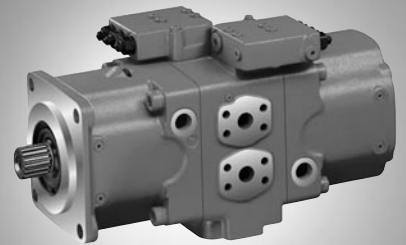


Axial Piston Variable Double Pump A20VO

RE 93 100/05.06 1/16
Replace: 07.03

Technical data sheet

Series 1	
Sizes	Nominal pressure/ Peak pressure
60	250/315 bar
95...520	350/400 bar
for open circuits	



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Features

- Variable pump with two axial piston rotary groups in swash-plate design for use in open circuit hydrostatic drives
- For use in mobile and stationary applications
- The pump consists of proven components from the A11VO (RE 92500), A10VO/53 (RE 92703) or A4VSO (RE 92050) variable pumps
- The pump operates under self-priming condition, with tank pressurisation or with charge pump (sizes 190...260)
- A wide variety of controls are available
- Setting of the constant power control is possible via external adjustments, even when the unit is operating (only with power control).
- The pump is available with a through drive to mount a gear pump or a second axial piston pump
- Output flow is proportional to drive speed and pump displacement and is steplessly variable between maximum and zero displacement

Ordering Code / Standard Program

A20V		O			/	10		-					
01	02	03	04	05		06	07		08	09	10	11	12

Axial piston unit

01	Swashplate design, variable (Back to back - design)											A20V
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Charge pump (impeller)

	60	95	190	260	520		
02	without charge pump (no code)	●	●	-	-	●	
	with charge pump	-	-	●	●	-	L

Operation

03	Double pump, open circuit											O
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Size

04	≈ Displacement $V_{g \max}$ in cm^3 (per rotary group)	60	95	190	260	520
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Control devices

	60	95	190	260	520		
05	see RE 92703 (A10VO/53)	●	-	-	-	-	
	see RE 92500 (A11VO)	-	●	●	●	-	
	see RE 92050 (A4VSO) and RE 92060, RE 92064, RE 92076	-	-	-	-	●	

Series

06	Series 1, Index 0											10
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Direction of rotation

07	viewed on shaft end	clockwise		R
		counter-clockwise		L

Seals

	60	95	190	260	520		
08	NBR (nitril-caoutchouc), shaft seal ring in FKM (fluor-caoutchouc)	●	●	●	●	-	N
	FKM (fluor-caoutchouc)	-	-	-	-	●	V

Shaft end

	60	95	190	260	520		
10	Splined shaft DIN 5480	-	●	●	●	●	Z
	Splined shaft, ANSI B92.1a-1976	●	●	-	-	-	S
		-	-	●	●	-	T
	Parallel keyed shaft, DIN 6885	-	-	-	-	●	P

Mounting flange

	60	95	190	260	520		
09	SAE J744 - 4-hole	●	●	●	●	-	D
	To fit flywheel housing (conform to SAE J617) of internal combustion engine (details on request)	-	●	●	-	-	G
	ISO 3019-2 - 8-hole	-	-	-	-	●	H

Service line ports

	60	95	190	260	520		
11	Two service line ports and one scution port at site, opposite (fastening thread metric)	●	●	●	●	-	24
	At the site two service line ports each, opposite and one suction port displaced by 90° (fastening thread metric)	-	-	-	-	●	26

Boost pump and through drive¹⁾

	60	95	190	260	520				
12	without boost pump, without through drive	●	●	●	●	-	N00		
	without boost pump, with through drive								
	Flange SAE J744								
	Splined shaft hub								
	82-2 (A)	5/8 in	9T 16/32DP (A)	○	○	○	○	-	K01
	127-2 (C)	1 1/4 in	14T 12/24DP (C)	-	-	-	-	●	K07
	with through drive shaft, without hub, without intermediate flange, closed by a cover	-	-	-	-	-	-	●	K99

● = available ○ = available on request - = not available

¹⁾ Please contact us

Technical Data

Table of values (theoretical values, without efficiencies η_{mh} and η_v ; values rounded)

Size	<i>without charge pump</i>		60	95	190	260	520
	<i>with charge pump</i>						
Displacement (per rotary group)	$V_{g\ max}$	cm ³	60	93,8	192,7	260	520
	$V_{g\ min}$	cm ³	0	0	0	0	0
Speed							
maximal ¹⁾ at $V_{g\ max}$	n_{max}	min ⁻¹	2700	2350	2500 ²⁾	2300 ²⁾	1450
Speed max. ³⁾ at $V_g \leq V_{g\ max}$	n_{max}	min ⁻¹	3200	2780	2500	2300	1720
Flow							
at n_{max} and $V_{g\ max}$	$q_{v\ max}$	L/min	2x162	2x220	2x482	2x598	2x754
Power at $q_{v\ max}$ and $\Delta p = 350$ bar	P_{max}	kW	135 ⁴⁾	257	562	698	880
Torque at $V_{g\ max}$							
at long-term ($\Delta p = 350$ bar)	T_{max}	Nm	477 ⁴⁾	1045	2147	2897	5793
max. perm., short term ($\Delta p = 400$ bar)	T_{max}	Nm	602 ⁴⁾	1194	2454	3310	6621
Moment of inertia (of the rotating parts)	J	kgm ²	0,0113	0,0346	0,0604	0,0912	0,696
Mass approx.	m	kg	44				640

¹⁾ The values are quoted for an absolute pressure (p_{abs}) of 1 bar at suction port S and mineral operating fluid.

²⁾ The values are quoted for an absolute pressure (p_{abs}) of at least 0.8 bar at suction port S and mineral operating fluid.

³⁾ The values are quoted for $V_g < V_{g\ max}$ or increase of the input pressure p_{abs} at suction port S.

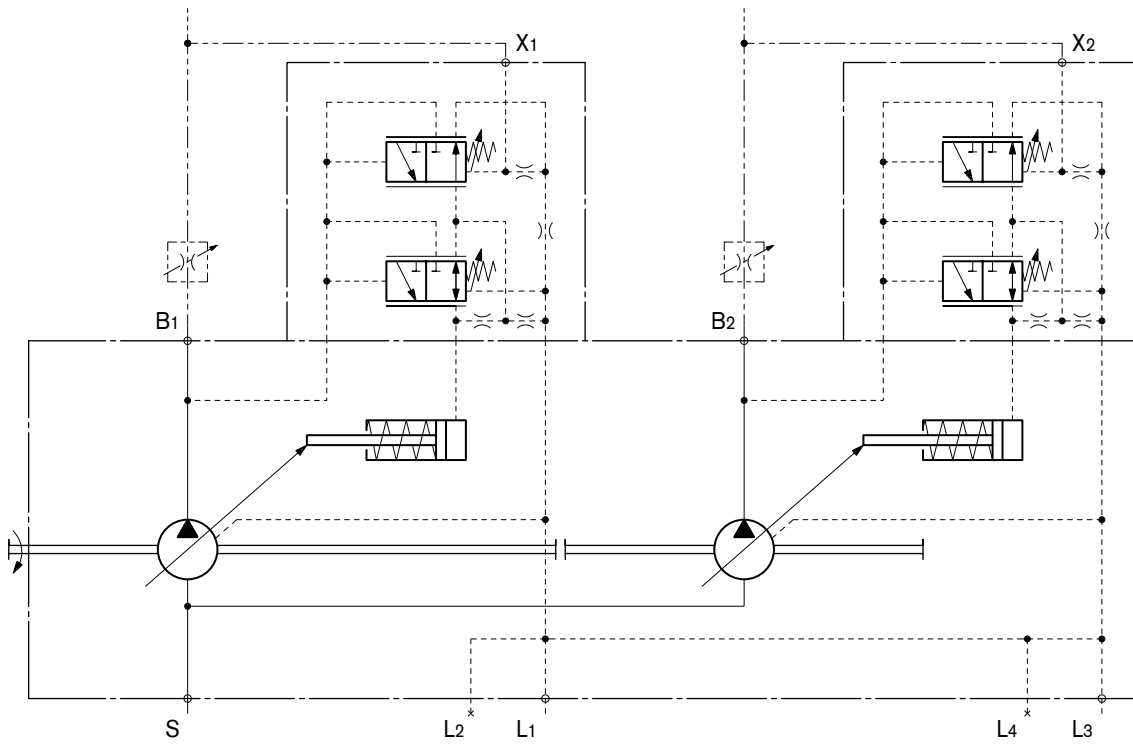
⁴⁾ $\Delta p = 250$ bar (long-term operation) or rather 315 bar (short term).

Through Drive

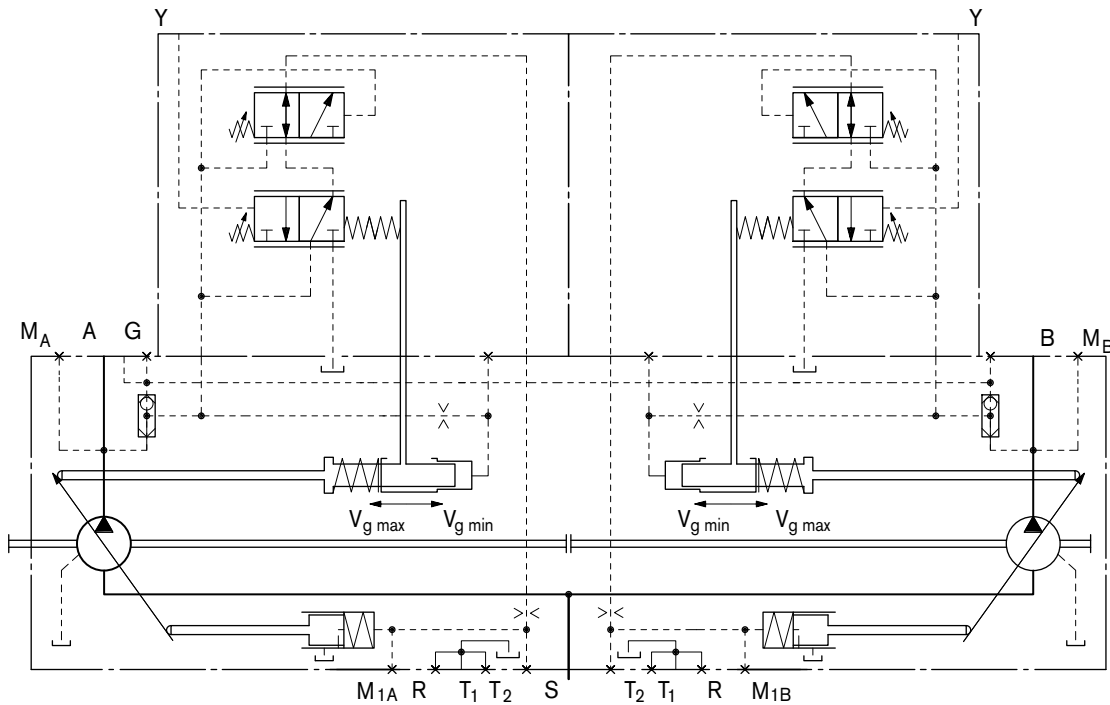
Please contact us.

Control Devices

Example circuit diagram Size 60: DFR

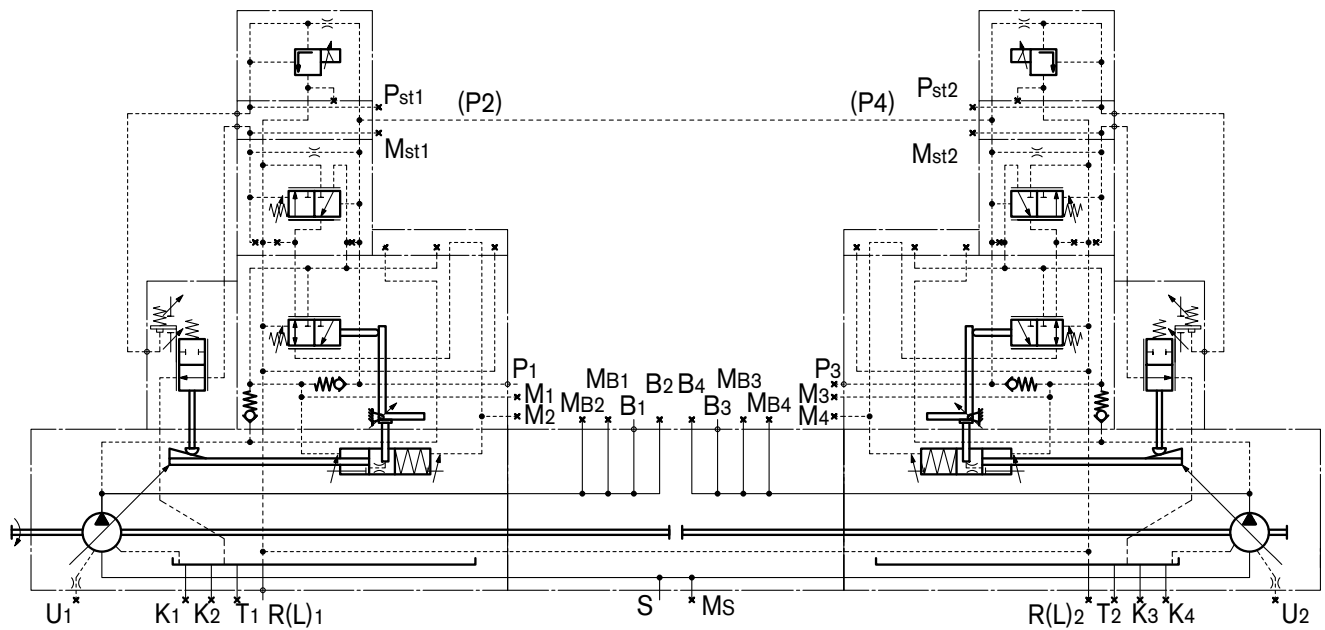


Example circuit diagram Size 95...260: HD1D



Control Devices

Example circuit diagram Size 520: LR2DN



Further technical datas as soon as control devices see

for size 60 _____ RE 95703 (A10VO/53)

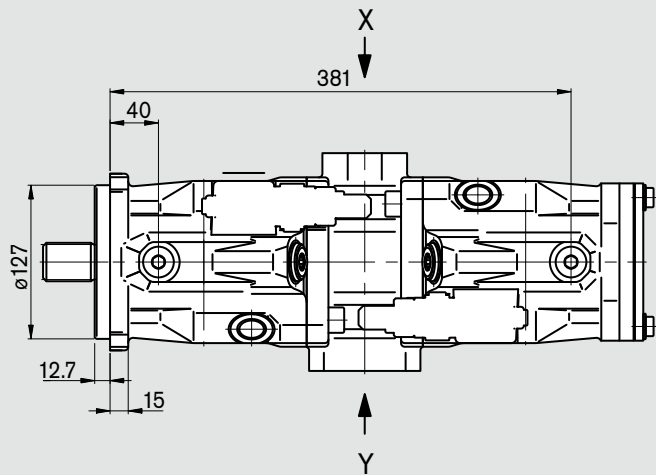
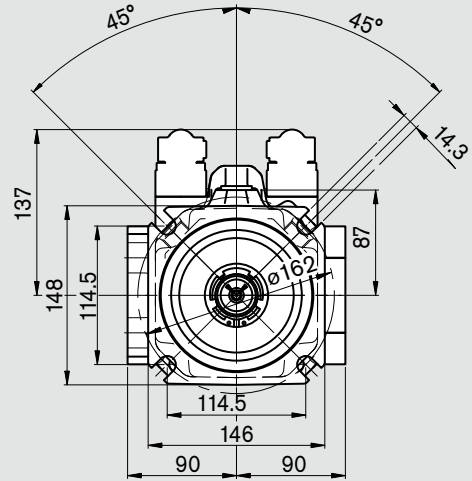
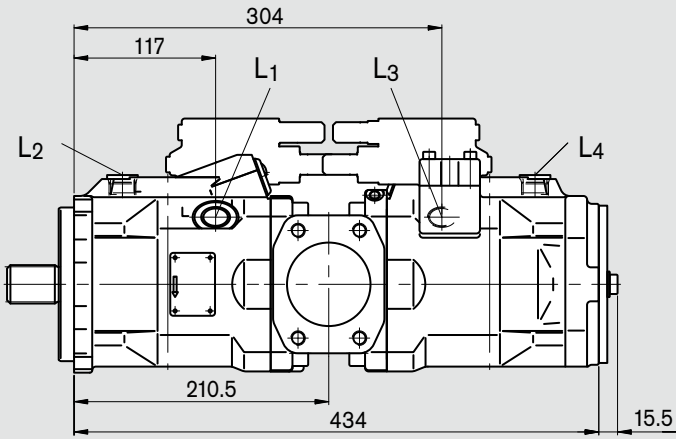
for sizes 95 ... 260 _____ RE 92500 (A11VO)

for size 520 _____ RE 92050 (A4VSO), RE 92060, RE 92064, RE 92076

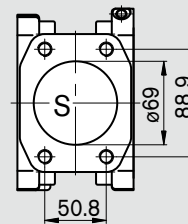
Unit Dimensions, Size 60

For controller selection see RE 92703 (A10VO/53)

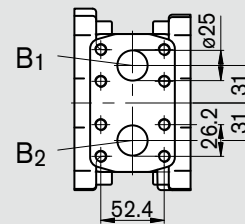
Before finalizing your design, please request a
approved installation drawing.
Dimensions in mm



View Z



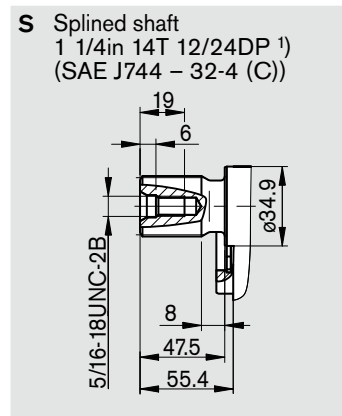
View Y



Unit Dimensions, Size 60

Before finalizing your design, please request a approved installation drawing.
Dimensions in mm

Shaft end



Ports

B ₁ , B ₂	Service ports (High pressure series)	SAE J518	1 in	
	Fastening thread	DIN 13	M10x1,5; 17 deep ²⁾	
S	Suction port	SAE J518	2 1/2 in	
	Fastening thread	DIN 13	M12x1,75; 20 deep ²⁾	
L _{1,2,3,4}	Case drain	DIN 3852	7/8-14UNF-2B	240 Nm ²⁾

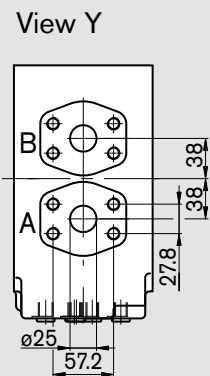
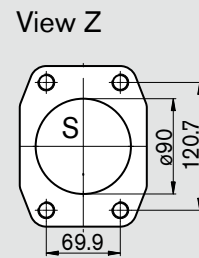
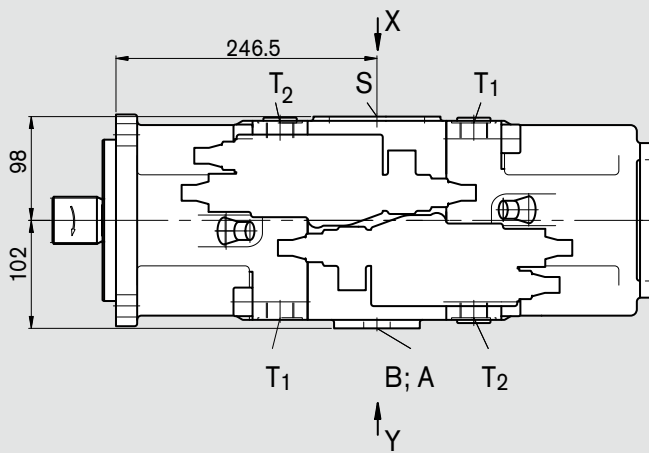
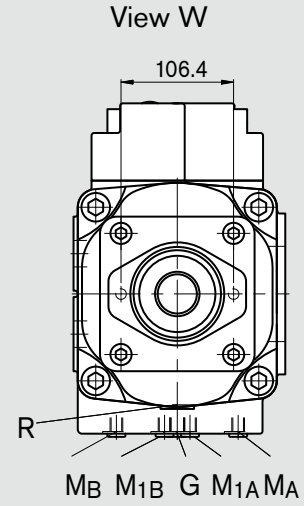
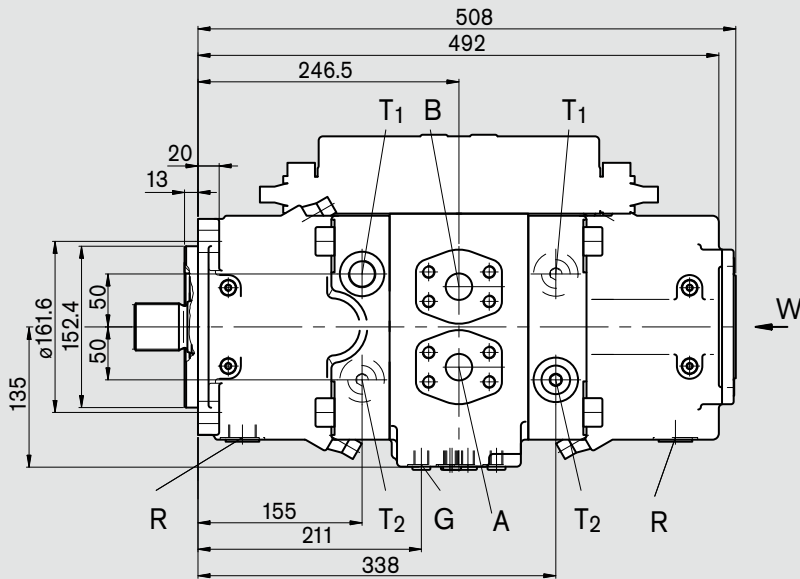
¹⁾ ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

²⁾ please observe the general notes for the max. tightening torques on page 16

Unit Dimensions, Size 95

For controller selection see RE92500 (A11VO)

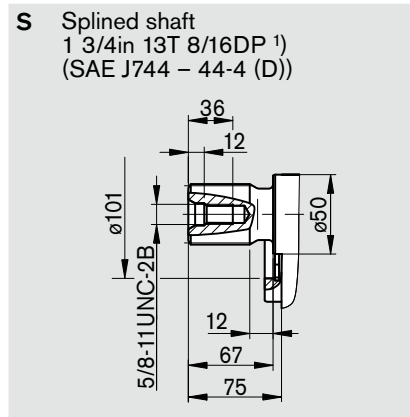
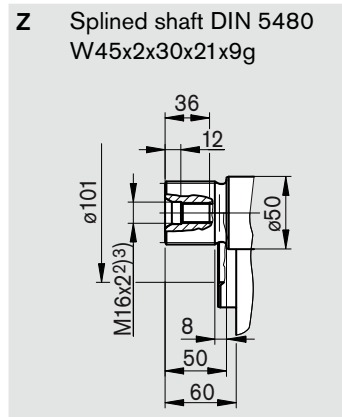
Before finalizing your design, please request a approved installation drawing.
Dimensions in mm



Unit Dimensions, Size 95

Before finalizing your design, please request a approved installation drawing.
Dimensions in mm

Shaft ends



Ports

A, B	Service ports (High pressure series)	SAE J518	1 in	
	Fastening threads	DIN 13	M12x1,75; 17 deep ³⁾	
S	Suction port (standard series)	SAE J518	3 1/2 in	
	Fastening threads	DIN 13	M16x2; 24 deep ³⁾	
T ₁ , T ₂	Case drain	DIN3852	M26x1,5; 14 deep	230 Nm ³⁾
M _A , M _B	Gauge point positioning chamber	DIN3852	M12x1,5; 12 deep	50 Nm ³⁾
M _{A1} , M _{B1}	Gauge point for service port	DIN3852	M12x1,5; 12 deep	50 Nm ³⁾
R	Air bleed, drain port	DIN3852	M26x1,5; 14 deep	230 Nm ³⁾
G	Control pressure port (controller) ⁴⁾	DIN3852	M14x1,5; 12 deep	80 Nm ³⁾

¹⁾ ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

²⁾ Center bore according to DIN 332 (thread according to DIN13)

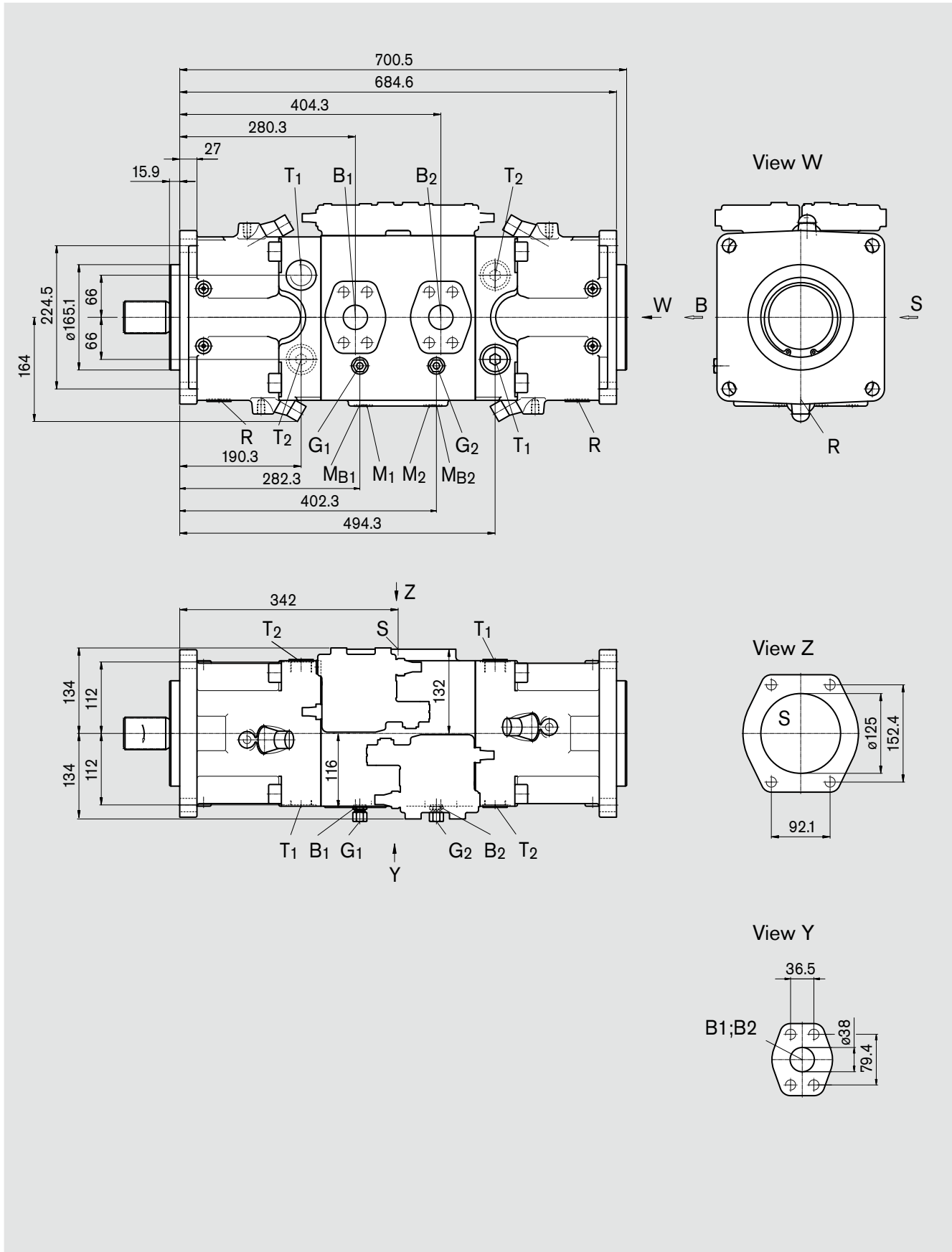
³⁾ please observe the general notes for the max. tightening torques on page 16

⁴⁾ At design with stroke limiter (H..., U2), HD and EP with fitting GE10-PLM (in other case is port G plugged)

Unit Dimensions, Size 190 (with impeller)

For controller selection see RE92500 (A11VO)

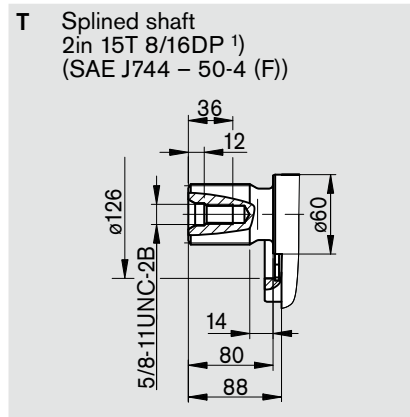
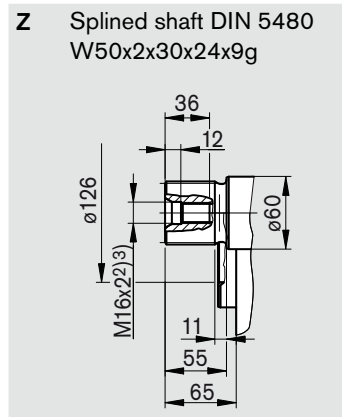
Before finalizing your design, please request a approved installation drawing. Dimensions in mm



Unit Dimensions, Size 190 (with impeller)

Before finalizing your design, please request a approved installation drawing. Dimensions in mm

Shaft ends



Connections

B ₁ , B ₂	Service ports (High pressure series)	SAE J518	1 1/2 in	
	Fastening threads	DIN 13	M16x2; 21 deep	
S	Suction port (standard series)	SAE J518	5 in	
	Fastening threads	DIN 13	M16x2; 23 deep	
T ₁ , T ₂	Case drain	DIN3852	M33x2; 18 deep	540 Nm ⁴⁾
M ₁ , M ₂	Gauge point positioning chamber	DIN3852	M12x1,5; 12 deep	50 Nm ⁴⁾
M _{B1} , M _{B2}	Gauge point for service port	DIN3852	M12x1,5; 12 deep	50 Nm ⁴⁾
R	Air bleed, drain port	DIN3852	M33x2; 16 deep	540 Nm ⁴⁾
G ₁ , G ₂	Control pressure port (controller) ⁴⁾	DIN3852	M14x1,5; 12 deep	80 Nm ⁴⁾

¹⁾ ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

²⁾ Center bore according to DIN 332 (thread according to DIN13)

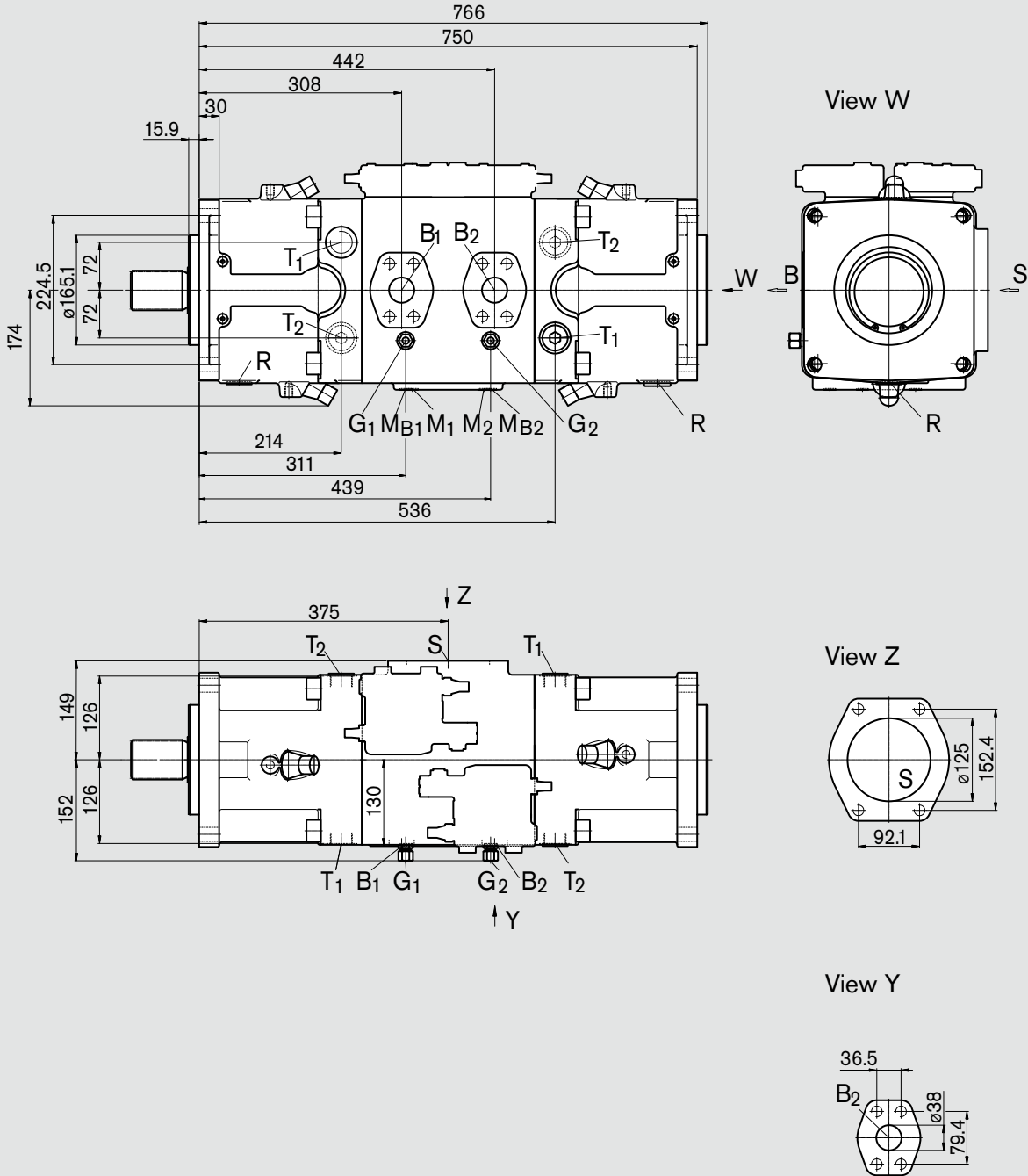
³⁾ please observe the general notes for the max. tightening torques on page 16

⁴⁾ At design with stroke limiter (H..., U2), HD and EP with fitting GE10-PLM (in other case is port G plugged)

Unit Dimensions, Size 260 (with impeller)

For controller selection see RE92500 (A11VO)

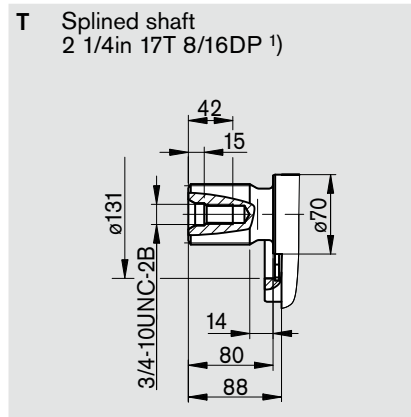
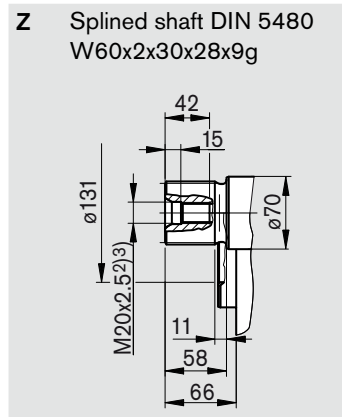
Before finalizing your design, please request a approved installation drawing. Dimensions in mm



Unit Dimensions, Size 260 (with impeller)

Before finalizing your design, please request a approved installation drawing. Dimensions in mm

Shaft ends



Connections

B ₁ , B ₂	Service ports (High pressure series)	SAE J518	1 1/2 in	
	Fastening threads	DIN 13	M16x2; 21 deep ³⁾	
S	Suction port (standard series)	SAE J518	5 in	
	Fastening threads	DIN 13	M16x2; 23 deep ³⁾	
T ₁ , T ₂	Case drain	DIN3852	M33x2; 18 deep	540 Nm ³⁾
M ₁ , M ₂	Gauge point positioning chamber	DIN3852	M12x1,5; 12 deep	50 Nm ³⁾
M _{B1} , M _{B2}	Gauge point for service port	DIN3852	M12x1,5; 12 deep	50 Nm ³⁾
R	Air bleed, drain port	DIN3852	M33x2; 16 deep	540 Nm ³⁾
G ₁ , G ₂	Control pressure port (controller) ³⁾	DIN3852	M14x1,5; 12 deep	80 Nm ³⁾

¹⁾ ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

²⁾ Center bore according to DIN 332 (thread according to DIN13)

³⁾ please observe the general notes for the max. tightening torques on page 16

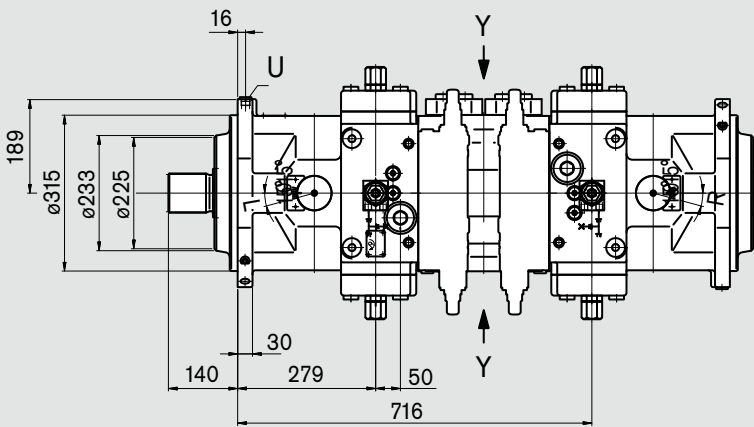
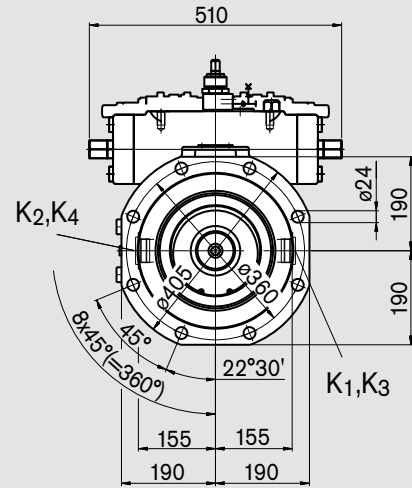
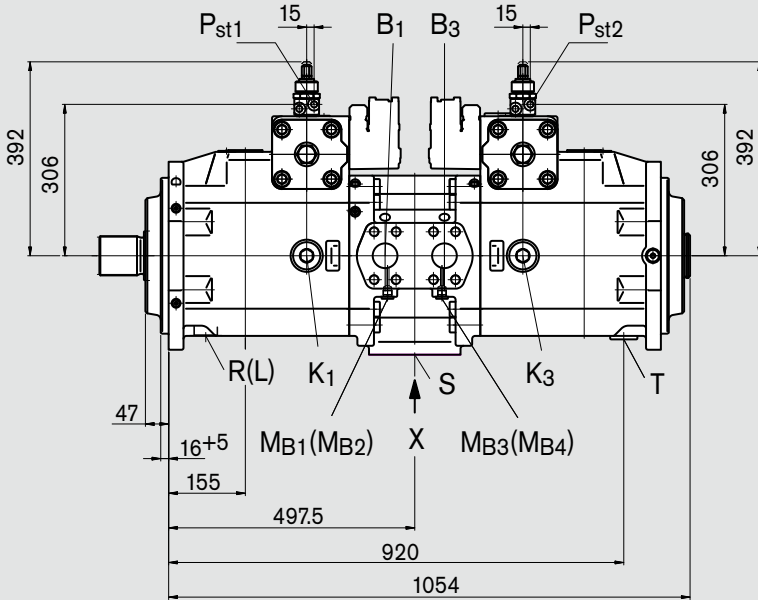
⁴⁾ At design with stroke limiter (H..., U2), HD and EP with fitting GE10-PLM (in other case is port G plugged)

Unit Dimensions, Size 520

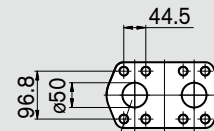
Before finalizing your design, please request a approved installation drawing. Dimensions in mm

For controller selection see RE92064 (A4VS)

Picture for counter-clockwise

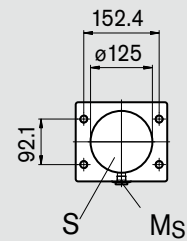


View Z



B₁, B₃ (offen)
B₂, B₄ (verschlossen)

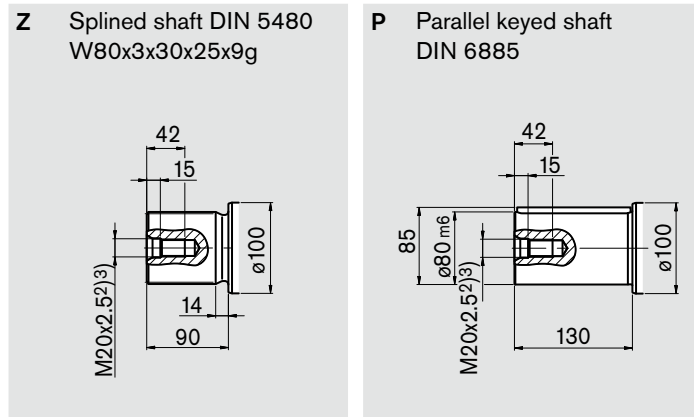
View Y



Unit Dimensions, Size 520

Before finalizing your design, please request a approved installation drawing.
Dimensions in mm

Shaft ends



Connections

<p>B₁ - B₄ Service line ports (High pressure series) Fastening threads</p> <p>S Suction port (standard series) Fastening threads</p> <p>K₁ - K₄ Flush ports</p> <p>M_{B1}, M_{B4} Gauge point for operating pressure</p> <p>M_S Gauge point for suction port</p> <p>P_{st1}, P_{st2} Pilot pressure port</p> <p>R (L) Air bleed, drain port</p> <p>T Case drain</p> <p>U Flush port</p>	<p>SAE J518 DIN 13 SAE J518 DIN 13 DIN3852 DIN3852 DIN3852 DIN3852 DIN3852 DIN3852</p>	<p>2 in M20x2,5; 24 deep ³⁾ 5 in M16x2; 24 deep ³⁾ M48x2; 22 deep M18x1,5; 12 deep M18x1,5; 12 deep M14x1,5; 12 deep M48x2; 22 deep M48x2; 22 deep M18x1,5; 12 deep</p>	<p>960 Nm ³⁾ 140 Nm ³⁾ 140 Nm ³⁾ 80 Nm ³⁾ 960 Nm ³⁾ 960 Nm ³⁾ 140 Nm ³⁾</p>
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¹⁾ ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

²⁾ Center bore according to DIN 332 (thread according to DIN13)

³⁾ please observe the general notes for the max. tightening torques on page 16

⁴⁾ At design with stroke limiter (H1) with fitting GE10-PLM (in other case is port G plugged)