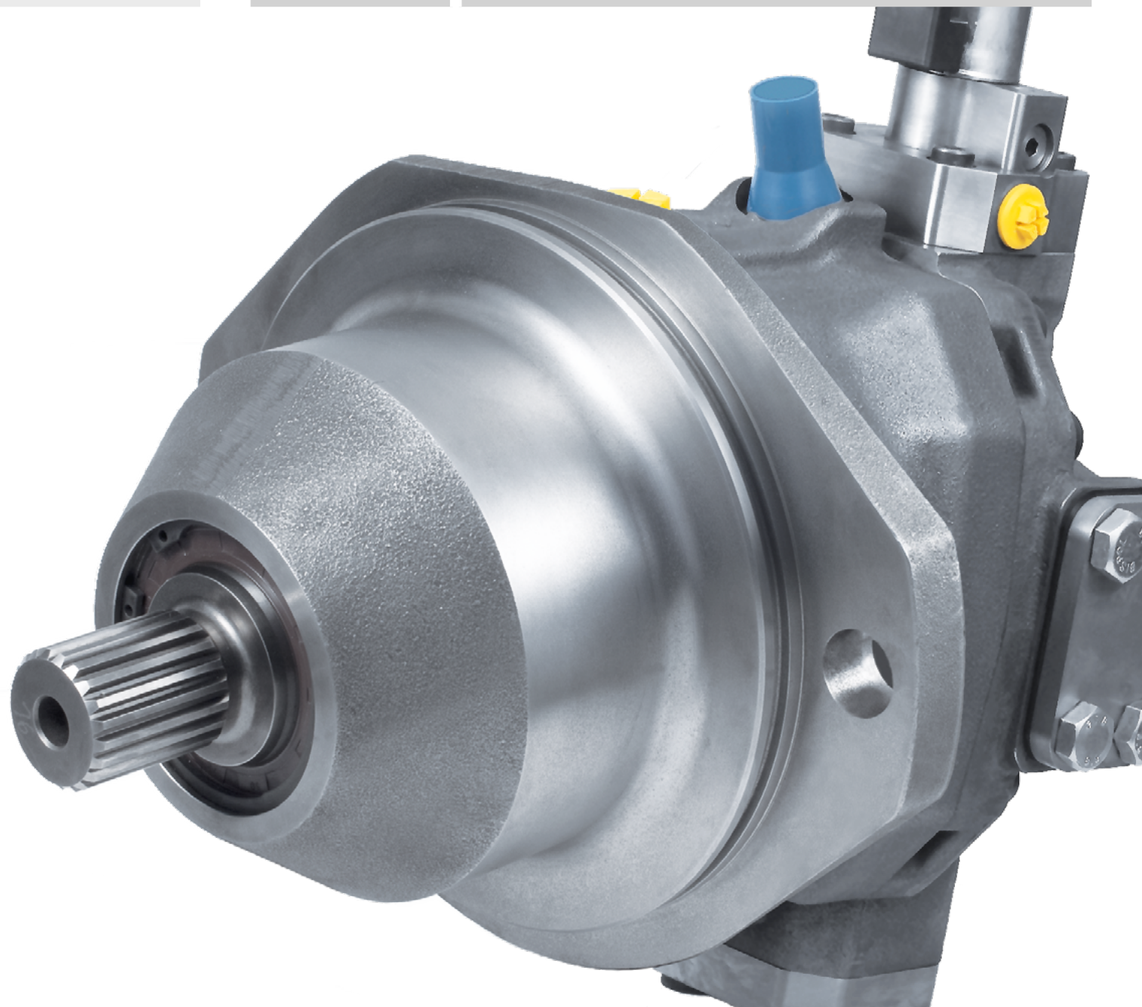
CMV.
Variable Displacement Motor.
Bent Axis Design.

Linde Hydraulics

PRODUCT	
	
Pressure Level	● **High Pressure Hydraulics** ○ Medium Pressure Hydraulics
Application	● **Open Circuit** ● **Closed Circuit**

DOCUMENT	
Specification	○ Inquiry Form (Modelcode & Availability) ● **Datasheet**
Operation	○ Basic Instructions ○ Additional Instructions
Assembly	○ Basic Instructions ○ Additional Instructions
Release	**19/04/2023** Download the latest version

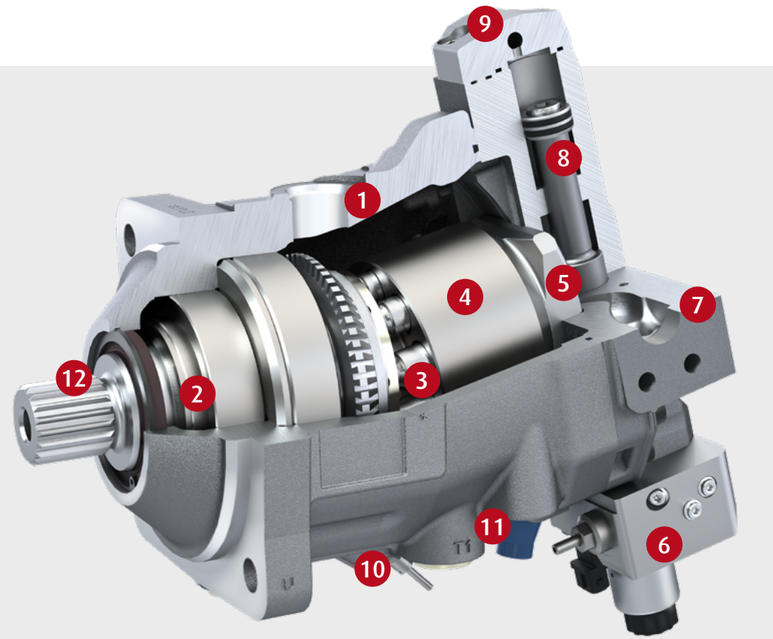


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Overview | **Key Facts**

In the following you will find the design characteristics and related advantages of the CMV. The components mentioned here are referred to repeatedly in the following sections of this datasheet.

With the next generation of the bent axis motors, Linde Hydraulics expands its customer oriented portfolio of high-quality components for hydraulic systems. Due to their standardized interfaces, e.g. the plug-in flange according to ISO, the CMV and CMF fit a high variety of applications, without the need of adaptors. The motors enable a more cost effective operation of the respective applications thanks to low windage losses and lighter weight.



60 · · · · · · 85 · · · · · · 115 · · · · · · 140 · · · · · · 170 · · · · · · 215

Range [cc/rev]

1		Robust design bent axis motor with high power density		Suitable for a wide range of applications
2		Drive shaft assembly		High speed capability
3		Pistons		High flexibility
4		Rotating group with variable displacement		High starting torque
5		Port plate		High functional reliability - even under adverse operating conditions
6		Modular concept of various displacement and/or pressure controls (e.g. pressure side selection)		Precise control & low hysteresis
7		Optimized flow concept		Prevention of housing pressure peaks and vibrations
8		Control piston		Sensing of speed and direction of rotation
9		Asymmetrically damped changeover switch		Easy handling
10		Sensor		Easy replacement without the need of application
11		Thread for mounting of lifting devices		
12		Standardized interfaces		

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General Technical Data

Technical Specification | **General Technical Data**

In the following you will find the general technical data of the CMV. The values listed refer to the respective nominal size and take into account the general use. If these data do not correspond to the requirements in the context of your application, please contact us. Other values are available upon individual consideration of your application.

General technical data				60	85	115	140	170	215
Nominal size				60	85	115	140	170	215
Displacement	Vg_{max}		cc/rev	62	87.7	115.3	144.1	170	217.9
	Vg_x	at total pressure (A+B) = 40 bar		upon request	29.8	39.2	49	64.6	82.8
		at total pressure (A+B) = 120 bar		-	-	-	-	105.4	135.1
		at total pressure (A+B) = 140 bar		upon request	52.6	69.2	86.5	-	-
	Vg_{min}			0	0	0	0	0	0
Speed	Nominal speed	at Vg_{max}	rpm	4450	3900	3550	3250	3100	2900
		at $Vg \leq Vg_x$		7200	6800	6150	5600	4900	4600
		at Vg_{min}		upon request					
Inlet flow	at Vg_{max}		l/min	upon request	342.0	409.3	468.3	527.0	631.9
Pressure[1]	Nominal pressure		bar	450					
	Maximum pressure[2]		bar	500					
	Maximum housing pressure		bar	2.5					
Torque	Output torque at Δp= 430 bar		Nm	411	582	787	958	1163	1471
Temperature	Perm. housing temperature		°C	90					
Weight (without oil) approx.			kg	27.7	36.3	44.8	59.2	62.1	76.4

[1] reference = ambient pressure ; [2] highest transient pressure, that can temporarily occur

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Technical Specification | Operating Parameters | **Pressure**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

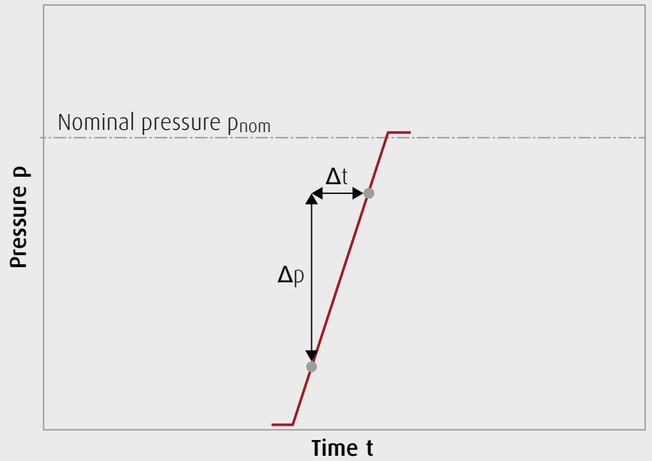
Pressure at work port A or B				Definition
Nominal pressure p_{nom}		bar	450	The nominal pressure corresponding to the maximum design pressure
Maximal pressure p_{max}			500	Highest transient pressure, that can temporarily occur; reference = ambient pressure
Minimum pressure pump operating mode inlet			see the diagram	In order to prevent damage to the motor during pump operation (changing the the high-pressure side while the direction of rotation remains the same, e.g. during braking), a minimum pressure must be ensured at the work ports (inlet).
Maximum summation pressure p_{su} (pressure A + pressure B)			upon request	The summation pressure is the sum of the pressures at both work ports (A and B); reference = ambient pressure
Rate of pressure change RA_{max}	Without pressure relief valve	bar/s	16000	Maximum permissible rate of pressure build up and reduction during a pressure change over the entire pressure range (Definition see diagram)
	With pressure relief valve		9000	

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Technical Specification | Operating Parameters | **Pressure**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

Definition Rate of pressure change RAmax

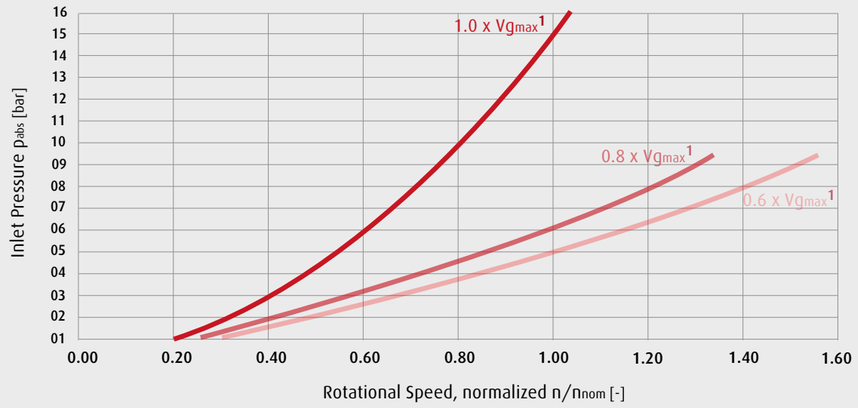


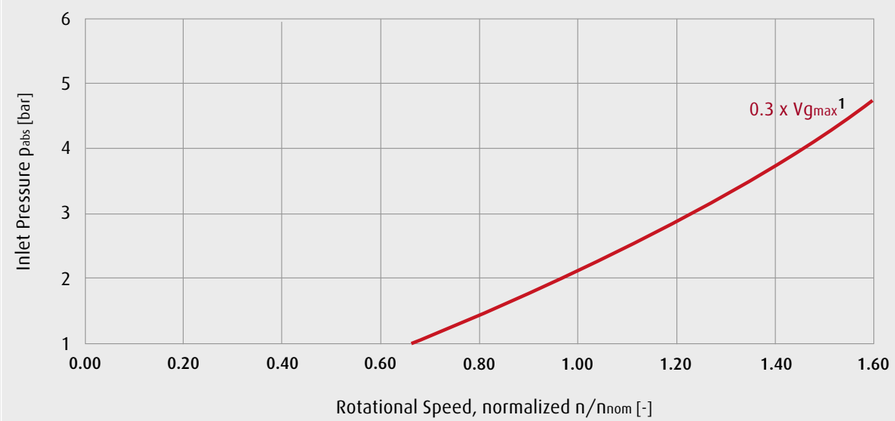
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Technical Specification | Operating Parameters | **Pressure**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

Minimum inlet pressure



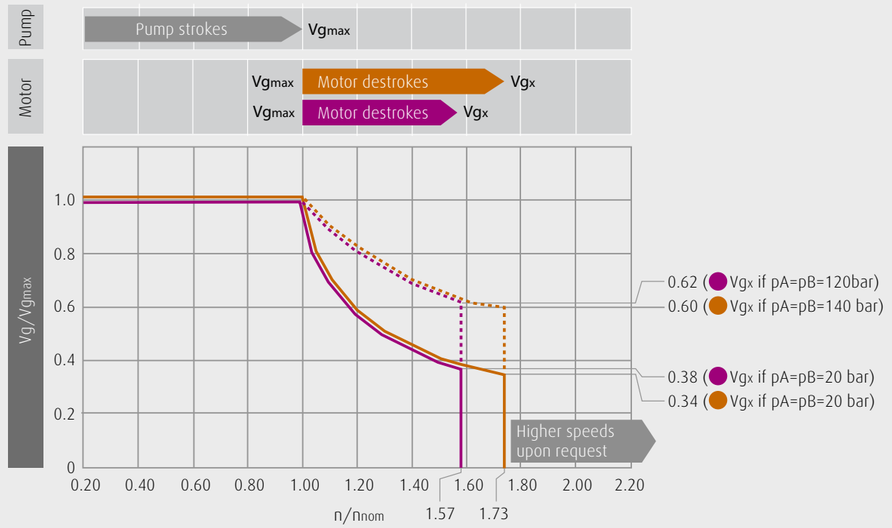


Data shown related to nominal size	1	CMV 85, CMV 115, CMV 140, CMV 170, CMV 215						
		(data related to other sizes upon request)						

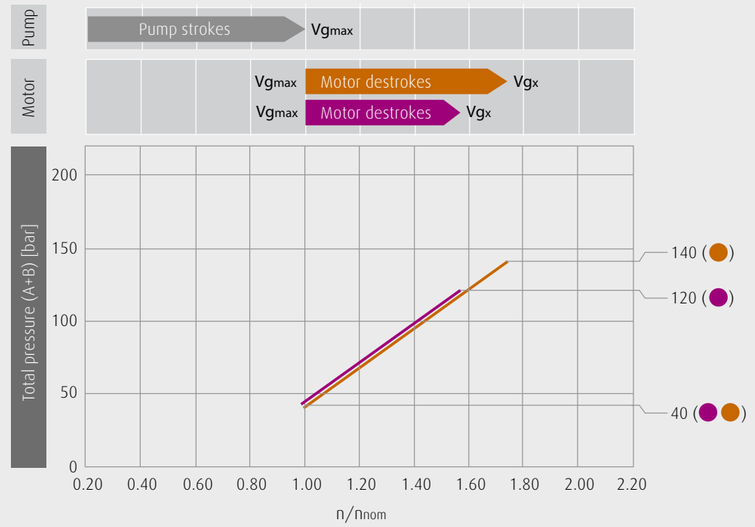
Technical Specification | Operating Parameters | **Displacement/Speed**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

Permissible displacement as a function of speed



Required total pressure as a function of speed



Data shown related to nominal size

- CMV 85, CMV 115, CMV 140
- CMV 170, CMV 215

Technical Specification | Operating Parameters | **Operating Conditions**

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In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

General technical data					
				Beneficial conditions for long service life	**Adverse factors** for long service life
Nominal size				All sizes	All sizes
Speed	Speed			Lower continuous maximum speed	Between nominal speed and maximum speed
Pressure	Operating pressure		bar	<300 on average	>300 on average
	Max. pressure			Only at reduced displacement	
Power				Continuous power or lower	Continuous operation close to maximum power
Fluid	Viscosity		Centistokes (cSt)	15 ... 30	
	Purity of fluid			In accordance with ISO 4406	In accordance with ISO 4406
				18/16/13 or better	Worse than 18/16/13

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Technical Specification | Operating Parameters | **Filtration**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

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.
Comparable international standards	Purity class according to ISO 4406 — corresponds to — Purity class according to SAE AS 4059 E 18/16/13 — 8A/7B/7C 20/18/15 — 9A/8B/8C

Technical Specification | Operating Parameters | **Pressure Fluid**

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In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

Pressure fluid			
Pressure fluid	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

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Technical Specification | Operating Parameters | **Temperature/Viscosity**

In the following you will find the operating parameters which should be considered to ensure safe operation under all prevailing conditions and a long service life of the CMV.

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.

Viscosity/Temperature				
Temperature	Perm. pressure fluid temperature range		[°C]	-20 à +105 °C
Viscosity	Recommended viscosity ranges	Working viscosity range	[mm²/s] = [cSt]	10 to 80 cSt
		Optimum working viscosity	[mm²/s] = [cSt]	15 to 30 cSt
		Max. viscosity (short time during cold start)	[mm²/s] = [cSt]	1000 cSt
	Optimum viscosity at temperature	Working temperature	[°C]	Viscosity class [mm²/s] = [cSt] at 40 °C
		approx. 30 to 40		22 cSt
		approx. 40 to 60		32 cSt
		approx. 60 to 80		46 or 68 cSt

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **M4/CMV60**

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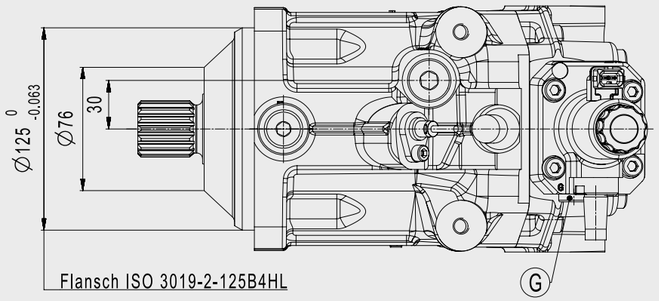
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



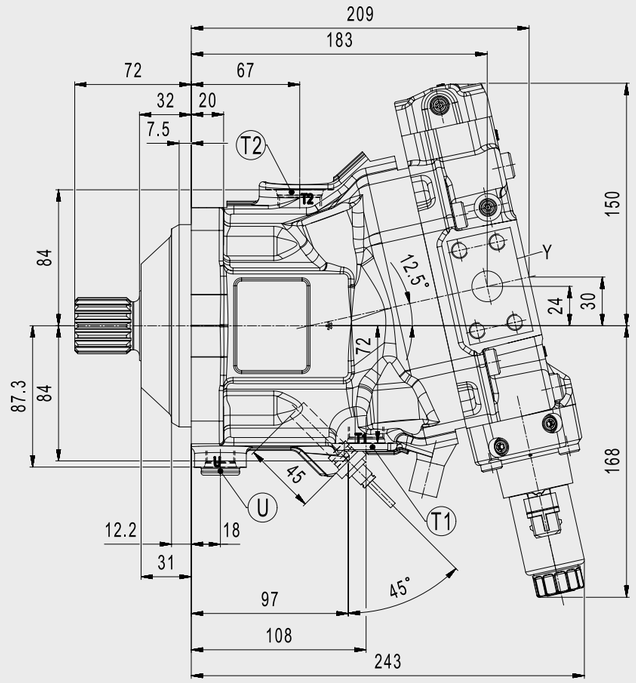
A	High pressure work port, ISO 6162-2, If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX	Pressure equalization port
		BX	
B	High pressure work port, ISO 6162-2, If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149
		T2	Drain / vent port, ISO 6149

G	Ext. control pressure supply, ISO 6149		
U	Bearing flush port, ISO 6149		
Y1	Measuring port, ISO 6149		

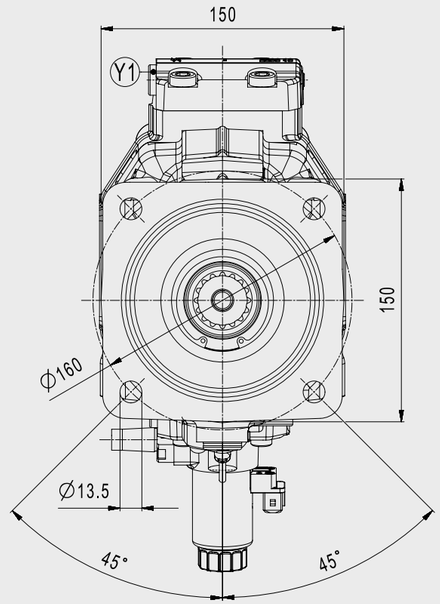
Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **M4/CMV60**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149
		T2	Drain / vent port, ISO 6149

G	Ext. control pressure supply, ISO 6149		
U	Bearing flush port, ISO 6149		
Y1	Measuring port, ISO 6149		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **M4/CMV60**

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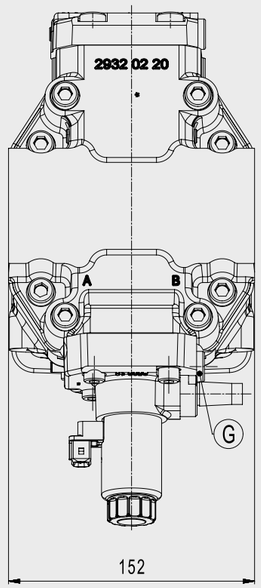
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



Dimensions

A	High pressure work port, ISO 6162-2, If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149
		T2	Drain / vent port, ISO 6149

G	Ext. control pressure supply, ISO 6149		
U	Bearing flush port, ISO 6149		
Y1	Measuring port, ISO 6149		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **N4/CMV85**

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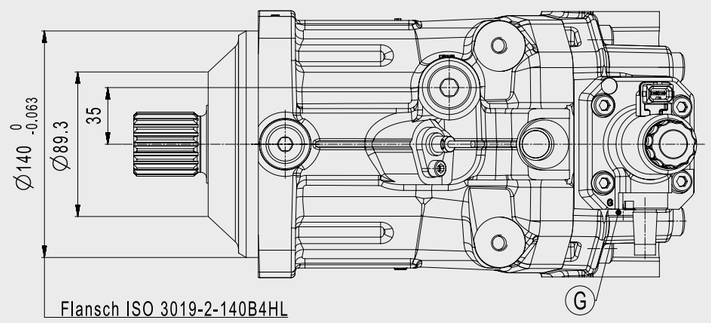
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



Dimensions

A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX	Pressure equalization port
		BX	
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M22x1.5, 15.5 mm deep
		T2	Drain / vent port, ISO 6149, M27x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

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ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

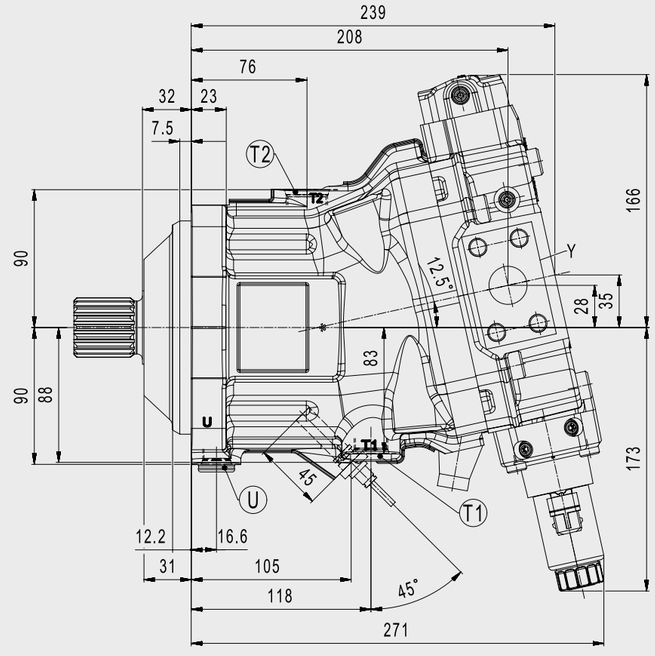
ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

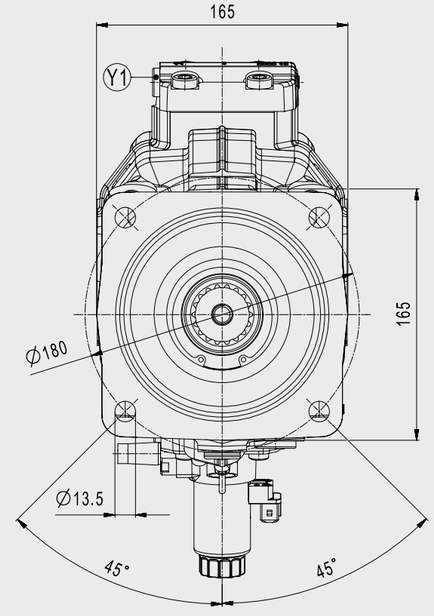
Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **N4/CMV85**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1 T2	Drain / vent port, ISO 6149, M22x1.5, 15.5 mm deep Drain / vent port, ISO 6149, M27x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

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Work Ports
Auxiliary Ports
Functions/Options

ISO 3019-1/ SAE J744
C4 / CMV 60
C2 / CMV 85
D4 / CMV 115
D4 / CMV 140
D4 / CMV 170
E4 / CMV 215

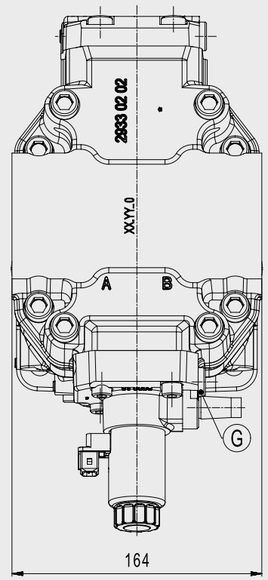
ISO 3019-2 metric
M4 / CMV 60
N4 / CMV 85
P4 / CMV 115
R4 / CMV 140
R4 / CMV 170
S4 / CMV 215

Plug-in, similar to ISO 3019-2
P2 / CMV 60
Y2 / CMV 85
S2 / CMV 115
S2 / CMV 140
S2 / CMV 170
Z4 / CMV 215

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **N4/CMV85**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



Dimensions

A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M22x1.5, 15.5 mm deep
		T2	Drain / vent port, ISO 6149, M27x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **P4/CMV115**

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- Modelcode & Availability

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  - Connectors
- Mechanical Interfaces
  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

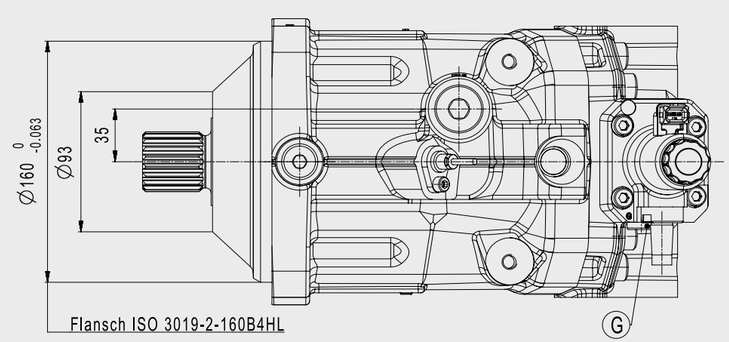
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



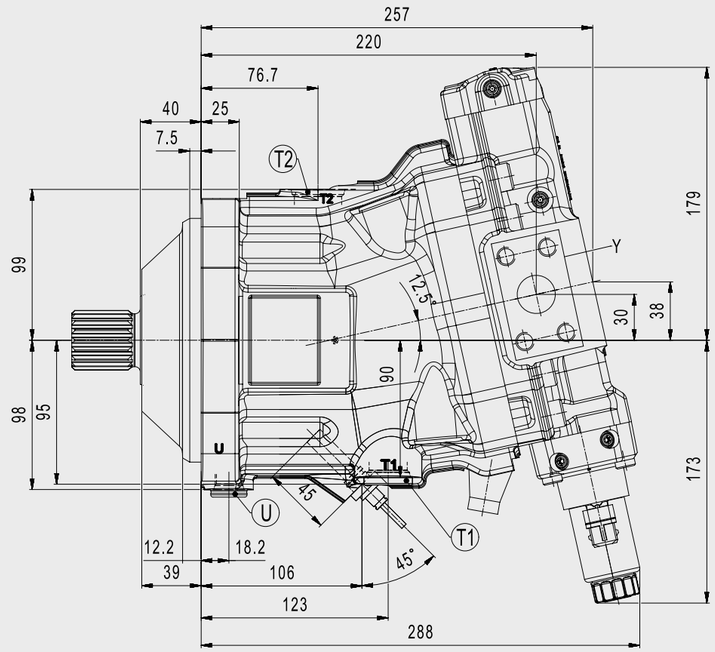
A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

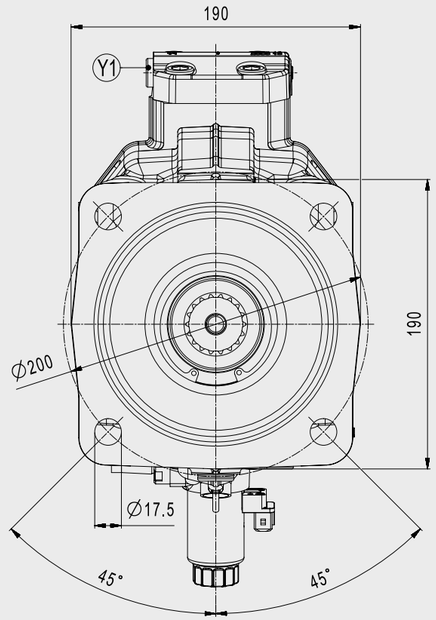
Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **P4/CMV115**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **P4/CMV115**

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- Mechanical Interfaces
  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

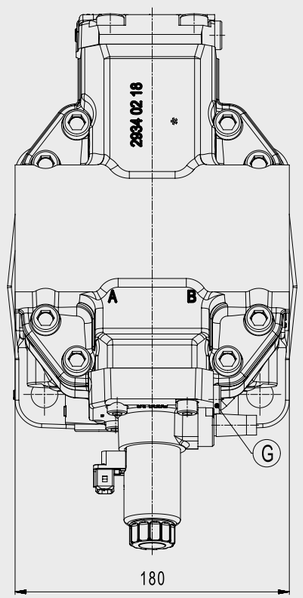
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



Dimensions

A	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M18x1.5, 14.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV140**

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  - Connectors
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  - Flanges
  - Shafts
- Hydraulical Interfaces
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  - Auxiliary Ports
- Functions/Options

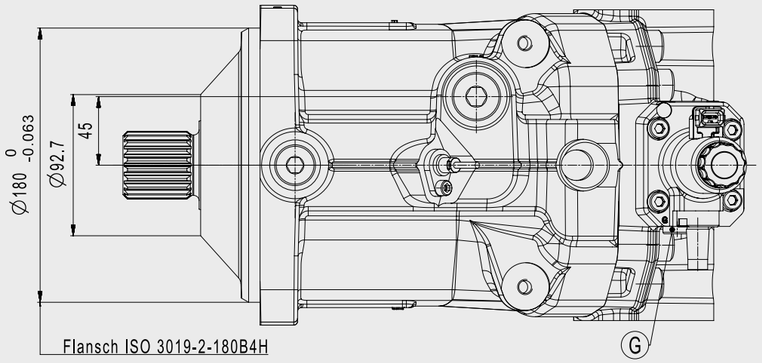
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV140**

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  - Auxiliary Ports
- Functions/Options

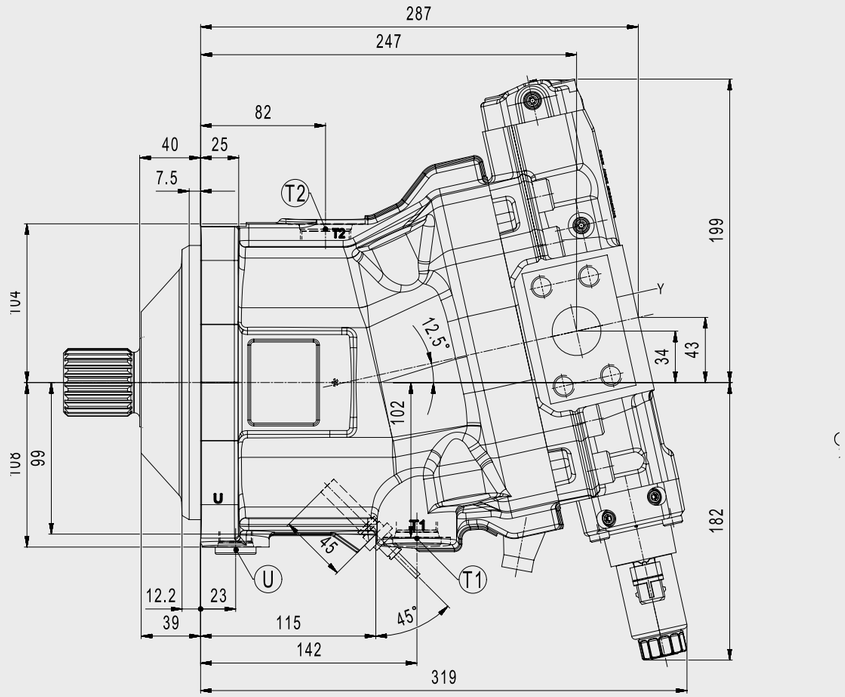
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

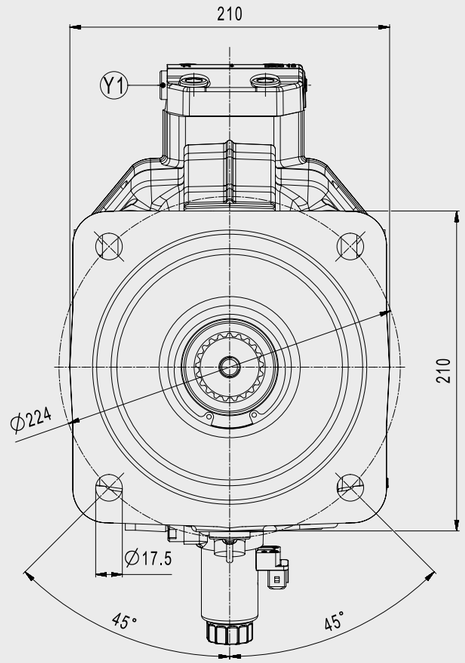
Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV140**

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  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

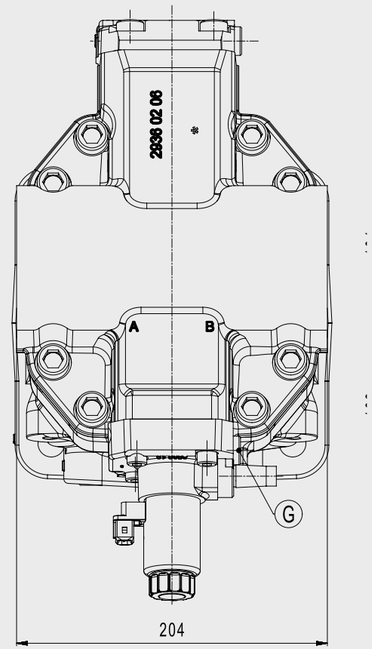
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



Dimensions

A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

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ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

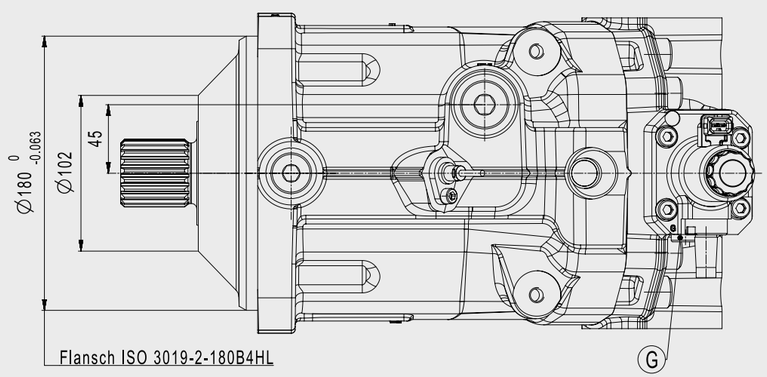
ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV170**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



Dimensions

A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port, ISO 6149, M14x1.5, 11.5 mm deep
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV170**

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  - Connectors
- Mechanical Interfaces
  - Flanges
  - Shafts
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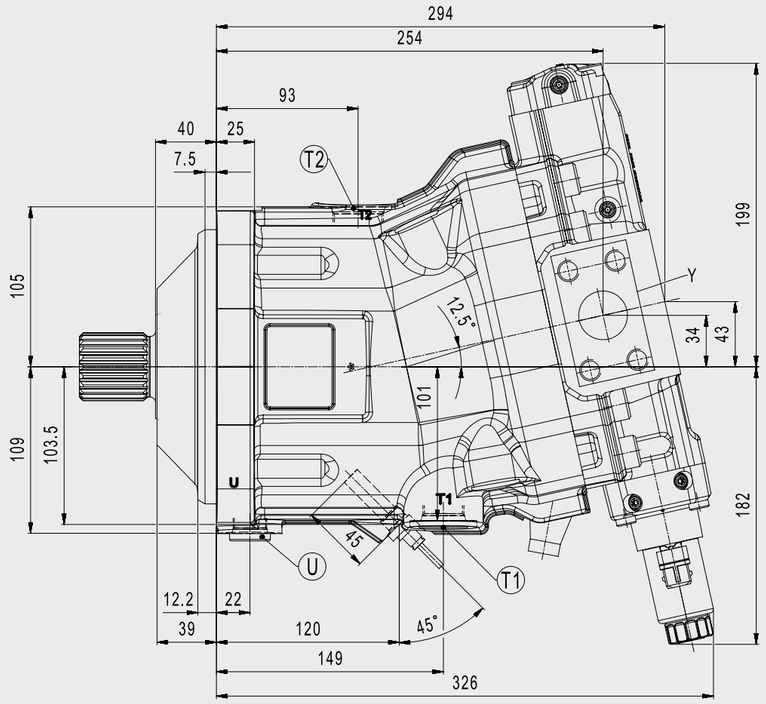
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

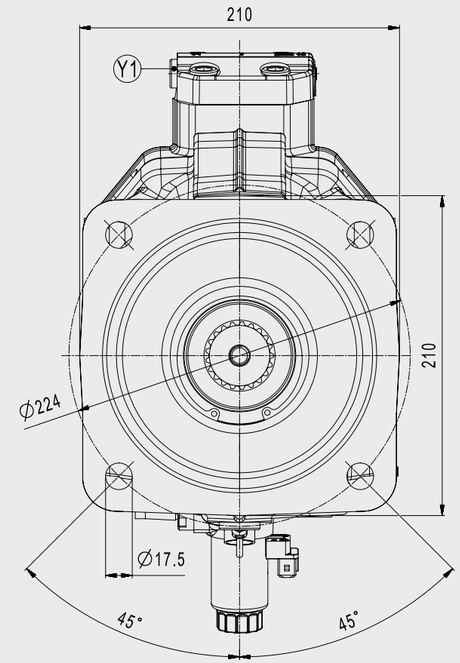
Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port, ISO 6149, M14x1.5, 11.5 mm deep
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1 T2	Drain / vent port, ISO 6149, M27x2, 19 mm deep Drain / vent port, ISO 6149, M33x2, 19 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **R4/CMV170**

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  - Connectors
- Mechanical Interfaces
  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

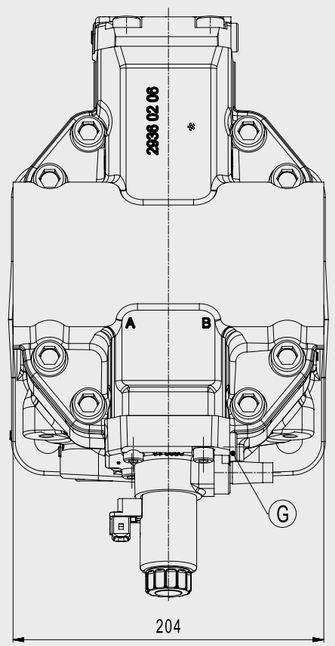
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



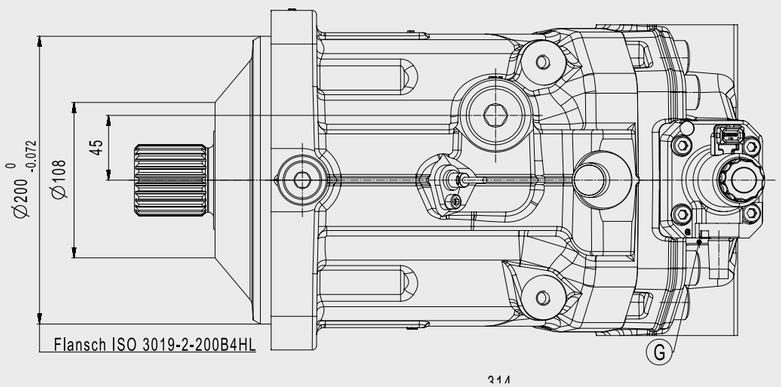
Dimensions

A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX	Pressure equalization port, ISO 6149, M14x1.5, 11.5 mm deep	G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
		BX		U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M27x2, 19 mm deep	Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		
		T2	Drain / vent port, ISO 6149, M33x2, 19 mm deep				

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **S4/CMV215**

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Top view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port, ISO 6149, M22x1.5, 15.5 mm deep
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M33x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M42x2, 19.5 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **S4/CMV215**

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- General Technical Data
- Operating Parameters
- Controls
- Sensors
- Electric Interfaces
  - Connectors
- Mechanical Interfaces
  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

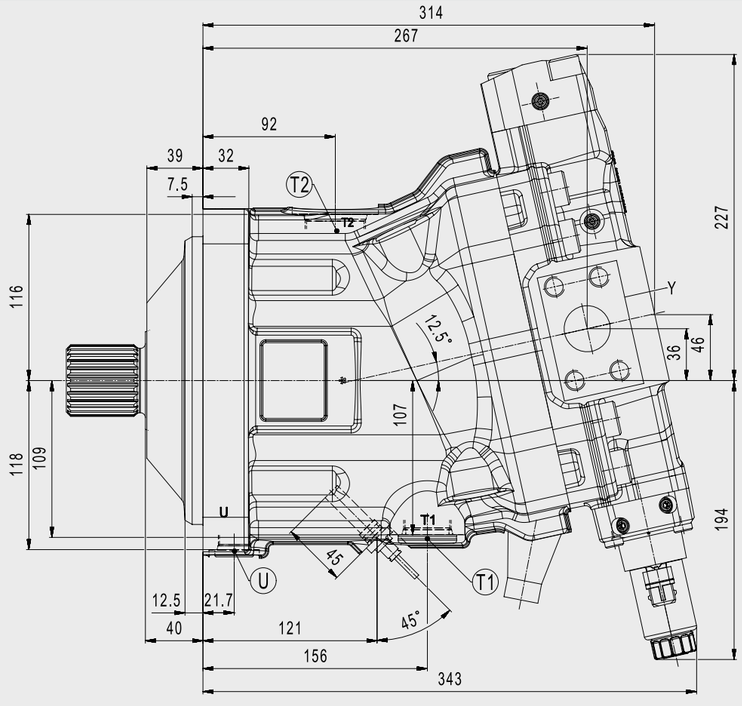
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

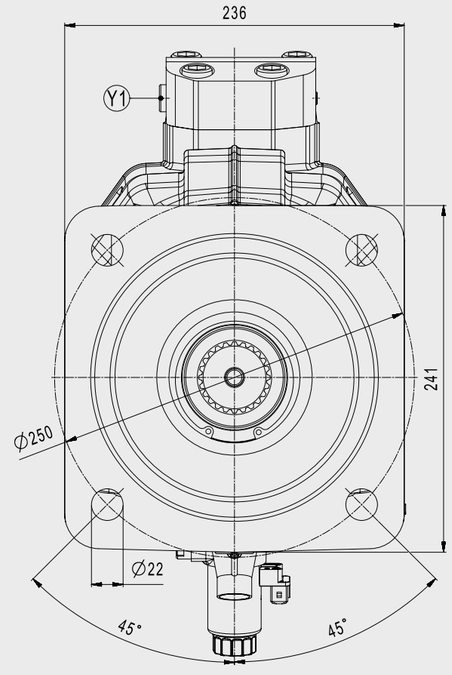
Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Side view



Dimensions - Front view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port, ISO 6149, M22x1.5, 15.5 mm deep
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M33x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M42x2, 19.5 mm deep

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		

Technical Specification | Mounting Flanges Auxiliary Ports | ISO 3019-2 metric | **S4/CMV215**

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  - Connectors
- Mechanical Interfaces
  - Flanges
  - Shafts
- Hydraulical Interfaces
  - Work Ports
  - Auxiliary Ports
- Functions/Options

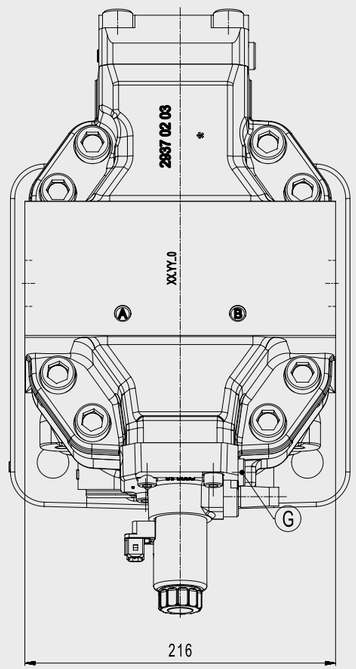
ISO 3019-1/ SAE J744
- C4 / CMV 60
- C2 / CMV 85
- D4 / CMV 115
- D4 / CMV 140
- D4 / CMV 170
- E4 / CMV 215

ISO 3019-2 metric
- M4 / CMV 60
- N4 / CMV 85
- P4 / CMV 115
- R4 / CMV 140
- R4 / CMV 170
- S4 / CMV 215

Plug-in, similar to ISO 3019-2
- P2 / CMV 60
- Y2 / CMV 85
- S2 / CMV 115
- S2 / CMV 140
- S2 / CMV 170
- Z4 / CMV 215

In the following you will find the technical specifications of the mounting flanges and auxiliary ports. They are clustered according to the standard and nominal sizes. First get an overview of the dimensions. Note the short designations such as „C4“ or „E4“. In the section [Model Code & Availability] you can then check the availability of the mounting flange as well as auxiliary ports and compile your desired configuration using the short designations as a segment of the model code.

Dimensions - Back view



A	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs clockwise Nom. pres.: 450 bar, max. press.: 500 bar	AX BX	Pressure equalization port, ISO 6149, M22x1.5, 15.5 mm deep
B	High pressure work port, ISO 6162-2, SAE 1 1/4“ If pressurised - motor runs counter-clockwise Nom. pres.: 450 bar, max. press.: 500 bar	T1	Drain / vent port, ISO 6149, M33x2, 19 mm deep
		T2	Drain / vent port, ISO 6149, M42x2, 19.5 mm deep

Dimensions

G	Ext. control pressure supply, ISO 6149, M14x1.5, 11.5 mm deep		
U	Bearing flush port, ISO 6149, M22x1.5, 15.5 mm deep		
Y1	Measuring port, ISO 6149, M14x1.5, 11.5 mm deep		