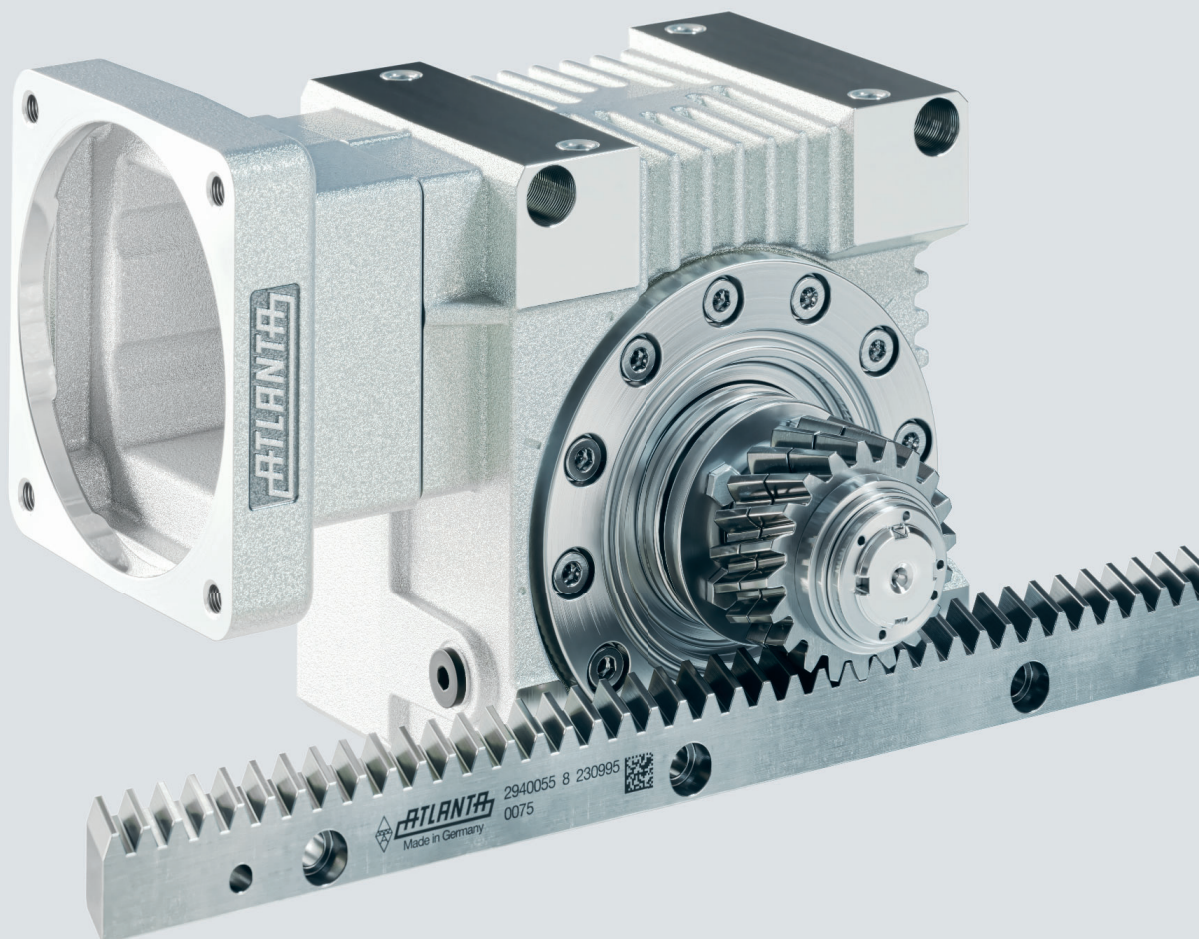




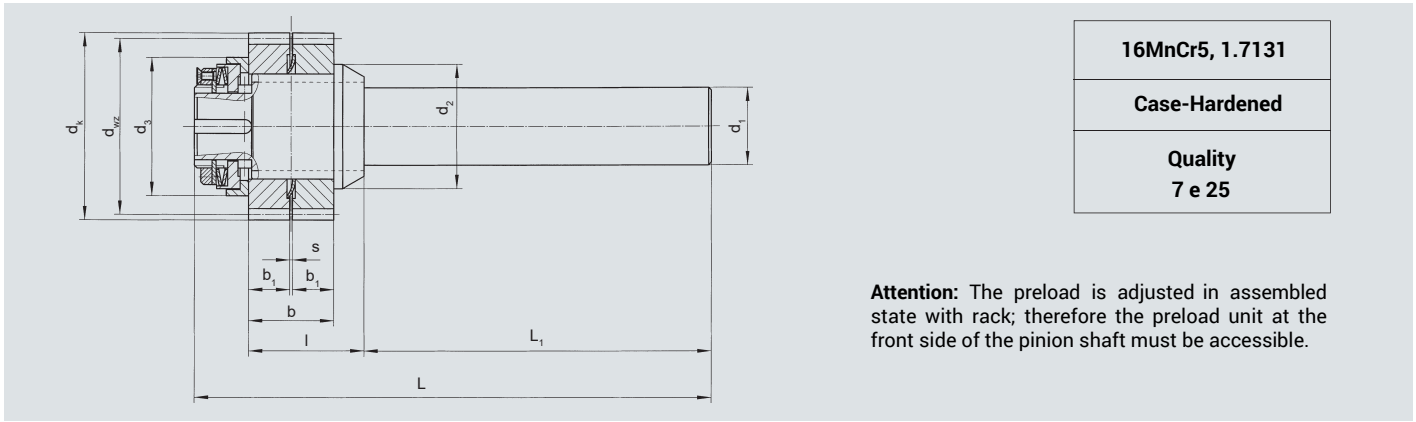
Description of Operation

Preloaded split-pin shafts consist of an output shaft, a helical split-pinion set and a preload unit. The split-pinion is manufactured as a set with an axial distance between the pinion halves of 1 mm (modules 2 to 4) and 2 mm (modules 5 to 8).

By reducing the distance between the pinion halves (axial displacement of the outer pinion), the backlash is reduced and when both pinion halves are in mesh with the rack, preload is initiated. A defined preload torque between rack and split pinion can be produced by means of the preload unit.



Helical Split-Pinion Shafts, 19°31'42" left-hand, 20° pressure angle, hardened & ground teeth, tolerances according to DIN 3962/63/67



Order Code	Gearbox Size			Output Coupling	T ₂ * (Nm)		Number of Teeth	d ¹⁾	d _{wz} ²⁾	d _k	b	b ₁	d _{1h6}	d ₂	d ₃	s	l	L ₁	L	kg
	Module	HT	HP		Without Preload	With Max. Preload														
74 92 330	2	x	50	80 83 030	135	67	30	63.66	63.66	67.7	31	15	25	45	50	1	37.5	114.0	171.5	1.41
74 92 430	2		50	80 84 036	135	67	30	63.66	63.66	67.7	31	15	28	45	50	1	42.0	141.5	203.5	1.75
74 93 320	3	x	50	80 83 030	250	125	20	63.66	63.66	69.7	31	15	25	45	50	1	37.5	114.0	171.5	1.45
74 93 420	3		50	80 84 036	250	125	20	63.66	63.66	69.7	31	15	28	45	50	1	42.0	141.5	203.5	1.70
74 93 520	3		63	80 85 050	250	125	20	63.66	63.66	69.7	31	15	36	48	50	1	41.0	170.5	237.5	2.45
74 94 515	4		63	80 85 050	385	192	15	63.66	63.66	71.7	41	20	36	48	50	1	46.0	170.5	237.5	2.50
74 95 615	5		80	80 86 062	650	325	15	79.58	84.58	94.5	52	25	48	57	70	2	57.0	196.5	284.5	5.50
74 96 613	6		80	80 86 062	975	487	13	82.76	88.76	100.7	62	30	48	57	68	2	67.0	196.5	284.5	6.00
74 96 713	6		100	80 87 080	975	487	13	82.76	88.76	100.7	62	30	60	72	68	2	67.0	220.0	308.0	9.00
74 98 712	8		100	80 87 080	2100	1050	12	101.86	109.86	125.8	82	40	60	80	88	2	88.0	220.0	332.0	9.50

1) d = Reference Pitch Diameter

2) d_{wz} = Working Pitch Diameter

x) Not suitable for gearboxes

* Torques based on using hardened and ground racks

Maximum Preload Torque T_{v max}

Module	T _{v max.}	Plate Spring Layers	Tightening of Adjusting Nut
2	67 Nm	Single	14 Graduation Marks
3	125 Nm	Double	6 Graduation Marks
4	192 Nm	Triple	7 Graduation Marks
5	325 Nm	Double	3 Graduation Marks
6	487 Nm	Double	5 Graduation Marks
8	550 Nm	Double	3 Graduation Marks
8	1050 Nm	Double	6 Graduation Marks

Note: Stronger preload is possible by means of multiple spring layers, but then T_{v max} has to be reduced. Plate springs can be ordered separately, please ask us.

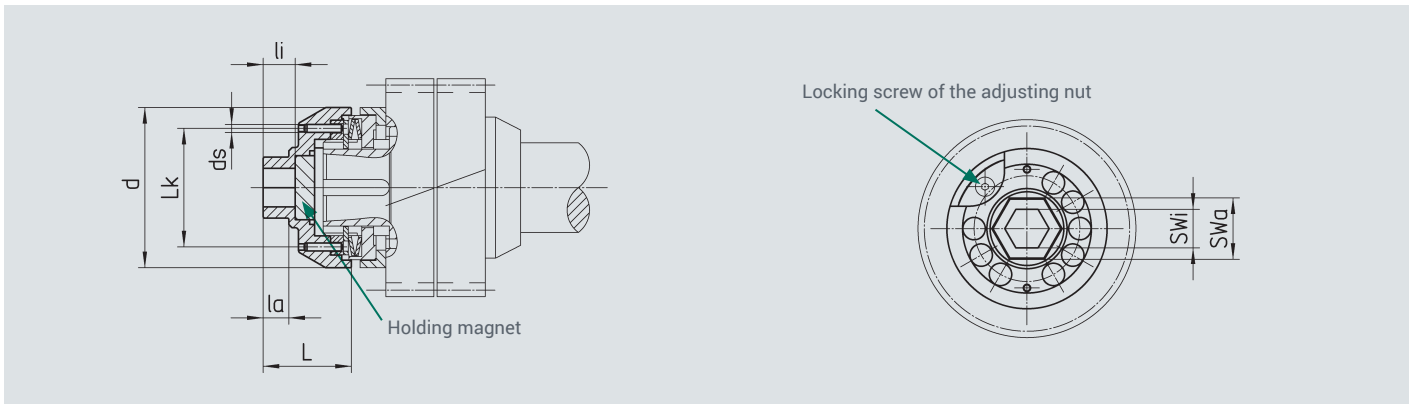
For how to adjust the preload split-pinion shaft, see our Installation & Maintenance Instruction MPZ001.

Calculation of Center Distance 'a' Between Pinion And Rack

$$a_o = \frac{d_{wz}}{2} + h_o$$

m	a _o	x	h _o
2	53.83	—	22
3	57.83	—	26
4	66.83	—	35
5	76.29	0.5	34
6	87.38	0.5	43
8	125.93	0.5	71

Preload Adjusting Wrench



Order Code	Pre-load $T_{2 \max}$ Pinion Shafts	Wrench Size	la	SWi	li	ds	Lk	d	L	kg
74 90 001	74 92 330 74 92 430 74 93 320 74 93 420 74 93 520 74 94 515	19	8	12	10.0	2.5	37	50	27.5	0.113
74 90 002	74 95 615 74 96 613 74 96 713	19	8	12	12.5	4.0	50	74	34.0	0.338
74 90 003	74 98 612 74 98 712	22	9	12	13.0	6.0	67	96	40.0	0.625

