

HIDRAULIČKI SERVOUPRAVLJAČI

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

OPIS

- Primenjuju se na motornim vozilima (kamioni, autobusi, damperi, mobilne dizalice i sl.)
- Robusna konstrukcija uz male gabarite
- Sigurno i lako upravljanje omogućava velike manevarske sposobnosti vozila uz smanjeni zamor vozača
- Automatsko reagovanje i prelazak na mehaničko upravljanje u slučaju bilo kakvog zastoja u pogonu pumpe ili hidrauličkom sistemu
- Kratko konstrukciono izvođenje omogućava primenu na teretnim vozilima sa oborivom kabinom
- Reaktivni moment sprečava potpuno rasterećenje servoupravljača što pruža vozaču "osećaj puta" pri vožnji
- Granični-prelivni ventili rasterećuju mehanizam za upravljanje kod najvećeg otklona upravljanih točkova
- Izrađeni su od visokokvalitetnih materijala, precizno obrađeni i strogo kontrolisani
- Automatsko reagovanje i održavanje pravca vožnje u slučaju pucanja gume (pneumatika)

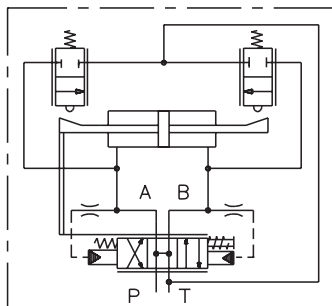
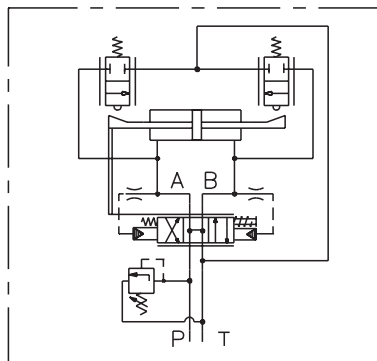


POWER STEERING GEARS

BALL-AND-NUT TYPE, SHORT DESIGN

DESCRIPTION

- Applied to motor vehicles (trucks, buses, dumpers, mobile cranes and the alike).
- Robust construction and small overall dimensions.
- Safe and easy steering provides for great manoeuvrability and reduces the driver's fatigue.
- Automatic response and transition to mechanical steering in case of any failure in pump drive or hydraulic system.
- Short design makes it possible to apply this device to goods vehicle with tilting cab.
- Reactive torque prevents complete unloading of servo steering gear, which gives the driver the capability to "feel the road" in travel.
- Limit-overflow valves unload the steering mechanism even at greatest deflection of steered wheels.
- Made of high-quality materials, precision machined and strictly quality controlled.
- Automatic response and maintaining the direction of travel in case a tyre (pneumatics) blows out.

TEHNIČKE KARAKTERISTIKE
TECHNICAL DATAa) bez ventila za ograničenje pritiska
a) without pressure relief valveb) sa ventilom za ograničenje pritiska
b) with pressure relief valve

Tip Type		5033	5038	5042	5045	
Dozvoljeno opterećenje upravljačke osovine Max. allowed load of steered axle	kg	3000	3800	6000	7500	
Prenosni odnos servoupravljača Transmission ratio of servo steering gear		18,8:1	20,9:1	20,7:1	22,7:1	
Ukupan broj obrtaja točka upravljača Revolutions of steering wheel		4,7	5,2	5,5	6,1	
Ugao zaokretanja poluge upravljača Turning angle of steering gear arm	°	90		96		
Obrtni moment na vratilu Shaft torque	Nm	za pritisak 100 bar at 100 bar pressure	1320	2550	3570	4800
		za pritisak 130 bar at 130 bar pressure	1715	3315	4650	6240
		za pritisak 150 bar at 150 bar pressure	1980	—	—	7200
Masa Mass	kg	16	36	43	51	
Radna tečnost Working fluid	mineralno ulje mineral oil	GENERAL MOTORS DEXRON II				
	viskozitet viscosity	mm ² /s	27 (pri at 50°C)			
	temperatura temperature	°C	od -20 do from -20 to +100			
	tačka stinjavanja coagulation point		-35			

IZBOR PUMPE
PUMP SELECTION

Videti krilne pumpe, konstantnog protoka, za servoupravljanje
See: Vane pumps, fixed displacement, for servo steering

IZBOR REZERVOARA
RESERVOIR SELECTION

Videti rezervoare za servoupravljanje
See: Reservoirs for servo steering

NARUČIVANJE
ORDERING

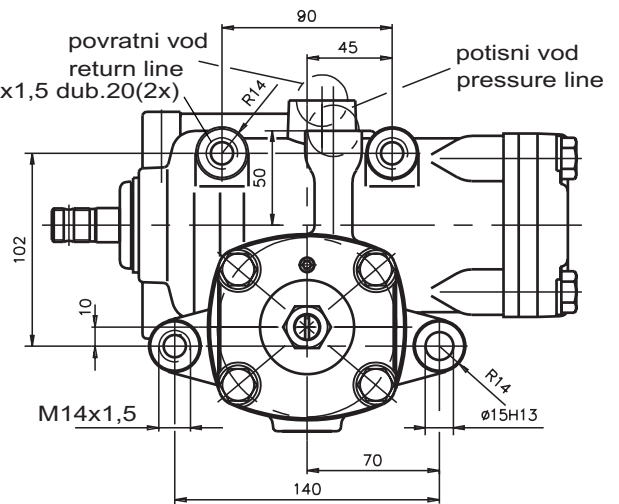
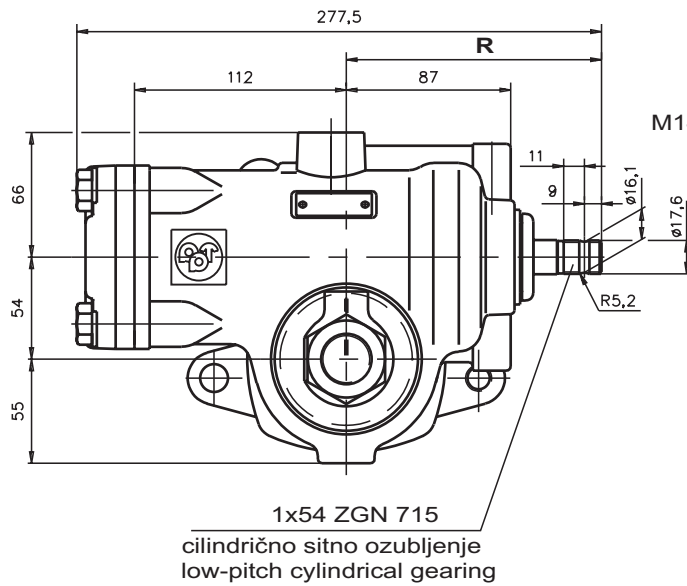
Quote designation from the following tables
Kod narudžbine navesti oznaku iz dalje navedenih tabela.

POWER STEERING GEARS **HRIDRAULIČKI SERVOPRAVLJAJČI**

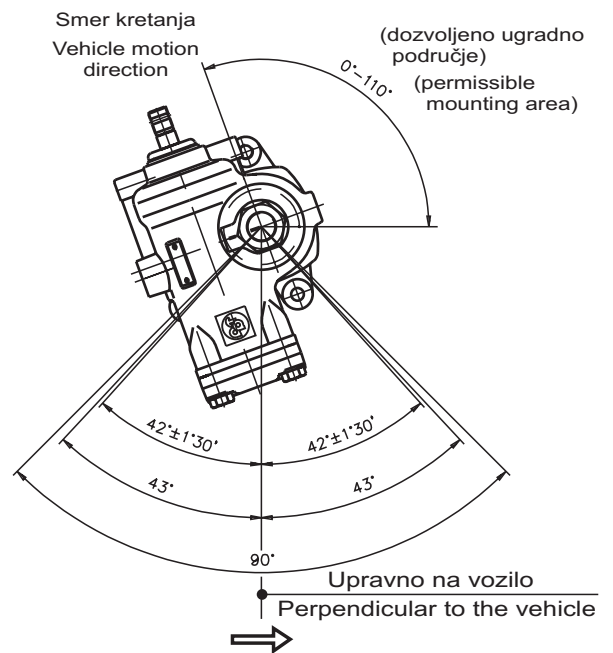
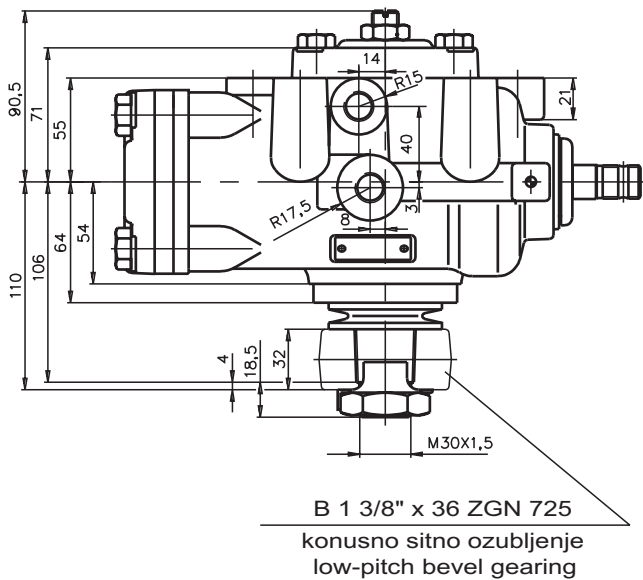
BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

UGRADNE MERE
MOUNTING DIMENSIONS



POLOŽAJI UGRADNJE
MOUNTING POSITIONS



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice

When steering wheel turned clockwise, steering arm moves in the direction of the arrow

Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5033 100	135	levi CCW	9	M16x1,5 dub. depth. 12	unutr. int. 10 spolj. ext. 12	M16x1,5 dub. depth. 12	unutr. int. 10 spolj. ext. 12	nema none

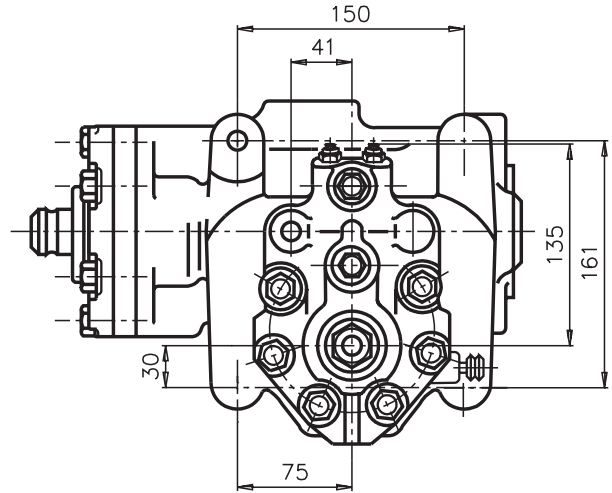
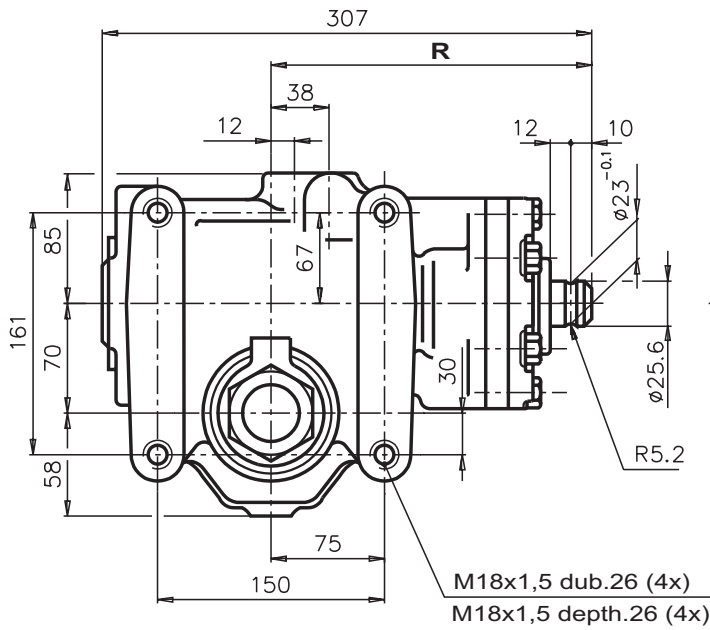
HIDRAULIČKI SERVOUPRAVLJAČI

POWER STEERING GEARS

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

BALL-AND-NUT TYPE, SHORT DESIGN

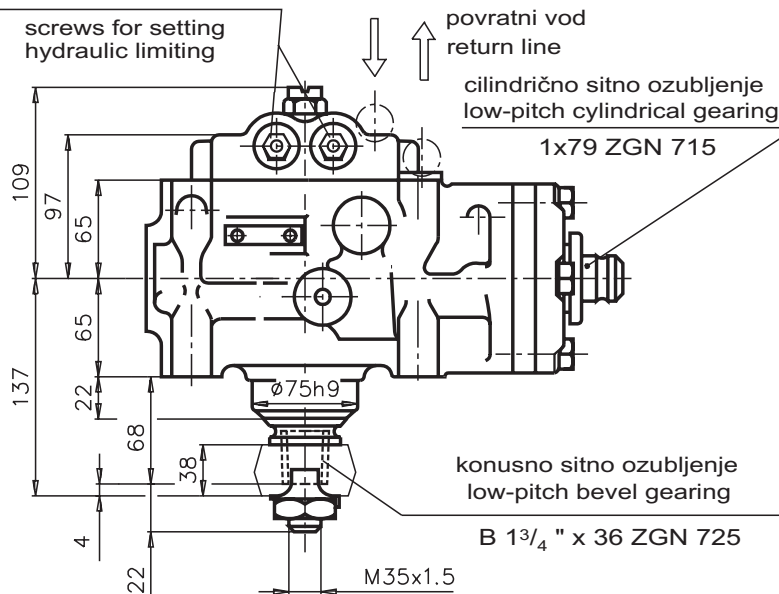
UGRADNE MERE
MOUNTING DIMENSIONS



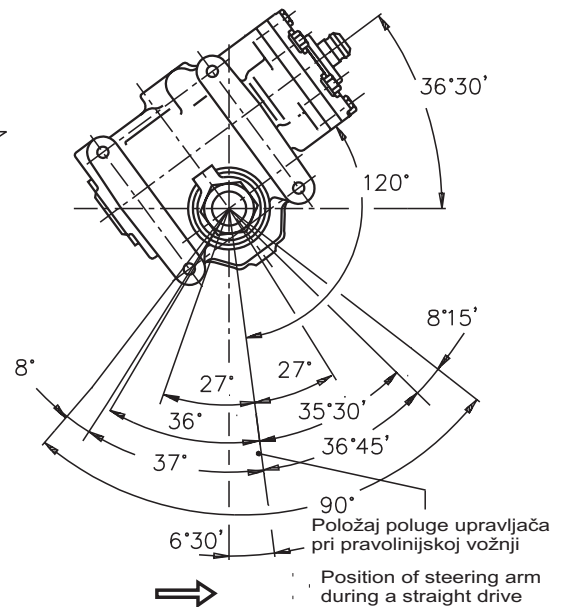
zavrtnji za podešavanje hidrauličkog graničenja

potisni vod pressure line

povratni vod return line
cilindrično sitno ozubljenje low-pitch cylindrical gearing
1x79 ZGN 715



POLOŽAJI UGRADNJE
MOUNTING POSITIONS



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

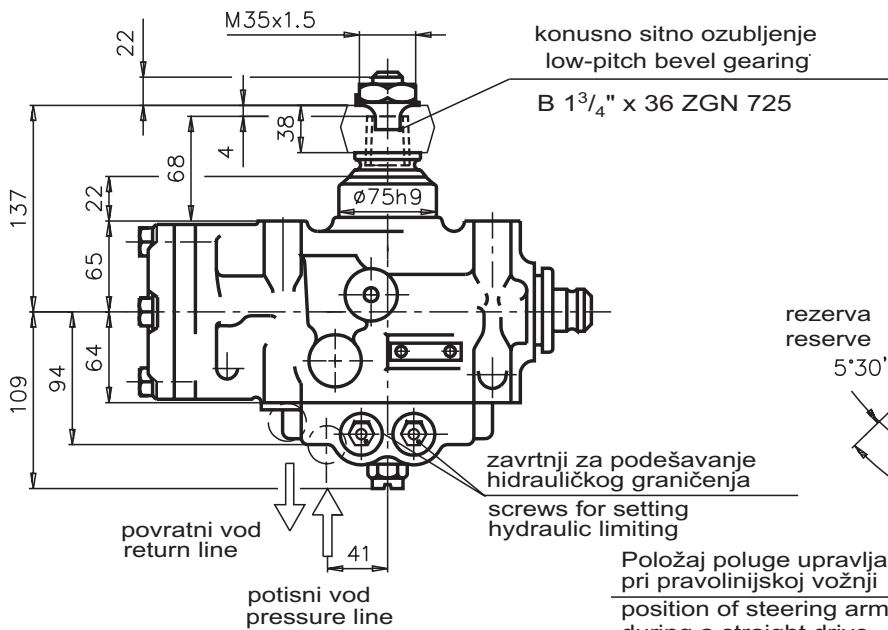
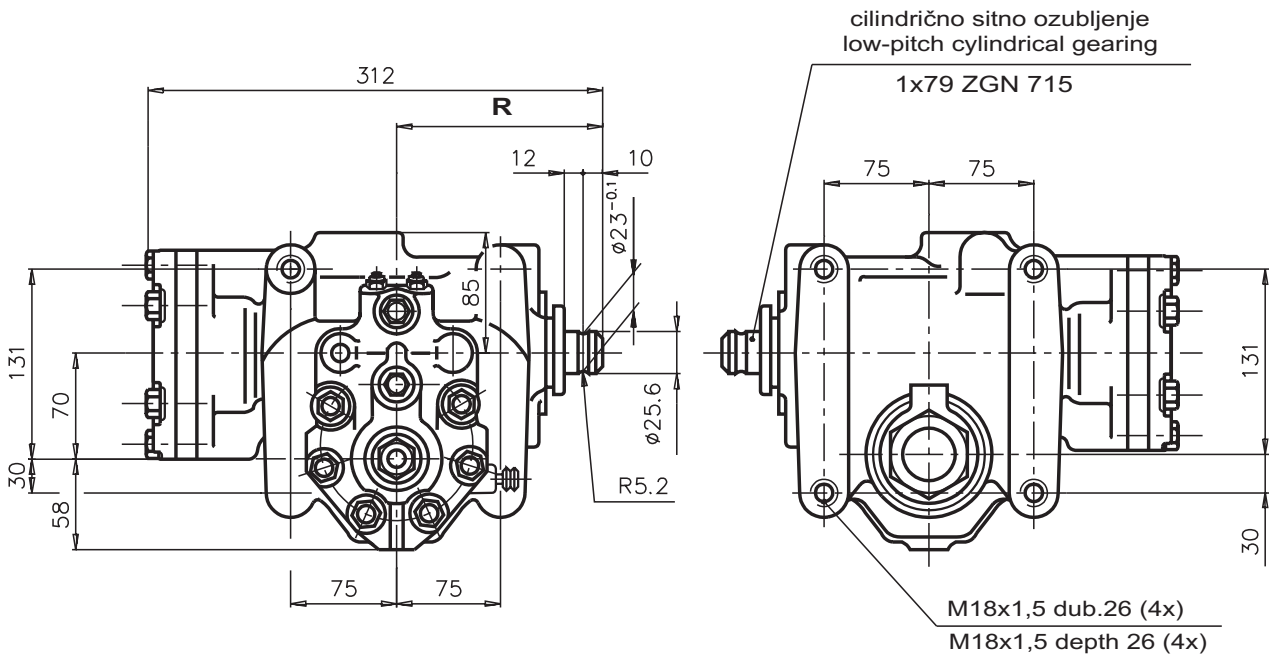
Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5038 176	199,5	levi CCW	12	M16x1,5 dub. depth. 12	unutr. int. 10 spolj. ext. 12	M18x1,5 dub. depth. 12	unutr. int. 12 spolj. ext. 15	nema none

POWER STEERING GEARS **HRIDRAULIČKI SERVOPRAVLJAČI**

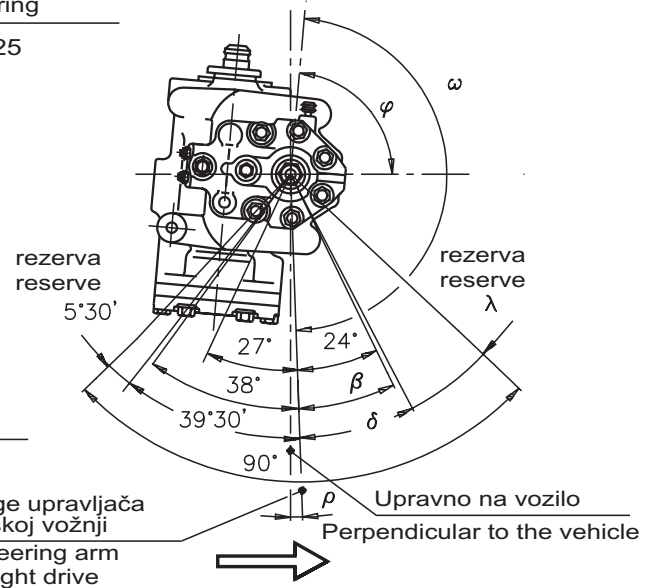
BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

UGRADNE MERE
MOUNTING DIMENSIONS



POLOŽAJI UGRADNJE
MOUNTING POSITIONS



Kad se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)	Uglovi ugradnje Mounting angles						
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)		β	δ	λ	ρ	ω	φ	
5038 010	136,5	levi CCW	12	M16x1,5 dub. depth. 12	unutr. int. 10	M18x1,5 dub. depth. 12	unutr. int. 12	nema none	34°	35°30'	9°30'	5°		195°	
5038 011					spolj. ext. 12			spolj. ext. 15	100	41°	42°30'	2°30'	2°	166°	78°
5038 106					nema none			24°	25°30'	19°30'	1°	174°	85°		
5038 206	136							100	24°	25°30'	19°30'	1°	174°	85°	

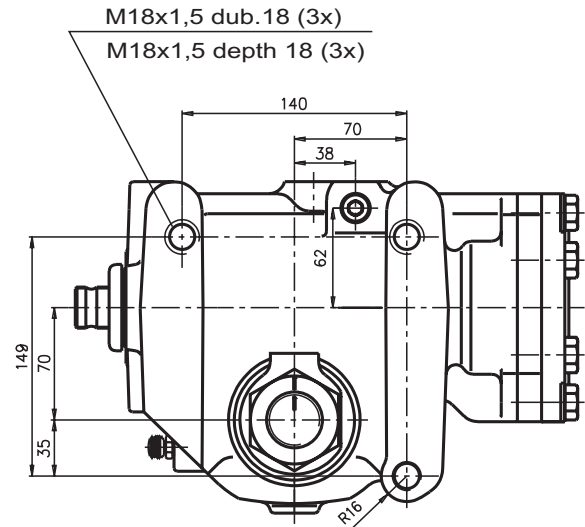
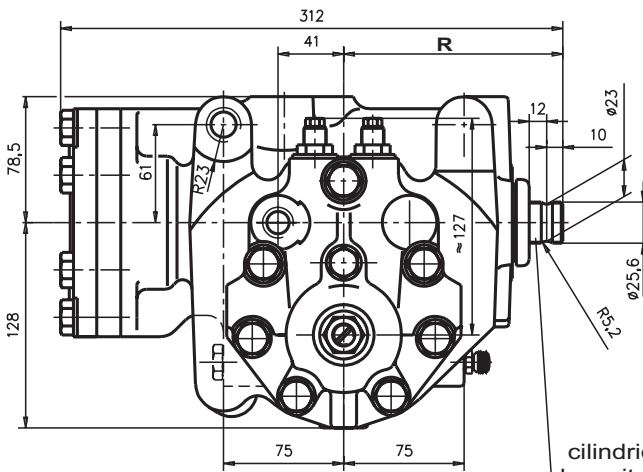
HIDRAULIČKI SERVOPRAVLJAČI

POWER STEERING GEARS

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

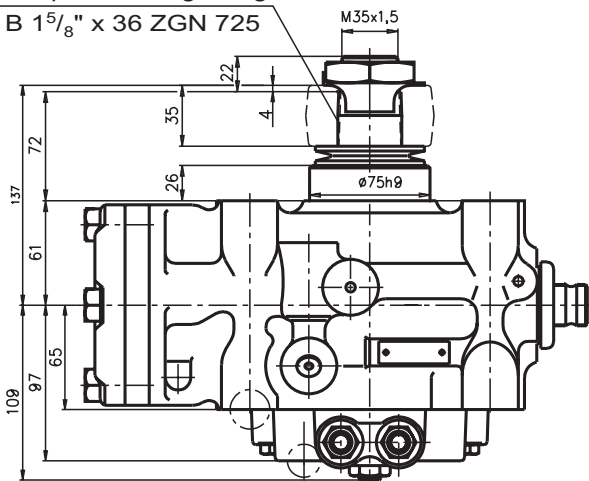
BALL-AND-NUT TYPE, SHORT DESIGN

**UGRADNE MERE
MOUNTING DIMENSIONS**



cilindrično sitno ozubljenje
low-pitch cylindrical gearing
1x79 ZGN 715

konusno sitno ozubljenje
low-pitch bevel gearing
B 1⁵/₈" x 36 ZGN 725

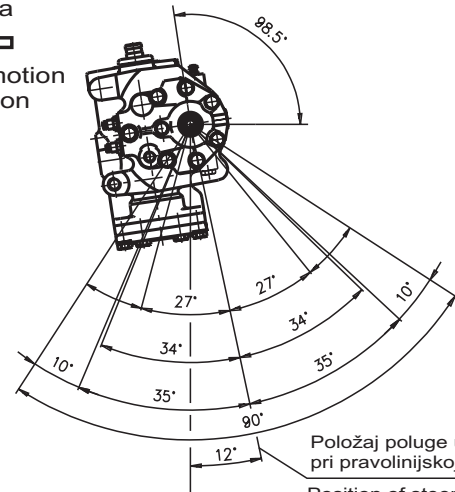


povratni vod
return line

potisni vod
pressure line

**POLOŽAJI UGRADNJE
MOUNTING POSITIONS**

smer kretanja
vozila
vehicle motion
direction



Položaj poluge upravljača
pri pravolinijskoj vožnji
Position of steering arm
during a straight drive

Kada se točak upravljača okreće u smeru kazaljke
na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise,
steering arm moves in the direction of the arrow

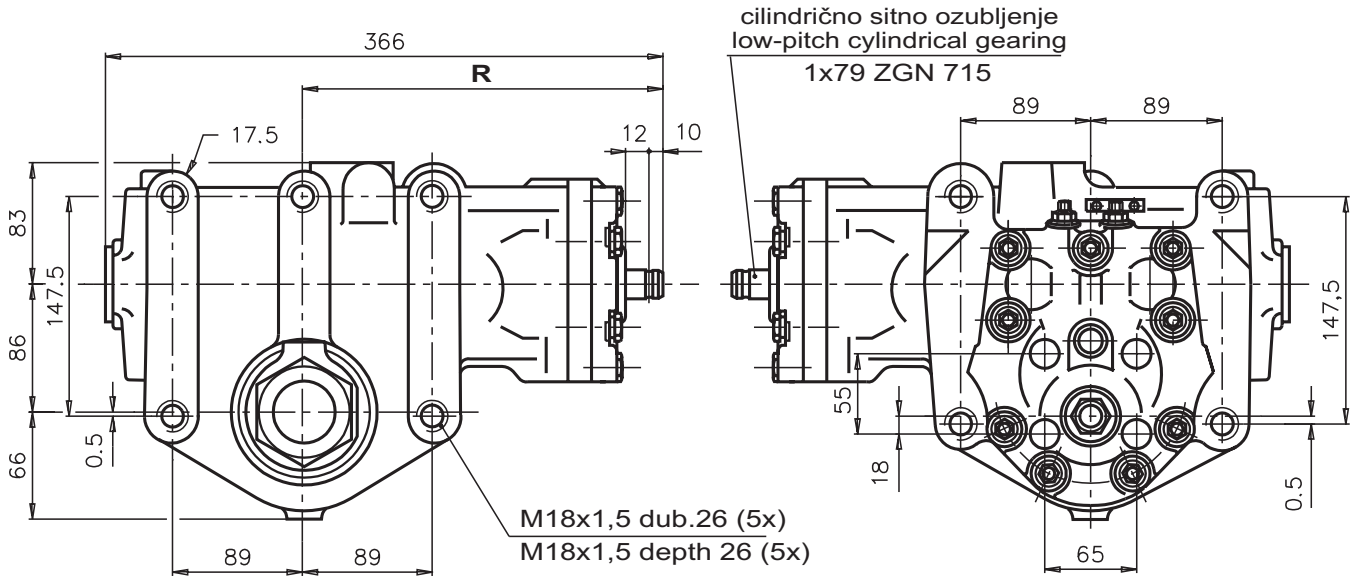
Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5038 012	136,5	levi CCW	12	M16x1,5 dub. depth. 12	unutr. int. 10 spolj. ext. 12	M18x1,5 dub. depth. 12	unutr. int. 12 spolj. ext. 15	100

POWER STEERING GEARS **HIDRAULIČKI SERVOUPRAVLJAČI**

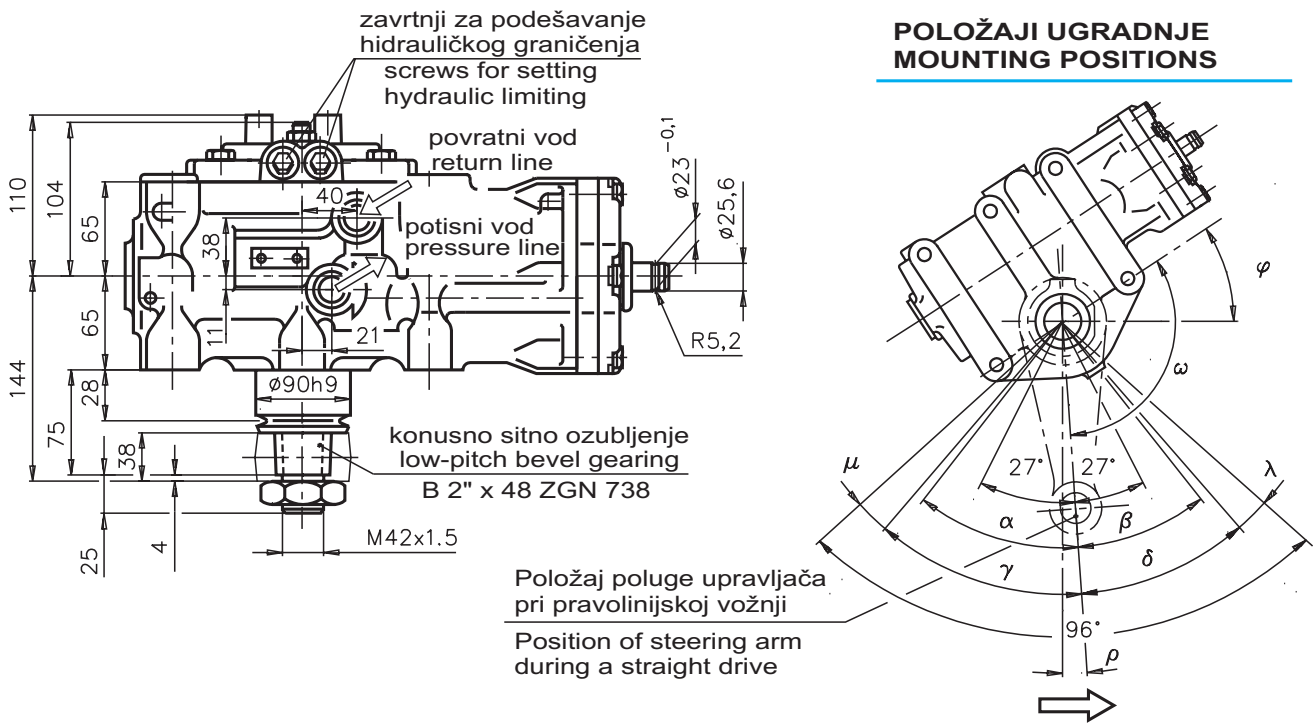
BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

UGRADNE MERE
MOUNTING DIMENSIONS



POLOŽAJI UGRADNJE
MOUNTING POSITIONS



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)	Uglovi ugradnje Mounting angles								
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)		α	β	γ	δ	μ	λ	ρ	φ	ω
5042 104	245	levi CCW	12	M16x1,5 dub. 14	unutr. 10	M18x1,5 dub. 15	unutr. 12	nema none	38°	32°	39°	33°	9°	15°	2°	33°30'	121°30'
5042 204			16	spolj. 12 ext.	spolj. 15 ext.	130	45°	45°	46°	46°	2°	2°	0°	90°	180°		

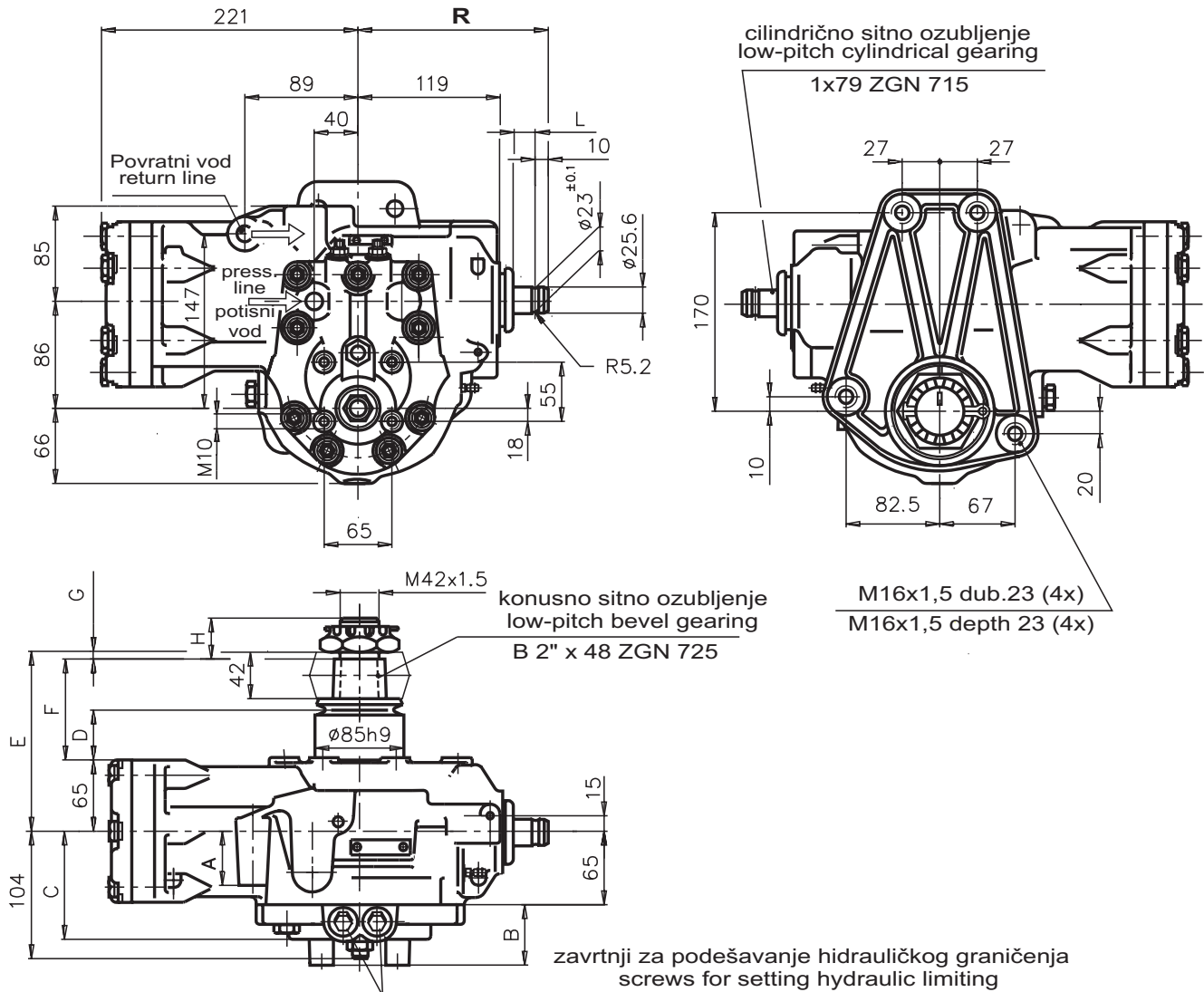
HIDRAULIČKI SERVOUPRAVLJAJI

POWER STEERING GEARS

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

BALL-AND-NUT TYPE, SHORT DESIGN

UGRADNE MERE MOUNTING DIMENSIONS

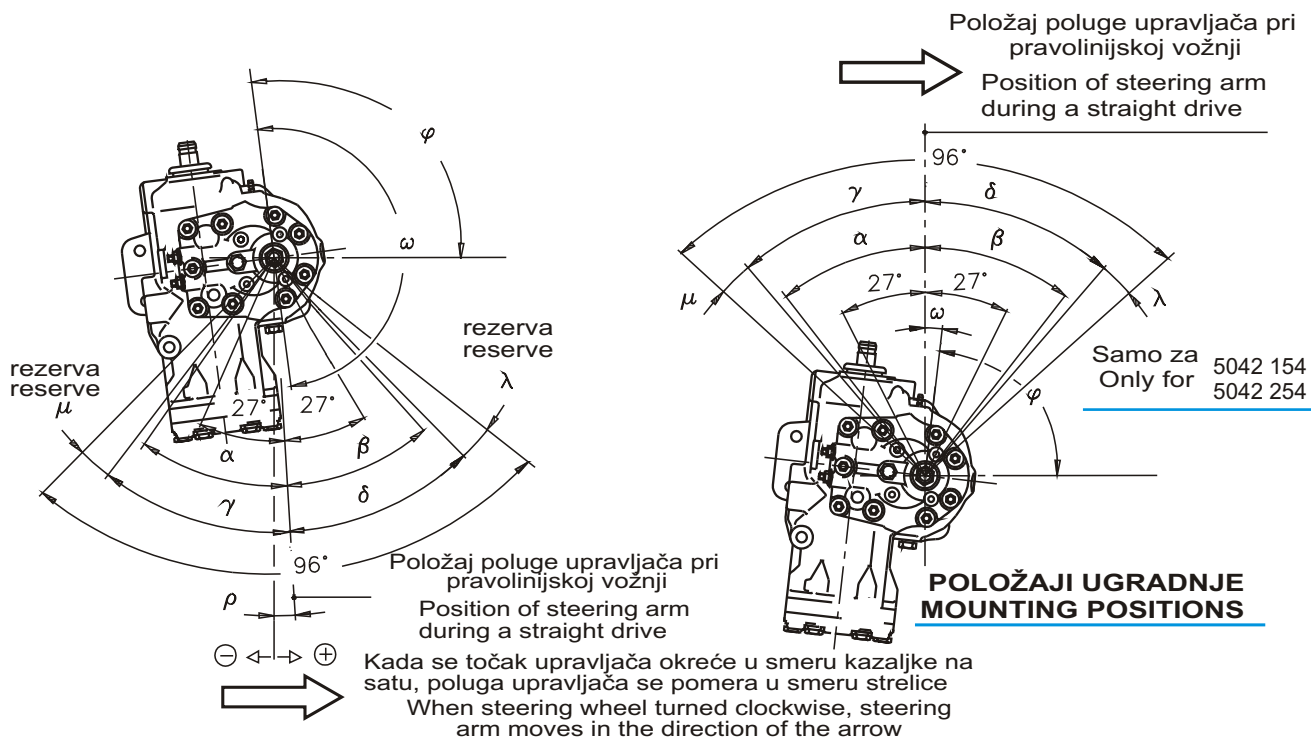


Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)		
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)			
5042 116	150	levi CCW	12	M16x1,5 d.12	unutr. 10 spolj. 12	M18x1,5 d.12	unutr. 12 spolj. 15	nema none		
5042 018				M16x1,5 d.14		M18x1,5 d.15		130		
5042 145				desni CW		16		M16x1,5 dub. 12	M18x1,5 dub. 12	nema none
5042 154										
5042 113	156	levi CCW	12	M16x1,5 dub. 14	unutr. 10 spolj. 12	M18x1,5 dub. 15	unutr. 12 spolj. 15	nema none		
5042 015										
5042 014										
5042 155										
5042 254	230	desni CW	16	M16x1,5 dub. 12	unutr. 10 spolj. 12	M18x1,5 dub. 12	unutr. 12 spolj. 15	130		
5042 255	156	levi CCW	12						100	
5042 120	230		16						130	

BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

Oznaka Designation	A	B	C	D	E	F	G	H	L
5042 116	49	45	94						
5042 018	50	43	95	120	240	170	5	35	12
5042 145		26							
5042 154	49		94						
5042 113									
5042 015	50	43		30	150	81	4	34	18
5042 014			95						
5042 155		45							
5042 254									92
5042 255	49	43	94						18
5042 120		45	95						92



Oznaka Designation	α	β	γ	δ	ρ	μ	λ	ω	φ
5042 116									
5042 018	45°	45°	46°	46°	9°20'	2°	2°	166°40'	86°
5042 145									
5042 154	39°	40°	40°30'	41°30'	0°	7°30'	6°30'	—	—
5042 113	44°	44°	45°	45°	3°45'	3°	3°	183°45'	97°30'
5042 015	41°	35°	42°	36°		6°	12°	150°	75°
5042 014	44°	44°	45°	45°	-2°30'	3°	3°	—	87°30'
5042 155					0°				105°
5042 254						2°	2°		0°
5042 255	43°	43°	46°	46°					
5042 120					0°				105°

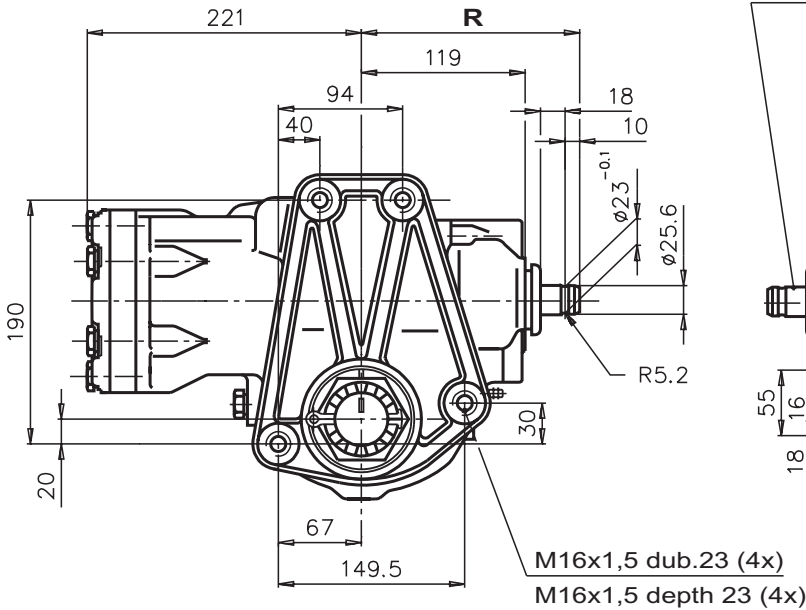
HIDRAULIČKI SERVOURAVLJAČI

HYDRAULIC SERVO STEERING GEARS

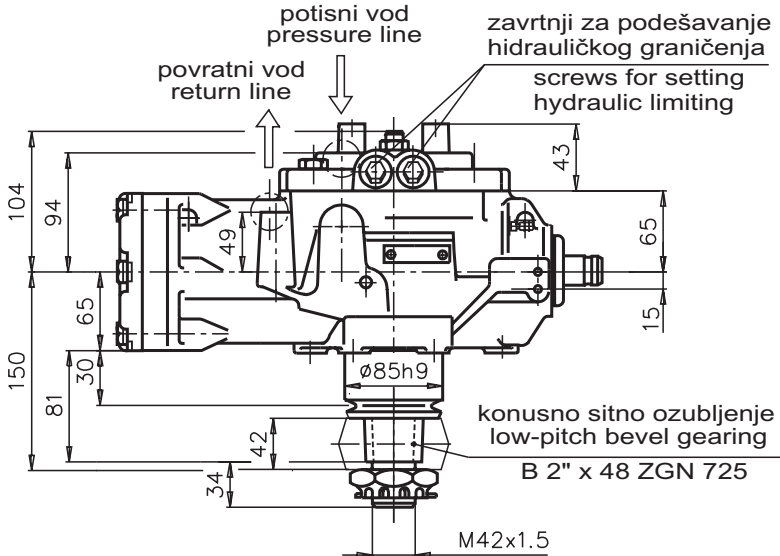
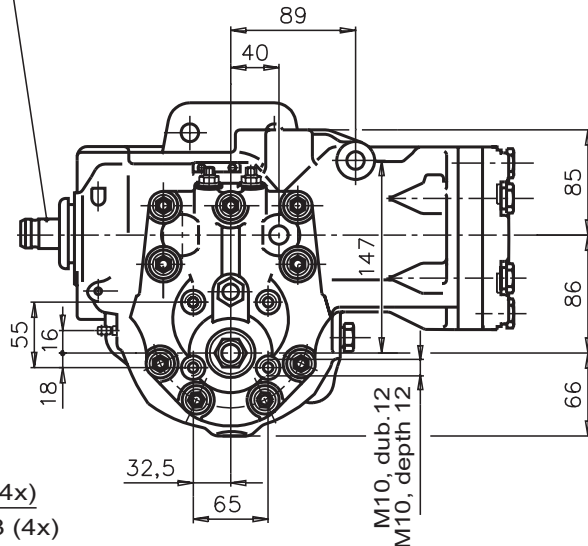
SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

BALL-AND-NUT TYPE, SHORT DESIGN

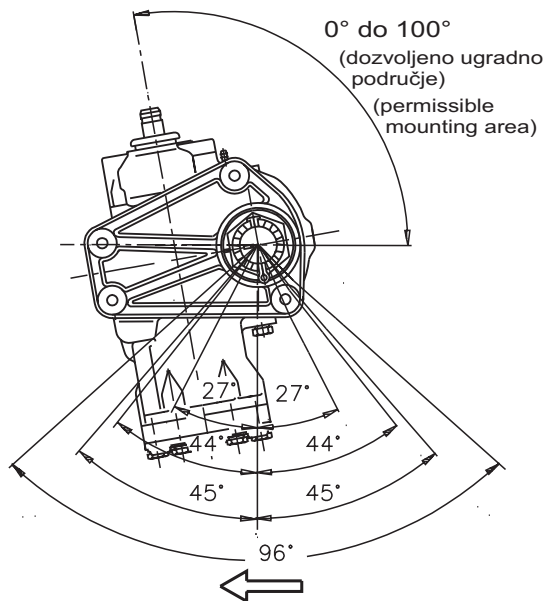
**UGRADNE MERE
MOUNTING DIMENSIONS**



cilindrično sitno ozubljenje
low-pitch cylindrical gearing
1x79 ZGN 715



**POLOŽAJI UGRADNJE
MOUNTING POSITIONS**



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

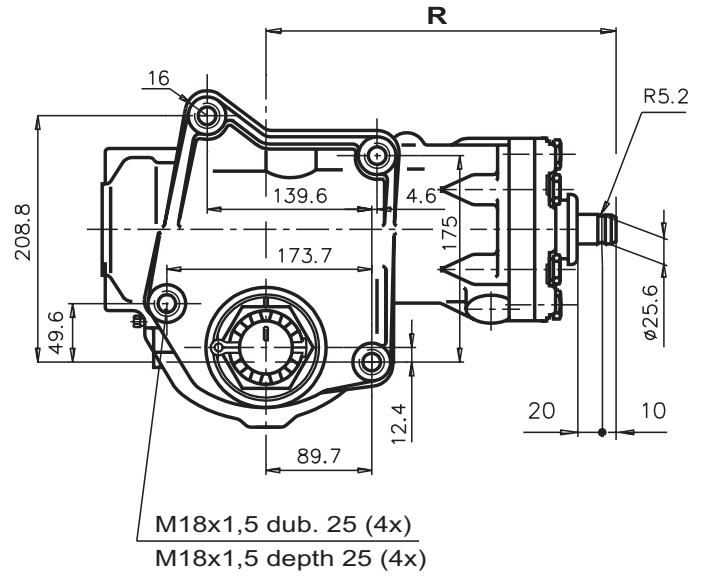
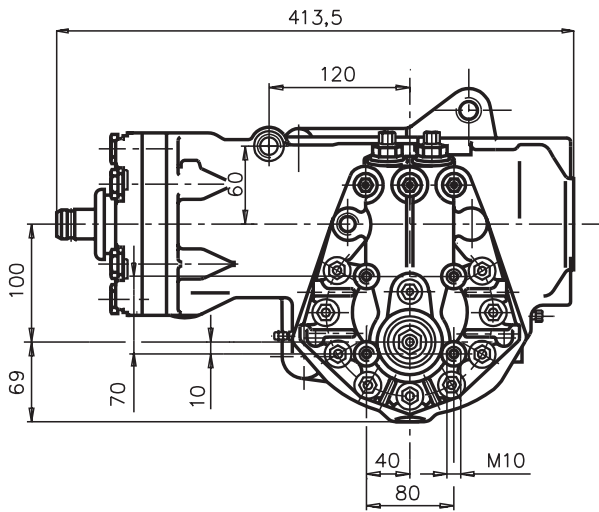
Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5042 119	156	desni CW	16	M16x1,5	unutr. 10	M18x1,5	unutr. 12	nema none
5042 219				dub. 12	spolj. 12	dub. 12	spolj. 15	100

HYDRAULIC SERVO STEERING GEARS **HIRAULIČKI SERVOPRAVLJAČI**

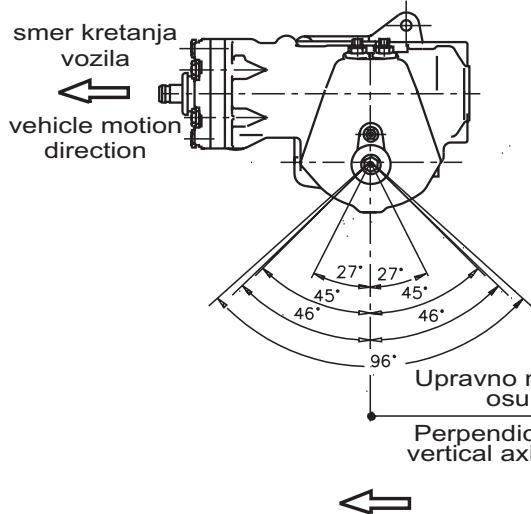
BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

UGRADNE MERE
MOUNTING DIMENSIONS

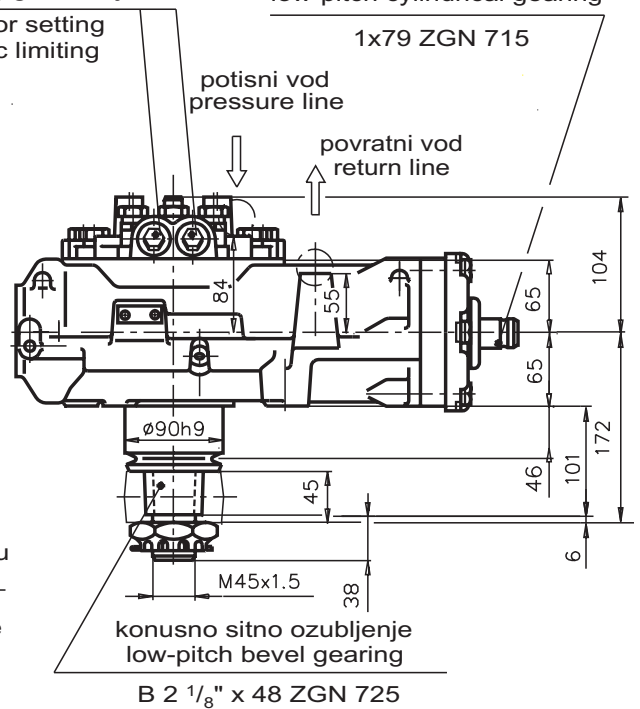


POLOŽAJI UGRADNJE
MOUNTING POSITIONS



zavrtnji za podešavanje
hidrauličkog granicjenja
screws for setting
hydraulic limiting

cilindrično sitno ozubljenje
low-pitch cylindrical gearing
1x79 ZGN 715



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5045 288	274	levi CCW	16	M18x1,5 dub. 12	unutr. 10 spolj. 12	M18x1,5 dub. 12	unutr. 12 spolj. 15	130

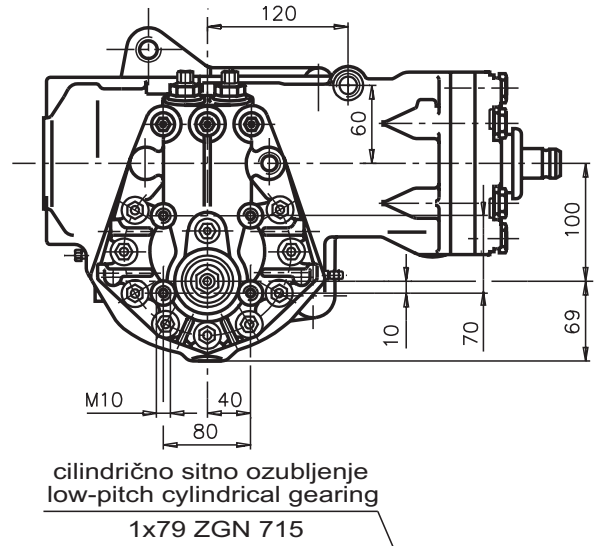
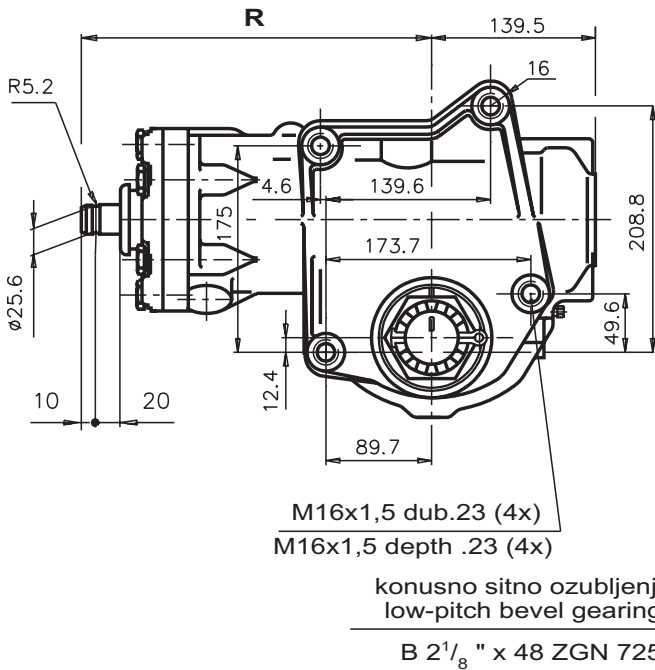
HIDRAULIČKI SERVOUPRAVLJAČI

POWER STEERING GEARS

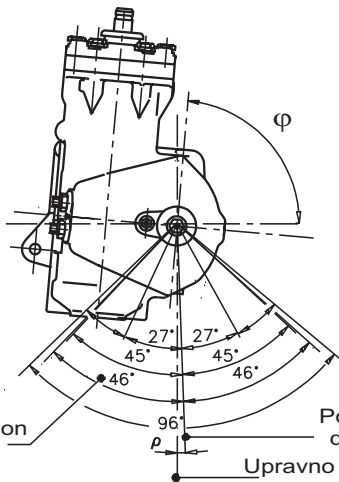
SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

BALL-AND-NUT TYPE, SHORT DESIGN

**UGRADNE MERE
MOUNTING DIMENSIONS**



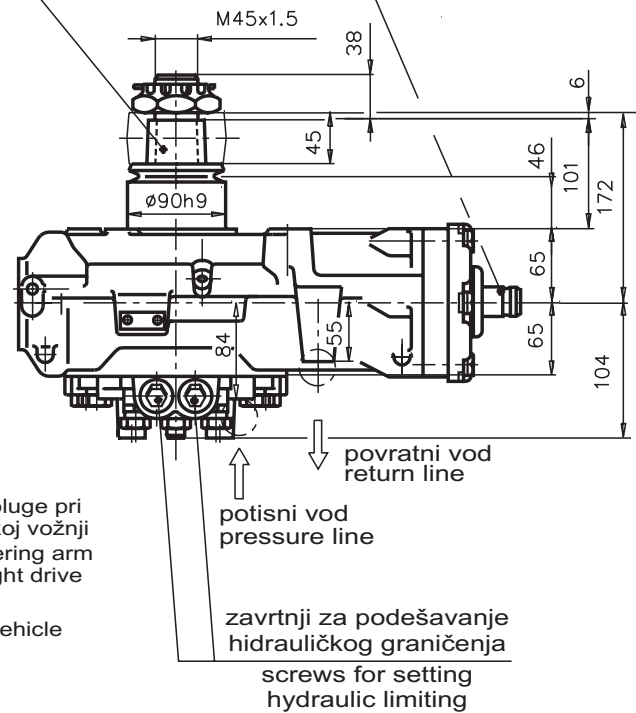
**POLOŽAJI UGRADNJE
MOUNTING POSITIONS**



Dozvoljen otklon upravljačke poluge
Permissible deflection of steering lever

Položaj poluge pri pravolinijskoj vožnji
Position of steering arm during a straight drive

Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice (kod for 5045 021)
When steering wheel turned clockwise, steering arm moves in the direction of the arrow (kod for 5045 248)



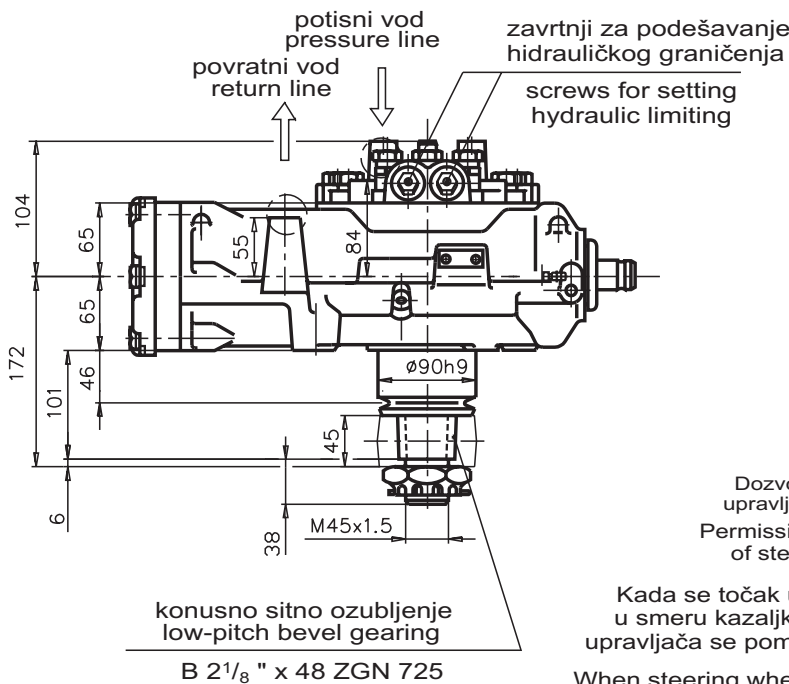
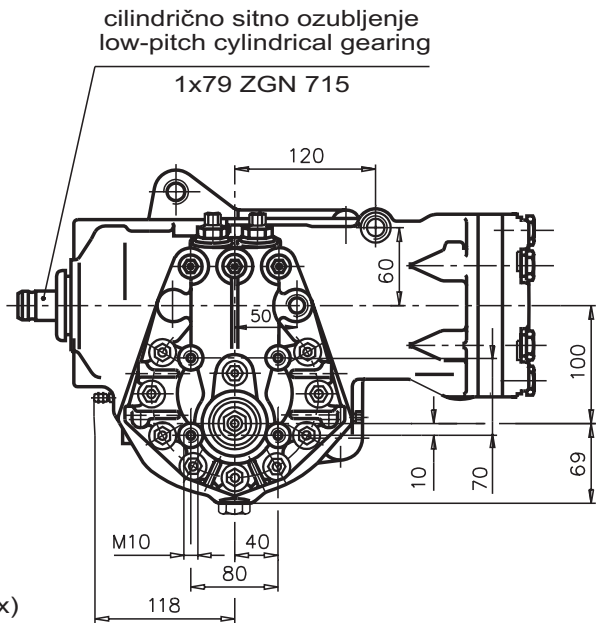
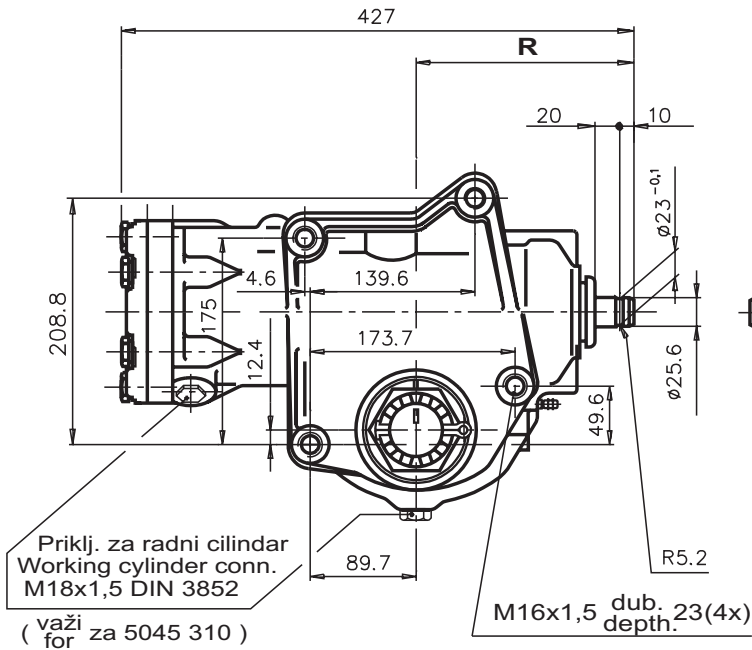
Oznaka Designation	Karakterist. mera Characterist. dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)	ρ	φ
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)			
5045 021	287,5	desni CW	16	M16x1,5	unutr. 10 int. 10	M18x1,5	unutr. 12 int. 12	100	0°	82°30'
5045 248		levi CCW		dub. 12 depth. 12	spolj. 12 ext. 12	dub. 12 depth 12	spolj. 15 ext. 15		1°30'	76°

HYDRAULIC SERVO STEERING GEARS **HIDRAULIČKI SERVOPRAVLJAČI**

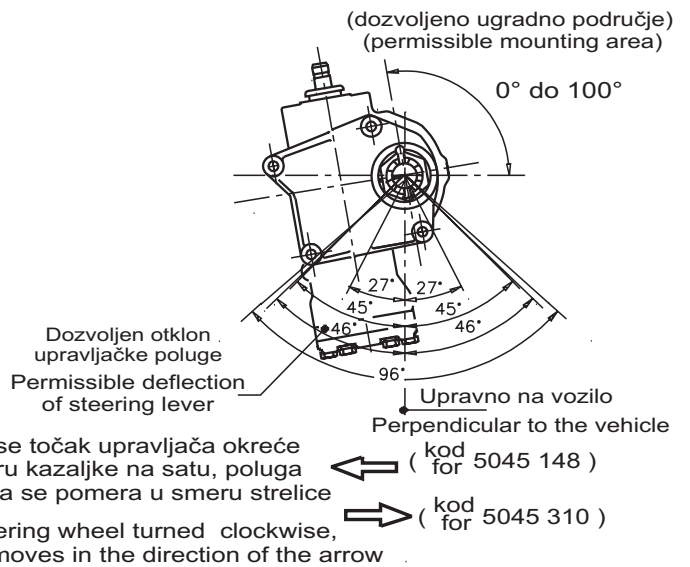
BALL-AND-NUT TYPE, SHORT DESIGN

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

UGRADNE MERE
MOUNTING DIMENSIONS



POLOŽAJI UGRADNJE
MOUNTING POSITIONS



Oznaka Designation	Karakterist. mera Characterist. dimension R (mm)	Puž Worm	Flow Protok (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5045 148	179	desni CW	16	M16x1,5	unutr. 10 int. 10	M18x1,5	unutr. 12 int. 12	nema none
5045 310		levi CCW	20	dub. 12 depth 12	spolj. 12 ext. 12	dub. 12 depth 12	spolj. 15 ext. 15	

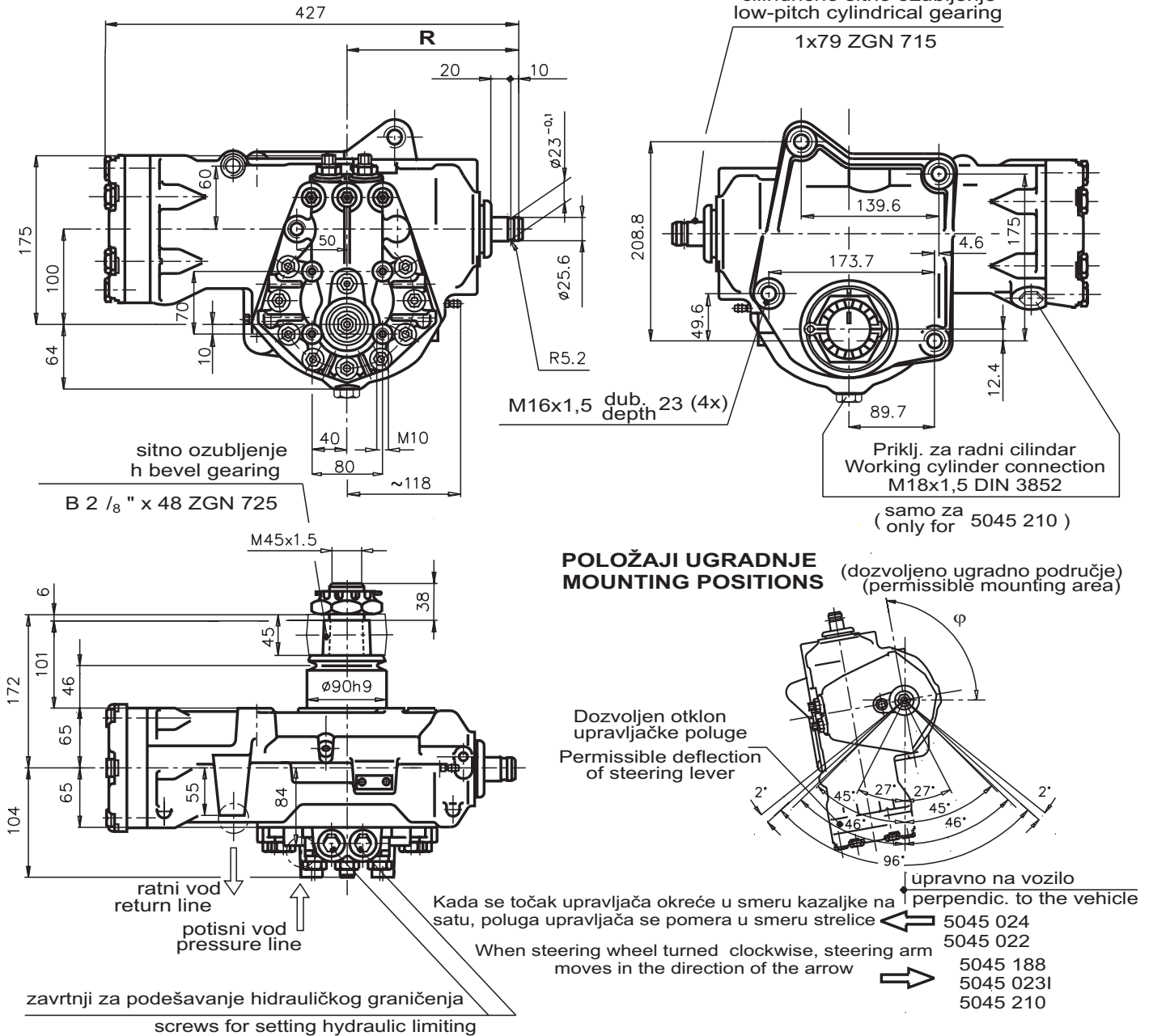
HIDRAULIČKI SERVOPRAVLJAJČI

POWER STEERING GEARS

SA KUGLIČNOM NAVRTKOM U KRATKOM IZVOĐENJU

BALL-AND-NUT TYPE, SHORT DESIGN

UGRADNE MERE
MOUNTING DIMENSIONS

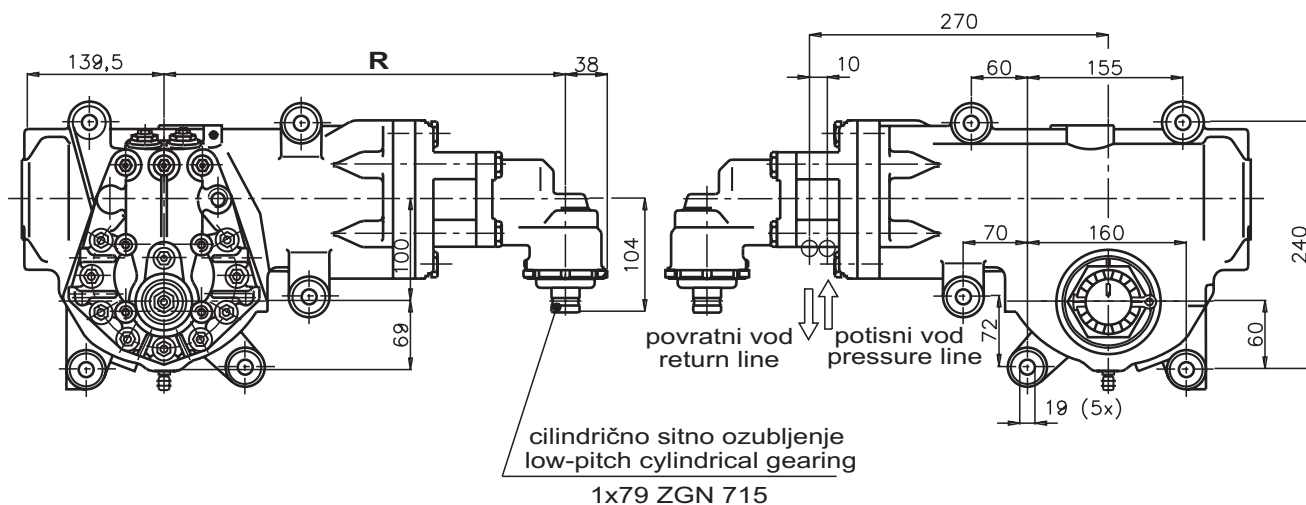


Oznaka Designation	Karakterist. mera Characterist. dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)	ϕ (°)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)		
5045 022	179	desni CW	16	M16x1,5	unutr. 10 int. 10	M18x1,5	unutr. 12 int. 12	nema none	Videti napomenu See note
5045 1881		levi CCW							77°30' - 90°
5045 024		desni CW							0° - 100°
5045 188		levi CCW							97°30'
5045 210			20	M18x1,5 dub. 12 depth 12	unutr. 12 int. 12 spolj. 15 ext. 15				95°

NAPOMENA: Ugradni položaj upravljača 5045 022 je kao kod 5045 288 (str. B-11)

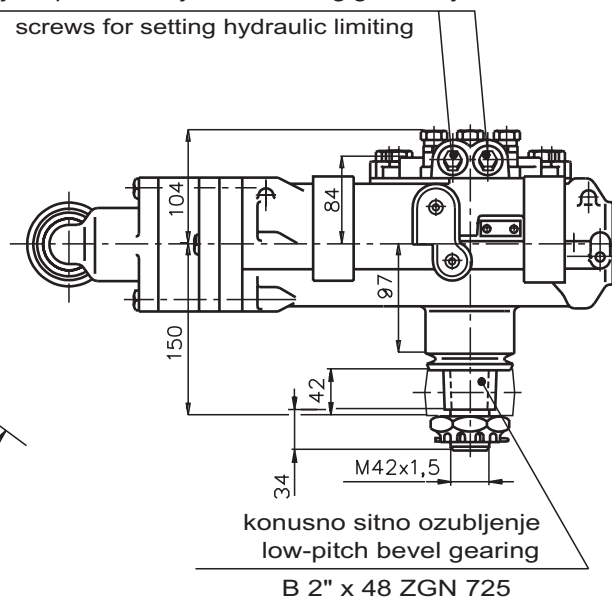
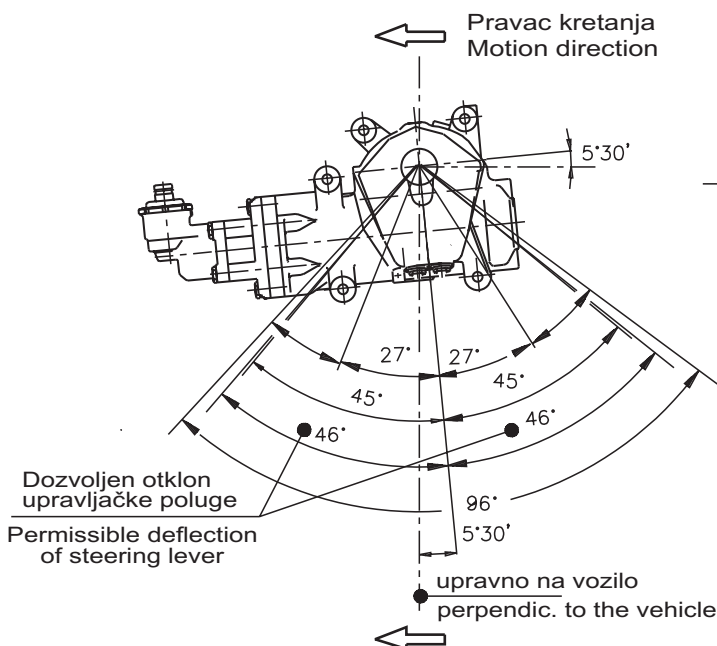
NOTE: Mounting position of steering gear 5045 022 is the same as with 5045 288 (page B-11)

**UGRADNE MERE
MOUNTING DIMENSIONS**



**POLOŽAJI UGRADNJE
MOUNTING POSITIONS**

zavrtnji za podešavanje hidrauličkog graničenja
screws for setting hydraulic limiting



Kada se točak upravljača okreće u smeru kazaljke na satu, poluga upravljača se pomera u smeru strelice
When steering wheel turned clockwise, steering arm moves in the direction of the arrow

Oznaka Designation	Karakterist. mera Characteristic dimension R (mm)	Puž Worm	Protok Flow (l/min)	Potisni vod Pressure line		Povratni vod Return line		Vent. za ogranič. pritiska Pressure relief valve (bar)
				Navoj Thread	D cevi Tube dia. (mm)	Navoj Thread	D cevi Tube dia. (mm)	
5045 348	360	desni CW	16	M16x1,5 dub. 12	unutr. 10 spolj. 12	M26x1,5 dub. 16	unutr. 19 spolj. 22	nema none

Ugaoni prenosnik 4860 100

