

Centrifugal Pump

# Multitec / Multitec-RO

High-pressure Ring-section Pump

## Type Series Booklet



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Type Series Booklet Multitec / Multitec-RO

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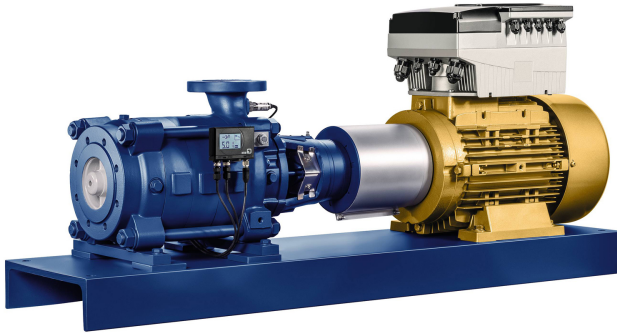
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## Centrifugal Pumps

### Multistage High-pressure Centrifugal Pumps

## Multitec/Multitec-RO



- Condensate
- Fire-fighting water
- Solvents
- Lubricants
- Fuels
- Cooling water
- Water/oil emulsions
- Seawater
- Thermal water

### Operating data

Operating properties

Characteristic		Value
Size	DN	32 - 250
Flow rate	Q [m <sup>3</sup> /h]	≤ 1500
	Q [l/s]	≤ 417
Head	H [m]	≤ 1000 <sup>1)</sup>
Fluid temperature	T [°C]	≥ -10
		≤ +200 <sup>1)</sup>
Operating pressure	p <sub>2</sub> [bar] <sup>2)</sup>	≤ 100 <sup>1)</sup>

**i** The product illustrated as an example may include options incurring a surcharge.

### Main applications

- Water supply systems
- Drinking water supply
- Pressure boosting
- General irrigation systems
- Fossil-fuelled power stations
- Hot-water supply
- Condensate transport
- Boiler feed applications
- Heating systems
- Filtering systems
- Fire-fighting systems
- Snow-making systems
- Washing plants
- Industrial plants
- Desalination plants
- Geothermal plants
- Heat recovery systems

### Fluids handled

- Water
- Drinking water
- Feed water
- High-temperature hot water

### Designation

**Example: Multitec<sup>3)</sup> A 32/8E-2.1 12.167 (SP)**

Designation key

Code	Description
Multitec	Type series
A	Installation type
32	Nominal discharge nozzle diameter [mm]
8E	No. of stages / impeller combination
2.1	Hydraulic system
12	Material code
167	Seal code
SP	Code for special variants (optional)

**Example: Multitec-RO<sup>4)</sup> A 100/5-8.1 31.80**

Key to the designation

Code	Description
Multitec-RO	Type series
A	Installation type
100	Nominal discharge nozzle diameter [mm]
5	Number of stages
8.1	Hydraulic system
31	Casing material (duplex stainless steel)
80	Seal code

1) Only for individual sizes/designs

2) The sum of inlet pressure and shut-off head must not exceed the value indicated.

3) Code: MTC

4) Code: MTC-RO

## Design details

### Design

- Multistage centrifugal pump in ring-section design
- Horizontal installation in long-coupled or close-coupled design
- Vertical installation in close-coupled design or with universal joint shaft

### Pump casing

- Suction casing: axial or radial
- Radial suction casing and discharge casing: nozzles can be turned in steps of 90°
- Flanges to EN and ASME (holes and flange facing)
- Identical seal housing for gland packing and mechanical seal
- Stage casings, discharge casings and seal housing sealed by confined O-rings

### Drive

- 50 Hz and 60 Hz electric motor
- Can be driven by diesel engine or turbine

### Impeller type

- Closed radial impeller with multiply curved vanes

### Bearings

- Fixed bearing, drive end: rolling element bearing
- Radial bearing, non-drive end: either plain bearing or rolling element bearing, depending on the type of installation
- Rolling element bearing grease or oil lubricated
- Plain bearing lubricated by fluid handled
- Self-aligning

### Coupling

Long-coupled design:

- Flexible coupling with or without spacer

Close-coupled design:

- Up to DN 65 with rigid coupling

### Coupling guard

Standard:

- Coupling guard, cylindrical

Optional:

- Coupling guard, tread-proof

### Shaft seal

- Uncooled gland packing, with or without barrier fluid
- Standardised mechanical seal to EN 12756
- Cartridge mechanical seal

### Materials

- Casing: grey cast iron, nodular cast iron, steel, stainless steel, duplex stainless steel, super duplex stainless steel
- Hydraulic system: grey cast iron, bronze, stainless steel, duplex stainless steel, super duplex stainless steel

### Technical description

Installation types A, B, C and D

Installation type	A <sup>5)</sup>	B <sup>5)</sup>	C <sup>5)</sup>	D <sup>6)</sup>
	<ul style="list-style-type: none"> <li>▪ Horizontal design, long-coupled</li> <li>▪ Only one shaft passage (drive end)</li> <li>▪ Rolling element bearing at the drive end / plain bearing on the suction side</li> <li>▪ Axial suction nozzle (block flange up to size 50)</li> <li>▪ Drive on discharge side</li> </ul>	<ul style="list-style-type: none"> <li>▪ Horizontal design, long-coupled</li> <li>▪ Only one shaft passage (drive end)</li> <li>▪ Rolling element bearing at the drive end / plain bearing on the suction side</li> <li>▪ Radial suction nozzle</li> <li>▪ Drive on discharge side</li> </ul>	<ul style="list-style-type: none"> <li>▪ Horizontal design, long-coupled</li> <li>▪ With two shaft passages</li> <li>▪ Rolling element bearings at the drive end and on the suction side</li> <li>▪ Drive on discharge side</li> </ul>	<ul style="list-style-type: none"> <li>▪ Horizontal design, long-coupled</li> <li>▪ With two shaft passages</li> <li>▪ Rolling element bearings at the drive end and on the discharge side</li> <li>▪ Drive on suction side</li> </ul>
	Multitec-RO: installation type A only		DN 200, DN 250: installation types C and D only	
Drive	Electric motor, diesel engine, turbine			
Axial thrust balancing	By balance drum <sup>7)</sup>			
Q <sub>max</sub> <sup>8)</sup>	850 m <sup>3</sup> /h		1500 m <sup>3</sup> /h	
H <sub>max</sub>	630 m (1000 m <sup>9)</sup> )			
p <sub>2 max</sub>	63 bar (100 bar <sup>9)</sup> )			
t <sub>max</sub>	-10 °C to +200 °C, Multitec-RO up to 45 °C			
Shaft seal	Uncooled gland packing, cooled or uncooled mechanical seal; single or double cartridge seal			
Material	<b>Casing:</b> <ul style="list-style-type: none"> <li>▪ Grey cast iron, steel, stainless steel for Multitec</li> <li>▪ Duplex and super duplex stainless steel for Multitec-RO</li> </ul> <b>Hydraulic system:</b> <ul style="list-style-type: none"> <li>▪ Grey cast iron, bronze, stainless steel for Multitec</li> <li>▪ Duplex and super duplex stainless steel for Multitec-RO</li> </ul>		<b>Casing:</b> grey cast iron, nodular cast iron <sup>10)</sup> , steel, stainless steel  <b>Hydraulic system:</b> grey cast iron, bronze, steel, stainless steel	

5) The direction of rotation is clockwise, seen from the motor end.

6) The direction of rotation is counter-clockwise, seen from the motor end.

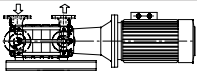
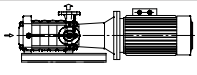
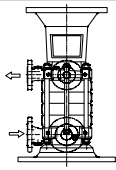
7) For small numbers of stages without balance drum the axial thrust is completely absorbed by the thrust bearing.

8) The indicated Q values apply to 50 Hz; for 60 Hz values refer to the individual characteristic curves.

9) Only for individual sizes/designs

10) For DN 200 and DN 250 only

Installation types E, F and V

Installation type	E <sup>5)</sup>	F <sup>5)</sup>	V <sup>5)</sup>	
				
	<ul style="list-style-type: none"> <li>▪ Horizontal close-coupled pump</li> <li>▪ Common bearing for pump and motor</li> <li>▪ Rigid coupling</li> <li>▪ Radial suction nozzle</li> <li>▪ Plain bearing at the suction side</li> </ul>	<ul style="list-style-type: none"> <li>▪ Horizontal close-coupled pump</li> <li>▪ Common bearing for pump and motor</li> <li>▪ Rigid coupling</li> <li>▪ Axial suction nozzle</li> <li>▪ Plain bearing at the suction side</li> </ul>	Vertical close-coupled pump	
H/Q range <sup>8)</sup>	100 m <sup>3</sup> /h, 250 m, up to nominal diameter 65	100 m <sup>3</sup> /h, 250 m, up to nominal diameter 65	Up to 400 kW	
Drive	Standardised motor		Standardised motor, fixed bearing at the drive end <sup>11)</sup>	Standardised motor
Fixed bearing	Motor <sup>11)</sup>		Motor <sup>11)</sup> : DN 32, DN 50, DN 65	In lantern: DN 100, DN 125, DN 150, DN 200
Axial thrust balancing	By balance drum <sup>7)</sup>		By balance drum	By balance drum <sup>7)</sup>
Q <sub>max</sub> <sup>8)</sup>	100 m <sup>3</sup> /h		850 m <sup>3</sup> /h	
H <sub>max</sub>	250 m		630 m	
p <sub>2 max</sub>	40 bar		63 bar	
t <sub>max</sub>	-10 °C to +140 °C		-10 °C to +140 °C	
Shaft seal	Uncooled gland packing, uncooled mechanical seal, single		Uncooled gland packing, uncooled mechanical seal, single	
Material	<b>Casing:</b> grey cast iron <b>Hydraulic system:</b> grey cast iron, bronze		<b>Casing:</b> grey cast iron, nodular cast iron <sup>12)</sup> , steel, stainless steel <b>Hydraulic system:</b> Grey cast iron, bronze, stainless steel	

11) For Multitec 32, Multitec 50 and Multitec 65 the motor bearings on the coupling side are fixed bearings  
 12) For Multitec 200 only

Operating ranges by installation type

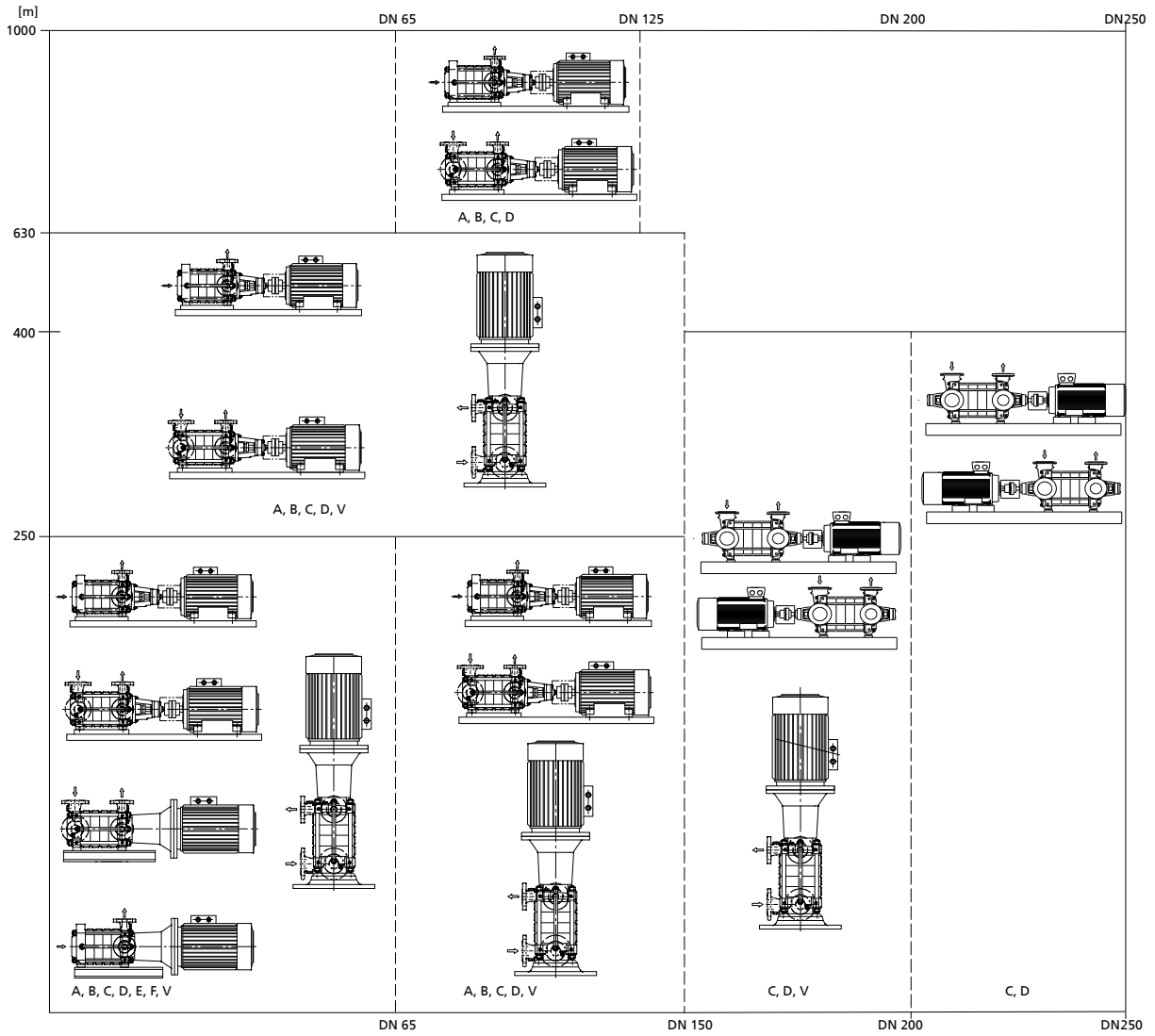


Fig. 1: Operating ranges by installation type



### Product benefits

- Space-saving compact design with axial inlet and product-lubricated plain bearing
- Flexible, best matching adaptation to system condition by variety of installation types and variable nozzle position
- Low NPSH value, improved suction behaviour and operating reliability for suction lift operation by special suction impeller
- Optimised efficiencies and reduced operating costs by newly developed hydraulic system
- Versatile use by broad range of installation types, materials and shaft seals
- Optimum selection for fluid to be pumped and operating conditions by large choice of materials
- High resistance by casing wear rings / closing discs made of corrosion-resistant material, economical and easy to replace
- Shaft protected from wear by shaft protecting sleeve made of stainless steel
- Axial thrust balancing by balance drum
  - Low bearing load at changing operating condition
  - Long life of rolling element bearings and shaft seals
  - Use of standardised seals due to lower pressure in the shaft seal chamber
- Longer service life, higher operating reliability, lower operating costs, maintenance costs and investment costs by maintenance-free, robust plain bearing made of silicon carbide, also suitable for operation with frequent starts/stops.
- Service-friendly by bearing assembly and mechanical seal being easy to dismantle

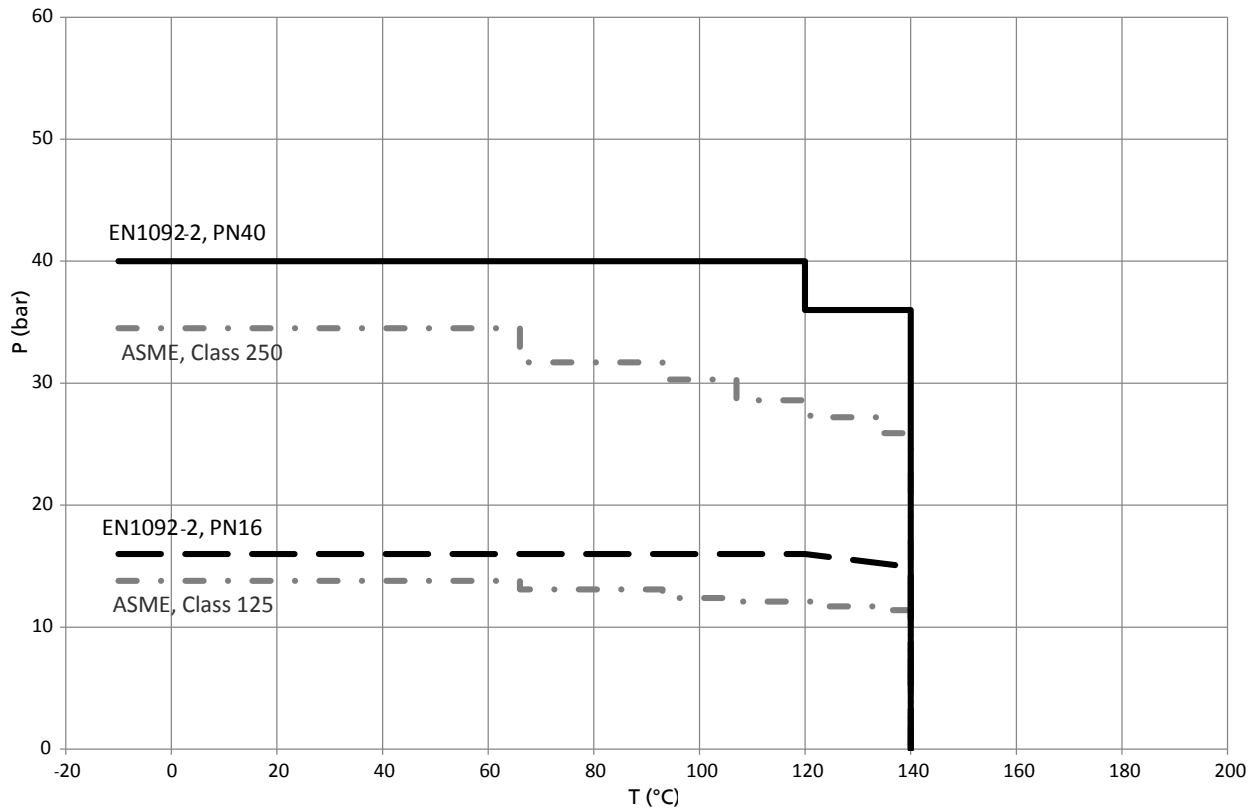
### Acceptance tests and warranty

#### Certificates / inspections/ acceptance tests on request:

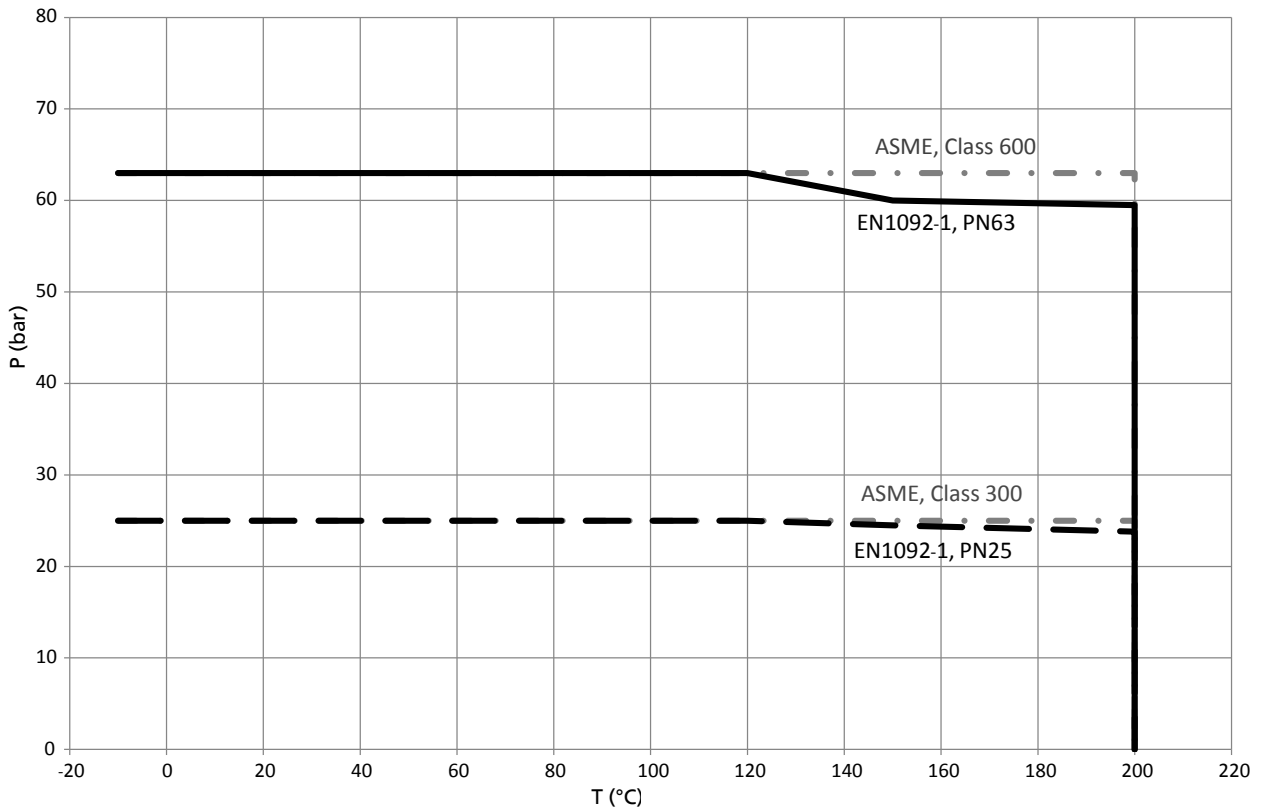
- Test reports 2.2 to EN 10204 for pressure-retaining components, shaft and impellers
- Hydrostatic pressure test of pressure-retaining components
- Balancing test
- Hydraulic tests:
  - Performance test to ISO 9906 or Hydraulic Institute
  - NPSH test
  - Vibration test
  - Bearing temperature measurement
- Strip test
- Dimensional inspection
- Coating inspection
- Final inspection and testing

**Pressure and temperature limits**

Material JL1040 (GJL-250), EN-GJS 400-15<sup>13)</sup>

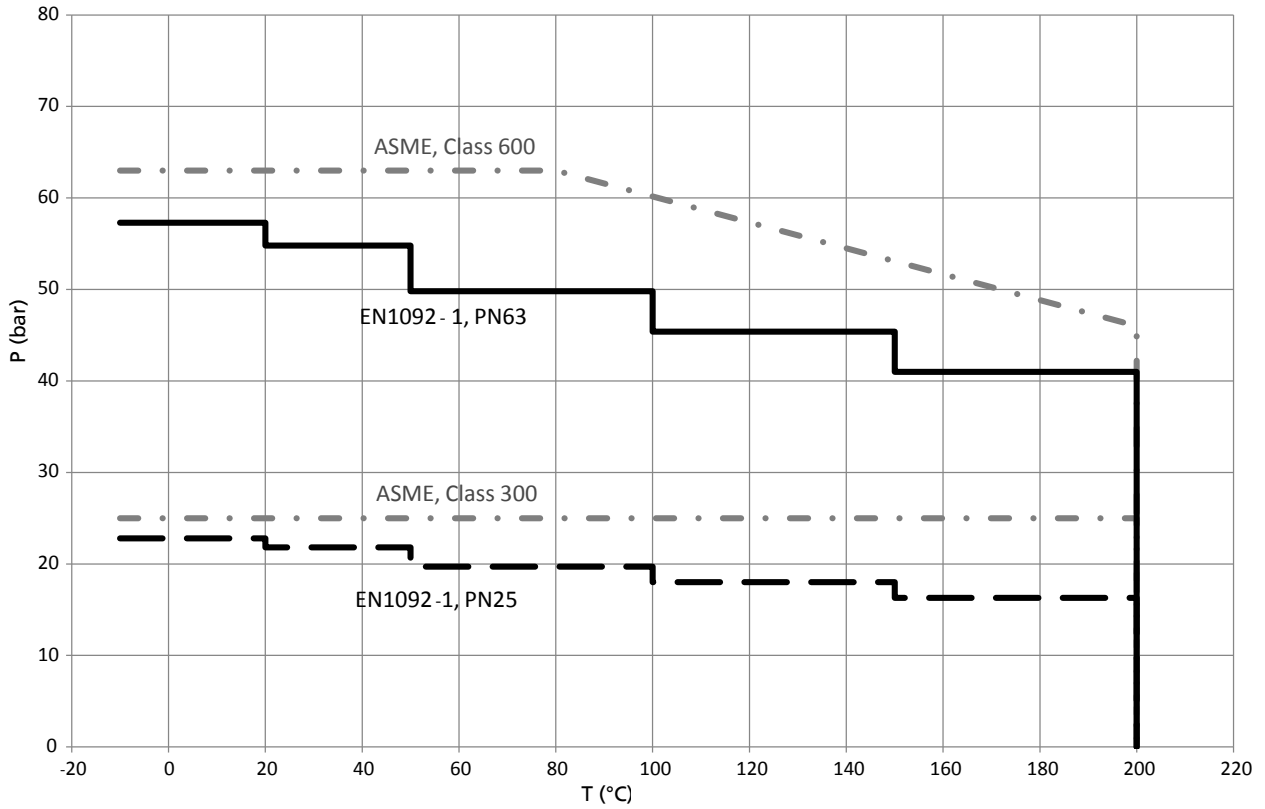


Material GP240GH+N (1.0619+N)

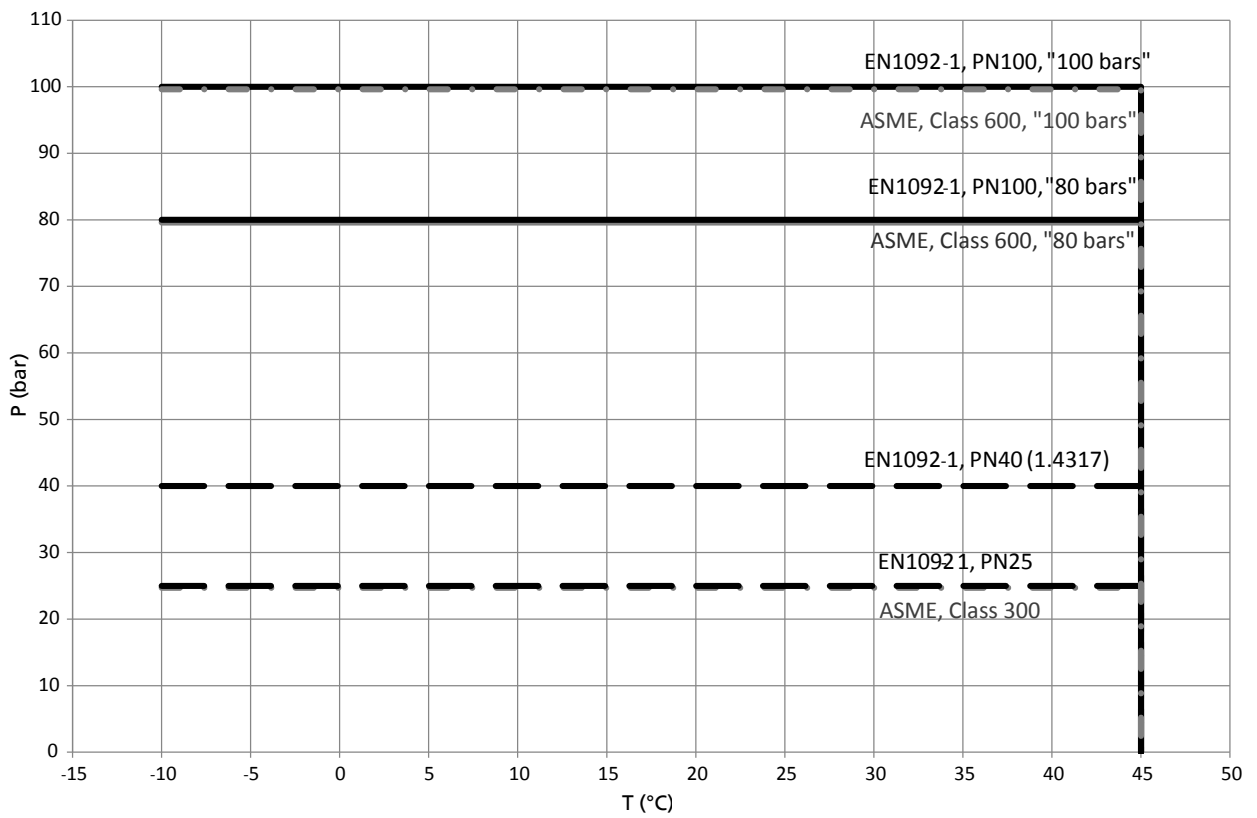


13) Only for fluid temperatures up to 60 °C

Material 1.4408



Material 1.4317, 1.4517, 1.4469



**Materials**

Material codes for versions with cast steel casing

Part No.	Description	Material code				
		10 <sup>14)</sup>	11 <sup>14)15)</sup>	12 <sup>14)15)</sup>	13 <sup>14)</sup>	14 <sup>14)</sup>
106	Suction casing	EN-GJL-250	EN-GJL-250 <sup>16)</sup> / GJS-400-15 <sup>17)</sup>	EN-EN-GJL-250 <sup>16)</sup> / GJS-400-15 <sup>17)</sup>	EN-EN-GJL-250	EN-EN-GJL-250
107	Discharge casing	EN-EN-GJL-250	EN-EN-GJL-250 <sup>16)</sup> / GJS-400-15 <sup>17)</sup>	EN-EN-GJL-250 <sup>16)</sup> / GJS-400-15 <sup>17)</sup>	EN-EN-GJL-250	EN-EN-GJL-250
108	Stage casing	EN-EN-GJL-250	EN-GJL-250 <sup>16)</sup> / GJS-400-15 <sup>17)</sup>	1.0576 S355J2H <sup>18)</sup> / EN-GJL-250 <sup>19)</sup> / GJS-400-15 <sup>17)</sup>	EN-GJL-250	EN-GJL-250
171	Diffuser	EN-GJL-250 <sup>20)</sup>	EN-GJL-250 <sup>20)</sup>	CC480K-GS	EN-GJL-250 <sup>20)</sup>	EN-GJL-250 <sup>20)</sup>
210	Shaft	C45+N <sup>21)</sup>	C45+N <sup>21)</sup> / 1.4021+QT <sup>21)</sup>	C45+N <sup>21)</sup> / 1.4021+QT <sup>21)</sup>	C45+N <sup>21)</sup>	C45+N <sup>21)</sup> 22)
230	Impeller	EN-GJL-250	CC480K-GS	CC480K-GS	EN-GJL-250	1.4408
231	Suction impeller	EN-GJL-250	CC480K-GS	CC480K-GS	1.4408	1.4408
350	Bearing housing	EN-GJL-250	EN-GJL-250 / EN-GJS-400-15 <sup>23)</sup>	EN-GJL-250 / EN-GJS-400-15 <sup>23)</sup>	EN-GJL-250	EN-GJL-250
381/529	Plain bearing assembly	SiC/SiC	SiC/SiC	SiC/SiC	SiC/SiC	SiC/SiC
441	Stuffing box housing	EN-GJL-250	EN-GJL-250 / GP240GH+N / EN-GJS-400-15 <sup>24)</sup>	EN-GJL-250 / GP240GH+N / EN-GJS-400-15 <sup>24)</sup>	EN-GJL-250	EN-GJL-250
502.1	Casing wear ring (suction side)	EN-GJL-250 <sup>25)</sup>	1.4138 <sup>25)</sup>	1.4138 <sup>25)</sup>	EN-GJL-250 <sup>25)</sup>	EN-GJL-250 <sup>25)</sup>
502.2 <sup>26)</sup>	Casing wear ring (stages)	EN-GJL-250	1.4138	1.4138	EN-GJL-250	EN-GJL-250
502.3 <sup>17)</sup>	Casing wear ring (diffuser)	-	1.4138	1.4138	-	-
523	Shaft sleeve (mechanical seal)	1.4057+QT800	1.4057+QT800	1.4057+QT800	1.4057+QT800	1.4057+QT800
524	Shaft protecting sleeve (gland packing)	1.4122	1.4122	1.4122	1.4122	1.4122
550.1 <sup>27)</sup>	Sheet metal disc	1.4301	1.4301	1.4301	1.4301	1.4301
59-4	Balance drum	1.4021	1.4021	1.4021	1.4021	1.4021
540	Bush	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250
905	Tie bolt	42 CrMo4	42 CrMo4	42 CrMo4	42 CrMo4	42 CrMo4

Material codes for versions with grey cast iron / steel casing

Part No.	Description	Material code		
		15 <sup>14)</sup>	16 <sup>14)</sup>	17 <sup>14)</sup>
106	Suction casing	GP240GH+N	GP240GH+N	GP240GH+N
107	Discharge casing	GP240GH+N	GP240GH+N	GP240GH+N
108	Stage casing	EN-GJL-250	1.0576 S355J2H <sup>18)</sup> / EN-GJL-250 <sup>19)</sup>	EN-GJL-250
171	Diffuser	EN-GJL-250 <sup>20)</sup>	CC480K-GS	EN-GJL-250 <sup>20)</sup>
210	Shaft	C45+N <sup>21)</sup>	C45+N <sup>21)</sup>	C45+N <sup>21)</sup>
230	Impeller	CC480K-GS	CC480K-GS	EN-GJL-250

 14) For fluid temperatures up to  $t \leq 140$  °C. For sizes DN 200 and DN 250 for fluid temperatures up to  $t \leq 60$  °C. For material codes 15, 16, 17 for fluid temperatures up to  $t \leq 40$  °C.

15) Sizes DN 200 and DN 250 only available in material codes 11 and 12

16) Only for sizes DN 32 to DN 150

17) Only for sizes DN 200 and DN 250

18) For sizes DN 32 to DN 100

19) For sizes DN 125 to DN 150

20) Sizes DN 32 to DN 100: integrated in stage casing, sizes DN 125 to DN 250: separate

21) C45+N not available for sizes DN 200 and DN 250. Shaft also available in 1.4021 for sizes DN 32 to DN 150. Shaft for sizes DN 200 and DN 250 only available in 1.4021.

22) Available in 1.4462

23) Only for size DN 250, all other sizes in material EN-GJL-250

24) For sizes DN 32 to DN 150 only in material EN-GJL-250. For size DN 200 only in GP240GH+N. For size DN 250 only in material EN-GJS-400-15.

25) For sizes DN 100 to DN 250

26) Only for sizes DN 125 to DN 250

27) For sizes DN 32 to DN 100 only; also used as casing wear ring

Part No.	Description	Material code		
		15 <sup>14)</sup>	16 <sup>14)</sup>	17 <sup>14)</sup>
231	Suction impeller	CC480K-GS	CC480K-GS	EN-GJL-250
350	Bearing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250
381/529	Plain bearing assembly	SiC/SiC	SiC/SiC	SiC/SiC
441	Stuffing box housing	EN-GJL-250	EN-GJL-250	EN-GJL-250
502.1	Casing wear ring (suction side)	1.4138	1.4138	EN-GJL-250
502.2 <sup>26)</sup>	Casing wear ring (stages)	1.4138	1.4138	EN-GJL-250
502.3 <sup>17)</sup>	Casing wear ring (diffuser)	-	-	-
523	Shaft sleeve (mechanical seal)	1.4057+QT800	1.4057+QT800	1.4057+QT800
524	Shaft protecting sleeve (gland packing)	1.4122	1.4122	1.4122
550.1 <sup>27)</sup>	Sheet metal disc	1.4301	1.4301	1.4301
59-4	Balance drum	1.4021	1.4021	1.4021
540	Bush	EN-GJL-250	EN-GJL-250	EN-GJL-250
905	Tie bolt	30 NCD 16	30 NCD 16	30 NCD 16

Material codes 20, 21, 22 and 23 for versions with cast steel casing

Part No.	Description	Material code			
		20	21	22	23
106	Suction casing	GP240GH+N	GP240GH+N	GP240GH+N	GP240GH+N
107	Discharge casing	GP240GH+N	GP240GH+N	GP240GH+N	1.4408
108	Stage casing	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>
171	Diffuser	EN-GJL-250	EN-GJL-250	1.4408	1.4408
210	Shaft	C45+N <sup>21)</sup>	C45+N <sup>21)</sup>	1.4021+QT <sup>22)</sup>	1.4021+QT <sup>22)</sup>
230	Impeller	EN-GJL-250	EN-GJL-250	1.4408	1.4408
231	Suction impeller	EN-GJL-250	1.4408	1.4408	1.4408
350	Bearing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250
381/529	Plain bearing assembly	SiC/SiC	SiC/SiC	SiC/SiC	SiC/SiC
441	Stuffing box housing	GP240GH+N / 1.4404 <sup>28)</sup>	GP240GH+N / 1.4404 <sup>28)</sup>	GP240GH+N / 1.4404 <sup>28)</sup>	1.4408 / 1.4404 <sup>28)</sup>
502.1	Casing wear ring (suction side)	EN-GJL-250	EN-GJL-250	1.4138	1.4138
502.2 <sup>26)</sup>	Casing wear ring (stages)	EN-GJL-250	EN-GJL-250	1.4138	1.4138
502.3 <sup>17)</sup>	Casing wear ring (diffuser)	-	-	-	-
523	Shaft sleeve (mechanical seal)	1.4057+QT800	1.4057+QT800	1.4571	1.4571
524	Shaft protecting sleeve (gland packing)	1.4122	1.4122	1.4122	1.4122
550.1 <sup>27)</sup>	Sheet metal disc	1.4301	1.4301	1.4571	1.4571
59-4	Balance drum	1.4021	1.4021	1.4021	1.4021
540	Bush	EN-GJL-250	EN-GJL-250	1.4021	1.4021
905	Tie bolt	30 NCD 16	30 NCD 16	30 NCD 16	30 NCD 16

Material codes 25, 26, 27 and 28 for versions with cast steel casing

Part No.	Description	Material code			
		25	26	27	28
106	Suction casing	GP240GH+N	GP240GH+N	GP240GH+N	1.4317
107	Discharge casing	GP240GH+N	GP240GH+N	1.4317	1.4317
108	Stage casing	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup> / 1.4317 <sup>29)</sup>	1.0576 S355J2H <sup>18)</sup> / GP240GH+N <sup>19)</sup> / 1.4317 <sup>29)</sup>
171	Diffuser	EN-GJL-250	CC480K-GS	EN-GJL-250	EN-GJL-250
210	Shaft	C45+N <sup>21)</sup>	C45+N <sup>21)</sup>	1.4021+QT	1.4021+QT
230	Impeller	CC480K-GS	CC480K-GS	EN-GJL-250	EN-GJL-250
231	Suction impeller	CC480K-GS	CC480K-GS	EN-GJL-250	EN-GJL-250
350	Bearing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250

28) For shaft seal codes 64 and 164 only 1.4404

29) Size DN 125: last stage casing made of 1.4317

Part No.	Description	Material code			
		25	26	27	28
381/529	Plain bearing assembly	SiC/SiC	SiC/SiC	SiC/SiC	SiC/SiC
441	Stuffing box housing	GP240GH+N / 1.4404 <sup>28)</sup>	GP240GH+N / 1.4404 <sup>28)</sup>	GP240GH+N / 1.4404 <sup>28)</sup>	GP240GH+N / 1.4404 <sup>28)</sup>
502.1	Casing wear ring (suction side)	1.4138	1.4138	EN-GJL-250	EN-GJL-250
502.2 <sup>26)</sup>	Casing wear ring (stages)	1.4138	1.4138	EN-GJL-250	EN-GJL-250
502.3 <sup>17)</sup>	Casing wear ring (diffuser)	-	-	-	-
523	Shaft sleeve (mechanical seal)	1.4057+QT800	1.4057+QT800	1.4057+QT800	1.4057+QT800
524	Shaft protecting sleeve (gland packing)	1.4122	1.4122	1.4122	1.4122
550.1 <sup>27)</sup>	Sheet metal disc	1.4301	1.4301	1.4301	1.4301
59-4	Balance drum	1.4021	1.4021	1.4021	1.4021
540	Bush	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250
905	Tie bolt	30 NCD 16	30 NCD 16	30 NCD 16	30 NCD 16

Material code for versions with stainless steel casing

Part No.	Description	Material code		
		30	31 / RO	33 / RO
106	Suction casing	1.4408	1.4517	1.4469 PREN 40
107	Discharge casing	1.4408	1.4517	1.4469 PREN 40
108	Stage casing	1.4404 <sup>18)</sup> / 1.4408 <sup>19)</sup>	1.4517	1.4410 <sup>18)</sup> / 1.4469 PREN 40 <sup>19)</sup>
171	Diffuser	1.4408	1.4517	1.4469 PREN 40
210	Shaft	1.4462	1.4462	1.4501
230	Impeller	1.4408	1.4517	1.4469 PREN 40
231	Suction impeller	1.4408	1.4517	1.4469 PREN 40
350	Bearing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250
381/529	Plain bearing assembly	SiC/SiC	SiC/SiC	SiC/SiC
441	Stuffing box housing	1.4408 / 1.4404 <sup>28)</sup>	1.4517	1.4469 PREN 40
502.1	Casing wear ring (suction side)	1.4571	1.4462	1.4501
502.2 <sup>26)</sup>	Casing wear ring (stages)	1.4571	1.4462	1.4501
502.3 <sup>17)</sup>	Casing wear ring (diffuser)	-	-	-
523	Shaft sleeve (mechanical seal)	1.4571	1.4462	1.4501
524	Shaft protecting sleeve (gland packing)	-	-	-
550.1 <sup>27)</sup>	Sheet metal disc	1.4571	1.4539	1.4547
59-4	Balance drum	1.4404	1.4462	1.4501
540	Bush	1.4138	1.4462	1.4501
905	Tie bolt	30 NCD 16	30 NCD 16	30 NCD 16

Materials key

Description	Code and material No.	Standard	To ASTM <sup>30)</sup>
Grey cast iron	EN-GJL-250	EN 1561	A48:40B
Bronze	CC480K-GS	EN 1982	B505C90250
Steel	C45+N / 1.0503+N	EN 10083-2	A29Gr.1045
Steel	S355J2H / 1.0576	EN 10210	A618 Grade III
Cast steel	GP240GH+N / 1.0619+N	EN 10213	A216WCB
Chrome steel	1.4021+QT / X20Cr13+QT	EN 10088	A276:420
Chrome nickel steel	1.4122 / X35CrMo17	EN 10088	A276S42010
Chrome nickel steel	1.4057+QT800 / X17CrNi16-2-QT800	EN 10088	A276:431
Chrome nickel steel	1.4138 / GX120CrMo29-2	SEW 410	-
Chrome nickel steel	1.4301 / X5CrNi18-10	EN 10088	A276:304
Chrome nickel molybdenum steel	1.4404 / X2CrNiMo 17-12-2	EN 10088	A276:316L
Chrome nickel molybdenum cast steel	1.4408 / GX5CrNiMo19-11-2	EN 10213	A743CF8M

30) Similar

Description	Code and material No.	Standard	To ASTM <sup>30)</sup>
Chrome nickel molybdenum steel	1.4462 / X2CrNiMoN22-5-3	EN 10088	A473S32950
Chrome nickel molybdenum steel	1.4571 / X6CrNiMoTi17-12-2	EN 10088	A276:316
Silicon carbide	SiC without free silicon	-	SiC without free silicon
Steel bars	30 NCD 16	KSB materials data sheet, material identification code 1179	A540Gr.B24
Steel	42CrMo4 / 1.7225	EN 10083-1	A322GR.4140
Chrome nickel molybdenum cast steel	1.4317	EN 10213	A487 Grade CA6NM
Cast duplex stainless steel	1.4517	EN 10213	A995 Grade CD4MCuN
Austenitic stainless steel	1.4539	EN 10088	A240 N08904
Cast super duplex stainless steel	1.4469 <sup>31)</sup>	EN 10213	A995 Grade 5A
Super duplex stainless steel	1.4410	EN 10088	A276 S32750
Super duplex stainless steel	1.4501	EN 10088	A276 S32760
Austenitic stainless steel	1.4547	EN 10088	A240 S31254
Nodular cast iron	GJS-400-15	EN 1563	A536 Grade 60_40_18

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31) PREN  $\geq$  40 to EN 10213

**Seal codes for the mechanical seal**

Available versions of mechanical seals:

- Balanced and unbalanced
- Uncooled up to 140 °C or cooled up to 200 °C
- Single or double
- Cartridge mechanical seal

Key to the material code of the mechanical seal

Code	Material
A	Carbon graphite, antimony-impregnated
B	Carbon graphite, resin-impregnated
Q1	Silicon carbide, solid, sintered without pressure
Q12	Silicon carbide, shrink-fitted, sintered without pressure
U2	Tungsten carbide, Ni-bonded (solid)

Code	Material
U3	Tungsten carbide, NiCrMo-bonded
E	EPDM rubber
E4	EPDM peroxide-cured
V	Fluoroelastomer, e.g. Viton
V5	Fluoroelastomer, e.g. Viton (90 shore)
M	Hastelloy
G	CrNiMo steel

Seal codes of the mechanical seal

Mechanical seal		Material	Static sealing elements	Uncooled				Cooled	Pressure [bar]	
				≤ 45 °C	≤ 100 °C	≤ 120 °C	≤ 140 °C	≤ 200 °C	Min.	Max.
Single mechanical seal	Bellows-type mechanical seal, unbalanced	U3BE4GG	EPDM	61 (RGM13)		-		-	-0,2	18
	Balanced mechanical seal	Q1Q1VGG	FPM	163 (5B), 63 (H7N)		-		-	-0,2	16
		Q1Q1VGG	EPDM	43 (57B)		-		-	-0,2	25
		AQ1EGG <sup>32)</sup> , Q1AEGG <sup>33)</sup>	EPDM	-		-		164 (5B), 64 (H7N)	-0,2	40
		BQ1EGG <sup>32)</sup> , Q1BE4GG <sup>33)</sup>	EPDM	167 (5B), 67 (H7N)	-		-	-	-0,2	40
		AQ1EMG	EPDM	69 (HRN)	-		-	-	-0,5	25
		AQ1EGG, Q1AEGG <sup>33)</sup>	EPDM	181 (5B), 42 (57B), 81 (H7N)	-		-	-	-0,2	40
		Q12Q1VGG <sup>33)</sup>	FPM	53 (HJ977GN)	-		-	-	-0,2	10
		AQ1VGG, Q1AVGG	FPM	155 (5B), 45 (57B-BO), 55 (H7N)	-		-	-	-0,2	40
	BQ1EMG	EPDM	59 (HRN)	-		-	-	-0,5	25	
	Bellows-type mechanical seal, unbalanced	U3U3VGG	FPM	68 (MG13-G60, MG154-G4) <sup>34)</sup>		-		-	-0,2	12
	Balanced mechanical seal	U2U2VGG, U3U3VGG	FPM	168 (5B) <sup>35)</sup> , 68 (H7N) <sup>35)</sup>		-		-	-0,2	16
	Mechanical seal, unbalanced	AQ1VMM	FPM	80 (MG12-G6)		-		-	-0,2	16
		Q1AVMM	FPM	82 (M7N)		-		-	-0,2	25
Q1Q1VMM		FPM	83 (MG12-G6)		-		-	-0,2	10	
Quench arrangement	AQ1EGG, Q1AEGG	EPDM	171 (5B), 71 (H7N)		-		-	-0,2	40	
Double mechanical seal	Tandem arrangement	AQ1EGG, Q1AEGG	EPDM	172 (5B/5B), 72 (H7N/H7N)		-		-	-0,3	40
	Back-to-back arrangement	AQ1EGG, Q1AEGG	EPDM	173 (5B/5B), 73 (H7N/H7N)		-		-	-0,98	40
Cartridge mechanical seal	Balanced mechanical seal	AQ1EMG	EPDM	92 (Cartex SN6)		-		-	-0,5	25
		Q1Q1VMG	FPM	93 (Cartex SN6)		-		-	-0,5	12
		AQ1VMG	FPM	95 (Cartex SN6)		-		-	-0,5	25

32) For 5B

33) For H7N

34) MG13 for sizes DN 32 and DN 50. MG154 for size DN 65.

35) Only for sizes DN 100, 125, 150, 200 and 250.



### Seal codes for the gland packing

Available versions: uncooled up to 140 °C

Seal codes for gland packing

Gland packing	Static sealing elements	Seal code		P <sub>max</sub> [bar]
		Up to 100 °C	Up to 140 °C	
PTFE-impregnated polyacryl	FPM	65	-	25
PTFE-impregnated polyacryl	EPDM	66		25

Gland packing versions

	N/b	N/c
System conditions	Suction head operation P <sub>s</sub> absolute ≥ 1 bar	P <sub>s absolute</sub> < 1 bar (vessel under vacuum) with clean liquid from an external source Barrier pressure > pressure to be sealed off
Technical features	Without lantern ring	1 lantern ring, suction side 1 lantern ring, discharge side 2 tapped holes for piping

**Technical data**

## Technical data

Size	Shaft diameter at the coupling [mm]	Bearing			Gland packing			Shaft protecting sleeve		Drive (P/N value)				Other		
		Fixed bearing	Radial bearing	Plain bearing	Packing ring dimensions	Lantern ring width	Number of packing rings	Gland packing	Single mechanical seal	Shaft: C45+N	Shaft 1.4021+QT	Shaft 1.4462	Shaft 1.4501	Hydraulic system	Maximum impeller diameter	Spacer length of spacer-type couplings
32	22	6309 ZZ C3-HT	6309 ZZ C3-HT <sup>36)</sup>	SiC	10 × 10	20	5	45 Ø	35/38 Ø	0,0214	0,0346	0,0302	0,0356	2,1	142	140
50	28	2 × 7309 BUA	6309 ZZ C3-HT <sup>36)</sup>	SiC	10 × 10	20	5	45 Ø	35/38 Ø	0,0523	0,0846	0,0738	0,0869	3,1/4,1	170/173	140
65	32	2 × 7309 BUA	6309 ZZ C3-HT <sup>36)</sup>	SiC	10 × 10	20	5	45 Ø	40 Ø	0,0697	0,1128	0,0984	0,1159	5,1/6,1	193/214	140
100	40	2 × 7312 BUA	6312C3	SiC	12 × 12	25	5	56 Ø	50 Ø	0,15	0,2426	0,2118	0,2495	7,1/8,1	241/245	180
125	50	2 × 7312 BUA	6312C3	SiC	12 × 12	25	6	66 Ø	60 Ø	0,3016	0,4879	0,4258	0,5016	9,1/9,2	301/273	180
125	50	2 × 7312 BUA	6312C3	SiC	12 × 12	25	6	66 Ø	60 Ø	0,3016	0,4879	0,4258	0,5016	10,1/10,2	305/270	180
150	60	2 × 7315 BUA	6315C3	SiC	16 × 16	32	6	78 Ø	70 Ø	0,5371	0,8688	0,7582	0,8930	11,1/11,2	378/342	200
150	60	2 × 7315 BUA	6315C3	SiC	16 × 16	32	6	78 Ø	70 Ø	0,5371	0,8688	0,7582	0,8930	12,1/12,2	382/337	200
200	60	2 × 7315 BUA	6315C3	SiC	16 × 16	32	6	78 Ø	70 Ø	-	0,8688	-	-	13,1/13,2	418/387	200
200	60	2 × 7315 BUA	6315C3	SiC	16 × 16	32	6	78 Ø	70 Ø	-	0,8688	-	-	14,1/14,2	426/390	200
250	72	2 × 7318 BUA	6318C3	-	16 × 16	32	6	90 Ø	85 Ø	-	1,38	-	-	15,1/15,2/16,1	477/431	250

**Noise characteristics**

 Surface sound pressure level  $L_{PA}$ <sup>37)38)</sup>

Rated power input $P_N$ [kW]	Pump		Pump with electric motor	
	1450 rpm [dB]	2900 rpm [dB]	1450 rpm [dB]	2900 rpm [dB]
2,2	56	57	60	65
3,0	58	60	62	67
4,0	59	61	63	68
5,5	61	63	65	70
7,5	63	65	66	71
9	64	66	68	73
11	65	67	68	73
15	66	68	70	75
18,5	67	69	71	76
22	68	70	72	77
30	69	71	73	78
37	70	72	74	79
45	71	73	75	79
55	71	74	75	80
75	72	74	77	82
90	72	75	77	82
110	73	75	78	83
132	73	76	78	83
160	74	76	79	84
200	75	77	80	85
250	75	78	80,5	-
315	76	78	81	-
355	78	80	81	-
400	79	81	82	-
500	80	82	82	-

36) Applies to grease-lubricated bearings. For oil-lubricated bearings: type 6309C3

37) Measured at a distance of 1 m from the pump outline (as per DIN 45 635 Parts 1 and 24)

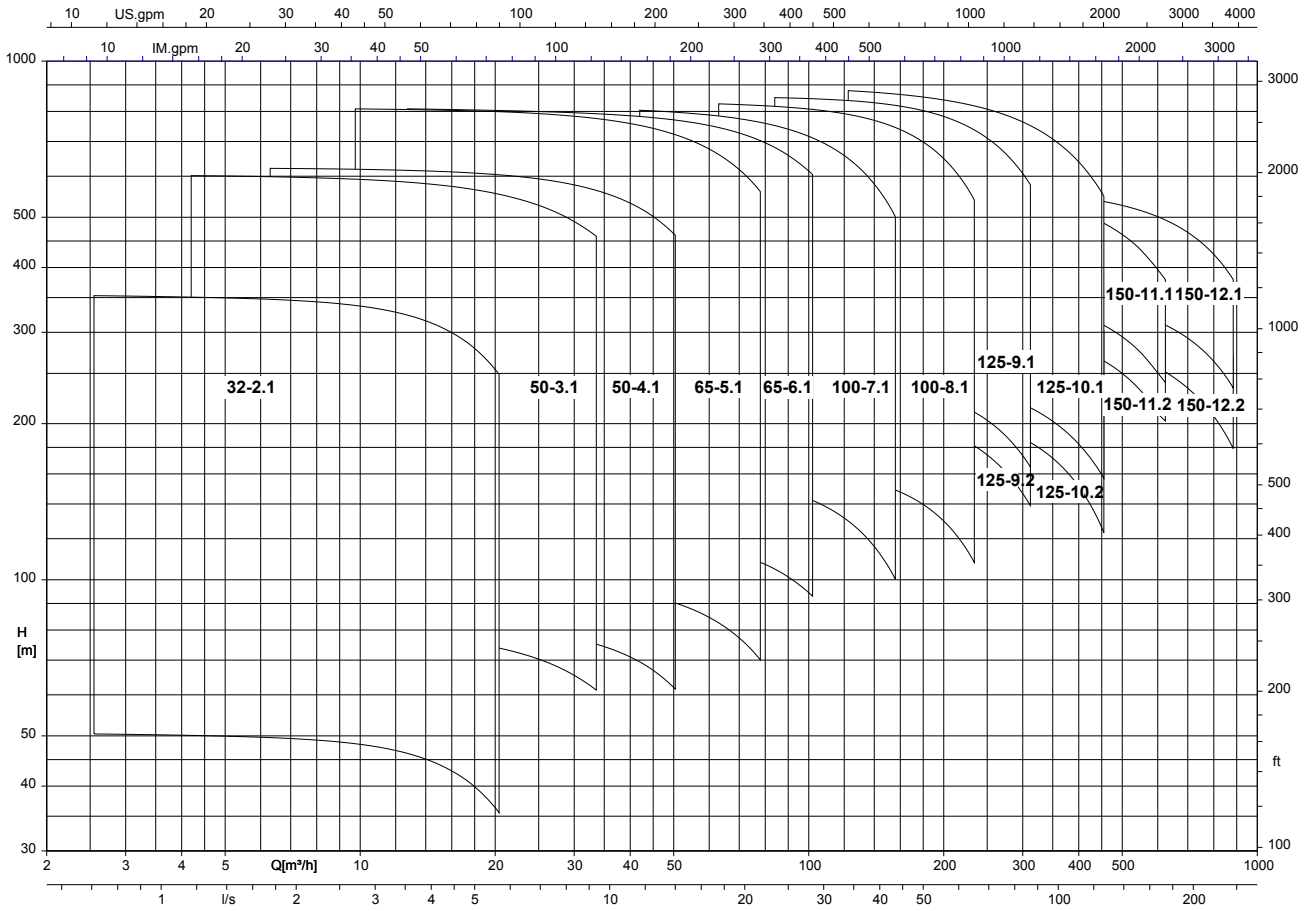
38) Increase for 60 Hz operation: 3500 rpm +3 dB; 1750 rpm +1 dB

Rated power input P <sub>N</sub> [kW]	Pump		Pump with electric motor	
	1450 rpm [dB]	2900 rpm [dB]	1450 rpm [dB]	2900 rpm [dB]
560	80	82	82	-
630	82	83	84	-
710	82,5	84	84	-
800	82,5	-	84	-
900	82,5	-	84	-
1000	82,5	-	84	-
1120	82,5	-	84	-
1200	82,5	-	84	-
Up to 1400	83	-	84	-

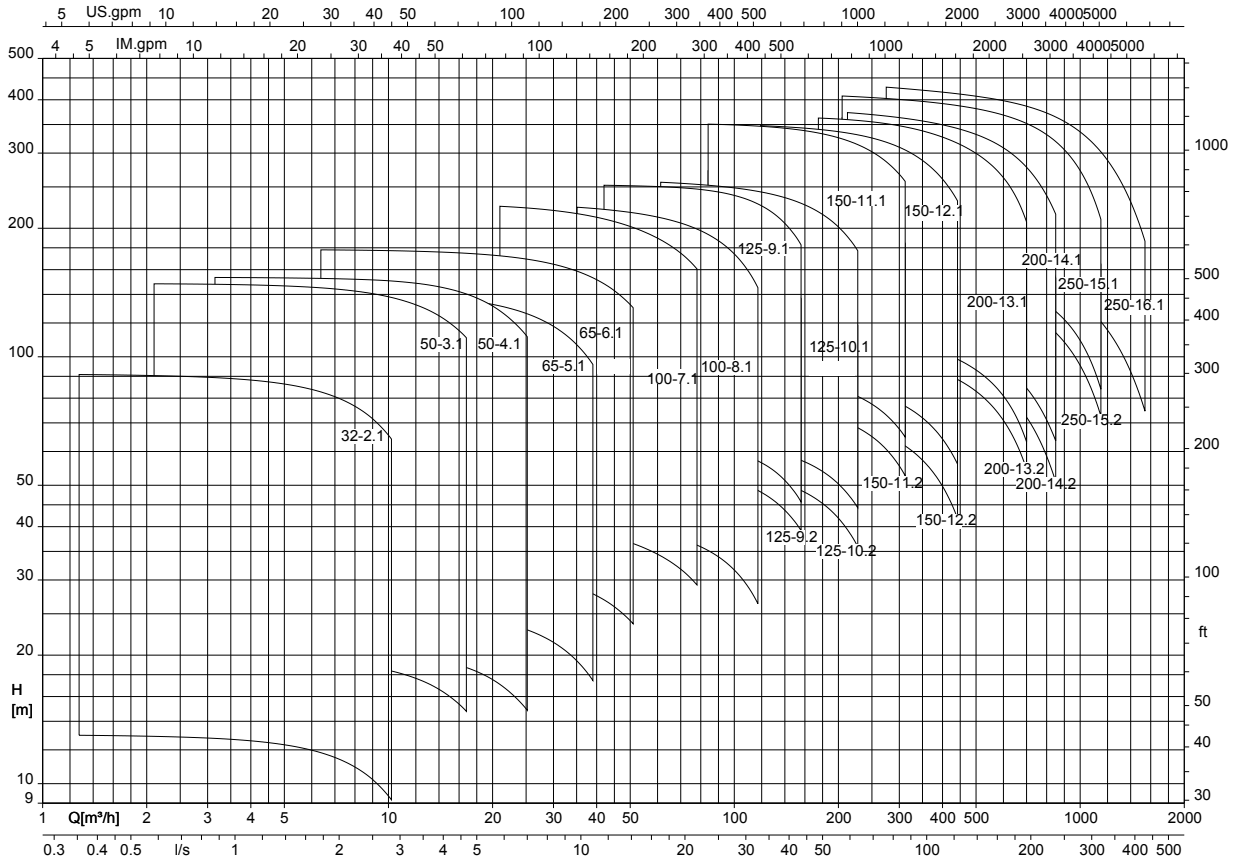
Noise characteristics for other ratings/speeds on request.  
Noise characteristics can only be guaranteed after consultation with the design/engineering department.

Selection Charts

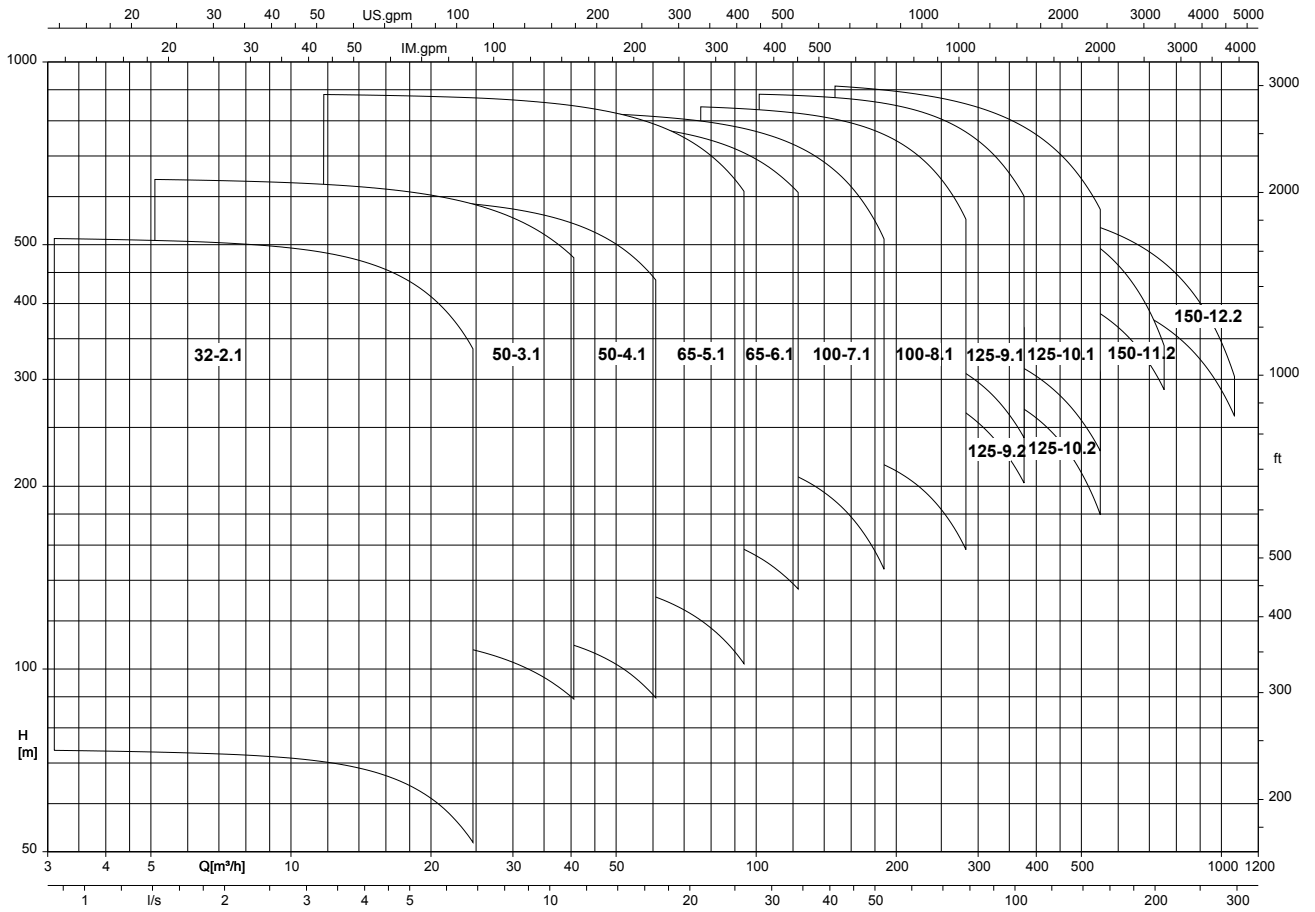
Multitec/Multitec-RO, 50 Hz, n = 2900 rpm



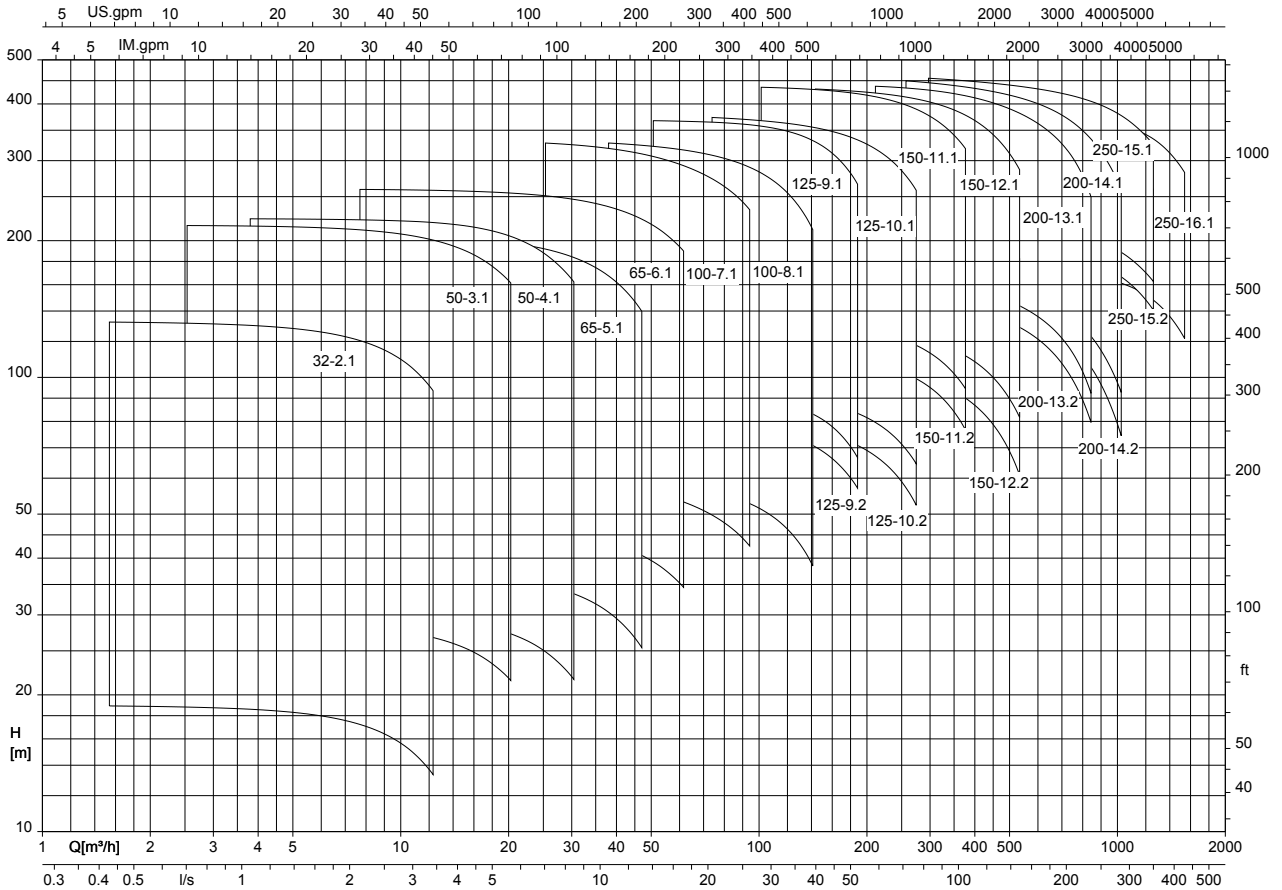
Multitec/Multitec-RO, 50 Hz, n = 1450 rpm



Multitec/Multitec-RO, 60 Hz, n = 3500 rpm



**Multitec/Multitec-RO, 60 Hz, n = 1750 rpm**



**Drive**

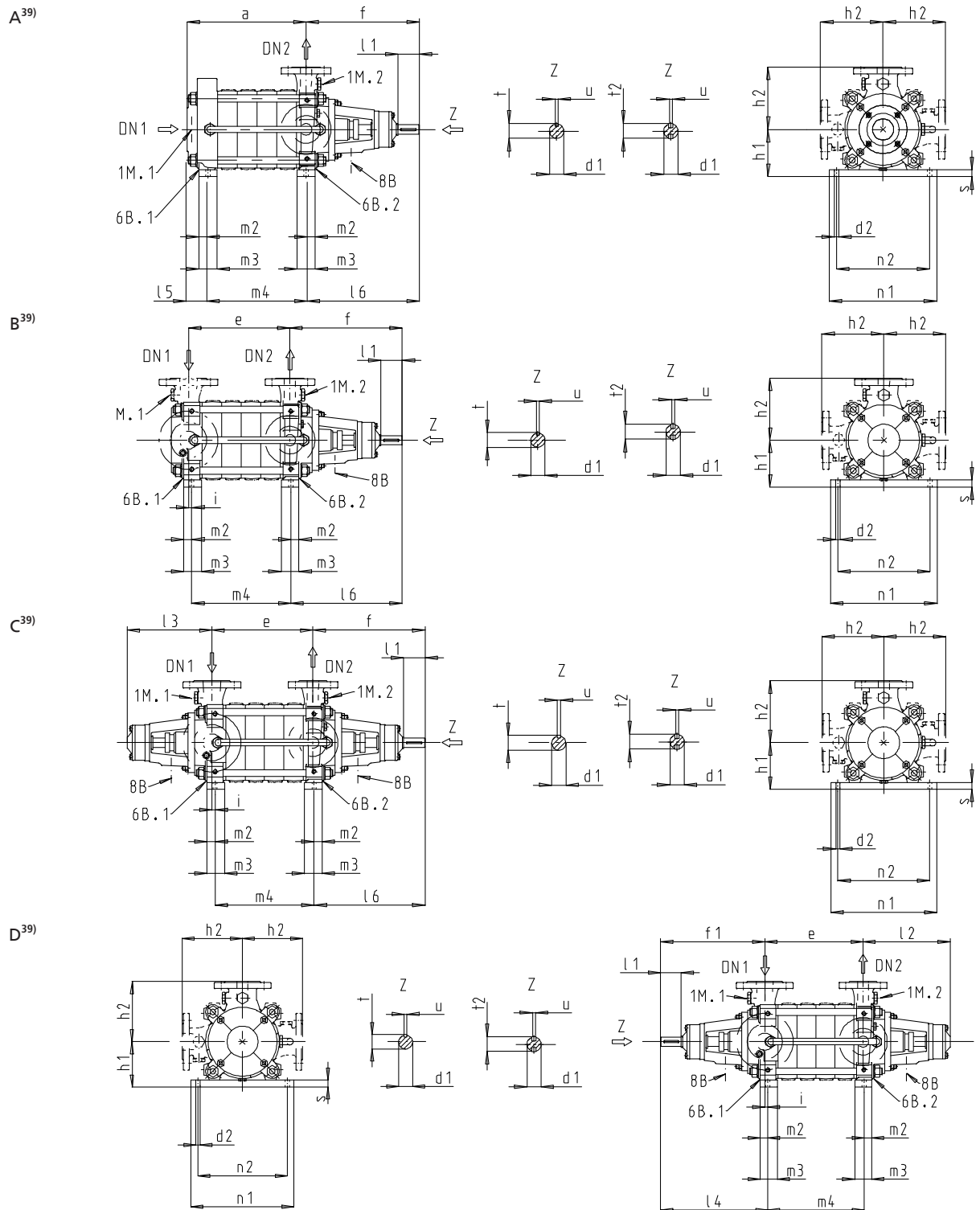
Driven by a three-phase current squirrel-cage motor of the following types of construction:

Types of construction

	Included
Installation types A, B, C, D	IMB3
Installation types E, F	IMV1 up to 45 kW, for higher ratings IMB35
Installation type V	IMV1
Enclosure	IP 55/IP 23
Thermal class	F
Direction of rotation of the pump	<ul style="list-style-type: none"> <li>▪ Installation types A, B, C, E, F, V: clockwise, seen from the drive end</li> <li>▪ Installation type D: counter-clockwise, seen from the drive end</li> </ul>
Options	Special voltages, explosion protection, insulated bearing, standstill heater

**Dimensions**

**Dimensions of Multitec A, B, C, D and Multitec-RO**



Shaft dimensions [mm]

Size	$d_1$	$t$	$t_2$	$u$
32	22	24,5	-	6
50	28	31	-	8
65	32	35	38	10

39) Some designs are fitted with a shaft with two keys.

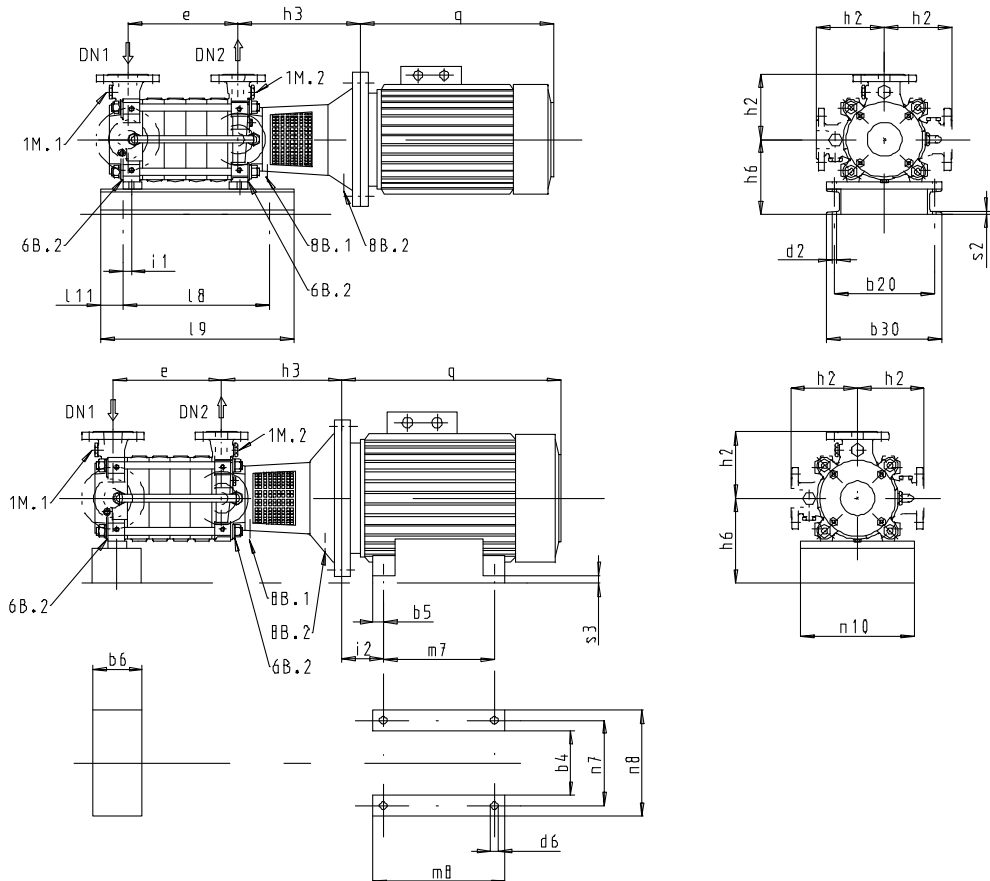




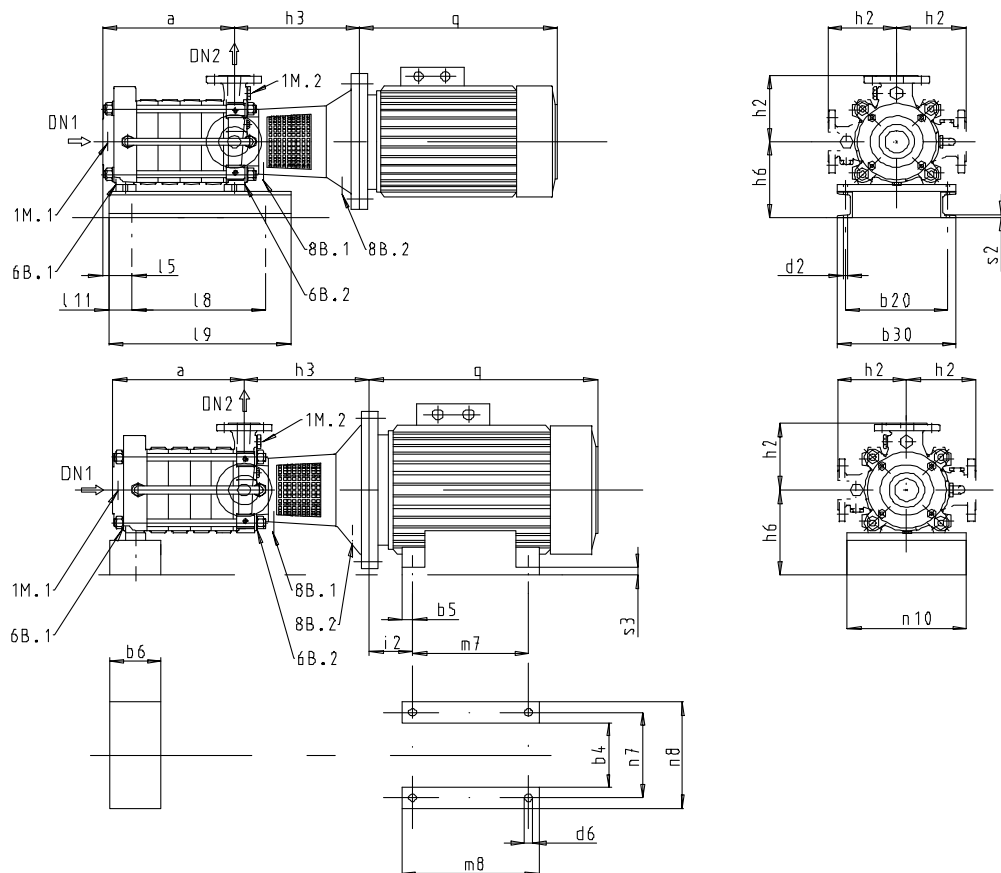


Dimensions of Multitec E, F

E



F



**Connections**

	G = ISO 228/1, Rp = ISO 7/1	Multitec E			Multitec F		
		32	50	65	32	50	65
1M.1	G	½	½	½	-	-	½
1M.2	G	½	½	½	½	½	½
6B.1	G	¼	¼	½	-	-	¼
6B.2	G	¼	¼	½	¼	¼	½
8B.1	Rp	⅜	⅜	⅜	⅜	⅜	⅜
8B.2	Rp	⅜	⅜	⅜	⅜	⅜	⅜

**Dimensions of Multitec E and F [mm]**

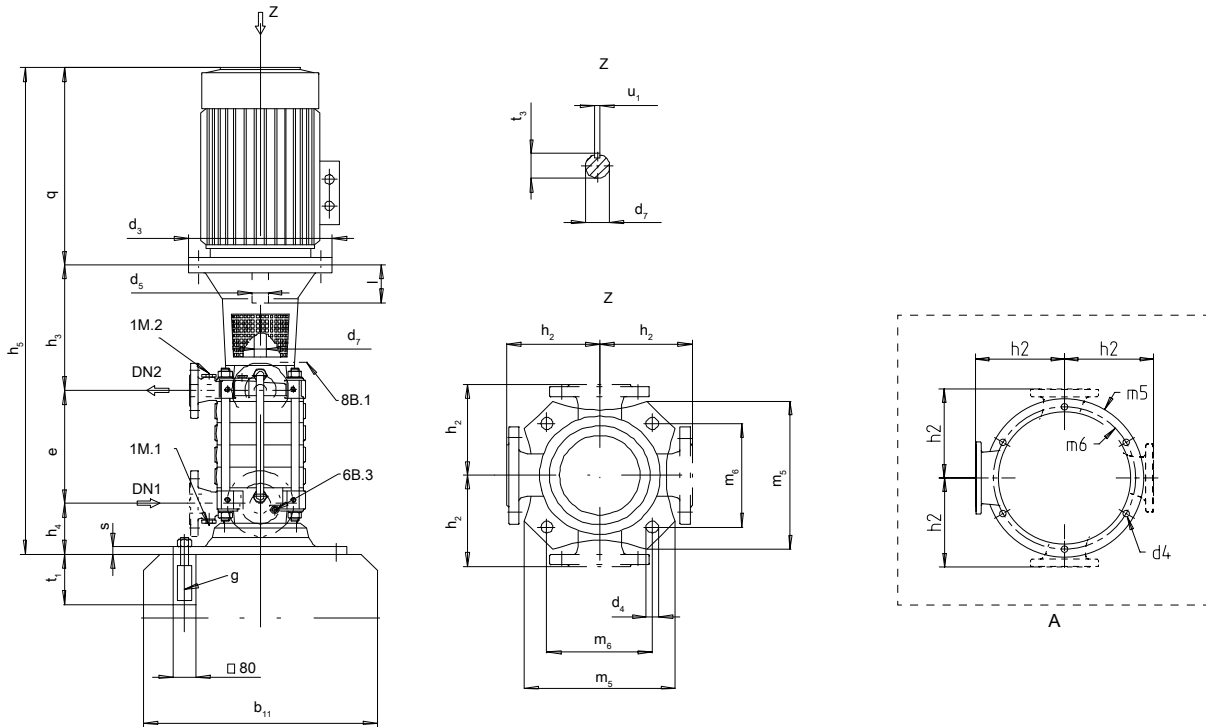
Multitec E, F	Number of stages	DN <sub>1</sub>		DN <sub>2</sub>	a	b <sub>20</sub>	b <sub>30</sub>	d <sub>2</sub>	e	h <sub>2</sub>	i <sub>1</sub>	l <sub>5</sub>	l <sub>8</sub>	l <sub>9</sub>	l <sub>11</sub>	n <sub>10</sub>	s <sub>2</sub>
		Axial	Radial														
32	2	65	50	32	168	290	330	18	121	175	9	56	150	580	60	330	6
	3	65	50	32	223	290	330	18	176	175	9	56	150	580	60	330	6
	4	65	50	32	278	290	330	18	231	175	9	56	300	650	60	330	6
	5	65	50	32	333	290	330	18	286	175	9	56	300	650	60	330	6
	6	65	50	32	388	290	330	18	341	175	9	56	355	700	60	330	6
50	2	100	80	50	190	290	330	18	151	200	18	57	150	580	60	330	6
	3	100	80	50	252	290	330	18	213	200	18	57	150	580	60	330	6
	4	100	80	50	314	290	330	18	275	200	18	57	300	650	60	330	6
	5	100	80	50	376	290	330	18	337	200	18	57	355	700	60	330	6
	6	100	80	50	438	290	330	18	399	200	18	57	410	760	60	330	6
65	2	125	100	65	247	365	405	18	189	225	18	77	200	760	60	405	6
	3	125	100	65	326	365	405	18	268	225	18	77	270	900	60	405	6
	4	125	100	65	405	365	405	18	347	225	18	77	350	1000	60	405	6

**Variable dimensions for motors IP 55 with 2 or 4 poles (Multitec E and F 32-50-65, 50 Hz) [mm]**

Type	[kW]	b <sub>6</sub>	d <sub>6</sub>	h <sub>6</sub>			i <sub>2</sub>	m7	m <sub>8</sub>	n <sub>7</sub>	n <sub>8</sub> <sup>(4)</sup>	n <sub>10</sub> <sup>(4)</sup>	s <sub>3</sub> <sup>(4)</sup>	2 poles					4 poles						
				Multitec										IEC	Flange (FF)	h <sub>3</sub>			q	IEC	Flange (FF)	h <sub>3</sub>			q
				32	50	65										32	50	65				32	50	65	
V1	2,2	-	-	212	-	-	-	-	-	-	-	-	-	90L	215	-	-	-	-	100L	215	302	309	330	335
	3	-	-	212	-	-	-	-	-	-	-	-	-	100L	215	302	-	-	335	100L	215	302	309	330	335
	4	-	-	212	-	-	-	-	-	-	-	-	-	112M	215	302	-	-	329	112M	215	302	309	330	329
	5,5	-	-	212	230	-	-	-	-	-	-	-	-	132S	265	322	329	-	385	132S	265	322	329	350	385
	7,5	-	-	212	230	-	-	-	-	-	-	-	-	132S	265	322	329	-	385	132M	265	322	329	350	385
	11	-	-	212	230	270	-	-	-	-	-	-	-	160M	300	352	359	381	494	160M	300	352	359	381	494
	15	-	-	212	230	270	-	-	-	-	-	-	-	160M	300	352	359	381	494	160L	300	352	359	381	494
	18,5	-	-	212	230	270	-	-	-	-	-	-	-	160L	300	352	359	381	494	180M	300	-	359	381	558
	22	-	-	-	230	270	-	-	-	-	-	-	-	180M	300	-	359	381	558	-	-	-	-	-	-
	30	-	-	-	230	270	-	-	-	-	-	-	-	200L	350	-	362	381	611	-	-	-	-	-	-
37	-	-	-	230	270	-	-	-	-	-	-	-	200L	350	-	362	381	611	-	-	-	-	-	-	
B35	45	140	19	-	-	225	149	311	361	356	436	240	34	225M	400	-	-	384	708	-	-	-	-	-	-
	55	50	24	-	-	280	168	349	409	406	490		72	250M	500	-	-	414	747	-	-	-	-	-	-
	75	50	24	-	-	280	190	368	479	457	540		42	280S	500	-	-	414	820	-	-	-	-	-	-

44) For information purposes

**Dimensions of Multitec V**



**Fig. 2: Multitec V dimensions**

A For Multitec 200 only

**Connections**

Connection	G = ISO 228/1, Rp = ISO 7/1	Multitec V							
		32	50	65	100	125	150	200	
1M.1	G	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
1M.2	G	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
6B.3	G	1/4	1/4	1/2	1/2	1/2	1	1	
8B	Rp	3/8	3/8	3/8	3/8	3/8	3/8	3/8	

**Shaft dimensions [mm]**

Size	d <sub>7</sub>	t <sub>3</sub>	u <sub>1</sub>	Size	d <sub>7</sub>	t <sub>3</sub>	u <sub>1</sub>
32	30	33	8	100	40	43	12
50	30	33	8	125	50	53,5	14
65	35	38	10	150	60	64	18

**Multitec V dimensions [mm]**

Multitec V	Number of stages	DN <sub>1</sub>	DN <sub>2</sub>	b <sub>11</sub>	d <sub>4</sub>	e	g	h <sub>2</sub>	h <sub>4</sub>	m <sub>5</sub>	m <sub>6</sub>	s	t <sub>1</sub>
32	2	50	32	490	18	121	M16×250 MU	175	129	345	266	20	250
	3	50	32	490	18	176	M16×250 MU	175	129	345	266	20	250
	4	50	32	490	18	231	M16×250 MU	175	129	345	266	20	250
	5	50	32	490	18	286	M16×250 MU	175	129	345	266	20	250
	6	50	32	490	18	341	M16×250 MU	175	129	345	266	20	250
	7	50	32	490	18	396	M16×250 MU	175	129	345	266	20	250
	8	50	32	490	18	451	M16×250 MU	175	129	345	266	20	250
	9	50	32	490	18	506	M16×250 MU	175	129	345	266	20	250
	10	50	32	490	18	561	M16×250 MU	175	129	345	266	20	250
	11	50	32	490	18	616	M16×250 MU	175	129	345	266	20	250
	12	50	32	490	18	671	M16×250 MU	175	129	345	266	20	250
	13	50	32	490	18	726	M16×250 MU	175	129	345	266	20	250
	14	50	32	490	18	781	M16×250 MU	175	129	345	266	20	320

Multitec V	Number of stages	DN <sub>1</sub>	DN <sub>2</sub>	b <sub>11</sub>	d <sub>4</sub>	e	g	h <sub>2</sub>	h <sub>4</sub>	m <sub>5</sub>	m <sub>6</sub>	s	t <sub>1</sub>
50	2	80	50	490	18	151	M16×320 MU	200	136	345	266	20	320
	3	80	50	490	18	213	M16×320 MU	200	136	345	266	20	320
	4	80	50	490	18	275	M16×320 MU	200	136	345	266	20	320
	5	80	50	490	18	337	M16×320 MU	200	136	345	266	20	320
	6	80	50	490	18	399	M16×320 MU	200	136	345	266	20	320
	7	80	50	490	18	461	M16×320 MU	200	136	345	266	20	320
	8	80	50	490	18	523	M16×320 MU	200	136	345	266	20	320
	9	80	50	490	18	585	M16×320 MU	200	136	345	266	20	320
	10	80	50	490	18	647	M16×320 MU	200	136	345	266	20	320
	11	80	50	490	18	709	M16×320 MU	200	136	345	266	20	320
	12	80	50	490	18	771	M16×320 MU	200	136	345	266	20	320
	13	80	50	490	18	833	M16×320 MU	200	136	345	266	20	320
	14	80	50	490	18	895	M16×320 MU	200	136	345	266	20	320
	15	80	50	490	18	957	M16×320 MU	200	136	345	266	20	320
	65	2	100	65	540	18	189	M16×320 MU	225	170	400	304	22
3		100	65	540	18	268	M16×320 MU	225	170	400	304	22	320
4		100	65	540	18	347	M16×320 MU	225	170	400	304	22	320
5		100	65	540	18	426	M16×320 MU	225	170	400	304	22	320
6		100	65	540	18	505	M16×320 MU	225	170	400	304	22	320
7		100	65	540	18	584	M16×320 MU	225	170	400	304	22	320
8		100	65	540	18	663	M16×320 MU	225	170	400	304	22	320
9		100	65	540	18	742	M16×320 MU	225	170	400	304	22	320
10		100	65	540	18	821	M16×320 MU	225	170	400	304	22	320
11		100	65	540	18	900	M16×320 MU	225	170	400	304	22	320
100		2	125	100	690	33	233	M30×400 MU	275	212	545	405	30
	3	125	100	690	33	323	M30×400 MU	275	212	545	405	30	400
	4	125	100	690	33	413	M30×400 MU	275	212	545	405	30	400
	5	125	100	690	33	503	M30×400 MU	275	212	545	405	30	400
	6	125	100	690	33	593	M30×400 MU	275	212	545	405	30	400
	7	125	100	690	33	683	M30×400 MU	275	212	545	405	30	400
	8	125	100	690	33	773	M30×400 MU	275	212	545	405	30	400
	9	125	100	690	33	863	M30×400 MU	275	212	545	405	30	400
	10	125	100	690	33	953	M30×400 MU	275	212	545	405	30	400
	11	125	100	690	33	1043	M30×400 MU	275	212	545	405	30	400
	125	2	150	125	690	33	292	M30×400 MU	325	227	545	405	30
3		150	125	690	33	404	M30×400 MU	325	227	545	405	30	400
4		150	125	690	33	516	M30×400 MU	325	227	545	405	30	400
5		150	125	690	33	628	M30×400 MU	325	227	545	405	30	400
6		150	125	690	33	740	M30×400 MU	325	227	545	405	30	400
7		150	125	690	33	852	M30×400 MU	325	227	545	405	30	400
8		150	125	690	33	964	M30×400 MU	325	227	545	405	30	400
150		2	200	150	750	33	338	M30×400 MU	400	250	600	430	30
	3	200	150	750	33	470	M30×400 MU	400	250	600	430	30	400
	4	200	150	750	33	602	M30×400 MU	400	250	600	430	30	400
	5	200	150	750	33	734	M30×400 MU	400	250	600	430	30	400
	6	200	150	750	33	866	M30×400 MU	400	250	600	430	30	400
	7	200	150	750	33	988	M30×400 MU	400	250	600	430	30	400
200	2	250	200	1300	6×Ø36 ×60°	414	M30×400 MU	500	300	800	890	25	400
	3	250	200	1300	6×Ø36 ×60°	574	M30×400 MU	500	300	800	890	25	400
	4	250	200	1300	6×Ø36 ×60°	734	M30×400 MU	500	300	800	890	25	400
	5	250	200	1300	6×Ø36 ×60°	894	M30×400 MU	500	300	800	890	25	400
	6	250	200	1300	6×Ø36 ×60°	1054	M30×400 MU	500	300	800	890	25	400

45) Depending on the make

Variable dimensions for motors IP 55 with 2 or 4 poles (Multitec V, 50 Hz) [mm]

Multitec V [kW]	q	h <sub>5</sub>	IP55																		
			50 Hz/60 Hz						h <sub>3</sub>												
			2 poles			4 poles			2 poles						4 poles						
			d <sub>3</sub>	d <sub>5</sub>	l	d <sub>3</sub>	d <sub>5</sub>	l	32	50	65	100	125	150	32	50	65	100	125	150	200
2,2	45)	45)	-	-	-	250	28	60	-	-	-	-	-	-	302	309	331	-	-	-	-
3,0			250	28	60	250	28	60	302	-	-	-	-	-	302	309	331	-	-	-	-
4,0			250	28	60	250	28	60	302	309	-	-	-	-	302	309	331	-	-	-	-
5,5			300	38	80	300	38	80	322	329	-	-	-	-	322	329	351	-	-	-	-
7,5			300	38	80	300	38	80	322	329	351	-	-	-	322	329	351	-	-	-	-
11,0			350	42	110	350	42	110	352	359	381	-	-	-	352	359	381	585	601	-	-
15,0			350	42	110	350	42	110	352	359	381	-	-	-	352	359	381	585	601	-	-
18,5			350	42	110	350	48	110	352	359	381	-	-	-	359	381	585	601	-	-	-
22,0			350	48	110	350	48	110	352	359	381	585	-	-	-	359	381	585	601	-	-
30,0			400	55	110	400	55	110	355	362	381	585	-	-	-	362	381	585	601	-	-
37,0			400	55	110	450	60	140	355	362	381	585	-	-	-	-	414	615	631	-	-
45,0			450	55	110	450	60	140	355	362	384	615	-	-	-	-	414	615	631	-	-
55,0			550	60	140	550	65	140	-	392	414	617	-	-	-	-	414	617	633	740	-
75,0			550	65	140	550	75	140	-	392	414	617	-	-	-	-	617	633	740	735	-
90,0			550	65	140	550	75	140	-	392	414	617	633	-	-	-	617	633	740	735	-
110,0			660	65	140	660	80	170	-	-	444	647	663	-	-	-	647	663	770	765	-
132,0			660	65	140	660	80	170	-	-	444	647	663	-	-	-	-	663	770	765	-
160,0			660	65	140	660	80	170	-	-	-	647	663	-	-	-	-	663	770	765	-
200,0			660	70	140	660	80	170	-	-	-	-	-	-	-	-	-	-	770	765	-

**Flange design (standard)**

Flange designs (standard)

Material variant	Maximum permissible discharge pressure	Flanges drilled to EN			Flanges drilled to ASME Class	
		Standard	Suction flange	Discharge flange	Suction flange	Discharge flange
10	-	EN 1092-2	PN 16	PN 40	125 RF	250 RF
11	-	EN 1092-2	PN 16	PN 40	125 RF	250 RF
12	-	EN 1092-2	PN 16	PN 40	125 RF	250 RF
13	-	EN 1092-2	PN 16	PN 40	125 RF	250 RF
14	-	EN 1092-2	PN 16	PN 40	125 RF	250 RF
15	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
16	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
17	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
20	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
21	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
22	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
23	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
25	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
26	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
27	-	EN 1092-1	PN 25	PN 100 <sup>47)</sup>	300 RF	600 RF
28 <sup>47)</sup>	-	EN 1092-1	PN 40	PN 100	300 RF	600 RF
30	-	EN 1092-1	PN 25	PN 63	300 RF	600 RF <sup>46)</sup>
31 (RO)/33 (RO)	63 bar	EN 1092-1	PN 25	PN 63	300 RF	600 RF
	80 bar/100 bar	EN 1092-1	PN 25	PN 100 <sup>47)</sup>		

46) For size 32: discharge flange DN 1¼" can also be supplied as DN 1½" on request.

47) For Multitec 100 and 125 only

### Nozzle positions

The nozzle position is variable. The required nozzle position has to be selected when completing an order in the selection program.

For all pump sizes and material variants nozzle position 0-0 (or illustration 2 for vertical installations) is only available for versions with 3 or more stages. An exception is DN 150 in material variants 10, 11, 12, 13 and 14, for which nozzle position 0-0 is available for versions with 2 or more stages. The nozzle position is generally defined seen from the drive.

### Horizontal installation (A, B, C, D, E and F)

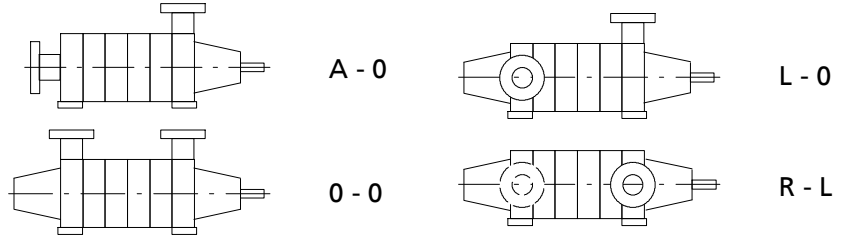
The first letter defines the suction nozzle, the second letter the discharge nozzle.

A - axial suction nozzle

0 - suction and/or discharge nozzle on top

R - suction and/or discharge nozzle on the right

L - suction and/or discharge nozzle on the left



### Vertical installation

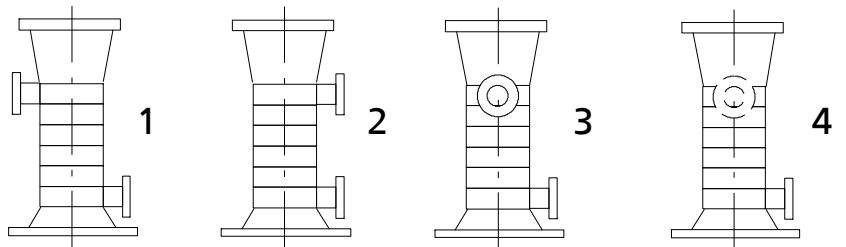
The suction nozzle (at the bottom) serves as a fixed point. The illustration number indicates the offset position of the discharge nozzle compared to the suction nozzle.

1 - offset by 180°

2 - aligned

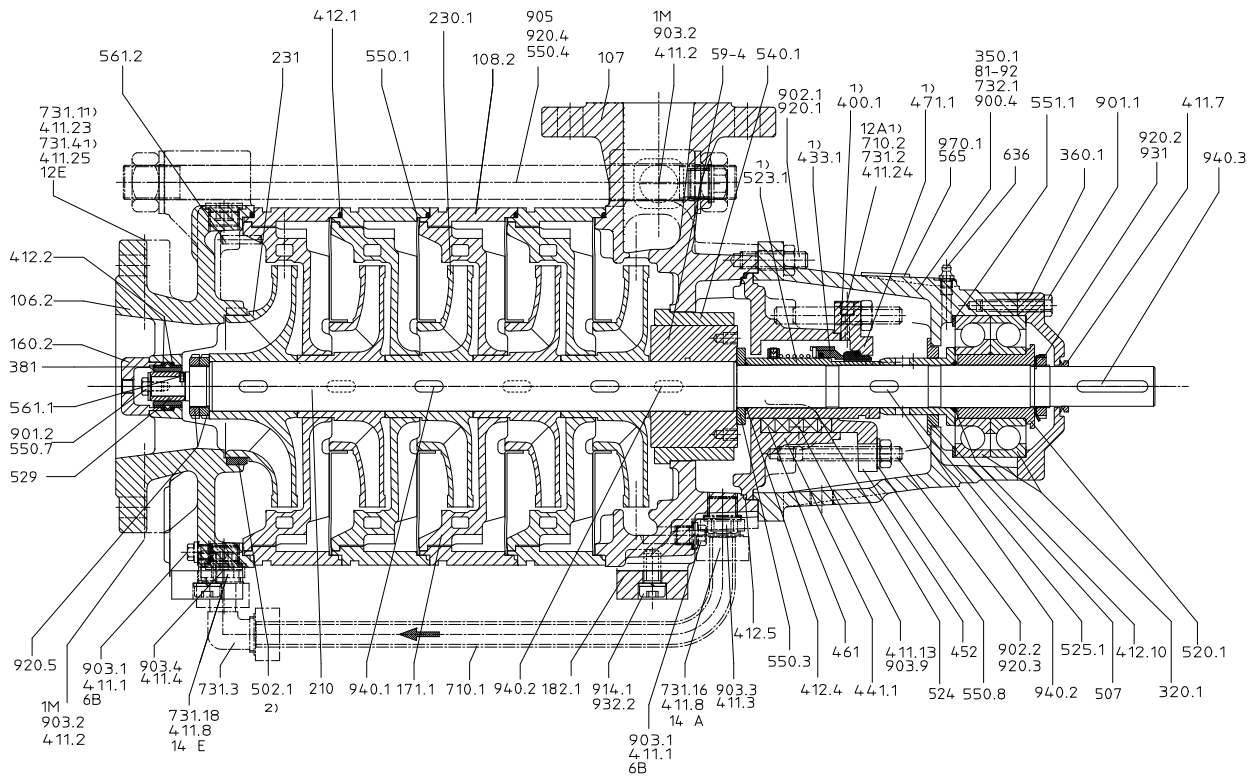
3 - 90° offset to the left

4 - 90° offset to the right





**General assembly drawing with list of components (example)**



**Fig. 3: Multitec, installation type A, size 65-100**

**List of components**

List of components

Part No.	Part description	Part No.	Part description
106.2	Suction casing	525.1	Spacer sleeve
107	Discharge casing	529	Bearing sleeve SiC
108.2	Stage casing	540.1	Bush
160.2	Cover	550.1	Sheet metal disc
171.1	Diffuser	550.3/4/7/8	Disc
182.1	Foot	551.1	Spacer disc
210	Shaft	561.1/2	Grooved pin
230.1	Impeller	565	Rivet
231	Suction stage impeller	59-4	Balance drum
320.1	Rolling element bearing	636	Lubricating nipple
350.1	Bearing housing	710.1/2	Pipe
360.1	Bearing cover	731.1/2/3/4/16/18	Pipe union
381	Bearing cartridge	732.1	Bracket
400.1	Gasket	81-92	Cover plate
411.1/2/3/4/7/8/13/23/24/25	Joint ring	900.4	Screw
412.1/2/4/5/10	O-ring	901.1/2	Hexagon head bolt
433.1	Mechanical seal	902.1/2	Stud
441.1	Shaft seal housing	903.1/2/3/4/9	Screw plug
452	Gland follower	905	Tie bolt
461	Gland packing	914.1	Hexagon socket head cap screw
471.1	Seal cover	920.1/2/3/4/5	Nut
502.1	Casing wear ring	931	Lock washer
507	Thrower	932.2	Circlip
520.1	Sleeve	940.1/2/3	Key
523.1	Shaft sleeve	970.1	Label/plate
524	Shaft protecting sleeve		







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