

POWER TRANSMISSION SIZING SOFTWARE

USER GUIDE



EN

PASSION  PERFORM



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1 Product Description

The web-based software program will allow you to select the most suitable MP Filtri's Bell Housings & Couplings, in accordance to your process design requirements. The program will automatically check your input design process prior to propose you the acceptable solutions and create an output in PDF report style format. The MP Filtri Selection Tool Software program is easy to use with a flexible fast design method and provides improved layout formats with full descriptions.

2 Technical Features

2.1 Desktop version

Compatible browsers: Internet Explorer or later versions; Microsoft Edge or later versions; Chrome; Firefox (suggested)
Any other browser will be suitable.

No specific additional software is required to enable the MP Filtri sizing software program to operate successfully.

Lists and reports will be generated as Microsoft Excel® files in “.xls” and “.csv” formats, available to be downloaded

Reports will be generated as “.pdf” files, available to be downloaded.

2.2 Mobile version

Compatible browsers: Any

3 Web access links

The web-based is available at link: <https://www.mpfiltri.com/tools/> by clicking on the button “**CONTINUE**” from the section “**SIZING SOFTWARE**”:



The image shows a screenshot of the MP Filtri Sizing Software interface on the left and two images of industrial equipment on the right. The software interface has a grey background with the title "SIZING SOFTWARE" in bold. Below the title, it says "MP Filtri has developed a simple, yet highly comprehensive product selection software program for filtration & bell housing & coupling products to enable the customer to select their chosen product by entering simple system and product parameters." Below this, it says "Select the specific product type & enter system parameters" and there is an orange button labeled "CONTINUE". The two images on the right show industrial equipment. The first image is labeled "HYDRAULIC FILTRATION" and shows a complex system of pipes, valves, and filters. The second image is labeled "POWER TRANSMISSION" and shows a large industrial motor or pump assembly.

Then, a log-in page will appear, where non-registered users shall input their data to register, while already registered users shall access with their credentials.

Registration MP Filtri S.p.A.

LOGIN	REGISTER
<p>Welcome back! Please enter the following information:</p> <p>Username * <input type="text" value="name.surname@gmail.com"/></p> <p>Password * <input type="password" value=""/></p> <p>Login recover password</p>	<p>Don't have an account? Sign up free to use all our tools!</p> <p>Name * <input type="text" value="Name"/></p> <p>Surname * <input type="text" value="Surname"/></p> <p>E-mail * <input type="text" value="name.surname@gmail.com"/></p>

After registration with your data, or accessing with your credentials (for already registered users) you will be directed to the page where you could still select the desired software tool:

<p>Headquarters MP Filtri S.p.A. Via 1° Maggio, 3 20042 Pessano con Bornago Milan - Italy</p> <p>T : + 39.02.95703.1 F : + 39.02.95741497 / +39.02.95740188 sales@mpfiltri.com VAT IT04221260153 REA MI-997440 Capital Stock: € 6.000.000</p>	<p>WELCOME Name Surname</p> <p>Start now by selecting the tool wanted:</p> <p>FILTER SIZING SOFTWARE POWER TRANSMISSION SOFTWARE SOFTWARE 3D</p> <p>LOGOUT MODIFY PROFILE</p>
---	--

When Power Transmission sizing software or 3D software are chosen, you will be redirected to the desired software or 3D viewer web page. Anyway, for Power Transmission selection, it is even possible to go to Filter Sizing product selection page (below), and select, within the different products, the “**BELL-HOUSINGS AND COUPLINGS**” box.



4 Bell-housing and Couplings for Electric Motors

4.1 Introduction

The calculation example we are going to report relates to a coupling between an I.E.C. electric motor and a hydraulic pump. The calculation below relates to the selection of a mono-block bell-housing but is also to be considered valid for multi components and lownoise solutions. Nothing changes in the logic of the calculation.

The calculated coupling is to be considered standard and does not need to respect particular conditions beyond the traditional calculation (conditions which we will report at the end of the calculation).

The material of the half-coupling is defined “in advance” based on the electric motor power, and any variation thereof will be the result of a user decision, as will the material of the flexible coupling, which can be selected at the end of the selection process.

Gear pumps with square flanges and tapered shaft are included in the calculation; all couplings are the result of pre-established matches, and so added into the database.

Below is a print screen of the screens and database tables involved in the coupling calculation.

As you will notice, there are 3 different and alternative ways to calculate the selection of bell-housing and coupling:

1. First selection way: Starting from a specific pump and electric motor recommended
2. Second selection way: Starting from pump shaft / flange data
3. Third selection way: Starting from flange and shaft data

4.2 First selection: Pump (Manufacturer - Type - Code)

If this selection mode is chosen, the first data to be input are: Pump Manufacturer; Pump Type; Pump code.

SELECTION FROM PUMP MANUFACTURER	SELECTION FROM SHAFT / FLANGE DATAS		SELECTION WITH PUMP DATA ENTRY	
SELECTION FROM RIT CODE	ANG CODE CREATION		ARA CODE CREATION	
Manufacturer: <input type="text" value="BOSCH REXROTH"/>	L1: <input type="text" value="37"/>	D: <input type="text" value="20"/>	Cr: <input type="text" value="6"/>	THICKNESS: <input type="text" value="4.5"/>
Pump type: <input type="text" value="0513"/>	Spigot: <input type="text" value="100"/>	Int: <input type="text" value="125"/>	Nr: <input type="text" value="4"/>	F: <input type="text" value="M10"/>
Pump code: <input type="text" value="GR. 0513 300 105"/>	Pump interface code: <input type="text" value="S025"/>	Pump Shaft: <input type="text" value="C06"/>		

L1: Total shaft length
Thickness: Centring thickness
Nr: Number holes pump

D: ØShaft diameter
Spigot: ØCentering pump
F: ØHole dimensions

Cr: Key size
Int: ØPump hole spacing

Then, fields related to pump sizes and technical drawing will appear, with data taken from the database, created from pump manufacturer official data.

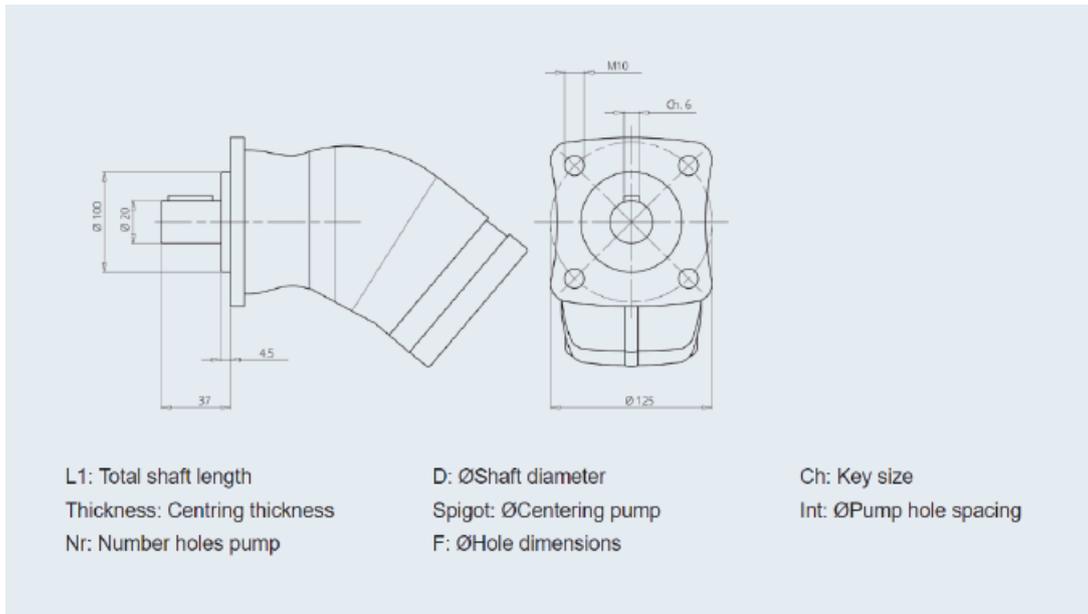
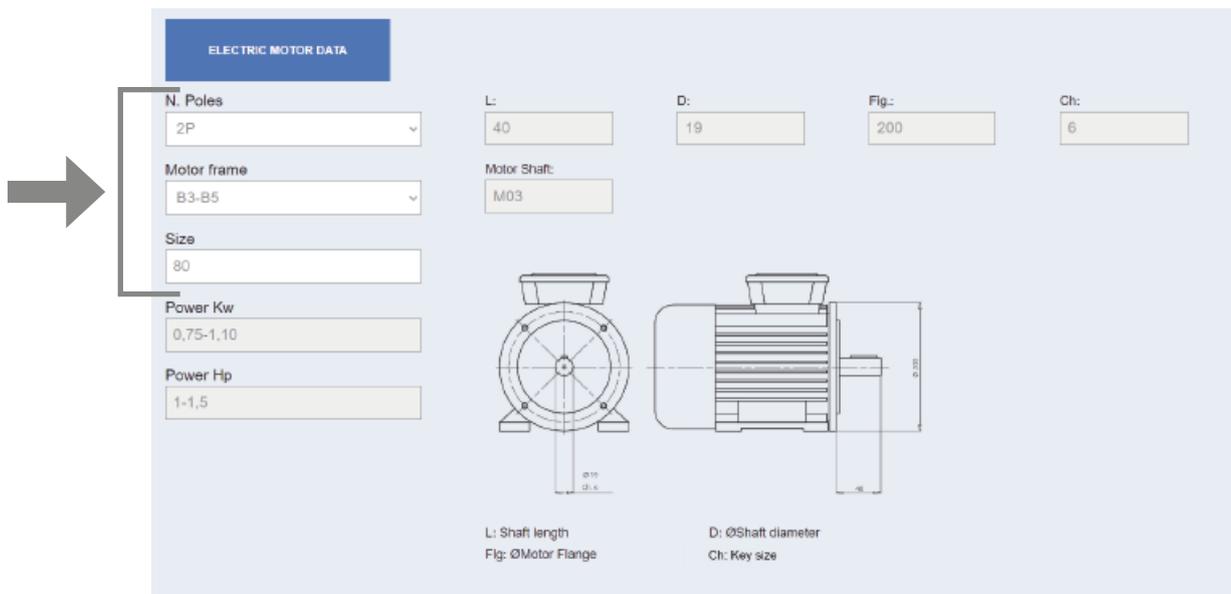


Image for illustrative purpose only

4.3 Selection of the Electric Motor (No. Poles - Frame - Size)

In this section the data to be input are: Pump Motor No. of Poles; Motor frame; Size.



ELECTRIC MOTOR DATA

N. Poles: 2P

Motor frame: B3-B5

Size: 80

Power Kw: 0,75-1,10

Power Hp: 1-1,5

L: 40

D: 19

Fig.: 200

Ch: 6

Motor Shaft: M03

Technical drawing showing a motor shaft and its front view. The shaft drawing includes dimensions: $\varnothing 10$ and $\varnothing 6$. The front view includes dimensions: $\varnothing 200$.

Labels for the drawing:

- L: Shaft length
- Fig: \varnothing Motor Flange
- D: \varnothing Shaft diameter
- Ch: Key size

Once above data are input, fields related to motor sizes and technical drawing will appear, with data taken from the database, created from motor manufacturer official data.

4.4 Spider/sleeve choice



At this stage, selection to be done is related to sleeve type, to be chosen from the ones proposed by the software.

4.5 Options and Accessories



This selection is related to the choice of eventual Options, Accessories and Certifications from the ones proposed by the software.

4.6 Calculation and saving of available solutions

After clicking on “**CALCULATE**” button, a selection of available solutions will appear.



By clicking on one of given possible solutions, the software will allow you to save the selection in your archive, or to create a “.pdf” file with solution result.

4.7 Second selection: Pump shaft / flange data

If this selection mode is chosen, the first data to be input are: Shaft; Shaft Type; Flange: Flange Type.



BELL HOUSINGS & COUPLINGS

SELECTION FROM PUMP MANUFACTURER | **SELECTION FROM SHAFT / FLANGE DATAS** | SELECTION WITH PUMP DATA ENTRY

SELECTION FROM KIT CODE | **AKG CODE CREATION** | AKA CODE CREATION

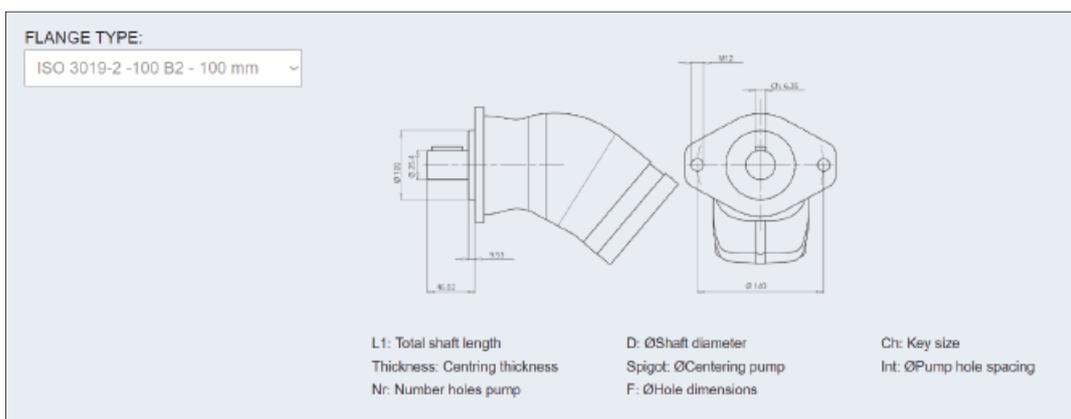
Shaft : SAE Straight Shaft | L1: 46.02 | D: 25.4 | Ch: 6.35 | Thickness: 9.53

Shaft Type : 1" SAE BB - 25,40 | Spigot: 100 | Int: 140 | Nr: 2 | F: M12

FLANGE: ISO FLANGE - 2/4 BOLT | Pump interface code: S072 | Pump Shaft: G04

FLANGE TYPE: ISO 3019-2 -100 B2 - 100 mm

Then, Shaft / flange technical drawing will appear, with data taken from the database.



4.8 Electric Motor Input

In this section the data to be input are: No. of Poles; Motor frame; Size.

ELECTRIC MOTOR DATA

N. Poles: 2P

Motor frame: B3-B5

Size: 80

Power Kw: 0,75-1,10

Power Hp: 1-1,5

L: 40

D: 19

Fig.: 200

Ch: 6

Motor Shaft: M03

L: Shaft length
Fig: Motor Flange

D: Shaft diameter
Ch: Key size

Once above data are input, fields related to motor sizes and technical drawing will appear, with data taken from the database.

4.9 Spider/sleeve choice - options and accessories

These stages will follow the same logic and procedures described at previous paragraphs nos.4.4 and 4.5, that we kindly ask to refer to.

4.10 Calculation and saving of available results

This stage will follow the same logic and procedures described at previous paragraph no.4.6, that we kindly ask to refer to.

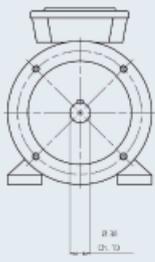
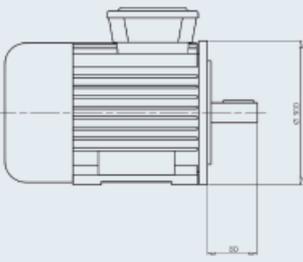
4.11 Third selection: Pump data entry

If this selection mode is chosen, the data to be input are all the dimensional features of shaft and flange:

SELECTION FROM PUMP MANUFACTURER	SELECTION FROM SHAFT / FLANGE DATAS		SELECTION WITH PUMP DATA ENTRY	
SELECTION FROM KIT CODE	AKG CODE CREATION		AKA CODE CREATION	
Shaft Type : <input type="text" value="C"/> Cylindrical shafts table Splined shafts table Drillings chart	L1: <input type="text" value="46"/>	D: <input type="text" value="25.4"/>	Ch: <input type="text" value="6.35"/>	Thickness: <input type="text" value="9.5"/>
	Spigot: <input type="text" value="140"/>	Int: <input type="text" value="180"/>	Nr: <input type="text" value="M12"/>	F: <input type="text" value="4"/>
	Pump Interface code: <input type="text" value="S077"/>	Pump Shaft: <input type="text"/>		
	L1: Total shaft length Ch: Key size Spigot: ØCentering pump Nr: Number holes pump		D: ØShaft diameter Thickness: Centring thickness Int: ØPump hole spacing F: ØHole dimensions	

4.12 Electric Motor Input

In this section the data to be input are: No. of Poles; Motor frame; Size.

ELECTRIC MOTOR DATA				
N. Poles <input type="text" value="2P"/>	L: <input type="text" value="80"/>	D: <input type="text" value="38"/>	Fig.: <input type="text" value="300"/>	Ch: <input type="text" value="10"/>
Motor frame <input type="text" value="B3-B5"/>	Motor Shaft: <input type="text" value="M06"/>			
Size <input type="text" value="132S"/>				
Power Kw <input type="text" value="5,5"/>				
Power Hp <input type="text" value="7,5"/>				
				
	L: Shaft length Fig: ØMotor Flange	D: ØShaft diameter Ch: Key size		

Once above data are input, fields related to motor sizes and technical drawing will appear, with data taken from the database.

4.13 Spider/sleeve choice - options and accessories

These stages will follow the same logic and procedures described at previous paragraphs no. 4.4 and 4.5, that we kindly ask to refer to.

4.14 Calculation and saving of available results

This stage will follow the same logic and procedures described at previous paragraph no. 4.6, that we kindly ask to refer to.



5 Bell-housing and Couplings for Endothermic Engines

5.1 Introduction

The calculation example we are going to report relates to a coupling between an endothermic engine and group 1/2 hydraulics gear pumps and SAE-A 2-Bolt pumps.

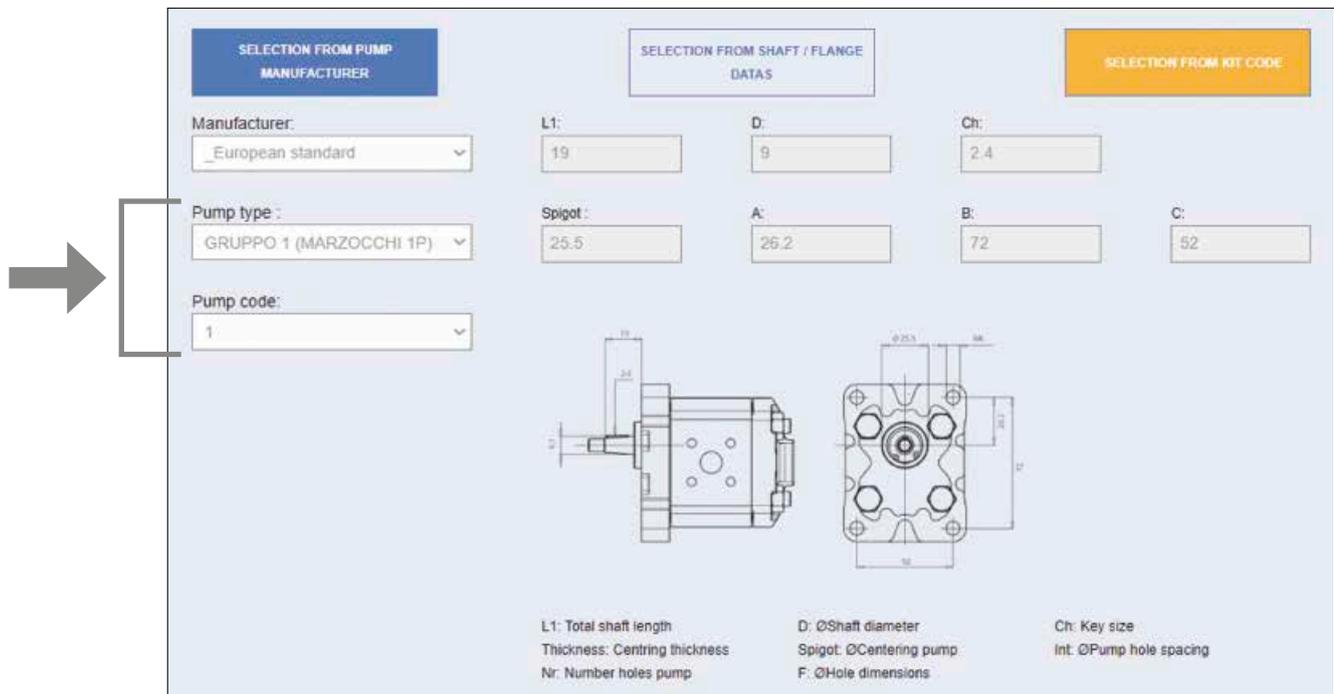
The calculated coupling is to be considered standard and does not need to respect particular conditions beyond the traditional calculation (conditions which we will report at the end of the calculation).

The material of the half-coupling is defined “in advance” based on the engine power, and any variation there of will be the result of a user decision, as will the material of the flexible coupling, which can be selected at the end of the selection process.

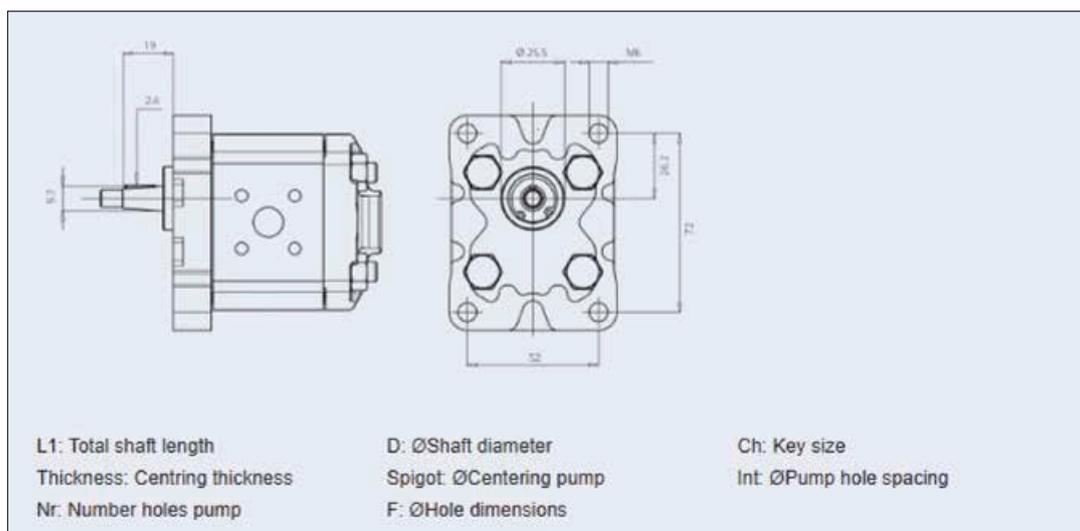
Below is a print screen of the screens and database tables involved in the coupling calculation.

5.2 Selection: European Standard Pump (Type - Code)

The first data to be input are: Pump Type; Pump code.



Then, fields related to pump sizes and technical drawing will appear, with data taken from the database, created from pump manufacturer official data.



5.3 Selection of the Engine Power and diameter of the shaft

In this section the data to be input are: Engine Power

ENDOTHERMIC ENGINE'S DATA

ENGINE POWER
 Hp: 3 - 5.5 - kW: 2.2 - 4 - α: 19.0

Size
 110

Power Kw
 2.2 - 4

Power Hp
 3 - 5.5

L: 62
 D: 19.05
 Fig.: 110
 Ch: 5

Motor Shaft:
 G01

L: Shaft length
 Fig: ØMotor Flange

D: ØShaft diameter
 Ch: Key size

CALCULATE

Once above data are input, fields related to motor sizes and technical drawing will appear, with data taken from the database, created from motor manufacturer official data.

5.4 Calculation and saving of available solution

After clicking on “CALCULATE” button, a selection of available solutions will appear.



The screenshot shows a 3D model of a pump component labeled "BELL-HOUSING WITH CENTRING RING". To its right are two buttons: "SAVE SELECTION IN YOUR ARCHIVE" and "SAVE PDF". On the far right, a technical drawing of the pump is displayed, including a table of dimensions and a list of components.

Dimension	Value
Ø	14
D	19.25
Ø1	8
H1	110

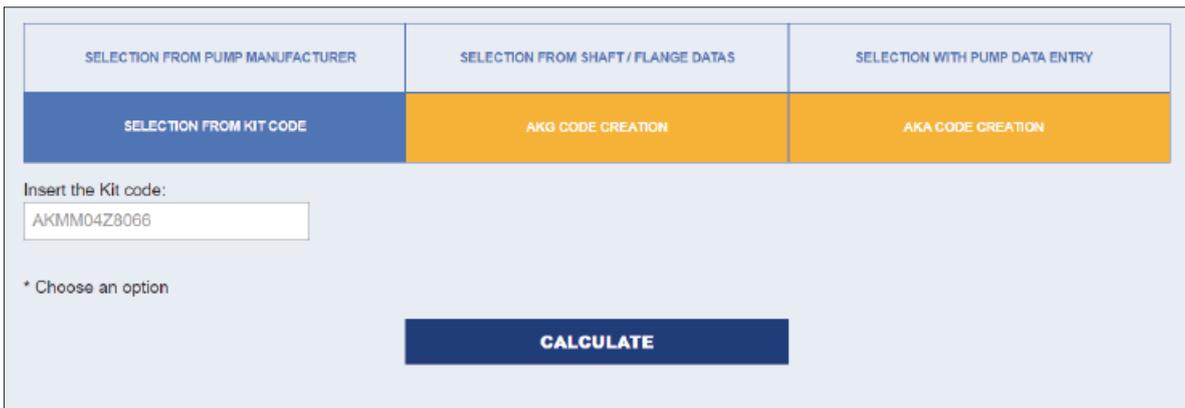
Component	Value
Flange	21.4
A	29.3
B	13
C	32
D	46
E	3.7
Ø1	2.4

By clicking on the solution, the software will allow you to save the selection in your archive, or to create a “.pdf” file with solution result.

6 Selection starting from existing kit code

Valid for both Electric motors and Engines.

If a kit code (i.e. AKMM04Z8066) is already available, in this section it is sufficient to input this kit code



The screenshot shows a form with three main sections: "SELECTION FROM PUMP MANUFACTURER", "SELECTION FROM SHAFT / FLANGE DATAS", and "SELECTION WITH PUMP DATA ENTRY". Below these are three buttons: "SELECTION FROM KIT CODE", "AKG CODE CREATION", and "AKA CODE CREATION". The "SELECTION FROM KIT CODE" button is highlighted. Below the buttons, there is a text input field labeled "Insert the Kit code:" containing the value "AKMM04Z8066". Below the input field, there is a note "* Choose an option" and a large blue "CALCULATE" button.

and, after clicking on “CALCULATE” button, all pump data will appear



The screenshot shows the same form as above, but now with data populated in the input fields. The "SELECTION FROM KIT CODE" button is still highlighted. The data is as follows:

Manufacturer:	L1:	D:	Ch:	Select:
SEIM	48	14	5	23

Pump type :	Select:	Int:	Nr:	F:
PX - PXF	100	125	4	M10

and motor data will appear (example en Electric motor)

ELECTRIC MOTOR DATA

N. Poles: 2P

Motor frame: B3-B5

Size: 132S

Power Kw: 5,5

Power Hp: 7,5

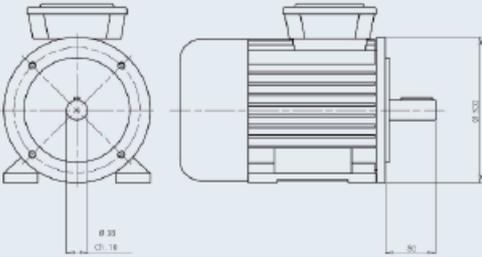
L: 80

D: 38

Fig.: 300

Ch: 10

Motor Shaft: M06



Technical drawings of an electric motor. The left drawing is a front view showing a circular motor frame with four mounting feet. Dimensions include a shaft diameter of $\varnothing 35$ and a shaft length of 18. The right drawing is a side view showing the motor's length and a shaft diameter of $\varnothing 30$.

6.1 Spider/sleeve choice - options and accessories

These stages will follow the same logic and procedures described at previous paragraphs no. 4.4 and 4.5, that we kindly ask to refer to.

6.2 Calculation and saving of available results

This stage will follow the same logic and procedures described at previous paragraph no. 4.6, that we kindly ask to refer to.

7 AKG code creation

By using this feature, user shall input following fields:

- Customer reference field: *only by MP Filtri users*
- Code 1 - 2 - 3 : in this fields user shall input, in any sequence:
motor half coupling code + pump half coupling code + spider/sleeve code

By clicking on the “**CALCULATE**” button, software will provide following possible result.

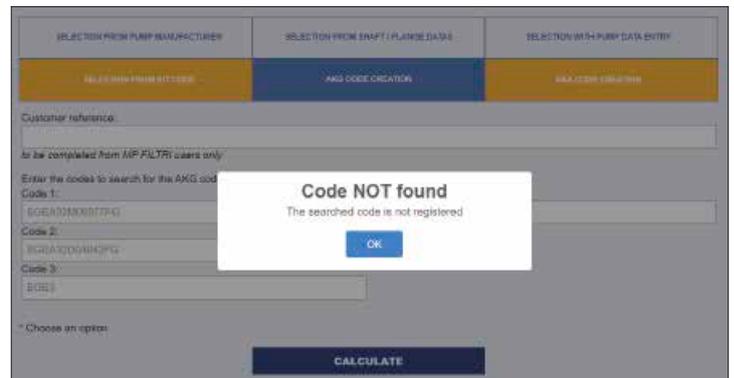


The screenshot shows the 'AKG CODE CREATION' tab selected. It features three input fields for 'Code 1', 'Code 2', and 'Code 3'. The 'Code 1' field contains 'SGEA31M5007FG', 'Code 2' contains 'SGEA31D0402FG', and 'Code 3' contains 'EGE3'. A 'CALCULATE' button is visible at the bottom right.

A: CODE NOT FOUND

If the system doesn't find any combinations, the MP Filtri Power Transmission team will receive a message to create the related kit code combining the three mentioned codes:

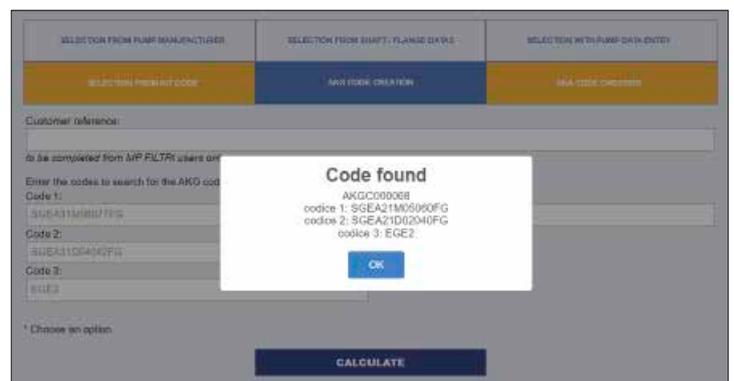
- motor half coupling code
- pump half coupling code
- spider/sleeve code.



The screenshot shows the same interface as above, but with a modal dialog box in the center that reads 'Code NOT found' and 'The searched code is not registered'. An 'OK' button is present in the dialog. The 'CALCULATE' button is still visible at the bottom.

B: CODE FOUND

If the system identifies a valid combination of the entered codes, the software will display the corresponding result, showing the related existing kit code in the first row.



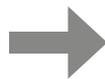
The screenshot shows the same interface as above, but with a modal dialog box in the center that reads 'Code found'. Below the title, it lists the 'AKG CODE' as 'AKGCC00008' and the corresponding codes: 'code 1: SGEA21M05000FG', 'code 2: SGEA21D0200FG', and 'code 3: EGE2'. An 'OK' button is present in the dialog. The 'CALCULATE' button is still visible at the bottom.

7.1 AKG code verification

If user has already an existing AKG kit code to be checked, it is sufficient to input it in the related field on the right-hand side.

and then, by clicking on the **“CALCULATE”** button, software will show following result, mentioning, in the first row, the related existing kit code and then the connected no. 3 codes for motor half coupling + pump half coupling + spider/sleeve:

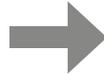
- 6-codes input: user shall input, in any sequence: motor base code + pump flange code + mounting kit code (i.e. KVGx) + motor half coupling code + pump half coupling code + spider/sleeve code
- 8-codes input: user shall input, in any sequence: motor base code + bell-housing adaptor code + pump flange code + (2x) mounting kit code (i.e. KVGx) + motor half coupling code + pump half coupling code + spider/sleeve code



8 AKA code creation

By using this feature, user shall input following fields:

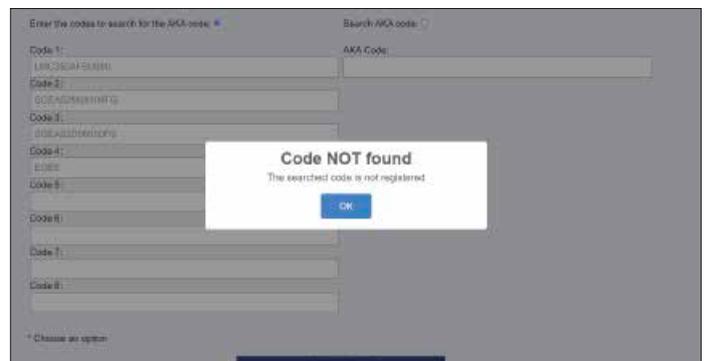
- Customer reference field:
only by MP Filtri users
- 4-codes input: user shall input, in any sequence:
bell housing code + motor half coupling code
+ pump half coupling code + spider/sleeve code




A: CODE NOT FOUND

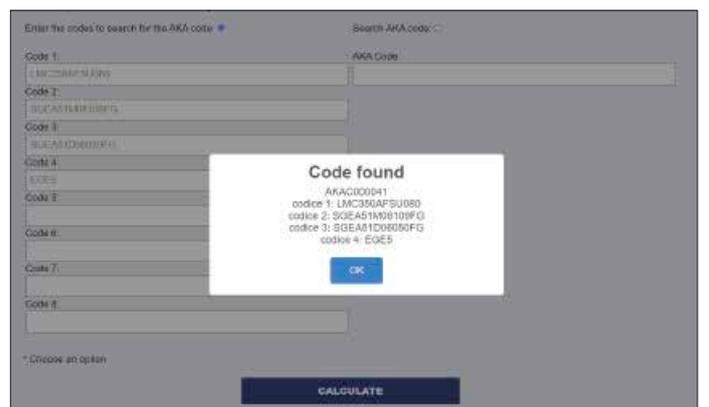
If the system doesn't find any combinations, the MP Filtri Power Transmission team will receive a message to create the related kit code combining the three mentioned codes:

- motor half coupling code
- pump half coupling code
- spider/sleeve code.



B: CODE FOUND

If the user enters existing codes in fields No. 4, or No. 6, or No. 8, the system will identify a valid combination and the software will display the corresponding result, showing the related existing kit code in the first row.



8.1 AKA code verification

If user has already an existing AKA kit code to be checked, it is sufficient to input it in the related field on the right-hand side.

Enter the codes to search for the AKA code: Search AKA code:

Code 1: LMC350AFSU080 → AKA Code: AKAC000012

Code 2: SGEA51M08109FG

Code 3: SGEA51D06050FG

Code 4: EGE5

Code 5:

Code 6:

Code 7:

Code 8:

* Choose an option

CALCULATE

and then, by clicking on the “**CALCULATE**” button, software will show following result, mentioning, in the first row, the related existing kit code and then the connected no.3 codes for for motor half coupling + pump half coupling + spider/sleeve:

Code 3: SGEA51D06050FG

Code 4: EGE5

Code 5:

Code 6:

Code 7:

Code 8:

Code found

AKAC000012

codice 1: LMC350AFSU021

codice 2: SGEG40M07110

codice 3: ege4

codice 4: SGEG40PD02045

OK

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For updated information please visit our website: www.mpfiltri.com

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