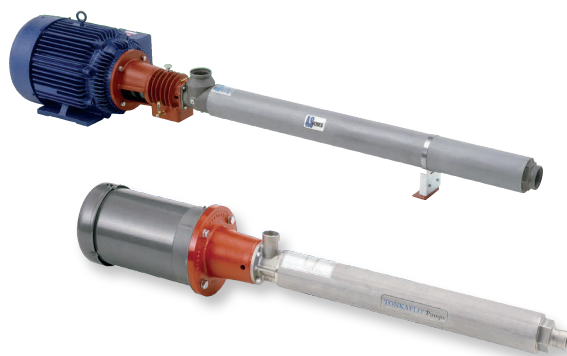


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POMPE ALTA PRESSIONE TONKAFLO  
*HIGH PRESSURE PUMPS TONKAFLO*



## POMPE AD ALTA PRESSIONE TONKAFO / HIGH PRESSURE PUMPS TONKAFO



### Pompe Tonkafo

SUEZ ha iniziato la produzione di pompe Tonkafo nel 1977, quando altri produttori di pompe non stavano ancora sviluppando nessuna pompa ad alta pressione specificamente progettata per l' osmosi inversa. Ci siamo chiesti perché non progettare una pompa per le nostre necessità? Quindi abbiamo deciso di costruirle noi. Oggi, ovunque cerchi un'applicazione che richiede una pompa centrifuga costante, trovi il nome di Tonkafo.

#### Perché comprare Tonkafo?

- Affidabilità. I nostri clienti acquistano le pompe multistadio Tonkafo per la loro affidabilità e durata a lungo termine. La loro affidabilità soddisfa da oltre 30 anni le esigenze dei nostri clienti.
- Strumento Web. Forniamo ai nostri clienti un sito web per poter scegliere facilmente i prodotti, [www.pumptools.com](http://www.pumptools.com), con accesso diretto a caratteristiche, disegni, prezzi e varie opzioni.
- Ingegneria di precisione. Le pompe Tonkafo sono progettate con uno standard produttivo per un funzionamento affidabile, e offrono un risparmio energetico con efficienze fino al 78%.
- Supporto. Se necessario, il nostro supporto interno e dedicato ci consente di sostituire una pompa nel giro di 24 ore.
- Consegna. Con rapidità e puntualità, forniamo ai nostri clienti più di 2.000 pompe l'anno.
- Ampia gamma di prodotti. Abbiamo circa 200 modelli e offriamo configurazioni per ogni tipo di applicazione e per ogni esigenza del cliente.

#### Quale pompa Tonkafo fa al caso tuo?

Il fluido potrebbe richiedere una speciale compatibilità chimica. Questo potrebbe essere un parametro determinante per la tua scelta. O forse la necessità è quella di avere una pompa poco rumorosa. Indipendentemente da ciò che stai cercando, puoi trovarlo nella nostra linea di pompe. Visita per ogni specifica il sito [www.tonkafo.com](http://www.tonkafo.com) o [www.pumptools.com](http://www.pumptools.com).

#### Pompe Tonkafo serie SS

La serie SS offre la più completa gamma per osmosi con il miglior valore, questa serie rappresenta lo standard delle nostre pompe. Le caratteristiche principali della serie SS sono:

- Calotte, ingressi e uscite in acciaio inossidabile 316 (SS) da 4 pollici (101,6 mm) e da 6 pollici (152,4 mm)
- Portata da 1,5 a 300 gpm (.34 a 68.10 m<sup>3</sup>/h)
- Pressioni fino a 700 psi (48,3 bar)
- Stadi in plastica Noryl\*
- Temperatura massima di esercizio 125°F (52°C)
- Sono possibili applicazioni in serie e in parallelo previa corretta progettazione.

#### Tonkafo serie AS

La serie AS offre una gamma completa per applicazioni che richiedono robuste strutture metalliche, temperature più elevate o compatibilità chimica. AS sta per costruzione interamente in acciaio inossidabile. Le caratteristiche sono:

- Calotte, ingressi e uscite in SS 304/316 da 43 pollici (76,2 mm), 4 pollici (101,6 mm) e da 6 pollici (152,4 mm)
- Stadi costruiti in SS 304
- Portata da 30 a 500 gpm (da 6,8 a 113,5 m<sup>3</sup>/h)
- Pressioni fino a 630 psi (43,5 bar)
- Temperatura massima di esercizio 125°F (52°C)
- Sono possibili applicazioni in serie e in parallelo previa progettazione.

### Tonkafo pumps

SUEZ began production of Tonkafo pumps in 1977 when other mass production pump manufacturers were not developing the ideal high pressure pump for reverse osmosis and other water treatment applications. We asked, why settle for a pump that almost met our needs? So we decided to build our own. Today, wherever you find an application requiring consistent, non-pulsating centrifugal flow, you are sure to find the name Tonkafo.

#### Why buy Tonkafo?

- Reliability. Our customers purchase a multi-stage Tonkafo pump because of their reputation for worry-free operation. The Tonkafo's reliable performance has satisfied thousands of customers for over 30 years.
- Web-based tool. We provide our customers with an online pump selection site, [www.pumptools.com](http://www.pumptools.com) for instant access to drawings, CAD symbols, options and prices.
- Precision engineering. Tonkafo pumps are conservatively designed for reliable operation, but offer important energy saving designs with up to 78% efficiencies.
- Support. Our in-house rebuild program provides fast replacement of your pump—within 24 hours if required.
- Delivery. We deliver over 2,000 pumps per year to our customers with high on-time ratings and short delivery schedules.
- Broad range of products. We have approximately 200 models. We offer a host of pump configurations, ensuring a pump that is ideal for your application.

#### Which Tonkafo is right for you?

Your fluid may require special chemical compatibility. Your application may dictate value as a top priority. Or perhaps your work setting demands quieter operation. No matter what you're looking for, you can find it in our line of durable pumps. Visit [www.tonkafo.com](http://www.tonkafo.com) or [www.pumptools.com](http://www.pumptools.com) for more detailed pump specifications.

#### Tonkafo SS series pumps

Offering the broadest range and best value, the SS Series sets the standard for the RO industry and serves as the standard for all Tonkafo pumps. SS Series features and benefits include:

- 4-inch (101.6 mm) and 6-inch (152.4 mm) 316 stainless steel (SS) shells, inlets and outlets
- Flow capacity of 1.5 to 300 gpm (.34 to 68.10 m<sup>3</sup>/h)
- Pressures up to 700 psi (48.3 bar)
- Noryl\* plastic stages
- Maximum operating temperature 125°F (52°C)
- Operation of pumps in series and parallel is possible with correct design considerations

#### Tonkafo AS series

The AS Series offers a full range of models for applications that require rugged metal construction, higher temperatures, or chemical compatibility. AS stands for All Stainless Steel construction. AS Series features and benefits include:

- 43-inch (76.2 mm), 4-inch (101.6 mm) and 6-inch (152.4 mm) 304/316 SS shells, inlets and outlets
- Fabricated sheet metal, 304 SS Stages
- Flow capacity of 30 to 500 gpm (6.8 to 113.5 m<sup>3</sup>/h)
- Pressures up to 630 psi (43.5 bar)
- Maximum operating temperature 125°F (52°C)
- Operation of pumps in series and parallel is possible with correct design considerations

## POMPA TONKAFLO SERIE SS/ TONKAFLO SS SERIES PUMP



figure 1

**figure 1: Tonkaflo SS Series pumps**

As the industry standard for reverse osmosis (RO), Tonkaflo SS Series pumps (Figure 1) are backed by years of proven experience. The SS Series is a stainless steel multi-stage centrifugal pump with Noryl\* plastic impellers. To reduce pump wear, SS Series pumps operate at lower speeds than single-stage pumps while achieving equivalent boost pressures. The SS Series' flexible, multi-stage design allows users to achieve their exact pressure requirements by adding or removing stages.

Specifically designed to meet the challenges of industrial membrane systems, SS Series pumps excel in any high-pressure application. TONKAFLO SS Series pumps are ideal for water boost and recirculation in buildings, high-pressure transfer, and spray applications.

### Features and benefits

- Corrosion-Resistant Construction including Noryl plastic diffusers and impellers and 316 stainless steel pump case and shaft ensure long-lasting performance.
- Modular Liquid End allows service of the mechanical seal without disassembling the liquid end of the pump. The SS Series' modular design also simplifies service of both pump and bearing frame, and permits design flexibility when positioning piping.
- Wide Selection of pump models is available. There is an SS Series pump to fit any pressure or flow.
- Separate Bearing Frame increases pump reliability by eliminating thrust load on the motor. In addition, this feature allows the SS Series pumps to be powered by standard motors.
- Customized SS Series pumps are available on a pre-approved and limited basis. Contact your local sales office for availability and pricing.
- Industry Standard Mechanical Seal on pump inlet delivers higher boost pressure capability and longer seal life, and simplifies specifying, and finding replacement parts.
- High Pressure Reverse Osmosis - The SS Series pumps feature the K-Bearing frame which eliminates alignment problems by close-coupling the pump to motors up to 100 Hp.

**table 1: operating specifications**

Motor	Standard Air-Cooled NEMA Motors (3500 rpm)
Capacity	1.4 to 300 gpm (5.3 to 1136 Lpm)
Pressures	up to 700 psid (48.3 bar)
Total Discharge Head Pressure	up to 1000 psig (69 bar)
Maximum Operating Temperature	Standard: 125°F (52°C)
Mounting	Horizontal (all), Vertical (limited)

## General specifications

**table 2: standard models available**

60 Hz	50 Hz
(9) 500	(10) 500
(10) 1800	(10) 1800
(7) 2800	(7) 2800
(9) 5500	(13) 5500
(11) 8500	(12) 8500
(9) 12500	(13) 12500
(10) 24000	(10) 24000

**table 3: materials of construction**

Pump Shell	316 Stainless Steel
Diffusers and Impellers	Standard: Noryl
Shaft	316 Stainless Steel
Discharge Housing	316 Stainless Steel
Inlet Housing	316 Stainless Steel
Seal Elastomers	Standard: Buna-N/Optional: EPDM
Shaft Bearings	Standard: Buna-N/Optional: Teflon
Mechanical Seal	John Crane Standard: Buna-N, Carbon-Ceramic Seal

Teflon is a registered trademark of DuPont

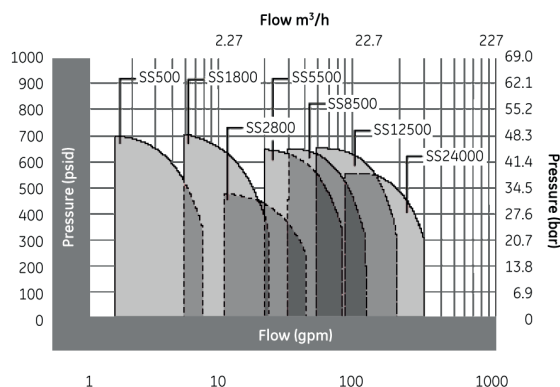
### connections

- 0.75-inch (19.1 mm) FNPT (500 Series)
- 1.25-inch (31.8 mm) Victaulic (1800, 2800 Series)
- 3.0-inch (76.2 mm) Victaulic (5500, 8500, 12500 Series)
- 4.0-inch (101.6 mm) Victaulic-Inlet (24000 Series)
- 3.0-inch (76.2 mm) Victaulic-Discharge (24000 Series)

### power<sup>2</sup>

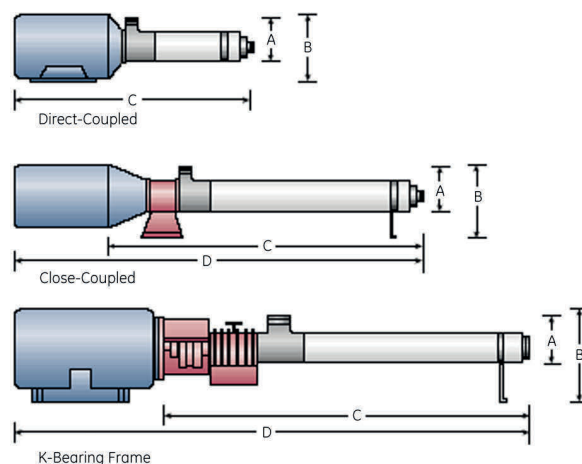
- 60 Hz - 3-phase (208-230/460 volt)
- 60 Hz - 1-phase (115/208-230 volt)
- 50 Hz - 3-phase (190/380 volt)
- 50 Hz - 1-phase (110/220 volt)

<sup>2</sup>575 volt and 380 volt 60 Hz as well as 220 and 415 volt 50 Hz are available on request.



**figure 2: performance curve (60Hz) [logarithmic scale]**

### pump specifications



**figure 3: pump specifications**

**table 4: direct coupled pumps**

Model		A	B	C
SS 500	Inches (mm)	3.6 (91)	5.8 (147)	19.1-46.6 (485-1184)
SS 1800		3.6 (91)	6.6 (168)	21.4-35.1 (544-892)

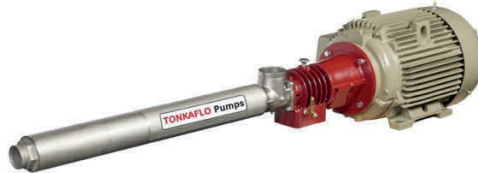
**table 5: close-coupled pumps**

Model		A	B	C	D
SS 500	Inches (mm)	3.6 (91)	6.8 (173)	38.6-61.7 (980-1567)	49.8-75.6 (1265-1920)
SS 1800		3.6 (91)	7.6-9.4 (193-239)	32-67.3 (813-1709)	46-82.8 (1168-2103)
SS 2800		3.6 (91)	7.6-9.4 (193-239)	34.8-88.9 (884-2258)	46-103.4 (1168-2626)
SS 5500		5.4 (137)	8.8-10.5 (224-267)	27.6-47 (701-1194)	41.5-62.5 (1054-1588)
SS 8500		5.4 (137)	8.8-10.5 (224-267)	29.6-47 (752-1194)	43.5-61.5 (1105-1562)
SS 12500		5.4 (137)	8.8-10.5 (224-267)	27.8-41.6 (706-1057)	41.7-56.1 (1059-1425)
SS 24000		5.4 (137)	10.8 (274)	30.8-39.4 (782-1001)	43.2-61.4 (1097-1560)

**table 6: K-Bearing frames**

Model		A	B	C	D
SS 5500	Inches (mm)	5.4 (137)	10.5-11.3 (267-287)	49.4-101.3 (1255-2573)	64.2-125 (1631-3175)
SS 8500		5.4 (137)	10.5-12.3 (267-312)	45.4-102.1 (1153-2593)	60.2-127.4 (1529-3236)
SS 12500		5.4 (137)	10.5-13.3 (267-338)	50.0-122.7 (1270-3117)	70.6-149.6 (1793-3800)
SS 24000		5.4 (137)	11.5-13.5 (292-343)	49.8-96.6 (1265-2454)	71.9-123.5 (1826-3137)

## POMPA TONKAFLO SERIE AS/ TONKAFLO AS SERIES PUMP



The AS Series combines the benefits of Tonkaflo, the industry-leading pump with the durability of all stainless-steel construction. The AS Series is a multi-stage, centrifugal pump with an all stainless-steel liquid end mounted on a high thrust bearing frame. Engineered to be efficiently driven by a standard motor, each of the AS Series pumps offers dependable performance and long life. And with over 200 standard models, there is an AS Series pump to fit almost any 50 Hz or 60 Hz application.

Especially designed to meet tough industrial demands, AS Series pumps tolerate the most punishing applications and harshest environments. Ideal for membrane system applications, AS Series pumps also excel in industrial boost applications such as water-soluble machine coolants, sanitizing systems, and higher temperature water recirculation.

### Features and benefits

- All Stainless-Steel Construction makes AS Series pumps more durable and less susceptible to operator error. AS Series pumps are also chemically compatible with hydrocarbons, and can perform within a greater temperature range than the standard Tonkaflo SS Series.
- Fabricated Sheet Metal Stages require less maintenance, and eliminate the need to balance pump impellers. The end result is smoother operation, less vibration and longer pump life.
- Separate Bearing Frame increases pump reliability and life because there is no thrust load on the motor. In addition, this feature allows AS Series pumps to be powered by standard motors.

- Modular Liquid End allows service of the mechanical seal without disassembling the liquid end of the pump. The AS Series' modular design also facilitates service of both pump and bearing frame, and permits design flexibility when positioning piping.
- Industry Standard Mechanical Seal on pump inlet delivers higher boost pressure capacity and longer seal life, and simplifies the specifying and finding of replacement parts.
- Victaulic Connections reduce piping stress and make the installation of AS Series pumps easier.

### General specifications

#### connections

- 1.25-inch Victaulic (400-2500 Series)
- 2.0-inch Victaulic-Inlet, 1.5-inch Victaulic-Discharge (4000 Series)
- 3.0-inch Victaulic (9000, 14000 Series)
- 4.0-inch Victaulic-Inlet, 3.0-inch Victaulic-Discharge (22500 Series)
- 4.0- or 6.0-inch Victaulic-Inlet, 4.0-inch Victaulic-Discharge (30000, 40000 Series)

#### power<sup>1</sup>

- 60 Hz - 3 phase (208-230/460 volt)
- 60 Hz - 1 phase (115/208-230 volt)
- 50 Hz - 3 phase (190/380 volt)
- 50 Hz - 1 phase (110/220 volt)

<sup>1</sup> 575 volts and 380 volt 60Hz as well as 220 and 415 volt 50Hz are available on request.

## Pump specifications

**table 1: materials of construction. see certificate of conformance for additional information**

Pump Shell	AS Series: 316SS AS40k: 304SS
Diffusers and Impellers	AS Series: 304SS AS 40k: 316SS
Shaft	304SS
	316SS
Seal Elastomers Shaft Bearing Stage Seals	Standard: Buna-N Standard 40k: PTFE Optional: EPDM, Viton
Mechanical Seal	John Crane Standard Buna-N Carbon & Ceramic Seal
Bearing Frame	Cast Iron – Painted Viton O-Ring & Oil Seal
Motor Adaptor Motor O-Ring	Cast Iron – Painted Viton

**table 2: standard models**

Motor	SUEZ, TEFC Standard
Mounting	Horizontal
Capacity	1.4 to 500 gpm (0.32 to 113.5m3/h)
Pressures	Up to 535 psid (36.9 bar)
Total Discharge Head Pressure	Up to 1000 psig (69.0 bar)
Maximum Operating Temperature	200F (93C) (limited flow range)

visit [pumptools.com](http://pumptools.com) for more information

- AS Pumps have 9 Series:
  - AS 400
  - AS 1600
  - AS 2500
  - AS 4000
  - AS 9000
  - AS 14000
  - AS 22500
  - AS 30000
  - AS 40000
- Additional Pump information can be found at: [pumptools.com](http://pumptools.com)
  - Cut sheet
  - Pump Curves
  - Drawings
  - Manuals
  - Options available
  - Pump Selection tool to pick the correct series based on flow and pressure.

## POMPA TONKAFLO SERIE AS 40K/ TONKAFLO AS 40K SERIES PUMP



figure 1

**figure 1: AS 40K Series**

The new AS40K pump (Figure 1) combines high flow with the durability of stainless steel. The AS40K pump is a multistage centrifugal pump with an all stainless steel liquid end mounted on a high-thrust bearing frame. AS40K pumps are available in 60 Hz and 50 Hz models.

Especially designed for high-flow applications, the AS40K pumps tolerate punishing applications and harsh environments. AS40K pumps are ideal for use in the power generation and municipal industries, excelling in applications such as large-capacity membrane systems, general industrial boost applications, sanitizing systems, and higher temperature water recirculation. In many applications one AS40K pump can take the place of two pumps, reducing both capital and energy costs.

### Features & benefits

- All Stainless-Steel Construction makes AS Series pumps more durable and less susceptible to operator error. AS Series pumps are also chemically compatible with hydrocarbons and can perform within a greater temperature range than the standard Tonkaflo SS Series.
- Mixed Flow Stage Design delivers up to 74% efficiency.
- High Grade Elastomers: all seal materials are EPDM or PTFE in our standard design.
- New Higher Efficiency SS stages in the 40K design.
- Fabricated Stainless Steel Stages require less maintenance and eliminate the need to balance pump impellers as with single-stage pumps. The end result is smoother operation, less vibration, and longer pump life.
- Separate Bearing Frame increases pump reliability and life because there is no thrust load on the motor. In addition, this feature allows the AS Series pumps to be powered by standard motors. The larger AS 40K's also include our new high thrust bearing frame design to insure smooth reliable operation.
- Modular Liquid End allows service of the mechanical seal without disassembling the liquid end of the pump. The AS Series' modular design also facilitates service of both pump and bearing frame.
- Flexible Inlet Piping can be modified to fit almost any application. For pressure boost applications, 4-inch inlets are available. For transfer applications, 6-inch inlets are available to connect with 6-inch piping and improve the net positive suction head (NPSH) available to the pump. Victaulic clamps reduce piping stress and make installation of the AS Series pumps easier.
- Industry Standard Mechanical Seal on pump inlet delivers higher boost pressure capability and longer seal life.

## General specifications

### standard features

- Motor: Standard Air-Cooled NEMA Motors (3550 rpm) 60 Hz; (2950 rpm) 50 Hz
- Mounting: Horizontal (all), Vertical (limited)
- Pump and Motor Combinations: 60 Hz: (8), 50 Hz: (9)
- Capacity: 250 to 525 gpm (114 m<sup>3</sup>/h)
- Pressures: up to 410 psid (28.9t bar)
- Total Discharge Head Pressure: up to 1000 psig (68.9 bar)
- Maximum Operating Temperature: 200°F (93°C) (limited flow range)

**table 1: materials of construction**

Pump Shell	304SS
Diffusers and Impellers	304SS
Shaft	304SS
Discharge Housing	316SS
Inlet Housing	316SS
O-Ring/Seal Elastomers	Standard: EPDM/Optional: Viton <sup>1</sup>
Shaft Bearings & Seal Elastomers	Standard: Teflon <sup>1</sup>
Mechanical Seal	Standard: Stainless Steel, EPDM, Carbon-Ceramic Seal

<sup>1</sup>Viton and Teflon are trademarks of DuPont

### connections

- 4- or 6-inch Inlet
- 4-inch Discharge

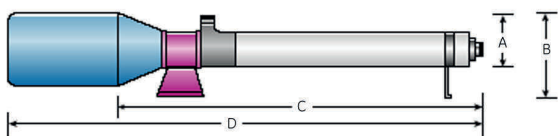
### power<sup>2</sup>

- 60 Hz - 3-phase (230/460 volt); 100Hp: 460 VAC only
- 50 Hz - 3-phase (190/380 volt); 75Hp: 380 VAC only
- <sup>2</sup>575 volt 60 Hz, 400 volt 50 Hz, 415 volts 50 Hz motors are available on request.

## Housing specifications

**table 2: close-coupled pumps**

Model (60 Hz)		A	B	C	D
AS40402D/40602D	Inches (mm)	6.5 (168)	10.5 (267)	35.1 (891)	54.4 (1382)

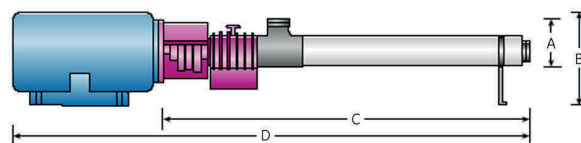


**figure 2: close-coupled**

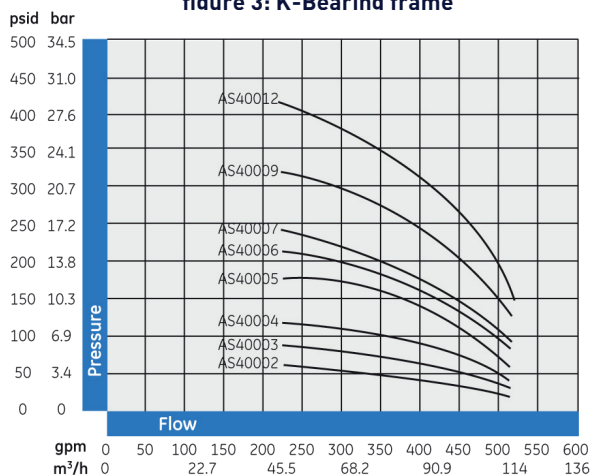
**table 2: K-Bearing frame**

Model (60 Hz)		A	B	C	D
AS40403KC/40603KC	Inches (mm)	7 (178)	12.5 (318)	42.1 (1069)	65.6 (1796)
AS40404KC/40604KC		6.6 (168)	12.5 (318)	47.1 (1069)	70.7 (1923)
AS40405KE/40605KE		6.6 (168)	13.5 (368)	52.2 (1326)	75.7 (2116)
AS40406KE/40606KE		6.6 (168)	14.5 (366)	58.5 (1486)	83.3 (2116)
AS40407KE/40607KE		6.6 (168)	14.5 (366)	63.5 (1614)	88.3 (2244)
AS40409KE/40609KE		6.6 (168)	14.5 (366)	73.7 (1872)	100.6 (2555)
AS40412KE/40612KE		6.6 (168)	15.5 (394)	88.7 (2255)	119.6 (3038)

For 50 Hz and specific performance data please see individual performance curves. Dimensions vary by model.



**figure 3: K-Bearing frame**



**figure 4: performance curve (60 Hz)**