

OVERVIEW

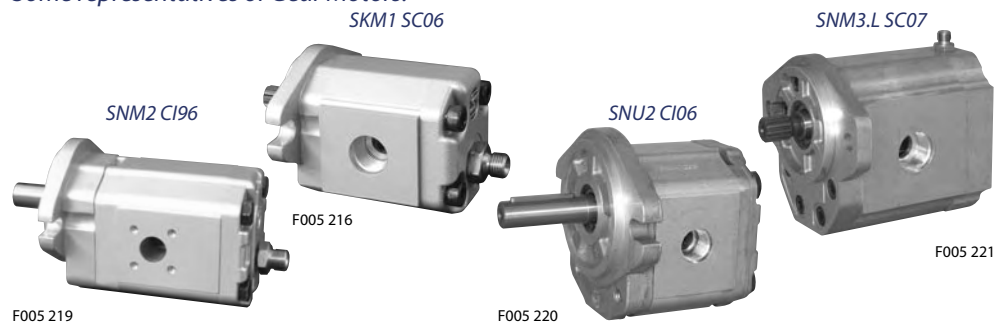
The Sauer-Danfoss Gear Motors is a range of peak performance fixed displacement hydraulic motors available in three different frame sizes: Group 1, Group 2 and Group 3, all as uni- and bi-directional version.

Constructed of a high strength extruded aluminum body with aluminum rear cover and aluminum front flange, all motors are balanced for exceptional efficiency and designed to ensure an excellent starting torque and, in the bi-directional version, to guarantee the ability to work with high back pressure and extremely low system pressure.

The flexibility of the range in each frame size combined with the high efficiency and low starting torque makes the Sauer-Danfoss Gear Motors ideal for a wide range of applications sectors including on- and off-highway hydraulic fan drive systems, turf care, road bidge, fork lifts and municipal.

All the uni-directional motors have the same construction of the correspondent pump as well but, with inlet and outlet positioned at the opposite side for the same rotation.

Some representatives of Gear Motors:



FEATURES AND BENEFITS

Gear motors` attributes:

- Three groups of frame sizes (Group 1, 2 and 3)
- Displacements from 2.6 to 90 cm³/rev [from 0.158 to 3.425 in³/rev]
- Available in uni- and bi-directional version for all the frame sizes, displacements and configurations
- Rated pressure up to 250 bar [3625 psi] for all the frame sizes in the uni- and bi-directional version
- Back pressure capability up to 250 bar [3625 psi] for all the frame sizes in the bi-directional version
- Speeds up to 4000 min⁻¹ (rpm) for Group 1 and 2, and up to 2500 min⁻¹ (rpm) for Group 3
- SAE, ISO and DIN mounting flanges and shafts
- Available with integrated relief valve in the Group 2 frame size and integrated anti-cavitation valve in Group 2 and Group 3 frame sizes.

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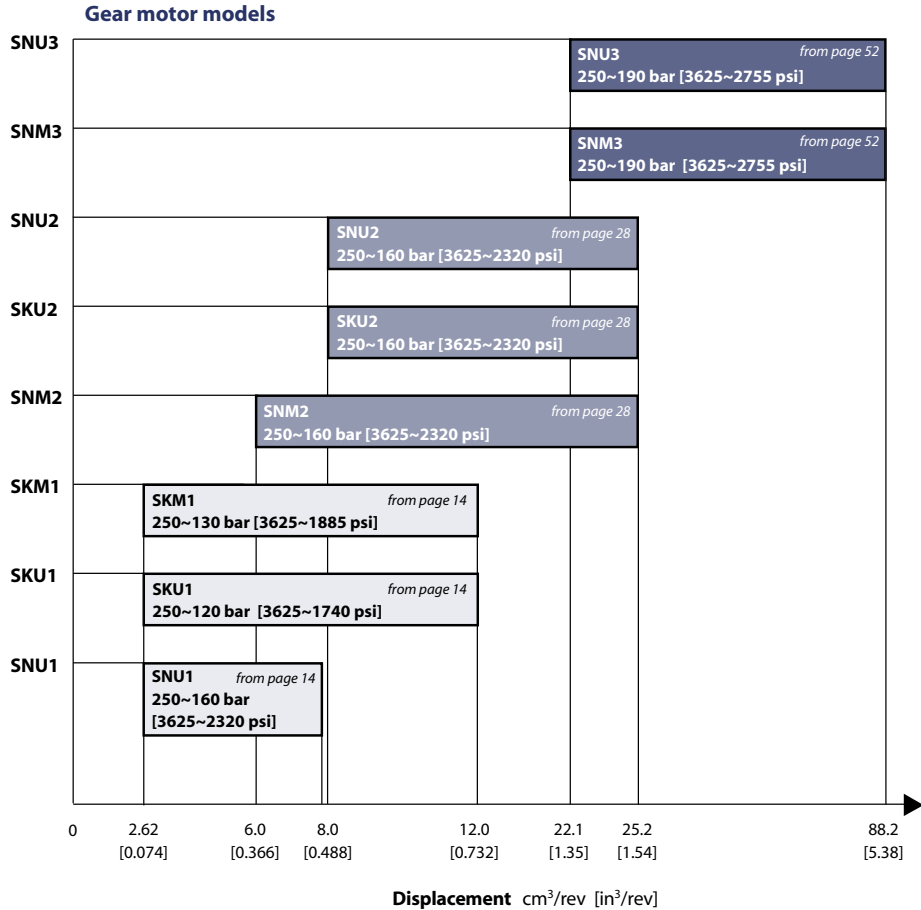
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MOTOR DISPLACEMENTS Quick reference chart for motor models



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Please consider these pressures as maximum continuous pressure.

**DETERMINATION OF
 NOMINAL MOTOR SIZES**

Use these formulas to determine the nominal motor size for a specific application.

Based on SI units

Based on US units

<i>Input flow:</i>	$Q = \frac{V_g \cdot n}{1000 \cdot \eta_v}$	l/min	$Q = \frac{V_g \cdot n}{231 \cdot \eta_v}$	[US gal/min]
<i>Output torque:</i>	$M = \frac{V_g \cdot \Delta p \cdot \eta_m}{20 \cdot \pi}$	N•m	$M = \frac{V_g \cdot \Delta p \cdot \eta_m}{2 \cdot \pi}$	[lbf•in]
<i>Output power:</i>	$P = \frac{M \cdot n}{9550} = \frac{Q \cdot \Delta p \cdot \eta_t}{600}$	kW	$P = \frac{M \cdot n}{63\,025} = \frac{Q \cdot \Delta p \cdot \eta_t}{1714}$	[hp]

Variables SI units [US units]

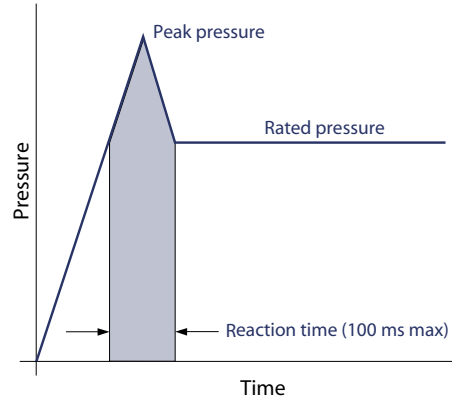
- V_g = Displacement per revolution cm³/rev [in³/rev]
- p_o = Outlet pressure bar [psi]
- p_i = Inlet pressure bar [psi]
- Δp = $p_o - p_i$ (system pressure) bar [psi]
- n = Speed min⁻¹ (rpm)
- η_v = Volumetric efficiency
- η_m = Mechanical efficiency
- η_t = Overall efficiency ($\eta_v \cdot \eta_m$)

PRESSURE

Peak pressure is the highest intermittent pressure allowed. The relief valve overshoot (reaction time) determines peak pressure. It is assumed to occur for less than 100 ms. The illustration to the right shows peak pressure in relation to rated pressure and reaction time (100 ms maximum).

Rated pressure is the average, regularly occurring operating inlet pressure that should yield satisfactory product life. The maximum machine load at the motor shaft determines rated pressure.

Time versus pressure



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System pressure is the differential between the inlet and outlet ports. It is a dominant operating variable affecting hydraulic unit life. High system pressure, resulting from high load at the motor shaft, reduces expected life. System pressure must remain at, or below, rated pressure during normal operation to achieve expected life.

Back pressure is the average, regularly occurring operating outlet pressure that should yield satisfactory bidirectional motor life. The hydraulic load demand downstream of the motor determines the back pressure. Unidirectional motors cannot work with back pressure and the maximum back pressure allowed is 5 bar [72 psi] rated and 7 bar [101 psi] as peak.

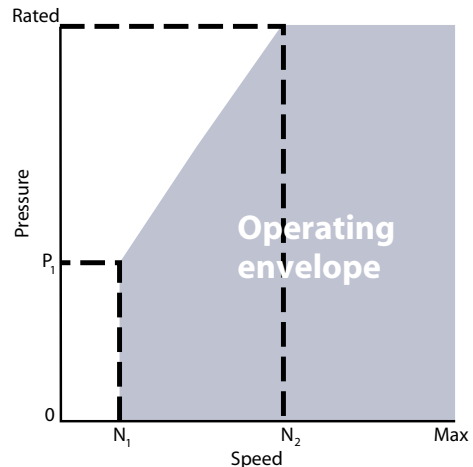
Case Drain Pressure is the regularly occurring case drain line pressure that should yield satisfactory bi-directional motors life. It is recommended to design the case drain piping connecting the case drain direct to the tank in order to keep the case drain pressure as low as possible. The max case drain pressure allowed is 3 bar [44 psi].

SPEED

Maximum speed is the limit recommended by Sauer-Danfoss for a particular gear motor when operating at rated pressure. It is the highest speed at which normal life can be expected.

The lower limit of operating speed is the **minimum speed**. It is the lowest speed at which normal life can be expected. The minimum speed increases as operating system pressure increases. When operating under higher pressures, a higher minimum speed must be maintained, as illustrated to the right.

Speed versus pressure



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HYDRAULIC FLUIDS

Ratings and data for gear motors are based on operating with premium hydraulic fluids containing oxidation, rust, and foam inhibitors. These fluids must possess good thermal and hydrolytic stability to prevent wear, erosion, and corrosion of internal components. They include:

- Hydraulic fluids following DIN 51524, part 2 (HLP) and part 3 (HVLP) specifications
- API CD engine oils conforming to SAE J183
- M2C33F or G automatic transmission fluids
- Certain agricultural tractor fluids

Use only clean fluid in the motor and hydraulic circuit.

⚠ Caution

Never mix hydraulic fluids.

Please see Sauer-Danfoss publication *Hydraulic Fluids and Lubricants Technical Information*, 520L0463 for more information. Refer to publication *Experience with Biodegradable Hydraulic Fluids Technical Information*, 520L0465 for information relating to biodegradable fluids.

TEMPERATURE AND VISCOSITY

Temperature and viscosity requirements must be concurrently satisfied. Use petroleum/mineral-based fluids.

High temperature limits apply at the inlet port of the motor. The motor should run at or below the maximum continuous temperature. The peak temperature is based on material properties. Don't exceed it.

Cold oil, generally, doesn't affect the durability of motor components. It may affect the ability of oil to flow and transmit power. For this reason, keep the temperature at 16°C [60 °F] above the pour point of the hydraulic fluid.

Minimum (cold start) temperature relates to the physical properties of component materials.

Minimum viscosity occurs only during brief occasions of maximum ambient temperature and severe duty cycle operation. You will encounter maximum viscosity only at cold start. During this condition, limit speeds until the system warms up. Size heat exchangers to keep the fluid within these limits. Test regularly to verify that these temperatures and viscosity limits aren't exceeded. For maximum unit efficiency and bearing life, keep the fluid viscosity in the recommended viscosity range.

Fluid viscosity

Maximum (cold start)	mm ² /s [SUS]	1000 [4600]
Recommended range		12-60 [66-290]
Minimum		10 [60]

Temperature

Minimum (cold start)	°C [°F]	-20 [-4]
Maximum continuous		80 [176]
Peak (intermittent)		90 [194]

FILTRATION

Filters

Use a filter that conforms to Class 22/18/13 of ISO 4406 (or better). It may be on the motor outlet (discharge filtration) or inlet (pressure filtration).

Selecting a filter

When selecting a filter, please consider:

- contaminant ingress rate (determined by factors such as the number of actuators used in the system)
- generation of contaminants in the system
- required fluid cleanliness
- desired maintenance interval
- filtration requirements of other system components

Measure filter efficiency with a Beta ratio (β_x):

- for discharge filtration with controlled reservoir ingress, use a $\beta_{35-45} = 75$ filter
- for pressure filtration, use a filtration with an efficiency of $\beta_{10} = 75$

β_x ratio is a measure of filter efficiency defined by ISO 4572. It is the ratio of the number of particles greater than a given diameter ("x" in microns) upstream of the filter to the number of these particles downstream of the filter.

Fluid cleanliness level and β_x ratio

Fluid cleanliness level (per ISO 4406)	Class 22/18/13 or better
β_x ratio (discharge filtration)	$\beta_{35-45} = 75$ and $\beta_{10} = 2$
β_x ratio (pressure filtration)	$\beta_{10} = 75$
Recommended inlet screen size	100 – 125 μm [0.0039 – 0.0049 in]

The filtration requirements for each system are unique. Evaluate filtration system capacity by monitoring and testing prototypes.

RESERVOIR

The **reservoir** provides clean fluid, dissipates heat, removes entrained air, and allows for fluid volume changes associated with fluid expansion and cylinder differential volumes. A correctly sized reservoir accommodates maximum volume changes during all system operating modes. It promotes deaeration of the fluid as it passes through, and accommodates a fluid dwell-time between 60 and 180 seconds, allowing entrained air to escape.

Minimum reservoir capacity depends on the volume required to cool and hold the oil, allowing for expansion due to temperature changes. A fluid volume of one to three times the motor output flow (per minute) is satisfactory. The minimum reservoir capacity is 125% of the fluid volume.

Put the return-line below the lowest expected fluid level to allow discharge into the reservoir for maximum dwell and efficient deaeration. A baffle (or baffles) between the return and suction lines promotes deaeration and reduces fluid surges.

LINE SIZING

Choose pipe sizes that accommodate minimum fluid velocity to reduce system noise, pressure drops, and overheating. This maximizes system life and performance. The line velocity should not exceed the values in this table:

Maximum line velocity

Inlet		2.5 [8.2]
Outlet	m/s [ft/sec]	5.0 [16.4]
Return		3.0 [9.8]

Most systems use hydraulic oil containing 10% dissolved air by volume. **Over-aeration** is the result of the flow-line restrictions. These include inadequate pipe sizes, sharp bends, or elbow fittings, causing a reduction of flow line cross sectional area. This problem will not occur if rated speed requirements are maintained, and reservoir size and location are adequate.

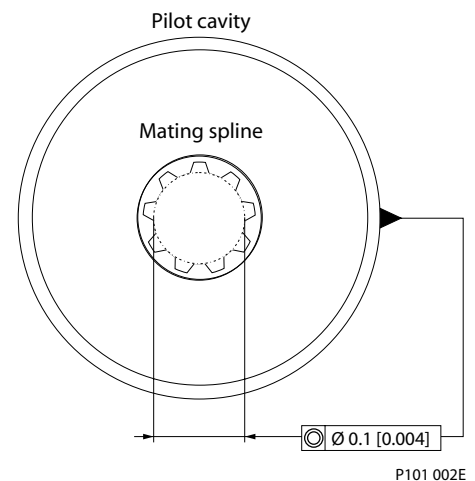
MOTOR SHAFT CONNECTION

Shaft options for gear motors include tapered, splined, parallel or Sauer-Danfoss tang shafts.

Plug-in drives, with a splined shaft, can impose severe radial loads when the mating spline is rigidly supported. Increasing spline clearance does not alleviate this condition.

Use plug-in drives if the concentricity between the mating spline and pilot diameter is within 0.1 mm [0.004 in]. Lubricate the drive by flooding it with oil. A three-piece coupling minimizes radial or thrust shaft loads.

Motor shaft connection



Caution

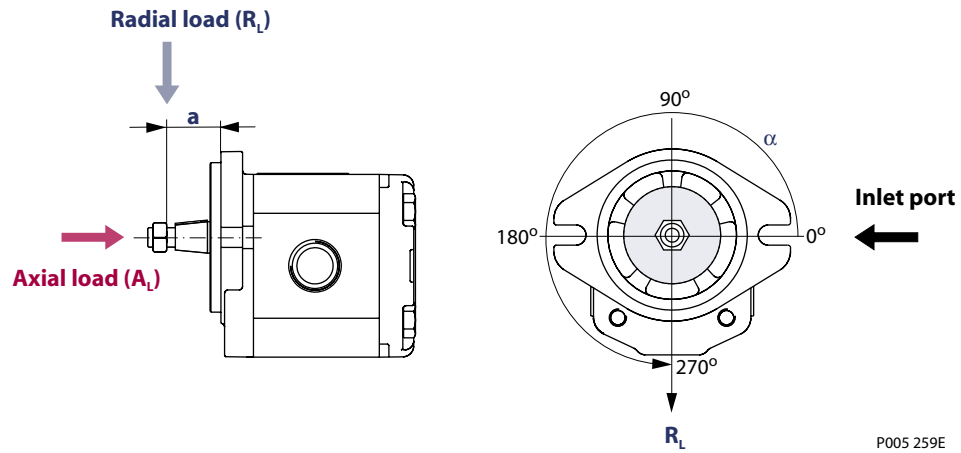
In order to avoid spline shaft damages it is recommended to use carburised and hardened steel couplings with 80-82 HRA surface hardness.

Allowable **radial shaft loads** are a function of the load position, load orientation, and operating pressure of the hydraulic motor. All external shaft loads have an effect on bearing life, and may affect motor performance.

In applications where external shaft loads can not be avoided, minimize the impact on the motor by optimizing the orientation and magnitude of the load. Avoid thrust loads in either direction. Please contact Sauer-Danfoss, if continuously applied external radial or thrust loads occur.

**MOTOR SHAFT LOAD
 DATA FORM**

Photocopy this page and fax the complete form to your Sauer-Danfoss representative for an assistance. This illustration shows a motor with counterclockwise orientation:



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Application data

Item	Value	Based on SI or US units
Motor displacement		<input type="checkbox"/> cm ³ /rev <input type="checkbox"/> in ³ /rev
Rated system pressure		<input type="checkbox"/> bar <input type="checkbox"/> psi
Peak pressure		
Motor shaft rotation		<input type="checkbox"/> left <input type="checkbox"/> right
Motor minimum speed		min ⁻¹ (rpm)
Motor maximum speed		
Radial load	R_L	<input type="checkbox"/> N <input type="checkbox"/> lbf
Angular orientation of radial load to inlet port	α	degree
Axial load	A_L	<input type="checkbox"/> N <input type="checkbox"/> lbf
Distance from flange to radial load	a	<input type="checkbox"/> mm <input type="checkbox"/> in

MOTOR LIFE

Motor life is a function of speed, system pressure, and other system parameters (such as fluid quality and cleanliness).

All Sauer-Danfoss gear motors use hydrodynamic journal bearings that have an oil film maintained between the gear/shaft and bearing surfaces at all times. If the oil film is sufficiently sustained through proper system maintenance and operating within recommended limits, long life can be expected.

B_{10} life expectancy number is generally associated with rolling element bearings. It does not exist for hydrodynamic bearings.

High pressure impacts motor life. When submitting an application for review, provide machine duty cycle data that includes percentages of time at various loads and speeds. We strongly recommend a prototype testing program to verify operating parameters and their impact on life expectancy before finalizing any system design.

MOTOR DESIGN**SKM1**

SKM1 is the Group 1 bi-directional motor available in the whole displacements range from 2.6 up to 12 cm³/rev [from 0.158 up to 0.732 in³/rev]. Configurations include European and SAE flanges and shafts (CO01, SC01, CO02, CI02, CI06, SC06).

SKM1 SC06

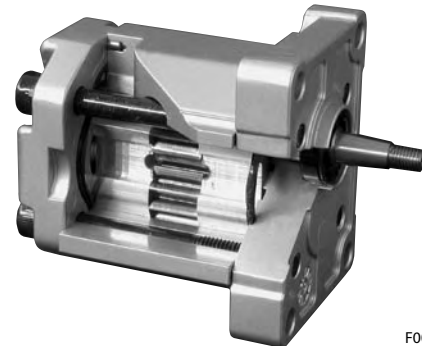
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SKU1

SKU1 is a Group 1 uni-directional motor available in the whole displacements range from 2.6 up to 12 cm³/rev [from 0.158 up to 0.732 in³/rev]. The SKU1 motor construction is derived from the correspondent pump SKP1. Configurations include European and SAE flanges and shafts (CO01, SC01, CO02, CI02, CI06, SC06).

SNU1

SNU1 is a Group 1 uni-directional motor available in a limited displacements range from 2.6 up to 7.8 cm³/rev [from 0.158 up to 0.464 in³/rev]. The SNU1 motor construction is derived from the correspondent pump SNP1. Configurations include European flange and shaft (CO01).

SNU1 CO01 (cut-away)

F005 018

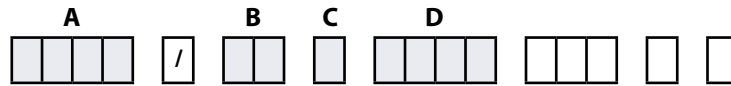
TECHNICAL DATA

This table details the technical data for Group 1 gear motors based on the model and displacement configuration.

Technical data for Group 1 gear motors

		Frame size							
		2.6	3.2	3.8	4.3	6.0	7.8	10.0	12.0
Displacement	cm ³ /rev [in ³ /rev]	2.62 [0.158]	3.14 [0.195]	3.66 [0.231]	4.19 [0.262]	5.89 [0.366]	7.59 [0.463]	9.94 [0.607]	12 [0.732]
SKM1 (a standard, bidirectional motor)									
Peak pressure	bar [psi]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	250 [3625]	220 [3190]	180 [2610]	150 [2175]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	200 [2900]	160 [2320]	130 [1895]
Back pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	200 [2900]	160 [2320]	130 [1895]
Minimum speed	min ⁻¹ (rpm)	1000	1000	1000	800	800	800	800	800
Maximum speed		4000	4000	3000	3000	2000	2000	2000	2000
SKU1 (a standard, unidirectional motor)									
Peak pressure	bar [psi]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	250 [3625]	220 [3190]	170 [2465]	140 [2030]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	200 [2900]	150 [2175]	120 [1740]
Minimum speed	min ⁻¹ (rpm)	1000	1000	1000	800	800	800	800	800
Maximum speed		4000	4000	3000	3000	2000	2000	2000	2000
SNU1 (a standard, unidirectional motor)									
Peak pressure	bar [psi]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	190 [2755]	180 [2610]		
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	170 [2465]	160 [2320]		
Minimum speed	min ⁻¹ (rpm)	1000	1000	1000	800	800	800		
Maximum speed		4000	4000	3000	3000	2000	2000		
All									
Weight	kg [lb]	1.02 [2.26]	1.14 [2.51]	1.18 [2.60]	1.20 [2.65]	1.30 [2.87]	1.39 [3.06]	1.55 [3.42]	1.65 [3.64]
Moment of inertia of rotating components	x 10 ⁻⁶ kg·m ² [x 10 ⁻⁶ lbf·ft ²]	5.1 [121.0]	5.7 [135.2]	6.4 [151.9]	7.1 [168.5]	9.3 [220.7]	11.4 [270.5]	14.6 [339.4]	17.1 [405.8]

MODEL CODE



A Type

Code	Description
SKM1	Bidirectional gear motor
SKU1	Unidirectional gear motor
SNU1	Unidirectional gear motor

B Displacement

Code	Description	SKM1	SKU1	SNU1
2.6	2.62 cm ³ /rev [0.160 in ³ /rev]	●	●	●
3.2	3.14 cm ³ /rev [0.192 in ³ /rev]	●	●	●
3.8	3.66 cm ³ /rev [0.223 in ³ /rev]	●	●	●
4.3	4.19 cm ³ /rev [0.256 in ³ /rev]	●	●	●
6.0	5.89 cm ³ /rev [0.359 in ³ /rev]	●	●	●
7.8	7.59 cm ³ /rev [0.463 in ³ /rev]	●	●	●
10.0	9.94 cm ³ /rev [0.607 in ³ /rev]	●	●	-
12.0	12.0 cm ³ /rev [0.732 in ³ /rev]	●	●	-

C Direction of rotation

Code	Description	SKM1	SKU1	SNU1
D	Right (clockwise)	●	●	●
S	Left (counterclockwise)	●	●	●

D Shaft/Mounting flange/Port configuration

Code	Description	SKM1	SKU1	SNU1
CO01	Tapered shaft 1:8/European 4-bolt flange/European flanged ports	●	●	●
CO02	Tapered shaft 1:8/European 4-bolt flange/European flanged ports	●	●	-
CI02	Parallel shaft 12.0 mm [0.472 in]/European 4-bolt flange/European flanged ports	●	●	-
CI06	Parallel shaft 12.7 mm [0.5 in]/SAE A-A flange/SAE O-ring boss ports	●	●	-
SC01	DIN splined shaft/European 4-bolt flange/European flanged ports	●	●	-
SC02	Splined shaft/European 4-bolt flange/European flanged ports	●	●	-
SC06	SAE splined shaft/SAE A-A flange/SAE O-ring boss ports	●	●	-

Legend:	
●	= Standard
○	= Optional
-	= Not Available

MODEL CODE (continued)



E Variant code (3-letter code describes variants to standard configuration)

Code	Description
CBO	Rear cover with case drain 1/4 Gas
V**	Integral relief valve/Pressure setting/Motor speed for relief valve setting in min ⁻¹ (rpm)

F Version (value representing a change to the initial project)

Code	Description
.	Initial project [*LEAVE BLANK]
1÷9 or A÷Z	It should be reserved to Sauer-Danfoss

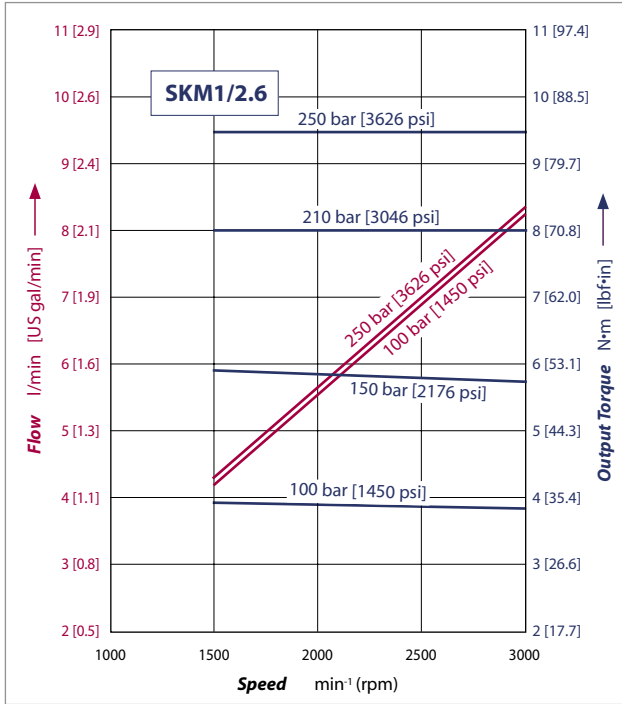
G Port type (if other than standard)

Code	Description
.	Standard port for the flange type specified [*LEAVE BLANK]
B	Flanged port with threaded holes in X pattern (German standard ports), centered on the body
C	Flanged port with threaded holes in + pattern (European standard ports)
D	Threaded metric port
E	Threaded SAE O-ring boss port
F	Threaded GAS (BSPP) port

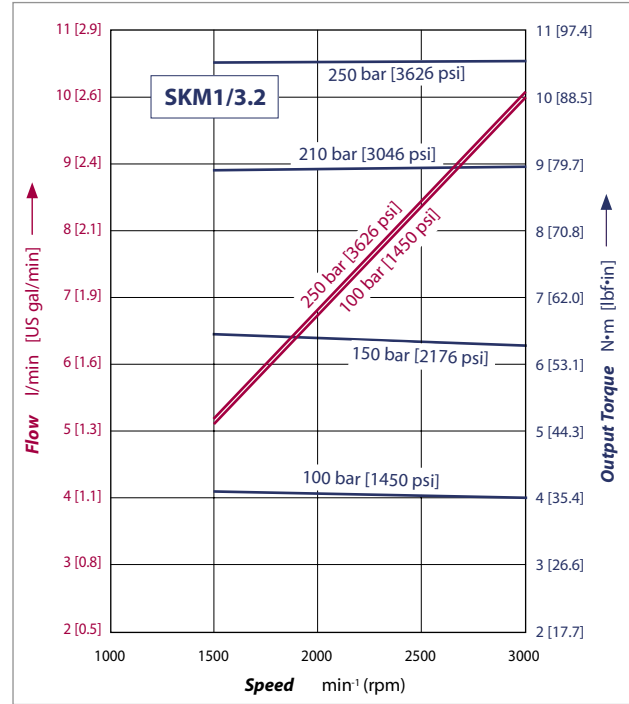
MOTOR PERFORMANCE GRAPHS

The graphs on the next pages provide typical inlet flow and output power for Group 1 motors at various working pressures. Data were taken using ISO VG46 petroleum / mineral based fluid at 50 °C [122 °F] (viscosity = 28 mm²/s [132 SUS]).

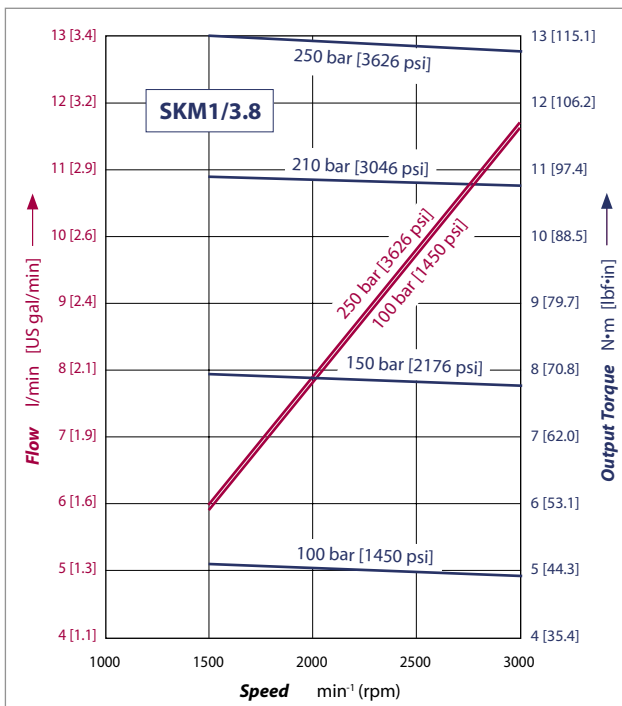
SKM1/2.6 motor performance graph



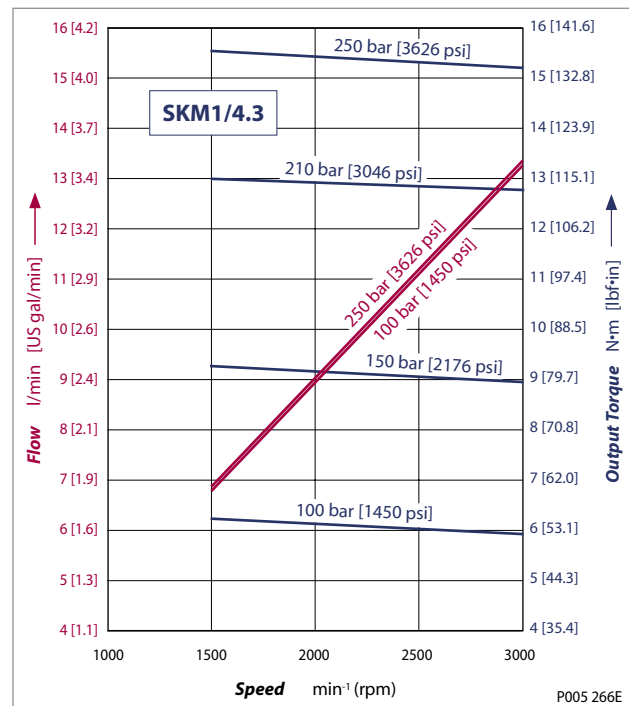
SKM1/3.2 motor performance graph



SKM1/3.8 motor performance graph



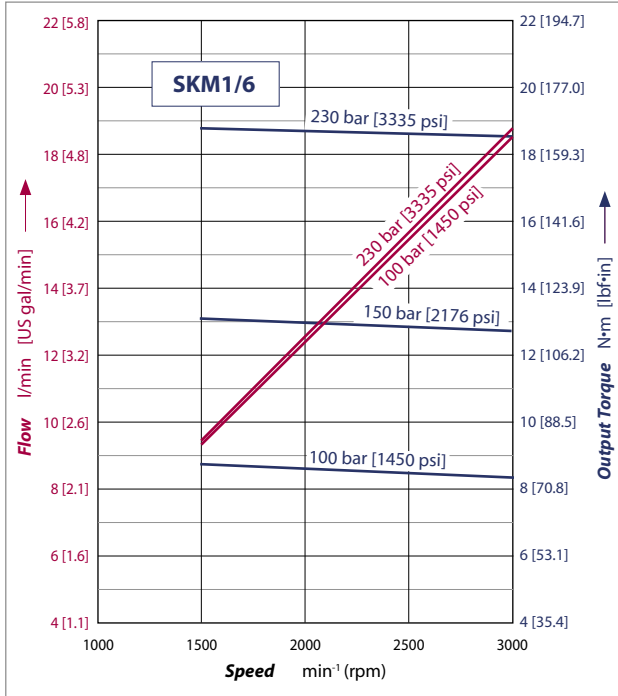
SKM1/4.3 motor performance graph



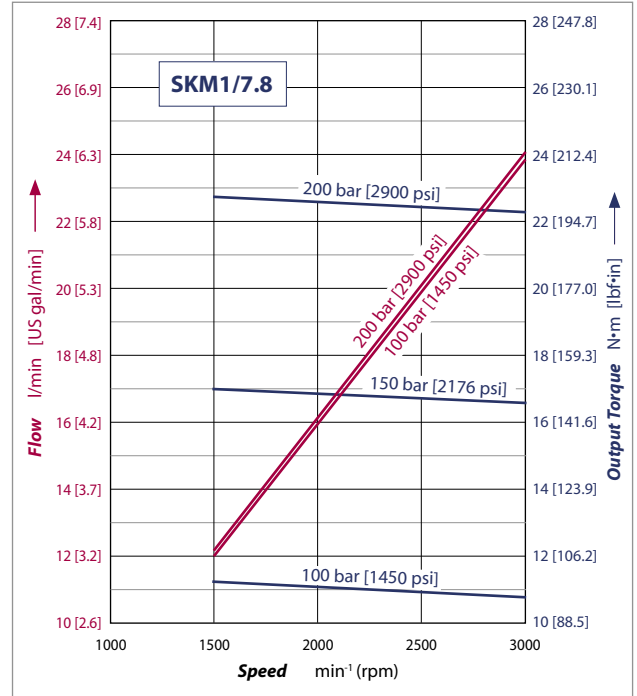
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MOTOR PERFORMANCE GRAPHS (continued)

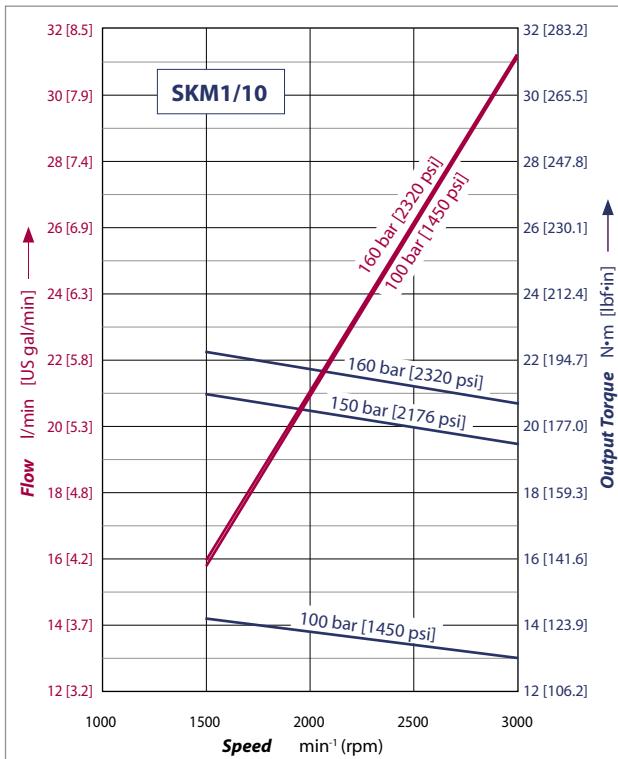
SKM1/6 motor performance graph



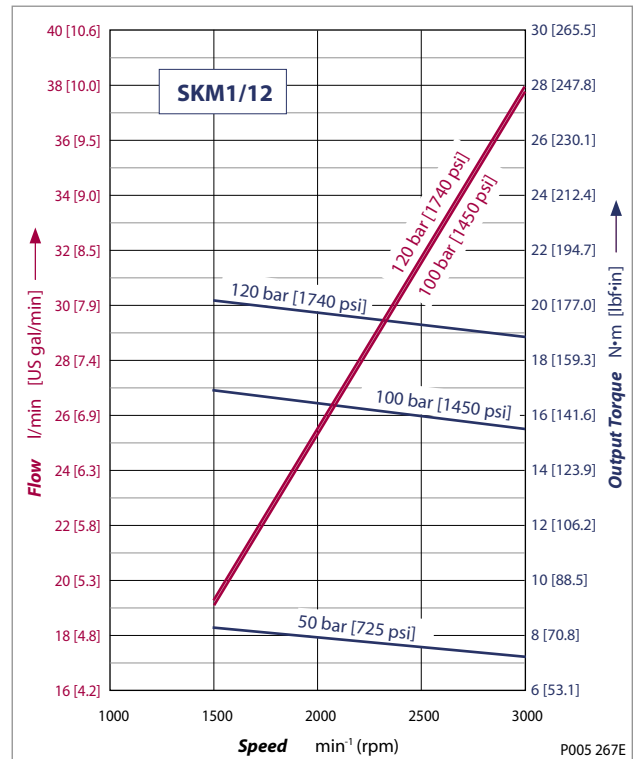
SKM1/7.8 motor performance graph



SKM1/10 motor performance graph

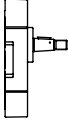
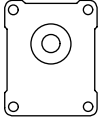
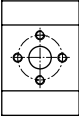
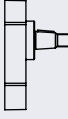
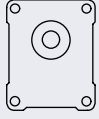
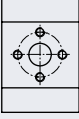
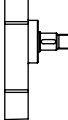
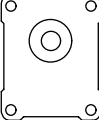
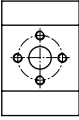
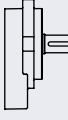
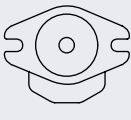

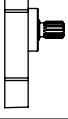
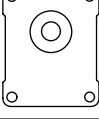
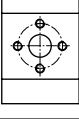
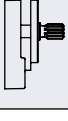
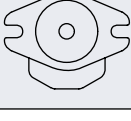
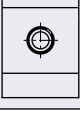


SKM1/12 motor performance graph



SHAFT, FLANGE, AND PORT CONFIGURATIONS

Shaft, flange and port configurations

Pump	Code	Shaft	Flange	Port
SKM1 SKU1 SNU1	CO01	1:8 tapered 	25.4 mm [1.0 in] pilot Ø European 4-bolt 	European flanged port + pattern 
SKM1 SKU1	CO02	1:8 tapered 	30 mm [1.181] pilot Ø European 4-bolt 	European flanged port + pattern 
SKM1 SKU1	CI02	12 mm [0.472 in] parallel 	30 mm [1.181] pilot Ø European 4-bolt 	European flanged port + pattern 
SKM1 SKU1	CI06	12.7 mm [0.5 in] parallel 	SAE A-A 2-bolt 	Threaded SAE O-ring boss 
SKM1 SKU1	SC01	15-teeth splined $m = 0.75$ $\alpha = 30^\circ$ 	25.4 mm [1.0 in] pilot Ø European 4-bolt 	European flanged port + pattern 
SKM1 SKU1	SC06	9-teeth splined SAE A-A 	SAE A-A 2-bolt 	Threaded SAE O-ring boss 

SHAFT OPTIONS

Group 1 motors are available with a variety of splined, parallel, and tapered shaft ends. Not all shaft styles are available with all flange styles.

Valid combinations and nominal torque ratings are shown *in the table below*.

Shaft availability and torque capability



Shaft		Mounting flange code with maximum torque, N•m [[lbf•in]		
Code	Description	01	02	06
CO	Taper 1:8	25 [221]	50 [442]	-
SC	Spline 15-T	35 [310]	-	-
SC	SAE spline J498-9T-20/40 DP	-	-	34 [301]
CI	Parallel 12 mm [0.472 in]	-	24 [212]	-
CI	Parallel 12.7 mm [0.5 in]	-	-	32 [283]

Recommended mating splines for Group 1 splined output shafts should be in accordance with SAE J498 or DIN 5482. Sauer-Danfoss external SAE splines are flat root side fit with circular tooth thickness reduced by 0.127 mm [0.005 in] in respect to class 1 fit. The external DIN splines have an offset increased by 0.1 mm [0.004 in]. These dimensions are modified in order to assure a clearance fit with the mating spline.

Other shaft options may exist. Contact your Sauer-Danfoss representative for availability.

⚠ Caution

Shaft torque capability may limit allowable pressure. Torque ratings assume no external radial loading. Applied torque must not exceed these limits, regardless of stated pressure parameters. Maximum torque ratings are based on shaft torsional fatigue strength.

MOUNTING FLANGES

Sauer-Danfoss offers many types of industry standard mounting flanges. *The table below* shows order codes for each available mounting flange and its intended use:

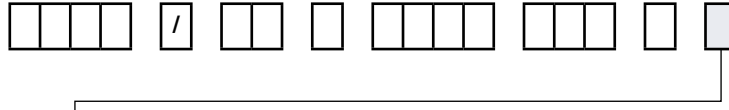


Flange code	Intended use
01	European Ø 25.4 mm [Dia1.0 in] four-bolt
02	European Ø 30 mm [Dia1.181 in] four-bolt
06	SAE A-A

PORT CONFIGURATIONS

This table lists standard porting offered with each mounting flange:

Standard port configurations



Code	Description	Standard on
C	Flanged port with threaded holes in + pattern (European standard)	01,02 flanges
E	Threaded SAE O-ring boss port	06 flange

Nonstandard port configurations

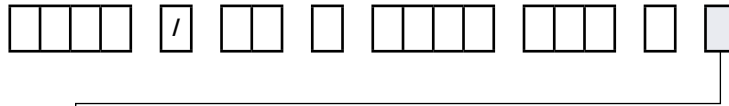
Each mounting flange comes with a standard port style. The code is only required when ordering nonstandard ports.

Various port configurations are available on Group 1 motors. They include:

- European standard flanged ports
- German standard flanged ports
- Gas threaded ports (BSPP)
- O-ring boss (following SAE J1926/1 [ISO 11926-1] UNF threads, standard)

The tables of dimensions follow on next pages.

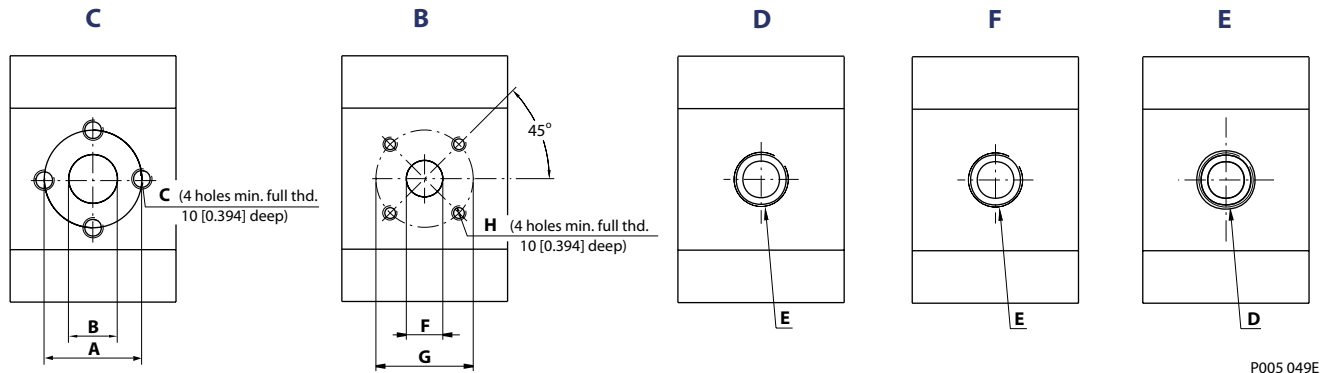
Here are a few nonstandard port configuration codes:



Code	Description
B	Flanged port with threaded holes in X pattern (German standard), centered on the body
C	Flanged port with threaded holes in + pattern (European standard)
D	Threaded metric port
E	Threaded SAE O-ring boss port
F	Threaded GAS (BSPP)

SKM1 PORTS

The illustration below shows ports for bi-directional motors.



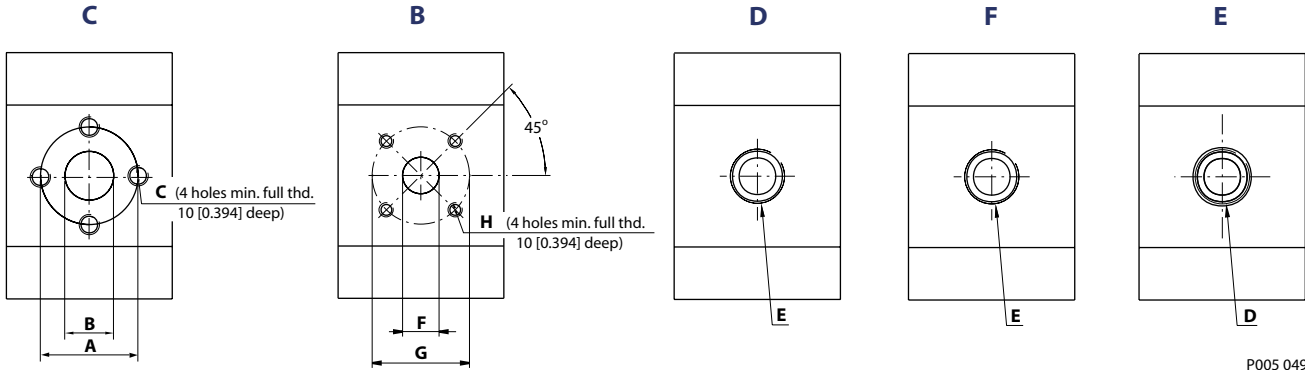
SKM1 motor ports dimensions

Model code*		C			B			D	F	E
Standard port for flange code		01			02			nonstandard		06
Type (displacement)		B	A	C	F	G	H	E	E	D
2.6	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
3.2	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
3.8	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
4.3	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
6.0	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
7.8	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
10.0	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
12.0	Inlet/Outlet	12 [0.472]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	3/8 Gas (BSPP)	3/4-16UNF-2B
Drain (only SKM1)		M12x1.5			M12x1.5			M12x1.5	1/8 Gas (BSPP)	7/16-20UNF-2B

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark ‘.’

SNU1, SKU1 PORTS

The illustration below shows ports for uni-directional motors.



P005 049E

SNU1, SKU1 motor ports dimensions

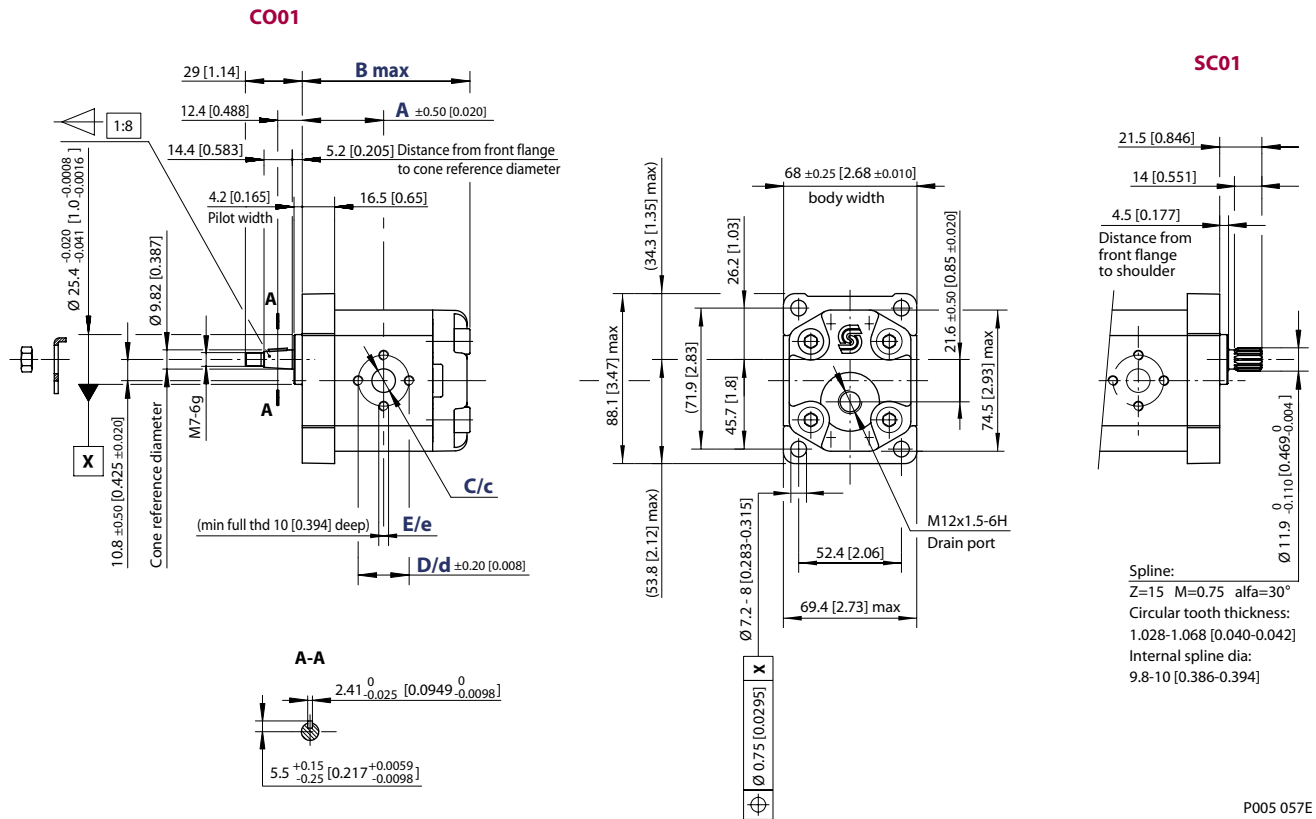
Model code*		C			B			D	F	E
Standard port for flange code		01/02			nonstandard (ports centered on the body)			03	nonstandard	06
Type (displacement)		B	A	C	F	G	H	E	E	D
2.6	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	8 [0.315]	30 [1.181]	M6	M14x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
3.2	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	8 [0.315]	30 [1.181]	M6	M14x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
3.8	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	8 [0.315]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
4.3	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	8 [0.315]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
6.0	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
7.8	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
10.0	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B
12.0	Outlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	³ / ₄ -16UNF-2B
	Inlet	12 [0.462]	26 [1.024]	M5	13 [0.512]	30 [1.181]	M6	M18x1.5	³ / ₈ Gas (BSPP)	⁹ / ₁₆ -18UNF-2B

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark ‘.’

SKM1, SKU1, SNU1
- CO01 AND SC01

Standard porting drawing for SC01 and CO01

mm
 [in]



P005 057E

For uni-directional motors no case drain hole into the rear cover.

*SKM1 – CO01 and SC01 dimensions**

Type (displacement)		2.6	3.2	3.8	4.3	6.0	7.8	10.0	12.0
Dimension	A	40.5 [1.594]	41.5 [1.634]	42.5 [1.673]	43.5 [1.713]	46.75 [1.841]	50.0 [1.969]	54.5 [2.146]	58.5 [2.303]
	B	85.0 [3.346]	87.0 [3.425]	89.0 [3.504]	91.0 [3.583]	97.5 [3.839]	104.0 [4.094]	113.0 [4.449]	121.0 [4.764]
Inlet/Outlet	C/c	12 [0.472]							
	D/d	26 [1.024]							
	E/e	M5							

* For uni-directional SNU1, SKU1 dimensions, see *SNU1, SKU1 ports*, page 24.

*Model code examples***

Bi-directional motors SKM1	SKM1/6 . CO01 ... SKM1/12 . SC01 ...
Uni-directional motors SKU1, SNU1	SKU1/6 S CO01 ... SNU1/10 D SC01 ...

Maximum shaft torque

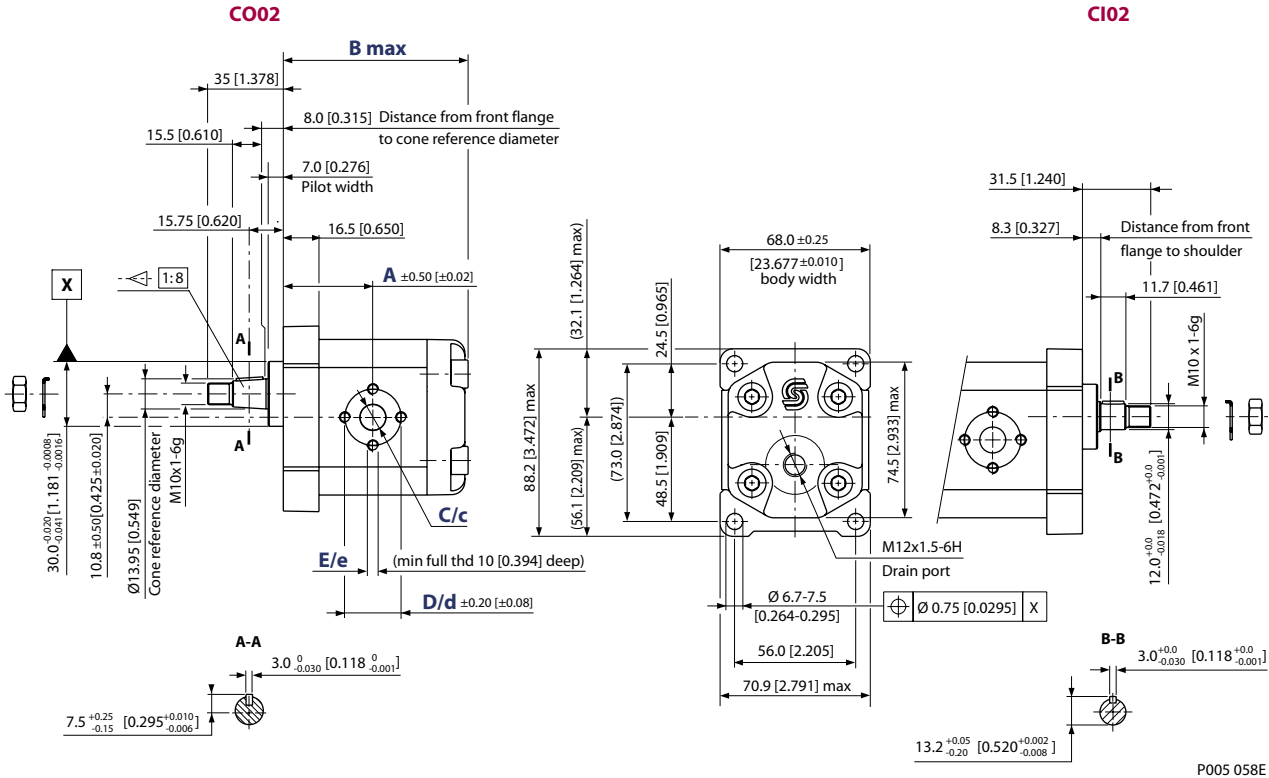
Maximum shaft torque	N·m [lbf·in]	CO01	SC01
		25 [221]	35 [310]

** For further details on ordering, see *Model codes*, pages 16 and 17.

SKM1, SKU1 – CO02 AND CI02

Standard porting drawing for CO02 and CI02

mm
 [in]



P005 058E

For uni-directional motors no case drain hole into the rear cover.

*SKM1 – CO02 and CI02 dimensions**

Type (displacement)	2.6	3.2	3.8	4.3	6.0	7.8	10.0	12.0	
Dimension	A	40.5 [1.594]	41.5 [1.634]	42.5 [1.673]	43.5 [1.713]	46.75 [1.841]	50.0 [1.969]	54.5 [2.146]	58.5 [2.303]
	B	85.0 [3.346]	87.0 [3.425]	89.0 [3.504]	91.0 [3.583]	97.5 [3.839]	104.0 [4.094]	113.0 [4.449]	121.0 [4.764]
Inlet/Outlet	C/c	12 [0.472]							
	D/d	26 [1.024]							
	E/e	M5							

* For uni-directional SNU1, SKU1 dimensions, see *SNU1, SKU1 ports*, page 24.

*Model code examples***

Bi-directional motors SKM1	SKM1/6 . CO02 ... SKM1/12 . CI02 ...
Uni-directional motors SKU1, SNU1	SKU1/6 S CO02 ... SNU1/10 D CI02 ...

Maximum shaft torque

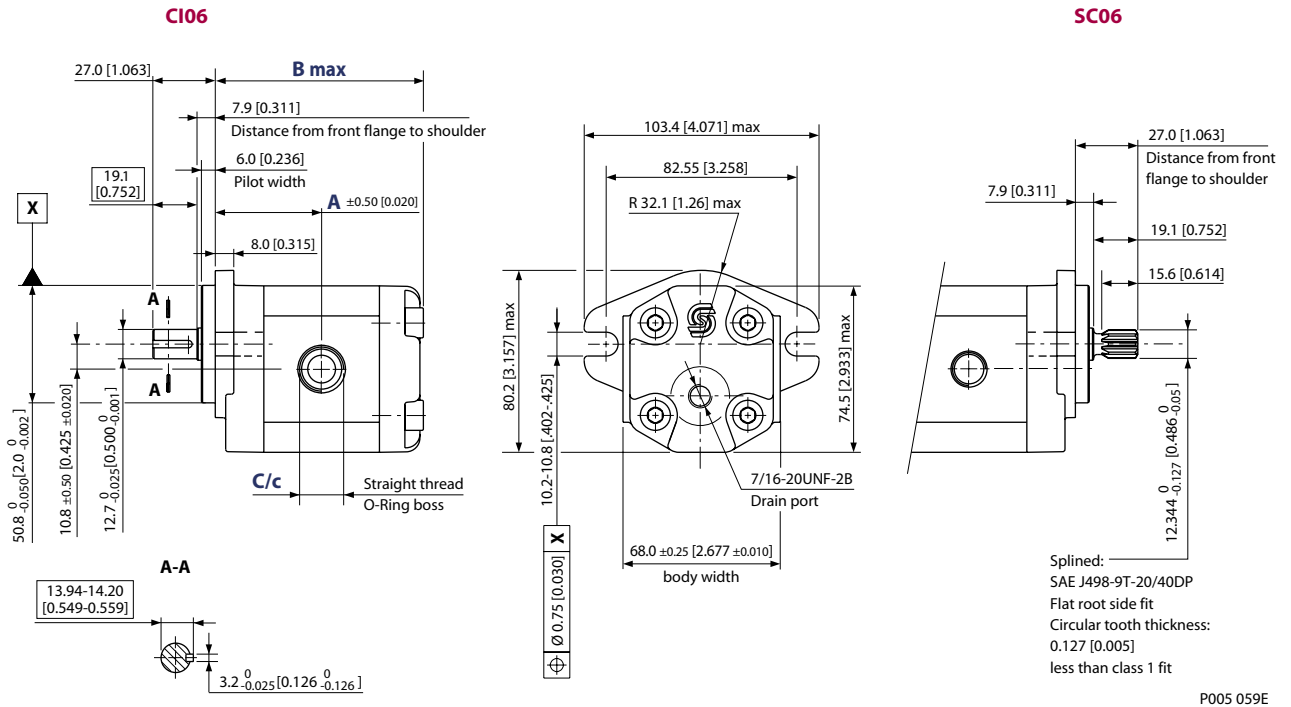
Maximum shaft torque	N·m [lbf·in]	CO02	CI02
		50 [442]	24 [212]

** For further details on ordering, see *Model codes*, pages 16 and 17.

SKM1, SKU1 – CI06 AND SC06

Standard porting drawing for CI06 and SC06

mm
 [in]



P005 059E

For uni-directional motors no case drain hole into the rear cover.

*SKM1 – CI06 and SC06 dimensions**

Type (displacement)		2.6	3.2	3.8	4.3	6.0	7.8	10.0	12.0
Dimension	A	45 [1.771]	46 [1.811]	47 [1.850]	48 [1.889]	51.25 [2.017]	54.5 [2.145]	59 [2.322]	63.5 [2.500]
	B	89.5 [3.523]	91.5 [3.602]	93.5 [3.681]	95.5 [3.759]	102 [4.015]	108.5 [4.271]	117.5 [4.625]	125.5 [4.940]
Inlet/Outlet	C/c	3/4-16UNF-2B, THD 14.3 [0.563] deep							

* For uni-directional SNU1, SKU1 dimensions, see *SNU1, SKU1 ports*, page 24.

*Model code examples***

Bi-directional motors SKM1	SKM1/6 . CI06 ... SKM1/10 . SC06 ...
Uni-directional motors SKU1, SNU1	SKU1/6 D CI06 ... SNU1/12 S SC06 ...

Maximum shaft torque

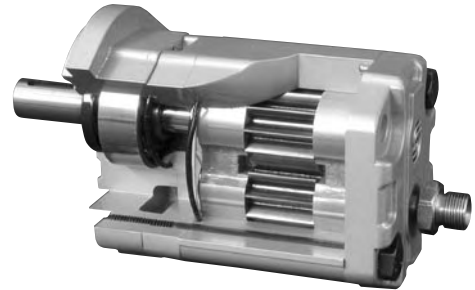
Maximum shaft torque	N•m [lbf•in]	CI06	SC06
		32 [283]	34 [301]

** For further details on ordering, see *Model codes*, pages 16 and 17.

MOTOR DESIGN**SNM2**

SNM2 is the Group 2 bi-directional motor available in the whole displacements range from 6 up to 25 cm³/rev [from 0.37 up to 1.538 in³/rev].

Configurations include European and SAE flanges and shafts (CO01, CI01, SC01, CO02, SC02, FR03, CO04/05, SC04/05, CI06, SC06).

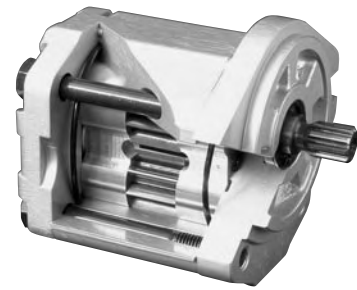
SNM2 CI96 (cut-away)

F005 214

SNU2

SNU2 is the Group 2 uni-directional motor available in the displacements range from 8 up to 25 cm³/rev [from 0.513 up to 1.538 in³/rev]. The SNU2 motor construction is derived from the correspondent pump SNP2.

Configurations include European and SAE flanges and shafts (CO01, CI01, SC01, CO02, SC02, FR03, CO04/05, SC04/05, CI06, SC06).

SNU2 SC06 (cut away)

F005 030

SKU2

SKU2 is the Group 2 uni-directional motor available in the displacements range from 8 up to 25 cm³/rev [from 0.513 up to 1.538 in³/rev]. The SKU2 motor construction is derived from the correspondent pump SKP2.

Configurations includes SAE flange and shaft only (SC06).

TECHNICAL DATA

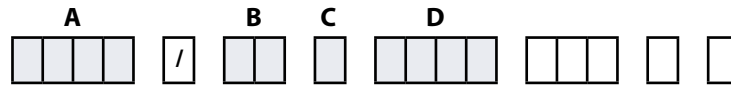
This table details the technical data for Group 2 gear motors based on the model and displacement configuration.

Technical data for Group 2 gear motors

		Frame size							
		6*	8	11	14	17	19	22	25
Displacement	cm ³ /rev [in ³ /rev]	6.0 [0.360]	8.4 [0.513]	10.8 [0.659]	14.4 [0.879]	16.8 [1.025]	19.2 [1.171]	22.8 [1.391]	25.2 [1.538]
SNM2 (a standard, bi-directional motor)									
Peak pressure	bar [psi]	280 [4060]	280 [4060]	280 [4060]	280 [4060]	260 [3770]	230 [3335]	200 [2900]	180 [2610]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3000]	180 [2610]	160 [2300]
Back pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3000]	180 [2610]	160 [2300]
Minimum speed	min ⁻¹ (rpm)	700	700	700	700	500	500	500	500
Maximum speed		4000	4000	4000	4000	4000	3500	3500	3500
SNU2 (a standard, unidirectional motor)									
Peak pressure	bar [psi]	-	280 [4060]	280 [4060]	280 [4060]	260 [3770]	230 [3335]	200 [2900]	180 [2610]
Rated pressure			250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3000]	180 [2610]	160 [2320]
Minimum speed	min ⁻¹		600	600	600	500	500	500	500
Maximum speed	(rpm)		3500	3500	3500	3000	3000	3000	2500
SKU2 (a standard, unidirectional motor)									
Peak pressure	bar [psi]	-	280 [4060]	280 [4060]	280 [4060]	250 [3625]	250 [3625]	230 [3335]	200 [2900]
Rated pressure			250 [3625]	250 [3625]	250 [3625]	230 [3335]	230 [3335]	210 [3000]	190 [2755]
Minimum speed	min ⁻¹		700	700	700	500	500	500	500
Maximum speed	(rpm)		3500	3500	3500	3000	3000	3000	2500
All									
Weight	kg [lb]	2.4 [5.3]	2.5 [5.5]	2.7 [5.5]	2.9 [6.3]	3.0 [6.5]	3.1 [6.7]	3.2 [7.0]	3.3 [7.3]
Moment of inertia of rotating components	x 10 ⁻⁶ kg·m ² [x 10 ⁻⁶ lbf·ft ²]	26.5 [629]	32.4 [769]	38.4 [911]	47.3 [1122]	53.3 [1265]	59.2 [1405]	68.1 [1616]	74.1 [1758]

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

MODEL CODE



A Type

Code	Description
SNM2	Bidirectional gear motor
SNU2	Unidirectional gear motor
SKU2	Unidirectional gear motor
SNM2I.	Unidirectional gear motor with integrated relief valve (internal drain)
SNM2G.	Unidirectional gear motor with anti-cavitation check valve
SNM2J.	Unidirectional gear motor with integrated relief valve and anti-cavitation check valve

B Displacement

Code	Description	SNM2	SNU2	SKU2	SNM2I.	SNM2G.	SNM2J.
6	6.0 cm ³ /rev [0.360 in ³ /rev]	●	●	●	●	●	●
8	8.4 cm ³ /rev [0.513 in ³ /rev]	●	●	●	●	●	●
11	10.8 cm ³ /rev [0.659 in ³ /rev]	●	●	●	●	●	●
14	14.4 cm ³ /rev [0.879 in ³ /rev]	●	●	●	●	●	●
17	16.8 cm ³ /rev [1.025 in ³ /rev]	●	●	●	●	●	●
19	19.2 cm ³ /rev [1.171 in ³ /rev]	●	●	●	●	●	●
22	22.8 cm ³ /rev [1.391 in ³ /rev]	●	●	●	●	●	●
25	25.2 cm ³ /rev [1.538 in ³ /rev]	●	●	●	●	●	●

C Direction of rotation

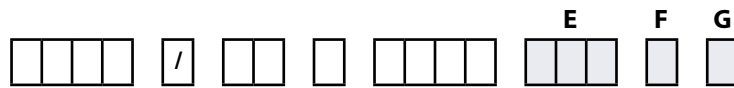
Code	Description	SNM2	SNU2	SKU2	SNM2I.	SNM2G.	SNM2J.
D	Right (Clockwise)	●	●	●	●	●	●
S	Left (Counterclockwise)		●	●	●	●	●

D Shaft/Mounting flange/Port configuration

Code	Description	SNM2	SNU2	SKU2	SNM2I.	SNM2G.	SNM2J.
CO01	1:8 tapered shaft/European 01 4-bolt flange /European flanged ports	●	●	–	●	●	●
CO02	1:5 tapered shaft/European 02 4-bolt flange /German standard ports	●	●	–	●	●	●
CO04/ CO05	1:5 tapered shaft/German engine PTO 2-bolt flange/German standard ports	●	●	–	●	●	●
CI01	Parallel shaft 15 mm [0.591 in]/European 01 4-bolt flange/European flanged ports	●	●	–	●	●	●
CI06	Parallel shaft 15.875 mm [0.625 in]/SAE A flange/Threaded SAE O-ring boss ports	●	●	–	●	●	●
SC01	DIN splined shaft/European 01 4-bolt flange/European flanged ports	●	●	–	●	●	●
SC02	DIN splined shaft/European 02 4-bolt flange /German standard ports	●	●	–	●	●	●
SC04/ SC05	DIN splined shaft/German engine PTO 2-bolt flange/German standard ports	●	●	–	●	●	●
SC06	SAE splined shaft/SAE A flange/Threaded SAE O-ring boss ports	●	●	●	●	●	●
FR03	Sauer-Danfoss tang shaft/Sauer-Danfoss tang drive/German standard ports	●	●	–	●	●	●

Legend:	
●	= Standard
○	= Optional
–	= Not Available

MODEL CODE
 (continued)



E Variant code (3-letter code describes variants to standard configuration)

F Version (value representing a change to the initial project)

Code	Description
.	Initial project [*LEAVE BLANK]
1÷9 or A÷Z	It should be reserved to Sauer-Danfoss

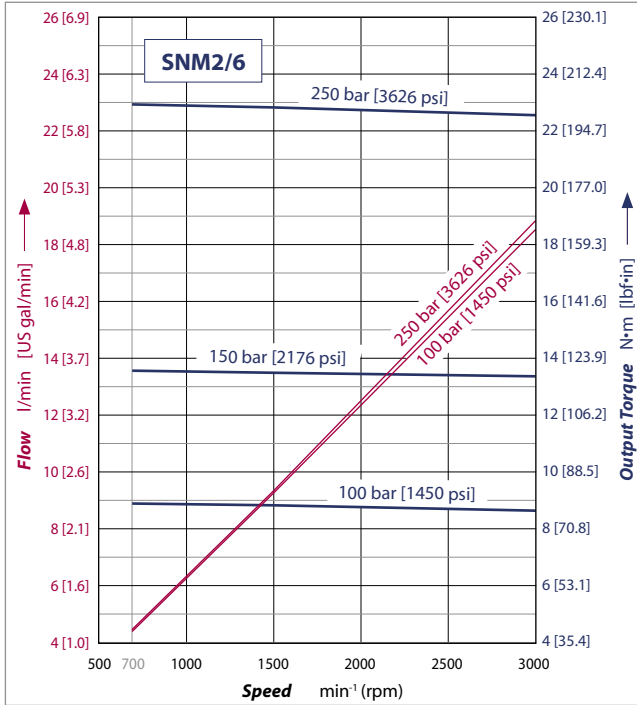
G Port type (if other than standard)

Code	Description
.	Standard port for the flange type specified [*LEAVE BLANK]
B	Flanged port with threaded holes in X pattern (German standard ports), centered on the body
C	Flanged port with threaded holes in + pattern (European standard ports)
D	Threaded metric port
E	Threaded SAE O-ring boss port
F	Threaded Gas port (BSP)
G	Flanged port with threaded holes in X pattern (German standard ports), offset from center of body

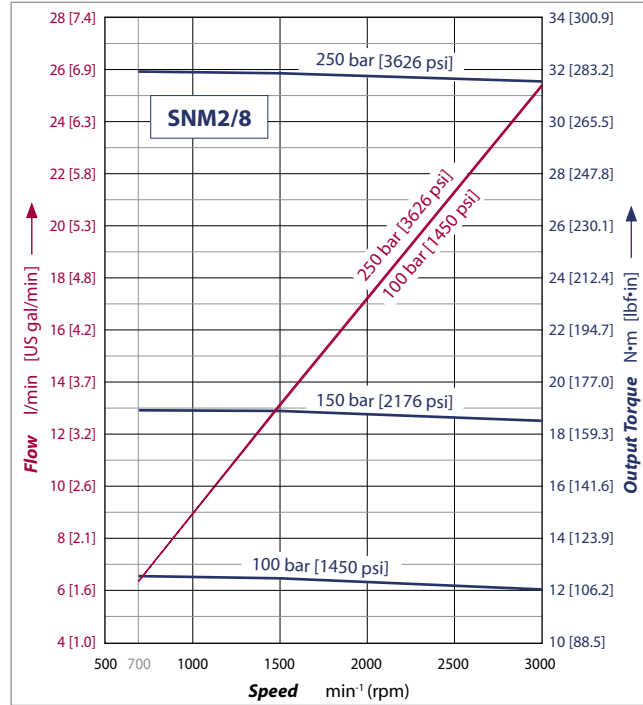
MOTOR PERFORMANCE GRAPHS

The graphs on the next few pages provide typical output flow and input power for Group 2 motors at various working pressures. Data were taken using ISO VG46 petroleum / mineral based fluid at 50 °C [122 °F] (viscosity = 28 mm²/s [132 SUS]).

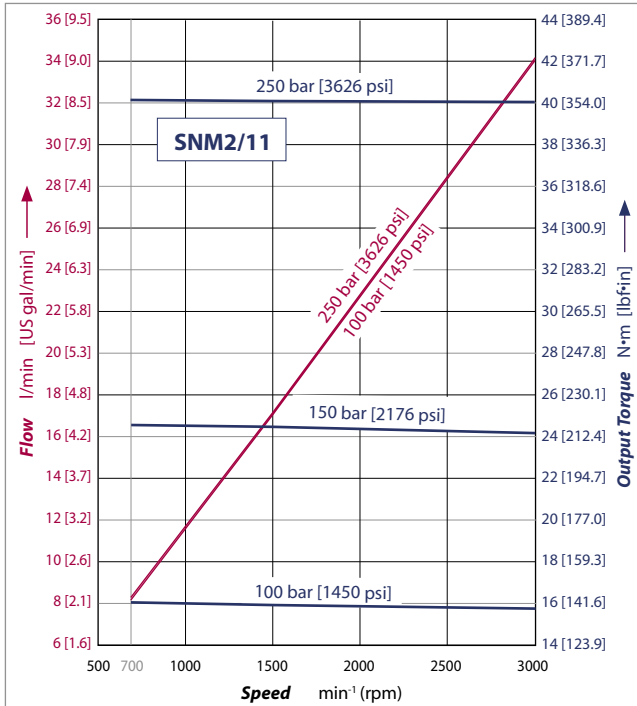
SNM2/6 motor performance graph



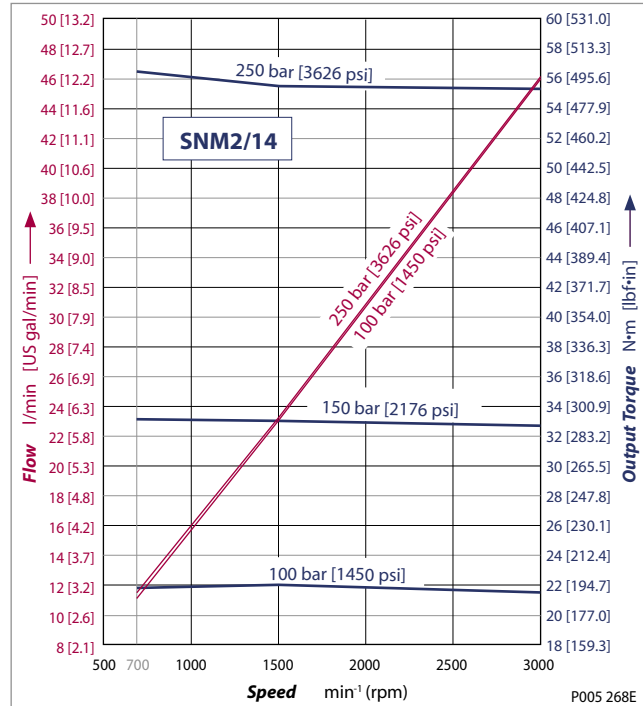
SNM2/8 motor performance graph



SNM2/11 motor performance graph

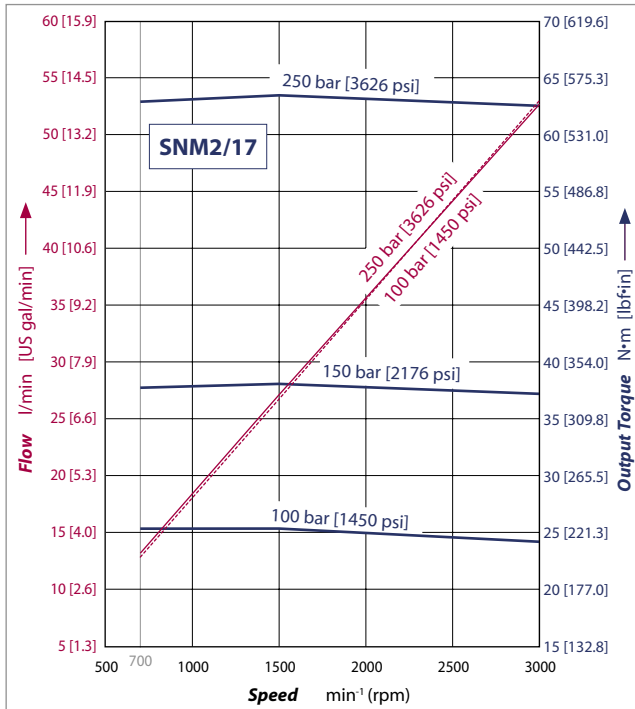


SNM2/14 motor performance graph

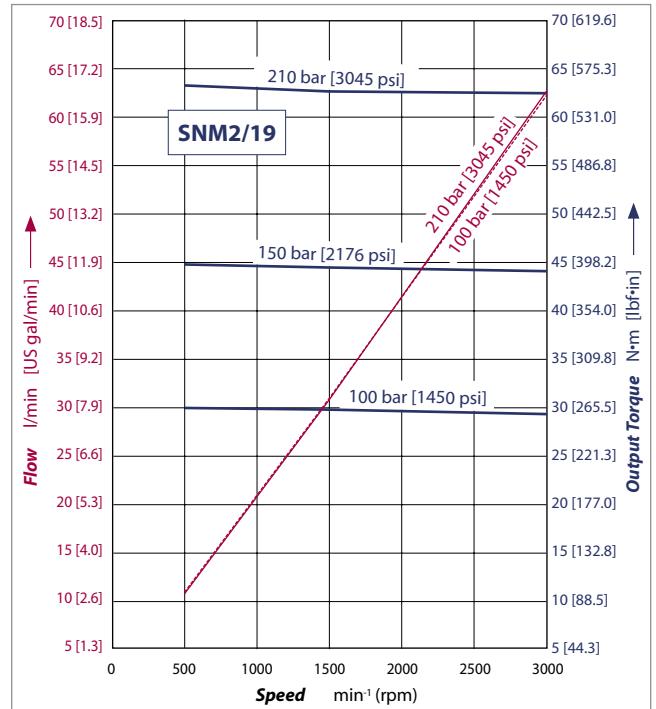


MOTOR PERFORMANCE GRAPHS (continued)

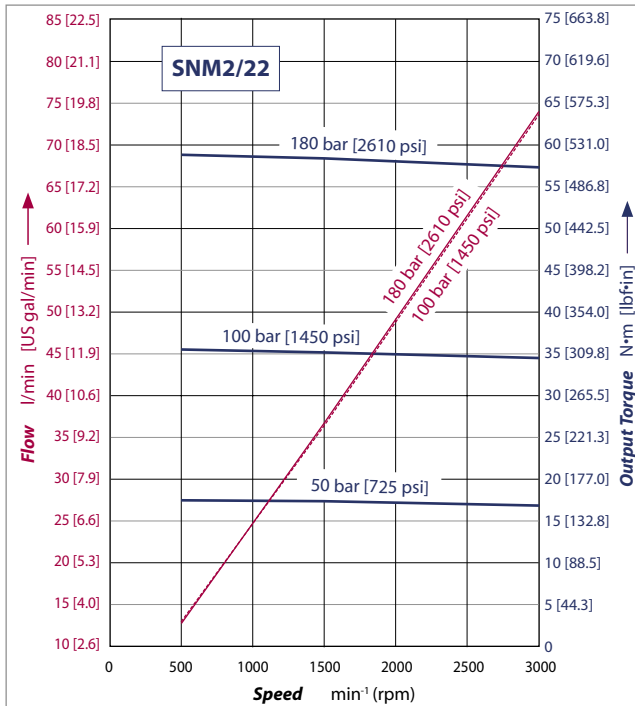
SNM2/17 motor performance graph



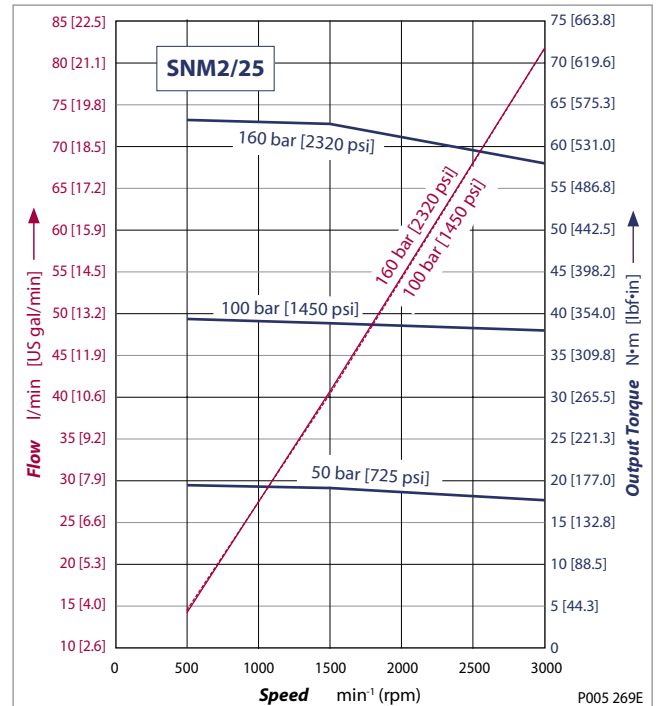
SNM2/19 motor performance graph



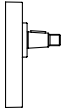
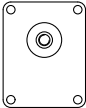
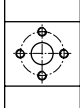


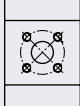


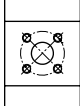
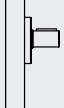
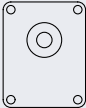
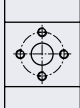
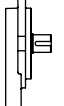
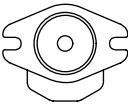
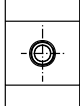
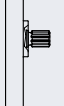
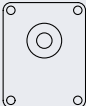
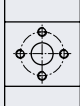
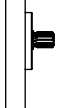

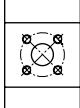
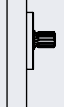

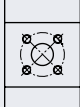
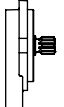
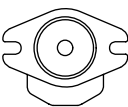
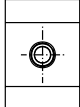
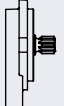
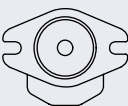
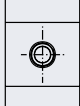
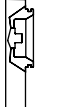
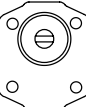
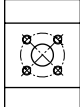
SNM2/22 motor performance graph



SNM2/25 motor performance graph



SHAFT, FLANGE, AND PORT CONFIGURATIONS

Pump	Code	Shaft	Flange	Port
SNM2 SNU2	CO01	1:8 tapered 	36.5 mm [1.438 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM2 SNU2	CO02	1:5 tapered 	80.0 mm [3.150 in] pilot Ø European 02 4-bolt 	German std ports port X pattern 
SNM2 SNU2	CO04/05	1:5 tapered 	50 mm [1.969 in] pilot Ø German PTO 2-bolt 	German std ports port X pattern 
SNM2 SNU2	CI01	Ø 15 mm [0.591 in] parallel 	36.5 mm [1.438 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM2 SNU2	CI06	Ø 15.7 mm [0.625 in] parallel 	SAE A 82.55 mm [3.250 in] Ø pilot 	Threaded SAE O-ring boss port 
SNM2 SNU2	SC01	9-teeth splined m = 1.60, α = 30° DIN 5482-B17x14 	36.5 mm [1.438 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM2 SNU2	SC02	9-teeth splined m = 1.60, α = 30° DIN 5482-B17x14 	80.0 mm [3.150 in] pilot Ø European 02 4-bolt 	German std ports port X pattern 
SNM2 SNU2	SC04/05	9-teeth splined m = 1.60, α = 30° DIN 5482-B17x14 	50 mm [1.969 in] pilot Ø German PTO 2-bolt 	German std ports port X pattern 
SNM2 SNU2	SC06	9-teeth splined SAE A 	SAE A 82.55 mm [3.250 in] Ø pilot 	Threaded SAE O-ring boss port 
SKU2	SC06	11-teeth splined SAE A 	SAE A 82.55 mm [3.250 in] Ø pilot 	Threaded SAE O-ring boss port 
SNM2 SNU2	FR03	Sauer-Danfoss standard tang 	52 mm [2.066 in] pilot Ø, Sauer- Danfoss tang drive 	German std ports port X pattern 

SHAFT OPTIONS

Group 2 motors are available with a variety of splined, parallel, and tapered shaft ends. Not all shaft styles are available with all flange styles.

Valid combinations and nominal torque ratings are shown *in the table below*.

Shaft availability and torque capability



Shaft		Mounting flange code with maximum torque in N•m [lbf•in]					
Code	Description	01	02	03	04	05	06
CO	Taper 1:5	–	140 [1239]	–	140 [1239]	140 [1239]	–
CO	Taper 1:8	150 [1328]	–	–	–	–	–
SC	DIN spline B17x14	90 [797]	130 [1151]	–	130 [1151]	130 [1151]	–
SC	SAE spline 9T 16/32p	–	–	–	–	–	75 [646]
CI	Parallel 15 mm [0.591 in]	90 [797]	–	–	–	–	–
CI	Parallel 15.875 mm [0.625 in]	–	–	–	–	–	80 [708]
FR	Sauer-Danfoss Tang	–	–	70 [620]	–	–	–

Recommended mating splines for Group 2 splined output shafts should be in accordance with SAE J498 or DIN 5482. Sauer-Danfoss external SAE splines are flat root side fit with circular tooth thickness reduced by 0.127 mm [0.005 in] in respect to class 1 fit. The external DIN splines have an offset increased by 0.1 mm [0.004 in.] These dimensions are modified in order to assure a clearance fit with the mating spline.

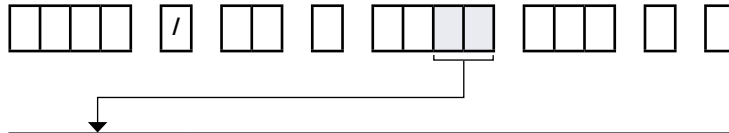
Other shaft options may exist. Contact your Sauer-Danfoss representative for availability.

Caution

Shaft torque capability may limit allowable pressure. Torque ratings assume no external radial loading. Applied torque must not exceed these limits, regardless of stated pressure parameters. Maximum torque ratings are based on shaft torsional fatigue strength.

MOUNTING FLANGES

Sauer-Danfoss offers many types of industry standard mounting flanges. *This table* shows order codes for each available mounting flange and its intended use:

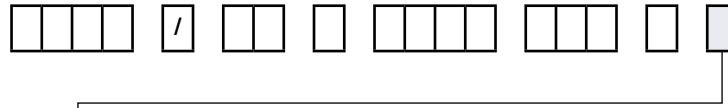


Flange code	Intended use
01	European Ø 36.5 mm [Dia 1.438 in] four-bolt
02	German PTO Ø 80 mm [Dia 3.150 in] four-bolt
03	Sauer-Danfoss Tang drive Ø 52 mm [Dia 2.066 in]
04/05	German engine PTO Ø 50 mm [Dia 1.969 in] two-bolt
06	SAE A flange Ø 82.55 mm [Dia 3.250 in] two-bolt

PORT CONFIGURATIONS

Standard port configurations

This table lists standard porting offered with each mounting flange:



Code	Description	Standard on
C	Flanged port with threaded holes in + pattern (European standard)	01 flange
G	Flanged port with threaded holes in X pattern (German standard), offset from the center of the body	02, 03, 04/05 flanges
E	Threaded SAE O-ring boss port	06 flange

Nonstandard port configurations

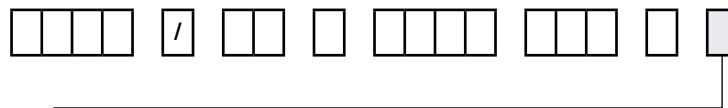
Each mounting flange comes with a standard port style. The code is only required when ordering nonstandard ports.

Various port configurations are available on Group 2 motors. They include:

- European standard flanged ports
- German standard flanged ports
- Gas threaded ports (BSPP)
- O-ring boss (following SAE J1926/1 [ISO 11926-1] UNF threads, standard)

The tables of dimensions are on the next pages.

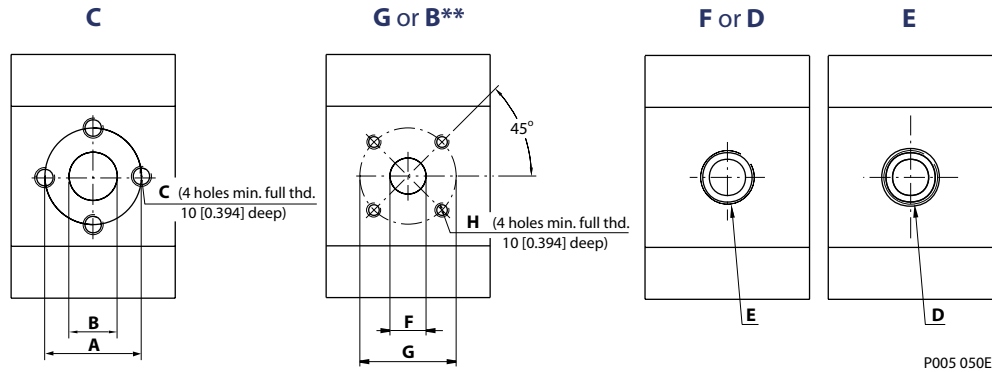
This table lists a few nonstandard port configuration codes:



Code	Description
B	Flanged port with threaded holes in X pattern (German standard), centered on the body
C	Flanged port with threaded holes in + pattern (European standard)
D	Threaded metric port
E	Threaded SAE O-ring boss port
F	Threaded GAS (BSPP)
G	Flanged port with threaded holes in X pattern (German standard), offset from the center of the body

**SNM2, SNM2G. AND
 SNM2J. PORTS**

The illustration below shows ports for bi-directional motors.



Bi-directional motor ports dimensions

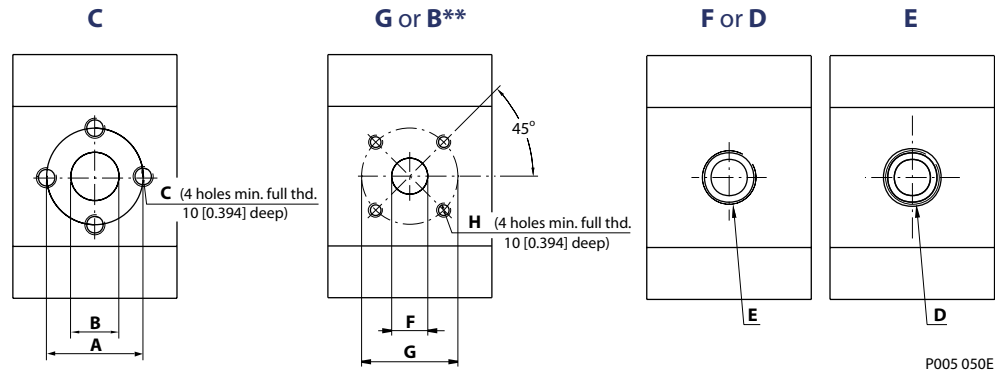
Model code*		C			G or B**			F or D		E
Standard port for flange code		01			02/03/04/05			nonstandard		06
Type (displacement)		B	A	C	F	G	H	E		D
6	Inlet/Outlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	1/2 Gas (BSPP)	M22x1.5	7/8-14UNF-2B
8	Inlet/Outlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	1/2 Gas (BSPP)	M22x1.5	7/8-14UNF-2B
11	Inlet/Outlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	1/2 Gas (BSPP)	M22x1.5	7/8-14UNF-2B
14	Inlet/Outlet	20.0 [0.787]	40 [1.575]	M8	15 [0.591]	35 [1.378]	M6	1/2 Gas (BSPP)	M22x1.5	7/8-14UNF-2B
17	Inlet/Outlet	20.0 [0.787]	40 [1.575]	M8	15 [0.591]	35 [1.378]	M6	1/2 Gas (BSPP)	M22x1.5	7/8-14UNF-2B
19	Inlet/Outlet	20.0 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M6	3/4 Gas (BSPP)	M26x1.5	1 1/16-12UNF-2B
22	Inlet/Outlet	20.0 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M6	3/4 Gas (BSPP)	M26x1.5	1 1/16-12UNF-2B
25	Inlet/Outlet	23.5 [0.925]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M6	3/4 Gas (BSPP)	M26x1.5	1 1/16-12UNF-2B
Drain		1/4 Gas (BSPP)							9/16-18UNF-2B	

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark ' '

** Port B is in the center of the body. Port G is offset from the center of the body.

SNU2, SKU2 PORTS

The illustration below shows ports for uni-directional motors.



P005 050E

Uni-directional motor ports dimensions

Model code*		C			G**			B**			F	E
Standard port for flange code		01			02/03/04/05			nonstandard (ports centered on body)			nonstandard	06
Type (displacement)		B	A	C	F	G	H	F	G	H	E	D
6	Outlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	40 [1.575]	M6	15 [0.591]	40 [1.575]	M6	½ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
8	Outlet	13.5 [0.531]	30 [1.181]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	½ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
11	Outlet	13.5 [0.531]	30 [1.181]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	¾ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
14	Outlet	20.0 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	¾ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
17	Outlet	20.0 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	¾ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
19	Outlet	20.0 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	¾ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
22	Outlet	20.0 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	¾ Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	13.5 [0.531]	30 [1.181]	M6	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	½ Gas (BSPP)	7/8-14UNF-2B
25	Outlet	23.5 [0.925]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M6	20 [0.787]	40 [1.575]	M6	1 Gas (BSPP)	1 1/16-12UNF-2B
	Inlet	20.0 [0.787]	40 [1.575]	M8	15 [0.591]	35 [1.378]	M6	15 [0.591]	35 [1.378]	M6	¾ Gas (BSPP)	7/8-14UNF-2B

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark ''

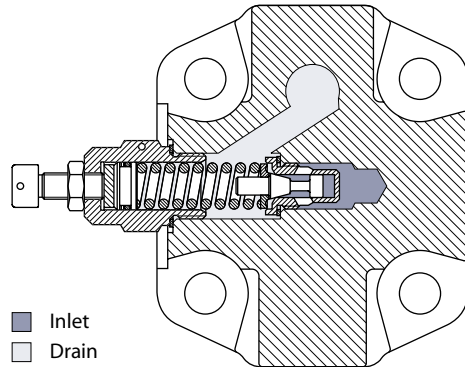
** Port B is in the center of the body. Port G is offset from the center of the body.

**INTEGRAL RELIEF VALVE
 SNM21.**

SNM21.

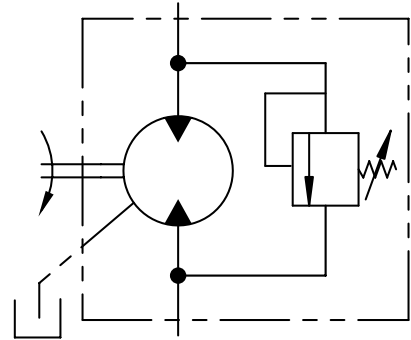
Sauer-Danfoss offers an optional **integral relief valve** integrated in the Group 2 motors rear cover. It is drained internally and directs all the flow from the motor inlet to the outlet when the inlet pressure reaches the valve setting.

Integral relief valve rear cover cross section



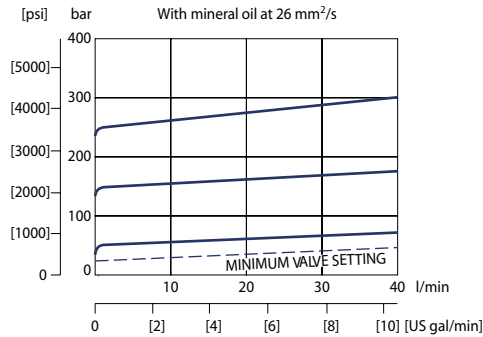
P101 016

Valve schematic diagram



P005 260

Pressure vs flow



P101 030E

**INTEGRAL RELIEF VALVE
 SNM2I. (continued)**

Variant codes for ordering integral relief valve



A Variant code (middle part)

Code	Motor speed for RV setting min ⁻¹ (rpm)
A	not defined
C	500
E	1000
F	1250
G	1500
K	2000
I	2250
L	2500
M	2800
N	3000
O	3250

B Variant code (end part)

Code	Pressure setting bar [psi]	Code	Pressure setting bar [psi]
A	no setting	O	90 [1305]
B	no valve	P	100 [1450]
C	18 [261]	Q	110 [1595]
D	25 [363]	R	120 [1740]
E	30 [435]	S	130 [1885]
F	35 [508]	T	140 [2030]
G	40 [580]	U	160 [2321]
J	150 [2175]	V	170 [2466]
K	50 [725]	W	180 [2611]
L	60 [870]	X	210 [3046]
M	70 [1015]	Z	250 [3626]
N	80 [1160]		

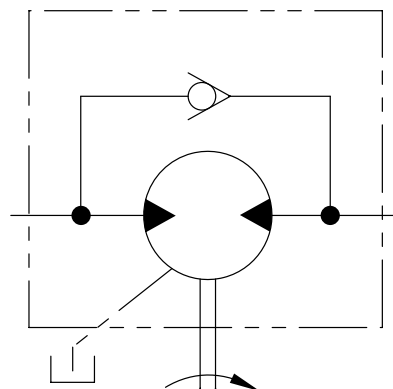
The tables show applicable variant codes for ordering motors with integral relief valve. Refer to *Model Codes*, pages 30 and 31 for more information.

**ANTI-CAVITATION CHECK
 VALVE – SNM2G.**

SNM2G.

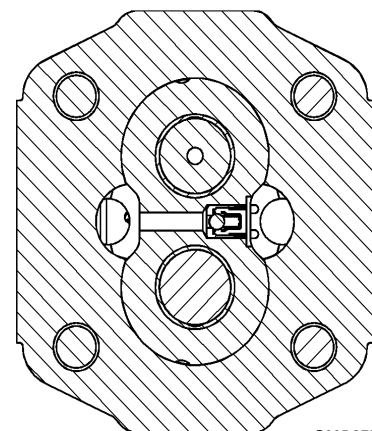
Sauer-Danfoss offers an optional **integral anti-cavitation check valve** integrated in Group 2 motors bearing blocks. Available for all the displacements, the valve directs internally the flow from the motor outlet to the inlet, when the outlet pressure gets higher then the inlet one.

Valve schematic diagram



P005 261

Anticavitation check valve cross section

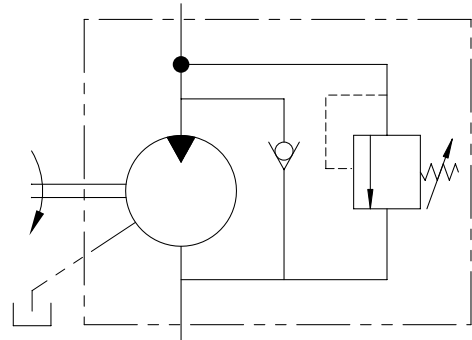


P005 275

**INTEGRAL RELIEF VALVE
 AND ANTI-CAVITATION
 CHECK VALVE – SNM2J.**

SNM2J.
 Sauer-Danfoss offers the Group 2 motors with an optional **integral relief valve** integrated in the rear cover and **anti-cavitation check valve** integrated in the bearing block. The integral relief valve is drained internally and directs all the flow from the motor inlet to the outlet when the inlet pressure reaches the valve setting. The anti-cavitation check valve directs internally the flow from the motor outlet to the inlet, when the outlet pressure gets higher than the inlet one.

Valve schematic diagram

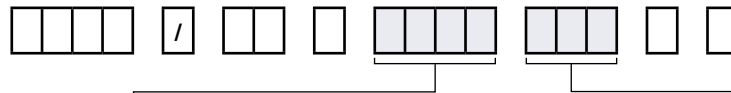


P005 262E

**OUTRIGGER BEARING
 ASSEMBLY – SNM2**

An **outrigger bearing** is available for applications with high radial or thrust loads on the shaft. This option is used primarily for applications with high shaft loads. The design utilizes roller bearings in the front mounting flange. These bearings absorb the radial and thrust loads on the shaft so that the life of the pump is not affected. The use of roller bearings allows life to be described in B_{10} hours.

Available configurations



Shaft/Flange Code *	Shaft	Mounting Flange	Variant Code
C091	Taper 1:8	European 4-bolt	LBD
C092	Taper 1:5	German PTO	RZB
C094	Taper 1:5	German 4-bolt	...
C096	Taper 1:8	SAE A	LEA
CI96	Parallel	SAE A	LEP

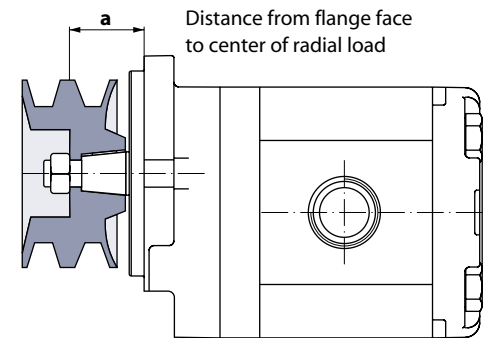
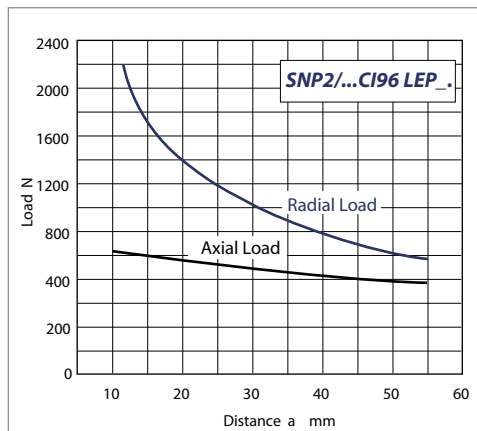
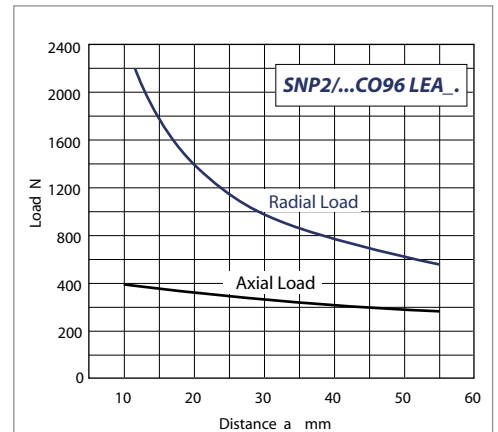
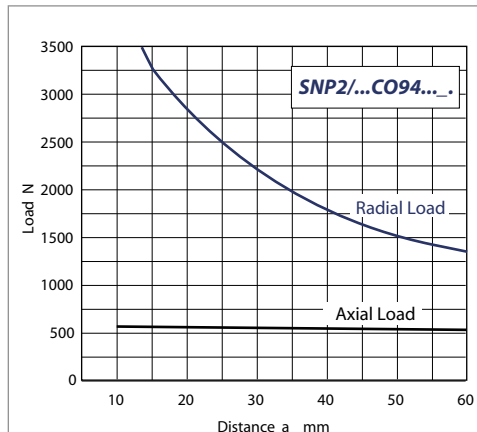
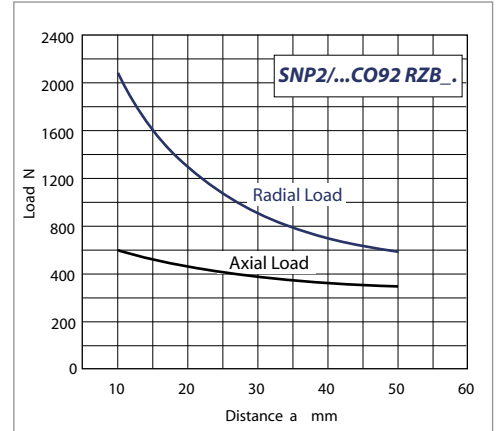
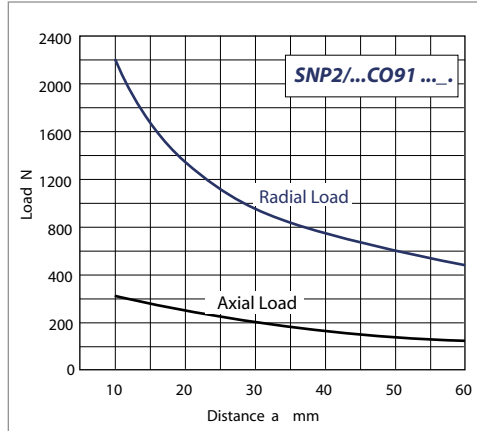
* Codes C091, C092, C094, C096 and CI96 represent assembly (complete motor with outrigger bearing).

The table above shows applicable variant codes for ordering motors with outrigger bearing. Refer to *Model Codes*, pages 30 and 31 for more information.

OUTRIGGER BEARING ASSEMBLY – SNM2 (continued)

The graphs below show allowable shaft loads for one thousand hour life at 1500 min⁻¹ (rpm) versus distance from flange face to center of radial load.

Radial load vs distance from flange



P101 036E

P005 299E

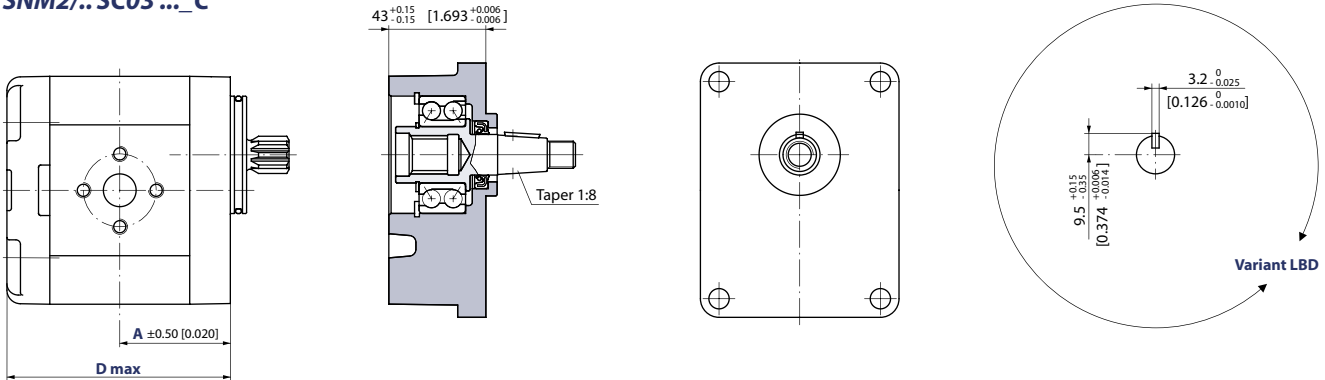
**OUTRIGGER BEARING
ASSEMBLY • SNM2
(continued)**

Dimensions

mm
[in]

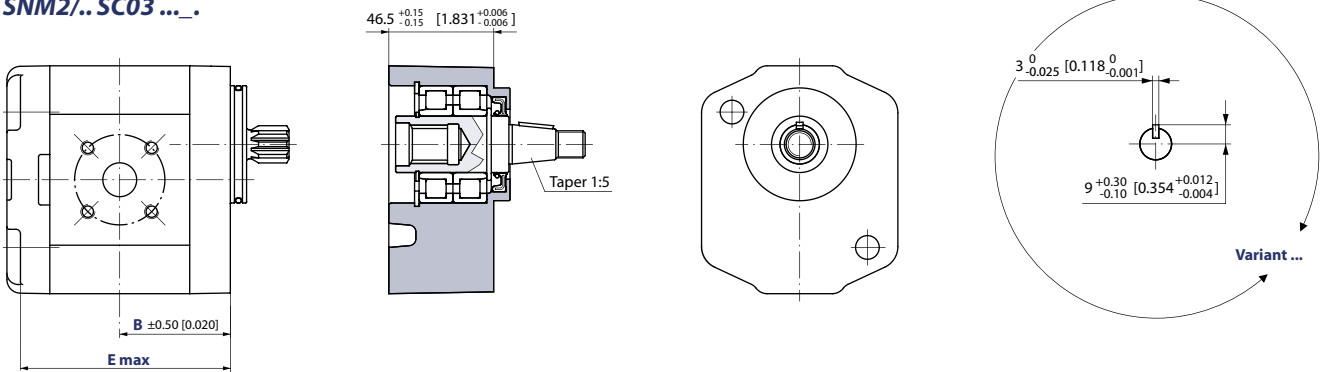
SNM2/..CO91 LBD_.
SNM2/..SC03 ..._C

Outrigger bearing CO91 LBD_.



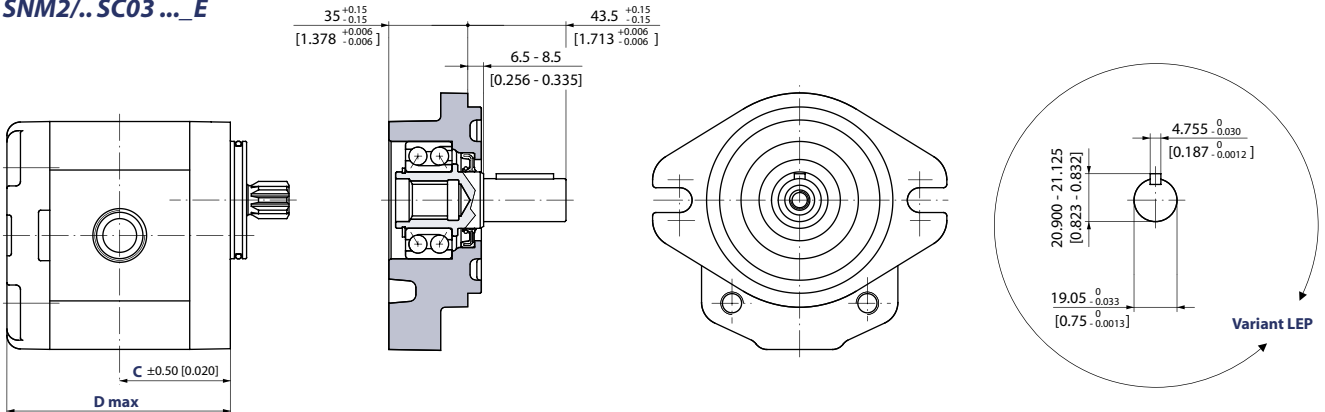
SNM2/..CO94 ..._.
SNM2/..SC03 ..._.

Outrigger bearing CO94 ..._.



SNM2/..CI96 LEP_.
SNM2/..SC03 ..._E

Outrigger bearing CI96 LEP_.



P005 276E

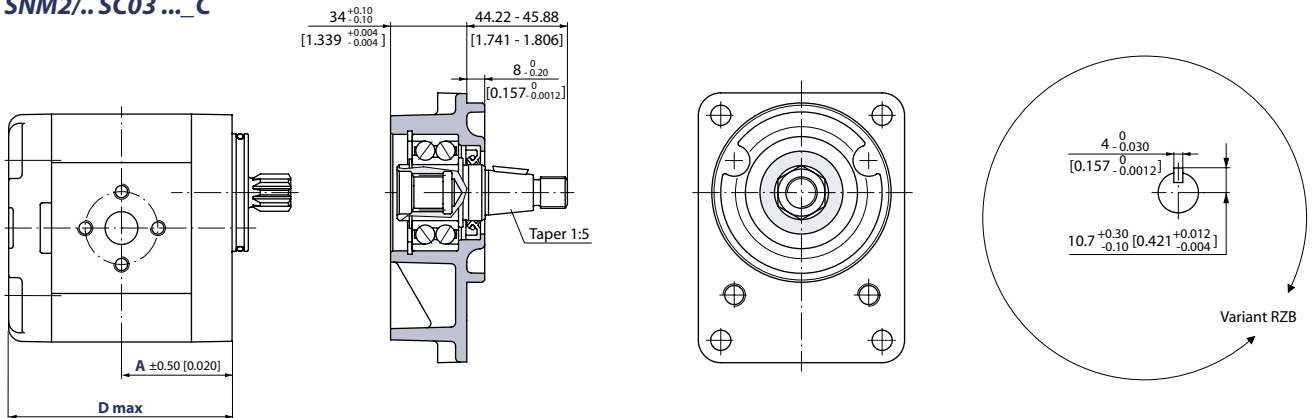
**OUTRIGGER BEARING
ASSEMBLY • SNM2
(continued)**

Dimensions (continued)

mm
[in]

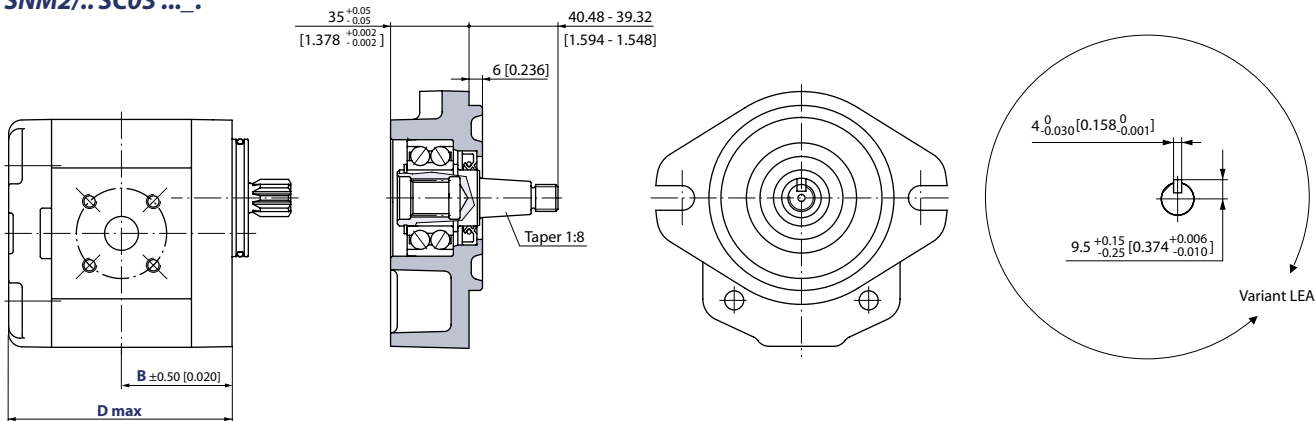
SNM2/.. CO92 RZB_.
SNM2/.. SC03 ..._C

Outrigger bearing CO92 RZB_.



SNM2/.. CO96 LEA_.
SNM2/.. SC03 ..._.

Outrigger bearing CO96 LEA_.



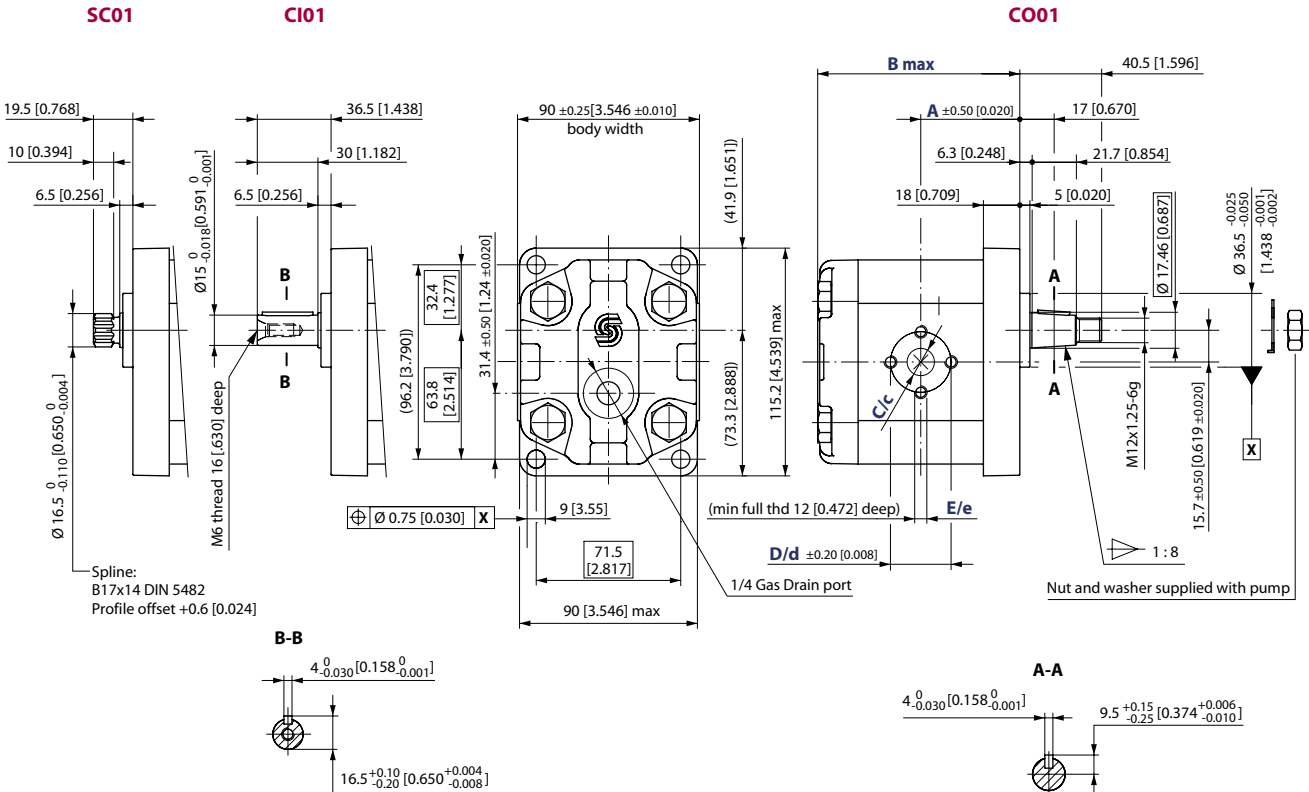
P005 277E

Dimensions

Type (displacement)	6	8	11	14	17	19	22	25	
Dimension	A	45 [1.772]	45 [1.772]	49 [1.929]	52 [2.047]	52 [2.047]	56 [2.205]	59 [2.323]	59 [2.323]
	B	38.6 [1.520]	40.6 [1.598]	45 [1.772]	45 [1.772]	45 [1.772]	45 [1.772]	52.5 [2.067]	62 [2.441]
	C	45 [1.772]	47 [1.850]	49 [1.929]	52 [2.047]	54 [2.126]	56 [2.205]	59 [2.323]	61 [2.402]
	D	93.5 [3.681]	97.5 [3.839]	101.5 [3.996]	107.5 [4.232]	111.5 [4.390]	115.5 [4.574]	121.5 [4.783]	125.5 [4.941]
	E	85 [3.346]	89 [3.504]	93 [3.661]	99 [3.897]	103 [4.055]	107 [4.212]	113 [4.448]	117 [4.606]

SNM2, SNU2 – SC01, CI01 AND CO01 Standard porting drawing for SC01, CI01 and CO01

mm
 [in]



P005 070E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – SC01, CI01 and CO01***

Type (displacement)	6*	8	11	14	17	19	22	25
Dimension	A	45 [1.771]	49 [1.929]	52 [2.047]	56 [2.204]	59 [2.322]		
	B	93.5 [3.681]	97.5 [3.838]	101.5 [3.996]	107.5 [4.232]	111.5 [4.389]	121.5 [4.783]	125.5 [4.940]
Inlet/Outlet	C/c	13.5 [0.531]			20 [0.787]			23.5 [0.925]
	D/d	30 [1.181]			40 [1.575]			
	E/e	M6			M8			

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

** For uni-directional SNU2 dimensions, see *SNU2 ports*, page 39.

*Model code examples****

Bi-directional motors SNM2	SNM2/8 . CO01 ... SNM2/14 . CI01 ...
Uni-directional motors SNU2	SNU2/19 S SC01 ... SNU2/17 D CI01 ...

Maximum shaft torque

Maximum shaft torque	N·m [lbf·in]	CO01	SC01 CI01
		150 [1328]	90 [797]

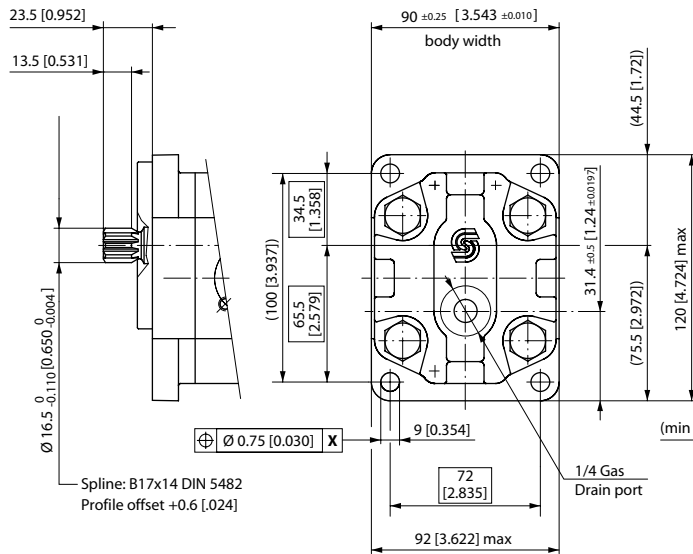
*** For further details on ordering, see *Model codes*, pages 30 and 31.

SNM2, SNU2 – SC02 AND CO02

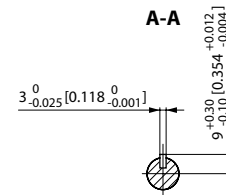
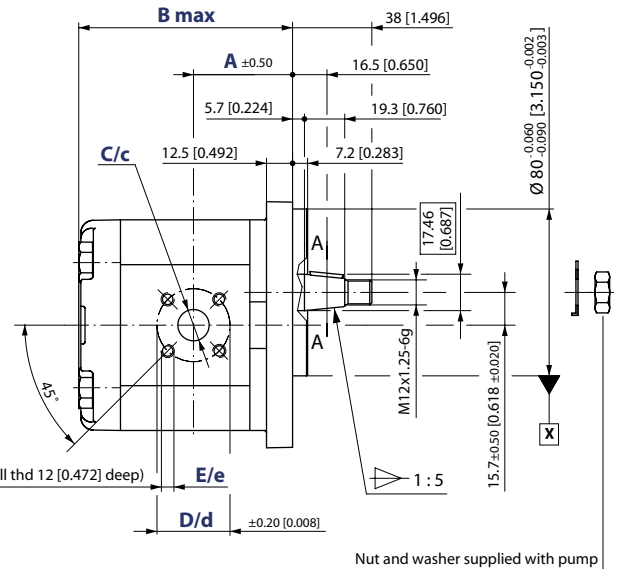
Standard porting drawing for SC02 and CO02

mm
 [in]

SC02



CO02



P005 071E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – SC02 and CO02***

Type (displacement)		6*	8	11	14	17	19	22	25	
Dimension	A	41.1 [1.618]	43.1 [1.697]	47.5 [1.870]	47.5 [1.870]	47.5 [1.870]	47.5 [1.870]	55 [2.165]	64.5 [2.539]	
	B	96 [3.780]	100 [3.937]	104 [4.094]	110 [4.331]	114 [4.488]	118 [4.646]	124 [4.882]	128 [5.039]	
Inlet/Outlet	C/c	15 [0.591]					20 [0.787]			
	D/d	30 [1.181]					40 [1.575]			
	E/e	M6								

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

** For uni-directional SNU2 dimensions, see *SNU2 ports*, page 39.

*Model code examples****

Bi-directional motors SNM2	SNM2/19 . CO02 ... SNM2/11 . SC02 ...
Uni-directional motors SNU2	SNU2/22 S SC02 ... SNU2/8 D CO02 ...

Maximum shaft torque

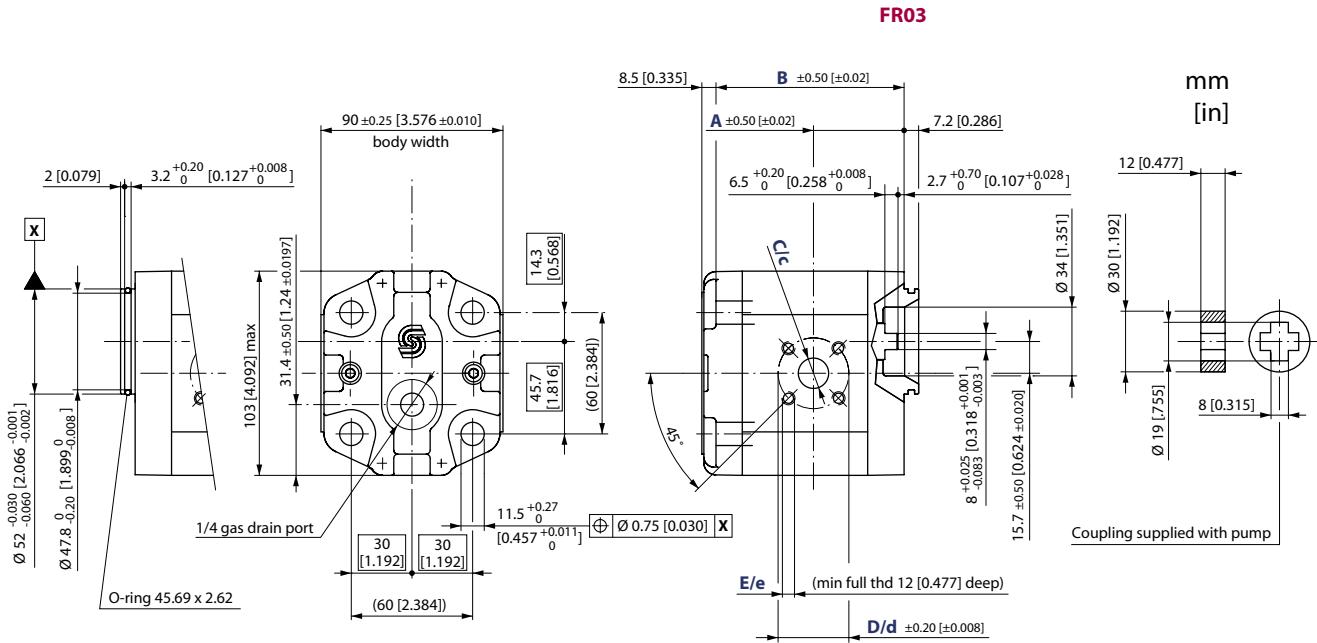
Maximum shaft torque	N·m [lbf·in]	CO02	SC02
		140 [1239]	90 [797]

*** For further details on ordering, see *Model codes*, pages 30 and 31.

SNM2, SNU2 – FR03

Standard porting drawing for FR03

mm
[in]



P005 072E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – FR03***

Type (displacement)		6*	8	11	14	17	19	22	25
Dimension	A	38.6 [1.520]	40.6 [1.598]	45.0 [1.772]			52.5 [2.067]	62 [2.441]	
	B	85 [3.346]	89 [3.504]	93 [3.661]	99 [3.897]	103 [4.055]	107 [4.212]	113 [4.448]	117 [4.606]
Inlet/Outlet	C/c	15 [0.591]					20 [0.787]		
	D/d	35 [1.378]					40 [1.575]		
	E/e	M6							

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

** For uni-directional SNU2 dimensions, see *SNU2 ports*, page 39.

*Model code examples****

Bi-directional motors SNM2	SNM2/19 . FR03 ..._.
Uni-directional motors SNU2	SNU2/25 D FR03 ..._.

Maximum shaft torque

Maximum shaft torque	N•m [lbf•in]	FR03
		70 [620]

*** For further details on ordering, see *Model codes*, pages 30 and 31.

**SNM2, SNU2 – SC04/05
 AND CO04/05**

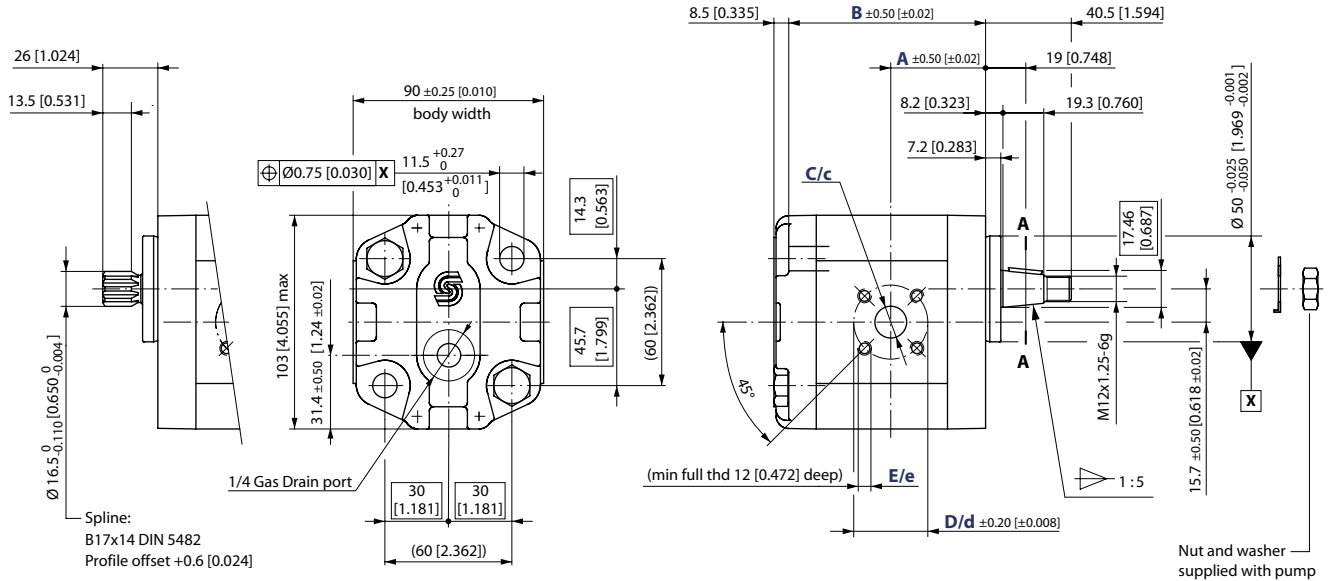
Standard porting drawing for SC04/05 and CO04/05

mm
 [in]

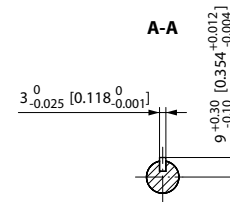
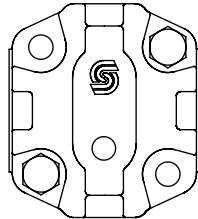
SC04/05

..04 Body

CO04/05



..05 Body



P005 073E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – SC04/05 and CO04/05***

Type (displacement)		6*	8	11	14	17	19	22	25
Dimension	A	38.6 [1.520]	40.6 [1.598]	45 [1.772]			52.5 [2.067]	62 [2.441]	
	B	85 [3.364]	89 [3.503]	93 [3.661]	99 [3.897]	103 [4.055]	107 [4.212]	113 [4.448]	117 [4.606]
Inlet/Outlet	C/c	15 [0.591]					20 [0.787]		
	D/d	35 [1.378]					40 [1.575]		
	E/e	M6							

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

** For uni-directional SNU2 dimensions, see *SNU2 ports*, page 39.

*Model code examples****

Bi-directional motors SNM2	SNM2/19 . CO04 ... SNM2/8 . SC05 ...
Uni-directional motors SNU2	SNU2/22 D SC04 ... SNU2/11 S CO05 ...

Maximum shaft torque

Maximum shaft torque	N·m [lbf·in]	CO04/05	SC04/05
		140 [1239]	130 [1151]

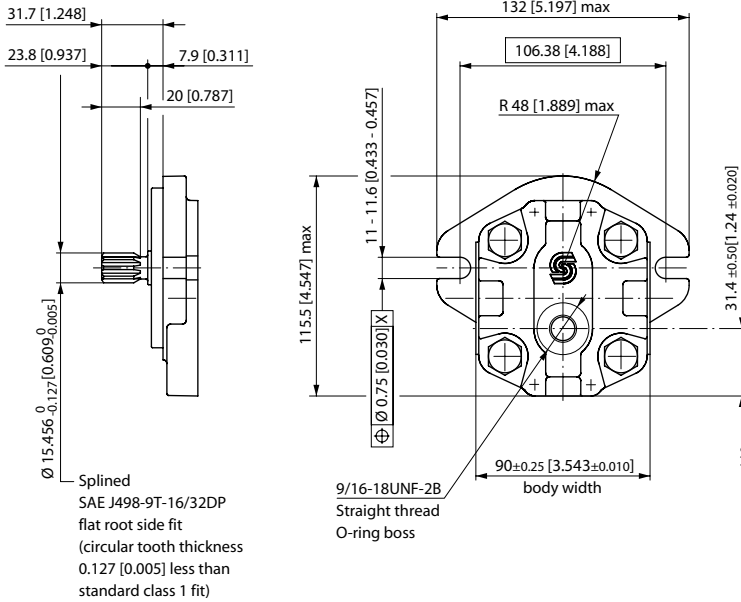
*** For further details on ordering, see *Model codes*, pages 30 and 31.

SNM2, SNU2 – SC06 AND CI06

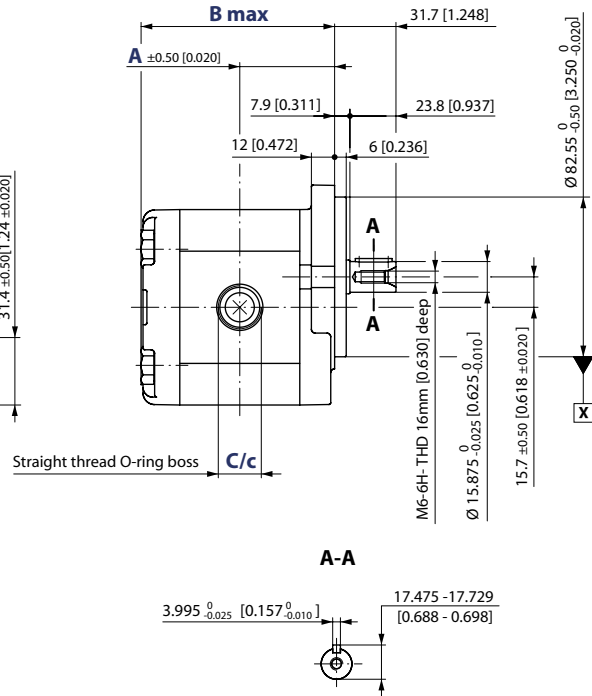
Standard porting drawing for SC06 and CI06

mm
 [in]

SC06



CI06



P005 074E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – SC06 and CI06***

Type (displacement)		6*	8	11	14	17	19	22	25
Dimension	A	45 [1.772]	47 [1.850]	49 [1.920]	52 [2.047]	54 [2.205]	56 [2.205]	59 [2.323]	61 [2.402]
	B	93.5 [3.681]	97.5 [3.839]	101.5 [3.996]	107.5 [4.232]	111.5 [4.390]	115.5 [4.547]	121.5 [4.783]	125.5 [4.941]
Inlet/Outlet	C/c	7/8 - 14UNF - 2B, 16.7 [0.658] deep					1 1/16 - 12UNF - 2B 18 [0.709] deep		

* Before choosing this frame size, please apply to Sauer-Danfoss technical department.

** For uni-directional SNU2 dimensions, see *SNU2 ports*, page 39.

*Model code examples****

Bi-directional motors SNM2	SNM2/19 . CI06 ... SNM2/14 . SC06 ...
Uni-directional motors SNU2	SNU2/22 D SC06 ... SNU2/25 S CI06 ...

Maximum shaft torque

Maximum shaft torque	N·m [lbf·in]	CI06	SC06
		80 [708]	75 [664]

*** For further details on ordering, see *Model codes*, pages 30 and 31.

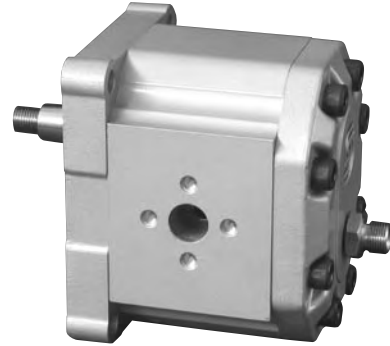


Gear Motors • Group 2
Technical Information
Notes

MOTOR DESIGN**SNM3**

SNM3 is the Group 3 bi-directional motor available in the whole displacements range from 22 up to 90 cm³/rev [1.35 up to 5.38 in³/rev].

Configurations include European and SAE flanges and shafts (CO01, CI01, SC01, CO02, CI02, SC02, CO03, CI03, SC03, CO06, SC06, CO07, CI07, SC07).

SNM3 CO01

F005 217

SNU3

SNU3 is the Group 3 uni-directional motor available in the whole displacements range from 22 up to 90 cm³/rev [1.35 up to 5.38 in³/rev].

The SNU3 motor construction is derived from the correspondent pump SNP3.

Configurations include European and SAE flanges and shafts (CO01, CI01, SC01, CO02, CI02, SC02, CO03, CI03, SC03, CO06, SC06, CO07, CI07, SC07).

SNU3 CO01 (cut away)

F005 073

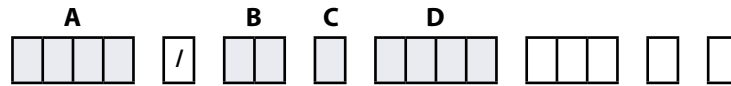
TECHNICAL DATA

This table details the technical data for Group 3 gear motors based on the model and displacement configuration.

Technical data for Group 3 gear motors

		Motor model									
		22	26	33	38	44	48	55	63	75	90
Displacement	cm ³ /rev [in ³ /rev]	22.1 [1.35]	26.2 [1.60]	33.1 [2.02]	37.9 [2.32]	44.1 [2.69]	48.3 [2.93]	55.2 [3.36]	63.4 [3.87]	74.4 [4.54]	88.2 [5.38]
SNM3 (bidirectional) motor in series											
Peak pressure	bar [psi]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]	150 [2175]
Back pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]	150 [2175]
Minimum speed	min ⁻¹	800	800	800	800	800	800	800	600	600	600
Maximum speed	(rpm)	2500	2500	2500	2500	2300	2300	2300	2300	2100	2100
SNM3 (bidirectional) motor in parallel											
Peak pressure	bar [psi]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	270 [3915]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]	150 [2175]
Minimum speed	min ⁻¹	800	800	800	800	800	800	800	800	800	800
Maximum speed	(rpm)	2500	2500	2500	2500	2300	2300	2300	2300	2100	2100
SNU3 (unidirectional)											
Peak pressure	bar [psi]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]	150 [2175]
Rated pressure		250 [3625]	250 [3625]	250 [3625]	250 [3625]	250 [3625]	230 [3335]	210 [3045]	190 [2755]	170 [2465]	150 [2175]
Minimum speed	min ⁻¹	800	800	800	800	800	800	800	800	800	800
Maximum speed	(rpm)	2500	2500	2500	2500	2300	2300	2200	2100	2100	2100
Both (SNU3,SNM3)											
Weight	kg [lb]	6.8 [15.0]	6.8 [15.0]	7.2 [15.8]	7.3 [16.1]	7.5 [16.5]	7.6 [16.8]	7.8 [17.3]	8.1 [17.9]	8.5 [18.7]	8.9 [19.6]
Moment of inertia of rotating components	x 10 ⁻⁶ kg m ² [x 10 ⁻⁶ lbf·ft ²]	198 [4698]	216 [5126]	246 [5837]	267.2 [6341]	294.2 [6981]	312.2 [7408]	342.3 [8123]	378.3 [8977]	426.4 [10 118]	486.5 [11 545]

MODEL CODE



A Type

Code	Description
SNM3	Bidirectional gear motor
SNU3	Unidirectional gear motor
SNM3G.	Unidirectional gear motor with anti-cavitation check valve

B Displacement

Code	Description	SNM3	SNU3	SNM3G.
22	22.1 cm ³ /rev [1.35 in ³ /rev]	●	●	●
26	26.2 cm ³ /rev [1.60 in ³ /rev]	●	●	●
33	33.1 cm ³ /rev [2.02 in ³ /rev]	●	●	●
38	37.9 cm ³ /rev [2.32 in ³ /rev]	●	●	●
44	44.1 cm ³ /rev [2.69 in ³ /rev]	●	●	●
48	48.3 cm ³ /rev [2.93 in ³ /rev]	●	●	●
55	55.1 cm ³ /rev [3.36 in ³ /rev]	●	●	●
63	63.4 cm ³ /rev [3.87 in ³ /rev]	●	●	●
75	74.4 cm ³ /rev [4.54 in ³ /rev]	●	●	●
90	88.2 cm ³ /rev [5.38 in ³ /rev]	●	●	●

C Direction of rotation

Code	Description	SNM3	SNU3	SNM3G.
D	Right (Clockwise)	●	●	●
S	Left (Counterclockwise)		●	●

D Shaft/Mounting flange/Port configuration

Code	Description	SNM3	SNU3	SNM3G.
CO01	Tapered shaft 1:8/European 01 4-bolt flange/European flanged ports	●	●	●
CO02	Tapered shaft 1:8/European 02 4-bolt flange/European flanged ports	●	●	●
CO03	Tapered shaft 1:8/European 03 4-bolt flange/European flanged ports	●	●	●
CO06	Tapered shaft 1:5/German 4-bolt flange/German standard ports	●	●	●
CO07	Tapered shaft 1:8/SAE B flange/Vertical 4-bolt flanged ports	●	○	●
CI01	Parallel shaft 20 mm [0.787 in]/European 01 4-bolt flange/European flanged ports	●	●	●
CI02	Parallel shaft 20 mm [0.787 in]/European 02 4-bolt flange/European flanged ports	●	●	●
CI03	Parallel shaft 22 mm [0.866 in]/European 03 4-bolt flange/European flanged ports	●	●	●
CI07	Parallel shaft 22.225 mm [0.875 in]/SAE B flange/Vertical 4-bolt flanged ports	●	●	●
SC01	DIN splined shaft/European 01 4-bolt flange/European flanged ports	●	●	●
SC02	DIN splined shaft/European 02 4-bolt flange/European flanged ports	●	●	●
SC03	DIN splined shaft/European 03 4-bolt flange/European flanged ports	●	●	●
SC06	SAE splined shaft/German 4-bolt flange/German standard ports	●	●	●
SC07	SAE splined shaft/SAE B flange/Vertical 4-bolt flanged ports	●	●	●

Legend:	
●	= Standard
○	= Optional
-	= Not Available

MODEL CODE (continued)



E Variant code (3-letter code describes variants to standard configuration)

F Version (value representing a change to the initial project)

Code	Description
.	Initial project [*LEAVE BLANK]
1÷9 or A÷Z	It should be reserved to Sauer-Danfoss

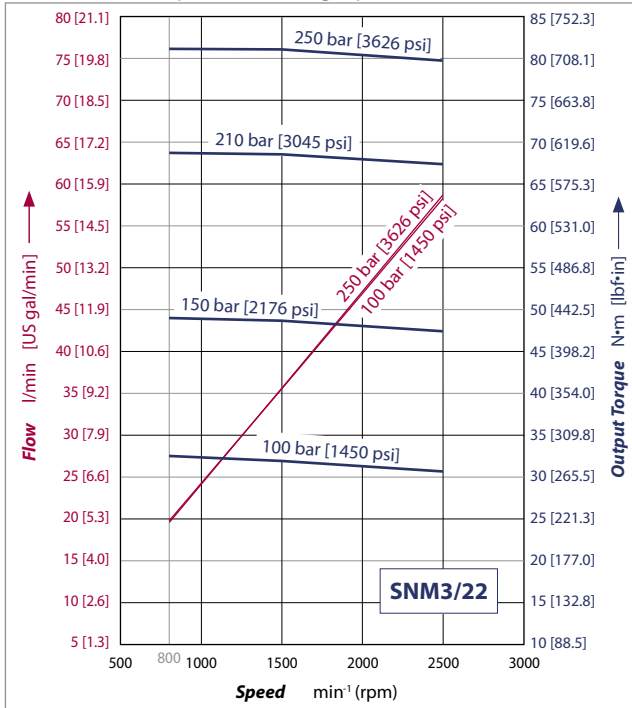
G Port type (if other than standard)

Code	Description
.	Standard port for the flange type specified [*LEAVE BLANK]
A	SAE flanged port
B	Flanged port with threaded holes in X pattern (German standard ports), centered on the body
C	Flanged port with threaded holes in + pattern (European standard ports)
D	Threaded metric port
E	Threaded SAE O-ring boss port
F	Threaded Gas port (BSP)
G	Flanged port with threaded holes in X pattern (German standard ports), offset from center of body

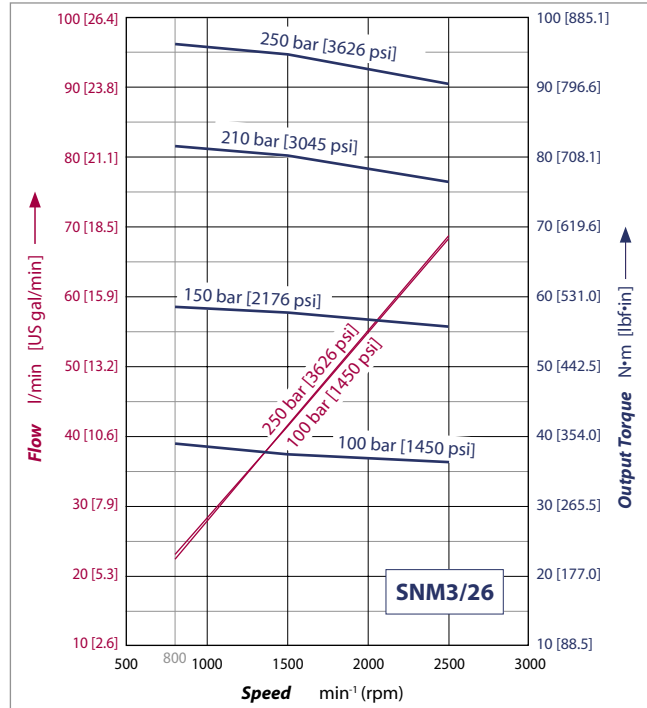
MOTOR PERFORMANCE GRAPHS

The graphs on the next pages provide typical inlet flow and output power for Group 3 motors at various working pressures. Data were taken using ISO VG46 petroleum / mineral based fluid at 50 °C [122 °F] (viscosity = 28 mm²/s [132 SUS]).

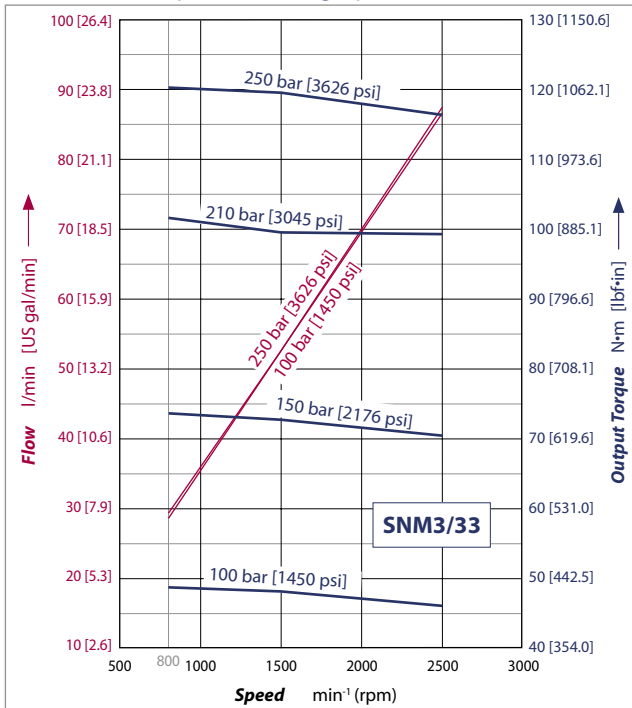
SNM3/22 motor performance graph



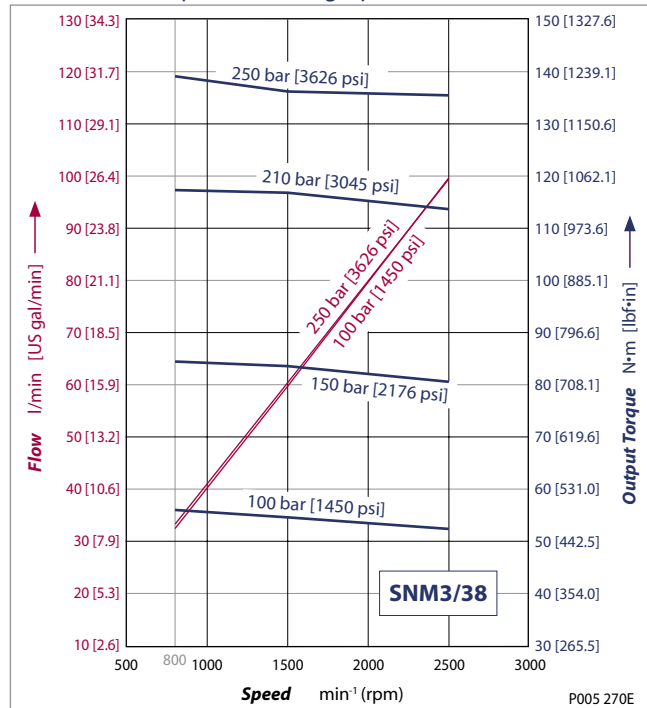
SNM3/26 motor performance graph



SNM3/33 motor performance graph

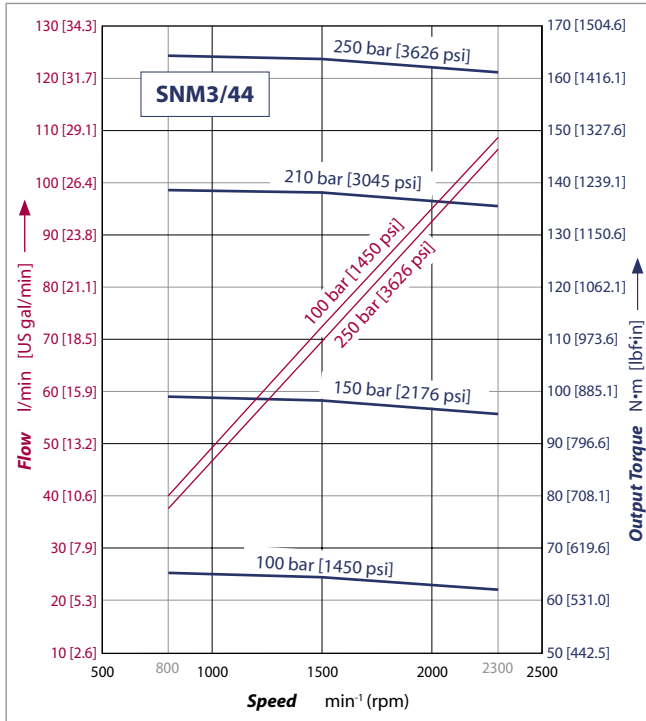


SNM3/38 motor performance graph

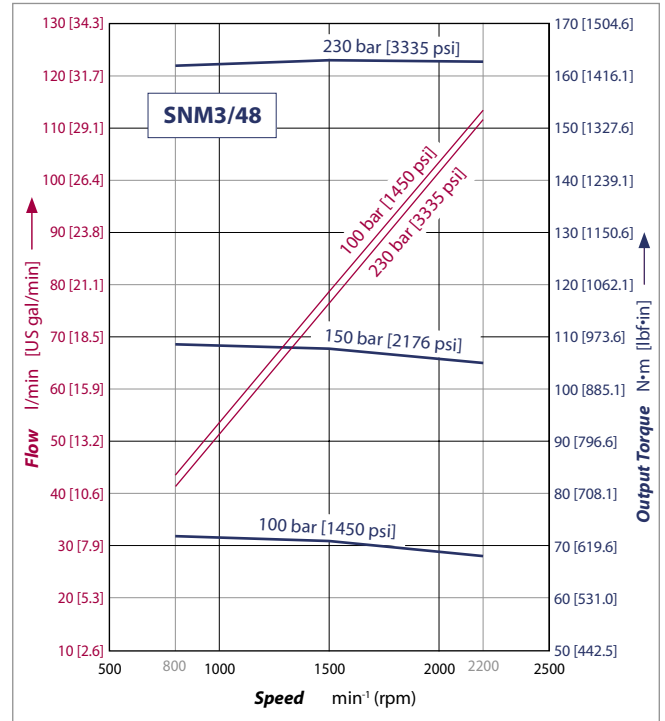


MOTOR PERFORMANCE GRAPHS (continued)

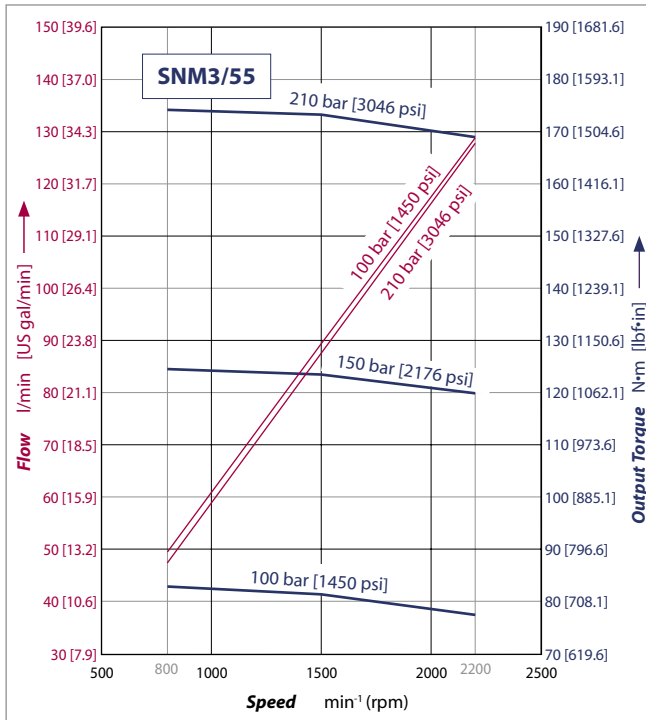
SNM3/44 motor performance graph



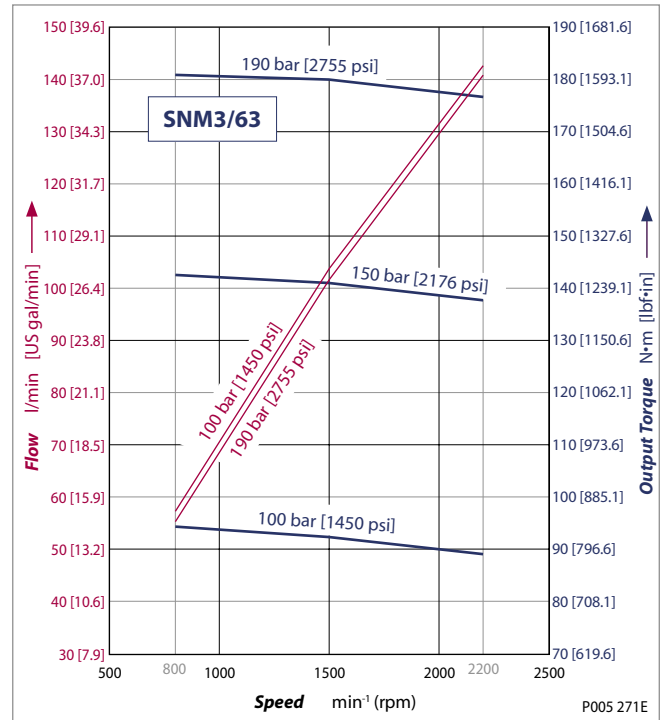
SNM3/48 motor performance graph



SNM3/55 motor performance graph

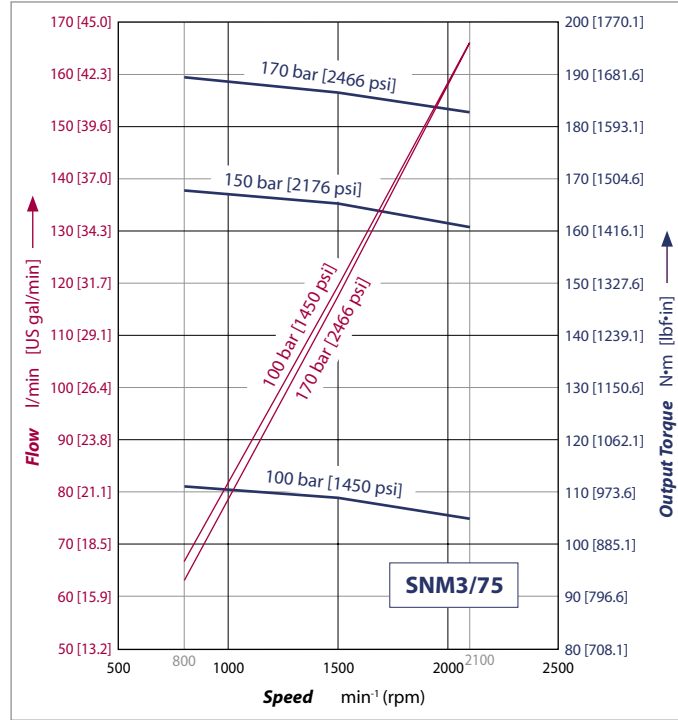


SNM3/63 motor performance graph

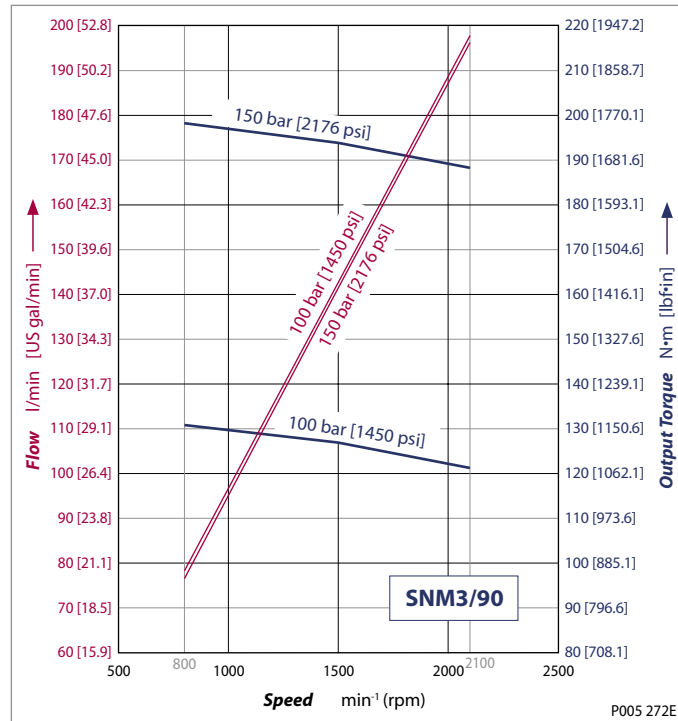


MOTOR PERFORMANCE GRAPHS (continued)

SNM3/75 motor performance graph

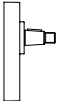
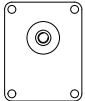
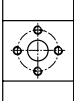
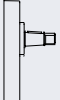
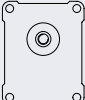
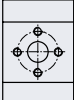
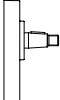
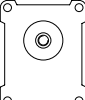
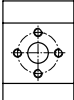
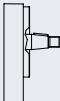

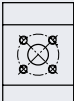
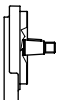
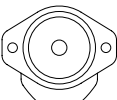
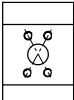
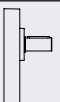
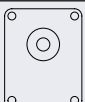
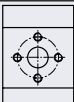
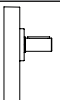
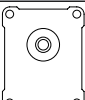
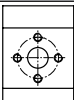
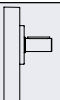

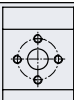
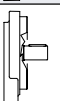
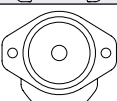
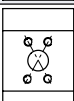
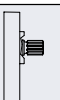
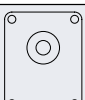
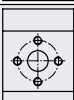
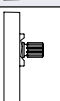
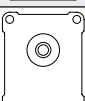
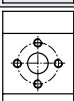

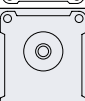
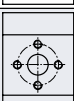
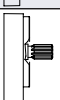

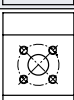
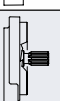

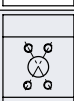


SNM3/90 motor performance graph



P005 272E

SHAFT, FLANGE, AND PORT CONFIGURATIONS

Motor	Code	Shaft	Flange	Port
SNM3 SNU3 SNM3G.	CO01	1:8 tapered 	50.8 mm [2.0 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CO02	1:8 tapered 	50.8 mm [2.0 in] pilot Ø European 02 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CO03	1:8 tapered 	60.3 mm [2.374 in] pilot Ø European 03 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CO06	1:5 tapered 	105 mm [4.133 in] pilot Ø German 4-bolt 	German std ports port X pattern 
SNM3 SNU3 SNM3G.	CO07	1:8 tapered 	SAE B Ø 101.6 pilot 2-bolt 	Vertical four bolt flanged port 
SNM3 SNU3 SNM3G.	CI01	Ø 20 mm [0.787 in] parallel 	50.8 mm [2.0 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CI02	Ø 20 mm [0.787 in] parallel 	50.8 mm [2.0 in] pilot Ø European 02 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CI03	Ø 22 mm [0.866 in] parallel 	60.3 mm [2.374 in] pilot Ø European 03 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	CI07	Ø 22.225 mm [0.875 in] parallel 	SAE B Ø 101.6 pilot 2-bolt 	Vertical four bolt flanged port 
SNM3 SNU3 SNM3G.	SC01	Splined shaft 13T – m 1.60 DIN 5482 – B22 x 19 	50.8 mm [2.0 in] pilot Ø European 01 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	SC02	Splined shaft 13T – m 1.60 DIN 5482 – B22 x 19 	50.8 mm [2.0 in] pilot Ø European 02 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	SC03	Splined shaft 14T – m 1.60 DIN 5482 – B25 x 22 	60.3 mm [2.374 in] pilot Ø European 03 4-bolt 	European flanged port + pattern 
SNM3 SNU3 SNM3G.	SC06	Splined shaft 15T – m 1.60 DIN 5482 – B28 x 25 	105 mm [4.133 in] pilot Ø German 4-bolt 	German std ports port X pattern 
SNM3 SNU3 SNM3G.	SC07	Splined shaft SAE J498 13T – 16/32DP 	SAE B Ø 101.6 pilot 2-bolt 	Vertical four bolt flanged port 

SHAFT OPTIONS

Group 3 motors are available with a variety of splined, parallel, and tapered shaft ends. Not all shaft styles are available with all flange styles.

Valid combination and nominal torque rating are shown in the table below:

Shaft availability and torque capability



Shaft		Mounting flange code with maximum torque in N•m [lbf•in]				
Code	Description	01	02	03	06	07
CO	Taper 1:5	-	-	-	300 [2655]	-
CO	Taper 1:8	350 [3097]	350 [3097]	500 [4425]	-	300 [2655]
SC	SAE spline 13T 16/32p	290 [2566]	290 [2566]	380 [3363]	450 [3982]	270 [2389]
CI	Parallel ø 22.225 mm	210 [1858]	210 [1858]	300 [2655]	-	230 [2035]

Recommended mating splines for Gr3 splined output shaft in accordance to SAE J498 or DIN5482. Sauer-Danfoss external SAE splines have a flat root side fit with circular tooth thickness reduced by 0.127 mm [0.005 in] in respect to class 1 fit. Dimensions are modified to assure a clearance fit with the mating spline.

Other shaft options may exist. Contact your Sauer-Danfoss representative for availability.

Caution

Shaft torque capability may limit allowable pressure. Torque ratings assume no external radial loading. Applied torque must not exceed these limits, regardless of stated pressure parameters. Maximum torque ratings are based on shaft torsional fatigue strength.

MOUNTING FLANGES

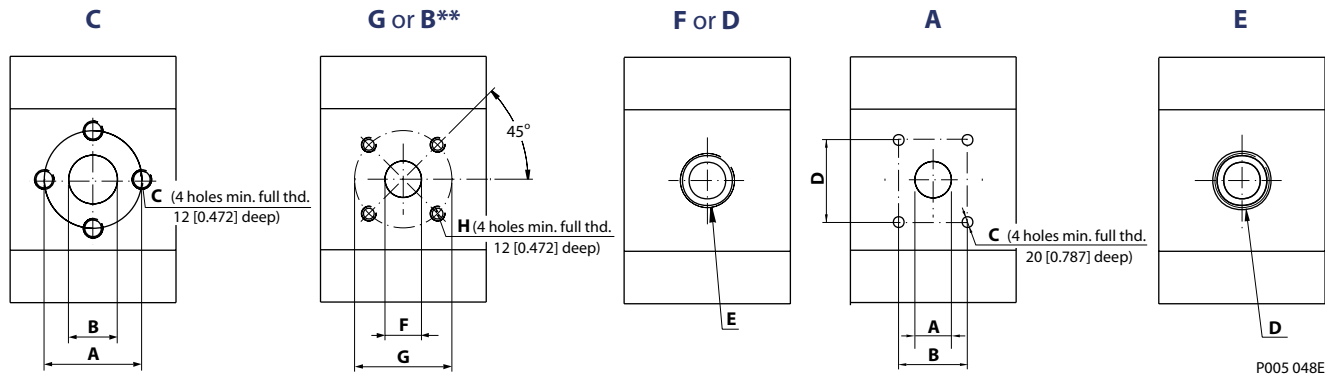
Sauer-Danfoss offers many types of industry standard mounting flanges. This table shows order codes for each available mounting flange and its intended use:



Flange code	Intended use
01	European 01 flange ø50.8 mm [Dia 2.0 in] 4-Bolt
02	European 02 flange ø50.8 mm [Dia 2.0 in] 4-Bolt
03	European ø60.3 mm [Dia 2.374 in] 4-Bolt
06	German ø105 mm [Dia 4.134 in] 4-Bolt
07	SAE B 2-Bolt

SNM3, SNM3G. PORTS

The illustration below shows ports for bi-directional motors.



Bi-directional motor ports dimensions

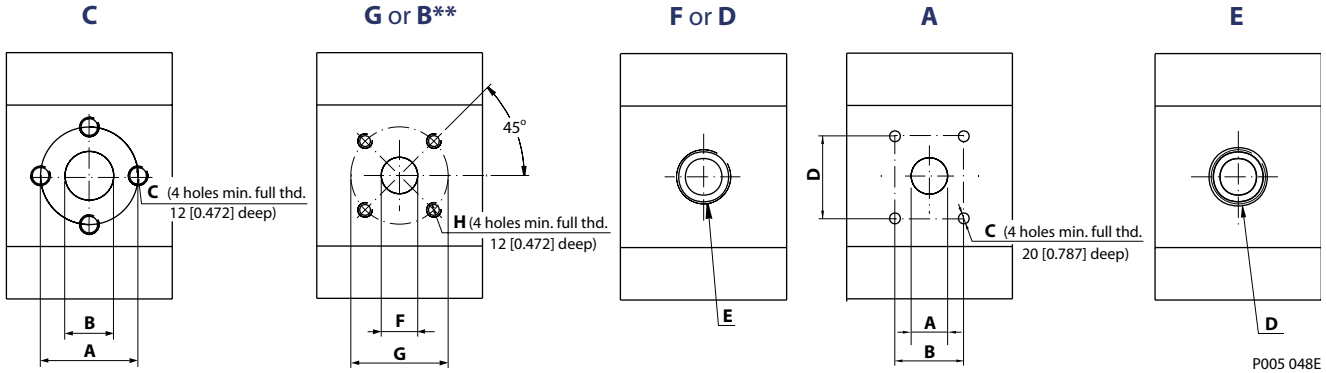
Model code*		C			G or B**			F or D		E	A
Standard port for flange code		01/02/03			06			nonstandard			SAE J518c vertical 07
Type (displacement)		B	A	C	F	G	H	E	E	D	"
22	Inlet/Outlet	20 [0.787]	40 [1.575]	M8	27 [1.063]	55 [2.165]	M8	3/4 Gas (BSPP)	M26x1.5	1 5/16-12UNF-2B	1
26	Inlet/Outlet	20 [0.787]	40 [1.575]	M8	27 [1.063]	55 [2.165]	M8	3/4 Gas (BSPP)	M26x1.5	1 5/16-12UNF-2B	1 1/4
33	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
38	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
44	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
48	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
55	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
63	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
75	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
90	Inlet/Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8	1 Gas (BSPP)	M33x2	1 5/8-12UNF-2B	1 1/4
Drain		M14 x 1.5							9/16-18UNF-2B		

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark .

** Port B is in the center of the body. Port G is offset from the center of the body.

SNU3 PORTS

The illustration below shows ports for uni-directional motors.



P005 048E

Uni-directional motor ports dimensions

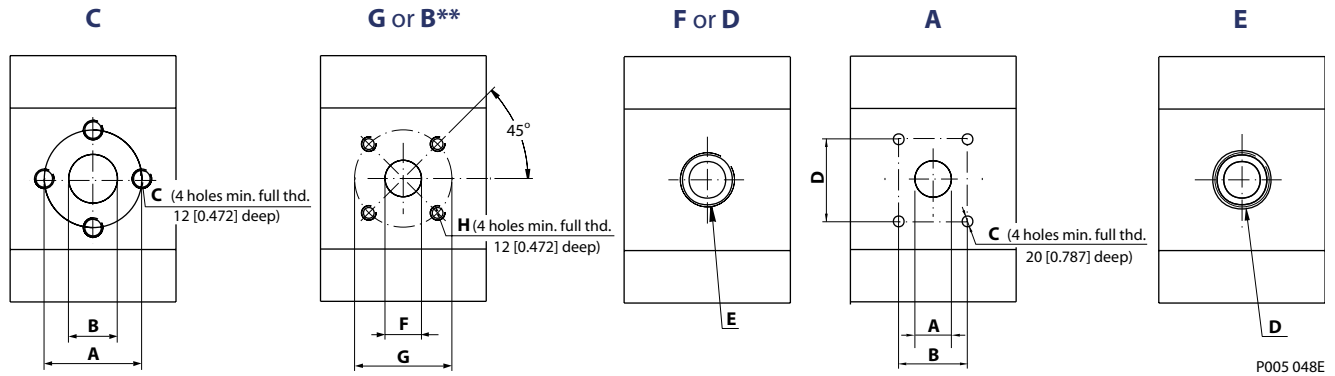
Model code*		C						G or B**		
Standard port for flange code		01/02			03			06		
Type (displacement)		B	A	C	B	A	C	F	G	H
22	Outlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	27 [1.063]	55 [2.165]	M8
	Inlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	18 [0.709]	55 [2.165]	M8
26	Outlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	27 [1.063]	55 [2.165]	M8
	Inlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	18 [0.709]	55 [2.165]	M8
33	Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
	Inlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	18 [0.709]	55 [2.165]	M8
38	Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
	Inlet	20 [0.787]	40 [1.575]	M8	20 [0.787]	40 [1.575]	M8	18 [0.709]	55 [2.165]	M8
44	Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	18 [0.709]	55 [2.165]	M8
48	Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	18 [0.709]	55 [2.165]	M8
55	Outlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	18 [0.709]	55 [2.165]	M8
63	Outlet	36 [1.417]	62 [2.441]	M10	36 [1.417]	62 [2.441]	M10	36 [1.417]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
75	Outlet	36 [1.417]	62 [2.441]	M10	36 [1.417]	62 [2.441]	M10	36 [1.417]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8
90	Outlet	36 [1.417]	62 [2.441]	M10	36 [1.417]	62 [2.441]	M10	36 [1.417]	55 [2.165]	M8
	Inlet	27 [1.063]	51 [2.008]	M10	27 [1.063]	51 [2.008]	M10	27 [1.063]	55 [2.165]	M8

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark .

** Port B is in the center of the body. Port G is offset from the center of the body.

(the table is continued on the next page)

SNU3 PORTS (continued) The illustration below shows ports for uni-directional motors.



Uni-directional motor ports dimensions

Model code*		A			F or D	E		
Standard port for flange code		07			nonstandard for all configuration	07		
Type (displacement)		A	B	D	C	E	D	
22	Outlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{5}{16}$ -12UN-2B
	Inlet	19.1 [0.752]	22.23 [0.875]	47.63 [1.875]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{1}{16}$ -12UN-2B
26	Outlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{5}{16}$ -12UN-2B
	Inlet	19.1 [0.752]	22.23 [0.875]	47.63 [1.875]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{1}{16}$ -12UN-2B
33	Outlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
	Inlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{5}{16}$ -12UN-2B
38	Outlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
	Inlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	$\frac{3}{4}$ Gas (BSPP)	M26x1.5	$1\frac{5}{16}$ -12UN-2B
44	Outlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
	Inlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{16}$ -12UN-2B
48	Outlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
	Inlet	25.4 [1.000]	26.19 [1.031]	52.37 [2.062]	$\frac{3}{8}$ -16UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{16}$ -12UN-2B
55	Outlet	38.1 [1.500]	35.71 [1.406]	69.85 [2.750]	$\frac{1}{2}$ -13UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{7}{8}$ -12UN-2B
	Inlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
63	Outlet	38.1 [1.500]	35.71 [1.406]	69.85 [2.750]	$\frac{1}{2}$ -13UNC-2B	$1\frac{1}{4}$ Gas (BSPP)	M42x2	$1\frac{7}{8}$ -12UN-2B
	Inlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
75	Outlet	38.1 [1.500]	35.71 [1.406]	69.85 [2.750]	$\frac{1}{2}$ -13UNC-2B	$1\frac{1}{4}$ Gas (BSPP)	M42x2	$1\frac{7}{8}$ -12UN-2B
	Inlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B
90	Outlet	38.1 [1.500]	35.71 [1.406]	69.85 [2.750]	$\frac{1}{2}$ -13UNC-2B	$1\frac{1}{4}$ Gas (BSPP)	M42x2	$1\frac{7}{8}$ -12UN-2B
	Inlet	31.8 [1.252]	30.18 [1.188]	58.72 [2.312]	$\frac{7}{16}$ -14UNC-2B	1 Gas (BSPP)	M33x2	$1\frac{5}{8}$ -12UN-2B

* Mark only if desired porting is nonstandard for the flange code selected. Otherwise, mark .

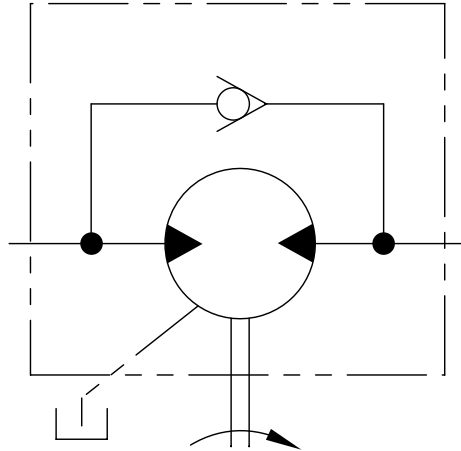
** Port B is in the center of the body. Port G is offset from the center of the body.

**ANTI-CAVITATION CHECK
VALVE • SNM3G.**

SNM3G.

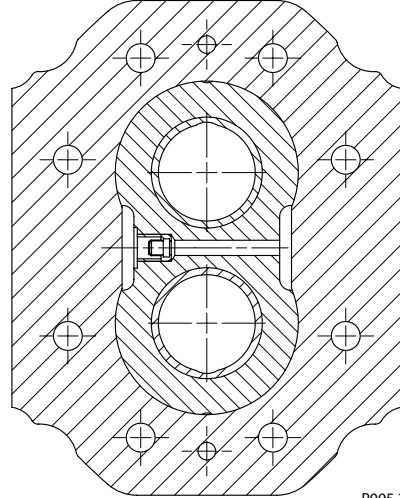
Sauer-Danfoss offers an optional **integral anti-cavitation check valve** integrated in Group 3 motors bearing blocks. Available for all the displacements, the valve directs internally the flow from the motor outlet to the inlet, when the outlet pressure gets higher then the inlet one.

Valve schematic diagram



P005 261

Anticavitation check valve cross section

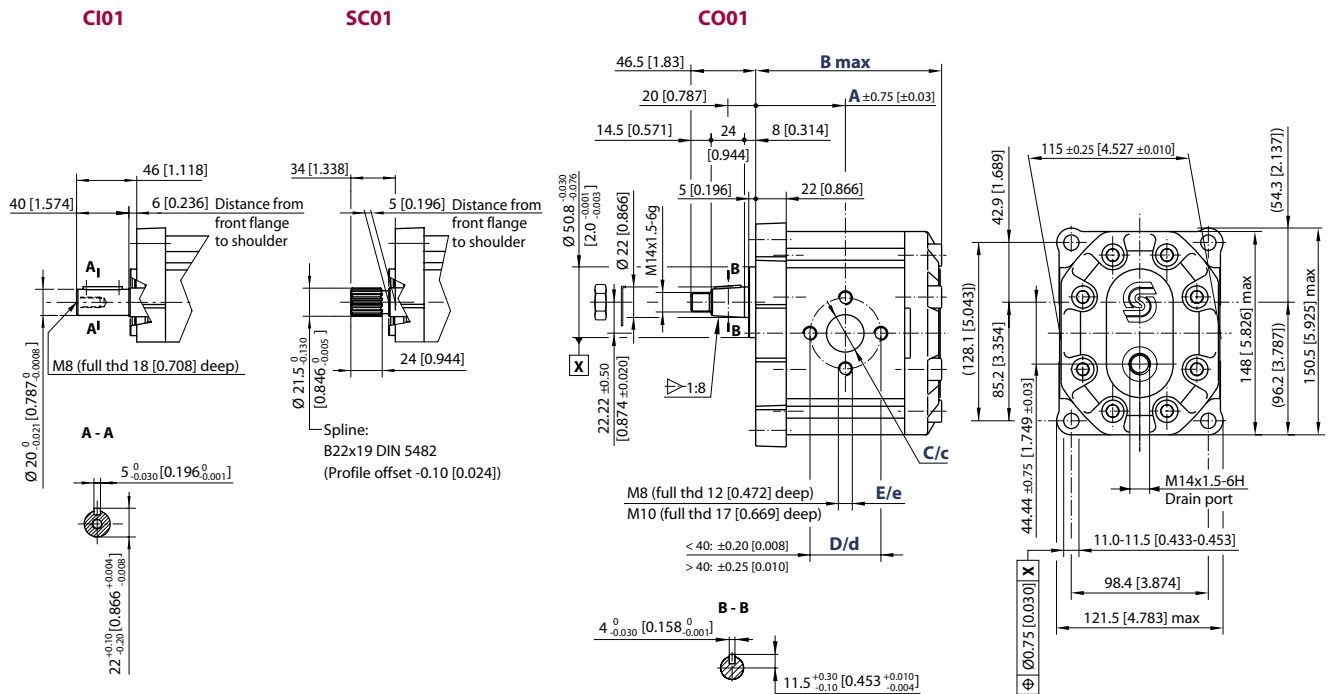


P005 275

**SNM3, SNU3 – CI01, SC01
 AND CO01**

Standard porting drawing for CI01, SC01 and CO01

mm
 [in]



P005 083E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – CI01, SC01 and CO01**

Type (displacement)	22	26	33	38	44	48	55	63	75	90	
Dimension	A	63.0 [2.480]	64.5 [2.539]	67.0 [2.637]	68.8 [2.708]	71.0 [2.795]	72.5 [2.854]	75.0 [2.952]	78.0 [3.070]	82.0 [3.228]	87.0 [3.425]
	B	132.5 [5.216]	135.5 [5.334]	140.5 [5.531]	144.0 [5.669]	148.5 [5.846]	151.5 [5.964]	156.5 [6.161]	162.5 [6.397]	170.5 [6.712]	180.5 [7.106]
Inlet/Outlet	C/c	20 [0.787]	27 [1.063]								
	D/d	40 [1.575]	51 [2.007]								
	E/e	M8	M10								

* For uni-directional SNU3 dimensions, see *SNU3 ports*, pages 60 and 61.

*Model code examples***

Bi-directional motors SNM3	SNM3/22 . CO01 SNM3/33 . SC01
Uni-directional motors SNU3	SNU3/63 S SC01 SNU3/48 D CI01

Maximum shaft torque

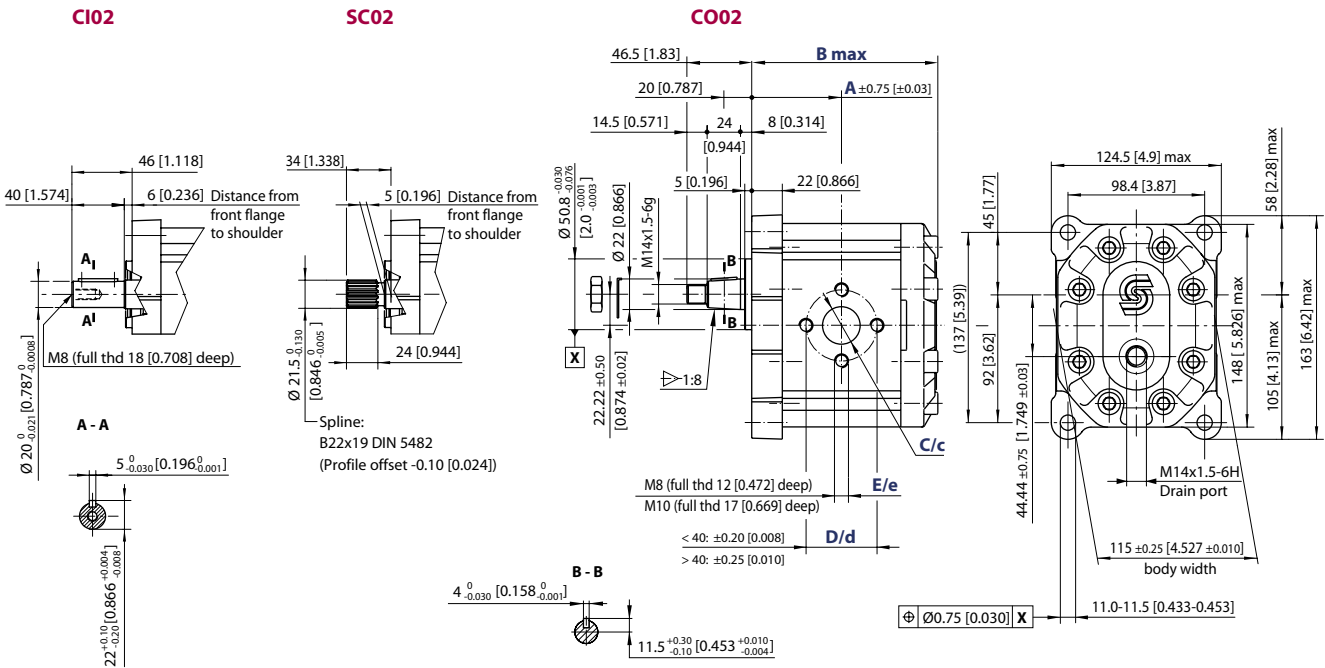
Maximum shaft torque	N•m [lbf•in]	CI01	SC01	CO01
		210 [1858]	290 [2566]	350 [3097]

** For further details on ordering, see *Model codes*, pages 52 and 53.

**SNM3, SNU3 – CI02, SC02
 AND CO02**

Standard porting drawing for CI02, SC02 and CO02

mm
 [in]



P005 084E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – CI02, SC02 and CO02**

Type (displacement)	22	26	33	38	44	48	55	63	75	90	
Dimension	A	63.0 [2.480]	64.5 [2.539]	67.0 [2.637]	68.8 [2.708]	71.0 [2.795]	72.5 [2.854]	75.0 [2.952]	78.0 [3.070]	82.0 [3.228]	87.0 [3.425]
	B	132.5 [5.216]	135.5 [5.334]	140.5 [5.531]	144.0 [5.669]	148.5 [5.846]	151.5 [5.964]	156.5 [6.161]	162.5 [6.397]	170.5 [6.712]	180.5 [7.106]
Inlet/Outlet	C/c	20 [0.787]					27 [1.063]				
	D/d	40 [1.575]					51 [2.007]				
	E/e	M8					M10				

* For uni-directional SNU3 dimensions, see *SNU3 ports*, pages 60 and 61.

*Model code examples***

Bi-directional motors SNM3	SNM3/90 . CO02 SNM3/33 . SC02
Uni-directional motors SNU3	SNU3/55 S SC02 SNU3/48 D CI02

Maximum shaft torque

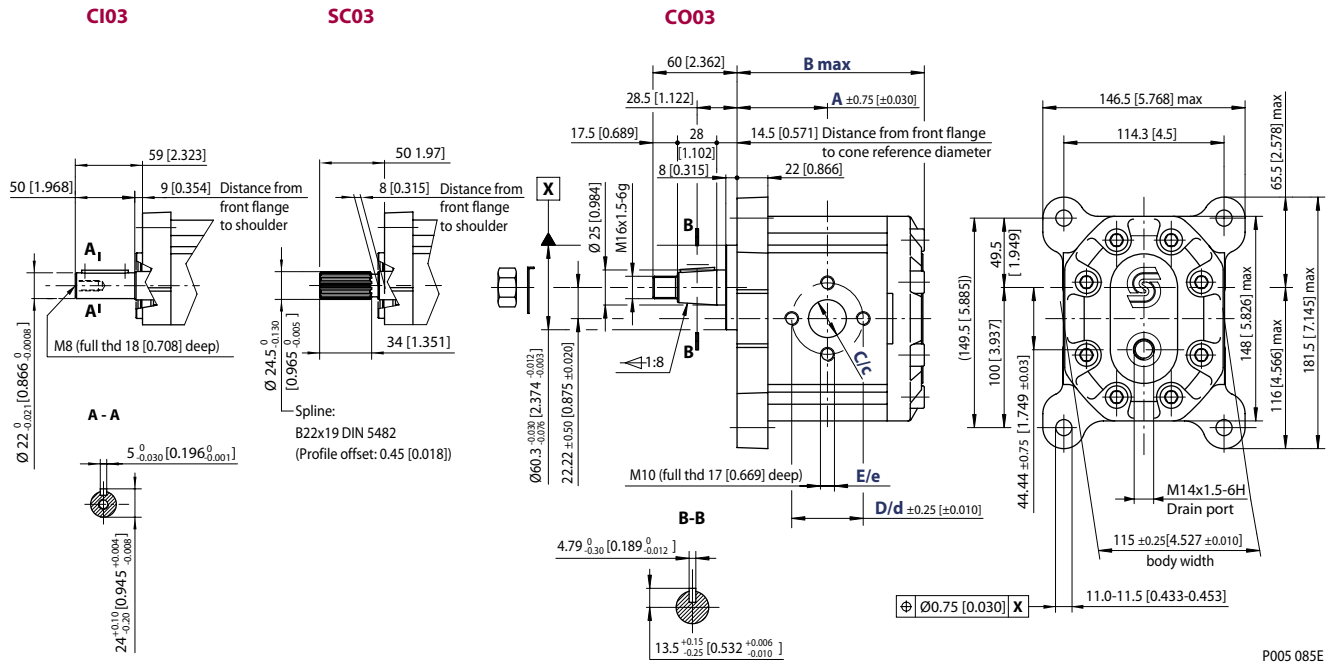
Maximum shaft torque	N•m [lbf•in]	CI02	SC02	CO02
		210 [1858]	290 [2566]	350 [3097]

** For further details on ordering, see *Model codes*, pages 52 and 53.

**SNM3, SNU3 – CI03, SC03
 AND CO03**

Standard porting drawing for CI03, SC03 and CO03

mm
 [in]



P005 085E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – CI03, SC03 and CO03**

Type (displacement)	22	26	33	38	44	48	55	63	75	90	
Dimension	A	63.0 [2.480]	64.5 [2.539]	67.0 [2.637]	68.8 [2.708]	71.0 [2.795]	72.5 [2.854]	75.0 [2.952]	78.0 [3.070]	82.0 [3.228]	87.0 [3.425]
	B	132.5 [5.216]	135.5 [5.334]	140.5 [5.531]	144.0 [5.669]	148.5 [5.846]	151.5 [5.964]	156.5 [6.161]	162.5 [6.397]	170.5 [6.712]	180.5 [7.106]
Inlet/Outlet	C/c	20 [0.787]					27 [1.063]				
	D/d	40 [1.575]					51 [2.007]				
	E/e	M8					M10				

* For uni-directional SNU3 dimensions, see *SNU3 ports*, pages 60 and 61.

*Model code examples***

Bi-directional motors	SNM3	SNM3/22 . CO03 ...
		SNM3/33 . SC03 ...
Uni-directional motors	SNU3	SNU3/63 S SC03 ...
		SNU3/48 D CI03 ...

Maximum shaft torque

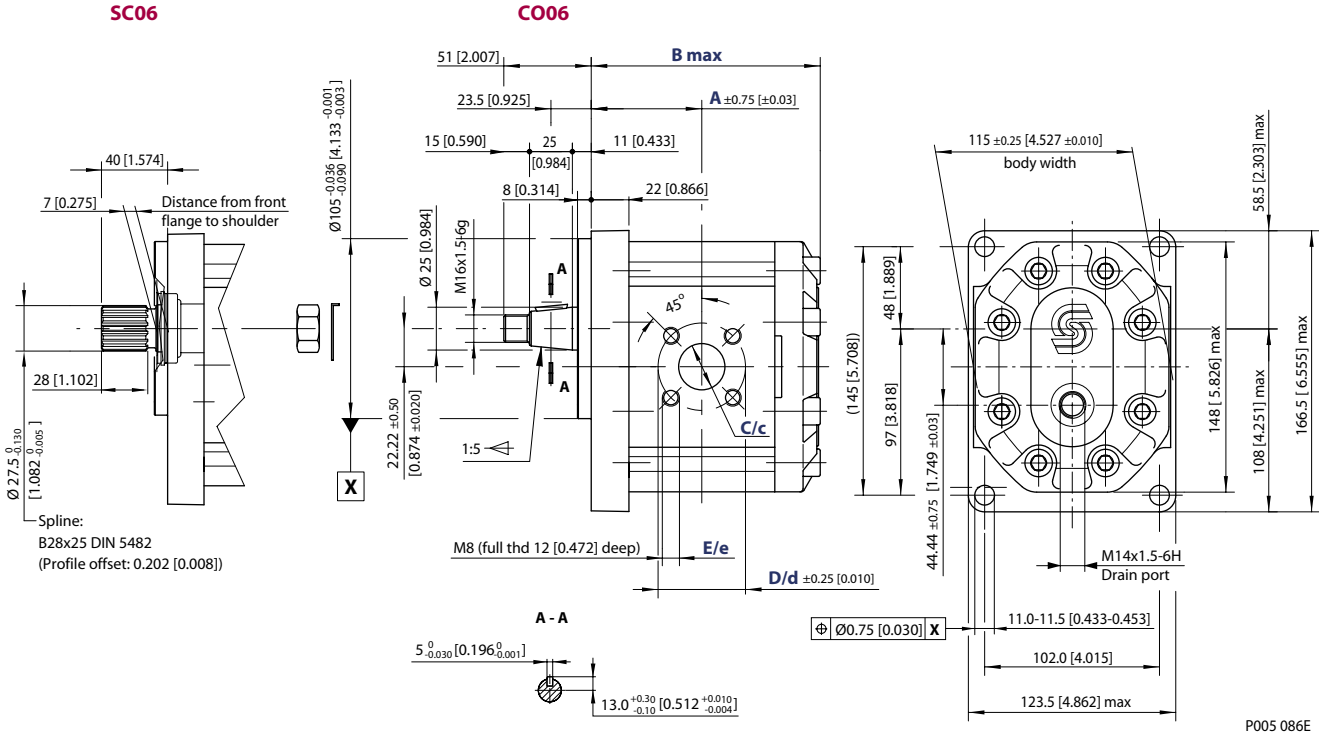
Maximum shaft torque	N•m [lbf•in]	CI03	SC03	CO03
		300 [2655]	380 [3363]	500 [4425]

** For further details on ordering, see *Model codes*, pages 52 and 53.

SNM3, SNU3 – CO06

Standard porting drawing for CO06

mm
[in]



For uni-directional motors no case drain hole into the rear cover.

Bi-directional motors dimensions – CO06*

Type (displacement)	22	26	33	38	44	48	55	63	75	90	
Dimension	A	63.0 [2.480]	64.5 [2.539]	67.0 [2.637]	68.8 [2.708]	71.0 [2.795]	72.5 [2.854]	75.0 [2.952]	78.0 [3.070]	82.0 [3.228]	87.0 [3.425]
	B	132.5 [5.216]	135.5 [5.334]	140.5 [5.531]	144.0 [5.669]	148.5 [5.846]	151.5 [5.964]	156.5 [6.161]	162.5 [6.397]	170.5 [6.712]	180.5 [7.106]
Inlet/Outlet	C/c	20 [0.787]					27 [1.063]				
	D/d	40 [1.575]					51 [2.007]				
	E/e	M8					M10				

* For uni-directional SNU3 dimensions, see *SNU3 ports*, pages 60 and 61.

Model code examples**

Bi-directional motors SNM3	SNM3/22 . CO06
Uni-directional motors SNU3	SNU3/63 D CO06 ...

Maximum shaft torque

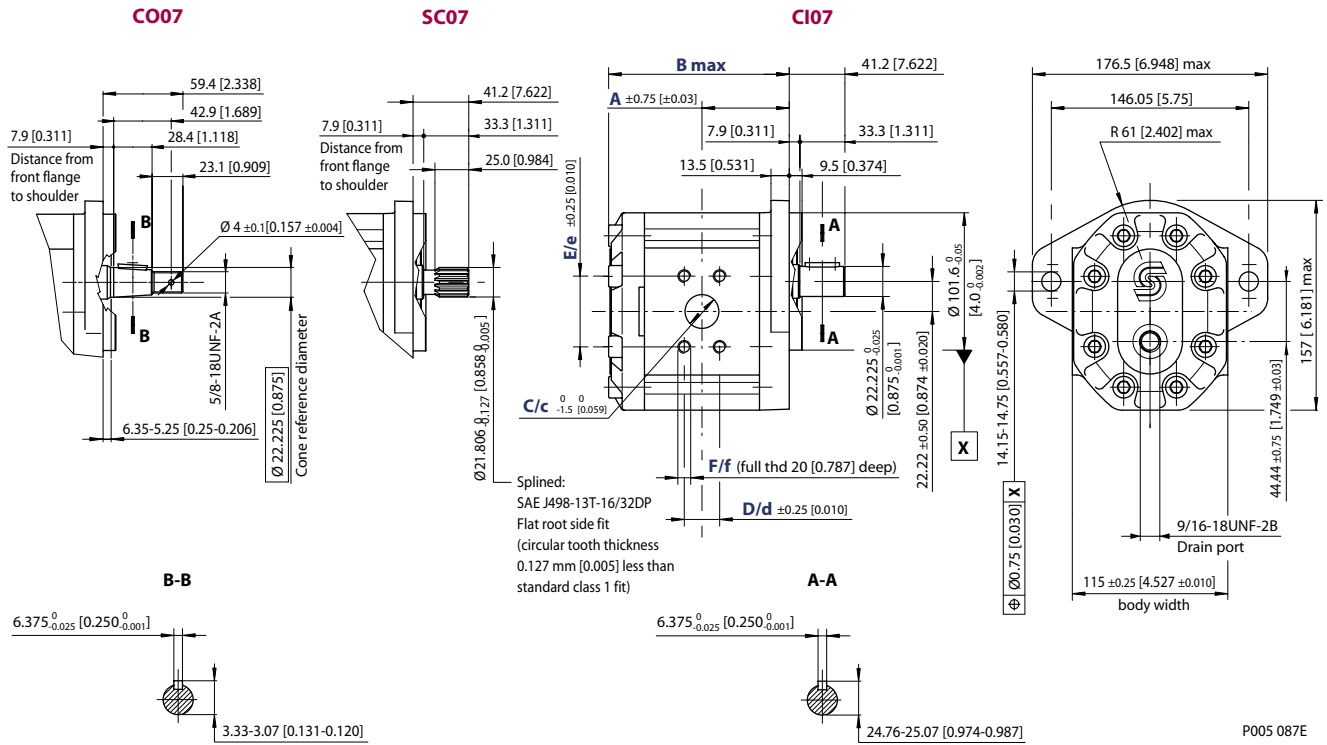
Maximum shaft torque	N·m [lbf·in]	CO06
		300 [2655]

** For further details on ordering, see *Model codes*, pages 52 and 53.

**SNM3, SNU3 – CO07,
 SC07 AND CI07**

Standard porting drawing for CO07, SC07 and CI07

mm
 [in]



P005 087E

For uni-directional motors no case drain hole into the rear cover.

*Bi-directional motors dimensions – CO07, SC07 and CI07**

Type (displacement)	22	26	33	38	44	48	55	63	75	90	
Dimension	A	63.0 [2.480]	64.5 [2.539]	67.0 [2.637]	68.8 [2.708]	71.0 [2.795]	72.5 [2.854]	75.0 [2.952]	78.0 [3.070]	82.0 [3.228]	87.0 [3.425]
	B	132.5 [5.216]	135.5 [5.334]	140.5 [5.531]	144.0 [5.669]	148.5 [5.846]	151.5 [5.964]	156.5 [6.161]	162.5 [6.397]	170.5 [6.712]	180.5 [7.106]
Inlet/Outlet	C/c	25.4 [1]									
	D/d	26.19 [1.031]									
	E/e	52.37 [2.061]									
	F/f	3/8-16UNC-2B									

* For uni-directional SNU3 dimensions, see *SNU3 ports*, pages 60 and 61.

*Model code examples***

Bi-directional motors SNM3	SNM3/22 . CO07 SNM3/26 . SC07
Uni-directional motors SNU3	SNU3/63 S SC07 SNU3/22 D CI07

Maximum shaft torque

Maximum shaft torque	N·m [lbf·in]	CO07	SC07	CI07
		300 [2655]	270 [2389]	230 [2035]

** For further details on ordering, see *Model codes*, pages 52 and 53.



Gear Motors • Group 1, 2 and 3
Technical Information
Notes



Gear Motors • Group 1, 2 and 3
Technical Information
Notes

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