# DTR Capacitor Detuning Reactors

Three-Phase, Iron-Core, PolyGap®-Design


## Features

- Optimized 7% detuning
- Unique PolyGap® core construction
- Suitable for use in surrounding air temperatures up to 50°C
- N.C. over-temperature switch (center coil)
- Compact design

## Protect power factor capacitors from harmful harmonics

Type DTR capacitor detuning reactors from Mangoldt protect power factor capacitors from harmful effects of harmonics and can suppress switching transients in power factor capacitors.

DTR reactors increase the capacitor system impedance at typical harmonic frequencies, which reduces harmonic currents that flow into the capacitor and helps to prevent harmonic resonance.

Mangoldt Detuning Reactors offer the optimum 7% impedance and provide valuable benefits for detuned power factor capacitor systems:

- Reduce the flow of harmonic currents into the capacitor
- Prevent harmonic resonance
- Slightly reduce system harmonic current distortion
- Extend PF capacitor life

DTR Reactors are designed for use with power factor capacitors that will be connected to power systems with harmonic voltage that does not exceed the values listed in the chart below:

| Harmonic order | 1 | 3 | 5 | 7 |
|---|---|---|---|---|
| Frequency | 60Hz | 180Hz | 300Hz | 420Hz |
| % of fundamental voltage | 106% | 0.50% | 5% | 5% |

Please contact us for any other requirements.

## Approvals / Standards

- UL Listed (USA/Canada) product available for all ratings (E173113)
- CUL Listed up to 690 V
- IEC/EN60076-6 VDE0532-76-6

RoHS 2011/65/EU

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# DTR Capacitor Detuning Reactors

## Selection

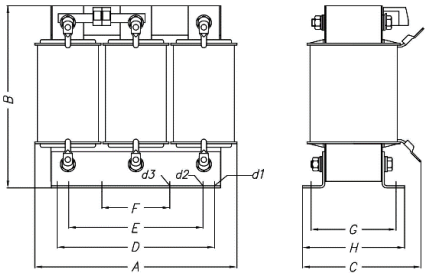
Mangoldt Detuning Reactors are suitable for use with 3-phase capacitors that are connected in either wye or delta configurations. Select the appropriate reactor based on capacitor rating, which can be found in the left side of the charts. These charts cover the most popular ratings. Please contact us for any other ratings that are required.

| | Capacitor Ratings | | | | Reactor Ratings | | | |
|---|---|---|---|---|---|---|---|---|
| | kVAR | uF (wye) | uF (3x delta) | net kVAR | Catalogue No. | MANGOLDT p/n | mH | Imax (Arms) |
| 480V (60Hz) | 7,5 | 86,35 | 28,78 | 8,06 | DTR-07-480-60-K007.5 | 1094206 | 5,704 | 10,8 |
| | 12,5 | 143,91 | 47,97 | 13,44 | DTR-07-480-60-K012.5 | 1094207 | 3,422 | 18,0 |
| | 16,7 | 192,27 | 64,09 | 17,96 | DTR-07-480-60-K016.7 | 1048213 | 2,561 | 24,0 |
| | 20,0 | 230,26 | 76,75 | 21,50 | DTR-07-480-60-K020 | 1094177 | 2,139 | 28,8 |
| | 25,0 | 287,82 | 95,94 | 26,88 | DTR-07-480-60-K025 | 1039690 | 1,711 | 36,0 |
| | 30,0 | 345,39 | 115,13 | 32,26 | DTR-07-480-60-K030 | 1040681 | 1,426 | 43,2 |
| | 40,0 | 460,52 | 153,51 | 43,01 | DTR-07-480-60-K040 | 1048216 | 1,070 | 57,6 |
| | 50,0 | 575,65 | 191,88 | 53,76 | DTR-07-480-60-K050 | 1048217 | 0,856 | 72,0 |
| | 60,0 | 690,78 | 230,26 | 64,51 | DTR-07-480-60-K060 | 1048218 | 0,713 | 86,4 |
| | 75,0 | 863,47 | 287,82 | 80,64 | DTR-07-480-60-K075 | 1059859 | 0,570 | 108,0 |
| | 100,0 | 1151,29 | 383,76 | 107,52 | DTR-07-480-60-K100 | 1048219 | 0,428 | 144,0 |
| | 120,0 | 1381,55 | 460,52 | 129,02 | DTR-07-480-60-K120 | 1048221 | 0,357 | 172,8 |
| | 150,0 | 1726,94 | 575,65 | 161,28 | DTR-07-480-60-K150 | 1050192 | 0,285 | 216,0 |

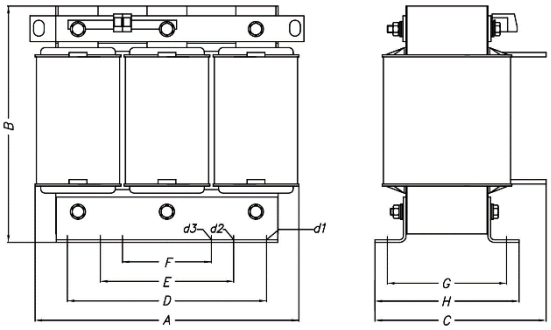
| | Capacitor Ratings | | | | Reactor Ratings | | | |
|---|---|---|---|---|---|---|---|---|
| | kVAR | uF (wye) | uF (3x delta) | net kVAR | Catalogue No. | MANGOLDT p/n | mH | Imax (Arms) |
| 600V (60Hz) | 7,5 | 55,26 | 18,42 | 8,06 | DTR-07-600-60-K007.5 | 1094205 | 8,913 | 8,6 |
| | 12,5 | 92,10 | 30,70 | 13,44 | DTR-07-600-60-K012.5 | 1094204 | 5,348 | 14,4 |
| | 16,7 | 123,05 | 41,02 | 17,96 | DTR-07-600-60-K016.7 | 1047346 | 4,009 | 19,2 |
| | 20,0 | 147,37 | 49,12 | 21,50 | DTR-07-600-60-K020 | 1047329 | 3,342 | 23,0 |
| | 25,0 | 184,21 | 61,40 | 26,88 | DTR-07-600-60-K025 | 1047872 | 2,674 | 28,8 |
| | 30,0 | 221,05 | 73,68 | 32,26 | DTR-07-600-60-K030 | 1047873 | 2,228 | 34,6 |
| | 40,0 | 294,73 | 98,24 | 43,01 | DTR-07-600-60-K040 | 1047874 | 1,671 | 46,1 |
| | 50,0 | 368,41 | 122,80 | 53,76 | DTR-07-600-60-K050 | 1047348 | 1,337 | 57,6 |
| | 60,0 | 442,10 | 147,37 | 64,51 | DTR-07-600-60-K060 | 1047349 | 1,114 | 69,1 |
| | 75,0 | 552,62 | 184,21 | 80,64 | DTR-07-600-60-K075 | 1052932 | 0,891 | 86,4 |
| | 100,0 | 736,83 | 245,61 | 107,52 | DTR-07-600-60-K100 | 1047350 | 0,668 | 115,2 |
| | 120,0 | 884,19 | 294,73 | 129,02 | DTR-07-600-60-K120 | 1047875 | 0,557 | 138,2 |
| | 150,0 | 1105,24 | 368,41 | 161,28 | DTR-07-600-60-K150 | 1050193 | 0,446 | 172,8 |

# DTR Capacitor Detuning Reactors

## Technical Data




Applies to * marked catalogue numbers




Applies to all other catalogue numbers

| 480V Reactor Technical Data | | | | | | | |
|---|---|---|---|---|---|---|---|
| Catalogue No. | mH | Imax (Arms) | Watts | Width A ( mm) | Height B (mm) | Depth C ( mm) | Weight ( kg ) |
| DTR-07-480-60-K007.5 * | 5,704 | 10,8 | 80 | 180 | 160 | 100 | 7 |
| DTR-07-480-60-K012.5 | 3,422 | 18,0 | 80 | 230 | 160 | 131 | 15 |
| DTR-07-480-60-K016.7 | 2,561 | 24,0 | 110 | 230 | 160 | 131 | 15 |
| DTR-07-480-60-K020 | 2,139 | 28,8 | 120 | 230 | 160 | 133 | 15 |
| DTR-07-480-60-K025 | 1,711 | 36,0 | 150 | 230 | 205 | 140 | 18 |
| DTR-07-480-60-K030 | 1,426 | 43,2 | 180 | 232 | 211 | 137 | 19 |
| DTR-07-480-60-K040 | 1,070 | 57,6 | 220 | 219 | 231 | 155 | 26 |
| DTR-07-480-60-K050 | 0,856 | 72,0 | 220 | 260 | 232 | 162 | 28 |
| DTR-07-480-60-K060 | 0,713 | 86,4 | 250 | 291 | 234 | 171 | 34 |
| DTR-07-480-60-K075 | 0,570 | 108,0 | 280 | 249 | 234 | 190 | 40 |
| DTR-07-480-60-K100 | 0,428 | 144,0 | 330 | 249 | 264 | 200 | 50 |
| DTR-07-480-60-K120 | 0,357 | 172,8 | 430 | 300 | 325 | 172 | 48 |
| DTR-07-480-60-K150 | 0,285 | 216,0 | 480 | 300 | 325 | 195 | 57 |

| 600 V Reactor Technical Data | | | | | | | |
|---|---|---|---|---|---|---|---|
| Catalogue No. | mH | Imax (Arms) | Watts | Width A ( mm) | Height B (mm) | Depth C ( mm) | Weight ( kg ) |
| DTR-07-600-60-K007.5 * | 8,913 | 8,6 | 70 | 180 | 160 | 100 | 7 |
| DTR-07-600-60-K012.5 * | 5,348 | 14,4 | 100 | 180 | 160 | 120 | 10 |
| DTR-07-600-60-K016.7 | 4,009 | 19,2 | 110 | 240 | 180 | 138 | 16 |
| DTR-07-600-60-K020 | 3,342 | 23,0 | 130 | 237 | 170 | 139 | 16 |
| DTR-07-600-60-K025 | 2,674 | 28,8 | 150 | 268 | 186 | 153 | 22 |
| DTR-07-600-60-K030 | 2,228 | 34,6 | 170 | 268 | 186 | 158 | 22 |
| DTR-07-600-60-K040 | 1,671 | 46,1 | 200 | 248 | 211 | 153 | 24 |
| DTR-07-600-60-K050 | 1,337 | 57,6 | 230 | 268 | 232 | 157 | 28 |
| DTR-07-600-60-K060 | 1,114 | 69,1 | 250 | 308 | 233 | 170 | 34 |
| DTR-07-600-60-K075 | 0,891 | 86,4 | 280 | 308 | 234 | 190 | 41 |
| DTR-07-600-60-K100 | 0,668 | 115,2 | 370 | 308 | 295 | 184 | 49 |
| DTR-07-600-60-K120 | 0,557 | 138,2 | 400 | 300 | 325 | 185 | 54 |
| DTR-07-600-60-K150 | 0,446 | 172,8 | 500 | 300 | 325 | 200 | 61 |

# Reactor Technology at Its Best

Since 1941


| Custom Reactor Capabilities – up to 35kV | |
|---|---|
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| Filter Reactors | PWM Sinusoidal Filter Inductors |
| Common Mode Chokes | Water-Cooled Inductors |
| Line/Load / dv/dt / PWM / Notch Reactors | Smoothing Reactors |
| Audio Frequency Blocking Filters | Active Filter Reactors |
| Tuning Inductors | PWM Reactors |
| Compensation Chokes | dv/dt Limiting Inductors |

PQC

Power Quality Specialists
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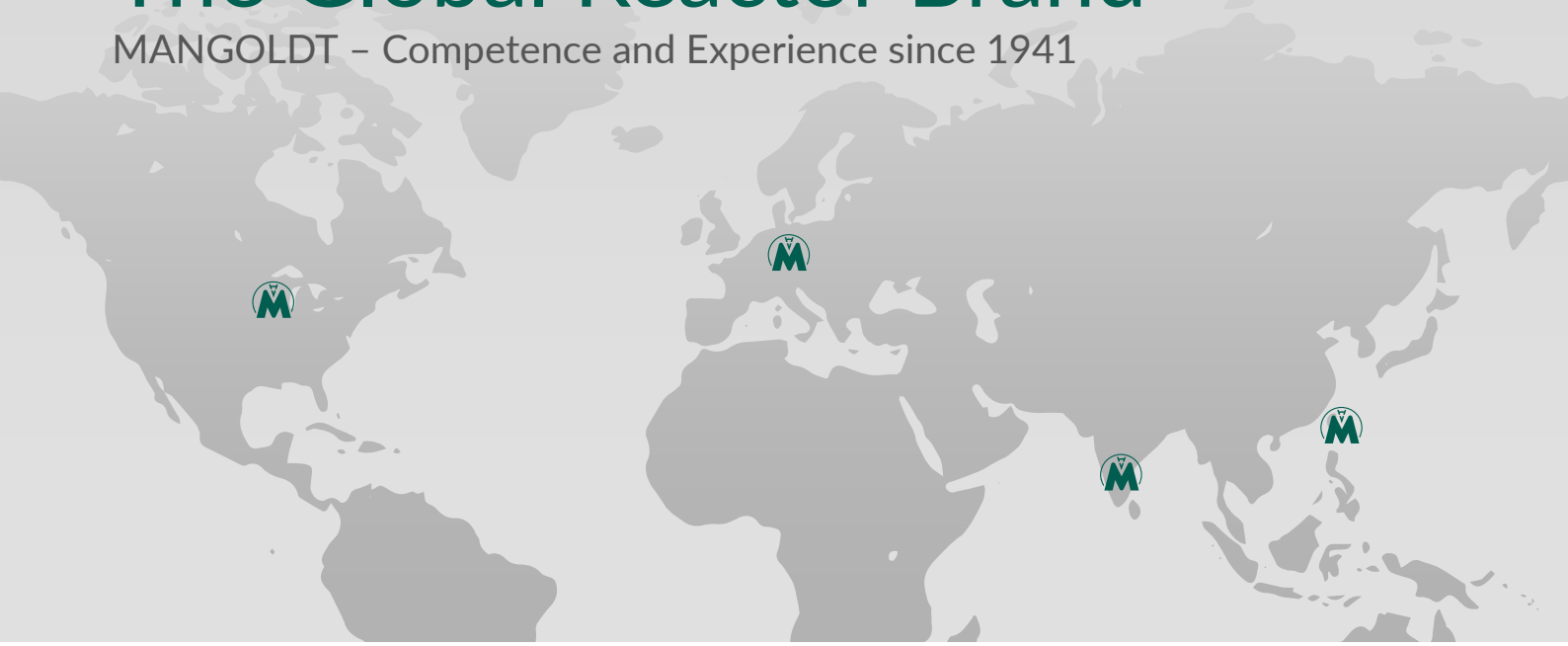
MANGOLDT

# The Global Reactor Brand

## MANGOLDT – Competence and Experience since 1941



Hans von Mangoldt GmbH, an ISO-9001 registered company, is appropriately equipped to meet the demands of the most rigorous reactor applications.

We have earned a leadership position in the international reactor markets and currently export, on a regular basis, to over thirty countries.

A highly motivated and experienced workforce makes a vital contribution to the success of the company. The use of state-of-the-art production systems, together with self-defined high demands for quality and reliability allow our customers to have absolute confidence and trust in the products supplied by MANGOLDT.

The management of MANGOLDT looks to the future, firmly determined to maintain its success in meeting this quality objective.

Today the entire company group has a 120-man strong workforce at two production sites in Germany, two domestic manufacturing sites (Taiwan and India) and a sales office in USA.

MANGOLDT has two production facilities with complete reactor manufacturing capabilities. Both factories include everything from lamination cutting, computerized winding, assembly and vacuum and pressure impregnation systems.

1980 marked the introduction of MANGOLDT's exclusive core construction method, appropriately named PolyGap®, for its use of numerous air gaps.

PolyGap® core construction is designed to optimize the core's ability to handle harmonic frequencies and to minimize losses.

MANGOLDT has the capability to design reactors with the precise number of air gaps, length of each individual gap and location of each gap to maximize the overall performance of the reactor, based on the specified harmonic current spectrum.