

General

Couplings serve to connect two shafts in order to transmit the driving power (transmission of speed and torque). As different applications lead to most diverse requirements for couplings, there is a large number of different types of couplings with sometimes contradictory characteristics

available on the market. If possible, the shafts should be supported right besides the couplings in order to avoid unnecessary vibration. This is particularly important for elastic couplings.

Torque Values

Depending on the type of coupling, the torques stated refer to either the maximum value or the nominal torque. The maximum permissible torque must never be exceeded (risk of fracture). The nominal torque is the value valid for the permissible permanent load (e.g. for elastic couplings). This value should be exceeded only as exception and for short times, and only up to the maximum permissible torque. Depending on the type of drive unit used and the type of shock load, the nominal torque of the drive unit has to be multiplied with the respective operating factor taken from the table below:

Operating Torque = Driving Torque x Operating Factor

The operating torque of the drive unit must not exceed the nominal torque of the coupling.

The driving torque can be derived from the driving power with the following formula:

$$T_{[Nm]} = 9550 \cdot \frac{P [kW]}{n [min^{-1}]} \cdot S$$

Operating Factors

Type of Shock Load

	Type of Drive Unit		
	Electric Engines Steam Turbines Shaftings	4 - 6 Cylinder Combustion Engines	1 - 3 Cylinder Combustion Engines
Weak shock load Low starting torque, uniform operation small light generators, small centrifugal pumps, small blowers, light machine tools, light transmissions	1.0	1.25	1.75
Medium shock load Medium starting torque, slight torque fluctuations larger conveying machinery, large blowers, centrifugal pumps and generators, large machine tools and wood working machines, rapid presses, flower mills and food grinders, shears, punches, grinding machines, washing machines, transmissions	1.25	1.5	2.0
Strong shock load High starting torque, strong shocks, alternating sense of rotation. centrifuges, gang saws, paper calender, roller tables, wet presses, ball and rod mills, heavy rolling mills for metal, rubber rolling mill, reciprocating machines without flywheel, cement mills, stone breakers	1.5	2.0	2.5

Rigid Couplings

These couplings do not compensate for misalignment of the shaft neither in axial nor in radial direction. They should therefore only be used with perfectly aligned shafts. Shocks and vibration are transferred without any damping.

Torsionally Stiff Couplings

These couplings transmit the rotational movement synchronously with hardly any damping. Depending on the type of coupling more or less angular and/or axial displacement can be compensated.

Elastic Couplings

With these couplings an elastic intermediate ring usually dampens the shocks of the driving unit. In types without this ring, the coupling body is elastic. Due to the small endurance strength of the shock-dampening components, the nominal torque of the coupling is much lower than the maximum torque. The elastic rings are available as spare parts.

Friction Clutches and Sliding Hubs

These clutches or hubs are used if the torque must only be transmitted up to a certain, adjustable value. If the set maximum value is exceeded the coupling device starts slipping. If the torque falls below the limit again, the slipping stops. Thus for safety reasons a separate stop mechanism for the drive unit might be required.

For couplings with elastics inserts, following factors have to be considered, additional to the standard operating factors above:

Friction clutches usually serve to connect two shafts. Sliding hubs usually serve to mount a drive wheel (chain wheel, drive pulley, spur gear, friction wheel, or similar) on a shaft.

Some types can be used for both applications as, e.g., either a drive wheel or a shaft connection can be flange mounted. Combinations of elastic coupling and friction clutch can also be supplied.

Temperature-factor

Temperatur	-30°C to +30°C	to +40°C	to +60°C	to +80°C
Factor	1,0	1,2	1,4	1,8

Starting-factor

Starts per hour	100	200	400	800
Factor	1,0	1,2	1,4	1,6

One-Piece Clamp Couplings MAS

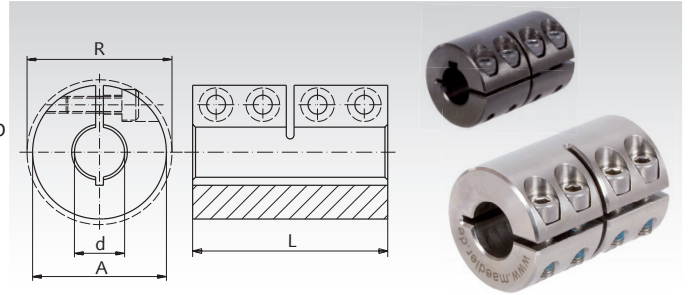
Material: Steel C45, black oxide finish.
Stainless steel 1.4305.



Temperature range from -40°C to +175°C.
Maximum torque 4,000 min⁻¹.

The screws ISO 4762 are covered with a layer of nylon. Thus the bolts do not loosen with vibrations.

Bore tolerance: +0.051 mm.



Ordering Details: e.g.: Product No. 600 603 00, Clamp Coupling MAS, 3 mm Bore, without keyway

Product No. without keyway Steel	Product No. without keyway Stainless Steel	Product No. with keyway* Steel	Product No. with keyway* Stainless Steel	Torque T**		d mm	A mm	R mm	L mm	Screws ISO 4762 12.9 / A2-70	Fastening Torque T _A		Weight g
				Steel Nm	Stainless Nm						Steel Nm	Stainless Nm	
600 603 00	600 996 03	-	-	6,6	3,7	3	14	18,0	30	M3 x 8	2,1	1,1	35
600 604 00	600 996 04	-	-	8,0	5,2	4	16	19,3	30	M3 x 8	2,1	1,1	45
600 605 00	600 996 05	-	-	10,6	6,0	5	18	21,2	30	M3 x 8	2,1	1,1	47
600 606 00	600 996 06	600 706 00	600 997 06	34	10	6	18	21,2	30	M3 x 8	2,1	1,1	47
600 608 00	600 996 08	600 708 00	600 997 08	50	16	8	24	26,8	35	M3 x 10	2,1	1,1	102
600 610 00	600 996 10	600 710 00	600 997 10	85	25	10	29	32,7	45	M4 x 12	4,6	2,5	185
600 612 00	600 996 12	600 712 00	600 997 12	105	32	12	29	32,7	45	M4 x 12	4,6	2,5	180
600 614 00	600 996 14	600 714 00	600 997 14	160	40	14	34	39,1	50	M5 x 16	9,5	5,4	272
600 615 00	600 996 15	600 715 00	600 997 15	180	50	15	34	39,1	50	M5 x 16	9,5	5,4	266
600 616 00	600 996 16	600 716 00	600 997 16	200	60	16	34	39,1	50	M5 x 16	9,5	5,4	261
600 619 00	600 996 19	600 719 00	600 997 19	300	90	19	42	48,2	65	M6 x 16	16	9,6	520
600 620 00	600 996 20	600 720 00	600 997 20	350	100	20	42	48,2	65	M6 x 16	16	9,6	518
600 625 00	600 996 25	600 725 00	600 997 25	400	110	25	45	50,8	75	M6 x 16	16	9,6	623
600 630 00	600 996 30	600 730 00	600 997 30	475	150	30	53	58,1	83	M6 x 18	16	9,6	920
600 635 00	600 996 35	600 735 00	600 997 35	1100	330	35	67	74,1	95	M8 x 25	39	23	1880
600 640 00	600 996 40	600 740 00	600 997 40	1325	400	40	77	83,4	108	M8 x 25	39	23	2710
600 650 00	600 996 50	600 750 00	600 997 50	2250	688	50	85	93,2	124	M10 x 25	77	46	3520

* Feather Key Groove DIN 6885/1, Tolerance P9.

** For version without keyway. Maximum values which can only be achieved with perfect mounting and dimensional accuracy of the shaft.

Two-Piece Clamp Couplings MAT

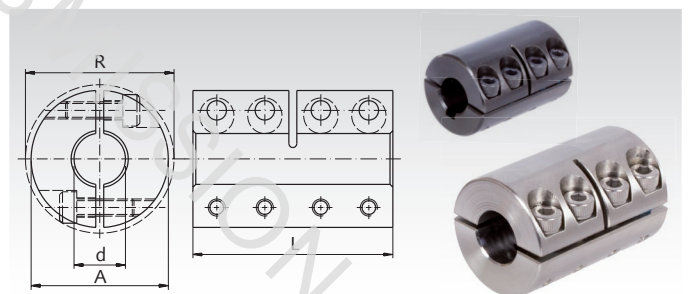
Material: Steel C45, black oxide finish.
Stainless steel 1.4305.



Temperature range from -40°C to +175°C.
Maximum torque 4,000 min⁻¹.

The screws ISO 4762 are covered with a layer of nylon. Thus the bolts do not loosen with vibrations.

Bore tolerance: + 0.051 mm.



Ordering Details: e.g.: Product No. 600 803 00, Clamp Coupling MAT, 3 mm Bore, without keyway

Product No. without keyway Steel	Product No. without keyway Stainless Steel	Product No. with keyway* Steel	Product No. with keyway* Stainless Steel	Torque T**		d mm	A mm	R mm	L mm	Screws ISO 4762 12.9 / A2-70	Fastening Torque T _A		Weight g
				Steel Nm	Stainless Nm						Steel Nm	Stainless Nm	
600 803 00	600 998 03	-	-	9	5,0	3	14	18,0	30	M3 x 8	2,1	1,1	35
600 804 00	600 998 04	-	-	12	6,7	4	16	19,3	30	M3 x 8	2,1	1,1	45
600 805 00	600 998 05	-	-	15	8,4	5	18	21,2	30	M3 x 8	2,1	1,1	47
600 806 00	600 998 06	600 906 00	600 999 06	34	10	6	18	21,2	30	M3 x 8	2,1	1,1	47
600 808 00	600 998 08	600 908 00	600 999 08	50	16	8	24	26,8	35	M3 x 10	2,1	1,1	102
600 810 00	600 998 10	600 910 00	600 999 10	85	28	10	29	32,7	45	M4 x 12	4,6	2,5	185
600 812 00	600 998 12	600 912 00	600 999 12	105	34	12	29	32,7	45	M4 x 12	4,6	2,5	180
600 814 00	600 998 14	600 914 00	600 999 14	160	67	14	34	39,1	50	M5 x 16	9,5	5,4	272
600 815 00	600 998 15	600 915 00	600 999 15	180	72	15	34	39,1	50	M5 x 16	9,5	5,4	266
600 816 00	600 998 16	600 916 00	600 999 16	200	77	16	34	39,1	50	M5 x 16	9,5	5,4	261
600 819 00	600 998 19	600 919 00	600 999 19	300	130	19	42	48,2	65	M6 x 16	16	9,6	520
600 820 00	600 998 20	600 920 00	600 999 20	350	137	20	42	48,2	65	M6 x 16	16	9,6	518
600 825 00	600 998 25	600 925 00	600 999 25	400	171	25	45	50,8	75	M6 x 16	16	9,6	623
600 830 00	600 998 30	600 930 00	600 999 30	475	206	30	53	58,1	83	M6 x 18	16	9,6	920
600 835 00	600 998 35	600 935 00	600 999 35	1100	438	35	67	74,1	95	M8 x 25	39	23	1880
600 840 00	600 998 40	600 940 00	600 999 40	1325	449	40	77	83,4	108	M8 x 25	39	23	2710
600 850 00	600 998 50	600 950 00	600 999 50	2250	1006	50	85	93,2	124	M10 x 25	77	46	3520

* Feather Key Groove DIN 6885/1, Tolerance P9.

** For version without keyway. Maximum values which can only be achieved with perfect mounting and dimensional accuracy of the shaft.

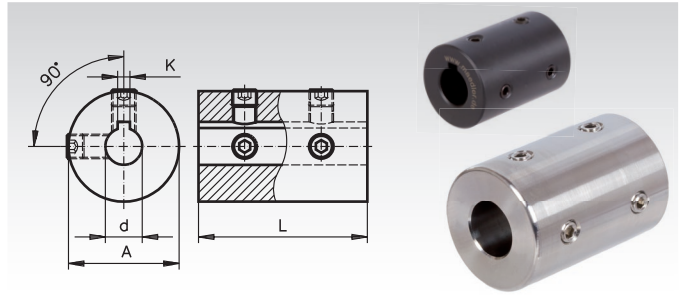
Set-Screw Couplings TR

Material: Steel C45, black oxide finish.
Stainless Steel 1.4305.



Bore tolerance: +0.05 mm.

These couplings do not allow any shaft displacement in axial or radial direction. They should therefore only be used with perfectly aligned shafts.



Ordering Details: e.g.: Product No. 600 106 00, Set Screw Coupling TR, Steel without Keyway, Bore 6 mm

Product No. without keyway Steel	Product No. without keyway Stainless Steel	Product No. with keyway* Steel	Product No. with keyway* Stainless Steel	Torque T**		d mm	A mm	L mm	K mm	Screws DIN 916	Fastening Torque T _A		Weight g
				Steel Nm	Stainless Nm						Steel Nm	Stainless Nm	
600 106 00	600 991 06	600 206 00	600 992 06	4	2,7	6	18	30	2	M4	2,2	1,76	47
600 108 00	600 991 08	600 208 00	600 992 08	8	5,4	8	24	35	2	M4	2,2	1,76	102
600 110 00	600 991 10	600 210 00	600 992 10	12	8,1	10	29	45	3	M5	4,0	3,2	185
600 112 00	600 991 12	600 212 00	600 992 12	17	12	12	29	45	4	M6	7,2	5,8	180
600 114 00	600 991 14	600 214 00	600 992 14	30	20	14	34	50	5	M6	7,2	5,8	272
600 115 00	600 991 15	600 215 00	600 992 15	32	22	15	34	50	5	M6	7,2	5,8	266
600 116 00	600 991 16	600 216 00	600 992 16	35	24	16	34	50	5	M6	7,2	5,8	261
600 120 00	600 991 20	600 220 00	600 992 20	70	47	20	42	65	6	M6	7,2	5,8	518
600 125 00	600 991 25	600 225 00	600 992 25	135	91	25	45	75	8	M8	17	13,6	623
600 130 00	600 991 30	600 230 00	600 992 30	155	105	30	53	83	8	M8	17	13,6	920
600 135 00	600 991 35	600 235 00	600 992 35	230	155	35	67	95	10	M8	17	13,6	1880
600 140 00	600 991 40	600 240 00	600 992 40	310	210	40	77	108	12	M10	33	26,4	2710
600 150 00	600 991 50	600 250 00	600 992 50	490	340	50	85	124	14	M10	33	26,4	3520

* Feather Key Groove DIN 6885/1, Tolerance P9.

** For couplings with keyway: calculations based on feather-key connection.

For couplings without keyway, the transmittable torque is lower and depends on how far the set screws penetrate the shaft.

Clamp Couplings (Box couplings) DIN 115 Made from Cast Iron

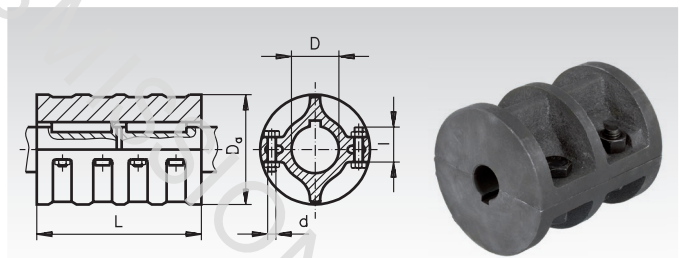
Material: Grey Cast Iron GG25.

Up to 50 mm bore these two-part couplings are manufactured according to bore tolerance zone V7. For larger bores the fit is U7. All bores have a feather key groove according to DIN 6885/1. Recommended shaft tolerance: f7.

A bearing must be placed right beside both ends of the coupling. Box couplings can be assembled and dismantled in radial direction without moving the shaft in vertical direction.

Version A: For shafts of the same diameter.

Version B: For shafts of different diameter available on request.



Ordering Details: e.g.: Product No. 600 020 00, clamp Coupling DIN 115 with Keyway

Product No. (with Keyway) Version A	Torque max. Nm	D mm	D _a mm	L mm	Hexagon Screws DIN 931		Speed n _{max} min ⁻¹	Weight kg
					Amount	d x l mm		
600 020 00	25	20	85	100	4	M10 x 30	1700	1,9
600 025 00	40	25	100	130	4	M12 x 40	1500	4,5
600 030 00	60	30	100	130	4	M12 x 40	1500	4,2
600 035 00	80	35	110	160	6	M12 x 50	1420	6,5
600 040 00	100	40	110	160	6	M12 x 50	1420	6,2
600 045 00	125	45	120	190	6	M12 x 50	1350	8,5
600 050 00	150	50	130	190	6	M12 x 50	1300	9
600 055 00	500	55	150	220	6	M16 x 60	1200	13
600 060 00	850	60	150	220	6	M16 x 60	1200	12,5
600 065 00	1250	65	170	250	6	M16 x 60	1120	18,5
600 070 00	1700	70	170	250	6	M16 x 60	1120	17
600 080 00	2500	80	190	280	8	M16 x 60	1060	27
600 090 00	3800	90	215	310	8	M20 x 75	1000	41
600 100 00	5400	100	250	350	8	M20 x 90	920	63