

# TORQUE MULTIPLIERS

The name says it all: The GEDORE torque multipliers in the DREMOPLUS ALU series are reliable and greatly reduce the wrench length and force required by the user.



In mechanical and plant engineering, heavy industry, construction industry, ship, aircraft, railway and power stations - applications which a multiple of the torque that the user can apply is often required. This is where GEDORE's mechanical, hand-operated torque multipliers and reaction arms are the perfect solution.

When tightening and loosening, the safety slip release mechanism with overload protection is the main feature. At 10% overload, it releases and seamlessly re-engages. The mechanism, including the low-backlash two-stage planetary gear, is packed in a light and slim housing made of high-performance aluminium. This makes torque multipliers around 30% lighter and durable than models with steel housings - and really power packs.



## CHOOSING THE RIGHT TORQUE ASSEMBLY TOOL FOR SCREWS AND NUTS

- It is vital that use is made of a torque wrench complete with ratchet function (integrated or separate) for torque multipliers without anti-wind-up ratchet
- For models with an anti-wind-up ratchet, we recommend the use of torque tools complete with ratchet function (integrated or separate) - for ease of working

RELIABLE,  
COMPACT AND  
DURABLE



#### GEDORE DREMOPLUS ALU MAKES THE DIFFERENCE



- Delivery incl. factory test certificate
- Lightweight, robust tools
- Reliable accuracy for all applications with repeatability of  $\pm 3\%$



- Torque settings and individual tool components are fully traceable
- Minimised impact on the tooth flanks in the low-backlash planetary gearbox
- Precise matching of components
- Integrated safety overload protection



#### SAFETY PLUS

- Convenient and safe working - perfect for confined spaces or where access is limited
- Repetition-accurate and precise results ensure a maximum degree of safety
- High degree of resilience and long life of the appliances attributable to a lowbacklash planet gear with Ceramic-Teflon® coating
- A 30 % + lighter steel housing thanks to the use of high-performance aluminium
- Precise, reliable figures - even under extreme climatic conditions
- The most common INPUT/OUTPUT torques are displayed on the torque multiplier



# i WORKING PRINCIPLE

## TORQUE - VELOCITY

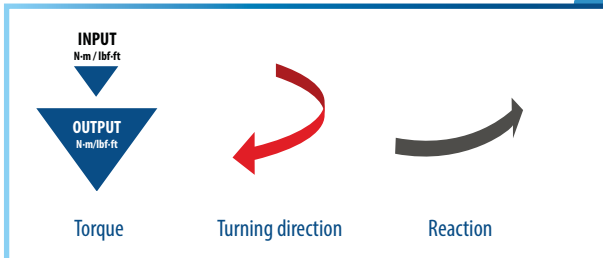
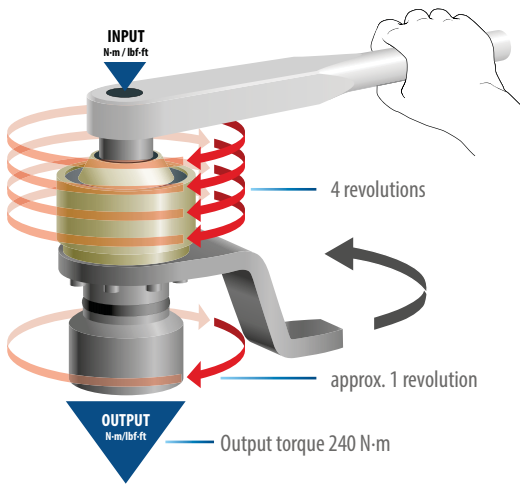
The chart representation elucidates the principle of torque multiplication. Let us assume a 60 N-m input torque and a 240 N-m output torque.

At a 1:4 ratio, 4 revolutions are needed at the input for 1 revolution with a 240 N-m torque to be obtained at the output.

This is substantiated in terms of the physical formula:  
**Power = torque x revolution**

With gear efficiency deducted, the output power is to be considered as a constant equal to the input power. Thus multiplication of the torque can only be obtained from an increased number of revolutions at the input.

## INPUT TORQUE WITH TORQUE WRENCH 60 N-M

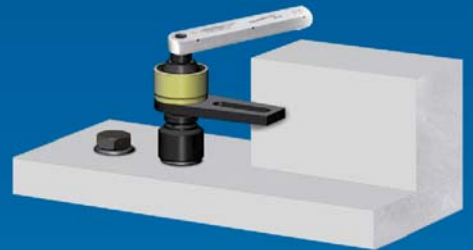


## FORCE AND REACTION

When working with a torque multiplier, torsion wind-up is built up in the gear when the screw is tightened. This stress must be reduced. A reaction absorbed by reaction arm and abutment is produced.

### L-FORM REACTION ARM WITHOUT ADJUSTABLE REACTION SQUARE

The reaction acts on the wall. Is possible, but the tilting moment which arises causes the max. permitted torque to drop by 20 %.



### L-FORM REACTION ARM WITH ADJUSTABLE REACTION SQUARE

The reaction acts on the adjacent impact socket.



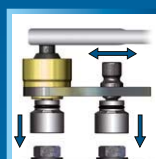
### REACTION ARM IN Z-FORM

The reaction acts on the adjacent screw connection

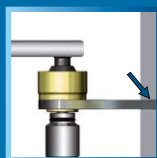


# i REACTION ARM

## L-FORM



- This straight reaction arm with adjustable reaction square is admirably suited for flange screw connections.
- The L-form reaction arm has in terms of support a larger radius than the Z-Form.



The L-form is also ideal for those points above the screwtightening level. However, the resulting tilting moment causes the max. permitted torque to drop by 20 %.

## Z-FORM

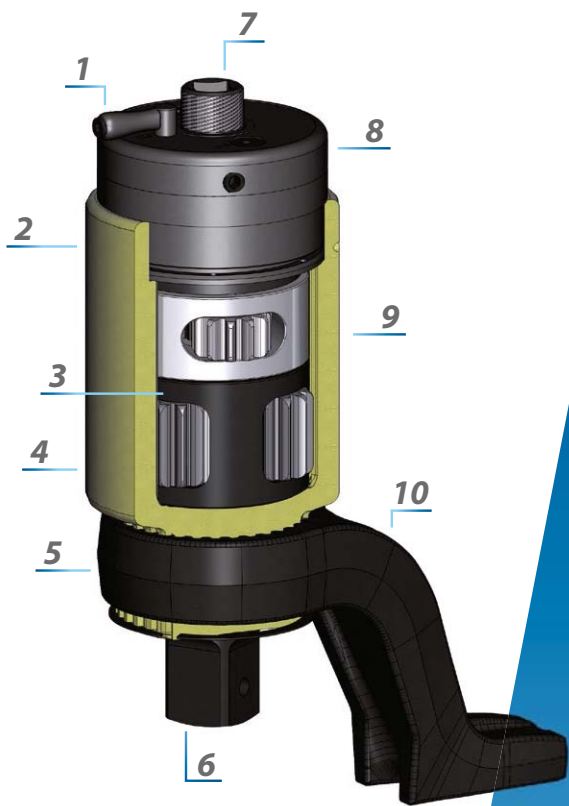


- A flexible off set reaction arm which has proved itself as the standard solution.
- Supporting situations are, for instance, adjoining screws, walls, machine parts and other stable abutments.
- This reaction arm can be ideally used where conditions are quite cramped.



# **i** DREMOPLUS ALU FAMILY 1

DVV-40Z, DVV-40ZRS – DVV-540RS



- 1** Convenient: Integrated "RS" anti-wind-up ratchet for safe working. Bi-directional (apart from model DVV-40Z)
- 2** Lightweight and slim: High-performance aluminium housing is 30 % lighter than a steel one
- 3** Low backlash, 2-stage planet gear for a long service life
- 4** Stable, shuttle-impacted gear housing
- 5** Flexible: With detachable Z-form reaction arm, can be optionally retrofitted with L-form reaction arm and adjustable reaction square
- 6** A 1", 1.1/2" or 2.1/2" output square with drill hole for impact sockets with safety pin and ring
- 7** 1/2" or 3/4" input square
- 8** Overload safety mechanism: Non-destructive overload safety mechanism - "Slipper" - filed as a patent. Triggers overload at 10% and again clicks into place. Clockwise and anti-clockwise
- 9** A coating of the tooth flanks consisting of ceramic and teflon enables the gear to be constantly lubricated with a minimum of grease
- 10** A Z-form forged reaction arm of chromevanadium steel absorbs any countering force that arises. **Optional: L-form reaction arm on request**

### 100% QUALITY CHECK

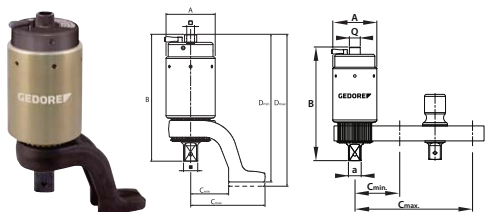
- Delivery including factory test certificate
- The most common INPUT/OUTPUT torques on the torque multiplier




INPUT		OUTPUT	
N.m	lbf-ft	N.m	lbf-ft
35.8	8.0	500	40
46.3	10.7	600	70
57.2	30.5	800	150
64.8	43.3	900	200
74.7	60.3	1000	300
81.0	68.8	1100	350
91.9	85.4	1200	400
96.5	115.9	1320	550
107.5	132.2	1500	600
117.6	148.6	1650	700
125.0	162.5	1700	750
139.8	171.1	2000	800
145.7	190.4	2100	850
150.2	190.4	2200	900
166.9	200.1	2500	920
205.8	210.8	3000	950
259.6	200.1	3500	920
295.0	210.8	4000	950

### DVV-40Z - DVV-40ZRS

Torque Multiplier  
DREMOPLUS ALU  
4000 N·m / 2930 lbf·ft




- > Controlled screw tightening and loosening
- > High-performance aluminium housing
- > Transmission ratio 1:16
- > DVV-40ZRS model with anti-wind-up ratchet (RS)
- > Non-destructive overload protection "Slipper" to protect the gearbox, right and left hand

- > Z-form, offset reaction arm depending on model made of chrome-vanadium steel
- > Better than +/- 3 % accuracy
- > To operate with a suitable torque wrench

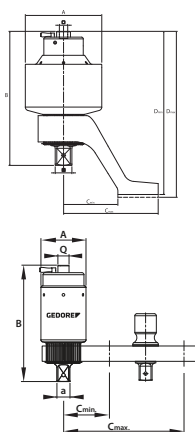
Code	No.	max. N·m Output	max. lbf·ft Output	Reaction arm	⚙️	□ " C	■ " D	A	B	C min	C max	D min	D max	max. N·m Input	max. lbf·ft Input	⚖️
2653087	DVV-40Z	4000	2390	Z-form, offset	1:16	1/2"	1"	88	212	68	133	250	256	300	220	3,9
2653109	DVV-40ZRS	4000	2390	Z-form, offset	1:16	1/2"	1"	88	227	68	133	264	270	310	230	4,2

## OPTIONAL ACCESSORIES:

Code	No.	Designation	C min	C max	
2653176	RZ-DVV40	Reaction arm Z-form offset for DVV40	68	133	1,5
2653184	RL-DVV40	Reaction arm L-form straight for DVV40, 1"	86	234	1,737





## DVV-6OZRS - DVV-13OZRS

Torque Multiplier DREMOPLUS ALU  
6000-13000 N·m / 4400-9530 lbf·ft




- > Controlled screw tightening and loosening
- > High-performance aluminium housing
- > Transmission ratio 1:18, 1:22, 1:28.5, 1:39
- > All models with return flow protection (RS)
- > Non-destructive overload protection "Slipper" to protect the gearbox, right and left hand
- > With cranked reaction arm Z-shaped
- > Better than +/- 3 % accuracy

- > To operate with a suitable torque wrench

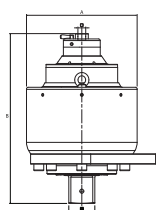
Code	No.	max. N·m Output	max. lbf·ft Output	Reaction arm		" C	" D	A	B	C min	C max	D min	D max	 max. N·m Input	 max. lbf·ft Input	
2653117	DVV-6OZRS	6000	4400	Z-form, offset	1:18	3/4"	1.1/2"	102	257	110	190	316	324	400	300	6,6
2653125	DVV-8OZRS	8000	5870	Z-form, offset	1:22	3/4"	1.1/2"	128	277	110	190	338	342	420	310	9,1
2653133	DVV-10OZRS	10000	7330	Z-form, offset	1:28,5	3/4"	1.1/2"	142	292	120	216	350	356	410	305	10,9
2653141	DVV-13OZRS	13000	9530	Z-form, offset	1:39	3/4"	1.1/2"	175	306	126	229	(372)	(379)	380	280	17

## OPTIONAL ACCESSORIES:

Code	No.	Designation	C min	C max	
2653192	RZ-DVV60	Reaction arm Z-form offset for DVV60	110	194	4,015
2653206	RZ-DVV80	Reaction arm Z-form offset for DVV80	110	190	4,484
2653222	RZ-DVV100	Reaction arm Z-form offset for DVV100	120	215	3,166
2653230	RZ-DVV130	Reaction arm Z-form offset for DVV130	126	229	3,58
2654091	RL-DVV60-80	Reaction arm L-form straight for DVV60-80, 1.1/2"	120	315	4,104





## DVV-54ORS

Torque Multiplier  
DREMOPLUS ALU  
54000 N·m / 40330 lbf·ft



- > Controlled screw tightening and loosening
- > High-performance aluminium housing
- > Better than +/- 3 % tolerance
- > For operation in combination with a torque wrench
- > With fixture for welding on a reaction arm (optional)

- > Multiplication at the ratio of 1:175
- > 1 model for a maximum load of around a max. 54000 N·m
- > Output square with drill hole for impact sockets with safety pin and ring

Code	No.	max. N·m Output	max. lbf·ft Output	Reaction arm		" C	" D	A	B	 max. N·m Input	 max. lbf·ft Input	
2653168	DVV-54ORS	54000	40330	without	1:175	3/4"	2.1/2"	270	415	380	280	64,6

# **i** DREMOPLUS ALU FAMILY 2

DVI-20L/Z UND DVI-28L/Z



**1**

3/4" input square

**2**

Low backlash, single-stage planet gear for a long service life

**3**

Output square 1" with drill hole for impact sockets with safety pin and ring

**4**

Overload safety mechanism achieved from a classic shearing square

**5**

Overload safety mechanism achieved from a classic shearing square

**6**

Overload safety mechanism achieved from a classic shearing square

### DVI-20Z AND DVI-28Z

- Reaction arm Z-form offset
- fix integrated

### DVI-20L AND DVI-28L

- Reaction arm L-form with adjustable reaction square drive
- fix integrated

### 100% QUALITY CHECK

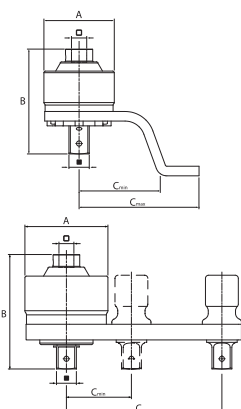
- Delivery including factory test certificate
- The most common INPUT/OUTPUT torques on the torque multiplier




INPUT		OUTPUT	
N.m	lbf.ft	N.m	lbf.ft
35.8	8.0	500	40
40.3	15.7	600	70
57.2	30.5	800	150
64.8	43.3	900	200
74.7	60.3	1000	300
81.0	68.8	1100	350
91.9	85.4	1250	400
98.5	115.9	1320	550
107.3	129.2	1600	800
117.6	148.6	1650	750
126.0	162.6	1760	760
138.8	171.1	2000	800
145.7	186.4	2100	850
150.2	190.4	2200	900
166.9	200.1	2500	900
205.8	210.0	3000	950
259.8	200.1	3500	920
295.0	210.0	4000	950

### DVI-20L/Z - DVI-28L/Z

Torque Multiplier DREMOPLUS ALU  
2000-2800 N·m / 1500-2050 lbf·ft



- > Controlled screw tightening and loosening
- > High-performance aluminium housing
- > Better than +/- 3 % tolerance
- > For operation in combination with a torque wrench

- > With firmly integrated reaction arm of an Z- or L-form depending on model
- > Multiplication at the ratio of 1:4, 1:5.5

Code	No.	max. N·m Output	max. lbf·ft Output	Reaction arm	⚙️	□ " C	■ " D	A	B	C min	C max	🔧 max. N·m Input	🔧 max. lbf·ft Input	⚖️
2653249	DVI-20L	2000	1500	L-form, straight	1:4	3/4"	1"	88	131	73	152	580	430	1,8
2653257	DVI-28L	2800	2050	L-form, straight	1:5,5	3/4"	1"	106	146	83	199	550	410	2,4
2653265	DVI-20Z	2000	1500	Z-form, offset	1:4	3/4"	1"	88	131	100	150	580	430	1,8
2653273	DVI-28Z	2800	2050	Z-form, offset	1:5,5	3/4"	1"	106	146	100	150	550	410	2,4

## OPTIONAL ACCESSORIES:

Code	No.	Designation	
2653281	RZ-DVI20	Reaction arm Z-form offset for DVI20	1,1
2653303	RL-DVI20	Reaction arm L-form straight for DVI20, 1"	1,2
2653311	RZ-DVI28	Reaction arm Z-form offset for DVI28	1,5
2653338	RL-DVI28	Reaction arm L-form straight for DVI28, 1"	1,7
2653346	E-VKT-DVI20	Spare square 1" for DVI20	0,3
2670526	E-VKR-DVI28	Spare square 1" incl. ring for DVI28	0,5

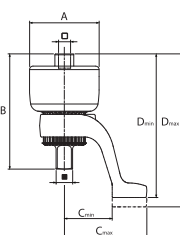
# i DREMOPLUS ALU FAMILY 3

DVV-13Z



- 1 1/2" input square
- 2 Low backlash, single-stage planet gear for a long service life
- 3 Output square 3/4" with drill hole for impact sockets with safety pin and ring
- 4 Reaction arm: Forged reaction arm absorbs any counter force arising
- 5 Lightweight: High-performance aluminium housing is 30 % lighter than a steel one
- 6 Flexible: With detachable Z-form reaction arm; can be optionally retrofitted with long reaction arm incorporating an adjustable reaction square (L-form) of lightweight metal

## DVV-13Z

Torque Multiplier DREMOPLUS ALU  
1300 N·m / 950 lbf·ft

- > Controlled screw tightening and loosening
- > With a single-stage planet gear
- > High-performance aluminium housing
- > Better than +/- 3 % tolerance



- > For operation in combination with a torque wrench
- > Can be optionally retrofitted with L-form straight reaction arm
- > Multiplication at the ratio of 1:5
- > Also available as set (No. DVV-13ZG) with three different impact sockets - sizes 27, 30, 32 mm

Code	No.	max. N·m Output	max. lbf·ft Output	Reaction arm	⚙️	□ " C	■ " D	A	B	C min	C max	D min	D max	max. N·m Input	max. lbf·ft Input	
2653370	DVV-13Z	1300	950	Z-form, offset	1:5	1/2"	3/4"	80	133	56	95	165	173	270	200	1,3
2653389	DVV-13ZG	1300	950	DVV-13ZK 32 27K 32 30K 32 32	1:5	1/2"	3/4"	80	133	56	95	165	173	270	200	3,0

## OPTIONAL ACCESSORIES:

Code	No.	Designation	C min	C max	
2653397	RZ-DVV13	Reaction arm Z-form offset for DVV-13	55	95	0,582
2653400	RL-DVV13	Reaction arm L-form straight for DVV-13, 3/4"	60	159	0,8
2684233	E-S-DVV13	Sun gear for DVV-13			0,096