

HEID ANTRIEBSTECHNIK

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Multi-Disc Clutches

electromagnetic operated

Safety Multi-Disc Clutches

electromagnetic -
spring actuated

Multi-Disc Brakes

electromagnetic operated

Safety Brakes

electromagnetic -
spring actuated

Tooth Clutches

electromagnetic operated,
spring actuated

Single Face Clutches and Brakes

electromagnetic operated,
spring actuated

Clutches and Brakes

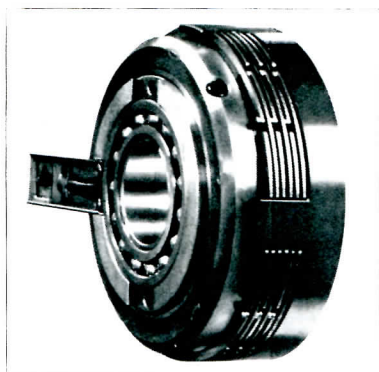
pressure operated,
pressure-/spring
actuated



Clutches and Brakes

Lamellenkupplungen elektromagnetisch betätigt

Multi-Disc Clutches electromagnetic operated



Lamellenkupplungen sind mit ihrer Vielfalt in Konstruktion, technischer Konzeption und unterschiedlicher Ausführung universell für Antriebslösungen geeignet. Das Programm umfaßt wartungsfreie Schaltkupplungen sowie Kupplungen zur Schaltung von Takt-, Steuer- und Vorschubbewegungen. Den Anforderungen entsprechend werden die Lamellen bei Öl-lauf aus wärmebehandeltem Stahl, bei Trockenlauf mit Sinter- oder Reibstoffbelag ausgeführt.

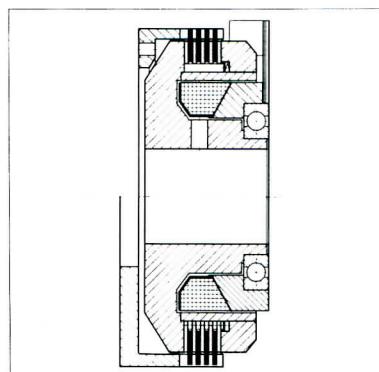
Zubehör:

Schutzwiderstände, Schutzvaristoren.
Stromzuführungen für alle Betriebsarten.

Available in a variety of designs, types and sizes multi-disc clutches lend themselves to a wide range of power transmission applications. The programme includes maintenance-free clutches as well as clutches for actuating cycle, control and feed motions. For oil-lubricated operation the discs are made of heat-treated steel, for dry operation they are sinter-coated or friction lined.

Accessories:

Protective resistors, protective varistors.
Current intakes for all kinds of operation.



FOV

Schleifringlose Elektromagnet-Lamellenkupplung 24 Volt

Schaltkupplung mit Außenmitnehmer zum Einbau in Getriebe für Haupt- und Nebenantrieb.

Ausführung für Öllauf.

Lamellen: Stahl/Stahl, magnetisch durchflutet.

Wartungsfrei, automatischer Verschleißausgleich.

Schaltbare Drehmomente 12–6300 Nm.

FOV

Electromagnetic multi-disc clutch, stationary field 24 volt

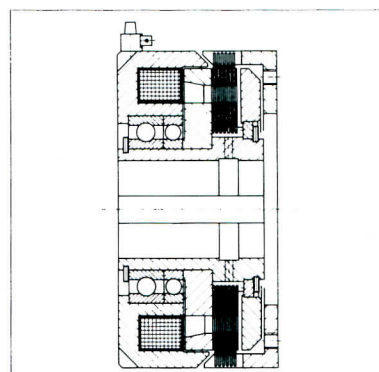
Clutch with outer driver to be fitted into gear boxes for main or subsidiary drives.

Design for oil operation.

Discs: steel/steel, magnetic-flux permeated.

Maintenance-free, automatic wear compensation.

Dynamic torques 12–6300 Nm.



LKCF

Schleifringlose Elektromagnet-Lamellenkupplung 24 Volt

Schaltkupplung mit Außenmitnehmer zum Einbau in Getriebe.

Ausführung für Öllauf.

Lamellen: Stahl/Stahl, magnetisch durchflutet.

Wartungsfrei, automatischer Verschleißausgleich.

Schaltbare Drehmomente 16–1000 Nm.

LKCF

Electromagnetic multi-disc clutch, stationary field 24 volt

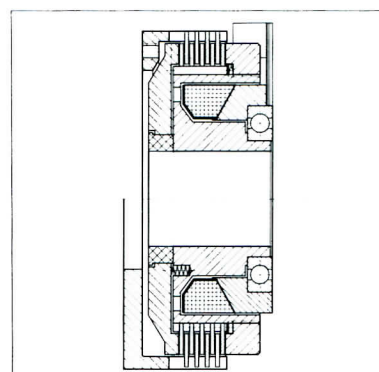
Clutch with outer driver for installation into gears.

Design for oil operation.

Discs: steel/steel, magnetic-flux permeated.

Maintenance-free, automatic wear compensation.

Dynamic torques 16–1000 Nm.



FMV

Schleifringlose Elektromagnet-Lamellenkupplung 24 Volt

Schaltkupplung mit Außenmitnehmer für Haupt- und Positionierantriebe.

Ausführung für Trockenlauf.

Lamellen: Stahl/Reibstoff oder Sinter.

Einstellbarer Polluftspalt, Verschleißnachstellung.

Schaltbare Drehmomente 12–6300 Nm.

FMV

Electromagnetic multi-disc clutch, stationary field 24 volt

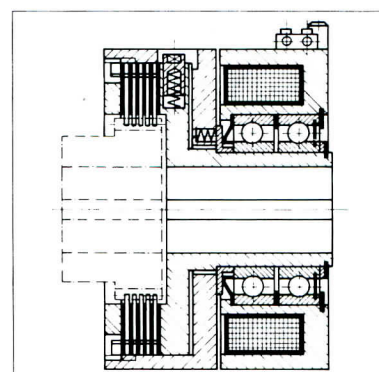
Clutch with outer driver for main- and positioning drives.

Designed for dry-operation.

Discs: steel/friction lining or sintered.

Adjustable air gap, wear compensation.

Dynamic torques 12–6300 Nm.



FM

Schleifringlose Elektromagnet-Lamellenkupplung 24 Volt

Schaltkupplung mit Innenmitnehmer zur Schaltung von Vorschüben.

Ausführung für Trockenlauf (Öllauf).

Lamellen: Stahl/Sinter (Stahl).

Einstellbarer Polluftspalt, Verschleißnachstellung.

Schaltbare Drehmomente:

– Öllauf 8–4000 Nm,
– Trockenlauf 10–5000 Nm.

FM

Electromagnetic multi-disc clutch, stationary field 24 volt

Clutch with inner driver for the operation of feed motions.

Designed for dry-operation (oil-operation).

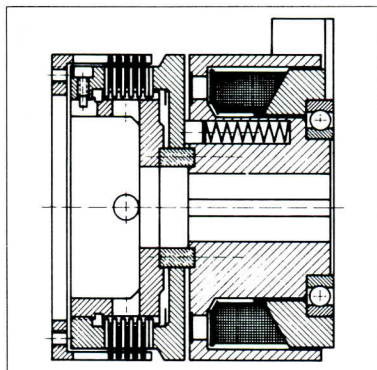
Discs: steel/sinter (steel).

Adjustable air gap, wear compensation.

Dynamic torques:

– oil operation 8–4000 Nm,
– dry operation 10–5000 Nm.

Lamellenkupplungen elektromagnetisch betätigt – federdruckbetätigt



FMO

Schleifringlose Elektromagnet-Federdruck-Lamellenkupplung 24 Volt

Sicherheitskupplung mit Außenmitnehmer für Lasthebeanlagen, elektrisch gelüftet.

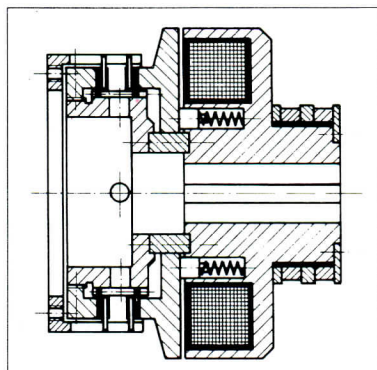
Ausführung für Trockenlauf (Öllauf).

Lamellen: Stahl/Reibstoff (Sinter).

Einstellbarer Polluftspalt und Verschleißnachstellung.

Schaltbare Drehmomente:

– Trockenlauf 50–12600 Nm.



FMOK

Schleifring Elektromagnet-Federdruck-Lamellenkupplung 24 Volt

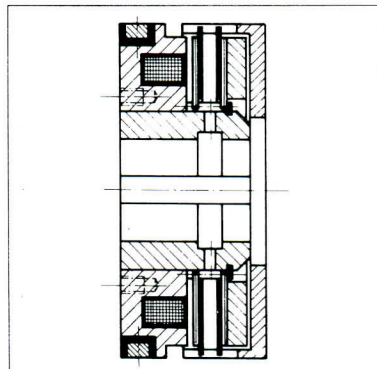
Sicherheitskupplung für Antriebe bei Lasthebeeinrichtungen.

Ausführung für Trockenlauf.

Lamellen: Stahl/Reibstoff.

Einstellbarer Polluftspalt.

Schaltbare Drehmomente 50–16500 Nm.



LCF

Schleifring-Elektromagnet-Lamellenkupplung 24 Volt

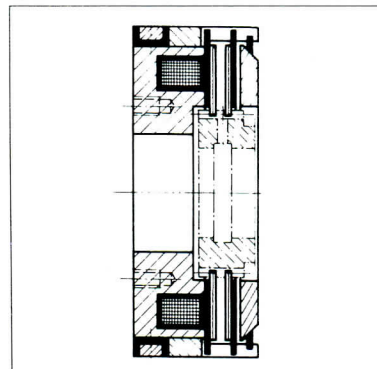
Schaltkupplung mit Außenmitnehmer zum Einbau in Getriebe.

Ausführung für Öllauf.

Lamellen: Stahl/Stahl, magnetisch durchflutet.

Automatischer Verschleißausgleich.

Schaltbare Drehmomente 16–1000 Nm.



LCW

Schleifring-Elektromagnet-Lamellenkupplung 24 Volt

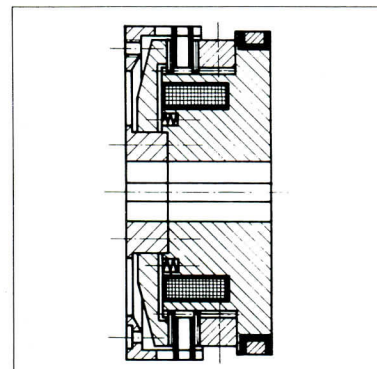
Schaltkupplung mit Innenmitnehmer, zum Einbau in Getriebe.

Ausführung für Öllauf.

Lamellen: Stahl/Stahl magnetisch durchflutet.

Automatischer Verschleißausgleich.

Schaltbare Drehmomente 7–3000 Nm.



LMS

Schleifring-Elektromagnet-Lamellenkupplung 24 Volt

Schaltkupplung mit Außenmitnehmer für Takt-Steuer-Vorschubbewegungen.

Ausführung für Öl- und Trockenlauf.

Lamellen: Stahl/Sinter, Reibstoffbelag.

Einstellbarer Polluftspalt und Verschleißnachstellung.

Schaltbare Drehmomente:

– Öllauf 16–2500 Nm,
– Trockenlauf 63–6300 Nm.

Multi-Disc Clutches electromagnetic operated – spring-actuated

FMO

Elektromagnetic spring-pressure multi-disc clutch, stationary field 24 volt

Safety clutch outer driver for lifting gears; electric release.

Design for dry- (oil) -operation.

Discs: steel/friction lining (sinter).

Adjustable air gap and wear compensation.

Dynamic torques:

– dry operation 50–12600 Nm.

FMOK

Electromagnetic slip ring spring-pressure multi-disc clutch 24 volt

Safety clutch for drives in hoisting equipments.

Designed for dry-operation.

Discs: steel/friction lining.

Adjustable air gap.

Dynamic torques 50–16500 Nm.

LCF

Electromagnetic slip ring multi-disc clutch 24 volt

Clutch with outer driver for fitting into gear boxes.

Design for oil operation.

Discs: steel/steel, magnetic-flux permeated.

Automatic wear compensation.

Dynamic torques 16–1000 Nm.

LCW

Electromagnetic slip ring multi-disc clutch 24 volt

Clutch with inner driver for fitting into gear boxes.

Designed for oil-operation.

Discs: steel/steel-flux permeated.

Automatic wear compensation.

Dynamic torques 7–3000 Nm.

LMS

Electromagnetic slip ring multi-disc clutch 24 volt

Clutch with outer driver for cycle-control-feed operations.

Designed for oil- and dry-operation.

Discs: steel/sintered, or friction lining.

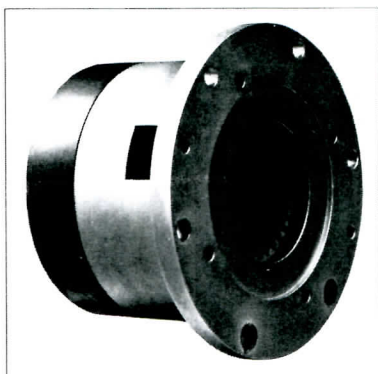
Adjustable air gap and wear compensation.

Dynamic torques:

– oil operation 16–2500 Nm,
– dry operation 63–6300 Nm.

Lamellenbremsen elektromagnetisch- federdruckbetätigt

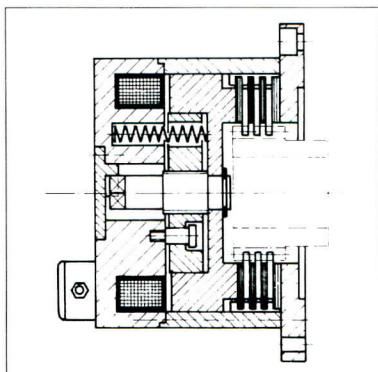
Multi-Disc Brakes electromagnetic operated- spring-actuated



Bremsen dieser Baureihe besitzen einen Spulenkörper für ortsfeste Montage. Bei Ausführungen mit Innenmitnehmer ist dadurch eine Kapselung nach Schutzartvorschrift möglich. Für die Anwendung als Sicherheitsbremse sind federdruckbetätigte Ausführungen zum Schutz gegen die Folgen eines Ausfalls der Energieversorgung und wegen ihrer extrem kurzen Einschaltzeiten von Bedeutung. Einrichtungen zum Lüften von Hand und Schaltungsmelder erweitern den Einsatzbereich. Zubehör: Vorwiderstände für Spannungsumschaltung. Überspannungsschutzeinheit für kurze Schaltzeiten.

Brakes of this design series feature a magnetic assembly for stationary fitting. Designs with inner driver permit encapsulation in accordance with protective system specifications. Spring-actuated designs feature prominently in safety-brake applications, due to the protection they offer against power supply breakdown and owing to their extremely short brake closing time. The range of application is further extended by devices for manual release and position signalling.

Accessories: Serial-resistor to change-over voltage. Inductive voltage protection device for short time response.



FMOBS

Elektromagnet-Federdruck- Lamellenbremse 24 Volt

Sicherheitsbremse zum Anbau an Getriebe mit zentraler Einstellung und Handlüftung.

Ausführung für Öl- und Trockenlauf mit Lamellenpaket aus Stahl und Sintermaterial. Weitestgehend wartungsfrei. Gekapselte Ausführung bei Ölkreisanschluß.

Schaltbare Drehmomente:
– Öllauf 63–2000 Nm,
– Trockenlauf 160–5000 Nm.

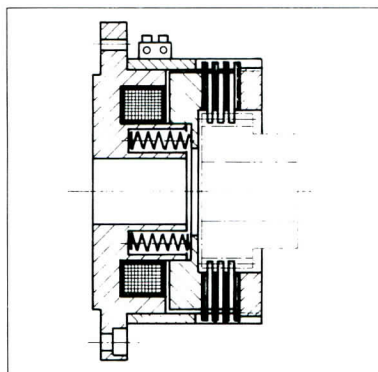
FMOBS

Electromagnetic spring-pressure multi-disc brake 24 volt

Centrally adjusted safety brake for fitting on gear boxes, with device for manual release.

Designed for oil- and dry-operation with steel and sinter-coated disc stacks. Generally maintenance-free. Encapsulated design for versions with oil circuit connection.

Dynamic torques:
– oil operation 63–2000 Nm,
– dry operation 160–5000 Nm.



FMOB

Elektromagnet-Federdruck- Lamellenbremse 24 Volt

Sicherheitsbremse geeignet für den Einbau in Getriebe für genaue Positionsbremsungen.

Ausführung für Öl- und Trockenlauf mit Lamellen aus Stahl, Sinter- und Reibbelag. Mit einstellbarem Polluftspalt und Verschleißnachstellung.

Schaltbare Drehmomente:
– Öllauf 8–500 Nm,
– Trockenlauf 16–1000 Nm.

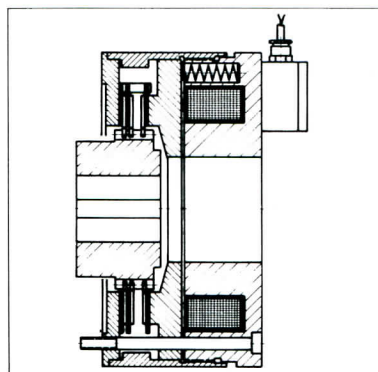
FMOB

Electromagnetic spring-pressure multi-disc brake 24 volt

Safety brake that can be fitted into gear boxes and permits accurate stoppage at predetermined points.

Designed for oil- and dry-operation with disc of steel, sinter coating and friction lining. Adjustable air gap and wear compensation.

Dynamic torques:
– oil operation 8–500 Nm,
– dry operation 16–1000 Nm.



FMOBA

Elektromagnet-Federdruck- Lamellenbremse 24 Volt

Sicherheitsbremse für Montage auf durchgehender Welle, mit einstellbarem Polluftspalt und Verschleißnachstellung.

Ausführung für Öl- und Trockenlauf mit Lamellen aus Stahl, Sinter- und Reibbelag, mit Positionsschalter und Verschleißanzeige.

Schaltbare Drehmomente:
– Öllauf 32–2000 Nm,
– Trockenlauf 80–5000 Nm.

FMOBA

Electromagnetic spring-pressure multi-disc brake 24 volt

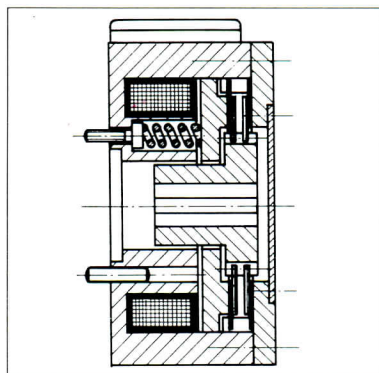
Safety brake for shaft through brake fitting, with adjustable air gap and wear compensation.

Designed for oil- and dry-operation with discs of steel, sinter coating and friction lining, with position and wear indicator.

Dynamic torques:
– oil operation 32–2000 Nm,
– dry operation 80–5000 Nm.

Lamellenbremsen elektromagnetisch- federdruckbetätigt

Multi-Disc Brakes electromagnetic operated- spring-actuated



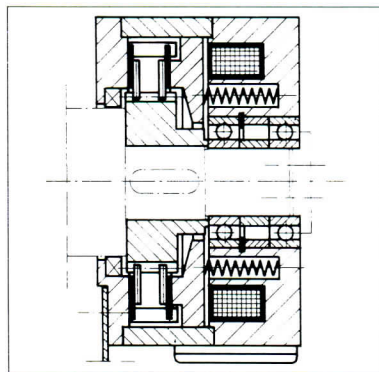
LMOBA

Elektromagnet-Federdruck- Lamellenbremse 24 Volt

Sicherheitsbremse zum Anbau an Getriebe.
Gehäuse nach Schutzartvorschrift gekapselt.

Ausführung für Trockenlauf mit Reibbelag.
Wartungsfrei, ohne Schaltwegnachstellung.
Mit Zusatzeinrichtung zum Lüften von Hand.

Schaltbare Drehmomente 2–1000 Nm.



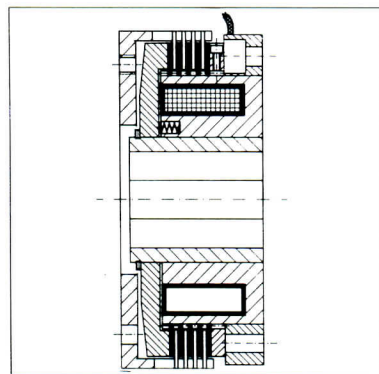
LMOBC

Elektromagnet-Federdruck- Lamellenbremse 24 Volt

Sicherheitsbremse zum Aufstecken auf die an-
zubremsende Getriebewelle mit Haltearm.

Ausführung für Trocken- und Öllauf mit
Lamellen aus Stahl, Sinter- und Reibbelag.
Wartungsfrei, ohne Schaltwegnachstellung.

Schaltbare Drehmomente: 50–2500 Nm.



LMBS

Elektromagnet-Lamellenbremse 24 Volt

Bremse zur Stillsetzung von Dreh- und Vor-
schubbewegungen in Verbindung mit Kup-
plungen.

Anschluß über Außenmitnehmer.

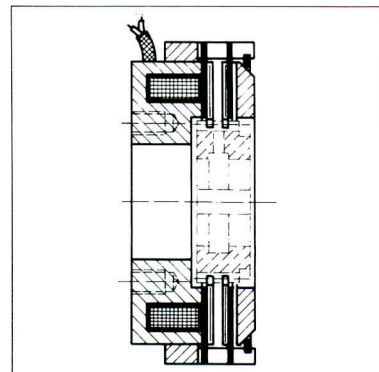
Ausführung für Trockenlauf.

Lamellen: Stahl-/Sinterbelag.

Einstellbarer Polluftspalt, Verschleißnachstel-
lung.

Schaltbare Drehmomente:

- Öllauf 16–2500 Nm.
- Trockenlauf 63–6300 Nm.



LCBW

Elektromagnet-Lamellenbremse 24 Volt

Bremse zum Einbau in Schaltgetriebe in
Verbindung mit Kupplungen zur Drehzahl-
schaltung.

Verbindung über Innenmitnehmer.

Ausführung für Öllauf mit Stahllamellen.

Wartungsfrei, automatische Nachstellung.

Schaltbare Drehmomente 7–3.000 Nm.

LMOBA

Electromagnetic spring-pressure multi-disc brake 24 volt

Safety brake designed for fitting on gear boxes.
Casing encapsulated in accordance with
protective system specifications.

Designed for dry-operation with friction lining.
Maintenance-free, no stroke-length
adjustment.

With additional device for manual release.

Dynamic torques 2–1000 Nm.

LMOBC

Electromagnetic spring-pressure multi-disc brake 24 volt

Safety brake with torque arm designed for
mounting onto transmission shaft.

Designed for dry- and oil-operation with discs
of steel, sinter-coating and friction lining.
Maintenance-free, no stroke-length adjustment.

Dynamic torques: 50–2500 Nm.

LMBS

Electromagnetic multi-disc brake 24 volt

Brake to stop speed and feed motions, cou-
pled with clutches.

Connection via outer driver.

Design for oil operation.

Discs: steel-/sinter coated.

Adjustable air gap and wear compensation.

Dynamic torques:

- under oil 16–2500 Nm.
- dry running 63–6300 Nm.

LCBW

Electromagnetic multi-disc brake 24 volt

Brake designed for fitting into gear box
together with clutches for speed actuation.

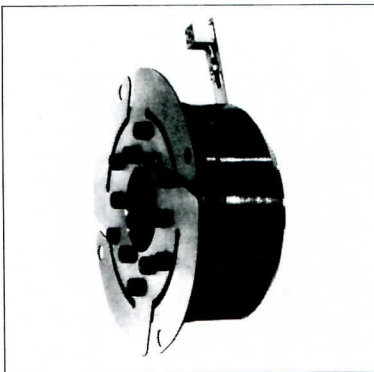
Connection via outer driver.

Designed for oil-operation with steel discs.

Maintenance-free, automatic adjustment.

Dynamic torques 7–3000 Nm.

Zahnkupplungen elektromagnetisch betätigt



Zahnkupplungen sind im modernen technischen Einsatz von steigender Bedeutung. Sie übertragen hohe Drehmomente und ermöglichen eine vollkommene Antriebstrennung. Ihre Anwendung reicht von der Drehzahlbereichsschaltung bei Werkzeugmaschinen bis zur Antriebsverbindung bei Schweranlagen. Neu entwickelte spielfreie Zahnkupplungen ermöglichen das Positionieren von Drehtischen, Werkzeugrevolvern, Farbwalzen und anderen Maschinenteile über die NC-Steuerung.

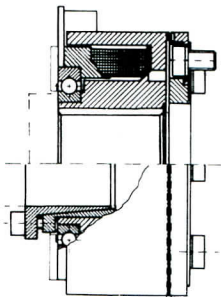
Zubehör: Schutzwiderstände, Schutzvaristoren, Schaltstellungsmelder.

FZVAM

Schleifringlose Elektromagnet-Zahnkupplung 24 Volt

Kupplung zur formschlüssigen, spielfreien Drehmomentübertragung mit Schaltmembrane. Ausführung für Öl- und Trockenlauf. Wellenbefestigung: 1) Klemmnabe 2) Paßfeder.

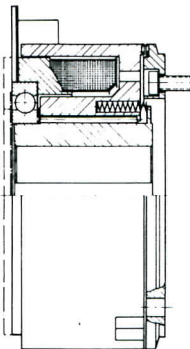
Unter Drehmomentlast abschaltbar. Wartungsfrei. (Schaltstellungsmelder.) Übertragbare Drehmomente 1) 70–3300 Nm, 2) 80–5000 Nm.



FZV

Schleifringlose Elektromagnet-Zahnkupplung 24 Volt

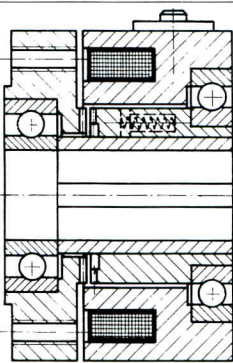
Kupplung zur formschlüssigen Drehmomentübertragung mit verzahnter Schaltführung. Ausführung für Öl- und Trockenlauf. Verzahnungsausführung 1) – lastabschaltbar. Verzahnungsausführung 2) – max. Drehmoment, nur für lastfreie Abschaltung. Wartungsfrei. (Schaltstellungsmelder.) Übertragbare Drehmomente 1) 40–25000 Nm, 2) 80–50000 Nm.



FZND

Schleifringlose Elektromagnet-Zahnkupplung 24 Volt

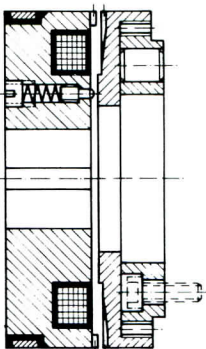
Kleinzahnkupplung zur formschlüssigen Drehmomentübertragung mit gelagerter Ankerscheibe. Ausführung für Öl- und Trockenlauf. Verzahnungsausführung 1) – lastabschaltbar. Verzahnungsausführung 2) – max. Drehmoment, nur für lastfreie Abschaltung. Wartungsfrei. Übertragbare Drehmomente 1) 2,5–20 Nm, 2) 5–40 Nm.



MZZ

Schleifring-Elektromagnet-Zahnkupplung 24 Volt

Kupplung zur formschlüssigen Drehmomentübertragung mit schaltbarer Ankerscheibe. Ausführung für Öl- und Trockenlauf. Unter Drehmomentlast abschaltbar. Wartungsfrei. Übertragbare Drehmomente: 20–4000 Nm.



Tooth Clutches electromagnetic operated

Tooth clutches are gaining importance in up-to-date engineering applications. They transmit high torque loads and permit complete disengagement of drive transmissions. The scale of applications extends from speed range selection in machine tools to heavy-duty drives. Newly developed, backlash-free tooth clutches permit the positioning of revolving tables, turret tool posts, inking cylinders and other machine components by means of NC-control.

Accessories:

Protective resistors, protective varistors, position indicator.

FZVAM

Electromagnetic tooth clutch, stationary field 24 volt

Clutch for positive, backlash-free torque transmission with diaphragm-operated armature. Designed for dry- and oil-operation. Shaft mounting: 1) taper lock 2) keyway.

Can be disengaged under torque load. Maintenance-free. (Position indicator.) Transmission torques 1) 70–3300 Nm, 2) 80–5000 Nm.

FZV

Electromagnetic tooth clutch, stationary field 24 volt

Clutch for positive torque transmission with splined guide. Designed for oil- and dry-operation. Tooth design 1) for disengagement under torque load. Tooth design 2) high torque version for load free disengagement only. Maintenance-free. (Position indicator.) Transmission torques 1) 40–25000 Nm, 2) 80–50000 Nm.

FZND

Electromagnetic tooth clutch, stationary field 24 volt

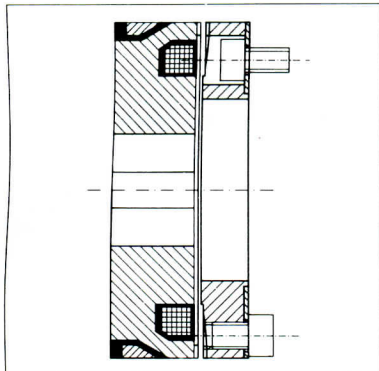
Small-tooth clutch for positive torque transmission, with armature disc on bearing support. Designed for oil- and dry-operation. Tooth design 1) – for disengagement under torque load. Tooth design 2) – high torque version for load free disengagement only. Maintenance-free. Transmission torques 1) 2.5–20 Nm, 2) 5–40 Nm.

MZZ

Electromagnetic slip ring tooth clutch 24 volt

Clutch for positive torque transmission with engageable armature plate. Designed for oil- and dry-operation. Can be disengaged under torque load. Maintenance-free. Transmission torques: 20–4000 Nm.

Zahnkupplungen elektromagnetisch- federdruckbetätigt



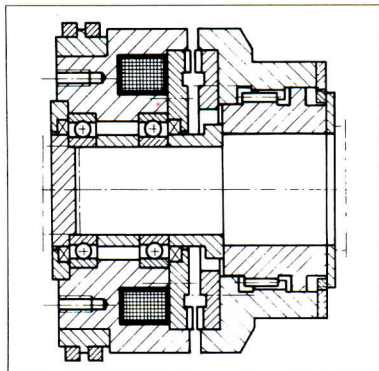
MZZM

Spelfreie Schleifring-Elektromagnet Membran-Zahnkupplung 24 Volt

Kupplung zur formschlüssigen, spielfreien Drehmomentübertragung mit Schaltmembrane.

Ausführung für Öl- und Trockenlauf.
Unter Drehmomentlast abschaltbar.
Wartungsfrei.

Übertragbare Drehmomente 20–4000 Nm.



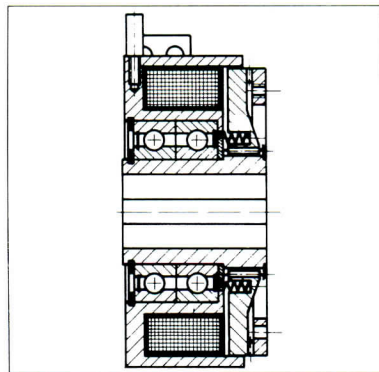
MLZ

Schleifring-Elektromagnet- Zahnkupplung 110 Volt

Großzahnkupplung zur formschlüssigen Drehmomentübertragung mit gelagertem Magnetkörper zum Getriebeanschluß.

Ausführung für Trockenlauf.
Unter Drehmomentlast abschaltbar.

Übertragbare Drehmomente
5000–50000 Nm.



FOZ

Schleifringlose Elektromagnet-Feder- druck-Zahnkupplung 24 Volt

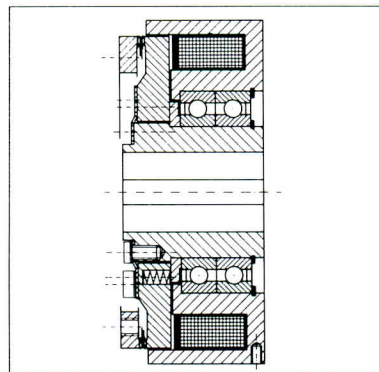
Kupplung zur formschlüssigen Drehmomentübertragung im stromlosen Zustand.

Ausführung für Öl- und Trockenlauf.

Verzahnungsausführung 1) – lastabschaltbar.
Verzahnungsausführung 2) – max. Drehmoment, nur für lastfreie Abschaltung.

Wartungsfrei.

Übertragbare Drehmomente 1) 32–4000 Nm.
2) 63–8000 Nm.



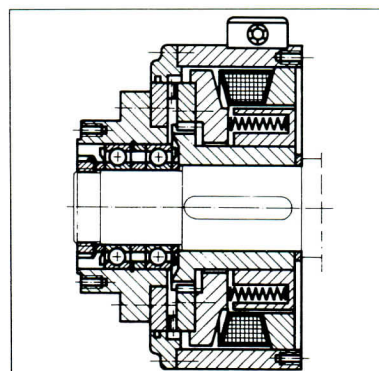
FOZAM

Spelfreie Schleifringlose- Elektromagnet Membran- Federdruck-Zahnkupplung 24 Volt

Kupplung zur formschlüssigen, spielfreien Drehmomentübertragung im stromlosen Zustand.

Ausführung für Öl- und Trockenlauf.
Unter Drehmomentlast abschaltbar.
Wartungsfrei.

Übertragbare Drehmomente 63–4000 Nm.



MZOUL

Schleifringlose Elektromagnet- Federdruck-Zahnkupplung. Luft-/Haltespannung 160–220/110 Volt

Großzahnkupplung zur formschlüssigen Drehmomentübertragung im stromlosen Zustand.

Ausführung für Trockenlauf.
Unter Drehmoment abschaltbar.
Wartungsfrei.

Übertragbare Drehmomente 630–25000 Nm.

Tooth Clutches electromagnetic operated- spring-actuated

MZZM

Backlash-free electromagnetic slip ring diaphragm tooth clutch 24 volt

Clutch for positive, backlash-free torque transmission with diaphragm.

Designed for oil- and dry-operation.
Disengagement possible under torque load.
Maintenance-free.

Static torques 20–4000 Nm.

MLZ

Electromagnetic slip ring tooth clutch 110 volt

Large-tooth clutch for positive torque transmission with magnetic assembly on bearing support connected to gear parts.

Designed for dry-operation.
Can be disengaged under torque load.

Static torques 5000–50000 Nm.

FOZ

Electromagnetic spring-pressure tooth clutch, stationary field 24 volt

Clutch for positive torque transmission in de-energised position.

Designed for oil- and dry-operation.

Tooth design 1) – for disengagement under torque load.

Tooth design 2) – high torque version for load free disengagement only.

Maintenance-free.

Transmission torques 1) 32–4000 Nm.
2) 63–8000 Nm.

FOZAM

Backlash-free electromagnetic spring pressure diaphragm tooth clutch, stationary field 24 volt

Clutch for positive backlash-free torque transmission in de-energised position.

Designed for oil- and dry-operation.
Disengagement possible under torque.
Maintenance-free.

Static torques 63–4000 Nm.

MZOUL

Electromagnetic spring-pressure tooth clutch, stationary field. Release/holding voltages 160–220/110 volt

Large-tooth clutch for positive torque transmission in de-energised position.

Designed for dry-operation.
Can be released under torque load.
Maintenance-free.

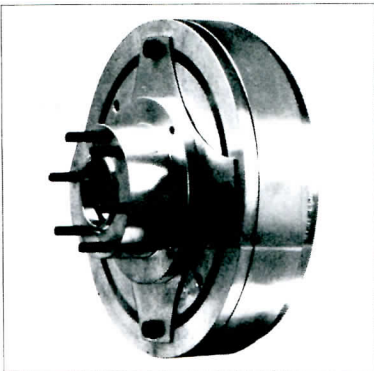
Transmission torques 630–25000 Nm.

Einflächenkupplungen und Bremsen

elektromagnetisch betätigt

Single-Face Clutches and Brakes

electromagnetic operated

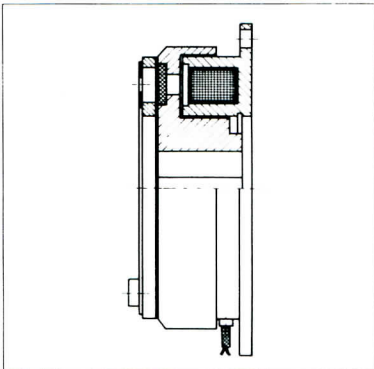


Einflächenkupplungen ermöglichen wirtschaftliche Antriebslösungen im Maschinenbau. Ihre Anwendung reicht von der Antriebsschaltung von Anlagen mit ungleichförmigen Belastungen bis zur präzisen Steuerung von Arbeitszyklen mit hoher Schaltfrequenz. Das Programm enthält wartungsfreie Polreibungskupplungen sowie Ausführungen für die Hochleistungsschaltung mit einstellbarem Polluftspalt, weiteren Kupplungs-Brems-Kombinationen sowie Reversiereinheiten.

Zubehör: Schutzwiderstände, Vorwiderstände, Stromzuführungen f. alle Betriebsarten. Schalteinrichtungen f. kurze Schaltzeiten.

Single-face clutches are suited for efficient power transmission in mechanical engineering. Their range of application extends from the actuation of drives in equipment operating under varying loads to the accurate control of work cycles requiring high actuating frequency. The programme includes maintenance-free pole-to-armature contact clutches and designs for high-duty operation with adjustable air gap as well as clutch/brake combinations and reversing units.

Accessories: Protective resistors, varistors. Current intakes for all kinds of operation. Electric equipment for short time response.



MC

Elektromagnet-Einflächenkupplung mit fester Spule 24 Volt

Schaltkupplung für Taktschaltungen. Geeignet für „Kombi-Box“-Antriebe.

Ausführung für Trockenlauf.
Polreibungskupplung mit Reibbelag.
Wartungsfrei.
Schaltbare Drehmomente 7–500 Nm.

MCB – Polreibungsbremse.
MC-MCB Kupplungs-Bremskombination.

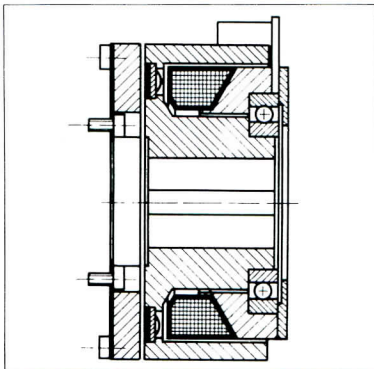
MC

Electromagnetic single-face clutch, with stationary mounted coil 24 volt

Clutch for cycle actuation suited for „Combi-box“ drives.

Designed for dry-operation.
Pole-to-armature contact clutch with friction lining.
Maintenance-free.
Dynamic torques 7–500 Nm.

MCB – pole-to-armature contact brake.
MC-MCB clutch/brake combination.



FOSMS

Schleifringlose Elektromagnet-Einflächenkupplung 24 Volt

Steuerkupplung mit Schaltmembrane für hohe Schaltfrequenzen und Drehzahlen.

Ausführung für Öl- und Trockenlauf.
Polreibungskupplung mit Sinterbelag.
Wartungsfrei.
Schaltbare Drehmomente 4–100 Nm.

MCSL – Kupplung mit fester Magnetspule.

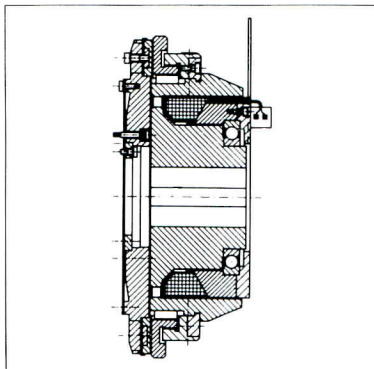
FOSMS

Electromagnetic single-face clutch, stationary field 24 volt

Clutch with diaphragm-operated armature for high actuating frequencies and speeds.

Designed for oil- and dry-operation.
Sinter-coated pole-to-armature contact clutch.
Maintenance-free.
Dynamic torques 4–100 Nm.

MCSL – clutch with stationary mounted coil.



MTKM

Schleifringlose-Elektromagnet-Einflächenkupplung 24–220 Volt

Schaltkupplung für Hochleistungsschaltung zur Übertragung ungleichförmiger Momente.

Ausführung für Trockenlauf mit Reibbelag.
Einstellbare Drehmomente 250–10000 Nm.

MM – Schleifringausführung.

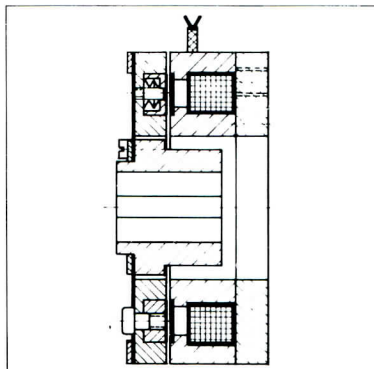
MTKM

Electromagnetic single face clutch, stationary field 24–220 volt

Clutch for high-duty transmission of non-uniform torques.

Designed for dry-operation with friction lining.
Adjustable dynamic torques 250–10000 Nm.

MM – spring design.



MSBM

Elektromagnet-Einflächenbremse mit Schaltmembrane 24 Volt

Bremse zum spielfreien Halten der Position bei Arbeitszyklen mit hoher Schaltfrequenz.

Ausführung für Trocken- und Öllauf.
Polreibungsbremse mit Sinterbelag.

Wartungsfrei.

Schaltbare Drehmomente:
– Öllauf 2,5–40 Nm.
– Trockenlauf 10–160 Nm.

MSBM

Electromagnetic single-face brake with shifting diaphragm 24 volt

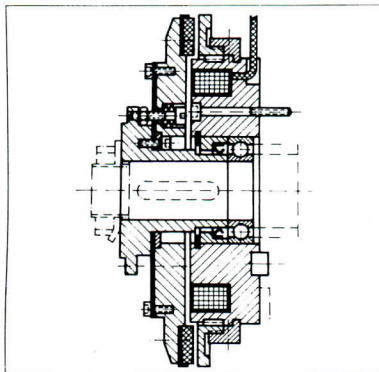
Brake for backlash-free position holding in working cycles with high actuating frequency.

Designed for dry- and oil-operation.
Pole-to-armature contact clutch with sinter coating.
Maintenance-free.

Dynamic torques:
– oil operation 2,5–40 Nm.
– dry operation 10–160 Nm.

Einflächenkupplungen und Bremsen

elektromagnetisch-
federdruckbetätigt



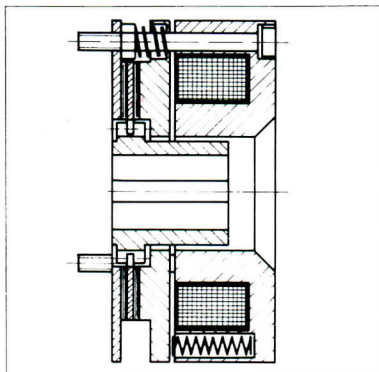
MBM

Elektromagnet-Einflächenbremse mit Schaltmembrane 24 Volt

Bremse zum spielfreien Halten der Position bei Arbeitszyklen.

Ausführung für Trockenlauf mit auswechselbaren Reibbelägen.
Polluftspalt nachstellbar.

Schaltbares Drehmoment 250–10000 Nm.



MUOB

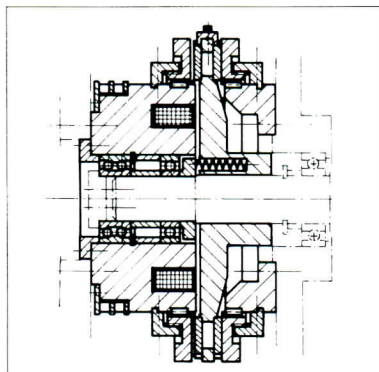
Elektromagnet-Federdruckbremse mit Innenmitnehmer 24 Volt

Einscheiben-Sicherheitsbremse für Anbau an Motoren, Getriebe und Seiltrommeln.

Ausführung für Trockenlauf mit Reibbelag.
Mit einstellbarem Polluftspalt-Schaltweg.

Schaltbare Drehmomente 4–2500 Nm.

MUOBS – Bremse gekapselt mit Handlüftung.



MLBS

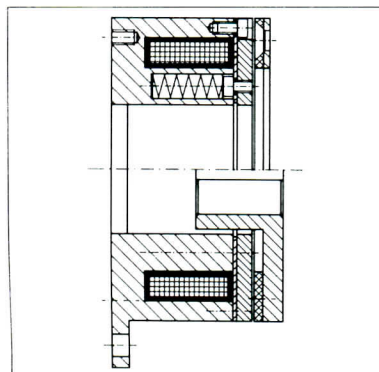
Schleifring-Elektromagnetkupplung- Federdruckbremse 24–60 Volt

Kupplungs-Bremskombination für Antriebs-Einzelhubschaltung bei Exzentermaschinen.

Ausführung für Trockenlauf mit Reibbelag.
Einstellbarer Polluftspalt und Schaltweg.

Schaltbare Drehmomente:

- Kupplung 140–2300 Nm.
- Bremse 50–500 Nm.



FEOBM

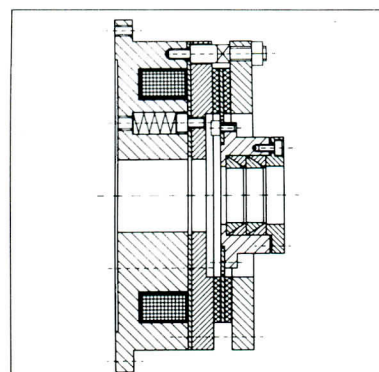
Spielfreie Elektromagnet-Federdruck- bremse 24 Volt

Einflächen Sicherheitsbremse für Anwendungsfälle bei denen eine verdrehspielfreie Fixierung erforderlich ist

wie z. B. bei Vorschubantrieben
Handhabungsgeräten
Robotern

Ausführung für Trockenlauf mit Reibbelag.

Schaltbare Drehmomente 4–100 Nm.



FUOBM

Spielfreie Elektromagnet-Federdruck- bremse 24 Volt

Zweiflächen-Sicherheitsbremse für Anwendungsfälle bei denen eine verdrehspielfreie Bremsstellung erforderlich ist

wie z. B. bei Vorschubantrieben
Handhabungsgeräten
Robotern.

Keine Axialkräfte nach außen wirkend.
Kein Leerlaufmoment.

Ausführung für Trockenlauf mit Reibbelag.

Schaltbare Drehmomente 20–500 Nm.

Single-Face Clutches and Brakes

electromagnetic operated-
spring-actuated

MBM

Electromagnetic single-face brake with shifting diaphragm 24 volt

Brake for backlash-free position holding in operation cycles.

Designed for dry-operation with replaceable friction linings.
Adjustable pole air gap.

Dynamic torques 250–10000 Nm.

MUOB

Electromagnetic spring-pressure brake with inner driver 24 volt

Single-face safety clutch for fitting on motors, gear boxes and rope drums.

Designed for dry-operation with friction lining.
Adjustable air gap – stroke length.

Dynamic torques 4–2500 Nm.

MUOBS – encapsulated brake with manual release.

MLBS

Electromagnetic slip-ring clutch spring- pressure brake 24–60 volt

Clutch/brake combination for single-stroke drive operation in eccentric machines.

Designed for dry-operation with friction lining.
Adjustable air gap and stroke length.

Dynamic torques:

- Clutch 140–2300 Nm.
- Brake 50–500 Nm.

FEOBM

Backlash-free Electromagnetic spring- pressure brake 24 volt

Single-face safety brake for application fields requiring fixing without torsional clearance

such as in feed drives
handling equipment
robots

Designed for dry-operation with friction face.

Dynamic torques 4–100 Nm.

FUOBM

Backlash-free Electromagnetic spring- pressure brake 24 volt

Dual-face safety brake for application fields requiring brake position without torsional clearance

such as in feed drives
handling equipment
robots.

Retained axial force.

No idling torque.

Designed for dry-operation with friction lining.

Dynamic torques 20–500 Nm.

Kupplungen und Bremsen druckmittelbetätigt

Clutches and Brakes Pressure-operated



Bei vorhandener Druckmittelversorgung ist die Anwendung hydraulisch-pneumatisch geschalteter Einheiten wegen der damit erreichbaren hohen Schaltkräfte, kurzen Schaltzeiten und robusten Betriebseigenschaften vorteilhaft. Diese Charakteristik ermöglicht den Einsatz bei Schwerantrieben, Pressen und Hebezeugen, wobei den sicherheitstechnischen Anforderungen entsprochen wird.

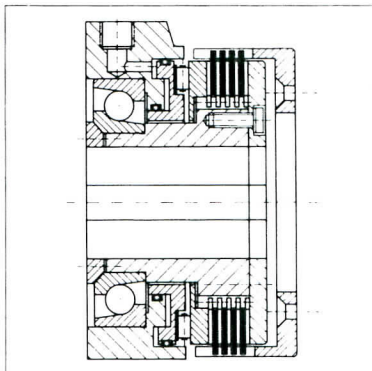
Zubehör:

Dichtungen, Rotoren für Wellenanschluß, Standardelemente für Druckschaltung, Druckregelung und Druckmittelzufuhr.

Hydraulic or pneumatic operated units offer several advantages, such as high forces, short actuating times and rugged operational features. Owing to these qualities they fully comply with safety specifications when used in heavy-duty drives, presses and lifting gears.

Accessories:

Sealings, oil-inlet adaptors for shaft connection, standard units for pressure operation, pressure regulation and pressure medium supply.



HLWS

Hydraulisch betätigte Lamellenkupplung mit stationären Druckölschluß 16–24 bar

Ausführung für Öl- und Trockenlauf.
Wartungsfrei.
Stahl-Sinterlamellen.

Schaltbare Drehmomente 50–1000 Nm.

PLWS – Pneumatisch betätigte Lamellenkupplung.

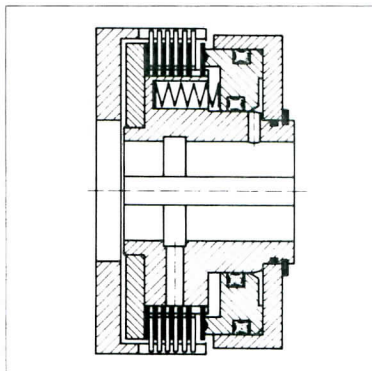
HLWS

Hydraulically operated multi-disc clutch with fixed pressure oil connection 16–24 bar

Designed for oil- and dry-operation.
Maintenance-free.
Steel/sinter discs.

Dynamic torques 50–1000 Nm.

PLWS – pneumatically operated clutch.



HLW

Hydraulik-Lamellenkupplung Betriebsdruck 12–16 bar

Schaltkupplung zum Einbau in Getriebe von Werkzeugmaschinen, Baumaschinen und Anlagen.

Ausführung für Ölauf-Stahl-/Sinterlamellen.
Wartungsfrei mit Druckölzufuhr durch Welle.

Schaltbare Drehmomente 80–2500 Nm.

PLW – Pneumatisch betätigte Lamellenkupplung.

HLW

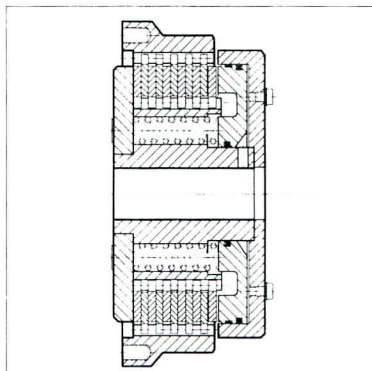
Hydraulically operated multi-disc clutch 12–16 bar

Clutch designed for fitting in gear boxes of machine tools, construction machinery and installations.

Designed for oil-operation steel/sinter discs.
Maintenance-free, pressure oil supply through the shaft.

Dynamic torques 80–2500 Nm.

PLW – pneumatically operated clutch.



PLWG

Pneumatik Lamellenkupplung 6 bar

Schaltkupplung zur Übertragung hoher Drehmomente bei hohen Schaltzahlen.

Druckluftzufuhr durch die Welle.

Wartungsfrei.

Ausführung für Trockenlauf.

Lamellen: Stahl/Reibstoff (Sinter).

Schaltbare Drehmomente 20000–160000 Nm.

PLWG

Pneumatically operated multi-disc 6 bar

Clutch for high torque transmission suited for high cycle operations.

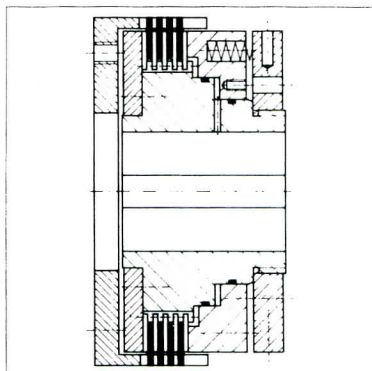
Air-pressure inlet through shaft.

Maintenance-free.

Design for dry operation.

Discs: steel/friction lining (sinter).

Dynamic torques: 20000–160000 Nm.



HLOK

Hydraulische Federdruck-Lamellenkupplung, Betriebsdruck 24 bar

Kupplung zur reibschlüssigen Drehmomentübertragung mittels Federkraft, hydraulisch löfbar.

Ausführung für Trockenlauf.

Stahl/ Sinterlamellen.

Wartungsfrei, Druckölzufuhr durch die Welle.

Schaltbare Drehmomente 300–65000 Nm.

HLOK

Hydraulically operated spring-pressure multi-disc clutch, operating pressure 24 bar

Clutch for friction contact torque transmission by means of the spring force, hydraulic release.

Designed for dry-operation.

steel/sinter discs.

Maintenance-free, pressure oil supply through the shaft.

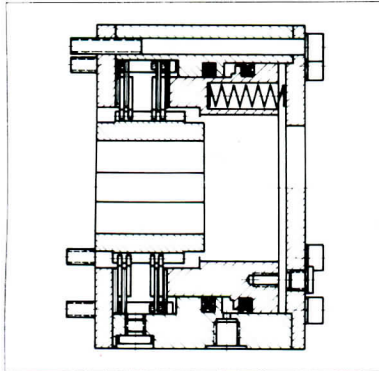
Dynamic torques 300–65000 Nm.

Kupplungen und Bremsen

druckmittel-
federdruckbetätigt

Clutches and Brakes

Pressure operated-
spring-actuated



HLOB

Hydraulik-Federdruckbremse
Betriebsdruck 15–60 bar

Sicherheitsbremse für Hafenkräne und Schiffsbeladeeinrichtungen in seewasserbeständiger, korrosionsgeschützter Ausführung. Hydraulisch gelüftet.

Ausführung für Öl- und Trockenlauf. Gehäuse gekapselt, Stahl-/Sinterlamellen. Wartungsfrei, periodische Leckölkontrolle.

Schaltbare Drehmomente:

- Öllauf 120–3000 Nm,
- Trockenlauf 180–4500 Nm.

HLOB

Hydraulically operated spring-pressure brake working pressure 15–60 bar

Safety brake for harbour-cranes and ship loading equipments in seawater-proof, corrosion-protected execution. Hydraulic release.

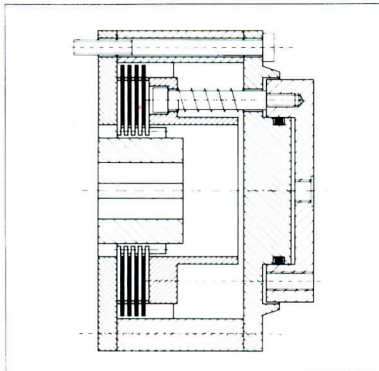
Designed for oil- and dry-operation.

Encapsulated casing, steel/sinter discs.

Maintenance free, periodic oil leakage checks.

Dynamic torques:

- oil operation 120–3000 Nm,
- dry operation 180–4500 Nm.



PLOB

Pneumatik-Federdruckbremse
Betriebsdruck 6 bar

Sicherheitsbremse-Bremsmoment mittels Federkraft. Pneumatisch lüftbar, Ausführung für Trockenlauf.

Wartungsfrei.

Schaltbare Drehmomente 100–2500 Nm.

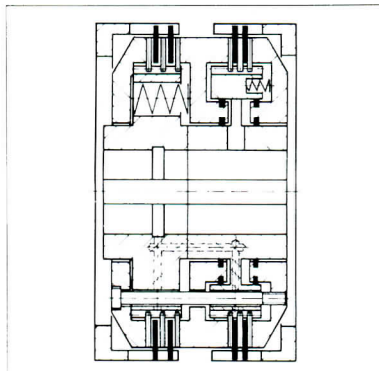
PLOB

Pneumatically operated spring-pressure brake, operating pressure 6 bar

Safety brake – braking torque by means of the spring force. Pneumatic release, designed for dry operation.

Maintenance-free.

Dynamic torques 100–2500 Nm.



HLDBW

Hydraulik-Kupplung-Federdruckbremse 60 bar

Kupplungs-Brems-Kombination für die Sicherheitsschaltung exzentergetriebener Maschinen mit Kolbensystem für alternative Bremsung.

Wartungsfrei. Druckölzufuhr durch die Welle. Ausführung für Öllauf. Lamellen Stahl/Sinter. Schaltbare Dreh- und Bremsmomente 2500–40000 Nm.

HLBW – Kombination mit einem Kolbensystem.

HLDBW

Hydraulically operated clutch spring-pressure brake 60 bar

Clutch/brake combination for safety operation of excenter-driven machines with piston system for alternative braking.

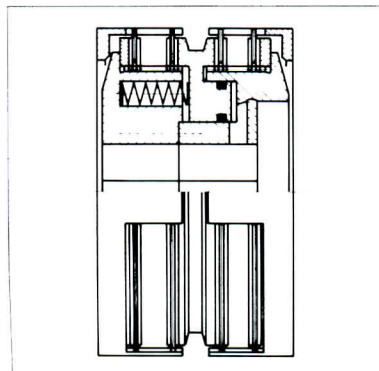
Maintenance-free.

Oil-pressure inlet through shaft.

Designed for oil operation. Discs steel/sinter.

Dynamic torques and braking torques 2500–40000 Nm.

HLBW – combination with single piston system.



PLBW

Pneumatik-Kupplung-Federdruckbremse 6 bar

Kupplungs-Brems-Kombination für die Schaltung exzentergetriebener Maschinen, wie Pressen, Scheren, Stanzen mit hoher Einzelschaltzahl.

Ausführung für Trockenlauf, Lamellen Stahl/Sinter.

Wartungsfrei.

Druckluftzufuhr durch die Welle.

Schaltbare Dreh- und Bremsmomente: 2500–40000 Nm.

PLBW

Pneumatically operated clutch spring pressure brake 6 bar

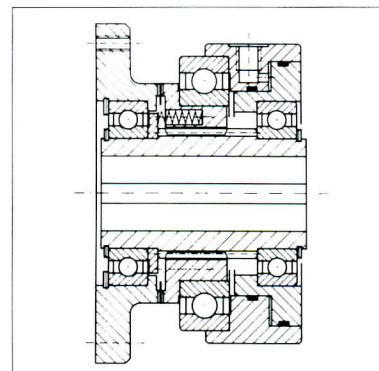
Clutch/brake combination for excenter driven machines, as presses, shears, punching machines with high number of single stroke operations.

Designed for dry-operation, steel/sinter discs.

Maintenance-free.

Air-pressure inlet trough shaft.

Dynamic torques and braking torques: 2500–40000 Nm.



HZV/PZV

Hydraulisch/pneumatisch betätigte Zahnkupplung mit stationärem Drucköl-bzw. Druckluftanschluß.

Betriebsdruck 6 bar

Ausführung für Öl- und Trockenlauf. Wartungsfrei.

Drehmomentbereich 150–1000 Nm.

HZV/PZV

Hydraulically/pneumatically operated tooth-clutch with stationary pressure oil resp. compressed air connection. Operating pressure 6 bar

Designed for oil- and dry-operation. Maintenance-free.

Torque range: 150–1000 Nm.

Electromagnetic Spring-Operated Multi Disc Brake

Safety brake for installation into gears.

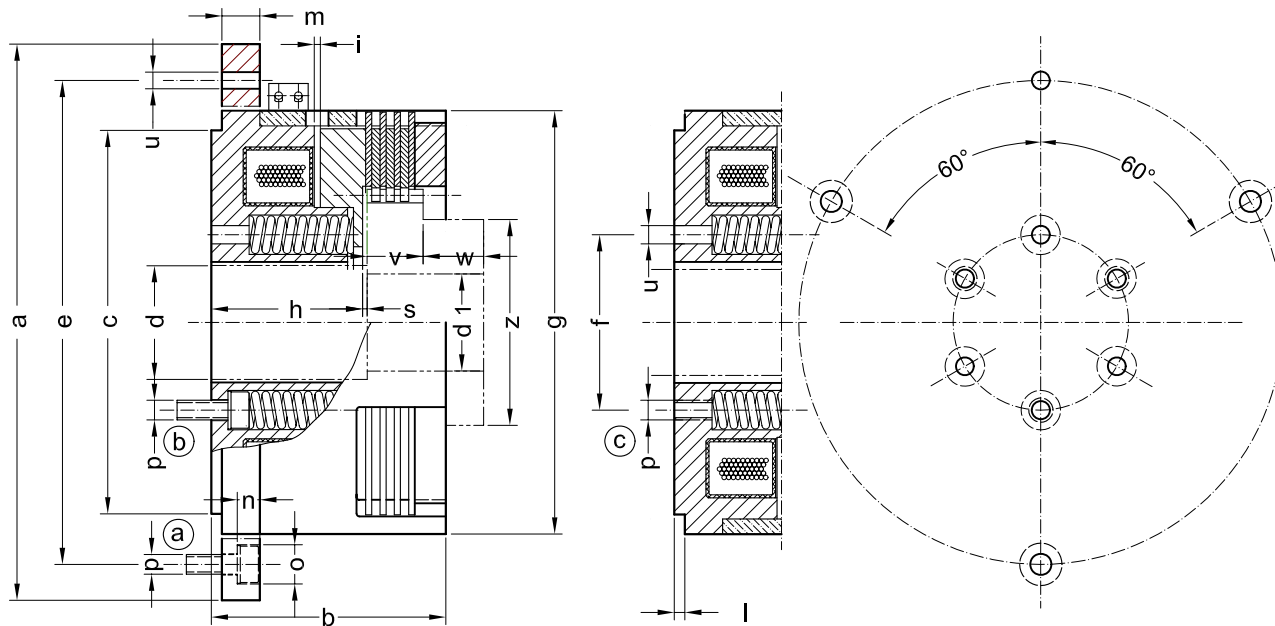
For oil and dry operation, coil voltage 24 V DC

- For mounting on gearing wall with shaft passing through the brake.
- Suited as safety brake against break of power supply.
- Compensation of disc wear by adjustable clutch gap.
- Extremely short braking times obtained with reduced holding voltage permit an accurate feed drive stop position.
- For horizontal mounting.

Several installation methods can be applied, according to brake version:

- by flange (standard version).
- without flange, by screws inserted into the magnet body.
- without flange, with tapped holes in the magnet body.

To obtain optimal operation a shim of nonmagnetic material between brake side face and supporting face as well as an inner driver made of nonmagnetic steel is of advantage.



Data and Dimensions			FMOB 1,2	FMOB 2,5	FMOB 5	FMOB 10	FMOB 20	FMOB 40	FMOB 80
Static torque	Oil - / dry operation	Nm	16 / 25	32 / 50	63 / 100	125 / 200	250 / 400	500 / 800	1000 / 1600
Dynamic torque		Nm	8 / 20	16 / 40	31 / 80	63 / 100	125 / 200	250 / 400	500 / 800
Idling torque		Nm	0,4 / 0,05	0,8 / 0,10	1,5 / 0,18	2,5 / 0,32	5 / 0,65	10 / 1,3	18 / 2,5
Friction work per engagement		kJ	9,5 / 5,2	20 / 13	30 / 11,5	37 / 24	64 / 41,5	81 / 60	148 / 110
Thermal capacity		W	115 / 46	200 / 95	275 / 125	300 / 142	445 / 210	470 / 250	690 / 370
Release time		s	0,17	0,20	0,24	0,30	0,40	0,50	0,60
Engagement time		s	0,030	0,040	0,045	0,050	0,055	0,065	0,080
Speed maximum		min ⁻¹	3400	3000	2500	2000	1600	1200	800
Coil power consumption at 20 °C		W	30	50	55	65	70	110	145
Mass (weight)		kg	3	5	6	12	20	30	55
Ø a	mm		130	155	165	210	245	300	340
b	mm		64	72	78	90	96	115	130
Ø c j 6	mm		90	110	120	150	185	225	270
Ø d max. shaft diameter	mm		24	29	35	45	56	67	83
Ø e	mm		114	140	150	190	220	275	315
Ø f	mm		38	45	52	70	90	105	130
Ø g	mm		100	120	130	165	200	250	295
h	mm		40,5	45,5	50	59	61,5	81,5	90
i airgap (brake engaged)	mm		1,0 - 1,2	1,2 - 1,4	1,3 - 1,5	1,4 - 1,6	1,4 - 1,6	1,5 - 1,7	1,5 - 1,7
l	mm		3	3	3	4	4	5	5
m	mm		10	10	10	13	13	15	15
n	mm		6	6	6	8	8	10	10
Ø o / p	mm		11 / M6	11 / M6	11 / M6	14 / M8	14 / M8	17 / M10	17 / M10
s	mm		1,5	1,5	1,5	1,5	1,5	2	2
Ø u rough bored / for dowel	mm		4 / 5	5 / 6	5 / 6	9 / 10	11 / 12	13 / 14	14 / 16
Inner driver	Ø d 1 H7	mm	20	20	30	40	45	56	70
	v / w	mm	18 / 57	18 / 57	20 / 70	22 / 78	25 / 87	35 / 97	35 / 115
	Ø z	mm	52	52	70	88	112	140	160
	Number of teeth x modul 1)	-	24 x 2,5	24 x 2,5	26 x 3	32 x 3	40 x 3	38 x 4	45 x 4
	w tooth width of	mm	19,206	19,206	23,148	32,257	41,440	55,173	67,313
	w tooth width up to measured over tooth number	mm	19,240	19,240	23,182	32,291	41,478	55,211	67,405
		-	3	3	3	4	5	5	6

1) Tooth angle 20°

Electromagnetic Spring-Operated Multi Disc Brake

Safety brake with central adjustment and manual release.

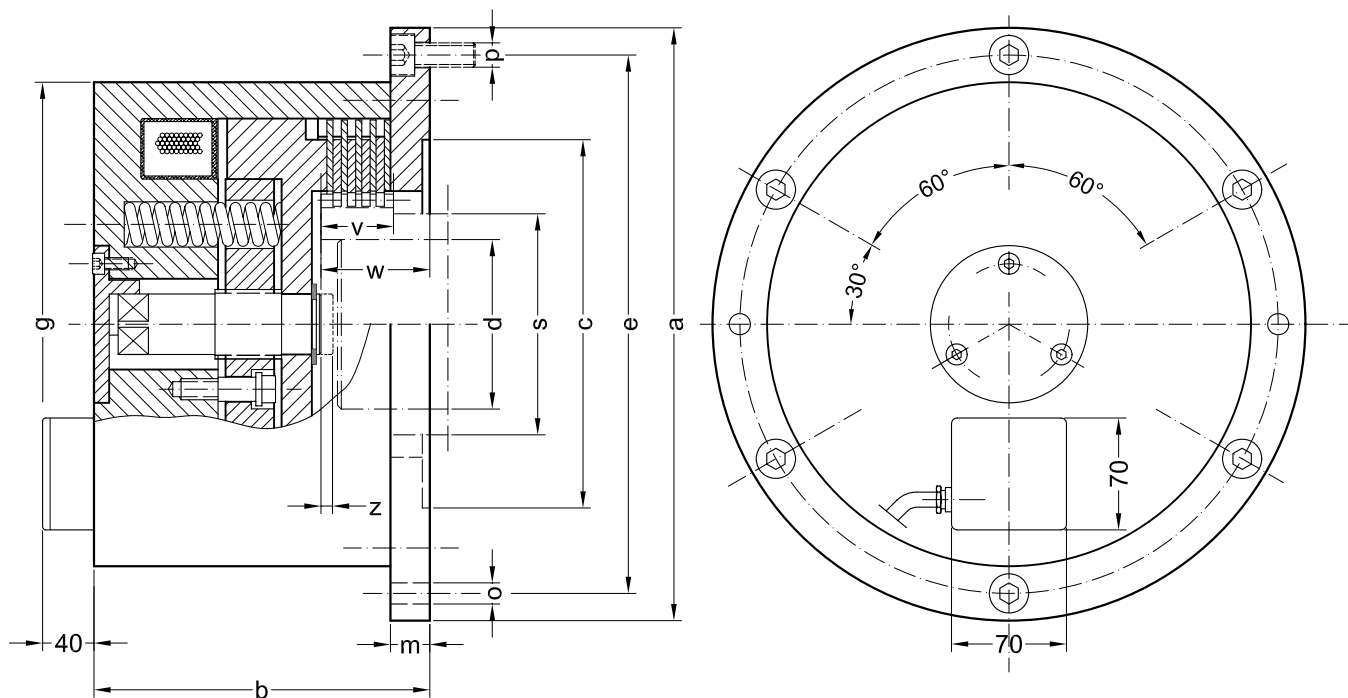
For dry operation (oil operation on request), coil voltage 24 V DC

- ◆ Suited as safety and holding brake against break of power supply.
- ◆ Encapsulated adaptation unit for gear boxes.
- ◆ With screw spindle for manual release and brake gap setting or readjustment of the brake stroke without measurement.
- ◆ For horizontal mounting.

The FMOBS is equipped with steel- / sinter discs. With an adapted supply for oil cooling the brake can be used for high duty operation.

Manual release: Rotate the screw spindle counter clockwise up to the stop.

Gap setting: Rotate the screw spindle clockwise up to the stop, then rotate counter clockwise for gap setting. One full circle equals 2 mm gap size.



Data and Dimenslons		FMOBS 20	FMOBS 40	FMOBS 80	FMOBS 160	FMOBS 315	FMOBS 630	
Static torque	Nm	200	400	800	1600	3150	6300	
Dynamic torque	Nm	160	315	630	1250	2500	5000	
Idling torque	Nm	0,4	0,8	1,6	3,2	6	12	
Friction work per engagement	kJ	60	120	180	310	460	780	
Thermal capacity	W	180	315	425	670	860	920	
Speed maximum	min -1	2500	2000	1600	1200	800	600	
Release time	ms	240	300	400	500	600	750	
Engagement time	ms	45	50	55	65	80	100	
Coil power consumption at 20 °C	W	80	100	140	170	220	270	
Mass (weight)	kg	20	37	60	110	180	315	
Ø a	mm	200	250	300	370	440	500	
b	mm	137	158	178	210	236	310	
Ø c H7	mm	120	160	190	230	280	340	
Ø e	mm	180	225	270	335	400	460	
f	mm	2	2	2,5	2,5	2,5	3	
Ø g	mm	160	200	240	300	360	430	
h	mm	4	4	6	6	8	8	
l	mm	1	1	1	1	1,5	1,5	
m	mm	15	18	23	25	30	32	
Ø o rough bored / for dowel	mm	8 / 10	10 / 12	14 / 16	14 / 16	18 / 20	18 / 20	
p		M10	M12	M12	M16	M20	M20	
r	mm	3	3	4	7	7	7	
Inner driver	Ø d H7 rough bored	mm	30	40	45	56	63	80
	v	mm	38	41	40	44	46	68
	w	mm	53	59	63	69	76	100
	Ø s	mm	70	88	112	140	185	235
	Number of teeth x modul 1)	mm	26 x 3	32 x 3	40 x 3	38 x 4	49 x 4	50 x 5
	w tooth width of	mm	23,148	32,257	41,440	55,173	67,598	84,568
	w tooth width up to	mm	23,182	32,291	41,478	55,211	67,636	84,615
	measured over tooth number		3	4	5	5	6	6

1) Tooth angle 20°

Hydraulically Operated Spring-Pressure Brake

Safety brake for hoisting equipment.

For dry operation, for higher brake power also with inlet for cooling oil .

- ◆ To secure holding position in drives controlled by hydraulic motors.
- ◆ Encapsulated, almost maintenance-free execution.
- ◆ As a safety brake for port facilities such as cranes, ship loading equipment and winches with corrosion-resistant surfaces (HLOBS).
- ◆ Manual release of the brake's piston by means of screws possible.
- ◆ With steel- / sinter discs suited for dry as well as oil operation.
- ◆ Vertical mounting, only when ordered with application guidelines.

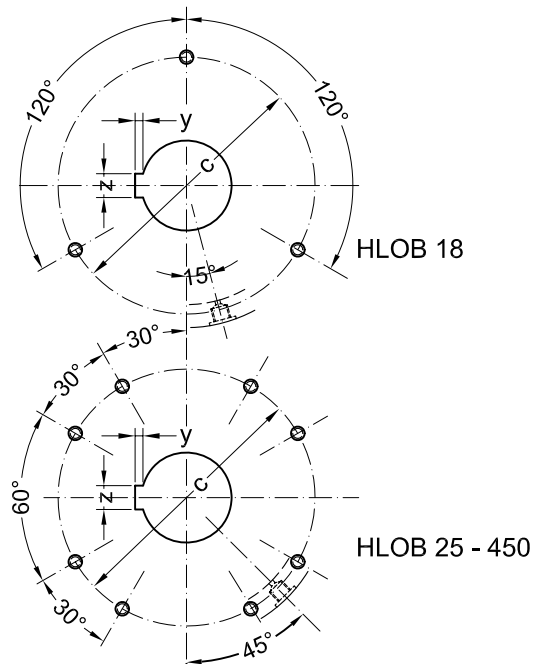
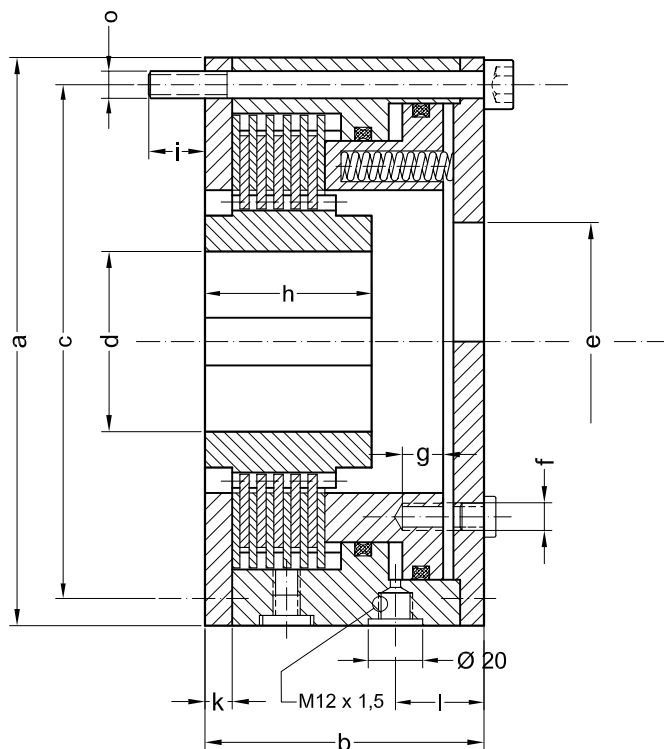
The brake is equipped with two in- / outlets, for oil pressure supply and for oil discharge (air relief) and a further outlet for oil leakage control, or oil drainage in case an additional supply for cooling oil has been connected.

In case of imposed security requirements, the listed torque values for oil operation also apply to an operation under dry conditions.

Executions:

"G"- enclosed model for enclosed gear installation.

"O"- open model, with boresize "e" for through-going shaft.



Data and Dimensions			HLOB 18	HLOB 25	HLOB 35	HLOB 64	HLOB 100	HLOB 160	HLOB 260	HLOB 450
Torque - dry operation	18 bar release pressure	Nm	180	250	350	640	1000	1600	2600	4500
Torque - oil operation	18 bar release pressure	Nm	120	170	210	400	650	1100	1700	3000
Torque - dry operation	30 bar release pressure	Nm	260	360	500	1000	1400	2300	3800	6500
Torque - oil operation	30 bar release pressure	Nm	180	250	350	640	1000	1600	2600	4500
Idling torque - oil operation		Nm	1,5	2	2,5	3	5	6	8	10
Friction work per engagement - dry operation ¹⁾		kJ	4	6	9	13	19	30	50	95
Thermal capacity - dry operation ¹⁾		W	90	100	125	160	200	260	375	500
Speed maximum - dry operation		min ⁻¹	3500	3400	3300	3200	3000	2700	2400	2000
Stroke volume - discs new / worn		cm ³	3,5 / 8,5	5,4 / 12	8,5 / 20	13 / 31	18 / 44	26 / 57	42 / 85	68 / 136
Inertia moment - inner driver + discs		10 ⁻³ kgm ²	0,4	0,8	1,8	4,3	9	20	50	115
Mass (weight)		kg	7	10	13	18	25	33	53	73
Ø a	mm		120	135	155	180	205	245	290	345
b	mm		87	95	100	107	112	122	147	160
Ø c	mm		100	115	135	160	185	220	265	315
Ø d max. H7	mm		30	40	45	55	65	90	110	140
Ø e	mm		45	52	65	82	95	120	140	180
f	mm		M6	M6	M6	M6	M8	M10	M12	M12
g	mm		15	15	15	15	20	20	25	25
h	mm		44	45	52	55	60	68	90	95
i ~	mm		12	15	15	15	20	20	25	25
k	mm		8	8	9	9	10	11	13	15
l ~	mm		33	35	37	39	41	43	54	60
o	mm		M8	M8	M8	M10	M10	M12	M14	M16
Keyway DIN 6885 - 2	mm		8 x 3,3	12 x 3,3	14 x 3,8	16 x 4,3	18 x 4,4	25 x 5,4	28 x 6,4	36 x 8,4

1) Higher values for oil operation according to the quantity of cooling oil.

Electromagnetic Slip Ring Multi-Disc Brake

Brake with magnet body end face, fastened to gear housing.

For oil operation, coil voltage 24 V DC

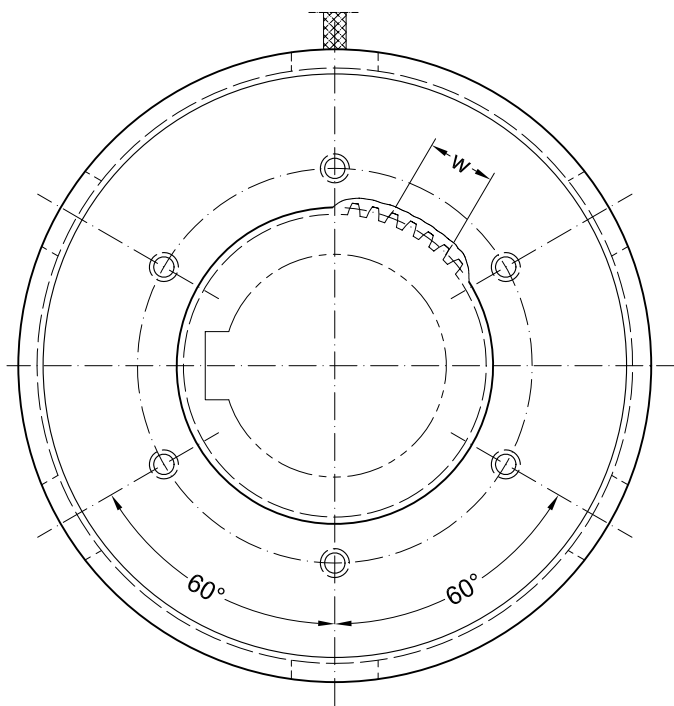
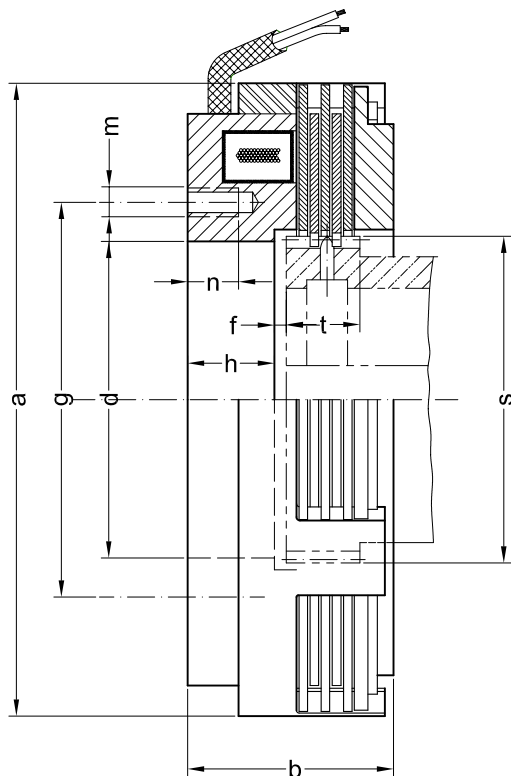
- ◆ With wear resistant, specially heat treated steel discs.
- ◆ High torque in comparison with the size.
- ◆ Inner driver (extra accessory) with hardened teeth.
- ◆ For horizontal mounting.

The brake is suited for speed engagement of main and auxiliary drives and is intended for the installation into oil lubricated gears.

A double magnetic flux circulates through the steel discs.

The brake thereby automatically compensates for the disc wear and does not need to be adjusted.

Extras: Inner driver according to customer's request.



Data and Dimensions		LCBW 0,7	LCBW 1,5	LCBW 3	LCBW 6	LCBW 12	LCBW 20	LCBW 30	LCBW 50	LCBW 80	LCBW 125	LCBW 200	LCBW 300
Static torque	Nm	12	25	50	100	200	320	500	800	1300	2000	3200	5000
Dynamic torque	Nm	7	15	30	63	125	200	300	500	780	1250	2000	3000
Idling torque	Nm	0,06	0,14	0,25	0,5	0,8	1,1	1,8	2,8	3,5	5,5	7,5	10
Friction work per engagement	kJ	4	6,5	9	15	25	35	50	65	100	160	250	350
Thermal capacity	W	30	55	80	140	240	350	470	650	900	1300	1700	2200
Speed maximum	min ⁻¹	5000	4500	4000	3800	3500	3200	3000	2700	2500	2200	1900	1600
Torque-Time Constant - to 60 % torque	s	0,12	0,15	0,20	0,25	0,32	0,40	0,50	0,65	0,80	0,95	1,2	1,5
Disengagement time - to 10 % torque	s	0,04	0,05	0,07	0,10	0,12	0,15	0,20	0,25	0,30	0,35	0,40	0,50
Coil power consumption at 20 °C	W	12	17	23	27	32	39	43	53	56	75	100	118
Mass moment of Inertia - inner discs	10 ⁻³ kgm ²	0,02	0,04	0,10	0,3	0,65	1,3	2,4	4,3	8,4	17	33	60
Mass (weight)	kg	0,45	0,75	1,1	1,9	3,1	4,0	5,7	8,6	11,5	17,5	26	36
Ø a	mm	70	80	95	112	134	147	165	190	210	240	275	310
b	mm	23	29,5	35	41	46	50	56	62	68	78	88	96
Ø d max H7	mm	30	35	48	55	65	72	85	98	105	120	140	160
f	mm	1,5	1,5	2	2	3	3	3	3	3	3	4	4
Ø g	mm	36	43	52	65	75	85	90	105	120	140	170	190
h	mm	12	15	18	21	22	22	24	28	29	34	38	41
m	mm	M4	M5	M6	M6	M8	M8	M8	M10	M12	M12	M16	M16
n	mm	6	7	8	10	10	12	12	15	18	18	20	20
t min.	mm	6	10	11	13	15	18	20	20	24	27	30	34
Inner driver 1)	module 2)	mm	1,5	1,5	1,5	1,5	2	2	2,5	2,5	3	3	3
	number of teeth	-	22	26	35	40	34	38	35	40	36	41	54
	s addendum circle Ø 3)	mm	34	40	53	61	69	77	89	102	110	126	164
	root circle Ø	mm	29,25	35,25	48,75	56,25	63	71	81,25	93,75	100,5	115,5	154,5
	measured over tooth number	-	3	3	4	5	4	5	4	5	4	5	6
	w - 0,05 tooth width	mm	11,48	11,56	16,18	20,71	21,55	27,57	26,99	34,55	32,44	41,50	50,90

1) basic tooth profile as per DIN 867, zero profile offset 2) pressure angle 20° 3) addendum correction

Electromagnetic Multi-Disc Brake

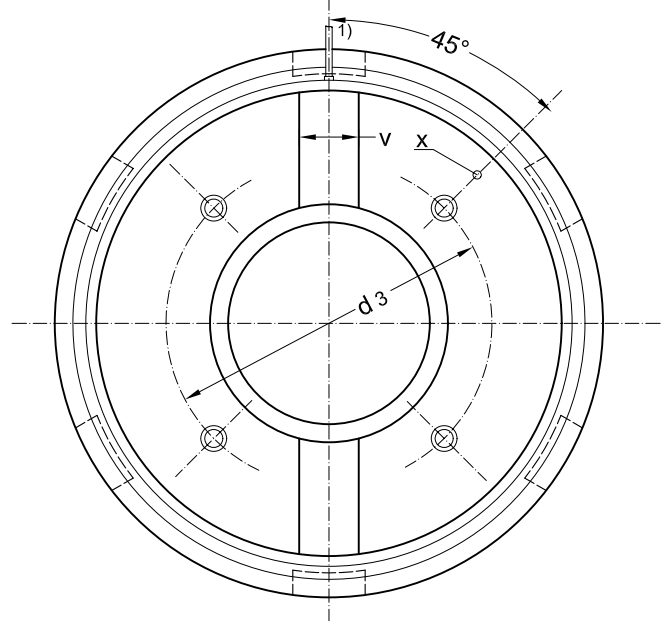
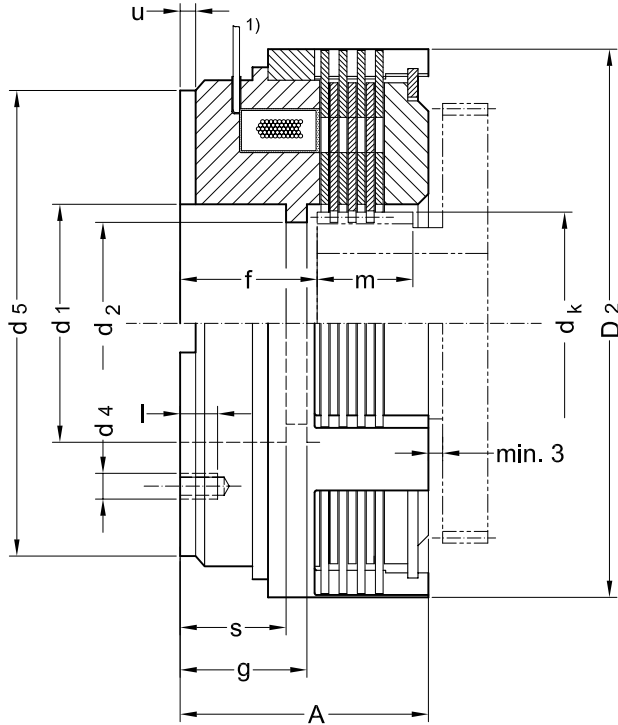
Brake with magnet body front face fastened to the housing.

For oil operation, coil voltage 24 V DC

- ◆ Version without inner driver, with hardened steel discs.
- ◆ Torque transmission over keys inserted in grooved magnet body.
- ◆ Further technical particulars on request.
- ◆ For horizontal mounting.

Heid multi disc brakes LCBW-S are comparable regarding technical data and dimensions with multi disc clutches of ZF Friedrichshafen AG listed in the table.

Most of the brakes LCBW-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		LCBW 1S	LCBW 2S	LCBW 5,5S	LCBW 10S	LCBW 20S	LCBW 21S	LCBW 40S	LCBW 45S	LCBW 60S	LCBW 100S	LCBW 130S	LCBW 200S	LCBW 320S	
		comparable to ZF Type:	EK 1 B	EK 2 dB	EK 5 dB	EK 10 eB	EK 20 dB	EK 20 eB	EK 40 dB	EK 40 eB	EK 60 dB	EK 80 B	EK 120 eB	EK 160 B	EK 320 B
Static torque		Nm	20	50	100	200	400	360	800	800	1100	1800	2400	3600	5800
Dynamic torque		Nm	10	20	55	100	200	200	400	450	600	1000	1300	2000	3200
Engagement time		ms	170	220	280	360	450	450	600	600	750	900	1100	1300	1700
Disengagement time		ms	50	70	100	110	200	200	250	250	300	380	400	540	750
Coil power consumption at 20 °C		W	15	18	22	27	41	38	59	77	79	88	130	130	170
Mass (weight) ~		kg	0,70	1,15	1,95	3,7	6,2	6,1	9,6	9,2	12,8	17,0	21,0	38,3	66,0
A		mm	31	38	49,5	55	58,5	64,5	69	68	77,5	80	86	108	118
Ø D 2		mm	80	93	114	140	166	166	195	195	210	240	258	295	336
Ø d 1 K6		mm	35	42	55	68	75	90	90	110	100	110	140	125	140
Ø d 2		mm	31	37	45	60	65	80	80	100	90	100	130	115	130
Ø d 3 ± 0,1		mm	50	56	75	90	100	116	116	125	130	145	170	200	275
d 4		mm	M5	M6	M8	M8	M10	M10	M10	M12	M12	M12	M16	M16	M16
Ø d 5		mm	67	78	95	120	142	142	170	170	184	216	234	260	304
f		mm	20,5	25	30	32	33	36	37	36	42	43	44	55	57
g		mm	19	22	27	29	30	33	34	34	39	40	41	52	53
l max		mm	5	5	7	8	10	9	12	14	16	18	13	20	20
m		mm	9,5	12	18,5	21,5	23,5	27,5	30	31	32,5	33	38	48	56
s + 0,2		mm	17	20	22	22	25	28	28	28	31	32	33	42	43
u		mm	2,5	2,5	5	5	6	6	6	6	6	6	8	8	8
v H7		mm	12	12	14	16	20	20	20	20	20	25	25	25	25
x partition fault max.		mm	0,2	0,2	0,2	0,2	0,4	0,4	0,4	0,4	0,4	0,6	0,6	0,6	0,6
Inner driver gear acc. DIN 867 α = 20°	Number of teeth	-	20	27	27	31	27	33	33	34	36	42	54	37	37
	Modul	mm	1,5	1,5	1,75	2	2,5	2,5	2,5	3	2,5	2,5	2,5	3	3,5
	Tooth width of	mm	11,39	16,38	19,12	22,10	27,51	27,72	27,72	32,25	34,86	34,48	49,72	42,29	49,36
	Tooth width to over teeth	mm	11,34	16,33	19,07	22,05	27,45	27,66	27,66	32,15	34,80	34,42	49,65	42,21	49,28
	dk -0,2 addendum - Ø	mm	32,2	43,5	50,5	66,4	73,2	88,2	88,2	108,0	94,8	110,0	140,0	118,0	138,0

1) Connection with two braids.

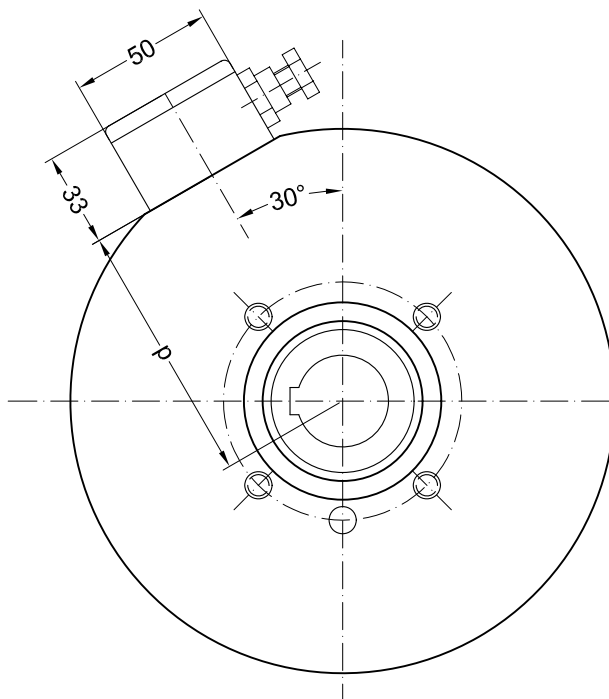
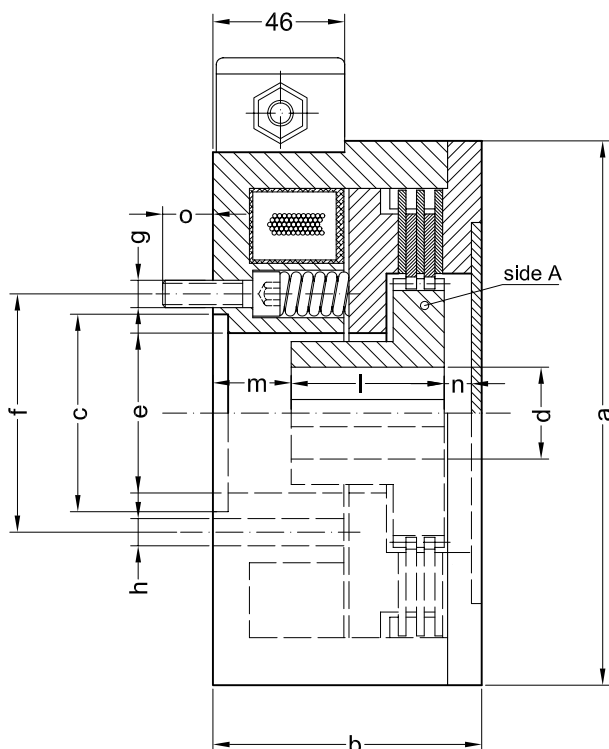
Electromagnetic Spring-Operated Multi Disc Brake

Safety brake for installation to gear boxes.

For dry operation, coil voltage 24 V DC

- ◆ Encapsulated unit.
- ◆ Suited as load brake for hoisting equipments.
- ◆ High energy absorption by wear resistant steel- / sinter discs.
- ◆ Maintenance-free, no air gap adjustment required.
- ◆ For horizontal mounting.

The brake is designed with a totally enclosed housing, according to the safety regulations, and is suitable for application under difficult environment conditions. The brake effect is given with deenergized coil and hence also during power failures. The coil is so designed that the brake can be lifted even if the discs are worn and if, as a consequence the stroke distance has increased.



Data and Dimensions		LMOBA 0,2	LMOBA 0,5	LMOBA 1	LMOBA 2	LMOBA 4	LMOBA 6,3	LMOBA 10	LMOBA 16	LMOBA 25	LMOBA 40	LMOBA 63	LMOBA 100
Static torque	Nm	2,2	5,6	11,2	22,5	45	70	112	180	280	450	700	1120
Dynamic torque	Nm	2	5	10	20	40	63	100	160	250	400	630	1000
Friction work per engagement	kJ	9	14	16	17	19	27	34	40	51	63	77	87
Thermal capacity	W	82	95	115	140	165	190	210	265	330	440	540	750
Release time	s	0,20	0,20	0,25	0,25	0,30	0,35	0,40	0,50	0,60	0,80	1,0	1,2
Engagement time	s	0,05	0,05	0,06	0,06	0,07	0,08	0,09	0,10	0,15	0,20	0,25	0,30
Speed maximum	min ⁻¹	6000	6000	6000	5700	5300	4900	4600	4000	3700	3200	2900	2400
Mass moment of inertia side A	10 ⁻³ kgm ²	0,14	0,32	0,39	0,62	0,80	1,3	2,3	3,0	5,0	13,6	41,6	69
Coil power consumption at 20°C	W	26	40	44	53	57	78	88	95	120	138	180	230
Mass (weight)	kg	4	5	7	9	12	14	16	22	31	45	60	110
Ø a	mm	115	125	136	155	165	180	190	215	237	270	305	362
b	mm	57	59	66	70	77	79	83	90	105	123	128	151
Ø c	mm	40	45	50	55	60	70	80	90	100	120	130	150
Ø d H7 pre-bored	mm	10	12	12	15	15	20	20	20	20	30	30	30
Ø d max H7 ¹⁾	mm	20	25	28	30	35	40	45	45	50	60	65	70
Ø e	mm	30	35	40	43	50	55	62	62	68	78	84	90
Ø f	mm	48	55	60	65	75	85	95	105	115	135	155	180
g	mm	4 x M5	4 x M5	4 x M6	4 x M6	6 x M6	8 x M6	6 x M8	8 x M8	12 x M8	12 x M8	12 x M10	12 x M10
Ø h rough bored / for dowel	mm	1 x 5/6	1 x 5/6	1 x 5/6	1 x 5/6	1 x 5/6	1 x 5/6	1 x 7/8	1 x 7/8	1 x 7/8	2 x 7/8	2 x 9/10	2 x 9/10
k	mm	4	4	4	4	4	4	4	4	4	5	5	5
l	mm	36	36	38	45	45	50	50	60	75	85	92	110
m	mm	15	18	20	17	25	20	23	20	18	25	25	30
n	mm	4	3	6	6	5	6	7	7	9	9	7	7
o	mm	8	8	10	10	10	10	14	13	13	13	13	14
p	mm	51	57	63	73	78	86	91	104	115	132	150	179

1) Keyway according to DIN 6885-1

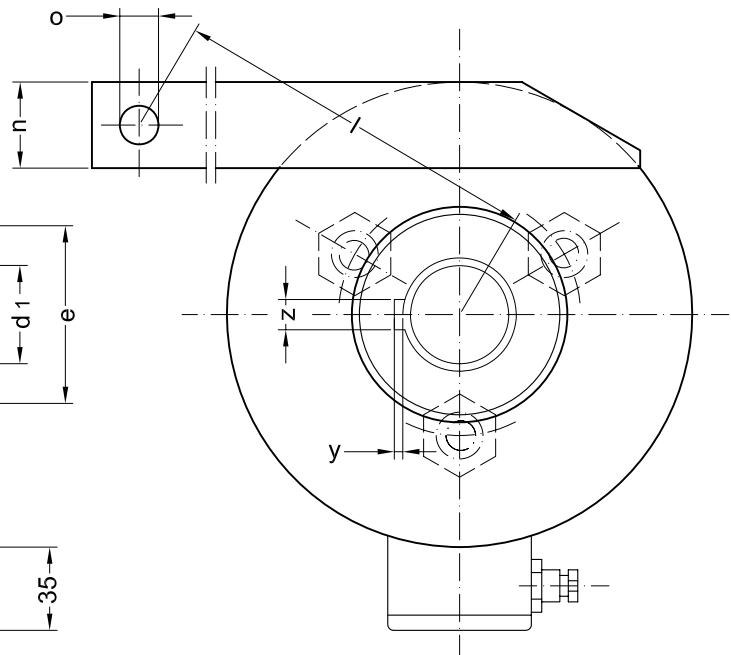
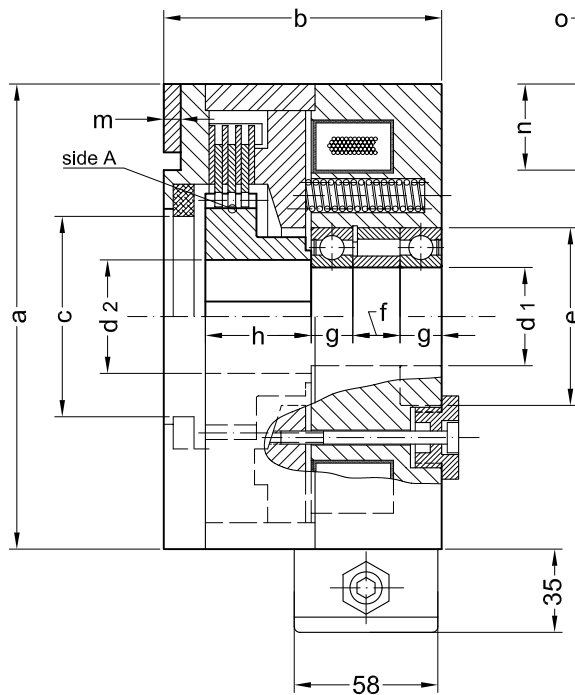
Electromagnetic Spring-Operated Multi Disc Brake

Safety brake with retaining bracket.

For dry operation, coil voltage 24 V DC

- ◆ For installation on gears of hoisting equipments.
- ◆ Suitable as a safety brake in case of power failure.
- ◆ Maintenance-free, no air gap adjustment required.
- ◆ Manual release of the brake by means of screws possible..
- ◆ For horizontal mounting.

The brake is especially suited for additional installation on gears of hoisting equipments to increase their safety standard. The brake effect is given with deenergized coil and hence also during power failures. The brake is released and kept in released position by nominal voltage. The stack consisting of steel/sintered discs has been designed for life. A possible disc wear can be checked by means of a wear indicator.



Data and Dimensions		LMOBC 5	LMOBC 10	LMOBC 20	LMOBC 40	LMOBC 80	LMOBC 160	LMOBC 250
Static torque	Nm	56	112	225	450	900	1800	2800
Dynamic torque	Nm	50	100	200	400	800	1600	2500
Idling torque	Nm	0,1	0,2	0,4	0,7	1,4	2,8	4,5
Friction work per engagement	kJ	30	53	61	122	180	312	520
Thermal capacity	W	100	140	180	300	420	660	680
Release time 1)	s	0,4	0,40	0,5	0,6	0,8	1	1,2
Engagement time 2)	s	0,06	0,07	0,08	0,1	0,12	0,15	0,15
Speed maximum	min ⁻¹	3000	2500	2000	1600	1200	800	800
Coil power consumption at 20°C	W	40	50	60	80	115	140	140
Mass moment of inertia side A	10 ⁻³ kgm ²	0,5	1,1	2	4	10,5	30	48
Mass (weight)	kg	7,5	10,2	13	22	43	72	78
Ø a	mm	125	146	160	200	250	300	300
b	mm	77	86	95	106	130	153	165
Ø c h11	mm	50	60	70	85	110	130	130
Ø d 1	mm	25	25	30	40	50	60	60
Ø d 2 H7	mm	30	30	35	45	55	65	65
Ø e	mm	47	52	62	80	90	110	110
Ø f	mm	11	11	15	16	25	33	33
Ø g	mm	12	15	15	18	20	22	22
h	mm	30	33	36	40	48	55	67
l	mm	146	208	223	342	432	408	408
m	mm	2,5	2,5	3	3	3	4	4
n	mm	20	25	30	35	40	50	50
o	mm	9	11	11	13	17	21	21
y + 0,2	mm	3,3	3,3	3,3	3,3	3,8	4,4	4,4
z JS9	mm	8	8	8	12	14	18	18
Number of keyways	-	1	1	1	1	2	2	2

1) Time interval between voltage application and release of brake 2) Time interval until brake torque reaches 63 % of the final value.

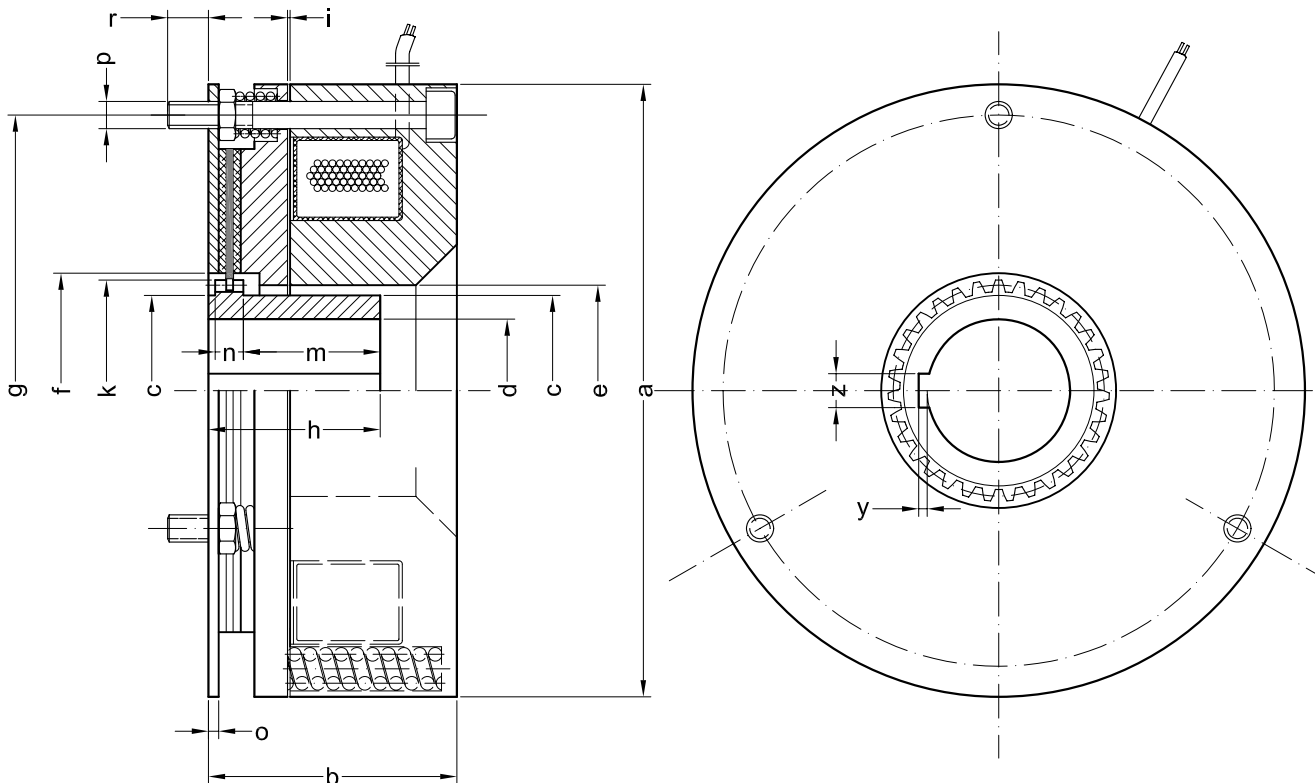
Electromagnetic Spring-Operated Brake

Single disc safety brake suited for the installation on motors, gear shafts and hoisting drums.

For dry operation, coil voltage 24 V DC

- ◆ With low inertia steel plate with friction linings guided on inner driver.
- ◆ Brake gap "i" smoothly adjustable through the brake's mounting screws.
- ◆ Suited for high speeds because of neglectable idling torque.
- ◆ Available accessory: Inner driver with hardened teeth.
- ◆ Vertical mounting, only when ordered with application guidelines.

With the brake torque given when the coil is de-energized the MUOB serves as holding brake for ball screws and as stop brake on motors. By the low inertia of the friction plate and the herewith given high brake efficiency permits shortest possible times for braking. Asbestos free high power friction linings as well as hardened steel - counter faces make long intervals for maintenance possible.



Data and Dimensions		MUOB 0,4	MUOB 0,6	MUOB 1	MUOB 1,6	MUOB 2,5	MUOB 4	MUOB 6,3	MUOB 10	MUOB 16	MUOB 25	MUOB 40	MUOB 63
Static torque	Nm	4,5	7	11	18	28	45	71	110	180	280	450	710
Dynamic torque	Nm	4	6,3	10	16	25	40	63	100	160	250	400	630
Friction work per engagement	kJ	5,8	8,3	11,3	15,9	21,8	26,2	36,6	52	68	89	130	180
Thermal capacity	W	55	75	90	125	145	175	215	270	315	415	500	710
Speed maximum	min ⁻¹	6000	6000	5200	4600	4100	3850	3400	3100	2800	2500	2300	2000
Engagement time	ms	30	30	35	35	40	45	50	55	60	60	65	70
Coil power consumption at 20 °C	W	30	35	40	45	50	60	70	90	110	125	150	200
Inertia moment to shaft	10 ⁻³ kgm ²	0,07	0,11	0,23	0,36	0,75	0,98	1,89	2,56	4,56	6,65	11,8	19
Mass (weight)	kg	2,3	2,8	4	5,2	6,6	8,8	12	15	21	26	35	48
Ø a	mm	92	102	116	128	140	156	174	187	210	228	255	285
b	mm	48	50	55	60	64	68	73	80	88	95	100	110
Ø c	mm	22	28	34,5	39,5	44,8	50	56,5	62	68	74	78,5	85
Ø d max H7	mm	15	20	25	30	35	40	45	50	55	60	65	70
Ø e	mm	25	31	38	43	49	53,5	60	66	72	78	83	90
Ø f	mm	36	36	50	50	61	61	77	77	90	90	104	104
Ø g	mm	80	90	104	116	128	140	158	170	190	208	232	262
h	mm	35	35	40	40	50	50	58	58	68	68	75	75
i	mm	0,15	0,15	0,15	0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,35	0,35
Ø k	mm	33	33	46,5	46,5	57	57	72	72	84	84	97,5	97,5
m	mm	26	26	30	30	40	40	45	45	54	54	60	60
n	mm	8	8	9	9	9	9	11	11	12	12	13	13
o	mm	2,5	2,5	3	3	3,5	3,5	4	4,5	5	5	6	6
p		M5	M5	M6	M6	M6	M8	M8	M8	M10	M10	M12	M12
r	mm	8	8	10	10	12	12	14	14	15	15	16	16
Keyway z x y at d max	mm	5 x 2,3	6 x 2,8	8 x 3,3	8 x 3,3	10 x 3,3	12 x 3,3	14 x 3,8	14 x 3,8	16 x 4,3	18 x 4,4	18 x 4,4	20 x 4,9
Inner driver 1) number of teeth x modul	mm	31 x 1	31 x 1	29 x 1,5	29 x 1,5	36 x 1,5	36 x 1,5	34 x 2	34 x 2	40 x 2	40 x 2	37 x 2,5	37 x 2,5

1) not corrected, tooth angle 20°, tolerance 8f DIN 5480

Electromagnetic Stationary Field Multi-Disc Clutch

Clutch with inner driver for torque transmission between shaft and free wheeling gear part.

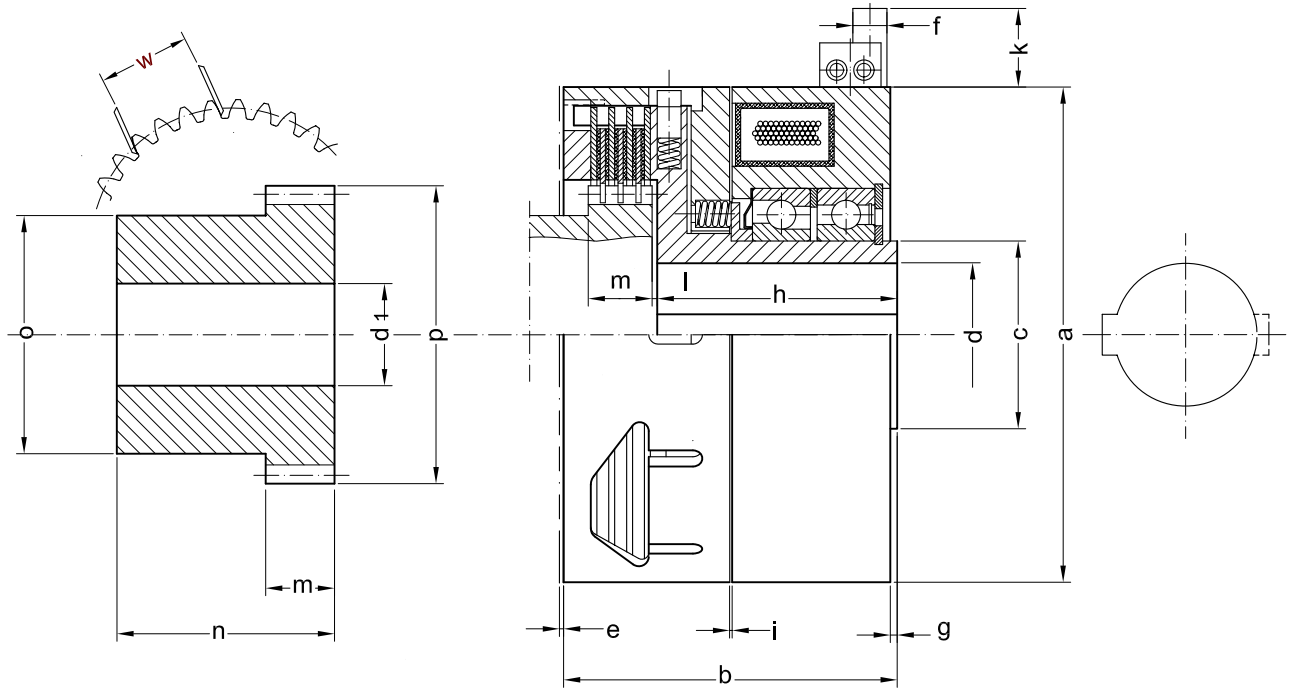
For dry operation, coil voltage 24 V DC

- ◆ Clutch with adjustable air gap.
- ◆ For operation at lower speed rates and drive power.
- ◆ With wear resistant steel- /sinter discs or discs with friction linings.
- ◆ Suited to connect two shafts of the same axis.
- ◆ Available accessory: Inner driver as per dimension drawing.
- ◆ Vertical mounting, only when ordered with application guidelines.

This clutch is especially suited for external gear application:

For the operation of feed drives, as well as main drives with steady torque at low speed rates. The magnetic flux does not circulate through the disc stack and permits the use of non magnetic friction materials.

The clutch can be controlled and if required adjusted very easily.



Data and Dimensions		FM 0,6	FM 1,2	FM 2,5	FM 5	FM 10	FM 20	FM 40	FM 80	FM 160	FM 315	
Static torque	Nm	10	20	40	80	160	320	630	1250	2500	5000	
Dynamic torque	Nm	8	16	32	63	125	250	500	1000	2000	4000	
Idling torque	Nm	0,04	0,06	0,10	0,15	0,25	0,40	0,80	1,50	3,00	6,00	
Friction work per engagement	kJ	2,5	3,0	5,5	7,0	13	20	30	40	60	70	
Thermal capacity	W	30	40	55	80	110	150	220	300	600	900	
Speed maximum	min ⁻¹	3000	2800	2500	2200	1800	1500	1200	800	600	350	
Torque-time constant ¹⁾	s	0,07	0,08	0,10	0,12	0,14	0,22	0,35	0,55	0,85	1,20	
Disengagement time ²⁾	s	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,15	
Coil power consumption at 20 °C	W	15	25	30	40	50	60	60	75	160	210	
Inertia moment side A	10 ⁻³ kgm ²	0,07	0,08	0,10	0,12	0,14	0,22	0,35	0,55	0,85	1,20	
Mass (weight)	kg	1	1,6	2,5	3,8	6	10,5	18,5	45	92	156	
Ø a	mm	66	80	95	113	135	167	205	260	315	392	
b	mm	60	68	75	81	90,5	105	124	185	232	260	
Ø c	mm	20	25	30	40	50	65	75	90	120	150	
Ø d H7	mm	15	20	25	30	40	50	60	70	90	110	
e	mm	1,2	1,3	1,5	1,5	1,5	1,7	1,8	2,2	2,5	3,0	
Ø f / k	mm	6 / 50	8 / 50	8 / 50	8 / 50	10 / 100	10 / 100	10 / 100	12 / 150	16 / 150	20 / 150	
h	mm	43	47	53	58	63	74	89	132	162	194	
i airgap (clutch engaged)	mm	0,2...0,4	0,2...0,4	0,3...0,5	0,3...0,5	0,4...0,6	0,4...0,6	0,5...0,8	0,5...0,8	0,7...1,2	0,7...1,2	
Keyway DIN 6885 - 2		1	1	1	1	1	1	1	1	2	2	
Inner driver	Ø d ₁	mm	12	16	20	25	30	40	45	56	63	80
	l	mm	1,0	1,5	1,5	1,5	1,5	2	2	3	3	3
	m	mm	15	15	18	18	20	22	25	35	45	45
	n	mm	56	60	63	75	90	100	112	140	185	235
	Ø o	mm	26	38	38	52	70	88	112	140	185	235
	Ø p	mm	34,5	45	50	65	84	102	126	160	204	260
	No. of teeth x module	mm	21 x 1,5	28 x 1,5	18 x 2,5	24 x 2,5	26 x 3	32 x 3	40 x 3	38 x 4	49 x 4	50 x 5
	w tooth width of	mm	11,446	16,021	11,626	19,206	23,148	32,257	41,440	55,173	67,598	84,568
	w tooth width up to	mm	11,473	16,048	11,656	19,240	23,182	32,291	41,478	55,211	67,636	84,615
measured over tooth number	-	3	4	2	3	3	4	5	5	6	6	

1) up to 60% of full torque rate

2) drop to 10% of full torque rate

Electromagnetic Stationary Field Spring-Pressure Multi-Disc Clutch

Safety clutch with outer driver for main drives.

For dry operation, coil voltage 24 or 90 V DC

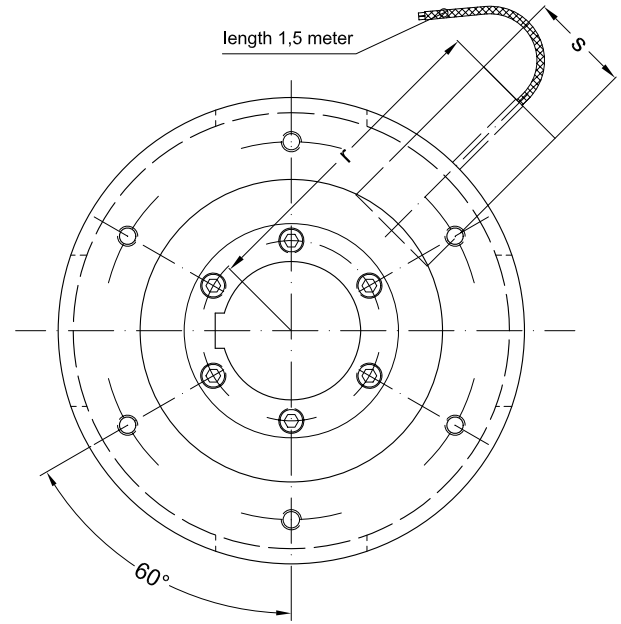
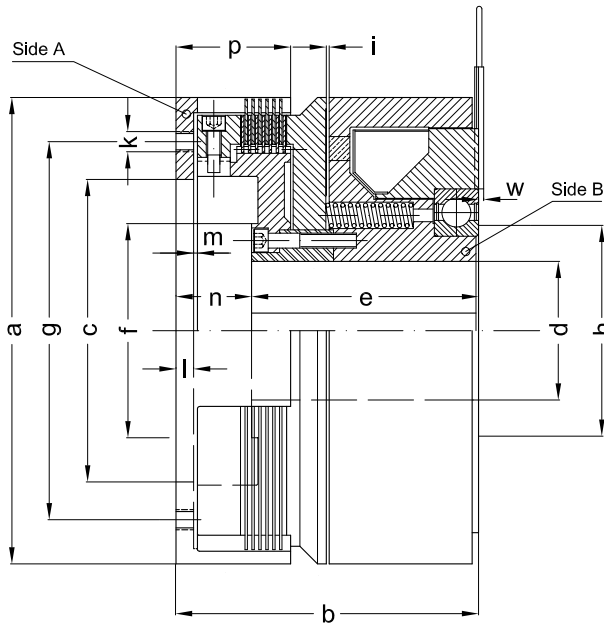
- ◆ Safety clutch for drives in hoisting equipment.
- ◆ With wear resistant steel- / sinter discs.
- ◆ Compensation of disc wear by adjustable air gap.
- ◆ Design variations:
 - ◆ Version 1: For constant operation engaged or released.
 - ◆ Version 2: High torque execution - not constantly released.
- ◆ For horizontal mounting.

At rest the clutch is frictional engaged. The torque connection is also maintained in case of power outage, thus granting a definite protective function.

Typical fields of application are hoists, winches, lifting platform drives and various loading equipments.

By means of the energy stored in the pressure springs, short engagement times and rapid torque rise are obtained.

FMOV - version 2 permissible release time ~ 50 percent of operation time.



Data and Dimensions			FMOV 10	FMOV 20	FMOV 40	FMOV 80	FMOV 160	FMOV 315	FMOV 630	FMOV 1000	
Static torque		Version 1	Nm	100	200	400	800	1600	3200	6300	10000
Dynamic torque			Nm	63	125	250	500	1000	2000	4000	6300
Static torque		Version 2	Nm	160	320	630	1250	2500	5000	10000	16000
Dynamic torque			Nm	100	200	400	800	1600	3200	6300	10000
Friction work per engagement			kJ	15	20	40	80	120	180	360	750
Thermal capacity			W	120	160	250	400	600	800	1200	2000
Speed maximum			min ⁻¹	3200	3000	2500	2100	1700	1300	1000	800
Engagement time			~ ms	25	35	50	70	100	140	250	500
Coil power at 20°C	Version 1	for unlimited release time	W	65	86	95	125	135	165	185	190
	Version 2	for limited release time	W	90	130	160	205	230	300	300	250
Mass moment of inertia side A			kgm ²	0,0045	0,0107	0,0279	0,0675	0,1423	0,3696	1,1366	3,4567
Mass moment of inertia side B			kgm ²	0,0165	0,0404	0,1025	0,2267	0,5787	1,0797	5,3338	16,2512
Mass (weight)			kg	8	15,5	27	45	76	142	280	545
Ø a			mm	145	175	210	248	297	370	460	575
b			mm	102	118	145	170	195	240	300	370
Ø c H7			mm	85	100	125	150	180	240	290	360
Ø d H7 max			mm	40	50	60	70	85	110	130	160
e			mm	70	84	100	120	145	180	225	276
Ø f			mm	70	82	100	120	140	170	210	260
Ø g			mm	120	140	170	200	240	300	375	470
Ø h			mm	55	75	90	110	135	170	200	245
i clutch gap			mm	1,0 - 1,3	1,2 - 1,5	1,4 - 1,8	1,7 - 2,2	1,8 - 2,3	2,2 - 2,8	2,5 - 3,1	2,8 - 3,4
k			mm	6 x M6	6 x M6	6 x M8	6 x M10	6 x M12	6 x M16	6 x M16	6 x M20
l			mm	7	8	10	12	12	14	18	22
m			mm	2	2	2	2	2	3	4	5
n			mm	32	34	45	50	50	60	75	94
p			mm	43	46	58	69	78	91	116	145
r / s			mm	115 / 25	125 / 25	160 / 40	175 / 40	200 / 40	270 / 70	310 / 70	380 / 90
w			mm	3	3	3	3	4	4	4	6,5
keyway DIN 6885 - 1			-	1	1	1	2	2	2	2	2

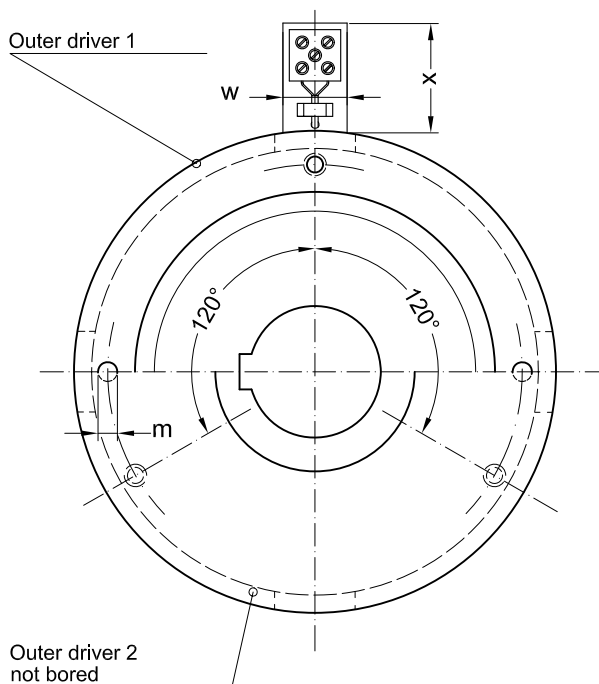
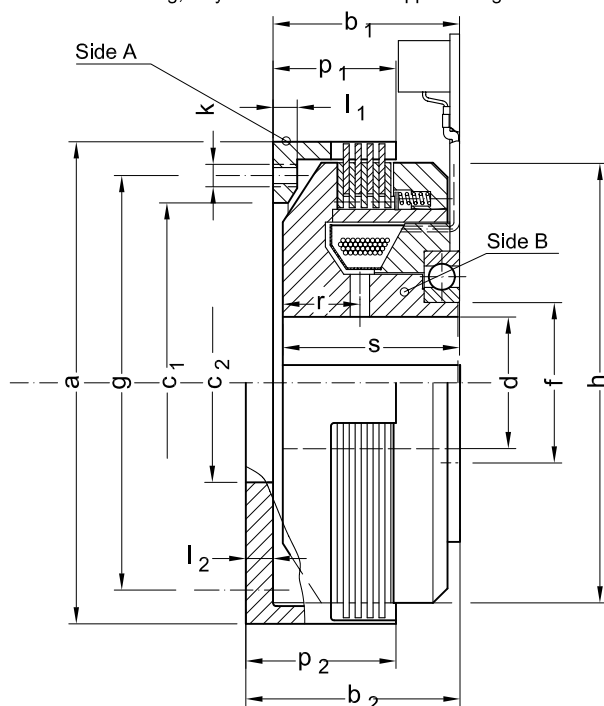
Electromagnetic Stationary Field Multi-Disc Clutch

Clutch with outer driver for torque transmission between shaft and free wheeling gear part.

For oil operation, coil voltage 24 V DC

- ◆ Self-adjustment by magnetic flux permeating the disc stack.
- ◆ Special disc design for lowest possible idling torque.
- ◆ Wear resisting alloyed and heat treated discs.
- ◆ Effective heat dissipation by peripheral friction faces.
- ◆ Vertical mounting, only when ordered with application guidelines.

This clutch is specially suited for speed engagement of machines or equipment used in automated production lines. Precise clutch engagement and release, and thereby exact control of the required operation, are maintained throughout long-term operation periods.



Data and Dimensions		FOV 1,2	FOV 2,5	FOV 5	FOV 10	FOV 20	FOV 40	FOV 80	FOV 160	FOV 315	FOV 630
Static torque	Nm	25	50	100	200	400	800	1600	3200	6300	12600
Dynamic torque	Nm	12,5	25	50	100	200	400	800	1600	3200	6300
Idling torque	Nm	0,1	0,2	0,3	0,6	1,0	2,0	4,0	6,0	10	20
Friction work per engagement	kJ	5,9	9,6	15	22	44	89	143	278	520	1000
Thermal capacity	W	57	87	120	170	330	550	765	1230	1750	3000
Speed maximum	min ⁻¹	4000	3850	3650	3500	3200	2900	2400	1900	1400	1000
Torque-time constant ¹⁾	s	0,18	0,22	0,28	0,35	0,43	0,61	0,90	1,30	1,80	2,40
Disengagement time ²⁾	s	0,07	0,08	0,09	0,12	0,14	0,16	0,20	0,26	0,32	0,40
Coil power consumption at 20 °C	W	25	25	30	50	65	75	75	95	150	170
Mass moment of inertia side A	10 ⁻³ kgm ²	0,4	0,7	1,4	3,3	7,0	17	42	130	288	780
Mass moment of inertia side B	10 ⁻³ kgm ²	0,35	0,7	1,9	4,0	8,8	28	65	180	525	1790
Mass (weight)	kg	1,6	2	3	4	8	14	23	43	75	140
Ø a	mm	90	99	115	136	161	200	237	292	357	452
b ₁	mm	38	41	48	53	63	75	88	99	122	147
b ₂	mm	43	47	54	61	71	83	98	112	134	162
Ø c ₁ H7	mm	65	74	84	102	124	152	190	230	285	370
Ø c ₂ min H7	mm	20	20	25	30	35	40	50	60	70	90
Ø d H7	mm	10 ... 20	10 ... 25	12 ... 30	15 ... 40	20 ... 50	25 ... 60	30 ... 70	40 ... 90	50 ... 100	70 ... 130
Ø f	mm	25	30	35	45	55	70	80	105	130	160
Ø g	mm	74	84	98	118	140	172	210	257	316	407
Ø h	mm	83	92	107	127	152	189	224	277	342	432
k / Ø m rough bored for dowel	mm	M5 / 4	M5 / 5	M6 / 6	M6 / 6	M8 / 8	M8 / 8	M10 / 10	M12 / 12	M16 / 16	M16 / 20
l ₁	mm	4	4	5	6	7	8	9	11	13	14
l ₂	mm	4	5	6	8	8	10	12	15	15	18
p ₁	mm	26	27,5	32	37	42	54	60	67	85	105
p ₂	mm	31	33,5	38	45	50	62	70	80	97	120
r	mm	14	16	18	19	25	30	35	42	50	62
s	mm	36	39	45	50	60	70	83	94	116	141
w / x	mm	22 / 54	22 / 53	22 / 49	22 / 45	30 / 40	30 / 75	30 / 64	40 / 84	40 / 71	40 / 59
Keyway DIN 6885 - 2	-	1	1	1	1	1	2	2	2	2	2

1) up to 60% of full torque rate

2) drop to 10% of full torque rate

Electromagnetic Stationary Field Spring-Pressure Tooth Clutch

Clutch with driver plate to be attached to the free wheeling gear part.

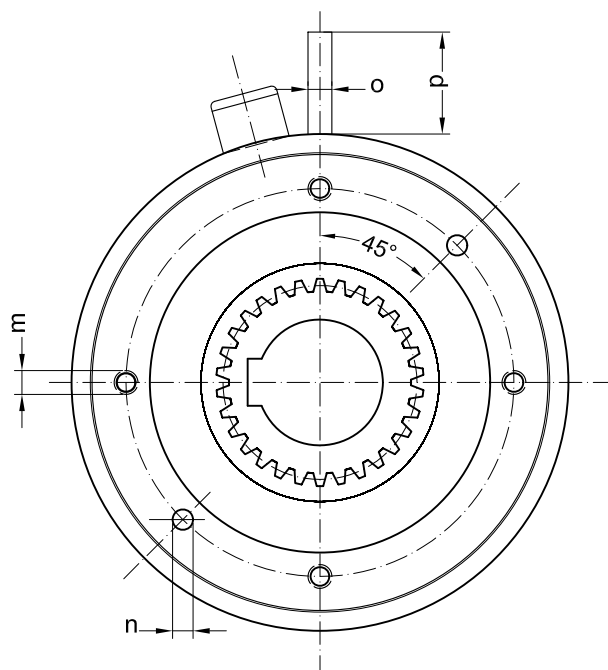
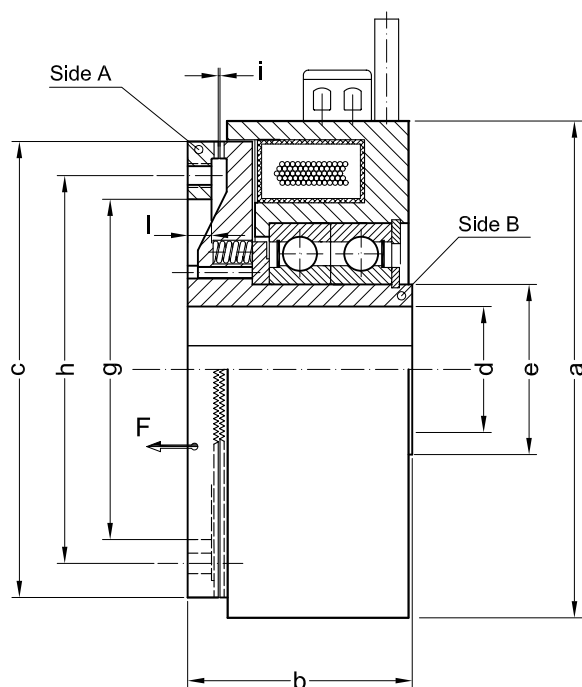
For oil and dry operation, coil voltage 24 V DC

- With point shaped backlash-free tooth profile.
- With face toothed armature plate guided on splined clutch hub.
- Version 1 - tooth angle 55° for disengagement under torque load.
- Version 2 - tooth angle 35° for higher torque transmission, if disengagement without torque load takes place.
- Applicable for horizontal and vertical mounting.

Tooth mesh is effected after switching off the clutch coil at standstill.

With the coil switched off, the clutch remains mechanically closed by the force off the pressure springs.

Advantage is given by torque transmission independent of power supply. With the coil switched on, the armature plate is kept in mechanically released position by the magnetic force and a complete disconnection of the drive system is given.



Data and Dimensions				FOZ 5	FOZ 10	FOZ 20	FOZ 40	FOZ 80	FOZ 160	FOZ 315	FOZ 630
Static torque	Version	1	Nm	32	63	125	250	500	1000	2000	4000
continuous (static) torque load		2	Nm	63	125	250	500	1000	2000	4000	8000
static torque		1	Nm	25	50	100	200	400	800	1600	3150
fluctuating (dynamic) torque load		2	Nm	50	100	200	400	800	1600	3150	6300
Thrust force F maximum at static torque		1	N	500	900	1400	2300	4000	6500	10000	17000
		2	N	300	500	900	1400	2300	4000	6500	10000
Spring pressure			N	200	330	500	880	1500	2500	4000	6500
Speed maximum clutch released			min ⁻¹	5500	4000	3500	2100	1600	1000	680	400
Coil power consumption at 20 °C			W	40	40	80	110	140	200	210	240
Inertia moment side A		10 ⁻³ kgm ²		0,3	0,65	2,0	5,5	12,5	32,5	85	275
Inertia moment side B		10 ⁻³ kgm ²		0,75	1,5	4,3	15	35	80	215	715
Mass (weight)			kg	3,0	4,5	8,0	15	30	44	88	120
Ø a			mm	106	126	159	194	234	282	350	425
b			mm	48	56	66	80	95	112	130	170
Ø c			mm	99	116	148	178	210	252	310	380
Ø d H7			mm	25	35	45	60	70	90	110	130
Ø e			mm	35	45	60	75	90	110	140	160
Ø g H7			mm	73	85	110	135	160	195	240	290
Ø h			mm	82	95	123	152	180	215	265	320
i addendum distance			mm	0,20	0,20	0,25	0,30	0,30	0,35	0,40	0,50
l			mm	6	7	9	11	13	16	18	25
m			mm	M 4	M 5	M 6	M 8	M 10	M 10	M 12	M 16
Ø n rough bored / for dowel			mm	4 / 5	5 / 6	7 / 8	9 / 10	10 / 12	10 / 12	14 / 16	16 / 20
Ø o			mm	6	6	6	6	10	10	12	16
p			mm	30	30	30	30	35	35	40	50
Number of teeth - tooth angle 55°			-	203	232	253	322	272	335	299	377
Number of teeth - tooth angle 35°			-	230	290	280	344	316	395	371	464
Keyway DIN 6885 - 2			-	1	1	1	2	2	2	2	2

Electromagnetic Stationary Field Tooth Clutch

Clutch with diaphragm-armature plate to be fastened on the free wheeling gear part.

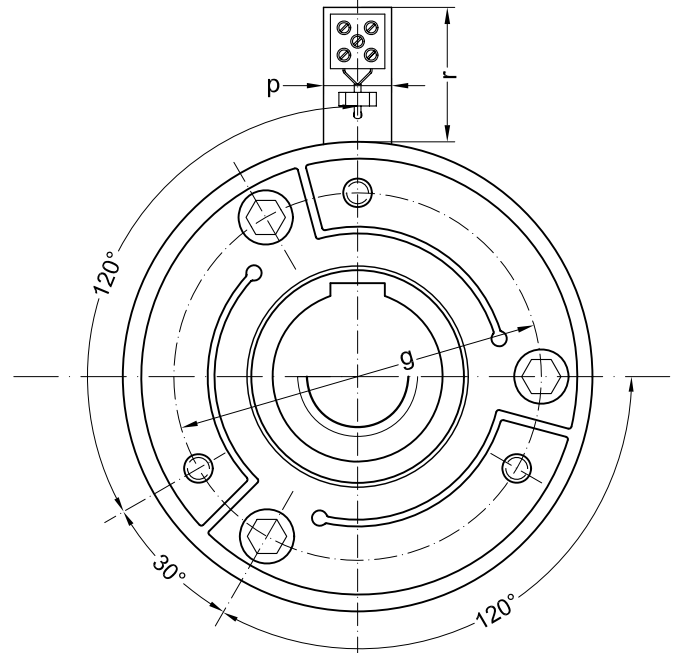
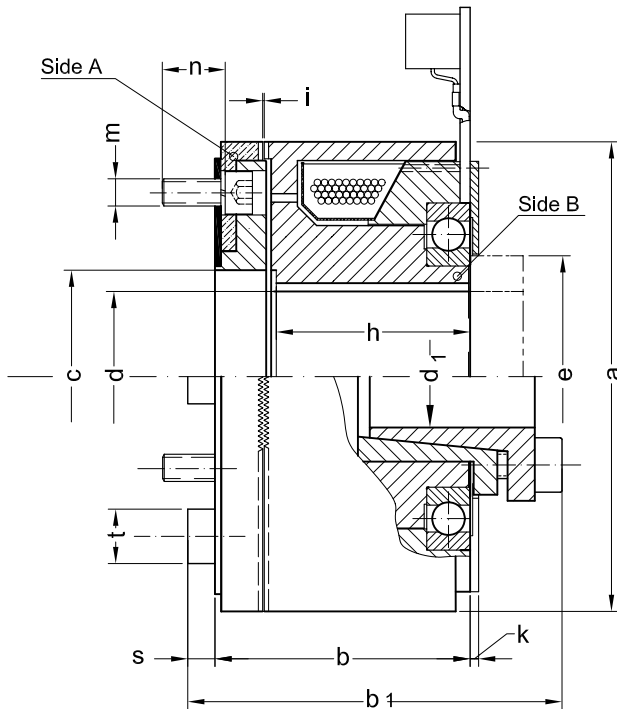
For oil and dry operation, coil voltage 24 V DC

- ◆ With point shaped, backlash-free and hardened tooth profile.
- ◆ With torsionally stiff, axially flexible spring steel diaphragm.
- ◆ Type with tooth angle 35° for high torque transmission.
- ◆ Sulted for disengagement under torque load.
- ◆ With taper lock for zero-backlash drive systems.
- ◆ Applicable for horizontal und vertical mounting.
- ◆ Executions for torque limitation, upon request.

The engagement of tooth clutches is made at standstill or under synchronous speed. Advantage is given by the transmission of high torque in relation to clutch dimension and the complete disconnection of drive transmission, permitting their possible use in high speed applications.

Versions:

- 00 with keyway, without position indicator.
- 01 with keyway, with position indicator.
- 10 with taper lock, without position indicator.
- 11 with taper lock and position indicator.



FZVAM 8 - FZVAM 250 3 screws 120° / 30° / 120°
FZVAM 500 - FZVAM 1000 4 screws (please ask for dimension sheet)

Data and Dimensions		FZVAM 8	FZVAM 16	FZVAM 32	FZVAM 63	FZVAM 125	FZVAM 250	FZVAM 500	FZVAM 1000
Static torque (keyed to the shaft)	Nm	80	160	320	630	1250	2500	5000	10000
Static torque (with taper lock)	Nm	70	120	280	520	960	1880	3300	—
Speed maximum	min ⁻¹	7000	6000	5500	4700	4000	3200	2500	1600
Coil power consumption at 20 °C	W	30	45	45	60	60	90	125	140
Coil inductivity	Vs/A	2,5	2,5	3,5	3,5	3,5	4,0	5,0	8,0
Mass moment of inertia side A	10 ⁻³ kgm ²	0,3	0,5	1,3	1,7	7,3	18,5	43,4	150
Mass moment of inertia side B	10 ⁻³ kgm ²	0,6	1,4	3,0	6,6	16,7	60	168	400
Mass (weight)	kg	1,6	2,3	3,6	6,2	10,2	20	35	63
Screw fastening torque - for diaphragm	Nm	9,5	16	32	77	135	330	330	650
Ø a	mm	84	97	113	131	155	194	241	300
b	mm	42	49,5	59	69,5	83,5	103,5	124	142
b 1	mm	72,5	77,5	87,5	97,5	118,5	136,5	165	—
Ø c	mm	36	48	56	60	74	108	120	150
Ø d H7	mm	25	35	45	50	60	75	90	110
Ø d1 for taper lock	mm	20	25	35	40	45	65	70	—
Ø e	mm	40	50	62	69	80	100	124	163
g	mm	60	73	86	100	125	155	190	250
h	mm	30	38,5	43,5	52	62,5	80	97	112
i addenda distance	mm	0,30	0,35	0,35	0,40	0,45	0,45	0,45	0,50
k	mm	3	3	3	4	5	6	8	3
m	mm	M6	M6	M8	M10	M12	M16	M16	M20
n	mm	10	13	14	16	19	22	22	27
p	mm	22	22	22	22	22	30	30	30
r	mm	64	64	63	57	55	93	85	75
s	mm	6	6	7	9	10	14	14	15
Ø t	mm	10	10	13	16	18	24	24	24
Keyway DIN 6885 - 2	-	1	1	1	2	2	2	2	2
Number of teeth	-	196	260	224	260	245	305	296	368

Hydraulic Operated Multi Disc Clutch

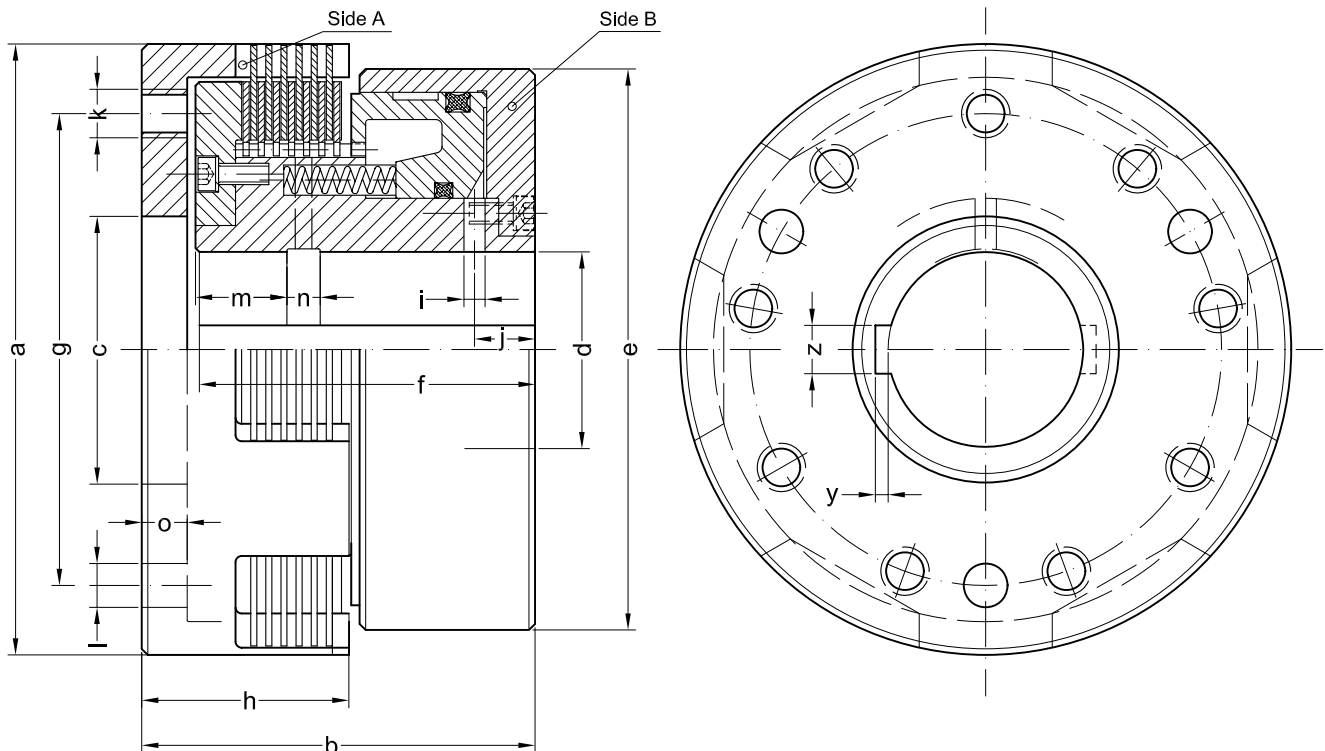
Clutch for installation into gears, with hydraulic oil supply through the shaft.

For oil operation

- For working pressure 24 bar, maximal system pressure 40 bar.
- Possible high duty operation due to wear resistant steel/ steel discs.
- Compensation of disc wear by self-adjustment.
- Clutch hub bored for internal supply of cooling oil through the shaft.
- Special designs type HLWS on request.
- Suited for horizontal mounting.

If there is a hydraulic oil supply at disposal, the use of hydraulically operated clutches is of advantage, because of their high torque and frequencies of operation, short engagement times and sturdy design. Therefore the clutch is used for drive engagement of machines and units with high torque loads, such as construction machines and conveying plants, etc.

Clutches for higher torque and special application requirements = HLWS



Data and Dimensions		HLW 16	HLW 20	HLW 32	HLW 50	HLW 80	HLW 125	HLW 200	HLW 320	HLW 500	HLW 800
Static torque - 24 bar	Nm	220	280	450	700	1100	1750	2800	4500	7000	11000
Dynamic torque - 24 bar	Nm	160	200	320	500	800	1250	2000	3200	5000	8000
Idling torque	Nm	0,1	0,2	0,3	0,4	0,5	0,6	1,1	1,6	3,2	4,5
Friction work per engagement	kJ	7,0	12	18	32	45	56	120	215	360	530
Thermal capacity	W	135	200	260	400	450	500	900	1500	2000	2800
Speed maximum	min ⁻¹	4000	4000	4000	3200	3000	3000	3000	2500	2500	2000
Stroke volume - discs new / worn	cm ³	8 / 15	9 / 17	13 / 25	17 / 31	31 / 56	34 / 62	50 / 90	70 / 125	90 / 150	145 / 250
Mass moment of inertia side A	10 ⁻³ kgm ²	0,76	2,34	3,46	6,72	12,24	21,06	51,24	139,8	348,6	778,6
Mass moment of inertia side B	10 ⁻³ kgm ²	1,68	3,94	5,59	10,42	20,46	29,61	66,48	176,6	404,4	1066
Mass (weight)	kg	2,3	4,0	4,7	6,8	10	13	19	38	60	110
Ø a	mm	90	114	125	140	155	175	210	260	315	370
b	mm	57	70	70	80	93	98	110	135	150	190
Ø c H7	mm	40	50	50	60	65	75	90	110	125	150
Ø d H7 Standard	mm	25	35	35	45	50	60	65	80	100	115
Ø e	mm	90	100	110	125	146	155	180	210	250	315
f	mm	49	60	60	70	80	85	95	118	128	165
g	mm	70	90	100	110	120	135	170	210	265	310
h	mm	30	34	34	41	50	53	64	75	82	100
Ø i / j	mm	4 / 13	4,5 / 12	4,5 / 12	5,5 / 12	6 / 14,5	7 / 15	7 / 18	8 / 20	10 / 27	12 / 32
k number = 9	mm	M 6	M 8	M 8	M 10	M 10	M 12	M 16	M 16	M 16	M 20
Ø l prebored for 3 dowels	mm	6	8	8	10	10	14	16	16	16	20
m	mm	-	12	12	14	24	24	29	37	40	41
n	mm	-	10	10	12	12	12	12	12	15	18
o	mm	7	9	9	9	12	12	14	15	20	23
keyway(s) DIN 6885-1	number	-	1	1	1	2	2	2	2	2	2
	z JS9 x y ¹⁾	mm	8 x 3,3	10 x 3,3	10 x 3,3	14 x 3,8	14 x 3,8	18 x 4,4	18 x 4,4	22 x 5,4	28 x 6,4

1) for d standard

Electromagnetic Slip Ring Multi-Disc Clutch

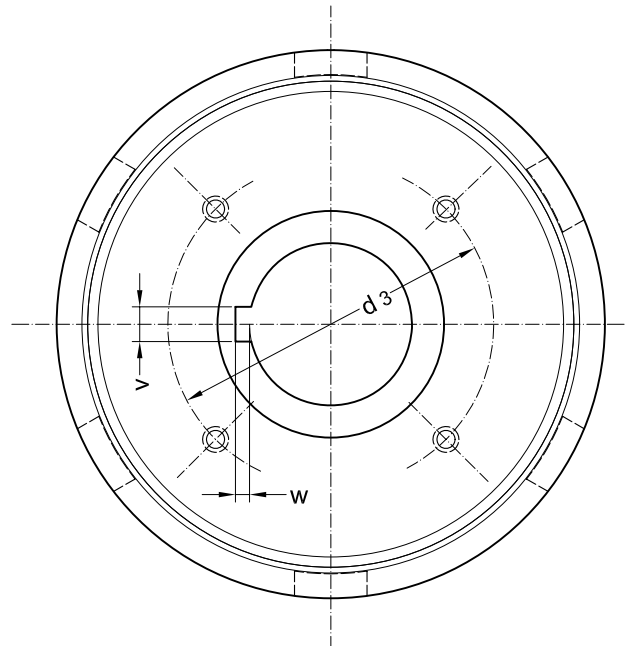
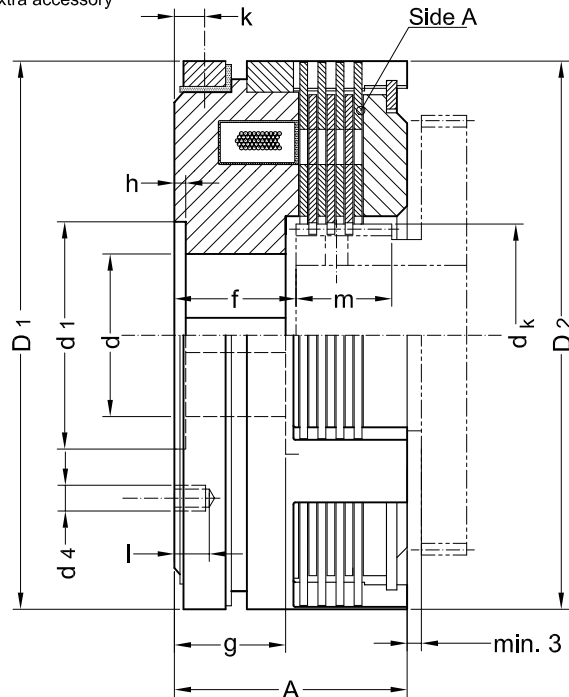
SHEET 1

Clutch for shaft mounting, with recess on the front side.

For oil operation, coil voltage 24 V DC

- ◆ Version without inner driver, with hardened steel discs.
- ◆ Torque transmission between shaft and inner driver *.
- ◆ Further technical particulars on request.
- ◆ For horizontal mounting.

* extra accessory



Data and Dimensions		LCW 0,5S	LCW 1,5S	LCW 3S1	LCW 3S2	LCW 5,5S1	LCW 5,5S2	LCW 12S1	LCW 12S2	LCW 12S3	LCW 30S1
comparable to ZF Type:		EK 0,5	EK 1	EK 2	EK 2 d	EK 5	EK 5 d	EK 10	EK 10 d	EK 10 e	EK 20
Static torque	Nm	7	20	36	50	100	100	200	200	200	410
Dynamic torque	Nm	5	10	20	20	55	55	110	100	100	230
Speed at 10 m per sec. 1)	min ⁻¹	2700	2300	2050	2200	1750	1650	1500	1400	1350	1250
Engagement time	ms	120	170	220	220	280	280	360	360	360	450
Disengagement time	ms	40	50	70	70	100	100	110	110	110	200
Coil power consumption at 20 °C	W	10	15	17	18	20	22	29	29	27	37
Mass moment of inertia side A	10 ⁻³ kgm ²	0,25	0,58	0,99	1,2	2,4	3,1	6,0	7,3	8,7	13,1
Mass (weight) ~	kg	0,46	0,77	1,03	1,21	2,11	2,18	4,34	3,75	3,90	5,80
A	mm	23	29,5	32	36	47,5	45,5	55	52	52	54
Ø D 1	mm	70	82	92	95	106	114	126	134	140	152
Ø D 2	mm	70	80	90	93	106	114	126	134	140	152
Ø d H7	mm	15	20	22	28	22	35	25	40	50	40
Ø d 1	mm	27	36	37	42	38	52	44	60	70	60
Ø d 3	mm	32	41	45	50	50	60	60	72	80	75
d 4	mm	M4	M4	M6	M6	M6	M6	M8	M8	M8	M10
f	mm	16	18,5	20	23	28	26	32	29	29	28
g	mm	14	16,5	18	20	25	23	29	26	26	25
h	mm	1,5	1,5	1,5	1,5	2	2	2	2	2	2,5
k	mm	3,5	5,5	5,5	5,5	6	6	7	7	7	7
l	mm	6	10	10	10	12	12	15	15	15	15
m min	mm	7	9,5	10,5	12	18,5	18,5	21,5	21,5	21,5	23,5
v x w DIN 6885 - 2	mm	5 x 1,3	6 x 1,7	6 x 1,7	8 x 1,7	6 x 1,7	10 x 2,1	8 x 1,7	12 x 2,1	14 x 2,6	12 x 2,1
Inner driver gear acc. DIN 867 α = 20°	Number of teeth	-	15	20	22	27	19	27	18	28	31
	Modul	mm	1,5	1,5	1,5	1,5	1,75	1,75	2	2	2,5
	Tooth width of	mm	7,28	11,39	11,43	16,38	13,76	19,12	15,83	22,01	19,75
	Tooth width to	mm	7,23	11,34	11,38	16,33	13,71	19,07	15,78	21,96	19,69
	over teeth	-	2	3	3	4	3	4	3	4	3
	dk-0,2 addendum - Ø	mm	24,25	32,2	35,2	43,5	35,8	50,5	40,0	60,5	58,0

1) Higher speeds when fitting a second brush.

Electromagnetic Slip Ring Multi-Disc Clutch

SHEET 2

Clutch for shaft mounting, with recess on the front side.

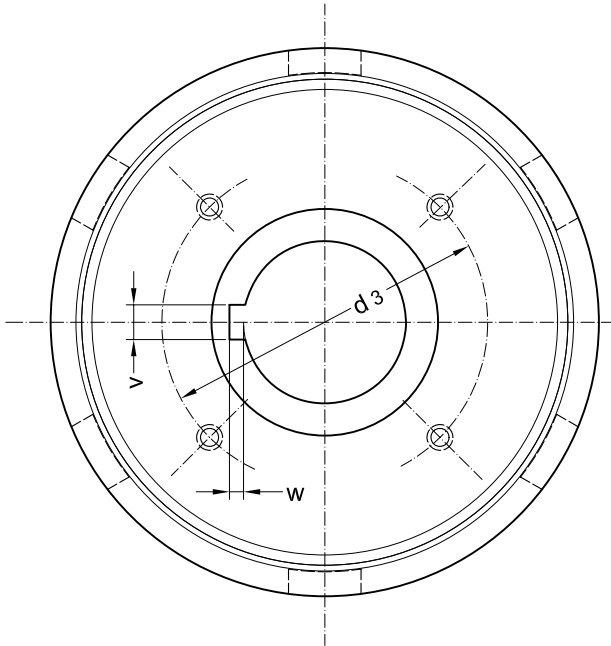
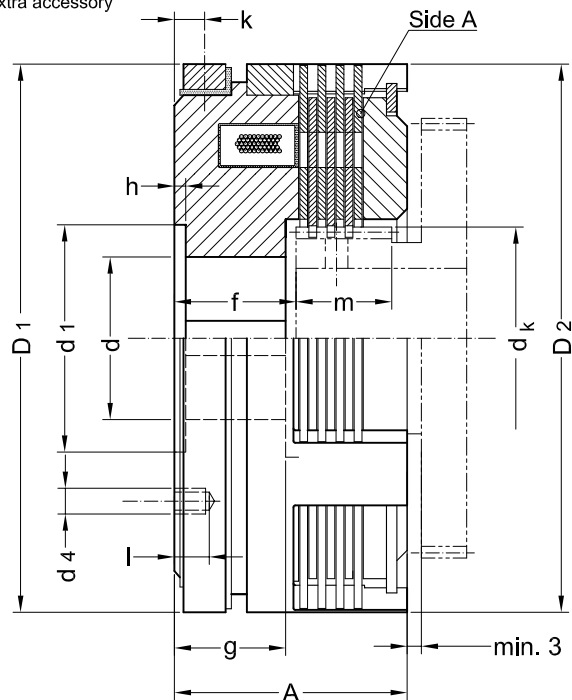
For oil operation, coil voltage 24 V DC

- ◆ Version without inner driver, with hardened steel discs.
- ◆ Torque transmission between shaft and inner driver *.
- ◆ Further technical particulars on request.
- ◆ For horizontal mounting.

* extra accessory

Heid multi disc clutches LCW-S are comparable regarding technical data and dimensions with multi disc clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches LCW-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		LCW 30S2	LCW 30S3	LCW 50S1	LCW 50S2	LCW 50S3	LCW 80S	LCW 100S	LCW 130S	LCW 200S	LCW 320S
comparable to ZF Type:		EK 20 d	EK 20 e	EK 40	EK 40 d	EK 40 e	EK 60 d	EK 80	EK 120 e	EK 160	EK 320
Static torque	Nm	400	360	900	800	800	1100	1800	2400	3600	5800
Dynamic torque	Nm	200	200	500	400	450	600	1000	1300	2000	3200
Speed at 10 m per sec. 1)	min ⁻¹	1150	1150	950	950	950	900	750	700	600	550
Engagement time	ms	450	450	600	600	600	750	900	1100	1300	1700
Disengagement time	ms	200	200	250	250	250	300	380	400	540	750
Coil power consumption at 20 °C	W	41	38	57	59	77	79	88	130	130	170
Mass moment of inertia side A	10 ⁻³ kgm ²	18,7	18,1	40,0	41,8	40,9	62,8	104,4	159,0	337,8	653,5
Mass (weight) ~	kg	5,8	5,7	10,4	9,9	9,0	12,2	16,3	19,7	37	64
A	mm	58,5	58,5	67	68,5	67,5	73,5	77	80	104	114
Ø D 1	mm	166	166	195	195	195	210	240	258	295	336
Ø D 2	mm	166	166	195	195	195	210	240	258	295	336
Ø d H7	mm	55	55	55	65	80	70	75	85	85	100
Ø d 1 K6	mm	27	36	37	42	38	52	44	60	70	60
Ø d 3	mm	92	95	105	110	122	120	140	150	160	190
d 4	mm	M10	M10	M10	M10	M8	M10	M12	M12	M16	M16
f	mm	33	30	34	36,5	35	38	40	38	51	53
g	mm	14	16,5	18	20	25	23	29	26	26	25
h	mm	2,5	2,5	3	3	3	3	3	3	3	3
k	mm	7	7	7	7	7	8,5	8,5	8,5	8,5	8,5
l	mm	15	15	18	18	15	20	20	20	25	25
m min	mm	23,5	27,5	31	30	31,5	32,5	33	38	48	56
v x w DIN 6885 - 2	mm	16 x 2,6	16 x 2,6	16 x 2,6	18 x 3,1	22 x 4,1	20 x 4,1	20 x 4,1	22 x 4,1	22 x 4,1	28 x 5,1
Inner driver gear acc. DIN 867 α = 20°	Number of teeth	-	27	33	25	33	34	36	42	54	37
	Modul	mm	2,5	2,5	3	2,5	3	2,5	2,5	2,5	3,5
	Tooth width of	mm	27,51	27,72	23,07	27,72	32,25	34,86	34,48	49,72	42,29
	Tooth width to	mm	27,45	27,66	23,01	27,66	32,15	34,80	34,42	49,65	42,21
	over teeth	-	4	4	3	4	4	5	5	7	5
dk-0,2 addendum - Ø	mm	73,2	88,2	78,0	88,2	108,0	94,8	110,0	140,0	118,0	138,0

1) Higher speeds when fitting a second brush.

Electromagnetic Multi-Disc Clutch

Clutch with outer driver for torque transmission between shaft and free wheeling gear part.

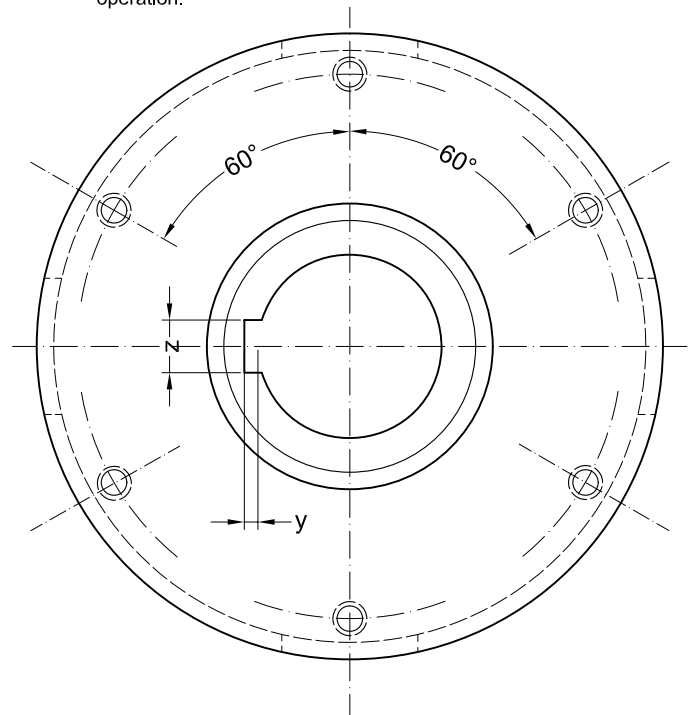
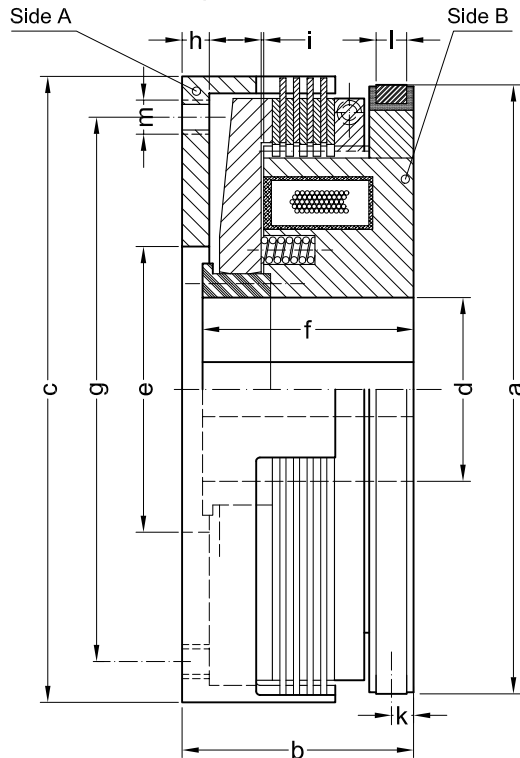
For wet and dry operation, coil voltage 24 V DC

- ◆ Clutch with adjustable gap.
- ◆ Suited for speed and feed engagements.
- ◆ High energy absorption by wear resistant steel- / sinter discs.
- ◆ Effective heat dissipation by peripheral friction faces.
- ◆ For horizontal mounting.

The clutch is suited for external gear application, but also used, with oil lubrication, in gears.

The magnetic flux does not circulate through the disc stack, this makes it possible to use non magnetic friction material for high power and torque load at the lowest wear rate.

Current intake through slip ring and return through earth connection (-).
Extras: telescopic plunger brush gear with brushes for wet or dry operation.



Data and Dimenslons			LMS 1,6	LMS 2,5	LMS 4	LMS 6,3	LMS 10	LMS 16	LMS 25	LMS 40	LMS 63	LMS 100	LMS 160	LMS 250	
wet operation	Static torque		Nm	25	40	63	100	160	250	400	630	1000	1600	2500	4000
	Dynamic torque		Nm	16	25	40	63	100	160	250	400	630	1000	1600	2500
	Idling torque		Nm	0,1	0,2	0,3	0,35	0,45	0,6	0,8	1,1	2,2	3,5	5	10
	Friction work per engagement		kJ	10	15	20	25	35	40	70	90	150	250	300	500
	Thermal capacity		W	90	120	130	170	250	330	450	550	770	1000	1250	1600
dry operation	Static torque		Nm	40	80	120	180	300	500	800	1200	1800	3000	5000	8000
	Dynamic torque		Nm	25	50	80	120	200	320	500	800	1200	2000	3200	5000
	Idling torque		Nm	0,05	0,08	0,12	0,16	0,25	0,4	0,5	0,6	1	1,4	1,6	2,4
	Friction work per engagement		kJ	2,5	4	5	6	8	12	18	25	35	60	80	110
Thermal capacity		W	30	45	50	70	90	110	150	200	300	400	550	700	
Speed maximum			min ⁻¹	3800	3500	3500	3200	3000	2600	2300	2100	1900	1700	1500	1300
Coil power consumption at 20° C			W	25	28	32	34	45	54	63	75	85	110	140	155
Mass moment of inertia side A		10 ⁻³ kgm ²	0,7	1,3	1,4	2,6	4,5	8	15	22	42	80	160	380	
Mass moment of inertia side B		10 ⁻³ kgm ²	1,5	2,6	3	6,5	10,5	17	32	60	115	250	500	1000	
Mass (weight)		kg	2	2,6	2,9	4	5,5	7,5	11	14,5	21	33	45	75	
Ø a		mm	100	110	120	132	145	160	180	200	230	255	295	340	
b		mm	45	48	52	55	58	62	68	76	86	100	115	132	
Ø c		mm	97	112	115	133	147	158	180	198	235	265	290	355	
Ø d max H7		mm	25	30	32	35	42	48	55	60	70	80	90	120	
Ø e min H7		mm	50	50	50	60	70	80	90	100	100	110	140	180	
f		mm	42	45	48	50	53	57	63	70	80	92	107	122	
Ø g		mm	85	90	100	105	120	135	155	170	200	235	260	305	
h		mm	5	5	6	7	7	7	8	9	10	12	14	15	
i air gap (clutch engaged)		mm	0,3	0,3	0,3	0,3	0,35	0,4	0,45	0,5	0,6	0,7	0,8	0,9	
k		mm	5,5	5,5	5,5	5,5	5,5	5,5	6	6	6	8,5	8,5	8,5	
l		mm	8	8	8	8	8	8	8	8	8	10	10	10	
m		mm	M6	M6	M6	M8	M8	M8	M 10	M10	M12	M12	M16	M16	
Keyway z x y at d max		mm	8 x 3,3	10 x 3,3	10 x 3,3	10 x 3,3	12 x 3,3	14 x 3,8	16 x 4,3	18 x 4,4	29 x 4,9	22 x 5,4	25 x 5,4	32 x 7,4	

Electromagnetic Single-Face Clutch

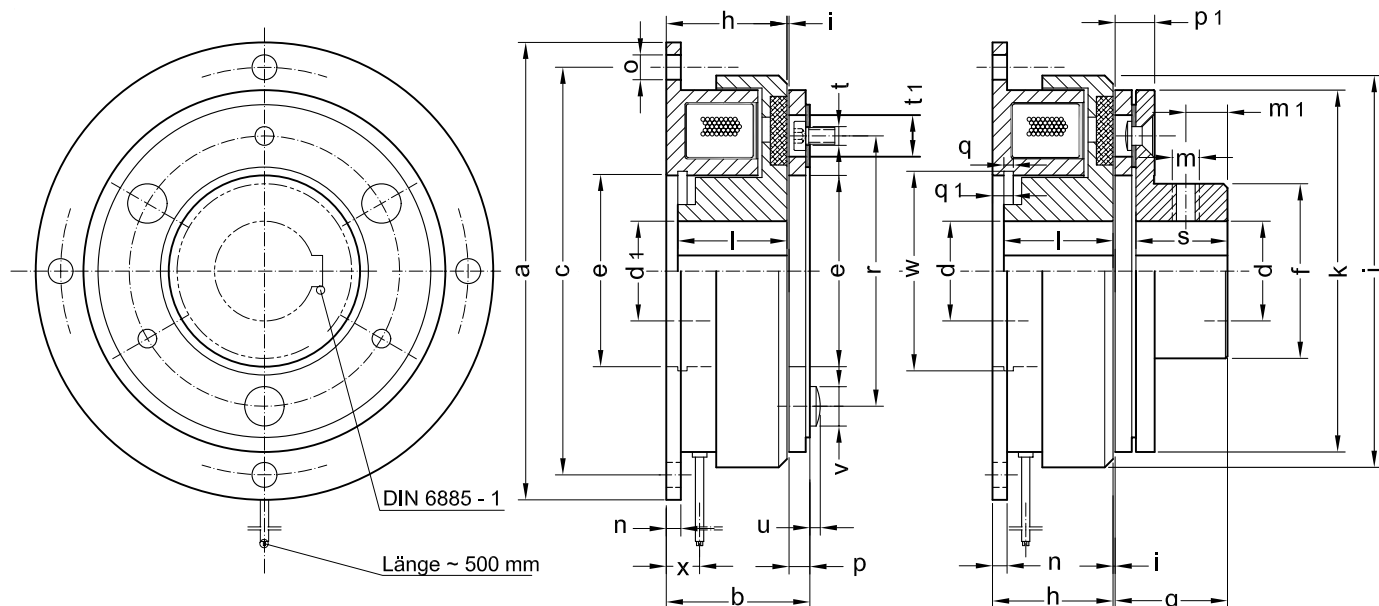
Flange mounted clutch with diaphragm plate to be connected to a shaft mounted driver.

For dry operation, coil voltage 24 V DC

- ◆ Friction locked torque connection without backlash.
- ◆ With diaphragm made of hardened spring steel.
- ◆ Self-acting adjustment by magnetic flux permeated friction faces.
- ◆ No idling torque because of complete disconnection when disengaged.
- ◆ Applicable for horizontal and vertical mounting.

When current is applied the armature plate is pulled against the magnet body resulting in a friction locked torque connection. When the current is switched off, the armature plate will be completely separated from the magnet body by the elastic force of the diaphragm.

Executions: MC without driver and diaphragm fastening screws.
MC with driver as shown in the dimension drawing.



Data and Dimensions		MC 0,3	MC 0,7	MC 1,5	MC 3	MC 6,5	MC 13	MC 25	MC 50
Dynamic brake torque ¹⁾	Nm	3	7	15	30	65	130	250	500
Friction work per engagement	kJ	1	1,5	3	5	7	12	20	30
Thermal capacity	W	60	80	110	160	230	320	450	650
Speed maximum	min ⁻¹	6500	6000	5000	4500	4000	3000	2500	2000
Switch-on time - to 90 % nominal torque	ms	35	50	75	85	100	160	200	300
Switch-off time - to 10 % nominal torque	ms	10	15	20	40	70	100	130	200
Mass moment of inertia - rotor	10 ⁻³ kgm ²	0,0375	0,0828	0,238	0,735	2,19	6,74	20	45
Mass moment of Inertia - armature plate	10 ⁻³ kgm ²	0,01	0,045	0,12	0,5	1,3	4,9	14	36
Mass moment of inertia - armature + driver	10 ⁻³ kgm ²	0,015	0,063	0,17	0,70	1,8	6,5	19	48
Coil power consumption at 20° C	W	10	15	20	28	35	50	68	85
Mass (weight) inclusive driver	kg	0,4	0,5	1	1,8	3,1	6,3	11	20,3
Ø a h8	mm	65	80	100	125	150	190	230	290
b	mm	31,3	28	31	36,2	40,7	46,7	55,55	64,4
Ø c	mm	58	72	90	112	137	175	215	270
Ø d max. H7 / d 1 max. H7	mm	15 / 15	18 / 20	22 / 25	30 / 30	35 / 35	45 / 50	60 / 65	70 / 80
Ø e H8	mm	26	35	42	52	62	80	100	125
Ø f	mm	24	32	38	48	58	73	92	112
g	mm	15	18,8	24,3	31	36,9	46,9	59,15	68
h	mm	28,1	24	26,5	30	33,5	37,5	44	51
i airgap	mm	0,2	0,2	0,2	0,2	0,3	0,3	0,4	0,4
Ø j / Ø k	mm	54 / 50	67 / 53	85 / 80	106 / 100	133 / 125	169 / 160	212,5 / 200	266 / 250
l	mm	26,1	22	24	27	30	34	40	47
m / m 1	mm	1 x M5 / 5	1 x M6 / 6	1 x M6 / 8	1 x M8 / 10	2 x M10 / 12	2 x M12 / 15	2 x M12 / 19	2 x M12 / 22
n	mm	2	3	3	4	4	5	5	6
Ø o	mm	3,4	4,5	5,5	6,6	6,6	9	9	11
p / p 1	mm	3 / 6	3,8 / 7,3	4,3 / 8,3	6 / 11	6,9 / 12,9	8,9 / 15,9	11,15 / 20,2	13 / 14
q 1	mm	3,2	3,5	4,25	5	5,5	6	7	8
Ø r	mm	38	50	60	76	95	120	158	210
s	mm	12	15	20	25	30	38	48	55
Ø t / Ø t 1	mm	3 x 3,1 / 6,5	3 x 4,1 / 10	3 x 4,1 / 11	3 x 5,1 / 11,5	3 x 6,1 / 15	3 x 8,1 / 21	3 x 10,1 / 25	4 x 12,1 / 28
Ø v / u	mm	5,5 / 1,5	8 / 2	8 / 2	10 / 2,5	11,5 / 3	14,5 / 4	17,5 / 4,5	20,5 / 5
Ø w x q	mm	27 x 1,3	36 x 1,6	43,5 x 1,85	53,8 x 2,15	63,8 x 2,15	82,1 x 2,65	102,1 x 3,15	127,4 x 4,15
x	mm	7,5	6	7	8	9	11	12	15

1) Static brake torque ~ dynamic brake torque

Electromagnetic Slip Ring Tooth Clutch

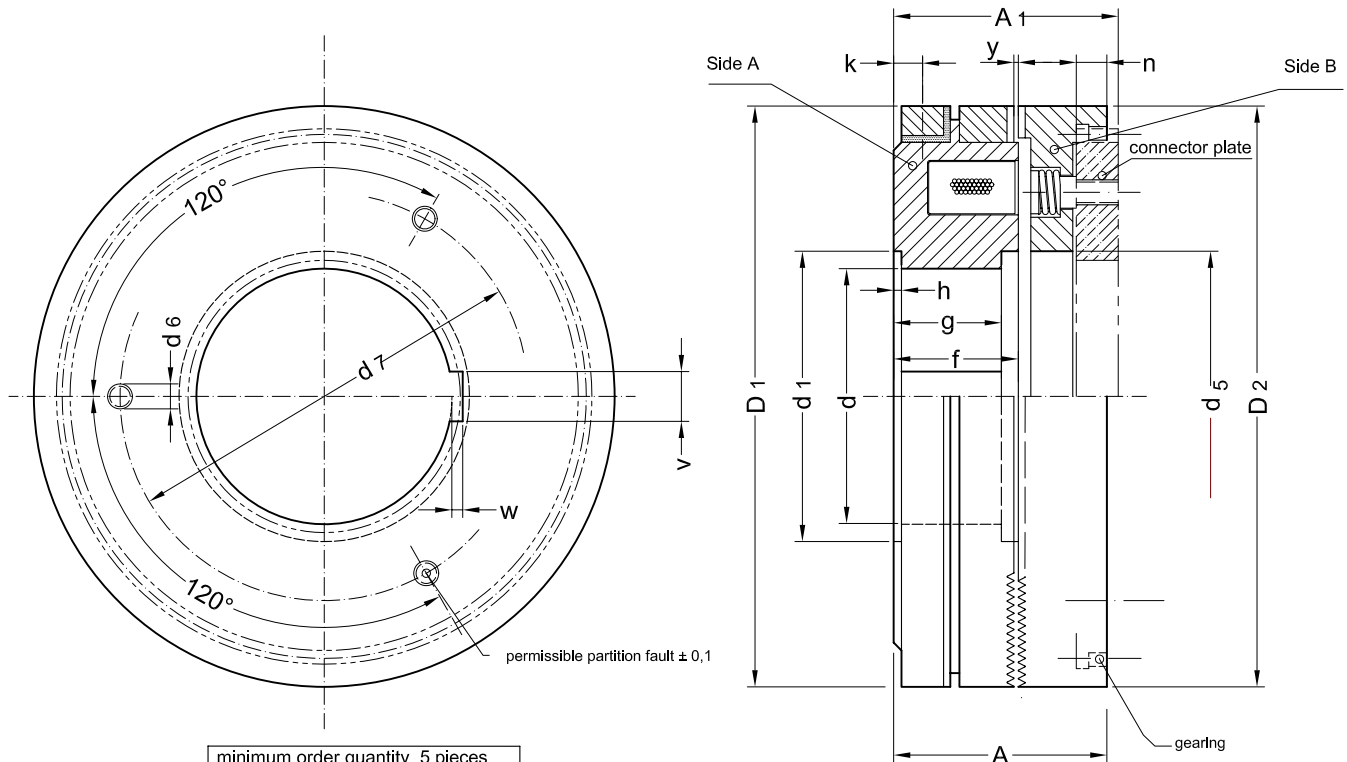
Basic construction without additional hub.

For oil and dry operation, coil voltage 24 V DC

- With point shaped backlash-free tooth profile.
- With armature plate guided on toothed connector plate.
- Suited for disengagement under torque load.
- Extra accessory: Connector plate as shown per drawing.
- Vertical mounting only when ordered with application guidelines.

Heid tooth clutches type MZZ-S are comparable regarding technical data and dimensions with tooth clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches MZZ-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		MZZ 2S	MZZ 4S	MZZ 10S	MZZ 20S	MZZ 35S	MZZ 60S	MZZ 60S	MZZ 120S	MZZ 120S	MZZ 220S	MZZ 300S	MZZ 400S	MZZ 600S
comparable to ZF Type:		EK 0,25ZS	EK 0,5 ZS	EK 1 ZS	EK 2 dZS	EK 5 dZS	EK 10dZS	EK 10eZS	EK 20dZS	EK 20eZS	EK 40dZS	EK 60dZS	EK 80 ZS	EK 120eZS
Static torque	Nm	20	40	100	200	350	600	600	1200	1200	2200	3000	4000	6000
Speed at 10 m per sec. 1)	min ⁻¹	3150	2700	2300	2200	1650	1400	1350	1150	1150	950	900	750	700
Engagement time	ms	15	20	22	25	30	40	40	65	65	75	80	80	90
Disengagement time	ms	55	80	80	90	110	165	165	275	275	440	550	770	1100
Coil power consumption at 20 °C	W	10	12	20	25	45	55	55	70	65	75	90	100	140
Mass moment of inertia side A	10 ⁻³ kgm ²	0,16	0,31	0,80	1,38	3,45	6,75	8,54	19,25	16,75	41,0	55,0	98,5	154,8
Mass moment of inertia side B	10 ⁻³ kgm ²	0,06	0,10	0,23	0,55	1,35	3,38	4,08	9,50	9,05	23,5	35,2	60,5	78,5
Mass (weight) ~	kg	0,32	0,48	0,86	1,18	1,93	3,1	3,3	5,95	5,2	9,45	11,5	17,3	20
A	mm	25	27,5	37	38	43	50	51	60	57	68	73	81	84
A 1	mm	30,5	32,5	40	41	46	53	54	63,5	60,5	71	75	83,5	86,5
Ø D 1 / D 2	mm	60	70	82	95	114	134	140	166	166	195	210	240	258
Ø d H 7	mm	12	15	20	28	35	40	50	45	50	65	70	75	85
Ø d 1 H 8	mm	24	27	36	42	52	60	70	80	90	90	100	110,5	123,0
Ø d 5 + 0,2	mm	23	26	35	45	53	63	70	80	89	89	100	112	133
d 6	mm	M3	M3	M4	M4	M4	M5	M5	M6	M6	M6	M6	M6	M6
Ø d 7 ± 0,1	mm	40	45	55	65	80	100	100	120	120	150	150	150	170
f	mm	15,5	17	23	23	26	29	30	35	32	38,5	38	42	46
g	mm	15,5	17	23	20	23	26	26	30	27	33,5	35	37	42
h + 0,05	mm	1,5	1,5	1,5	1,5	2	2	2	2,5	2,5	3	3	3	3
k	mm	3,5	3,5	5,5	5,5	6	7	7	7	7	7	8,5	8,5	8,5
n	mm	3,5	4	6	6	7	8	8	9,5	9,5	12	14	14,5	16,5
v x w	mm	4 x 1,1	5 x 1,3	6 x 1,7	8 x 1,7	10 x 2,1	12 x 2,1	14 x 2,6	14 x 2,6	14 x 2,6	18 x 3,1	20 x 4,1	20 x 4,1	22 x 4,1
y	mm	0,3 + 0,2	0,3 + 0,2	0,3 + 0,2	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3
Gearing DIN 5480 pressure angle α = 30°	Numb. of teeth	-	26	31	36	42	51	38	48	48	34	36	42	46
	modul	mm	2	2	2	2	2	3	3	3	5	5	5	5

1) Higher speeds when fitting a second brush.

Type				KB 14/4		KB 16/6 ¹⁾		KB 18/6 ¹⁾		Type			DSB 5		DSB 6		DSB 8		
Brushes BN wet- TR dry operation				BN4	TR4	BN6	TR6	BN6	TR6	Carbon brushes			dry operation						
Max. current				A	3	2	6	4	6	4	Max. current		A	25	40		64		
Max. speed				m/s	20	40	20	40	20	40	Max. speed		m/s	20	30		30		
Contact force				N	20	2,5	20	3,5	20	3,5	Contact force		N	2	2		2,5		
Ø a				mm	M14 x 1,5		M16 x 1,5		M18 x 1,5		Ø c		mm	9	9		9		
b				mm	15		20		19		e		mm	35	40		50		
d				mm	4		6		6		f		mm	5	6,3		8		
l				mm	54		65		65		g		mm	9	10		12		
m				-	M4		M5		M5		n		-	M4		M4		M6	
s				mm	17		19		22		r		mm	12,5	16		20		
										t		mm	10	12,5		16			
										D		mm	100 200	100 200 300		200 300 400 500			
										x bei Ø D		mm	20 17,5	25 22,5 21		31 29 28 27			
1) Tubular brush holders with longer brush guide tube and the appropriate brushes available on request.																			

LIST OF DATA SHEETS

HEID - TYPES

replacing

ZF - TYPES

<u>LCW-S</u> replacement EK... EK...d EK...e	Electromagnetic Slip Ring Multi-Disc Clutch Clutch for shaft mounting, with recess on the front side
<u>LKC-S</u> replacement EKR... EKR...A	Electromagnetic Stationary Field Multi-Disc Clutch Basic construction with thoroughgoing clutch hub
<u>LCBW-S</u> replacement EK...B EK...dB EK...eB	Electromagnetic Multi-Disc Brake Brake with magnet body front face fastened to the housing
<u>MZZ-S</u> replacement EK...ZS EK...dZS EK...eZS	Electromagnetic Slip Ring Tooth Clutch Basic construction without additional hub
<u>FZZ-S</u> replacement EKR...ZS	Electromagnetic Stationary Field Tooth Clutch Basic construction with rigid, one-piece armature plate
<u>MZK-S</u> replacement EK...Z EK...dZ EK...eZ	Electromagnetic Slip-Ring Tooth Clutch Basic construction with rigid, one-piece armature plate
<u>FZK-S</u> replacement EKR...Z	Electromagnetic Stationary Field Tooth Clutch Basic construction with rigid, one-piece armature plate

Electromagnetic Slip Ring Multi-Disc Clutch

SHEET 1

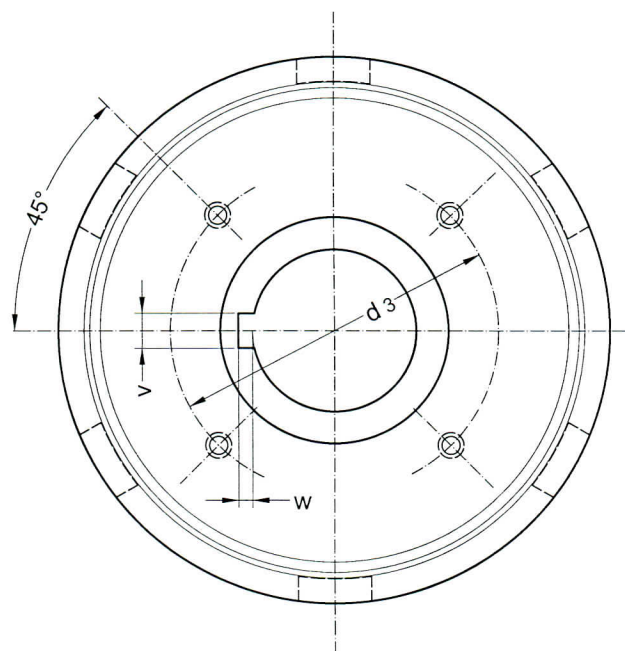
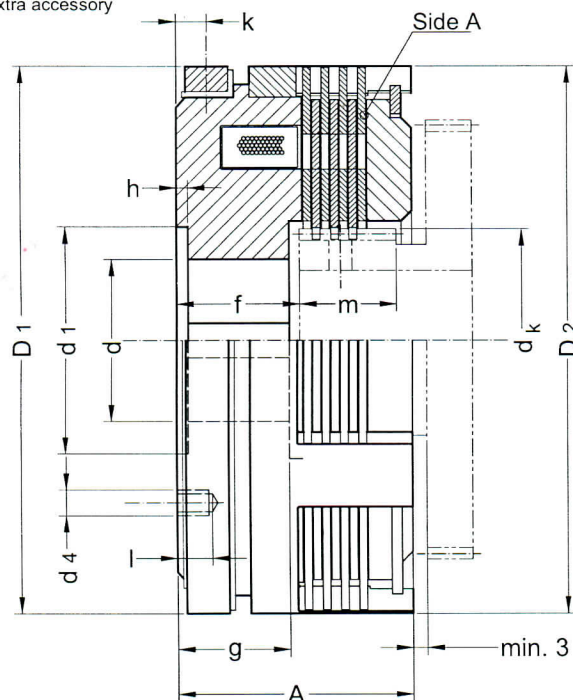
Clutch for shaft mounting, with recess on the front side.

For oil operation, coil voltage 24 V DC

- ♦ Version without inner driver, with hardened steel discs.
 - ♦ Torque transmission between shaft and inner driver *.
 - ♦ Further technical particulars on request.
 - ♦ For horizontal mounting.
- * extra accessory

Heid multi disc clutches LCW-S are comparable regarding technical data and dimensions with multi disc clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches LCW-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		LCW 0,5S	LCW 1S	LCW 2S1	LCW 2S2	LCW 5,5S1	LCW 5,5S2	LCW 11S	LCW 10S1	LCW 10S2	LCW 23S
comparable to ZF Type:		EK 0,5	EK 1	EK 2	EK 2 d	EK 5	EK 5 d	EK 10	EK 10 d	EK 10 e	EK 20
Static torque	Nm	7	20	36	50	100	100	200	200	200	410
Dynamic torque	Nm	5	10	20	20	55	55	110	100	100	230
Speed at 10 m per sec. 1)	min ⁻¹	2700	2300	2050	2200	1750	1650	1500	1400	1350	1250
Engagement time	ms	120	170	220	220	280	280	360	360	360	450
Disengagement time	ms	40	50	70	70	100	100	110	110	110	200
Coil power consumption at 20 °C	W	10	15	17	18	20	22	29	29	27	37
Mass moment of inertia side A	10 ⁻³ kgm ²	0,25	0,58	0,99	1,2	2,4	3,1	6,0	7,3	8,7	13,1
Mass (weight) ~	kg	0,46	0,77	1,03	1,21	2,11	2,18	4,34	3,75	3,90	5,80
A	mm	23	29,5	32	36	47,5	45,5	55	52	52	54
Ø D 1	mm	70	82	92	95	106	114	126	134	140	152
Ø D 2	mm	70	80	90	93	106	114	126	134	140	152
Ø d H7	mm	15	20	22	28	22	35	25	40	50	40
Ø d 1 K6	mm	27	36	37	42	38	52	44	60	70	60
Ø d 3	mm	32	41	45	50	50	60	60	72	80	75
d 4	mm	M4	M4	M4	M4	M4	M4	M4	M4	M4	M4
f	mm	16	18,5	20	23	28	26	32	29	29	28
g	mm	14	16,5	18	20	25	23	29	26	26	25
h	mm	1,5	1,5	1,5	1,5	2	2	2	2	2	2,5
k	mm	3,5	5,5	5,5	5,5	6	6	7	7	7	7
l	mm	6	10	10	10	12	12	15	15	15	15
m min	mm	7	9,5	10,5	12	18,5	18,5	21,5	21,5	21,5	23,5
v x w DIN 6885 - 2	mm	5 x 1,3	6 x 1,7	6 x 1,7	8 x 1,7	6 x 1,7	10 x 2,1	8 x 1,7	12 x 2,1	14 x 2,6	12 x 2,1
Inner driver gear acc. DIN 867 α = 20°	Number of teeth	-	15	20	22	19	27	18	28	31	21
	Modul	mm	1,5	1,5	1,5	1,75	1,75	2	2	2	2,5
	Tooth width of	mm	7,28	11,39	11,43	16,38	13,76	15,83	22,01	22,10	19,75
	Tooth width to over teeth	mm	7,23	11,34	11,38	16,33	13,71	15,78	21,96	22,05	19,69
	dk-0,2 addendum - Ø	mm	24,25	32,2	35,2	43,5	35,8	50,5	40,0	60,5	58,0

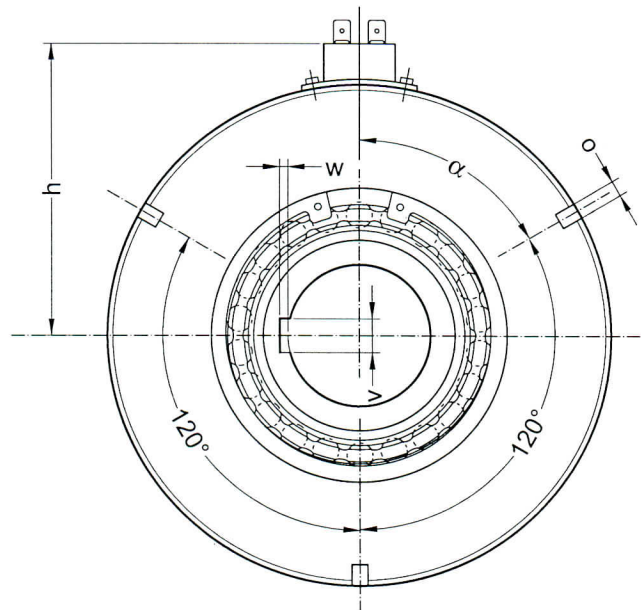
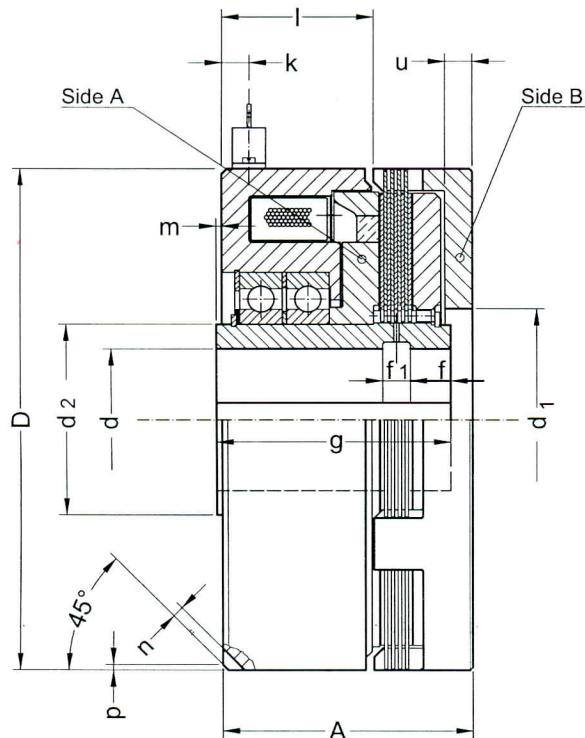
1) Higher speeds when fitting a second brush.

Basic construction with thoroughgoing clutch hub.

Heid multi disc clutches LKC-S are comparable regarding technical data and dimensions with multi disc clutches of ZF Friedrichshafen AG listed in the table.

- ◆ In version with hardened steel discs.
- ◆ With inner lubrication for high duty load conditions.
- ◆ Further technical particulars on request.
- ◆ Vertical mounting only when ordered with application guidelines.

Most of the clutches LKC-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.

[illegible]

Electromagnetic Multi-Disc Brake

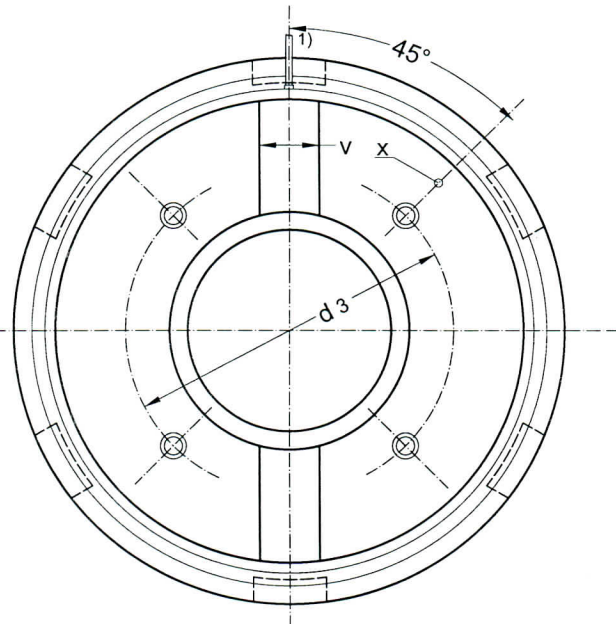
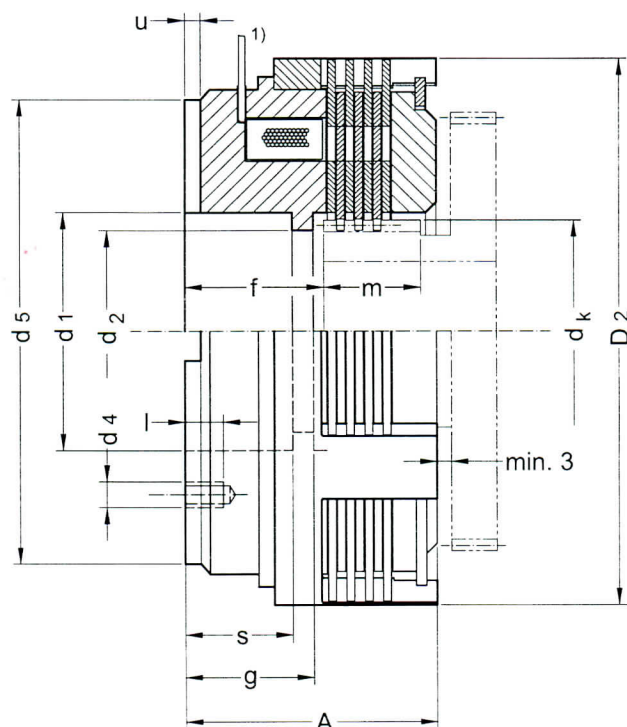
Brake with magnet body front face fastened to the housing.

For oil operation, coil voltage 24 V DC

- ◆ Version without inner driver, with hardened steel discs.
- ◆ Torque transmission over keys inserted in grooved magnet body.
- ◆ Further technical particulars on request.
- ◆ For horizontal mounting.

Heid multi disc brakes LCBW-S are comparable regarding technical data and dimensions with multi disc clutches of ZF Friedrichshafen AG listed in the table.

Most of the brakes LCBW-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		LCBW 1S	LCBW 2S	LCBW 5,5S	LCBW 10S	LCBW 20S	LCBW 21S	LCBW 40S	LCBW 45S	LCBW 60S	LCBW 100S	LCBW 130S	LCBW 200S	LCBW 320S	
		comparable to ZF Type:	EK 1 B	EK 2 dB	EK 5 dB	EK 10 eB	EK 20 dB	EK 20 eB	EK 40 dB	EK 40 eB	EK 60 dB	EK 80 B	EK 120 eB	EK 160 B	EK 320 B
Static torque	Nm	20	50	100	200	400	360	800	800	1100	1800	2400	3600	5800	
Dynamic torque	Nm	10	20	55	100	200	200	400	450	600	1000	1300	2000	3200	
Engagement time	ms	170	220	280	360	450	450	600	600	750	900	1100	1300	1700	
Disengagement time	ms	50	70	100	110	200	200	250	250	300	380	400	540	750	
Coil power consumption at 20 °C	W	15	18	22	27	41	38	59	77	79	88	130	130	170	
Mass (weight) ~	kg	0,70	1,15	1,95	3,7	6,2	6,1	9,6	9,2	12,8	17,0	21,0	38,3	66,0	
A	mm	31	38	49,5	55	58,5	64,5	69	68	77,5	80	86	108	118	
Ø D 2	mm	80	93	114	140	166	166	195	195	210	240	258	295	336	
Ø d 1 K6	mm	35	42	55	68	75	90	90	110	100	110	140	125	140	
Ø d 2	mm	31	37	45	60	65	80	80	100	90	100	130	115	130	
Ø d 3 ± 0,1	mm	50	56	75	90	100	116	116	125	130	145	170	200	275	
d 4	mm	M5	M6	M8	M8	M10	M10	M10	M10	M12	M12	M12	M16	M16	
Ø d 5	mm	67	78	95	120	142	142	170	170	184	216	234	260	304	
f	mm	20,5	25	30	32	33	36	37	36	42	43	44	55	57	
g	mm	19	22	27	29	30	33	34	34	39	40	41	52	53	
l max	mm	5	5	7	8	10	9	12	14	16	18	13	20	20	
m	mm	9,5	12	18,5	21,5	23,5	27,5	30	31	32,5	33	38	48	56	
s + 0,2	mm	17	20	22	22	25	28	28	28	31	32	33	42	43	
u	mm	2,5	2,5	5	5	6	6	6	6	6	6	8	8	8	
v H7	mm	12	12	14	16	20	20	20	20	20	25	25	25	25	
x partition fault max.	mm	0,2	0,2	0,2	0,2	0,4	0,4	0,4	0,4	0,4	0,6	0,6	0,6	0,6	
Inner driver gear acc. DIN 867 α = 20°	Number of teeth	-	20	27	27	31	27	33	33	34	36	42	54	37	37
	Modul	mm	1,5	1,5	1,75	2	2,5	2,5	2,5	3	2,5	2,5	3	3,5	
	Tooth width of	mm	11,39	16,38	19,12	22,10	27,51	27,72	27,72	32,25	34,86	34,48	49,72	42,29	49,36
	Tooth width to	mm	11,34	16,33	19,07	22,05	27,45	27,66	27,66	32,15	34,80	34,42	49,65	42,21	49,28
	over teeth	-	3	4	4	4	4	4	4	4	5	5	7	5	5
	dk -0.2 addendum - Ø	mm	32,2	43,5	50,5	66,4	73,2	88,2	88,2	108,0	94,8	110,0	140,0	118,0	138,0

1) Connection with two braids.

Electromagnetic Slip Ring Tooth Clutch

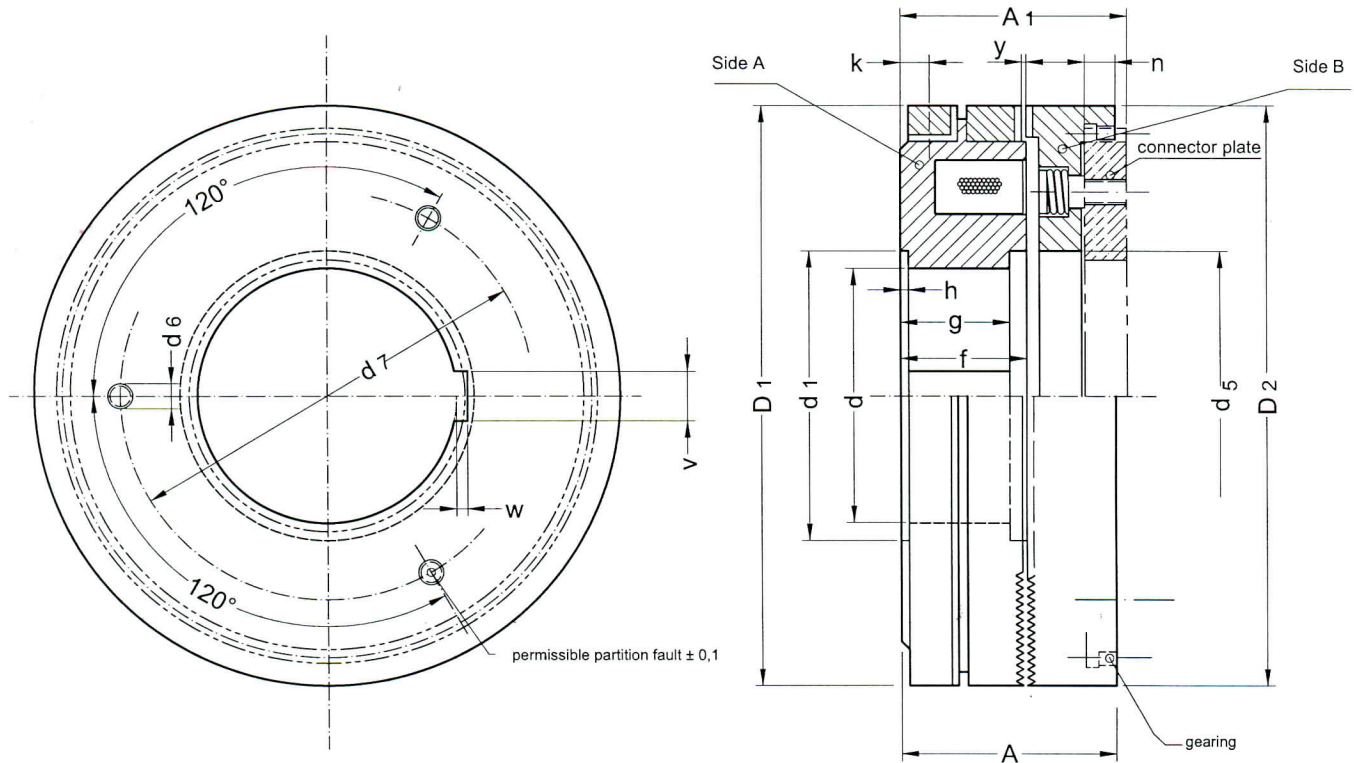
Basic construction without additional hub.

For oil and dry operation, coil voltage 24 V DC

- ◆ With point shaped backlash-free tooth profile.
- ◆ With armature plate guided on toothed connector plate.
- ◆ Suited for disengagement under torque load.
- ◆ Extra accessory: Connector plate as shown per drawing.
- ◆ Vertical mounting only when ordered with application guidelines.

Heid tooth clutches type MZZ-S are comparable regarding technical data and dimensions with tooth clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches MZZ-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		MZZ 2S	MZZ 4S	MZZ 10S	MZZ 20S	MZZ 35S	MZZ 60S	MZZ 60S	MZZ 120S	MZZ 120S	MZZ 220S	MZZ 300S	MZZ 400S	MZZ 600S
comparable to ZF Type:		EK 0,25ZS	EK 0,5 ZS	EK 1 ZS	EK 2 dZS	EK 5 dZS	EK 10dZS	EK 10eZS	EK 20dZS	EK 20eZS	EK 40dZS	EK 60dZS	EK 80 ZS	EK 120eZS
Static torque	Nm	20	40	100	200	350	600	600	1200	1200	2200	3000	4000	6000
Speed at 10 m per sec. 1)	min ⁻¹	3150	2700	2300	2200	1650	1400	1350	1150	1150	950	900	750	700
Engagement time	ms	15	20	22	25	30	40	40	65	65	75	80	80	90
Disengagement time	ms	55	80	80	90	110	165	165	275	275	440	550	770	1100
Coil power consumption at 20 °C	W	10	12	20	25	45	55	55	70	65	75	90	100	140
Mass moment of inertia side A	10 ⁻³ kgm ²	0,16	0,31	0,80	1,38	3,45	6,75	8,54	19,25	16,75	41,0	55,0	98,5	154,8
Mass moment of inertia side B	10 ⁻³ kgm ²	0,06	0,10	0,23	0,55	1,35	3,38	4,08	9,50	9,05	23,5	35,2	60,5	78,5
Mass (weight) ~	kg	0,32	0,48	0,86	1,18	1,93	3,1	3,3	5,95	5,2	9,45	11,5	17,3	20
A	mm	25	27,5	37	38	43	50	51	60	57	68	73	81	84
A 1	mm	30,5	32,5	40	41	46	53	54	63,5	60,5	71	75	83,5	86,5
Ø D 1 / D 2	mm	60	70	82	95	114	134	140	166	166	195	210	240	258
Ø d H 7	mm	12	15	20	28	35	40	50	45	50	65	70	75	85
Ø d 1 H 8	mm	24	27	36	42	52	60	70	80	90	90	100	110,5	123,0
Ø d 5 + 0,2	mm	23	26	35	45	53	63	70	80	89	89	100	112	133
d 6	mm	M3	M3	M4	M4	M4	M5	M5	M6	M6	M6	M6	M6	M6
Ø d 7 ± 0,1	mm	40	45	55	65	80	100	100	120	120	150	150	150	170
f	mm	15,5	17	23	23	26	29	30	35	32	38,5	38	42	46
g	mm	15,5	17	23	20	23	26	26	30	27	33,5	35	37	42
h + 0,05	mm	1,5	1,5	1,5	1,5	2	2	2	2,5	2,5	3	3	3	3
k	mm	3,5	3,5	5,5	5,5	6	7	7	7	7	8,5	8,5	8,5	8,5
n	mm	3,5	4	6	6	7	8	8	9,5	9,5	12	14	14,5	16,5
v x w	mm	4 x 1,1	5 x 1,3	6 x 1,7	8 x 1,7	10 x 2,1	12 x 2,1	14 x 2,6	14 x 2,6	14 x 2,6	18 x 3,1	20 x 4,1	20 x 4,1	22 x 4,1
y	mm	0,3 + 0,2	0,3 + 0,2	0,3 + 0,2	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3	0,4 + 0,3
Gearing DIN 5480 pressure angle α = 30°	Numb. of teeth	-	26	31	36	42	51	38	48	48	34	36	42	46
	modul	mm	2	2	2	2	2	3	3	3	5	5	5	5

1) Higher speeds when fitting a second brush.

Electromagnetic Stationary Field Tooth Clutch

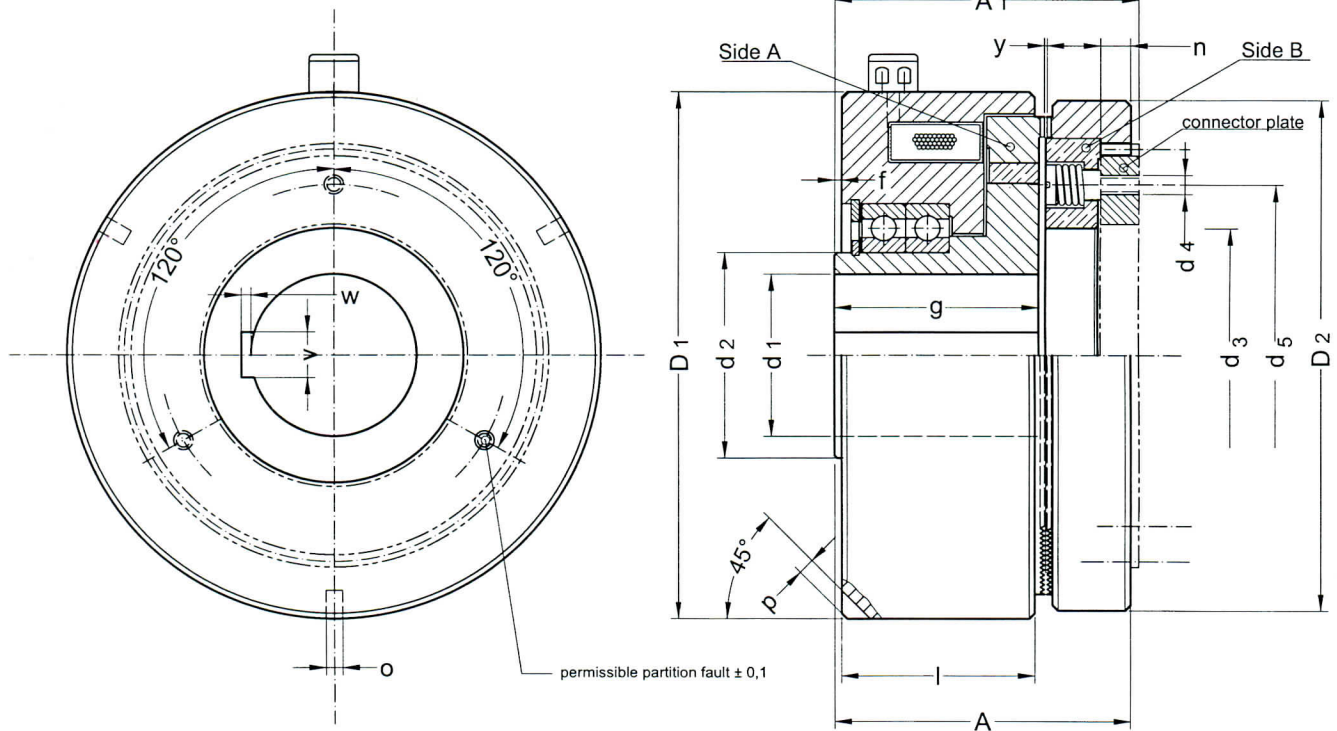
Basic construction with rigid, one-piece armature plate.

For oil and dry operation, coil voltage 24 V DC

- ◆ With point shaped backlash-free tooth profile.
- ◆ With armature plate guided on toothed connector plate.
- ◆ Suited for disengagement under torque load.
- ◆ Extra accessory: Connector plate as shown per drawing.
- ◆ Vertical mounting only when ordered with application guidelines.

Heid tooth clutches type FZZ-S are comparable regarding technical data and dimensions with tooth clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches FZZ-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		FZZ 10S	FZZ 20S	FZZ 30S	FZZ 60S	FZZ 140S	FZZ 200S	FZZ 300S	FZZ 400S	FZZ 600S
comparable to ZF Type:		EKR 1 ZS	EKR 2 ZS	EKR 5 ZS	EKR 10 ZS	EKR 20 ZS	EKR 40 ZS	EKR 60 ZS	EKR 80 ZS	EKR 120 ZS
Static torque	Nm	100	200	300	600	1400	2000	3000	4000	6000
speed at oil operation	min ⁻¹	4500	4000	3800	3800	3500	3500	3000	3000	2500
speed at dry operation	min ⁻¹	2200	2000	2000	2000	1800	1800	1500	1500	1500
Engagement time	ms	20	30	40	60	70	90	100	120	130
Disengagement time	ms	80	90	110	165	275	440	550	800	1100
Coil power consumption at 20 °C	W	36	48	58	87	110	140	180	190	230
Mass moment of inertia side A	10 ⁻³ kgm ²	0,20	0,46	1,15	2,6	6,3	18,7	27	51	76
Mass moment of inertia side B	10 ⁻³ kgm ²	0,35	0,72	1,6	3,5	9,5	21	33,4	65,7	79,5
Mass (weight) ~	kg	1,4	2	3,3	5,7	10	16	20,5	30	38
A	mm	54	59	66	80	90	96	111	119	126
A1	mm	57	62	69	83	93,5	99	113	121,5	128,5
D1	mm	82	95	114	134	166	195	210	240	258
D2	mm	80	93	109	127	156	195	210	240	258
Ø d1 H7	mm	25	35	38	46	60	65	68	78	85
Ø d2	mm	35	45	50	60	75	80	85	95	105
Ø d3	mm	38	46	56	62	79	100	105	115	130
d4	mm	M4	M4	M4	M5	M6	M6	M6	M6	M6
Ø d5 ± 0,1	mm	52	62	70	85	108	150	150	150	170
f	mm	1	1	1	1	1	2	2	2	2
g - 0,2	mm	37	41	44	54	61	65	74	77	85
l	mm	36,5	40	43	53	60	51	59	61	68
n	mm	6	6	7	8	9,5	12	14	14,5	16,5
o + 0,2 / p	mm	6 / 3	6 / 4	8 / 4	8 / 5	8 / 6	12 / 8	12 / 8	12 / 10	12 / 10
v x w	mm	8 x 1,7	10 x 2,1	10 x 2,1	14 x 2,6	18 x 3,1	18 x 3,1	20 x 4,1	22 x 4,1	22 x 4,1
y	mm	0,3 ± 0,2	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3	0,4 ± 0,3
Gearing DIN 5480	Numb. of teeth	-	31	36	42	51	42	32	36	42
pressure angle α = 30°	Modul	-	2	2	2	2	3	5	5	5

Electromagnetic Slip-Ring Tooth Clutch

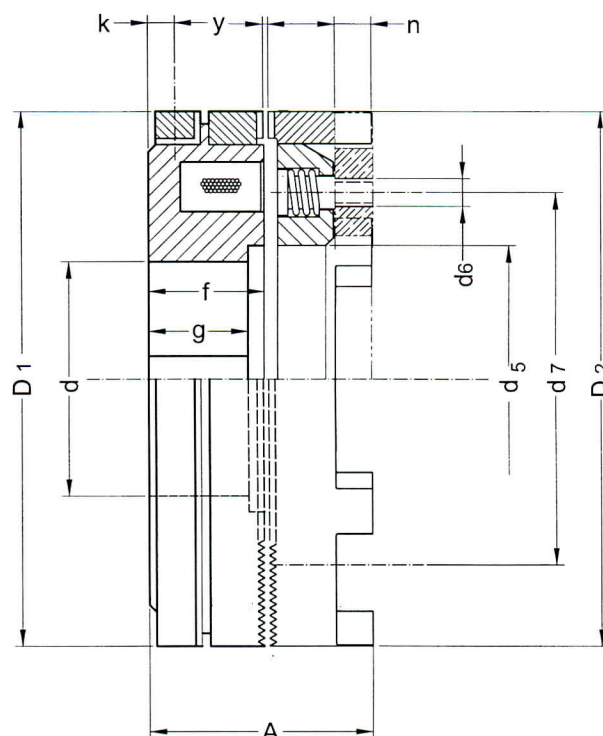
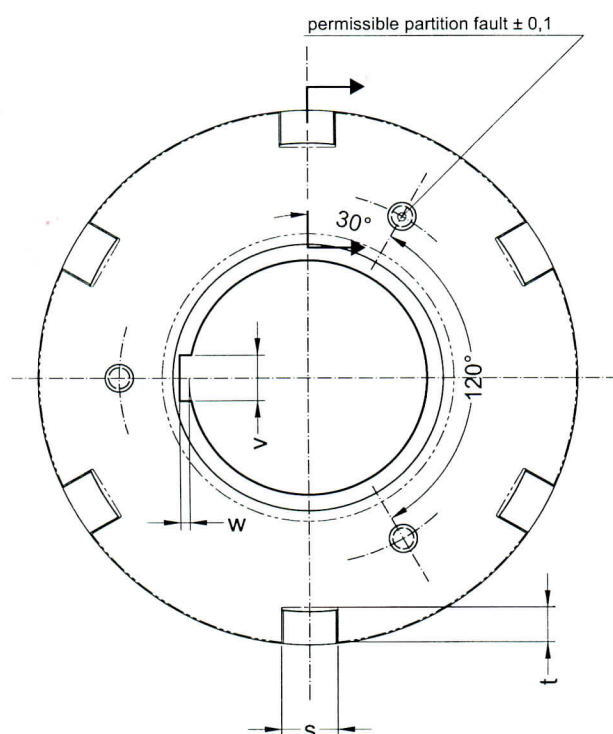
Basic construction with rigid, one-piece armature plate.

For oil and dry operation, coil voltage 24 V DC

- ◆ With point shaped backlash-free tooth profile.
- ◆ Armature plate with square jaws guided on connector plate.
- ◆ Suited for disengagement under torque load.
- ◆ Extra accessory: Connector plate as shown per drawing.
- ◆ Vertical mounting only when ordered with application guidelines.

Heid tooth clutches type FZK-S are comparable regarding technical data and dimensions with tooth clutches of ZF Friedrichshafen AG listed in the table.

Most of the clutches FZK-S documented in the data sheet can be amended according to order specification and so brought into line with the version to be replaced.



Data and Dimensions		MZK 1S	MZK 2S	MZK 5S	MZK 10S	MZK 25S	MZK 50S1	MZK 50S2	MZK 100S	MZK 200S	MZK 300S	MZK 400S	MZK 600S
comparable to ZF Type:		EK 0,25 Z	EK 0,5 Z	EK 1 Z	EK 2 dZ	EK 5 dZ	EK 10 dZ	EK 10 eZ	EK 20 dZ	EK 40 dZ	EK 60 dZ	EK 80 Z	EK 120 eZ
Static torque	Nm	10	20	50	100	250	500	500	1000	2000	3000	4000	6000
Speed at 10 m per sec. 1)	min ⁻¹	3150	2700	2300	2200	1650	1400	1350	1150	1150	950	750	700
Engagement time	ms	15	20	22	25	30	40	40	65	75	80	80	90
Disengagement time	ms	35	46	46	58	80	102	102	115	190	250	270	335
Coil power consumption at 20 °C	W	7,5	12	24	28	48	57	58	76	83	96	100	127
Mass moment of inertia side A	10 ⁻³ kgm ²	0,16	0,31	0,80	1,38	3,45	6,75	8,54	19,25	41,0	55,0	98,5	154,8
Mass moment of inertia side B	10 ⁻³ kgm ²	0,06	0,09	0,21	0,50	1,23	3,08	3,68	8,75	21,25	31,75	54,75	71,5
Mass (weight) ~	kg	0,32	0,48	0,87	1,16	1,98	3,15	3,45	6,20	9,61	11,72	17,56	19,90
A	mm	25	27,5	37	38	43	50	51	60	68	73	81	84
Ø D 1/ D2	mm	60	70	82	95	114	134	140	166	195	210	240	258
Ø d H7	mm	12	15	20	28	35	40	50	45	65	70	75	85
Ø d 5 +0,2	mm	23	26	35	45	53	63	70	80	89	100	112	134
d 6	mm	M3	M3	M4	M4	M4	M5	M5	M6	M6	M6	M6	M6
Ø d 7 ± 0,1	mm	40	45	55	65	80	100	100	120	150	150	150	170
f	mm	15,5	17	23	23	26	29	30	35	38,5	38	42	46
g	mm	12	14	23	20	23	26	30	33,5	35	37	42	
k	mm	3,5	3,5	5,5	5,5	6	7	7	7	8,5	8,5	8,5	
n	mm	3,5	4	6	6	7	8	8	9,5	12	14	14,5	16,5
s + 0,05 -> 0,1	mm	6	7	8	8	10	10	10	12	15	18	20	20
t	mm	4	5	7,5	7,5	8	9	9	11	12	12	13	15
v x w	mm	4 x 1,1	5 x 1,3	6 x 1,7	8 x 1,7	10 x 2,1	12 x 2,1	14 x 2,6	14 x 2,6	18 x 3,1	20 x 4,1	20 x 4,1	22 x 4,1
Keyways number / position	mm	1 / -	1 / -	1 / -	1 / -	1 / -	2 / 180°	2 / 180°	2 / 180°	4 / 90°	4 / 90°	4 / 90°	4 / 90°
y	mm	0,3 +0,2	0,3 +0,2	0,3 +0,2	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3	0,4 +0,3

1) Higher speeds when fitting a second brush.

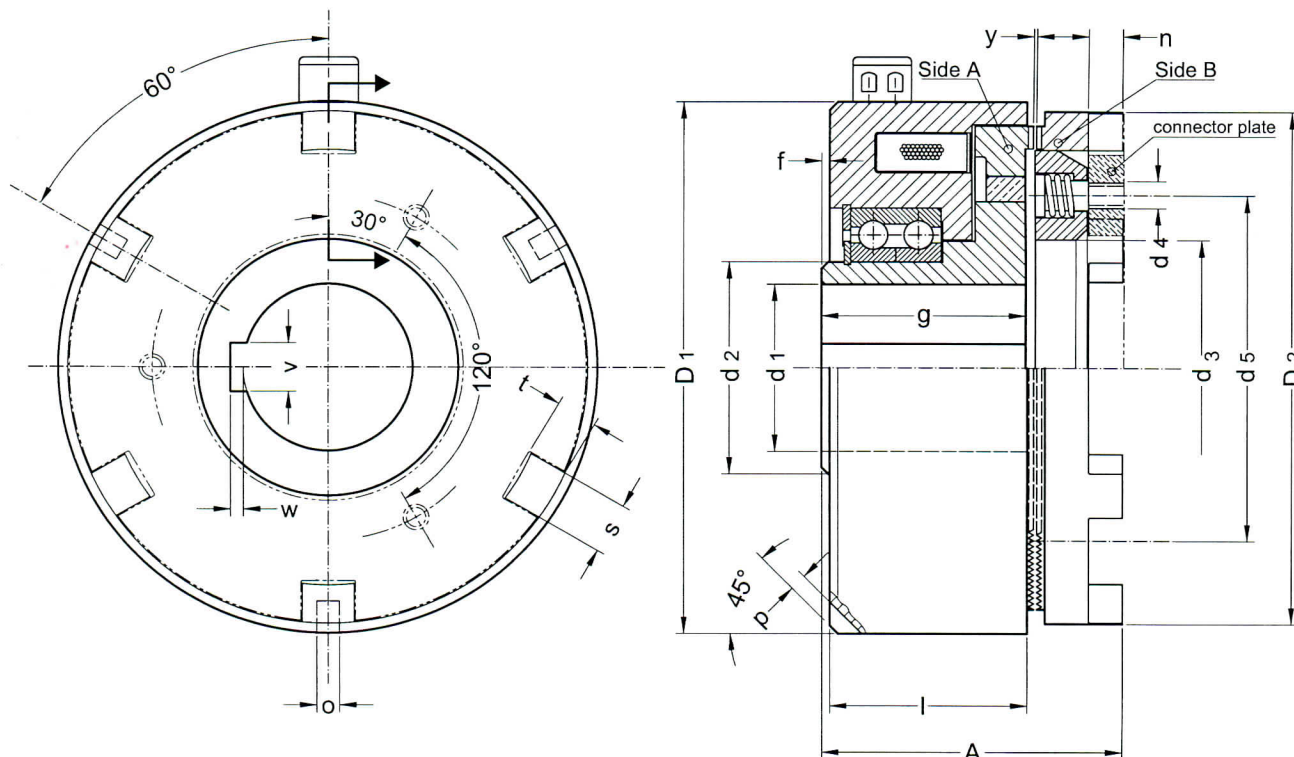
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