 TERMINAL BLOCK - MICRO ELECTRICAL CONNECTION DIAGRAM

fig.2.2



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## 2.2 LISTA DELLE PARTI - LIST OF THE PARTS

460	2010240065	CUSCINETTO 6200ZZ	NR 1
		BEARING 6200ZZ	
450	31051013	DISTANZIALE PER SUPPORTO ALBERO PER IL	NR 1
		SPACER FOR SHAFT SUPPORT FOR IL	
440	2010240060	CUSCINETTO 6000ZZ	NR 1
		BEARING 6000ZZ	
430	2110100023	ANELLO DI TENUTA 12x24x7 NBR70 ANGST+PFISTER	NR 1
		SEAL 12x24x7 NBR70 ANGST+PFISTER	
420	2090360017	VITE AUTOFILETTANTE 2.2X13 UNI 6954	NR 2
		SELF-TAPPING SCREW 2.2X13 UNI 6954	
410	2090360045	VITE AUTOFILETTANTE 2.9X13 UNI 6954	NR 2
		SELF-TAPPING SCREW 2.9X13 UNI 6954	
400	2090070040	VITE TE M5X12 8.8 ZINCATA FILETTO COMPLETO UNI 5739	NR 3
		HEX SCREW M5X12 8.8 GALVANIZED THREAD COMPLETE UNI 5739	
390	2090180110	VITE TCCT CROCE M3X4 ZINCATA UNI 7687	NR 1
		CROSS-SLOTTED CHEESE-HEAD SCREW M3X4 GALVANIZED UNI 7687	
380	2090310025	DADO ESAGONALE M3 ZINCATO UNI 5588	NR 3
		HEXAGONAL NUT M3 GALVANIZED UNI 5588	
370	2090120108	GRANO 3X8 A PUNTA NERO UNI 5927	NR 1
		GRUB SCREW 3X8 BLACK TIPPED UNI 5927	
360	2090360067	VITE AUTOFILETTANTE 2.9X32 UNI 6954	NR 2
		SELF-TAPPING SCREW 2.9X32 UNI 6954	
350	2090280005	DADO ESAGONALE AUTOBLOK M3 ZINCATO UNI 7473	NR 1
		HEXAGONAL NUT AUTOBLOK M3 GALVANIZED UNI 7473	
340	2090460069	SEEGEER INT. D30 UNI 7435	NR 1
		SNAP RING INT. D30 UNI 7435	
330	2090445244	SPINA ELASTICA 3X16 UNI 6873	NR 1
		SPRING PIN 3X16 UNI 6873	
320	2090180130	VITE TCCT CROCE M3X12 ZINCATA UNI 7687	NR 1
		CROSS-SLOTTED CHEESE-HEAD SCREW M3X12 GALVANIZED UNI 7687	
310	2090205296	VITE TCCT CACCIIVITE M6X20 OTTONE UNI 6107	NR 4
		SCREWDRIVER CHEESE-HEAD SCREW M6X20 BRASS UNI 6107	
300	2110300006	O RING 104/2021 5.28X1.78	NR 4
		O RING 104/2021 5.28X1.78	
290	2110300082	O RING 3168 42.52X2.62 PER INDICATORE DI LIVELLO	NR 1
		O RING 3168 42.52X2.62 FOR LEVEL GAUGE	
280	2110300196	O RING 4525 132.94X3.53 PER INDICATORE DI LIVELLO	NR 1
		O RING 4525 132.94X3.53 FOR LEVEL GAUGE	
270	2100100020	MOLLA TRAZIONE F0,5 DN=5 CM14 LEO24 PER INDICATORE LIVELLO	NR 1
		SPRING F0.5 DN=5 CM14 LEO24 FOR LEVEL GAUGE	
260	.....	MOTORID. .... /... INDICATORE DI LIVELLO	NR 1
		GEARMOTOR ..... /... LEVEL GAUGE	
250	2499400050	TAPPO FILETTATO 1/2" PALAZZOLIPER INDICATORE DI LIVELLO	NR 2
		THREADED PLUG 1/2" PALAZZOLI FOR LEVEL GAUGE	
240	2499200050	COPRIFASTON AMP 1-480435-0 PER INDICATORI DI LIVELLO	NR 2
		FASTON COVER AMP 1-480435-0 FOR LEVEL GAUGES	
230	2090470100	FASCIETTA STRINGICAVI PLT1M-M PER INDICATORE DI LIVELLO	NR 1
		CABLE STRAP PLT1M-M FOR LEVEL GAUGE	
220	2499100140	CAVETTO DI TERRA L=125/130 mm CON CAPICORDA AD OCCHIELLO	NR 1
		GROUND LEAD L=125/130 mm WITH TERMINAL LUG WITH EYELET	



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<b>210</b>	2499100125	CAVETTO MARRONE SEZ. 0,5 mmq L=125 mm CON TERMINALE FASTON	NR 1
		BROWN LEAD SECT. 0.5 mm2 L=125 mm WITH FASTON TERMINAL	
<b>200</b>	2499100110	CAVETTO ARANCIO SEZ. 0,5 mmq L=130 mm CON TERMINALE FASTON	NR 1
		ORANGE LEAD SECT. 0.5 mm2 L=130 mm WITH FASTON TERMINAL	
<b>190</b>	2499100095	CAVETTO BIANCO SEZ. 0,5 mmq L=125 mm CON TERMINALE FASTON	NR 1
		WHITE LEAD SECT. 0.5 mm2 L=125 mm WITH FASTON TERMINAL	
<b>180</b>	2499100082	CAVETTO GRIGIO SEZ. 0,5 mmq L=145 mm CON TERMINALE FASTON	NR 1
		GREY LEAD SECT. 0.5 mm2 L=145 mm WITH FASTON TERMINAL	
<b>170</b>	2499100065	CAVETTO NERO SEZ. 0,5 mmq L=165 mm CON TERMINALE FASTON	NR 1
		BLACK LEAD SECT. 0.5 mm2 L=165 mm WITH FASTON TERMINAL	
<b>160</b>	2499100050	CAVETTO AZZURRO SEZ. 0,5 mmq L=145 mm CON TERMINALE FASTON	NR 1
		BLUE LEAD SECT. 0.5 mm2 L=145 mm WITH FASTON TERMINAL	
<b>150</b>	2470100060	TARGHETTA MOD.2 110/220V X I.L. ALLUMINIO (ARIOSTEA SPA)	NR 1
		DATA PLATE MOD.2 110/220V FOR I.L. ALUMINIUM (ARIOSTEA SPA)	
<b>140</b>	2499300050	MORSETTIERA MO 92 CS/9poli 2.5Nylon tagliata a 9 poli	NR 1
		TERMINAL BLOCK MO 92 CS/9pin 2.5Nylon cut to 9 poles	
<b>130</b>	.....	ETICHETTA ^V...^ PER INDICATORE DI LIVELLO	NR 1
		LABEL ^V...^ FOR LEVEL GAUGE	
<b>120</b>	.....	ETICHETTA ^V...^ SCRITTA NERASU PVC BIANCO FORMATO 1.5x2 cm	NR 1
		LABEL ^V...^ WRITTEN BLACK ON PVC WHITE SIZE 1.5x2 cm	
<b>110</b>	2470200080	ETICHETTA AUTOADESIVA ^ALTO^ AD 1 COLORE	NR 1
		SELF-STICKING LABEL ^TOP^ 1 COLOUR	
<b>100</b>	2170050100	FINECORSAM-51116C49 NATIONALMICRO SWITCH	NR 2
		LIMIT SWITCH AM-51116C49 NATIONALMICRO SWITCH	
<b>90</b>	31051017	TAVOLETTA DI BLOCCAGGIO FINECORSAM X IL ARIOSTEA N.782	NR 1
		BLOCKING TABLE LIMIT SWITCH FOR IL ARIOSTEA N.782	
<b>80</b>	30391110	CAMME COMANDO MICRO PER IL STAMPO NUMERO 782	NR 1
		CAMS GOVERNING MICRO FOR IL STAMPING DIE NUMBER 782	
<b>70</b>	31051015	SUPPORTO PER MORSETTIERA PER IL ARIOSTEA- STAMPO NUMERO 824	NR 1
		SUPPORT FOR TERMINAL BLOCK FOR IL ARIOSTEA- STAMPING DIE No 824	
<b>60</b>	30151100	PALETTA BANDIERA IN NYLON PER INDICATORE DI LIVELLO	NR 1
		DOUBLE-SIDED NYLON PADDLE FOR LEVEL GAUGE	
<b>50</b>	.....	ALBERO L=... PER IL...	NR 1
		SHAFT L=... FOR IL...	
<b>40</b>	521051L003	GRUPPO FRIZIONE PER IL ARIOSTEA	NR 1
		CLUTCH ASSEMBLY FOR IL ARIOSTEA	
<b>30</b>	520541L003	GRUPPO SUPPORTO ALBERO PER IL ARIOSTEA	NR 1
		SHAFT SUPPORT ASSEMBLY FOR IL ARIOSTEA	
<b>20</b>	31051004	COPERCHIO PER IL ARIOSTEA STAMPO NUMERO 953	NR 1
		COVER FOR IL ARIOSTEA STAMPING DIE NUMBER 953	
<b>10</b>	31051003	SCATOLA ESTERNA PER IL ARIOSTEA - STAMPO NUMERO 952	NR 1
		EXTERNAL BOX FOR IL ARIOSTEA - STAMPING DIE NUMBER 952	
<b>Pos.</b>	Cod,	Descrizione - Description	Q.ta' - Q.ty



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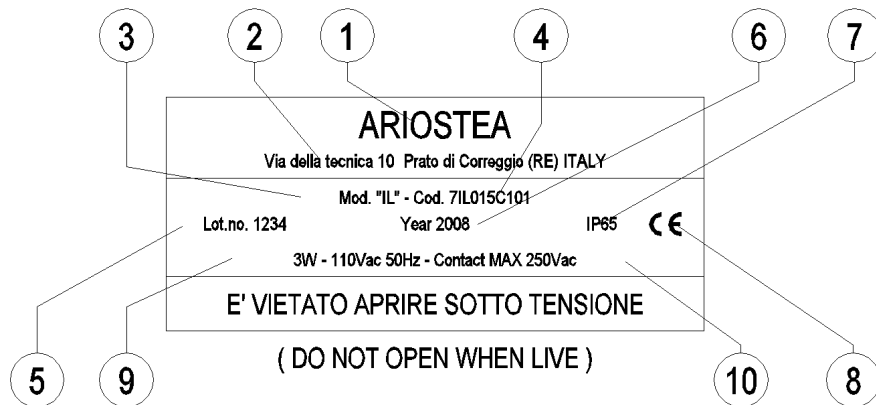
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## 2.3 TARGA - DATA PLATE

Sul fianco esterno della custodia dell'indicatore di livello è applicata una targa adesiva (vedi figura) che riporta:

*An adhesive plate is affixed on the outer side of the casing of the level gauge (see picture) stating:*

1	nome del costruttore	<i>manufacturer's name</i>
2	relativo indirizzo	<i>address</i>
3	modello dell'apparecchio	<i>device model</i>
4	numero di codice	<i>code number</i>
5	numero di lotto (commessa)	<i>lot number (order number)</i>
6	l'anno di costruzione	<i>year of manufacture</i>
7	grado di protezione	<i>protection rating</i>
8	contrassegno CE	<i>CE marking</i>
9	dati elettrici del motorino	<i>electrical data of the motor</i>
10	dati elettrici dei contatti	<i>electrical data of the contacts</i>



**fig.2.1**



### AVVERTENZA WARNING

La targa è realizzata in materiale vinilico resistente agli agenti atmosferici ma distruttibile alla rimozione.

**La targa non deve essere rimossa o danneggiata, pena il decadimento della garanzia e delle responsabilità di Ariostea SpA.**

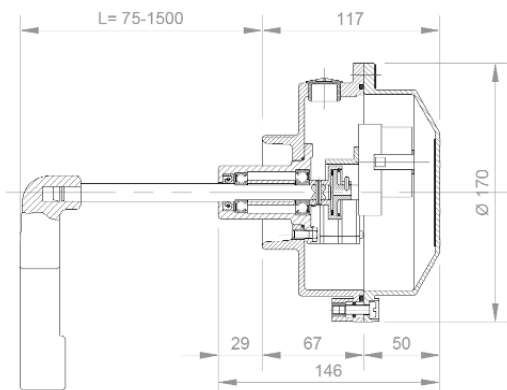
*The plate is made of vinyl material resistant to dirt and moisture but destructible upon removal.*

*The plate must not be removed or damaged, or warranty is invalidated and Ariostea SpA is not to be held liable.*

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## 2.4 DIMENSIONI D'INGOMBRO - OVERALL DIMENSIONS



La lunghezza "L" ed il tipo di paletta sono disponibili in una delle diverse tipologie riportate nella tabella 2.5

*The length "L" and type of paddle are available in one of the different types shown in the table 2.5.*

**Fig.2.4**

## 2.5 CHIAVE DI LETTURA DEL CODICE IDENTIFICATIVO ARIOSTEA KEY TO READING THE ARIOSTEA IDENTIFICATION CODE

7	IL	DDD	C	T	B	V
MACCHINA ARIOSTEA ARIOSTEA MACHINE		INDICATORE DI LIVELLO LEVEL GAUGE	GRANDEZZA MACCHINA MACHINE SIZE	TIPO DI ALIMENTAZIONE - TYPE OF POWER SUPPLY		
V TENSIONE DI ALIMENTAZIONE - SUPPLY VOLTAGE						
1 24V 50Hz						
2 48V 50Hz						
3 110V 50Hz						
4 220V 50Hz						
5 24V 60Hz						
6 110V 60Hz						
7 220V 60Hz						
			</			

**TAB. 2.5**

Ariostea SpA ha codificato gli indicatori di livello di sua produzione secondo quanto rappresentato nella tabella sopra esposta.

Dal codice si possono ricavare tutti i dati relativi alla lunghezza delle aste, al tipo della paletta e del relativo fissaggio, ed inoltre i dati della tensione elettrica con cui deve essere alimentato il motorino del livello.

*Ariostea SpA has coded the Atex level gauges in its production as shown in the above table.*

*From the code it is possible to obtain all the data related to the length of the rods, type of paddle and relevant fastening, and in addition the data of the electric voltage at which the level motor must be powered.*

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## 2.6 DATI TECNICI - TECHNICAL DATA

<b>DATI ELETTRICI - ELECTRICAL DATA</b>	
Tensioni alimentazione indicatore di livello (motore) <i>Level gauge (motor) voltage supply</i>	220÷240, 110÷120,48,24V ac - 24V dc
<b>Motore sincrono unidirezionale - Unidirectional synchronous motor</b>	
Tensioni nominali - <i>Rated voltages</i>	220÷240V, 110÷120V,48V,24V
Frequenza - <i>Frequency</i>	50Hz, 60Hz
Tolleranza della tensione nominale - <i>Rated voltage tolerance</i>	±10%, con coppie garantite - <i>with guaranteed torques</i>
Tensione d'isolamento - <i>Isolation voltage</i>	2,4kV, 50Hz, 1sec>Vn=42V e 600V, 50Hz, 1sec>Vn<42V ; tra bobina e statore - <i>between coil and stator</i>
Potenza assorbita - <i>Input power</i>	2,5W/3,5VA a 50Hz - 2W/2,5VA a 60Hz
Numero di giri - <i>Number of revs</i>	500 giri/min – rpm a 50Hz - 600 giri/min - rpm a 60Hz
<b>Finecorsa - Limit switch</b>	
Tensione nominale - <i>Rated voltage</i>	250V
Portata contatti - <i>Contact capacity</i>	3A
NOTA:Predisposto per messa a terra - <i>NOTE: Fitted for earthing</i>	
Foro pressatavi - <i>Cable clamp hole</i>	20x1,5 MA

<b>DATI MECCANICI - MECHANICAL DATA</b>	
Numero di giri riduttore - <i>Reduction gear rpm</i>	1 giro/min - rpm
Taratura molla frizione - <i>Clutch spring setting</i>	50g
Giri albero paletta - <i>Paddle shaft revs</i>	1giro/min - rpm
Peso indicatore di livello - <i>Level gauge weight</i>	1.15 Kg
Raggio di rotazione paletta - <i>Paddle rotation radius</i>	260 mm

<b>MATERIALI - MATERIALS</b>	
Custodia e coperchio - <i>Casing and cover</i>	Nylon 6 giallo - yellow
Corpo supporto albero - <i>Shaft support body</i>	Nylon 66
Base supporto morsettiera - <i>Terminal block support base</i>	Nylon 66
Camme doppio comando - <i>Dual control cams</i>	Nylon 66
Paletta - <i>Paddle</i>	Nylon 6 Acciaio inox - <i>Stainless steel</i>
Albero - <i>Shaft</i>	Acciaio inox AISI 303 - <i>Stainless steel</i>
Corpo frizione - <i>Clutch body</i>	Ottone - <i>Brass</i>
Disco frizione - <i>Clutch plate</i>	Ottone - <i>Brass</i>
Anello compensazione frizione - <i>Clutch compensation ring</i>	Acciaio armonico <i>Harmonic steel</i>
Anello di tenuta - <i>Sealing ring</i>	NBR - Butadiene acrilonitrile - <i>Acrylonitrile butadiene</i>
O ring	NBR - Gomma nitrilica - <i>Nitrile rubber</i>

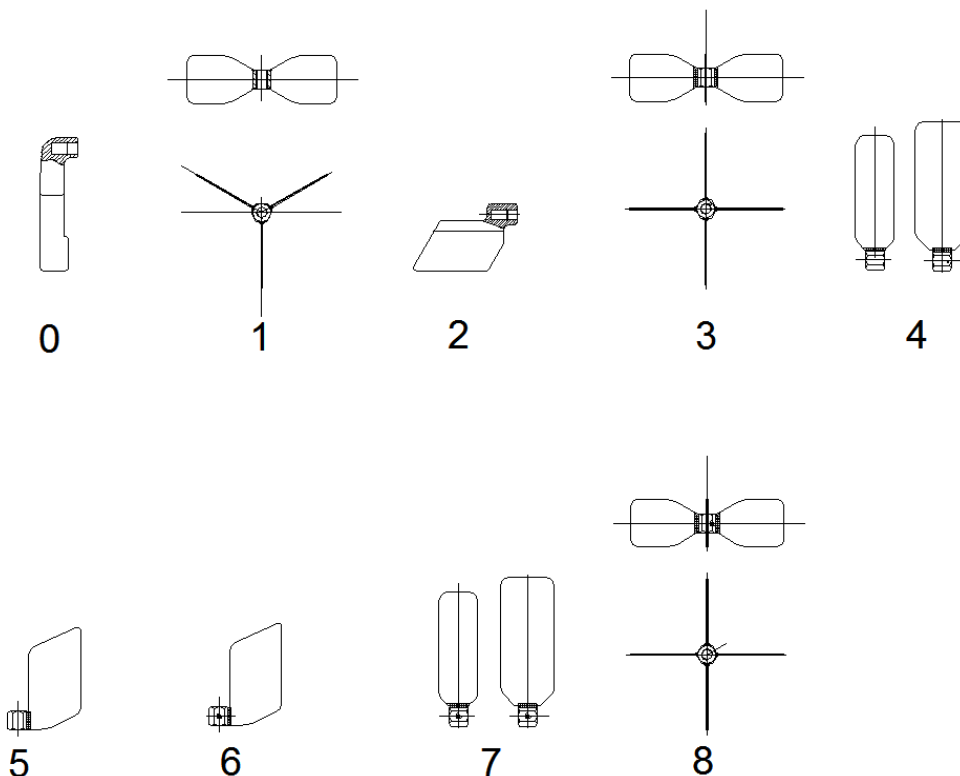


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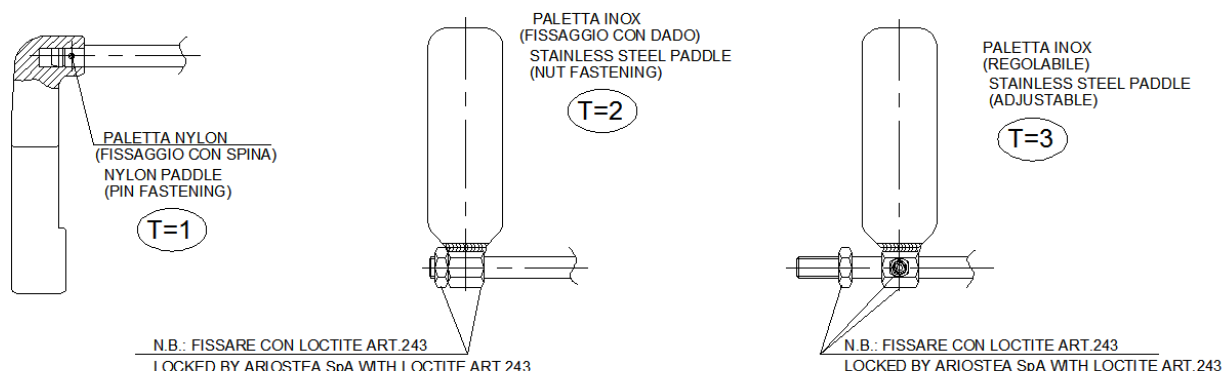
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## 2.7 PALETTE - PADDLES

### DISEGNI TIPOLOGIA DI PALETTA (fig.2.7.1) TYPES OF PADDLE DESIGN (fig.2.7.1)



### DISEGNI FISSAGGIO PALETTA ALL'ALBERO (fig.2.7.2) DRAWINGS OF FASTENING PADDLE TO SHAFT (fig.2.7.2)



**! ATTENZIONE !  
 CAUTION !**

I tipi di paletta 6,7,8 (T=3) sono regolabili e l'installatore deve fissare, nella posizione ideale di lavoro, il grano di bloccaggio ed il relativo dado autobloccante di sicurezza con adesivo "Loctite" art.243.

*The 6,7,8 paddles (T=3) are adjustable and the installer must secure the locking pin and self-locking nut in the ideal working position with "Loctite" art.243 adhesive.*



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## **3 - SICUREZZA ED ANTINFORTUNISTICA SAFETY AND ACCIDENT PREVENTION**

### **3.1 NOTE GENERALI - GENERAL NOTES**



**Norme antinfortunistiche per l'operatore e per chi opera nelle vicinanze.**

***Safety rules for the operator and those working nearby.***



**Esiste la possibilità di arrecare danno al dispositivo e/o ai suoi componenti.**

***There is the possibility of damaging the device and/or its components.***



**Ulteriori notizie inerenti l'operazione in corso.**  
***Further information concerning the operation in progress.***



- Tutte le operazioni di trasporto, installazione, uso, manutenzione ordinaria e straordinaria della macchina vanno eseguite esclusivamente da operatori specializzati ed autorizzati.
- Per "OPERATORE" si intende la o le persone incaricate di installare, di fare funzionare, di regolare, di eseguire la manutenzione, di pulire, di riparare e di trasportare il dispositivo.
- Conservare il presente manuale e tutte le pubblicazioni allegate in un luogo accessibile e noto a tutti gli operatori.
- Ogni operatore addetto all'installazione, al servizio, alla manutenzione ed alla riparazione del dispositivo deve essere informato sulle istruzioni di esercizio e manutenzione e particolarmente su queste informazioni di sicurezza e le abbia capite.
- In ogni caso il comportamento degli operatori addetti, di manutenzione, pulizia, controllo ecc. dovrà rispettare scrupolosamente le norme antinfortunistiche del paese di destinazione.
- L'operatore ha la responsabilità di usare il dispositivo solo se questo è in perfette condizioni. Il personale di servizio deve essere informato, dal Datore di lavoro, sulla necessità di usare le protezioni individuali, ove necessario, secondo il DL 81 del 2008.
- E' da evitare ogni azione sul dispositivo che pregiudichi la sicurezza.
- Il dispositivo deve essere fatto funzionare solo da personale qualificato e autorizzato. La competenza per il servizio del dispositivo deve essere esattamente definita e stabilita perché non possano sorgere competenze non chiare.
- Per tutti i lavori sul dispositivo come riparazione, manutenzione etc. occorre arrestare il dispositivo ed inserire le sicurezze.
- E' vietato eseguire lavori sotto tensione! (Frase riportata anche sulla targa del dispositivo).
- *All transport, installation, use, routine and special maintenance operations on the machine must be performed solely by skilled and authorized operators.*
- *"OPERATOR" means the person(s) appointed to install, run, adjust, service, clean, repair or transport the device.*
- *Keep this manual and all the attached publications in an accessible place known to all operators.*



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- All operators assigned to installation, service, maintenance or repair of the device must be informed of the operating and maintenance instructions and especially about this safety information and have understood them.
- In any case, the behaviour of maintenance, cleaning, inspection operators, etc. must meticulously observe the safety standards of the destination country.
- The operator is responsible for using the device only if this is in perfect condition. The service personnel must be informed by the Employer about the need to use personal protective equipment, where necessary, according to Italian law decree DL 81 of 2008.
- No action must be taken on the device that could impair safety.
- The device must only be run by qualified and authorized personnel. The skills for the service of the device must be defined exactly so there can be no doubt about them.
- For all work on the device such as repairs, maintenance, etc. it is necessary to stop the device and activate the safety devices.
- Do not open when live

And in addition, as is also given on the warning plate on the cover:

"DO NOT OPEN WHEN LIVE"

### 3.2 RIFERIMENTI NORMATIVI - *RIFERIMENTI NORMATIVI*

Il dispositivo è conforme alle seguenti Direttive Europee ed alle relative norme di riferimento:

DIRETTIVA 2006/95/CEE (Bassa tensione)

**Norme di riferimento: EN 61010-1**

DIRETTIVA 2004/108/CEE (Compatibilità elettromagnetica)

**Norme di riferimento: EN61000-6-1 EN61000-6-3**

*The device conforms to the following European Directives and relative reference standards:*

*European Directives 2006/95/CEE (Low voltage)*

**Reference Norms: EN 61010-1**

*European Directive 2004/108/CEE (ElectroMagnetic Compatibility)*

**Reference Norms: EN61000-6-1 EN61000-6-3**





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## **4 - ISTRUZIONI PER L'INSTALLAZIONE** **INSTALLATION INSTRUCTIONS**

### **4.1 PRINCIPIO DI FUNZIONAMENTO - WORKING PRINCIPLE**

Se alimentato ed in assenza di prodotto, il motoriduttore fa ruotare continuamente la paletta (alla velocità di 1 giro al minuto). Quando il prodotto ostacola il moto della paletta, questa si arresta. Questo provoca una breve contro-rotazione del motoriduttore che fa intervenire i due microinterruttori. Un microinterruttore scambia i contatti che segnalano lo stato del livello e li rende disponibili in morsetteria, l'altro interrompe l'alimentazione al motoriduttore che, in questo modo, non rimane sotto tensione.

Quando il prodotto scende e libera la paletta, una molla tarata riporta il motoriduttore in posizione normale; il contatto del microinterruttore che comanda il motorino si chiude e la paletta riprende la rotazione. L'altro microinterruttore scambia il suo contatto segnalando così l'assenza di prodotto.

*If powered and with no product, the gearmotor turns the paddle continuously (at a speed of 1 rpm). When the product obstructs the motion of the paddle, this stops. This causes a short counter-rotation of the gearmotor that makes the two microswitches trip. One microswitch switches over the contacts that signal the state of the level and makes them available in the terminal block; the other one cuts off the power to the gearmotor that, in this way, does not remain powered.*

*When the product drops and frees the paddle, a calibrated spring brings the gearmotor back into its normal position; the contact of the microswitch that controls the motor closes and the paddle starts turning again. The other microswitch switches over its contact thereby signalling there is no product.*

### **4.2 TRASPORTO - TRANSPORT**

L' indicatore di livello può essere fornito in imballo singolo (scatola di cartone), multiplo o palletizzato a seconda del tipo e della dimensione.

Se l'indicatore di livello deve subire immagazzinaggio prolungato (fino a un massimo di due anni), il locale di stoccaggio deve essere a temperatura ambiente non inferiore a +5 C e con umidità relativa non superiore ai 60%.

*The level gauge can be supplied in a single (cardboard box), multiple or palletized pack according to its type and dimensions.*

*If the level gauge must be stored for an extended period (up to at most two years), the place of storage must have an ambient temperature no lower than +5°C and relative humidity no higher than 60%.*

### **4.3 ATTREZZATURE PER IL MONTAGGIO - EQUIPMENT FOR ASSEMBLY**

Se il dispositivo è piazzato nell'impianto in posizione elevata, rispetto al piano di calpestio, l'operatore deve predisporre l'attrezzatura adatta (scala , ponteggio , autogru con cestello omologato CE,...) per accedere in sicurezza alla quota del dispositivo e procedere alla manutenzione.

L'operatore deve essere munito di adatte protezioni individuali per operare in sicurezza.

*If the device is positioned in the plant at a higher level than the walkway, the operator must have suitable equipment (ladder, scaffolding, crane truck with CE type-approved bucket,...) to both access the device and perform maintenance work safely.*

*The operator must be equipped with suitable individual protection to operate in safety.*



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**ATTENZIONE  
CAUTION**

**LEGGERE ATTENTAMENTE IL CAPITOLO 5  
READ CHAPTER 5 CAREFULLY**

#### **4.4 DISPOSIZIONI PER IL SOLLEVAMENTO - LIFTING INSTRUCTIONS**

Per la movimentazione della fornitura, se palletizzata, usare un carrello elevatore o transpallet a forche; se in imballo singolo il peso è inferiore a 1,5 Kg e può essere movimentato a mano.

*For handling the supply, if palletized, use a fork lift truck or pallet truck; if in a single pack the weight is less than 1.5 kg and it can be handled manually.*

#### **4.5 MONTAGGIO MECCANICO - MECHANICAL ASSEMBLY**

L'installatore meccanico deve:

- saldare sul contenitore un adeguato manicotto filettato di 2"½ della lunghezza di 50mm (NON fornito da Ariostea SpA),
- avvitare completamente il mozzo filettato dell'indicatore di livello avendo cura di Garantire la tenuta tra i filetti utilizzando una adeguata quantità di nastro di PTFE,
- avvitare l'indicatore di livello facendo attenzione che a serraggio ultimato, la scritta "ALTO", stampigliata sul coperchio, si trovi in posizione alta,
- installare sempre l'apparecchio facendo in modo che, nella installazione orizzontale, il pressacavo per l'ingresso cavi sia rivolto verso il basso, perpendicolare al suolo

The mechanical installer must:

- weld on the container a suitable 2"½ threaded coupling with a length of 50mm (NOT supplied by Ariostea SpA),
- fully tighten the threaded hub of the level gauge taking care to Ensure the seal between the threads using a suitable quantity of PTFE tape,
- tighten the level gauge taking care that on completing tightening, the word "TOP," stamped on the cover, is at the top,
- always install the appliance so that, for the horizontal installation, the incoming cable clamp is facing downward, perpendicular to the ground



**AVVERTENZE  
WARNING**

- utilizzare alberi di lunghezza non superiore a 150mm nella installazione con l'albero in orizzontale,
- Verificare manualmente che il motoriduttore sia libero di ruotare sino a far intervenire i due microinterruttori.

- use shafts no greater than 150mm in length for the installation with the shaft horizontal,
- Manually verify that the gearmotor is free to turn so far as to trip the two microswitches.



**ATTENZIONE  
CAUTION**

- Nella installazione orizzontale, saldare un tegolo, in materiale compatibile col contenitore, tale da proteggere l'asta dal peso e dallo scorrimento del prodotto facendo attenzione di lasciare libero il movimento della palette (vedi fig.4.5.1B e 4.5.2).
- verificare sempre che l'ORing di tenuta sulla custodia sia in perfette condizioni (vedi fig.4.5.3).

- For the horizontal installation, weld a panel, made of material compatible with the container, to protect the rod from the weight and from the flow of product taking care to leave the paddle free to move (see Fig.4.5.1B and 4.5.2).
- always verify that the O-Ring on the casing is in perfect condition (see Fig.4.5.3).



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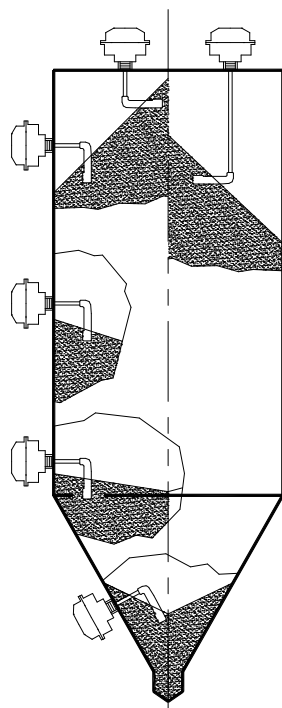


fig.4.5.1A

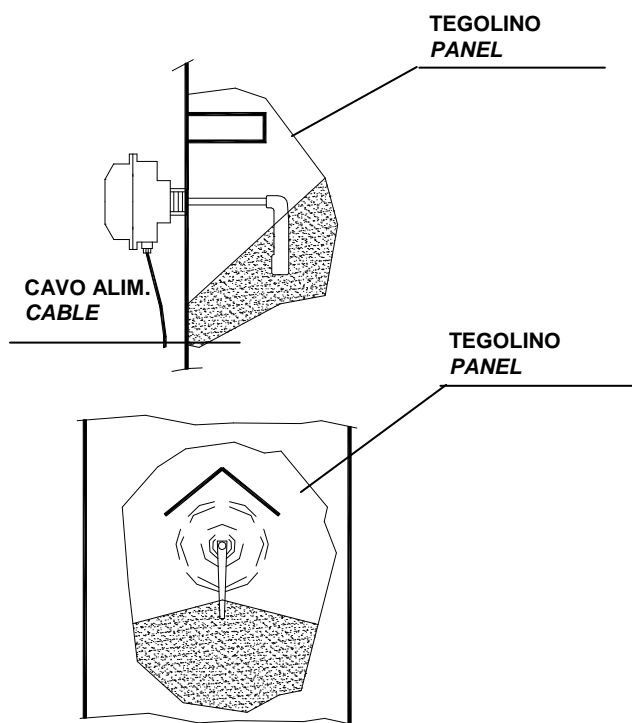


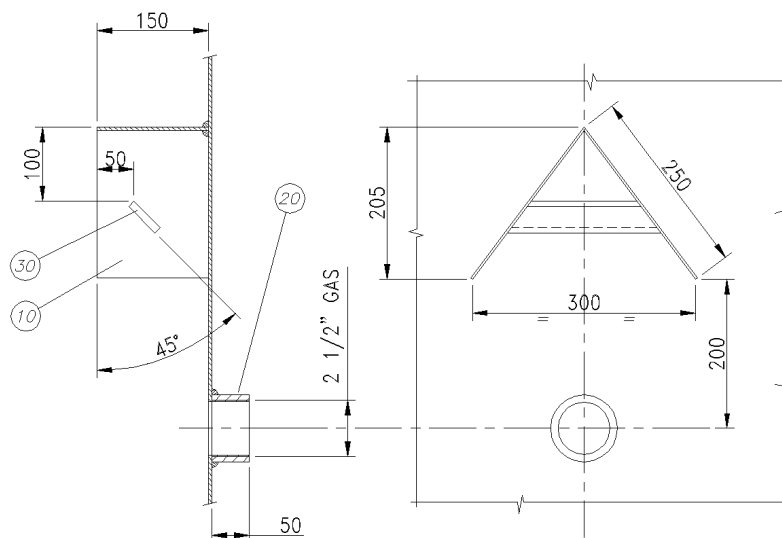
fig.4.5.1B



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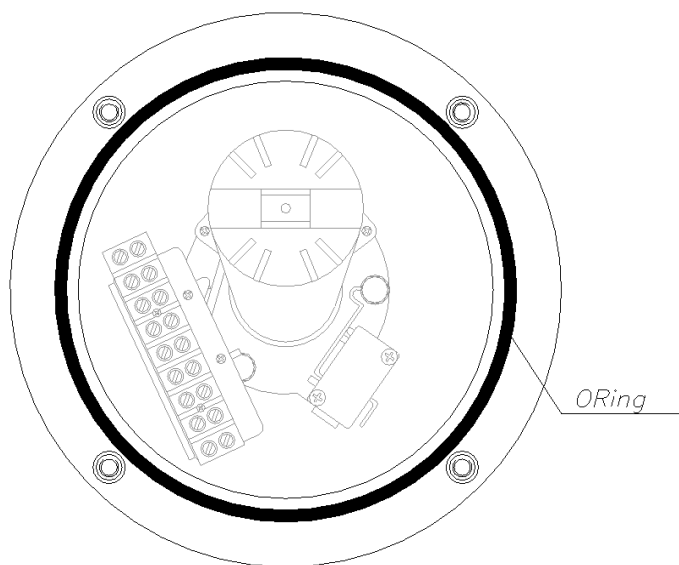
## MANICOTTO E TEGOLO - DISEGNO DI ESEMPIO COUPLING AND PANEL - EXAMPLE DRAWING



**Fig.4.5.2**

30	PIATTO DI RINFORZO - <i>STRENGTHENING PLATE 50X10</i>
20	MANICOTTO 2"1/2 GAS – L=50 - <i>COUPLING 2"1/2 GAS – L = 50</i>
10	TEGOLINO DI PROTEZIONE IND.LIV. DI MINIMA SUL CILINDRO <i>LEVEL GAUGE PROTECTIVE PANEL ON THE CYLINDER</i>
Pos.	Descrizione - <i>Description</i>

## ORing DI TENUTA TRA CUSTODIA E COPERCHIO O-Ring BETWEEN CASING AND COVER



**Fig.4.5.3**

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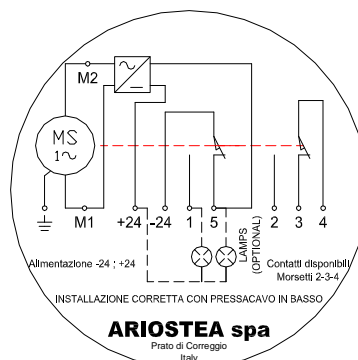
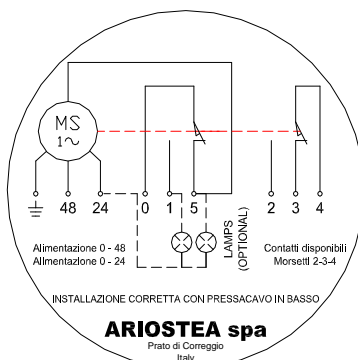
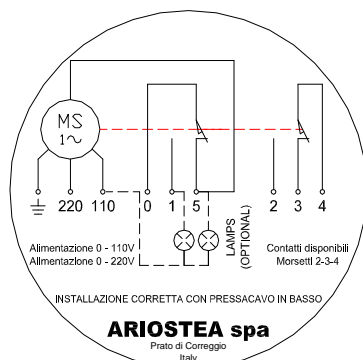
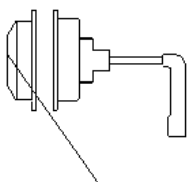
## 4.6 OPERAZIONI DELL'INSTALLATORE ELETTRICO WORK FOR THE ELECTRICAL INSTALLER

L'installatore elettrico deve:

- verificare che il foro per il pressacavo sia rivolto verso il basso (sulla parte interna della custodia c'è anche la scritta "ALTO" che guida al posizionamento).
- verificare la rispondenza delle caratteristiche elettriche controllando i dati della targhetta CE applicata sull'esterno della custodia.
- Sostituire il tappo di magazzino/trasporto con un idoneo pressacavo (NON fornito da Ariostea SpA).
- Infilare nel pressacavo il cavo proveniente dall'esterno ed accertarsi del serraggio a garanzia della tenuta del pressacavo.
- Collegare alla morsettiera i conduttori che provengono dall'esterno seguendo le indicazioni riportate sull'adesivo applicato nella parte interna del coperchio e di seguito riportate (vedi fig.4.6); osservare le norme le norme EN60204-1.

The electrical installer must:

- Check that the hole for the cable clamp is turned downward (on the inside of the casing there is also the word "TOP" that guides the positioning).
- Verify the correspondence of the electrical characteristics by checking the data of the CE data plate on the outside of the casing.
- Renew the storage/transport plug with a suitable cable clamp M20 ATEX in category 2D (NOT supplied by Ariostea SpA).
- Insert the cable coming from the outside in the cable clamp and check it is tight to make sure the cable clamp holds.
- Connect the wires coming from the outside to the terminal block following the directions given on the sticker inside the cover and shown here (see Fig.4.7); and in accordance with the EN60204-1 standards.



**AVVERTENZE  
WARNING**

I disegni di fig.4.6 rappresentano le due tipologie di schema elettrico di collegamento da effettuare a seconda delle tensioni di alimentazione 110÷220, 220÷240, 24, 48 Vac e 24 Vdc.

Lo schema è di uno dei tre tipi rappresentati a seconda delle tensioni di alimentazione

*The drawings of Fig.4.7 show the two types of wiring diagram for the connections to make according to the power supply voltages 110.. 120, 220..240, 24, 48 Vac and 24Vdc.*

*The diagram is one of the three types shown according to the power supply voltage.*




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**ATTENZIONE  
CAUTION**


L'installatore elettrico deve inoltre realizzare il collegamento del conduttore di terra, proveniente dal sistema di alimentazione, al relativo morsetto contrassegnato dal

simbolo distintivo di terra . Questo provvedimento serve per disperdere eventuali cariche elettrostatiche sull'asta dell'apparecchio; l'installatore deve tuttavia evitare la formazione e l'accumulo di cariche elettrostatiche nel contenitore che alloggia l'indicatore di livello.

Terminate le operazioni di collegamento, l'installatore elettrico deve controllare l'ottimo stato dell'anello di tenuta e la sua battuta sul coperchio (vedi fig.4.5.3), quindi chiudere il coperchio con cura al fine di non permettere l'ingresso di polvere ed umidità.

L'installatore elettrico deve prevedere alla protezione elettrica dell'indicatore di livello mediante adeguati fusibili sulla linea di alimentazione (max 2AgL per il motorino, max 2AgL per i contatti). Il dispositivo di sezionamento deve potere essere bloccato in posizione aperta per impedirne la chiusura indesiderata.

*The electrical installer must in addition make the connection for the ground wire, coming from the power supply system, to the terminal marked with the distinctive*

*ground symbol . This has the purpose of dispersing any electrostatic charges on the rod of the device; the installer must nevertheless prevent the formation and accumulation of electrostatic charges in the container housing the level gauge.*

*After making the connection, the electrical installer must check the seal is in a good state of repair and is flush with the cover (see Fig.4.5.3), then close the cover carefully so as not to allow any dust and moisture to get inside.*

*The electrical installer must protect the level gauge electrically using suitable fuses on the power supply line (max 2AgL for the motor, max 2AgL for the contacts). The disconnecting device must be able to be locked open to prevent it from closing unexpectedly.*



**ATTENZIONE  
CAUTION**

Terminate le fasi di collegamento funzionali e di sicurezza l'installatore elettrico può rendere disponibile l'indicatore di livello al funzionamento.

**IL DISPOSITIVO DEVE ESSERE FATTO FUNZIONARE SOLO COL COPERCHIO CHIUSO!**

*On completing the functional and safety phases of connection the electrical installer can make the level gauge available for operation.*

**THE DEVICE MUST BE MADE TO WORK ONLY WITH THE COVER CLOSED!**





## 5 – MANUTENZIONE - MAINTENANCE

### 5.1 AVVERTENZE GENERALI – GENERAL INSTRUCTIONS

L'indicatore di livello, deve essere ispezionato sulla base di scadenze regolari, la cui periodicità dipende dall'ambiente circostante generale, dalla frequenza d'uso cui la costruzione è sottoposta.

L'esame a vista esterno deve avvenire con frequenza tale da non permettere l'accumulo di polvere sull'involucro.

Per la manutenzione si devono adottare misure adeguate per prevenire la penetrazione di polvere nella custodia. Si deve prestare attenzione durante lo smontaggio affinché le parti che garantiscono l'integrità della custodia, per es. le guarnizioni di tenuta, ecc., non vengano danneggiate, se non si intende sostituirle. Durante il riassettaggio si devono seguire le dovute attenzioni per garantire l'ermeticità e cioè verificare l'integrità e la pulizia delle guarnizioni e delle relative sedi.

*The level gauge, for use in the presence of combustible powders, must be inspected on a regular basis, whose frequency depends on the general surrounding environment and the frequency of use to which the construction is submitted.*

*The outside must be expected with such frequency as not to allow any powder to accumulate on the casing.*

*For the maintenance, it is necessary to take suitable precautions to prevent dust getting inside the casing. It is necessary to pay attention during disassembly so that the parts ensuring the integrity of the casing, e.g. the seals, etc., do not get damaged, unless you are going to change them. During reassembly, it is necessary to take the due precautions to ensure airtightness and that is to verify the integrity and cleanliness of the seals and their seats.*



**ATTENZIONE  
CAUTION**

*Il grado di protezione dell'indicatore di livello è IP65 ( certificato CESI 90-8763, collaudo effettuato a 1.000.000 di colpi ) pertanto durante la manutenzione verificare l'integrità delle guarnizioni di tenuta:*

*The level gauge is sealed to IP65 (certified CESI 90-8763, testing at 1,000,000 beats) therefore during maintenance check the integrity of the seals:*



Alcune operazioni di manutenzione, come la sostituzione del riduttore, prevedono lo smontaggio dell'indicatore di livello dalla sua sede per essere posizionarlo a banco in luogo adatto a svolgere le operazioni di manutenzione.

Una eventuale fuoriuscita dei prodotti presenti nel contenitore controllato dall'apparecchio, dovrà essere prontamente rimossa e smaltita nei modi previsti dalle schede di sicurezza dei prodotti in lavorazione.

Gli operatori della manutenzione, pulizia, controllo ecc. dovranno rispettare scrupolosamente le norme antinfortunistiche vigenti.

Prima di iniziare il lavoro l'operatore deve essere perfettamente a conoscenza del funzionamento, delle caratteristiche dell'indicatore e dei materiali con cui viene a contatto.

- Qualsiasi operazione di manutenzione deve essere condotta a macchina ferma, con alimentazioni elettriche interrotte.
- Utilizzare ricambi fornito e/o consigliati da Ariostea.

*For some maintenance jobs, like replacing the reduction unit, the level indicator has to be removed and taken to an appropriate place on the bench where servicing can be done.*

*If any product leaks from the container controlled by the equipment it must be promptly taken away and disposed of as indicated in the relative data safety sheets.*

*The people who carry out maintenance, cleaning, checks, etc., must comply strictly with all the accident prevention rules in force.*

*Before starting work, the operator must know exactly how the indicator works and its features and also know precisely what the characteristics are of the material being handled.*

*All maintenance work must be done when the machine is at a standstill and all electrical power cut off.*

*Use the spare parts supplied and/or recommended by Ariostea.*

### 5.1.1 SMONTAGGIO - *DISASSEMBLY*



#### **ATTENZIONE CAUTION**

Prima di ogni operazione di manutenzione descritta in questo capitolo, occorre vengano effettuate le seguenti operazioni:

- Togliere il prodotto dal contenitore in cui è installato l'indicatore di livello.
- Togliere tensione a tutti i circuiti che interessano l'indicatore di livello.
- Smontare il coperchio prestando attenzione a non danneggiare l'anello di tenuta sede ed il relativo piano di battuta.
- Scollegare gli allacciamenti elettrici.
- Svitare e togliere l'indicatore di livello dal contenitore e portarlo a banco.

*The following must be done before any of the maintenance jobs described in this chapter:*

- Remove the product from the container in which the level indicator is installed.*
- Cut power off to all circuits that involve the level indicator.*
- Remove the cover, taking care not to damage the sealing ring seat or its resting surface.*
- Disconnect the electrical connections.*
- Unscrew and remove the level indicator from the container and take it over to the bench.*



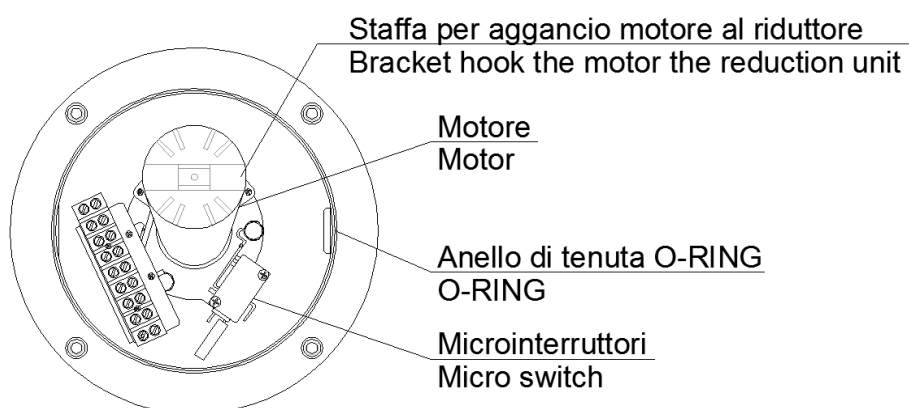
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## 5.2 SOSTITUZIONE MICROINTERRUTTORI E MOTORE CHANGING MICROSWITCHES AND MOTOR

Dopo le operazioni descritte al punto 5.1.1, procedere come di seguito descritto:

*Once all the steps described in point 5.1.1 have been done proceed as follows:*



### 5.2.1 Sostituzione del/i microinterruttore/i - *Changing the micro switch(es)*

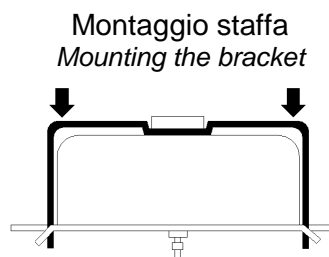
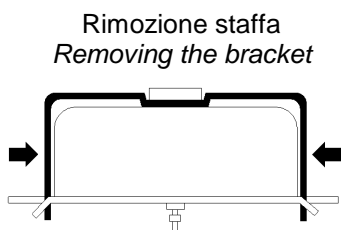
- Scollegare i due fili collegati ad ogni microinterruttore, svitare e togliere le viti di fissaggio.
- Sostituire il/i microinterruttore/i ed eseguire in modo inverso le fasi descritte per lo scollegamento e lo smontaggio.

- *Disconnect the two wires connected to each micro switch, unscrew and remove the securing screws.*
- *Change the micro switch(es) and carry out the steps described for disconnecting and disassembly in the reverse order.*

### 5.2.2 Sostituzione del motore - *Changing the motor*

- Scollegare i fili del motorino (2 fili) dalla morsettiera.
- Premere lateralmente la staffa, in lamierino flessibile, di aggancio del motore al riduttore. Mantendo premuta la staffa, aiutarsi con un attrezzo per staccare uno degli agganci laterali della staffa stessa; l'altro aggancio si libera manualmente.

- *Disconnect the (2) starter motor wires from the terminal block.*
- *Press the bracket on the side - made in flexible plate - that connects the motor to the reduction unit. While keeping the bracket pressed, use a tool to help remove one of the side hooks on the bracket - the other will then come away by hand.*





- Montare il nuovo motore accoppiandolo al riduttore e fissarlo esercitando una semplice pressione sui ognuno dei due lati della staffa di fissaggio in modo che le sedi delle loro estremità si connettano ai corrispondenti agganci del riduttore.

Ricollegare i fili del motorino (2 fili ) alla morsettiera.

- Montare nuovamente l'indicatore di livello eseguendo in modo inverso le fasi descritte per lo smontaggio.

*- Mount the new motor, coupling it to the reduction unit and fix it simply by exerting pressure on both sides of the fixing bracket so the ends connect to the corresponding hooks on the reduction unit.*

*Reconnect the (2) starter motor wires to the terminal block.*

*- Put the level indicator back in place, following the steps described for removal in the reverse order.*



### **ATTENZIONE WARNING**

Dopo la manutenzione verificare sempre l'integrità della guarnizione di tenuta del coperchio, la sua sede ed il relativo piano di appoggio.

Per eventuali danneggiamenti della guarnizione di tenuta dell'indicatore di livello, non utilizzarlo ed avvertire Ariostea SpA.

**E' possibile utilizzare solo ricambi forniti da Ariostea SpA.**

*When maintenance is complete always check integrity of the cover seal, its seat and resting surface.*

*If the indicator level's seal is damaged, do not use it and notify Ariostea SpA.*

***Only parts supplied by Ariostea SpA can be used.***

## **5.3 SOSTITUZIONE DEL RIDUTTORE E DEI CUSCINETTI CHANGING THE REDUCTION UNIT AND/OR BEARINGS**

Se si rende necessaria la sostituzione del riduttore o dei cuscinetti, effettuare le operazioni descritte al punto 5.1.1 e procedere come di seguito descritto (per i riferimenti delle parti vedi fig. 2.1.1):

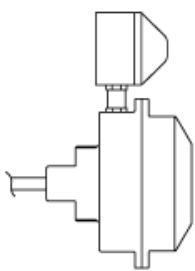
- Scollegare i fili del motorino dalla morsettiera.
- Scollegare i due fili collegati ad ogni microinterruttore; svitare e togliere le viti (360), se necessario sostituire i microinterruttori.
- Svitare e togliere le tre viti a testa esagonale (400) che fissano l'intero equipaggio (motorino, microinterruttori, morsettiera) sulla base interna; attenzione a non rovinare l'anello di tenuta (290).
- Sfilare assialmente il corpo centrale dalla sede. Attenzione a non deteriorare l'asta e la paletta.
- Svitare e togliere le due viti autofilettanti di fissaggio della morsettiera (410).
- Togliere il dado che fissa la molla antagonista al motorino.
- **Verifica della taratura.**  
Appendere la molla vincolandola ad un supporto fisso. Sul lato opposto attaccare un peso di 50 grammi. Se la molla è ancora efficiente non si allunga. In caso contrario occorre sostituirla con una nuova, originale, sempre tarata a 50 grammi.
- Allentare il controdado che blocca il grano di fermo (370) montato sull'asse del disco frizione (380).
- Svitare il grano affinché si possa sfilare il motoriduttore (260) tirandolo assialmente; se necessario sostituire il motoriduttore già corredato di camma per azionamento microinterruttori.
- Utilizzando un apposito cacciapine di Ø3mm sfilare la spina elastica (310) e sfilare dall'asta l'intero gruppo frizione e, se necessario, sostituirlo con uno nuovo.
- **Verifica della frizione:**  
ruotare manualmente l'asta (050) mediante la paletta (060) tenendo fermo il motoriduttore; se la frizione è ancora efficiente basta un modesto sforzo per far slittare i dischi della frizione.  
In caso che la frizione sia troppo dura, o troppo lenta, deve essere sostituita con una nuova.
- Togliere la paletta (060).
- Martellare delicatamente l'albero (050) dal lato paletta ed estrarre i cuscinetti (440-460) facendo attenzione a non rovinare l'anello di tenuta (430).
- Rimontare l'indicatore di livello eseguendo in modo inverso le fasi fino ad ora descritte. Fare attenzione al corretto ripristino dei collegamenti elettrici nonché al giusto montaggio delle guarnizioni di tenuta.
- Ripristinare la alimentazione elettrica.
- Rimontare e serrare bene le viti del coperchio.
- Simulare il riempimento bloccando la rotazione della paletta; verificato il corretto funzionamento dell'indicatore di livello si può rimontare l'indicatore di livello nell'impianto.

*If the reduction unit or bearings need changing, first carry out the operations described in point 5.1.1 and then proceed as described below (for the parts' references see Fig. 2.1.1):*



- Disconnect the wires of the motor from the terminal block.
- Disconnect the two wires connected to each microswitch; unscrew and remove the screws (360), if necessary renew the microswitches.
- Unscrew and remove the three hex screws (400) that secure the whole equipment (motor, microswitches, terminal block) on the inside base; take care not to damage the seal (290).
- Extract the central body from its seat axially. Take care not to deteriorate the rod and the paddle.
- Unscrew and remove the two self-tapping screws fixing the terminal block (410).
- Remove the nut fastening the counter spring to the motor.
  - Check the setting. Hang up the spring fastening it to a fixed support. On the opposite side, attach a weight of 50 grams. If the spring is still efficient it will not stretch. On the contrary, it is necessary to replace it with a new, genuine one, always set to 50 grams.
- Loosen the lock nut fastening the grub screw (370) fitted on the axle of the clutch plate (380).
- Unscrew the grub screw so you can extract the gearmotor (260) by pulling it axially; if necessary, renew the gearmotor already equipped with the cam to operate the microswitches.
- Using a pin punch Ø3mm extract the spring pin (310) and extract the whole clutch assembly from the rod and, if necessary, replace it with a new one.
- Check the clutch: manually turn the rod (050) with the paddle (060) holding the gearmotor still; if the clutch is stillefficient, it just takes a slight force to make the clutch plates slip. If the clutch is too stiff, or too slack, it must be replaced with a new one.
- Remove the paddle (060).
- Gently hammer the shaft (050) from the paddle side and extract the bearings (440-460) taking care not to damage the oil seal (430).
- Reassemble the level gauge by carrying out the phases described above in reverse. Take care over correctly restoring the electric connections as well as correctly fitting the seals.
- Restore the power supply.
- Reassemble and firmly tighten the screws of the cover.
- Simulate filling by blocking paddle rotation; after checking the level gauge works properly, you can refit the level gauge in the plant.

## 5.4 SOSTITUZIONE LAMPADINA (OPTIONAL) CHANGING THE LIGHT BULB(OPTIONAL)



L'indicatore di livello può essere fornito, su richiesta del cliente, di portalamпада per la segnalazione del livello di prodotto di cui è chiamato a riscontrarne lo stato. Nel caso la sua lampadina debba essere sostituita, occorre rimuovere la gemma di protezione colorata (verde, gialla, ecc.) e sostituire la lampadina con una avente attacco E14, e potenza 3 watt, rispettando il valore e la natura della tensione di alimentazione, uguale a quella del motorino.

*The level indicator can be fitted with a lamp holder, upon the customers's request, to indicate the level of the product.. Whenever the lamp needs changing, first remove the coloured safety glass (green, yellow, etc.) and then change the lamp choosing one with an E14 socket, 3 watts, and which has the same supply voltage as the motor.*

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## 6 - INCONVENIENTI CAUSE – RIMEDI TROUBLE - CAUSES – REMEDIES



**ATTENZIONE  
CAUTION**

Qualsiasi operazione sul dispositivo deve essere eseguita dopo aver opportunamente sezionato tutte le alimentazioni elettriche.

*Any operation must be performed with the machine stationary after appropriately disconnecting the electricity and compressed air supplies and discharging any remaining power.*

Inconveniente: <i>Trouble:</i>	Cause: <i>Causes:</i>	Rimedi: <i>Remedies:</i>
Assenza di segnale o segnale intermittente  <i>No signal or intermittent signal</i>	Allacciamento elettrico difettoso <i>Defective electric connection</i>	Controllare allacciamento <i>Check connection</i>
	Contatti elettrici dei microinterruttori ossidati o non funzionanti <i>Electric contacts of microswitches oxidized or ones that don't work</i>	Sostituire il microinterruttore <i>Clean the terminals of the oxidation or replace the microswitches and check the causes</i>
	Ostacolo alla contro-rotazione del motoriduttore <i>Obstruction to the counter-rotation of the gearmotor</i>	Rimuovere l'ostacolo <i>Remove the obstacle</i>
	Lampadina di segnalazione bruciata <i>Light bulb blown</i>	Sostituire la lampadina <i>Change the light bulb</i>
Segnale continuo in assenza di prodotto <i>Continuous signal with no product</i>	Paletta incrostata o bloccata da ostacolo <i>Paddle encrusted or blocked by obstacle</i>	Pulire la paletta o rimuovere l'ostacolo <i>Clean the paddle or remove the obstacle</i>
La paletta non gira	Alimentazione interrotta <i>Interrupted supply</i>	Verificare cause interruzione <i>Check the causes of the break</i>
	Tensione di alimentazione diversa da quella di targa <i>Different supply voltage than that of the data plate</i>	Verificare tensione <i>Check the voltage</i>
	Motorino e/o riduttore rotti <i>Burnt motor and/or broken reduction gear</i>	Sostituire il motorino o il riduttore <i>Change the gearmotor</i>
	Microinterruttore rotto <i>Broken microswitch</i>	Sostituire il microinterruttore <i>Replace the microswitch A Fig.1.</i>





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## 7 – DEMOLIZIONE - *DEMOLITION*

Essendo in vigore una differente modalità di osservazione nei singoli Paesi si devono osservare le prescrizioni imposte dalle Leggi e dagli Enti preposti dai Paesi stessi.

Scollegare la macchina dalla rete elettrica, e disinstallarla eseguendo le operazioni inverse descritte durante l'installazione.

Procedere allo smontaggio delle parti della macchina raggruppando i componenti secondo la loro natura chimica.

*Since each single country has different regulations, it is necessary to observe the prescriptions required by the Laws and Authorities of the single country.*

*Disconnect the machine from the electric mains and uninstall it by carrying out the reverse operations described for installation.*

*Proceed to disassemble the parts from the machine grouping the components according to their chemical nature.*



**ATTENZIONE  
CAUTION**

**Le operazioni di smontaggio devono essere eseguite esclusivamente da personale qualificato, autorizzato e che abbia preso in visione il presente manuale.**

***The disassembly operations must be performed solely by qualified personnel who have been cleared and have examined this manual.***



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## DICHIARAZIONE DI CONFORMITA' CE

### *Manufacturer's Declaration*

(DIRETTIVA 98/37/CEE-Allegato II, punto B)  
*(Directive 98/37/EEC-Annex II, B)*

**LA SOTTOSCRITTA (We):** ARIOSTEA spa - Impianti Industriali  
Via Della Tecnica 10 - 42015-Prato di Correggio  
**Reggio Emilia – ITALIA**

**DICHIARA CHE L'INDICATORE DI LIVELLO** *(declare that the LEVEL INDICATOR)* :

**Modello (Model) :**

**IL**

**Anno di costruzione (year of manufacturing):** **2012**

IP65 -20°COTaO+40°C  
**E' CONFORME ALLE DIRETTIVE:**  
***Is in conformity with the Directive***

**2006/95/CEE** ( Bassa tensione – *Low voltage* )

**89/336/CEE** (Compatibilità elettromagnetica - *Electromagnetic Compatibility*)

La persona autorizzata a costituire la documentazione tecnica pertinente è: **Moreschi Arturo**

The person authorized to provide the technical documentation is :

con residenza presso : **ARIOSTEA** spa - Via Della Tecnica 10 - 42015-Prato di Correggio

with residence at : **Reggio Emilia – ITALIA**

**LUOGO E DATA (Place and date):**  
**Prato di Correggio: 10/01/2012**

**IL RESPONSABILE**  
**Moreschi Arturo**





# Motor Series **MT0**

## Uni-Directional Synchronous Motor - 375 RPM



### Application

Timers, Chart recorders, Potentiometer Drives, light Displays, Hour Meterd, Cam Timers, Programming devices and control instrumentation.

### Design

MT0 is a unidirectional motor with a cylindrical sheet-iron stator in which the field poles form the stator ring. In combination with the auxiliary poles (provided with copper shading rings) a rotating field is generated when the coil is energized.

The rotor turns in sintered bushings requiring no maintenance. The motor shaft is polished to a mirror finish. Motor can be provided with screw clip for fixing.

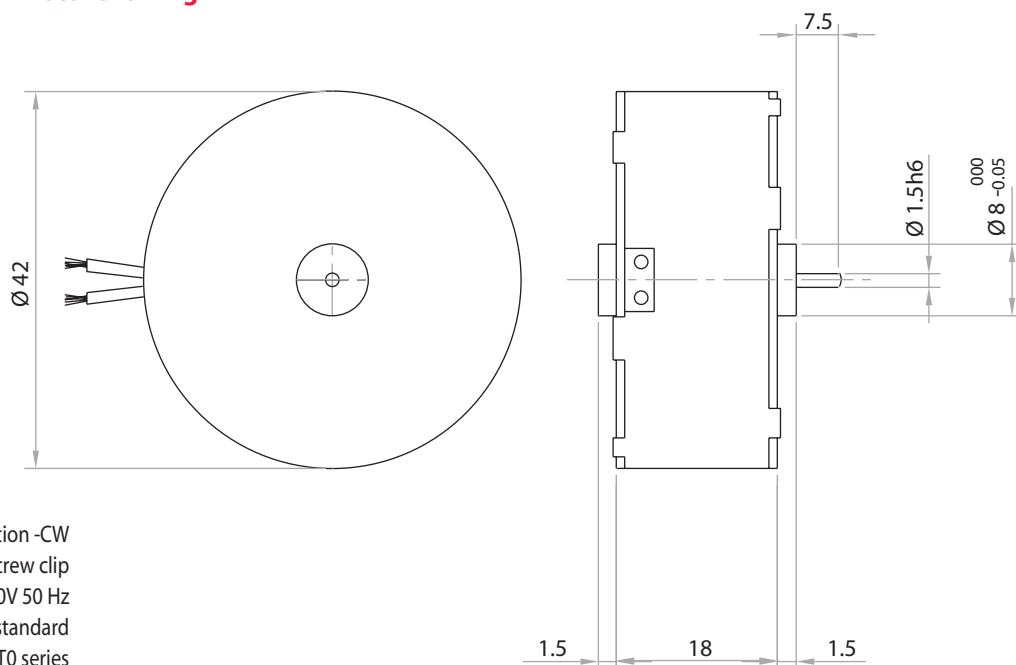
### Standard Data

Motor type		Uni directional synchronous; with electrical shading
Ambient temperature operation	°C	-15...+55
Ambient temperature storage	°C	-20...+100
Thermal class	°C	105
Motor speed	rpm	375 @ 50 Hz
Life expectancy		3 years in continuous operation
Mounting		any position
Standard motor voltages	V	12,24,110,220&240 (other on request)
HVT		2.0 KV (motor voltage>40V) or 0.6 KV (motor voltage<40V) for 1 min.
Weight	gm	100
Rotor stalling		Motor can be stopped when voltage is applied, without being overheated
Rotor shaft		Hardened steel, ground and polished
Bearings		Sintered bronze, self-lubricating
External dimensions		dia.42 x 18 mm

### Technical data

Tolerance of voltage	%	-10...+15% of rated voltage	
Duty cycle	%	100	
<b>Rated frequency</b>	<b>Hz</b>	<b>50</b>	<b>60</b>
Speed	rpm	375	450
Running torque at rated voltage	gm-cm	5	4
Power consumption at rated voltage	W	1.4	1.5

### Motor Drawing



### Ordering Data

00C	N	B1	S	C	
					Direction -CW
					Mounting -with screw clip
					Voltage -110V 50 Hz
					Approval - standard
					Motor -MT0 series

**MATERIAL SAFETY DATA SHEET**  
According to 91/155 EEC

Printing date: 09/09/97

Last revised: 03/10/95

**1. CHEMICAL PRODUCT AND PRODUCER IDENTIFICATION**

1.1 Material: Polyammide 66 Compound

Product trade name: SEBIMID 66 NATURAL 0025 B  
N. CAS

1.2 Producer / Supplier:

SEBI Srl

Via Filzi 2  
22076 MOZZATE CO

Information supplied by:  
SEBI Srl

**2. COMPOSITION / INFORMATION ON INGREDIENTES**

2.1 Composition description: Polyammide 66, blended with lubricants

2.2 Hazardousness: non dangerous

2.3 Hazard sign: none

2.4 R-phrases: none

**3. HAZARDS IDENTIFICATION**

3.1 Health hazards: none

3.2 Penetration ways: ingestion

3.3 Detrimental effects and  
symptoms: none

**4. FIRST AID MEASURES**

4.1 General information: no special measure

**MATERIAL SAFETY DATA SHEET**  
According to 91/155 EEC

Printing date: 09/09/97

Last revised: 07/02/96

Product trade name: **SEBIMID 66 NATURALE 0025 B****5. FIRE FIGHTING MEASURES**5.1 Suited extinguishing  
media:

nebulized water, foam, dry powder, CO2

5.2 Fire hazards:

gas outputs (carbon monoxide and hydrocyanic  
traces)**6. ACCIDENTAL RELEASE MEASURES**

6.1 Personal precautions:

risk of slipping on pellets

6.2 Enviromental precautions:

none in particular

6.3 Cleaning methods:

mechanically pick up

**7. HANDLING AND STORAGE**

7.1 Handling:

no special measure is required

7.2 Storage:

no special care is required

7.3 Packing:

material is packed in aluminium sacks or in  
cardboard octabins

7.4 Storage conditions:

keep sacks or octabins sealed. Store in dry  
and airy places

7.5 Sanitary measures:

wash hands after handling and before taking  
any food, drinks before smoking**MATERIAL SAFETY DATA SHEET**  
According to 91/155 EEC



Printing date: 09/09/97

Last revised: 07/02/96

Product trade name: **SEBIMID 66 NATURALE 0025 B****8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

8.1 Protective technical measures: none in particular (see section 7)

**8.2 Personal safety:**

Respiratory protection:	not necessary
Hand protection:	no special protection is needed; simply wash after contact
Eye protection:	not necessary
Skin protection:	wear normal work clothing

**9. PHYSICAL AND CHEMICAL PROPERTIES**

9.1 Odour: odourless

9.2 Physical state and form: solid, pellets

9.3 Colour: natural

	Value/Range	Unit	Method
9.4 Melting point/range	220	C°	
9.5 Boiling point/range	not applicable		
9.6 Flammability point	not applicable		
9.7 Self-flammability	>430	C°	
9.8 Explosion limits	not applicable		
9.9 Relative density (water= 1)	1.13	g/cm3	
9.10 Solubility: solubility in water:	insoluble		

**MATERIAL SAFETY DATA SHEET**

According to 91/155 EEC

Printing date: 09/09/97

Last revised: 07/02/96

Product trade name: **SEDIMID 66 NATURALE 0025 B**

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## 10. STABILITY AND REACTIVITY

### 10.1 Thermal decomposition / Conditions to avoid:

Product is stable if used according to recommended conditions

### 10.2 Hazardous decomposition products: none

### 10.3 Hazardous reaction: unknown

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Penetration ways: ingestion

### 11.2 Acute toxicity: product is not toxic

### 11.3 Chronic toxicity: no evidence of such effect ever reported

### 11.4 Corrosivity/irritating

action: none

### 11.5 Sensitisation: none

### 11.6 Carcinogenic: no evidence of such effect ever reported

### 11.7 Mutagen: no evidence of such effect ever reported

### 11.8 Reproduction toxic

status: no evidence of such effect ever reported

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## 12. ECOLOGICAL INFORMATION

General notes: nonrmally not hazardous

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## 13. DISPOSAL CONSIDERATIONS

13.1 Product disposal: dispose according to normal official regulations for home disposable products, or take to incineration plant. It is a non-recycle product.

13.2 Packaging disposal: dispose according to normal official regulations

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## MATERIAL SAFETY DATA SHEET

According to 91/155 EEC

Printing date: 09/09/97

Last revised: 07/02/96

Product trade name: **SEBIMID 66 NATURALE 0025 B**

#### 14. TRANSPORT REGULATIONS

14.1 Transport labelling: none

14.2 Warning plate: none

14.3 Land/Rail Transport:

RID/ADR: cl.: cat.: CT/FS: cl.: cat.:

Sea transport IMDG code: ONU n.:

Class: Pag.: Code:

Air Transport: ICAO/IATA rules ONU n.: Class:

#### 15. REGULATORY INFORMATION

15.1 Labelling according to EEC rules 67/548/EEC and 88/379/EEC:

Product is not subject to any labelling rules

15.2 Special labelling: none

#### 16. OTHER INFORMATION

The information given herein is based on our knowledge at the present time. It cannot constitute assurance of any specific characteristic and has not the same value as a legal contract.

# PLASTER

STAMPAGGIO MATERIALE TERMOPLASTICO  
COSTRUZIONE IN PROPRIO DEGLI STAMPI

Spett. ARIOSTEA SPA  
Via Tonale, 6  
42100 REGGIO EMILIA

Attn: Mr. GAIIMBERTI

Object: Material moulding "Palette"

Date: 27.09.2001

With reference to your request, with the present we inform you that the material used to moulding your goods "Paletta bandiera" and "Paletta lancia" is the segunt:

- RADILON S HS NATURAL (NYLON 6 NATURAL)

Moreover we inform you that during the processing don't come additional additives and/or colouring.

We remain at our disposition for eventual explanations.

Yours faithfully,

PLASTER snc  
di Ferrari, Ferretti e Nicolini  
Via della Costituzione, 13-15  
Tel. e Fax: 0522/69.40.75  
42015 CORREGGIO (RE)  
Partita IVA 00253920359

PLASTER s.n.c. di Ferrari, Ferretti e Nicolini

Via della Costituzione, 13-15 - 42015 CORREGGIO (RE) - Tel. (0522) 69.40.75 - Fax (0522) 69.40.75 - E-mail: plaster srl@libero.it  
Codice Fiscale e Partita IVA 00253920359 - N. Mecc. RE 015425 - N. REA 421046



**RADICINOVACIPS**

**RADICI NOVACIPS S.p.A.**

**SEDE LEGALE, AMMINISTRATIVA E STABILIMENTO:**

24040 CHIGNOLO D'ISOLA (BG) Italy - Via Bedeschi, 20

Tel. 035/4991311 - Fax 035/994388

Cod. Fisc. e P. IVA 00917130163 - V.A.T. IT 00917130163

Cap. Soc. € 5.700.000

C.C.I.A.A. BG 187124 - Reg. Soc. Trib. BG 16812 - N. Mecc. BG 011792

**STABILIMENTO:**

24020 VILLA D'OGNA (BG) Italy - Via Provinciale, 1331

Tel. 0346/22453 e.a. - Fax 0346/23730

Date: 03/08/01

**Attn: QUALITY AND SAFETY SERVICE**

**Dear Customer,**

**we are pleased to send you the material safety data sheet regarding the supplied product :  
RADILON S HS 100E NAT.**

**We would like you to keep the above document and give back this letter duly stamped and  
signed as your acceptance.**

**We are at your disposal for any further information.**

**Best Regards**

**G. Cancelli  
Quality Manager**

**Filled in by:**

**Date:**

**Stamp and signature:**

<b>RADICINOVACIPS</b>	<b>MATERIAL SAFETY DATA SHEET</b> According to 91/155/EEC	Page 1/4
<b>1ST SECTION - IDENTIFICATION OF THE PRODUCT AND OF THE PRODUCER</b>		
Name of the producer	<b>RADICINOVACIPS</b>	
Address	Via Provinciale 11 24020 Villa D'Ogna Bergamo (I)	
Trade name of the product	<b>RADILON S HS 100E NAT.</b>	
Synonym	Polyamide 6 - Nylon 6	
Chemical name	Polycaprolactam	
Chemical formula	$[-NH-(CH_2)_5-CO]_n$	
CAS no. of the base polymer	25038-54-4	
<b>2ND SECTION - COMPOSITION/INFORMATION ABOUT THE INGREDIENT</b>		
This product is composed quite completely by polymers with high molecular weight, which are not considered dangerous.		
<b>Main components</b>		
1°) POLYAMMIDE 6		
2°) PROCESSING AIDS		
3°)		
4°)		
5°)		
6°)		
7°)		
8°)		
<b>3RD SECTION - DANGER IDENTIFICATION</b>		
<b>POTENTIAL EFFECT ON THE HEALTH</b>		
<b>EYE</b>	In case of friction with the eyes, the product can cause irritations and/or lesions	
<b>SKIN</b>	The product is unlikely to cause skin irritation	
<b>INGESTION</b>	The product is not acutely toxic, anyway it is better to avoid the ingestion of granules, because the gastric juice could hydrolyze the material causing the re-formation of the initial monomers and arousing gastric and intestinal irritations.	
<b>INHALATION</b>	The granules can unlikely be inhaled, because of their shape	
<b>EFFECTS OF THE MELTING OPERATION ON THE HEALTH</b>		
Melted plastic can cause serious burns. The processing smokes can cause eyes irritation, nausea and hemicrania. By combustion and/or degradation the product can release toxic smokes, like: carbon monoxide, carbon dioxide, nitric oxides, hydrocyanic acid, ammonia, acrylonitrile, formic aldehyde, Traces of their derivatives are mixed with these compounds at a degree of oxidation whose quantification is not possible.		
<b>MEDICAL RESTRICTIONS.</b> Virtually all the thermoplastic resins release smokes when they reach the working temperature. The right composition and concentration of these working smokes depends on the formulation of the resin including the additives, on the stay time in the transformation machines, on the variables of the machines themselves, as for instance the configuration of the plasticisation screw, the systems of degassing and so on, and depends on the working temperature. If the resin is worked using the normal precautions explained in details, it doesn't produce any negative known effect for the health. Anyway some sensitive persons and with breathing difficulties can feel a certain temporary irritation if they expose themselves to some specific components present in the working smokes		
<b>RN 009</b>	<b>Rev. 0 del 11/04/1997</b>	



RADICINOVACIPS	MATERIAL SAFETY DATA SHEET	pag. 2/4
<b>4TH SECTION - FIRST AID</b>		
<p><b>EYE</b> In case of contact with dusts and/or little pieces of polymer, remove possible contact lens and wash immediately the eyes raising the eyelid with plentiful quantity of water. If the irritation holds on, turn yourself to a medician.</p> <p><b>SKIN</b> Wash carefully the skin with water. In case of burn consult a medician</p> <p><b>INGESTION</b> It is important to avoid the ingestion of the granules because the gastric juices could lead the material to hydrolysis with a re-formation of the original monomers which could cause gastric and intestinal irritations. In case of considerable ingestion of the material you are suggested to consult a doctor. In case of spontaneous vomit check that it can freely flow down avoiding the choking.</p> <p><b>INHALATION:</b> Considered its physical form ( granule ), it can't be inhaled</p> <p><b>MELTING OPERATIONS:</b> In case the melted material comes in contact with the skin, it must be rapidly cooled with water and it has not to be ripped. Consult immediately a doctor. Don't try to remove the plastic without a medical assistance. Don't use solvents for the removing</p> <p>In case of irritation due to an inhalation of working or burning smokes, leave the polluted area and breathe fresh air. In case of cough, of breathing difficulties or of every other symptom, advise immediately a doctor even if you should have the symptoms in a second time.</p>		
<b>5TH SECTION - FIRE MEASURES</b>		
<p><b>FIRE MEASURES:</b> In any case of fire use an approved self-protector and defensive clothes.</p> <p><b>MEANS TO PUT OUT A FIRE:</b> Water sprinkling is the preferable way to put out a fire.. Water throw and foam. The water is the best way to extinguish a fire. Usually carbon dioxide and dry chemical products are not suggested because their cooling inability could allow a new burning</p> <p><b>DANGEROUS PRODUCT FOR THE COMBUSTION:</b> Among the dangerous products of the combustion there are the deep heat, black smoke, carbon oxide, carbon dioxide, azote oxides, hydrocyanic acid, ammonia, acrylonitrile, formic aldehyde. .</p> <p>These compounds are mixed with traces of their derivates with different degree of oxidation whose quantification is not possible</p> <p><b>INFLAMMABILITY:</b> It needs a continuous flame of fire</p> <p><b>INFORMATION ABOUT EXPLOSIONS</b></p> <p><b>SENSITIVITY TO THE IMPACT:</b> Not sensitive to the mechanical impact.</p> <p><b>STATIC DISCHARGE</b> : Not sensitive to the static discharge.</p>		
<b>6TH SECTION - MEASURES IN CASE OF CAUSAL EMISSION</b>		
<p><b>GENERALITY:</b> Recover the product, sweeping carefully the soil to avoid the risk of fallings, put it in a suitable container for the selling of or the regeneration ( see information of the selling of ).</p>		
<b>7TH SECTION - MANIPULATION AND STORAGE</b>		
<p><b>MANIPULATION:</b> Follow some good practices of industrial hygiene. Arrange in advance a right aeration directly connected with the outside air. Don't inhale the air contained in the packaging. The material is a substance at a high molecular weight and its manipulation at a room temperature does not get a specific risk for the operators. Take particular care of the manipulation of the material when it is melted because the material in this case has a slow heat cession and it can cause serious burns. Avoid shedding of granules in the warehouse and in the working areas because they can allow fallings. As concerns the coloured materials, take particular care not to overpass the suggested temperatures because the colors can create products of decomposition which can be injurious.</p> <p><b>STORAGE:</b> Inert material on normal conditions of storage. No particular precaution is requested. Keep the product dry to allow a normal working.</p> <p>To avoid risks of collapse if some packagings are casually exposed to the water don't store the material on a too high piles without an appropriate support.</p>		
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RADICINOVACIPS		MATERIAL SAFETY DATA SHEET		pag. 3/4	
<b>8TH SECTION - CONTROL OF THE EXPOSITION / INDIVIDUAL PROTECTION</b>					
<b>TECHNICAL CONTROLS:</b> You are suggested to let the fresh air come in the working place and to remove working smokes throw installations for the ventilation.					
<b>PERSONAL PROTECTION</b>					
<b>EYE/FACE:</b> Use protective glasses with lateral protection or glasses for chemical products.					
<b>SKIN:</b> When you handle granules try to avoid a long and repeated contact. When you work the melted material, wear long trousers, long sleeves, gloves with a good isolation and protection for the face when it is necessary wear gloves when you handle warm material.					
<b>BREATHING:</b> A good hygienical industrial practice needs a general and right aeration of the working place. When the dust ( due to secondary operations like the grinding, the lapping or the cutting ) is not rightly checked, use a special and approved breathing set to protect from powder.					
When the working smokes are not appropriately controlled, use an approved breathing set to protect from organic vapors and acid gases.					
<b>9TH SECTION -PHYSICAL AND CHEMICAL PROPERTIES</b>					
<b>PHISICAL STATE</b>		Solid			
<b>SMELL AND LOOK</b>		Plastic granules ( light smell )			
<b>BOILING POINT</b>		Not applicable			
<b>MELTING POINT</b>		220 + 3			
<b>VAPOR PRESSURE (mmHg)</b>		Negligible			
<b>VAPOR DENSITY (aria = 1)</b>		Not applicable			
<b>SPECIFIC GRAVITY (acqua = 1)</b>		1.12 + 1.14			
<b>SOLUBILITY IN THE WATER</b>		Insoluble			
<b>% VOLATILE COMPONENTS</b>		Negligible			
<b>pH</b>		Not applicable			
<b>THRESHOLD OF SMELL</b>		Not established			
<b>EVAPORATION RATE</b>		Negligible			
<b>COEFFICIENT OF DISTRIBUTION WATER/OIL</b>		Not established			
<b>FLASH POINT</b>		> 400°C.			
<b>INFLAMMABILITY LOW LIMIT</b>		Not established			
<b>INFLAMMABILITY TOP VALUE</b>		Not established			
<b>SELF-IGNITION</b>		440°C. estimated			
<b>10TH SECTION -STABILITY AND REACTIVITY</b>					
<b>STABILITY</b> Polyamidea are considered stable, so they can be conserved for long times.					
<b>REACTIVITY</b> The product doesn't react in the suggested handling, storing, working and using conditions.					
The product produces dangerous reactions with strong acids and oxidative agents.					
<b>CONDITIONS TO BE AVOIDED</b> To avoid the dangerous self-ignition /decomposition of thick very warm plastic masses, the drains must be collected in little flat forms or in thin strands to allow the speed cooling in the water too. Don't let the product at high temperatures for long times; drain with resin for general uses. ( For suggestions about the breathing protection see section CONTROLS OF THE PERSONAL EXPOSITION/PROTECTION ).					
<b>DANGEROUS DECOMPOSITION</b> The working smokes developping in conditions of treatment ( thermic decomposition > 340° C.) can contain traces of hydrocyanic acid, Ammonia, Acrylonitrile, Formic aldehyde and their derivatives.					
RN 009		Rev. 0 del 11/04/1997			

<b>RADICINOVACIPS</b>	<b>MATERIAL SAFETY DATA SHEET</b>	<b>pag. 4/4</b>
<b>11TH SECTION - TOXICOLOGICAL INFORMATION</b>		
<b>PRODUCT</b>	This product has not been tested for toxicity, but data obtained on nylon resins are summarised below: Slightly irritating to eyes but not sufficient for classification.	
<b>12TH SECTION - ECOLOGICAL INFORMATION</b>		
<b>GENERALITY</b>	The product does not cause any ecological problem. The product is not biodegradable. It can be recycled using the suitable technologies.	
<b>13TH SECTION - CONSIDERATION ON THE ELIMINATION</b>		
<b>ELIMINATION OF RUBBISH</b>	Recycling process : This product can be recycled both in its original parts and in other possible applications. Elimination of rubbish: This product is not considered a dangerous rubbish. Eliminate the rubbish accordingly with the local provisions.	
<b>14TH SECTION - INFORMATION ABOUT THE TRANSPORT</b>		
<b>GENERALITY</b>	This product is not subject to regulations of transport.	
<b>15TH SECTION - INFORMATION OF REGULATION</b>		
This product is not considered dangerous according to the CFI: Directives 67/548/EEC and 88/379/EEC. This Product Complies with TOSCA (Toxic Substance Control Act).		
<b>16TH SECTION - OTHER INFORMATION</b>		
This issue gives information and suggestions for a safe use and treatment of the resins of RADICINOVACIPS and it is based on the experience and knowledge currently at disposal. Please consider this issue not as a complete data sheet about the performance of this product or as a guide containing the opportunities to use our materials. The readers have to follow the local regulations concerning the health and the security about the work and have to transmit this issue to all the interested employees and the customers.		
<b>Editor number</b>	<b>RADICINOVACIPS via Provinciale 1331 Villa D'Ogna Bergamo (1)</b> for further information you are pleased to call the following tel. <b>0346/22453</b>	
<b>RN 009</b>	<b>Rev. 0 del 11/04/1997</b>	



## TECHNICAL DATA SHEET

Materiale Material		RADILON S HS 100 E NAT			
CARATTERISTICA PROPERTY	NORMATIVA STANDARD	UNITA' UNIT	VALORE VALUE	CONDIZIONI TEST CONDITIONS	
<b>Proprietà Meccaniche Mechanical Properties</b>					
Modulo Elastico a Trazione Tensile Modulus	ISO 527-2/1A	MPa	3050	DAM Test speed 1 mm/min	
Carico di Snervamento Yield Stress	ISO 527-2/1A	MPa	75	DAM Test speed 50 mm/min	
Allungamento di Snervamento Yield Strain	ISO 527-2/1A	%	4,1	DAM Test speed 50 mm/min	
Deformazione Nominale a Rottura Nominal Strain at Break	ISO 527-2/1A	%	>50	DAM Test speed 50 mm/min	
Modulo Elastico a Flessione Flexural Modulus	ISO 178/1A	MPa	2350	DAM Test speed 2 mm/min	
Carico a Flessione Flexural Strength	ISO 178/1A	MPa	95	DAM Test speed 2 mm/min	
Res. Urto Charpy con Intaglio Charpy Notched Impact Strength	ISO 179 eA	KJ/m <sup>2</sup>	6,2	DAM	
	ISO 179 eA -30°C	KJ/m <sup>2</sup>	4,4	DAM	
<b>Proprietà Termiche Thermal Properties</b>					
Temperatura di Fusione Melting Temperature	ISO 3146/C2	°C	220	Scanning rate 10°C/min	
Temperatura di Inflessione sotto Carico Temperature of Deflection under Load	ISO 75-2/A1	°C	55	Max surface stress 1.8 MPa	
Temperatura di Ramollimento Vicat Vicat Softening Temperature	ISO 306/B50	°C	190	Load 50N Heating rate 50°C/h	
<b>Resistenza al Fuoco Fire Behaviour</b>					
Tenuta alla Fiamma Flammability	UL 94	mm/class	0.2 / V-2*		
Resistenza al Filo Incandescente Glow Wire Flammability Index	CEI 695-2-1/2	mm / °C	2 / 750	Conditioned 48h Standard Atmosphere	
<b>Altre Proprietà Other Properties</b>					
Assorbimento d'Umidità Humidity Absorption	ISO 62	%	2,8	Saturation 23°C, 50% R.H. Thickness 1 mm	
Densità Density	ISO 1183	Kg/m <sup>3</sup>	1140		
* = Underwriters Laboratories Inc. Certificated Value; Yellow Card E116324 DAM = Dry as moulded state					
<p>I dati tecnici menzionati sono solo indicativi e non possono essere considerati come specifiche di prodotto. Qualsiasi modifica / additivazione del materiale, dopo la fornitura, può comportare variazioni dei valori e delle caratteristiche tecniche. I valori sono elaborati stampando dei provini standard.</p> <p>The above-mentioned technical data are simply indicative for users and they are given without any guarantee. They are not to be considered as specifications. Any modification / additivation of the material after the supplying can involve variation of the values or the technical characteristics. The values are calculated on injection moulded samples.</p>					
Scheda tecnica emessa il : 03/04/2000			Rev.0		

**SEBI S.r.l.**

**SAFETY DATA SHEET**  
As per EU Directive 91/155/EEC

**PRODUCT:** SEBIMID 66 NATURALE 0025 B

Compilation date: 13/04/00

**1. IDENTIFICATION ELEMENTS OF THE SUBSTANCE OR PREPARATION AND THE PRODUCER**

1.1 Substance identification: POLYAMIDE COMPOUND

Commercial name: SEBIMID 66 NATURALE 0025 B

1.2 Producer/supplier: SEBI SRL

Via Piccinelli no. 16, 22076, MOZZATE (CO), ITALY

Tel.: 0331 - 836011

Fax.: 0331 - 833733

Info supplied by:

SEBI SRL

1.3 Emergency call no.: 0331 - 836011

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

2.1 Components: polyamide 66 and additives.

2.2 Hazard level: not harmful.

2.3 Danger symbol: none.

2.4 Hazard label: none.

**3. RISK IDENTIFICATION**

3.1 Risks to health: none.

3.2 Penetration: ingestion.

3.3 Dangerous effects and symptoms: none.

**4. FIRST AID MEASURES**

The product in granulate form poses no risks to human health. The following precautions pertain to the damage to the organism that may be caused by the product in molten form, including the vapours that may be developed through the thermal effect of the molten mass.

CONTACT WITH THE SKIN: wash with water.

CONTACT WITH THE EYES: wash with water.

INHALATION: immediately bring the victim out into the fresh air and contact a physician

INGESTION: there is no risk of toxicity following ingestion.

**5. FIRE PREVENTION MEASURES**

5.1 Appropriate extinguishing methods: sprayed water, foam, dried powder, CO<sub>2</sub>.

- 5.2 Extinguishing methods that must not be used for safety reasons: inapplicable.
- 5.3 Fire-derived risks: together with carbon dioxide and water, carbon monoxide and traces of hydrocyanic acid may develop.
- 5.4 Special protection equipment for fire-extinguishing personnel: boots, gloves, goggles, and breathing apparatus.

## 6. ACCIDENTAL LEAKAGE MEASURES

- 6.1 Personal precautions: risk of slipping on granules.
- 6.2 Environmental precautions: none in particular.
- 6.3 Cleaning method: mechanical collection.

## 7. HANDLING AND STORAGE

- 7.1 Handling: handle the product far from sources of heat or open flame.
- 7.2 Hygiene procedures: wash carefully after handling and before eating, drinking or smoking.
- 7.3 Storage conditions: keep all containers tightly closed. Store in dry and well-ventilated areas.
- 7.4 Packaging: the product is usually packaged in aluminium sacks or cardboard octabins.

## 8. EXPOSURE LEVEL CHECKS / INDIVIDUAL SAFETY GEAR

- 8.1 Protective technical measures: provide sufficient suction for any fumes or vapours released during transformation.
- 8.2 Individual safety gear:
- Respiratory protection: unnecessary. Whenever ventilation is insufficient, use gas masks fitted with approved-type filters.
  - Protection for the hands: the use of gloves is recommended during the transformation process.
  - Protection for the eyes: the use of goggles is recommended.
  - Protection for the skin: the use normal work clothing is recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- 9.1 Odour: odour-free.
- 9.2 Physical form: solid granules.
- 9.3 Colour: natural.

	Value range	unit of measure
9.4 <u>Melting point range:</u>	255-260	°C
9.5 <u>Boiling point range:</u>	inapplicable	
9.6 <u>Flash point:</u>	inapplicable	
9.7 <u>Self-inflammable:</u>	> 435	°C
9.8 <u>Explosive properties:</u>	inapplicable	
9.9 <u>Relative density:</u>	1.14	g/cm3
9.10 <u>Solubility in water at 20°C:</u>	insoluble	



9.11 Thermal decomposition: 340 °C

## 10 STABILITY AND REACTIVITY

10.1 Thermal decomposition / conditions to be avoided: The product is stable when used under the conditions recommended.

10.2 Materials to be avoided: the product reacts with strong oxidants and strong acids.

10.3 Dangerous decomposition products: see Point 5.3.

## 11 TOXICOLOGICAL INFORMATION

11.1 Penetration: ingestion

11.2 Acute toxicity: the product is non-toxic

11.3 Chronic toxicity: no evidence of such effect observed

11.4 Corrosion/Irritating power: none

11.5 Sensitising power: none

11.6 Cancerigenic: no evidence of such effect observed

11.7 Mutagenesis: no evidence of such effect observed

11.8 Teratogenesis: no evidence of such effect observed

## 12 ECOLOGICAL INFORMATION

General note: generally not harmful

## 13. NOTES ON DISPOSAL

13.1 Disposal of material:

Any local laws or prescriptions in force will suffice.

13.2 Disposal of packaging:

Can be disposed of as prescribed by local regulations.

## 14. TRANSPORT INFORMATION

14.1 Transport labelling: none.

14.2 Risk level class: none.

## 15. INFORMATION ON REGULATIONS

15.1 Labelling in compliance with European Union Directive 67/548/EEC and 88/379/EEC:

The product is not subject to labelling regulations.

15.2 Specific measures taken: none.

## 16. OTHER INFORMATION

The information provided is based on our current level of knowledge, which does not necessarily offer an absolute guarantee for any of the specific properties listed and cannot constitute the basis for a legally valid contractual relationship.



09.09.96 09:43  
G.S. srl  
via provinciale per Campi 33  
42019 Carreggio (R.E.) ITALY  
tel. 0522-637777  
Telex 537481 ESCOR I  
fax 0522-648530

CF-21.004457/0350  
Isc. Reg. Imp. R.E. n° 5566  
C.C.I.A. 115632  
Cap. Soc. 80.000.000  
Export RE 01682

822  
Attrezzature meccaniche per  
gommati e autovetture  
Stampaggio termoplastici  
Costruzione stampi  
Lavavetri e automeccaniche

STAMPO N°	CODICE ARTICOLO	DESCRIZIONE	MATERIALE
782.01	0770004 0770006	CANNE DOPPIO COMANDO PIASTRINA PER MICROINTERR.	PA 66
824.01	0770007 0770001	SUPPORTI CUSCINETTO ENTRA BASE SUPPORTO MORSETTERA	PA 66
953.01	0770009	COPERCHIO	PA6+GF25
1550.01	0770008	SCATOLA	PA6+GF25

# SNIAMID SSD AP

Polyamide 66,  
a viscosità normale.

ST - Stampaggio  
E - Estrusione

Nylon 66,  
standard viscosity.

ST - Injection  
E - Extrusion

Polyamid 66, normale  
Viskosität.

ST - Spritzguss  
E - Extrusion

Polyamide 66, à viscosité  
normale.

ST - Moulage  
E - Extrusion

## PROPRIETÀ PROPERTIES EIGENSCHAFT PROPRIÉTÉS

Densità

Density

Dichte

Densité

Fibro lineare allo stampaggio

Mould shrinkage

Schwindung

Rend. al moulage

Assorbimento d'acqua a 23°C in acqua per 24 ore

Water absorption at 23°C in water for 24 hours

Wasserabsorption bei 23°C 24 Stunden in Wasser

Absorption d'eau à 23°C en eau pendant 24 heures

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VALORI TIPICI

TYPICAL VALUES

TYPISCHE WERTE

VALEURS TYPIQUES

VALEURS TYPIQUES

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**A**

Lo Sniamid SSD AP è caratterizzato da una notevole resilienza e elasticità, perciò è adatto alla realizzazione di manufatti più avvertiti dove sono di grande utilità la maggior rigidità e la migliore stabilità dimensionale della poliammide 66 rispetto alla poliammide 6.

Lo Sniamid SSD AP è pertanto una poliammide 66 da stampaggio di uso generale per la realizzazione di pezzi per l'industria meccanica ed elettrica/elettronica.

Esso viene per esempio adoperato per la produzione di piccole ruote ed ingranaggi, segnaprezzi, piccoli pezzi per apparecchi telefonici ed elettrici.

Lo Sniamid SSD AP può essere ottenuto nei tipi naturale, nero e colorato secondo colori standard e secondo colori speciali; esso può essere stampato nelle condizioni normali di una poliammide 66 con temperatura dello stampo compresa tra 20 e 90°C.

Sniamid SSD AP verfügt über bemerkenswerte Schlagzähigkeit und Fiedvermögen, weshalb es sich für die Herstellung der vielfältigsten Formteile eignet, wobei die im Vergleich zu Polyamid 6 höhere Steifigkeit und Dimensionsstabilität des Polyamid 66 von Nutzen ist. Sniamid SSD AP ist somit ein Polyamid 66 (für Spritzguss) mit breitem Anwendungsbereich zur Herstellung von Teilen für Maschinen-, Elektro- und elektronische Industrie. Es wird z.B. für die Produktion von kleinen Rädern und Zahnrädern, Preisauszeichnern, Kleinteilen für Fernmelde- und Elektrogeräte eingesetzt. Sniamid SSD AP wird in Farbe natur, schwarz, Standard- und Spezialfarben geliefert. Es kann unter normalen PA 66-

**B**

temperatura stampato in H<sub>2</sub>O a 90°C per tante ore corrispondenti al mm di spessore del pezzo stampato e quindi lasciato 4 giorni a 23°C e 50% U.R. (Unità 2.5%).  
Conditiones = material kept in water at 90°C for as many hours as the thickness in mm of the moulded piece and then left four days at 23°C and 50% rh. Moisture content 2.5%.  
Fertigt = bei 90°C unter Wasser gefüllte Material in einer der jeweiligen der Spritzguss entsprechenden Stundenzahl in standard Lagerung für 4 Tage bei 23°C und 50% R.F. Feuchtgehalt 2.5%.  
Conditiones = matériau gardé dans l'eau à 90°C pendant un nombre d'heures correspondant à l'épaisseur de la pièce en mm, et ensuite pendant 4 jours à 23°C et 50% H.R. Humidité 2.5%.

Sniamid SSD AP is characterized by its good resilience and ease of moulding. It is suitable for the manufacture of various parts where the greater rigidity and dimensional stability of nylon 66, as compared to nylon 6, are essential. Sniamid SSD AP is moulding grade nylon 66, for general purpose production of parts, for mechanical, electrical and electronic applications.

It is used for example for making small gear wheels, price markers, and small components for telephones and electrical appliances.

Sniamid SSD AP is available in natural, black and in a range of standard and special colours. It is moulded under standard conditions used for nylon 66 and with a mould temperature of between 20°C and 90°C.

Lo Sniamid SSD AP est caractérisé par une résilience et une fluidité considérables. Il est donc indiqué pour la réalisation d'articles les plus variés, où la rigidité supérieure et la stabilité dimensionnelle plus élevée du polyamide 66 par rapport au polyamide 6 sont mises en valeur.

Le Sniamid SSD AP est, par conséquent, un polyamide 66 de moulage d'usage général pour la réalisation de pièces des industries mécaniques et électrique-électronique.

Il est utilisé, par exemple, pour la production de petites roues et d'engrenages, d'attracteurs-prix, de petites pièces pour appareils téléphoniques et électriques.

Le Sniamid SSD AP est vendu en couleurs naturelle et noire et dans les couleurs standards ou en couleurs spéciales. Il est

# SNLUMID<sup>®</sup> SSD AP

CARATTERISTICHE MECCANICHE MECHANICAL PROPERTIES MECHANISCHE EIGENSCHAFTEN CARACTERISTIQUES MECANQUES	NORME NORMAS NORMEN NORMES	UNITA UNITS DIMENSION UNITES	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
			▼ A ▼ B ▼
Carico di snervamento Tensile yield strength Streckspannung Contrainte au seuil d'écoulement	ASTM D 638 ISO/VDI R/527 DIN 53455	N/mm <sup>2</sup>	85 80
Allungamento a rottura Ultimate elongation Reißeformung Allongement à la rupture	ASTM D 638 ISO/VDI R/527 DIN 53453	%	30-60 120-220
Modulo elastico a trazione Tensile modulus Zugmodul Module d'élasticité en traction	ASTM D 638 ISO/VDI R/527 DIN 53457	N/mm <sup>2</sup>	3100 1700
Resistenza a flessione Flexural strength Biegefestigkeit Résistance en flexion	ASTM D 790 ISO/VDI R/178 DIN 53452	N/mm <sup>2</sup>	150 70
Modulo elastico a flessione Flexural modulus Biegemodul Module d'élasticité en flexion	ASTM D 790 ISO/VDI R/178 DIN 53457	N/mm <sup>2</sup>	3100 1800
Resistenza a compressione Compressive strength Druckfestigkeit Résistance à la compression	ASTM D 695 ISO/VDI R/504 DIN -	N/mm <sup>2</sup>	110 160
Modulo elastico a compressione Compressive modulus Druckmodul Module d'élasticité en compression	ASTM D 695 ISO/VDI R/504 DIN -	N/mm <sup>2</sup>	3200 1500
Resistenza all'urto Iod con intaglio Unnotched Iod impact strength Schlagzähigkeit Iod Résistance au choc Iod (barreau non entaillé)	(ENERGIA APPLICATA 15 J) ASTM D 2593 ISO/VDI R/180 DIN -	% Rottura % Break % Bruch % Rupture	30 -
Resistenza all'urto Iod con intaglio Notched Iod impact strength Kerbschlagzähigkeit Iod Résistance au choc Iod (barreau entaillé)	ASTM D 2593 ISO/VDI R/180 DIN -	J/m	40 200
Resistenza all'urto senza intaglio Impact strength Schlagzähigkeit Résistance au choc (barreau non entaillé)	ASTM D 2593 ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	20 -
	ASTM D 2593 ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	33 -
Resistenza all'urto con intaglio Notched impact strength Kerbschlagzähigkeit Résistance au choc (barreau entaillé)	ASTM D 2593 ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	15 9
	ASTM D 2593 ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	25 3
Durezza Rockwell Rockwell hardness Härte Rockwell Dureté Rockwell	ASTM D 785 ISO/VDI - DIN -	Scala R Scale R Skala R Echelle R	121 114
Durezza Rockwell Rockwell hardness Härte Rockwell Dureté Rockwell	ASTM D 785 ISO/VDI - DIN -	Scala L Scale L Skala L Echelle L	105 93
Durezza all'impronta Hc 10 Ball indentation hardness Hc 10 Kugeldruckhärte Hc 10 Indice de dureté sous charge Hc 10	ASTM D 785 ISO/VDI - DIN 53456	N/mm <sup>2</sup>	180 85

# SHANID<sup>®</sup> SSD AP

CARATTERISTICHE ELETTRICHE ELECTRICAL PROPERTIES ELEKTRISCHE EIGENSCHAFTEN CARACTERISTIQUES ELECTRIQUES	NORME NORMES PROFVORSCHRIFT NORMES	UNITA UNITS DIMENSIONI UNITES	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
Rigidità dielettrica Dielectric strength Durchschlagfestigkeit Rigidité diélectrique	ASTM D 149	kV/mm	100 45
Resistività di volume Volume resistivity Spezifischer Widerstand Résistivité en volume	ASTM D 257 ISO/VDE 0803/3 DIN 53482	Ohm·cm	9·10 <sup>15</sup> 9·10 <sup>14</sup>
Resistività di superficie Surface resistivity Oberflächenwiderstand Résistivité en surface	ASTM D 257 ISO/VDE 0803/3 DIN 53482	Ohm	2·10 <sup>15</sup> 2·10 <sup>14</sup>
Costante dielettrica Dielectric constant Dielektrizitätszahl Constante diélectrique	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	3.7 10.5
	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	3.5 7.9
	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	3.3 4.0
Fattore di dissipazione Dissipation factor Dissipationsvermögen Facteur de dissipation	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	0.011 0.18
	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	0.018 0.18
	ASTM D 150 ISO/VDE 0803/4 DIN 53483	-	0.023 0.11
Resistenza a corrente strisciante Proc. KA Resistance to tracking Kriechstromfestigkeit Résistance au courant de cheminement	ASTM ISO/VDE 0803/1 DIN 53480	Scala graduata Graduate Scale Abstufbare Skala Echelle graduée	KA 30 KA 35
Resist. a corrente strisciante Proc. KC (col di prova F) Resistance to tracking Kriechstromfestigkeit Résistance au courant de cheminement	ASTM ISO/VDE 0803/1 DIN 53480	Y	KC > 600 KC > 600

# SNLamid<sup>®</sup> SSD AP

CARATTERISTICHE TERMICHE THERMAL PROPERTIES THERMISCHE EIGENSCHAFTEN CARACTERISTIQUES THERMIQUES	NORME NORMES PRÜFVORSCHRIFT NORMES	UNITA UNITS DIMENSION UNITES	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
Temperatura di fusione Melting point Schmelztemperatur Point de fusion	ASTM ISO/VE DIN	- D.T.A. °C	250 ± 2
Temperatura Vicat Vicat temperature Vicat-Erweichungstemperatur Température de ramollissement Vicat	ASTM ISO/VE DIN	D 1525 R 308 °C	250 - 255
Temperatura di infusione sotto carico Heat distortion temperature Wärmeformbeständigkeit Déformation à la chaleur	ASTM ISO/VE DIN	D 843 R 75 °C	80
	ASTM ISO/VE DIN	D 646 R 75 °C	208
Coefficiente di dilatazione termica lineare Coefficient of linear thermal expansion Längenausdehnungskoeffizient Coefficient de dilatacion thermique lineare	ASTM ISO/VE DIN	D 893 G 904 °C	7 · 10 <sup>-5</sup>
Calore specifico Specific heat Spezifische Wärmekapazität Chaleur spécifique	ASTM ISO/VE DIN	D 893 G 904 KJ/Kg · K	1.7
Conducibilità termica Thermal conductivity Thermische Leitfähigkeit Conductivité thermique	ASTM ISO/VE DIN	- - W/K · m	0.28
Temperatura d'impiego continuo senza sollecitazione Continuous service temperature with no stress Anfordernde Anwendungstemperatur ohne Belastung Température d'emploi en continu sans contrainte	ASTM ISO/VE DIN	- - °C	80 (110 KNF)
Temperatura limite d'impiego per brevi durate Maximum service temperature (short term) Temperaturgrenze bei kurzen Einsatzzeiten Température maximale pour un emploi de courte durée	ASTM ISO/VE DIN	- - °C	180 (190 KNF)
Infiammabilità Flammability Brandverhalten Inflammabilité	ASTM ISO/VE DIN	D 893 - -	Autesting Self-extinguish Selbstverlösch Autextinguible
	ASTM ISO/VE DIN	- - -	Y2

# SNIAMID ASN 27/250

Poliamide 6, a viscosità normale, rinforzata con 25% di fibre di vetro, per stampaggio a iniezione.

Nylon 6, standard viscosity, reinforced with 25% of fibre glass, for injection moulding.

Polyamid 6, normale Viskosität, 25% Glasfaseranfill, für Spritzguß.

Polyamide 6, a viscosità normale, rinforçé de 25% de fibres de verre, pour moulage à injection.

PROPRIETÀ PROPERTIES EIGENSCHAFT PROPRIÉTÉS	NORME NORMS PRÜFUNGSSCHRIFT NORMES	UNITÀ UNITS DIMENSION UNITÉS	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
Densità Density Dichte Densité	ASTM D 792 ISO/VE R1183 DIN 53478	g/cc	1.31
Ritiro lineare allo stampaggio Mould shrinkage Schwindung Retrait au moulage	ASTM D 955 ISO/VE - DIN -	%	0.5-0.4
Absorbimento d'acqua a 23°C in acqua per 24 ore Water absorption at 23°C in water for 24 hours Wasser Aufnahme bei 23°C 24 Stunden in Wasser Absorption d'eau à 23°C en eau pendant 24 heures	ASTM D 870 ISO/VE - DIN -	%	0.9-1.0

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Dry  
Condition  
See

Lo Sniamid ASN 27 / 250 presenta rispetto alla poliamide 6 non rinforzata dei sensibili miglioramenti nelle proprietà meccaniche e termiche con buone proprietà di resistenza all'urto, di stabilità dimensionale e di fluidità allo stampaggio.

Lo Sniamid ASN 27 / 250, per l'eccellente combinazione delle sue proprietà, trova applicazione per la produzione di pezzi tecnici ad alta rigidità, quali carcasse per piccoli elettrodomestici, pezzi per l'elettronica, per veicoli di raffreddamento di motori elettrici e meccanici, ecc.

Lo Sniamid ASN 27 / 250 può essere ottenuto nei colori naturali, nero e colorato secondo colori standard a seconda colori speciali: rosso, blu, verde, giallo, ecc. Lo Sniamid ASN 27 / 250 KMF naturale e nero, stabilizzato al calore e alla luce. Lo Sniamid ASN 27 / 250 e lo Sniamid ASN 27/250 KMF possono essere stampati con pressione di iniezione più elevata, con velocità della vite più bassa e con temperatura del cilindro di plastificazione di 15-20°C superiori a quelle adoperate nello stampaggio della normale poliamide 6. Temperature dello stampo di 80-100°C sono preferibili per ottenere manufatti esteticamente validi.

Sniamid ASN 27 / 250 weist im Vergleich zu nicht glasfaserverstärktem PA 6 - Typen erhebliche Verbesserungen hinsichtlich mechanischer und thermischer Eigenschaften sowie guter Schlagfestigkeit, Dimensionsstabilität und Fließverhalten beim Spritzen auf. Auf Grund seiner ausgewogenen Kombination von Eigenschaften findet Sniamid ASN 27 / 250 Verwendung bei der Herstellung von technischen Teilen hoher Steifigkeit, wie z.B. Gehäuse für kleine elektrische Haushaltsgeräte, von Teilen für den Bausektor, von Lüfterblättern für Elektro- und Verbrennungsmotoren usw.

Sniamid ASN 27 / 250 wird in den Farben natur, schwarz, Standard- und Spezialfarben geliefert. Außerdem wird es auch als Typo Sniamid ASN 27 / 250 KMF natur und schwarz in licht- und wärmostabilisierter Ausführung geliefert. Beide Typen können mit höherem Spritzdruck, niedrigerer Schneidgeschwindigkeit und 15-20°C höherer Plastifiziertemperatur als für normales Polyamid 6 üblich verarbeitet werden. Formtemperaturen

B

Sniamid ASN 27 / 250 offers considerable advantages over unfilled nylon 6 in fact it has improved mechanical and thermal properties and has good impact resistance, dimensional stability and ease of moulding.

Sniamid ASN 27 / 250 due to the excellent combination of its properties, is suitable for the production of highly rigid technical components, such as housings for small domestic appliances, parts for the building industry, cooling fans for electric and mechanical motors, etc.

Sniamid ASN 27 / 250 is available in natural, black and in a range of standard and special colours. It is also available in heat and light stabilised form, ASN 27/250 KMF in natural and black colours.

Sniamid ASN 27 / 250 and Sniamid ASN 27 / 250 KMF are moulded with greater injection pressure, lower screw speed, with the injection barrel at a temperature 15-20°C above that used for the moulding of unfilled nylon 6. Mould temperatures of 80-100°C are advisable in order to obtain high quality products with good surface appearance.

Lo Sniamid ASN 27 / 250 presenta, comparé au polyamide 6 non renforcé, de sensibles améliorations des propriétés mécaniques et thermiques avec de bonnes propriétés de résistance au choc, de stabilité dimensionnelle et de fluidité au moulage. Le Sniamid ASN 27 / 250, grâce à son excellente combinaison de propriétés, est utilisé pour la production de pièces techniques à rigidité élevée telles que carcasses pour petits appareils électro-ménagers, pièces pour la construction de bâtiments, hélices de refroidissement de moteurs électriques et mécaniques, etc. Le Sniamid ASN 27 / 250 est fourni dans les couleurs naturelles et noires, et teint en couleurs standards ou spéciales. Il est fourni, en outre, dans la version Sniamid ASN 27 / 250 KMF en couleurs naturelles et noires, stabilisées à la chaleur et à la lumière. Le Sniamid ASN 27 / 250 et le Sniamid ASN 27/250 KMF sont moulés à une pression d'injection plus élevée, avec une vitesse de la vis plus réduite et à des températures du cylindre de plastification de 15 à 20°C supérieures à celles utilisées pour le moulage du polyamide 6.



# SNIAMID ASN 27/250

## CARATTERISTICHE MECCANICHE MECHANICAL PROPERTIES MECHANISCHE EIGENSCHAFTEN CARACTERISTIQUES MECANQUES

## NORME NORMS PROFVORSCHRIFT NORMES

## UNITA UNITS DIMENSION UNITES

## VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES

			A	B
<b>Carico di rottura</b> Ultimate tensile strength Reißfestigkeit Tension de rupture	ASTM D 638 ISO/VDI R/527 DIN 53453	N/mm <sup>2</sup>	160	100
<b>Allungamento a rottura</b> Ultimate elongation Reißdehnung Allongement à la rupture	ASTM D 638 ISO/VDI R/527 DIN 53453	%	3,5	4
<b>Modulo elastico a trazione</b> Tensile modulus Zugmodul Module d'élasticité en traction	ASTM D 638 ISO/VDI R/527 DIN 53457	N/mm <sup>2</sup>	3000	4500
<b>Resistenza a flessione</b> Flexural strength Biegefestigkeit Résistance en flexion	ASTM D 750 ISO/VDI R/179 DIN 53452	N/mm <sup>2</sup>	230	130
<b>Modulo elastico a flessione</b> Flexural modulus Biegemodul Module d'élasticité en flexion	ASTM D 750 ISO/VDI R/179 DIN 53457	N/mm <sup>2</sup>	2000	4400
<b>Resistenza a compressione</b> Compressive strength Druckfestigkeit Résistance à la compression	ASTM D 693 ISO/VDI R/504 DIN -	N/mm <sup>2</sup>	155	110
<b>Modulo elastico a compressione</b> Compressive modulus Druckmodul Module d'élasticité en compression	ASTM D 693 ISO/VDI R/504 DIN -	N/mm <sup>2</sup>	6100	2300
<b>Resistenza all'urto Iod senza intaglio</b> Unnotched Izod impact strength Schlagzähigkeit Iod Résistance au choc Iod (barreaux non entaillés)	ASTM D 256 ISO/VDI R/120 DIN -	KJ/m <sup>2</sup>	68	-
<b>Resistenza all'urto Iod con intaglio</b> Notched Izod impact strength Kerbschlagzähigkeit Iod Résistance au choc Iod (barreaux entaillés)	ASTM D 256 ISO/VDI R/120 DIN -	J/m	20	170
<b>Resistenza all'urto senza intaglio</b> Impact strength Schlagzähigkeit Résistance au choc (barreaux non entaillés)	ASTM - ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	33	-
<b>Resistenza all'urto con intaglio</b> Notched impact strength Kerbschlagzähigkeit Résistance au choc (barreaux entaillés)	ASTM - ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	28	-
<b>Resistenza all'urto senza intaglio</b> Impact strength Schlagzähigkeit Résistance au choc (barreaux non entaillés)	ASTM - ISO/VDI R/179 DIN 53453	KJ/m <sup>2</sup>	5	6
<b>Durezza Rockwell</b> Rockwell hardness Härte Rockwell Dureté Rockwell	ASTM D 785 ISO/VDI - DIN -	Scala R Scale R Echelle R	122	112
<b>Durezza Rockwell</b> Rockwell hardness Härte Rockwell Dureté Rockwell	ASTM D 785 ISO/VDI - DIN -	Scala L Scale L Echelle L	112	94
<b>Durezza all'impronta Hc 10</b> Ball indentation hardness Hc 10 Kugeldruckhärte Hc 10 Indice de dureté sous charge Hc 10	ASTM - ISO/VDI - DIN 53456	N/mm <sup>2</sup>	210	100

# SNAMID ASN 21/250

CARATTERISTICHE ELETTRICHE ELECTRICAL PROPERTIES ELEKTRISCHE EIGENSCHAFTEN CARACTERISTIQUES ELECTRIQUES	NORME NORMS PROFVORSCHRIFT NORMES	UNITA UNITS EINHEITEN UNITES	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
<b>Figiura dielettrica</b> Dielectric strength Durchschlagfestigkeit Résistance diélectrique	ASTM D 149	KV/mm	70 40
<b>Resistività di volume</b> Volume resistivity Spezifischer Widerstand Résistivité en volume	ASTM D 257 ISO/VDI 0303/3 DIN 53482	Ohm·cm	7·10 <sup>14</sup> 4·10 <sup>14</sup>
<b>Resistività di superficie</b> Surface resistivity Oberflächenwiderstand Résistivité en surface	ASTM D 257 ISO/VDI 0303/3 DIN 53482	Ohm	3·10 <sup>14</sup> 8·10 <sup>14</sup>
<b>Costante dielettrica</b> Dielectric constant Dielektrizitätszahl Constante diélectrique	ASTM D 180 ISO/VDI 0303/4 DIN 53483	-	4.2 12.3
$\epsilon_r$ 50 Hz	ASTM D 180 ISO/VDI 0303/4 DIN 53483	-	4 8.3
$\epsilon_r$ 10 <sup>3</sup> Hz	ASTM D 180 ISO/VDI 0303/4 DIN 53483	-	3.3 4.5
$\epsilon_r$ 10 <sup>6</sup> Hz	ASTM D 180 ISO/VDI 0303/4 DIN 53483	-	3.3 4.5
<b>Fattore di dissipazione</b> Dissipation factor Dielektrischer Verlustfaktor Facteur de dissipation	ASTM D 150 ISO/VDI 0303/4 DIN 53483	-	0.012 0.17
$T_g$ 50 Hz	ASTM D 150 ISO/VDI 0303/4 DIN 53483	-	0.016 0.21
$T_g$ 10 <sup>3</sup> Hz	ASTM D 150 ISO/VDI 0303/4 DIN 53483	-	0.020 0.09
<b>Resistenza a corrente strisciante Proc. KA</b> Resistance to tracking Kriechstromfestigkeit Résistance au courant de cheminement	ASTM ISO/VDI 0303/1 DIN 53480	Scale gradata Graduated Scale Abgestufte Skala Echelle graduée	KA 3c KA 8b
<b>Resist. a corrente strisciante Proc. KC (test di prova F)</b> Resistance to tracking Kriechstromfestigkeit Résistance au courant de cheminement	ASTM ISO/VDI 0303/1 DIN 53480	V	KC 650 KC 475

# SHANID<sup>®</sup> ASN 27/250

CARATTERISTICHE TERMICHE THERMAL PROPERTIES THERMISCHE EIGENSCHAFTEN CARACTERISTIQUES THERMIQUES	NORME NORMES PRÜFVORSCHRIFT NORMES	UNITA UNIT'S DIMENSION UNITES	VALORI TIPICI TYPICAL VALUES TYPISCHE WERTE VALEURS SPECIFIQUES
Temperatura di fusione Melting point Schmelztemperatur Point de fusion	ASTM ISO/VE DIN	- DTA °C	- - 222 ± 2
Temperatura Vicat Vicat temperature Vicat-Erweichungstemperatur Température de ramollissement Vicat	ASTM ISO/VE DIN	D 1625 R/306 °C	- - 210
Temperatura di inflessione sotto carico Heat distortion temperature Wärmeformbeständigkeit Déformation à la chaleur	ASTM ISO/VE DIN	D 648 R/75 °C	- - 200
	ASTM ISO/VE DIN	D 648 R/75 °C	- - 215
Coefficiente di dilatazione termica lineare Coefficient of linear thermal expansion Längenausdehnungskoeffizient Coefficient de dilatation thermique linéaire	ASTM ISO/VE DIN	D 693 G304 K <sup>-1</sup>	- - 35 · 10 <sup>-6</sup>
Calore specifico Specific heat Spezifische Wärmekapazität Chaleur spécifique	ASTM ISO/VE DIN	D 693 G304 KJ/Kg · K	- - 1.5
Conducibilità termica Thermal conductivity Thermische Leitfähigkeit Conductivité thermique	ASTM ISO/VE DIN	- - W/K · m	- - 0.25
Temperatura d'impiego continuo senza sollecitazione Continuous service temperature with no stress Anwendungstemperatur ohne Belastung Température d'emploi en continu sans contrainte	ASTM ISO/VE DIN	- - °C	- - 115 (140 KJF)
Temperatura limite d'impiego per breve durata Maximum service temperature (short term) Temperaturgrenze bei kurzen Einsatzzeiten Température maximale pour un emploi de courte durée	ASTM ISO/VE DIN	- - °C	- - 160 (200 KJF)
Inflammität Flammability Brandverhalten Inflammité	sec. ASTM ISO/VE DIN	D 833 - -	Brucia Burns Brennt Brûle
	sec. UL ASTM ISO/VE DIN	- - -	- - HB

## TECHNYL A 216

Rhodia Engineering Plastics tackles safety issues and provides Material Safety Data Sheets (MSDS) for all products with information regarding the risks (danger & exposure) and how to reduce these risks.

Products sold by Rhodia Engineering Plastics do not contain substances classified as "dangerous" or ozone depleting. They are not submitted to a mandatory labelling.

For more safety information contact the sales offices listed below :

### Brazil

Rhodia SA  
Engineering Plastics  
Estrada Galvan Bueno 5505  
CNP 09842 - 090  
Bairro Balatani  
Sao Bernardo do Campo  
BR - Sao Paulo  
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Fax (55) 11 43 58 77 42/43  
[mariza.casimiro@br.rhodia.com](mailto:mariza.casimiro@br.rhodia.com)

### Canada

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Mississauga, Ontario, Canada L5C 1Y8  
Phone: (1) 905 270 55 34  
Fax: (1) 905 270 47 37  
[EngineeringPlastics.NA@eu.rhodia.com](mailto:EngineeringPlastics.NA@eu.rhodia.com)

### China

Shanghai Long Ma Engineering Plastics Co., Ltd  
Wei Qi Road, Building T2, Block 20  
Jin Qiao Export Processing Zone,  
PuDong New Area  
Shanghai 201206  
People's Republic of China  
Tel. (86) 21 58 54 50 01  
Fax (86) 21 58 99 53 57  
[jacome.crayssac@eu.rhodia.com](mailto:jacome.crayssac@eu.rhodia.com)

### France

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Avenue Rambouillet 64  
F - 69192 Saint-Fons Cedex  
Tel. (33) 04 72 89 27 00  
Fax (33) 04 72 89 27 01  
[info.fr@eu.rhodia.com](mailto:info.fr@eu.rhodia.com)

### Germany / Switzerland / Austria

Rhodia Engineering Plastics GmbH  
Hermann-Mitsch-Strasse 36 a  
D - 79108 Freiburg i.B.  
Tel. (49) 761 515 88 0  
Fax (49) 761 515 88 77  
[anja.weber@eu.rhodia.com](mailto:anja.weber@eu.rhodia.com)

### Italy

Rhodia Engineering Plastics Srl  
Via I° Maggio 80  
I - 20120 Ceriano-Laghetto (MI)  
Tel. (39) 02 96 16 1  
Fax (39) 02 96 16 547  
Telex 314594 Teepoli  
[enrica.paternoster@eu.rhodia.com](mailto:enrica.paternoster@eu.rhodia.com)

### Korea

Rhodia Polyamide Co.  
Engineering Plastics  
3rd Floor, Kangnam Building  
1321-1, Seocho-Dong  
Seocho-Ku - Seoul 137-070  
Tel. (82-2) 21 86 25 32  
Fax. (82-2) 34 74 73 65

### Poland

Stilon S.A.  
Engineering Plastics  
UL Wolczka 25  
66-407 Gorzow Wl.KP  
Tel. (0-95) 733 22 00  
Fax. (0-95) 732 50 40

### Spain / Portugal

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Pl. Francesc Macia, nr. 7-4º A  
E - 08029 Barcelona  
Tel. (34) 93 4 10 91 92  
Fax (34) 93 4 10 43 48  
[isabel.sabater@eu.rhodia.com](mailto:isabel.sabater@eu.rhodia.com)

### Taiwan

Rhodia Engineering Plastics Co., Ltd  
25 F. # 66, Chung Hsiao West Road  
Section 1  
Taipei 100  
Taiwan 104 R.O.C.  
Tel. (886) 02 2381 1990  
Fax (886) 02 2381 1890  
[may.yang@eu.rhodia.com](mailto:may.yang@eu.rhodia.com)

### United Kingdom

Rhodia Engineering Plastics Ltd  
36 Broadway  
St James's  
GB - SW1P 3BH London  
Tel. (44) 1 71 222 86 96  
Fax (44) 1 71 222 47 05  
[snity.hentsch@eu.rhodia.com](mailto:snity.hentsch@eu.rhodia.com)



Engineering Plastics

**TECHNYL A 216**

Date : 18/05/1998

Version : 2

Cancels and replaces version : 1

**1 Product and company identification.**

**PRODUCT NAME:** TECHNYL A 216

**SUPPLIER:** Seller:

**Name:** RHODIA Engineering Plastics

**Address:** Avenue Ramboz  
69192 SAINT-FONS

**Telephone number:** 04 72 89 27 00 - (Int) 33 4 72 89 27 00.

**Telefax number:** 04 72 89 27 01 - (Int) 33 4 72 89 27 01.

**E-mail :** [info.ep@eu.rhodia.com](mailto:info.ep@eu.rhodia.com)

**2 Composition / information on ingredients****>> PREPARATION:**

**Chemical nature:** Product based on polyamide 6.6. (CAS: 32131-17-2).  
Usually contains lubricants and protectors.  
Reinforced product containing 10 to 50% glass fibre or mineral filler.  
The products which are modified to be shock resistant contain 5 to 20% elastomer.

**>>Further information:** Semi-processed polymer.

**3 Hazards identification****MOST IMPORTANT HAZARDS:**

**Adverse human health effects:**

**Physical and chemical hazards:**

**- Further hazards** Does not present any specific hazards, provided it is handled in accordance with the supplier's proposed method of use.

**Classification/Specific hazards:** According to EEC criteria, this product is not classified as a "hazardous preparation".



Engineering Plastics

#### 4 First-aid measures

Inhalation:	Not specifically applicable.
Skin contact:	Not specifically applicable. However, in the event of a fire, molten product may cause thermal burns. In this case : Rinse with plenty of water. DO NOT remove clothing (since it may stick to the skin). Call a doctor immediately.
Eye contact:	Not specifically applicable.
Ingestion:	Not specifically applicable.

#### 5 Fire - fighting measures

Extinguishing media:	
- Suitable:	All extinguishing agents can be used (water, foam, powders, carbon dioxide, sand ...).
- Not suitable:	None. If there is a fire close by, use suitable extinguishing agents.
Specific hazards:	Harmful or toxic vapours are released. Combustible product, melts on heating. Risk of fire spreading due to the flow of liquid which is already alight.
Specific fire fighting methods:	Cool the molten product.
Protection of fire-fighters:	Self-contained breathing apparatus.

#### 6 Accidental release measures

Personal precautions:	Prevent the product from spreading into the environment.
Environmental precautions:	This product does not present any particular risk for the environment.
Methods for cleaning up:	
- Recovery:	Recover the product by vacuuming/shovelling or sweeping.
- Cleaning/Decontamination:	Sweep.



## 7 Handling and storage

### HANDLING

Technical measures: Does not require any specific or particular measures.

Safe handling advice: Do not overheat the product.

### STORAGE

Technical measures: Does not require any specific or particular technical measures.

Storage conditions:

- Recommended: Store:  
- away from any flames.  
- protected from humidity and bad weather conditions.

Incompatible products: Oxidizing materials.

Packaging: The product is packaged in suitable recyclable packaging.  
- Cardboard container lined with a plastic film,  
- Paper bag lined with a plastic film.

Packaging materials:

- Recommended: Cardboard.

## 8 Exposure controls / personal protection

Engineering measures: The product, as is, does not require any specific/particular measures provided it is handled in accordance with good industrial hygiene and safety practice.  
During the transformation process:  
Extraction to remove vapours at their source.

Occupational exposure limits:

- Limits (France): No specific limits.

- Limits (Germany): No specific limits.

- Limits (U.S.A./A.C.G.I.H.): No specific limits.

Personal protective equipment:

- Skin and body protection: No specific/particular action required for this product. Comply with good occupational hygiene practice.

Further information:

The product (as is) or during its use, does not produce dust.  
The different components and fillers are incorporated in the bulk of the polymer.

**Rhodia**

Engineering Plastics



## 9 Physical and chemical properties

### APPEARANCE:

- Physical state:	Solid.
- Form:	Pellets.
- Colour:	Depends on the pigment.
Odour:	none to very slight.
pH:	Not applicable
Specific temperatures:	
- Melting:	Melting range: 250 to 270°C.
Decomposition temperature:	> 350°C.
Flammability characteristics:	
- Flash point:	>400°C (Closed cup).
- Auto-ignition temperature:	>450°C (Spontaneous ignition temperature).
Oxidizing properties:	Non oxidizing material according to EEC criteria.
Solubility:	
- in water:	Practically insoluble.
- in organic solvents:	Insoluble in common organic solvents.

## 10 Stability and reactivity.

Stability:	Stable under normal conditions of use.
Hazardous reactions:	
- Conditions to avoid:	No dangerous reactions known under normal conditions of use.
- Hazardous decomposition products:	On combustion or on thermal decomposition (pyrolysis) releases: toxic gases. (Nitrogen oxides). (Carbon oxides (CO + CO <sub>2</sub> )). (Hydrogen cyanide)



## 11 Toxicological information

### Local effects:

(- No data)

Given the physical state of the product (as supplied) this is not applicable.

### Further information:

Does not present any particular risk, on handling under normal conditions of good occupational hygiene practice.

## 12 Ecological information

### Behaviour in the environment:

#### Persistence/Degradability:

Persisting product.

#### Destination of the product:

Ultimate destination of the product : SOIL.

## 13 Disposal considerations

### WASTE FROM RESIDUES:

#### Destruction/Disposal:

Recycle the material as far as possible.

If it proves necessary to grind the product in order to recycle it, take all necessary precautions to prevent the formation and spread of dust.

Non recycled product:

May be disposed of with non hazardous industrial waste.

Incinerate at a licensed installation.

Dispose of in accordance with relevant local regulations.

### CONTAMINATED PACKAGING:

#### Decontamination/cleaning:

Not applicable.

#### Destruction/Disposal:

Depending on local facilities recycle the cardboard packaging, or incinerate it at an approved site.

#### NOTE:

The user's attention is drawn to the possible existence of local regulations regarding disposal.

**Rhodia**

Engineering Plastics

## 14 Transport information

### INTERNATIONAL REGULATIONS :

#### Land:

- Rail/road (RID/ADR): NOT restricted.

Sea (IMO/IMDG): NOT restricted.

Air (ICAO-IATA): NOT restricted.

#### NOTE:

The above regulatory prescriptions are those valid on the date of publication of this sheet.

Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

## 15 Regulatory information

### LABELLING :

#### EEC regulations:

Mandatory labelling (self-classification) of hazardous preparations: Not applicable.

#### NOTE:

The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the Safety Data Sheet.

The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

## 16 Other information

### Uses:

- Recommended uses: Manufacture of articles by injection and extrusion.

- Prohibited uses: For special application e.g. in medicine, surgery or the food industry, obtain further information from the manufacturer.

### Registration numbers:

The polymers are not listed in the EINECS inventory. All the other constituents of this preparation are registered in the EINECS inventory.

**Rhodia**

Engineering Plastics

[REDACTED]

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith.

The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended.

This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfil his obligations regarding the use of hazardous products.

This information is not exhaustive.

This does not exonerate the user from ensuring that legal obligations, other than those mentioned, relating to the use and storage of the product, do not exist. This is solely his responsibility.

**Rhodia**

Engineering Plastics

## TECHNYL C 216 V25

Rhodia Engineering Plastics tackles safety issues and provides Material Safety Data Sheets (MSDS) for all products with information regarding the risks (danger & exposure) and how to reduce these risks.

Products sold by Rhodia Engineering Plastics do not contain substances classified as "dangerous" or ozone depleting. They are not submitted to a mandatory labelling.

For more safety information contact the sales offices listed below :

### Brazil

Rhodia SA  
Engineering Plastics  
Estrada Galvao Bueno 5505  
CEP 07842 - 090  
Itaitiro Itatigini  
Sao Bernardo do Campo  
BR - Sao Paulo  
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### Canada

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### China

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### France

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### Germany / Switzerland / Austria

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Fax (49) 761 515 88 77  
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### Italy

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I - 20020 Ceriano-Laghetto (Mi)  
Tel. (39) 02 96 16 1  
Fax (39) 02 96 16 547  
Telex 314594 Tecpol  
[enrica.paternoster@eu.rhodia.com](mailto:enrica.paternoster@eu.rhodia.com)

### Korea

Rhodia Polyamide Co.  
Engineering Plastics  
3rd Floor, Kangnam Building  
1321-1, Seocho-Dong  
Seocho-Ku - Seoul 137-070  
Tel. (82-2) 21 86 25 32  
Fax. (82-2) 34 74 73 65

### Poland

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Engineering Plastics  
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66-407 Gorzow WLKP  
Tel. (0-95) 733 22 00  
Fax. (0-95) 732 50 40

### Spain / Portugal

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Tel. (34) 93 4 10 91 92  
Fax (34) 93 4 10 45 48  
[isabel.sabatier@eu.rhodia.com](mailto:isabel.sabatier@eu.rhodia.com)

### Taiwan

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Taiwan 104 R.O.C.  
Tel. (886) 02 2381 1990  
Fax (886) 02 2381 1890  
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### United Kingdom

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**Rhodia**

Engineering Plastics

**TECHNYL C 216 V25**

Date : 18/05/1998

Version : 2

Cancels and replaces version : 1

**1 Product and company identification.**

**PRODUCT NAME:** TECHNYL C 216 V25

**SUPPLIER:** Seller:

**Name:** RHODIA Engineering Plastics

**Address:** Avenue Ramboz  
69192 SAINT-JONS

**Telephone number:** 04 72 89 27 00 - (Int) 33 4 72 89 27 00.

**Telefax number:** 04 72 89 27 01 - (Int) 33 4 72 89 27 01.

**E-mail :** [info.en@eu.rhodia.com](mailto:info.en@eu.rhodia.com)

**2 Composition / information on ingredients****>> PREPARATION:**

**Chemical nature:** Product based on polyamide 6. (CAS: 25038-54-4).  
Usually contains lubricants and protectors.  
Reinforced product containing 10 to 50% glass fibre or mineral filler.  
The products which are modified to be shock resistant contain 5 to 20% elastomer.

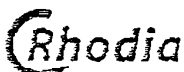
**>>Further information:** Semi-processed polymer.

**3 Hazards identification****MOST IMPORTANT HAZARDS:****Adverse human health effects:****Physical and chemical hazards:****- Further hazards**

Does not present any specific hazards, provided it is handled in accordance with the supplier's proposed method of use.

**Classification/Specific hazards:**

According to EEC criteria, this product is not classified as a "hazardous preparation".

The logo for Rhodia, featuring the word "Rhodia" in a stylized, bold, sans-serif font. The letter "R" is large and partially encircles the word.

Engineering Plastics



#### 4 First-aid measures

Inhalation:	Not specifically applicable.
Skin contact:	Not specifically applicable. However, in the event of a fire, molten product may cause thermal burns. In this case : Rinse with plenty of water. DO NOT remove clothing (since it may stick to the skin). Call a doctor immediately.
Eye contact:	Not specifically applicable.
Ingestion:	Not specifically applicable.

#### 5 Fire - fighting measures

Extinguishing media:	
- Suitable:	All extinguishing agents can be used (water, foam, powders, carbon dioxide, sand ...).
- Not suitable:	None. If there is a fire close by, use suitable extinguishing agents.
Specific hazards:	Toxic vapours (halogen compounds) are released. Harmful or toxic vapours are released. Combustible product, melts on heating. Risk of fire spreading due to the flow of liquid which is already alight.
Specific fire fighting methods:	Cool the molten product.
Protection of fire-fighters:	Self-contained breathing apparatus.

#### 6 Accidental release measures

Personal precautions:	Prevent the product from spreading into the environment.
Environmental precautions:	This product does not present any particular risk for the environment.
Methods for cleaning up:	
- Recovery:	Recover the product by vacuuming/shovelling or sweeping.
- Cleaning/Decontamination:	Sweep.

**Rhodia**

Engineering Plastics



## 7 Handling and storage

### HANDLING

Technical measures:

Does not require any specific or particular measures.

Safe handling advice:

Do not overheat the product.

### STORAGE

Technical measures:

Does not require any specific or particular technical measures.

Storage conditions:

- Recommended:

Store:

- away from any flames.
- protected from humidity and bad weather conditions.

Incompatible products:

Oxidizing materials.

Packaging:

The product is packaged in suitable recyclable packaging.  
- Cardboard container lined with a plastic film.  
- Paper bag lined with a plastic film.

Packaging materials:

- Recommended:

Cardboard.

## 8 Exposure controls / personal protection

Engineering measures:

The product, as is, does not require any specific/particular measures provided it is handled in accordance with good industrial hygiene and safety practice.  
During the transformation process:  
Extraction to remove vapours at their source.

Occupational exposure limits:

- Limits (France):

No specific limits.

- Limits (Germany):

No specific limits.

- Limits (U.S.A./A.C.G.I.H.):

No specific limits.

Personal protective equipment:

- Skin and body protection:

No specific/particular action required for this product. Comply with good occupational hygiene practice.

Further information:

The product (as is) or during its use, does not produce dust. The different components and fillers are incorporated in the bulk of the polymer.

**Rhodia**

Engineering Plastics

## 9 Physical and chemical properties

### APPEARANCE:

- Physical state:	Solid.
- Form:	Pellets.
- Colour:	Depends on the pigment.
Odour:	none to very slight.
pH:	Not applicable
Specific temperatures:	
- Melting:	Melting range: 210 to 220°C.
Decomposition temperature:	> 300°C.
Flammability characteristics:	
- Flash point:	>400°C (Closed cup).
- Auto-ignition temperature:	>450°C (Spontaneous ignition temperature).
Oxidizing properties:	Non oxidizing material according to EEC criteria.
Solubility:	
- in water:	Practically insoluble.
- in organic solvents:	Insoluble in common organic solvents.

## 10 Stability and reactivity.

Stability:	Stable under normal conditions of use.
Hazardous reactions:	
- Conditions to avoid:	No dangerous reactions known under normal conditions of use.
- Hazardous decomposition products:	On combustion or on thermal decomposition (pyrolysis) releases: toxic gases. (Nitrogen oxides). (Carbon oxides (CO + CO <sub>2</sub> )). (Hydrogen cyanide)



Engineering Plastics



## 11 Toxicological information

### Local effects:

(- No data)

Given the physical state of the product (as supplied) this is not applicable.

### Further information:

Does not present any particular risk, on handling under normal conditions of good occupational hygiene practice.

## 12 Ecological information

### Behaviour in the environment:

#### Persistence/Degradability:

Persisting product.

#### Destination of the product:

Ultimate destination of the product : SOIL.

## 13 Disposal considerations

### WASTE FROM RESIDUES:

#### Destruction/Disposal:

Recycle the material as far as possible.

If it proves necessary to grind the product in order to recycle it, take all necessary precautions to prevent the formation and spread of dust.

Non recycled product:

May be disposed of with non hazardous industrial waste.

Incinerate at a licensed installation.

Dispose of in accordance with relevant local regulations.

### CONTAMINATED PACKAGING:

#### Decontamination/cleaning:

Not applicable.

#### Destruction/Disposal:

Depending on local facilities recycle the cardboard packaging, or incinerate it at an approved site.

### NOTE:

The user's attention is drawn to the possible existence of local regulations regarding disposal.

**Rhodia**

Engineering Plastics

## 14 Transport information

### INTERNATIONAL REGULATIONS :

#### Land

- Rail/road (RID/ADR): NOT restricted.

Sea (IMO/IMDG): NOT restricted.

Air (ICAO-IATA): NOT restricted.

#### NOTE:

The above regulatory prescriptions are those valid on the date of publication of this sheet.

Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

## 15 Regulatory information

### LABELLING :

#### EEC regulations:

Mandatory labelling (self-classification) of hazardous preparations: Not applicable.

#### NOTE:

The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the Safety Data Sheet.

The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

## 16 Other information

### Uses:

#### - Recommended uses:

Manufacture of articles by injection and extrusion.

#### - Prohibited uses:

For special application e.g. in medicine, surgery or the food industry, obtain further information from the manufacturer.

#### Registration numbers:

The polymers are not listed in the EINECS inventory. All the other constituents of this preparation are registered in the EINECS inventory.





This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith.

The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended.

This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product.

The aim of the mandatory regulations mentioned is to help the user to fulfil his obligations regarding the use of hazardous products.

This information is not exhaustive.

This does not exonerate the user from ensuring that legal obligations, other than those mentioned, relating to the use and storage of the product, do not exist. This is solely his responsibility.



# Gear Series **GB5H**

## Spur Reduction Gearhead - 10 Kg-cm



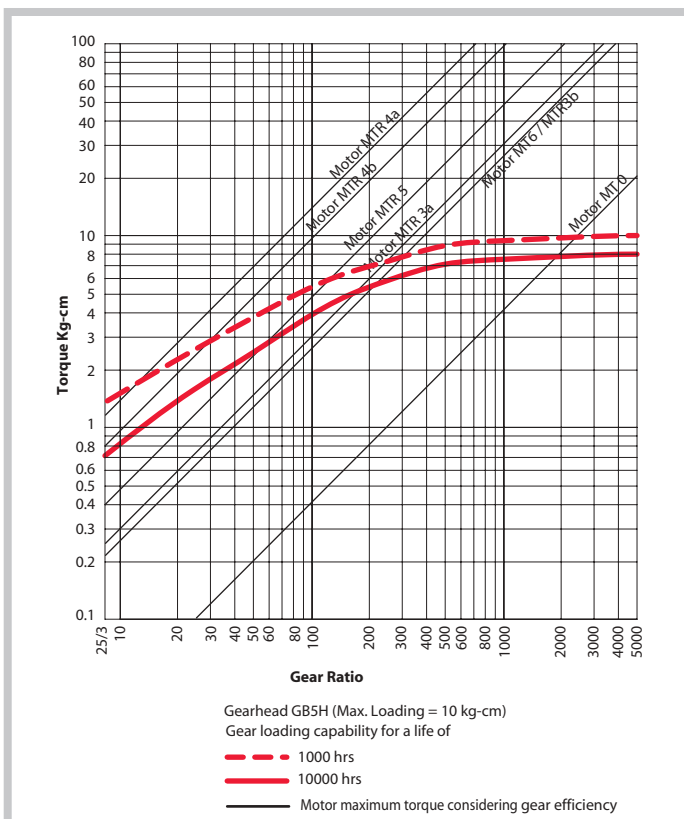
### Design

Gearhead GB5H, a moderately priced gearhead, is specially designed to cater to heavy duty application in a small frame. This is a multi step gear box with all thick metal gears that rotate on steel spindles which are polished to a mirror-finish and introduced between metal plates with a plastic frame. All bearings are permanently lubricated and therefore require no maintenance. Motor is attached to the gear box by means of spring clip. Thicker shafts ( $\varnothing$  6-7mm) mounted in robust bushings ( $\varnothing$  12mm) are available in a new variant (GB5H). GB5H can also be combined with small DC Motors, To achieve higher gear torque, GB5H can be mounted on GB4. Linear drives also Possible with small sized motors ( $\varnothing$  <36mm).

### Standard Data

Gear Torque	kg-cm	10
Combination with Mechtex motors		MT0,MT6,MTR/S3a/3b,MTR/S-5,MTR/S4a/4b and small DC motors
Mounting		any position
Weight	gm	65
Axial thrust	kg	2
Radial torque	kg	10
Lateral torque	kg-cm	15
Slipping clutch/Free wheel		not available
Output shafts	$\varnothing$	3.175,4.00,4.76,5.00,6.00,6.35 & 7..00 (others on request)
Ambient temperature operation	$^{\circ}\text{C}$	-15...+55

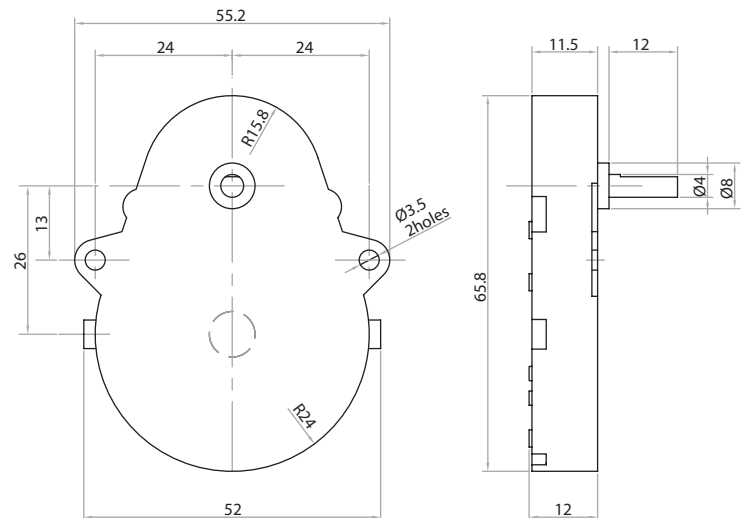
### Torque/Transmission ratio/life Graph



### Transmission ratios

For Transmission Ratios refer to page nos. 12 & 13.

### Dimensional Drawing

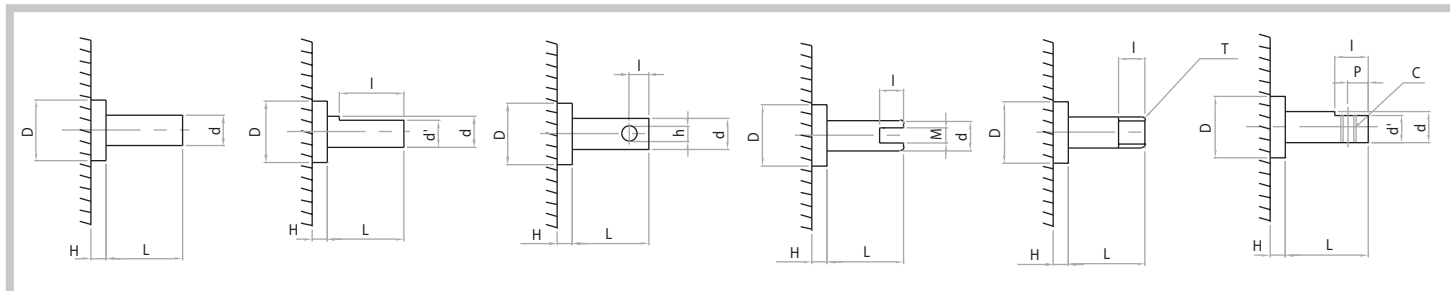




# Gear Series **GB5H**

Spur Reduction Gearhead - 10 Kg-cm

## Shaft Drawings



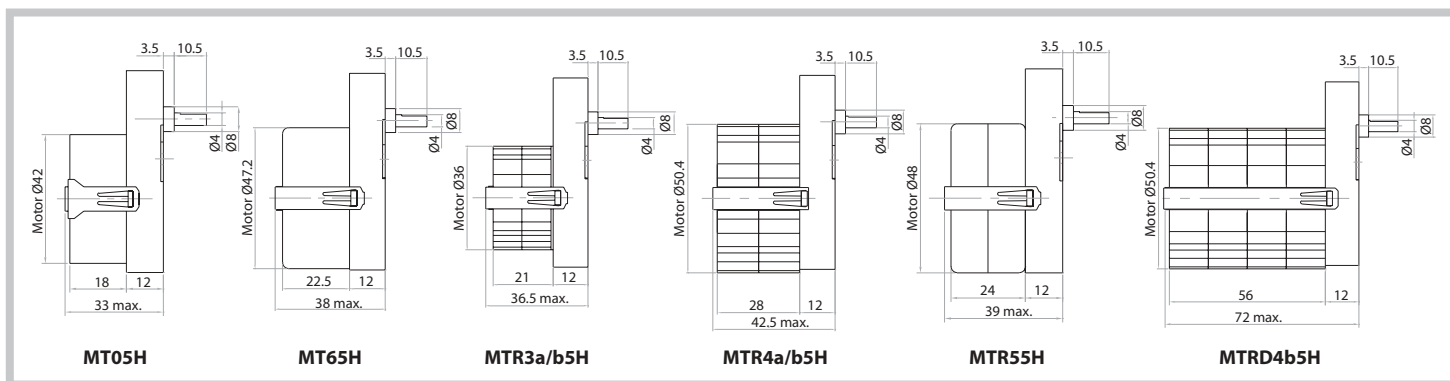
## Shaft Type Catalogue

Shaft type Catalogue	D	+ H	d	Shaft Diam. L	l	d'	T
S	6.35*	2	3.175	12	9	2.8	
A	8	2	3.175	9	6	2.8	
B	8	2	3.175	16	13	2.8	
C	8	2	3.175	21	18	2.8	
D	8	2	4	12	9	3.6	
E	8	2	4	16	13	3.6	
F	8	2	4	21			
G	6.35*	2	4.764	12	9	4.2	
H	6.35*	2	4.764	16	13	4.2	
I	6.35*	2	4.764	20	11	4.2	
J	6.35*	2	4.764	22	19	4.2	
K	6.35*	2	4.764	25.5	20	4.2	
L	6.35*	2	4.764	8	6	4.2	
M	8	2	3.175	12	11.5		1/8"

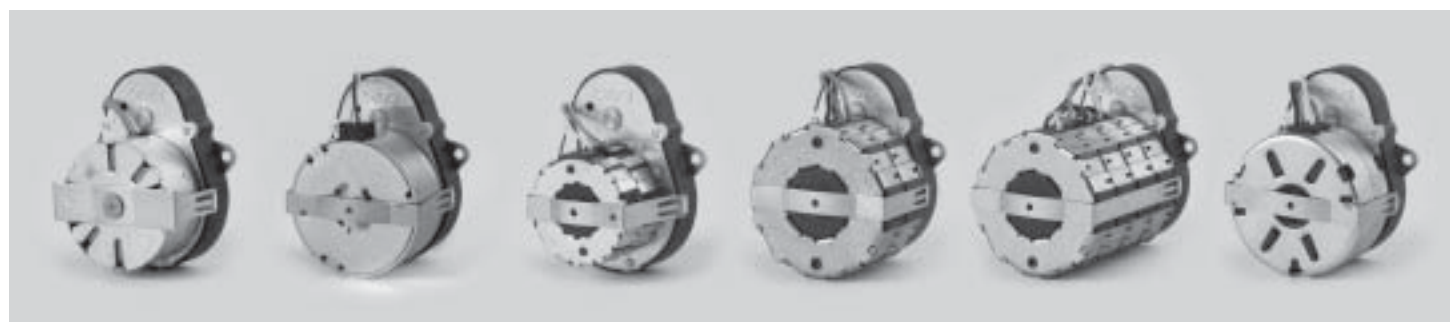
Shaft type Catalogue	D	+ H	d	Shaft Diam. L	l	d'	P	M	h	C
N	8	2	6.35	12	7			3		
O	8	2	4	21	10				2	
P	8	2	4	13						
Q	8	3.5	5	19	5.5				2	
R	12	3	6	15	10	5.4				
T	12	3	6	21	16	5.4				
U	12	3	6	26	18	5.4				
V	12	3	6	52						
W	12	3	7	22	17	6	9			M4
X	12	3	7	15	10	6.3				
Y	12	3	7	21	15	5				
Z	12	3	7	21						
a	12	3	7	26	18	6.3				
b	12	3	7	52						

Note : '+' 3.5 mm also possible \* 8 mm also possible

## Drawings



## Photographs



Novacrome S.p.A.  
Divisione Master Color  
**MASTER COLOR**  
20050 Triuggio (Mi) - Via Vecchia Milanese, 3  
Tel. (0362) 997755 - (0362) Fax 997793

Novacrome S.p.A.  
Società del Gruppo Hoechst Italia  
**novacrome**  
Sede: 22050 Lomagna (Co) - Via Piave, 12  
Tel. (039) 5300124/5/6 - Fax (039) 5300295

LOMAGNA, 10/05/95  
Ns.Rif. 18947/1000

Spettabile  
NEVICOLOR S.P.A.  
VIA MASO 27  
42045 LUZZARA (RE)



**NEVICOLOR SPA**  
Granulati termoplastici - Engineering compounds  
Via Maso, 27 - 42045 Luzzara (Reggio Emilia) Italy  
Tel. (0522) 97.64.21 r.a. - Fax (0522) 97.65.69  
C.F./P. IVA 01215720358

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\*\*\*\*\***SCHEDA DI SICUREZZA**\*\*\*\*\*  
\*\*\*\*\*

Nome Commerciale: **MACOWAX GIALLO CWAZ33**

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1. Denominazione della sostanza/preparazione e della Società'

Nome commerciale: **MACOWAX GIALLO CWAZ33**

Dati relativi al produttore:  
**NOVACROME S.P.A.**  
Via Piave 12  
22050 LOMAGNA (CO)  
TEL. 039/5300124

Reparto che fornisce informazioni: **SICUREZZA DEL PRODOTTO**  
Telefono Nr. 039/5300124-5-6  
Divisione: **NOVACROME LOMAGNA**

TEL. DI EMERGENZA: 039/5300124

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2. Composizione / informazioni sui componenti

Caratterizzazione chimica:  
Color Index :

P. Yellow	35	77205
P. White	18	77220
n.a.		n.a.

Supporto : **POLIOLEFINICO**

Additivi :

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Componenti pericolosi :

Concentrazione:	% Nr.CAS:	Sostanza pericolosa Nr.:
Concentrazione:	% Nr.CAS:	Sostanza pericolosa Nr.:
Concentrazione:	% Nr.CAS:	Sostanza pericolosa Nr.:
Concentrazione:	% Nr.CAS:	Sostanza pericolosa Nr.:

Simboli di pericolosità : NON PERICOLOSO

Frase R:

Frase S:

Natura chimica componenti pericolosi:

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3. Identificazione dei pericoli

I rischi per la salute e per l'ambiente derivanti da uso e/o impiego impropri sono da identificare con quelli dell'ingrediente pericoloso in seguito alla degradazione dell'involucro - supporto del preparato es. per lunga esposizione agli agenti atmosferici o per solubilità in solventi polari a temperatura sup. a 50 gradi C. La biodisponibilità del prodotto masterizzato è scarsa; non si ritengono pertanto necessarie disposizioni di emergenza e di pronto soccorso specifiche.

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4. Misure di pronto soccorso

Indicazioni generali:

Il preparato è dotato di forma fisica tale da non rappresentare un pericolo per la salute a seguito di ingestione o contatto con la pelle.

Ingestione:

In caso di ingestione accidentale lasciar vomitare e risciacquare la bocca con acqua corrente. Consultare il medico mostrando questo profilo di Sicurezza.

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## 5. Misure antincendio

Mezzi di estinzione adatti:

- acqua nebulizzata
- schiuma
- estinzione con gas estinguenti adeguati
- estinzione con polveri estinguenti

Particolari rischi derivanti dalla sostanza/preparato, dai prodotti di combustione o dai gas che si sviluppano:

In caso di incendio possono liberarsi gas o vapori tipici del supporto polimerico (inoltre, nel caso di prodotti contenenti diarilici, vi rimandiamo al punto 16).

Particolari attrezzature di protezione per le operazioni antincendio:  
Indossare indumenti protettivi muniti di autorespiratore.

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## 6. Misure in caso di fuoriuscita accidentale

Precauzioni individuali:

Vedi punto 8.

Precauzioni ambientali:

Utilizzare secondo le buone pratiche lavorative, evitando di disperdere il prodotto nell'ambiente.

Metodi di pulizia/raccolta:

Raccogliere con attrezzatura idonea e smaltire come da punto 13.

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## 7. Manipolazione e stoccaggio

Manipolazione : Vedi punto 8

Stoccaggio

Requisiti degli ambienti e dei contenitori di stoccaggio :

Ambienti asciutti, freschi e ventilati. Non sussistono limitazioni per i contenitori di stoccaggio purché consentano l'isolamento del materiale con l'ambiente esterno.

Indicazioni per lo stoccaggio insieme ad altri prodotti:

Nessuna limitazione purché venga protetto l'imballo dagli aggressivi chimici.

## 8. Limitazione dell'esposizione/protezione individuale

### Protezione individuale

#### Misure precauzionali generali :

Nella trasformazione del preparato l'esposizione dei lavoratori al piombo nell'aria deve tener conto dei limiti stabiliti dal Decreto Legislativo 15 Agosto 1991 Nr. 277 (G.U.R. Nr. 53).

#### Misure igieniche, si consiglia:

Non fumare, non mangiare, non bere in fase di trasformazione del preparato.

#### Protezione delle vie respiratorie, si consiglia:

In fase di travaso indossare una maschera facciale antipolvere con filtro idoneo, in caso siano fasi polverulente.

#### Protezione delle mani, si consiglia:

In fase di travaso indossare guanti adatti.

#### Protezione degli occhi, si consiglia:

In fase di travaso indossare occhiali protettivi.

#### Protezione del corpo, si consiglia:

Indossare idonea tuta da lavoro.

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## 9. Proprietà fisiche e chimiche

### Aspetto

Forma: Granulare

Colore: GIALLO

Odore: Nessuno

### Densità:

Da 0.93 g/cm<sup>3</sup> a 1.63 g/cm<sup>3</sup> in funzione della sua composizione

### Peso specifico apparente:

Da 0.44 g/cm<sup>3</sup> a 1.17 g/cm<sup>3</sup> in funzione della sua composizione.

Solubilità in acqua: Non applicabile

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## 10. Stabilità e reattività

Decomposizione termica: > 300 gradi C (ad eccezione dei prodotti contenenti diarilici per i quali Vi rimandiamo al Punto 16).

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Prodotti di decomposizione pericolosi: Nelle normali condizioni di utilizzo per la colorazione, non sono stati osservati prodotti di decomposizione pericolosi (ad eccezione dei prodotti contenenti diarilici per i quali Vi rimandiamo al Punto 16).

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#### 11. Indicazioni sulla tossicologia

Tossicità orale acuta (DL50): Il carattere polimerico del supporto rende il preparato stabile agli aggressivi chimici e di conseguenza ai succhi gastrici. Tuttavia, in linea con questa osservazione e con la DL50 del pigmento, si ritiene che la DL50 orale acuta sia > di 10.000 mg/Kg.

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#### 12. Indicazioni sull'ecologia

Mobilità:

Stante la forma fisica di cui è dotato, il prodotto risulta insolubile in acqua.

Degradabilità: Non biodegradabile

Ecotossicità:

Il prodotto non è stato testato; tuttavia in relazione alla sua forma fisica e alla sua insolubilità in acqua, risulta non-biodisponibile (v. punto 15)

Altre informazioni:

Il prodotto può essere separato meccanicamente dall'acqua negli impianti di trattamento delle acque reflue.

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### 13. Indicazione per lo smaltimento

**Prodotto:**

Lo smaltimento o l'incenerimento devono essere effettuati in ottemperanza alle normative vigenti: D.P.R. 915/82 (G.U.R. Nr.313).

**Denominazione prodotti:**

La classificazione del rifiuto deve fare riferimento al D.P.R. sopracitato e ai valori limite di concentrazione delle sostanze riportate nella Tabella 1.1. della Delibera del Comitato Interministeriale del 27.07.1984.

**Imballaggi vuoti non puliti:**

Devono essere smaltiti nello stesso modo del loro contenuto.

**Imballaggi puliti:**

Essendo il MASTERBATCH prodotto granulare scorrevole, il relativo imballo, svuotato con cura a secondo buone prassi industriale, può essere considerato rifiuto speciale assimilabile agli urbani e quindi ammesso allo smaltimento in discarica.

### 14. Informazioni sul trasporto

Trasporto via terra: Merce non soggetta a restrizioni per il trasporto.

Denominazione della merce: MACOWAX GIALLO CWAZ33

Trasporto aereo:

Nome tecnico corretto: Preparazione pigmentaria detta anche MASTERBATCH.

### 15. Normative

**Etichettatura:**

Il Ministro della Sanita' su conforme parere dell'Istituto Superiore della Sanita', ha ritenuto che i masterbatches per materie plastiche rientrano nella deroga prevista dal punto 9.1.3 della Direttiva 91/325/CEE recante il dodicesimo adeguamento al progresso tecnico della Direttiva 67/548/CEE, in quanto dotati di forma fisica tale da non rappresentare un pericolo per la salute a seguito di ingestione o contatto con la pelle e pertanto il preparato non richiede etichetta.

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## 16. Altre informazioni

Queste informazioni si basano sull'attuale livello delle nostre conoscenze. Il loro scopo è di descrivere i nostri prodotti sotto l'aspetto della sicurezza e non si prefiggono pertanto di garantire determinate proprietà specifiche dei prodotti stessi.

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