

Combination pumps for NEMA motors

Type SKPN

LP: 1'450 psi / 0,27 to 1,02 in³/rev

HP: 10'150 psi / 0,029 to 0,17 in³/rev

Features

- Compact design
- Self-venting
- Various combinations possible

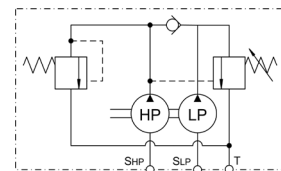


Design

- Integrated low-pressure unloading valve
- Integrated fail safe valve (not suitable for continuous operation, must not be used to restrict the system pressure!)
- With hollow shaft for direct assembling of motor without bell housing and coupling

Applications

- For applications that require high flow rates in the low pressure (LP) range and low flow rates in the high pressure (HP) range
- Presses
- Power units for industrial applications such as punching machines and rescue devices
- Not suited for pulsation



Technical Data

Hydraulic fluid	Mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	-4 °F up to 176 °F (-20 up to 80 ° C)
Ambient temperature range	-4 °F up to 122 °F (-20 up to 50 ° C)
Viscosity range	0,019 to 0,34 in ² /s (12 to 220 mm ² /s)
Max. operating pressure HP	10'150 psi (700 bar)
Suction pressure	-3 psi up to 7 psi (-0,2 bar up to 0,5 bar)
Filtration (recommendation)	According to NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12
Weight	See product information
Installation position	In oil reservoir (vertical)
Radial force / Axial force onto driving shaft	Not allowed
Max. rotation speed	2'000 rpm
Direction of rotation	Clockwise
Suction height	15,8 in (Max. 400 mm)
Material	Excentric shaft and valve block: steel Pump housing and gear pump: cast aluminium

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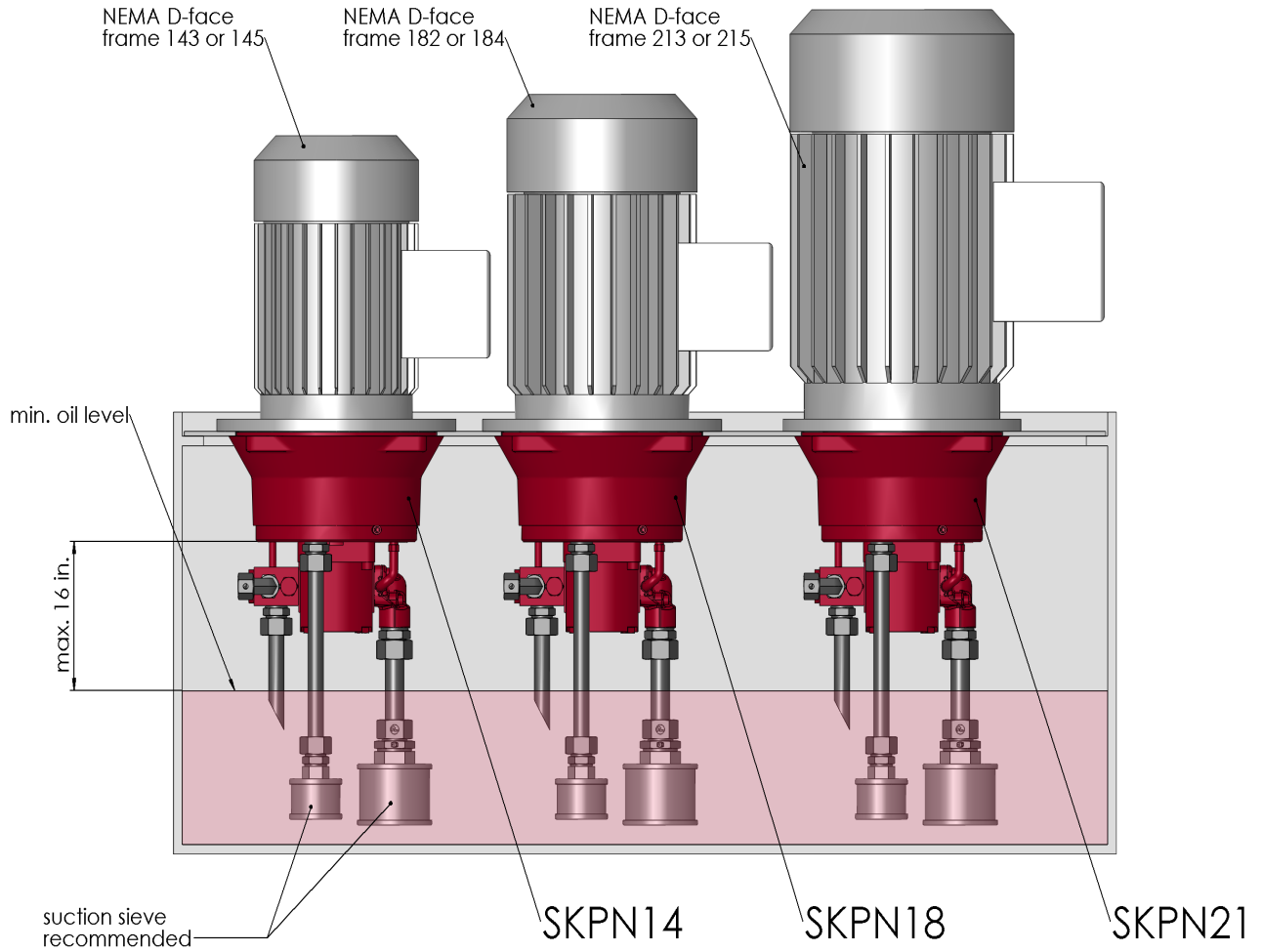
LP: 1'450 psi / 0,27 to 1,02 in³/rev
HP: 10'150 psi / 0,029 to 0,17 in³/rev

Ordering code

Example	SKPN	14	-	0,47	-	700	-	4,47	-	100	V	-			00
Combination pumps															
Size	14														
	18														
	21														
Displacement HP [cm³/rev]	see product information														
Max. operating pressure HP [bar]	see product information														
Displacement LP [cm³/rev]	see product information														
Max. operating pressure LP [bar]	see product information														
Seal material	V [FPM] other seal materials on request														
Special design 01 ... 99 (00 for Standard)															
Part index Please leave it blank (small letters a-z; different letters do not effect interchangeability)															
Design revision see dimension drawings (capital letters A-Z; identical letters equal same connecting dimensions)															

Note: Please use metric data to fill out the ordering code (complete data on the following page)! Example see above!

Mounting



Type SKPN

LP: 1'450 psi / 0,27 to 1,02 in³/rev
 HP: 10'150 psi / 0,029 to 0,17 in³/rev

Product information

Size	HP mode		LP mode		Weight ca. [lbs]	Weight ca. [kg]	Part No.
	Displacement [in ³ /rev]	Displacement [cm ³ /rev]	Displacement [in ³ /rev]	Displacement (HP+LP) [cm ³ /rev]			
14	0,029	0,47	0,27	4,47	22,9	10,4	3916944
14	0,029	0,47	0,39	6,47	23,3	10,6	3917008
14	0,041	0,68	0,29	4,68	22,9	10,4	3917009
14	0,041	0,68	0,41	6,68	23,3	10,6	3917010
14	0,052	0,85	0,30	4,85	22,9	10,4	3917011
14	0,052	0,85	0,42	6,85	23,3	10,6	3917012
14	0,052	0,85	0,54	8,85	23,6	10,7	3917013
18	0,074	1,21	0,32	5,21	23,0	10,4	3917055
18	0,074	1,21	0,44	7,21	23,3	10,6	3917056
18	0,074	1,21	0,56	9,21	23,7	10,8	3917057
18	0,096	1,53	0,34	5,53	23,0	10,4	3917058
18	0,096	1,53	0,46	7,53	23,3	10,6	3917060
18	0,096	1,53	0,58	9,53	23,7	10,8	3917101
18	0,096	1,53	0,95	15,53	24,1	10,9	3917102
18	0,110	1,88	0,36	5,88	22,9	10,4	3917104
18	0,110	1,88	0,48	7,88	23,4	10,6	3917165
18	0,110	1,88	0,60	9,88	23,7	10,8	3917166
18	0,110	1,88	0,97	15,88	24,1	10,9	3917168
18	0,130	2,16	0,38	6,16	23,0	10,4	3917169
18	0,130	2,16	0,50	8,16	23,3	10,6	3917170
18	0,130	2,16	0,62	10,16	23,7	10,8	3917171
21	0,130	2,16	0,99	16,16	23,6	10,7	3917173
21	0,170	2,71	0,41	6,71	22,5	10,2	3917175
21	0,170	2,71	0,53	8,71	22,8	10,3	3917176
21	0,170	2,71	0,65	10,71	23,1	10,5	3917178
21	0,170	2,71	1,02	16,71	23,6	10,7	3917179

Max. operating pressure HP: 10'150 psi / **700 bar (for ordering code)**
 LP: 1'450 psi / **100 bar (for ordering code)**

Calculation of driving motor torque

$$M_{tot} = M_{RP} + M_{GP}$$

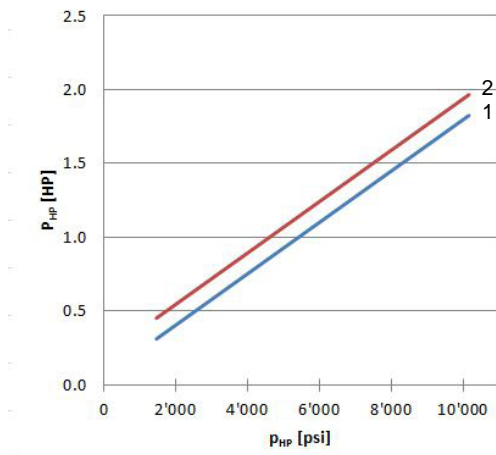
$M_{RP} = \frac{P_{RP} \cdot V_{gRP}}{62,8 \cdot \eta_{RP}}$	$M_{GP} = \frac{P_{GP} \cdot V_{gGP}}{62,8 \cdot \eta_{GP}}$
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- M Torque [Nm]
- P Power [kW]
- n Speed [rpm]
- V_g theor. displacement [cm³/rev]
- p Operating pressure [psi]
- η_{RP} Overall efficiency approx. 0,8
- η_{GP} Overall efficiency approx. 0,7
- k Pulsation factor approx. 1,05

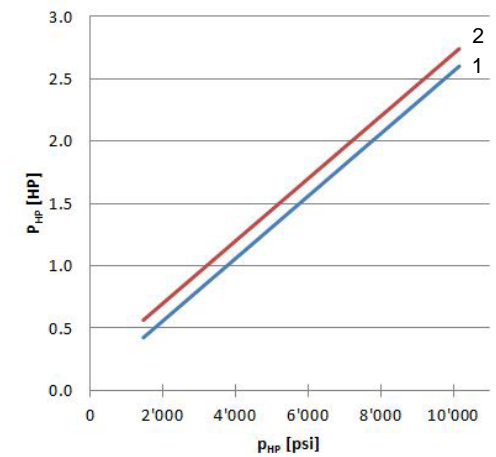
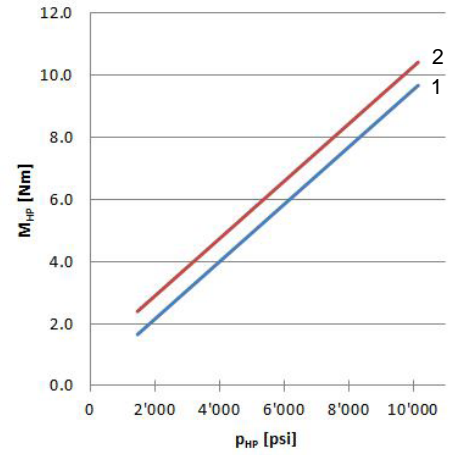
Calculation of driving motor power

$P_{RP} = \frac{P_{RP} \cdot V_{gRP} \cdot n \cdot k \cdot 0.093}{600 \cdot 10^3 \cdot \eta_{RP}}$	$P_{GP} = \frac{P_{GP} \cdot V_{gGP} \cdot n}{600 \cdot 10^3 \cdot \eta_{GP}}$
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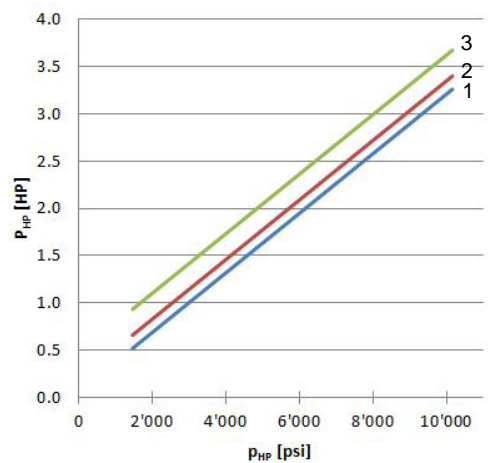
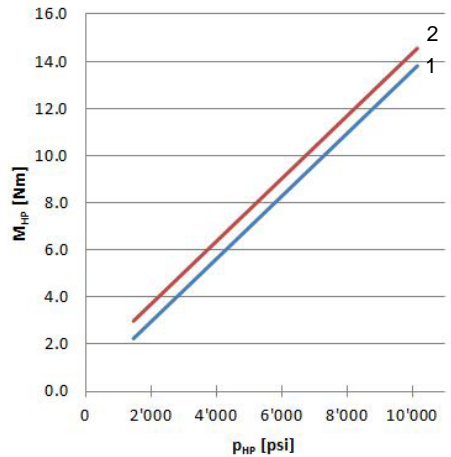
Driving motor power and Torque



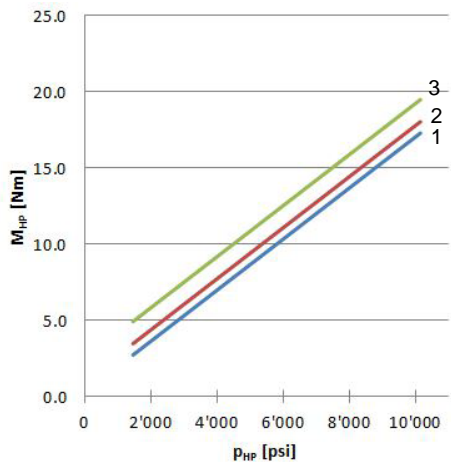
- 1 — SKPN14-0.47-700-4.47-100
- 2 — SKPN14-0.47-700-6.47-100



- 1 — SKPN14-0.68-700-4.68-100
- 2 — SKPN14-0.68-700-6.68-100



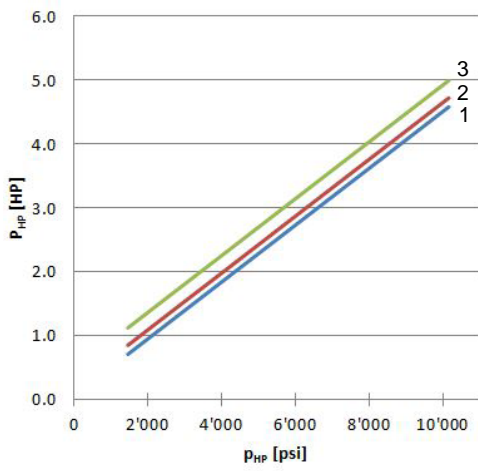
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- 2 — SKPN14-0.85-700-6.85-100
- 3 — SKPN14-0.85-700-8.85-100



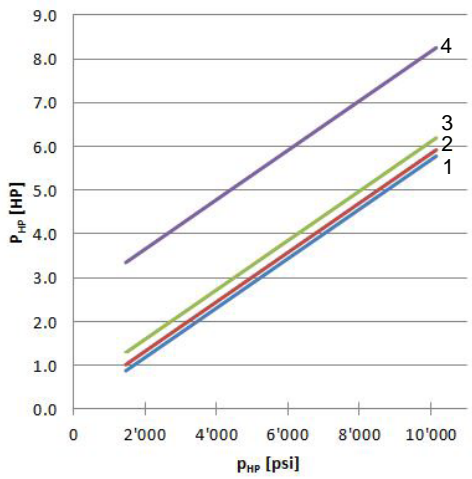
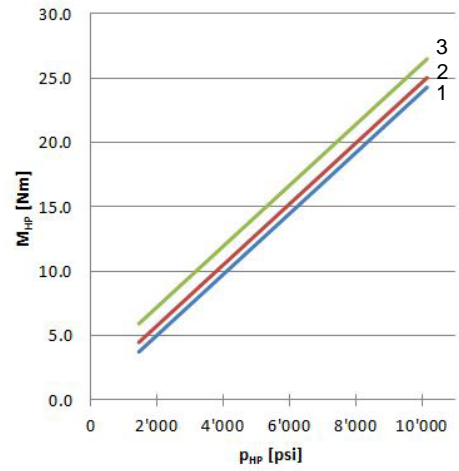
Type SKPN

LP: 1'450 psi / 0,27 to 1,02 in³/rev

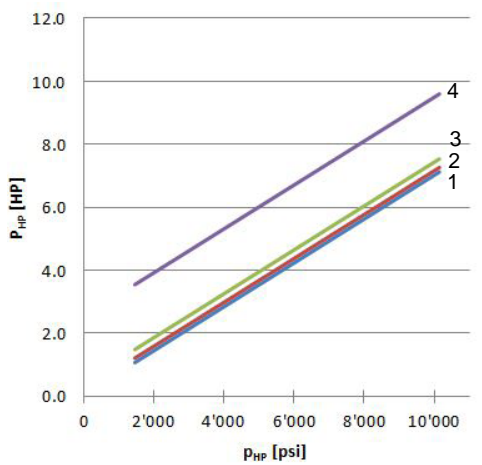
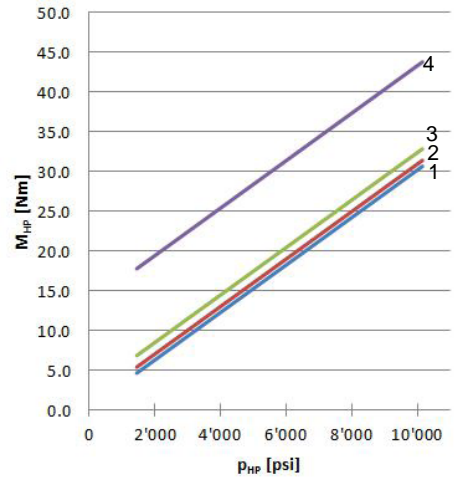
HP: 10'150 psi / 0,029 to 0,17 in³/rev



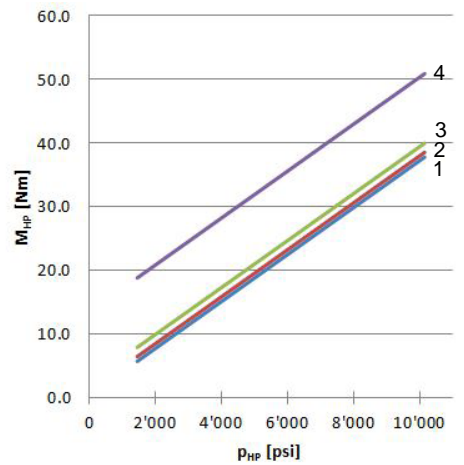
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- 2 — SKPN18-1.21-700-7.21-100
- 3 — SKPN18-1.21-700-9.21-100



- 1 — SKPN18-1.53-700-5.53-100
- 2 — SKPN18-1.53-700-7.53-100
- 3 — SKPN18-1.53-700-9.53-100
- 4 — SKPN18-1.53-700-15.53-100

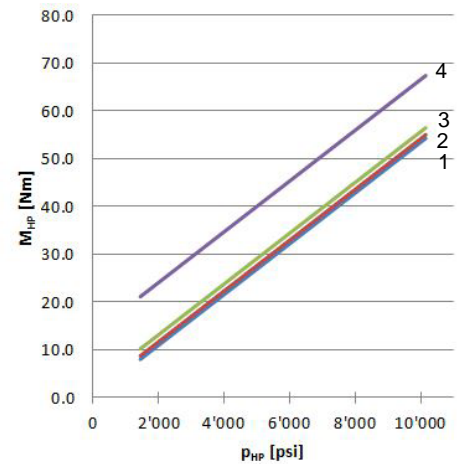
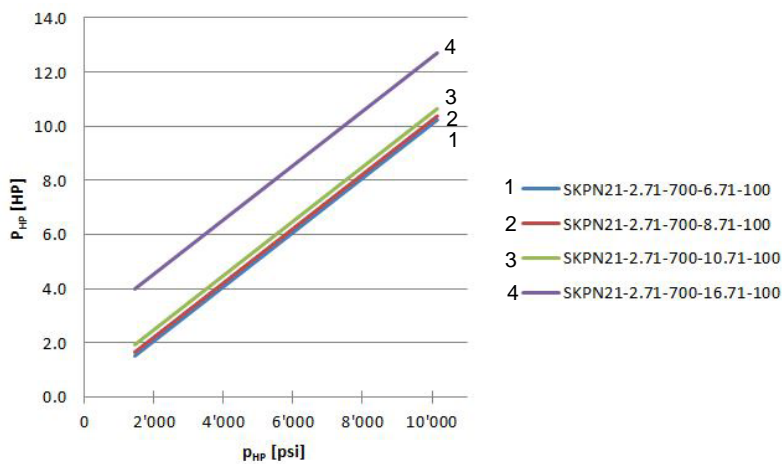
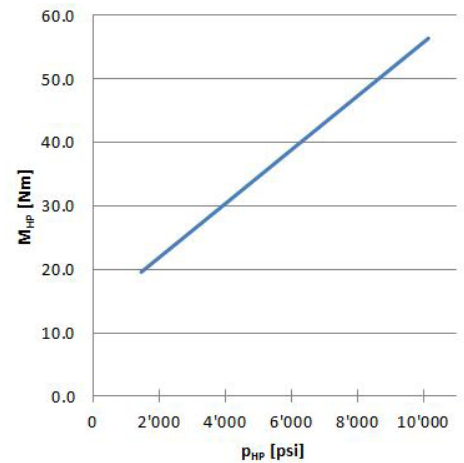
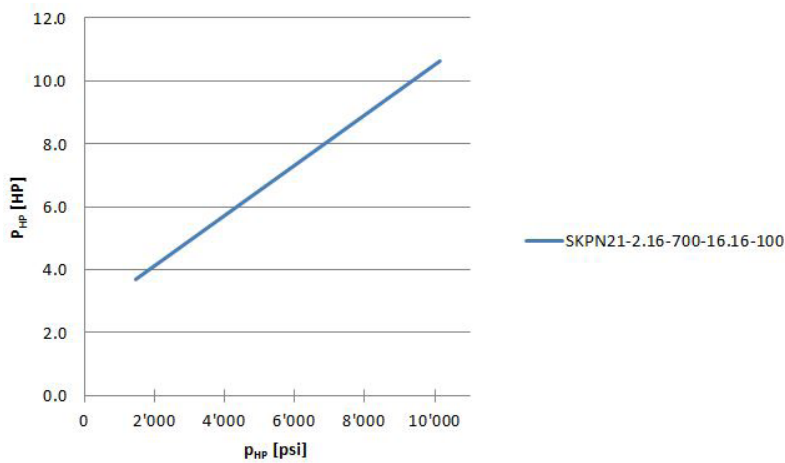
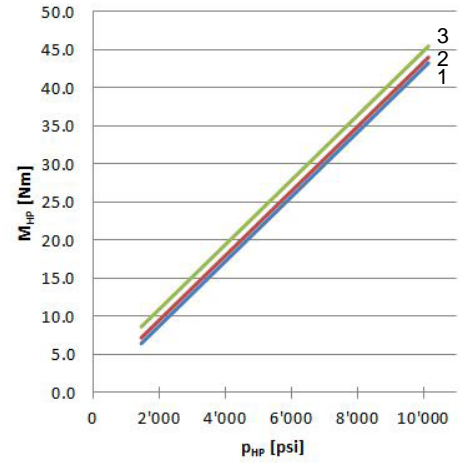
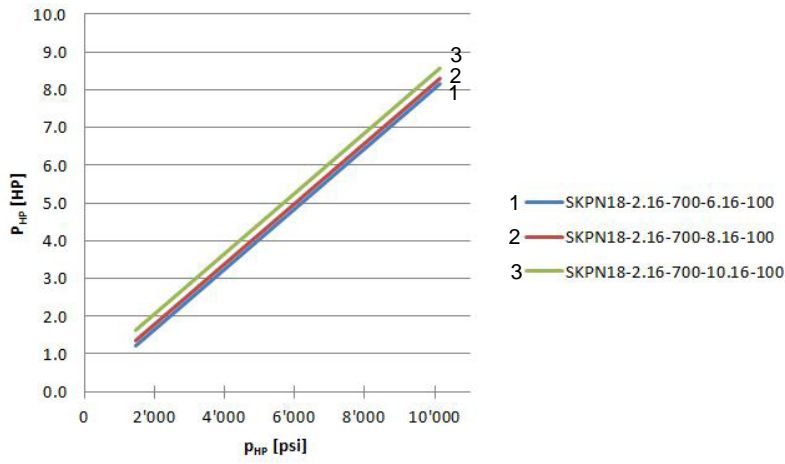


- 1 — SKPN18-1.88-700-5.88-100
- 2 — SKPN18-1.88-700-7.88-100
- 3 — SKPN18-1.88-700-9.88-100
- 4 — SKPN18-1.88-700-15.88-100



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 HP: 10'150 psi / 0,029 to 0,17 in³/rev

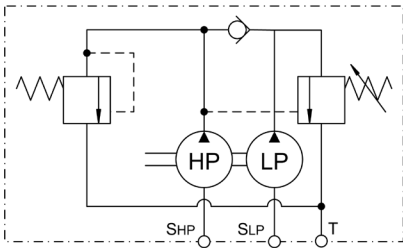


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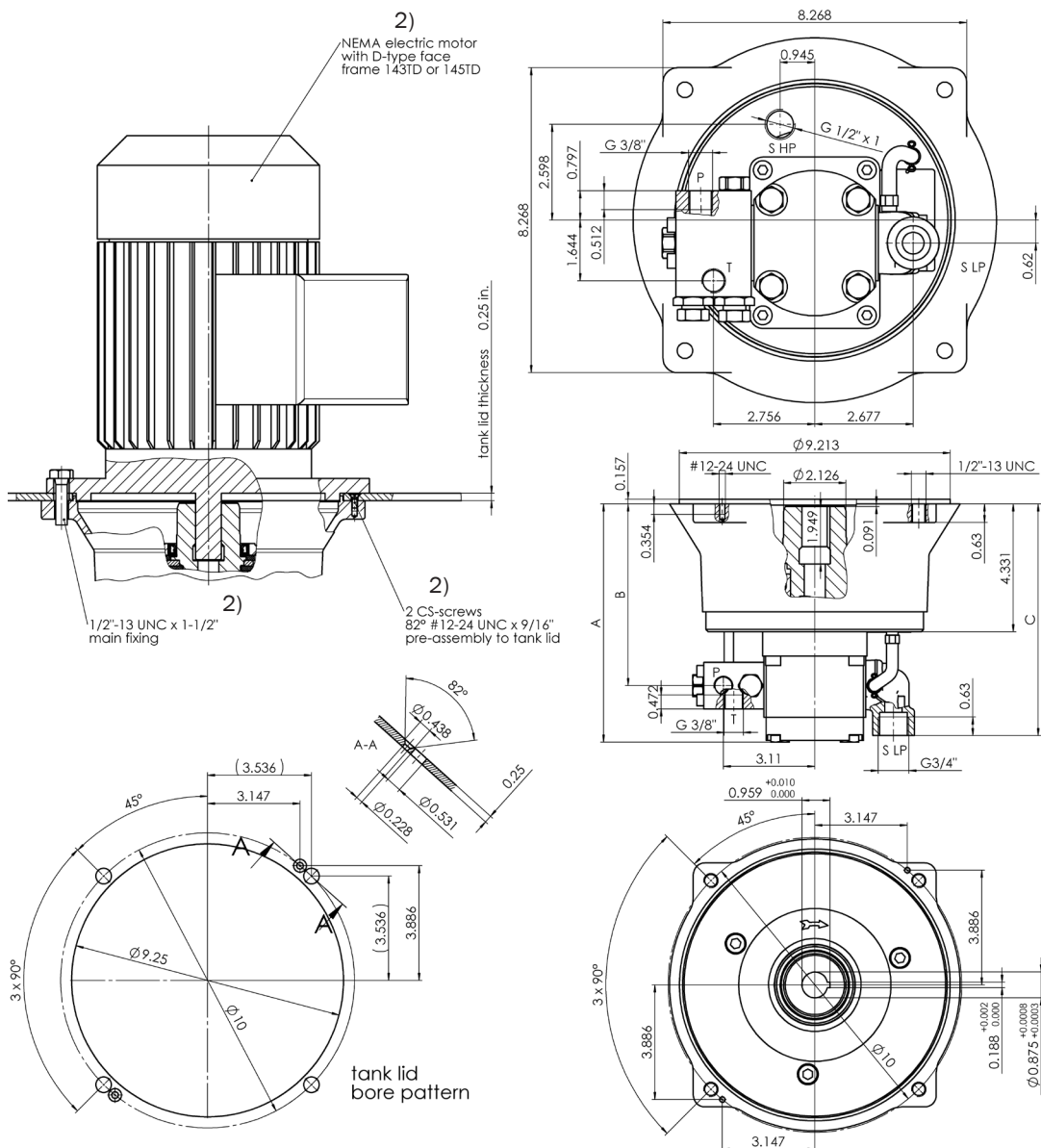
HP: 10'150 psi / 0,029 to 0,17 in³/rev

Hydraulic schematics combination pump SKPN



Dimensional drawings

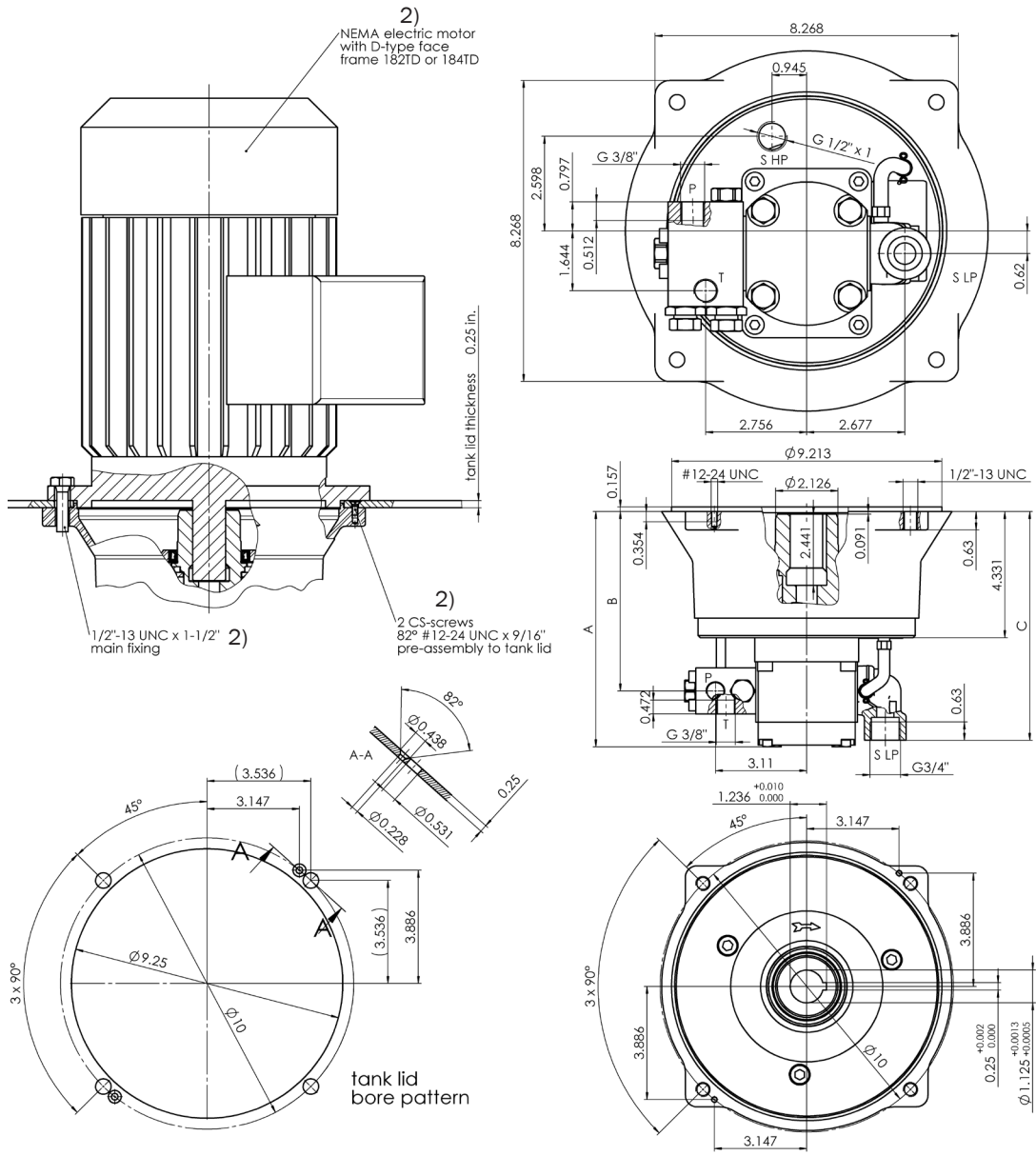
Size SKPN14 for NEMA motor frame 143TD or 145TD / Design revision B



2) Not included in the scope of supplier

Dimensions table gear pump see page 10

Size SKPN18 for NEMA motor frame 182TD or 184TD / Design revision B



2) Not included in the scope of supplier

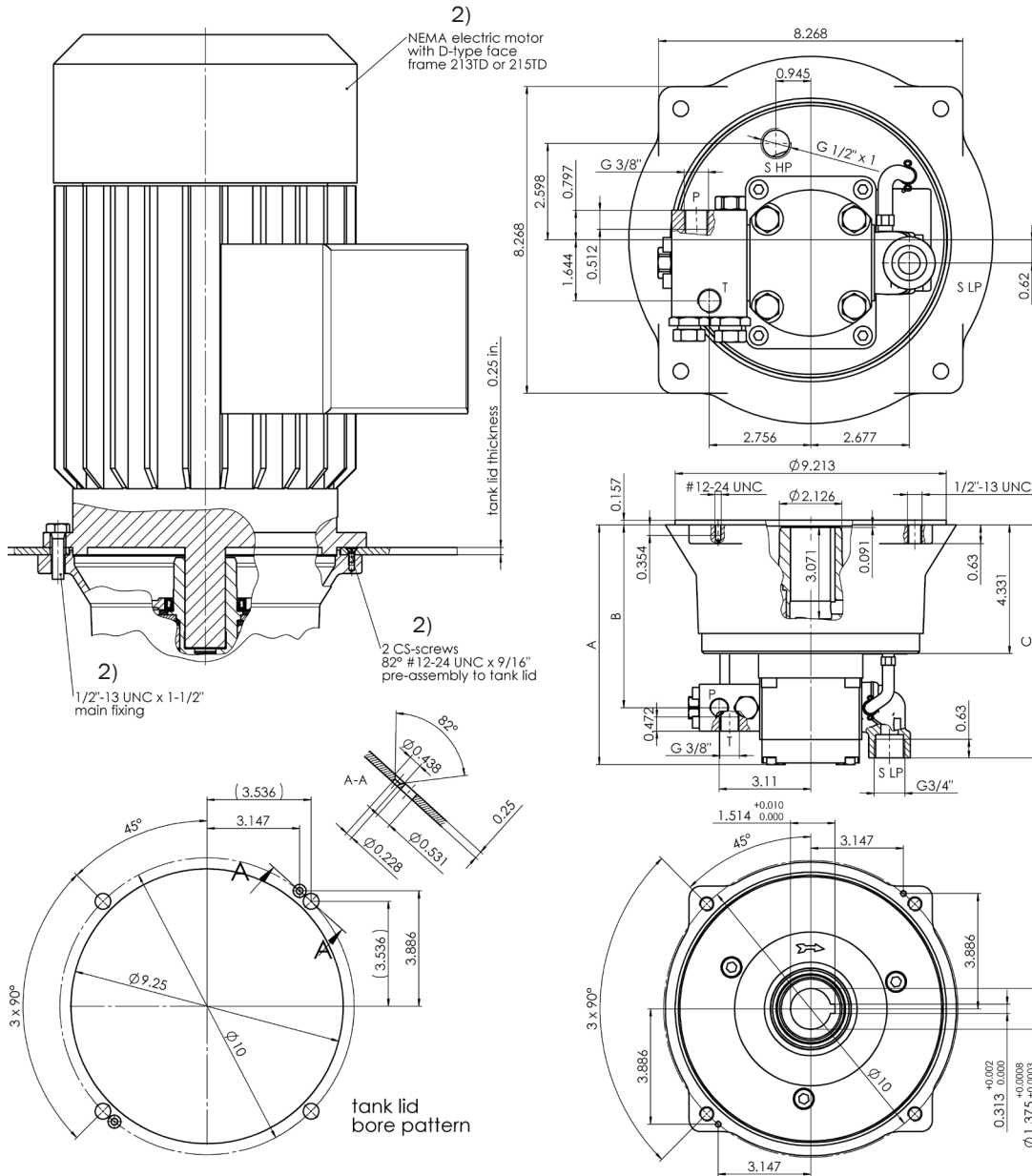
Dimensions table gear pump see page 10

Type SKPN

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HP: 10'150 psi / 0,029 to 0,17 in³/rev

Size SKPN21 for NEMA motor frame 213TD or 215TD / Design revision B

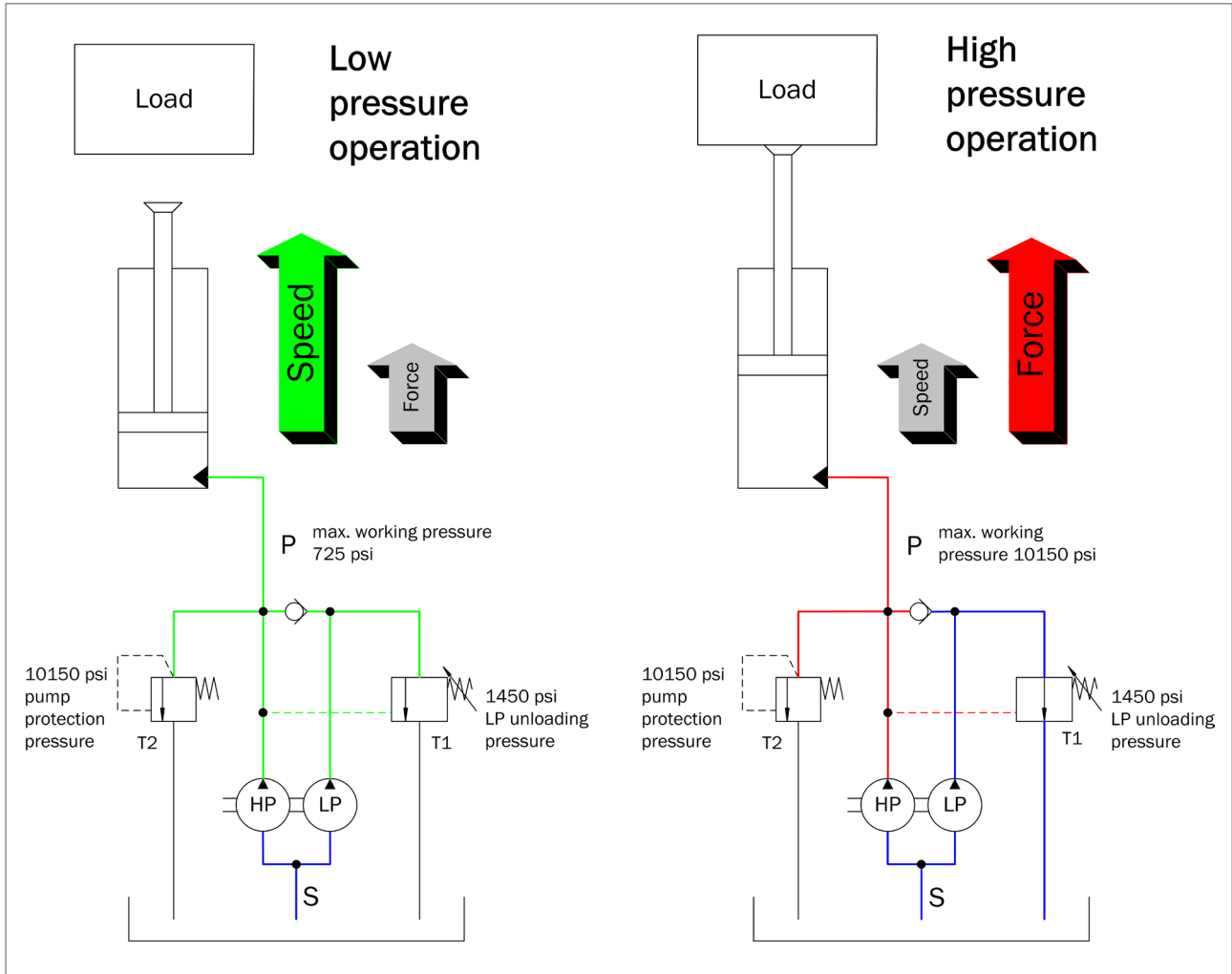


2) Not included in the scope of supplier

Installation dimensions low-pressure pump (LP)

Displacement low pressure pump [in ³ /rev] ([cm ³ /rev])	A	B	C
		[in] ([mm])	
0,24 (4)	8,071 (205)	6,158 (156)	7,850 (199)
0,37 (6)	8,201 (208)	6,221 (158)	7,913 (201)
0,49 (8)	8,358 (212)	6,303 (160)	7,996 (203)
0,85 (14)	8,724 (222)	6,484 (165)	8,177 (208)

Functional schematic

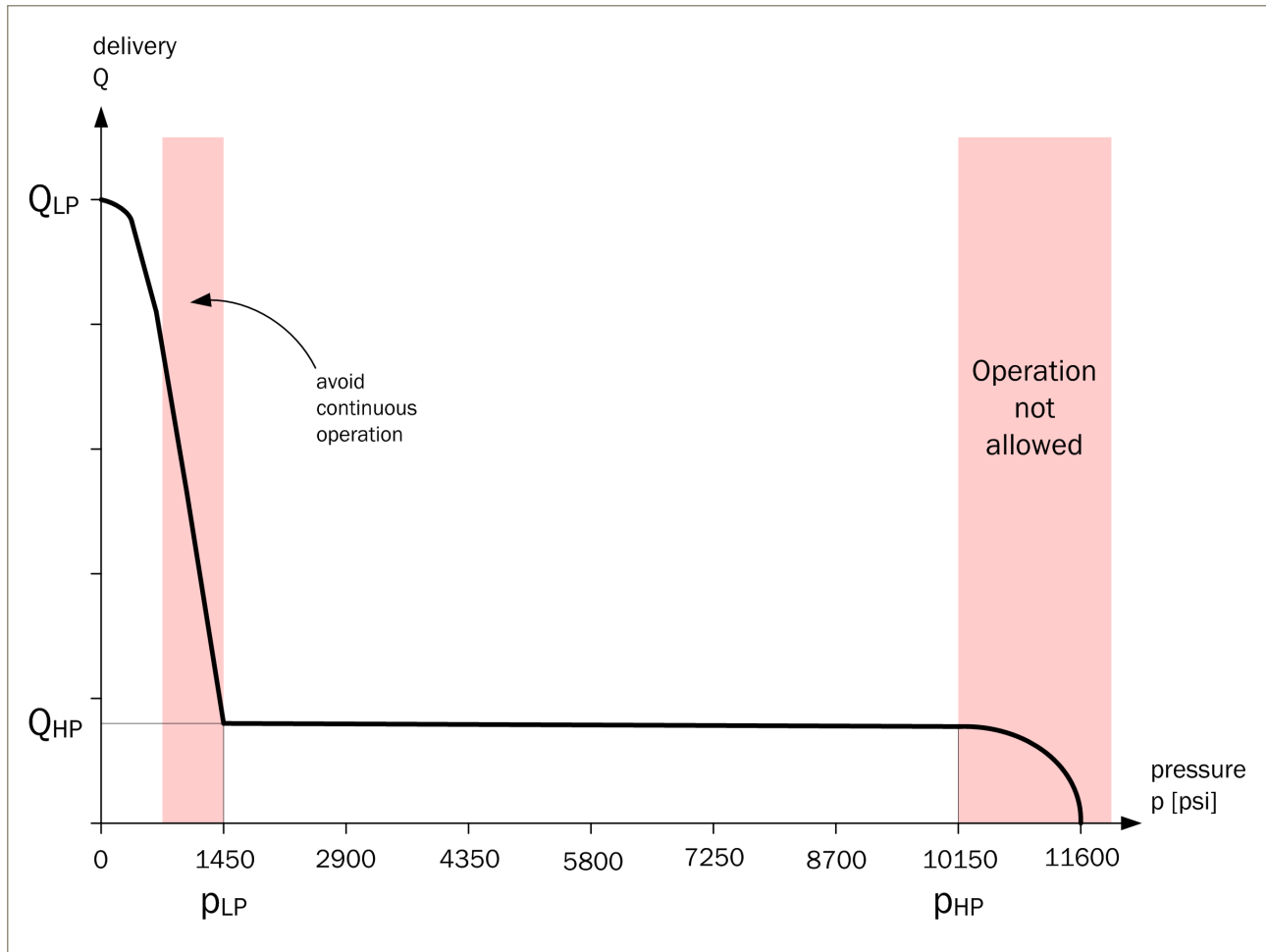


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Pressure diagram



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The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.