

Test Specifications for Injection Pump and Governor

Injection Pump

PES 4 M 50 A 320 RS 14
RS 14 z

Special Features:

Control Edge Gradient 5/12 mm

with Governor

EP/MN 60 M 11 d

DAI Sheet

1.9 g

dated: Oct. 6th 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 ³ /100 strokes	Feed Quantity Differential cm ³ /100 strokes	Feed Quantity Drop (between 1000 and 200 r. p. m.) cm ³ /100 strokes	Pre-tension of Spring (Adaptation Valve) mm
1000	9	0.9-1.3			
	15	3 -3.5	0.2		
	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 Path mm	Adjustment Supplementary Spring Vacuum mm Water C.	Control Path mm	Control Rod Travel Test Vacuum mm Water Col.	Control Path mm	Compensation Vacuum mm Water Col.	Control Path mm
2.1 ± 0.1	500-480	10	-	-	-	-	520 560 600 700	11.9* 10.2-11.5 7.8-9.5 2.6-5.4	100 200 400	13.9-14 13.6-13.9 12.2-12.6

* Begin of governing between 530-550 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 ³ /1000 strokes	r. p. m.	Vacuum mm Water Col.	cm ³ /1000 strokes	r. p. m.	Vacuum mm Water Col.	Control Path from Full Load to Idling Load mm
RS 14	1900	510	28.5-29.5	1000 500	150 0	29.5-31.5 28.5-30.5	-	** please turn over	
				250	ap. 610	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 510 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 510 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 1.5 ± 0.5 mm less than in full load position measured at 510 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 O.

RS 14 z with ... M 11 d												
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Compensating Path mm	Tightness Vacuum drop mm Water Col.		Adjusting Point Control Rod Travel Vacuum mm Water Col.		Adjustment Supplementary Spring Vacuum mm Water C.		Control Rod Travel Test Vacuum mm Water Col.		Compensation Vacuum mm Water Col.			
	Time red. sec.		Control Path mm		Control Path mm		Control Path mm		Control Path mm			
2.1+0.1	500–480		10		—		520 560 600		11.0* 9.2–10.5 7 – 8.5		100 200 400	13.1–13.2 12.7–13 11.4–11.7
* Begin of governing between 530–550 mm WG by adding washers WMS 22 S 18..19 X under governor spring. During Control Rod Travel (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					
	Vacuum r. p. m.	Vacuum mm Water Col.	 cm³/1000 strokes	Vacuum r. p. m.	Vacuum mm Water Col.	 cm³/1000 strokes	Vacuum r. p. m.	Vacuum mm Water Col.	Control Path from Full Load to Idling Load mm			
RS 14 z	1900	510	25.5–26.5	1000 500	150 0	26.5–28.5 25.5–27.5			** please see above			
				250	ap. 590	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.												