Design Information for Three-Phase Circuits
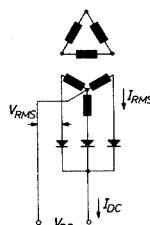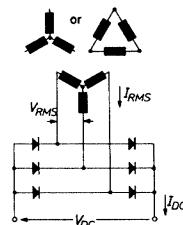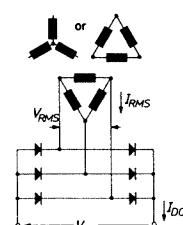
	Star	Three-phase bridge	Three-phase bridge

Circuit diagrams

Resistive load

Characteristics (each diode):

	Star	Three-phase bridge	Three-phase bridge
$V_{RRM} >$	$2.3 \cdot V_{DC}$	$1.15 \cdot V_{DC}$	$1.15 \cdot V_{DC}$
$V_{RRM} >$	$2.7 \cdot V_{RMS}$	$1.56 \cdot V_{RMS}$	$1.56 \cdot V_{RMS}$
$I_{FAV} >$	$0.33 \cdot I_{DC}$	$0.33 \cdot I_{DC}$	$0.33 \cdot I_{DC}$

Circuit parameters:

	Star	Three-phase bridge	Three-phase bridge
V_{RMS}	$0.86 \cdot V_{DC}$	$0.74 \cdot V_{DC}$	$0.74 \cdot V_{DC}$
I_{RMS}	$0.58 \cdot I_{DC}$	$0.82 \cdot I_{DC}$	$0.82 \cdot I_{DC}$
P_t	$1.35 \cdot P_{DC}$	$1.05 \cdot P_{DC}$	$1.05 \cdot P_{DC}$
V_{BR}	$0.18 \cdot V_{DC}$	$0.042 \cdot V_{DC}$	$0.042 \cdot V_{DC}$
f_{BR}	$3 \cdot f_{in}$	$6 \cdot f_{in}$	$6 \cdot f_{in}$

Load with back EMF

Characteristics (each diode):

	Star	Three-phase bridge	Three-phase bridge
$V_{RRM} >$	$2.41 \cdot V_{DC}$	$1.15 \cdot V_{DC}$	$1.15 \cdot V_{DC}$
$V_{RRM} >$	$3.12 \cdot V_{RMS}$	$1.56 \cdot V_{RMS}$	$1.56 \cdot V_{RMS}$

Circuit parameters:

	Star	Three-phase bridge	Three-phase bridge
V_{RMS}	$0.77 \cdot V_{DC}$	$0.74 \cdot V_{DC}$	$0.74 \cdot V_{DC}$
I_{RMS}	$0.75 \cdot I_{DC}$	$0.82 \cdot I_{DC}$	$0.82 \cdot I_{DC}$
P_t	$1.57 \cdot P_{DC}$	$1.05 \cdot P_{DC}$	$1.05 \cdot P_{DC}$
f_{BR}	$3 \cdot f_{in}$	$6 \cdot f_{in}$	$6 \cdot f_{in}$