

## Component Parts of the MULTI MONT ASTRA Coupling

### MMA-W Series

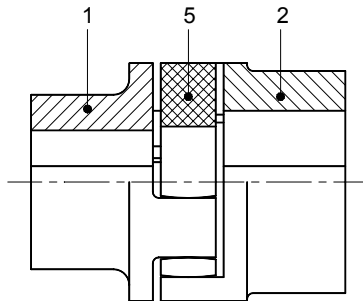


Fig. 1  
1 coupling half W1  
2 coupling half W2  
5 coupling spider 92° Shore A, white  
98° Shore A, blue

### MMA-T Series

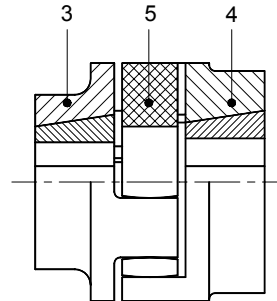


Fig. 2  
3 coupling half T3  
4 coupling half T4  
5 coupling spider 92° Shore A, white  
98° Shore A, blue

## 1 Safety Notes

MULTI MONT ASTRA couplings can be used for a wide range of driven machines. The laws applicable to your specific installation and governing safety of machinery must therefore be obeyed in general.

The following rules need to be observed in particular for operation of the MULTI MONT ASTRA coupling and for any necessary assembly, maintenance or repair to exclude accidents and danger to the health and safety of persons:

- Before starting any maintenance or repair to the coupling it is important to ensure that the machinery is stationary and that its main switch is turned off and secured against inadvertent restarting.
- The permissible load limits specified on the drawing or in the catalogue must not be exceeded.
- The maximum speed specified on the drawing or in the catalogue must not be exceeded.
- The permissible alignment values specified in table 1 must not be exceeded (see also section 4).
- The ambient temperature must not exceed 90°C in operation or 120°C as short-term peak temperature.
- Any rotating components must be safely guarded to exclude contact.
- The MMA-T series coupling can be prone to failure in the event of self-loosening bolts. The tightening torques specified in table 1 must therefore be strictly observed.

- Before commissioning or starting up it must be ensured that any mounting aids have been removed from the coupling.
- Before commissioning or starting up it must be ensured that all protective devices have been fitted.

**Modifications to the coupling must not be carried out without the manufacturer's specific approval.**

**It is absolutely imperative to consult the manufacturer when the permissible load limits are exceeded.**

**Repair and service can be provided by us upon request. Failures which could arise from improper work are thus avoided. Please contact our Engineering Department.**

**Proper functioning is only guaranteed on the condition that genuine MULTI MONT ASTRA spares are used.**

**It is the customer's and user's responsibility to observe the national and international safety rules and laws.**

**Check all bolted connections for proper fit preferably after the test run.**

## 2 Principle of Operation

The MULTI MONT ASTRA coupling is a fail-safe claw coupling with flexible element for shaft connection. Shocks, torsional vibrations and noise are efficiently dampened by its elasticity properties.

The flexible element (spider) is designed in such a way that radial, axial and angular movements between the two coupling halves are compensated for. The fixed position of the coupling spider enables

free deformability in the axial direction so that no detrimental axial loads can act upon the machine bearings during torque transmission.

Minimum outside diameters combined with maximum bores yield low weights and low moments of inertia.

The couplings are balanced as a standard to the G16 quality class according to DIN ISO 1940 Part 1.

## 3 Commissioning or Starting up

The safety notes detailed in section 1 shall be observed for all work to the coupling as summarized below.

### 3.1 MMA-W

The hub bores are machined with a H7 tolerance as a standard. We recommend a shaft tolerance k6 for shaft diameters up to 50 mm and m6 for larger diameters. This shaft fit is generally sufficient to provide protection against axial movement.

The coupling halves and shafts should be greased lightly before mounting to impede seizing due to corrosion at some time or other.

The coupling halves should be normally flush with the shaft ends. The shaft, however, may protrude in the area of the claws. When set screws are used the position shown in the catalogue or on the drawing must be observed.

The shafts with the coupling halves are now aligned to the corresponding axial distance with mounting dimension S according to table 1 or, if appropriate, the installation drawing. The radial displacement ( $\Delta W_r$ ) is checked using a ruler or dial gauge (fig. 6). The angular displacement ( $\Delta W_w$ ) is determined by measuring dimension S in several positions, preferably at 90° intervals (fig. 7). The permissible displacements shall be obtained in accordance with section 4. The better the alignment of the system, the higher the capability of the coupling of absorbing displacements in operation.

### 3.2 MMA-T

Couplings with taper bushes can be used up to a shaft tolerance h11 for shaft diameters up to 30 mm and up to h9 for larger diameters. The shaft tolerances shall be checked accordingly.

All bright surfaces such as bore and cone envelope of the taper bush and the taper bore of the coupling half shall be cleaned and degreased.

Insert taper bush into the coupling half making sure that all connecting bores are lined up (threaded half holes shall be opposite plain half holes - see fig. 3 and fig. 4).

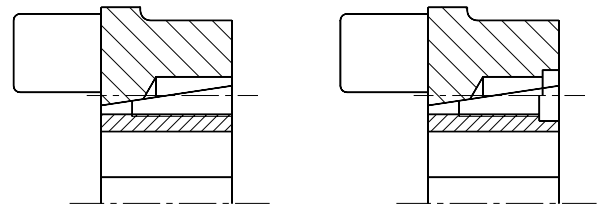


Fig. 3 Sizes 1008 - 3020

Fig. 4 Size 3535

Lightly oil set screws (sizes 1008 to 3020) or socket head cap screws (size 3535) and screw them in loosely. Do not tighten the screws yet.

Clean and degrease shafts. Pull coupling halves with taper bush as a complete unit onto the shaft making sure that the parallel key has been inserted previously into the keyway of the shaft. A back clearance must exist between the parallel key and the keyway of the bore.

Tighten set screws or socket head cap screws uniformly to the tightening torque specified in table 1 using a screwdriver.

The shafts with the coupling halves are now aligned to the corresponding axial distance with mounting dimension S according to table 1 or, if appropriate, the installation drawing. The radial displacement ( $\Delta W_r$ ) is checked using a ruler or dial gauge (fig. 6). The angular displacement ( $\Delta W_w$ ) is determined by measuring dimension S in several positions, preferably at 90° intervals (fig. 7). The permissible displacements shall be obtained in accordance with section 4. The better the alignment of the system, the higher the capability of the coupling of absorbing displacements in operation.

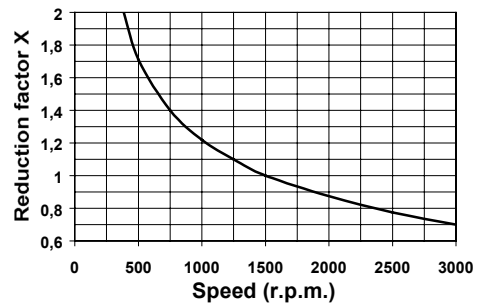
## 4 Permissible displacements

If the displacements occur individually as shown below, the respective values of table 1 may be fully utilized up to a speed of 1500 r.p.m. Reductions are necessary for combined displacements or higher speeds.

$$\text{Rule: } \frac{\Delta W_r}{\Delta K_r} + \frac{\Delta W_a}{\Delta K_a} + \frac{\Delta W_w}{\Delta K_w} \leq X$$

$\Delta K_{r/a/w}$  = permissible radial, axial or angular displacement of the shafts or coupling halves (see table 1)

$\Delta W_{r/a/w}$  = measured radial, axial or angular displacement of the shafts or coupling halves



The coupling shall be primarily capable of absorbing the permissible displacements in operation. For this purpose the coupling should be aligned as precisely as possible during assembly.

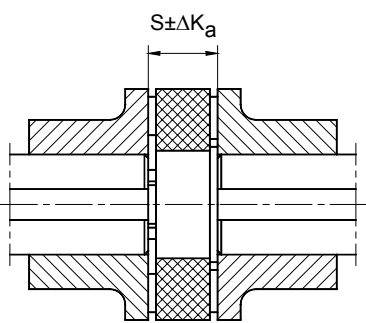


Fig. 5: axial displacement

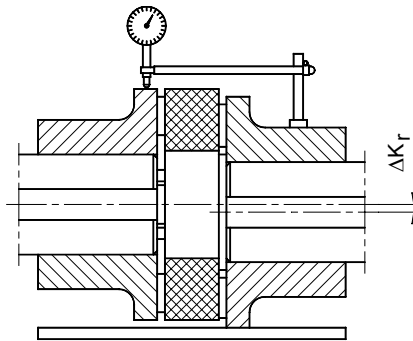


Fig. 6: radial displacement

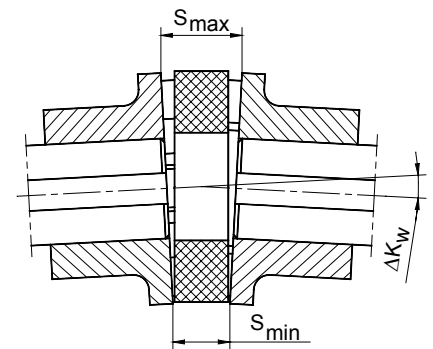


Fig. 7: angular displacement

Table 1

Size	Mounting dimension S [mm]	Max. shaft displacement at up to 1500 r.p.m.				Taper bush		
		radial $\Delta K_r$ [mm]	axial $\Delta K_a$ [mm]	angular $\Delta K_w$ <sup>1)</sup> [mm] $\Delta K_w$ [°]		No.	Width across flats [mm]	Bolt tightening torque [Nm]
	<b>19</b>	16	0.20	1.2	0.84	1.2	-	-
<b>24</b>	18	0.22	1.4	0.86	0.9	1008	3	5.6
<b>28</b>	20	0.25	1.5	1.02	0.9	1108	3	5.6
<b>38</b>	24	0.28	1.8	1.39	1.0	1108	3	5.6
<b>42</b>	26	0.32	2.0	1.7	1.0	1610	5	20
<b>48</b>	28	0.36	2.1	2.0	1.1	1615	5	20
<b>55</b>	30	0.38	2.2	2.3	1.1	2012	5	31
<b>65</b>	35	0.42	2.6	2.8	1.2	2012 2517	5 6	31 48
<b>75</b>	40	0.48	3.0	3.3	1.2	2517 3020	6 8	48 90
<b>90</b>	45	0.50	3.4	4.2	1.2	3020 3535	8 10	90 90

<sup>1)</sup>  $\Delta K_w = S_{\max} - S_{\min}$

### Maschinenfabrik Dipl.-Ing. Herwarth Reich GmbH

Vierhausstr. 53 D-44807 Bochum  
Tel.: +49 / (0)234 / 959 16-0  
Internet: <http://www.reich-kupplungen.de>

P.O. Box 10 20 66 D-44720 Bochum  
Fax: +49 / (0)234 / 959 16 16  
email: [reich-kupplungen@t-online.de](mailto:reich-kupplungen@t-online.de)