

GM/GMVB Multi-stage Centrifugal Pump

Application

Multi-stage centrifugal pumps of the GM/GMVB series are designed for pumping clear resp. slightly turbid liquids without abrasives. A broad range of materials and a variety of shaft sealing systems render this kind of pump suitable for use on a wide range of applications:

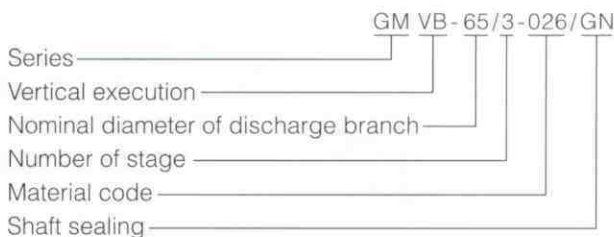
- water supply installations
- circulating and condensating plants
- booster systems
- power supply plant
- sprinkling installations
- mines
- boiler feed

Operating Data

Flow Rate	max. 700 m ³ /h
Total Head	50~300m
Speed	max. 3600 rpm
Pumping Temperature	< 140°C
Casing Pressure	30 bar*
Size	32....200mm

*For standard C.I. pumps, cast steel casing are used for higher pressure.

Designation



Drive

The pumping unit is normally driven by an air-cooled three-phase AC squirrel-cage motor of IEC standard, Class F Insulation, protection degree IP54.

Direction of rotation is clockwise when seen from drive side.

*For voltages, frequencies, protection degrees and drives (combustion engines, belt drive), consult factory.

Bearings

- ball bearings (grease lubricated) for both GM/GMVB
- oil lubrication is an available option.



Construction

Multi-stage centrifugal pumps GM/GMVB are of sectional casing type with closed impellers which are statically and dynamically balanced. The several interstage casings are sealed by "O"-ring joints and axially tightened by external tie bolts. Suction flanges are according to DIN2533, PN 16 and discharge port flanges are according to DIN2535 PN 40. Suction flange on the right and close to the coupling and the discharge flange is at the other end and at top. Both suction and discharge flange can be turned with 90° angles on size 32-40-50 and 65.

Axial balance is secured by back wearing ring *balancing hole system in standard production. Balancing disc or balancing drum is used for total head 200 meters or above.

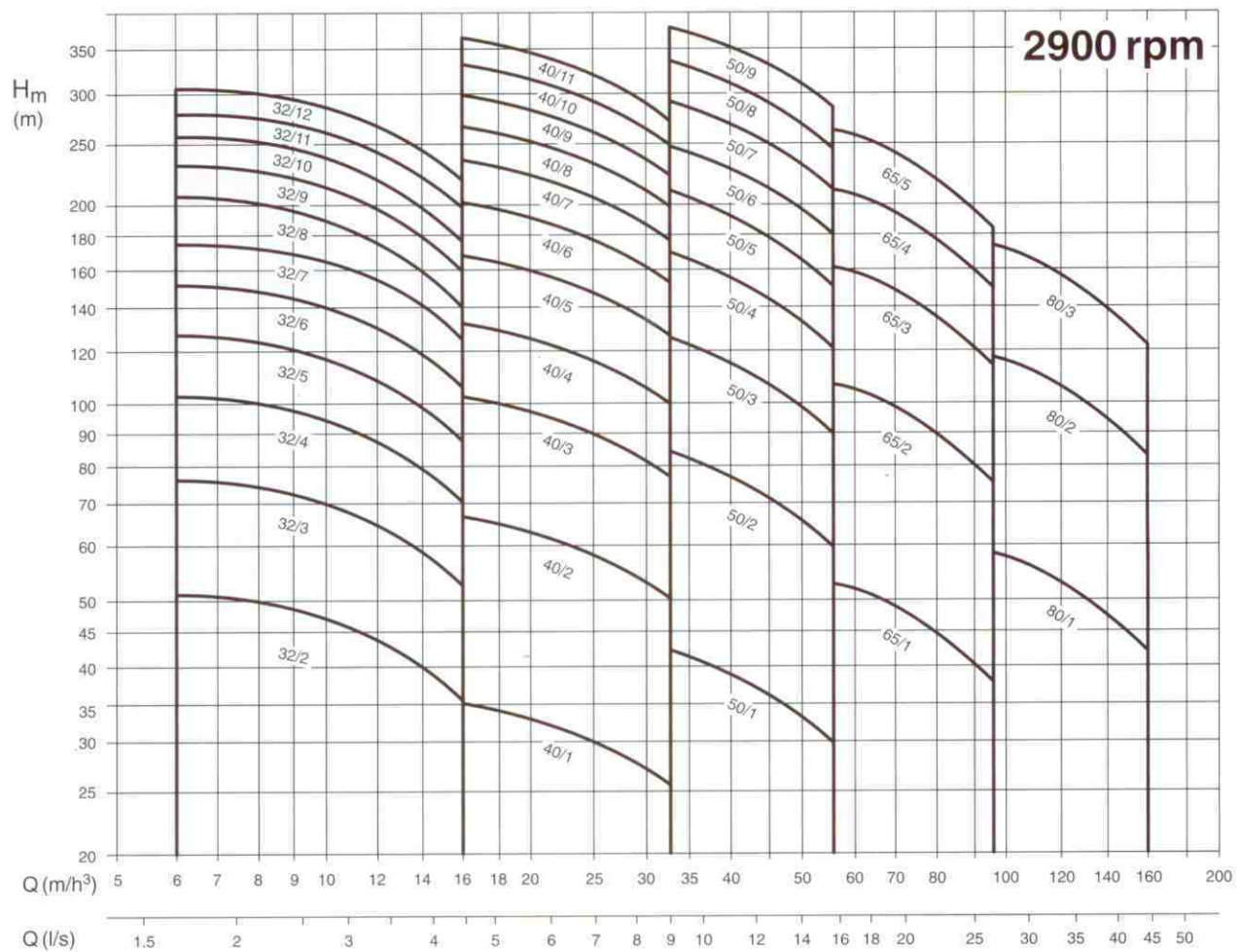
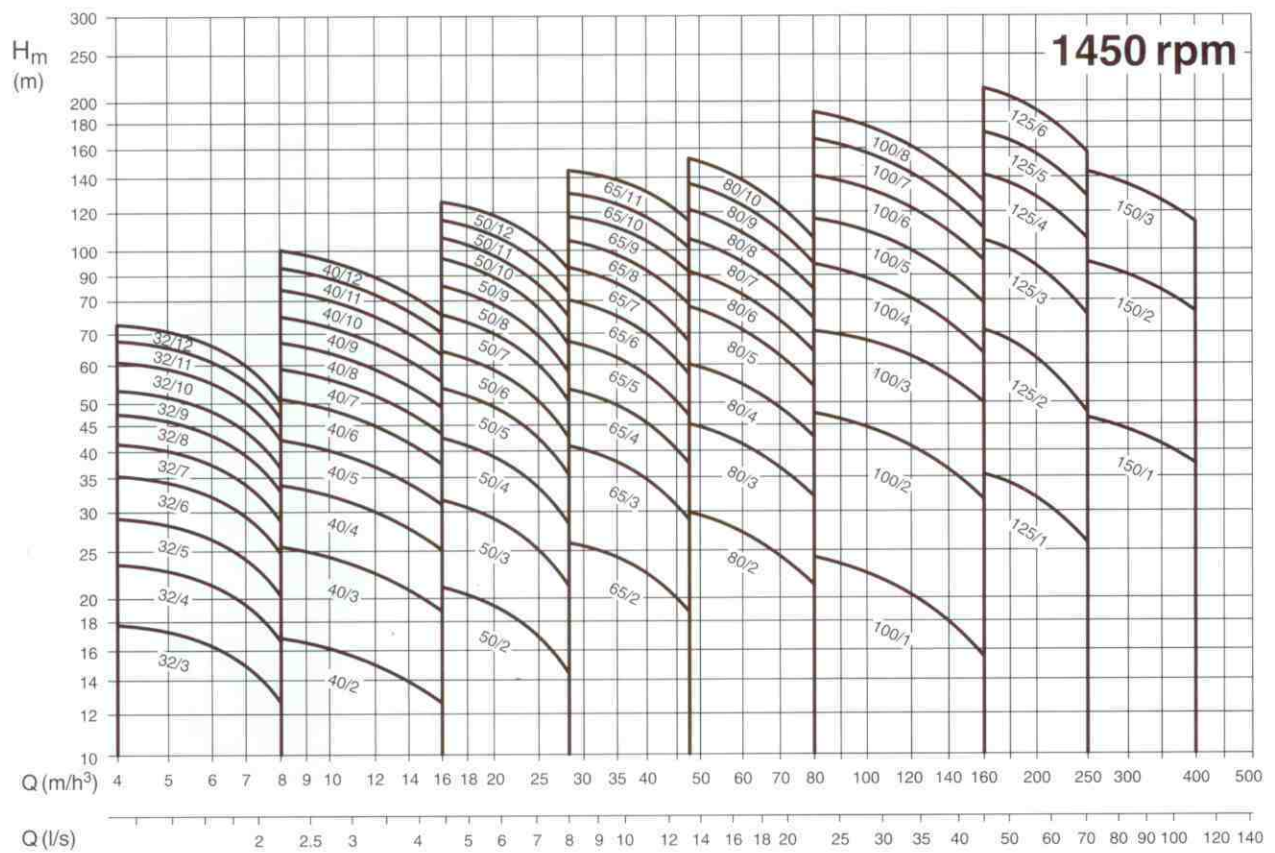
Each produced GM/GMVB type pump is tested for static pressure 1.5 times more than closed valve pressure (0 flow) and is also tested for performance.

Shaft Sealing

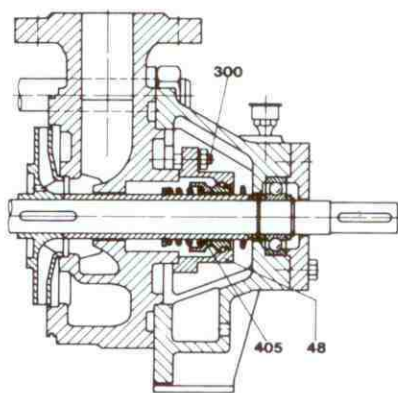
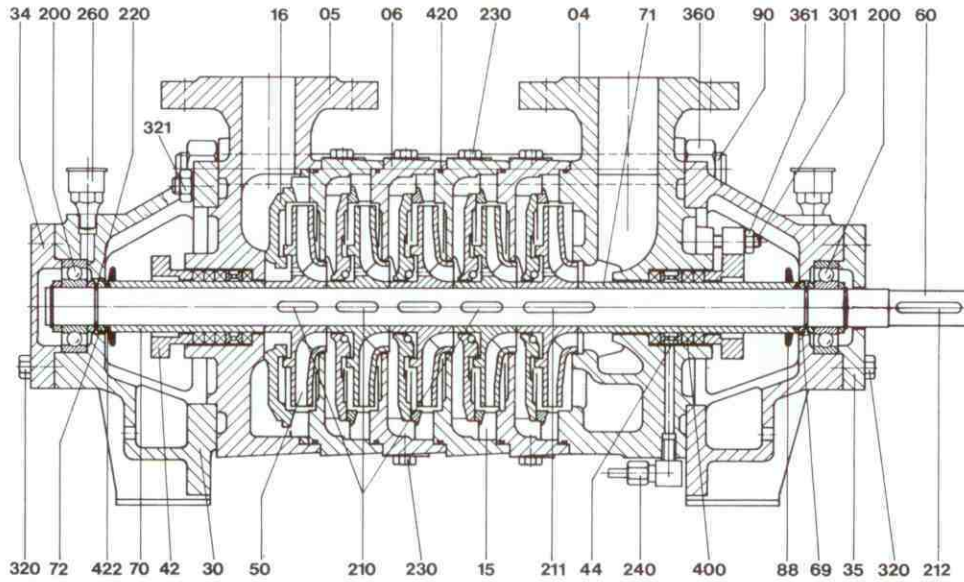
- uncooled single stuffing box packing (S1)
- uncooled double stuffing box packing (S2)
- mechanical seal in accordance with DIN 24960 (GN)

Seal and materials of seal components are selected corresponding to the use conditions.

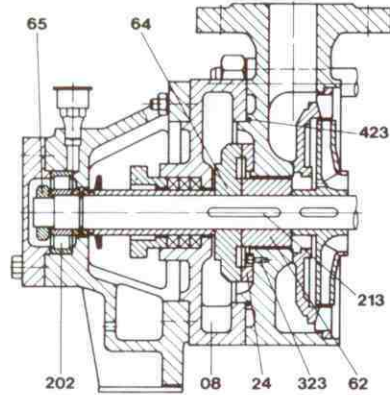
GM/GMVB



Sectional Drawing & Part List (size 32-65)



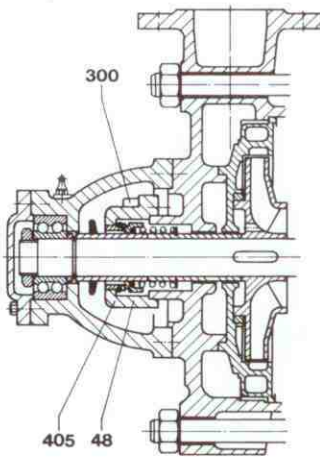
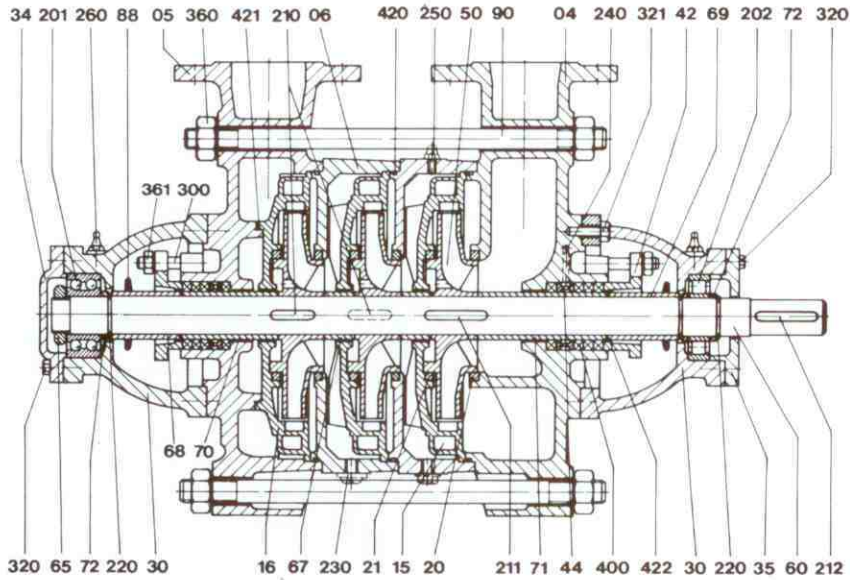
Mechanical Seal Application



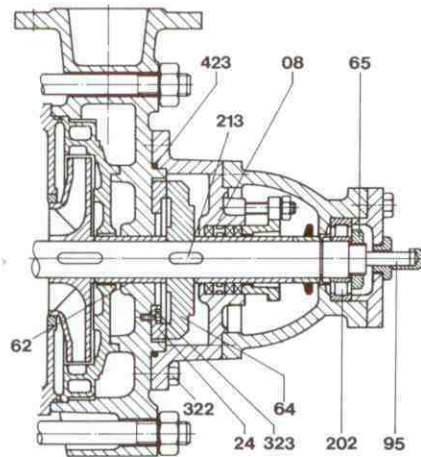
Balance Disc Application

Part No.	Designation	Part No.	Designation	Part No.	Designation
04	Suction Casing	62	Balance Bushing	230	Plug
05	Discharge Casing	64	Balance Disc	231	Oil Drain Plug
06	Stage Casing	65	Shaft End Nut	240	Seal Piping
08	Balance Disc Casing	66	Shaft Nut (Coup. Side)	241	Nipple
15	Diffuser	67	Stage Sleeve	250	Vent Cock
16	Final Stage Diffuser	68	Spacer Sleeve	260	Oil Plug
20	Casing Wear Ring	69	Spacer Sleeve	261	Oil Level Indicator
21	Back Wear Ring	70	Shaft Sleeve (End)	300	Stuffing Box Stud
23	Balance Drum Body	71	Shaft Sleeve (Coup.)	320	Hex. Head Bolt
24	Balance Disc Seat	74	Spacer Sleeve	322	Hex. Head Bolt
30	Bearing Housing	80	Thrower	323	Imbus Head Bolt
31	Bearing Housing (Oil)	90	Tiebolt	360	Hex. Nut
34	Bearing End Cover	200	Ball Bearing	361	Hex. Nut
35	Beaing Cover	201	Ball Bearing	400	Stuffing Box Packing
40	Stuff. Box Cooling Ch	202	Roller Bea.	405	Mechanical Seal
42	Stuffing Box Gland	210	Impeller Key	410	Oil Seal Ring
44	Lantern Ring	211	First Stage Key	420	O-Ring
48	Mach. Seal Cover	212	Coupling Key	421	O-Ring
50	Impeller	213	Disc Key	422	O-Ring
60	Shaft	220	Retaining Ring	423	O-Ring

Sectional Drawing & Part List (size 80-200)



Mechanical Seal Application

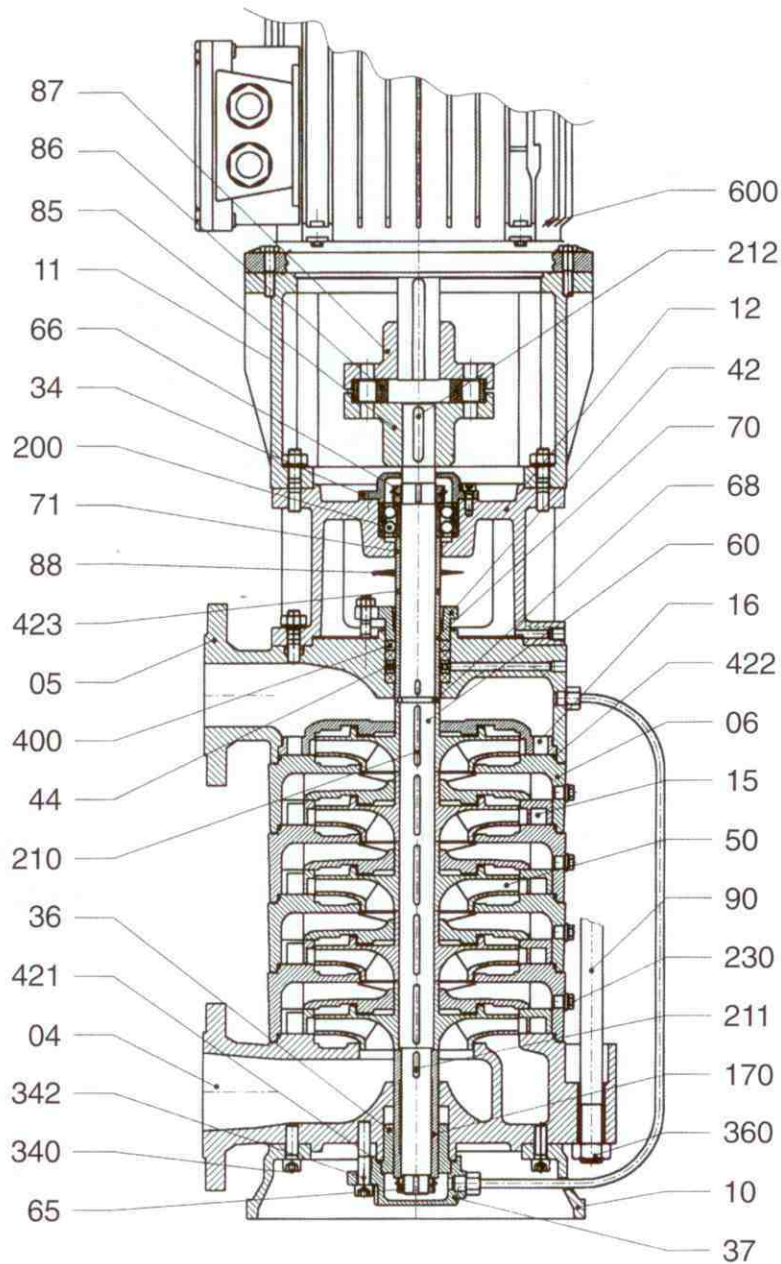


Balance Disc Application (Hm>200m)

Part No.	Designation	Part No.	Designation	Part No.	Designation
04	Suction Casing	62	Balance Bushing	230	Plug
05	Discharge Casing	64	Balance Disc	231	Oil Drain Plug
06	Stage Casing	65	Shaft End Nut	240	Seal Piping
08	Balance Disc Casing	66	Shaft Nut (Coup. Side)	241	Nipple
15	Diffuser	67	Stage Sleeve	250	Vent Cock
16	Final Stage Diffuser	68	Spacer Sleeve	260	Oil Plug
20	Casing Wear Ring	69	Spacer Sleeve	261	Oil Level Indicator
21	Back Wear Ring	70	Shaft Sleeve (End)	300	Stuffing Box Stud
23	Balance Drum Body	71	Shaft Sleeve (Coup.)	320	Hex. Head Bolt
24	Balance Disc Seat	74	Spacer Sleeve	322	Hex. Head Bolt
30	Bearing Housing	80	Thrower	323	Imbus Head Bolt
31	Bearing Housing (Oil)	90	Tiebolt	360	Hex. Nut
34	Bearing End Cover	200	Ball Bearing	361	Hex. Nut
35	Beaing Cover	201	Ball Bearing	400	Stuffing Box Packing
40	Stuff. Box Cooling Ch	202	Roller Bea.	405	Mechanical Seal
42	Stuffing Box Gland	210	Impeller Key	410	Oil Seal Ring
44	Lantern Ring	211	First Stage Key	420	O-Ring
48	Mach. Seal Cover	212	Coupling Key	421	O-Ring
50	Impeller	213	Disc Key	422	O-Ring
60	Shaft	220	Retaining Ring	423	O-Ring

GMVB

Sectional Drawing & Part List



Part No.	Designation	Part No.	Designation	Part No.	Designation
04	Suction Casing	50	Impeller	200	Ball Bearing
05	Discharge Casing	60	Shaft	210	Impeller Key
06	Stage Casing	65	Shaft Locking Nut+Washer	211	Sleeve Key
10	Pump Foot	66	Shaft Locking Nut+Washer	212	Coupling Key
11	Motor Pedestal	68	Split Ring	230	Plug
12	Bearing Housing	70	Shaft Sleeve	340	Hollow-Head Cap Screw
15	Diffuser	71	Spacer Sleeve	342	Hollow-Head Cap Screw
16	Final Stage Diffuser	85	Coupling (Pump)	360	Hex.Nut
34	Bearing Cover	86	Coupling Rubber	400	Stuffing Box Packing
36	Bottom Bearing	87	Coupling (Motor)	421	O-Ring
37	Lower Housing Cover	88	Thrower Ring	422	O-Ring
42	Gland	90	Tie Bolt	423	O-Ring
44	Lantern Ring	170	Shaft Sleeve	600	Electric Motor

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Material combination

Designation	Part No.	Code			
		006	013	026	100
Suction Casing	04	GG-25			GGG-40
Delivery Casing	05	GG-25			GGG-40
Stage Casing	06	GG-25			GGG-40
Diffuser	15	G.CuSn10	GG-25		
Shaft	60	1.4401	1.4301		
Impeller	50	G.CuSn10	GG-25	G.CuSn10	GG-25
Bearing Housing	30	GG-25			
Stuffing Box Gland	42	GG-25			
Mechanical Seal Cover	48	G.CuSn7 ZnPb			
Casing Wear Ring	20	G.CuSn7 ZnPb			GGLZ-320NiCr
Interstage Sleeve	67	G.CuSn5 ZnPb			GGLZ-320NiCr
Shaft Sleeve	70	G.CuSn10	G.CuSn7 ZnPb		
Tie Bolt	90	St 50-2			
Key	210	1.4301	St 50-2	1.4301	
Gland Packing	400	PTFE Graphite in stream			
Mechanical Seal	405	ASVGG			

Designation	Part No.	Code			
		206	308	508	528
Suction Casing	04	G.CuSn10	GS-C25	1.4408	
Delivery Casing	05	G.CuSn10	GS-C25	1.4408	
Stage Casing	06	G.CuSn10	GS-C25	1.4408	
Diffuser	15	G.CuSn10	1.4408		
Shaft	60	1.4401	1.4301		1.4401
Impeller	50	G.CuSn10	1.4408		
Bearing Housing	30	GG-25			1.4408
Stuffing Box Gland	42	G.CuSn7 ZnPb	GG-25	1.4057	
Mechanical Seal Cover	48	G.CuSn5 ZnPb	1.4878		
Casing Wear Ring	20	G.CuSn7 ZnPb	1.4138		
Interstage Sleeve	67	G.CuSn7 ZnPh	1.4301		
Shaft Sleeve	70	G.CuSn10	1.4301		
Tie Bolt	90	St 50-2			1.4301
Key	210	1.4301			
Gland Packing	400	PTFE			
Mechanical Seal	405	ASVGG			