SP 1 Elektrický servopohon jednootáčkový \Electric part-turn actuator\

Štandardné vybavenie:

- Napájacie napätie 230 V AC
- Svorkovnicové pripojenie
- 2 momentové spínače
- 2 polohové spínače
- Mechanické koncové dorazy
- Mechanické pripojenie prírubové ISO 5211
- Miestny ukazovateľ polohy
- Ručné ovládanie
- Stupeň krytia IP 67

Standard equipment:

- Voltage 230 V AC
- Terminal board connection
- 2 torque switches
- 2 position switches
- Mechanical stop ends
- Mechanical connection - flange ISO 5211
- Mechanical position indicator
- Manual control
- Protection code IP 67

Špecifikačná tabuľka \Specification table\ SP 1

Objednávací kód \Order code\	281.	x	-	x	x	x	x	x	/	x	x

	Klimatická odolnosť [10] \Climate resistance\	Korózna kategória \Corrosivity category\	Okolitá teplota \Ambient temperature\	Krytie \Enclosure\	
Vyhotovenie \Version\	štandard \standard \	C3	-25°C ÷ +55°C	IP 67	**1**
		C4	-25°C ÷ +55°C	IP 67	2
		C3	-25°C ÷ +55°C	IP 68 [11]	5
	chladné \cold \	C3	-50°C ÷ +40°C	IP 67	3
	tropické \tropics\	C3	-25°C ÷ +55°C	IP 67	6
	morské \sea\	C4	-50°C ÷ +40°C	IP 67	7

Elektrické pripojenie \Electric connection\	Napájacie napätie \Voltage\	Schéma zapojenia \Wiring diagram\	
Na svorkovnicu \To terminal board\	230 V AC	Z1a + Z11a	**0**
	220 V AC		L
	3x400 V AC	Z78a + Z12a [8]	**9**
	3x380 V AC	Z78a + Z12a [8]	M
	24 V AC	Z507	**3**
	24 V DC	Z503	A
Na konektor [21] \To connector\	230 V AC	Z1a + Z11a	5
	220 V AC		P
	3x400 V AC	Z78a + Z12a [8]	7
	3x380 V AC	Z78a + Z12a [8]	R
	24 V AC	Z507	8
	24 V DC	Z503	C

Vypínací moment \Switching/off torque\	Max. zaťažovací moment [33] \Max. load torque\	230 V, 220 V AC		3x380, 3x400 V AC, (24 V AC/DC)		
		Doba prestavenia \Operating time\	Elektromotor \Electric motor\	Doba prestavenia \Operating time\ [34]	Elektromotor \Electric motor\	
46 Nm	40 Nm	10 s/90°	15 W	10 s/90°	15 W (20 W)	0
90 Nm	80 Nm	20 s/90°		20 s/90°		**1**
90 Nm	80 Nm	40 s/90°		40 s/90°		**2**
72 Nm	63 Nm	80 s/90°	4 W	-	-	3

Pracovný uhol \Operating angle\		
S pevnými dorazmi \With stop ends\	60°	A
	90°	**B**
	120°	C
	160°	D
Bez dorazov \Without stop ends\	60°	K
	90°	L
	120°	M
	160°	N
	360°	P
	> 0°≤ 360° [41]	Z

Pokračovanie na ďalšej strane
\Next page\

Poznámky:

8) Pre vyhotovenie s prídavnými polohovými spínačmi je možné špecifikovať dvojitý vysielač len bez vyhrievacieho odporu.
10) Pozri "Pracovné prostredia" na str. 2.
11) IP 68 - 10 m / 48 hod.
21) Vyhotovenie s konektorom len do - 40° C.
Schémy zapojenia sú uvedené bez číselného označenia na konektore. Úplná schéma na požiadanie.

Notes:

8) For the EA version with additional position switches and double potentiometer space heater cannot be specified.
10) See "Working environment" on page 2.
11) IP 68 - 10 m / 48 hours.
21) The version with connector in -40°C only.
Wiring diagrams are not showing connector pin numbers. Complete diagram on request.

Objednávací kód \Order code\	281.	x	-	x	x	x	x	x	/	x	x

Vysielač polohy \Transmitter\		Zapojenie \Connection\	Výstup \Output\	Schéma zapojenia \Wiring diagram\	
Bez vysielača \Without transmitter\		-	-	-	A
Odporový \Potentiometer\	Jednoduchý \Single\	-	1 x 100 Ω	Z5a	B
			1 x 2 000 Ω		F
	Dvojitý \Double\	-	2 x 100 Ω	Z6a	K
			2 x 2 000 Ω		P
Elektronický - prúdový \Electronic position transmitter\	Bez zdroja \ Passive \	2-vodič \2-wire\	4 - 20 mA	Z10a	S
		3-vodič \3-wire\	0 - 20 mA	Z257a	T
			4 - 20 mA		V
			0 - 5 mA		Y
	So zdrojom [59] \ Active \	2-vodič \2-wire\	4 - 20 mA	Z269a	Q
		3-vodič \3-wire\	0 - 20 mA	Z260a	U
			4 - 20 mA		W
			0 - 5 mA		Z
Prúdový \ CPT \	Bez zdroja \ Passive \	2-vodič \2-wire\	4 - 20 mA	Z10a	I
	So zdrojom \ Active \ [59]			Z269a	J

Mechanické pripojenie \Mechanical connection\		Tvar pripoj. dielca \Coupling shape\ ISO	Rozmer \Dimension\	Rozmerový náčrt \Dimensional drawing\	
Príruba \Flange\ ISO 5211	F05/F07	**D-14**	14x14	P-1147 P-1222	A
		L-14			B
		H-14	14x22		C
		V-20	Ø20 [62]		D
		D-17	17x17		E
		L-17			F
		H-11	11x18		G
		D-11	11x11		H
		L-11			Q
		H-8	8x13		N
		V-16	Ø16 [62]		8
		V-17	Ø17 [62]		P
		D-16	16x16		R
		L-16			S
		H-10	10x16		T
		V-18	Ø18 [62]		U
		V-30	Ø30 [63]		V
		-	Ø 8 [64]		W
		H-17	17x25		Z
Stojan, výstupný hriadeľ, pero \Stand, Output shaft, Key\		-	Ø22	P-1162, P-1225 P-0210	J
Stojan + Páka \Stand + Lever\		-	-		K
Stojan + Páka + Ťahadlo TV 360 \Stand + Large lever + Pull-rod TV 360\		-	-		L

Rozšírené vybavenie \Additional equipment\		Schémy zapojenia \Wiring diagrams\ 230 V AC	3x400 V AC	24 V AC	24 V DC		
A	2 prídavné polohové spínače \2 additional position switches\	Z11a	Z12a	Z507	Z503	0	0
E	Vyhrievací odpor s tepelným spínačom \Space heater with thermal switch\	Z1a	Z78a	Z507	Z503	0	2
C	Miestne ovládanie \Electric local controls [70]	Z270i	Z90c	Z509b	Z505b	0	7
D	Vyhrievací odpor \Space heater\	Z1a	Z78a	Z507	Z503	1	5
H	Pozlátené kontakty mikrospínačov, detaily po konzultácii s výrobcom \Gold coated contacts of microswitches, details after consultation with producer\					4	0

Dovolené kombinácie a kódy \Allowed combination and code\: **A+E=04**, A+C=08, E+C=10, A+E+C=12, A+D=16, C+D=17, A+C+D=18

Poznámky:

33) Týmto momentom je možné zaťažovať servopohon v režime S2-10 min, resp. S4-25%, 6 - 90 cyklov/hod.
Pre regulačnú prevádzku s režimom S4-25%, 90 až 1200 cyklov/hod je tento moment rovný 0.8 násobku max. zaťažovacieho momentu.
34) Odchýlka doby prestavenia pre DC elektromotory je -50% až +30% v závislosti od záťaže. Pre iné napätia je ± 10%.
41) Platí len pre vyhotovenie bez vysielača.
59) Pre napájacie napätie 24 VAC/DC po dohode s výrobcom.
62) Pripojovací otvor priamo vo výstupnom hriadeli (bez výmennej vložky).
63) Otvor pre výmennú vložku.
64) Výmenná vložka s otvorom Ø 8.
70) Miestne ovládanie len do -25°C.

Notes:

33) By this torque it is possible to load the actuator under duty cycle S2-10 min, or S4-25%, 6-90 cycles per hour.
For duty cycle S4-25%, 90-1200 cycles per hour this torque equals max. load torque multiplied by 0.8.
34) Deviation of operating speed for the DC electric motor is from -50% up to +30% depending on load. For other voltages the deviation is ± 10%.
41) Valid for version without transmitter only.
59) Active position transmitter for version 24 V AC/DC only after agreement with producer.
62) Connection bore directly within output shaft (without replaceable insert).
63) Bore for replaceable insert.
64) Replaceable insert with bore Ø 8.
70) Local controls module only till -25°C.

Schémy zapojenia \Wiring diagrams\ SP 1

Pozri str. 30, 31 *See pages 30, 31*\

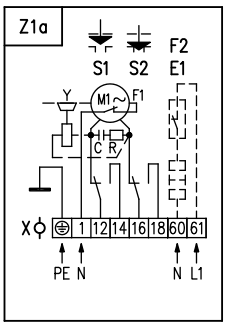
Elektrické pripojenie:

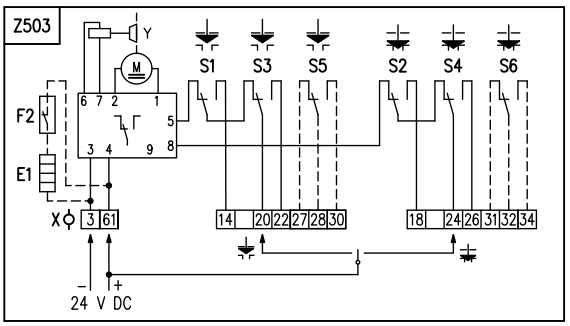
- na svorkovnicu s 24 svorkami s prierezom pripojovacích vodičov 1,5 mm^2,
- cez 3 káblové vývodky: - M20x1,5 pre priemer kábla 8 až 14,5 mm,
  - M16x1,5 pre priemer kábla 6 až 10,5 mm,
  - M12x1,5 pre priemer kábla 3,5 až 5 mm.

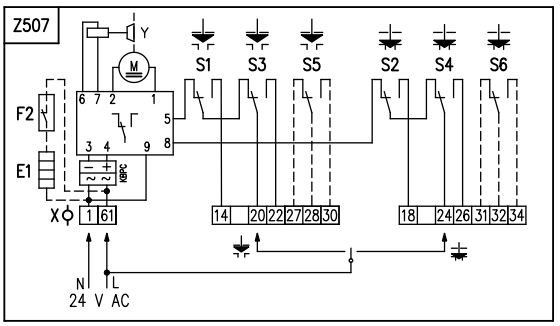
Electric connection:

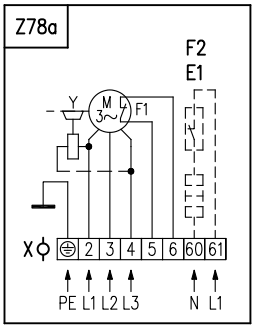
- to terminal board with 24 clamps, wire cross section 1.5 mm^2,
- via 3 cable glands: - M20x1.5 for cable diameter 8 to 14.5 mm,
  - M16x1.5 for cable diameter 6 to 10.5 mm,
  - M12x1.5 for cable diameter 3,5 to 15 mm.

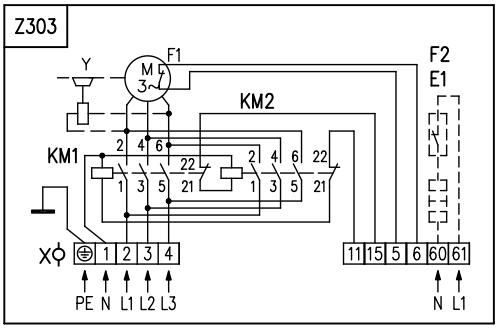
Schémy zapojenia \Wiring diagrams\ SP 1, SP 2, SP 2.3, SP 2.4

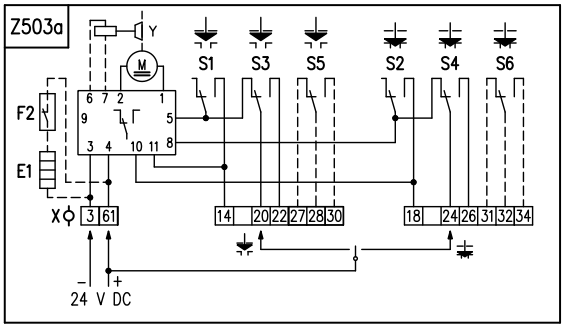


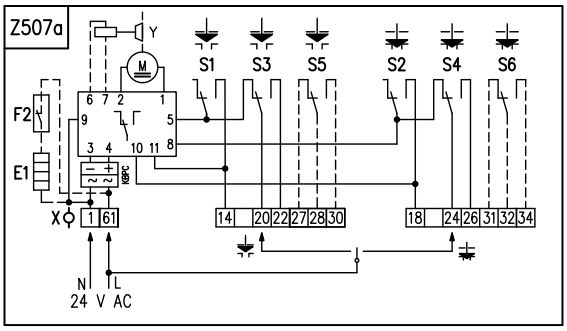


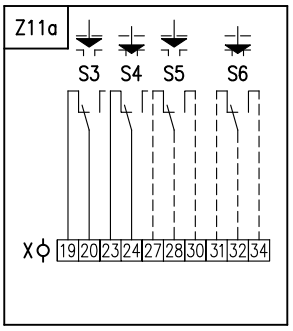


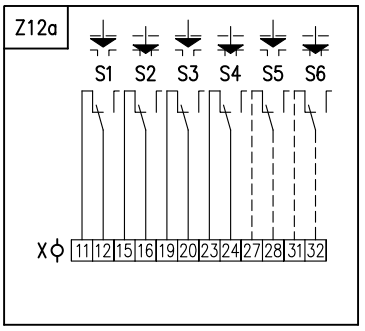


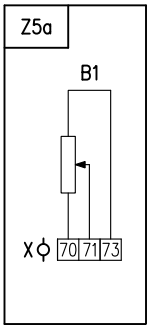


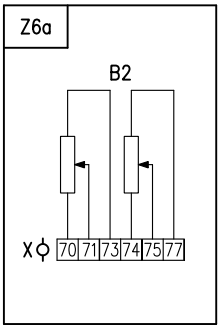


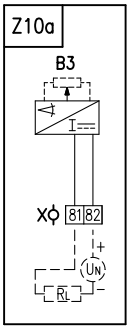


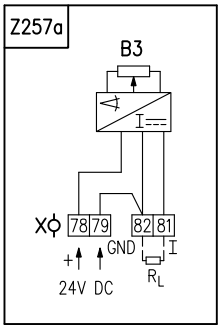


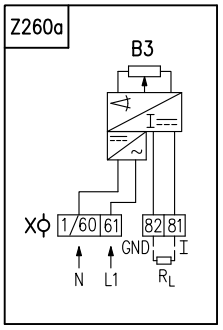


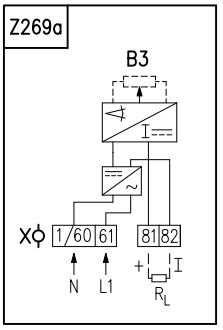


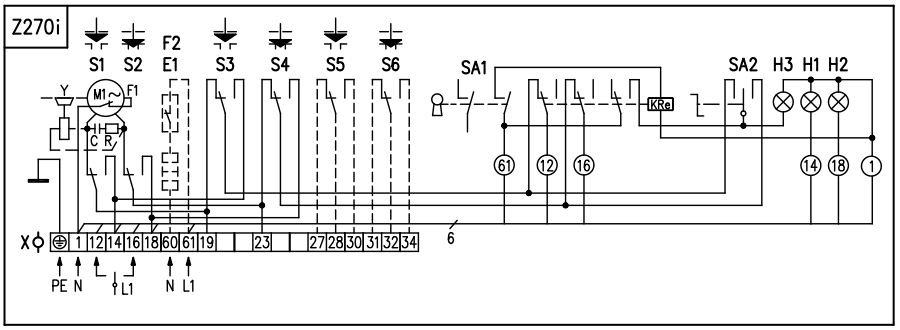








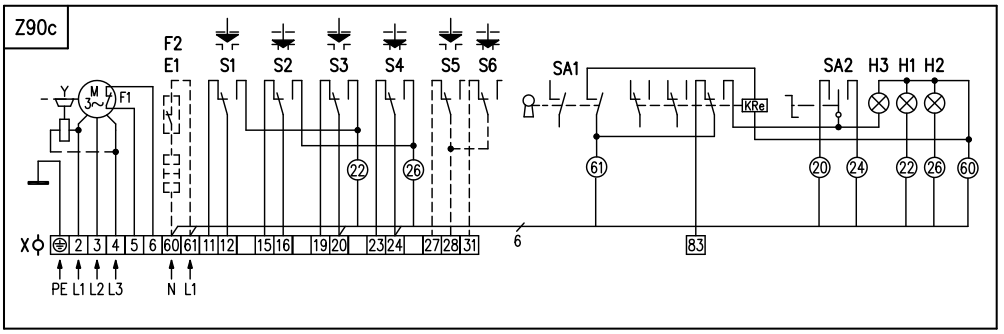




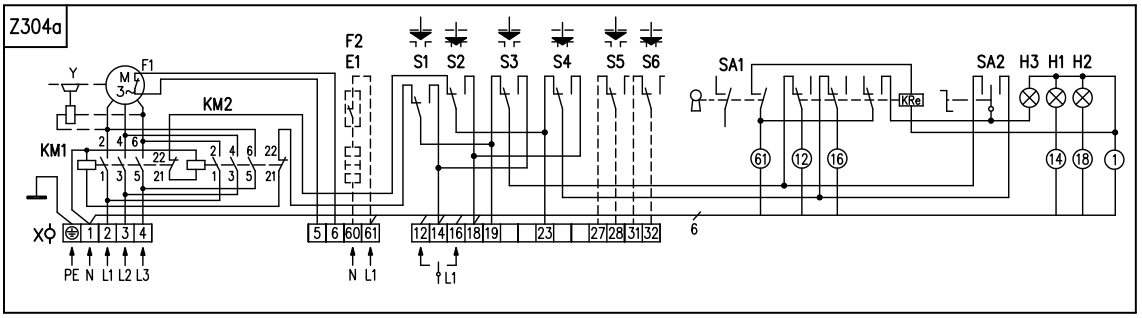
Poznámky:
1. Zapojenie je limitované počtom svoriek 24 na svorkovnici servopohonu.
2. Elektromotory sú štandardne vybavené tepelnou ochranou.
3. Vo vyhotovení ES s napájacím napätím 24 V AC nie je potrebné pripojiť zemniaci vodič PE.
4. Iné zapojenia servopohonov ako sú uvedené v katalógu sú možné po dohode s výrobcom.

Notes:
1. Wiring connection is limited by max. number of 24 terminals .
2. Electric motors are equipped with thermal protection as standard.
3. The version of EA with supply voltage of 24V AC does not require connecting of an earthing cable PE.
4. Different wirings of actuators than shown in the catalogue are possible after agreement with producer.

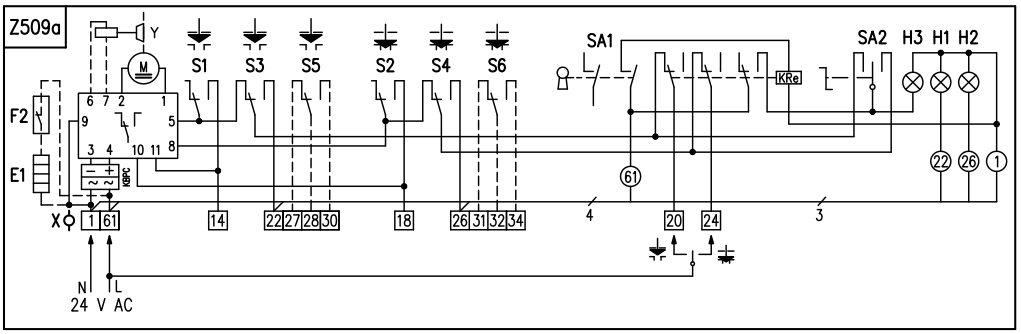
Z90c



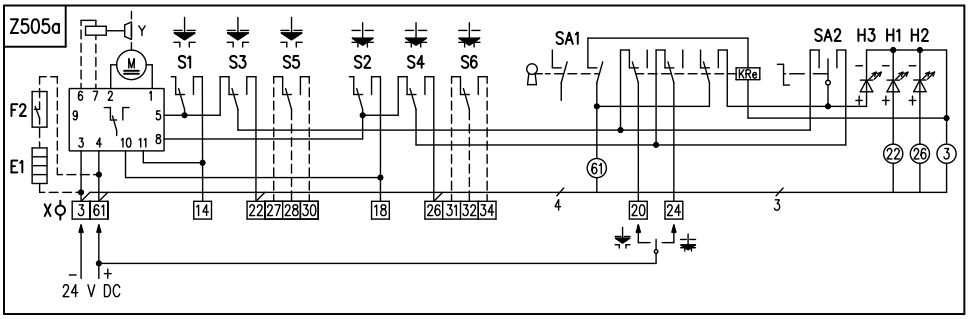
Z304a



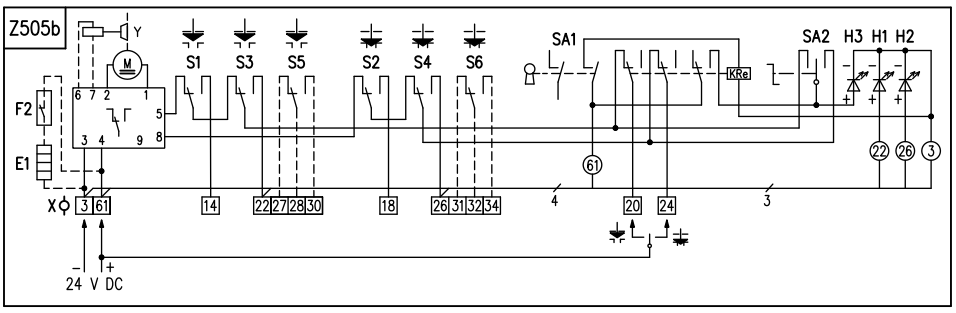
Z509a



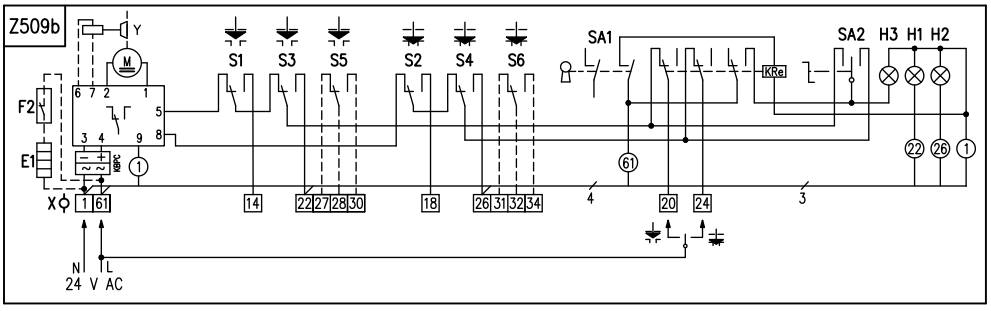
Z505a



Z505b



Z509b



Legenda:

Z1a .....zapojenie 1-fázového elektromotora
Z5a .....zapojenie jednoduchého odporového vysielača polohy
Z6a .....zapojenie dvojitého odporového vysielača polohy
Z10a .....zapojenie polohového vysielača prúdového - 2-vodič bez zdroja
Z11a.....zapojenie polohových spínačov pre 1-fázový elektromotor
Z12a .....zapojenie polohových spínačov pre 3-fázový elektromotor
Z78a .....zapojenie 3 -fázového elektromotora
Z90c.....zapojenie 3 -fázového elektromotora s miestnym ovládaním
Z257a .....zapojenie el. polohového vysielača prúdového - 3-vodič bez zdroja
Z260a .....zapojenie el. polohového vysielača prúdového - 3-vodič so zdrojom
Z269a .....zapojenie polohového vysielača prúdového - 2-vodič so zdrojom
Z270i.....zapojenie 1-fázového elektromotora s miestnym ovládaním
Z303 .....zapojenie 3 -fázového elektromotora s reverzačnými stýkačami
Z304a .....zapojenie 3 -fázového elektromotora s reverzačnými stýkačami a miestnym ovládaním
Z503 .....zapojenie SP 1 s ektromotorom 24 V DC
Z503a .....zapojenie SP 2, SP 2.3, SP 2.4 s ektromotorom 24 V DC
Z505a .....zapojenie SP 2, SP 2.3, SP 2.4 s ektromotorom 24 V DC s miestnym ovládaním
Z505b .....zapojenie SP 1 s ektromotorom 24 V DC s miestnym ovládaním
Z507 .....zapojenie SP 1 s ektromotorom 24 V AC
Z507a.....zapojenie SP 2, SP 2.3, SP 2.4 s ektromotorom 24 V AC
Z509a .....zapojenie SP 2, SP 2.3, SP 2.4 s ektromotorom 24 V AC s miestnym ovládaním
Z509b .....zapojenie SP 1 s ektromotorom 24 V AC s miestnym ovládaním

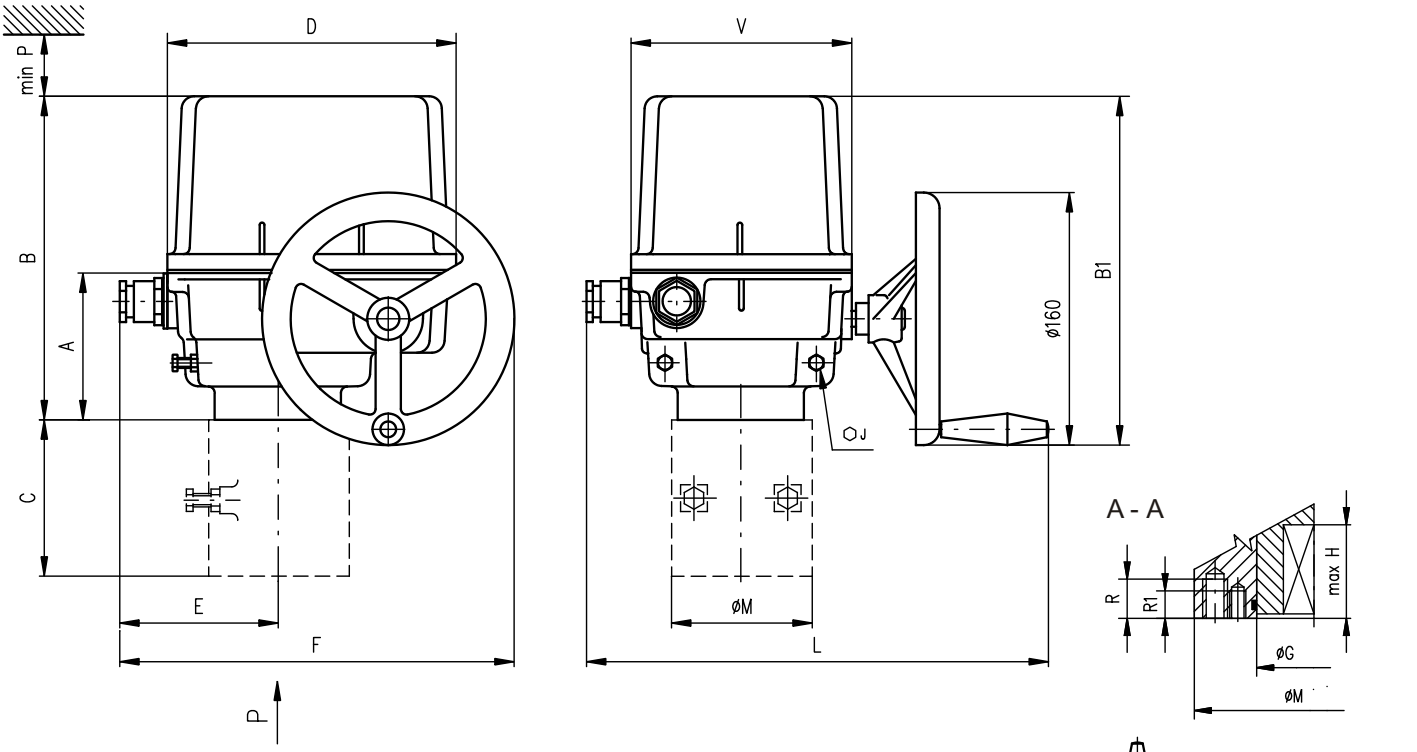
Legend:

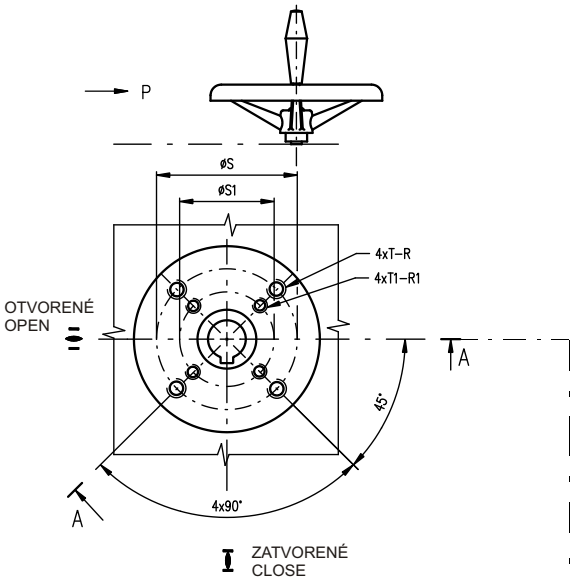
Z1a.....connection of 1-phase electric motor
Z5a.....connection of single potentiometer
Z6a.....connection of double potentiometer
Z10a.....connection of CPT or electronic position transmitter - 2 - wire, passive
Z11a .....connection of position switches for 1-phase electric motor
Z12a.....connection of position switches for 3-phase electric motor
Z78a.....connection of 3-phase electric motor
Z90c.....connection of 3-phase electric motor with local controls
Z257a.....connection of electronic position transmitter - 3 - wire, passive
Z260a.....connection of electronic position transmitter - 3 - wire, active
Z269a.....connection of CPT or electronic position transmitter - 2 wire - active
Z270i.....connection of 1-phase electric motor with local controls
Z303.....connection of 3 -phase electric motor with reverse contactors
Z304a.....connection of 3 -phase electric motor with reverse contactors and with local controls
Z503.....conection of SP 1 with electric motor 24 V DC
Z503a.....conection of SP 2, SP 2.3, SP 2.4 with electric motor 24 V DC
Z505a.....conection of SP 2, SP 2.3, SP 2.4 with electric motor 24 V DC with local controls
Z505b.....conection of SP 1 with electric motor 24 V DC with local controls
Z507.....conection of SP 1 with electric motor 24 V AC
Z507a.....conection of SP 2, SP 2.3, SP 2.4 with electric motor 24 V AC
Z509a.....conection of SP 2, SP 2.3, SP 2.4 with electric motor 24 V AC with local controls
Z509b.....conection of SP 1 with electric motor 24 V AC with local controls

B1.....odporový vysielač jednoduchý
B2.....odporový vysielač dvojitý
B3.....polohový vysielač prúdový
S1.....momentový spínač „otvorené“
S2.....momentový spínač „zatvorené“
S3.....polohový spínač „otvorené“
S4.....polohový spínač „zatvorené“
S5.....prídavný polohový spínač „otvorené“
S6.....prídavný polohový spínač „zatvorené“
M.....elektromotor
C .....kondenzátor
Y.....brzda elektromotora
E1.....vyhrievací odpor
F1.....tepelná ochrana elektromotora
F2.....tepelný spínač vyhrievacieho odporu
X.....svorkovnica
I .....výstupný signál prúdový
H1 .....indikácia koncovej polohy „otvorené“
H2 .....indikácia koncovej polohy „zatvorené“
H3 .....indikácia režimu „miestne ovládanie“
SA1 .....otočný prepínač s kľúčom „diaľkové - 0 - miestne“ ovládanie
SA2 .....otočný prepínač „otvára - stop - zatvára“
R .....zrážací odpor
R_L .....zaťažovací odpor
KM.....reverzný stýkač

B1.....single potentiometer
B2.....double potentiometer
B3.....CPT or electronic position transmitter
S1.....torque switch „open“
S2.....torque switch „closed“
S3.....position switch „open“
S4.....position switch „closed“
S5.....additional position switch „open“
S6.....additional position switch „closed“
M.....electric motor
C .....capacitor
Y.....motor's brake
E1.....space heater
F1.....motor's thermal protection
F2.....space heater's thermal switch
X.....terminal board
I .....output current signal
H1 .....indication of „open“ limit position
H2 .....indication of „closed“ limit position
H3 .....indication of „electric local control“
SA1 .....rotary switch with key „remote - 0 - electric local“ control
SA2 .....rotary switch „opening - stop - closing“
R .....reducing resistor
R_L .....loading resistor
KM.....reverse contactor

Rozmerové náčrty \Dimensional drawings\ SP 1, SP 2, SP 2.3, SP 2.4





Hlavné rozmery \Main dimensions\

Typ \Type\	A	B	B1	C	D	E	F	J	L	M	P	V
SP 1	102	223	239	-	183	93	243	13	280 396*	90	160	140
SP 2	117	284	291	-	234	119	294	17	330 446*	90	210	190
SP 2.3				112				19		125		
SP 2.4				127				22		150		

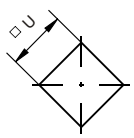
** platí pre vyhotovenie s konektorom \valid for version with a connector*

Rozmery prírub \Flange dimensions\

Typ \Type\	G	H	R	R1	S	S1	T	T1	Veľkosť príruby \Flange size\
SP 1	40	37	16	12	70	50	M8	M6	F07/F05
SP 2	40	49	16	12	70	50	M8	M6	F07/F05
SP 2.3	55	56	20	16	102	70	M10	M8	F10/F07
SP 2.4	65	71	24	20	125	102	M12	M10	F12/F10

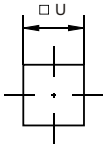
Tvar pripojovacieho dielca \Coupling shape

D-xx



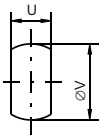
ISO	Rozmer \Dimension\
D-xx	U
D-14	14
D-17	17
D-22	22
D-27	27
D-11	11
D-16	16

L-xx



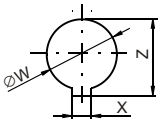
ISO	Rozmer \Dimension\
L-xx	U
L-14	14
L-17	17
L-22	22
L-27	27
L-11	11
L-16	16

H-xx

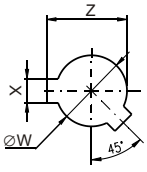


ISO	Rozmer \Dimension\	
H-xx	U	V
H-14	14	22
H-11	11	18
H-8	8	13
H-17	17	25
H-13	13	19
H-22	22	32
H-16	16	22
H-27	27	48
H-19	19	28
H-10	10	16

V-xx

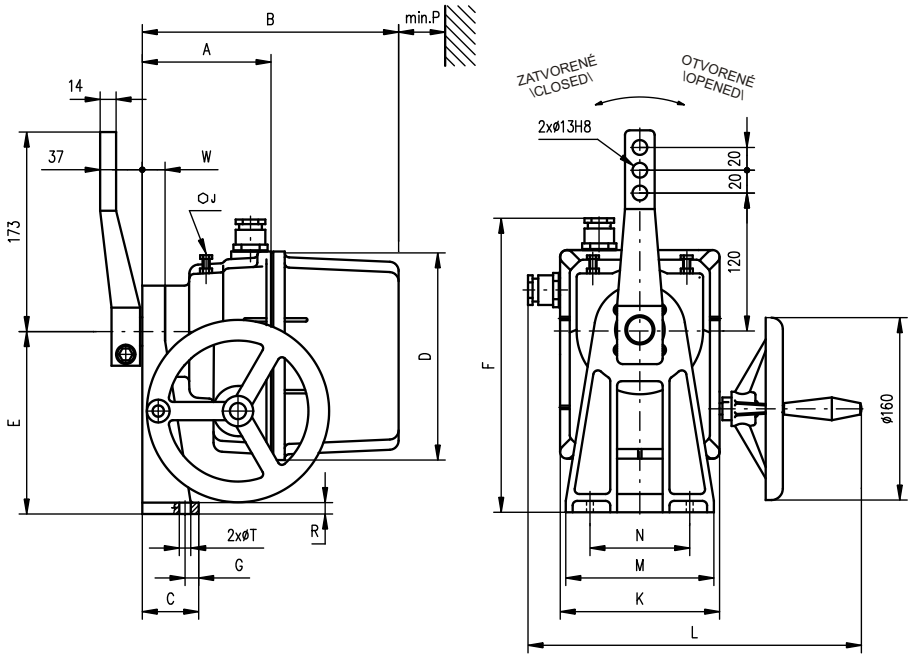


V-30, V-45.4

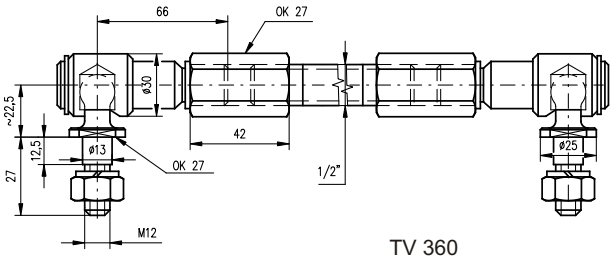


ISO	Rozmer \Dimension\		
V-xx	W	Z	X
V-20	20.0	22.5	6.0
V-22	22.0	24.5	6.0
V-32.2	32.2	35	6.5
V-17	17.0	19.5	6.0
V-28	28.0	30.9	8.0
V-42	42.0	45.1	12.0
V-45.4	45.4	48.8	10.0
V-50	50.0	53.5	14.0
V-18	18.0	20.5	6.0
V-30	30.0	32.5	8.0

P - 1147



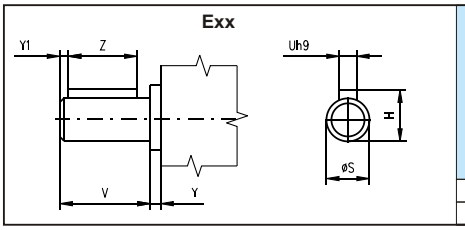
P - 1162



TV 360

P - 0210

Tvar pripojovacieho dielca \Coupling shape\



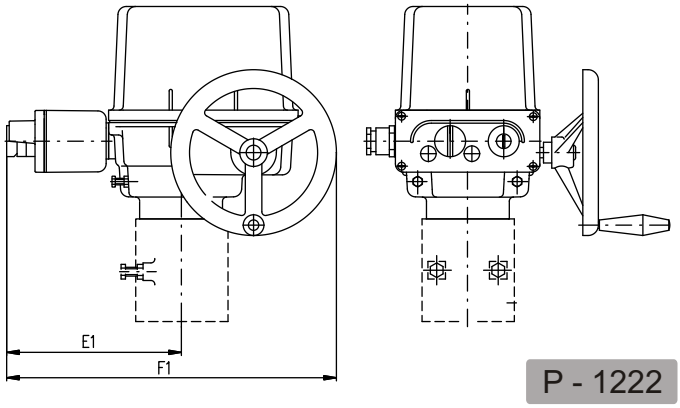
Typ \Type\	H	S	U	V	Z	Y	Y1	Tvar pripojovacieho dielca \Coupling shape\
SP 1	24.5	22	6	28	25	2	2	E01
SP 2	27.9	25	8	35	28	2	2	E02

Hlavné rozmery \Main dimensions\

Typ \Type\	A	B	C	D	E	E1	F	F1	F2	G	W	J	K	L	M	N	P	R	T
SP 1	122	243	50	183	160	163	258	313	273 345*	12	20	13	140	280 396*	130	80	160	10	10.5
SP 2	132	288	58	232	200	189	323	364	-	30	28	17	190	330 446*	160	90	210	11	12.6

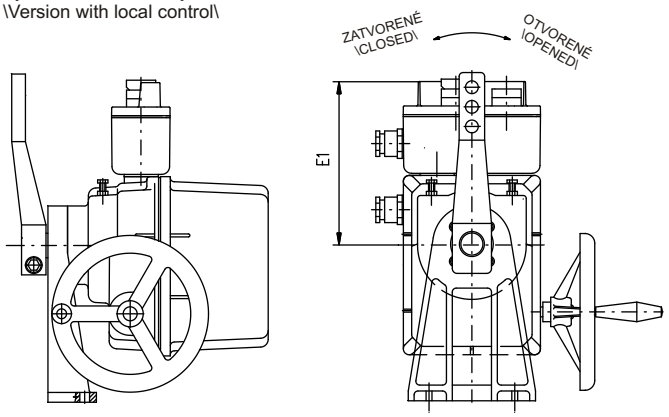
** platí pre vyhotovenie s konektorom \valid for version with a connector*

Vyhotovenie s miestnym ovládaním
\Version with local control\

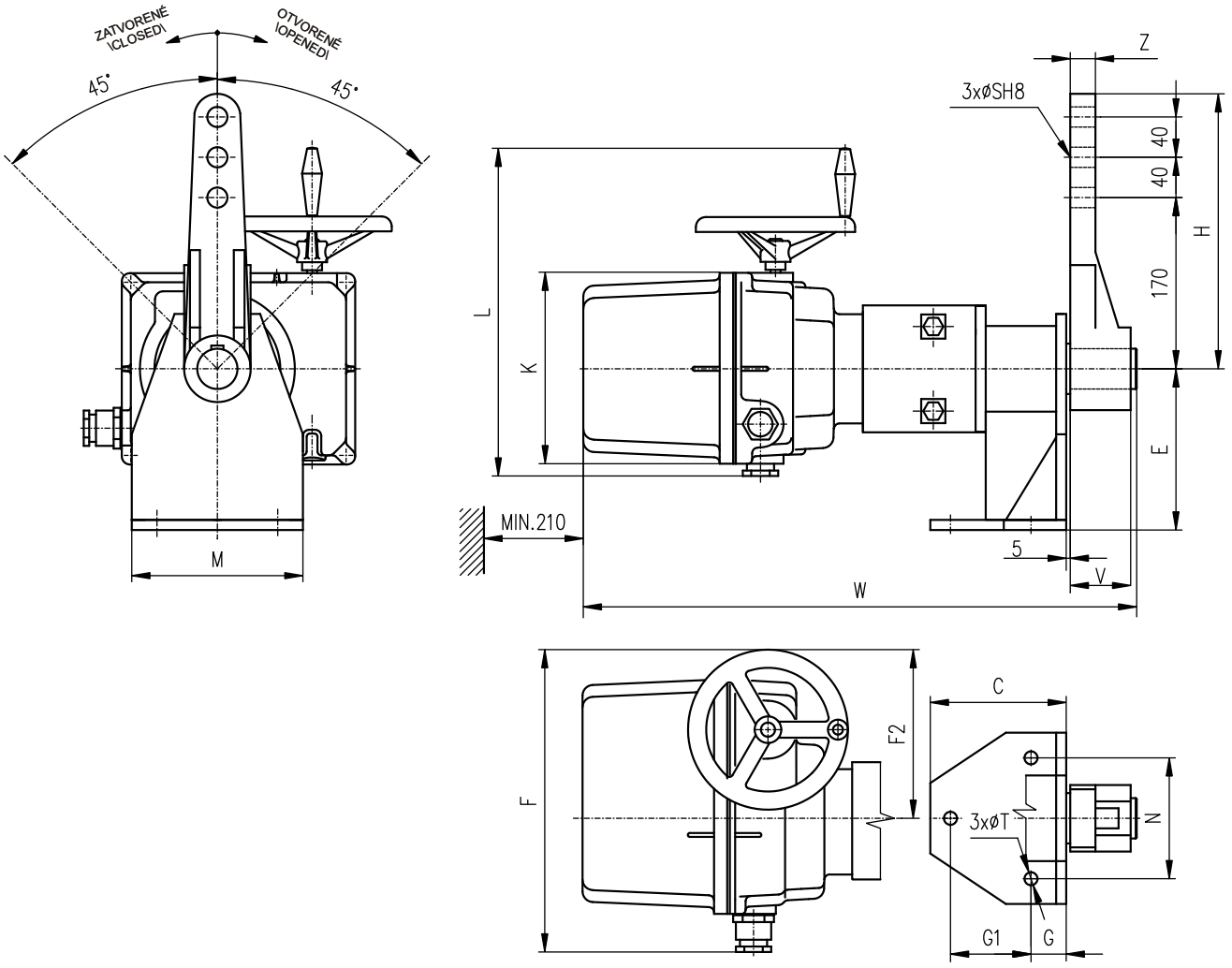


P - 1222

Vyhotovenie s miestnym ovládaním
\Version with local control\



P - 1225



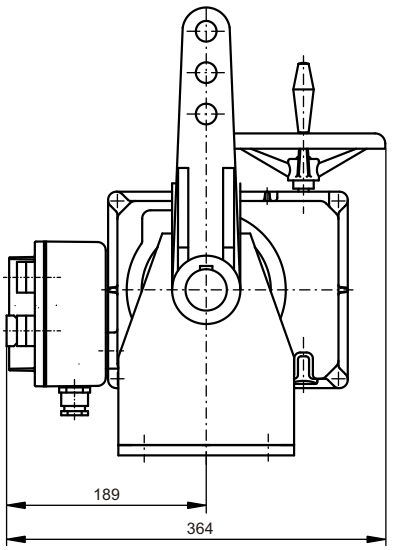
Hlavné rozmery \Main dimensions\

Typ \Type\	C	E	F	F2	G	G1	H	W	K	L	M	N	S	T	V	Z
SP 2.3	135	160	294	174	35	80	278	532	190	330 446*	170	120	20	13	56	25
SP 2.4	200	220	294	174	60	120	278	593	190	330 446*	228	170	25	17	80	30

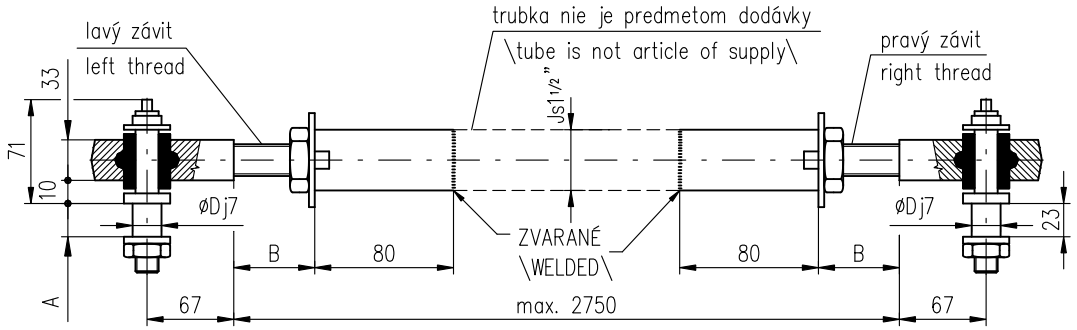
** platí pre vyhotovenie s konektorom \valid for version with a connector*

P - 1395

Vyhotovenie pákového servopohonu SP 2.3 a SP 2.4 s miestnym ovládaním
\Version SP 2.3, SP 2.4 with lever and local controls\



P - 1412

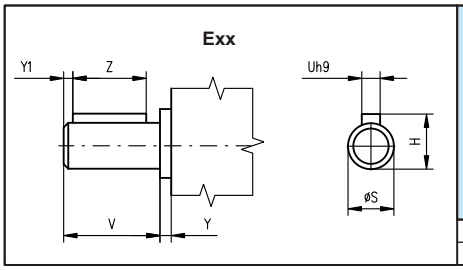


P-1413/B	SP 2.4	TV 50-1/25	28	Min.30 Max.50	25
P-1413/A	SP 2.3	TV 40-1/20	23		20
Vyhotovenie \Version\	Typ \Type\	Typ ťahadla \Pull-rod version\	A	B	D

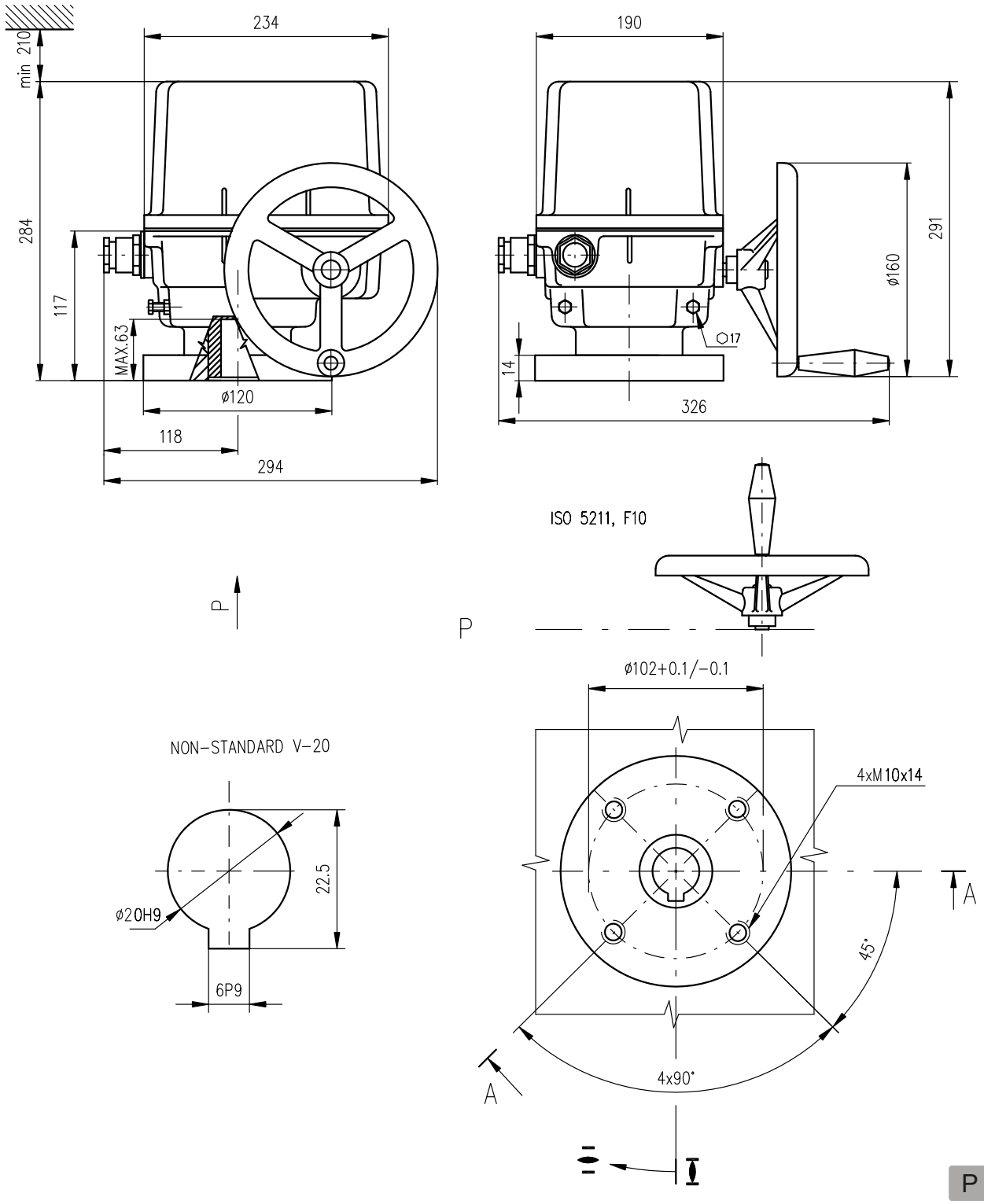
P - 1413

Vyhotovenie servopohonu SP 2.3 a SP 2.4 so stojanom a voľným koncom hriadeľa
\Version SP 2.3, SP 2.4 with stand and naked shaft\

Tvar pripojovacieho dielca \Coupling shape\



Typ \Type\	H	S	U	V	Z	Y	Y1	Tvar pripojovacieho dielca \Coupling shape\
SP 2.3	43.1	40	12	66	56	4	7	**E03**
SP 2.4	53.8	50	16	82	70	4	7	**E04**


234
min 210
284
117
MAX.63
ø120
118
294
190
291
ø160
17
14
326
ISO 5211, F10
P
P
ø102+0.1/−0.1
4xM10x14
A
45°
4x90°
A
NON−STANDARD V−20
22.5
ø20H9
6P9

P - 2068