



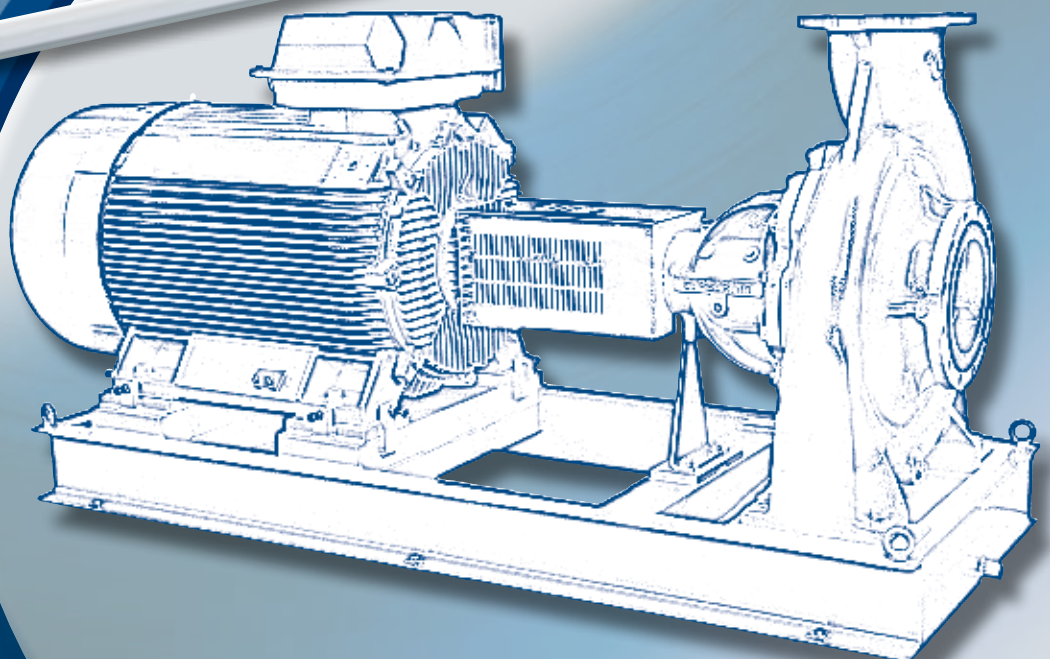
# GARBARINO

PUMPS SINCE 1932

## MU

Centrifugal pumps according to EN 733  
Pompe centrifughe normalizzate EN 733

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# MU

## CENTRIFUGAL PUMPS ACCORDING TO EN 733 STANDARDS

*POMPE CENTRIFUGHE  
NORMALIZZATE EN 733*

### COMMON AND GENERAL USE

Fresh and sea water, condensate, oils, chemical and petrochemical products.

### IMPIEGHI

*Per acqua, acqua mare, condensato, prodotti chimici, petrolchimici.*

### MAIN APPLICATIONS

Shipbuilding industry, heating plants, air conditioning system, aqueducts, effluent treatment plants, fire fighting, petrochemical plants.

### PRINCIPALI APPLICAZIONI

*Applicazioni per uso caratteristico, impianti di riscaldamento, impianti di condizionamento, acquedotti, trattamento acque, antincendio, congelamento idrocarburi.*

### MAIN FEATURES

#### CARATTERISTICHE COSTRUTTIVE

**PUMP:** centrifugal type, end-suction single volute casing, single flow and axial inlet.

*POMPA: centrifuga con corpo a spirale orizzontale monostadio ad unico flusso ed aspirazione assiale.*

**IMPELLER:** high efficiency, close type, statically and dynamically balanced. Low axial thrust thanks to impeller provided with balancing holes.

*GIRANTE: di tipo chiuso ad elevato rendimento, equilibrata staticamente e dinamicamente. Equilibratura della spinta assiale mediante camera anulare sita posteriormente alla girante stessa munita di fori di bilanciamento.*

**MOUNTING SYSTEM:** shaft supported by radial and thrust type bearings placed in an oil bath bracket or, upon request, by self lubricated or grease lubricated ball bearings.

The bracket is usually made of cast-iron, bronze or stainless steel for special executions (non magnetic pumps).

*SUPPORTAZIONE: albero supportato da cuscinetti radiali ed assiali posizionati in un supporto a bagno d'olio o a richiesta con cuscinetti autolubrificanti o lubrificati a grasso. Supporto costruito normalmente in ghisa, il quale può essere prodotto in bronzo o in acciaio inox per utilizzi speciali (pompe amagnetiche).*

**SEAL:** single mechanical seal to DIN 29960. Special mechanical seal or cartridge type for specific application or aggressive liquids. Possibility to install soft-packing with external flushing. For temperature higher than 120°C, it is possible to fit the pump with a cooling chamber.

*TENUTA: tenuta meccanica singola normalizzata DIN 29960. Tenute speciali e a cartuccia per liquidi ed applicazioni particolari. Possibilità di installare tenuta a baderna con flussaggio esterno. Per temperature superiori ai 120 °C possibilità di dotare la pompa di camera di raffreddamento della tenuta.*

**SELF-PRIMING:** Small and medium size pumps can be equipped with built-in priming element; all sizes can be supplied in self-priming version with an additional air ejector.

*AUTOADESCANTE: taglie piccole e medie possono essere fornite di elemento autoadescente ad anello liquido; tutte le taglie possono essere fornite con eiettore ad aria automatico.*

### BACK PULL OUT

It is possible to remove the rotating components without disturbing pipes, pump casing and motor by using a flexible spacer coupling.

### SMONTAGGIO

*Impiegando un giunto spaziatore è possibile sfilare la parte rotante senza intervenire sulle tubazioni, corpo-pompa e motore.*

### BASE PLATE

The base plate is generally built of welded steel and it can be provided with drain-pan for possible drippings.

To comply with special requirements (non magnetic and/or anti vibration) it can be manufactured in stainless steel (AISI 316) and equipped with anti vibration and/or anti-shock resilient mountings.

### BASAMENTO

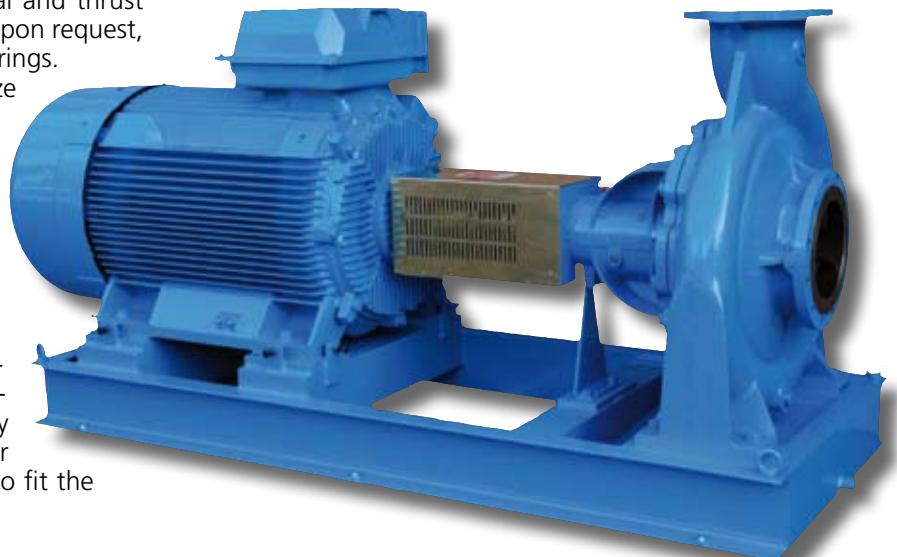
*Il basamento è costruito normalmente in acciaio elettro-saldato, lo stesso può essere corredato di drenaggi per eventuali stillicidi della pompa. Per esecuzioni speciali (amagnetiche e/o antivibrazione) può essere costruito in acciaio inox e corredato di resilienti antivibrazione e antishock.*

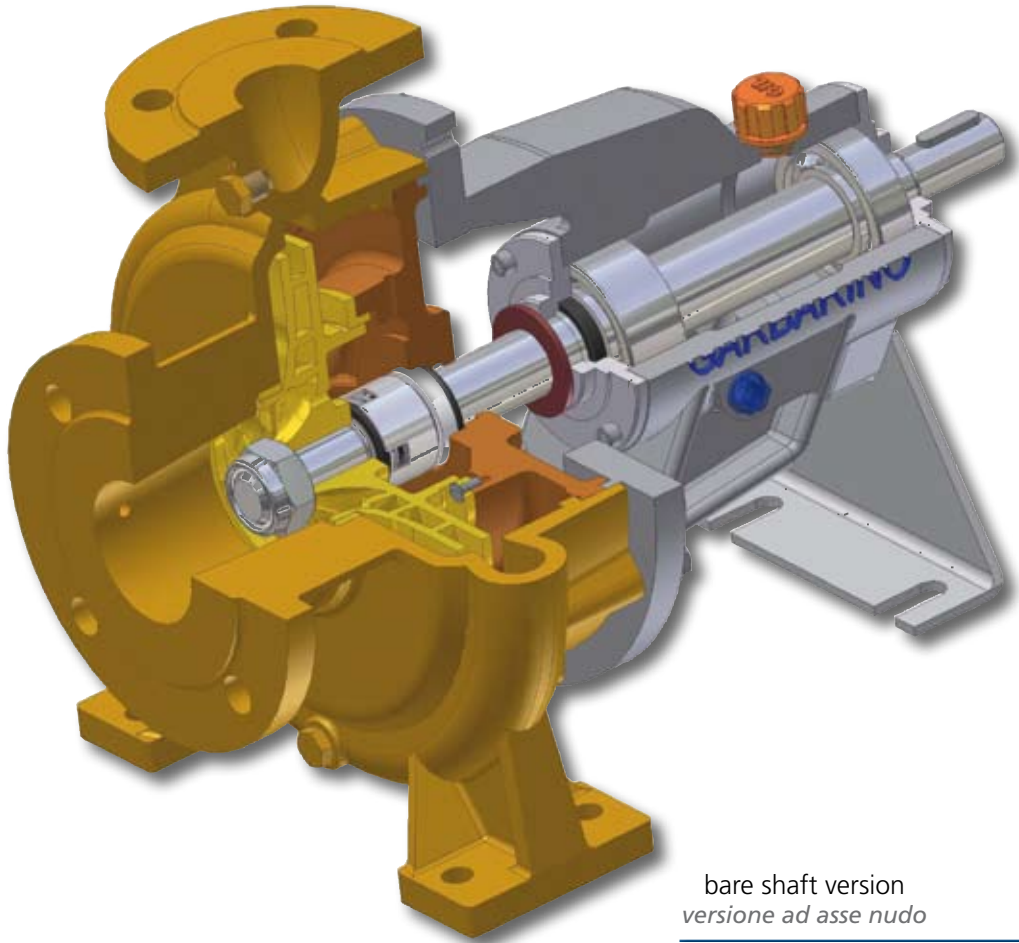
### SPECIAL VERSIONS

Special versions according to Naval Rules are also available: shock-proof, vibration-proof, noise-proof, non magnetic.

### COSTRUZIONI SPECIALI

*Sono previste costruzioni a norma MARINA MILITARE: antishock, anti-vibrazione, antirumore, amagnetiche*

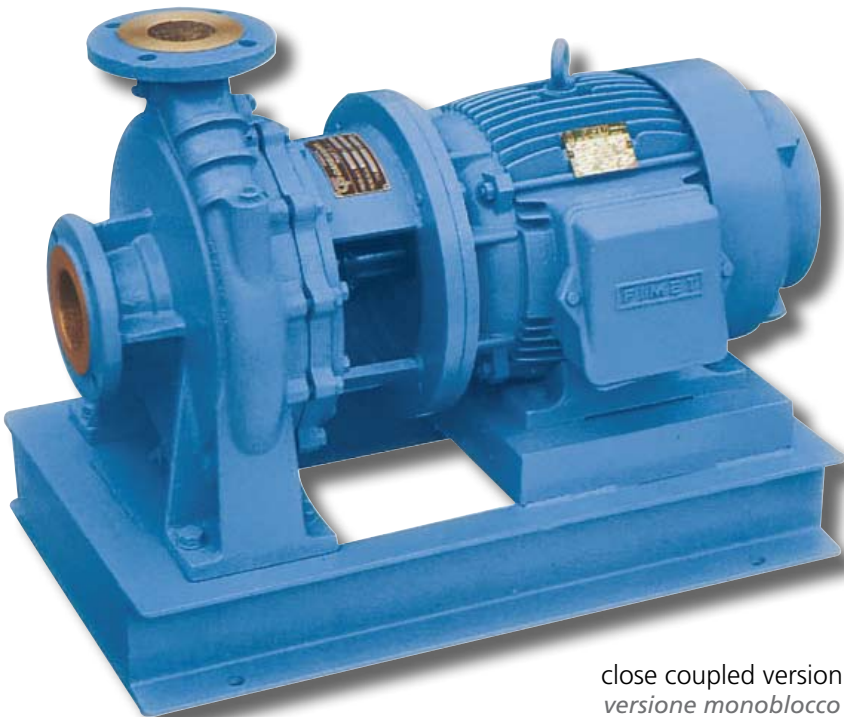




bare shaft version  
versione ad asse nudo

MATERIALS MATERIE	MAX. WORKING PRESSURE PRESSIONE MAX. ESERCIZIO
CAST IRON GHISA	10 bar
STAINLESS STEEL, BRONZE, SPECIAL ALLOY ACCIAIO INOX, BRONZO, LEGHE SPECIALI	16 bar
NOTE: SPECIAL EXECUTIONS EXCEEDING THE ABOVE LIMITS AVAILABLE ON REQUEST NOTA: ESECUZIONI SPECIALI AL DI FUORI DEI LIMITI SOPRAESPOSTI REALIZZATE SU RICHIESTA	

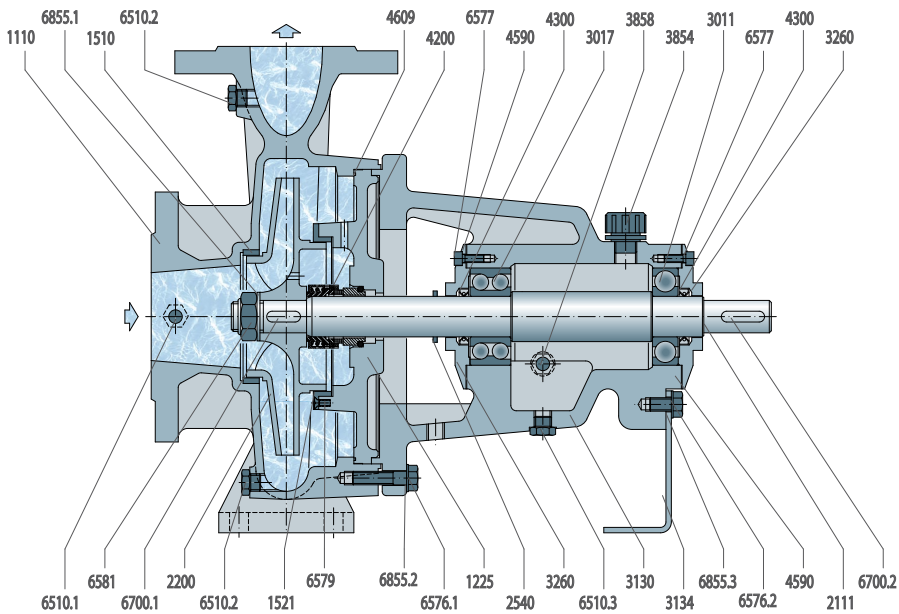
MODELS MODELLI	45
INTERCHANGEABILITY INTERCAMBIABILITÀ:	
CASINGS CORPI	45
IMPELLERS GIRANTI	45
SHAFTS ALBERI	6
BEARING BRACKETS SUPPORTI	6
COVERS COPERCHI	6
MECHANICAL SEALS TENUTE MECCANICHE	6



close coupled version  
versione monoblocco

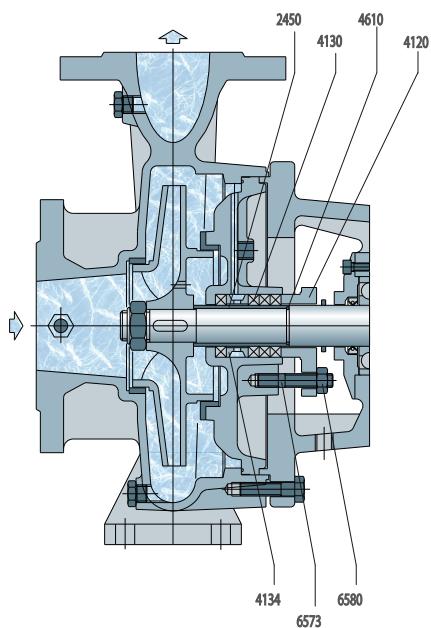


self priming element with liquid ring  
elemento autoadescante ad anello liquido



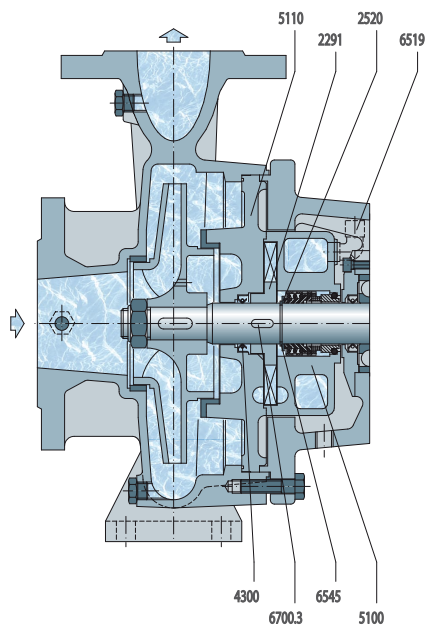
### LONGITUDINAL SECTION

SEZIONE LONGITUDINALE



### SOFT PACKING VERSION

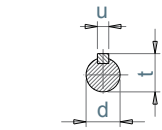
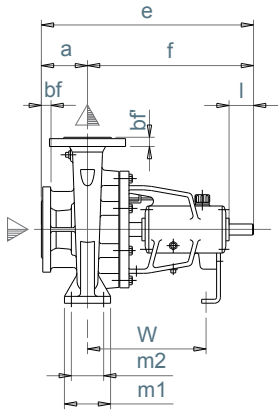
VERSIONE TENUTA A BADERNA



### SELF-PRIMING VERSION

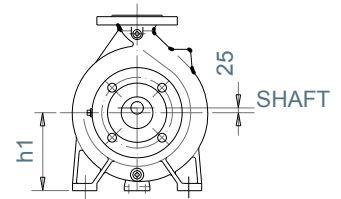
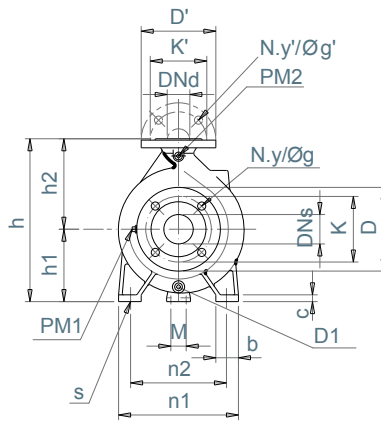
VERSIONE AUTOADESCANTE

Pos	Description <i>Descrizione</i>
1110	Pump casing <i>Corpo pompa</i>
1225	Casing cover <i>Coperchio del corpo</i>
1510	Wear ring <i>Anello di usura</i>
1521	Wear ring <i>Anello di usura</i>
2111	Pump shaft <i>Albero della pompa</i>
2200	Impeller <i>Girante</i>
2291	Priming stage impeller <i>Girante stellare</i>
2450	Shaft sleeve <i>Camicia d'albero</i>
2520	Shoulder ring <i>Anello spallamento</i>
2540	Deflector <i>Deflettore</i>
3011	Radial ball bearing <i>Cuscinetto radiale</i>
3017	Angular ball bearing <i>Cuscinetto obliquo</i>
3130	Bearing bracket <i>Supporto doppio</i>
3134	Support foot <i>Piede del supporto</i>
3260	Bearing cover <i>Coperchio supporto</i>
3854	Oil filler plug <i>Tappo per l'olio</i>
3858	Oil level <i>Spia dell'olio</i>
4120	Stuffing box gland <i>Premitreccia</i>
4130	Gland packing <i>Guarnizione a treccia</i>
4134	Lantern ring <i>Anello lanterna</i>
4200	Mechanical seal <i>Tenuta meccanica</i>
4300	Radial shaft seal <i>Anello di tenuta</i>
4590	Gasket <i>Guarnizione</i>
4609	O-Ring <i>O-Ring</i>
4610	O-Ring <i>O-Ring</i>
5100	Priming stage casing <i>Corpo autoadescente</i>
5110	Priming stage cover <i>Coperchio autoadescente</i>
6510.1	Plug <i>Tappo</i>
6510.2	Plug <i>Tappo</i>
6510.3	Plug <i>Tappo</i>
6519	Thread fitting <i>Raccordo</i>
6545	Seeger <i>Seeger</i>
6573	Stud <i>Prigioniero</i>
6576.1	Screw <i>Vite</i>
6576.2	Screw <i>Vite</i>
6577	Screw <i>Vite</i>
6579	Screw <i>Vite</i>
6580	Nut <i>Dado</i>
6581	Impeller nut <i>Dado girante</i>
6700.1	Key <i>Chiavetta</i>
6700.2	Key <i>Chiavetta</i>
6700.3	Key <i>Chiavetta</i>
6855.1	Washer <i>Rosetta</i>
6855.2	Washer <i>Rosetta</i>
6855.3	Washer <i>Rosetta</i>



SHAFT END  
ESTREMITÀ D'ALBERO

KEY ACCORDING TO UNI 6604  
CHIAVETTA SECONDO UNI 6604



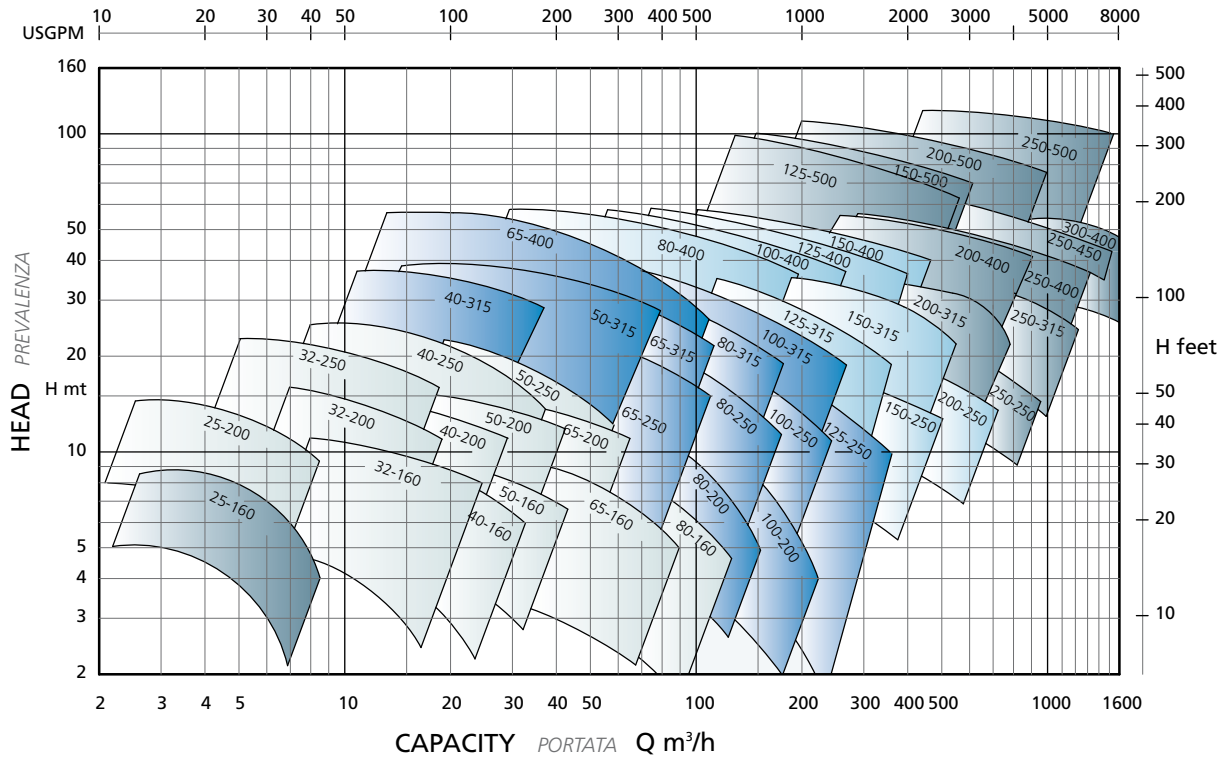
ONLY FOR MU 250-400  
SOLO PER MU 250-400

PUMP DIMENSIONS DIMENSIONI POMPA														SHAFT ALBERO				PUMP TYPE POMPA TIPO	SUCTION FLANGE BOCCA ASP.	DELIVERY FLANGE BOCCA MANDATA	FLANGES DIMENSIONS DIMENSIONI FLANGE (UNI 2223-2229 PN 10 UNI 2223-2229 PN 16*)										HOLES NUMBER NUMERO FORI		DRAINAGE DRENAGGIO	VACUUM GAUGE MANOVUOTOMETRO	PRESSURE GAUGE MANOMETRO	PUMP WEIGHT PESO POMPA
a	f	e	h	h1	h2	b	c	m1	m2	n1	n2	s	l	M	W	d	t	u	DNs	DNd	D	D'	bf	bf'	K	K'	g	g'	y	y'	D1	PM1	PM2	Kg		
63	237	300	272	112	160	50	12	100	70	220	180	12	36	90	161	19	21,5	6	25-160	25	25	115	115'	16	16	85	85	14	14	4	4	1/4"G	1/4"G	1/4"G	22	
80	360	440	340	160	180	50	15	100	70	240	190	14	50	110	260	24	27	8	25-200	40	25	150	115	18	16	110	85	18	14	4	4	1/4"G	1/4"G	1/4"G	41	
80	360	440	292	132	160	50	15	100	70	240	190	14	50	110	260	24	27	8	32-160	50	32	165	140	20	18	125	100	18	18	4	4	1/4"G	1/4"G	1/4"G	43	
80	360	440	340	160	180	50	15	100	70	240	190	14	50	110	260	24	27	8	32-200	50	32	165	140	20	18	125	100	18	18	4	4	1/4"G	1/4"G	1/4"G	43	
110	360	470	405	180	225	65	18	125	95	320	250	14	50	110	260	24	27	8	32-250	50	32	165	140	20	18	125	100	18	18	4	4	1/4"G	1/4"G	1/4"G	62	
80	360	440	292	132	160	50	15	100	70	240	190	14	50	110	260	24	27	8	40-160	65	40	185	150	20	18	145	110	18	18	4	4	1/4"G	1/4"G	1/4"G	43	
100	360	460	340	160	180	50	15	100	70	265	212	14	50	110	260	24	27	8	40-200	65	40	185	150	20	18	145	110	18	18	4	4	1/4"G	1/4"G	1/4"G	45	
100	360	460	405	180	225	65	15	125	95	320	250	14	50	110	260	24	27	8	40-250	65	40	185	150	20	18	145	110	18	18	4	4	1/4"G	1/4"G	1/4"G	60	
125	470	595	480	200	280	65	20	125	95	345	280	14	80	110	340	32	35	10	40-315	65	40	185	150	20	18	145	110	18	18	4	4	1/4"G	1/4"G	1/4"G	98	
100	360	460	340	160	180	50	15	100	70	265	212	14	50	110	260	24	27	8	50-160	65	50	185	165	20	20	145	125	18	18	4	4	1/4"G	1/4"G	1/4"G	48	
100	360	460	360	160	200	50	15	100	70	265	212	14	50	110	260	24	27	8	50-200	65	50	185	165	20	20	145	125	18	18	4	4	1/4"G	1/4"G	1/4"G	48	
100	360	460	405	180	225	65	15	125	95	320	250	14	50	110	260	24	27	8	50-250	65	50	185	165	20	20	145	125	18	18	4	4	1/4"G	1/4"G	1/4"G	60	
125	470	595	505	225	280	65	25	125	95	345	280	14	80	110	340	32	35	10	50-315	65	50	185	165	22	20	145	125	18	18	4	4	1/4"G	1/4"G	1/4"G	100	
100	360	460	360	160	200	65	15	125	95	280	212	14	50	110	260	24	27	8	65-160	80	65	200	185	22	20	160	145	18	18	4	4	1/4"G	1/4"G	1/4"G	49	
100	360	460	405	180	225	65	15	125	95	320	250	14	50	110	260	24	27	8	65-200	80	65	200	185	22	20	160	145	18	18	4	4	1/4"G	1/4"G	1/4"G	55	
100	470	570	450	200	250	80	18	160	120	360	280	18	80	110	340	32	35	10	65-250	80	65	200	185	22	20	160	145	18	18	4	4	3/8"G	1/4"G	3/8"G	80	
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125	360	485	405	180	225	65	15	125	95	320	250	14	50	110	260	24	27	8	80-160	100	80	220	200	22	22	180	160	18	18	8	4	1/4"G	1/4"G	1/4"G	60	
125	470	595	430	180	250	65	18	125	95	345	280	14	80	110	340	32	35	10	80-200	100	80	220	200	22	22	180	160	18	18	8	4	3/8"G	1/4"G	3/8"G	75	
125	470	595	480	200	280	80	18	160	120	400	315	15	80	110	340	32	35	10	80-250	100	80	220	200	22	22	180	160	18	18	8	4	3/8"G	1/4"G	3/8"G	88	
125	470	595	565	250	315	80	25	160	120	400	315	18	80	110	340	32	35	10	80-315	100	80	220	200	22	22	180	160	18	18	8	4	3/8"G	1/4"G	3/8"G	111	
125	530	655	635	280	355	80	25	160	120	435	355	18	110	110	370	42	45	12	80-400	100	80	220	200	22	22	180	160	18	18	8	4	3/8"G	1/4"G	3/8"G	155	
125	470	595	480	200	280	80	18	160	120	360	280	18	80	110	340	32	35	10	100-200	125	100	250	220	24	22	210	180	18	18	8	8	3/8"G	1/4"G	3/8"G	85	
140	470	610	505	225	280	80	18	160	120	400	315	18	80	110	340	32	35	10	100-250	125	100	250	220	24	22	210	180	18	18	8	8	3/8"G	1/4"G	3/8"G	105	
140	470	610	565	250	315	80	18	160	120	400	315	18	80	110	340	32	35	10	100-315	125	100	250	220	24	22	210	180	18	18	8	8	3/8"G	1/4"G	3/8"G	116	
140	530	670	635	280	355	100	25	200	150	500	400	22	110	110	370	42	45	12	100-400	125	100	250	220	24	22	210	180	18	18	8	8	3/8"G	1/4"G	3/8"G	190	
140	470	610	605	250	355	80	18	160	120	400	315	18	80	110	340	32	35	10	125-250	150	125	285	250	24	24	240	210	22	18	8	8	3/8"G	1/4"G	3/8"G	120	
140	530	670	635	280	355	100	25	200	150	500	400	22	110	110	370	42	45	12	125-315	150	125	285	250	24	24	240	210	22	18	8	8	3/8"G	1/4"G	3/8"G	180	
140	530	670	715	315	400	100	25	200	150	500	400	22	110	110	370	42	45	12	125-400	150	125	285	250	24	24	240	210	22	18	8	8	3/8"G	1/4"G	3/8"G	205	
180	635	815	900	400	500	140	28	280	200	680	540	28	140	110	430	60	64	18	125-500	150*	125*	285	250	26	26	240	210	22	18	8	8	3/4"G	3/8"G	3/8"G	400	
160	530	690	655	280	375	100	27	210	150	510	400	22	110	110	370	42	45	12	150-250	200	150	340	285	26	24	295	240	22	22	8	8	3/8"G	1/4"G	3/8"G	200	
160	530	690	680	280	400	100	25	200	150	550	450	22	110	110	370	42	45	12	150-315	200	150	340	285	26	24	295	240	22	22	8	8	3/8"G	1/4"G	3/8"G	190	
160	530	690	765	315	450	100	25	200	150	550	450	22	110	110	370	42	45	12	150-400	200	150	340	285	26	24	295	240	22	22	8	8	3/8"G	1/4"G	3/8"G	235	
180	640	820	950	400	550	140	28	280	200	680	540	28	140	160	435	60	64	18	150-500	200*	150*	340	285	30	26	295	240	22	22	12	8	3/4"G	1/4"G	3/8"G	500	
180	530	710	780	355	425	100	30	210	150	560	450	22	110	110	432	42	45	12	200-250	200	200	340	340	26	26	295	295	22	22	8	8	3/8"G	1/4"G	3/8"G	250	
200	605	805	805	355	450	110	30	210	150	560	450	25	110	160	432	60	64	18	200-315	250	200	395	340	28	26	350	295	22	22	12	8	3/8"G	1/4"G	3/8"G	330	
200	605	805	855	355	500	140	28	280	200	680	540	28	110	160	432	60	64	18	200-400	250	200	395	340	32	26	350	295	22	22	12	8	1"G	1/4"G	3/8"G	410	
200	640	840	1055	455	600	150	30	320	250	800	650	28	140	160	435	60	64	18	200-500	250*	200*	405	340	32	29	355	295	25	22	12	12	3/4"G	3/8"G	3/8"G	600	
250	605	855	960	400	560	130	30	280	200	700	560	25	110	160	432	60	64	18	250-250	300	250	445	395	28	28	400	350	22	22	12	12	3/8"G	1/4"G	3/8"G	450	
250	605	855	960	400	560	130	30	280	200	700	560	2																								



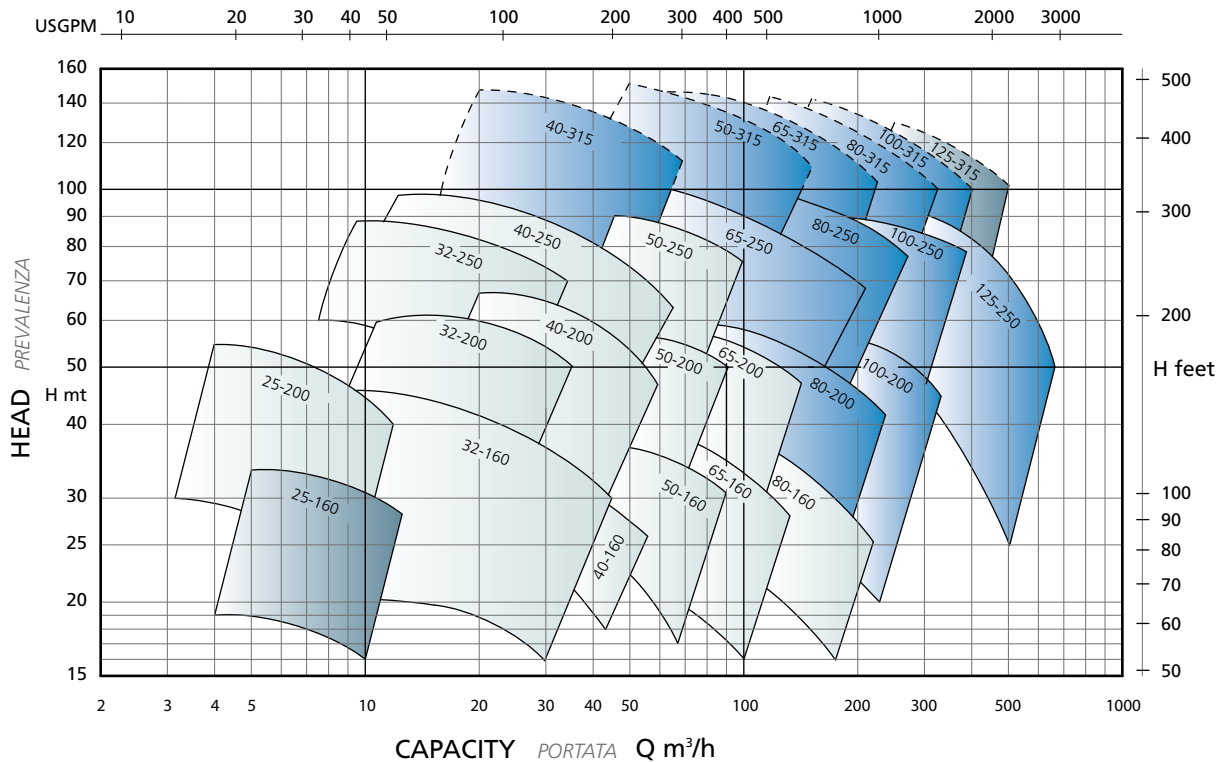
PERFORMANCES PRESTAZIONI

1450 RPM



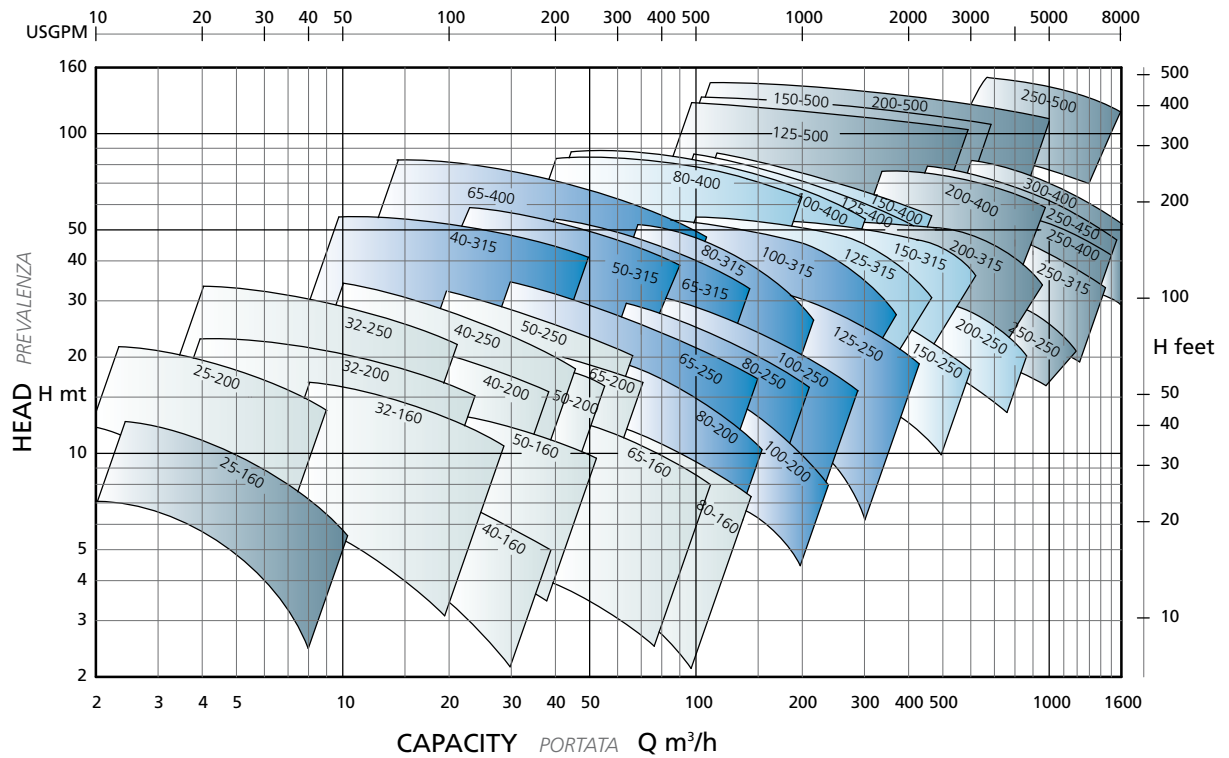
PERFORMANCES PRESTAZIONI

2900 RPM



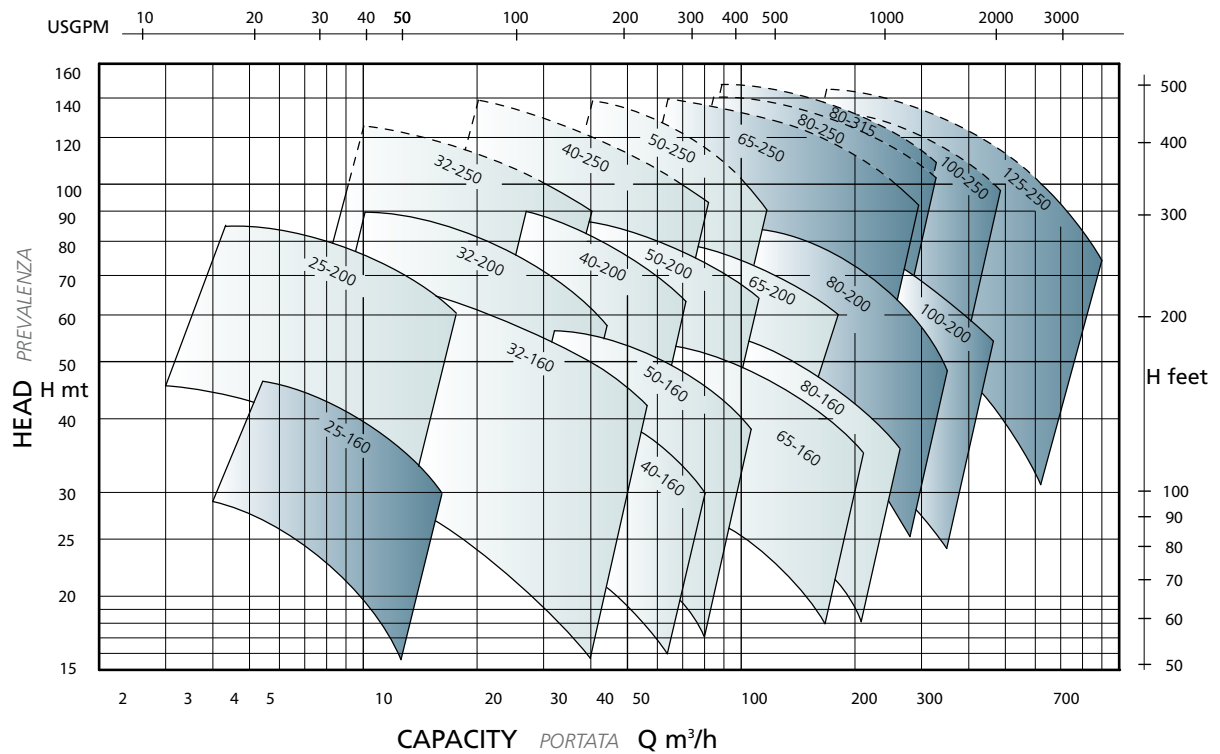
## PERFORMANCES PRESTAZIONI

### 1750 RPM



## PERFORMANCES PRESTAZIONI

### 3500 RPM





## **POMPE GARBARINO S.p.A.**

### **Headquarters:**

15011 Acqui Terme (AL) - Italy - Via Marengo, 44 - Tel. +39 0144.388671 - Fax +39 0144.55260  
E-mail: [info@pompegarbarino.it](mailto:info@pompegarbarino.it)

### **Milan Branch:**

20124 Milano - Italy - Viale Andrea Doria, 31 - Tel. +39 02.67070037 - Fax +39 02.67070097  
E-mail: [info.filiale@pompegarbarino.it](mailto:info.filiale@pompegarbarino.it)