Buttons, Dropdown menus, Hyperlinks
Interactive Datasheet
Start here!
In order to use the full range of functions, you require a pdf reader that supports interactivity.

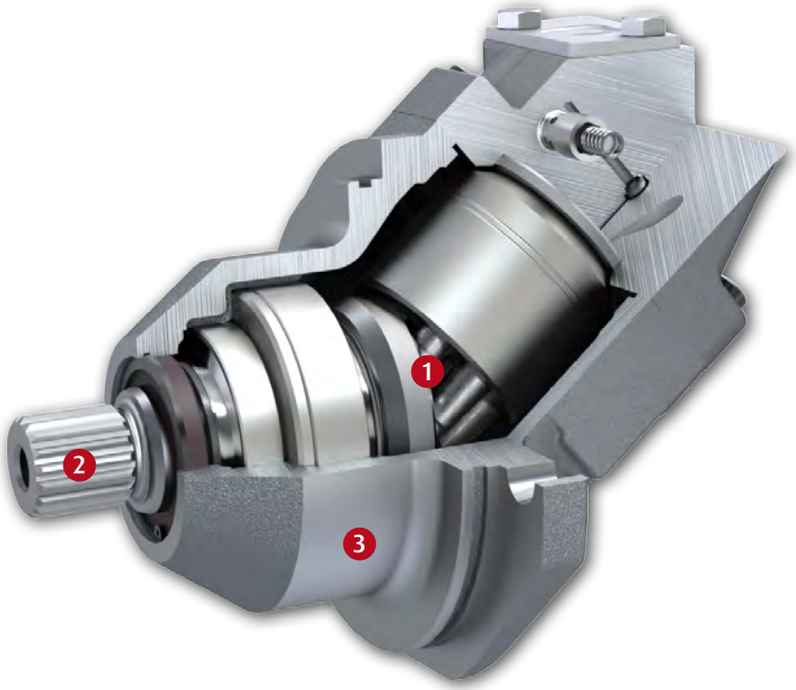
# CMF.

## Fixed displacement motor for open and closed circuit operation.

Linde Hydraulics

# Overview.

## Our product at a glance.
## CMF.





80

Available sizes [cc/rev]

| | | | | |
|---|---|---|---|---|
| 1 | | Fixed displacement bent axis motor | | High speeds |
| 2 | | Standardized interfaces | | No need of adaptors |
| 3 | | Plug-in flange available | | Compact design |

## Our data sheet at a glance.

Linde Hydraulics

### Explore the new features.

This data sheet is designed as an interactive form and optimized for online use. Blue colored fields serve as buttons and dropdown menus can be recognized by purple colored areas. In order to use the full range of functions, you require a PDF reader that supports interactivity. The data on which this data sheet is based correspond to the current state of development.

This data sheet has been published in September 2021.
Please check whether an updated version is already available before use.

Data sheet - latest version

### Configure your CMF according to your needs.

In this section you will find all available variants of the CMF. Dropdown menus allow you to compile your individual configuration. Under the section [Your choice & inquiry] this is then summarized as a coherent modelcode. Regardless of whether it is used as an inquiry to your local sales partner or as a technical guide, this section will help you not to leave out any important aspect.

### Are you looking for detailed specifications? - You will find them here.

This section outlines the performance of the CMF and gives recommendations on how to maximize its life expectancy.

In addition, you will find a detailed explanation of the various interfaces that must be considered between the CMF and your system when configuring the motor.

Special functionalities and additional options are explained with the help of functional diagrams and wiring diagrams. Via the section [Dimensions] you can access a selection of configuration examples. The dimensions give you an overview of the required installation space in your application and the location of interfaces.

### Finally, the motor has to be implemented in your system.

This section describes the implementation in open and closed circuit systems on the basis of functional diagrams and wiring diagrams.

# Configuration.

## Modelcode & Availability.

In the following you will find the configuration features including brief information. Detailed specifications can be accessed via the blue colored buttons. In order to be able to save your choice without problems, please save this data sheet on a local drive before starting and after completing the configuration. Set your choice via the dropdown menus in the upper area. In the section [Your choice & inquiry!] these items are then listed as a coherent model code. This code serves for further processing of your inquiry.

### Modelcode & Availability

Basic specification | Electric interface

| 1. | 2. | | 3. | | 4. | | 5. | |
|---|---|---|---|---|---|---|---|---|
| CMF | A2 | – | 080 | – | | | 0 | – |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| 1. | Type | | CMF |
| 2. | Model Code Release | | A2 |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| 3. | **Nominal Size (Maximum Displacement Range)** | | |
| 080 | 80 cc | ● | Spec. |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| 4. | **Connector (Sensors & Solenoids)** | | |
| 0 | Without | ● | Spec. |
| D | Deutsch | ● | |
| A | AMP Junior Timer | ● | |
| 5. | **Voltage (Solenoids)** | | |
| 0 | Not applicable (no solenoids on product) | ● | |
| 1 | 12 V | | |
| 2 | 24 V | | |

■ preferred option
● available option
option in preparation
separate specification required
consult Linde Hydraulics

(*1) at values <25% of Vmax, motor should not be operated in motor mode always observe max speed limitations
(*4) in combination with E4 controller only
(*C) in combination with HC controller only
(*d) standard lead time apply
(*R) relief valve, cross over to other work port, fixed setting (recommended in combination with counter balance valve, mandatory for propel applications in open circuit)

# Configuration.

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### Modelcode & Availability

Mechanical interface | Hydraulic interface

| 6. | | – | 7. | | – | 8. | | 9. | M | – |
|---|---|---|---|---|---|---|---|---|---|---|

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **6.** | **Flange** | | |
| C4 | ISO 3019-1 / SAE J744, SAE C 4-bolt: 127-4 | ● | Spec. |
| D4 | ISO 3019-1 / SAE J744, SAE D 4-bolt: 152-4 | | |
| E4 | ISO 3019-1 / SAE J744, SAE E 4-bolt: 165-4 | | |
| M4 | ISO 3019-2 metric, 125 mm 4-bolt | | |
| N4 | ISO 3019-2 metric, 140 mm, 4-bolt | ● | |
| P4 | ISO 3019-2 metric, 160 mm, 4-bolt | | |
| R4 | ISO 3019-2 metric, 180 mm, 4-bolt | | |
| S4 | ISO 3019-2 metric, 200 mm, 4-bolt | | |
| P2 | Plug-in, similar to ISO 3019-2, 160 mm, 2-bolt | | |
| Y2 | Plug-in, similar to ISO 3019-2, 190 mm, 2-bolt | ● | |
| S2 | Plug-in, similar to ISO 3019-2, 200 mm, 2-bolt | | |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **7.** | **Shaft** | | |
| S7 | ISO 3019-1 / SAE J744, 14 teeth, 12/24: 32-4 | ● | Spec. |
| S8 | ISO 3019-1 / SAE J744, 21 teeth, 16/32: 35-4 | ● | |
| T1 | ISO 3019-1 / SAE J744, 13 teeth, 8/16: 44-4 | | |
| T2 | ISO 3019-1 / SAE J744, 15 teeth, 8/16: 50-4 | | |
| D4 | ISO 3019-2 / DIN5480, W35 | | |
| D5 | ISO 3019-2 / DIN5480, W40 | ● | |
| D6 | ISO 3019-2 / DIN5480, W45 | | |
| D7 | ISO 3019-2 / DIN5480, W50 | | |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **8.** | **Work ports** | | |
| S | Side ports, facing to the outside left and right | ● | Spec. |
| R | Radial twin ports | ● | |
| C | Radial twin ports, for combination with counter balance valve | ○ | |
| 9. | Auxiliary ports | | |
| M | ISO metric, ISO 6149-1 | ● | Spec. |

preferred option
available option
option in preparation
separate specification required
consult Linde Hydraulics

(*1) at values <25% of Vmax, motor should not be operated in motor mode always observe max speed limitations
(*4) in combination with E4 controller only
(*C) in combination with HC controller only
(*d) standard lead time apply
(*R) relief valve, cross over to other work port, fixed setting (recommended in combination with counter balance valve, mandatory for propel applications in open circuit)

# Configuration.

## Modelcode & Availability.

In the following you will find the configuration features including brief information. Detailed specifications can be accessed via the blue colored buttons. In order to be able to save your choice without problems, please save this data sheet on a local drive before starting and after completing the configuration. Set your choice via the dropdown menus in the upper area. In the section [Your choice & inquiry!] these items are then listed as a coherent model code. This code serves for further processing of your inquiry.

### Modelcode & Availability

Valve function — Closed circuit operation / Open circuit operation

10. [ ] / [ ] – 11. [ ] – 12. [ V ] –

Sensors

Seal material

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **10.** | **Valve function** | | |
| | Flushing (for closed circuit operation) | | |
| 0 | No flushing function | | Spec. |
| Z | Function is inactive | ● | |
| B | 6 l/min | ○ | |
| D | 10 l/min | ● | |
| F | 15 l/min | ● | |
| H | 20 l/min | ○ | |
| J | 25 l/min | | |
| K | 30 l/min | | |
| L | 35 l/min | | |
| | Relief valve*R (for open loop operation) | | |
| 0 | No relief valve | ○ | |
| R | 440 bar | ○ | |
| S | 420 bar | ○ | |
| T | 400 bar | ○ | |
| W | 350 bar | ○ | |
| Y | 300 bar | ○ | |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **11.** | **Speed sensor** | | |
| S | Speed sensor,<br>Function: speed and direction of rotation<br>Connector type: is to be defined at modelcode item 4 (default: Deutsch) | ● | Spec. |
| V | Prepared for speed sensor*p | ● | |
| 0 | Without speed sensor | ● | |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **12.** | **Seal material** | | |
| V | FKM (Viton) | ● | |

preferred option
available option
option in preparation
separate specification required
consult Linde Hydraulics

(*p) This option allows the subsequent installation of speed sensors - since the housing already has a mounting for the sensor and the drive shaft is equipped with an incremental ring.

# Configuration.

## Modelcode & Availability.

In the following you will find the configuration features including brief information. Detailed specifications can be accessed via the blue colored buttons. In order to be able to save your choice without problems, please save this data sheet on a local drive before starting and after completing the configuration. Set your choice via the dropdown menus in the upper area. In the section [Your choice & inquiry!] these items are then listed as a coherent model code. This code serves for further processing of your inquiry.

## Modelcode & Availability

Standard — Coating

13. — 14.

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **13.** | **Variant configuration** | | |
| 0 | Standard execution | | will be defined by Linde Hydraulics |
| P | Customized configuration | | |
| U | Special version (outside planning) | | |

| Item | Feature | Nominal Size 080 | Spec. |
|---|---|---|---|
| **14.** | **Corrosion protection or paint** | | |
| 00 | Corrosion protection, no primer or paint, 6 month active | ● | |
| P1 | Primer oxide red, RAL 3009 | ● | |
| P2 | Primer jet black, RAL 9005 | ○ | |
| P6 | primer traffic grey B, RAL 7043 | ● | |
| V3 | 2-coat paint; primer: grey, RAL 7043; paint: jet black, RAL 9005 | ○ | |
| V7 | 2-coat paint; primer: grey, RAL 7043; paint: slate grey, RAL 7015 | ● | |

preferred option
available option
option in preparation
separate specification required
consult Linde Hydraulics

(*1) at values <25% of Vmax, motor should not be operated in motor mode always observe max speed limitations
(*4) in combination with E4 controller only
(*C) in combination with HC controller only
(*d) standard lead time apply
(*R) relief valve, cross over to other work port, fixed setting (recommended in combination with counter balance valve, mandatory for propel applications in open circuit)

# Configuration.

## Your choice & inquiry!

In the following you will find the choice of items you've made in the section [Modelcode & Availability]. In addition, you will find form fields for your personal data. In order to be able to save the content of the form fields without problems, please save this data sheet on a local drive before starting and after completing the configuration. Data may be lost when working in a browser-based environment. Please note! The form fields should be filled in as completely as possible to ensure smooth processing of your inquiry.

### Your choice & inquiry

| | Basic spec. | Electric interface | Mechanical interface | Hydraulic interface | Valve function | Sensors |
|---|---|---|---|---|---|---|
| 1. CMF - 2. A2 - | 3. 080 - | 4. | 5. 0 - | 6. | 7. - | 8. | 9. M - | 10. | - 11. | - |

| Seals | Standard | Coating |
|---|---|---|
| - 12. V - | 13. ——— - | 14. |

| | | | |
|---|---|---|---|
| **Your company** | Name | | |
| | Customer ID | (if available) | |
| | Postal address | Street | |
| | | City area/District | |
| | | City/Town/Village | |
| | | County | |
| | | Postal code | |
| | | Country | |
| **Your contact details** | Name | | |
| | Email | | |
| | Phone | | |

| | | | |
|---|---|---|---|
| **Your demand** | Planned quantity/year | Number of units | |
| **Your application (optional)** | Type of application | | |
| | Machine weight | t | |
| | Power of the drive motor | kW | |
| | Functional area of the inquired product | Hydraulic circuit | |
| | | Operation | |
| | | Function | |
| **Your notes (optional)** | | | |

Please note! In order to be able to save the content of the form fields without problems, please save this data sheet before sending.

Please find a local sales partner in your area on our website.

Please submit this data sheet filled out to your local sales partner.

Your sales partner will come back to you with an offer in a timely manner.

[1] Please note! This form is intended for inquiry purposes and to facilitate communication. However, it does not represent a binding order form.

# Technical specification.

## General technical data.

In the following you will find the general technical data for all available nominal sizes of the CMF. Other values are available on request.

### Technical specification

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Nominal size | | | 80 | | | | | | |
| Displacement | | cc/rev | 80 | | | | | | |
| Speed | Maximum operating speed | rev/min | 4500 | | | | | | |
| | Maximum speed[1] | rev/min | 5000 | | | | | | |
| Pressure | Nominal pressure | bar | 450 | | | | | | |
| | Maximum pressure[2] | bar | 500 | | | | | | |
| | Maximum housing pressure | bar | 2.5 | | | | | | |
| Torque | Output torque at $\Delta p$= 430 bar | Nm | 547 | | | | | | |
| Temperature | Perm. housing temperature | °C | 90 | | | | | | |
| Permissible shaft loads | Axial input/output force | N | on request | | | | | | |
| | Radial | N | on request | | | | | | |
| Max. moment of intertia | | $kgm^2$ | 0.0048 | | | | | | |
| Weight (without oil) approx. | | kg | 23.0 | | | | | | |

[1] highest transient speed, that can temporarily occur

[2] highest transient pressure, that can temporarily occur

# Technical specification.

## Operating parameters.
## Recommeded conditions.

In the following you will find the recommended operating parameters. The recommendations include information on operating conditions that will ensure a long service life, recommended parameters for filtration and hydraulic fluids.

### Technical specification

| | | | |
|---|---|---|---|
| Beneficial conditions for long service life | Speed | | Lower continuous maximum speed |
| | Operating pressure | bar | <300 on average |
| | Max. pressure | | Only at reduced displacement |
| | Viscosity | cSt | 15 ... 30 |
| | Power | | Continuous power or lower |
| | Purity of fluid | in accordance with ISO 4406 or better | 18/16/13 |
| Adverse factors affecting service life | Speed | | Between nominal speed and maximum speed |
| | Operating pressure | bar | >300 on average |
| | Viscosity | cSt | <10 |
| | Power | | Continuous operation close to maximum power |
| | Purity of fluid | in accordance with ISO 4406 | Worse than 18/16/13 |

# Technical specification.

## Operating parameters.
## Filtration recommendations.

In the following you will find the recommended operating parameters. The recommendations include information on operating conditions that will ensure a long service life, recommended parameters for filtration and hydraulic fluids.

### Technical specification

| | | | | |
|---|---|---|---|---|
| Filtration | For reliable proper function and long service life | 18/16/13 | | |
| | Minimum requirements | 20/18/15 | | |
| | Commissioning | The minimum purity requirement for the hydraulic oil is based on the most sensitive system component. For commissioning we recommend a filtration in order to achieve the required purity. | | |
| | Filling and operation of hydraulic systems | The required purity of the hydraulic oil must be ensured during filling or topping up. When drums, canisters or large-capacity tanks are used the oil generally has to be filtered. We recommend the implementation of suitable measures (e.g. filters) to ensure that the required minimum purity of the oil is also achieved during operation. | | |
| | International standard | Code number according to ISO 4406 | | purity class according to SAE AS 4059E |
| | | 18/16/13 | corresponds to | 8A/7B/7C |
| | | 20/18/15 | | 9A/8B/8C |

# Technical specification.

## Operating parameters.
## Pressure fluid recommendations.

In the following you will find the recommended operating parameters. The recommendations include information on operating conditions that will ensure a long service life, recommended parameters for filtration and hydraulic fluids.

### Technical specification

| | | | |
|---|---|---|---|
| Permitted pressure fluids | | | Mineral oil HLP according to DIN 51 524-2 |
| | | | Biodegradable fluids in accordance with ISO 15 380 on request |
| | | | Other pressure fluids on request |
| Recommended viscosity ranges | Pressure fluid temperature range | [°C] | -20 à +105 |
| | Working viscosity range | [mm²/s] = [cSt] | 10 to 80 |
| | Optimum working viscosity | [mm²/s] = [cSt] | 15 to 30 |
| | Max. viscosity (short time during cold start) | [mm²/s] = [cSt] | 1000 |

In order to be able to select the right hydraulic fluid it is necessary to know the working temperature in the hydraulic circuit. The hydraulic fluid should be selected that its optimum viscosity is within the working temperature range (see tables). The temperature should not exceed 90 °C in any part of the system. Due to pressure and speed influences the leakage fluid temperature is always higher than the circuit temperature. Please contact Linde Hydraulics if the stated conditions cannot be met in special circumstances.

| | Working temperature [°C] | Viscosity class [mm²/s] = [cSt] at 40 °C |
|---|---|---|
| **Viscosity recommendations** | approx. 30 to 40 | 22 |
| | approx. 40 to 60 | 32 |
| | approx. 60 to 80 | 46 or 68 |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

## Technical specification

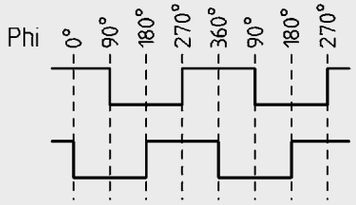
Speed sensor with
AMP Junior Timer connector

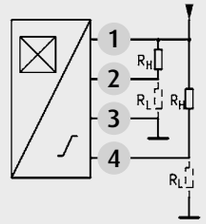
| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| | | |
| **Scope of sensor functions** | Speed | |
| | Direction of rotation | |
| | | |

**Views provided**

Top
Side
Bottom

| Function diagram | Wiring diagram |
|---|---|
| Sensor output, Target spinning clockwise | Connector configuration |




| | | | |
|---|---|---|---|
| **1** | $V_B$ + | | |
| **2** | Channel A | | |
| **3** | Ground (GND) | | |
| **4** | Channel B | | |
| | | | |

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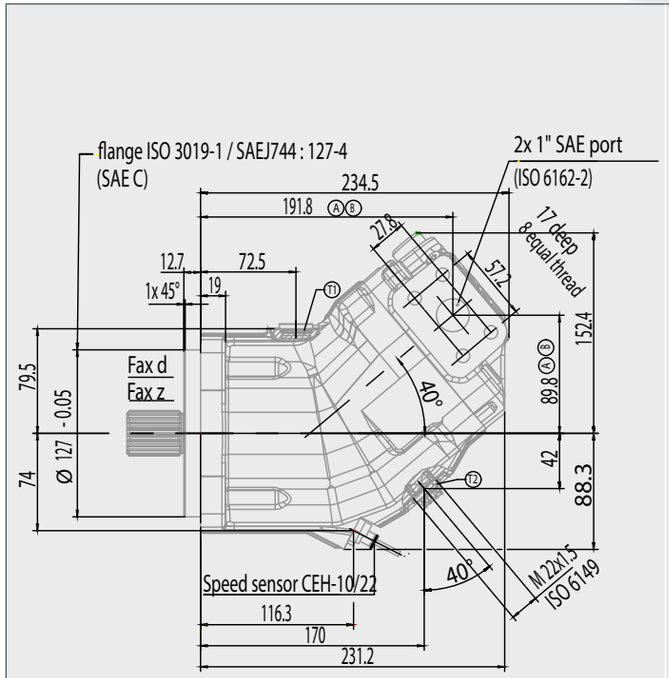
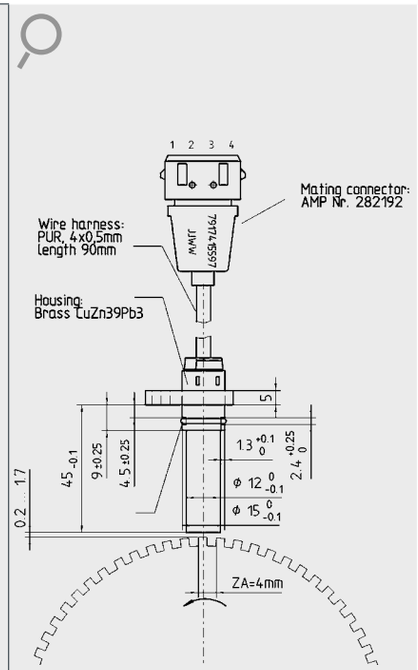
### Technical specification

Speed sensor with
AMP Junior Timer connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-1/ SAE J744, SAE C 4-bolt: 127-4 | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |




Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

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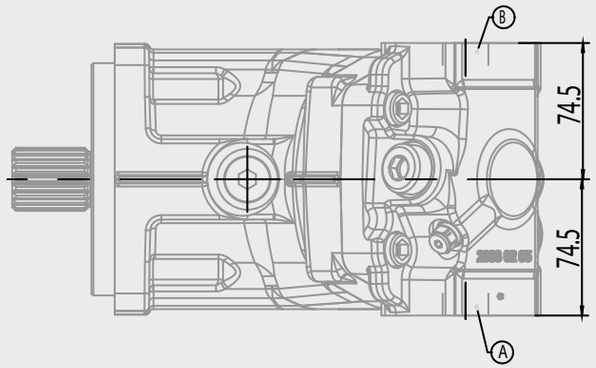
## Technical specification

Speed sensor with
AMP Junior Timer connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-1/ SAE J744, SAE C 4-bolt: 127-4 | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
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| | | | |

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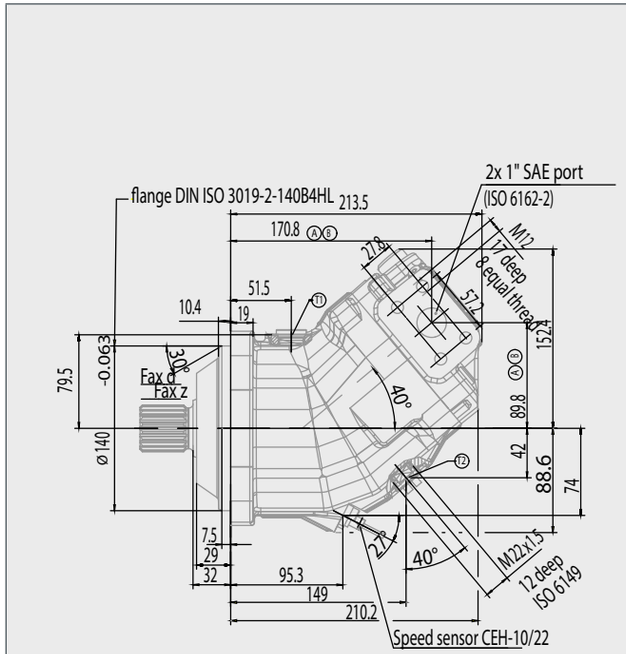
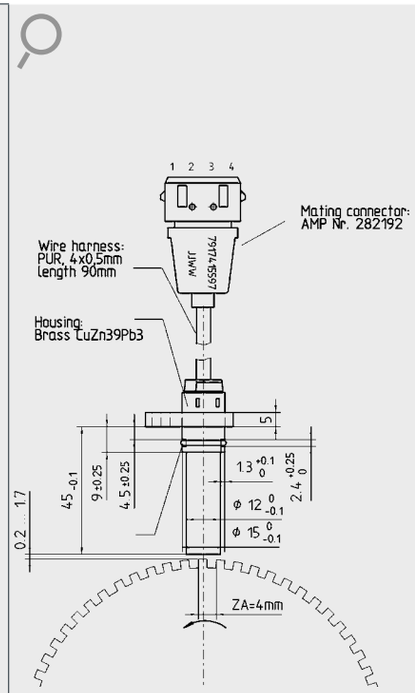
### Technical specification

Speed sensor with
AMP Junior Timer connector

| Modelcode item | 11. | S |
|---|---|---|
| Dimensions | Illustration in combination with flange ISO 3019-2 metric, 140 mm, 4-bolt | |
| | | |

Views provided: Top, Side, Bottom




| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |
| | | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

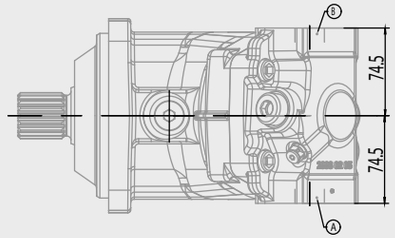
### Technical specification

Speed sensor with
AMP Junior Timer connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-2 metric, 140 mm, 4-bolt | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

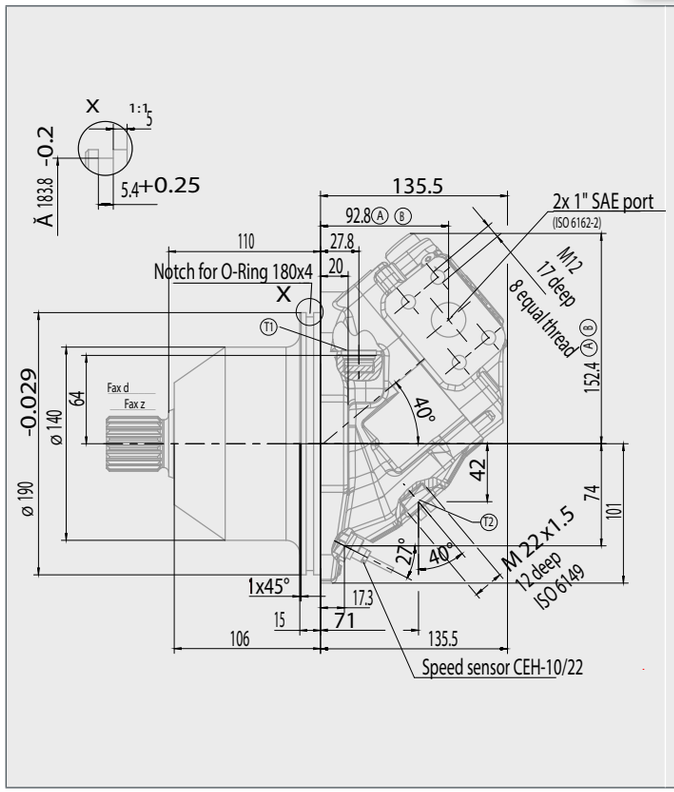
### Technical specification

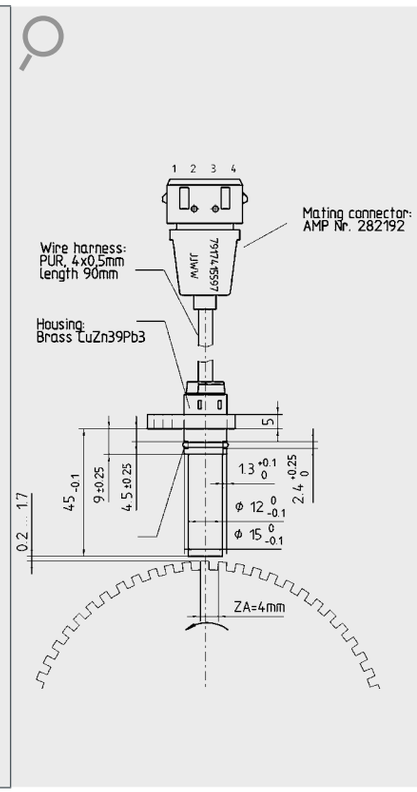
Speed sensor with
AMP Junior Timer connector

| Modelcode item | 11. | S |
|---|---|---|
| Dimensions | Illustration in combination with flange Plug-in, similar to ISO 3019-2, 190 mm, 2-bolt | |
| | | |

| Views provided | | | | | | |
|---|---|---|---|---|---|---|
| | Top | | ● | | | |
| | Side | ○ | ● | ○ | ○ | |
| | Bottom | | ○ | | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.




| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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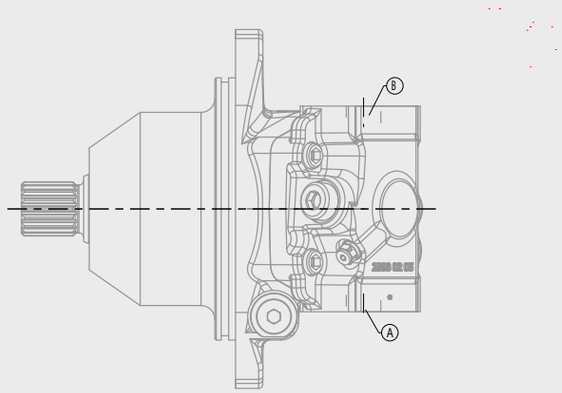
## Technical specification

Speed sensor with
AMP Junior Timer connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange Plug-in, similar to ISO 3019-2, 190 mm, 2-bolt | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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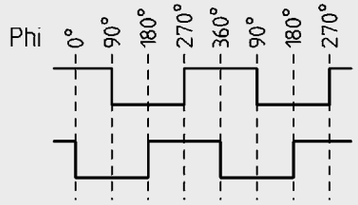
## Technical specification

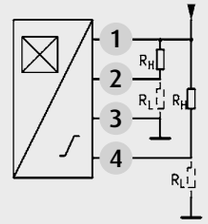
Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| | | |
| **Scope of sensor functions** | Speed | |
| | Direction of rotation | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |

| Function diagram | Wiring diagram |
|---|---|
| Sensor output, Target spinning clockwise | Connector configuration |




| | | | |
|---|---|---|---|
| **1** | $V_B$ + | | |
| **2** | Channel A | | |
| **3** | Ground (GND) | | |
| **4** | Channel B | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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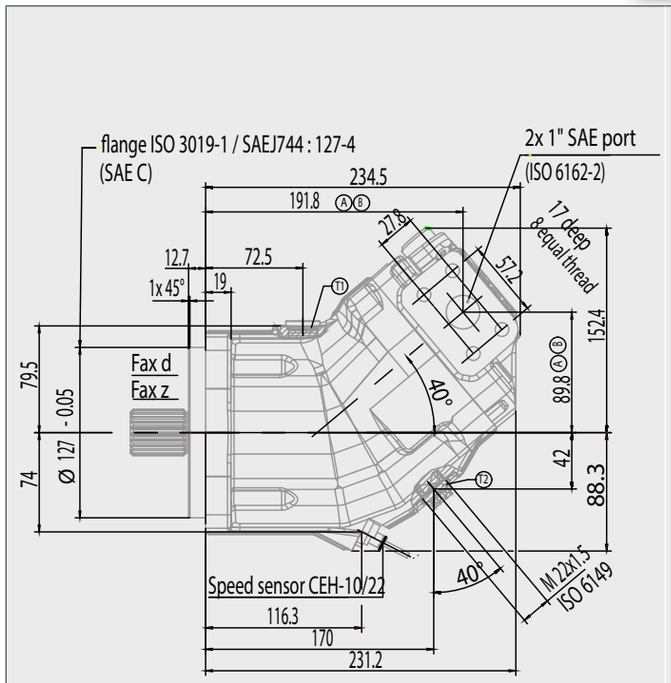
### Technical specification

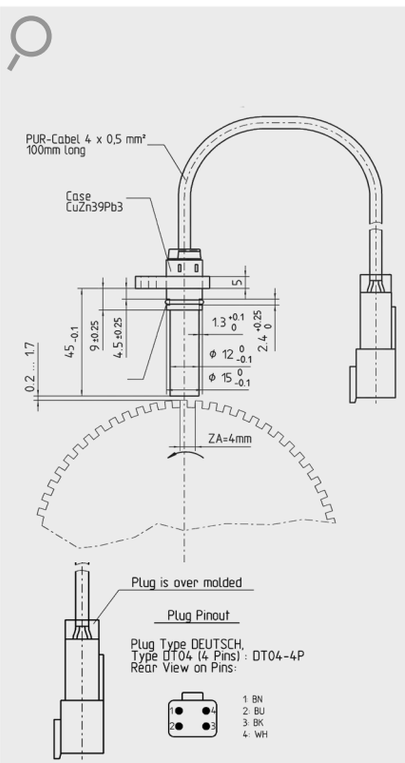
Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-1/ SAE J744, SAE C 4-bolt: 127-4 | |
| | | |

**Views provided**

- Top
- Side
- Bottom




Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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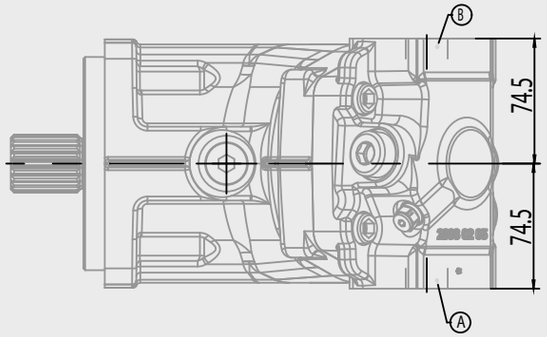
## Technical specification

Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-1/ SAE J744, SAE C 4-bolt: 127-4 | |
| | | |

**Views provided**

- Top
- Side
- Bottom




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

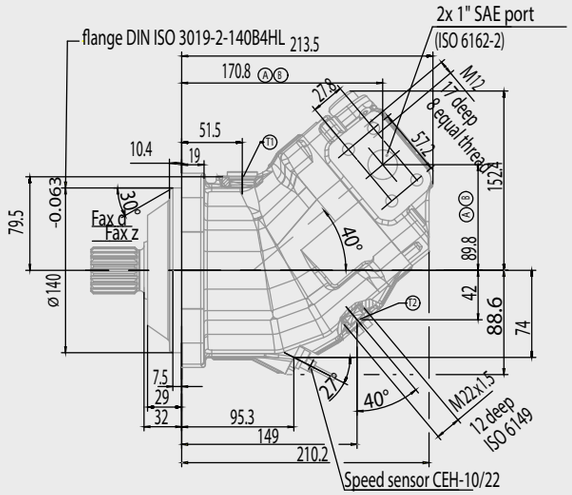
Speed sensor with Deutsch connector

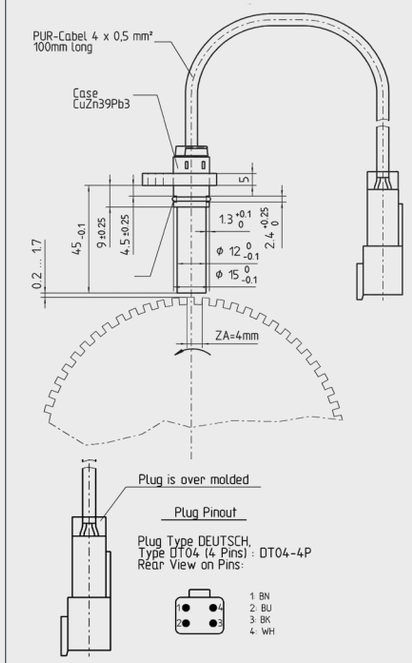
| Modelcode item | 11. | S |
|---|---|---|
| Dimensions | Illustration in combination with flange ISO 3019-2 metric, 140 mm, 4-bolt | |
| | | |

**Views provided**

| | | | | | |
|---|---|---|---|---|---|
| Top | | ● | | | |
| Side | ○ | ● | ○ | ○ | |
| Bottom | | ○ | | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.




| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

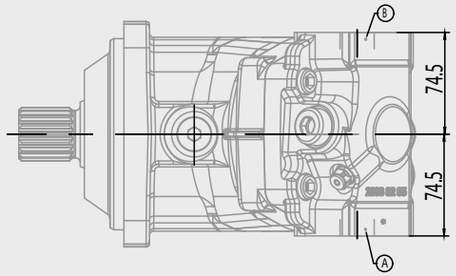
## Technical specification

Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange ISO 3019-2 metric, 140 mm, 4-bolt | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

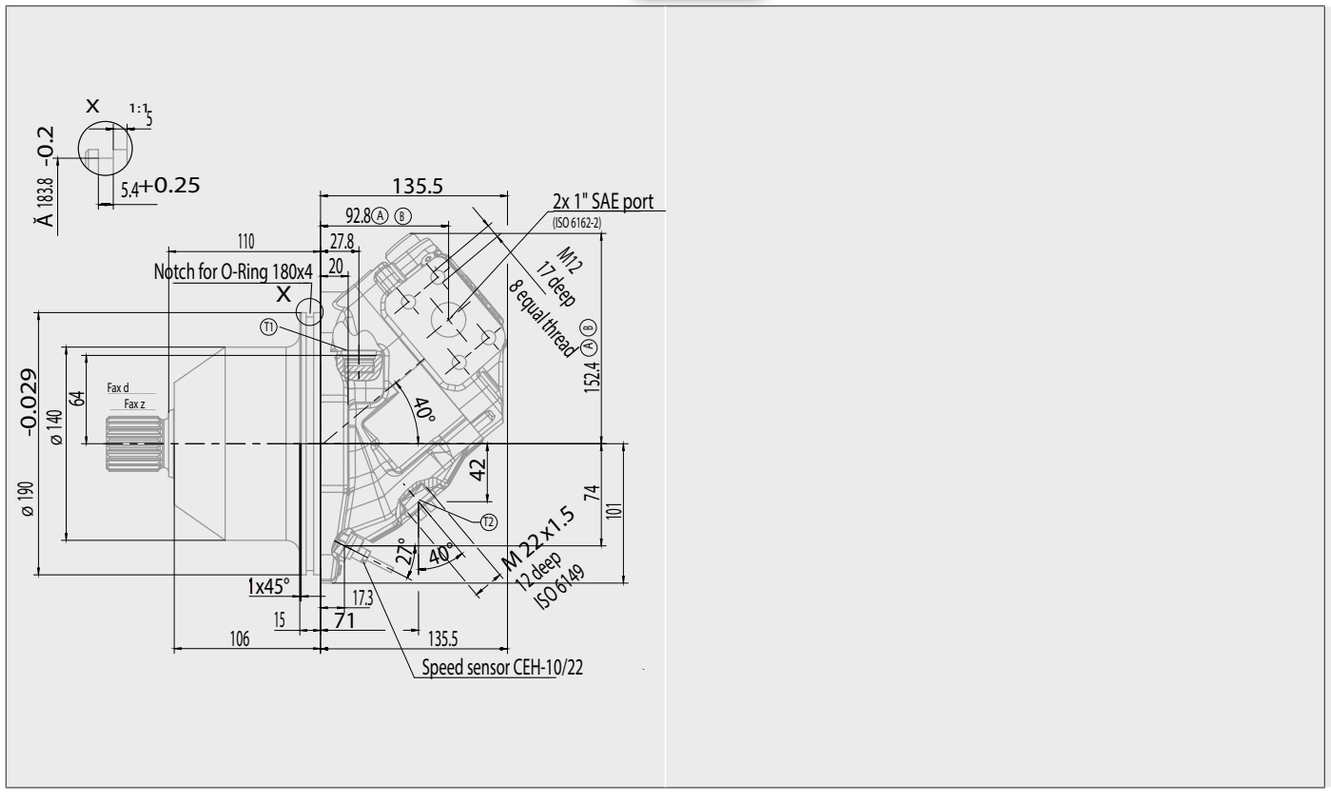
### Technical specification

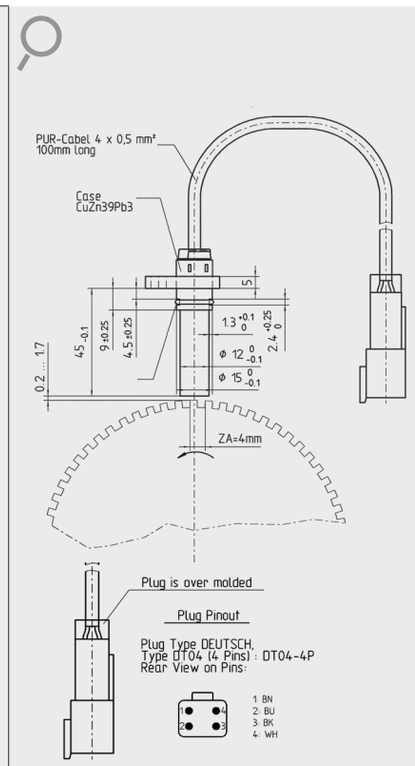
Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange Plug-in, similar to ISO 3019-2, 190 mm, 2-bolt | |
| | | |

**Views provided**

- Top
- Side
- Bottom




Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.

| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Electric interfaces.
## Sensors.

In the following you will find the technical specifications of all available sensors. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

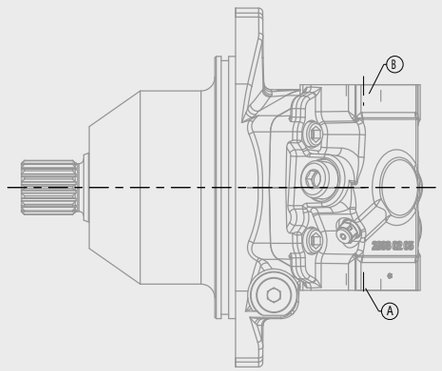
## Technical specification

Speed sensor with Deutsch connector

| | | |
|---|---|---|
| **Modelcode item** | 11. | S |
| **Dimensions** | Illustration in combination with flange Plug-in, similar to ISO 3019-2, 190 mm, 2-bolt | |
| | | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ● | | |
| | Side | ○ | ● | ○ | ○ |
| | Bottom | | ○ | | |

Please note! The location of the speed sensor corresponds to the flange used. In this data sheet you will find the dimensions of the configurations with all available flanges.




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Flanges.

In the following you will find the technical specifications of all available flanges. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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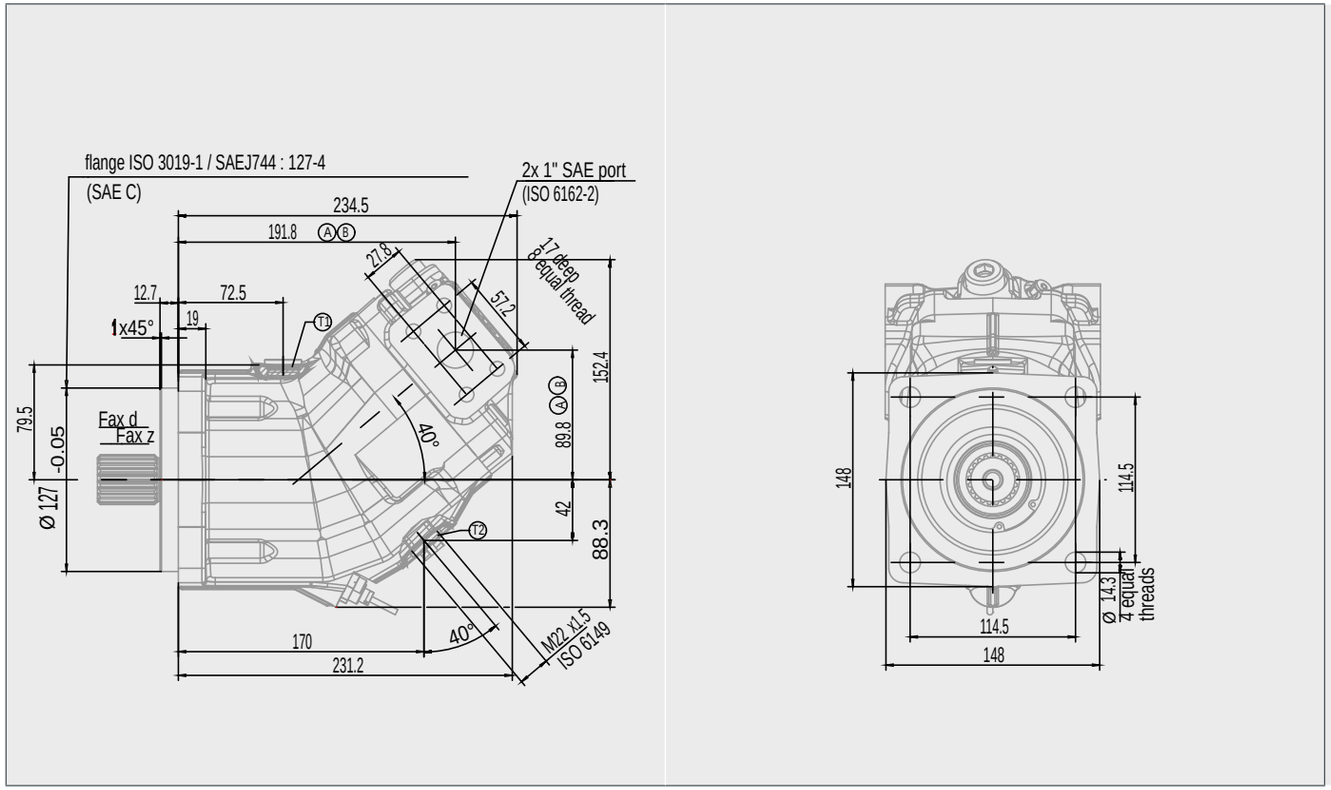
### Technical specification

ISO 3019-1/SAE J744

| | | |
|---|---|---|
| **Modelcode item** | 6. Flange | C4 |
| **Standard** | ISO 3019-1 / SAE J744, | |
| **Dimensions** | SAE C 4-bolt: 127-4 | |
| | | |

**Views provided**

| | | | | | |
|---|---|---|---|---|---|
| Top | ○ | | | | |
| Side | ○ | ● | ● | ○ | |
| Bottom | | ○ | | | |




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Flanges.

In the following you will find the technical specifications of all available flanges. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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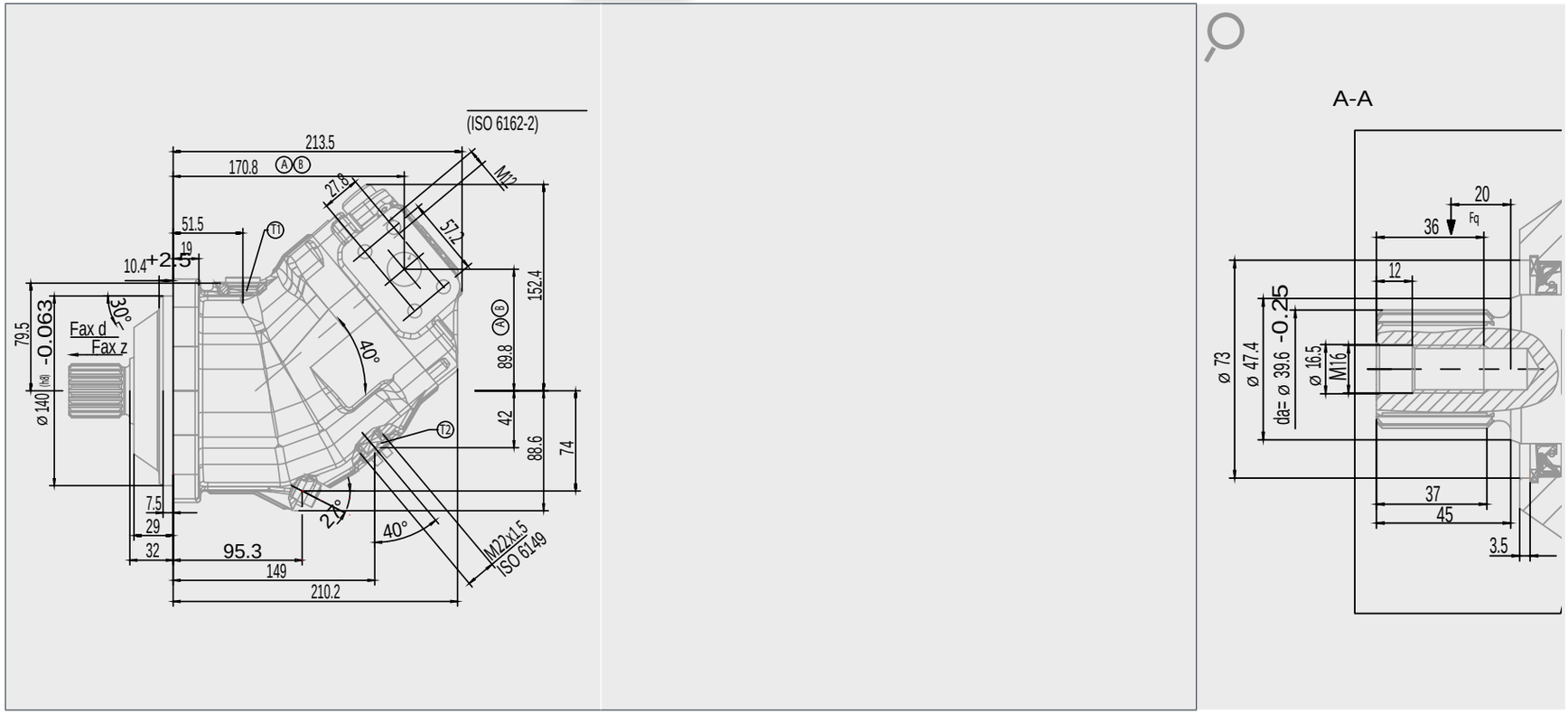
### Technical specification

ISO 3019-2 metric

| | | |
|---|---|---|
| **Modelcode item** | 6. Flange | N4 |
| **Standard** | ISO 3019-2 metric | |
| **Dimensions** | 140 mm, 4-bolt | |
| | | |

**Views provided**

| | |
|---|---|
| Top | ○ |
| Side | ○ ● ○ ○ |
| Bottom | ○ |




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Flanges.

In the following you will find the technical specifications of all available flanges. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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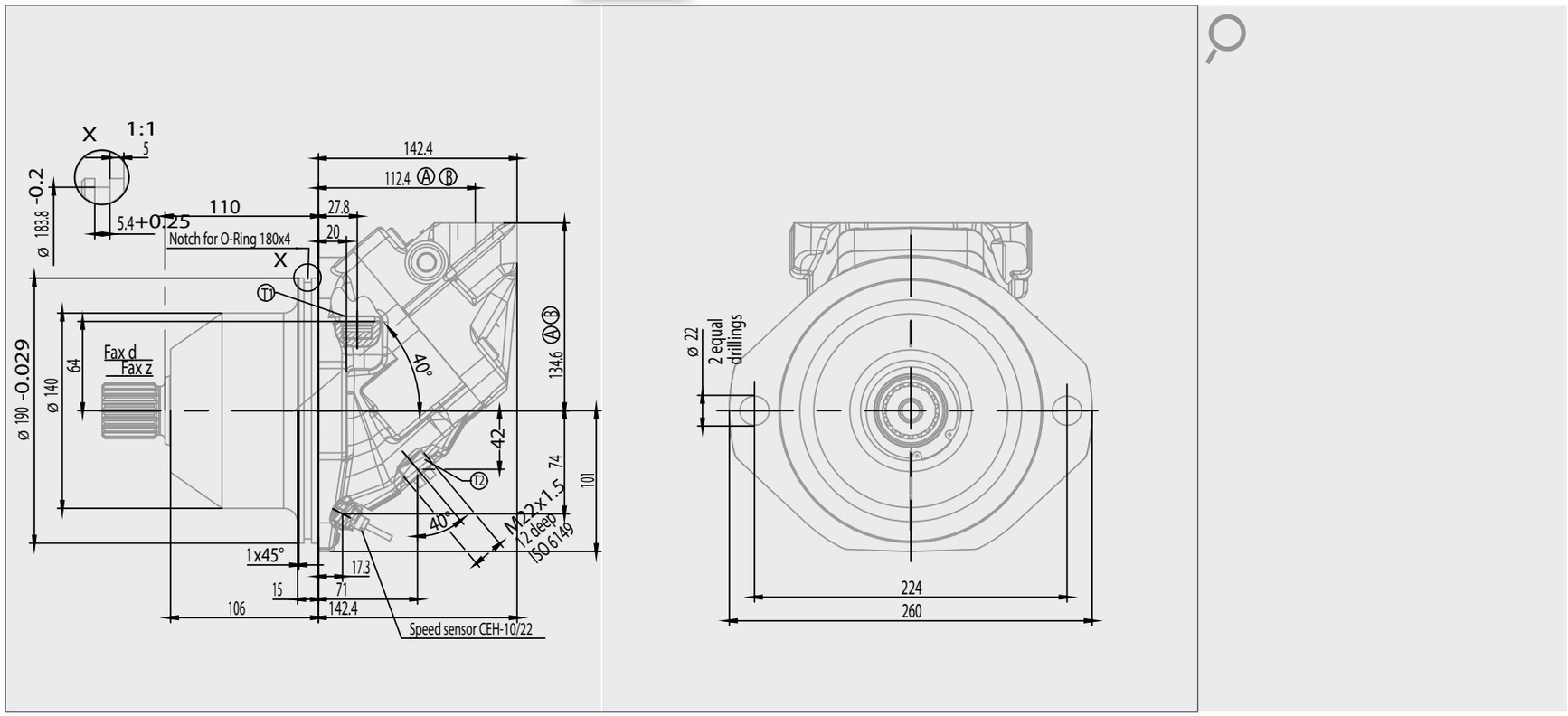
### Technical specification

Plug-in, similar to ISO 3019-2

| | | |
|---|---|---|
| **Modelcode item** | 6. Flange | Y2 |
| **Standard** | Plug-in, similar to ISO 3019-2 | |
| **Dimensions** | 190 mm, 2-bolt | |
| | | |

**Views provided**: Top, Side, Bottom




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Shafts.

In the following you will find the technical specifications of all available shafts. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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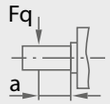
### Technical specification

Overview of the shafts

**Views provided**

| | |
|---|---|
| Top | ○ |
| Side | ○ ● ○ ○ |
| Bottom | ○ |

| Nominal size | | | | | 80 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft | Standard | | | | ISO 3019-2/ DIN5480 | ISO 3019-1/ SAE J744 | ISO 3019-1/ SAE J744 | | | | | | |
| | Dimensions | | | | W40 | 35-4 | 32-4 | | | | | | |
| | Spline | | | | | 16/32 | 12/24 | | | | | | |
| | Number of teeth | | | | 18 | 21 | 14 | | | | | | |
| Maximum radial force (at distance a from shaft collar) |   | | $F_{q\,max}$ | kN | 10000 | 10000 | 8000 | | | | | | |
| | | | a | mm | 20 | 20 | 20 | | | | | | |
| | Max. torque at $F_{q\,max}$ | | $T_{max}$ | Nm | 550 | 550 | 550 | | | | | | |
| | Max. pressure at $V_{g\,max}$ and $F_{q\,max}$ | | $\Delta p_{max}$ | bar | 430 | 430 | 430 | | | | | | |
| Maximum axial force | Motor at standstill or rotating without pressure |   | $+ F_{ax\,max}$ | N | 0 | 0 | 0 | | | | | | |
| | | | $- F_{ax\,max}$ | N | 1000 | 1000 | 1000 | | | | | | |
| | **Additional** load when motor is rotating or system is pressurized | | $+ F_{ax\,perm}$/bar | N/bar | 10 | 10 | 10 | | | | | | |

# Technical specification.

## Mechanical interfaces.
## Shafts.

In the following you will find the technical specifications of all available shafts. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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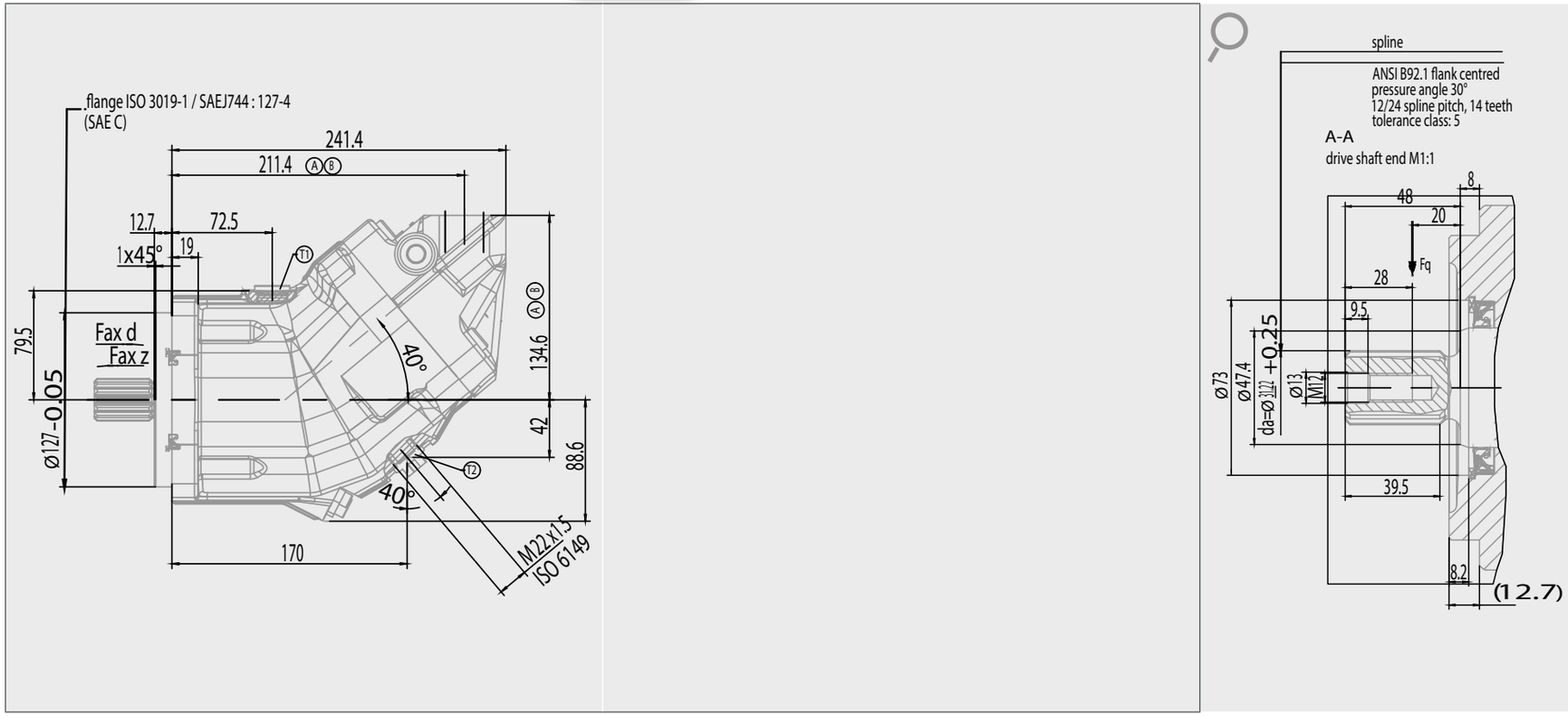
### Technical specification

ISO 3019-1/SAEJ 744

| | | |
|---|---|---|
| **Modelcode item** | 7. Shaft | S7 |
| **Standard** | ISO 3019-1 / SAEJ 744 | |
| **Dimensions** | 14 teeth, 12/24:32-4 | |

**Views provided**: Top, Side, Bottom




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Shafts.

In the following you will find the technical specifications of all available shafts. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

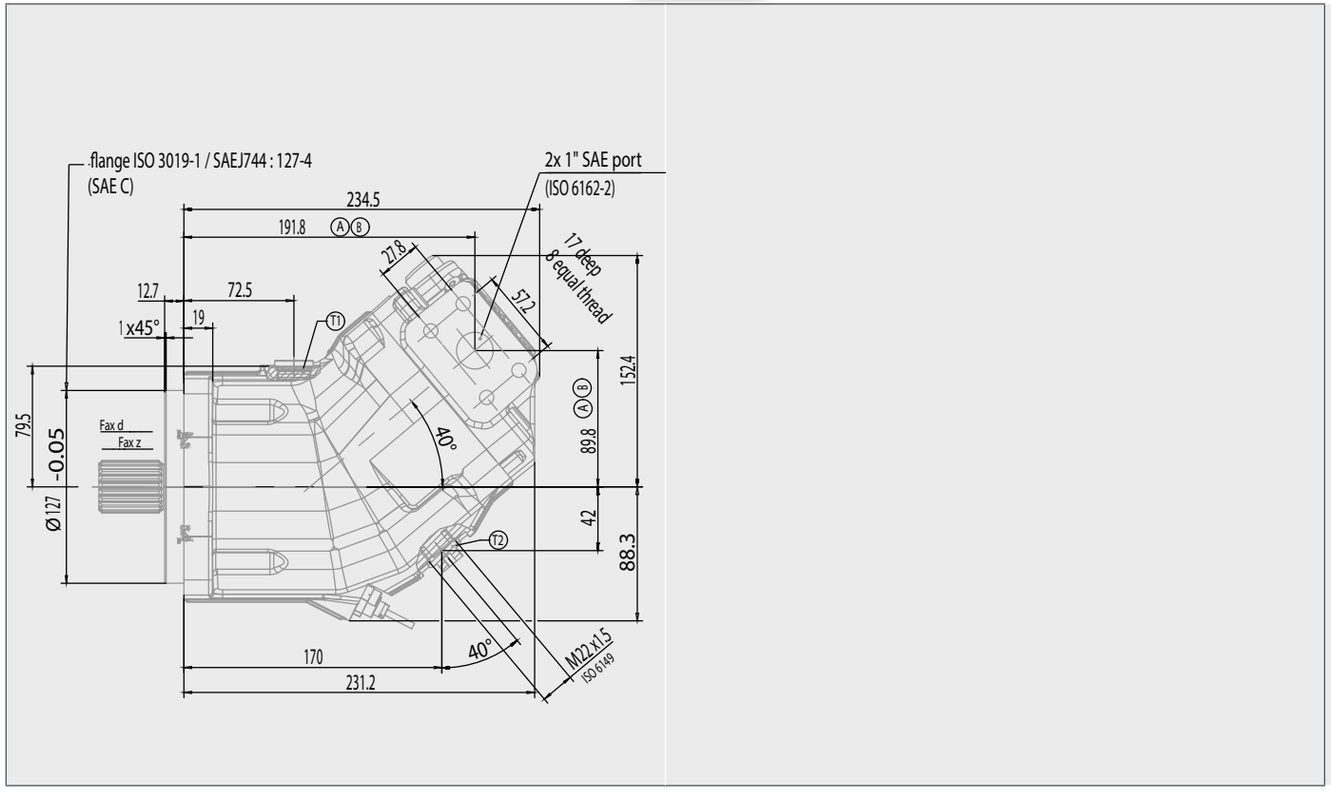
The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

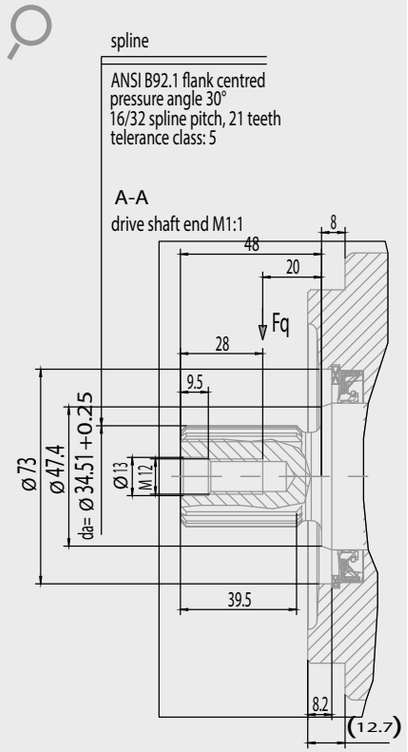
### Technical specification

ISO 3019-1/SAEJ 744

| Modelcode item | 7. Shaft | S8 |
|---|---|---|
| Standard | ISO 3019-1 / SAEJ 744 | |
| Dimensions | 21 teeth, 16/32: 35-4 | |

Views provided: Top, Side, Bottom




| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |

# Technical specification.

## Mechanical interfaces.
## Shafts.

In the following you will find the technical specifications of all available shafts. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

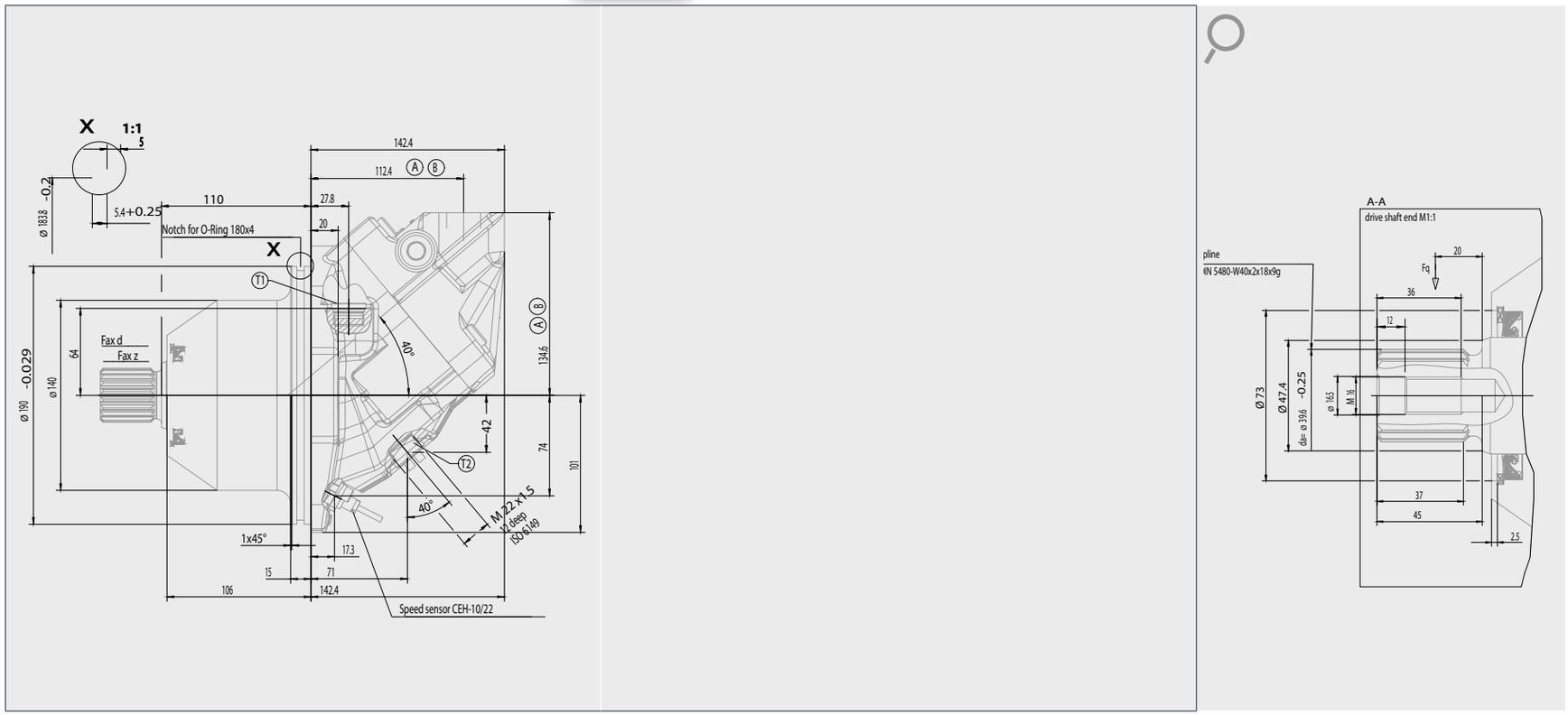
The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

ISO 3019-2/DIN 5480

| Modelcode item | 7. Shaft | D5 |
|---|---|---|
| Standard | ISO 3019-2 / DIN 5480 | |
| Dimensions | W40 | |
| | | |

Views provided: Top, Side, Bottom







| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Shafts.

In the following you will find the technical specifications of all available shafts. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

Compagnon flange

| | |
|---|---|
| **Modelcode item** | 7. Shaft |
| **Standard** | SAE J 1946<br>Typ A |
| **Dimensions** | |

| | | | | | |
|---|---|---|---|---|---|
| **Views provided** | Top | | ○ | | |
| | Side | ○ | ○ | ○ | ○ |
| | Bottom | | ○ | | |

no view available

no view available

no view available

| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

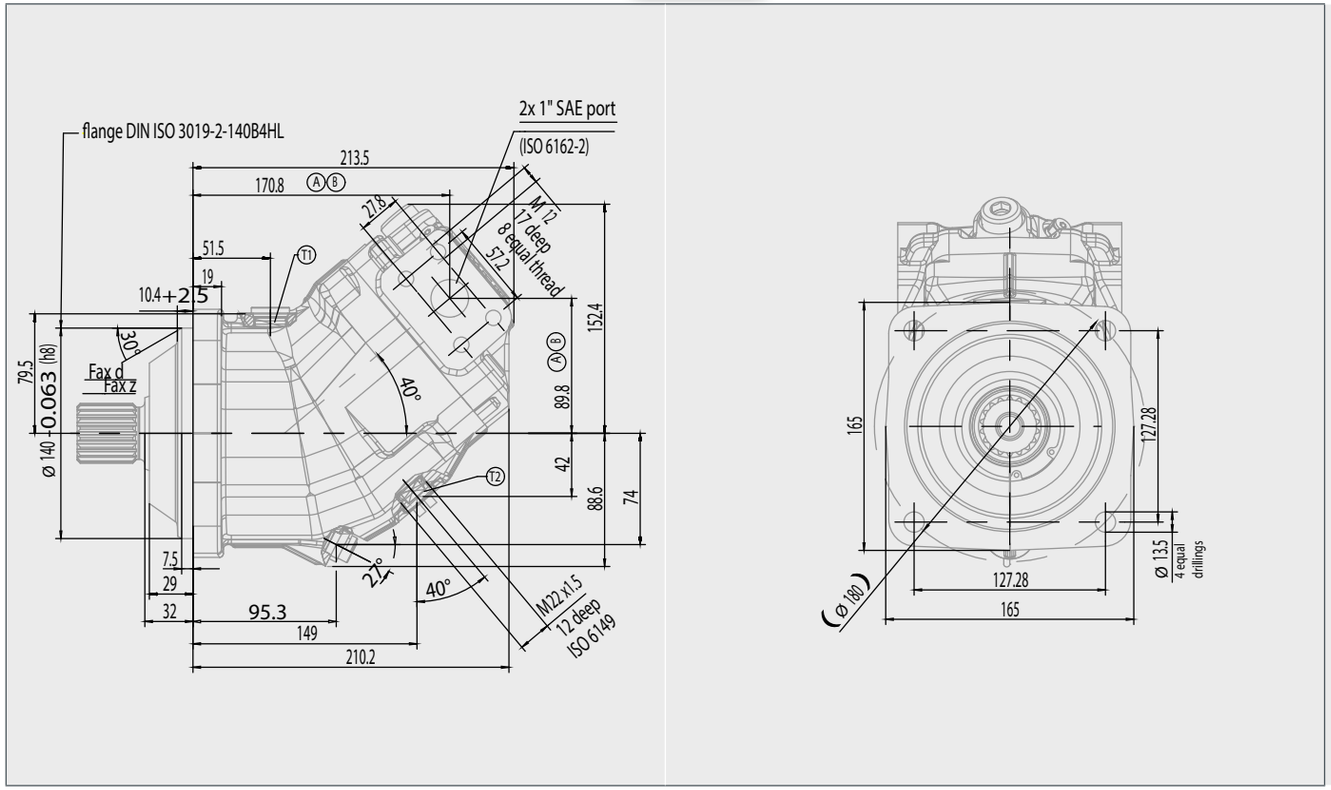
### Technical specification

Side ports, facing to the outside left and right

| Modelcode item | 8. W-ports | S |
|---|---|---|
| Orientation | Side ports, facing to the outside left and right | |
| Standard | SAE 1" (ISO 6162-2) | |

Views provided: Top, Side, Bottom

High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise




| | | |
|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| B | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| T2 | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

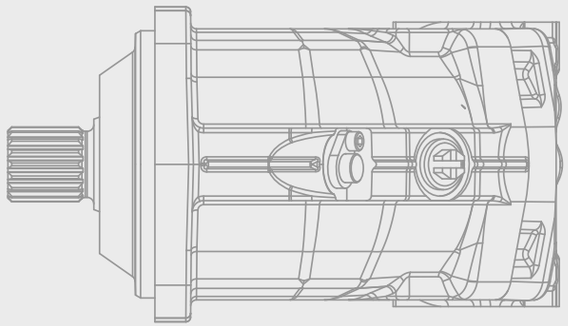
The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

Side ports, facing to the outside left and right

| | | |
|---|---|---|
| **Modelcode item** | 8. W-ports | S |
| **Orientation** | Side ports, facing to the outside left and right | |
| **Standard** | SAE 1" (ISO 6162-2) | |

**Views provided**: Top, Side, Bottom



High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise

| | | |
|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| **B** | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| **T2** | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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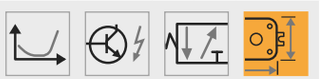
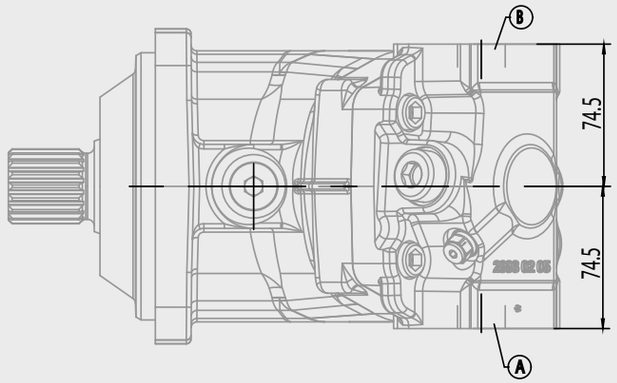
### Technical specification

Side ports, facing to the outside left and right

| | | |
|---|---|---|
| **Modelcode item** | 8. W-ports | S |
| **Orientation** | Side ports, facing to the outside left and right | |
| **Standard** | SAE 1" (ISO 6162-2) | |



**Views provided**: Top, Side, Bottom




High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise

| | | |
|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| **B** | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| **T2** | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

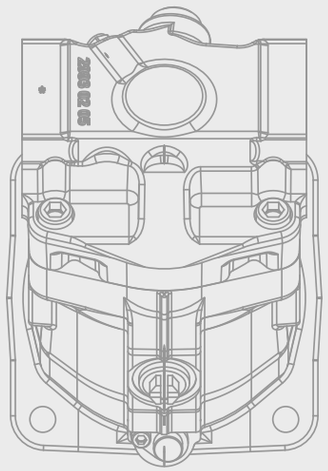
The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

Side ports, facing to the outside left and right

| | | |
|---|---|---|
| **Modelcode item** | 8. W-ports | S |
| **Orientation** | Side ports, facing to the outside left and right | |
| **Standard** | SAE 1" (ISO 6162-2) | |

**Views provided**: Top, Side, Bottom



High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise

| | | |
|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| **B** | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| **T2** | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

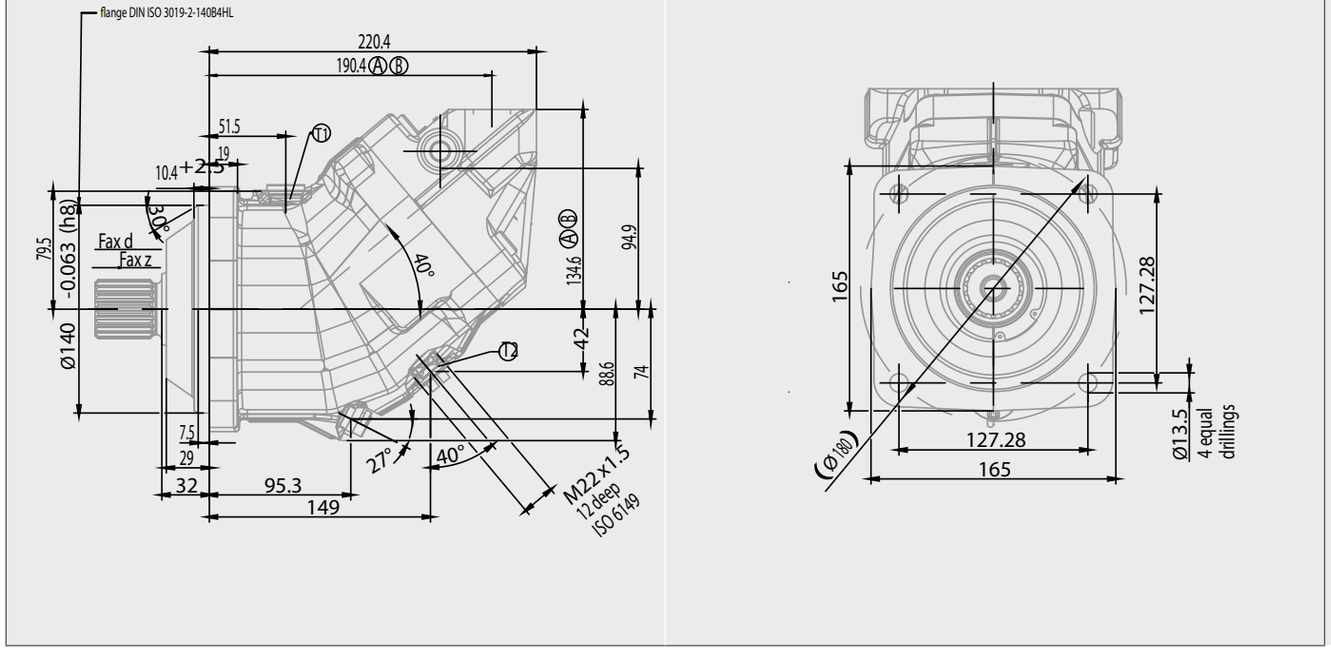
The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

### Technical specification

Radial twin ports

| | | |
|---|---|---|
| **Modelcode item** | 8. W-ports | R |
| **Orientation** | Radial twin ports | |
| **Standard** | SAE 1" (ISO 6162-2) | |

**Views provided**: Top, Side, Bottom




High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise

| | | |
|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| **B** | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| **T2** | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

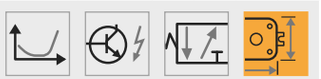
In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

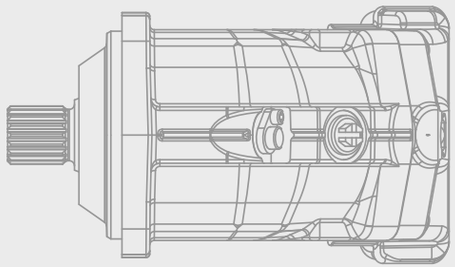
### Technical specification

Radial twin ports

| Modelcode item | 8. W-ports | R |
|---|---|---|
| Orientation | Radial twin ports | |
| Standard | SAE 1" (ISO 6162-2) | |



| Views provided | |
|---|---|
| | Top |
| | Side |
| | Bottom |



| | | |
|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| B | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| T2 | | |
| | | |

High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise

# Technical specification.

## Mechanical interfaces.
## Work ports.

In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

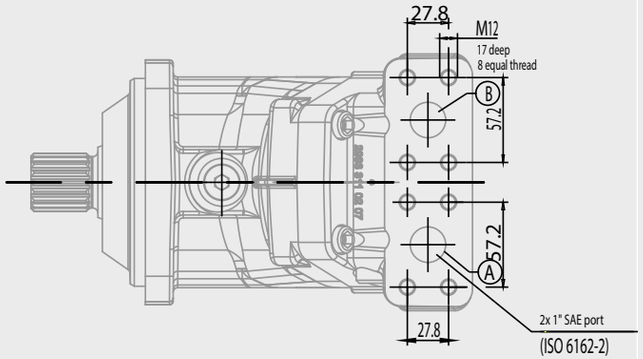
### Technical specification

Radial twin ports

| Modelcode item | 8. W-ports | R |
|---|---|---|
| Orientation | Radial twin ports | |
| Standard | SAE 1" (ISO 6162-2) | |

| Views provided | |
|---|---|
| | Top |
| | Side |
| | Bottom |

High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise




| | | |
|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| B | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| T2 | | |
| | | |

# Technical specification.

## Mechanical interfaces.
## Work ports.

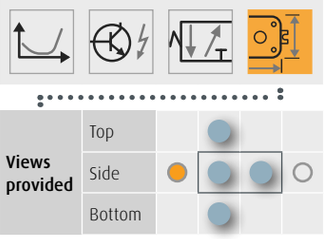
In the following you will find the technical specifications of all available work ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

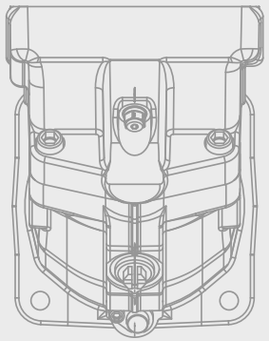
### Technical specification

Radial twin ports

| Modelcode item | 8. W-ports | R |
|---|---|---|
| Orientation | Radial twin ports | |
| Standard | SAE 1" (ISO 6162-2) | |




High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise



| | | |
|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| B | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| T2 | | |
| | | |

# Technical specification.

## Hydraulic interfaces.
## Auxiliary ports.

In the following you will find the technical specifications of all available auxiliary ports. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow. In addition, you will find the corresponding model code item to ensure the definitive assignment of the feature in the section [Configuration].

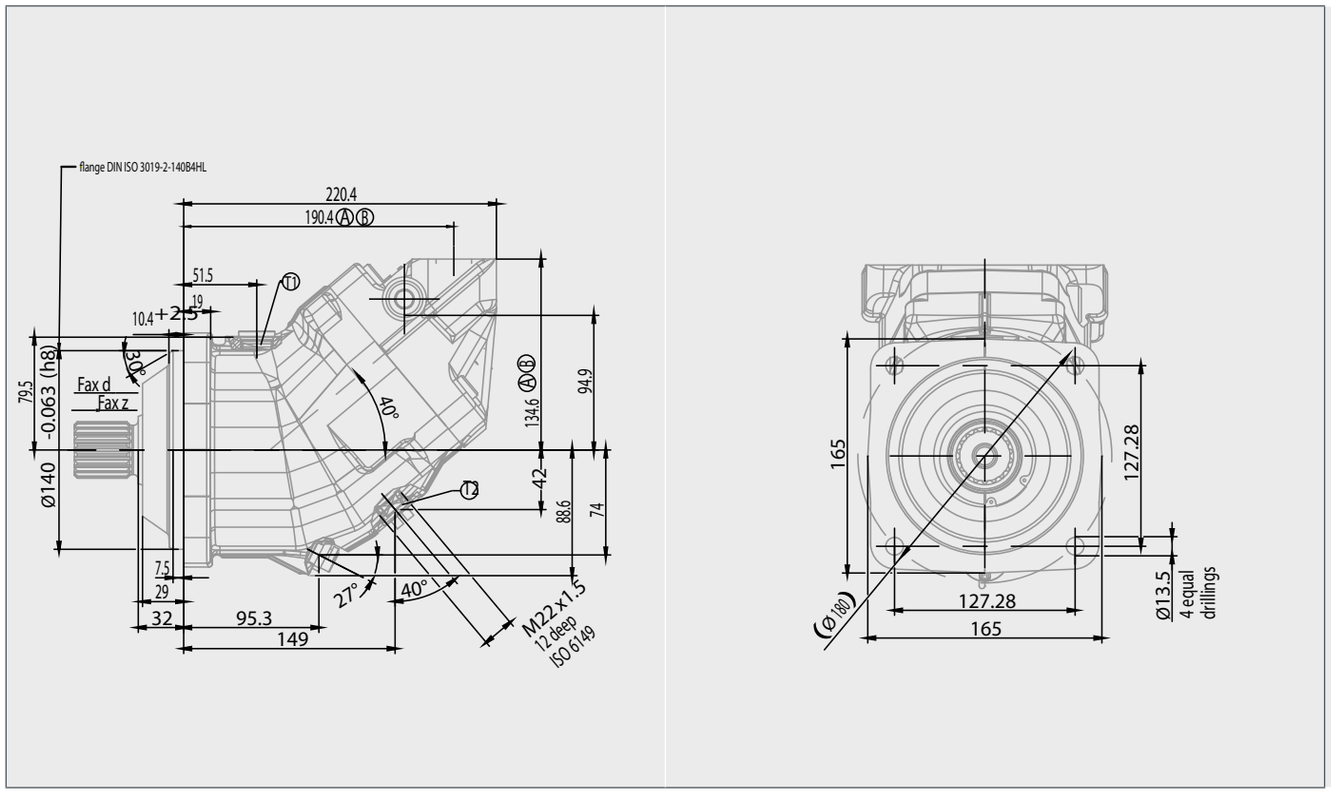
## Technical specification

Auxiliary ports

| Modelcode item | 9. A-ports | M |
|---|---|---|
| Standard | ISO 6149 – 1 | |

| Views provided | | | | | |
|---|---|---|---|---|---|
| | Top | ○ | | | |
| | Side | ○ | ● | ● | ○ |
| | Bottom | | ○ | | |

High pressure at port A, shaft output direction of rotation: clockwise;
High pressure at port B, shaft output direction of rotation: counterclockwise




| | | |
|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | High pressure at port A, shaft output direction of rotation: clockwise |
| B | | High pressure at port B, shaft output direction of rotation: counterclockwise |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | |
| T2 | | |
| | | |

# Technical specification.

## Functions/Options.

In the following you will find the technical specifications of all available Functions/options. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

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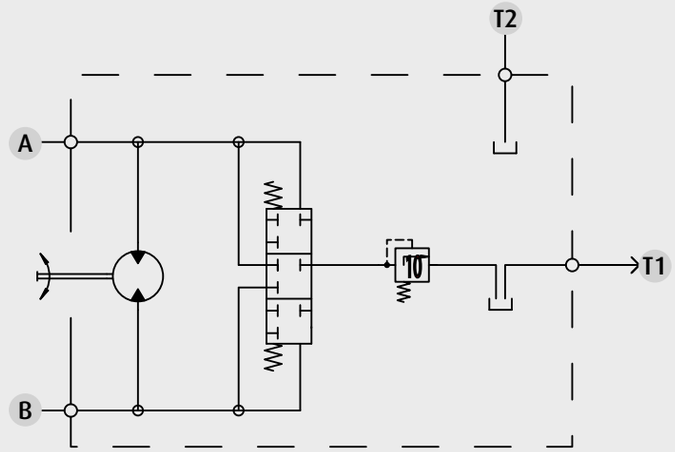
### Technical specification

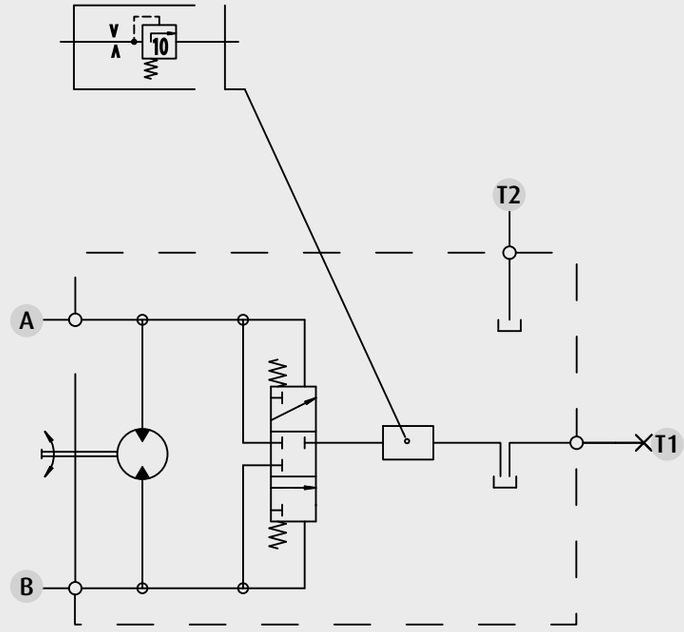
Flushing

| Modelcode item | 10. Valve f. |
|---|---|
| | |
| | |
| | |
| | |

| Views provided | | | | | |
|---|---|---|---|---|---|
| | Top | ○ | | | |
| | Side | ○ | ○ | ○ | ○ |
| | Bottom | | ○ | | |

| Wiring diagram | Wiring diagram |
|---|---|
| Flushing blocked | Flushing activated |




| | | | |
|---|---|---|---|
| A | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| B | | | |
| T1 | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| T2 | | | |
| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

In the following you will find the overall dimensions of an example configuration. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow.

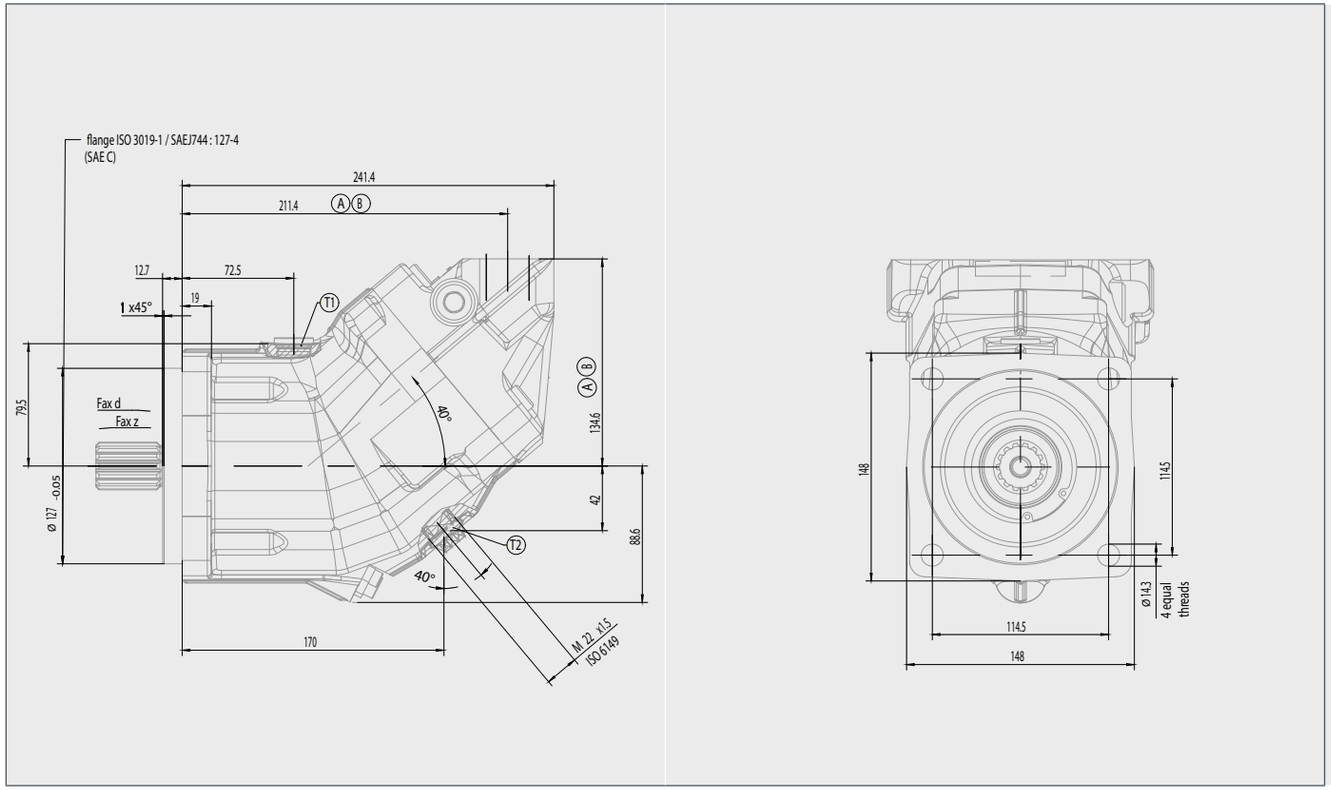
## Technical specification

Configuration example 1

| | |
|---|---|
| **Standard flange** | ISO 3019-1/SAEJ 744 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

**Views provided**

- Top
- Side
- Bottom




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

In the following you will find the overall dimensions of an example configuration. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

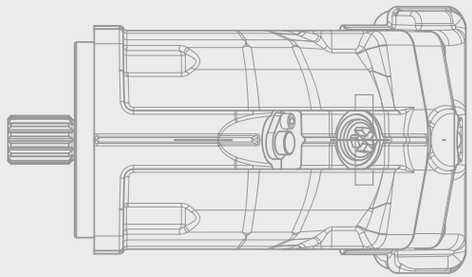
The section in which you are currently located and the view of the displayed drawing is marked in yellow.

**Technical specification**

Configuration example 1

| | |
|---|---|
| **Standard flange** | ISO 3019-1/SAEJ 744 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

| **Views provided** | |
|---|---|
| | Top |
| | Side |
| | Bottom |



| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

In the following you will find the overall dimensions of an example configuration. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow.

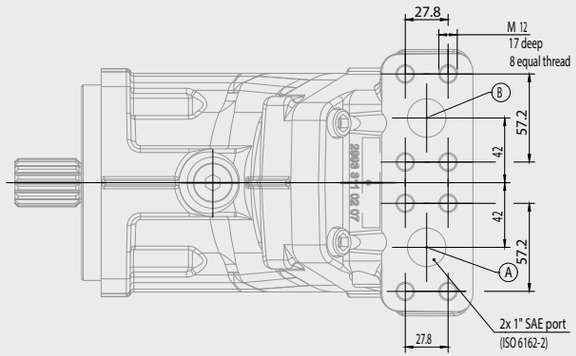
### Technical specification

Configuration example 1

| | |
|---|---|
| **Standard flange** | ISO 3019-1/SAEJ 744 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

**Views provided**

- Top
- Side
- Bottom




| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

In the following you will find the dimensions of an example configuration. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

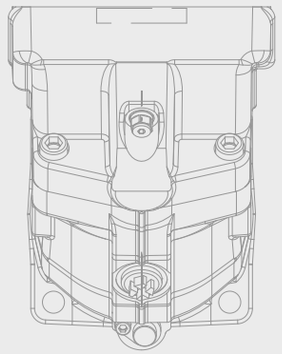
The section in which you are currently located and the view of the displayed drawing is marked in yellow.

### Technical specification

Configuration example 1

| | |
|---|---|
| **Standard flange** | ISO 3019-1/SAEJ 744 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

**Views provided**: Top, Side, Bottom



| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
| **T2** | | | |
| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

In the following you will find the overall dimensions of an example configuration. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions. Please follow the navigation menu in the left column.

The section in which you are currently located and the view of the displayed drawing is marked in yellow.

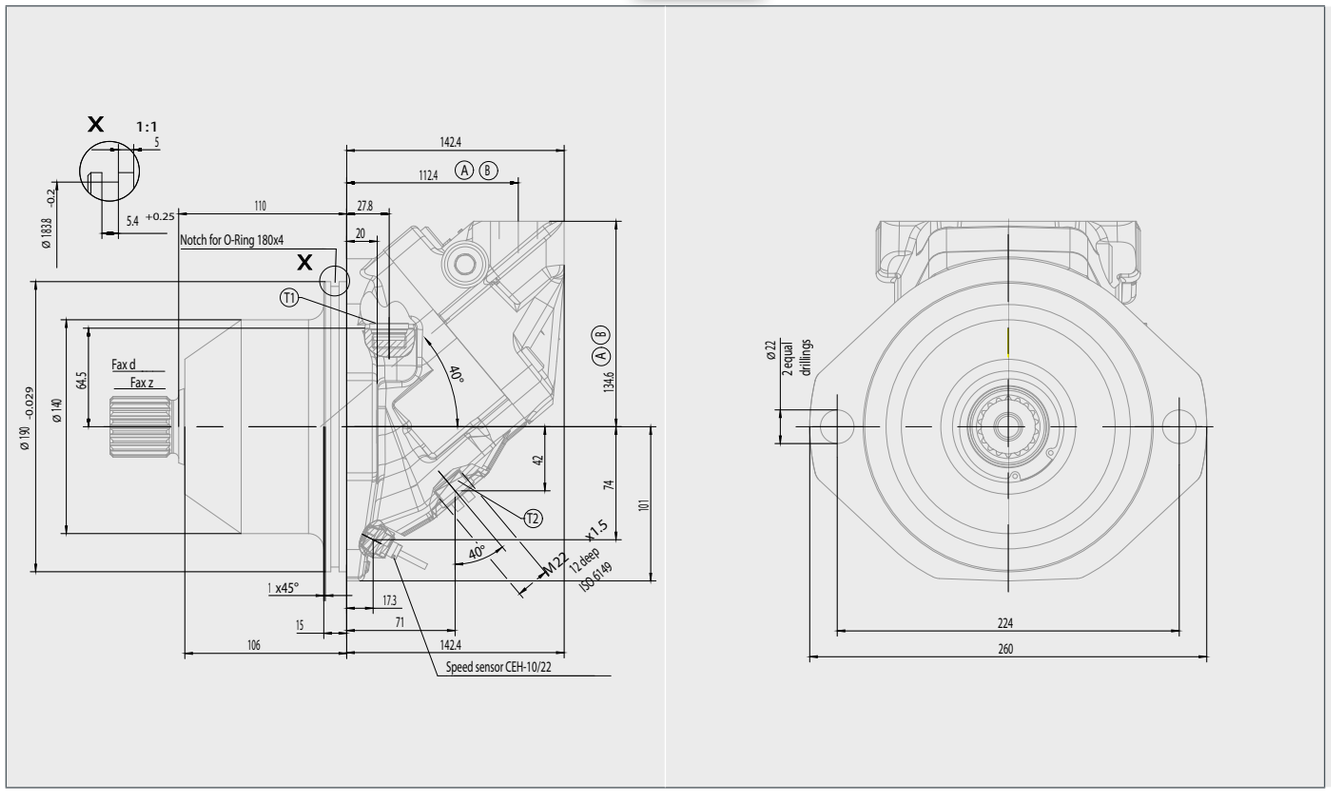
## Technical specification

Configuration example 2

| | |
|---|---|
| **Standard flange** | Plug-in, similar to ISO 3019-2 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

**Views provided**

- Top
- Side
- Bottom




| | | | |
|---|---|---|---|
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| **B** | | | |
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### Technical specification

Configuration example 2

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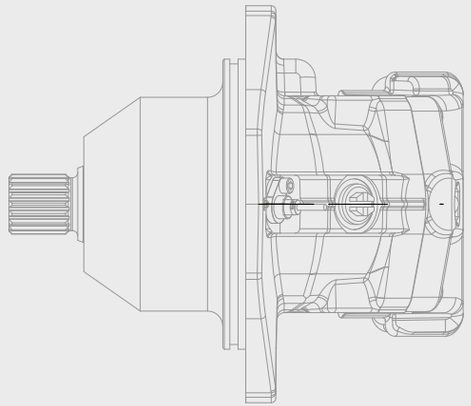
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1“ (ISO 6162-2) |
| | |
| | |

| **Views provided** | |
|---|---|
| | Top |
| | Side |
| | Bottom |



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# Technical specification.

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## Technical specification

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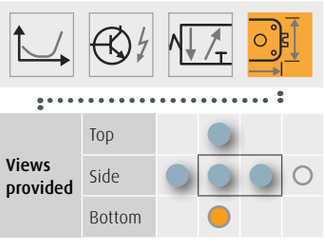
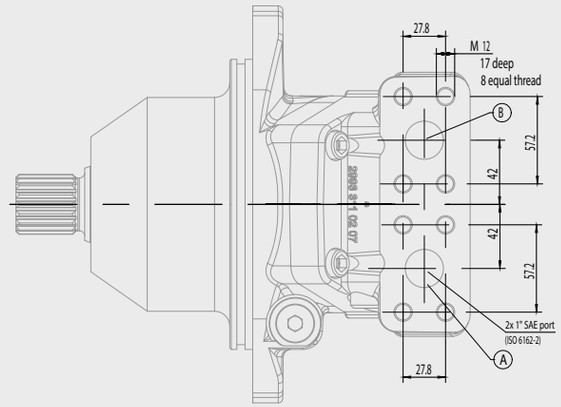
| | |

**Views provided**




| | | | |
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| **T1** | Drain/vent ports, (ISO6149), fastening thread M22x1.5 | | |
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| | | | |

# Technical specification.

## Dimensions.
## Example configuration.

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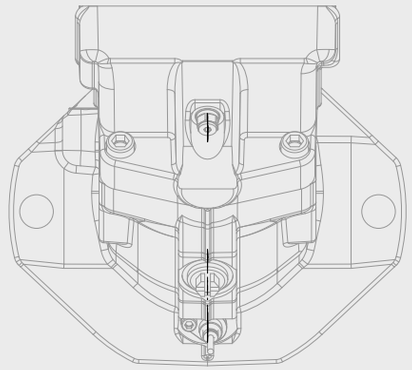
**Technical specification**

Configuration example 2

| | |
|---|---|
| **Standard flange** | Plug-in, similar to ISO 3019-2 |
| **Orient. work ports** | Radial twin ports |
| **Standard work ports** | SAE 1" (ISO 6162-2) |
| | |
| | |

**Views provided**: Top, Side, Bottom



| | | | |
|---|---|---|---|
| **A** | High pressure ports, SAE 1" (ISO 6162-2), fastening thread M12 | | |
| **B** | | | |
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| **T2** | | | |
| | | | |

# Application.

## Open circuit operation.

In the following you will find explanations on how to implement the CMF in an open circuit system. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions.

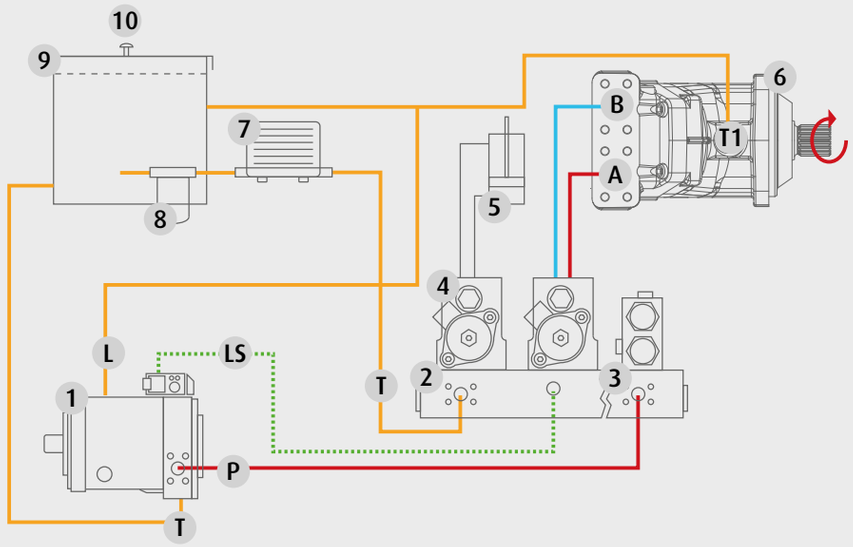
Please follow the navigation menu in the left column. The section in which you are currently located and the view of the displayed drawing is marked in yellow.

## Application

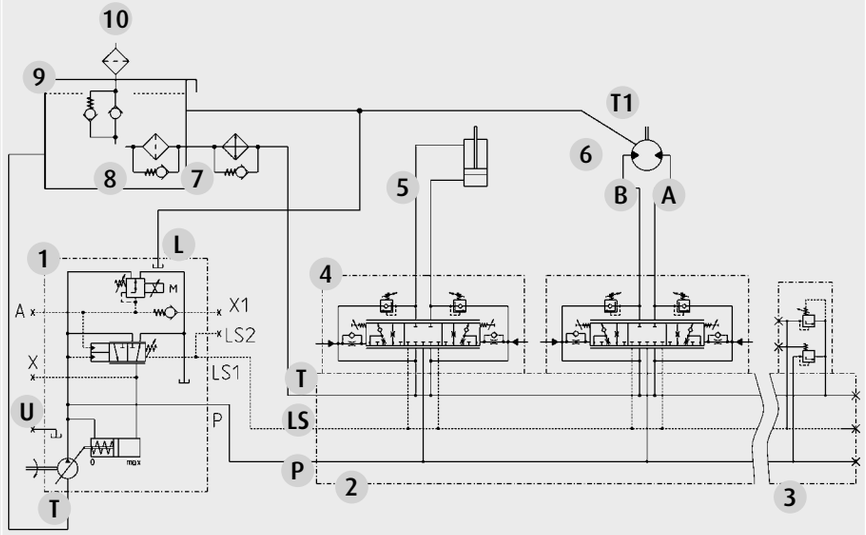
Application example

| Views provided | |
|---|---|
| | Top |
| | Side |
| | Bottom |

Function diagram




Circuit diagram




| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | High pressure[1] | 1 | HP self-regulating pump HPR-02 E1L | 6 | HP fixed displacement motor CMF | A | High pressure port | S | Suction port |
| | Low pressure[1] | 2 | Manifold valve plate | 7 | Cooler | B | High pressure port | P | Pressure port |
| | Charge pressure | 3 | Pressure reilief function | 8 | Filter | LS | Load sensing signal | T | Tank port |
| | Tank pressure | 4 | Directional control valves | 9 | Tank | T1 | Drain/Vent port | L | Drain/Vent port |
| | | 5 | Hydraulic cylinder | 10 | Venting valve | T2 | Drain/Vent port | U | Drain/Vent port |

# Application.

## Closed circuit operation.

In the following you will find explanations on how to implement the CMF in a closed circuit system. In order to provide a quick overview, the specifications are divided into data & characteristic curves, electrical and hydraulic function and wiring diagrams as well as dimensions.

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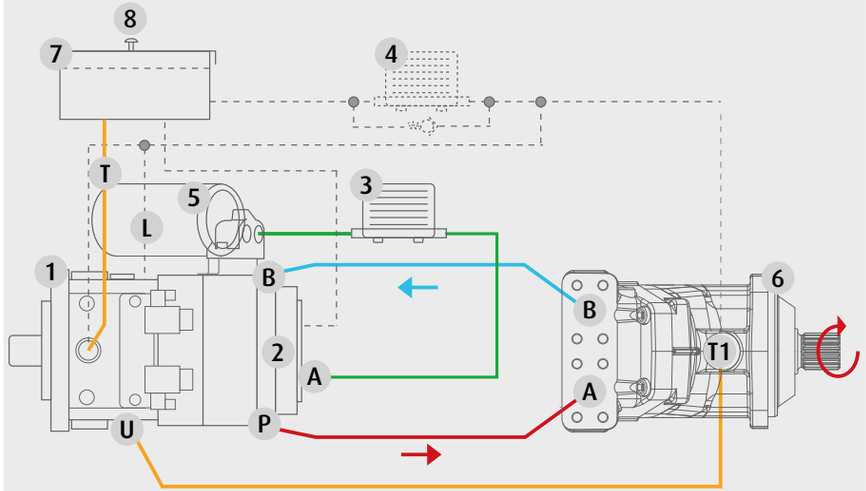
## Application

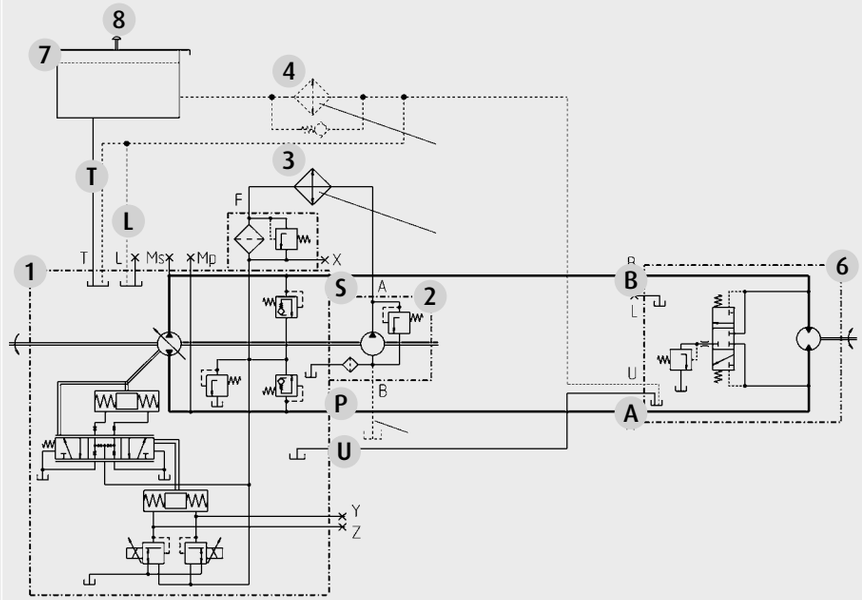
Connection example

| Views provided | |
|---|---|
| | Top |
| | Side |
| | Bottom |

Function diagram




Circuit diagram




| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | High pressure[1] | 1 | HP variable displacement pump HPV-02 E1 | 6 | HP fixed displacement motor CMF | T1 | Drain/Vent port | L | Drain/Vent port |
| | Low pressure[1] | 2 | Charge pump | 7 | Tank | T2 | Drain/Vent port | U | Drain/Vent port |
| | Charge pressure | 3 | Option 1: Cooler in charge ciruit | 8 | Vent valve | S | Suction port | | |
| | Tank pressure | 4 | Option 2: Cooler in the return line | A | High pressure port | P | Pressure port | | |
| | | 5 | Filter | B | High pressure port | T | Tank port | | |

[1] Regarding the displayed example, the specifications for high and low pressure range refer to the engine operated clockwise. When operating with a counterclockwise rotating motor, high and low pressure are applied in reverse.