

# BMW Tool System for Wheel Bearings and Output Shafts.

## Tool allocation.

Tool: independent of series and model		Additional tools: dependent on series and model																						
Vehicle groups	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22		
<b>Work steps</b>																								
<b>Press output shaft out of carrier flange hub</b>																								
1/2	Hydraulic unit / lever																							
E3	Disc M24																							
F3	Spindle M24 (Length 270 mm)																							
C1	Sleeve																							
B1	Adapter																							
K1	Bolts M12 x 1.5																							
K2	Bolts M14 x 1.5																							
K3	Bolts M14 x 1.25																							
<b>Press output shaft into carrier flange hub</b>																								
1/2	Hydraulic unit / lever	G2	G3	G1	G3	G3	G3	G2	G3	G3	G3 (VA/HA)	G3 (VA/HA)	G3	G3 (VA/HA)	G3	G3 (VA/HA)	G2	G2	G3	G3 (VA/HA)	G3	G3	G3	
E1	Sleeve																							
D1	Disc																							
F2	Spindle M24 / M20 (Length 335 mm)																							
<b>Withdraw carrier flange hub from wheel bearing (pull off carrier flange hub)</b>																								
1/2	Hydraulic unit / lever	M2	M1	M5	M1	M5	M1	M2	M4 (VA)	M1	M4 (VA)	M6 (VA)	M5	M6 (VA)	M5	M3 (HA)	M5	M5	M3	M6 (VA)	M6 (VA)	M4	M5	
B1	Adapter										M5 (HA)	M5 (HA)		M5 (VA)						M3 (HA)	M3 (HA)			
E1	Sleeve M24																							
F1	Spindle M24 (Length 425 mm)																							
E3	Disc																							
A1	Jig																							
<b>Withdraw wheel bearing from wheel carrier / swivel bearing</b>																								
1/2	Hydraulic unit / lever	M2	M1	M5	M1		M1	M2	M4 (VA)	M1	M4 (VA)	M6 (VA)		M6 (VA)			M5	N3	M3	M6 (VA)	M6 (VA)			
E1	Sleeve M24	N3	N2	N3	N2		N2	N3	N2 (VA)	N2	N2 (VA)	N1 (VA)		N1			N3	M5	N2	N1 (VA)	N1 (VA)			
F1	Spindle M24 (Length 425 mm)																			M3 (HA)	M3 (HA)			
A1	Jig																			N2 (HA)	N2 (HA)			
E2	Adapter M24																							
<b>Draw wheel bearing into wheel carrier / swivel bearing</b>																								
1/2	Hydraulic unit / lever	P4	P1	P4	P1		P1	P4	P1 (VA)	P1	P1 (VA)	P2 (VA)		P2			P4	P4	P1	P2 (VA)	P2 (VA)			
F1	Spindle M24 (Length 425 mm)	R4	R3	R4	R5		R3	R4	R5 (VA)	R5	R5 (VA)	R2 (VA)		R1 (VA)			R3	R3	R1	P1 (HA)	R2 (VA)			
E1	Sleeve M24																			R1 (VA/HA)	P1 (HA)			
																					R3 (HA)			
<b>Draw carrier flange hub and output shaft into the wheel bearing in one work step</b>																								
1/2	Hydraulic unit / lever	G2	G3	G1	G3	G3	G3	G2	G3	G3	G3	G3 (VA/HA)	G3	G3 (VA/HA)	G3	G3 (VA/HA)	G2	G2	G3	G3 (VA/HA)	G3	G3	G3	
E1	Sleeve M24											H1 (VA)		H1 (VA)						H1 (VA)	H1 (VA)			
D1	Disc											H2 (VA)		H2 (VA)						H2 (VA)	H2 (VA)			
F2	Spindle M24 / M20 (Length 335 mm)																							
<b>Pull wheel bearing inner ring from carrier flange hub</b>																								
1/2	Hydraulic unit / lever																							
F3	Spindle M24 (Length 270 mm)																							
E3	Disc M24																							
C1	Sleeve																							
K1	Bolts M12 x 1.5																							
K2	Bolts M14 x 1.5																							
K3	Bolts M14 x 1.25																							
B1	Adapter																							
	33 4 400 <sup>3)</sup> - Special tool																							

# BMW Tool System for Wheel Bearings and Output Shafts.

## Model allocation.

Vehicle groups	RL-Ø <sup>1)</sup>	Model
01	75	E36
02	85	E36, E36 M3, E36 M Roadster
03	75	E36, E36 Compact, E36 Roadster
04	+ <sup>2)</sup>	E38
05	+	E39
06	85	E46, E85, E86
07	75	E46, E85, E86
08	85	E46 All-wheel drive
09	+	E52
10	85	E53
11	90	E53
12	+	E60, E61, E63, E64
13	+	E60 All-wheel drive, E61 All-wheel drive
14	+	E65, E66
15	+	E70, E71
16	+	E89
17	75	E81, E82, E87, E88, E90, E92, E93
18	85	E81, E82, E87, E88, E90, E91, E92, E94
19	90	E92 All-wheel drive
20	+	E83
21	+	F01, F02, F04, F07, F10, F25
22	+	E84

### Note:

- 1) RL-Ø = Wheel bearing external diameter
- 2) (+) Wheel bearing unit bolted
- 3) Existing special tools, not included.

The dust protection cover at the front axle on all-wheel-drive vehicles must be separated and removed.

Always follow the latest repair instructions from the vehicle manufacturer.

### Use of Tool Matrix

1. Select vehicle in table "Vehicle groups" (above)

**Example** E46 RL Ø 75 mm => Vehicle group 07

2. In the Tool allocation (overleaf), go to the column for the vehicle selected => 07.

**Example** Column 07

3. In the column, go to the bottom and select the work step.

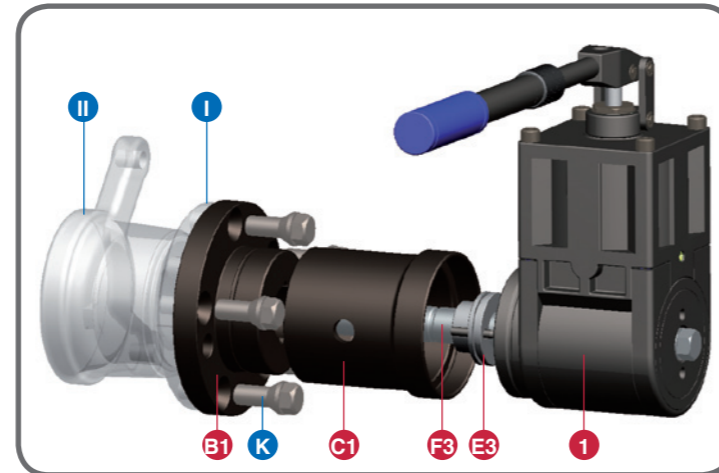
**Example** Work step "Press wheel bearing into wheel carrier / swivel bearing"

4. Tools marked in **red** are independent of series and model.

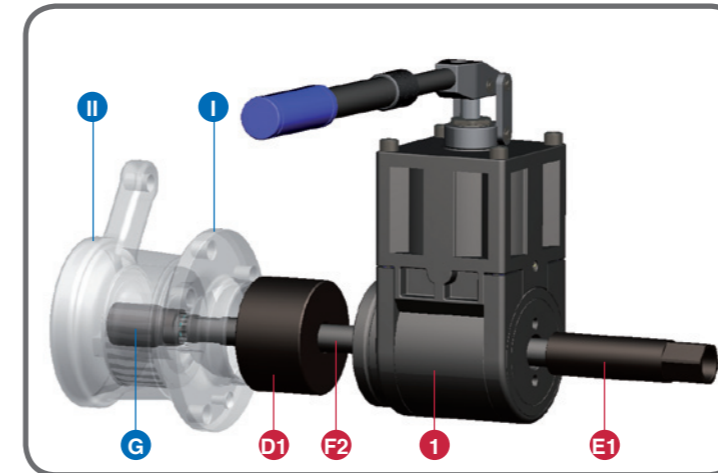
Tools marked in **blue** are required for the model range concerned.

**Example** Tools required:  
**Red:** 1/2, F1, E1  
**Blue:** P2, R1

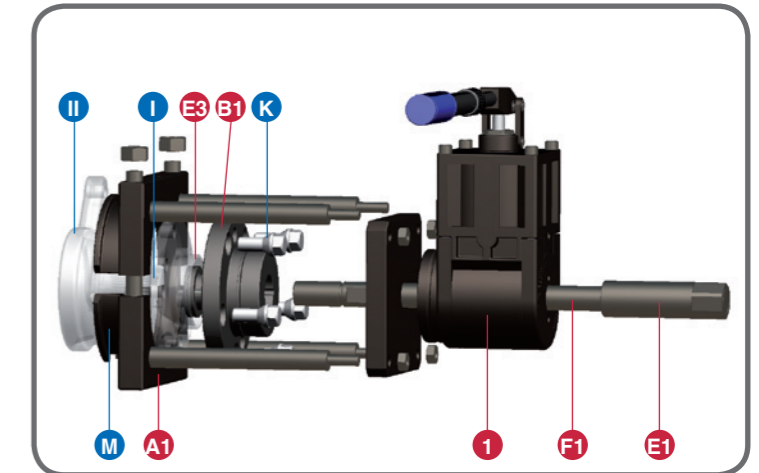
## Work sequences.



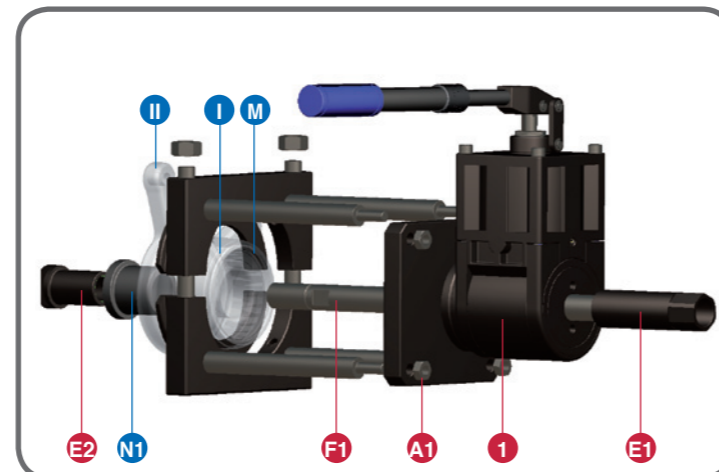
Press output shaft out of carrier flange hub



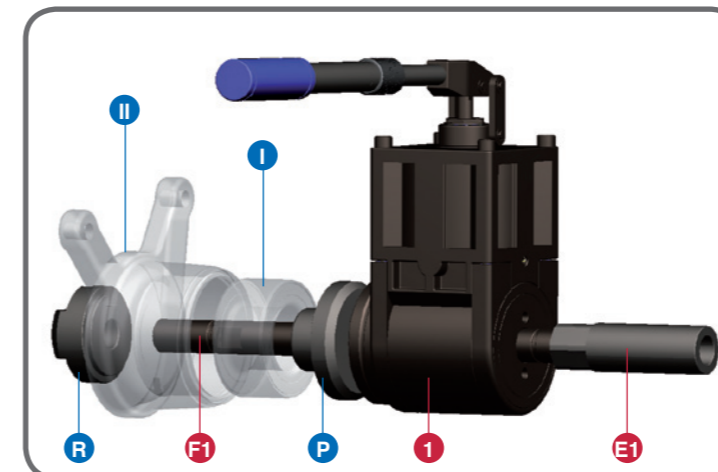
Press output shaft into carrier flange hub



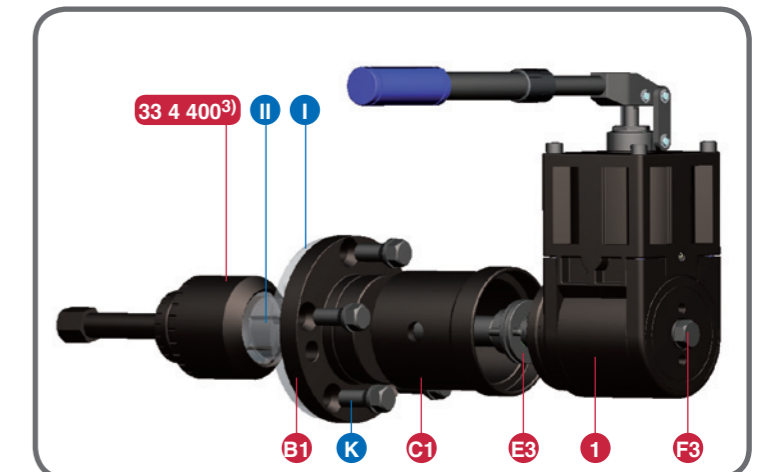
Withdraw carrier flange hub from wheel bearing



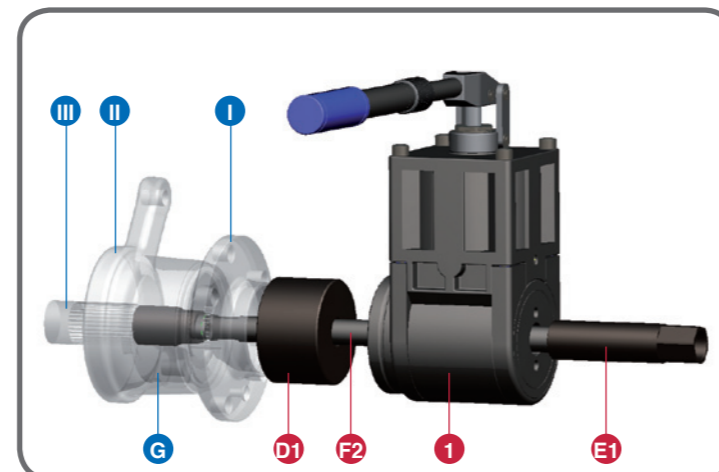
Withdraw wheel bearing from wheel carrier/swivel bearing



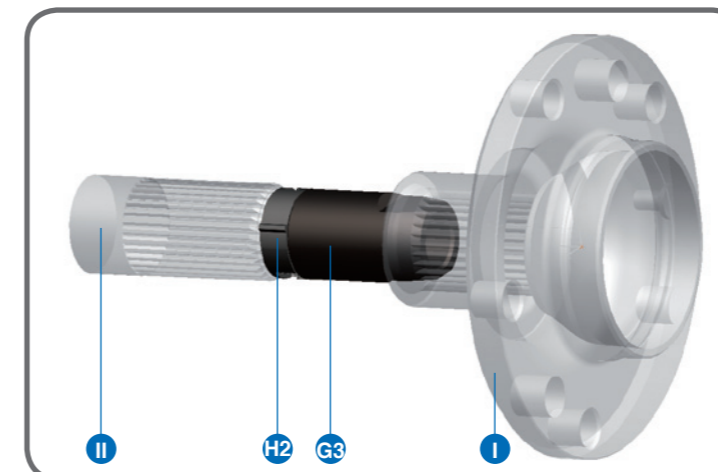
Press wheel bearing into wheel carrier/swivel bearing



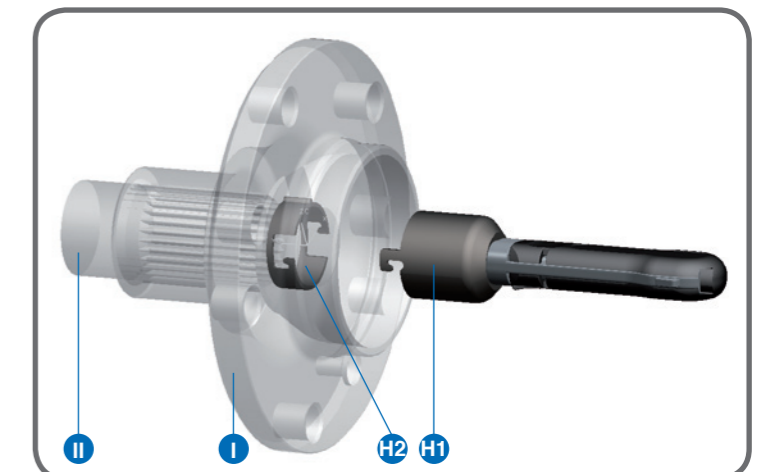
Pull wheel bearing inner ring from carrier flange hub



Carrier flange hub and output shaft can be installed in the wheel bearing in one work step



Vehicle-independent tools



Vehicle-independent tools

### The necessary components are independent of model and type

- |                  |                                      |
|------------------|--------------------------------------|
| 1 Hydraulic unit | E3 Disc M24                          |
| 2 Lever          | F1 Spindle M24 (Length 425 mm)       |
| A1 Jig           | F2 Spindle M24 / M20 (Length 335 mm) |
| B1 Adapter       | F3 Spindle M24 (Length 270 mm)       |
| C1 Sleeve        | K1 Bolts M12 x 1.5                   |
| D1 Disc          | K2 Bolts M14 x 1.5                   |
| E1 Sleeve M24    | K3 Bolts M14 x 1.25                  |
| E2 Adapter M24   |                                      |

### Components specific to model and type (thread Ø output shaft)

- |                             |                           |
|-----------------------------|---------------------------|
| G1 Adapter M22 x 1.5 to M20 | M6 Adapter Ø 102 / 113 mm |
| G2 Adapter M24 x 1.5 to M20 | N1 Adapter 49 mm          |
| G3 Adapter M27 x 1.5 to M20 | N2 Adapter 45 mm          |
| M1 Adapter Ø 100 / 101 mm   | N3 Adapter 42 mm          |
| M2 Adapter Ø 88 mm          | N4 Adapter 39 mm          |
| M3 Adapter Ø 102 mm         | P1 Adapter 45 / 85 mm     |
| M4 Adapter Ø 96 mm          | P2 Adapter 49 / 90 mm     |
| M5 Adapter Ø 90 mm          | P3 Adapter 39 / 72 mm     |

- |                           |  |
|---------------------------|--|
| P4 Adapter 42 / 75 mm     | <b>Vehicle components</b>                            |
| R1 Adapter M24 77 / 82 mm | I Carrier flange hub                                 |
| R2 Adapter M24 tapered    | II Wheel carrier / swivel bearing                    |
| R3 Adapter M24 69 / 79 mm | III Output shaft                                     |
| R4 Adapter M24 64 / 75 mm |  |
| R5 Adapter M24 59 / 70 mm | <b>Additional tools for all-wheel drive vehicles</b> |
|                           | H1 Sleeve  |
|                           | H2 Adapter (tooth finder)                            |