



AMTEQ[®]

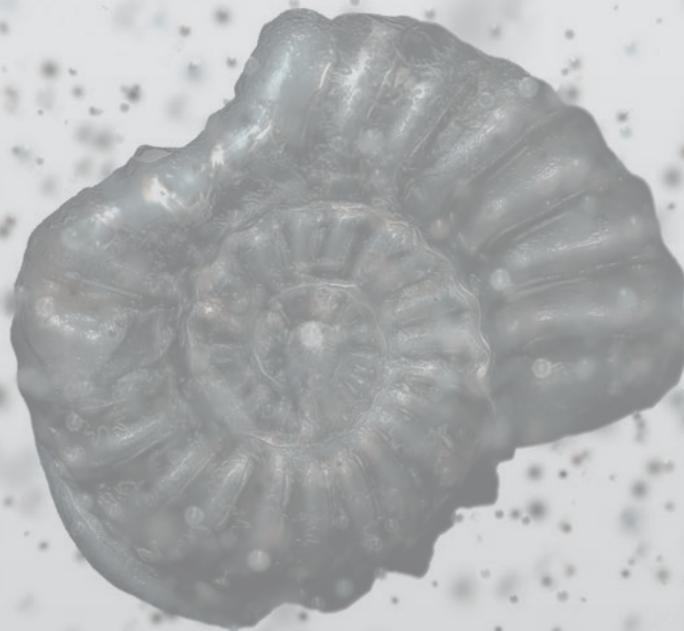
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Centrifugal Pump Series 250

Mud Max

Mud Max Compact



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Centrifugal Pumps Mud Max 250 + Mud Max Compact series

AMTEQ's centrifugal pumps of the Mud Max 250 + Mud Max Compact series have been designed for extreme applications and for the toughest requirements. To meet these requirements, we are offering a product on the market which stands out by its extremely powerful use and allows maximum duty applications. Other important criteria include its straightforward operation and excellent repair capability under all field conditions.

AMTEQ's centrifugal pumps of the Mud Max 250 + Mud Max Compact series have been used successfully in the following areas of industry for many years:

- Mineral oil and natural gas industries
- Well sinking and hydraulic construction
- Geothermics
- Horizontal drilling
- Mining
- Specialist foundation engineering
- Tank-ship building

The complete pump program covers 8 different pump sizes in two different designs. All pumps are available in a standard design and in a short design which provides a specific opportunity for installing hydraulic motors. Our product range includes the following pump sizes:

- Mud Max 250 3 x 2 x 13
- Mud Max 250 4 x 3 x 13
- Mud Max 250 5 x 4 x 14
- Mud Max 250 6 x 5 x 11
- Mud Max 250 6 x 5 x 14
- Mud Max 250 8 x 6 x 11
- Mud Max 250 8 x 6 x 14
- Mud Max 250 10 x 8 x 14

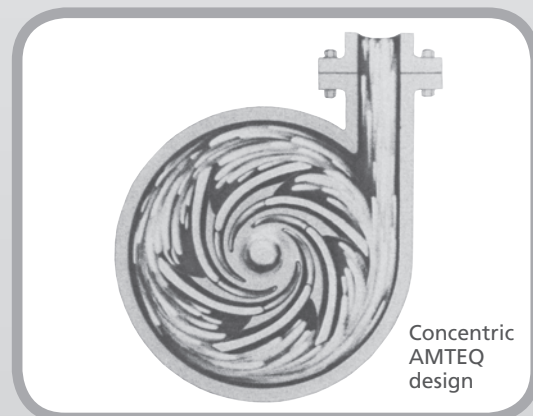
All pump sizes are available for delivery in standard or compact design versions.

Features

To achieve a number of essential benefits for smooth operation, a concentric design has been selected for the impeller casings. These benefits include:

■ Pump casing

- ✓ More even and thus thicker casing walls may be manufactured, leading to a longer useful life.
- ✓ A concentric design ensures a constant distance between impeller and casing wall at all times, optimizing the course of the flow inside the pump and reducing the risk of cavitation and turbulence to a considerable degree.
- ✓ A concentric design also reduces the radial load exerted on the shaft bearings.
- ✓ To make pump priming easier, the suction flange is bigger than the discharge flange.



■ Impeller versions

- ✓ The open impeller design ensures an even volume flow. This design reduces vortex generation inside the pump casings. This leads to a considerably lower risk of cavitation. This impeller version is used as a standard equipment for all pump sizes.
- ✓ A semi-open impeller version is available as an optional equipment for the 3 x 2 x 13 and 4 x 3 x 13 pumps. This design provides better protection for the seal unit in the pump. Due to its modified geometry, this variant has a somewhat lower pumping capacity.

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The pump generation of the 250 series is more powerful and easier to use than the previous series. Major benefits are expected from this series in terms of economy even under extreme field conditions as it also stands out by its high operative capability and low maintenance requirements.

DESIGN FEATURES

■ Pump casing

The pump casing has a concentric design.

The benefits of this feature include:

- ✓ A drastic reduction in turbulences and cavitation.
- ✓ A relatively ideal direction of flow due to the uniform distance between impeller and casing. This also leads to a reduction in the axial and radial loads exerted on the bearings. To successfully increase the pumping capacity and extend the pump's useful life, thicker material has been selected for pump design in addition.

■ Impeller

To reduce turbulences and vortexes inside the pump, an „open“ design is used for the impeller. This offers the benefit of minimizing wear and tear especially when pumping abrasive liquids. It also makes for a more even volume flow which, in turn, leads to less axial and radial stress on the bearings. Another advantage is that the connection between impeller and driveshaft is not wetted and thus presents optimum wear properties.

■ Shaft

To ensure smoother running and reduce any effects caused by tolerances, the shaft is manufactured with a bigger diameter as compared to the previous models.

Sealing system and shaft protection have been designed so as to allow their replacement without having to remove the shaft itself.

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■ Shaft bearings

Low-maintenance bearings are used for the pump shaft. To support heavy axial loads, two angle seat bearings with zero axial backlash have been installed at the drive end. A double-row ball bearing is built into the fluid end to carry the big radial loads which may occur when a big impeller diameter is used for heavy-duty operation.

■ Packing box

The packing box has been designed so as to also act as a wearing plate and it is available for delivery in a design version either with a mechanical seal or with a stuffing-box packing.

■ Mechanical seal

The mechanical seal consists of materials with an extremely high value, and it has been manufactured and designed so as to sustain maximum stresses and strains.

■ Wetted components

The wetted components include, e.g., casing, impeller and wearing plate, and are all made of hardened and tempered iron alloys. After its machining, every component is hardened completely in order to meet the stringent requirements of drilling operations.

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I. GENERAL

The following instructions are given to help in the installation, initial start-up and maintenance of the rotary pump series 250. As field conditions and the circumstances of operation vary, this manual may not cover every contingency but is merely intended as a guideline for common applications. If you have any specific questions, please contact AMTEQ Bohrzubehör GmbH. Observing the instructions provided below will enable you to make full use of your pump's capacity and service life. The 250 series has been designed so as to allow its replacement by similar pumps made by other manufacturers without having to change the existing pipework.

All our pumps are subjected to a one-hour functional test after their production. Please inspect your pump thoroughly after reception to exclude any damage in transit.

II. Setup

Place

To keep the suction line short and direct, install your pump as close as possible to the source of fluid. The pump should be placed at a location which allows easy access for inspection during operation. To avoid having to prime it, position your pump below the fluid level if possible.

FOUNDATION

The foundation should be stable and durable enough to absorb the vibrations of the pump and provide support to the base plate at all points. To make proper alignment easier, the place of installation should be horizontal.

PIPEWORK (GENERAL)

Do not start the installation of the pipelines unless the pump has been secured firmly to its basis or foundation. The pipework should be fastened independently of the pump. For additional safety, compensators should be installed between the flanges of the pump and the pipe system so as to prevent the transmission of any vibration and avoid fastening any component under stress.

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SUCTION LINE

To guarantee trouble-free operation, a few points should be observed with regard to the suction line. The proper dimensioning of the suction line helps to exclude vibrations and cavitation which may lead to faults and cause damage to the pumps. The cross-section of the suction line should not be smaller than the pump inlet.

The suction line should have at least the same diameter as the pump inlet while a bigger diameter would be even better. To optimize the inflow even further and minimize air pockets in the suction line, the line towards the pump may be laid with a downward gradient. The use of an eccentric taper may also provide a benefit. When designing the suction line, care should be taken to provide an opportunity to shut off the line and allow the performance of maintenance work.

DELIVERY LINE

The delivery line should also be provided with compensators and with a shut-off device. Fluid back-flow may be prevented when a non-return valve is installed. The entire pipework should be designed so as to ensure that the weight of the piping system is not carried by the pump. When a bypass is installed for an overpressure line, the pump needs to be protected against any fluid backflow by fitting a non-return valve as the impeller may be unscrewed in case of backflow otherwise.

COUPLING ADJUSTMENT

The long useful life of the pump and its corresponding drive basically depend on the alignment of the half couplings. The more precise alignment is, the smaller will be their parallel offset. This also reduces the strain exerted on the bearings. But the final adjustment may not be made unless pump and drive are installed in their final positions. A coupling is referred to as flexible because it bridges different degrees of thermal expansion but it is not intended to compensate any parallel displacement. Parallel misalignment must not exceed $1/64''$ (0.39 mm) (see figure 1).

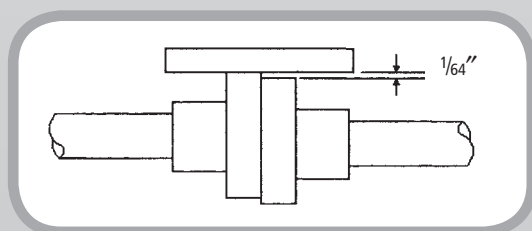


Fig.1
Maximum offset for parallel alignment $1/64''$
(0,39 mm)

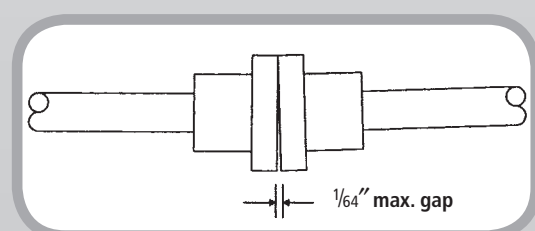


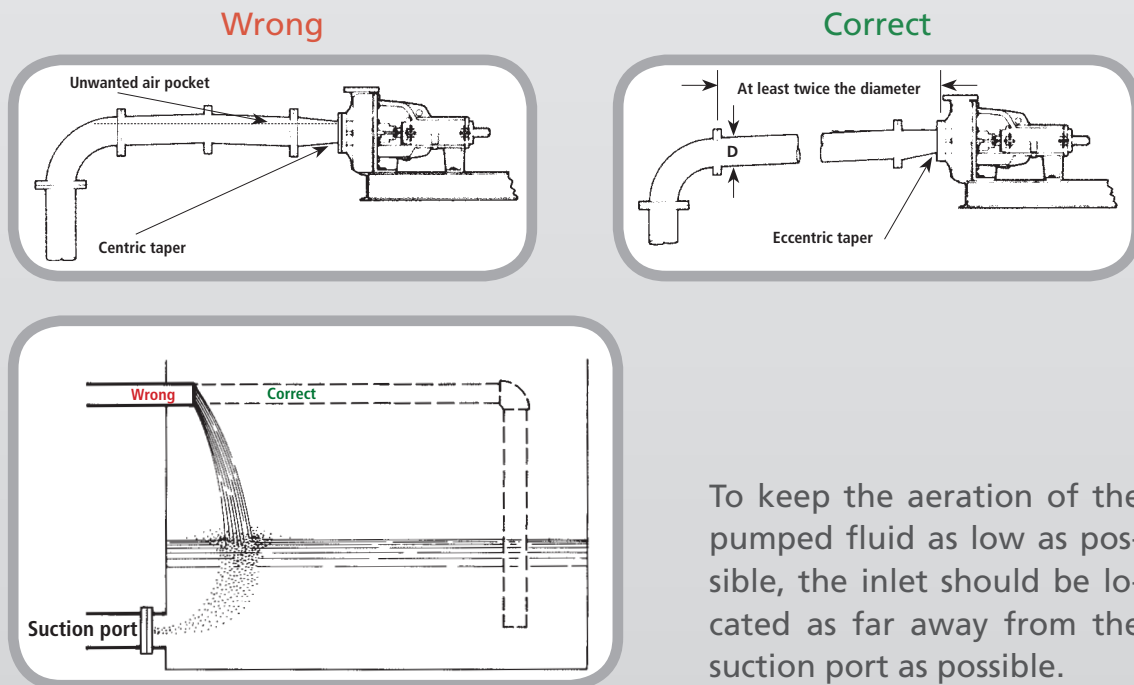
Fig.2
Maximum clearance for angular alignment $1/64''$
(0,39 mm)

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Angular alignment should not exceed a clearance of 1/64" (0.39 mm) either (see figure 2).

Before joining the half couplings, make certain to check the direction of driveshaft rotation as a wrong direction of rotation may cause considerable damage. When the shaft is turning in the wrong direction, the impeller may come off and cause extreme damage or even the total destruction of casing, bearing block, and shaft assembly.

INSTRUCTIONS FOR INSTALLATION



To keep the aeration of the pumped fluid as low as possible, the inlet should be located as far away from the suction port as possible.

III. TO PREPARE FOR INITIAL START-UP

Before starting up, please check the following points:

- ✓ Check the proper direction of rotation. The prescribed direction of rotation is indicated by an arrow which is cast into the bearing block.
- ✓ Inspect the piping system for proper installation.
- ✓ Pump and drive must be aligned correctly.
- ✓ The flexible coupling must be adjusted and installed properly.
- ✓ It must be possible to turn the pump by hand.

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- ✓ The pump must be primed correctly and completely without any air pocket.
- ✓ To allow any enclosed gas or air to escape through it, the shut-off device on the discharge end must be slightly open.

IV. INITIAL START-UP

LUBRICATION

Depending on every model, the pump has 3 or 4 grease fittings. These grease fittings should be used to apply high-temperature lithium-base grease. The outer grease fittings are used to lubricate the sealing and the inner grease fittings lubricate the bearing as shown in figure 3.

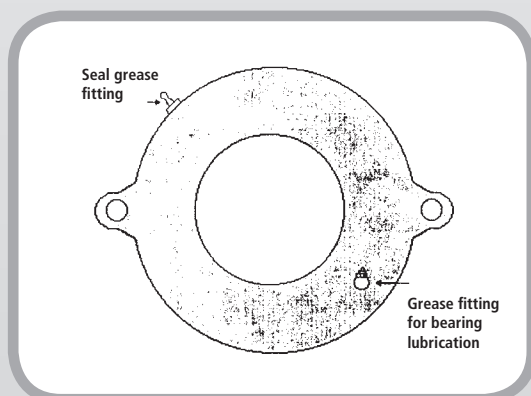


Fig.3
Fluid end bearing cover – front view

We recommend to grease the seal once per week. Please note that only half a lever stroke on the grease gun is necessary for greasing the seal. Over-lubrication may cause damage to the seal.

The bearing should be greased once in 24 hours. A maximum of four lever movements is sufficient for this.

Figure 4 shows the position of the grease fitting at the drive-end bearing cover. We recommend to grease this area by applying four lever movements with the grease gun each after 8 operating hours.

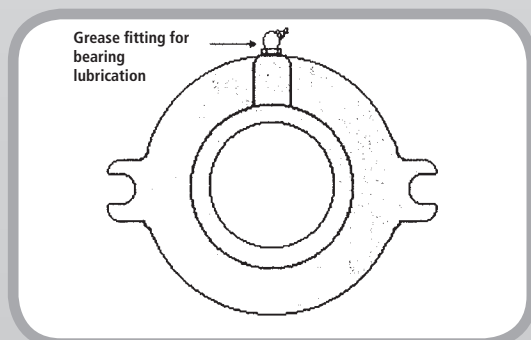


Fig.4
Drive-end bearing cover – front view

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PRIMING

Suction line and pump casing need to be filled completely with liquid and be bled. Start the pump while keeping the discharge-end shut-off device slightly open. After the pump pressure has stabilized, the shut-off slide valve may be opened slowly to the desired setting. Improper or insufficient pump priming may cause strong vibrations which, in turn, may badly damage the pump.

V. MAINTENANCE

Inspect every part for damage before installing it. Check that every component is clean and that every thread, groove or other component is free from any contamination.

BALL BEARINGS

Do not use any spare part unless it is an original and its size and type correspond to the prescriptions indicated in the spare parts list. To avoid any further damage, be sure to replace every bearing when it is worn-out.

SEALS

Check for damage. We recommend to replace every gasket or seal removed by a new one during reinstallation.

SHAFT

Check the shaft for even and concentric running from time to time.

SHAFT SLEEVE

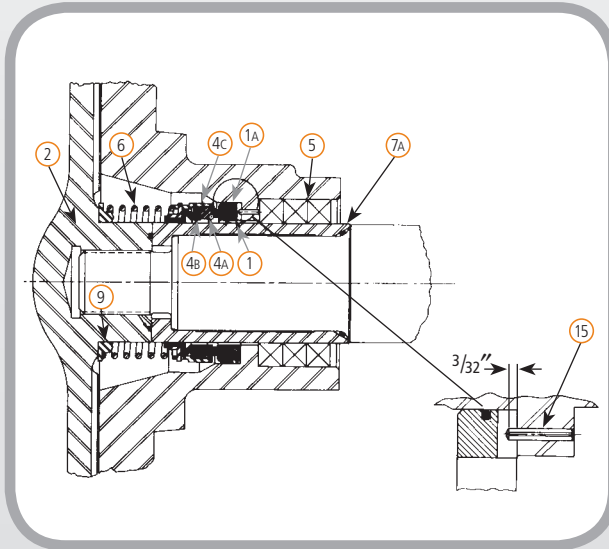
The shaft sleeve should present a smooth surface on the outside. This component part should be replaced when any indentation or score mark appears on its surface.

MECHANICAL SEAL

Inspect every seal component for its proper condition as leakage may occur in the pump sealing otherwise.

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VII. SEAL REPLACEMENT



- ① Stationary seal ring
- ①A Body seal
- ② Impeller
- ④A Rotating seal ring
- ④B Rubber bellows
- ④C Spring cage
- ⑤ Packing
- ⑥ Spring
- ⑦A Shaft sleeve
- ⑨ Spring retainer
- ⑮ Split pin

REPLACING THE MECHANICAL SEAL

1. When impeller and/or stuffing box need to be replaced, adjust the clearance between impeller and stuffing box before removing the mechanical seal. To allow this, unscrew the setting screws. Use the adjusting screws (12B) to move the shaft assembly so as to set the clearance between impeller and stuffing box to 0.02" (0.5 mm). Then secure the setting screws and the lock nuts. When all screws are firmly tightened, verify once again that the clearance corresponds to the value indicated above.
2. Make sure that the seal seat in the stuffing box is clean and undamaged. Also check that the inside of the stuffing box (cone with an inclination of 30°) does not present any damage or sharp edge. Apply oil to the machined seat in the stuffing box. After oiling the seat, the stuffing box should be placed with its wearing side turned upwards on a work bench or on a flat surface.
3. Insert the stationary seal ring into the stuffing box with the groove pointing downwards. Be sure that the split pin is inserted in the seat of the plate. The split pin must fit in and hold the groove to prevent the stationary seal ring from moving and ensure its precise fit. To make its insertion easier, the ring should be oiled beforehand.

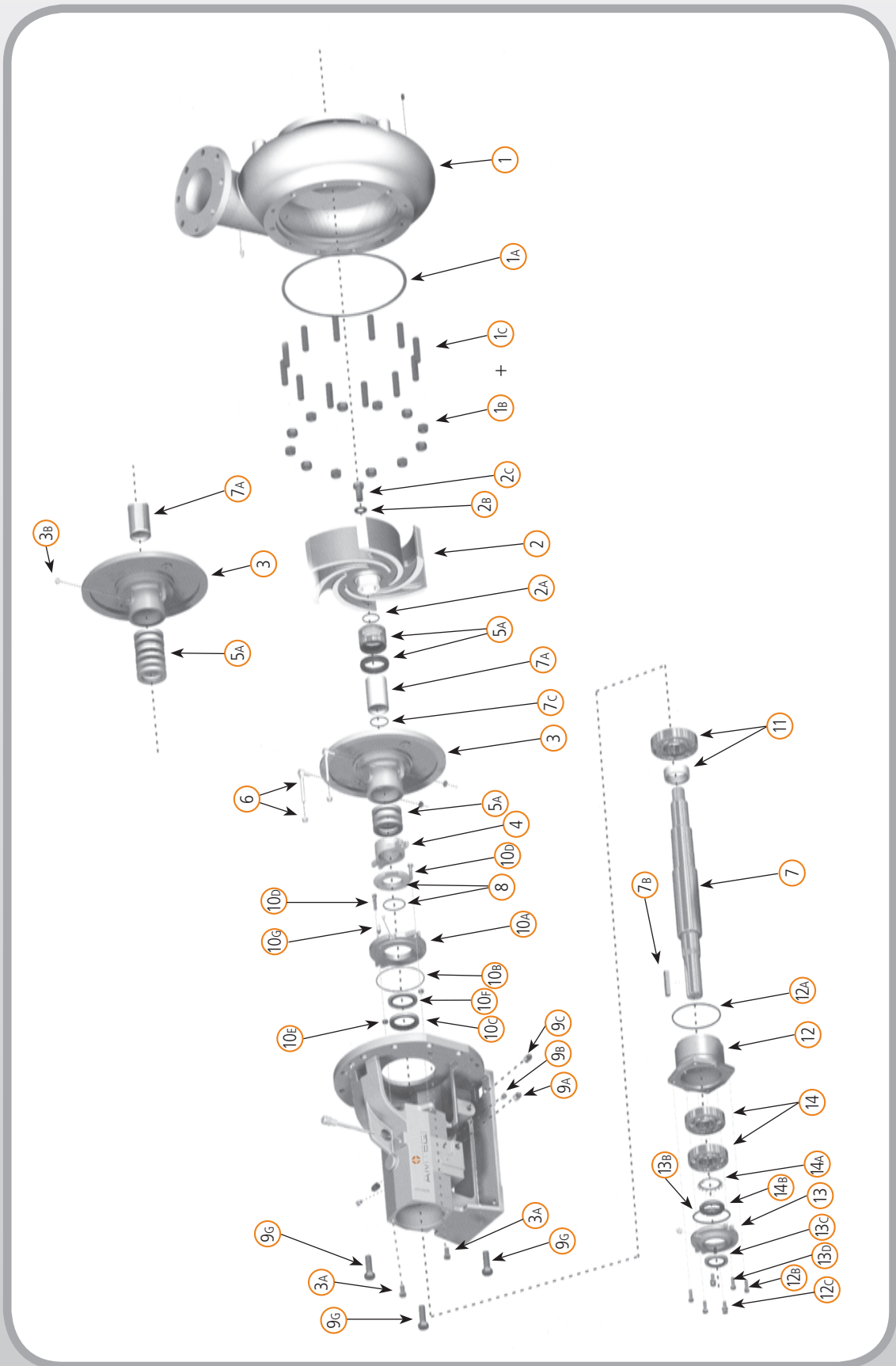
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4. Carefully insert the stationary seal ring into the wearing plate and make sure that the split pin is seated in the groove and that the stationary seal ring is seated with its full surface in the wearing plate. If the ring cannot be inserted by hand, a piece of wood may be used to exert a certain amount of pressure and guarantee a proper fit. But do not give any hits on the ring as it would break immediately due to the hard material. When the stationary seal ring is seated in the wearing plate, clean the visible sliding surface and apply a film of oil using a clean cloth.
5. Grease the pump base frame at the positions at which the wearing plate will be inserted. After inserting it, screw the wearing plate firmly to the base frame with the bolt, while making certain not to damage the stationary seal ring.
6. Then take the mechanical seal, remove the rotating seal ring (4A) and put it aside at a safe place. Some force may be needed to remove the ring as it may be somewhat stuck. Apply a thin film of oil to the outside of the shaft sleeve (7A) and to the inside of the rubber bellows (4B).
7. Place the shaft sleeve on a work bench with its flat side turned upwards. Slide the rotating seal ring with its sealing surface turned downwards and with its rubber face turned upwards over the shaft sleeve, sliding this assembly beyond half the shaft sleeve. It is not necessary to slide these parts completely up to the end of the shaft sleeve. The spring cage (4C) may now be joined up with the rubber bellows again.
8. Make sure that the sealing surfaces are free from any contamination or other foreign material. Also check that the pump shaft does not present any score mark or burr. After having checked everything accordingly, all components still need to be inspected for cleanliness. Apply ball-bearing grease to lubricate the shaft in the area of shaft sleeve and thread. Then, slip the shaft sleeve over the shaft while rotating it. When the seal faces abut, push the shaft sleeve on until the clearance between shaft sleeve and shaft shoulder is approx. 0.8 mm.
9. Now install the spring retainer (9) and the impeller seal (2A) in the groove provided for them in the impeller. Use some grease to secure the seal if it does not remain stuck by itself. Guide the spring cage over the shaft sleeve which is now inserted in the wearing plate.

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10. Screw the impeller (2) on the shaft (7). When installing the impeller, make certain that the spring is always guided in the corresponding spring retainers so as to avoid installing it askew. Hand-tighten the impeller.
11. Place the casing gasket (1A) in the groove provided for it in the wearing plate. Use some grease to secure it if it does not remain stuck by itself. Then place the pump casing (1) back on the pump frame and screw the nuts onto the bolts. Apply a tightening torque of 150 N/m. Proceed cross-wise when tightening.
12. We recommend not to install the packing rings as long as the mechanical seal works without any problem. This packing merely offers a short-term fix to be used when the mechanical seal becomes leaky if operation needs to be continued for a certain period of time before the mechanical seal may be replaced.

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Kreiselpumpen Serie Mud Max 250 + Mud Max Compact

Pos.	Stück	Art.Nr.	Bezeichnung/Description	Pos.	Stück	Art.Nr.	Bezeichnung/Description
1*	1	see below	Gehäuse/Casing	12c	1	A206240101	Lagergehäuse, außen/Housing, O.B. Bearing
1a	1	A10399461	Gehäusedichtung/Gasket, Casing	12a	1	A7496253	O-Ring für Lagergehäuse, außen/Seal, O.B. Brg. Housing
1b	12	A393261/A386276	Stehbolzen für Gehäuse mit Mutter/Studswith Nuts	12b	4	A3861138	Einstellschrauben für Ld., außen/Bolts, O.B. Brg. Housing
2*	1	see below	Schaufelrad/Impeller	12c	2	A393262	Schrauben für Ld., außen/Nut, O.B. Brg. Housing Jam
2a	1	A1911072	O-Ring für Schaufelrad/Seal, Impeller	13	1	A206170101	Lagerdeckel, außen/Cover, O.B. Bearing
2b			Unterlegscheibe für Schaufelrad/Washer, Impeller	13b	1	A749626	O-Ring für Ld., außen/O-ring, O.B. Bearing Cover
2c			Schaufelradhaltebolzen/Bolt, Impeller Lock	13c	1	A2061902	Simmerring für Kugellager, außen/Oil Seal, O.B. Brg. Cover
3* #	1	A222230130	Verschleißplatte für mechanische Dichtung/Stuffing Box, Mechanical Seal	13b	2	A3861139	Schraube/Bolt, O.B. Brg. Cover
3* &	1	A206140130	Verschleißplatte für Packung/Stuffing Box, Packed	14	2	A206161	Kugellager, außen/Bearing, O.B. (2 Req'd)
3a	2	A3861117	Bolzen für Verschleißplatte/Bolt, Stuffing Box	14a	1	A61244	Unterlegscheibe für Kugellager, außen/Lockwasher, O.B. Bearing
3b &	1	A1936801	Abschmiernippel/Grease Fitting	14b	1	A61234	Befestigungsmutter für Kugellager, außen/Locknut, O.B. Bearing
4	1	A20622A	Stoffbüchsrille/Gland Assy, Packing	1*	1	A192030130A	3 x 2 x 13 Gehäuse/Casing 3 x 2 x 13
5	1	A224511	Mechanische Dichtung/Seal, Mechanical	1*	1	A192050130A	4 x 3 x 13 Gehäuse/Casing 4 x 3 x 13
5a	1	A8264240BA	Graphit-Packung/Graphite Packing	1*	1	A192220130A	5 x 4 x 14 Gehäuse/Casing 5 x 4 x 14
5a	1	A8474241A	King-Packung/King Packing	1*	1	A191220130A	6 x 5 x 11 Gehäuse/Casing 6 x 5 x 11
5a	1	A8264247A	Teflon-Packung/Teflon Packing	1*	1	A191230130A	6 x 5 x 14 Gehäuse/Casing 6 x 5 x 14
6	2	AB3701A	Stoffbüchsenbolzen/Bolt Assy, Gland	1*	1	A197630130A	8 x 6 x 11 Gehäuse/Casing 8 x 6 x 11
7	1	A206120233	Welle/Shaft	1*	1	A191170130A	8 x 6 x 14 Gehäuse/Casing 8 x 6 x 14
7a #	1	A2094321	Wellenschutzhülse/Sleeve, Shaft (M.S. Pump)	1*	1	A209370130	10 x 8 x 14 Gehäuse/Casing 10 x 8 x 14
7a &	1	A2061321G7A	Wellenschutzhülse/Sleeve, Shaft (Pack Pump)	2*	1	A19204XX30	3 x 2 x 13 Schaufelrad/Impeller 3 x 2 x 13
7b	1	A4372521	Passfeder für die Welle/Key, Shaft	2*	1	A19206XX30	4 x 3 x 13 Schaufelrad/Impeller 4 x 3 x 13
7c	1	A234440172	O-Ring für Wellenschutzhülse/Seal, Shaft Sleeve	2*	1	A19224XX30	5 x 4 x 14 Schaufelrad/Impeller 5 x 4 x 14
8	1	A222101A	Wasserabstreifring/Deflector Assembly	2*	1	A19121XX30	6 x 5 x 11 Schaufelrad/Impeller 6 x 5 x 11
9a !	1	A850505	Ölablassschraube/Plug, Oil Drain	2*	1	A19121XX30	6 x 5 x 14 Schaufelrad/Impeller 6 x 5 x 14
9b !	1	A18471	Verschlusssschraube für Einstellstutzen/Plug, Oil Fill	2*	1	A19116XX30	8 x 6 x 11 Schaufelrad/Impeller 8 x 6 x 14
9c	3	A25381H	Einstellschraube/Bolt, Casing Jack	2*	1	A19116AO30	8 x 6 x 14 Schaufelrad/Impeller 8 x 6 x 14
10a	1	A20626A	Lagerdeckel, innen/Cover, Inboard Bearing	2*	1	A21867XX30	10 x 8 x 14 Schaufelrad/Impeller 10 x 8 x 14
10b	1	A20625	Lagerdeckeldichtung, innen/Gasket, I.B. Brg. Cover				XX = Schaufelradgröße/XX = Impeller Size
10c	1	A2061901	Simmerring für Kugellager, innen/Oil Seal, I.B. Brg. Cover				60 = 10"
							70 = 11"
							80 = 12"
							90 = 13"
							99 = 14"
10b	2	A38611	Bolzen für Lagerdeckel, innen/Bolt, I.B. Brg. Cover				
10e	2	A39322	Mutter/Nut, I.B. Brg. Cover				
10f	1	A2062001	Enddichtung, innen/Exclusion Seal, I.B. Brg. Cover				
10c	1	A2164101	Abschmiernippel/Grease Fitting				
11	1	A206151	Kugellager, innen/Bearing, Inboard				

Optional 1A Gehäuse für Wear Pad Ausführung

1a Verschleißscheibe mit Mutter/ Wear Pad

VI. TROUBLESHOOTING

The pump fails to reach the required volume

- ✗ Possible cause: Pump or suction line not filled completely

✓ Recommendation: Bleed pump and suction line again
- ✗ Possible cause: Suction head too high

✓ Recommendation: Check the suction pipe system and, if necessary, measure the amount of subpressure
- ✗ Possible cause: Wrong direction of shaft rotation

✓ Recommendation: Check the direction of rotation with reference to the arrow sign
- ✗ Possible cause: Fluid end or suction line clogged

✓ Recommendation: Inspect pump and intake system for any clogging
- ✗ Possible cause: The pump takes in false air, or the fill level falls for no apparent reason

✓ Recommendation: Check every connection in the suction-side system
- ✗ Possible cause: The pump is taking in false air through a worn-out seal or packing

✓ Recommendation: Check and, if necessary, readjust packages and seals
- ✗ Possible cause: Rotational speed too slow

✓ Recommendation: Check the rotational speed
- ✗ Possible cause: Impeller too small

✓ Recommendation: Replace the impeller if necessary
- ✗ Possible cause: Excessive impeller clearance

✓ Recommendation: Readjust the clearance

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Pump fails to reach the required pressure

Check every point as indicated in the previous chapter

Sudden pressure drop

✗ Possible cause: Pump takes in false air

✓ Recommendation: Look for possible leaks

Strong noise emission on the housing side

✗ Possible cause: Turbulence inside the casing, impeller rubbing

✓ Recommendation: Check suction line, check impeller clearance.

Strong noise emission at the drive end

✗ Possible cause: Excessive stress on the ball bearings

✓ Recommendation: Make certain that the drive parameters are suitable for the specific gravity of the fluid handled.

✗ Possible cause: Dirt in the ball bearing

✓ Recommendation: Remove the bearing covers and clean and flush the ball bearings in a workmanlike fashion. Then inspect the oil seal rings for defects.

✗ Possible cause: Worn-out ball bearings

✓ Recommendation: Check the bearing clearance and replace if necessary

✗ Possible cause: Coupling misalignment

✓ Recommendation: Check coupling adjustment and alignment

Performance data for AMTEQ 250 series centrifugal pumps

3 x 2 x 13 and 3 x 2 x 13 Compact

Volume flow: 0 – 1870 lpm
 Pressure range: 0 – 16 bars
 Speed range: 700 – 3500 rpm
 Drive rating: 0.37 kw – 100 kw

4 x 3 x 13 and 4 x 3 x 13 Compact

Volume flow: 0 – 3100 lpm
 Pressure range: 0 – 17 bars
 Speed range: 700 – 3500 rpm
 Drive rating: 0.37 kw – 135 kw

5 x 4 x 14 and 5 x 4 x 14 Compact

Volume flow: 0 – 3800 lpm
 Pressure range: 0 – 11 bars
 Speed range: 800 – 2100 rpm
 Drive rating: 0.75 kw – 45 kw

6 x 5 x 11 and 6 x 5 x 11 Compact

Volume flow: 0 – 6700 lpm
 Pressure range: 0 – 6 bars
 Speed range: 800 – 1900 rpm
 Drive rating: 1.5 kw – 45 kw

6 x 5 x 14 and 6 x 5 x 14 Compact

Volume flow: 0 – 6700 lpm
 Pressure range: 0 – 8 bars
 Speed range: 800 – 1800 rpm
 Drive rating: 5.6 kw – 67 kw

8 x 6 x 11 and 8 x 6 x 11 Compact

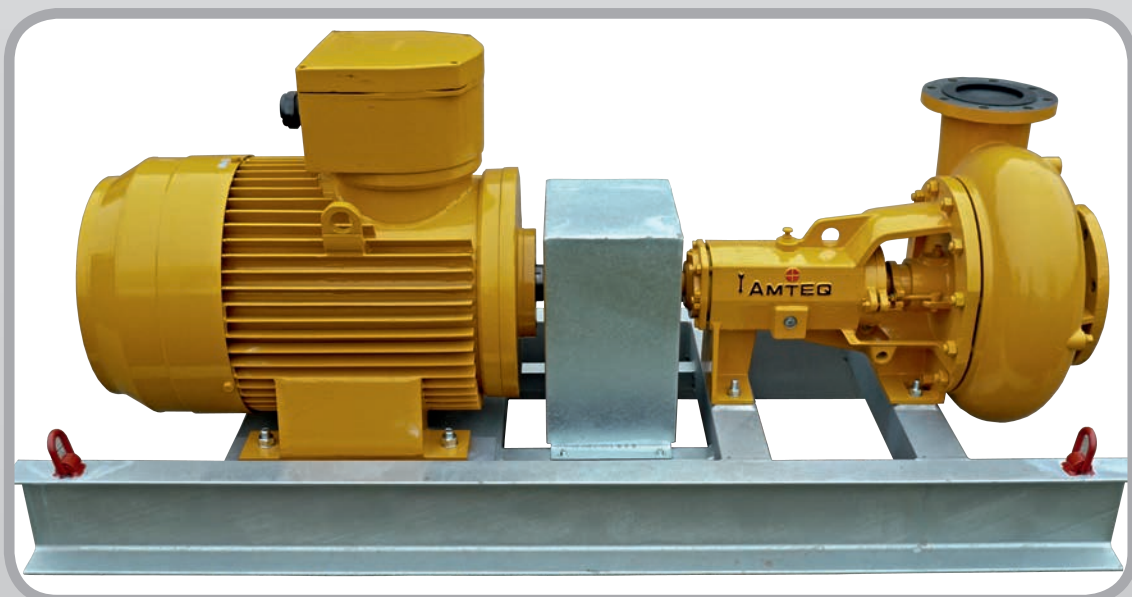
Volume flow: 0 – 7500 lpm
 Pressure range: 0 – 5 bars
 Speed range: 800 – 1800 rpm
 Drive rating: 2.2 kw – 45 kw

8 x 6 x 14 and 8 x 6 x 14 Compact

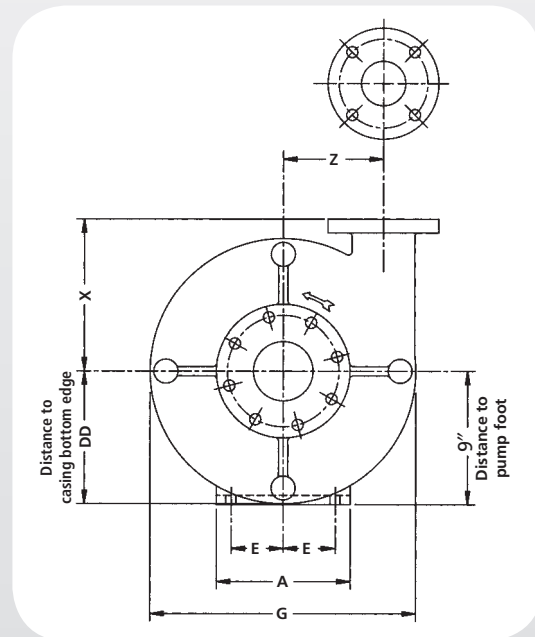
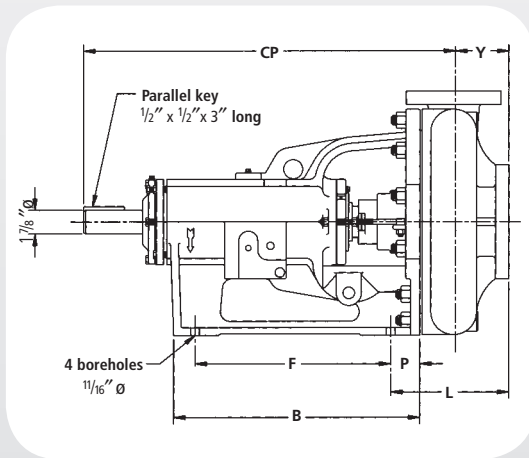
Volume flow: 0 – 9700 lpm
 Pressure range: 0 – 7,5 bars
 Speed range: 800 – 1800 rpm
 Drive rating: 3.75 kw – 125 kw

10 x 8 x 14 and 10 x 8 x 14 Compact

Volume flow: 0 – 15700 lpm
 Pressure range: 0 – 6,5 bars
 Speed range: 800 – 1800 rpm
 Drive rating: 7.5 kw – 150 kw



Mud Max 250 Dimensions

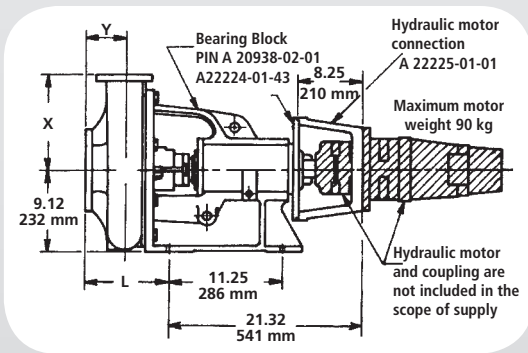
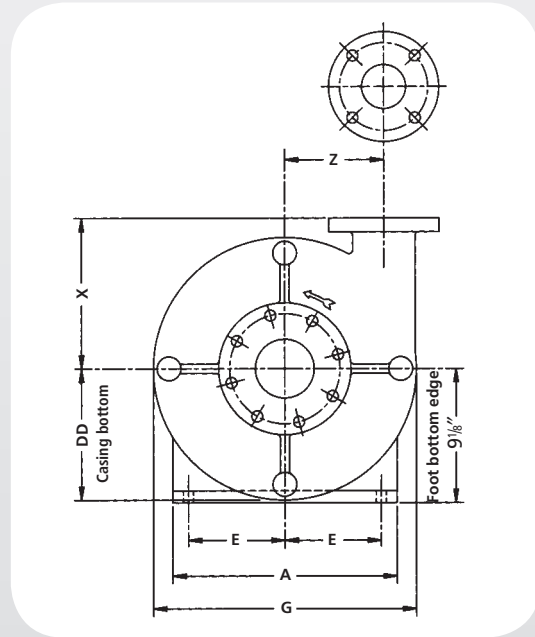
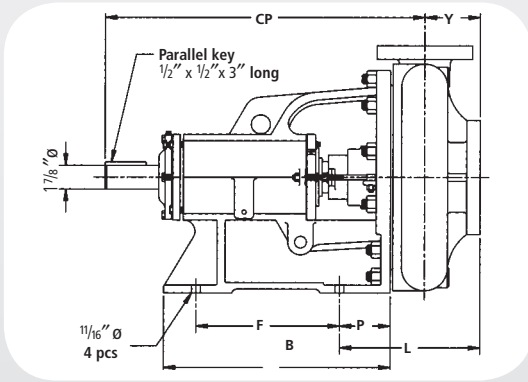


ANSI 125 cast iron flange unions or
ANSI 150 steel flange

Pump	Suction flange	Delivery flange
3 x 2 x 13	3" 4-hole 3/4", 6" hole circle	2" 4-hole 3/4", 4 3/4" hole circle
4 x 3 x 13	4" 8-hole 3/4", 7 1/2" hole circle	3" 4-hole 3/4", 6" hole circle
5 x 4 x 14	5" 8-hole 7/8", 8 1/2" hole circle	4" 8-hole 3/4", 7 1/2" hole circle
6 x 5 x 11	6" 8-hole 7/8", 9 1/2" hole circle	5" 8-hole 7/8", 8 1/2" hole circle
6 x 5 x 14	6" 8-hole 7/8", 9 1/2" hole circle	5" 8-hole 7/8", 8 1/2" hole circle
8 x 6 x 11	8" 8-hole 7/8", 11 3/4" hole circle	6" 8-hole 7/8", 9 1/2" hole circle
8 x 6 x 14	8" 8-hole 7/8", 11 3/4" hole circle	6" 8-hole 7/8", 9 1/2" hole circle
10 x 8 x 14	10" 12-hole 1", 14 1/4" hole circle	8" 8-hole 7/8", 11 3/4" hole circle

Pump	Weight	A		B		E		F		G		L		P		X		Y		Z		CP		DD	
		in kg	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
3 x 2 x 13	200	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	17 7/8	454	8 3/4	222	2 5/16	57	10 1/4	260	3 3/4	95	7	178	29 1/4	743	9	228.6
4 x 3 x 13	200	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	17 7/8	454	9 3/8	238	2 5/16	57	10 1/4	260	4 1/4	108	6 3/4	171	29 3/8	746	9	228.6
5 x 4 x 14	220	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	19	482.6	10 3/4	273	2 5/16	57	11	279	5	127	6 1/8	156	30	762	9 11/16	247
6 x 5 x 11	230	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	17 7/8	454	12 1/16	307	2 5/16	57	11	279	5 3/4	146	6	152	30 5/8	778	9	228.6
6 x 5 x 14	250	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	21	533.4	12 1/16	307	2 5/16	57	11	279	5 3/4	146	6	152	30 5/8	778	10 1/2	266
8 x 6 x 11	265	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	20	508	13 1/4	336	2 5/16	57	14	355	6 1/4	159	8 3/8	213	31 1/4	794	10	254
8 x 6 x 14	280	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	23 9/16	600	13 1/4	336	2 5/16	57	14	355	6 1/4	159	8 3/8	213	31 1/4	794	12	305
10 x 8 x 14	370	9	228.6	19 5/8	498.5	3 1/2	88.9	15 7/16	390.5	22 3/8	568	13 11/16	349	2 5/16	57	14 3/16	361	6 11/16	171	8	203	31 1/4	794	11 3/16	286

Mud Max Compact Dimensions

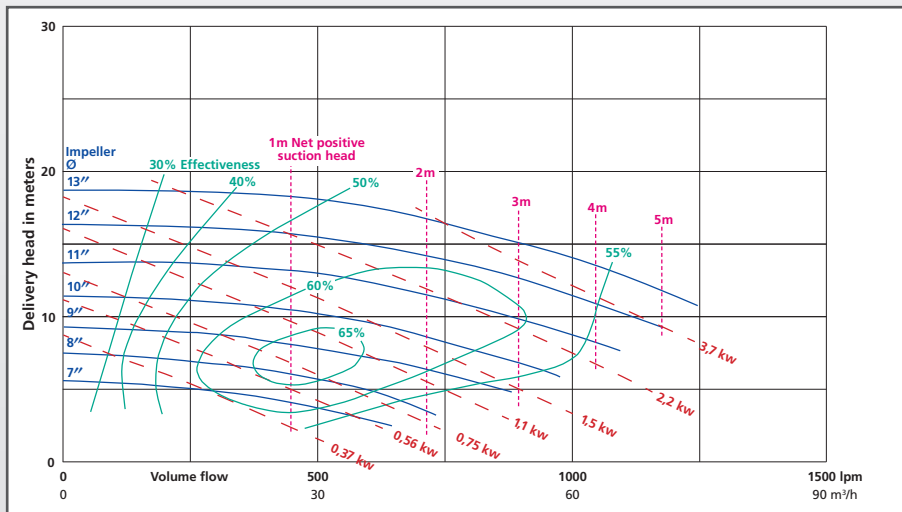


Pump	Suction flange		Flange design				Delivery flange		Flange design			
	inch	mm	inch		mm		inch	mm	inch		mm	
3 x 2 x 13	3	76.2	4 boreholes 3/4"Ø mit 6" hole circle				2	50.8	4 boreholes 3/4"Ø mit 4 3/4" hole circle			
4 x 3 x 13	4	101.6	8 boreholes 3/4"Ø mit 7 1/2" hole circle				3	76.2	4 boreholes 3/4"Ø mit 6" hole circle			
5 x 4 x 14	5	127	8 boreholes 7/8"Ø mit 8 1/2" hole circle				4	101.6	8 boreholes 3/4"Ø mit 7 1/2" hole circle			
6 x 5 x 11	6	152.4	8 boreholes 7/8"Ø mit 9 1/2" hole circle				5	127	8 boreholes 7/8"Ø mit 8 1/2" hole circle			
6 x 5 x 14	6	152.4	8 boreholes 7/8"Ø mit 9 1/2" hole circle				5	127	8 boreholes 7/8"Ø mit 8 1/2" hole circle			
8 x 6 x 11	8	203.2	8 boreholes 7/8"Ø mit 11 3/4" hole circle				6	152.4	8 boreholes 7/8"Ø mit 9 1/2" hole circle			
8 x 6 x 14	8	203.2	8 boreholes 7/8"Ø mit 11 3/4" hole circle				6	152.4	8 boreholes 7/8"Ø mit 9 1/2" hole circle			
10 x 8 x 14	10	254	12 boreholes 1"Ø mit 14 1/4" hole circle				8	203.2	8 boreholes 7/8"Ø mit 11 3/4" hole circle			

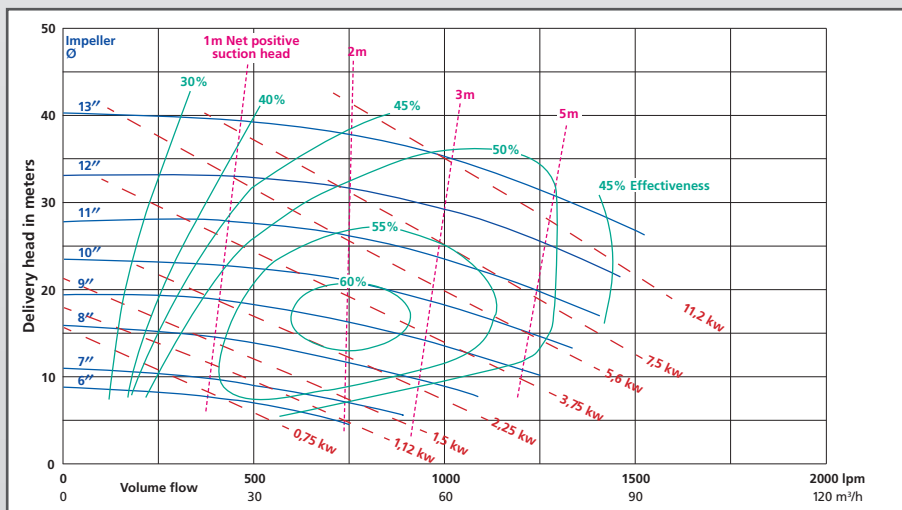
Pump	Weight	A		B		E		F		G		L		P		X		Y		Z		CP		DD	
		in kg	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
3 x 2 x 13	215	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	17 7/8	454	10 7/16	267	4	101.6	10 1/4	260	3 3/4	95	7	178	25 1/16	637	8 15/16	227
4 x 3 x 13	222	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	17 7/8	454	11 1/16	282	4	101.6	10 1/4	260	4 1/4	108	6 3/4	171	25 1/8	638	8 15/16	227
5 x 4 x 14	236	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	19	483	12 7/16	318	4	101.6	11	280	5	127	6 1/8	156	25 13/16	655	9 1/2	241
6 x 5 x 11	249	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	17 7/8	454	13 3/4	349	4	101.6	11	280	5 3/4	146	6	152	26 3/8	670	8 15/16	227
6 x 5 x 14	276	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	21	533	13 3/4	349	4	101.6	11	280	5 3/4	146	6	152	26 3/8	670	10 1/2	267
8 x 6 x 11	299	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	20	508	14 15/16	379	4	101.6	14	356	6 1/4	159	8 3/8	213	27 1/16	688	10	254
8 x 6 x 14	318	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	23 9/16	597	14 15/16	379	4	101.6	14	356	6 1/4	159	8 3/8	213	27 1/16	688	12	300
10 x 8 x 14	320	15 1/4	387	17 3/4	451	6 9/16	166	11 1/4	286	23 3/8	568	15 3/8	391	4	101.6	14 3/16	361	6 11/16	171	8	203	27 1/16	688	11 3/16	283

Pump curves for Mud Max 3x2x13 and 3x2x13 Compact

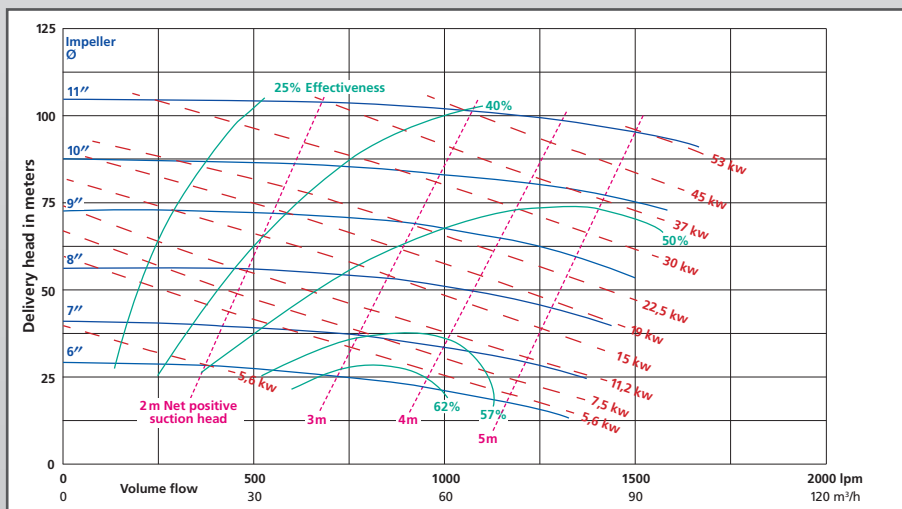
Curve: 970 rpm, fluid: clear water



Curve: 1450 rpm, fluid: clear water

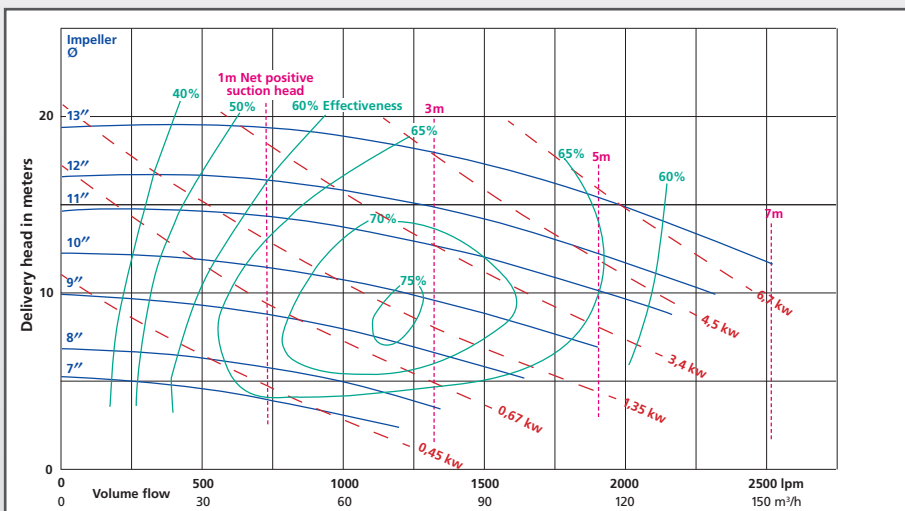


Curve: 2900 rpm, fluid: clear water

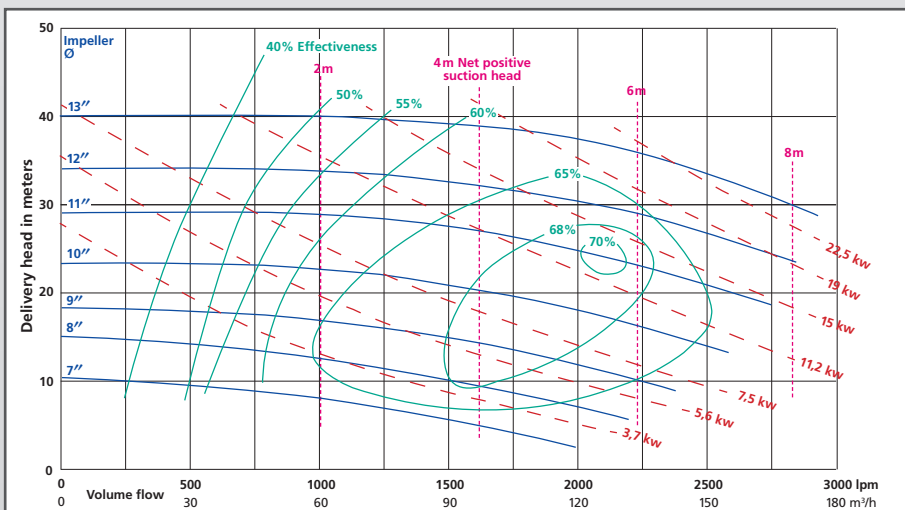


Pump curves for Mud Max 4x3x13 and 4x3x13 Compact

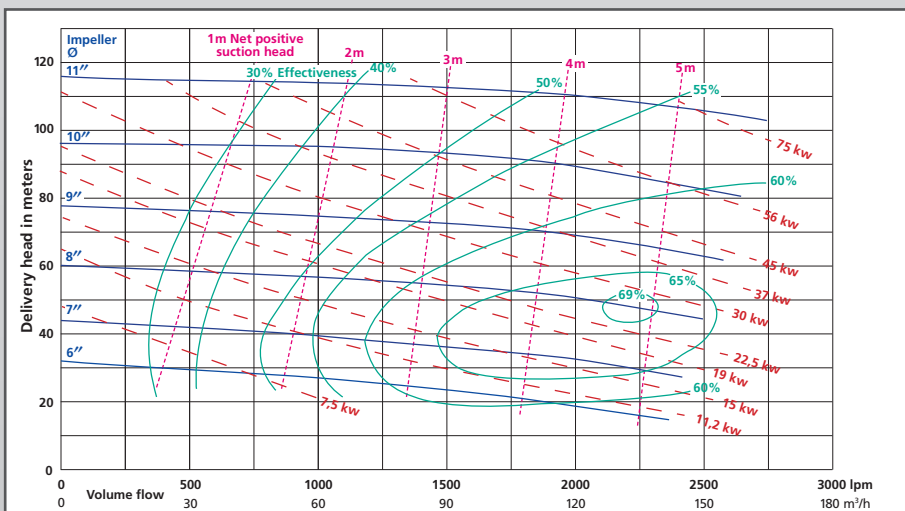
Curve: 970 rpm, fluid: clear water



Curve: 1450 rpm, fluid: clear water

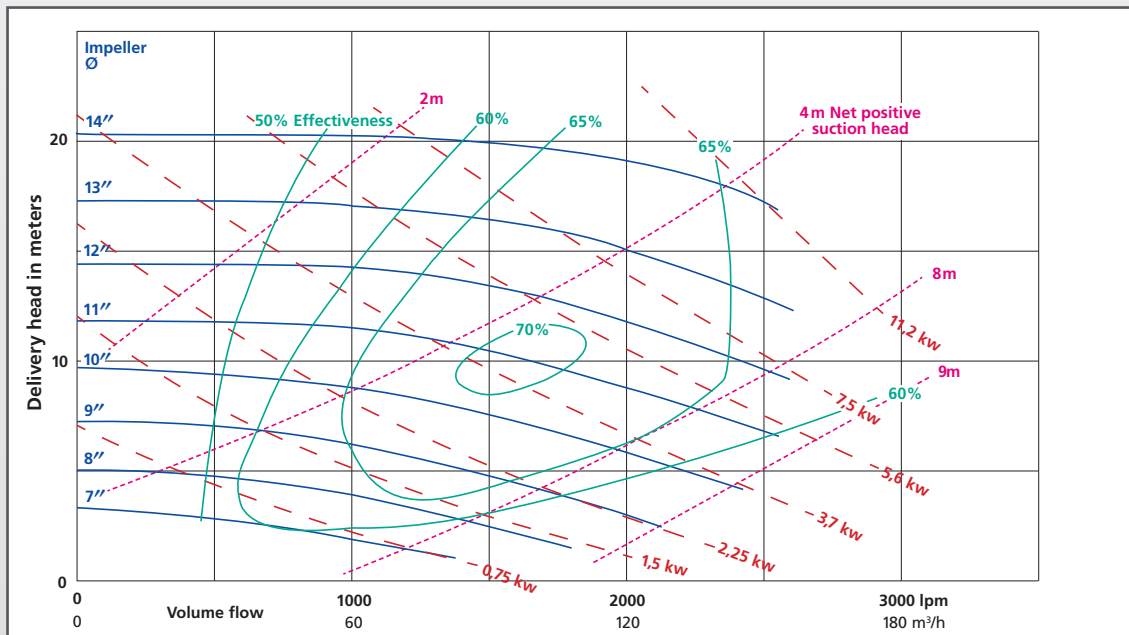


Curve: 2900 rpm, fluid: clear water

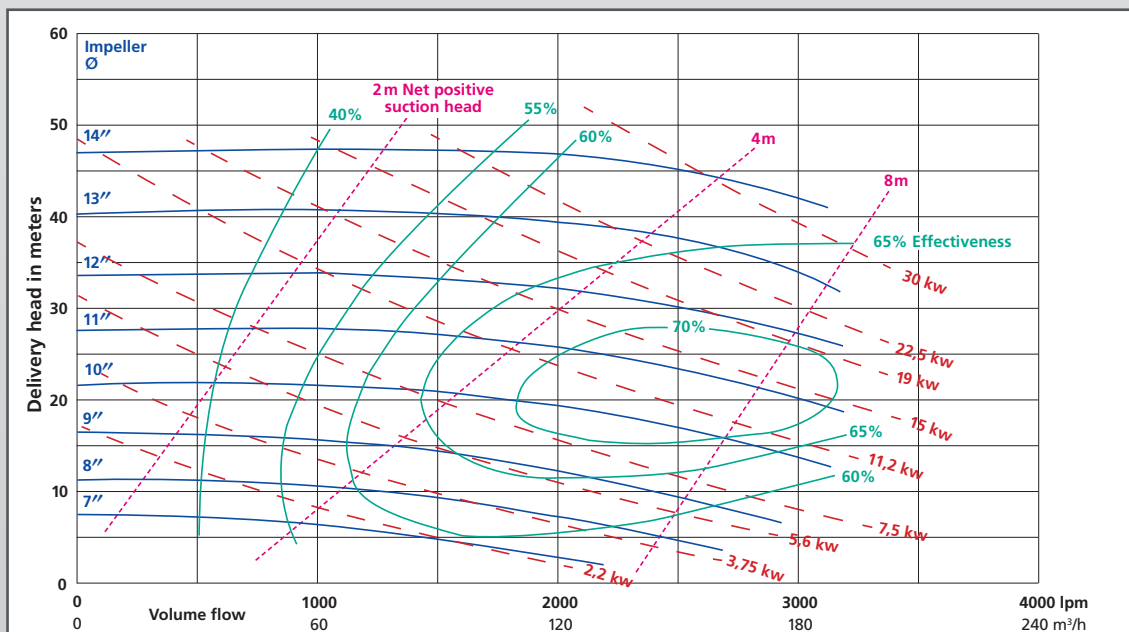


Pump curves for Mud Max 5x4x14 and 5x4x14 Compact

Curve: 970 rpm, fluid: clear water

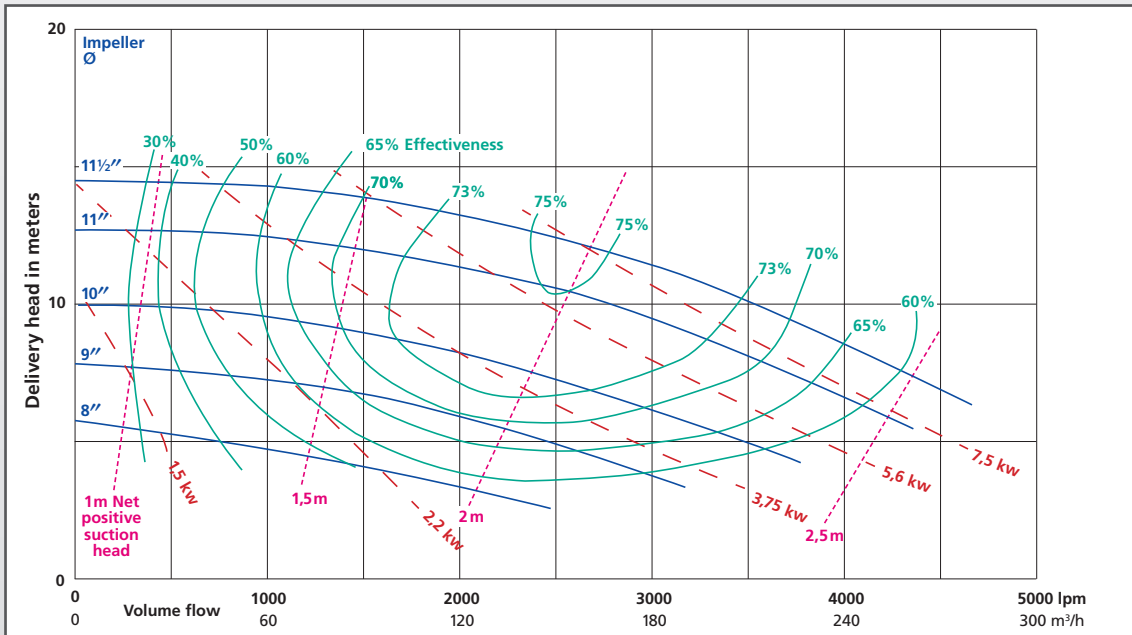


Curve: 1450 rpm, fluid: clear water

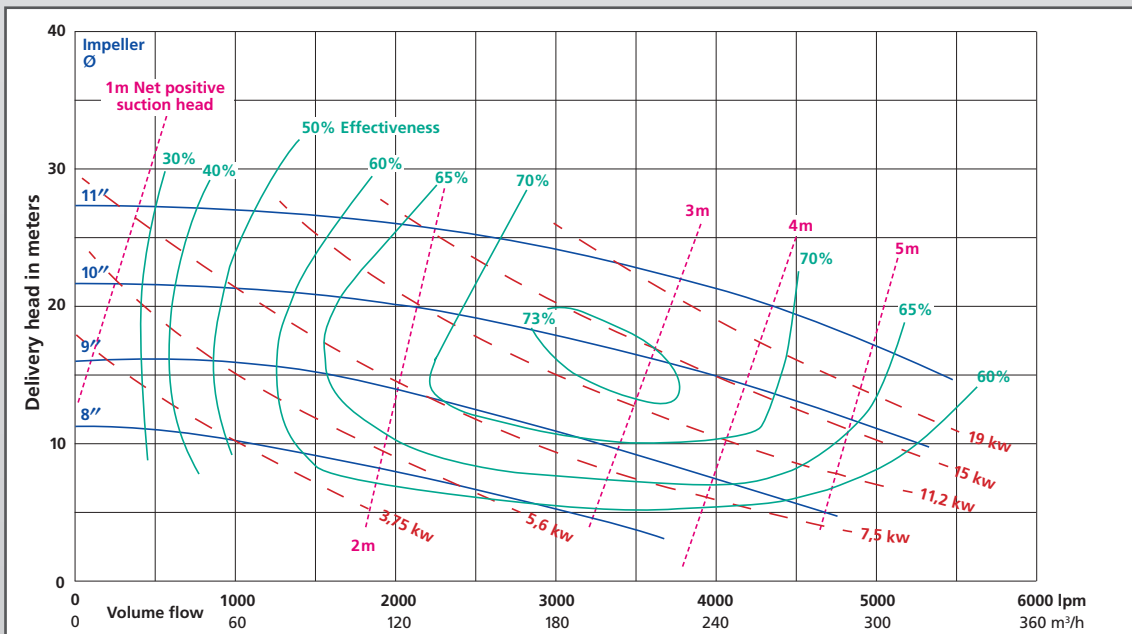


Pump curves for Mud Max 6x5x11 and 6x5x11 Compact

Curve: 970 rpm, fluid: clear water

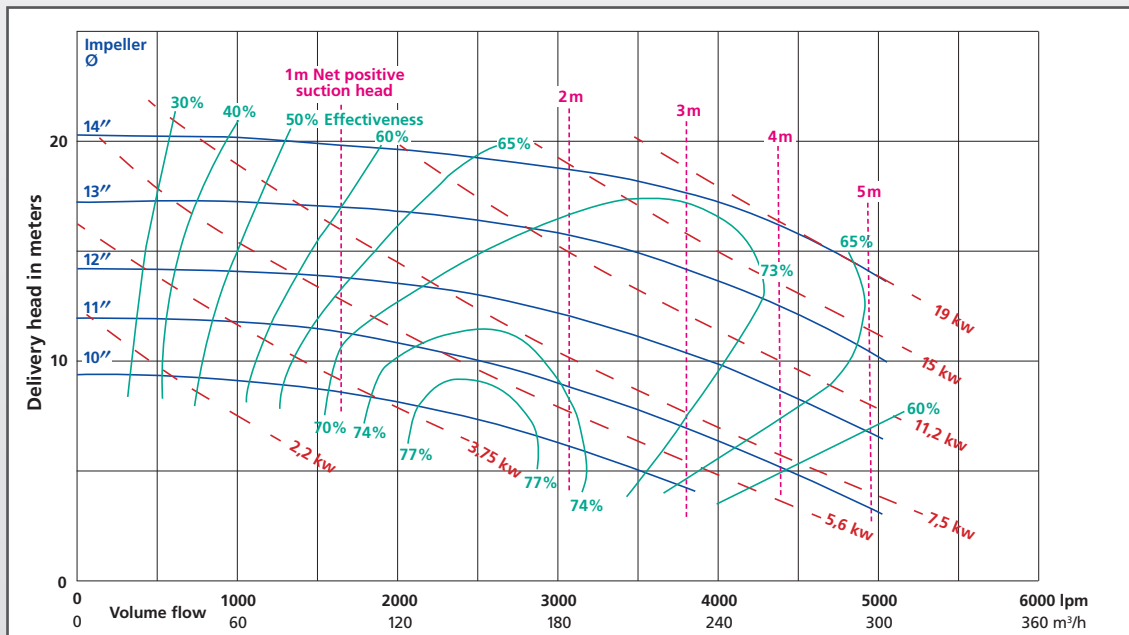


Curve: 1450 rpm, fluid: clear water

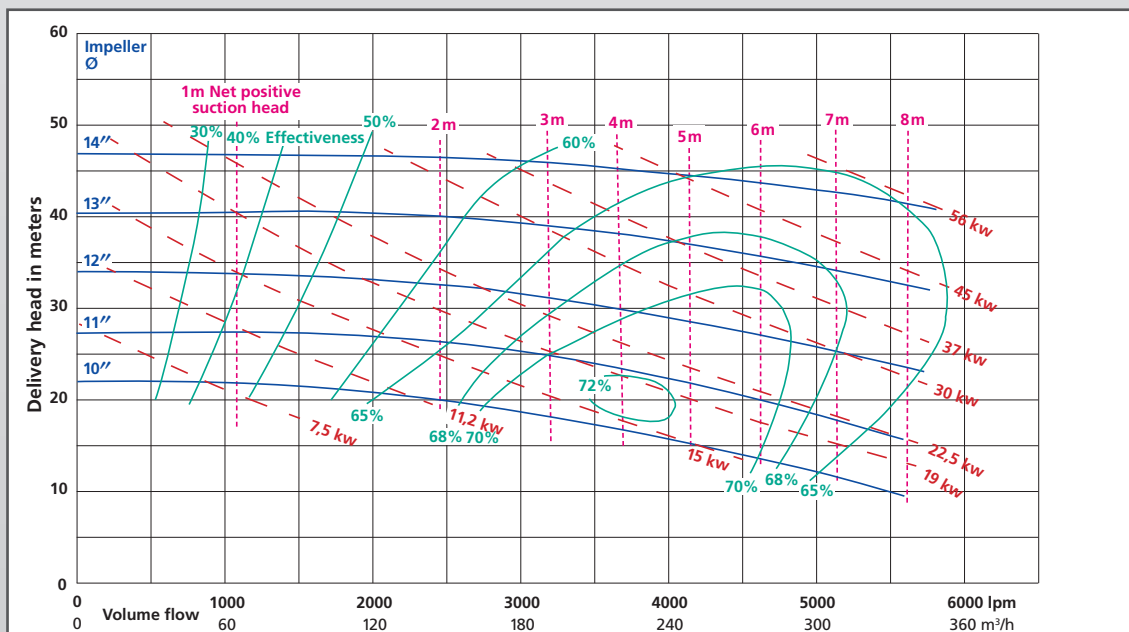


Pump curves for Mud Max 6x5x14 and 6x5x14 Compact

Curve: 970 rpm, fluid: clear water

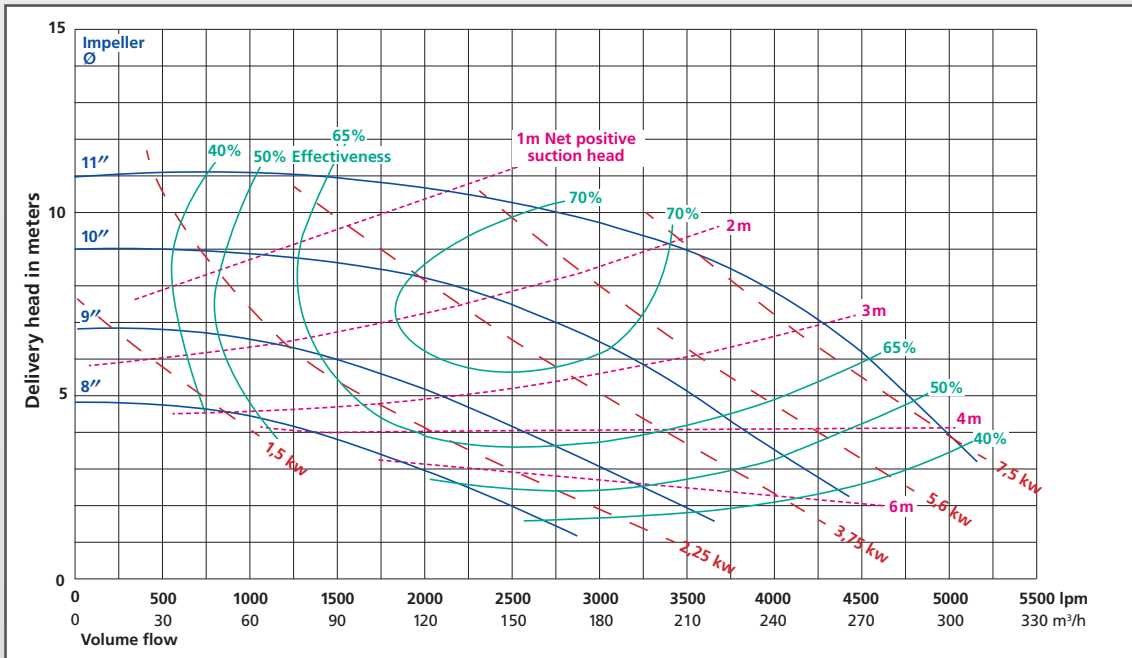


Curve: 1450 rpm, fluid: clear water

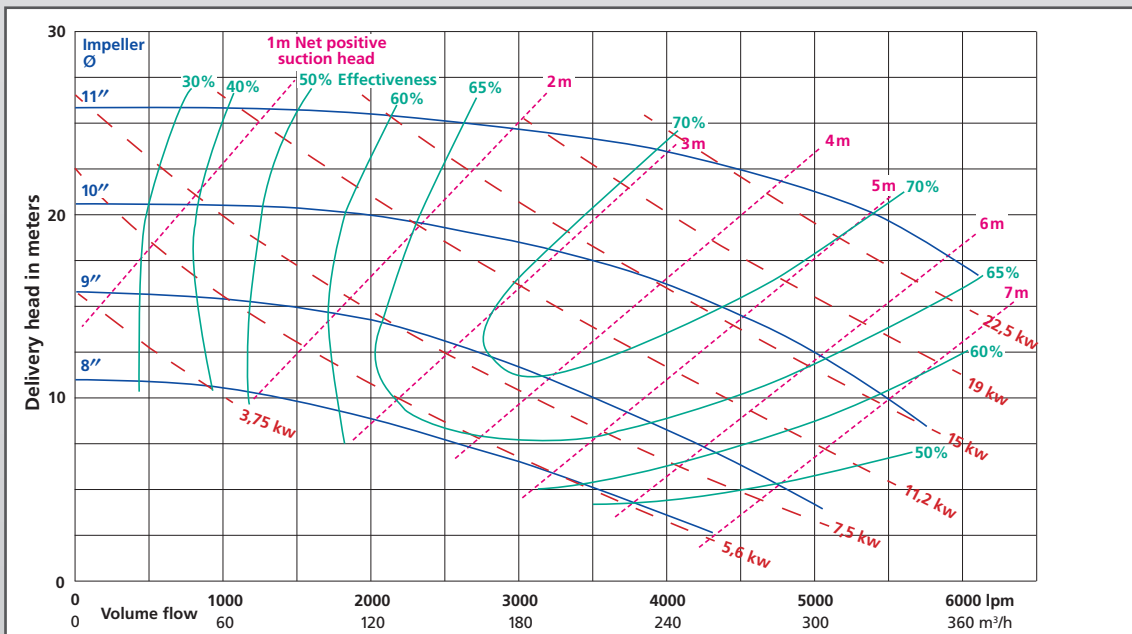


Pump curves for Mud Max 8x6x11 and 8x6x11 Compact

Curve: 970 rpm, fluid: clear water

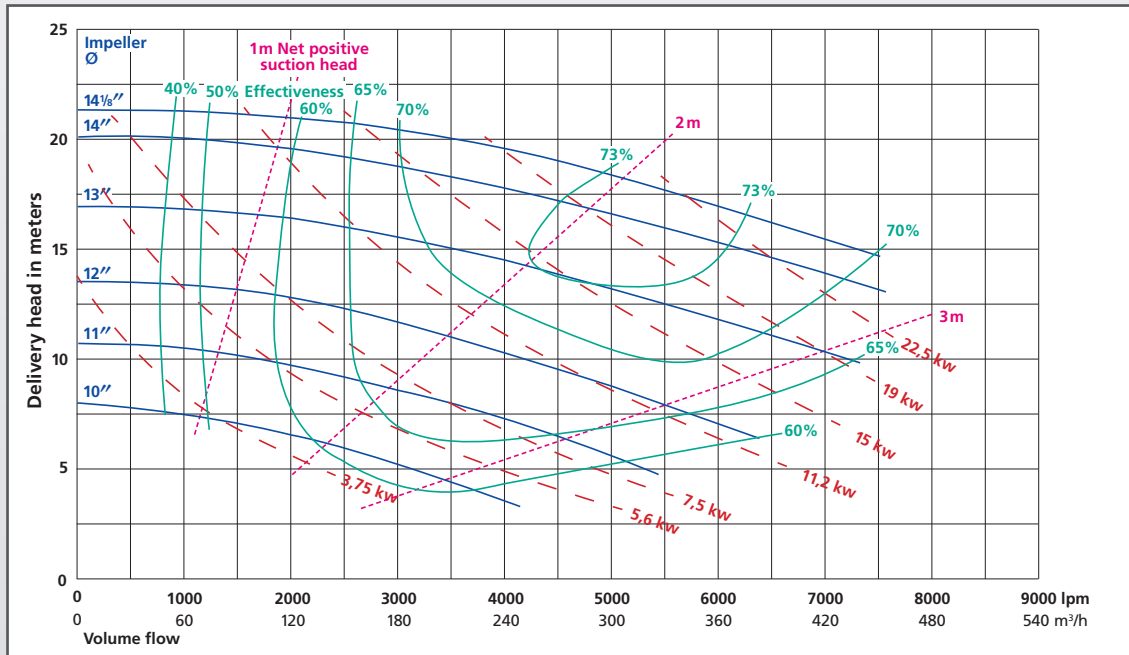


Curve: 1450 rpm, fluid: clear water

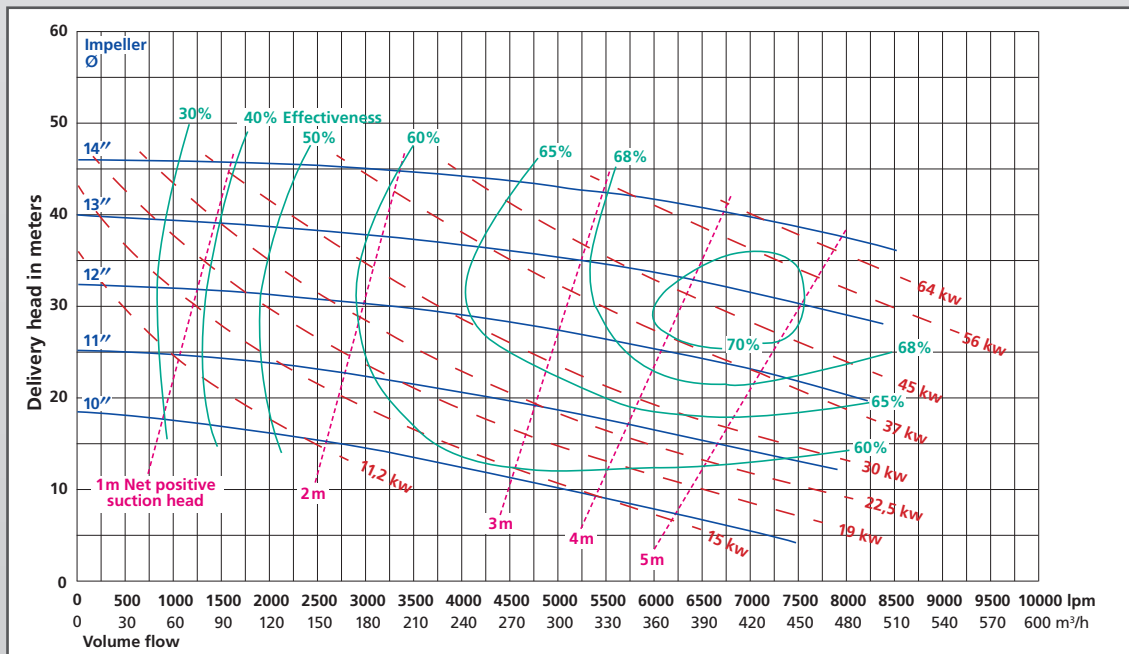


Pump curves for Mud Max 8x6x14 and 8x6x14 Compact

Curve: 970 rpm, fluid: clear water

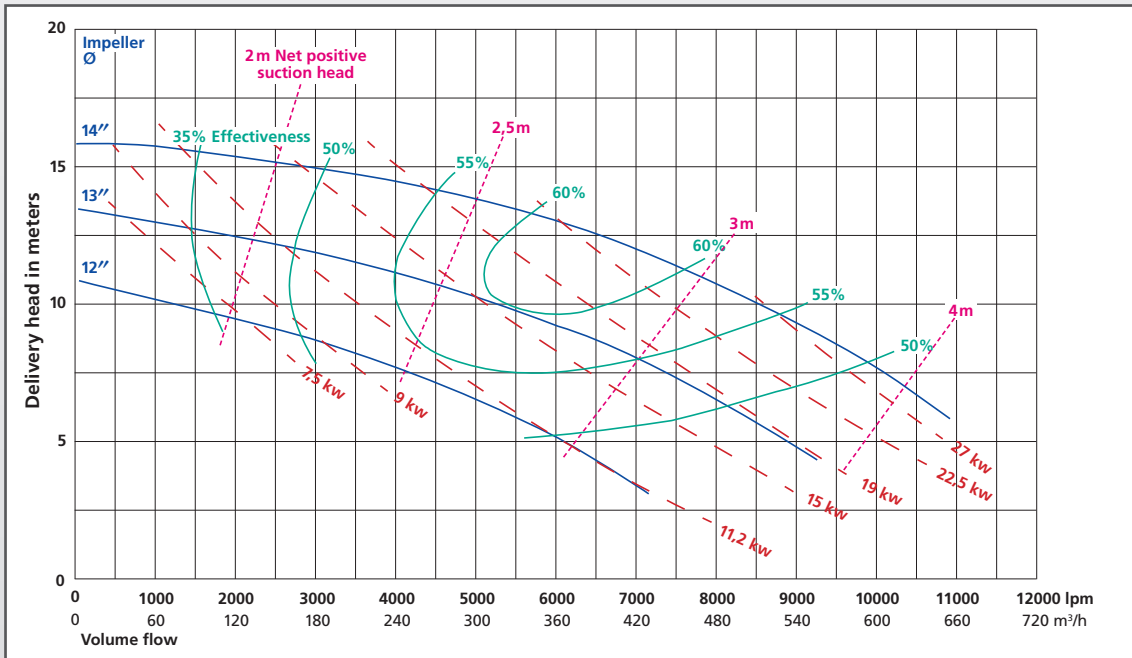


Curve: 1450 rpm, fluid: clear water

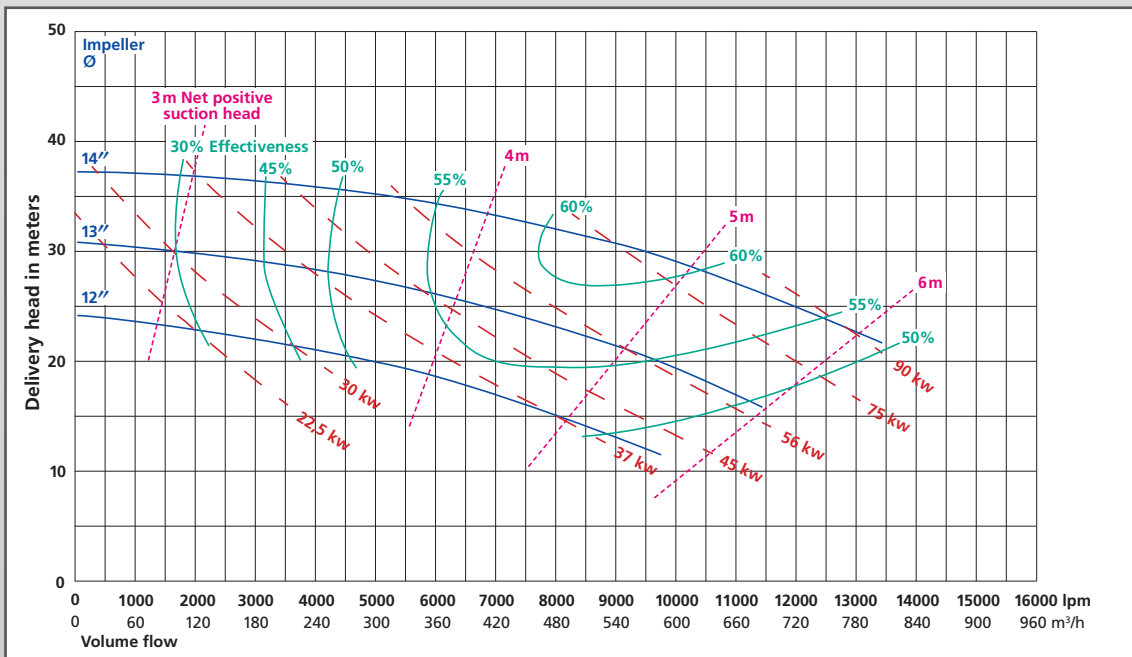


Pump curves for Mud Max 10x8x14 and 10x8x14 Compact

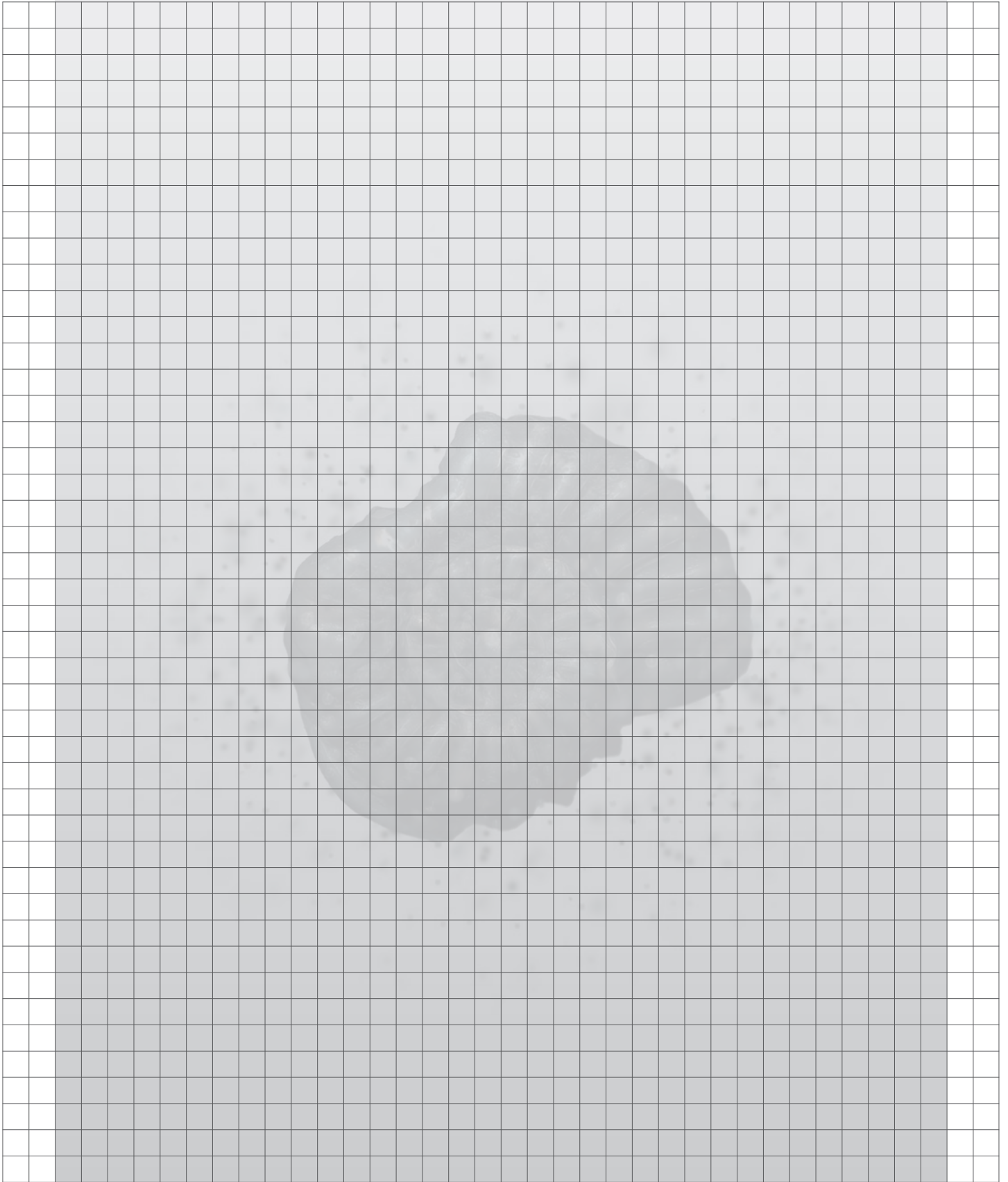
Curve: 970 rpm, fluid: clear water



Curve: 1450 rpm, fluid: clear water



Notes



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