

# Test Specifications for Injection Pump and Governor

**Injection Pump**  
PES 4 M 50 A 320 RS 14

**with Governor**  
EP/MN 60 M 9 d

**DAI Sheet**

**1.9 f**

dated: Aug. 3rd 1961

## A. Adjustment Data of the Injection Pump

**Feed Begin at a Pre-stroke of 1.7+0.1 mm (from BDC) at Control Rod Travel 18**

1	2	3	4	5	6
Speed r. p. m.	Control Rod Travel mm	Feed Quantity cm <sup>3</sup> /100 strokes	Feed Quantity Differential cm <sup>3</sup> /100 strokes	Feed Quantity Drop (between 1000 and 200 r. p. m.) cm <sup>3</sup> /100 strokes	Pre-tension of Spring (Adaptation Valve) mm
1000	9	0.9-1.3	0.2		
	15	3 -3.5			
	18	3.8-4.4			
200	9	0.8-1.2			

Adjust delivery of equal quantities within outlined  limits

## B. Adjustment of Governor

1	2	3	4	5	6	7	8	9	10	11
Compensating Path mm	Tightness Vacuum drop mm Water Col.	Time red. sec.	Adjusting Point Control Rod Travel Vacuum mm Water Col.	Control Rod Travel Control Path mm	Adjustment Supplement. Spring Vacuum mm Water col.	Control Path mm	Control Rod Travel Test Vacuum mm Water Col.	Control Path mm	Compensation Vacuum Water Col. mm	Control Path mm
2.5+0.1	500-480	10	-	-	-	-	440* 475 550	12.4-12.7 8.2-12.2 0-5	50 200 400	14.9-15 14.1-14.4 12.7-13

\* Begin of governing between 450-470 mm WG by adding washers WMS 22 S 18..19 X under governor spring.  
During Control Rod Travel Test (Column 4-11) n = 500 r. p. m.

## C. Adjustment of Injection Pump with Mounted Governor

0	1	2	3	4	5	6	7	8	9
Injection Pump	Adjustment of Full-Load Stop Screw			Testing of Feed Quantity Characteristics			Adjustment of Idling Stop		
	r. p. m.	Vacuum mm Water Col.	cm <sup>3</sup> /1000 strokes	r. p. m.	Vacuum mm Water Col.	cm <sup>3</sup> /1000 strokes	r. p. m.	Vacuum mm Water Col.	Control Path from Full Load to Idling Load mm
RS 14	2000	440	30-31	1400 800	300 95	29 -31 32.5-34.5			
				250	ap. 480	5-11			
				deviation max. 1.5					

At full load setting (col. 3 and 6) individual measurements 1000 strokes  
All test values apply only for BOSCH Injection Test Stands.

## **\*\* Adjustment of Idling Stop**

At 500 rpm and with governor stop cam disengaged set control rod to full load position by increasing WG to 445 mm (accurately) and measure control rod travel obtained. Increase control rod travel still further until control rod has adjusted to 3.0 mm less control rod travel than at full load position measured at 445 mm WG. In this position move stop cam slowly up to end position watching control rod during the process.

With spring cage correctly set the control rod should now adjust to a control rod travel  $2.0 \pm 0.5$  mm less than in full load position measured at 445 WG. If the adjusted value is higher or lower the position of the spring bolt in the spring cage should be changed by placing the required washers between the spring bolt collar and the lock washer.

**Attention please:** This change will also change the pre-tension in the spring cage. By placing washers between spring and spring bolt bottom end the pre-tension will be brought back to the specified value of 50–90 grams.

With cam in contact position and the governor adjusting lever set in direction STOP the control rod should move to Control Rod Travel 0.