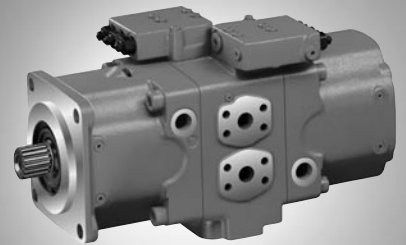


# Axial Piston Variable Double Pump A20VO

**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

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

## Axial piston unit

01	Swashplate design, variable (Back to back - design)											<b>A20V</b>
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## Charge pump (impeller)

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

## Operation

03	Double pump, open circuit											<b>O</b>
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## Size

04	≈ Displacement $V_{g \max}$ in $\text{cm}^3$ (per rotary group)	<b>60</b>	<b>95</b>	<b>190</b>	<b>260</b>	<b>520</b>
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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											<b>10</b>
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## Direction of rotation

07	viewed on shaft end	clockwise					<b>R</b>
		counter-clockwise					<b>L</b>

## Seals

08	NBR (nitril-caoutchouc), shaft seal ring in FKM (fluor-caoutchouc)	●	●	●	●	-	<b>N</b>
	FKM (fluor-caoutchouc)	-	-	-	-	●	<b>V</b>

## Shaft end

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

## Mounting flange

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

## Service line ports

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

## Boost pump and through drive<sup>1)</sup>

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

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

<sup>1)</sup> Please contact us

# Technical Data

**Table of values** (theoretical values, without efficiencies  $\eta_{mh}$  and  $\eta_v$ ; 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 <sup>3</sup>	60	93,8	192,7	260	520
	$V_{g \min}$	cm <sup>3</sup>	0	0	0	0	0
Speed							
maximal <sup>1)</sup> at $V_{g \max}$	$n_{\max}$	min <sup>-1</sup>	2700	2350	2500 <sup>2)</sup>	2300 <sup>2)</sup>	1450
Speed max. <sup>3)</sup> at $V_g \leq V_{g \max}$	$n_{\max}$	min <sup>-1</sup>	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 <sup>4)</sup>	257	562	698	880
Torque at $V_{g \max}$							
at long-term ( $\Delta p = 350$ bar)	$T_{\max}$	Nm	477 <sup>4)</sup>	1045	2147	2897	5793
max. perm., short term ( $\Delta p = 400$ bar)	$T_{\max}$	Nm	602 <sup>4)</sup>	1194	2454	3310	6621
Moment of inertia (of the rotating parts)	J	kgm <sup>2</sup>	0,0113	0,0346	0,0604	0,0912	0,696
Mass approx.	m	kg	44				640

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

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

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

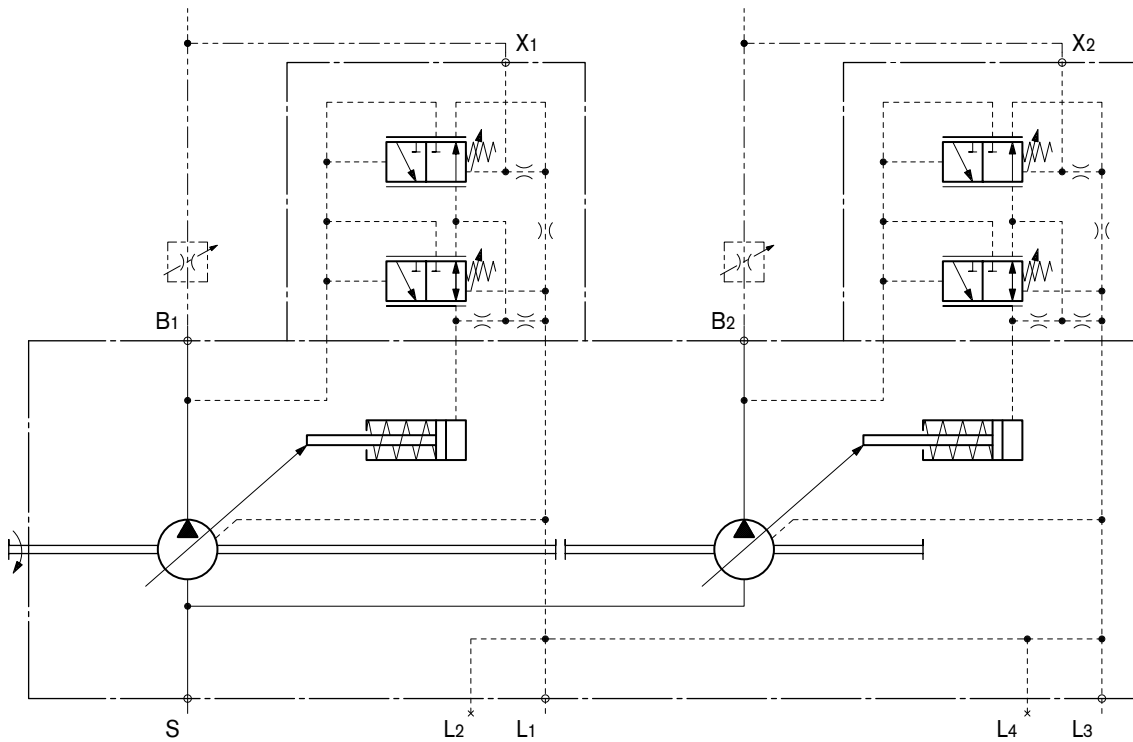
<sup>4)</sup>  $\Delta p = 250$  bar (long-term operation) or rather 315 bar (short term).

## Through Drive

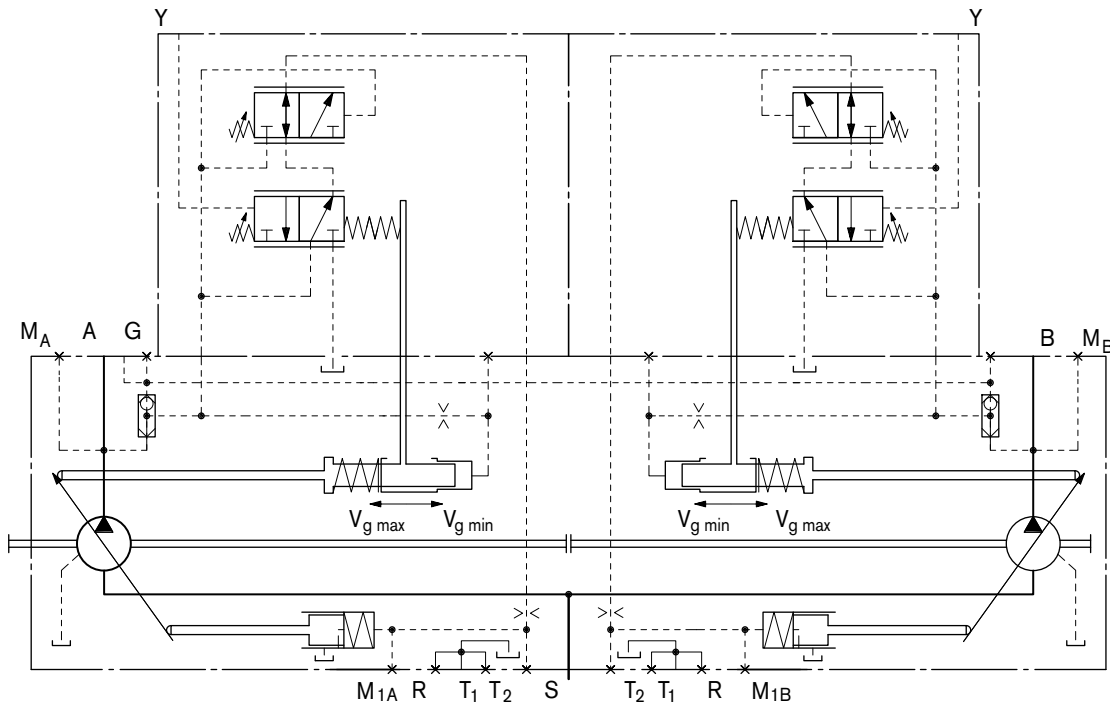
Please contact us.

# Control Devices

## Example circuit diagram Size 60: DFR

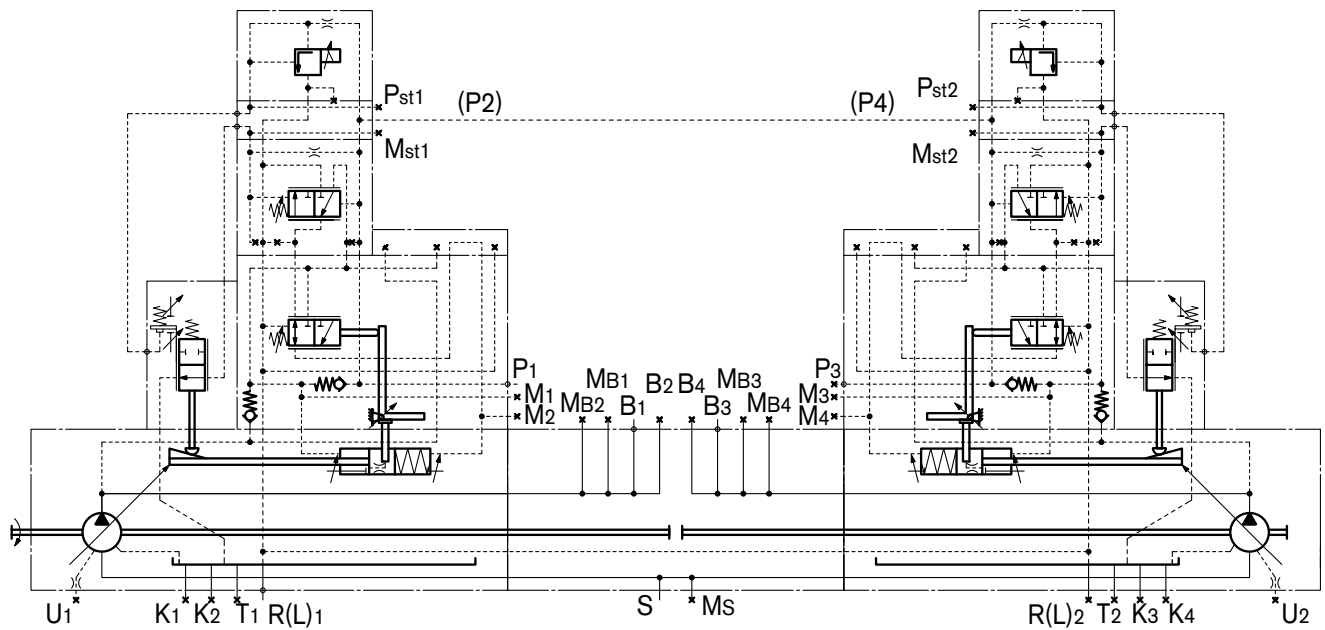


## Example circuit diagram Size 95...260: HD1D



# Control Devices

## Example circuit diagram Size 520: LR2DN



Further technical datas as soon as control devices see

for size 60 \_\_\_\_\_ RE 95703 (A10VO/53)

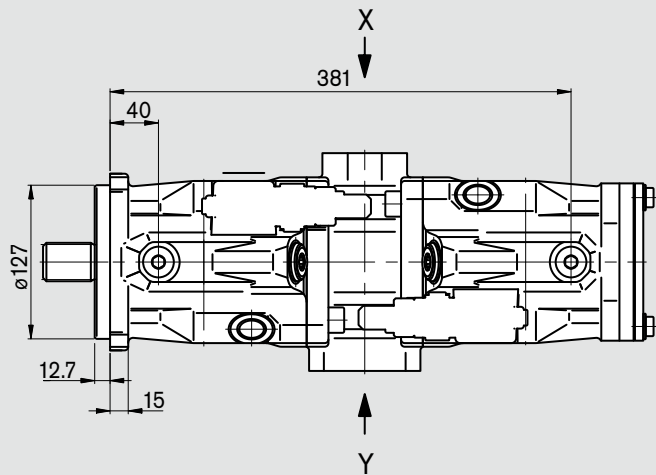
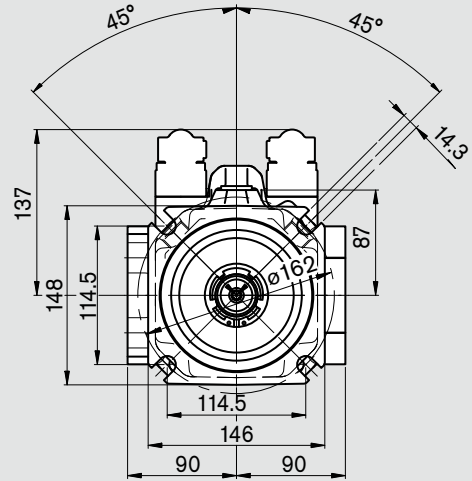
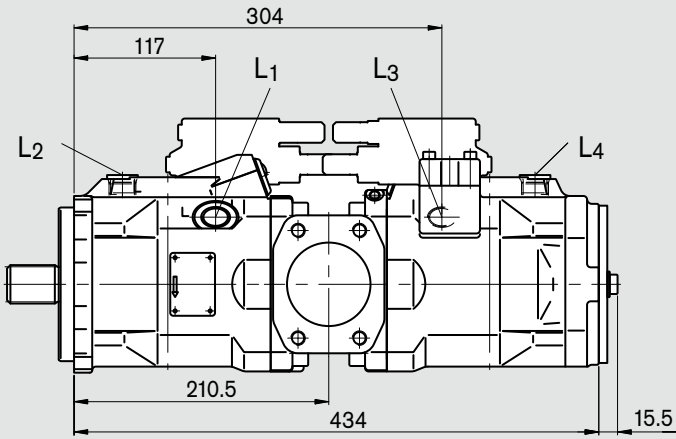
for sizes 95 ... 260 \_\_\_\_\_ RE 92500 (A11VO)

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

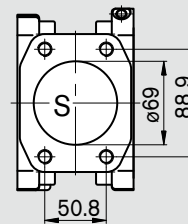
# Unit Dimensions, Size 60

For controller selection see RE 92703 (A10VO/53)

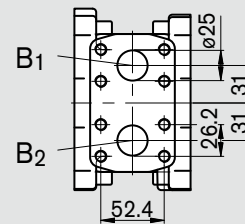
Before finalizing your design, please request a approved installation drawing.  
Dimensions in mm



View Z



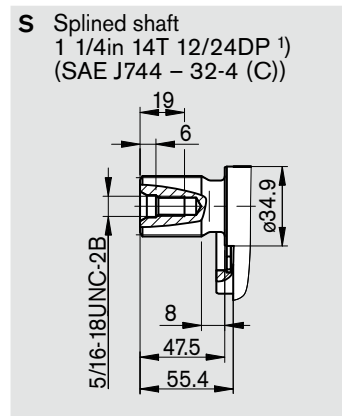
View Y



# Unit Dimensions, Size 60

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

## Shaft end



## Ports

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

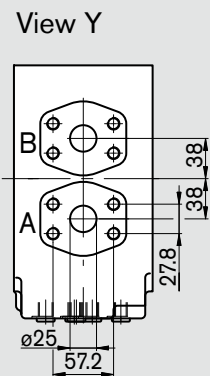
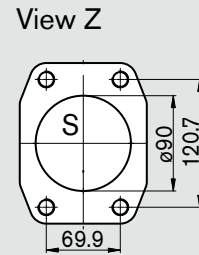
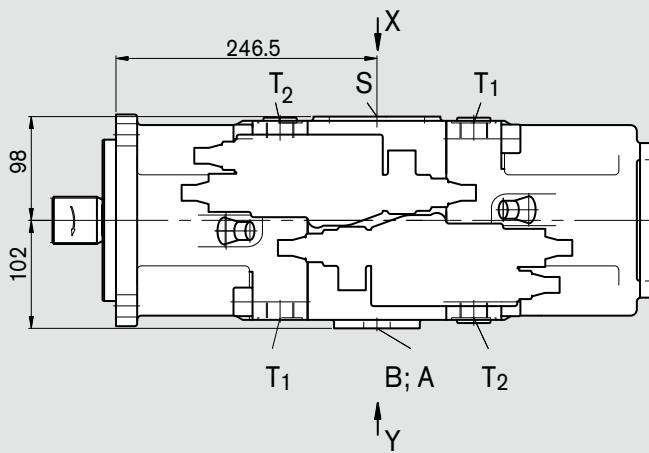
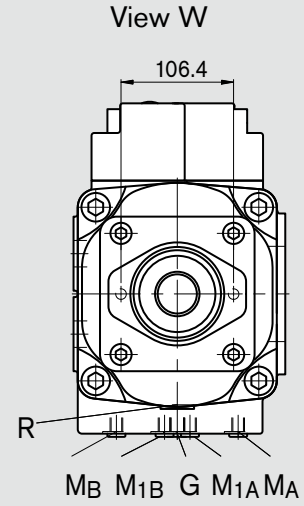
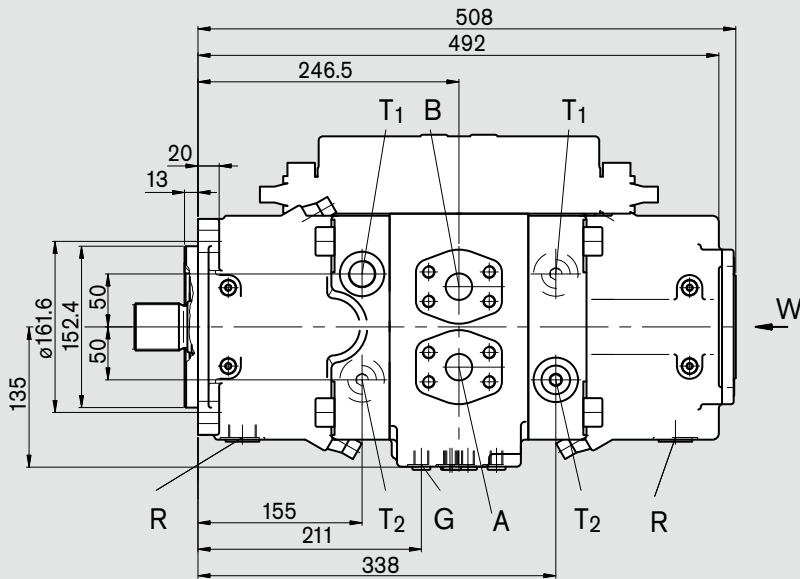
<sup>1)</sup> ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

<sup>2)</sup> 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

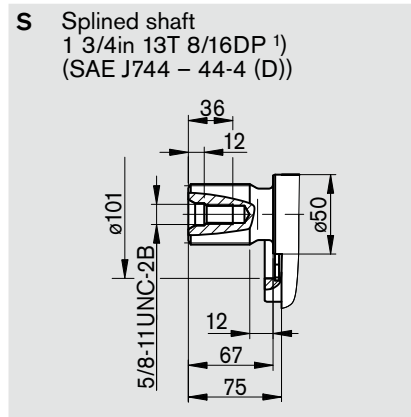
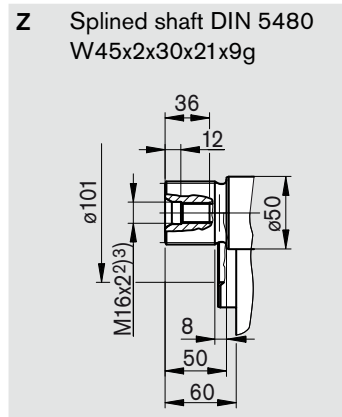




# Unit Dimensions, Size 95

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

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

<sup>2)</sup> Center bore according to DIN 332 (thread according to DIN13)

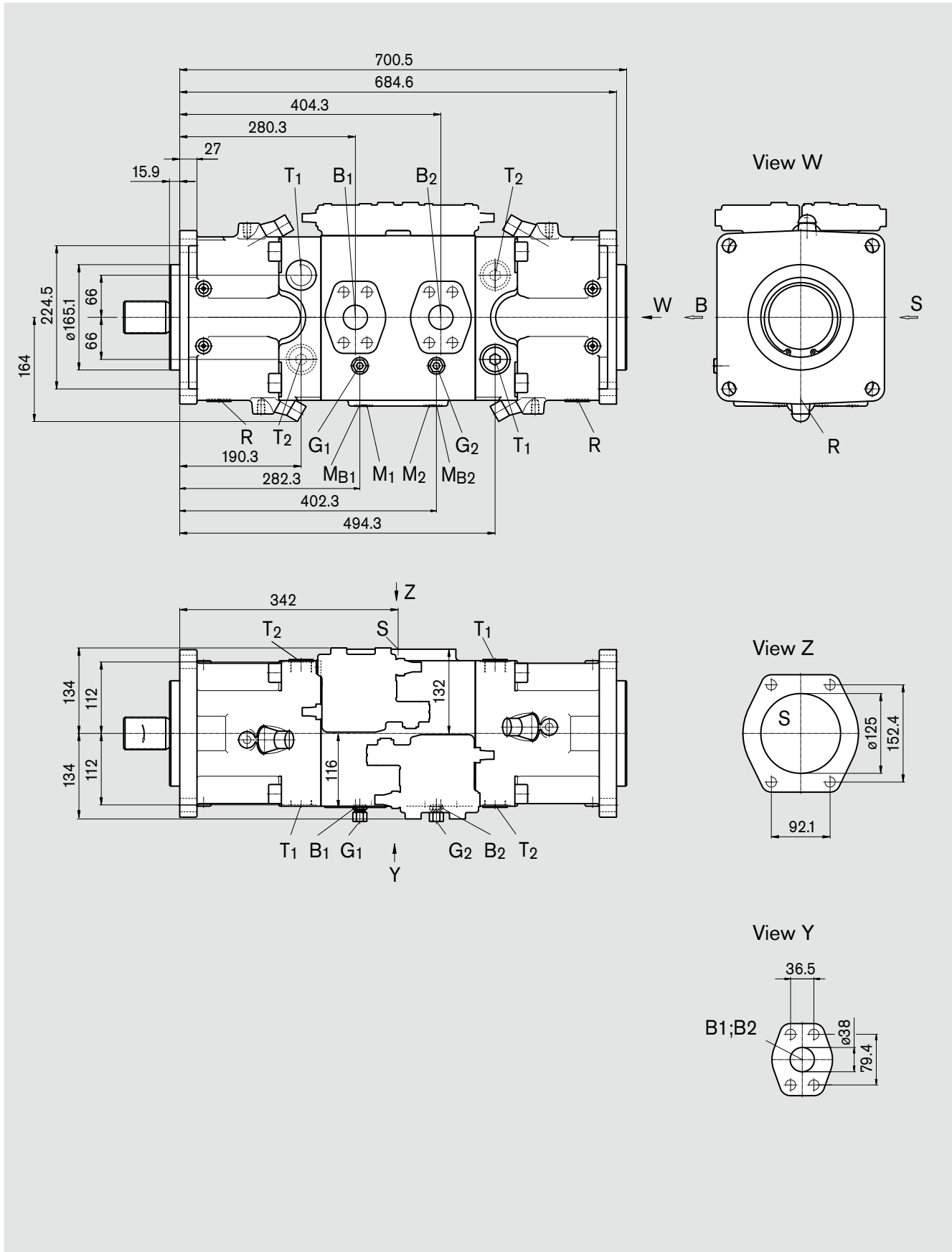
<sup>3)</sup> please observe the general notes for the max. tightening torques on page 16

<sup>4)</sup> 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)

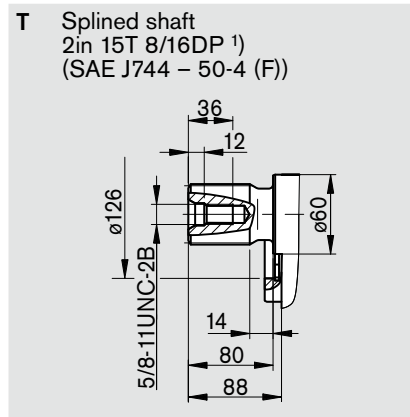
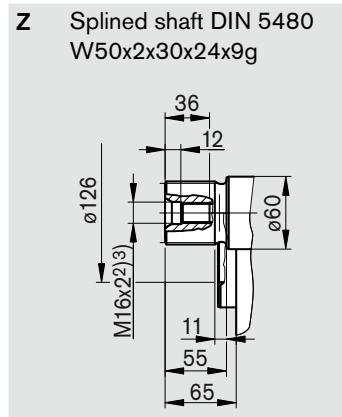
Before finalizing your design, please request a approved installation drawing. Dimensions in mm



# Unit Dimensions, Size 190 (with impeller)

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

## Shaft ends



## Connections

B <sub>1</sub> , B <sub>2</sub>	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 <sub>1</sub> , T <sub>2</sub>	Case drain	DIN3852	M33x2; 18 deep	540 Nm <sup>4)</sup>
M <sub>1</sub> , M <sub>2</sub>	Gauge point positioning chamber	DIN3852	M12x1,5; 12 deep	50 Nm <sup>4)</sup>
M <sub>B1</sub> , M <sub>B2</sub>	Gauge point for service port	DIN3852	M12x1,5; 12 deep	50 Nm <sup>4)</sup>
R	Air bleed, drain port	DIN3852	M33x2; 16 deep	540 Nm <sup>4)</sup>
G <sub>1</sub> , G <sub>2</sub>	Control pressure port (controller) <sup>4)</sup>	DIN3852	M14x1,5; 12 deep	80 Nm <sup>4)</sup>

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

<sup>2)</sup> Center bore according to DIN 332 (thread according to DIN13)

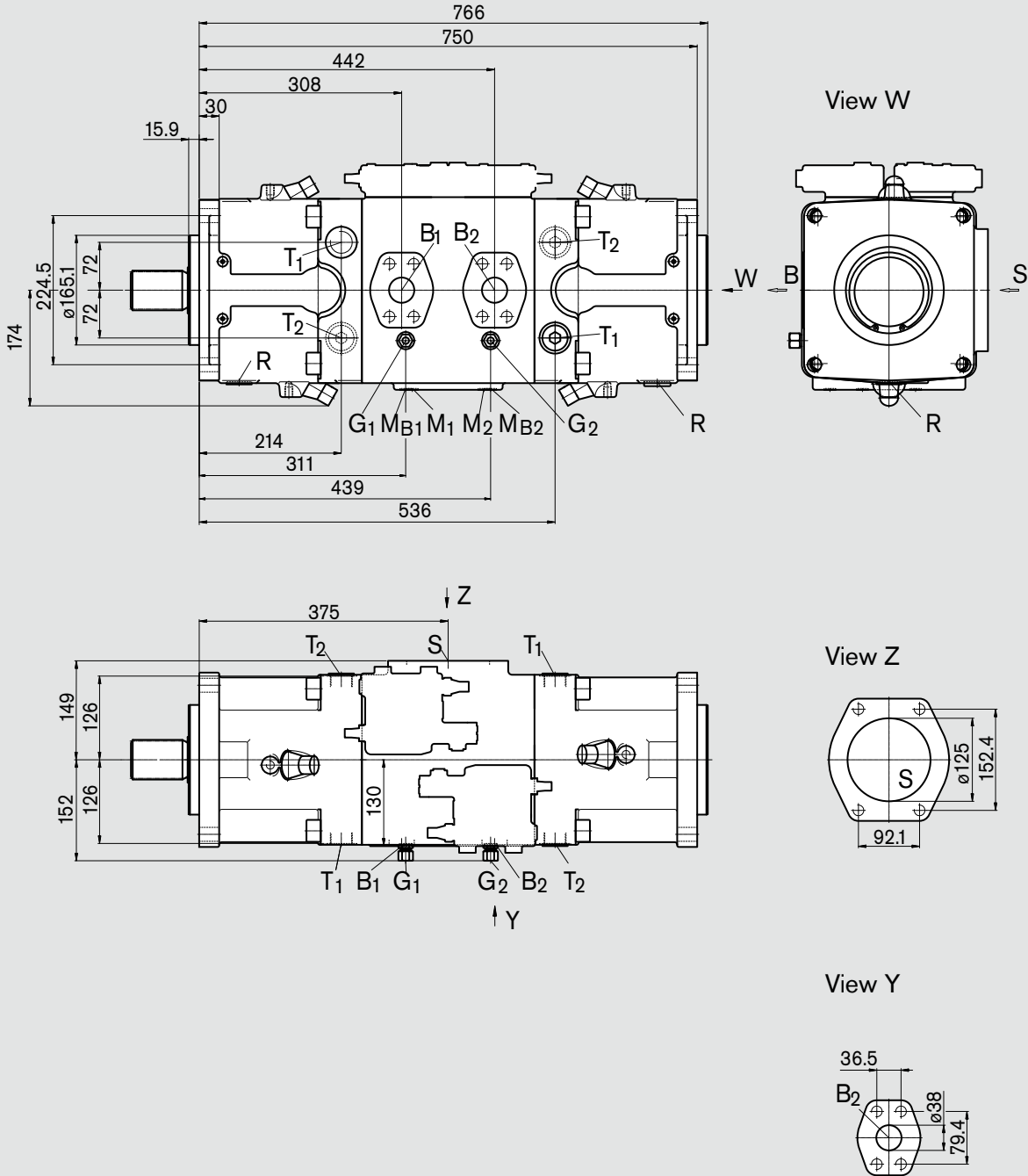
<sup>3)</sup> please observe the general notes for the max. tightening torques on page 16

<sup>4)</sup> 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)

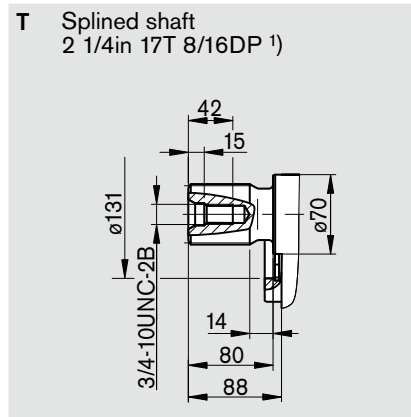
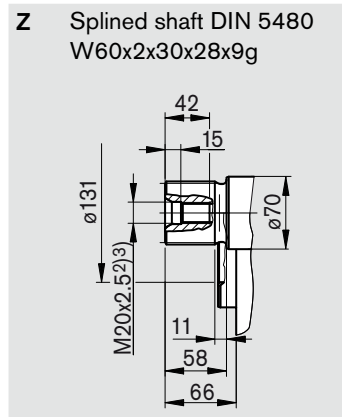
Before finalizing your design, please request a approved installation drawing. Dimensions in mm



# Unit Dimensions, Size 260 (with impeller)

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

## Shaft ends



## Connections

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

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

<sup>2)</sup> Center bore according to DIN 332 (thread according to DIN13)

<sup>3)</sup> please observe the general notes for the max. tightening torques on page 16

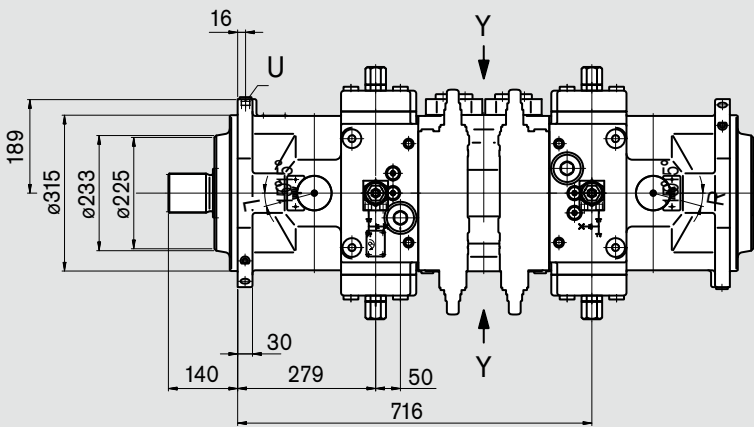
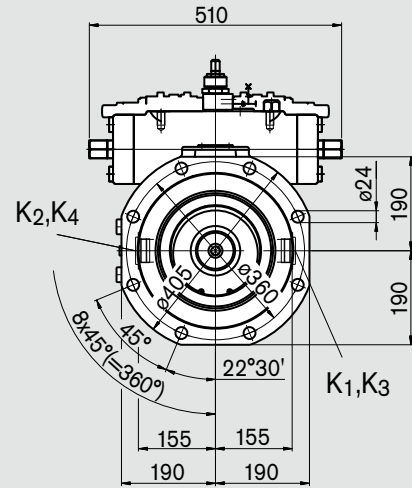
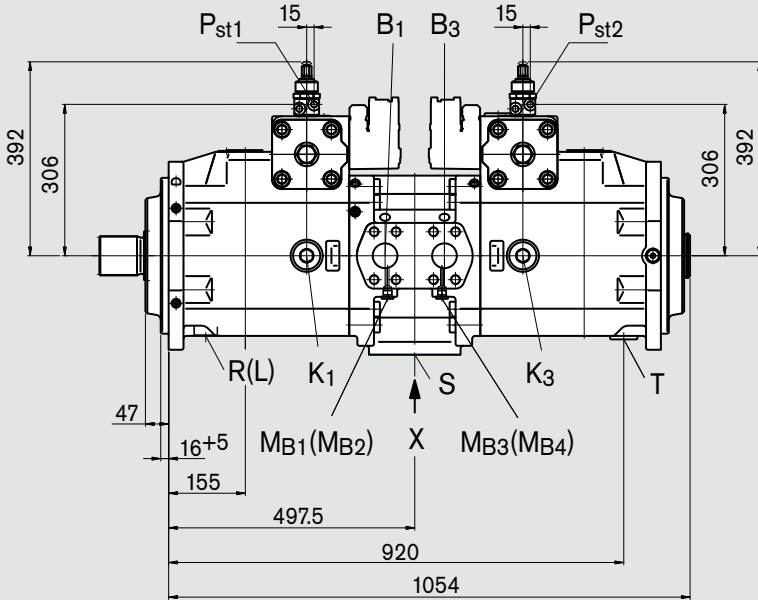
<sup>4)</sup> At design with stroke limiter (H..., U2), HD and EP with fitting GE10-PLM (in other case is port G plugged)

# Unit Dimensions, Size 520

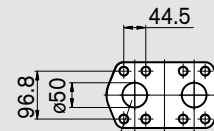
Before finalizing your design, please request a approved installation drawing. Dimensions in mm

For controller selection see RE92064 (A4VS)

Picture for counter-clockwise

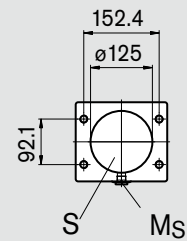


View Z



B<sub>1</sub>, B<sub>3</sub> (offen)  
B<sub>2</sub>, B<sub>4</sub> (verschlossen)

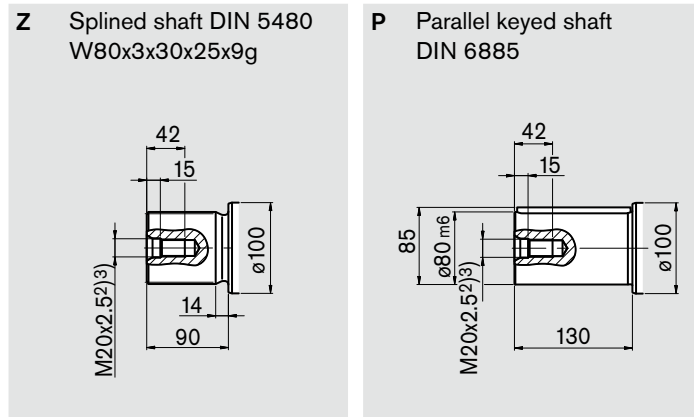
View Y



# Unit Dimensions, Size 520

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

## Shaft ends



## Connections

<p><b>B<sub>1</sub> - B<sub>4</sub></b> Service line ports (High pressure series) Fastening threads</p> <p><b>S</b> Suction port (standard series) Fastening threads</p> <p><b>K<sub>1</sub> - K<sub>4</sub></b> Flush ports</p> <p><b>M<sub>B1</sub>, M<sub>B4</sub></b> Gauge point for operating pressure</p> <p><b>M<sub>S</sub></b> Gauge point for suction port</p> <p><b>P<sub>st1</sub>, P<sub>st2</sub></b> Pilot pressure port</p> <p><b>R (L)</b> Air bleed, drain port</p> <p><b>T</b> Case drain</p> <p><b>U</b> 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 <sup>3)</sup> 5 in M16x2; 24 deep <sup>3)</sup> 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 <sup>3)</sup> 140 Nm <sup>3)</sup> 140 Nm <sup>3)</sup> 80 Nm <sup>3)</sup> 960 Nm <sup>3)</sup> 960 Nm <sup>3)</sup> 140 Nm <sup>3)</sup></p>
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<sup>1)</sup> ANSI B92.1a-1976, pressure angle 30°, flat rood, side fit, tolerance class 5

<sup>2)</sup> Center bore according to DIN 332 (thread according to DIN13)

<sup>3)</sup> please observe the general notes for the max. tightening torques on page 16

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