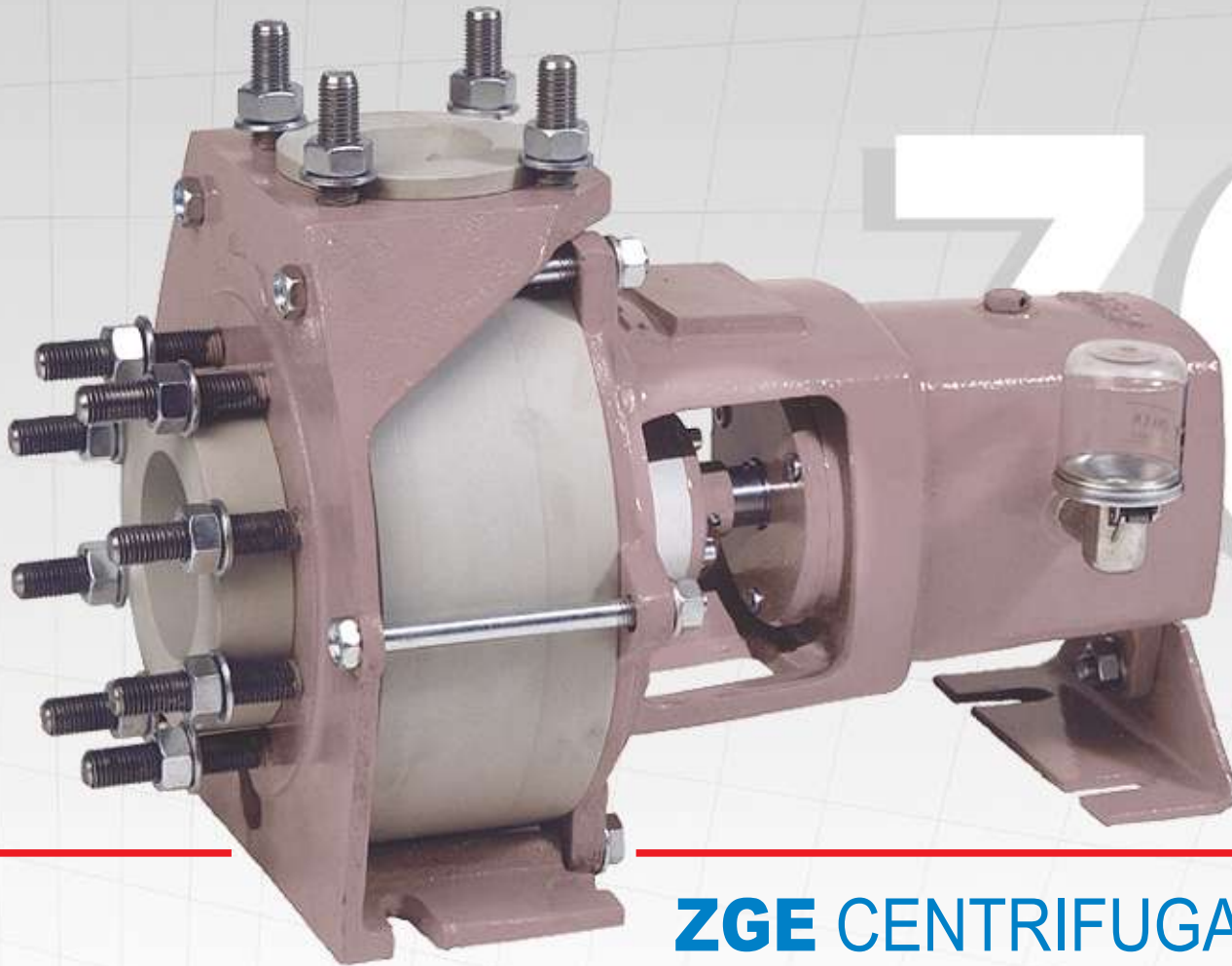


ARGAL



ZGE

**ZGE CENTRIFUGAL PUMPS ISO 2858
FOR CHEMICAL PROCESSING**

ARGAL chemical pumps **QUALITY AND EXPERIENCE**

From the artisan's workshop to the modern industrial plant, the strategy of Argal has always been the same: to invest in research and quality in order to obtain safe and reliable quality products.

In many years' activity (Argal was set up in 1975) manufacturing techniques and staff training have always kept abreast of the latest developments in pump technology.

Today's company uses the latest production techniques backed up by a technical department constantly developing through research and development.

Using CAD, FEM optimisation and a fully equipped test and development facility the ARGAL product is being constantly improved. ARGAL's main goal is the same as its always been: delivering safe product that fully conforms to CE standards and the international standards that will ensure that the product wins its rightful place at the top of the world market.

Since 1999 ARGAL has obtained the certification of the Quality Management System according to the standard ISO 9002. In 1977, ARGAL changed from being a mere distributor of pumps to being a manufacturer of electric pumps.

It developed its own technology, and combined the precision standards of craftsmanship with a sound business organisation. Ten years later, in 1987, Argal launched a new range of magnetic drive pumps. They are totally different from other pumps of their kind because of the new, acid and chemical resistant materials from which they are constructed.

Today ARGAL has something else to offer: experience.

Experience gained in the practical use of these pumps enables us to propose specifications that will work safely and identify those areas that may cause problems. A pump may seem to be correct for a duty in terms of flow, head, suction lift and motor power. However chemical resistance, viscosity, temperature, specific fluid characteristics, etc. are all factors that have to be evaluated when selecting a pump.

Argal is the ideal partner. Together with the customer ARGAL and its sole Distributors will select the pump which is best suited to the task and will give the best long term performance.

ARGAL can assist the customer with chemical/physical data, calculations of friction losses, differential heads, NPSH, suction heads, priming times, etc.

Our technical sales team are constantly expanding the knowledge and experience which is available to their clients.

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Catalogues:

SPECIFIC CURVES 50 Hz

SPECIFIC CURVES 60 Hz

MAIN FEATURES AND MATERIALS

MAIN FEATURES

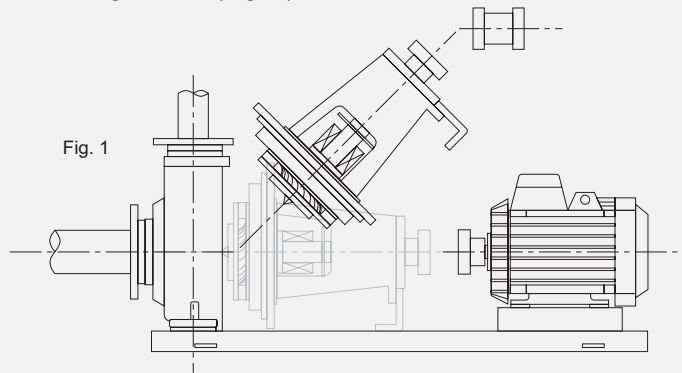
ZGE pumps are a complete range of centrifugal chemical process pumps, built in compliance with ISO2858 (Din 24256 - BS5257 - NFE 44121).

Standardisation of performance points and above all, the main constructional dimensions of the pumps, bases, couplings and shaft seals offers great advantages in total interchangeability of pumps and their component parts.

CONSTRUCTION

Centrifugal single impellers, with horizontal end suction and central top discharge. For maximum integrity pump bodies are machined from solid, with piping loads absorbed by the metal flanges of the volute casing. As "process" pumps they are designed to accept commercially available standardised mechanical seals. External, single or internal double with interseal flush can be installed (see choosing the right mechanical seal). The pump shaft is independently mounted in rolling element bearings designed to accept all dynamic loading from all operating conditions. The pumps are oil lubricated and are provided with a constant level oiler to ensure optimum performance.

Pumps and drivers are mounted on a common base with drive via flexible spacer couplings (Din 740) use of a spacer enables service of the pump without disconnecting pipework or removing motors (Fig. 1).



MATERIALS

The materials that come into direct contact with the chemicals are extremely resistant to them. The FC, WR, WF, ER and QR versions of the pump and the many different types of seal are different combinations of the materials that can be used for the pump parts coming into direct contact with the pumped fluid. A selection of the correct combination of materials (by consulting the compatibility tables supplied by our customer service) involves rapidly examining the chemical composition of the liquid, its concentration and its temperature: doing this ensures that the most suitable pump will be chosen for a given application and that it will be operate within the required safety margins.

MOTOR

Standard specification for motor is : IP55 enclosure, class F insulation, suitable - phase, suitable for 400V +/-5%, 50Hz (440V +/- 5% 60Hz). Other specifications are available on request to meet specific customer requirements.

PAINTWORK

External metal surfaces are protected by an epoxy coating over an appropriate primer undercoat.

QUALITY

The used materials are certified in the origin and in the composition. Upon request is available a final test according ISO 2548 Class C. Spare parts undergo the same stringent inspection procedures to ensure complete inter-changeability (Fig. 2).



Fig. 2

APPLICATIONS

THE RIGHT PUMP FOR THE RIGHT PROCESS.

ARGAL pumps are suitable for acid, hydroxide and salt solutions in varying concentrations and at various temperatures; mixture of strong acids; electrolytic baths; aromatic hydrocarbons; chlorides and alcohol.

APPLICATION EXAMPLES

- Chemical and pharmaceutical processes.
- Petrochemical, chemical and agrichemical engineering.
- Textile Industries.
- Transfer, loading and distribution of chemical products.
- Spraying systems for metal polishing.
- Electro-plating treatments.
- Circulating pumps for heat exchangers in the electroplating and anodising industries.
- Reaction vessel circulation.
- Scrubbing tower for toxic gas removal.
- Fish farm water circulation.
- Thermal and sea water.
- Water purification.

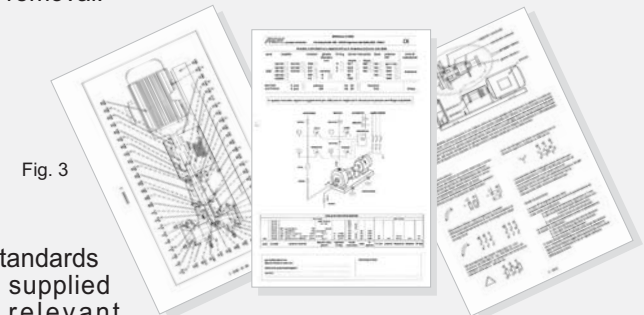


Fig. 3

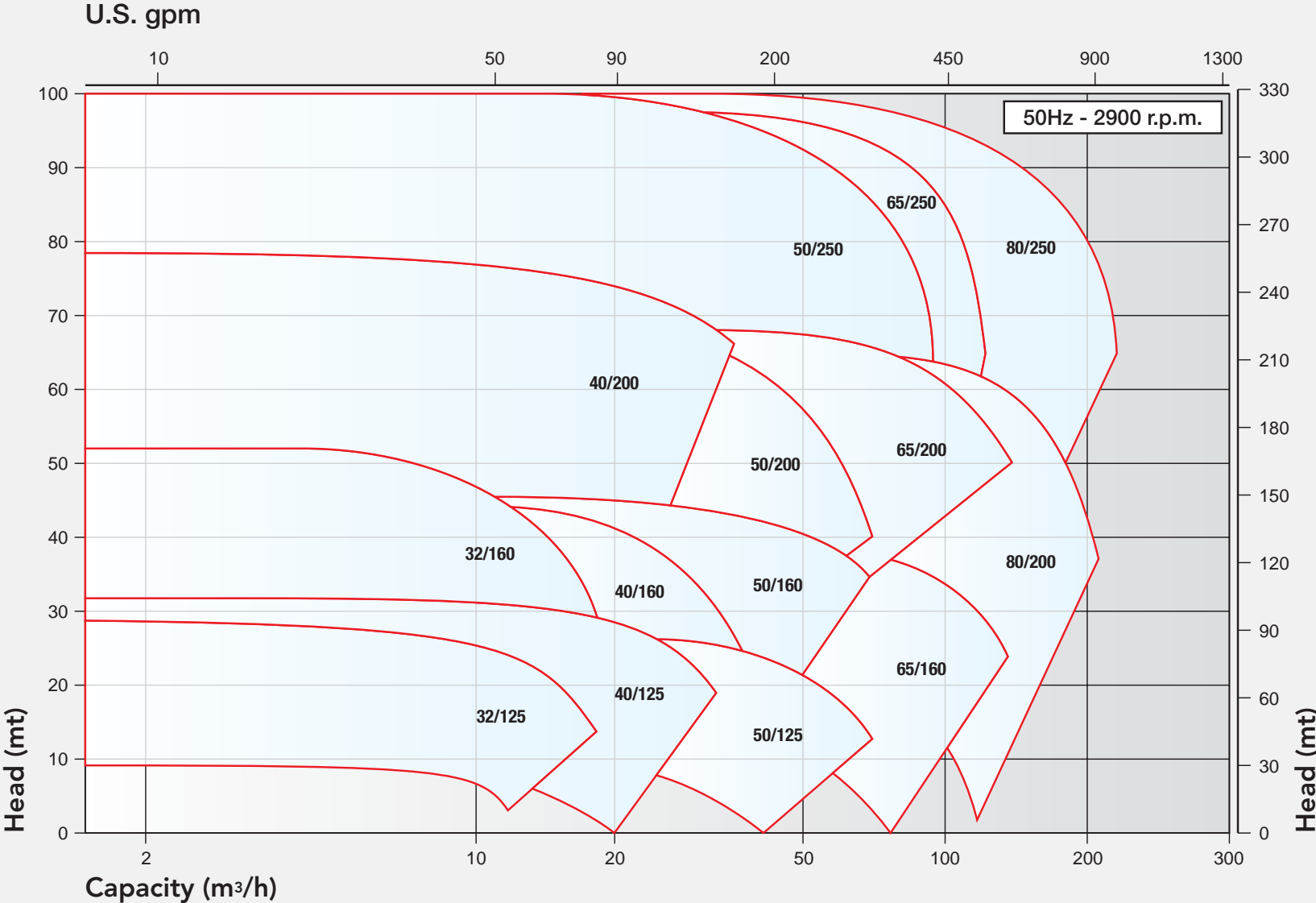
WARNING

ZGE pumps comply with EC standards on machine safety and are supplied complete with all the relevant documentation. The installation, operation and maintenance manual must be carefully read and scrupulously followed by the user (Fig. 3).

PRODUCTION PROGRAM

GENERAL PERFORMANCE CURVES 50 HZ 2900 r.p.m.

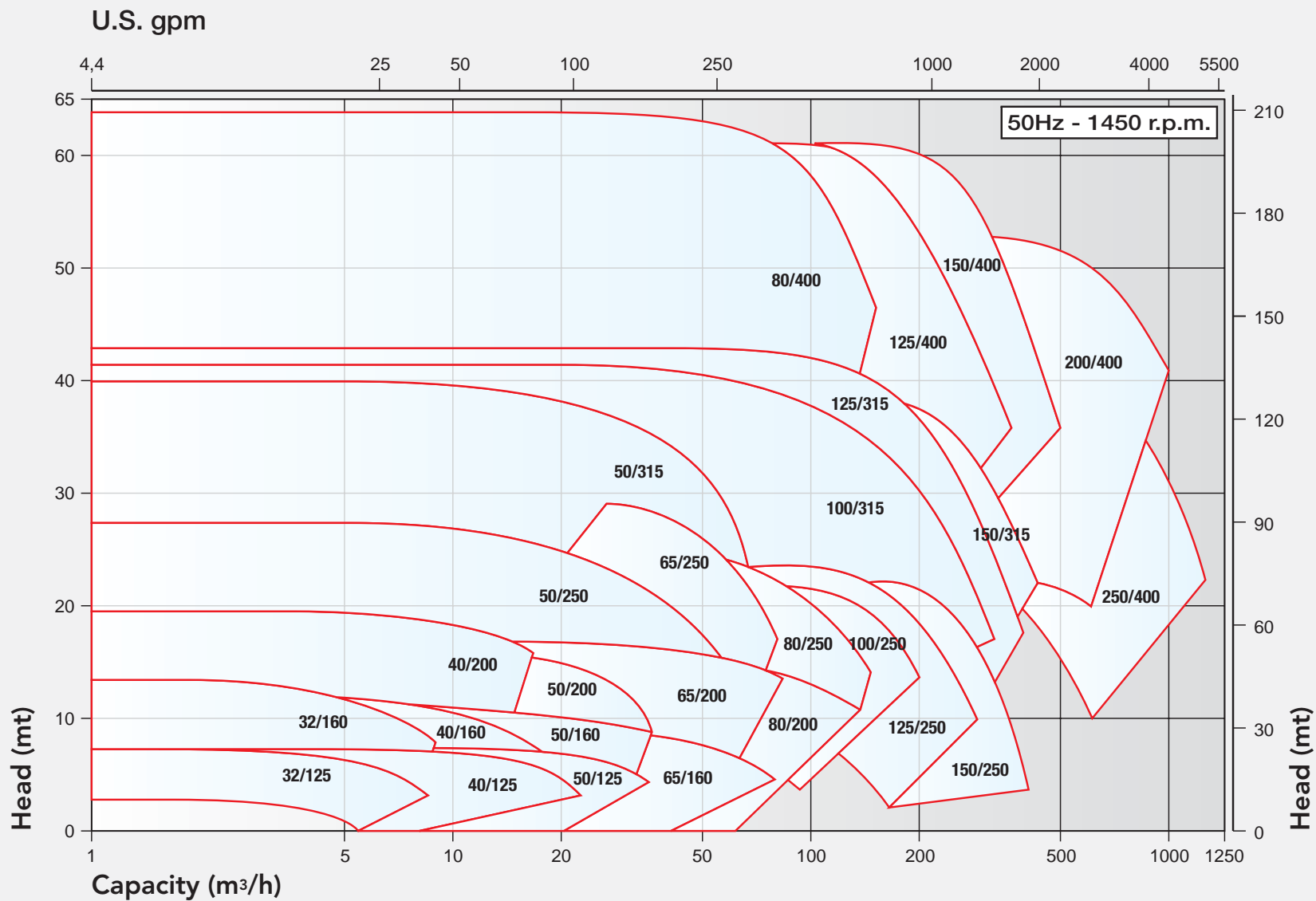
SPECIFIC CURVES 50 Hz (see specific catalog ZGE Pumps Spec.Curves.pdf)



PRODUCTION PROGRAM

GENERAL PERFORMANCE CURVES 50 HZ 1450 r.p.m.

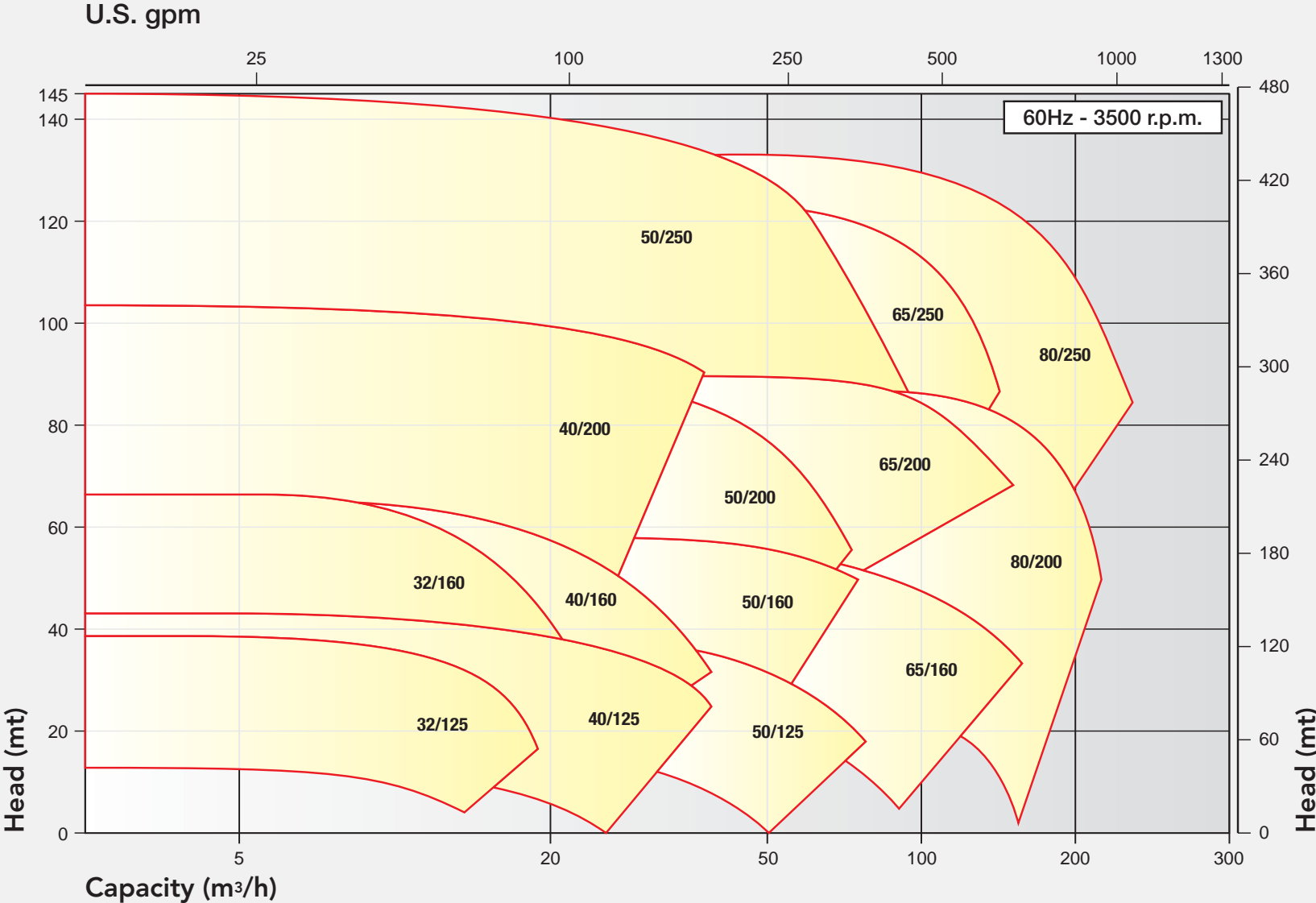
SPECIFIC CURVES 50 Hz (see specific catalog ZGE Pumps Spec.Curves.pdf)



PRODUCTION PROGRAM

GENERAL PERFORMANCE CURVES 60 HZ 3500 r.p.m.

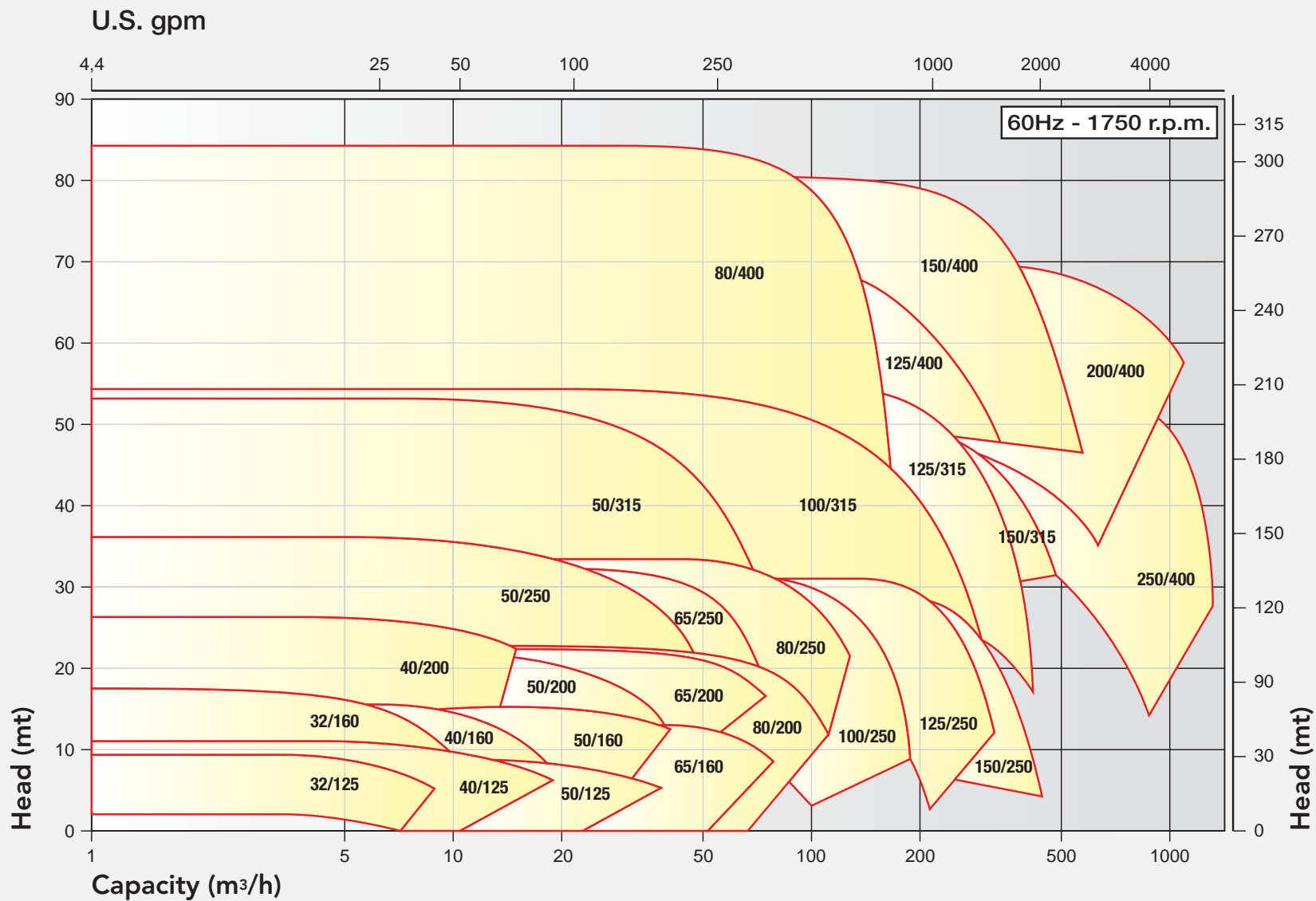
SPECIFIC CURVES 60 Hz (see specific catalog ZGE Pumps Spec.Curves.pdf)



PRODUCTION PROGRAM

GENERAL PERFORMANCE CURVES 60 HZ 1750 r.p.m.

SPECIFIC CURVES 60 Hz (see specific catalog ZGE Pumps Spec.Curves.pdf)



PRODUCTION PROGRAM

CHARACTERISTICS OF MATERIALS AND PARTICULARS OF CONSTRUCTION

VERSION	FC	WR	WF	ER	QR
PUMP CASING	PVDF	PP	PP	PE	PVC
IMPELLER	PVDF	PP	PVDF	PE	PVC
PLATE	PVDF	PP	PP	PE	PVC
SLEEVEN	PVDF	PP	PP	PE	PVC
METAL FLANGES	CAST IRON				
SUPPORT	CAST IRON				
BASE	STEEL				
GASCHET	FKM				

• FC:

The base resin is PVDF (polyvinilidene fluoride): This is a fluorinated elastomer that is highly resistant to abrasion and has a high degree of mechanical resistance. If used in centrifugal pumps, it can withstand peaks of temperature of 120° C and can operate continuously at 100° C. It is extremely resistant to strong concentrated acids and has good resistance to organic solvents (except for Ketones, esters and acetone), extremely resistant to hot solutions of inorganic salts.

• WR:

The base resin is PP (polypropylene): very good mechanical resistance, good resistance to heat deformation. If used in centrifugal pumps, it withstands peak temperature up to 90° C; it operates continuously at 70° C. It is extremely resistant to high concentrations of weak acids and high alkaline concentrations. Good resistance to cold concentrations of strong acids, excellent resistance to solutions of inorganic salts.

• WF:

The base resin is PP (polypropylene): the parts that are subjected to particularly heavy duty are of PVDF in order to increase the pump resistance to wear and abrasion. It can operate continuously at temperatures of up to 85° C.

• ER:

The base resin is Pe (polyethylene 500 with a high molecular weight): it has as high chemical resistance as PP and is also resistant to many organic solvents. It is more suitable for use at low temperatures (down to - 30° C) with an upper limit of +50° C for continuous use.

• QR:

The base resin is PVC (polyvinyl chloride): it has excellent resistance to alkaline solutions and acids (in particular, chromic acid, sulphur-nitrate mixtures, sulphuric acid, sodium hypochlorite, turpentine and ozone). The pump can be used at temperatures of up to 40° C.

Elastomers used:

• E: EPDM

ethylene-propylene rubber; high chemical resistance, not suitable for oils.

• V: FKM

fluorine rubber; high chemical resistance, including many solvents.

• F: FEP

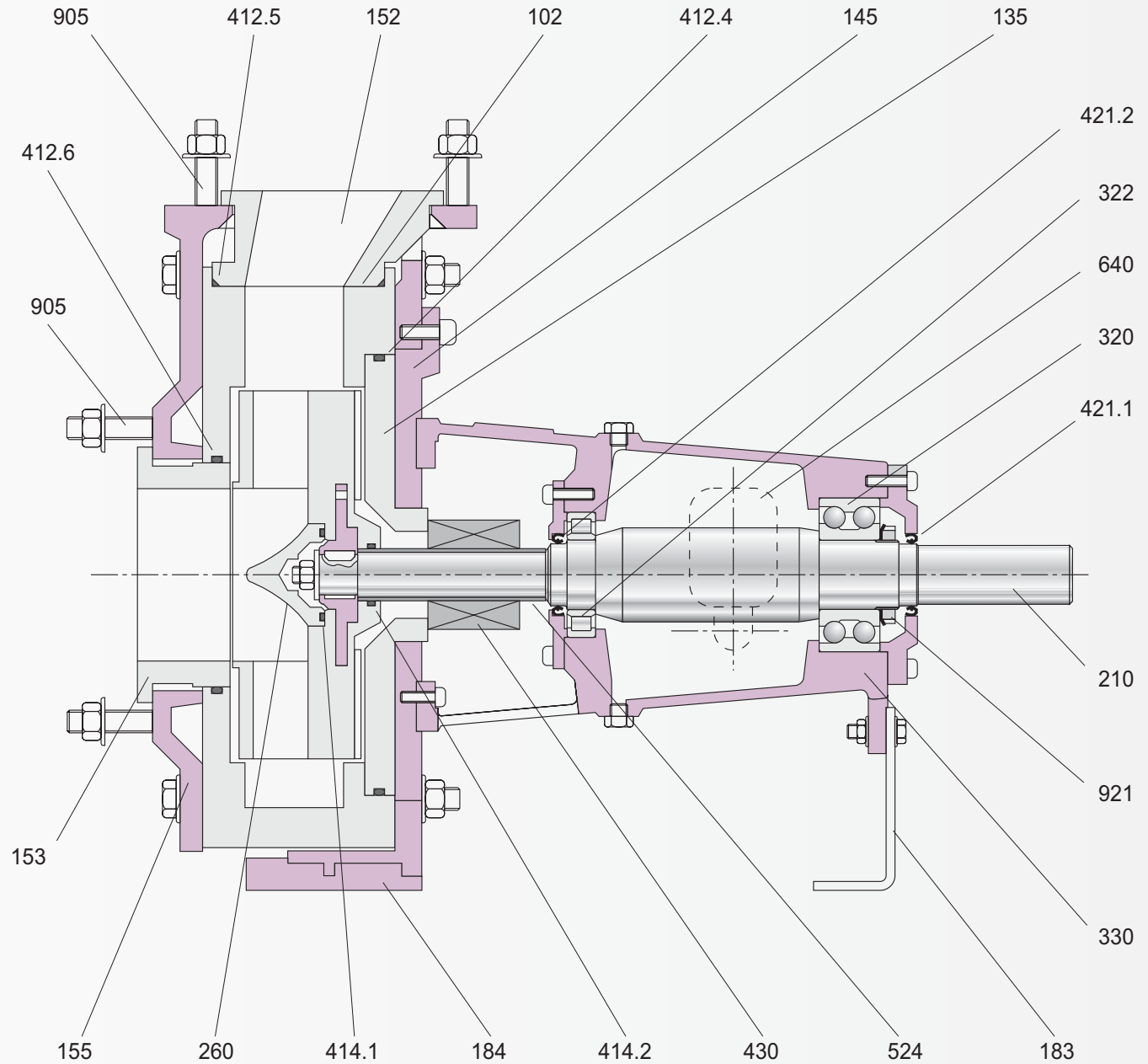
fluorinated, ethylene-propylene copolymer; chemical resistance comparable to PTFE.



PRODUCTION PROGRAM

ZGE PUMPS SECTION VIEW

Re.	Components description
102	Volute casing
135	Intermediate plate
145	Support flange
152	Discharge stub pipe
153	Suction stub pipe
155	Front flange
183	Support foot
184	Rear flange
210	Pump shaft
230	Centrifugal impeller
260	Ogive
320	Bearing (motor side)
322	Bearing (pump side)
330	Support
412.4	O-ring
412.5	O-ring
412.6	O-ring
414.1	O-ring
414.2	O-ring
421.1	Elastic seal ring
421.2	Elastic seal ring
430	Mechanical seal
524	Shaft sleever
640	Bulb lubricator
905	Screw
921	Nut



PRODUCTION PROGRAM

ZGE MECHANICAL SEAL

• SE1

Single, balanced external mechanical seal, with PTFE bellows.

Rotating head: reinforced PTFE. Fixed ring: Ceramic (Al_2O_3).

Manufacturer: ARGAL.

• SE3

Single, balanced external mechanical seal, with PTFE bellows.

Rotating head: reinforced PTFE. Fixed ring: Ceramic (Al_2O_3).

Manufacturer: CRANE (model 10T).

• B1

Single, balanced external mechanical seal, with O-ring seal.

Rotating head and fixed ring: Silicon carbide (SiC);
Manufacturer: PACIFIC (model Allpac 481).

• B2

Single, balanced external mechanical seal, with O-ring seal.

Rotating head: Silicon carbide (SiC). Fixed ring: Carbon;

Manufacturer: PACIFIC (model Allpac 481).

• B3

Single, balanced external mechanical seal, with O-ring seal.

Rotating head and fixed ring: Silicon carbide (SiC);
Manufacturer: ARGAL.

• TS2

Single, balanced external mechanical seal, with elastomer bellows. Rotating head: Carbon. Fixed ring: Ceramic (Al_2O_3).

Manufacturer: HUHNSEAL (model HNT).

• TS3

Single, balanced external mechanical seal, with elastomer bellows. Rotating head: Silicon carbide (SiC). Fixed head: (Al_2O_3). Manufacturer: HUHNSEAL (model HNT).

• M3

Double external mechanical seal, with PTFE sealing wedges, for external flush with compatible fluid. Rotating head: Carbon. Fixed rings: Ceramic (Al_2O_3).
Manufacturer: CRANE (model 9T/9T).

• M4

Double external mechanical seal, with elastomer bellows, for external flush with compatible fluid. Rotating head: Carbon. Fixed rings: Ceramic (Al_2O_3).
Manufacturer: CRANE (model 502/502).

• M5

Double external mechanical seal, with elastomer bellows, for external flush with compatible fluid. Rotating head: Silicon carbide (SiC). Fixed rings: Silicon carbide (SiC).
Manufacturer: CRANE (model 502/502).

• M7

Double external mechanical seal, with elastomer bellows for external flush with compatible fluid. Rotating head :Carbon. Fixed rings: Ceramic (Al_2O_3).
Manufacturer: HUHNSEAL/DRT (model HNT+AT).

• M9

Double external mechanical seal, with elastomer bellows, for external flush with compatible fluid. Rotating head (inboard): Silicon carbide (SiC). Fixed rings: Ceramic (Al_2O_3).
Manufacturer: HUHNSEAL/DRT (model HNT+AT).

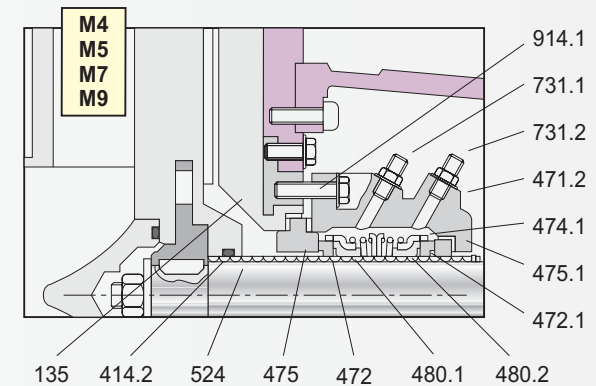
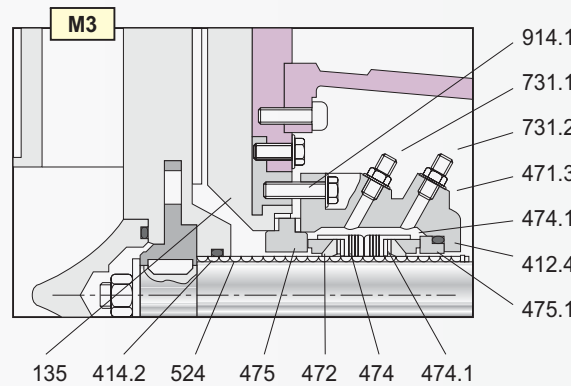
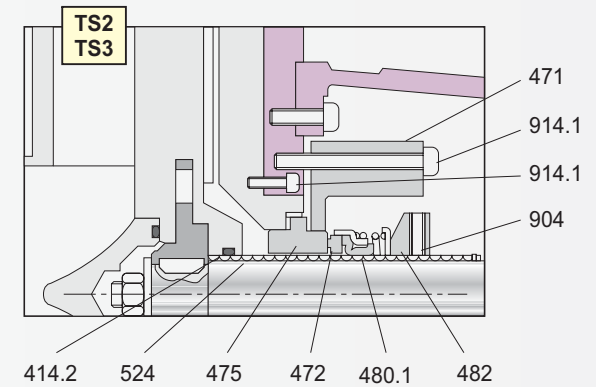
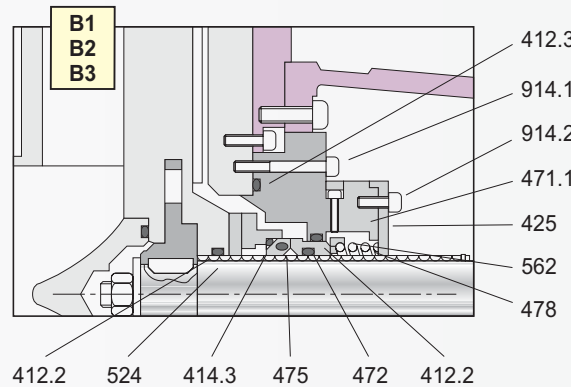
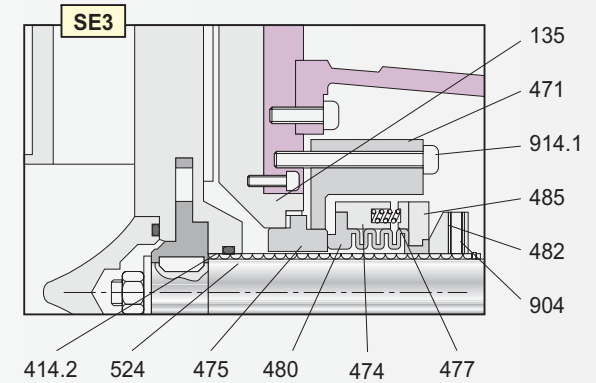
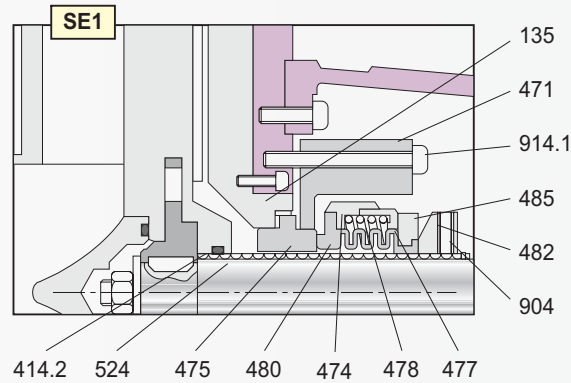
EXECUTION	SE1	SE3	B1	B2	B3	TS2	TS3	M3	M4	M5	M7	M9
ROTATING PART	GFR-		SiC			Carbon	SiC	Carbon		SiC	Carbon	SiC
FIXED RING	Al_2O_3		SiC	Carbon	SiC	Al_2O_3				SiC	Al_2O_3	
GASKET (Std)	FKM											



PRODUCTION PROGRAM

ZGE MECHANICAL SEAL

Re.	Components desc.
135	Intermediate plate
412.2/3	O-ring
412.4	O-ring
412.2	O-ring
412.3	O-ring
482	Support plate
471/.1/.2/.3	Seal cover
472	Seal ring
472.1	Seal ring
474	Seal casing
474.1	Seal casing
475	Fixed seal ring
475.1	Fixed seal ring
477	Thrust spring
478	Thrust spring
480	Snap ring with bellows
480.1	Bellows
480.2	Bellows
485	Champ
524	Shaft sleeve
562	Lock clip
731.1	Seal washing inlet
731.2	Seal washing outlet
904	Grub screws
914.1/2	Screws



PRODUCTION PROGRAM

BASES CHOICE

BASE CHOISE - N - (ISO pump / IEC motor)

MOTOR SIZE	71	80	90 S	90 L	100 L	112 M	132 S	132 M	160 M	160 L	180 M	180 L	200 L	225 S	225 M	250 M	280 S	280 M	315 S	315 M	315 L	355 L	
kW for 2 p	0,37 0,55	0,75 1,1	1,5	2,2	3	4	5,5 7,5		11 15	18,5	22		30 70		45	55	75	90	110	132	160 200	250	
kW for 4 p	0,25 0,37	0,55 0,75	1,1	1,5	2,2 3	4	5,5	7,5	11	15	18,5	22	30	37	45	55	75	90		110 132	160 200	250 315	
PUMP MODEL																							
32/125																							
32/160	2	2	2																				
40/125																							
40/160																							
40/200	2	3	3	3	3	3	4	4	5	5													
50/125		2	3																				
50/160		3	3						5	5	5												
50/200																							
50/250		4	4	4	4	4								7	7		8	9					
50/315		5	5	5	5	5						6											
65/160		3	4	4	4	4	5	5	6	6	6												
65/200		4																					
65/250		5	5	5	5	5																	
80/200		5											7										
80/250		6	6	6	6	6	6	6															
80/400					7	7	7	7	7				7										
100/250					6	6																	
100/315							6	6	6	7	7												
125/250																							
125/315									8	8	8												
125/400													8	8									
150/250									8	8	8			8	8	8	8						
150/315											9	9											
150/400													9	9	9	9							
200/400																	10	10	10	10	10	10	11
250/400																	11	11	6	11	11		

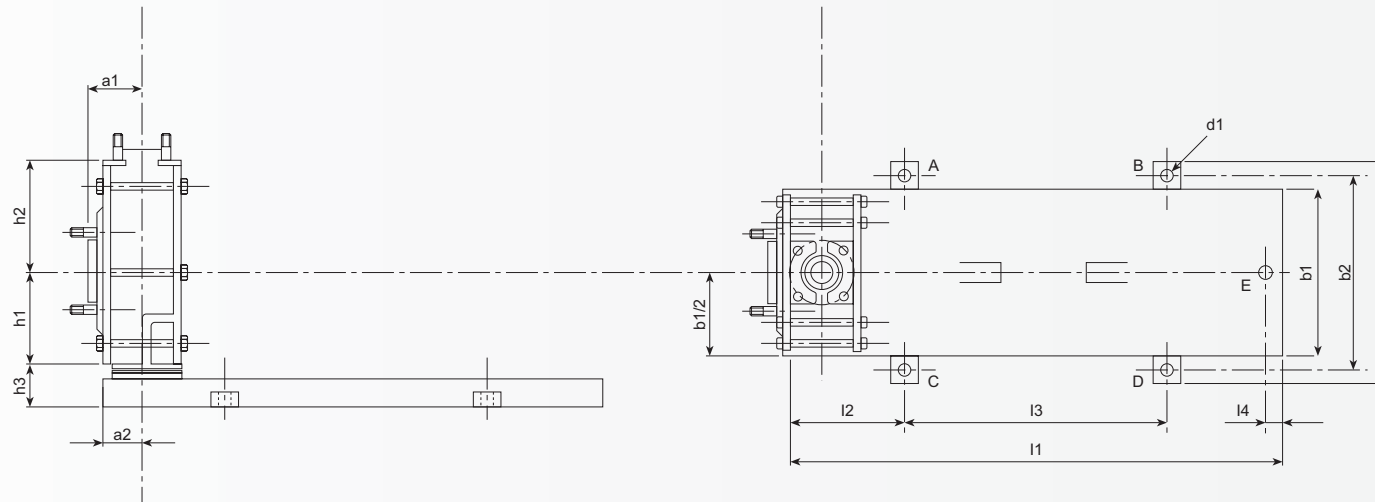
EXEMPLE FOR ORDERING

RANGE	MODEL	VERSION	IMPELLER	GASKET	SEAL	BASE	POLES	POWER kW
ZGE	40/200	FC	185	V	SE1	N3	4P	1,5
.1	.2	.3	.4	.5	.6	.7	.8	.9
.1: Range name. .2: Pump model. .3: Version initial (pag. 4).			.4: Impeller diameter in mm (note pag. 2) .5: Gasket initial (pag. 4). .6: Mecanical seal (pag. 6).		.7: Base number (ISO 3661; pag. 8). .8: Electric motor poles number. .9: Installed power in kW.			

BASES DIMENSIONS

ISO BASES 3661 (DIN 24 259)

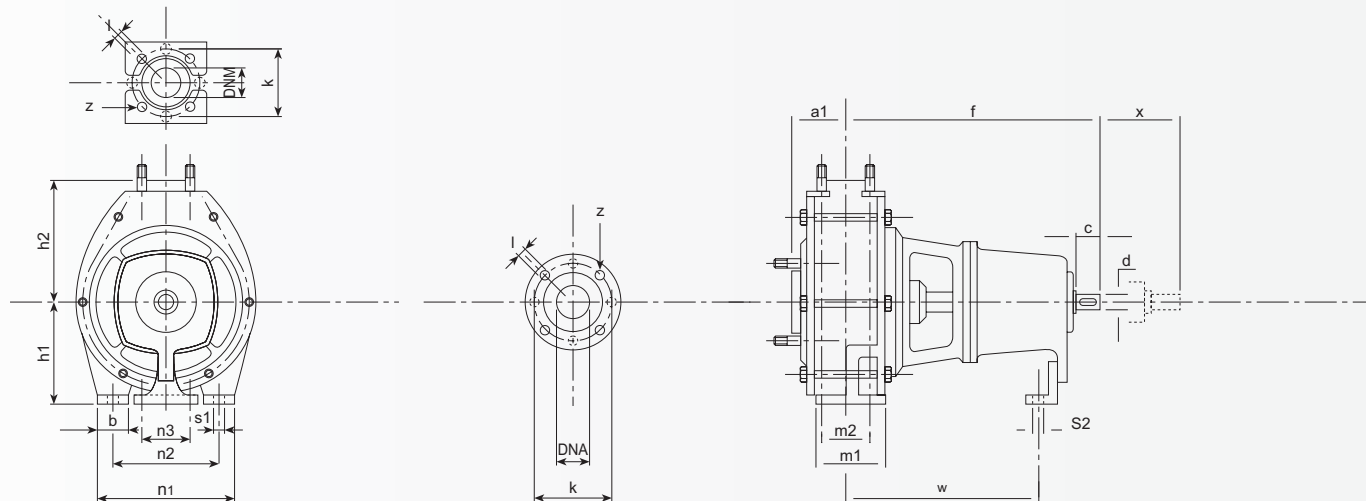
Base No.	2	3	4	5	6	7	8	9	10	11
l1	800	900	1000	1120	1250	1400	1600	1800	2100	2500
b1, max	270	300	340	380	430	480	530	600	680	750
l2	130	150	170	190	205	230	270	300	300	250
l3	540	600	660	740	840	940	1060	1200	1500	200
l4	35	35	40	40	45	50				
b2	360	390	450	490	540	610	660	730	800	950
b3	320	350	400	440	490	550	600	670	740	850
h3, max	125	125	125	140	160	180	200	200	175	240
d1	19	19	24	24	24	28	27	27	20	23



PRODUCTION PROGRAM

PUMP DIMENSIONS

PUMP MOD.	FLANGED CONNECTION OUTLET				FLANGED CONNECTION INLET				PUMP DIMENSIONS				PUMP FIXING						SHAFT																				
	DNM	k	l	z	DNA	k	l	z	a1	f	h1	h2	b	m1	m2	n1	n2	n3	s1	s2	w	x	d	c	a2														
32/125	32	100	M16	4	50	125	M16	4	80	385	112	140	50	100	70	190	140	110	M12	M12	285	100	24	50	60														
32/160											132	160				240	190																						
40/125	40	110			65	145			180	200	125	500				180	225									280	65	125	95	320	250	110	M12	M12	370	140	42	110	75
40/160																														112	140								
40/200	40	110			65	145			180	200	125	500				180	225									280	65	125	95	345	280	110	M12	M12	370	140	42	110	75
50/125																														132	160								
50/160	50	125			80	160			180	200	125	500				180	225									280	65	125	95	280	210	110	M16	M12	370	140	42	110	75
50/200																														160	180								
50/250	50	125			80	160			180	200	125	500				180	225									280	65	125	95	320	250	110	M16	M12	370	140	42	110	75
50/315																														132	160								
65/160	65	145	100	180	200	225	125	500	180	225	280	65	125	95	320	250	110	M16	M12	370	140	42	110	75															
65/200															200	250									360	280													
65/250	65	145	100	180	200	225	125	500	180	225	280	65	125	95	345	280	110	M16	M12	370	140	42	110	75															
80/200															180	250									80	160	120	360	280										
80/250	80	160	125	210	280	355	140	530	250	315	355	80	160	120	400	315	110	M16	M12	370	140	42	110	75															
80/400															225	280									435	355													
100/250	100	180	150	240	280	355	140	530	250	315	355	80	160	120	400	315	110	M16	M12	370	140	42	110	75															
100/315															280	355									400	315													
125/250	125	210	150	240	280	355	140	530	250	315	355	80	160	120	400	315	110	M16	M12	370	140	42	110	75															
125/315															315	375									500	400													
125/400	125	210	150	240	280	355	140	530	250	315	355	80	160	120	500	400	110	M16	M12	370	140	42	110	75															
150/250															280	355									400	315													
150/315	150	240	200	295	355	420	160	670	315	450	470	100	200	150	550	450	110	M20	M16	500	180	48	125	190															
150/400															450	470									550	450													
200/400	200	295	250	355	420	600	200	700	370	470	600	130	260	190	800	670	140	M20	M16	655	250	75	140	190															
250/400	250	350	300	400	400	600	250	900	420	600	600	130	260	190	800	670	140	M24	M16	655	250	75	140	190															



PRODUCTION PROGRAM

Production program

K range (KG and KGS)
 Installed powers:
 kW 0,75+37
 Bodies materials:
 GFR/PP - PVDF - PVC
 Lengths 400+3000 mm



K range (KM and KMS)
 Installed powers:
 kW 0,75+22
 Bodies materials:
 GFR/PP - PVDF - PVC
 Lengths 250+2000 mm



Prototype

LINE range
 Installed powers:
 kW 0,35 - 7,5
 Bodies materials:
 PP - PVDF
 Lengths 275+2000



FRONTIERA range
 Potenze installabili: kW 0,55+15
 Materiali dei corpi: PP - E-CTFE
 • Magnetic drive
 • Sealed

ZMA and ZGA range
 Installed powers: kW 0,75+11
 Bodies materials: PP - PVDF - PVC
 • Self priming
 • Sealed



ZME range
 Installed powers: kW 5,5+15
 Bodies materials: PP - E-CTFE
 • Sealed



ZGE range (ISO 2858)
 Installed powers: kW 0,55+300
 Bodies materials: PP - PVDF - PVC - PE HMW
 • Sealed



AM range
 Installed powers: kW 0,04+0,55
 Bodies materials: GFR/PP - CFF/E-CTFE
 • Magnetic drive



ROUTE range
 Installed powers: kW 0,35+7,5
 Bodies materials: GFR/PP - CFF/E-CTFE
 • Magnetic drive
 • Sealed

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PRODUCTION PROGRAM