Rated torque

The torque that the coupling can transmit continuously. This value allows for load fluctuations during operation so that rated torque compensation is not required when selecting the couplings (excluding Oldham types). Select a coupling such that the load torque generated during continuous operation does not exceed the rated torque.

Maximum torque

The torque that the coupling can transmit momentarily.

Rotational speed

The maximum rotational speed of the coupling was calculated based on a peripheral speed of 33 m/s. Tests have confirmed that the coupling will not sustain damage at this speed.

Moment of inertia (rotating mass)

This indicates the coupling's resistance to rotation around its own axis. The lower the moment of inertia, the less load torque is required for starting and stopping the motor.

Static torsional stiffness

The static torsional stiffness indicates the number of degrees by which a coupling twists depending on the introduced torque. Torsional stiffness is generally indicated as torque per unit of arc (Nm/rad). To simplify the design process, the torsional stiffness can also be converted to degrees per Nm.
Where:
$2\pi \text{ rad} = 360° \rightarrow 1 \text{ rad} = \frac{360°}{2\pi} = \frac{180°}{\pi} \approx 57.3°$

Example:
Coupling with a torsional stiffness of 500 Nm/rad = $\frac{500 \text{ Nm}}{57.3°} \rightarrow \text{Reciprocal } \frac{57.3°}{500 \text{ Nm}} \approx \frac{0.1146°}{1 \text{ Nm}}$

Slip torque

Slip torque refers to the torque at which the shaft begins to slip out of the clamping hub. This presumes that the clamping hub was installed at the specified screw tightening torque.

The slip torque values given in the table were derived from experimental testing. They are based on a shaft tolerance of h7, a shaft hardness of 34 to 40 HRC and the screw tightening torque for the clamping hub given in the table.

The load torque must be less than the slip torque for which the coupling is designed. It is also necessary to take into account that the slip torques given in the table are lower than the indicated maximum torque values. If no slip torque is specified, then the maximum torque can be achieved.

Because the slip torque changes due to operating conditions, the suitability of the selected coupling should be tested under real conditions.

GN 2240 **d_1**	**d_2 / d_3**	Slip torque in Nm ≈	Tightening torque of the screw in Nm ≈
14 *0.55*	3	0.8	0.5
14 *0.55*	4	1.4	0.5
14 *0.55*	5	2.1	0.5
14 *0.55*	6	1.3	0.25
14 *0.55*	3/16	1.9	0.5
14 *0.55*	1/4	1.4	0.25
20 *0.79*	5	4.9	1
20 *0.79*	6	6.4	1
20 *0.79*	8	9.4	1
20 *0.79*	3/16	4.5	1
20 *0.79*	1/4	6.9	1
20 *0.79*	5/16	9.3	1
20 *0.79*	3/8	5.1	0.5

GN 2240			
d_1	d_2 / d_3	Slip torque in Nm ≈	Tightening torque of the screw in Nm ≈
30 *1.18*	8	9.3	3.5
30 *1.18*	10	14.6	3.5
30 *1.18*	12	20	3.5
30 *1.18*	14	15.3	1.5
30 *1.18*	5/16	9.1	3.5
30 *1.18*	3/8	13	3.5
30 *1.18*	1/2	7.5	1.5
30 *1.18*	5/8	26	1.5
40 *1.57*	12	31.7	8
40 *1.57*	14	38.5	8
40 *1.57*	15	-	8
40 *1.57*	16	-	8
40 *1.57*	3/8	23	8
40 *1.57*	1/2	34	8
55 *2.17*	18	85	13
55 *2.17*	19	91.5	13
55 *2.17*	20	98	13
55 *2.17*	25	130	13
55 *2.17*	1/2	50	13
55 *2.17*	5/8	71	13
55 *2.17*	3/4	91	13
55 *2.17*	7/8	110	13

GN 2242			
d_1	d_2 / d_3	Slip torque in Nm ≈	Tightening torque of the screw in Nm ≈
12 *0.47*	4	1.9	0.5
12 *0.47*	5	2.4	0.5
15 *0.59*	4	2.3	1
15 *0.59*	5	3.5	1
15 *0.59*	6	4.8	1
20 *0.79*	6	4.2	1.5
20 *0.79*	8	5.7	1.5
20 *0.79*	10	-	1.5
30 *1.18*	8	7.5	2.5

GN 2242			
d_1	d_2 / d_3	Slip torque in Nm ≈	Tightening torque of the screw in Nm ≈
30 *1.18*	10	13.9	2.5
30 *1.18*	12	17.2	2.5
38 *1.50*	12	20.2	4
38 *1.50*	15	30	4
38 *1.50*	20	38.8	4

GN 2246			
d_1	d_2 / d_3	Slip torque in Nm ≈	Tightening torque of the screw in Nm ≈
12 *0.47*	4	-	0.5
12 *0.47*	5	-	0.5
16 *0.63*	5	-	1
16 *0.63*	6	-	1
20 *0.79*	5	-	1
20 *0.79*	6	-	1
20 *0.79*	8	-	1
25 *0.98*	6	0.7	1.5
25 *0.98*	8	1.7	1.5
25 *0.98*	10	-	1.5
32 *1.26*	10	2.7	2.5
32 *1.26*	12	-	2.5

Temperature correction factors

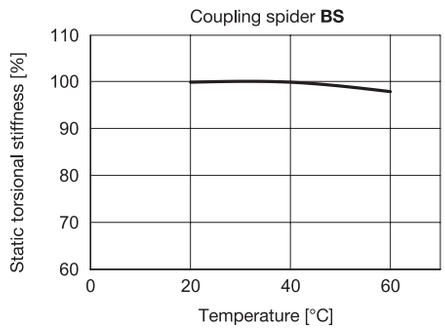
If the ambient temperature is greater than 86 °F (30 °C), the rated torque and the maximum torque must be adjusted using the temperature correction factors.

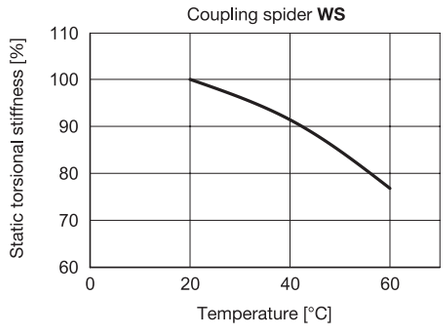
Ambient temperature	Temperature correction factor	
	for GN 2240 / GN 2241	for GN 2242 / GN 2243
-4 °F up to +86 °F (-20 °C up to +30 °C)	1	1
+86 °F up to +104 °F (+30 °C up to +40 °C)	0.8	0.8
+104 °F up to +140 °F (+40 °C up to +60 °C)	0.7	0.7
+140 °F up to +176 °F (+60 °C up to +80 °C)	-	0.55

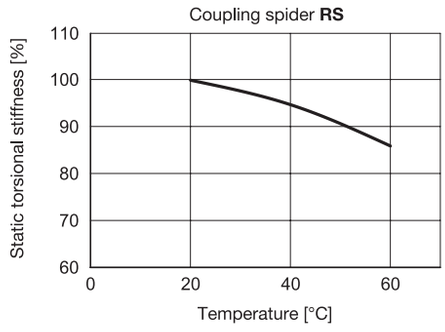
Static torsional stiffness and temperature

The diagrams show the change in static torsional stiffness within the permissible operating temperature range, under the assumption that the static torsional stiffness at 68 °F (20 °C) is 100 percent. The torsional stiffness of the couplings decreases with increasing temperature.

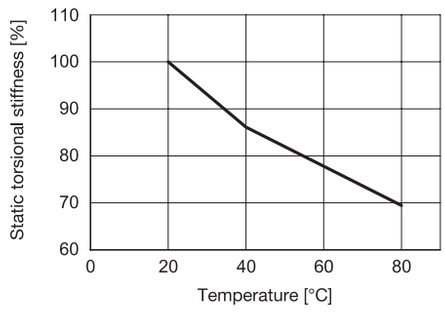
GN 2240 / GN 2241



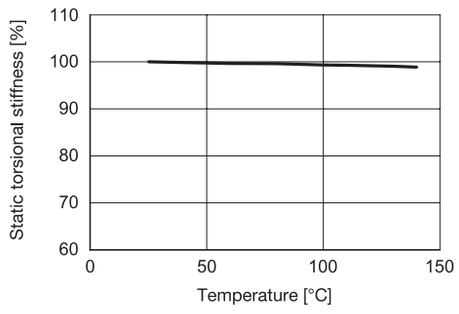




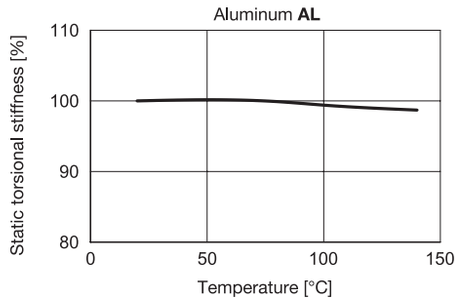
GN 2242 / GN 2243

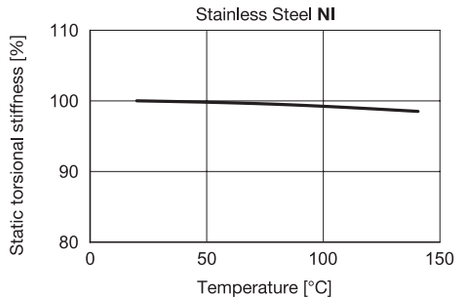


GN 2244



GN 2246



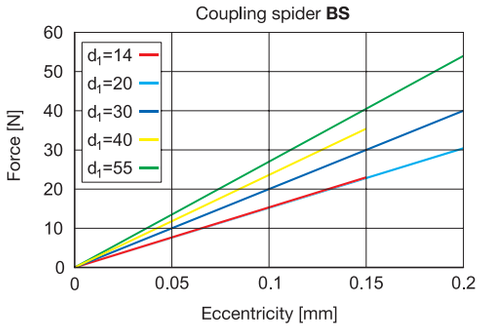


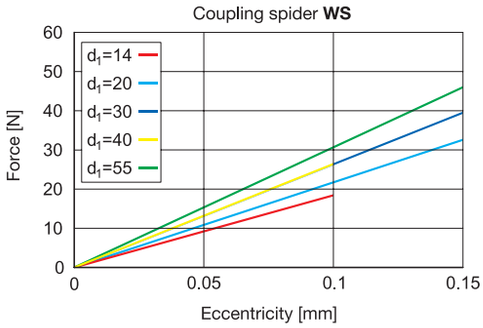
Restoring force – Eccentricity

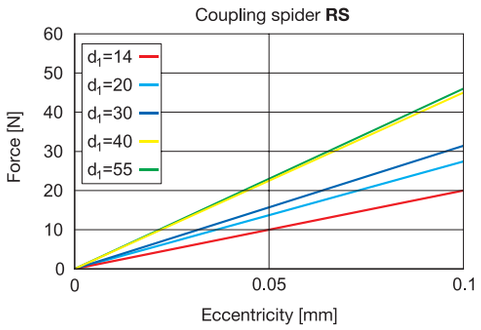
When the shaft ends are installed in eccentric arrangements, the coupling constantly attempts to return to its neutral position. The resulting force is referred to as restoring force.

If the couplings are installed with the lowest possible eccentricity, the resulting restoring forces are lower. This also reduces the force acting on the shaft bearing.

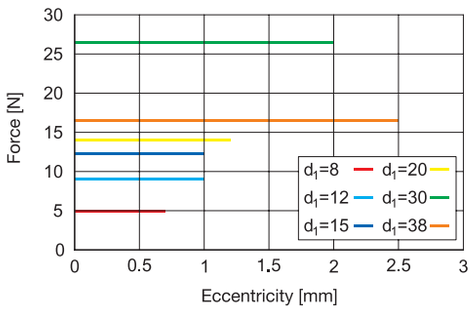
GN 2240 / GN 2241



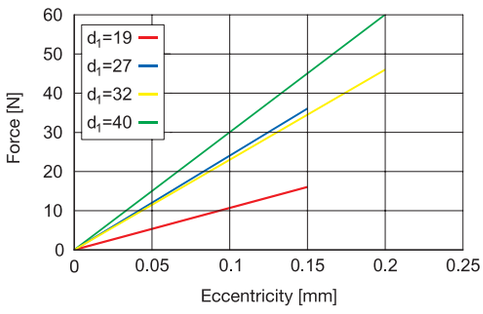




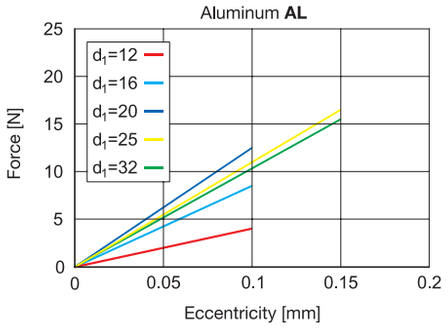
GN 2242 / GN 2243

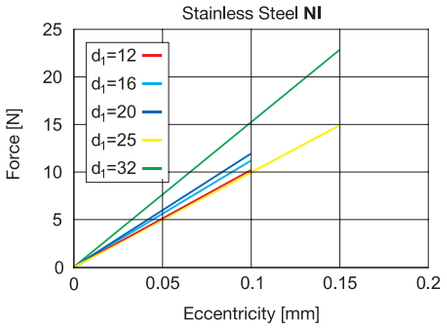


GN 2244



GN 2246



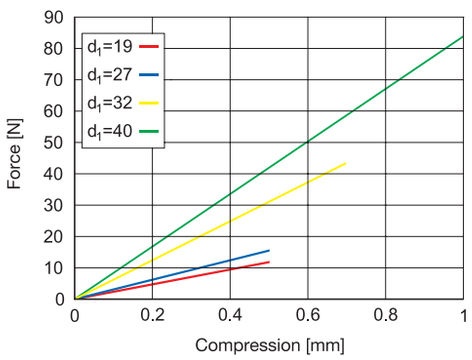


Restoring force – Pressure

If the coupling is under pressure, subject to compressive load in the axial direction, it will strive to return to its neutral position. The force that counteracts the compressive force is referred to as restoring force.

Lowering the compression acting on a coupling results in a lower restoring force and less force exerted axially. This must always be taken into account in dimensioning the coupling.

GN 2244



GN 2246