

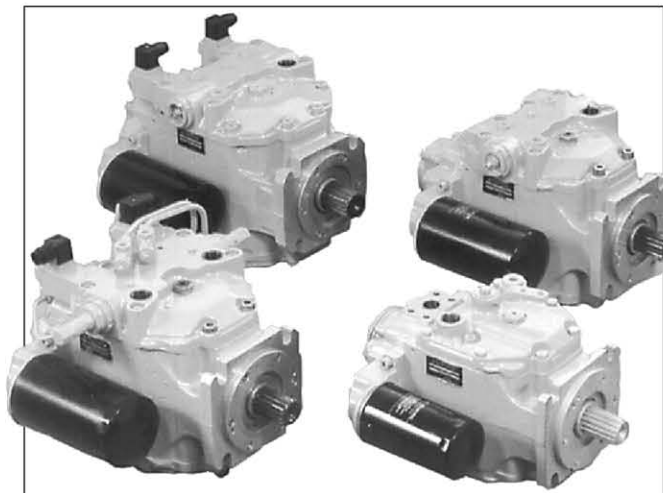
Hidraulika UK Ltd.

20 Desborough Path
Beaulieu Park
Chelmsford, Essex
CM2 5AJ England
tel/fax: 01245-464-178
info@hidraulika.net

**Aksijalno - klipne pumpe BPV
Axial - piston pumps BPV**

PROMENLJIVE RADNE ZAPREMINE; ZA ZATVORENE SISTEME
VARIABLE DISPLACEMENT; FOR CLOSED LOOP CIRCUIT

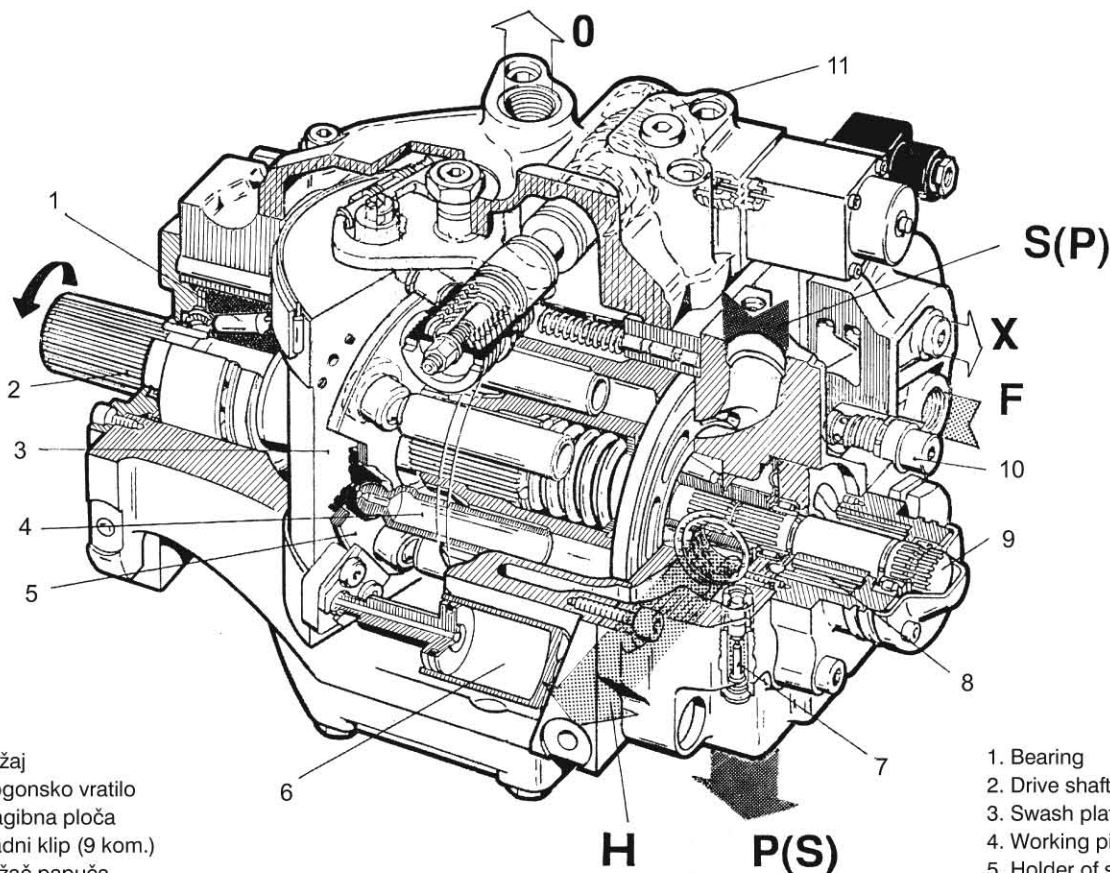
- Konstrukcija sa nagibnom pločom
- Prolazno vratilo, za priključenje dodatne pumpe koja se može opteretiti radijalnom silom
- Smer obrtanja: levi ili desni
- Upravljanje protokom (servopodešivač):
 - KS = mehaničko
 - HF = hidrauličko
 - EH = elektrohidrauličko
- AU = automatsko
- Ugrađena pomoćna pumpa sa internim ili eksternim usisavanjem
- Ugrađen usisni filtar finoće 10 μm
- Priključivanje vodova SAE prirubnicama
- Servopodešivač smešten u poklopcu
- Ugrađen ventil za startovanje "na hladno", a služi za osiguranje hladnjaka kada pritisak u hladnjaku ili filtru prekorači podešenu vrednost
- Ugrađen ventil kratkog spoja, za rasterećenje sistema



- Design with a swash plate
- P.T.O. shaft for auxiliary drives
- Rotation direction: anticlockwise or clockwise
- Control modes (complete servo module):
 - KS = mechanical (cam operated)
 - HF = hydraulic
 - EH = electro hydraulic
 - AU = automotive

- Integral boost pump, optionally for internal or external suction
- 10 μm full flow cartridge filter
- SAE high pressure port flanges
- Complete servo module built onto cover
- Cold start valve (cooler protection)
- Short circuit device

**PRESEK - PRINCIP RADA (PUMPA SA ELEKTROHIDRAULIČKIM PODEŠAVANJEM)
SECTION - MODE OF OPERATION (ELECTRO HYDRAULIC CONTROL PUMP)**



1. Ležaj
2. Pogonsko vratilo
3. Nagibna ploča
4. Radni klip (9 kom.)
5. Držać papuča
6. Upravljački klip (4 kom.)
7. Ventil za start "na hladno"
8. Integrirana (pomoćna) zupčasta pumpa
9. Izlaz vratila za dodatni pogon (P.T.O.)
10. Kombinovani ventil pritiska
11. Servopodešivač

1. Bearing
2. Drive shaft
3. Swash plate
4. Working piston (9 pcs)
5. Holder of shoe
6. Control piston (4 pcs)
7. Cold start valve
8. Integral boost gear pump
9. P.T.O. shaft
10. Combination relief valve
11. Complete servo module

TEHNIČKE KARAKTERISTIKE

TECHNICAL DATA

OPŠTE / GENERAL

ND	35	50	70	100
Smer obrtanja Rotation direction	levi ili desni anticlockwise or clockwise			
Pogon Drive	preko spojnice (za ostalo upitati) through coupling (otherwise consult the manufacturer)			
Max. dozvoljeno ugaono ubrzanje Max. allowed angular acceleration	po upitu upon request			
Moment inercije (kgm ²) Moment of inertia (kgm ²)	0,0077	0,0110	0,0169	0,0280
Mass (kg)	videti ugradne crteže / see mounting drawings			

HIDRAULIČKE / HYDRAULIC

Pritisak (bar) Pressure				
- max (kratko)* - peak*	500			
- max radni (= max nazivni) - max working (= max nominal)	420			
- trajni** - continuous**	250			
- u kućištu (dozvoljeni nadpritisak) - housing allowed pressure	1,5			
Specifični protok (cm ³ /o) Displacement	34,9	50,8	70,9	100,3
Broj obrtaja (min-1) Speed (r.p.m.)				
- max trajni - max speed (continuous)	3400	3200	3000	2800
- max kratkotrajni - max peak	3700	3500	3300	3100
Integrirana pomoćna pumpa Integral boost pump				
dovod iz rezervoara inlet pressure (external suction)	0,2 (podpritisak); 2 (nadpritisak) 0,2 (below atmosph. press.); 2 (above atmosph. press.)			
- pritisak (bar) - pressure	prehrana boost pressure 16			
	pri startu u hladnom stanju cold start pressure 21			
- specifični protok (cm ³ /o) - displacement	12	12 (18,3)	18,3	18,3
Dodatni pogon (P.T.O.) Auxiliary drive (P.T.O.)				
pri 10% radnog pritiska max torque at 10% work. press.	140	200	250	
- izlazni obrt.moment (Nm) - allowed out.torques	70	100	140	200
	trajni continuous for P.T.O. 80 60 for P.T.O. 105 120			
Ventil za kratki spoj *** Short circuit valve ***				
- dužina podešavanja (mm) - control stroke	3 (= 2 obrtaja) 3 (= 2 turns)			
- moment pritezanja (Nm) - tightening torque	130			

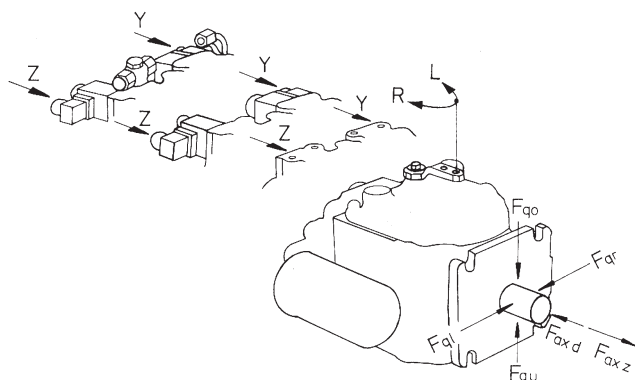
*Kratkotrajni pritisak iznad max radnog (=nazivni pritisak) pri kome je pumpa funkcionalno sposobna
Transient pressure over the max working pressure at which the unit will still function.

**Pritisak pri kome su svi delovi pumpe izdržljivi.
Continuous pressure at which all parts of the unit are able to endure.

***Kratki spoj ostvaruje se odvijanjem dva patron ventila; po završenom postupku ventili se ponovo pritežu.
Short-circuit operation is done by screwing out the two cartridges; retighten again afterwards.

MAX RADIJALNE I AKSIJALNE SILE Fq i Fax
MAX RADIAL AND AXIAL FORCES Fq and Fax

(pri trajnom pritisku od 250 bar, max broju obrtaja i na sredini izlaznog vratila)
 (at continuous pressure 250 bar, max speed)



Nominal size	Fqo	Fqu	Fqr		Fql		Fax d	Fax z
			pozit. R, Y	pozit. L, Z	pozit. R, Y	pozit. L, Z		
	(kN)							
35	3	3	0,8	3,5	3,5	0,8	0,8	3
50	5,2	5,2	2,3	4,7	4,7	2,3	2,2	2,7
70	8,2	8,2	3,9	5,8	5,8	3,9	2,7	5,6
100	9,5	9,5	7,3	7,8	7,8	7,3	4,1	4,6

Napomena:

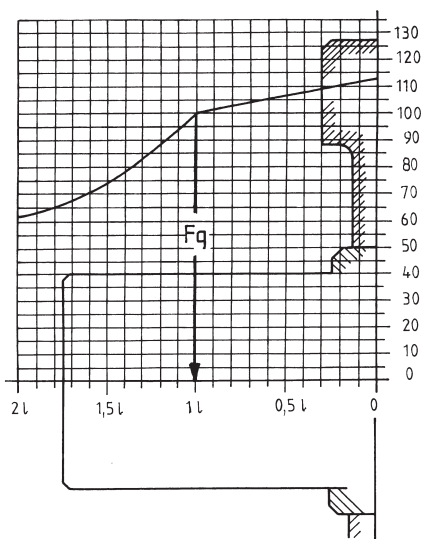
Note:

Dozvoljeno je kratkotrajno dvostruko opterećenje. Za specijalne slučajeve opterećenja upitati.
 Double the load is permitted intermmitently. For special applications, please ask manufacturer.

A

L - Fq DIJAGRAM

(pri trajnom pritisku od 250 bar, max broju obrtaja i na različitom rastojanju izlaznog vratila)
 (at continuous pressure 250 bar, max speed and diferent load distance)



Napomena:

Note:

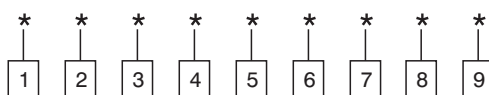
Rastojanje napadne tačke sile iznosi 32 mm.
 Load distance from front flange to shaft is 32 mm.

RADNA TEČNOST - mineralno hidrauličko ulje
WORKING FLUID - mineral hydraulic oil

PREPORUKA RECOMMENDATION

viskozitet viscosity (mm ² /s)	10...80	Radna temperatura ulja Oil working temperature	Viskozitet Viscosity
optimalni viskozitet optimal viscosity range (mm ² /s)	15...20	30...40°C	22 mm ² /s - 40°C
max viskozitet - kratko pri startu max viscosity - intermittent for starting (mm ² /s)	1000	60...70°C	68 mm ² /s - 40°C
temperatura (°C) temperature	-20...+90	80...90°C	100 mm ² /s - 40°C
potrebna snaga hlađenja required cooling power	ca. 20 do 25% instalirane pogonske snage approx. 20 to 25% of installed transsmision power		

FILTRIRANJE: pomoću ugrađenog filtra finoće 10 μm (dinamički izdržljiv pri pritisku od 25 bar i pulsirajućem pogonu).
 FILTRATION: is done with built-in 10 μm cartridge filter (suitable for continuous pressure of 25 bar and pulsating operation).

OZNAČAVANJE
DESIGNATION
BPV

1 Nazivna veličina ND:

Nominal size ND:

 35
 50
 70
 100

2 Smer obrtanja:
 Rotation direction:

 L = levi
 anticlockwise

 R = desni
 clockwise

3 Upravljanje:
 Controls:

 K = mehaničko
 cam operated servo

 H = hidraulično
 hydraulic remote

 EH = elektrohidraulično
 electro-hydraulic

 *A = automatsko
 automative

 *) Navesti sledeće podatke: - pogonsku snagu (kW) i br. obrtaja (min⁻¹)
 - min. br. obrtaja pri kojem započinje regulisanje protoka (vozilo se pokreće)

 *) We need the following data: - drive power (kW) and speed by this power (min⁻¹)
 - min. drive speed (min⁻¹) by which flow regulation started - machine (vehicle) starting

4 Pomoćna pumpa (usisavanje):
 integral boost pump (suction):

 U = unutrašnje
 internal

 S = spoljašnje
 external

5 Pomoćna pumpa (veličina):
 integral boost pump (size):

 12 = 12 cm³/o (for ND 35,50)

 18 = 18 cm³/o (for ND 50,70,100)

6 Ventil za ograničenje pritiska:
 Pressure relief valve:

210 = 210 bar

250 = 250 bar

300 = 300 bar

350 = 350 bar

420 = 420 bar

7 Posebni zahtevi (videti dodatak strana 13):
 Special demands (see anex pages 13):

P.T.O.80 } pogon dodatne pumpe

P.T.O.105 } additional pump drive

12 V DC } napon el. magnetna za pumpe EH,A

24 V DC } solenoid voltage for pumps with EH,A

8 Dodatna pumpa (oznaka):
 Additional pump (designation):

 Po zahtevu
 On request

9 Spojnica:
 Coupling:

 P = isporuka sa spojnicom (videti dodatak strana 13)
 delivery, with coupling (see anex page 13)

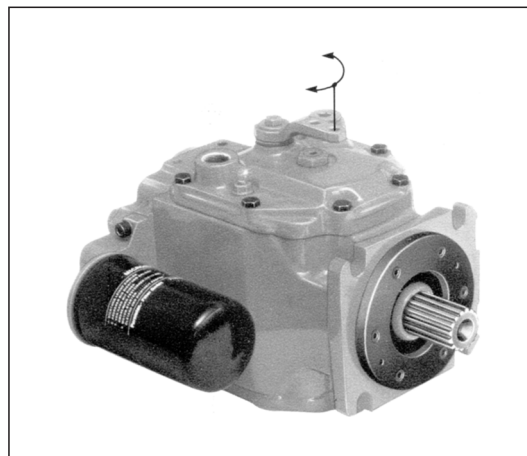
K - PUMPA SA MEHANIČKIM PODEŠAVANJEM

K - PUMP CAM CONTROL (MECHANICALLY OPERATED)

OPIS DESCRIPTION

Podešavanje protoka obavlja se mehanički, okretanjem poluge za podešavanje. Polugom se, preko točkića koji se kotrlja po bregastoj ploči pomera klizač, odnosno aktivira servo razvodnik koji usmerava radnu tečnost za podešavanje nagibne ploče. Na taj način se upravlja i smerom i veličinom protoka. Bregasta ploča je izvedena sa progresivnom karakteristikom podešavanja i pozicioniranim nultim položajem.

By turning control lever, a slide valve is moved via cam plate and roller. The slide valve leads the oil flow coming from the auxiliary pump (internal gear pump) to the control cylinder of the swash plate thus determining the flow rate and direction of the main pump. The cam plate has a progressive control characteristic and an extended neutral range.

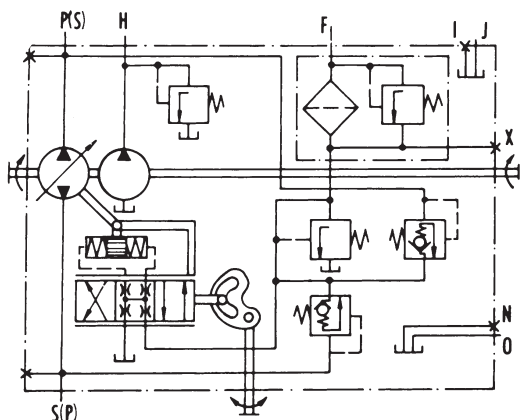


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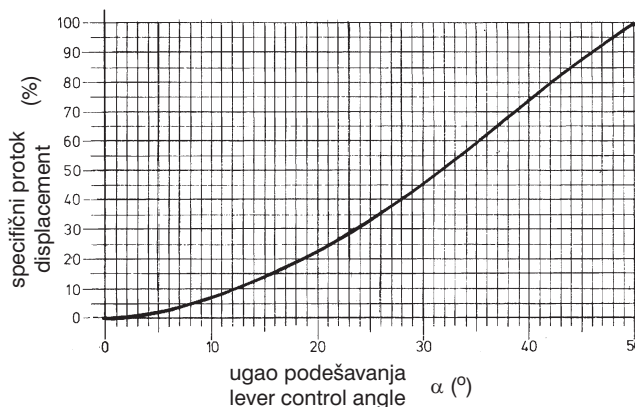
DODATNE TEHNIČKE KARAKTERISTIKE ADDITIONAL TECHNICAL DATA

Položaj ugradnje Mounting position	Horizontalni (pogonsko vratilo horizontalno, upravljačka poluga na gornjoj strani). Za drugi položaj upitati. Horizontal (drive shaft horizontal and the upper lever control). Other installation positions on request.	
Smer protoka Flow direction - smer obrtanja pogonskog vratila - shaft rotation direction	desni clockwise	levi anticlockwise
- pomeranje iz nultog položaja - moving from neutral position	poluga u desno lever clockwise S (P) → P (S)	poluga u levo lever anticlockwise P (S) → S (P)
Sila podešavanja (na poluzi) (N) Lever control force	17 ... 22	
Ugao podešavanja (poluga od nultog u krajnji položaj) Lever control angle from neutral to end position	50° (videti ugradni crtež) (see mounting drawing)	
Moment podešavanja (Nm) Control torque	1,19 ... 1,54	
Vreme podešavanja (s) Response time	2	

SIMBOL SYMBOL



KARAKTERISTIČNI DIJAGRAM CHARACTERISTIC DIAGRAM



P (S), S (P) = glavni priključci
I, J, N, O = priključci za ispuštavanje vazduha ili punjenje/ ispuštavanje ulja
F, H = priključci za hladnjak
-X X = priključak upravljačkog voda
-X P (S), -X S (P) = merna mesta

P (S), S (P) = pressure ports
I, J, N, O = vent. oil filling or oil draining ports
F, H = cooler ports
-X X = control port
-X P (S), -X S (P) = working pressure test ports

K - PUMPA SA MEHANIČKIM PODEŠAVANJEM

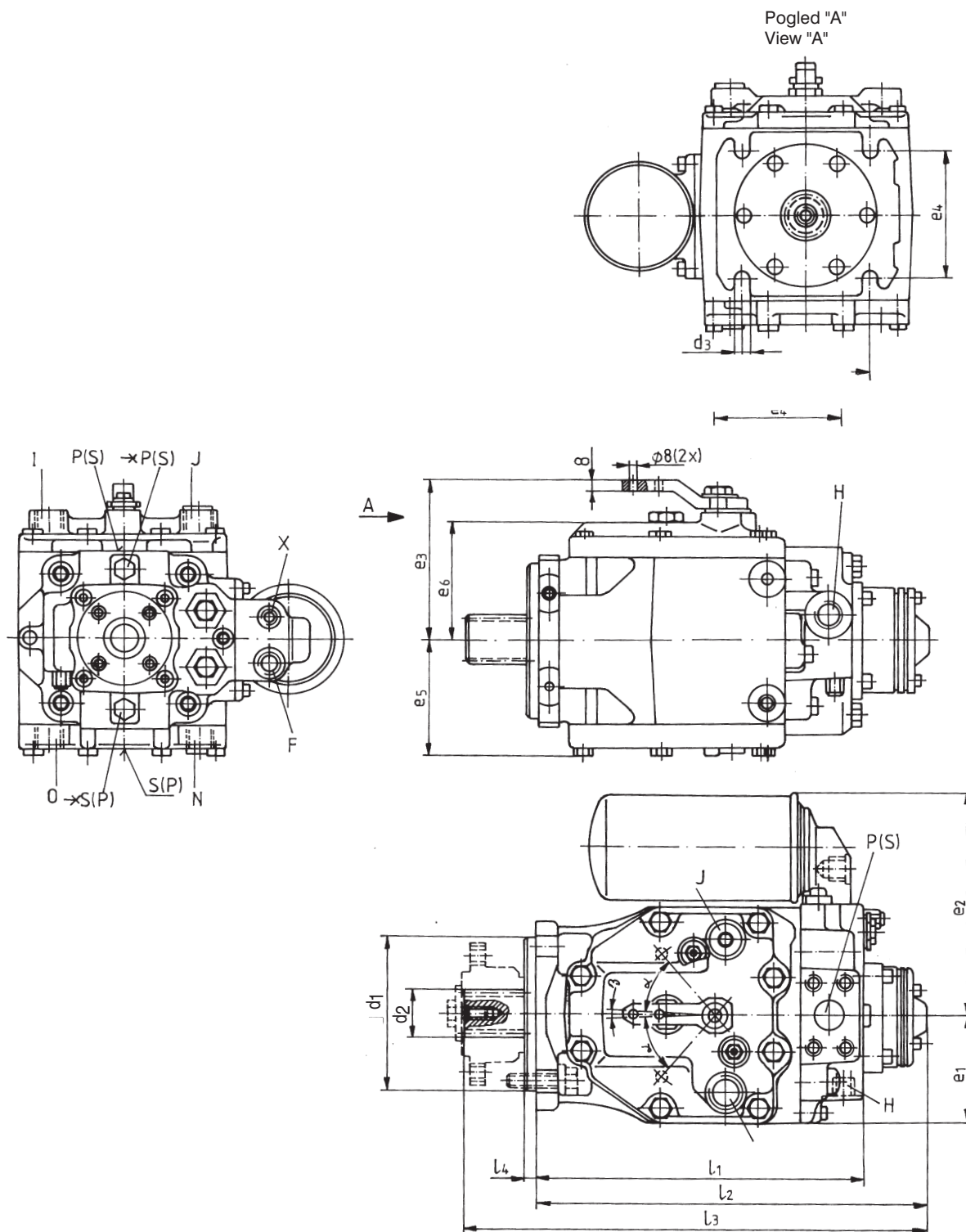
K - PUMP CAM CONTROL (MECHANICALLY OPERATED)

UGRADNI CRTEŽ (mere u mm)

MOUNTING DRAWING (dimensions in mm)

Napomena: Crtežom je prikazana pumpa sa internim usisavanjem (za eksterno usisavanje videti u dodatku str. 13).

Note: Pump with internal suction - as shown in drawing (for external suction see annex page 13).



ND	d ₁ h8	d ₂ DIN 5480	d ₃	e ₁	e ₂	e ₃	e ₄	e ₅	e ₆	l ₁	l ₂	l ₃	l ₄	α (°)	β (°)	otvor/port P(S), S(P)	mass (kg)
35	φ127	W35x2x9g	15	82,5	175,5	130	114,6	89	104,5	246,5	293	349	10	48	4	3/4—	34,8
50		W35x2x9g		84	179	134		93	108,5	257	304	360				3/4—	37,5
70		W35x2x9g		93,5	196	142		107,5	116,7	282,5	341,5	397,5				1—	50,5
100		W40x2x9g		103	205	151		115,5	125,5	306,5	366	422				1—	64

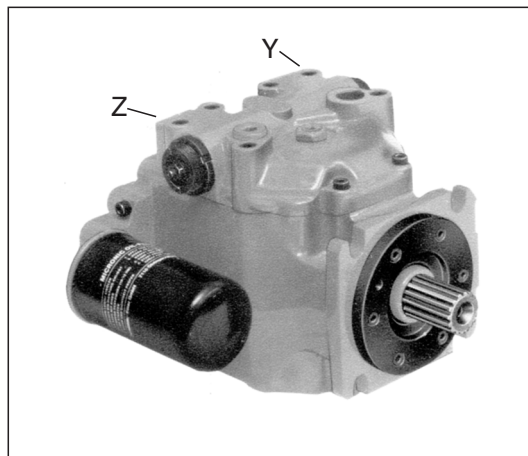
H - PUMPA SA HIDRAULIČKIM PODEŠAVANJEM

H - PUMP HYDRAULIC REMOTE CONTROL

OPIS DESCRIPTION

Podešavanje protoka je hidrauličko. Daljinskom komandom od upravljačkog razvodnog ventila (vodovi Y,Z) aktivira se pilot ventil sa opružno centriranim klipom, odnosno aktivira se servo razvodni ventil koji usmerava radnu tečnost za podešavanje nagibne ploče. Na taj način upravlja se i smerom i veličinom protoka. Podešeni protok ima linearnu karakteristiku. Za upravljački razvodni ventil i njegovu ugradnju videti u dodatku.

Pump is hydraulically controlled with linear control characteristic. By pressurizing the control ports Y or Z by means of the pilot valve, the control valve is operated via a spring-centred control piston. The pilot valve leads the oil flow coming from the auxiliary pump (internal resp. external gear pump), to the control cylinders of the swash plate, thus controlling the flow of the main

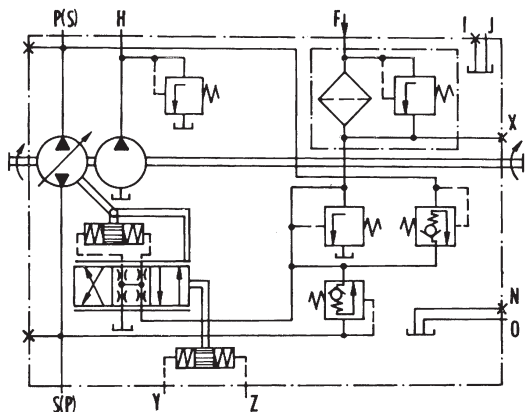


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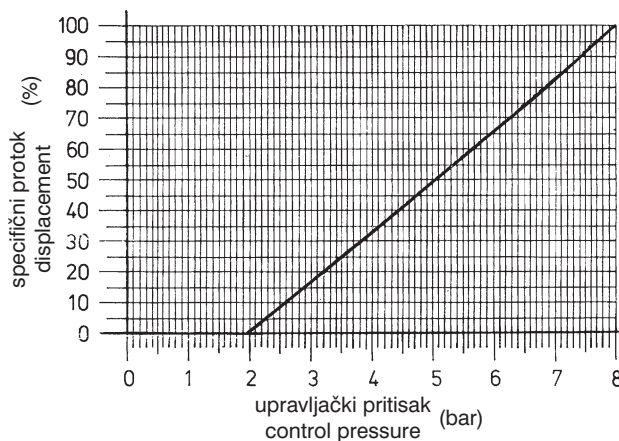
DODATNE TEHNIČKE KARAKTERISTIKE ADDITIONAL TECHNICAL DATA

Položaj ugradnje Mounting position	Horizontalni (pogonsko vratilo horizontalno, priključci za upravljački vod na gornjoj strani). Za drugi položaj upitati. Horizontal (drive shaft horizontal and the upper control ports). Other installation positions on request.	
Smer protoka Flow direction - smer obrtanja pogonskog vratila - shaft rotation direction	desni clockwise	levi anticlockwise
- pomeranje iz nultog položaja - moving from neutral position	pritisak na priključku Y port Y pressurized S (P) → P (S)	P (S) → S (P)
	pritisak na priključku Z port Z pressurized P (S) → S (P)	S (P) → P (S)
Područje pritiska podešavanja Control pressure range (bar)	2 ... 8	
Upravljačka zapremina Control volume (cm ³)	8,8	
Vreme podešavanja Response time (s)	2	

SIMBOL SYMBOL



KARAKTERISTIČNI DIJAGRAM CHARACTERISTIC DIAGRAM



P (S), S (P) = glavni priključci
I, J, N, O = priključci za ispuštanje vazduha ili punjenje/ ispuštanje ulja
F, H = priključci za hladnjak
X, Y, Z = priključci upravljačkog voda
-X P (S), -S(P) = merna mesta

P (S), S (P) = pressure ports
I, J, N, O = vent. oil filling or oil draining ports
F, H = cooler ports
X, Y, Z = control ports
-X P (S), -S(P) = working pressure test ports

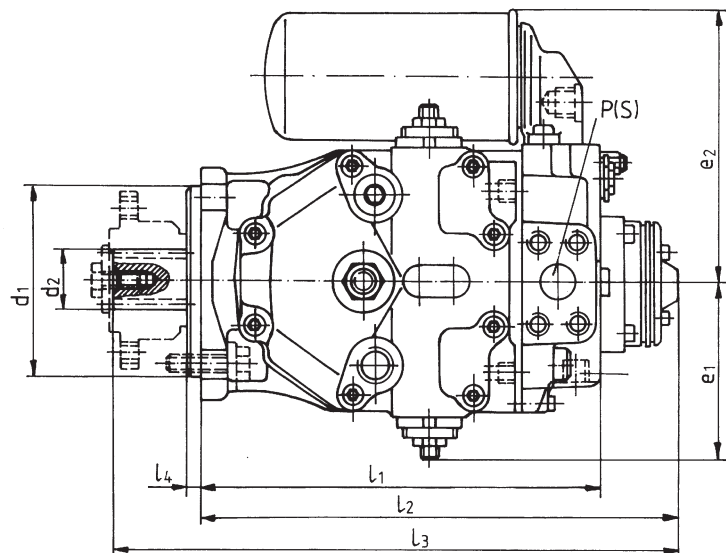
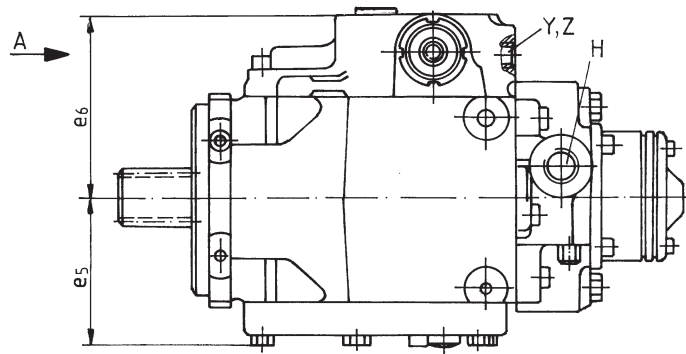
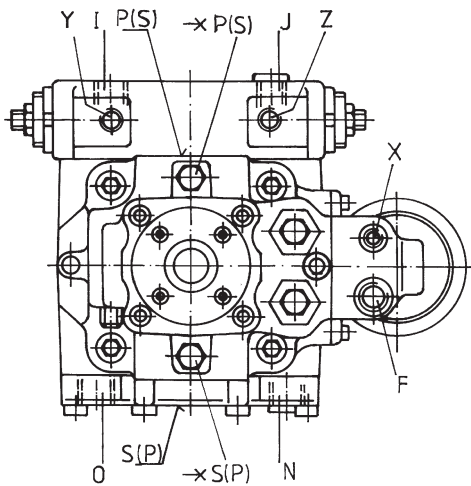
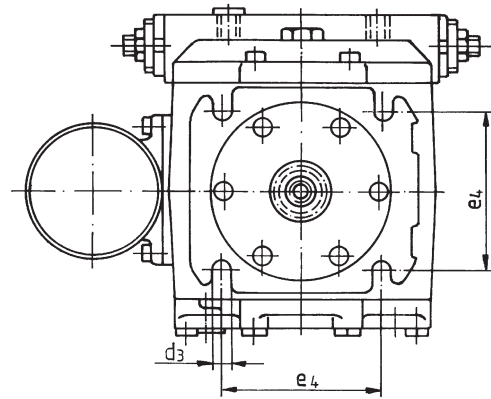
H - PUMPA SA HIDRAULIČKIM PODEŠAVANJEM

H - PUMP HYDRAULIC REMOTE CONTROL

UGRADNI CRTEŽ (mere u mm)
MOUNTING DRAWING (dimensions in mm)

Napomena: Crtežom je prikazana pumpa sa internim usisavanjem (za eksterno usisavanje videti u dodatku str. 13).
 Note: Pump with internal suction - as shown in drawing (for external suction see annex page 13).

Pogled "A"
View "A"



Priključci:
Ports:

I, J, N, O = M22x1,5
 F, H = M22x1,5
 X, Y, Z = M14x1,5

ND	d ₁ h8	d ₂ DIN 5480	d ₃	e ₁	e ₂	e ₄	e ₅	e ₆	l ₁	l ₂	l ₃	l ₄	otvor/port P(S), S(P)	mass (kg)
35	φ127	W35x2x9g	15	118	175,5	114,6	89	117	246,5	293	349	4	3/4—	37
50		W35x2x9g			179		93	121	257	304	360		3/4—	39,5
70		W35x2x9g			196		107,5	129	282,5	341,5	397,5		1—	53,5
100		W40x2x9g			205		115,5	138	306,5	366	422		1—	67

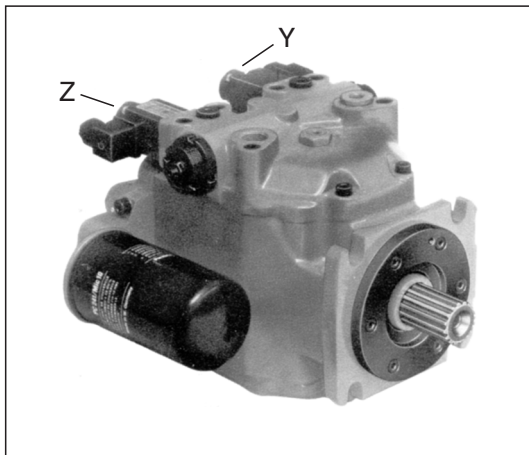
EH - PUMPA SA ELEKTROHIDRAULIČKIM PODEŠAVANJEM

EH - PUMP ELECTRO-HYDRAULIC CONTROL

OPIS DESCRIPTION

Podešavanje protoka obavlja se električnom daljinskom komandom. Uključenjem odgovarajućeg proporcionalnog ventila pritiska aktivira se pilot ventil sa opružno centriranim klipom, odnosno aktivira servo razvodnik koji usmerava radnu tečnost za podešavanje nagibne ploče. Elektrohidrauličkim podešavanjem upravlja se i smerom i veličinom protoka koji ima linearnu karakteristiku. Za funkcionisanje i ugradnju uređaja za

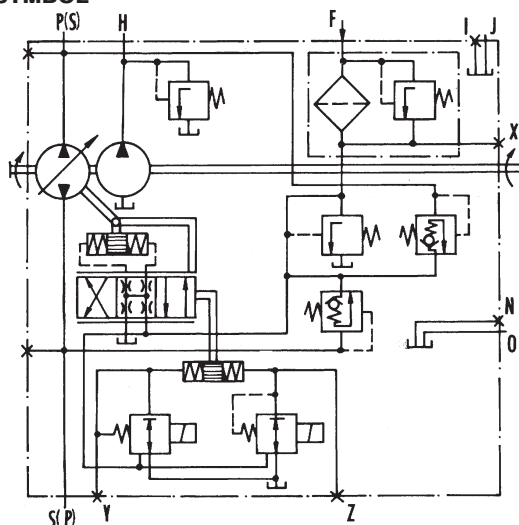
The pump is electro-hydraulically controlled with linear control characteristic. Depending on the control current (mA) the pilot is operated via corresponding control solenoid, and hence by means of the proportional control pressure acting upon the spring-centred control piston. The pilot valve leads the oil flow coming from the auxiliary pump (internal gear pump) to the control cylinder of the swash plate thus controlling the oil flow of the main pump. For the function and installation of the control



DODATNE TEHNIČKE KARAKTERISTIKE ADDITIONAL TECHNICAL DATA

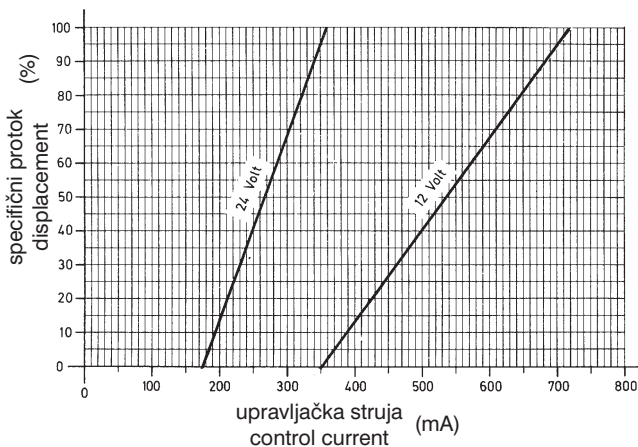
Položaj ugradnje Mounting position		Horizontalni (pogonsko vratilo horizontalno, elektromagnet sa gornje strane). Za drugi položaj upitati. Horizontal (drive shaft horizontal and the upper solenoids). Other installation positions on request.	
Smer protoka Flow direction - smer obrtanja pogonskog vratila - shaft rotation direction		desni clockwise	levi anticlockwise
- pomeranje iz nultog položaja - moving from neutral position	napon na magnetu Y solenoid Y energized	S (P) → P (S)	P (S) → S (P)
	napon na magnetu Z solenoid Z energized	P (S) → S (P)	S (P) → P (S)
Elektromagnet Solenoid	napon (V) voltage	12; 24 DC	
	nazivna snaga (W) nominal power	22	
	struja (mA) current	1300; 650	
	trajnost uključanja (ED) relative duty factor	100%	
	zaštita od spoljnih uticaja protection lever	IP 54	
	Dither signal	35 Hz pravougaono; odnos dužine impulsa prema dužini cele periode 1:1, 250 mA ili 175 mA 35 Hz rectangle pulse ratio 1:1, 250 mA or 175 mA peak-peak superimposed	
Vreme podešavanja (s) Response time		≥ 1	

SIMBOL SYMBOL



- P (S), S (P) = glavni priključci
- I, J, N, O = priključci za ispuštanje vazduha ili punjenje/ ispuštanje ulja
- F, H = priključci za hladnjak
- X, Y, Z = priključci upravljačkog voda
- X P (S), —Z (P) = merna mesta

KARAKTERISTIČNI DIJAGRAM CHARACTERISTIC DIAGRAM



- P (S), S (P) = pressure ports
- I, J, N, O = vent. oil filling or oil draining ports
- F, H = cooler ports
- X, Y, Z = control ports
- X P (S), —Z (P) = working pressure test ports

A

EH - PUMPA SA ELEKTROHIDRAULIČKIM PODEŠAVANJEM

EH - PUMP ELECTRO-HYDRAULIC REMOTE CONTROL

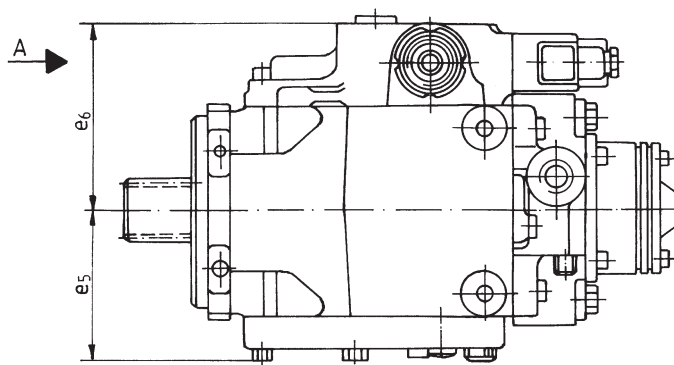
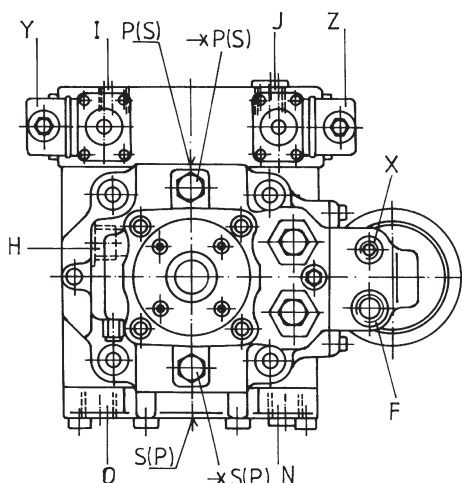
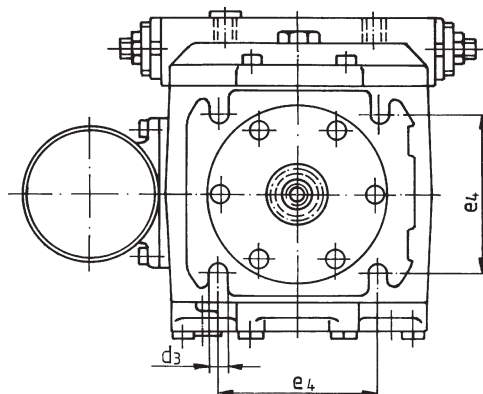
UGRADNI CRTEŽ (mere u mm)

MOUNTING DRAWING (dimensions in mm)

Napomena: Crtežom je prikazana pumpa sa internim usisavanjem (za eksterno usisavanje videti u dodatku str. 13).

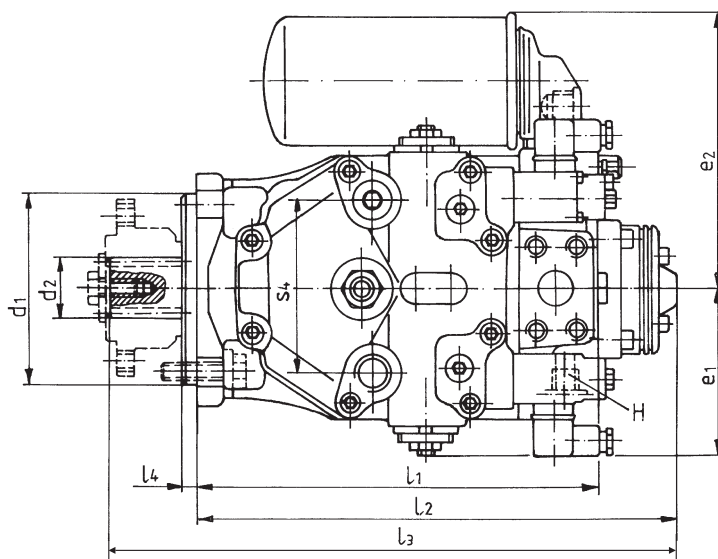
Note: Pump with internal suction - as shown in drawing (for external suction see annex page 13).

Pogled "A"
View "A"



Priključci:
Ports:

I, J, N, O = M22x1,5
F, H = M22x1,5
X = M14x1,5



ND	d ₁ h8	d ₂ DIN 5480	d ₃	e ₁	e ₂	e ₄	e ₅	e ₆	l ₁	l ₂	l ₃	l ₄	otvor/port P(S), S(P)	mass (kg)
35	∅ 127	W35x2x9g	15	104	175,5	114,6	89	117	246,5	293	349	10	3/4—	38
50		W35x2x9g		104	179		93	121	257	304	360		3/4—	40,5
70		W35x2x9g		113	196		107,5	129	282,5	341,5	397,5		1—	54,5
100		W40x2x9g		163	205		115,5	138	306,5	366	422		1—	68

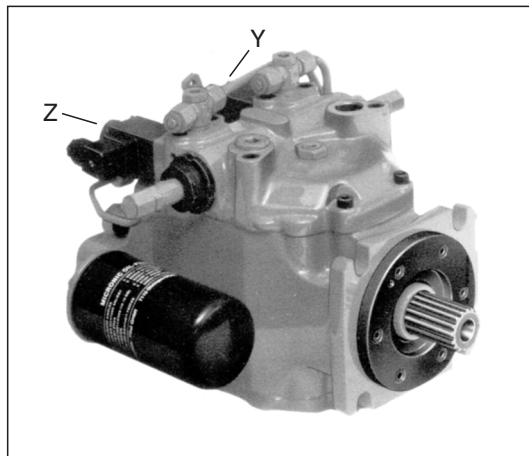
A - PUMPA SA AUTOMATSKIM PODEŠAVANJEM

A - PUMP AUTOMOTIVE CONTROL

OPIS DESCRIPTION

Podešavanje protoka izvodi se na sledeći način: upravljački pritisak koji zavisi od broja obrtaja pogonskog motora deluje na pilot ventil sa opružno centriranim klipom. Pilot ventil aktivira servo razvodnik koji usmerava radnu tečnost za podešavanje nagibne ploče. Veličina upravljačkog pritiska određuje se promenljivim prigušnim ventilom (inch ventil). Smer zakretanja nagibne ploče (smer vožnje) prethodno se odabira uključivanjem odgovarajućeg el. magneta. Da bi nagibna ploča u određenim slučajevima, pri velikom broju obrtaja pogonskog motora mogla da se zakrene nazad, smanjuje se upravljački pritisak

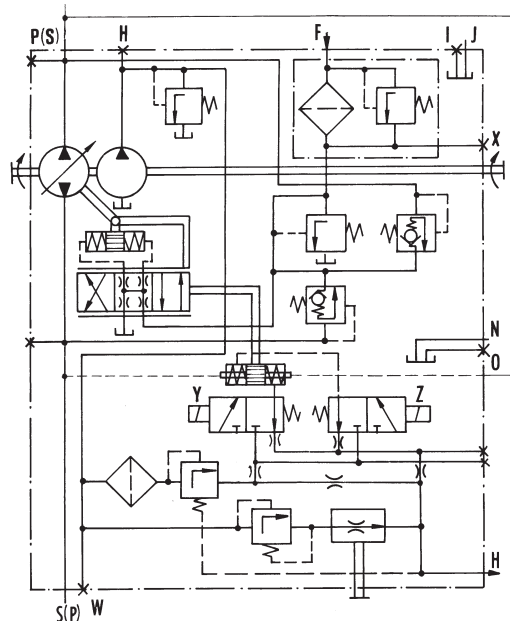
Pump is servo hydraulic depending on engine speed. Pump automotive control is done via an engine speed related pressure throttled through the inching valve which is fed to the control system. The operating (travel) direction is preselected by means of the control solenoids. The pilot valve leads the oil flow coming from the boost pump (internal gear pump) to the control cylinders of the swash plate thus controlling the oil flow of the main pump. By increasing the throttle diameter at the inching valve the dynamic pressure can be lowered; than - in certain cases - it is possible to swivel the pump back even at



DODATNE TEHNIČKE KARAKTERISTIKE ADDITIONAL TECHNICAL DATA

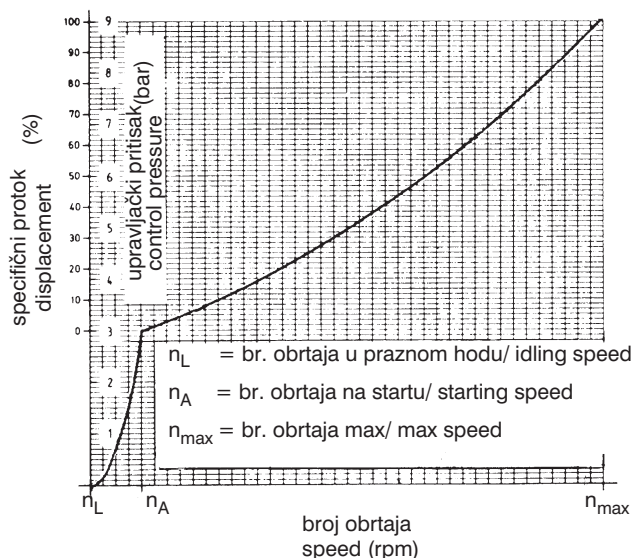
Položaj ugradnje Mounting position	Horizontalni (pogonsko vratilo horizontalno, elektromagnet sa gornje strane). Za drugi položaj upitati. Horizontal (drive shaft horizontal and the upper solenoids). Other installation positions on request.	
Smer protoka Flow direction - smer obrtanja pogonskog vratila - shaft rotation direction	desni clockwise	levi anticlockwise
- pomeranje iz nultog položaja - moving from neutral position	napon na magnetu Y solenoid Y energized P (S) → P (S)	napon na magnetu Z solenoid Z energized P (S) → S (P)
Elektromagnet Solenoid	napon voltage (V)	12; 24 DC
	nazivna snaga nominal power (W)	26
	struja current (A)	max 2,5; max 1,25
	zaštita od spoljnih uticaja protection lever	IP 54
Vreme podešavanja Response time (s)	≥ 1	

SIMBOL/ SYMBOL



- P (S), S (P) = glavni priključci
- I, J, N, O = priključci za ispuštanje vazduha ili punjenje/ ispuštanje ulja
- F, H = priključci za hladnjak
- X = priključak upravljačkog voda
- W, P(S), S(P) = merna mesta
- Y, Z = elektromagneti

DIJAGRAM/ DIAGRAM



- P (S), S (P) = pressure ports
- I, J, N, O = vent. oil filling or oil draining ports
- F, H = cooler ports
- X = control port
- W, P(S), S(P) = boost pump test pressure ports
- Y, Z = solenoids

A

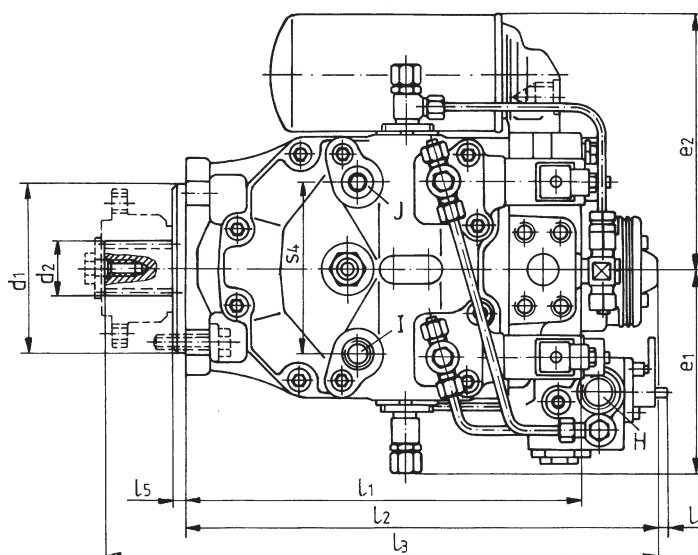
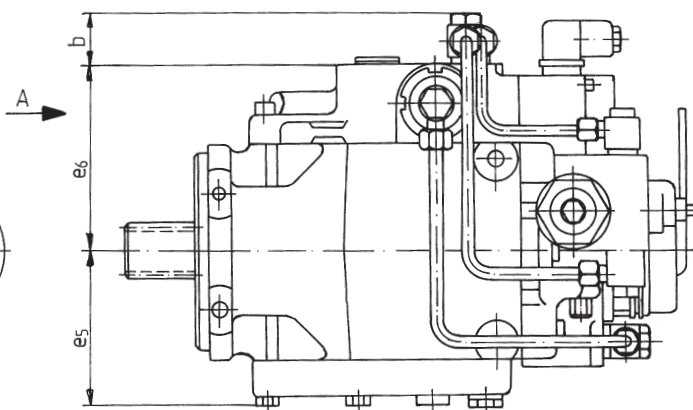
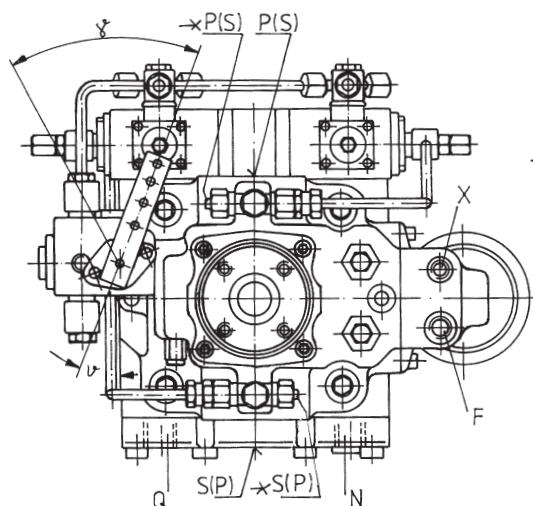
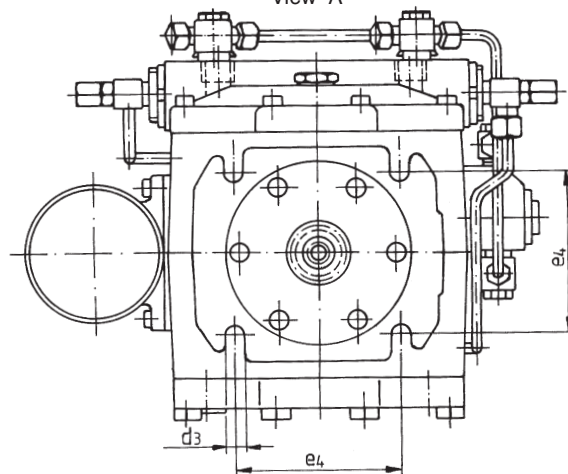
EH - PUMPA SA AUTOMATSKIM PODEŠAVANJEM

EH - PUMP AUTOMOTIVE CONTROL

UGRADNI CRTEŽ (mere u mm)
MOUNTING DRAWING (dimensions in mm)

Napomena: Crtežom je prikazana pumpa sa internim usisavanjem
 (za eksterno usisavanje videti u dodatku str. 13).
 Note: Pump with internal suction
 - as shown in drawing
 (for external suction see annex page 13).

Pogled "A"
 View "A"



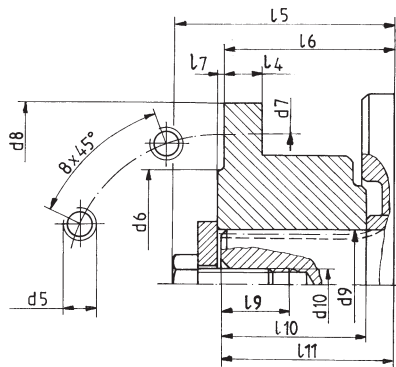
Priključci:
 Ports:

I, J, N, O = M22x1,5
 F, H = M22x1,5
 X = M14x1,5

ND	b	d ₁ h8	d ₂ DIN 5480	d ₃	e ₁	e ₂	e ₄	e ₅	e ₆	l ₁	l ₂	l ₃	l ₄	l ₅	γ (°)	v (°)	otvor/port P(S), S(P)	mass (kg)
35	36	φ127	W35x2x9g	15	104	175,5	114,6	89	117	246,5	293	349	20,5	10	50	21	3/4—	39,5
50	36		W35x2x9g		104	179		93	121	257	304	360	20				3/4—	42
70	31		W35x2x9g		113	196		107,5	129	282,5	341,5	397,5	7				1—	56
100	32		W40x2x9g		163	205		115,5	138	306,5	366	422	8				1—	69,5

**DODATAK
ANNEX**

POGONSKO VRATILO SA SPOJNICOM (mere u mm)
DRIVE SHAFT WITH COUPLING (dimensions in mm)

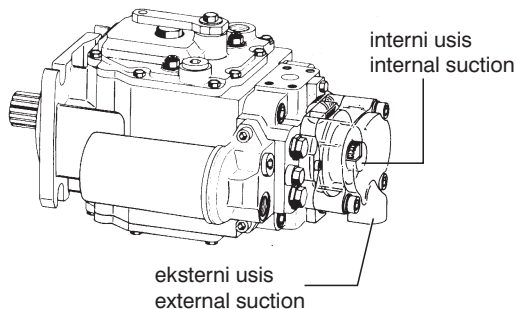


ND	d5	d6(H8)	d7	d8	d9 DIN 5480	d10	l4	l5	l6	l7	l9	l10	l11
35													
50	M10	∅75	∅101,5	∅120	W35x2x9g	M10	12	71	56	2	23	48	56
70													
100	M10	∅75	∅101,5	∅120	W40x2x9g	M10	12	71	56	2	23	48	56

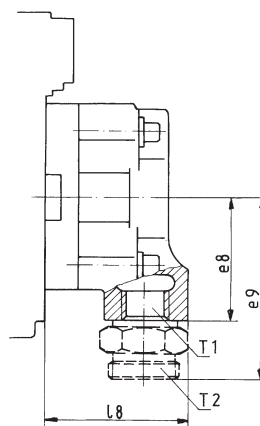
POMOĆNA PUMPA (mere u mm)
BOOST PUMP (dimensions in mm)

Klipno aksijalne pumpe BPV mogu biti izvedene sa internim ili eksternim usisavanjem pomoćne pumpe. Pomoćna pumpa je sa unutrašnjim ozubljenjem. Interno usisavanje predstavlja izuzetno jeftino rešenje i primenjuje se naročito za jednostruki zatvoreni sistem. Eksterno usisavanje ima primenu specijalno

Axial piston pumps BPV series are applied with boost internal pump for internal or external suction. The boost pump is internal gear-ring type. Internal suction is an especially solution mainly for single circuit systems. External suction is mainly used for



Prirubnica za eksterni usis
External suction flange

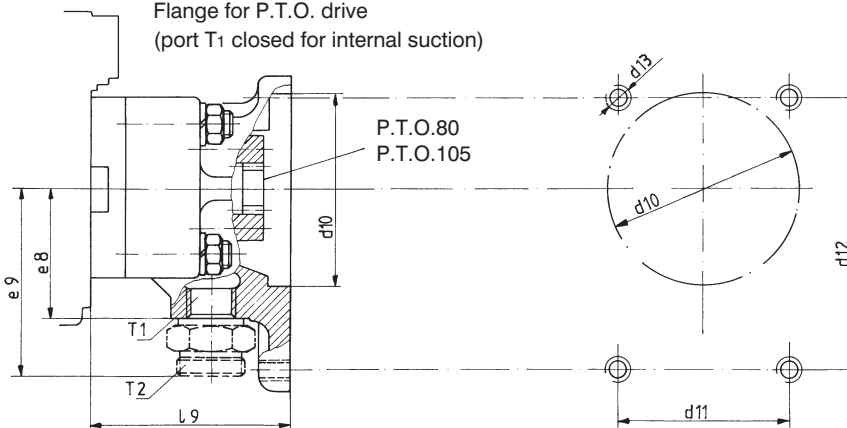
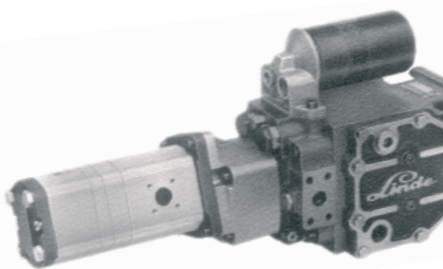


ND	l8	e8	e9	T1	T2
35	63,5	65	90	M26x1,5	M36x2
50	64				
70	74,5				
100	74,5				

A

DODATNA PUMPA - P.T.O. VRATILO (mere u mm)
ADDITIONAL PUMP - P.T.O. SHAFT (dimensions in mm)

Prirubnica za eksterni usis i dodatnu pumpu
(pri internom usisavanju zatvoriti T1)
Flange for P.T.O. drive
(port T1 closed for internal suction)



ND	Vratilo/ Shaft		l9		e8	e9	d10		d11		d12		d13	
	P.T.O.80	P.T.O.105	P.T.O.80	P.T.O.105			P.T.O.80	P.T.O.105	P.T.O.80	P.T.O.105	P.T.O.80	P.T.O.105	P.T.O.80	P.T.O.105
35			75,5	93,5	70	95	80	105	72	102	100	145	M8x1,5	M10x1,5
50			75,5	93,5										
70	A17x14 DIN 5482	A28x25 DIN 5482	86,5	104,5										
100			86,5	104,5										

DODATAK ANNEX

UPRAVLJAČKI RAZVODNI VENTILI TIP 215 (videti odeljak **E**)

Sa ovim ventilima može da se upravlja promenom radne zapremine pumpe. Upravljanje je kontinuirano, u funkciji pritiska. Ventili imaju mogućnost upravljanja sa jednom ili dve pumpe (jedna ili dve poluge), sa ili bez zadržavanja položaja i dr. Po zahtevu, ako je u pitanju ventil sa jednom -središnjom polugom, može biti u njoj ugrađen i el. prekidač koji omogućava indikaciju akustičnog ili svetlosnog signala.

Tehničke karakteristike	Oznaka
- Nazivni protok 10 l/min.	215-3100-3
- Regulisani pritisak - za pumpe 2...8 bar	215-3100-4
- za pumpe/motore 2...15 bar	215-3400-3
- Radni pritisak max 60 bar	215-3500-4
	215-3500-20

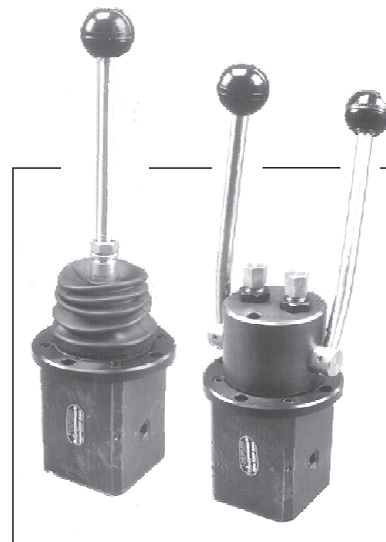
CONTROL VALVES FOR HIGH - PRESSURE UNITS TYPE 215 (see chapter **E**)

PPT variable pumps (and variable motors) can be steplessly and sensitively regulated by means of these hydraulic control valves. Controlling depends on the control pressure which can be varied by the control valve. Proportionality exists between control pressure and pump displacement resp. hydraulic motor RPM.

For the control of hydraulic units 2-spool (for one pump) and 4-spool (for two pumps) valves with differing characteristics and actuating mechanisms (depending on the requirements)-are used, e.g.

Two - spool control valves with lateral level, with spring - return mechanism or defent. Four - spool control valves with one control lever or two lateral levers, with spring-return mechanism and defent of fixing by friction brake and mechanism with single and double electric contacts for push and rocker switches.

Technical data	Designation
- Nominal flow 10 l/min.	215-3100-3
- Pressure ranges - for pumps 2...8 bar	215-3100-4
- for pumps/motors 2...15 bar	215-3400-3
- Max pressure 60 bar	215-3500-4
The control valve characteristics must be tailored	215-3500-20



UREDAJ ZA ELEKTRONSKO UPRAVLJANJE TIP UR 2408 (videti odeljak **M**)

Ovaj uređaj omogućava proporcionalno elektronsko upravljanje protoka pumpe. Njegove prednosti su sledeće:

- pogodan je za ugradnju u kabini vozila, spojni el.kabal do pumpe vodi se slobodno na veliku udaljenost
- ugrađena elektronska rampa omogućava lagano i osetljivo bezudarno reverzibilno upravljanje
- ima sposobnost tačnog reprodukovanja
- ima sigurno vraćanje poluge u nulti položaj
- napon napajanja 24 V DC

ELECTRONIC PUMP CONTROL UNIT TYPE UR 2408 (see chapter **M**)

The electro-hydraulic control for variable pumps is based on the hydraulic remote control. Actuation of the pressure control valves is made by proportional solenoids on the pump, which actuated are by this remote control unit.

Depending on the control current (mA) the unit operated with flow of the main pump.

Advantages:

- Versatile applications: The pump control valve fits in any driver's cabin. The electric cable between control unit and power unit can easily be fitted to the machine even bridging relatively long distances.
- Limitation of intolerable acceleration or delay times possible: smoth and jerkfree reversability acceleration times programmable
- Positive neutral: the control handle is locked in neutral this preventing accidental movement.
- Voltage 24 V DC
- Max power absorpion 22 W

