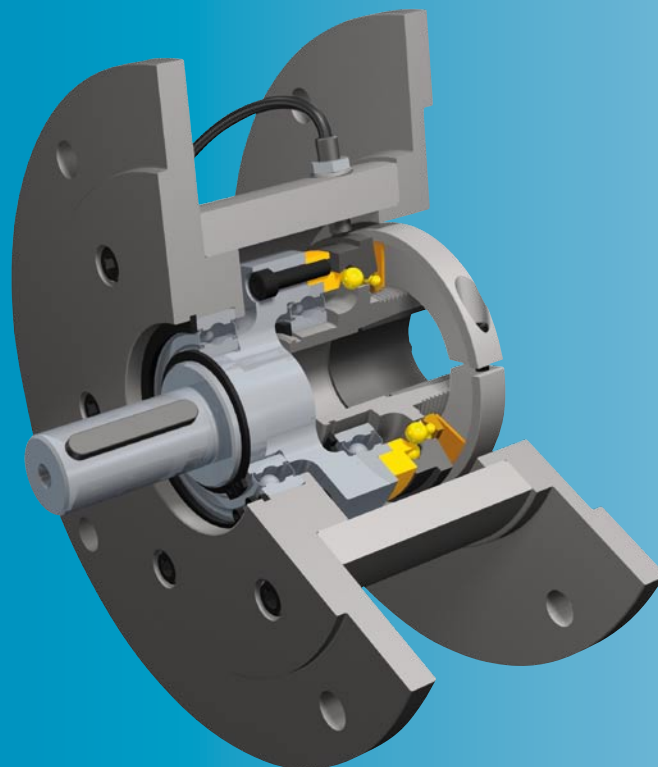


# **EAS<sup>®</sup>-HTL**

## **Housed Torque Limiter**



***Safety clutch enclosed in an  
IEC + NEMA flanged housing***

- ***Backlash-free safety clutch***
- ***Integrated limit switch***
- ***Versatile functions***

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***mayr<sup>®</sup>***  
*your reliable partner*

## Construction and Development

### Innovations for Your Success

With our innovative and economical solutions, we are able to set new records in the field of power transmission. Our many worldwide patents prove our constant ambition of developing better and technologically superior products.

Highly qualified engineers, high-performance 3D-CAD-systems and the most up-to-date FEM calculation aids used in our Development and Construction departments mean that our business is perfectly equipped to offer our customers effective solutions.

### Experts for all Drive-technological Questions

Exploit our know-how, gained by decades of experience in the development, production and application of power transmission products. Our experts in Construction and Development are happy to advise you personally and competently when selecting and dimensioning the drive solution you require.

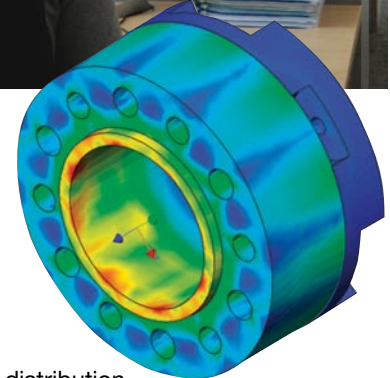
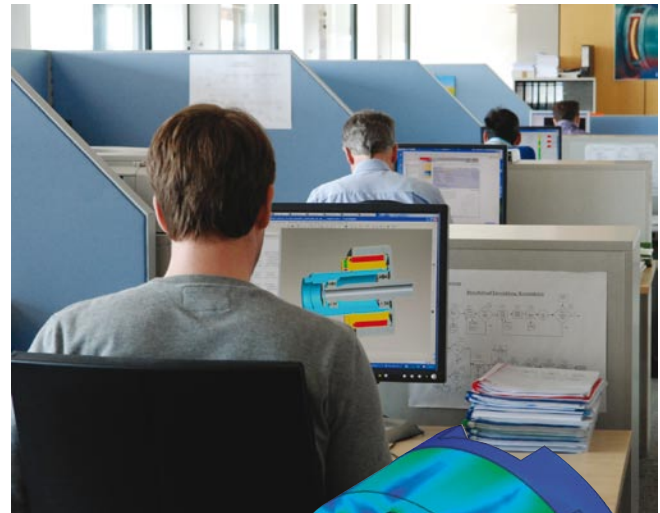


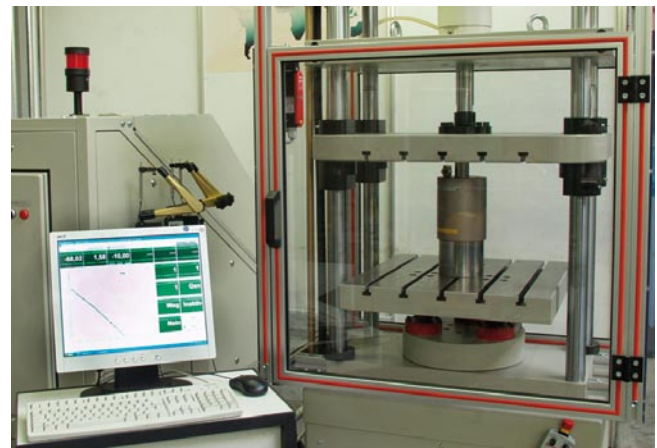
Illustration of the stress distribution in a backlash-free connection

## From Prototype to Finished Product

***No mayr® product is released onto the market until it has proved its functional capabilities and reliability in extreme, long-term tests.***

The spectrum of testing equipment is as varied as our range of products:

- ☐ Friction work test stands
- ☐ Wear test stands
- ☐ Noise measurement room with highly accurate noise measurement inspection devices
- ☐ Torque measurement stands up to 200.000 Nm
- ☐ Impact- and continuous-operation alternating load test stands
- ☐ Force test stands
- ☐ Linear movement test stands
- ☐ Continuous performance test stands
- ☐ Magnetic flow measurement test stands
- ☐ High-speed test stands up to 20.000 rpm
- ☐ Misalignment and angular misalignment test stands
- ☐ Load and measurement test stands for DC motors



## Product Data: Our 24-hour Service

Our website offers you detailed information 24 hours per day, 365 days per year with no delays. Here you can find not only the latest catalogues and technical documentation but also CAD-files for cost-saving construction of our products.

## Unsurpassed - Our Standard Programme

As worldwide market leaders, we are able to offer the largest product range of load holding, load separating, torque and force-limiting, frictionally-locking, magnetic, controllable and switchable safety clutches. We can also provide you with the optimum protection element for your application.

## Versatile Functions

Synchronous, ratchetting or overload clutch designs.

## Solid Housing

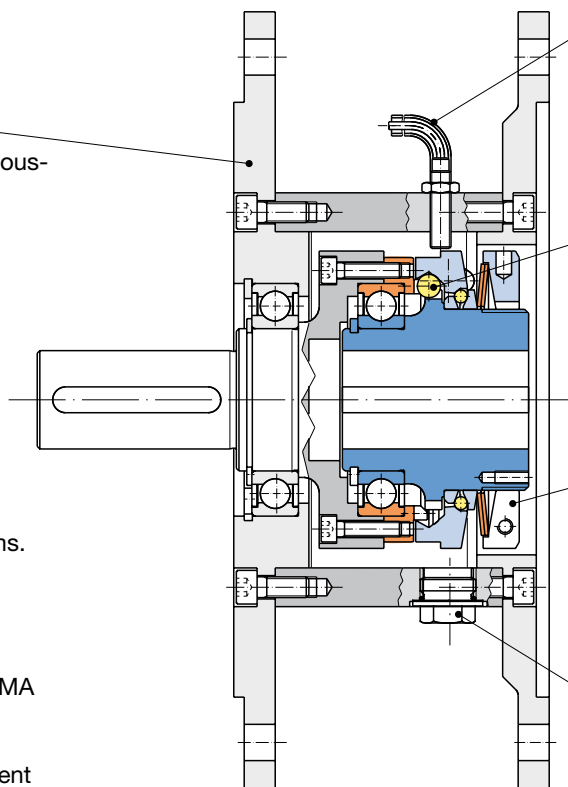
The solidity of the steel housing means that hanging loads can be attached to it.

## Short Installation Length

The exceptionally short installation length makes integration easier in pre-existing constructions and systems.

## IEC and NEMA

Standard IEC/B5 and NEMA dimensions on the connection flange and shaft diameters allow subsequent installation into pre-existing systems.



## Integrated Limit Switch

- PNP NO contact (Sizes 02-3)
- PNP NC contact (Sizes 4-5)
- Transmits signal to switch off drive on overload.
- Installation and adjustment manufacturer-side.

## Backlash-free Torque Transmission

Backlash-free torque transmission using our patented EAS®-NC/EAS®-Compact® functional principle.

## Torque Adjustment

Torque adjustment is carried out manufacturer-side according to the customer's wishes. The percent graduation scale on the adjusting nut allows the customer to read the torque setting.

## Hole for Re-engagement

Only on overload clutch designs.

## Order Number

| — — — / 4 5 0 . — 2 — . 0 2 <sup>1)</sup> |     |        |        |                 |              |   |               |                                              |  |
|-------------------------------------------|-----|--------|--------|-----------------|--------------|---|---------------|----------------------------------------------|--|
| Motor size                                |     |        |        | Clutch size     | Torque range |   | Clutch design |                                              |  |
| IEC                                       |     | NEMA   |        |                 |              |   |               |                                              |  |
| 63                                        | 71  |        |        | 02              | medium       | 5 | 0             | Ratchetting clutch (automatic re-engagement) |  |
| 80                                        |     | 56 C   | 143 TC | 01              |              |   | 4             | Overload clutch (manual re-engagement)       |  |
| 90                                        |     |        |        | 0               | high         | 6 | 5             | Synchronous clutch (automatic re-engagement) |  |
| 100                                       |     | 184 TC |        | 1               |              |   |               |                                              |  |
| 132                                       |     | 215 TC | 256 TC | 2               | very high    | 7 |               |                                              |  |
| 160                                       | 180 |        |        | 3               |              |   |               |                                              |  |
| 200                                       | 225 | 250    |        | 4 <sup>1)</sup> |              |   |               |                                              |  |
| 280                                       |     |        |        | 5 <sup>1)</sup> |              |   |               |                                              |  |

Examples:

71 - 02 / 450.520.0

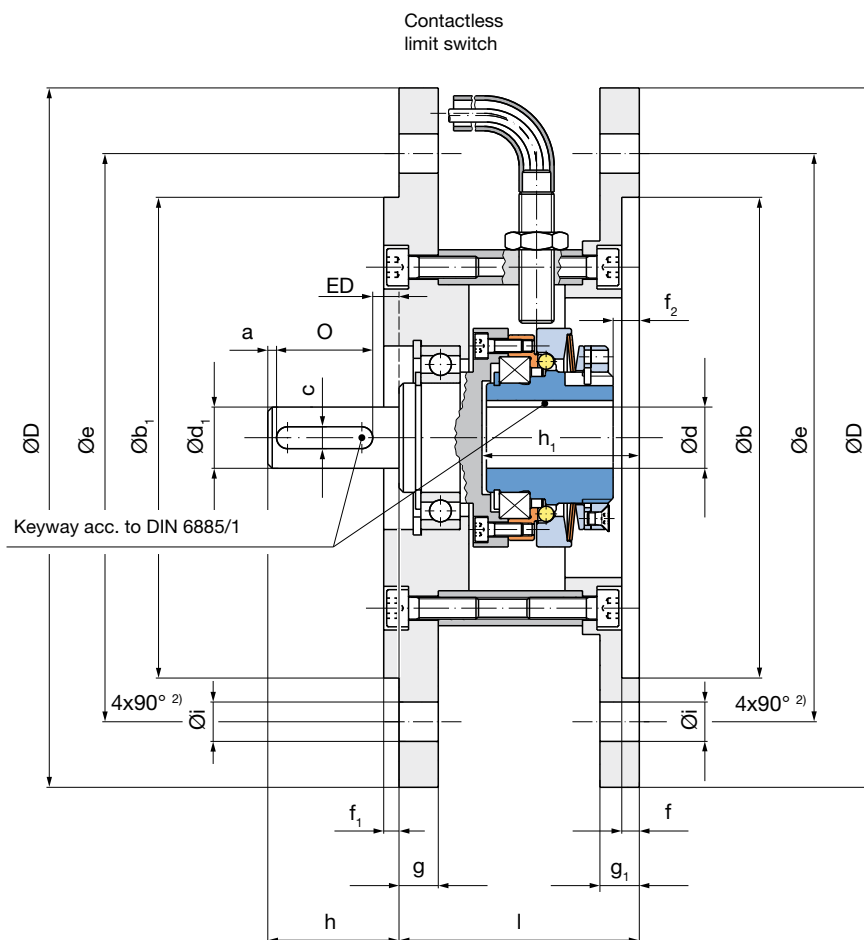
132 - 2 / 490.724.0

215 TC - 2 / 490.625.0

1) Starting at Size 200 (clutch sizes 4 and 5), the EAS® -Compact® Type 490\_2\_2 is used.



According to German notation, decimal points in this brochure are represented with a comma (e.g. 0,5 instead of 0.5).

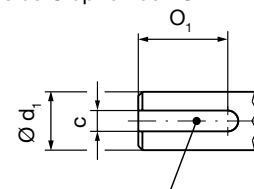


**The EAS®-HTL overload  
clutches Type 490.\_24.0  
are also available in**



**ATEX design according to  
directive 94/9 EC (ATEX 95).**

On Types 56 C up to 256 TC



Keyway depth = "k"

| Technical Data |                |    |           | Ratchetting, synchronous clutches  |                                    |                                    |                                   | Overload clutches                 |                                   |            |                  | Weight |
|----------------|----------------|----|-----------|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------|------------------|--------|
|                |                |    |           | Limit torques<br>for overload      |                                    |                                    | Maximum<br>speed                  | Limit torques<br>for overload     |                                   |            | Maximum<br>speed |        |
|                |                |    |           |                                    |                                    |                                    |                                   |                                   |                                   |            |                  |        |
|                |                |    |           | 4_0.52 <sup>0</sup> <sub>5.0</sub> | 4_0.62 <sup>0</sup> <sub>5.0</sub> | 4_0.72 <sup>0</sup> <sub>5.0</sub> | 490.524 <sup>0</sup> <sub>2</sub> | 490.624 <sup>0</sup> <sub>2</sub> | 490.724 <sup>0</sup> <sub>2</sub> |            |                  |        |
|                |                |    |           | Size                               |                                    | Type                               |                                   |                                   |                                   |            |                  |        |
| Motor<br>IEC   | Clutch<br>NEMA |    |           |                                    |                                    |                                    |                                   |                                   |                                   |            |                  |        |
| 63             | -              | 02 | 450._2_.0 | 2 - 5                              | 5 - 10                             | 6 - 15                             | 4000                              | -                                 | -                                 | -          | -                | 3,6    |
| 71             | -              |    |           | 2 - 5                              | 5 - 10                             | 6 - 15                             | 4000                              | -                                 | -                                 | -          | -                | 4,2    |
| 80             | -              | 01 | 490._2_.0 | 5 - 12,5                           | 10 - 25                            | 20 - 50                            | 4000                              | 5 - 12,5                          | 10 - 25                           | 20 - 50    | 8000             | 8,2    |
| -              | 56 C           |    |           | 5 - 12,5                           | 10 - 25                            | 20 - 50                            | 4000                              | 5 - 12,5                          | 10 - 25                           | 20 - 50    | 8000             | 6,8    |
| -              | 143 TC         |    |           | 5 - 12,5                           | 10 - 25                            | 20 - 50                            | 4000                              | 5 - 12,5                          | 10 - 25                           | 20 - 50    | 8000             | 7      |
| 90             | -              | 0  | 490._2_.0 | 10 - 25                            | 20 - 50                            | 40 - 100                           | 3000                              | 10 - 25                           | 20 - 50                           | 40 - 100   | 7000             | 9,8    |
| 100            | -              | 1  | 490._2_.0 | 20 - 50                            | 40 - 100                           | 80 - 200                           | 2500                              | 20 - 50                           | 40 - 100                          | 80 - 200   | 6000             | 16,6   |
| -              | 184 TC         |    |           | 20 - 50                            | 40 - 100                           | 80 - 200                           | 2500                              | 20 - 50                           | 40 - 100                          | 80 - 200   | 6000             | 18,3   |
| 132            | -              | 2  | 490._2_.0 | 40 - 100                           | 80 - 200                           | 160 - 400                          | 2000                              | 40 - 100                          | 80 - 200                          | 160 - 400  | 5000             | 23,5   |
| -              | 215 TC         |    |           | 40 - 100                           | 80 - 200                           | 160 - 400                          | 2000                              | 40 - 100                          | 80 - 200                          | 160 - 400  | 5000             | 19,8   |
| -              | 256 TC         |    |           | 40 - 100                           | 80 - 200                           | 160 - 400                          | 2000                              | 40 - 100                          | 80 - 200                          | 160 - 400  | 5000             | 19,0   |
| 160            | -              | 3  | 490._2_.0 | 70 - 175                           | 140 - 350                          | 280 - 700 <sup>1)</sup>            | 1500 <sup>1)</sup>                | 80 - 200                          | 160 - 400                         | 320 - 800  | 4000             | 34     |
| 180            | -              |    |           | 70 - 175                           | 140 - 350                          | 280 - 700 <sup>1)</sup>            | 1500 <sup>1)</sup>                | 80 - 200                          | 160 - 400                         | 320 - 800  | 4000             | 37     |
| 200            | -              | 4  | 490._2_.2 | -                                  | -                                  | -                                  | -                                 | 120 - 300                         | 240 - 600                         | 480 - 1200 | 3500             | 78,7   |
| 225            | -              |    |           | -                                  | -                                  | -                                  | -                                 | 120 - 300                         | 240 - 600                         | 480 - 1200 | 3500             | 88,4   |
| 250            | -              |    |           | -                                  | -                                  | -                                  | -                                 | 120 - 300                         | 240 - 600                         | 480 - 1200 | 3500             | 108,4  |
| 280            | -              | 5  |           | -                                  | -                                  | -                                  | -                                 | 240 - 600                         | 480 - 1200                        | 960 - 2400 | 3000             | 145,7  |

- 1) Maximum speed for Type 4\_0.72<sup>0</sup><sub>5.0</sub>: 1200 rpm
- 2) On IEC 225/250/280 8x45° are valid.

We reserve the right to make dimensional and constructional alterations.

| Dimensions [mm] |        |        | DIN 42939    |    | a   | -                 | Ø b <sup>+0,3<br/>+0,2</sup>              | Ø b <sub>1</sub> | c <sup>P9</sup> | Ø D | Ø d <sup>F7</sup>              | Ø d <sub>1k6</sub> | Ø e | f              | f <sub>1</sub> | f <sub>2</sub> |             |
|-----------------|--------|--------|--------------|----|-----|-------------------|-------------------------------------------|------------------|-----------------|-----|--------------------------------|--------------------|-----|----------------|----------------|----------------|-------------|
|                 |        |        | DIN EN 50347 |    | -   | ED                | Ø N <sub>2</sub> <sup>+0,3<br/>+0,2</sup> | Ø N              | F <sup>P9</sup> | Ø P | Ø D <sub>2</sub> <sup>F7</sup> | Ø D <sub>k6</sub>  | Ø M | T <sub>2</sub> | T              | -              |             |
| Motor<br>IEC    | Size   |        | Type         |    |     |                   |                                           |                  |                 |     |                                |                    |     |                |                | 4-0.<br>200    | 490-24<br>0 |
|                 | Clutch | Flange |              |    |     |                   |                                           |                  |                 |     |                                |                    |     |                |                |                |             |
| 63              | 02     | FF115  | 450_2_0      | 2  | 5   | 95                | 95 <sup>j6</sup>                          | 4                | 140             | 11  | 115                            | 3                  | 2,5 | 6              | -              |                |             |
| 71              |        | FF130  |              | 2  | 6   | 110               | 110 <sup>j6</sup>                         | 5                | 160             | 14  | 130                            | 4                  | 3,5 | 6              | -              |                |             |
| 80              | 01     | FF165  | 490_2_0      | 2  | 6   | 130               | 130 <sup>j6</sup>                         | 6                | 200             | 19  | 165                            | 4                  | 3,5 | 11             | 6              |                |             |
| 90              | 0      | FF165  |              | 2  | 8   | 130               | 130 <sup>j6</sup>                         | 8                | 200             | 24  | 165                            | 4                  | 3,5 | 12             | 7              |                |             |
| 100             | 1      | FF215  |              | 4  | 6   | 180               | 180 <sup>j6</sup>                         | 8                | 250             | 28  | 215                            | 4,5                | 4   | 12             | 7              |                |             |
| 132             | 2      | FF265  |              | 6  | 4   | 230               | 230 <sup>j6</sup>                         | 10               | 300             | 38  | 265                            | 6                  | 4   | 8              | 8              |                |             |
| 160             | 3      | FF300  |              | 6  | 14  | 250               | 250 <sup>h6</sup>                         | 12               | 350             | 42  | 300                            | 6                  | 5   | 15             | 23             |                |             |
| 180             |        | FF300  |              | 5  | 5   | 250               | 250 <sup>h6</sup>                         | 14               | 350             | 48  | 300                            | 6                  | 5   | 15             | 23             |                |             |
| 200             | 4      | FF350  |              | 5  | 5   | 300               | 300 <sup>h6</sup>                         | 16               | 400             | 55  | 350                            | 5,5                | 5   | -              | 20             |                |             |
| 225             |        | FF400  | 5            | 10 | 350 | 350 <sup>h6</sup> | 18                                        | 450              | 60              | 400 | 5,5                            | 5                  | -   | 23             |                |                |             |
| 250             |        | FF500  | 5            | 10 | 450 | 450 <sup>h6</sup> | 18                                        | 550              | 60              | 500 | 5,5                            | 5                  | -   | 22             |                |                |             |
| 280             | 5      | FF500  |              | 5  | 10  | 450               | 450 <sup>h6</sup>                         | 20               | 550             | 75  | 500                            | 5.5                | 5   | -              | 31             |                |             |

| Dimensions [mm] |             |        | DIN 42939    | g  | g <sub>1</sub>  | h   | h <sub>1</sub>       |                     | $\varnothing i$ | k   | l                    |                     | O <sub>1</sub>  | O   |
|-----------------|-------------|--------|--------------|----|-----------------|-----|----------------------|---------------------|-----------------|-----|----------------------|---------------------|-----------------|-----|
|                 |             |        | DIN EN 50347 | LA | LA <sub>2</sub> | E   | E <sub>2</sub>       |                     | $\varnothing S$ | GE  | LB                   |                     | EB <sub>1</sub> | EB  |
| Motor IEC       | Size Clutch | Flange | Type         |    |                 |     | 4.0-2.0 <sub>0</sub> | 490-24 <sub>2</sub> |                 |     | 4.0-2.0 <sub>0</sub> | 490-24 <sub>2</sub> |                 |     |
| 63              | 02          | FF115  | 450_2_0      | 9  | -               | 23  | 35                   | -                   | 9               | 2,5 | 53                   | -                   | -               | 16  |
| 71              |             | FF130  |              | 9  | 9               | 30  | 36                   | -                   | 9               | 3   | 55                   | -                   | -               | 22  |
| 80              | 01          | FF165  | 490_2_0      | 10 | 10              | 40  | 52                   | 52                  | 11              | 3,5 | 78                   | 78                  | -               | 32  |
| 90              | 0           | FF165  |              | 10 | 10              | 50  | 61                   | 63                  | 11              | 4   | 90                   | 92                  | -               | 40  |
| 100             | 1           | FF215  |              | 11 | 11              | 60  | 73                   | 79                  | 13,5            | 4   | 110                  | 116                 | -               | 50  |
| 132             | 2           | FF265  |              | 12 | 12              | 80  | 85                   | 93                  | 13,5            | 5   | 110                  | 118                 | -               | 70  |
| 160             | 3           | FF300  | 490_2_2      | 13 | 13              | 110 | 111                  | 126                 | 17,5            | 5   | 124                  | 139                 | -               | 90  |
| 180             |             | FF300  |              | 13 | 13              | 110 | 111                  | 126                 | 17,5            | 5,5 | 126                  | 141                 | -               | 100 |
| 200             | 4           | FF350  |              | 15 | 15              | 110 | -                    | 166                 | 17,5            | 6   | -                    | 213                 | -               | 100 |
| 225             |             | FF400  |              | 15 | 15              | 140 | -                    | 169                 | 17,5            | 7   | -                    | 216                 | -               | 125 |
| 250             | 5           | FF500  |              | 18 | 18              | 140 | -                    | 168                 | 17,5            | 7   | -                    | 216                 | -               | 125 |
| 280             |             | FF500  |              | 17 | 17              | 140 | -                    | 207                 | 17,5            | 7   | -                    | 252                 | -               | 125 |

| Dimensions    |        | Type    | a | Ø b <sup>+0,3<br/>+0,2</sup> | Ø b <sub>1</sub>     | c <sup>P9</sup> | Ø D  | Ø d <sup>F7</sup> | Ø d <sub>1 k6</sub> | Ø e    | f      | f <sub>1</sub> | f <sub>2</sub>                  |                                  |
|---------------|--------|---------|---|------------------------------|----------------------|-----------------|------|-------------------|---------------------|--------|--------|----------------|---------------------------------|----------------------------------|
| Size          |        |         |   |                              |                      |                 | [mm] |                   |                     |        |        |                | 4.0-2 <sub>0</sub> <sup>0</sup> | 490-24 <sub>2</sub> <sup>0</sup> |
| Motor<br>NEMA | Clutch |         |   |                              |                      |                 |      |                   |                     |        |        |                |                                 |                                  |
| 56 C          | 01     | 490_2_0 | - | 4.500"                       | 4.500" <sub>j6</sub> | 0.188"          | 180  | 0.625"            | 5.875"              | 0.180" | 0.180" | 0.180"         | 0.433"                          | 0.236"                           |
| 143 TC        |        |         | - | 4.500"                       | 4.500" <sub>j6</sub> | 0.188"          | 180  | 0.875"            | 5.875"              | 0.250" | 0.250" | 0.250"         | 0.433"                          | 0.236"                           |
| 184 TC        | 1      |         | - | 8.500"                       | 8.500" <sub>j6</sub> | 0.250"          | 250  | 1.125"            | 7.250"              | 0.250" | 0.250" | 0.250"         | 0.271"                          | 0.271"                           |
| 215 TC        | 2      |         | - | 8.500"                       | 8.500" <sub>j6</sub> | 0.310"          | 250  | 1.375"            | 7.250"              | 0.250" | 0.250" | 0.250"         | 0.678"                          | 0.354"                           |
| 256 TC        |        |         | - | 8.500"                       | 8.500" <sub>j6</sub> | 0.375"          | 250  | 1.625"            | 7.250"              | 0.250" | 0.250" | 0.250"         | 1.310"                          | 1.115"                           |

| Dimensions |        |         | g      | g <sub>1</sub> | h      | h <sub>1</sub>       |                     | Ø i    | k      | l                    |                     | O <sub>1</sub> | O |
|------------|--------|---------|--------|----------------|--------|----------------------|---------------------|--------|--------|----------------------|---------------------|----------------|---|
| Size       |        | Type    |        |                |        | 4.0_2.0 <sub>0</sub> | 490_24 <sub>2</sub> |        |        | 4.0_2.0 <sub>0</sub> | 490_24 <sub>2</sub> |                |   |
| Motor NEMA | Clutch |         |        |                |        |                      |                     |        |        |                      |                     |                |   |
| 56 C       | 01     | 490_2_0 | 0.375" | 0.375"         | 2.060" | 2.200"               | 2.200"              | 0.438" | 0.104" | 3.070"               | 3.070"              | 1.410"         | - |
| 143 TC     |        |         | 0.375" | 0.375"         | 2.120" | 2.200"               | 2.200"              | 0.438" | 0.104" | 3.070"               | 3.070"              | 1.410"         | - |
| 184 TC     | 1      |         | 0.375" | 0.704"         | 2.870" | 2.920"               | 3.160"              | 0.562" | 0.139" | 4.420"               | 4.650"              | 1.780"         | - |
| 215 TC     | 2      |         | 0.375" | 0.704"         | 3.370" | 3.390"               | 3.430"              | 0.562" | 0.174" | 4.655"               | 4.650"              | 2.410"         | - |
| 256 TC     |        |         | 0.375" | 0.704"         | 4.000" | 4.020"               | 4.020"              | 0.562" | 0.200" | 5.280"               | 5.280"              | 2.910"         | - |

## Torque Adjustment

The torque is set manufacturer-side according to the customer's request. However, should a different torque adjustment be required, it can be adjusted according to the attached Installation and Operational Instructions.

For this, the clutch must be removed from the housing.

The installed cup springs are operated in the negative range of the characteristic curve (see Fig. 1), i.e. tightening the adjusting nut causes the spring force to decrease, whereas loosening the adjusting nut causes the spring force to increase.

## Maintenance

EAS®-HTL-clutches are mainly maintenance-free. Special maintenance work may be necessary should the device be subject to extreme ambient conditions.

In this case, we request that you please contact the manufacturers.

## Adjustment (Limit Switch)

The limit switch (PNP NO contact for Sizes 02-3 / PNP NC contact for Sizes 4-5) on the EAS®-HTL clutch has been set and countered manufacturer-side. However, since the clutch position is ultimately defined by the customer-side attachment, readjustment may be necessary.

This can be carried out as follows:

- ☐ Loosen the counter nut on the limit switch
- ☐ Screw the limit switch in up to contact (limit switch damped)
- ☐ Unscrew the limit switch again until it switches (limit switch undamped).
- ☐ Screw the limit switch in again carefully until it switches (limit switch is damped again), then continue turning for another 90°.
- ☐ Counter the limit switch.
- ☐ Check the switching function by disengaging the clutch.

### Important!

To avoid any functional impairment of the limit switch, it must be kept free of oil, grease and other dirty particles.

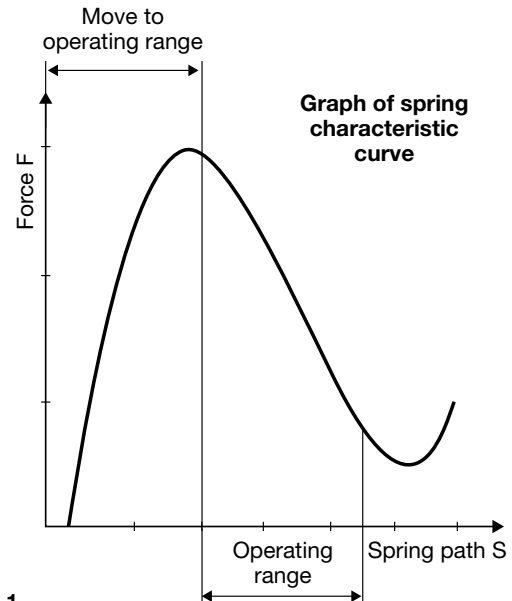


Fig. 1

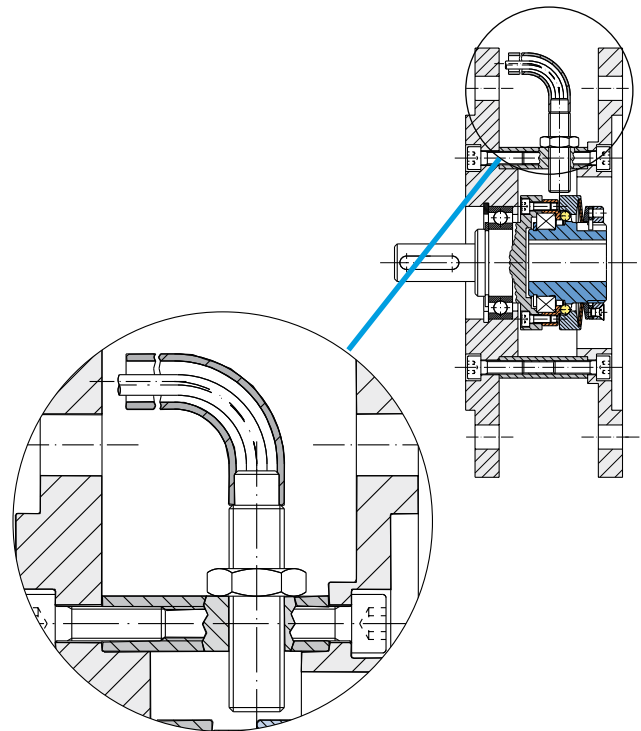
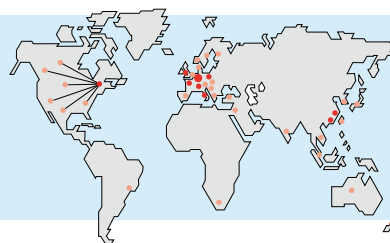


Fig. 2



## Headquarters

**Chr. Mayr GmbH + Co. KG**  
**Eichenstrasse 1, D-87665 Mauerstetten**  
**Tel.: 0 83 41/8 04-0, Fax: 0 83 41/80 44 21**  
**www.mayr.com, E-Mail: info@mayr.com**



**mayr®**

## Service Germany

### Baden-Württemberg

Esslinger Straße 7  
 70771 Leinfelden-Echterdingen  
 Tel.: 07 11/45 96 01 0  
 Fax: 07 11/45 96 01 10

### Bavaria

Eichenstrasse 1  
 87665 Mauerstetten  
 Tel.: 0 83 41/80 41 04  
 Fax: 0 83 41/80 44 23

### Chemnitz

Bornaer Straße 205  
 09114 Chemnitz  
 Tel.: 03 71/4 74 18 96  
 Fax: 03 71/4 74 18 95

### Franken

Unterer Markt 9  
 91217 Hersbruck  
 Tel.: 0 91 51/81 48 64  
 Fax: 0 91 51/81 62 45

### Hagen

Im Langenstück 6  
 58093 Hagen  
 Tel.: 0 23 31/78 03 0  
 Fax: 0 23 31/78 03 25

### Kamen

Lünener Strasse 211  
 59174 Kamen  
 Tel.: 0 23 07/23 63 85  
 Fax: 0 23 07/24 26 74

### North

Schiefer Brink 8  
 32699 Extertal  
 Tel.: 0 57 54/9 20 77  
 Fax: 0 57 54/9 20 78

### Rhine-Main

Hans-Böckler-Straße 6  
 64823 Groß-Umstadt  
 Tel.: 0 60 78/7 82 53 37  
 Fax: 0 60 78/9 30 08 00

## Branch office

### China

Mayr Zhangjiagang  
 Power Transmission Co., Ltd.  
 Changxing Road No. 16,  
 215600 Zhangjiagang  
 Tel.: 05 12/58 91-75 65  
 Fax: 05 12/58 91-75 66  
 info@mayr-ptc.cn

### Great Britain

Mayr Transmissions Ltd.  
 Valley Road, Business Park  
 Keighley, BD21 4LZ  
 West Yorkshire  
 Tel.: 0 15 35/66 39 00  
 Fax: 0 15 35/66 32 61  
 sales@mayr.co.uk

### France

Mayr France S.A.  
 Z.A.L. du Minopole  
 BP 16  
 62160 Bully-Les-Mines  
 Tel.: 03.21.72.91.91  
 Fax: 03.21.29.71.77  
 contact@mayr.fr

### Italy

Mayr Italia S.r.l.  
 Viale Veneto, 3  
 35020 Saonara (PD)  
 Tel.: 0 49/8 79 10 20  
 Fax: 0 49/8 79 10 22  
 info@mayr-italia.it

### Singapore

Mayr Transmission (S) PTE Ltd.  
 No. 8 Boon Lay Way Unit 03-06,  
 TradeHub 21  
 Singapore 609964  
 Tel.: 00 65/65 60 12 30  
 Fax: 00 65/65 60 10 00  
 info@mayr.com.sg

### Switzerland

Mayr Kupplungen AG  
 Tobeläckerstrasse 11  
 8212 Neuhausen am Rheinfall  
 Tel.: 0 52/6 74 08 70  
 Fax: 0 52/6 74 08 75  
 info@mayr.ch

### USA

Mayr Corporation  
 4 North Street  
 Waldwick  
 NJ 07463  
 Tel.: 2 01/4 45-72 10  
 Fax: 2 01/4 45-80 19  
 info@mayrcorp.com

## Representatives

### Australia

Transmission Australia Pty. Ltd.  
 22 Corporate Ave,  
 3178 Rowville, Victoria  
 Australien  
 Tel.: 0 39/7 55 44 44  
 Fax: 0 39/7 55 44 11  
 info@transaus.com.au

### China

Mayr Power Transmission Co., Ltd.  
 Shanghai Representative Office  
 Room 2206, No. 888 Yishan Road  
 200233 Shanghai, VR China  
 Tel.: 0 21/64 32 01 60  
 Fax: 0 21/64 57 56 21  
 Trump.feng@mayr.de

### India

National Engineering  
 Company (NENCO)  
 J-225, M.I.D.C.  
 Bhosari Pune 411026  
 Tel.: 0 20/27 13 00 29  
 Fax: 0 20/27 13 02 29  
 nenco@nenco.org

### Japan

MATSUI Corporation  
 2-4-7 Azabudai  
 Minato-ku  
 Tokyo 106-8641  
 Tel.: 03/35 86-41 41  
 Fax: 03/32 24 24 10  
 k.goto@matsui-corp.co.jp

### South Africa

Torque Transfer  
 Private Bag 9  
 Elandsfontein 1406  
 Tel.: 0 11/8 99 00 00  
 Fax: 0 11/8 99 65 74  
 torque@bearings.co.za

### South Korea

Mayr Korea Co. Ltd.  
 Room No.1002, 10th floor,  
 Nex Zone, SK TECHNOPARK,  
 77-1, SungSan-Dong,  
 SungSan-Gu, Changwon, Korea  
 Tel.: 0 55/2 62-40 24  
 Fax: 0 55/2 62-40 25  
 info@mayrkorea.com

### Taiwan

German Tech Auto Co., Ltd.  
 No. 28, Fenggong Zhong Road,  
 Shengang Dist.,  
 Taichung City 429, Taiwan R.O.C.  
 Tel.: 04/25 15 05 66  
 Fax: 04/25 15 24 13  
 abby@zfgta.com.tw

### Machine tools

Applications in China  
 Dynamic Power Transmission Co., Ltd.  
 Block 5th, No. 1699, Songze Road,  
 Xujing Industrial Zone  
 201702 Shanghai, China  
 Tel.: 021/59883978  
 Fax: 021/59883979  
 dtcshanghai@online.sh.cn

### More representatives:

Austria, Benelux States, Brazil, Canada, Czech Republic, Denmark, Finland, Greece, Hongkong, Hungary, Indonesia, Israel, Malaysia, New Zealand, Norway, Philippines, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Thailand, Turkey

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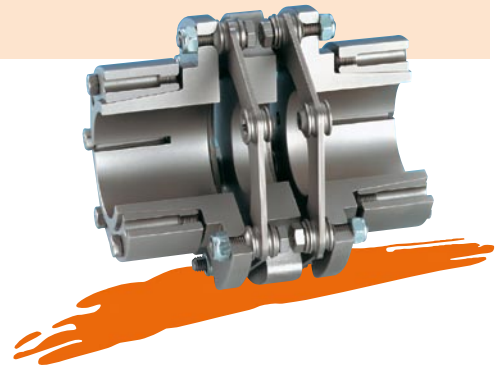
## Safety Clutches/Overload Clutches

- ❑ **EAS®-Compact®/EAS®-NC**  
Positive locking and completely backlash-free torque limiting clutches
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- ❑ **EAS®-axial**  
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- ❑ **EAS®-Sp/EAS®-Sm/EAS®-Zr**  
Load-disconnecting torque limiting clutches with switching function
- ❑ **ROBA®-slip hub**  
Load-holding, frictionally locked torque limiting clutches
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Multifunctional all-round safety brakes
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Robust, cost-effective motor brakes
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Water-proof, robust monoblock brakes
- ❑ **ROBA-stop®-Z/ROBA-stop®-silenzio®**  
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- ❑ **ROBA®-diskstop®**  
Compact, very quiet disk brakes
- ❑ **ROBA®-topstop®**  
Brake systems for gravity loaded axes
- ❑ **ROBA®-linearstop**  
Backlash-free brake systems for linear motor axes
- ❑ **ROBATIC®/ROBA®-quick/ROBA®-takt**  
Electromagnetic clutches and brakes, clutch brake units



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- ❑ **tendo®-PM**  
Permanent magnet-excited DC motors
- ❑ **tendo®-SC**  
1 quadrant and 4 quadrant transistor controllers

