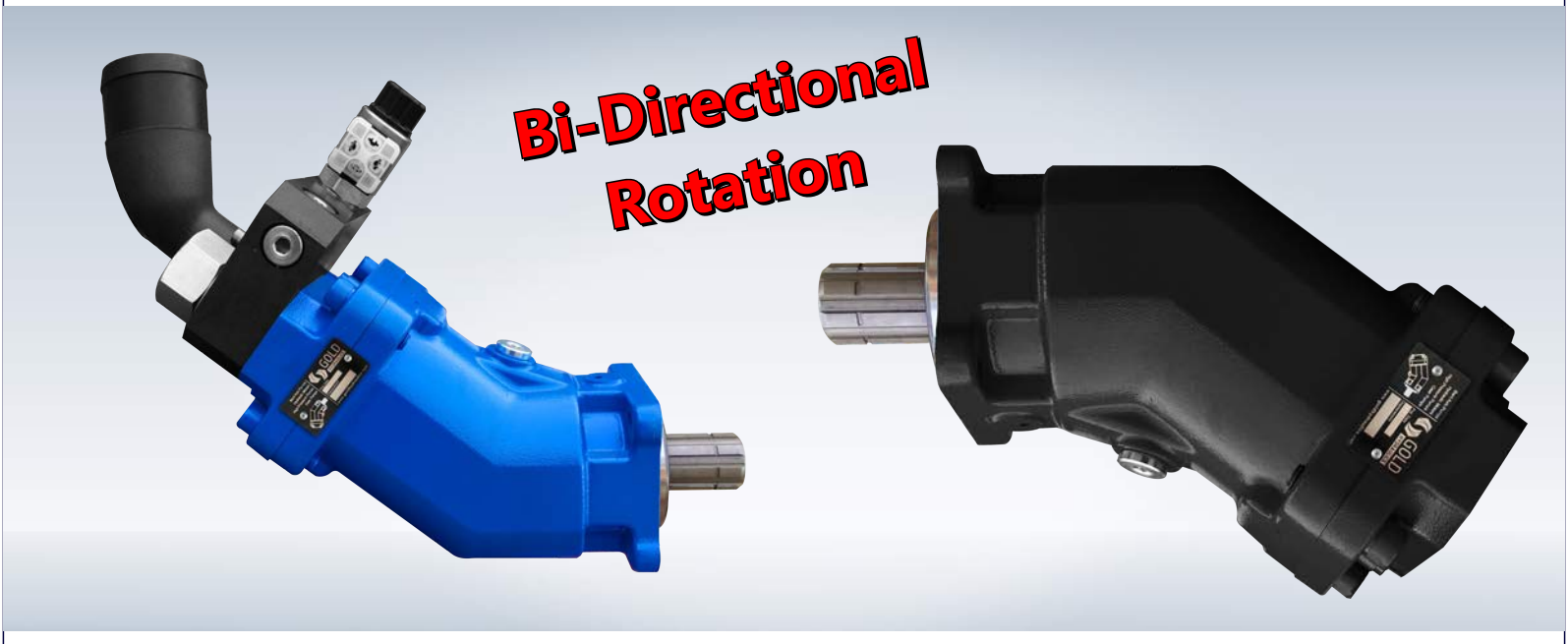
A8PD

Bent Axis Piston Pump - DIN

Bi-Directional Rotation - New Generation Bent Axis Pump



A8PD Pumps have the following advantages ;

- Compact Design,
- Economical Conception,
- High Power Density,
- High Overall Efficiency,
- High Rotating Speeds,
- High Output Pressure,
- 350 bar Cont. Work. Pressure,
- 400 bar Peak Pressure,
- From 5cc to 130cc,
- Reduced Noise Level,
- Increased Reliability,
- No Drain Line Necessary,
- Smaller Installation Dimensions,
- One Piece Pistons with Piston Rings,
- Special Inlet Fittings & Accesories,
- Simple Change of Direction of Rotation

Other Advantages of A8PD

New frame sizes to meet market requirements.
Optional by-pass valve.
For use in mobile & industrial and stationary applications areas.
The pump drive shaft bearings are designed to give the service life expected in these areas of operation.
Interchangeable with other bent axis pumps.

40° bent axis design giving high power, small overall dimensions, optimum efficiency and economic design. Flange and shaft designed for direct mounting on truck gearbox PTO's. The fixed displacement bent axis pumps generates a hydraulic fluid flow. It is designed for use in trucks, commercial vehicles and all stationary hydraulic applications. The A8PD is a fixed pump with rotary group in bent-axis design open circuits. Flow is proportional to drive speed and displacement.

For axial piston units with bent-axis design, the Pistons are arranged diagonally with respect to the drive shaft. The pump covers the whole displacement range 5 to 130 cm3/rev. The pump has been developed with modern styling and design to satisfy market demand as to designed new generation plate and pistons with give high flow performance, high pressures with high efficiency and very small dimensions.

The pump is available both to DIN and SAE world standards and can be mounted either directly at the gear box or via a drive shaft. If necessary it can also be augmented with a by-pass valve.Other brand bent axis pumps compatible and interchangeable with A8PD bent axis pumps. Refer to the data sheet and order confirmation for the technical data,operating conditions and operating limits of the bent axis piston pumps.

Ordering Code of A8PD Pumps

Pump Code	Displacement (cm^3)	Direction of Rotation	Version	Sealing	Inlet Fittings
A8PD	108	W	S	N	A

A Suction Fittings Included

N Nitrile | **V** Viton

S Special Version | **C** Classic Version

W - Bi-Directional | **L - LEFT / CCW** | **R - RIGHT / CW**

new generation - intelligent pump

5	12	18	25	32	40	50	56	63	80	108	130

A8PD Bent Axis Piston Pump, Fixed Displacement, 350 @ 400 bar.

Formulas

Pump Output Flow	GPM	GPM = (Speed (rpm) × disp. (cu. in.)) / 231	GPM = (n ×d) / 231
Pump Input Horsepower	HP	HP = GPM × Pressure (psi) / 1714 × Efficiency	HP = (Q ×P) / 1714 × E
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP	Eoverall = HPOut / HPIn X 100
		Overall Efficiency = Volumetric Eff. × Mechanical Eff.	EOverall = EffVol. × EffMech.
Pump Volumetric Efficiency	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) × 100	EffVol. = QAct. / QTheo. X 100
Pump Mechanical Efficiency	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive × 100	EffMech = TTheo. / TAct. × 100
Pump Displacement	CIPR	Dsplcmnt (In.3 / rev.) = Flow Rate (GPM) × 231 / Pump RPM	CIPR = GPM × 231 / RPM
Pump Torque	T	Torque = Horsepower × 63025 / RPM	T = 63025 × HP / RPM
		Torque = Pressure (PSIG) × Pump Displacement (CIPR) / 2π	T = P × CIPR / 6.28

Horsepower for driving a pump : For every 1 hp of drive, the equivalent of 1 gpm @ 1500 psi can be produced.

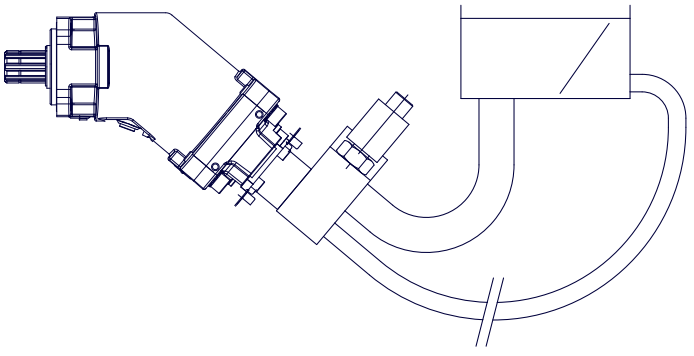
Horsepower for idling a pump : To idle a pump when it is unloaded will require about 5% of it's full rated power

Wattage for heating hydraulic oil : Each watt will raise the temperature of 1 gallon of oil by 1° F. per hour.

Flow velocity in hydraulic lines : Pump suction lines 2 to 4 feet per second, pressure lines up to 500 psi - 10 to 15 ft./sec., pressure lines 500 to 3000 psi - 15 to 20 ft./sec.; all oil lines in air-over-oil systems; 4 ft./sec.

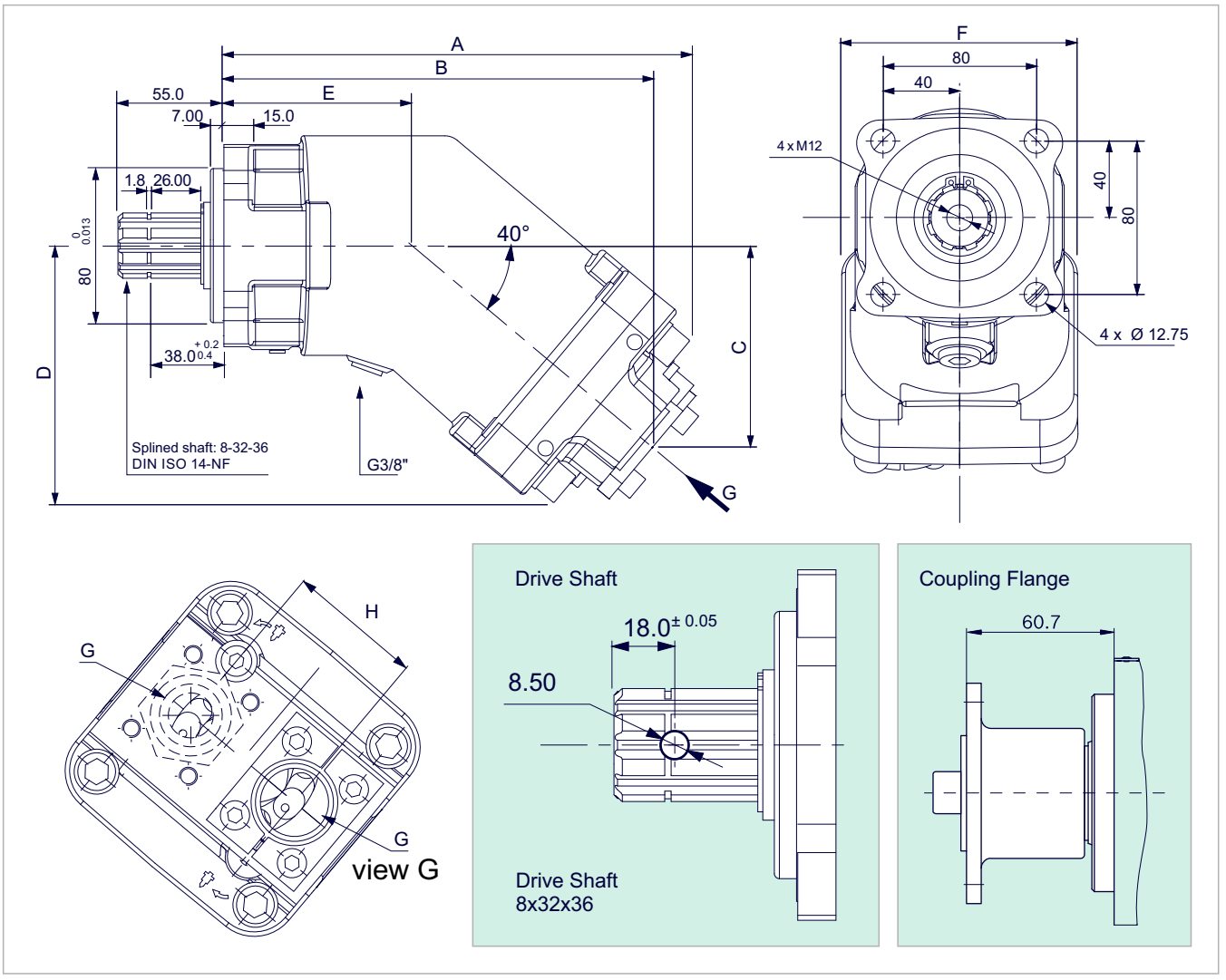
Technical Data I

		5	12	18	25	32	40	50	56	63	80	108	130
Displacement	***cc***	5,00	12,00	18,00	25,00	32,00	40,20	50,00	56,40	63,00	80,00	108,4	130,0
Theoretical oil flow l/min at pump speed	***1000 rpm***	5,00	12,00	18,00	25,00	32,00	40,20	50,00	56,40	63,00	80,00	108,4	130,0
	1500 rpm	7,50	18,00	27,00	37,50	48,00	60,30	75,00	84,60	94,50	120,0	162,6	195,0
Maximum Pump Speed													
- Continuous	***rpm***	2500	2300	2300	2300	2250	1900	1900	1900	1900	1700	1700	1600
- Limited	***rpm***	3300	3100	2900	2700	2700	2500	2500	2300	2300	2100	1900	1750
Max. Continuous Pressure	***bar***	350	350	350	350	350	350	350	350	350	350	350	350
Max. Intermit. Peak Pressure	***bar***	400	400	400	400	400	400	400	400	400	400	400	400
Max. Torque at 350 bar	***Nm***	66	71	105	146	190	240	292	330	360	460	620	746
Weight													
- Without inlet fitting	***kg***	8,20	9,00	9,00	9,50	10,50	10,50	11,00	11,50	11,50	15,00	15,50	16,50
- With inlet fitting	***kg***	8,65	9,40	9,40	9,90	10,90	10,90	11,40	11,90	11,90	15,40	15,90	17,00
Rotation		w	w	w	w	w	w	w	w	w	w	w	w
Fluid		Mineral Based Hydraulic Oils											
Inlet & Outlet		3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"



Overhang Torque													
- Without inlet fitting	***N.m***	8,20	8,70	8,75	8,82	11,00	11,12	11,72	11,79	11,82	17,80	17,92	19,90
- With inlet fitting	***N.m***	8,65	9,15	9,19	9,23	11,52	11,40	12,20	12,24	12,28	18,33	18,45	20,45

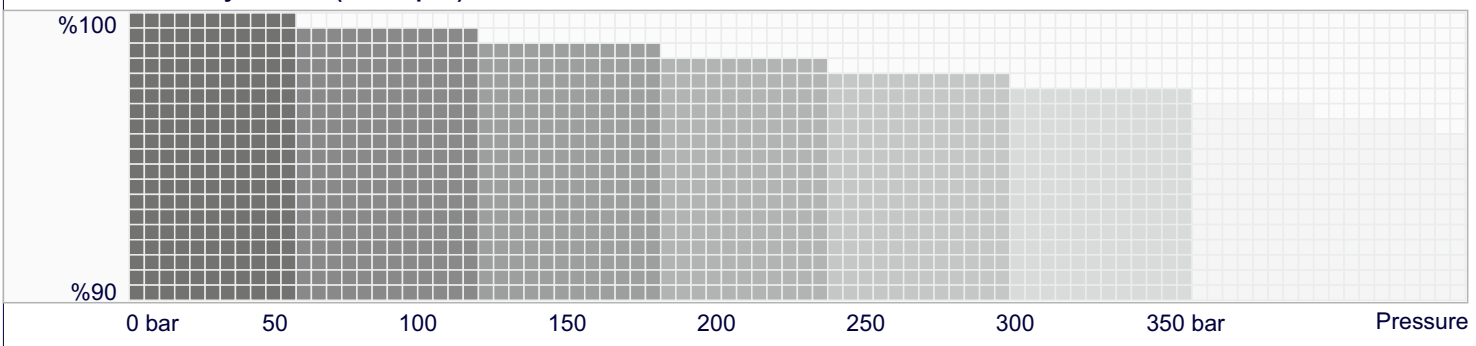
Technical Data II



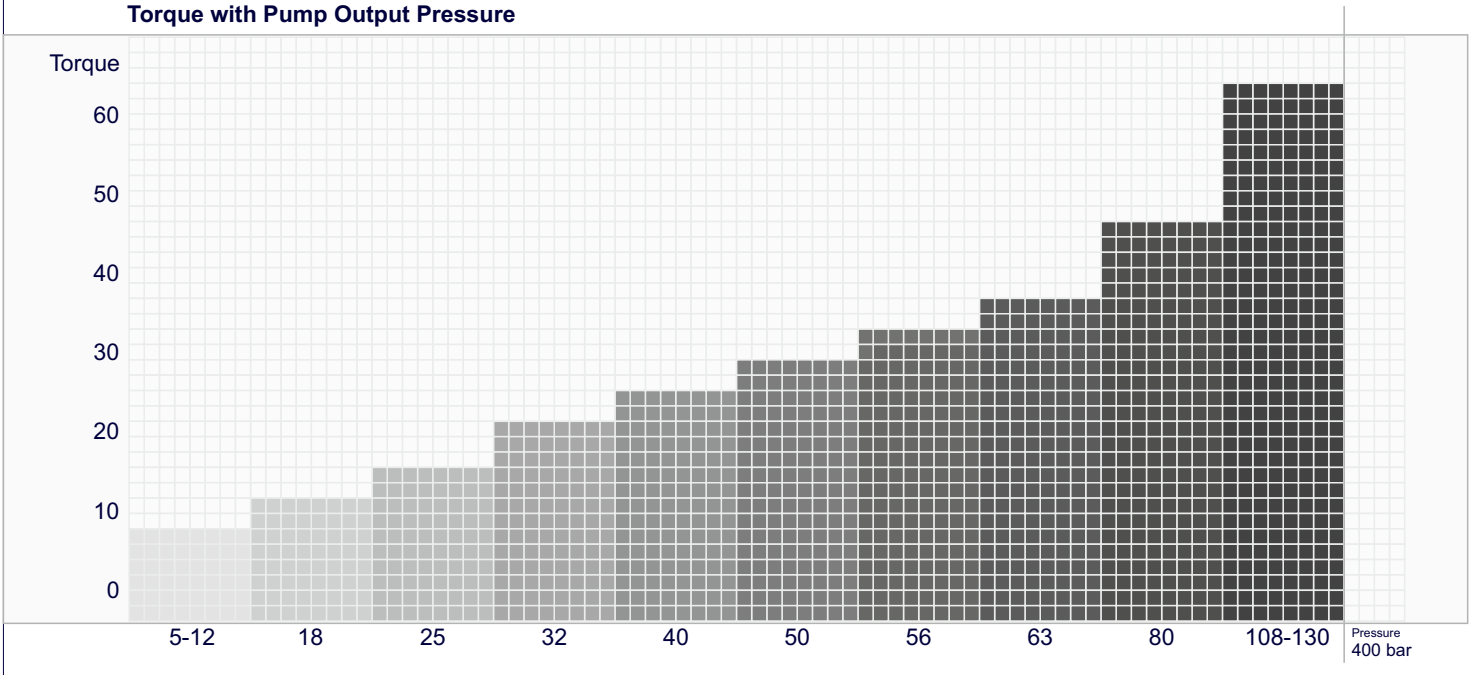
	5	12	18	25	32	40	50	56	63	80	108	130
cc	5,00	12,00	18,00	25,00	32,00	40,20	50,00	56,40	63,00	80,00	108,4	130,0
A	195,0	195,0	195,0	195,0	202,0	202,0	215,0	215,0	215,0	242,0	242,0	242,0
B	176,0	176,0	176,0	176,0	183,0	183,0	196,0	196,0	196,0	221,0	223,0	223,0
C	76,0	76,0	76,0	76,0	82,0	82,0	94,0	94,0	94,0	104,0	105,0	105,0
D	104,0	104,0	104,0	104,0	108,0	108,0	118,0	118,0	118,0	132,0	132,0	132,0
E	86,0	86,0	86,0	86,0	86,0	86,0	86,0	86,0	86,0	98,0	98,0	98,0
F	108,0	108,0	108,0	108,0	108,0	108,0	108,0	108,0	108,0	122,0	122,0	122,0
G	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
H	54	54	54	54	54	54	54	54	54	60	60	60

Performance

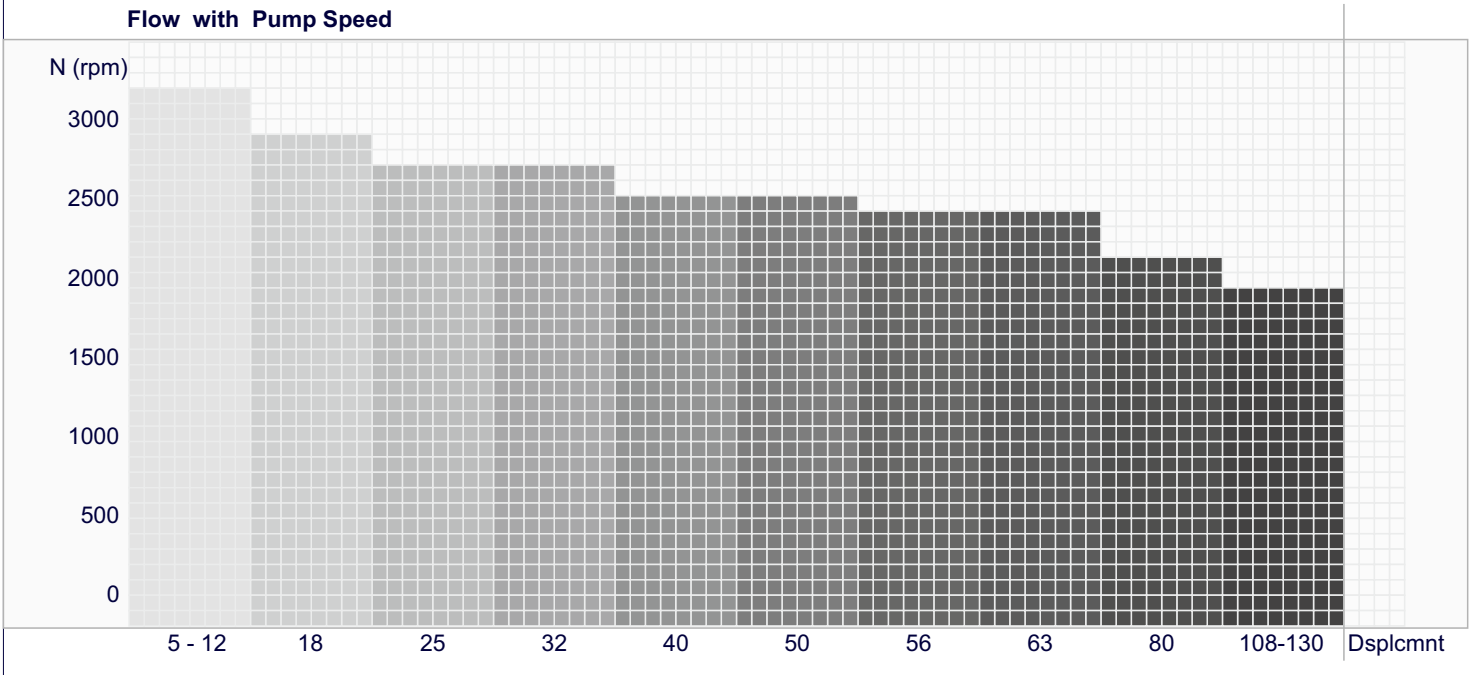
Efficiency Curves (1000 rpm)



Torque with Pump Output Pressure



Flow with Pump Speed



Dimensions Size;

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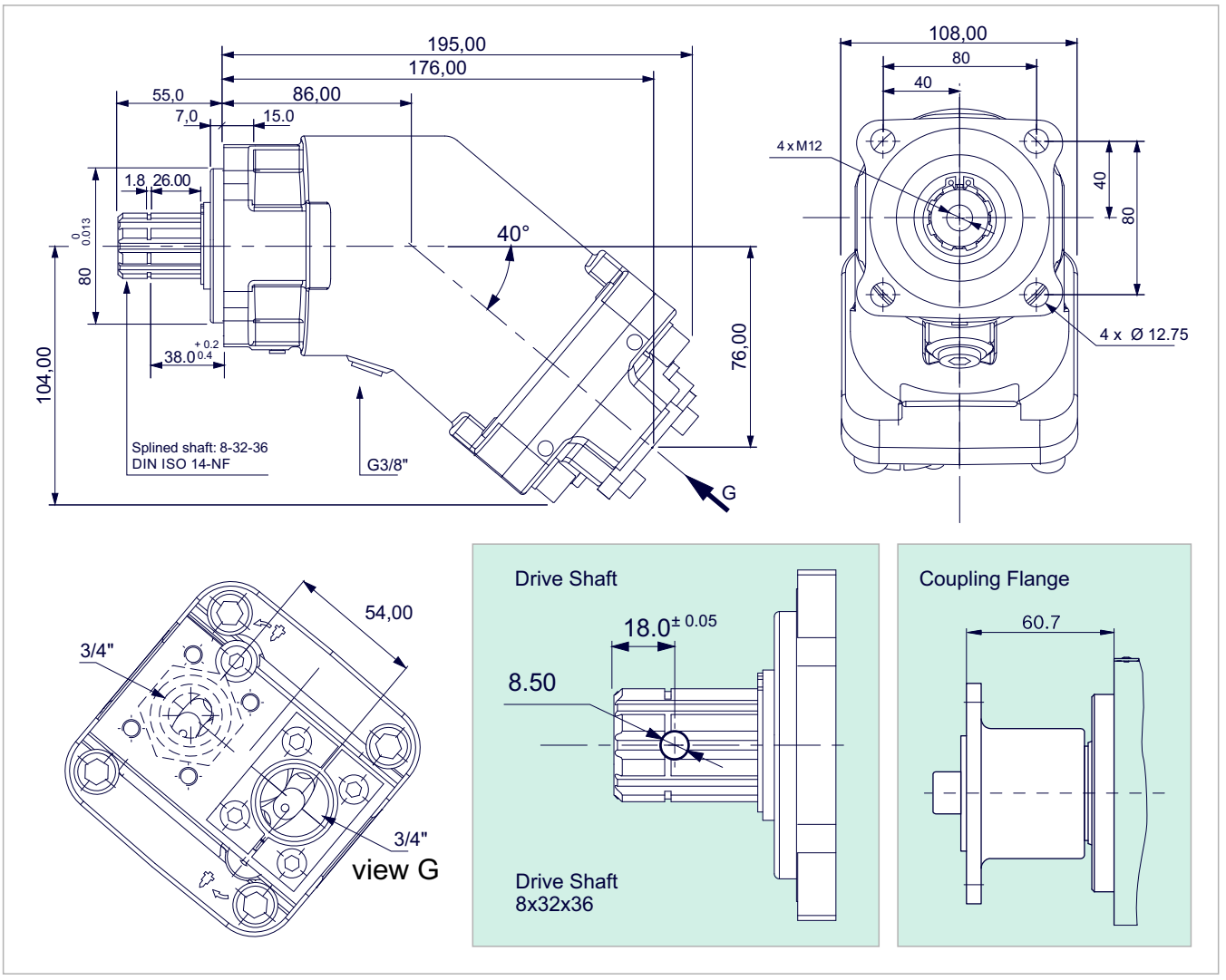
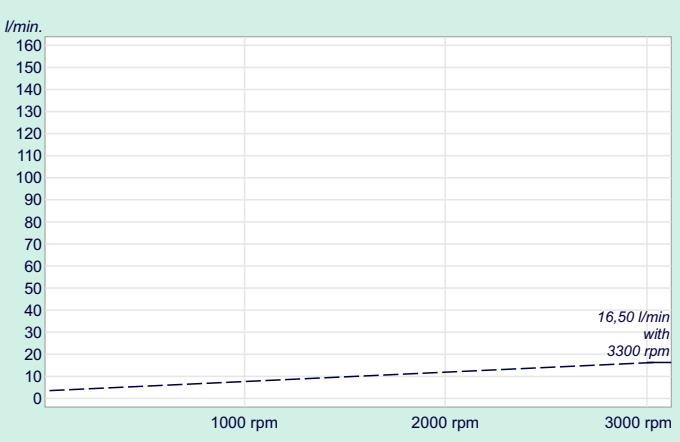


x 1000 rpm	5,00 cc
x 1500 rpm	7,50 cc
Max. Continuous Pump Speed	2500 rpm
Max. Limited Pump Speed	3300 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	66 Nm
Weight without inlet fitting	8,20 kg
Weight with inlet fitting	8,65 kg
Torque without inlet fitting	8,20 N.m
Torque with inlet fitting	8,65 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 5



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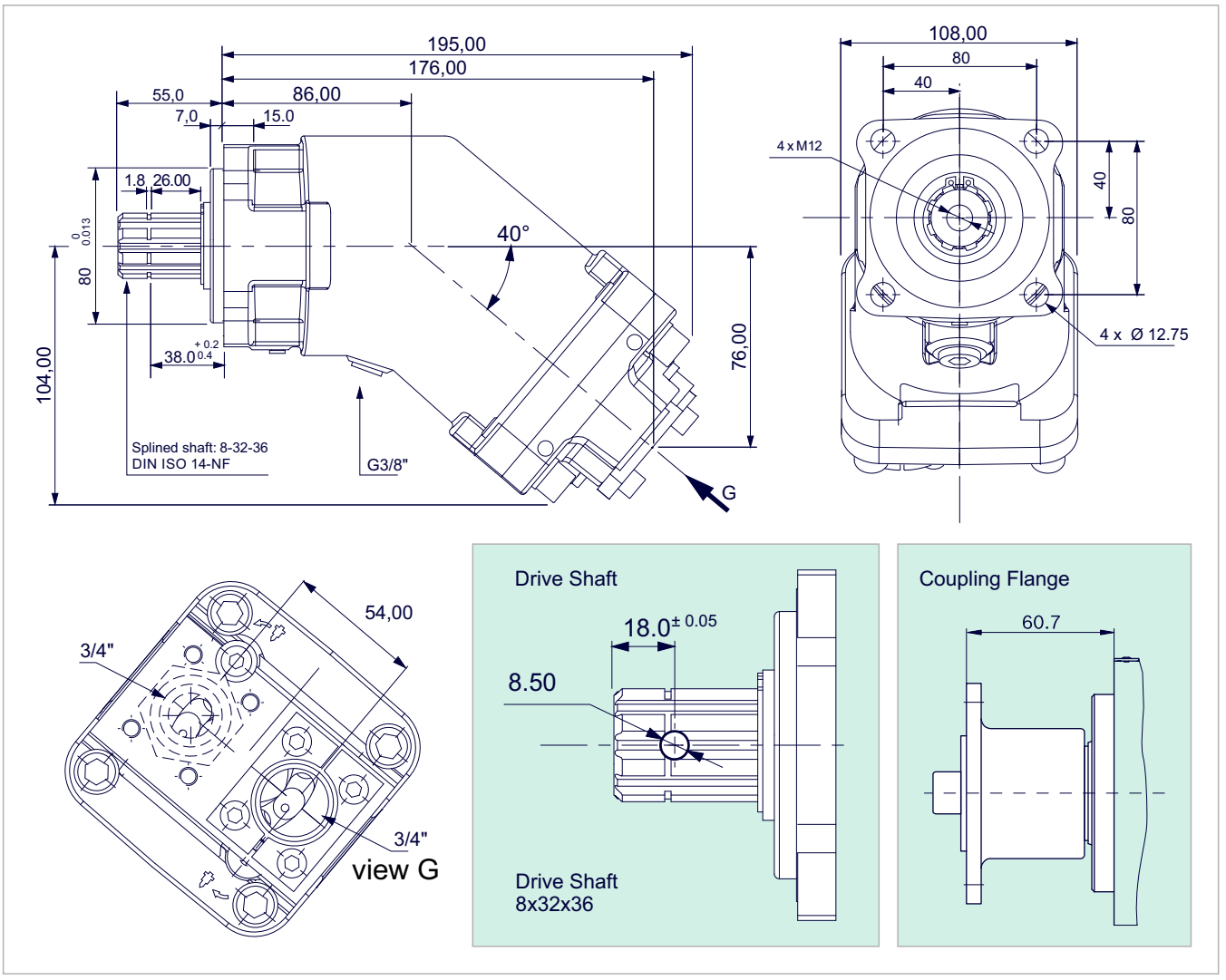
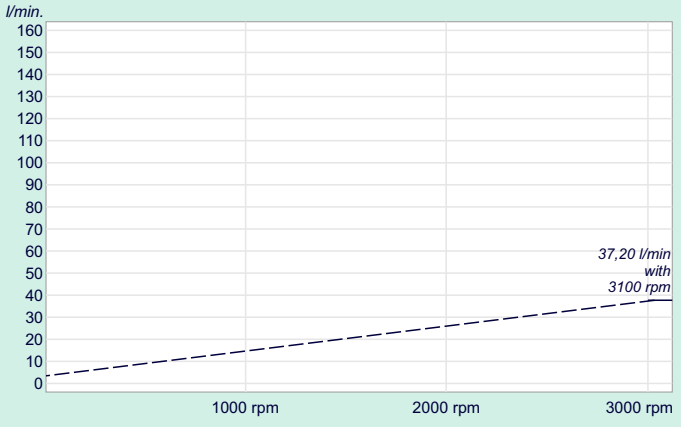


x 1000 rpm	12,00 cc
x 1500 rpm	18,00 cc
Max. Continuous Pump Speed	2300 rpm
Max. Limited Pump Speed	3100 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	71 Nm
Weight without inlet fitting	9,00 kg
Weight with inlet fitting	9,40 kg
Torque without inlet fitting	8,70 N.m
Torque with inlet fitting	9,15 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 12



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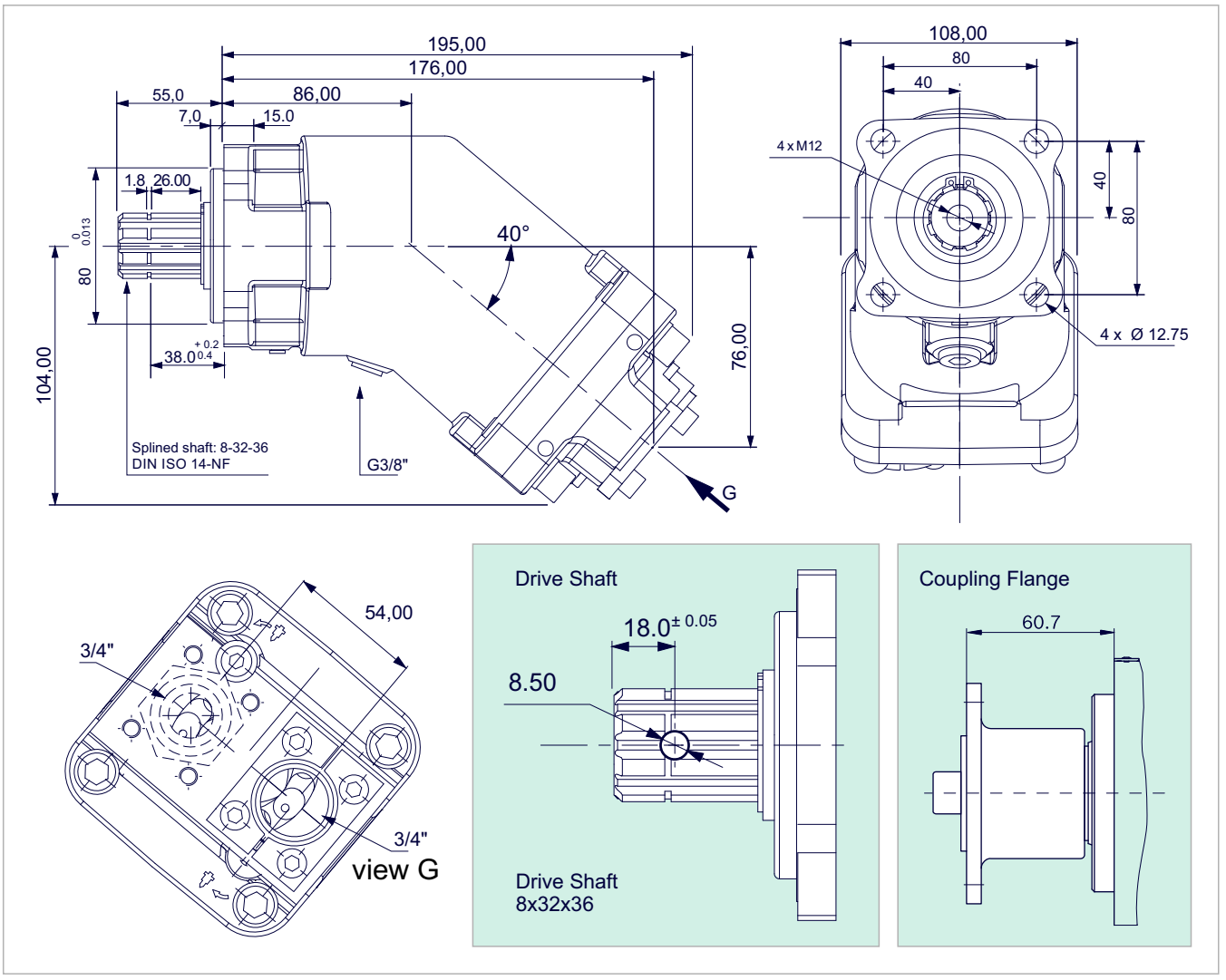
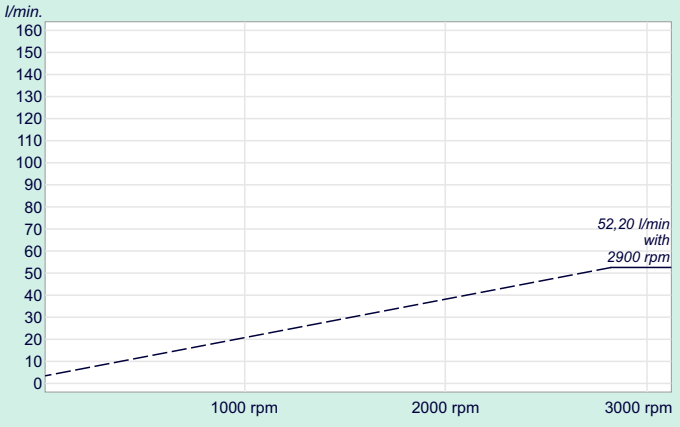


x 1000 rpm	18,00 cc
x 1500 rpm	27,00 cc
Max. Continuous Pump Speed	2300 rpm
Max. Limited Pump Speed	2900 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	105 Nm
Weight without inlet fitting	9,00 kg
Weight with inlet fitting	9,40 kg
Torque without inlet fitting	8,75 N.m
Torque with inlet fitting	9,19 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 18



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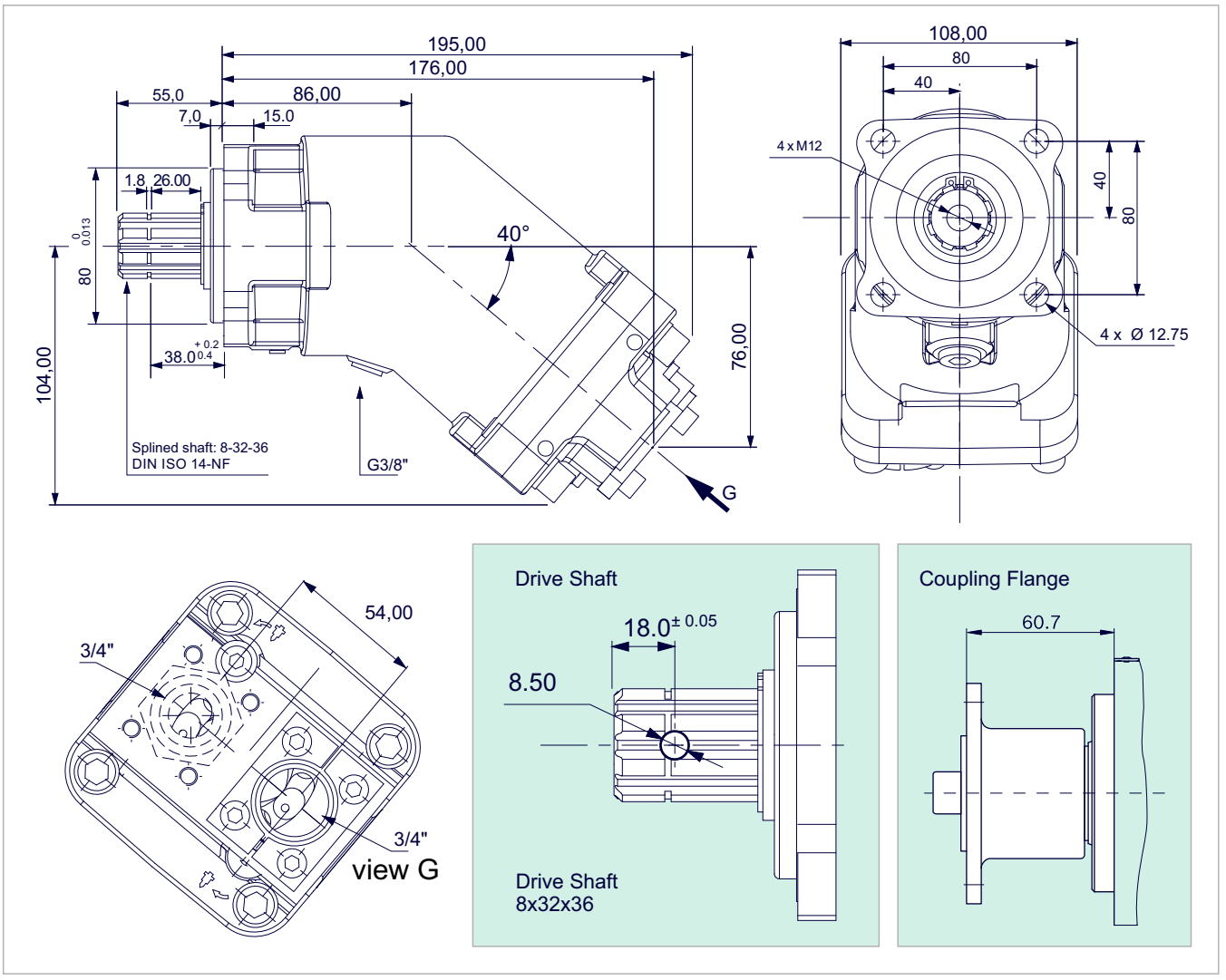
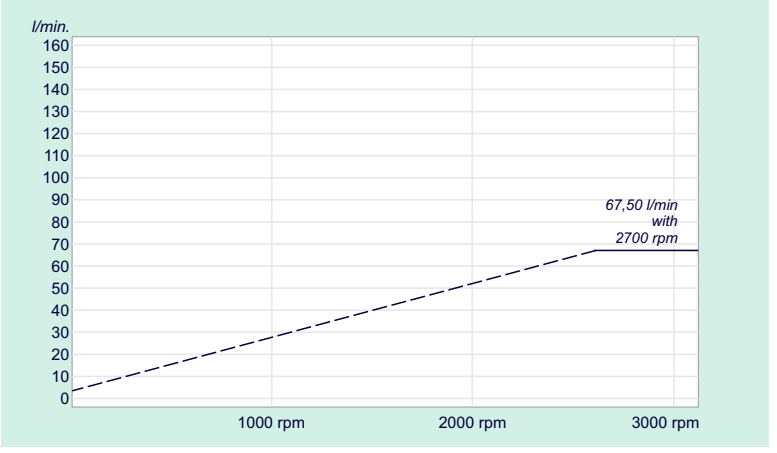


x 1000 rpm	25,00 cc
x 1500 rpm	37,50 cc
Max. Continuous Pump Speed	2300 rpm
Max. Limited Pump Speed	2700 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	146 Nm
Weight without inlet fitting	9,50 kg
Weight with inlet fitting	9,90 kg
Torque without inlet fitting	8,82 N.m
Torque with inlet fitting	9,23 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 25



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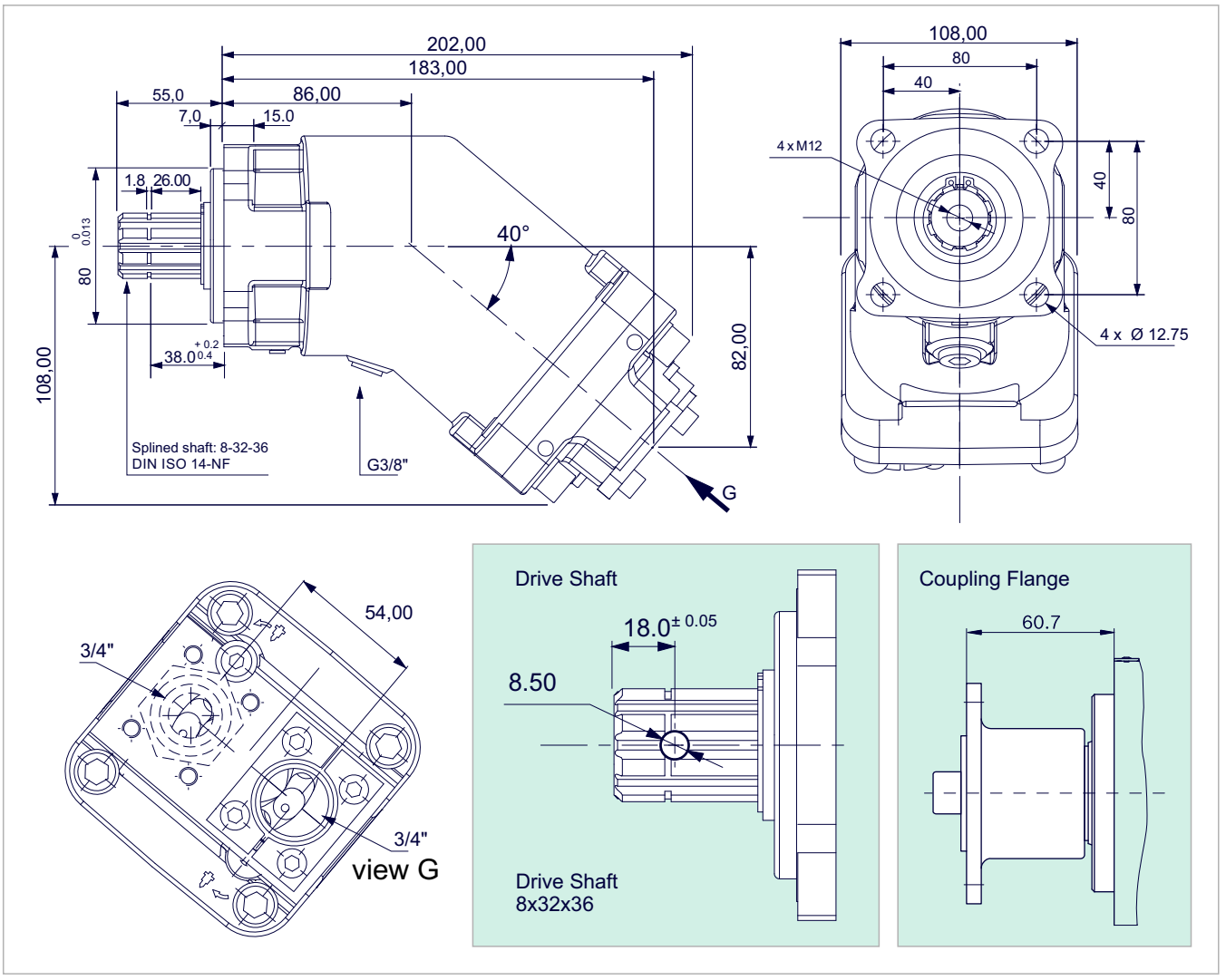
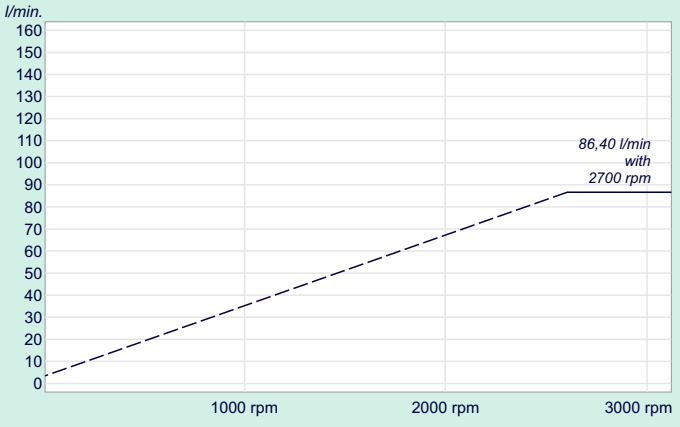
A8PD 32



x 1000 rpm	32,00 cc
x 1500 rpm	48,00 cc
Max. Continuous Pump Speed	2250 rpm
Max. Limited Pump Speed	2700 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	190 Nm
Weight without inlet fitting	10,50 kg
Weight with inlet fitting	10,90 kg
Torque without inlet fitting	11,00 N.m
Torque with inlet fitting	11,52 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 32



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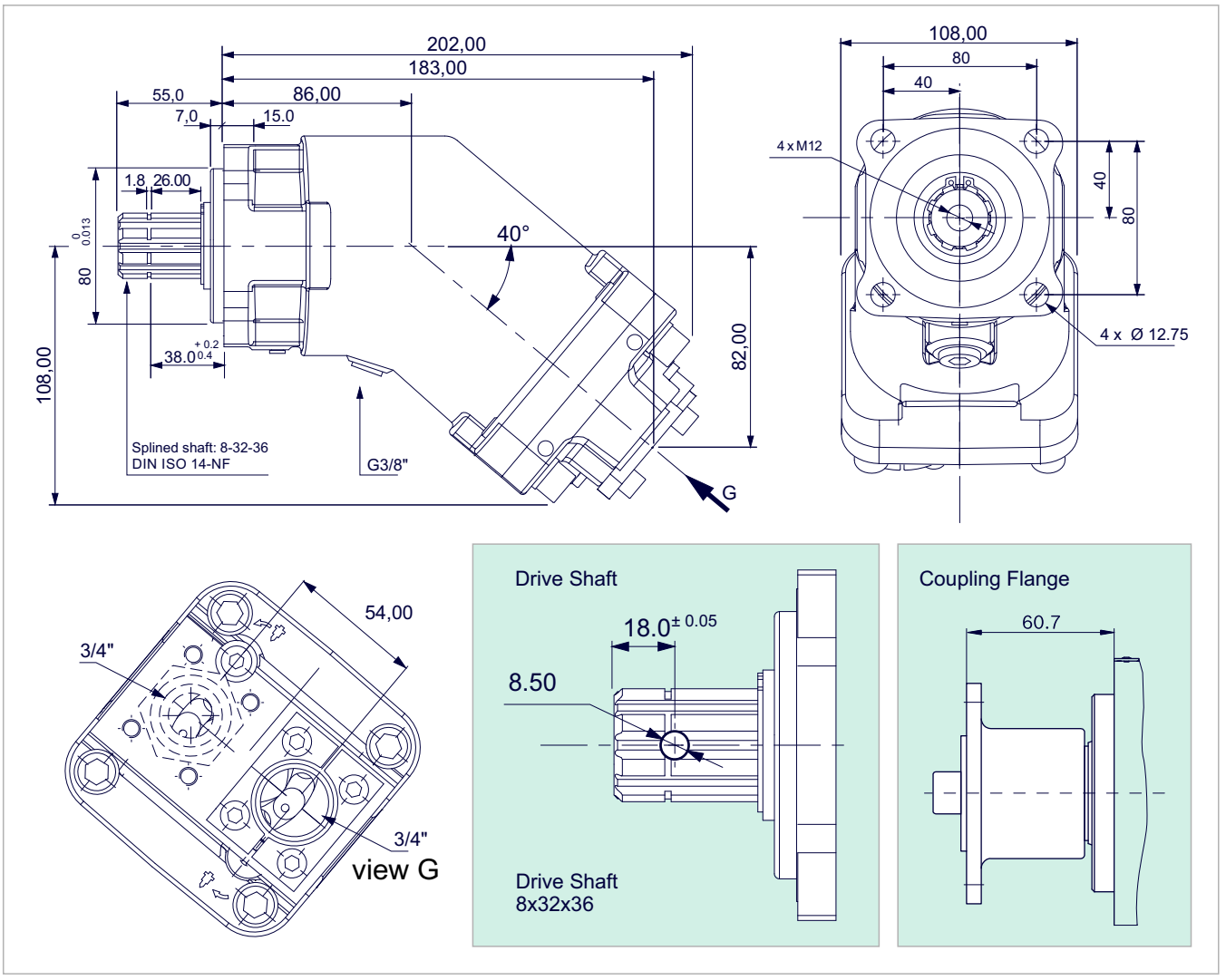
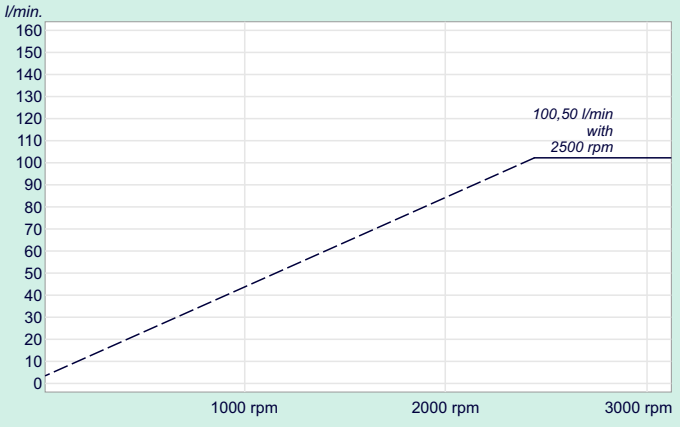
A8PD 40



x 1000 rpm	40,20 cc
x 1500 rpm	60,30 cc
Max. Continuous Pump Speed	1900 rpm
Max. Limited Pump Speed	2500 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	240 Nm
Weight without inlet fitting	10,50 kg
Weight with inlet fitting	10,90 kg
Torque without inlet fitting	11,12 N.m
Torque with inlet fitting	11,40 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 40



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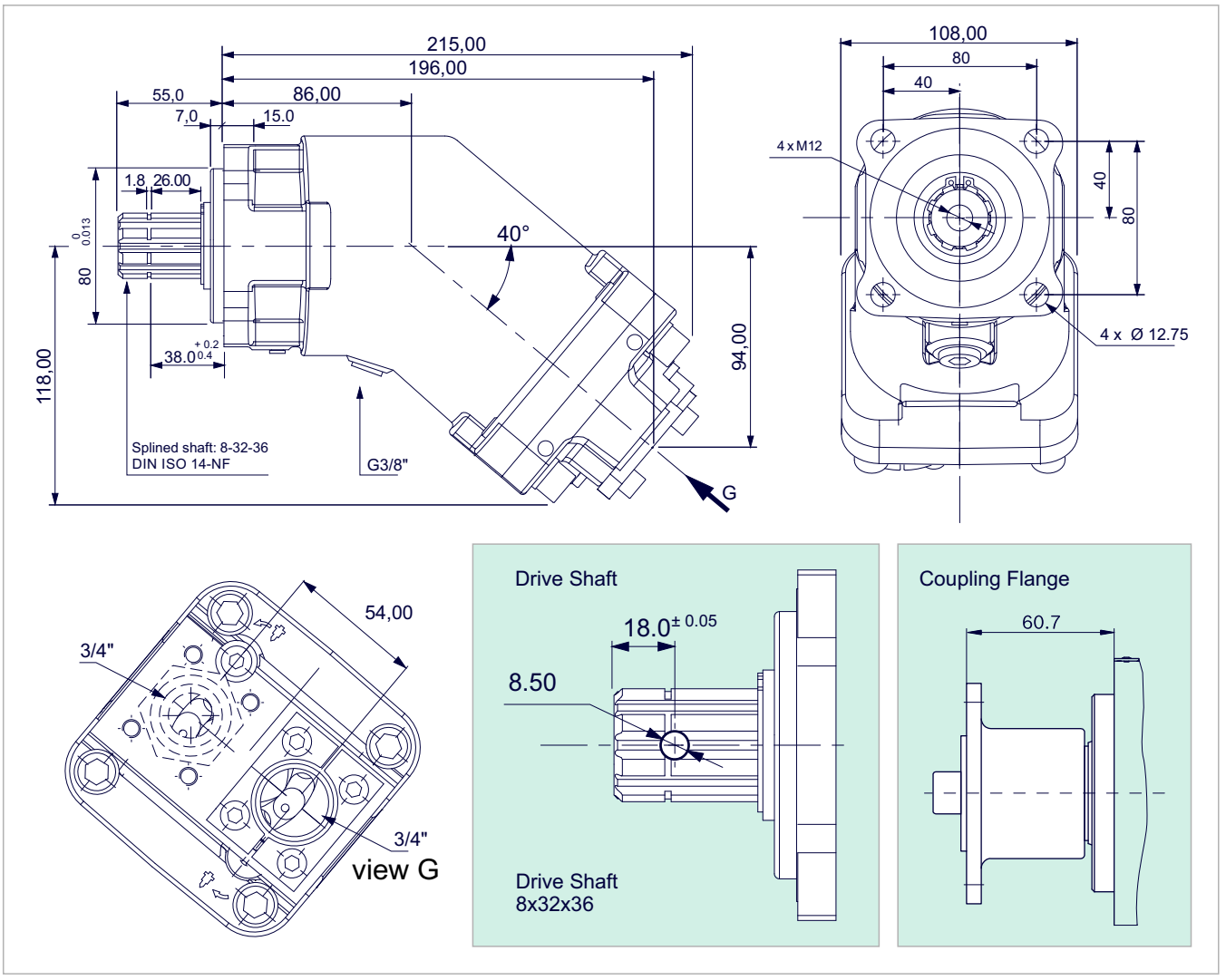
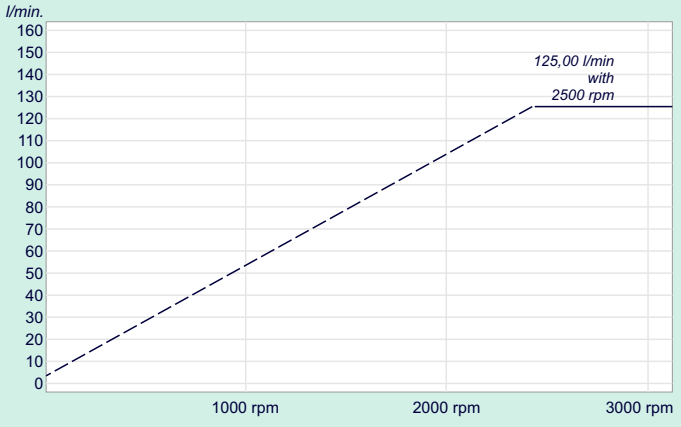
A8PD 50



x 1000 rpm	50,00 cc
x 1500 rpm	75,00 cc
Max. Continuous Pump Speed	1900 rpm
Max. Limited Pump Speed	2500 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	292 Nm
Weight without inlet fitting	11,00 kg
Weight with inlet fitting	11,40 kg
Torque without inlet fitting	11,72 N.m
Torque with inlet fitting	12,20 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 50



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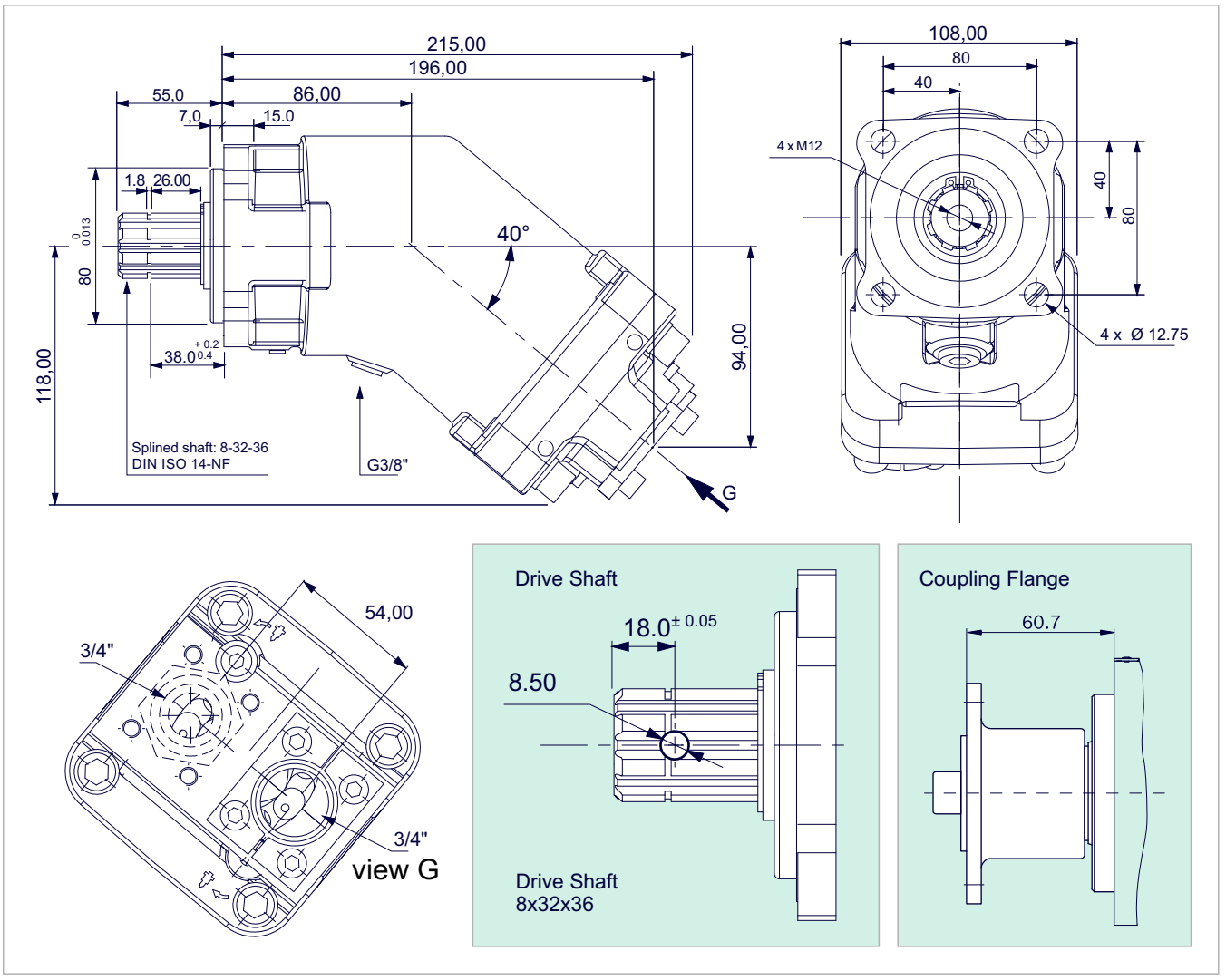
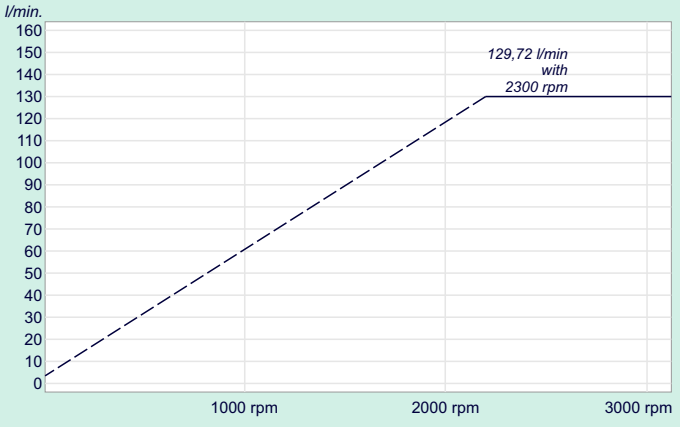
A8PD 56



x 1000 rpm	56,40 cc
x 1500 rpm	84,60 cc
Max. Continuous Pump Speed	1900 rpm
Max. Limited Pump Speed	2300 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	330 Nm
Weight without inlet fitting	11,50 kg
Weight with inlet fitting	11,90 kg
Torque without inlet fitting	11,79 N.m
Torque with inlet fitting	12,24 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 56



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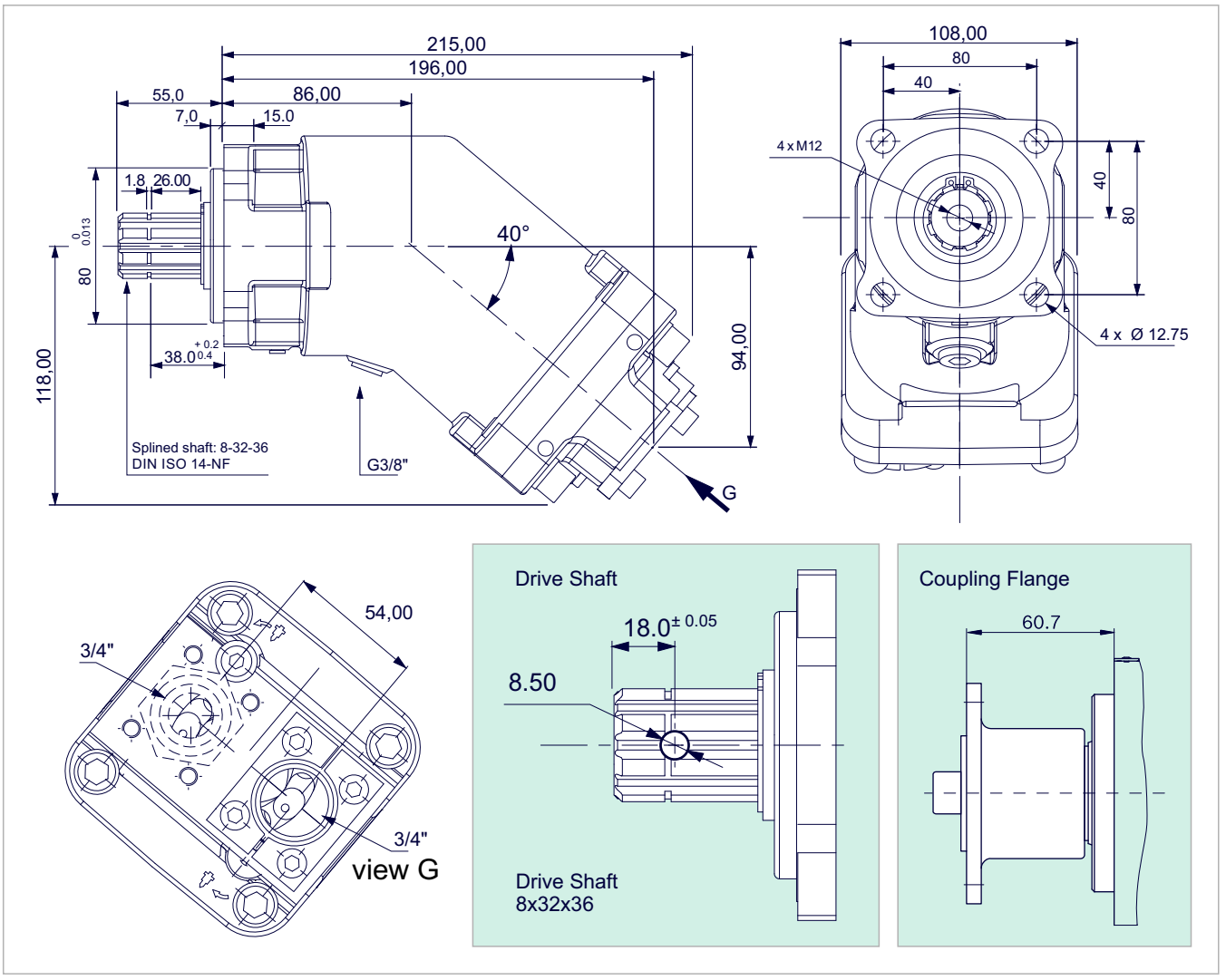
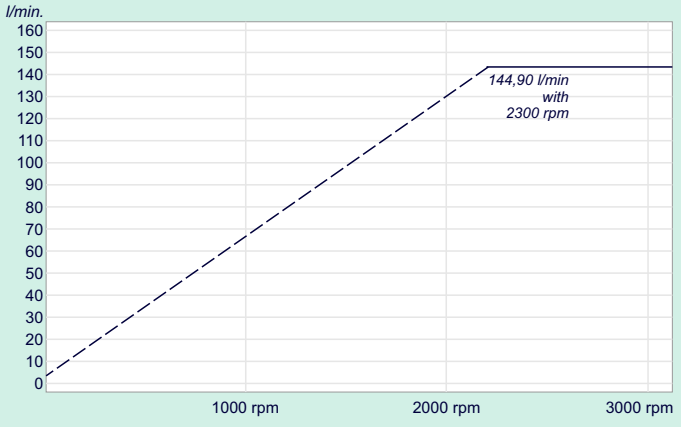
A8PD 63



x 1000 rpm	63,00 cc
x 1500 rpm	94,50 cc
Max. Continuous Pump Speed	1900 rpm
Max. Limited Pump Speed	2300 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	360 Nm
Weight without inlet fitting	11,50 kg
Weight with inlet fitting	11,90 kg
Torque without inlet fitting	11,82 N.m
Torque with inlet fitting	12,28 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	¾"

Flow, Speed, Pressure List of A8PD 63



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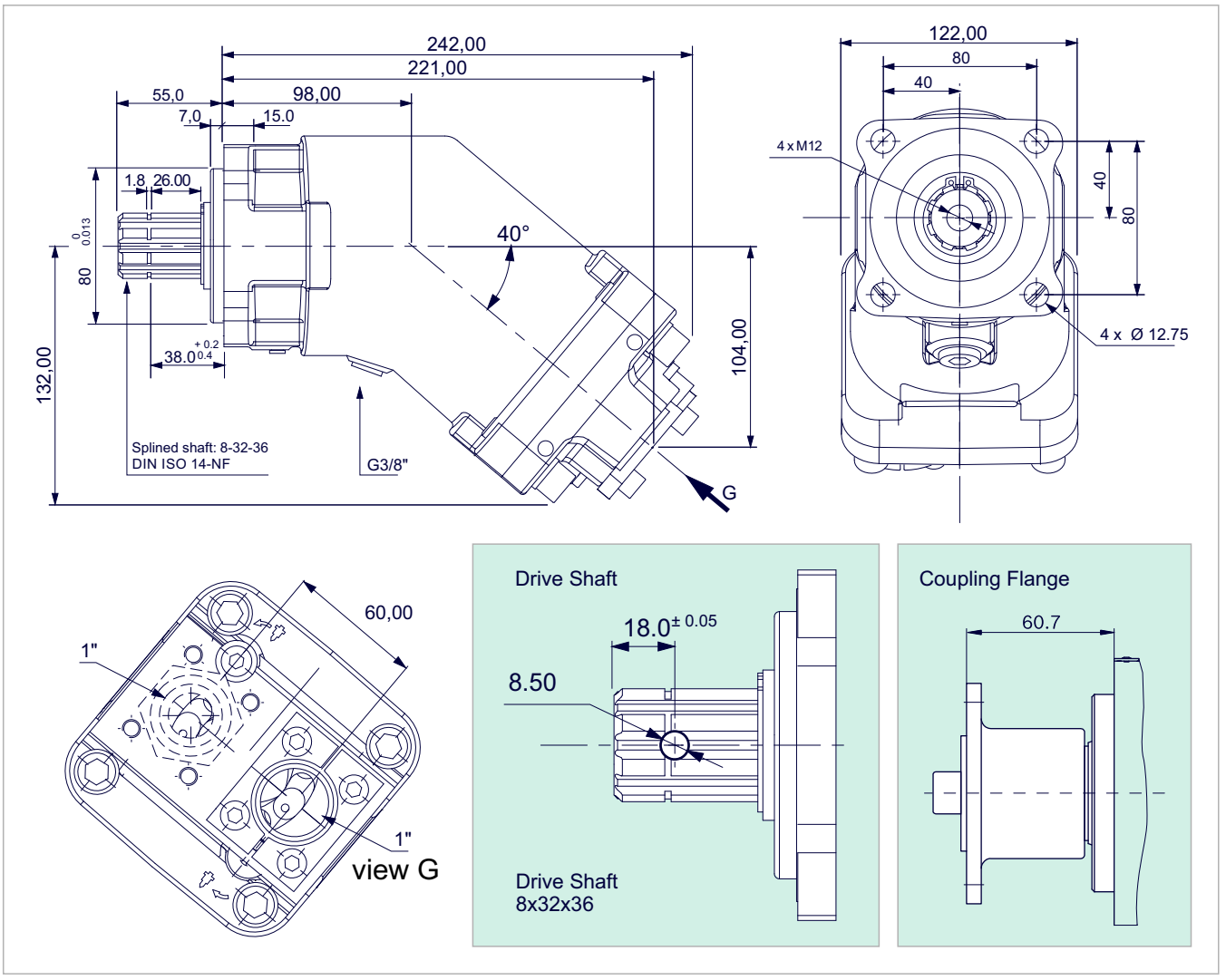
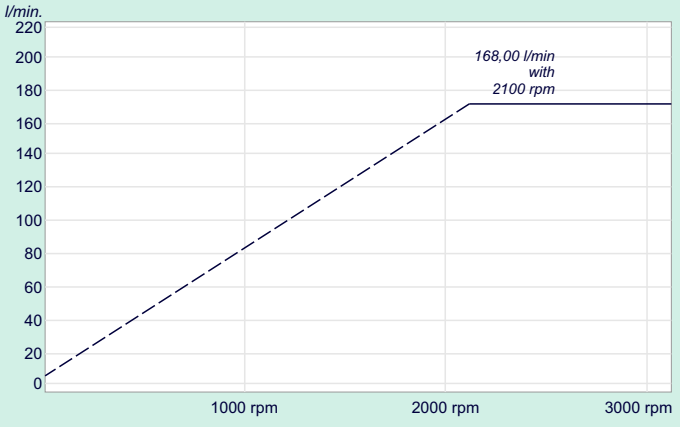
A8PD 80



x 1000 rpm	80,00 cc
x 1500 rpm	120,00 cc
Max. Continuous Pump Speed	1700 rpm
Max. Limited Pump Speed	2100 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	460 Nm
Weight without inlet fitting	15,00 kg
Weight with inlet fitting	15,40 kg
Torque without inlet fitting	17,80 N.m
Torque with inlet fitting	18,33 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	1"

Flow, Speed, Pressure List of A8PD 80



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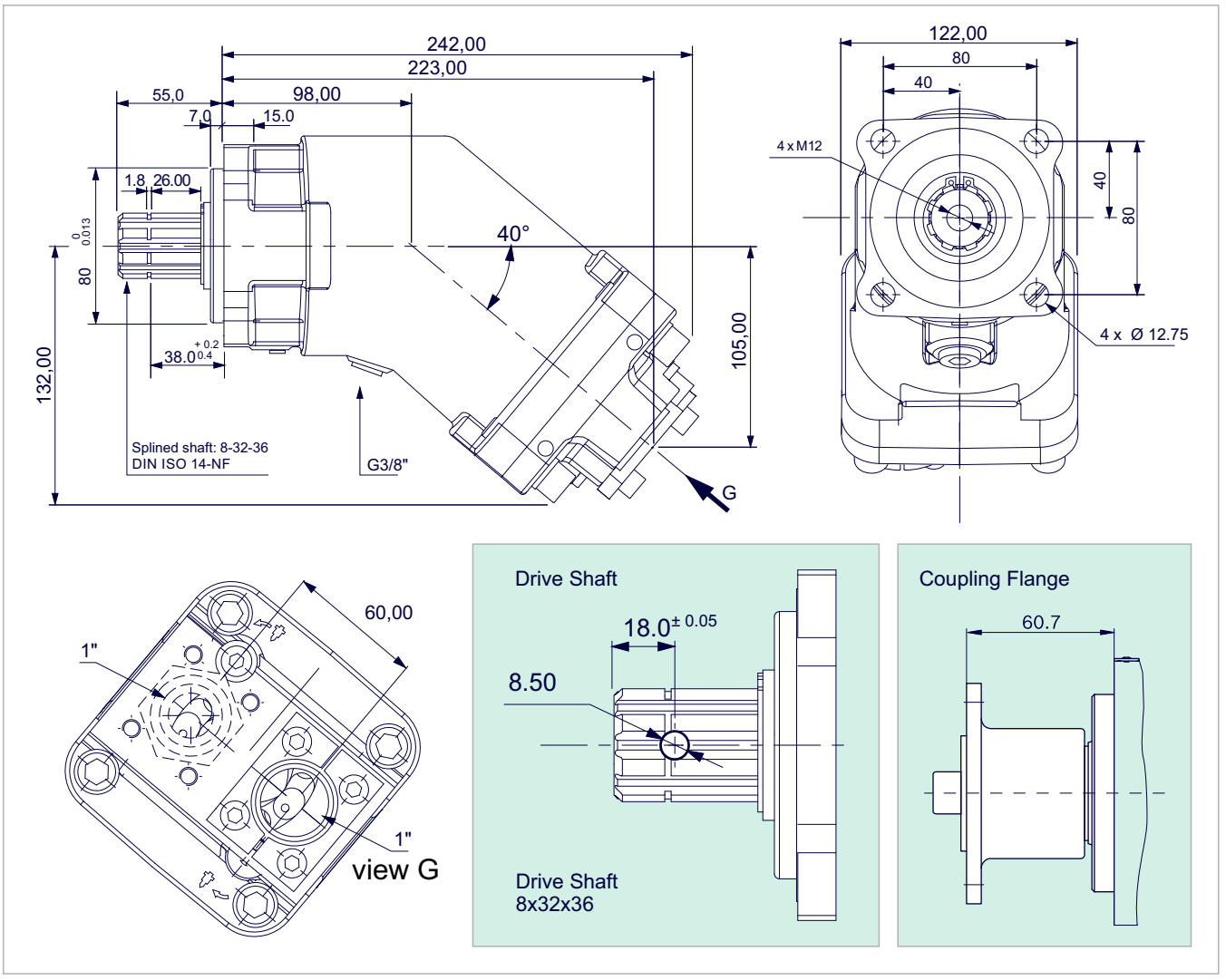
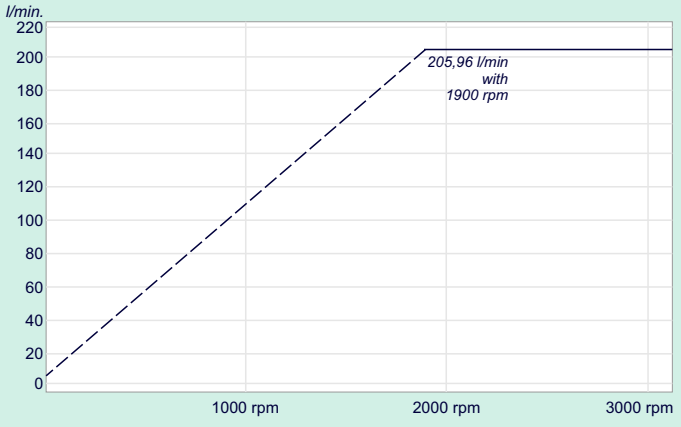
A8PD 108



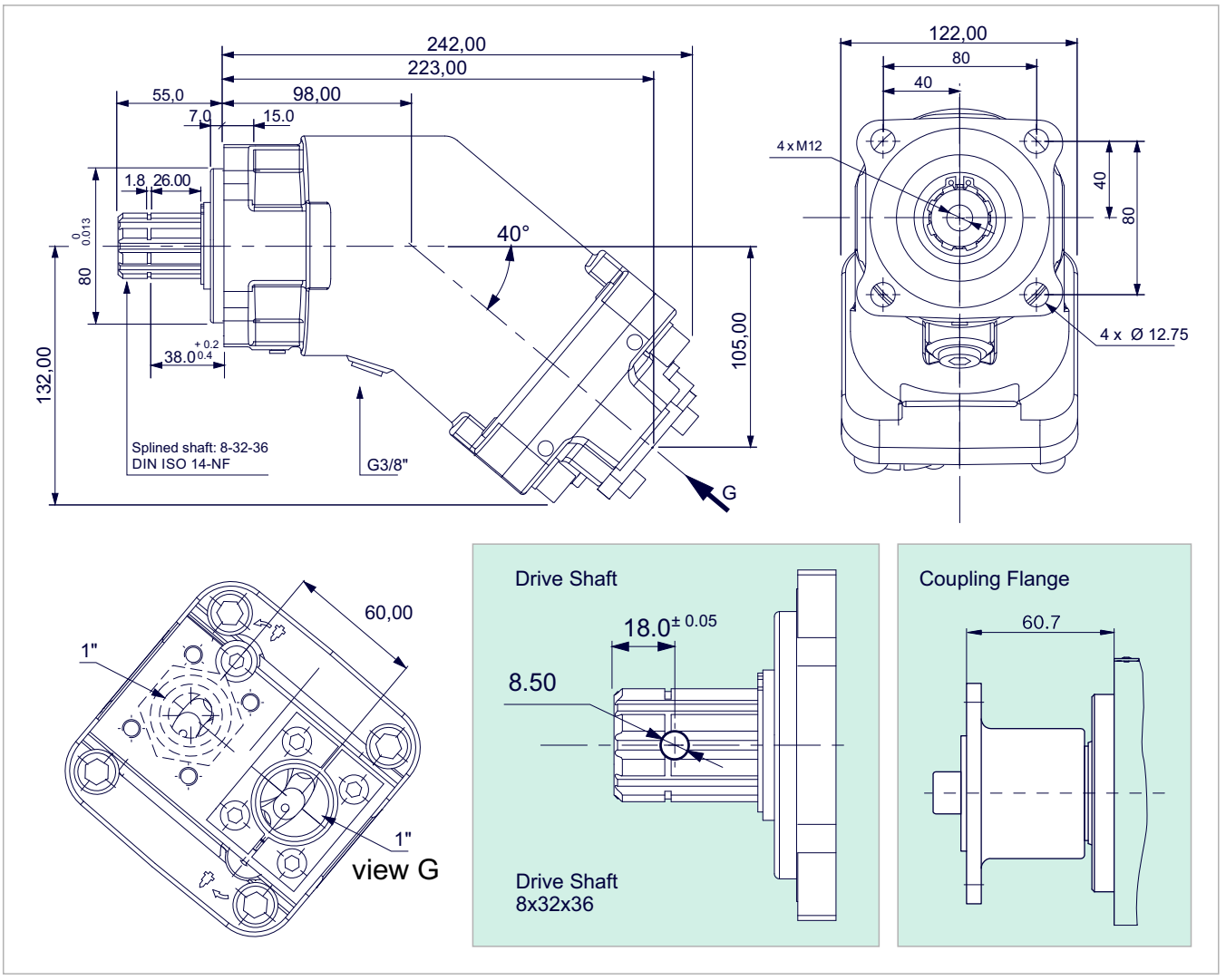
x 1000 rpm	108,40 cc
x 1500 rpm	162,60 cc
Max. Continuous Pump Speed	1700 rpm
Max. Limited Pump Speed	1900 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	620 Nm
Weight without inlet fitting	15,50 kg
Weight with inlet fitting	15,90 kg
Torque without inlet fitting	17,92 N.m
Torque with inlet fitting	18,45 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	1"

Flow, Speed, Pressure List of A8PD 108



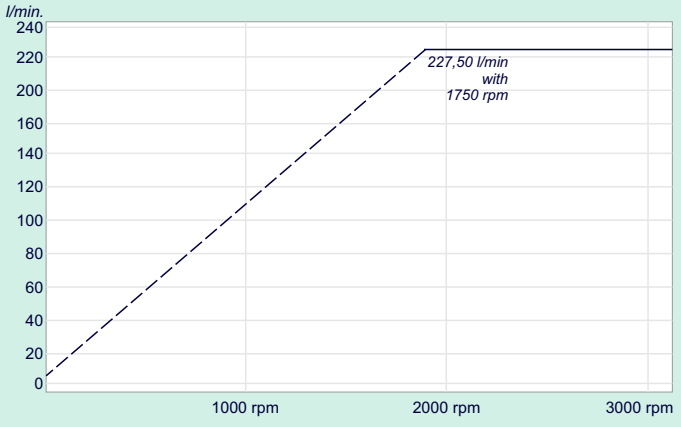
Dimensions Size;

A8PD 130

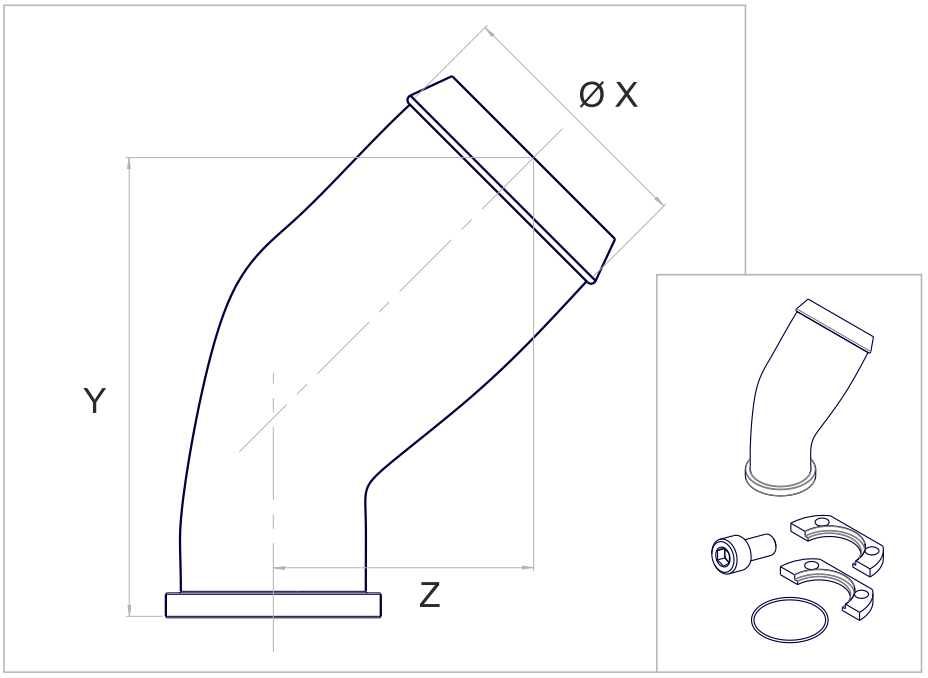


x 1000 rpm	130,00 cc
x 1500 rpm	195,00 cc
Max. Continuous Pump Speed	1600 rpm
Max. Limited Pump Speed	1750 rpm
Max. Continuous Pressure	350 bar
Max. Intermit. Peak Pressure	400 bar
Max. Torque at 350 bar	746 Nm
Weight without inlet fitting	16,50 kg
Weight with inlet fitting	17,00 kg
Torque without inlet fitting	19,90 N.m
Torque with inlet fitting	20,45 N.m
Rotation	CW-CCW
Fluid	Min.B.Hyd.Oil
Inlet & Outlet	1"

Flow, Speed, Pressure List of A8PD 130

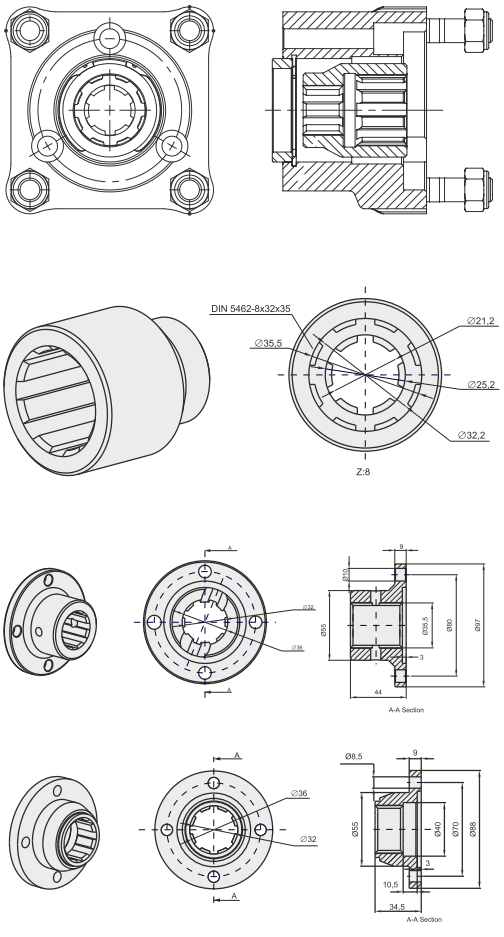


Inlet Fittings, Accessories



	45° elbow fittings		
Ø hose	1 ½"	1 ¾"	2 ½"
Ø X	39	46	64
Y	91	91	125
Z	46	46	62

	90° elbow fittings		
Ø hose	1 ½"	2"	2 ½"
Ø X	39	51	64
Y	58	64	71
Z	80	80	87



Inlet Fittings & Installation Parts
- Split Flange
- Seal
- Screw

By-Pass Valves
- 12 V
- 24 V

Hydraulic Adapters
- PTO Piston Pump Adapter
- PTO Gear Pump Adapter
- Long / Short Adapter

Flanges
- 1120 (6 Spline)
- 1120 (8 Spline)
- 1300 (6 Spline)
- 1300 (8 Spline)

Couplars
- 6 x 8 Couplar
- 6 x 8 Couplar (Long)
- 8 x 8 Couplar
- 8 x 8 Couplar (Long)

INSTALLATION PROCEDURE

1 - CHECKING THE DIRECTION OF ROTATION OF THE PTO

Make sure that the technical specifications between the pump and the PTO are suitable.

2 - FILLING

⚠ Fill the pump with clean oil by using the bleed screw, use the same oil as your hydraulic circuit (For the oil quality to use, please read our recommendation page 6).

3 - INSTALLATION

3.1 - PREPARATION

If there is no recommendation from the PTO manufacturer, grease the splines with graphite grease (type Molykote G-Rapid+).

3.2 - TIGHTENING

For the tightening torque, please follow the PTO manufacturer's recommendation.

Nota: use only the fixation nuts supplied with the PTO. If mounting by prop shaft, align the pump with the PTO outlet.

No axial or radial load allowed on the drive shaft.

4 - INLET FITTING ASSEMBLY

Position the inlet fitting as a function of the direction of rotation. Assemble the inlet fitting according to the diagram on the right. Make sure the o-ring is on the inlet fitting. Tighten the four screws.

In case of threaded inlet fitting maximum speed needs to be reduced (contact our technical department).

5 - OIL SUPPLY

Make sure that the hydraulic reservoir and suction line are clean and that the suction line is correctly sealed.

Connect the suction lines and pressure line to the pump.

Then open the tank isolation valve (if there is one) and fill in the hydraulic tank with a filling device including a filter. The preferably cleanliness of the hydraulic oil has to be according to our recommendation: 20/18/15 according to ISO 4406.

6 - COMMISSIONING AND PRIMING

Start-up the pump at low speed, until the pump is completely filled and no air remains.

7 - CHECKING

Check periodically that the vent tube is not clogged, and that there are no leakages nor any signs of oil in the tube.

⚠ In case of leakage, stop the vehicle immediately and check the sealing of the pump.

Check the tightening of the pump-PTO regularly, referring to the specifications given by the PTO manufacturer.

8 - CHOICE OF INLET FITTING

The inlet fitting has to be dimensioned as a function of the installation and we recommend to ensure a flow speed between 0.5 and 0.8m/s.

9 - HYDRAULIC OIL

We recommend using a mineral hydraulic oil of type HLVP according to DIN 51524-2 or HV according to ISO 11158.

Bio hydraulic oils HEES according to ISO 15380 can be used.

The recommended viscosity of the fluids is between 15 and 400 cSt.

The optimum viscosity is between 20 and 40 cSt.

A viscosity of maximum 1000 cSt is tolerated for start-up at low speed and without load.

The temperature of the fluid should not exceed 80°C.

10 - FILTRATION

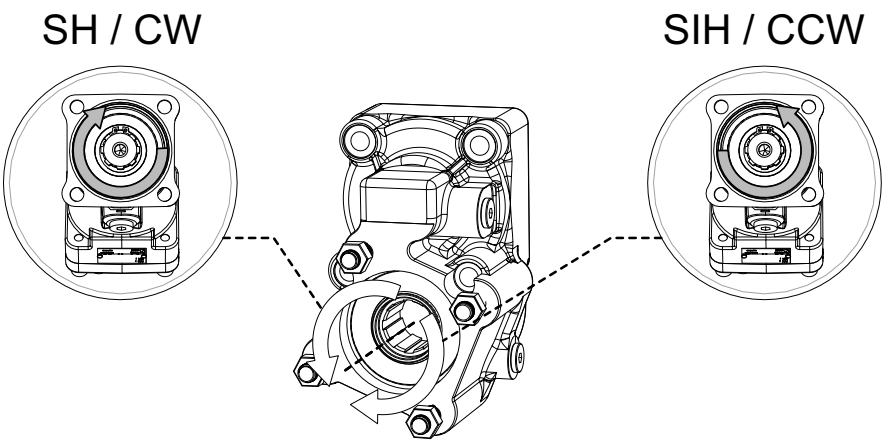
Oil cleanliness for this type of pump is minimum 20/18/15 according to ISO 4406 (or class 9 according to NAS 1638).

11- STORAGE

The pump can be stored for maximum 1 year in its original packing, and in a dry area. Do not expose the product to temperatures below -30 °C and above 80°C.

INSTALLATION PROCEDURE

1



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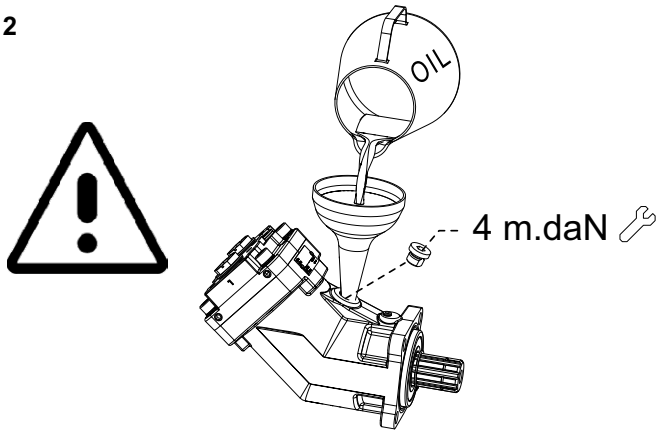
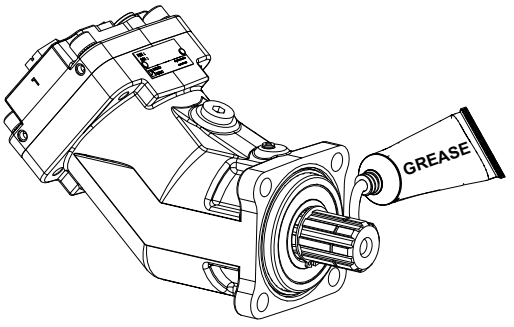
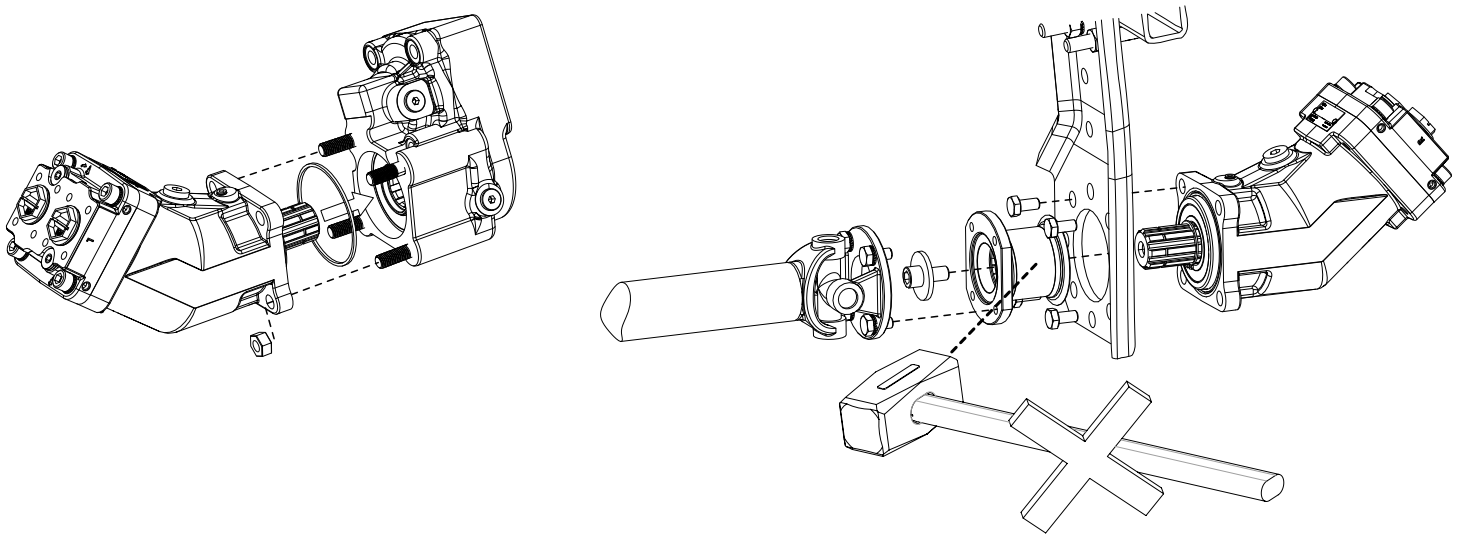


3.1

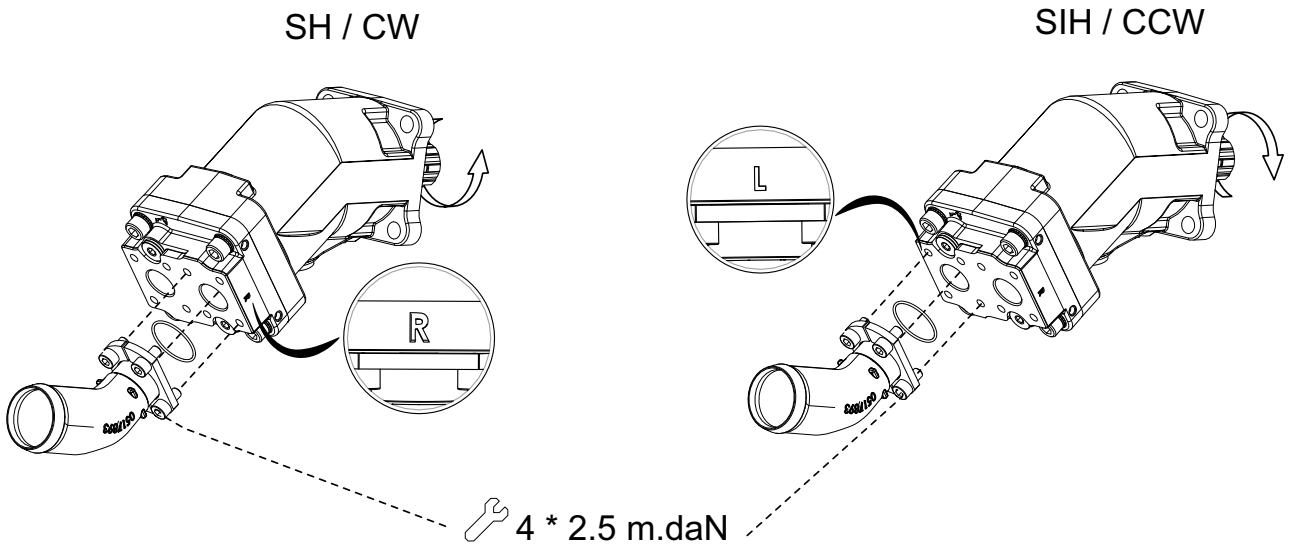


3.2

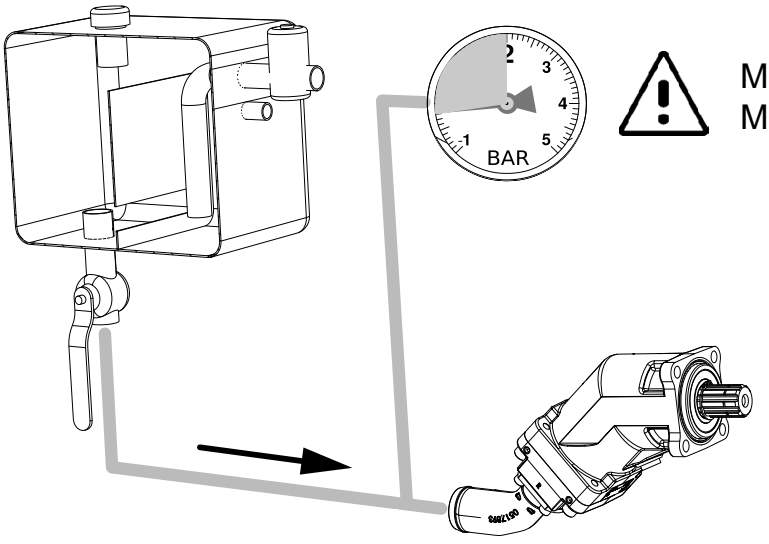


INSTALLATION PROCEDURE

4



5 - 6



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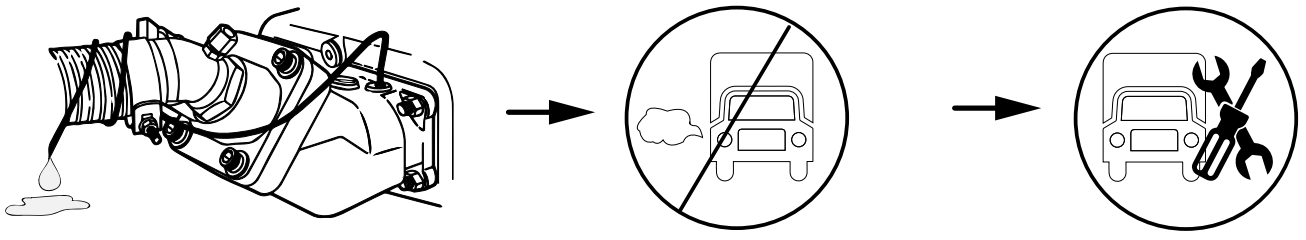
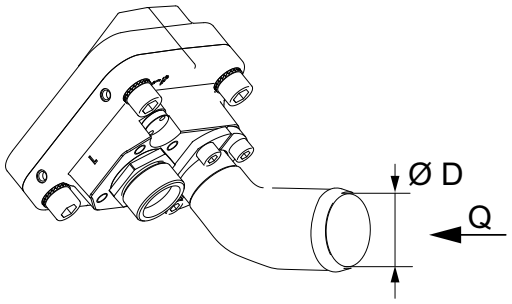


INSTALLATION PROCEDURE

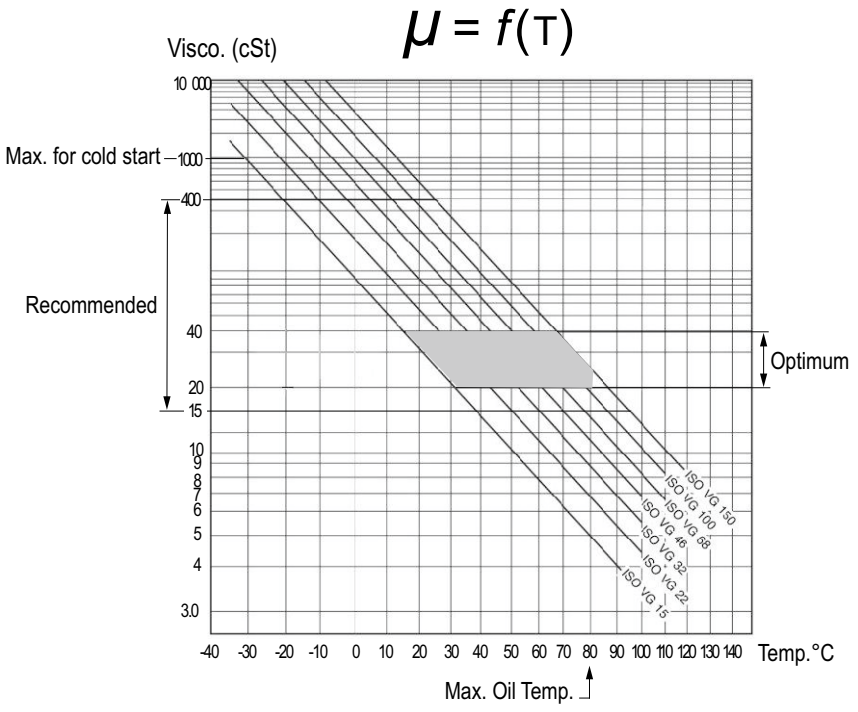
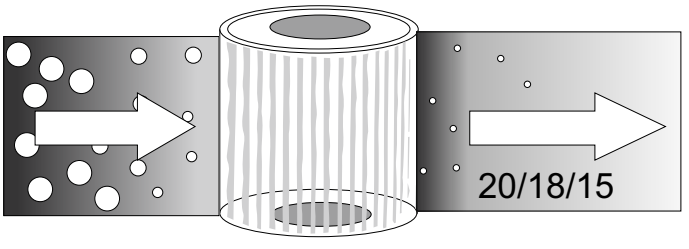
8



Ø D	Q Max*.
1½" (39.1 mm)	60 l/min
2" (50 mm)	120 l/min
2½" (63.5 mm)	150 l/min

* Qmax. recommandé/Qmax. recommended / Qmax. Empfohlen

9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