MODULHARD'ANDREA

Modularity
and high precision

MODULHARD'ANDREA

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MODULHARD'ANDREA

- WHAT IS MHD'?
- ЧТО ТАКОЕ MHD'?
- CZYM JEST MHD?
- CO JE MHD´?
- MHD NEDIR?

GB High precision modular toolholders for machine tools and machining centers that allow boring, milling, drilling, and tapping operations to be carried out with extreme flexibility and rigidity. The cylindrical-conical coupling comes in eleven, sizes, ensuring the interchangeability of all the elements of the system that includes the base arbors HSK, DIN, BT, CAT and Polygon-shank, toolholder extensions, reductions, and adapters. The broad boring program for machining diameters from 2.5 to 2700 mm completes the MHD' line with roughing double-bit heads and centesimal and micrometric Testarossa finishing heads with a 2µm sensitivity adjustment.

RU Модульная высокоточная система держателей для станков и обрабатывающих центров позволяющая осуществить с предельной простотой и гибкостью операции растачивания, фрезерования, сверления и нарезания резьб. Благодаря цилиндро-коническому соединению, имеющемуся в одиннадцати размерах, возможна взаимозаменяемость всех частей системы, включающей стандартные крепления HSK, DIN, BT, CAT и Polygon-shank, удлинители, переходники и адапторы держателей. Богатая программа расточки для обработки диаметров от 2,5 до 2700 мм, завершает линию MHD' двухрезцовой головкой черновой обработки и чистовыми соточными и микрометрическими головками Testarossa с точностью регулировки до 2 мкм.

PL Jest to system modułowych, wysoko precyzyjnych oprawek narzędziowych nadający się do wykorzystania na obrabiarkach i centrach obróbczych przeznaczonych do wykonywania z maksymalną elastycznością i sztywnością wszelkich operacji wytaczania, frezowania, wiercenia i gwintowania. Połączenie cylindryczno – stożkowe, dostępne w jedenastu rozmiarach, gwarantuje wymienność wszystkich elementów systemu zawierającego podstawowe uchwyty narzędziowe, takie jak: HSK, DIN, BT, CAT i Polygon-shank, przedłużki, elementy redukcyjne i adaptery oprawek narzędziowych. Bogaty program wytaczania umożliwia obróbkę średnic od 2,5 do 2700 mm. Kompletna linia MHD' zawiera dwunożowe głowice do obróbki zgrubnej oraz głowice wykańczające setne i mikrometryczne Testarossa o czułości 2µm.

CZ Vysoce přesné modulární nástrojové držáky pro obráběcí stroje a obráběcí centra, které umožňují provádět operace vyvrtávání, frézování, vrtání a závitořezání s extrémní pružností a pevností. Válcová-kónická spojka je v jedenácti velikostech, což zajišťuje zaměnitelnost všech prvků systému, které zahrnují bázové hřídele HSK, DIN, BT, CAT a polygonové vřeteno, nástavce nástrojových držáků, redukce a adaptéry. Široký program pro vyvrtávání pro frézované průměry od 2,5 to 2700 mm doplňuje řadu MHD o drsnící dvouhrotové hlavy a centezimální a mikrometrické hlavy Testarossa pro dokončování s nastavováním citlivosti až na 2µm.

TR Takım tezgahları ve işleme merkezleri için delme, delik açma, frezeleme ve diş açma işlemlerinin benzersiz bir esneklik ve sağlamlıkla yapılabilmesini sağlayan yüksek hassasiyetli modüler alet tutucular. Silindirik-konik kaplin on bir farklı ebatta mevcuttur ve bu özelliği sayesinde HSK, DIN, BT, CAT ve poligon sap, takım tutucu uzatmaları, kısaltmaları ve adaptörleri gibi sistemin tüm parçaları birbiriyle değiştirilebilir. 2,5 - 2700 mm arasında değişen işleme çaplarını kapsayan geniş delik açma programı, çift uçlu kafalar ve yüzde birlik ve mikrometrik Testarossa finiş kafaları (2µm hassasiyetinde ayarla) ile MHD ürün yelpazesini tamamlar.

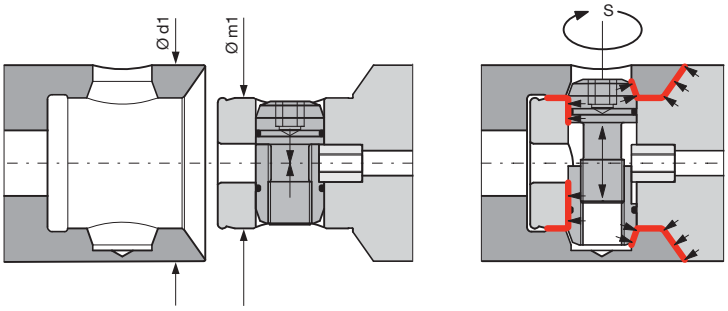
GB **The MHD' coupling** is the heart of the tool system as it ensures utmost rigidity and concentricity during milling and boring operations. This is achieved by the (patented) cylindrical-conical fit and by a radial expanding bolt for clamping and driving.

RU **Держатель MHD',** является приемуществом Modulhard'andrea, так как гарантирует максимальную жесткость и соосность при операциях фрезерования и растачивания благодаря цилиндро-коническому соединению (запатентовано) и радиальному разжимному штифту для осевого крепления.

PL **Złącze MHD** stanowi serce systemu MODULHARD'ANDREA, gdyż pozwala frezować i wytaczać przy zachowaniu dużej sztywności i współśrodkowości. Wszystko to dzięki walcowo -stożkowemu, opatentowanemu połączeniu oraz dzięki promieniowo rozprężnemu sworzniowi blokującemu osie i momentowi przenoszenia**.**

CZ **Spojka MHD** je centrem nástrojového systému, neboť zajišťuje nejvyšší pevnost a středovost v průběhu operací frézování a vyvrtávání. To je docíleno pomocí (patentovaného) válcového-kónického lícování a radiálním expanzním šroubem pro uchycování a pohon.

TR **MHD kaplin,** frezeleme ve delik açma işlemleri sırasında en yüksek sağlamlığı ve eş merkezliliği sunduğundan takım sisteminin kalbidir. Bu, patentli silindirik-konik geçme ve sıkıştırma/hareket ettirme için kendinden genişleyen radyal cıvata sayesinde elde edilir.



MHD'	Ø d_1	Ø m_1	S ⬡	Nm
MHD' 14	14	10	2,5	2 - 2,5
MHD' 16	16			
MHD' 20	20	13	3	4 - 4,5
MHD' 25	25	16	3	6,5 - 7,5
MHD' 32	32	20	4	7 - 8
MHD' 40	40	25	5	16 - 18
MHD' 50	50	32	6	30 - 35
MHD' 63	63	42	8	70 - 80
MHD' 80	80			
MHD' 110	110	76	14	200 - 220
MHD' 140	140			

- **GENERAL INFORMATIONS**
- **ОБЩАЯ ИНФОРМАЦИЯ**
- **DANE OGÓLNE**
- **OBECNÉ VLASTNOSTI**
- **GENEL BILGILER**

GB **Assembly**: Secure the arbor to a rigid support. Fit the required component (adaptor, extension, boring head etc.) to the arbor ensuring that the radial expanding pin does not project from the cylindrical part. Clamp the component by turning the radial pin clockwise with the exagonal wrench provided or with a torque wrench. **Disassembly:** secure the arbor to a rigid support. Unlock the radial pin by turning it counterclockwise.

RU **Сборка:** Закрепить держатель на основании. Установить нужный элемент (переходник, удлиннитель, головка дря расточки и т.п.), удостовериться в том, что радиальный штифт не выступает из цилиндрической втулки. Заблокировать, вращая по часовой стрелке радиальный штифт с помощью прилагаемого шестигранного ключа или с помощью торсиометрического ключа. **Разборка:** Закрепить держатель на основании, разблокировать радиальный штифт, вращая против часовой стрелки до упора.

PL **Montaż:** Podstawowy uchwyt narzędziowy umieścić w oprawce. Zamontować żądany element (reduktor, przedłużkę, głowicę do wytaczania itp.), upewniając się że sworzeń promieniowy nie wystaje z piasty cylindrycznej. Zablokować przekręcając sworzeń promieniowy w kierunku zgodnym z ruchem wskazówek zegara (używając w tym celu klucz sześciokątny będący na wyposażeniu lub klucz dynamometryczny). **Demontaż:** Podstawowy uchwyt narzędziowy umieścić w oprawce. Odblokować, przekręcając sworzeń promieniowy w kierunku przeciwnym do ruchu wskazówek zegara.

CZ **Montáž:** Zajistěte hřídel na pevnou podpěru. Upevněte potřebnou součást (adaptér, nástavec, vyvrtávací hlavu atd.) na hřídel a zajistěte, aby radiální expanzní kolík nevystupoval z válcové části. Upněte díl otáčením radiálního kolíku ve směru hodinových ručiček pomocí dodaného šestihranného klíče nebo momentového klíče. **Demontáž:** Zajistěte hřídel na pevnou podpěru. Uvolněte radiální kolík otáčením proti směru hodinových ručiček.

TR **Montaj:** Malafayı sağlam bir desteğe sabitleyin. Gerekli parçayı (adaptör, uzatma, matkap başı vs.), radyal genişlemeli pim silindirik kısımdan uzantı vermeyecek biçimde malafaya sabitleyin. Birlikte verilen altı başlı anahtarı veya bir tork anahtarı kullanarak radyal pimi saat yönünde döndürün ve parçayı kenetleyin. **Sökme:** malafayı sağlam bir desteğe sabitleyin. Saatin aksi yönünde döndürerek radyal pimin kilidini açın.

MODULHARD'ANDREA

- **ARBORS EXTENSIONS REDUCTIONS**
- **ДЕРЖАТЕЛИ, УДЛИННИТЕЛИ, ПЕРЕХОДНИКИ**
- **PODSTAWOWE UCHWYTY NARZĘDZIOWE, PRZEDŁUŻKI, ELEMENTY REDUKCYJNE**
- **NÁSTAVBY A REDUKCE HŘÍDELÍ**
- **MALAFALAR UZATMALAR KISALTMALAR**

GB **ARBORS.** Arbors are manufactured in accordance with DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 and are made of carburized steel, hardened and ground to AT3 tolerance. Arbor sizes MHD' 80, 110 and 140 are recommended for heavy milling and for bores deeper than 250 mm and exceeding 125 mm diameter. Special arbors are available on request.
EXTENSIONS. Extensions of various lengths are available for each MHD' size, allowing greater flexibility in machining depth.
REDUCTIONS. MHD' components of a smaller size can be used by means of adaptor sleeves which allow greater interchangeability and ensure tool rigidity.

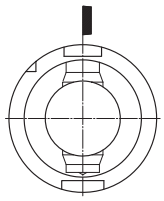
RU **ДЕРЖАТЕЛИ.** Держатели производятся в соответствии с нормами DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 и изготавливаются из углеродистой стали, закаленной и отшлифованной в соответствии с классом точности AT3. Использование держателей размером MHD'80, 110 и 140 рекомендуется для тяжелых фрезерных операций и растачивания отверстий глубиной более 250 мм, имеющих диаметр свыше 125мм. По запросу могут быть изготовлены нестандартные держатели. **УДИЛИННИТЕЛИ.** Для каждого размера MHD существуют удлинители различной длины, что позволяет оптимизировать желаемую глубину обработки. **ПЕРЕХОДНИКИ.** Компоненты MHD меньших размеров могут быть использованы с переходными втулками, которые обеспечивают широкую взаимозаменяемость и гарантируют жесткость инструмента.

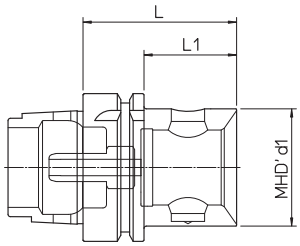
PL **PODSTAWOWE UCHWYTY NARZĘDZIOWE.** Uchwyty wykonywane są zgodnie z wymaganiami norm DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 i są produkowane ze stali nawęglonej, hartowanej i szlifowanej z zachowaniem tolerancji AT3. Elementy ze złączem MHD' 80, 110 i 140 są zalecane do ciężkiego frezowania i do głębokiego wytaczania ponad 250 mm, przy średnicach większych niż 125 mm. Istnieje możliwość wykonania specjalnych uchwytów narzędziowych.
PRZEDŁUŻKI. Do każdej wielkości modułu MHD produkowane są przedłużki o różnych długościach, które pozwalają osiągnąć wymagane głębokości obróbki.
ELEMENTY REDUKCYJNE. Redukcje pozwalają zastosować komponenty z modułem MHD mniejszym o jeden, bądź więcej rozmiarów tak, aby zapewnić większą wymienność i stabilność narzędzia.

CZ **HŘÍDELE.** Hřídele jsou vyrobeny v souladu s DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 a jsou vyrobeny z uhlíkové oceli, tvrzené a broušené na toleranci AT3. Velikosti hřídelí MHD 80, 110 a 140 se doporučují pro náročné frézování a pro vrtání hlubší než 250 mm a s průměrem přesahujícím 125 mm. Speciální hřídele jsou k dispozici na vyžádání.
NÁSTAVCE. Pro každý rozměr MHD jsou k dispozici nástavce různých délek, což umožňuje větší pružnost při obrábění do hloubky.
REDUKCE. Komponenty MHD menších rozměrů je možno použít pomocí pouzder adaptérů, které umožňují větší zaměnitelnost a zajišťují pevnost nástroje.

TR **MALAFALAR.** Malafalar DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A ve ISO 26623-1 standartlarına uygun üretilmektedir ve sertleştirilerek AT3 toleransına getirilmiş karbonlanmış çelikten mamuldür. MHD' 80, 110 ve 140 malafa boyları, 250 mm'den derin delikler ve 125 mm'den geniş çaplar ile ağır frezeleme işleri için önerilir. Özel malafalar isteğe bağlı sunulmaktadır.
UZATMALAR. Her bir MHD' boyu için farklı uzunluklarda uzatmalar bulunması, işleme derinliği konusundaki esnekliği artırmaktadır.
KISALTMALAR. Daha küçük boydaki MHD' bileşenleri, parçaların birbiriyle değiştirilebilirliğini artıran ve takımların sağlamlığını temin eden adaptör manşonları aracılığıyla kullanılabilir.

DIN 69893
HSK-A



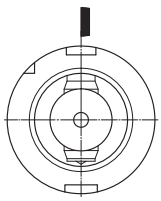


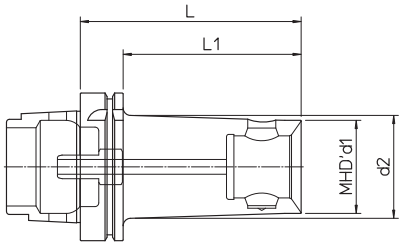
- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

* Supplied without hole
* Поставляется без отверстия
* Dostarczane bez otworu
* Dodáváno bez otvoru
* Su deliksiz tedarik edilmekte

HSK-A	REF.	CODE	MHD' d_1	L	L_1	kg
40	HSK-A40 MHD'32.48	416321504020 *	32	48	28	0.4
50	HSK-A50 MHD'50.66	416501505020	50	66	–	0.6
63	HSK-A63 MHD'40.60	416401506320	40	60	34	0.7
	HSK-A63 MHD'50.66	416501506320	50	66	40	0.9
	HSK-A63 MHD'63.75	416631506320	63	75	–	1.1
80	HSK-A80 MHD'50.70	416501508020	50	70	44	1.5
	HSK-A80 MHD'63.80	416631508020	63	80	54	1.8
	HSK-A80 MHD'80.86	416801508020	80	86	–	2.1
100	HSK-A100 MHD'50.72	416501510020	50	72	43	2.4
	HSK-A100 MHD'63.82	416631510020	63	82	53	2.7
	HSK-A100 MHD'80.88	416801510020	80	88	59	3

DIN 69893
HSK-A





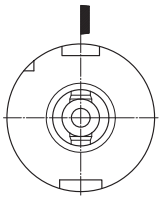
- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

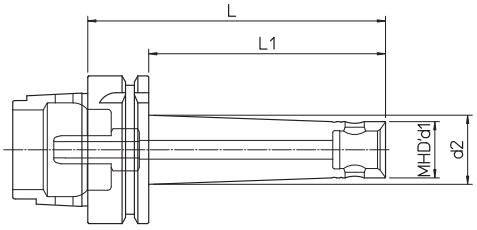
HSK-A	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	HSK-A63 MHD'40.120	416401506328	40	46	120	94	1.4
	HSK-A63 MHD'50.120	416501506328	50	–			1.7
100	HSK-A100 MHD'50.120	416501510028		60		91	3.2
	HSK-A100 MHD'63.150	416631510028	63	70	150	121	4.5
	HSK-A100 MHD'80.180	416801510028	80	–	180	151	6.5

240 248

MODULHARD'ANDREA

DIN 69893
HSK-A





- Supplied with coolant tube
- Имеется соединение для хладагента
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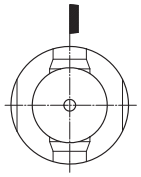
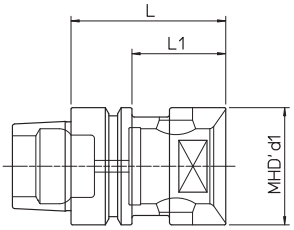
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

HSK-A	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	HSK-A63 MHD'16.63	416160656320	16	17	63	37	0.7
	HSK-A63 MHD'16.100	416161056320		19.5	100	74	0.8
	HSK-A63 MHD'20.63	416200656320	20	-	63	37	0.6
	HSK-A63 MHD'20.90	416200956320		22.5	90	64	0.8
	HSK-A63 MHD'20.125	416201256320		25	125	99	0.9
	HSK-A63 MHD'25.63	416250656320	25	-	63	37	0.7
	HSK-A63 MHD'25.90	416250956320		27	90	64	0.9
	HSK-A63 MHD'25.125	416251256320		29.5	125	99	1
	HSK-A63 MHD'32.90	416320956320	32	33.5	90	64	1
	HSK-A63 MHD'32.125	416321256320		36	125	99	1.2

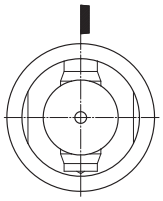
DIN 69893
HSK-E

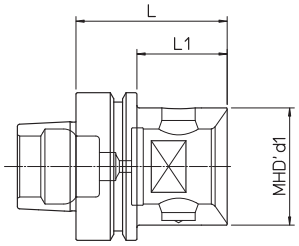




HSK-E	REF.	CODE	MHD' d_1	L	L_1	kg
40	HSK-E40 MHD'32.42	416321504025	32	42	22	0.5
50	HSK-E50 MHD'50.66	416501505025	50	66	–	0.6
63	HSK-E63 MHD'50.66	416501506325			40	0.9

DIN 69893
HSK-F

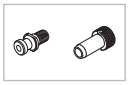




HSK-F	REF.	CODE	MHD' d_1	L	L_1	kg
63	HSK-F63 MHD'50.65	416501506326	50	65	39	0.8

248

240



PSC-MHD'
ISO 26623-1

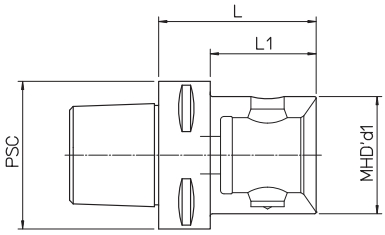


fig.1

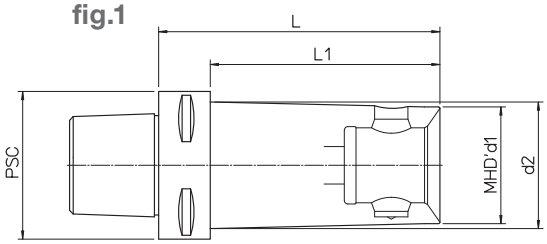
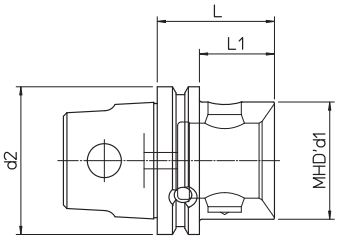


fig.2

PSC	REF.	CODE	MHD' d_1	d_2	L	L_1	Kg.	fig.
40	PSC 40 - MHD' 32.42	416322604004	32	–	42	22	0.3	1
	PSC 40 - MHD' 40.45	416402604004	40		45	–	0.4	
50	PSC 50 - MHD' 50.55	416502605005	50		55		0.8	
63	PSC 63 - MHD' 40.50	416402606305	40		50	28	0.9	
	PSC 63 - MHD' 40.120	416402606312		44	120	98	1.5	2
	PSC 63 - MHD' 50.55	416502606305	50	–	55	33	0.8	1
	PSC 63 - MHD' 50.67	416502606306			67	45	1.1	
	PSC 63 - MHD' 50.120	416502606312		54	120	98	1.9	2
	PSC 63 - MHD' 63.77	416632606307	63	–	77	–	1.8	1
80	PSC 80 - MHD' 50.60	416502608006	50		60	30	2	
	PSC 80 - MHD' 50.120	416502608012		54	120	90	2.8	2
	PSC 80 - MHD' 63.70	416632608007	63	–	70	40	2.3	1
	PSC 80 - MHD' 63.150	416632608015		67	150	120	4	2
	PSC 80 - MHD' 80.75	416802608007	80	–	75	–	2.6	1
	PSC 80 - MHD' 80.120	416802608012			120		4.3	
100	PSC 100 - MHD' 80.80	416802610008			80	44	3.5	
	PSC 100 - MHD' 110.120	416912610012	110		120	84	5	

ISO 26622-1
KM

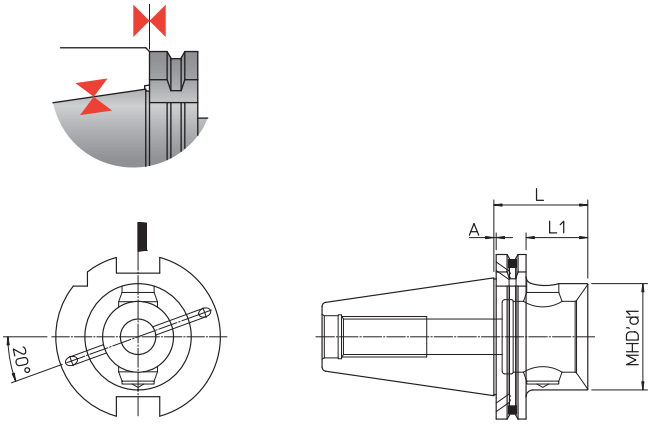


KM	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	RD KM - MHD' 50.50	657095005063	50	63	50	32	0.8
	RD KM - MHD' 63.70	657096305063	63		70	–	1.2

UNI DIN HSK MAS-BT

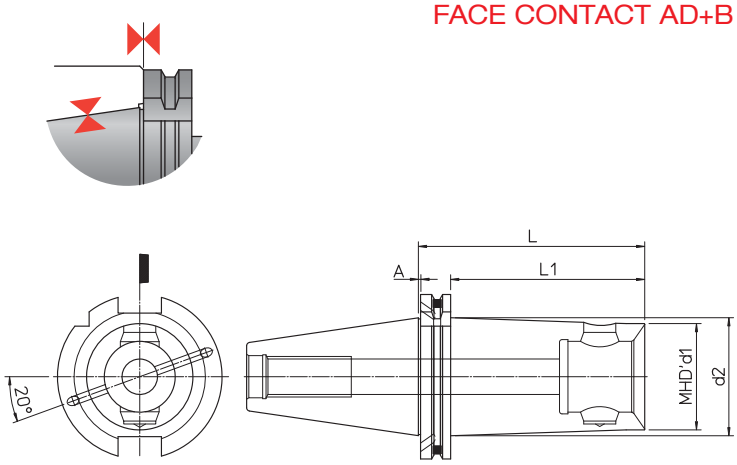
MODULHARD'ANDREA
FACE CONTACT

DIN 69871 FC
FACE CONTACT AD+B

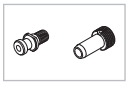


DIN	REF.	CODE	MHD' d_1	A	L	L_1	Kg.
40	DIN69871-AD+B40 FC MHD'50.48	416500104021F	50	1	48	29	0.9
	DIN69871-AD+B40 FC MHD'63.80	416630104021F	63		80	–	1.5
50	DIN69871-AD+B50 FC MHD'50.48	416500105021F	50	1.5	48	29	2.5
	DIN69871-AD+B50 FC MHD'63.56	416630105021F	63		56	37	2.8
	DIN69871-AD+B50 FC MHD'80.62	416800105021F	80		62	43	3.4

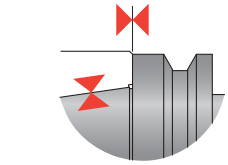
DIN 69871 FC
FACE CONTACT AD+B

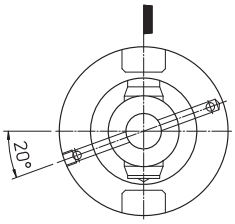


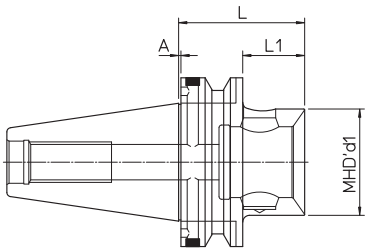
DIN	REF.	CODE	MHD' d_1	d2	A	L	L1	Kg.
40	DIN69871-AD+B40 FC MHD'50.120	416500104028F	50	–	1	120	101	1.7
50	DIN69871-AD+B50 FC MHD'50.120	416500105028F		59	1.5			3.5
	DIN69871-AD+B50 FC MHD'50.200	416500105027F		68		200	181	6.1
	DIN69871-AD+B50 FC MHD'63.150	416630105028F	63	75.5		150	131	5.2
	DIN69871-AD+B50 FC MHD'63.250	416630105027F		80		250	231	7.1
	DIN69871-AD+B50 FC MHD'80.180	416800105028F	80	–		180	161	6.9
	DIN69871-AD+B50 FC MHD'80.300	416800105027F				300	281	9.2
	DIN69871-AD+B50 FC MHD'110.150	416910105021F	110			150	–	8
	DIN69871-AD+B50 FC MHD'110.250	416910105028F				250		15



MAS 403 BT FC
FACE CONTACT AD+B

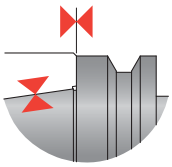


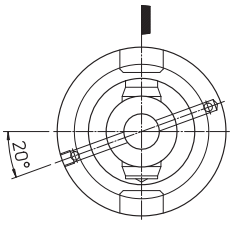


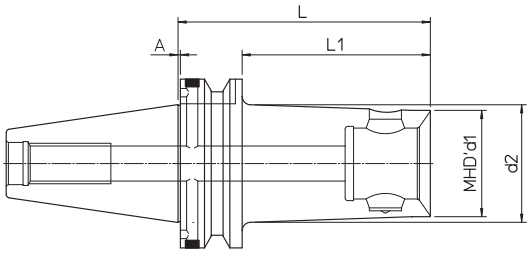


DIN	REF.	CODE	MHD' d_1	A	L	L_1	Kg.
40	MAS403 BT40 FC AD+B MHD'50.48	416500104031F	50	1	48	21	0.9
	MAS403 BT40 FC AD+B MHD'63.66	416630104031F	63		66	–	1.2
50	MAS403 BT50 FC AD+B MHD'50.66	416500105031F	50	1.5		28	3.2
	MAS403 BT50 FC AD+B MHD'63.75	416630105031F	63		75	37	3.7
	MAS403 BT50 FC AD+B MHD'80.75	416800105031F	80				4

MAS 403 BT FC
FACE CONTACT AD+B





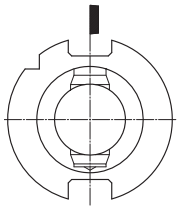


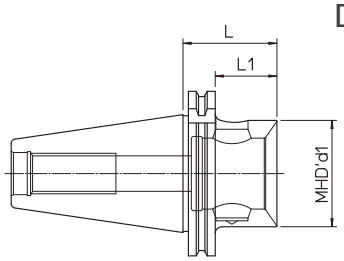
DIN	REF.	CODE	MHD' d_1	d_2	A	L	L_1	Kg.
40	MAS403 BT40 FC AD+B MHD'50.120	416500104038F	50	–	1	120	93	1.9
50	MAS403 BT50 FC AD+B MHD'50.120	416500105038F		57.5	1.5		82	4.2
	MAS403 BT50 FC AD+B MHD'50.200	416500105037F		66		200	162	4.5
	MAS403 BT50 FC AD+B MHD'63.150	416630105038F	63	73.5		150	112	5.8
	MAS403 BT50 FC AD+B MHD'63.250	416630105037F		84		250	212	6.1
	MAS403 BT50 FC AD+B MHD'80.180	416800105038F	80	–		180	142	7.5
	MAS403 BT50 FC AD+B MHD'80.300	416800105037F				300	262	9.2
	MAS403 BT50 FC AD+B MHD'110.150	416910105031F	110			150	–	8.1
	MAS403 BT50 FC AD+B MHD'110.250	416910105038F				250		15.3

MODULHARD'ANDREA

- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

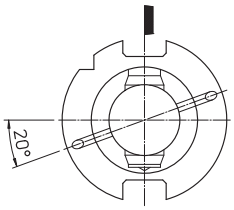
DIN 69871
AD

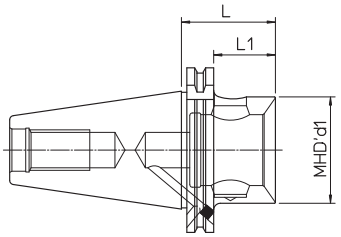




DIN	REF.	CODE	MHD' d_1	L	L_1	kg
30	DIN69871-A30 MHD'32.30	416320103020	32	30	11	0.4
	DIN69871-A30 MHD'40.45.5	416400103020	40	45.5	26.5	0.5
	DIN69871-A30 MHD'50.60	416500103020	50	60	–	0.6
40	DIN69871-A40 MHD'40.45	416400104020	40	45	26	0.5
	DIN69871-A40 MHD'50.48	416500104020	50	48	29	0.9
	DIN69871-A40 MHD'50.56	416500104070		56	37	1.1
	DIN69871-A40 MHD'63.80	416630104020	63	80	–	1.5
45	DIN69871-A45 MHD'50.48	416500104520	50	48	29	1.7
	DIN69871-A45 MHD'63.60	416630104520	63	60	41	1.9
	DIN69871-A45 MHD'80.66	416800104520	80	66	–	2.2
50	DIN69871-A50 MHD'50.48	416500105020	50	48	29	2.5
	DIN69871-A50 MHD'63.48	416630105029	63			2.6
	DIN69871-A50 MHD'63.56	416630105020		56	37	2.8
	DIN69871-A50 MHD'80.48	416800105029	80	48	29	3
	DIN69871-A50 MHD'80.62	416800105020		62	43	3.4
	DIN69871-A50 MHD'110.150	416910105020	110	150	–	7.6
	DIN69871-A50 MHD'140.160	416940105020	140	160		10
60	DIN69871-A60 MHD'50.50	416500106020	50	50	31	8.3
	DIN69871-A60 MHD'63.60	416630106020	63	60	41	9.3
	DIN69871-A60 MHD'80.65	416800106020	80	65	46	10.3
	DIN69871-A60 MHD'110.100	416910106020	110	100	81	10.5
	DIN69871-A60 MHD'110.200	416910106028		200	181	18
	DIN69871-A60 MHD'140.100	416940106020	140	100	81	12.8
	DIN69871-A60 MHD'140.250	416940106028		250	231	30

DIN 69871
B

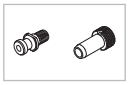




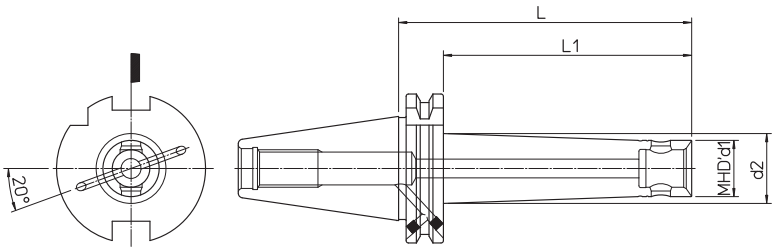
DIN	REF.	CODE	MHD' d_1	L	L_1	kg
40	DIN69871-B40 MHD'50.48	416500104021	50	48	29	0.9
	DIN69871-B40 MHD'63.80	416630104021	63	80	–	1.5
45	DIN69871-B45 MHD'50.48	416500104521	50	48	29	1.7
	DIN69871-B45 MHD'63.60	416630104521	63	60	41	1.9
	DIN69871-B45 MHD'80.66	416800104521	80	66	–	2.2
50	DIN69871-B50 MHD'50.48	416500105021	50	48	29	2.7
	DIN69871-B50 MHD'63.56	416630105021	63	56	37	2.8
	DIN69871-B50 MHD'80.62	416800105021	80	62	43	3.4

249

240

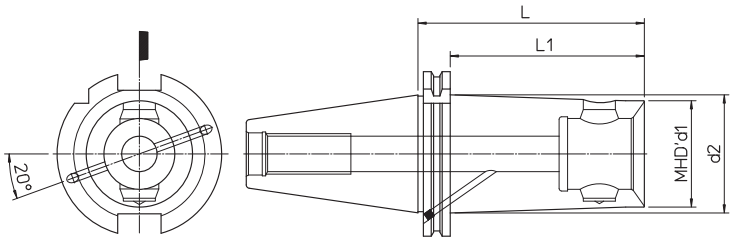


DIN 69871
AD+B



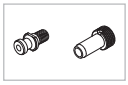
DIN	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 MHD'16.40	416160414021	16	–	40	21	0.7
	DIN69871-AD+B40 MHD'16.63	416160614021		17.5	63	44	0.8
	DIN69871-AD+B40 MHD'16.100	416161014021		20	100	81	0.9
	DIN69871-AD+B40 MHD'20.50	416200514021	20	–	50	31	0.8
	DIN69871-AD+B40 MHD'20.80	416200814021		22.5	80	61	0.9
	DIN69871-AD+B40 MHD'20.125	416201214021		25.5	125	106	1
	DIN69871-AD+B40 MHD'25.50	416250514021	25	–	50	31	0.9
	DIN69871-AD+B40 MHD'25.80	416250814021		27	80	61	1
	DIN69871-AD+B40 MHD'25.125	416251214021		30	125	106	1.1
	DIN69871-AD+B40 MHD'32.50	416320514021	32	–	50	31	1
	DIN69871-AD+B40 MHD'32.80	416320814021		33.5	80	61	1.1
	DIN69871-AD+B40 MHD'32.125	416321214021		36.5	125	106	1.2

DIN 69871
AD+B



DIN	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 MHD'40.120	416400104028	40	44.5	120	101	1.4
	DIN69871-AD+B40 MHD'50.120	416500104028	50	–			1.7
50	DIN69871-AD+B50 MHD'50.120	416500105028		60			3.5
	DIN69871-AD+B50 MHD'63.150	416630105028	63	70	150	131	5
	DIN69871-AD+B50 MHD'80.180	416800105028	80	–	180	161	7.6

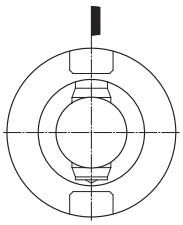
240 249

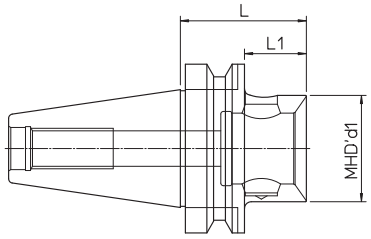


MODULHARD'ANDREA

- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

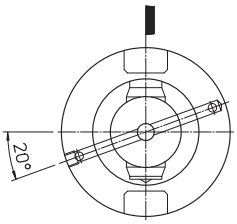
MAS 403 BT

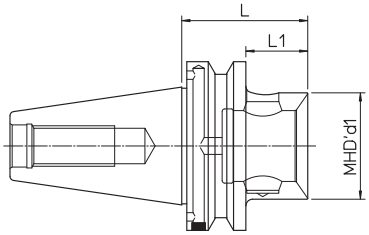




BT	REF.	CODE	MHD' d_1	L	L_1	kg
30	MAS403 BT30 MHD'32.32	416320103030	32	32	10.5	0.5
	MAS403 BT30 MHD'40.35.5	416400103030	40	35.5	14	0.6
	MAS403 BT30 MHD'50.60	416500103030	50	60	–	0.7
35	MAS403 BT35 MHD'50.60	416500103530			36	0.8
40	MAS403 BT40 MHD'40.45	416400104030	40	45	18	0.6
	MAS403 BT40 MHD'50.38.5	416500104039	50	38.5	11.5	0.8
	MAS403 BT40 MHD'50.48	416500104030		48	21	0.9
	MAS403 BT40 MHD'50.56	416500104080		56	29	1.1
	MAS403 BT40 MHD'63.66	416630104030	63	66	–	1.2
45	MAS403 BT45 MHD'50.62	416500104530	50	62	29	1.7
	MAS403 BT45 MHD'63.70	416630104530	63	70	37	2.3
	MAS403 BT45 MHD'80.70	416800104530	80			2.7
50	MAS403 BT50 MHD'50.66	416500105030	50	66	28	3.3
	MAS403 BT50 MHD'63.50	416630105039	63	50	12	3.4
	MAS403 BT50 MHD'63.75	416630105030		75	37	3.7
	MAS403 BT50 MHD'80.50	416800105039	80	50	12	3.8
	MAS403 BT50 MHD'80.75	416800105030		75	37	4
	MAS403 BT50 MHD'110.140	416910105030	110	140	–	6.8
	MAS403 BT50 MHD'140.150	416940105030	140	150		9.2
60	MAS403 BT60 MHD'110.110	416910106030	110	110	63	11.5
	MAS403 BT60 MHD'110.200	416910106038		200	152	18.1
	MAS403 BT60 MHD'140.100	416940106030	140	100	52	12.9
	MAS403 BT60 MHD'140.250	416940106038		250	202	30.1

MAS 403 BT
B

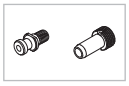




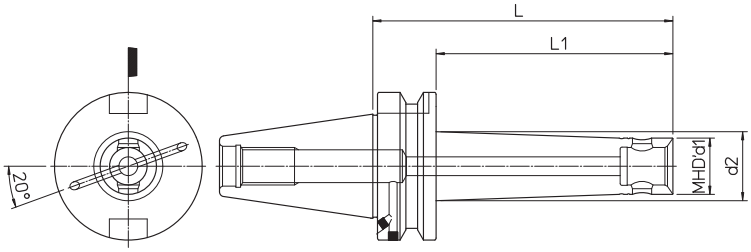
BT	REF.	CODE	MHD' d_1	L	L_1	kg
40	MAS403 BT40B MHD'50.48	416500104031	50	48	21	0.9
	MAS403 BT40B MHD'63.66	416630104031	63	66	–	1.2
50	MAS403 BT50B MHD'50.66	416500105031	50	66	28	3.5
	MAS403 BT50B MHD'63.75	416630105031	63	75	37	3.7
	MAS403 BT50B MHD'80.75	416800105031	80			4

249

240

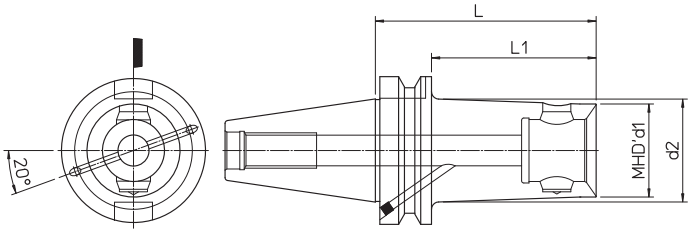


MAS 403 BT
AD+B



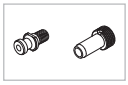
BT	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B MHD'16.45	416160414031	16	–	45	18	0.8
	MAS403 BT40-AD+B MHD'16.63	416160614031		17	63	36	0.9
	MAS403 BT40-AD+B MHD'16.100	416161014031		19.5	100	73	1
	MAS403 BT40-AD+B MHD'20.50	416200514031	20	–	50	23	0.9
	MAS403 BT40-AD+B MHD'20.80	416200814031		22	80	53	1
	MAS403 BT40-AD+B MHD'20.125	416201214031		25	125	98	1.1
	MAS403 BT40-AD+B MHD'25.50	416250514031	25	–	50	23	1
	MAS403 BT40-AD+B MHD'25.80	416250814031		26.5	80	53	1.1
	MAS403 BT40-AD+B MHD'25.125	416251214031		29.5	125	98	1.2
	MAS403 BT40-AD+B MHD'32.50	416320514031	32	–	50	23	1.1
	MAS403 BT40-AD+B MHD'32.80	416320814031		33	80	53	1.2
	MAS403 BT40-AD+B MHD'32.125	416321214031		36	125	98	1.4

MAS 403 BT
AD+B



BT	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B MHD'40.120	416400104038	40	44.5	120	93	0.9
	MAS403 BT40-AD+B MHD'50.120	416500104038	50	–			1.9
50	MAS403 BT50-AD+B MHD'50.120	416500105038		60		82	4.2
	MAS403 BT50-AD+B MHD'63.150	416630105038	63	70	150	112	5.8
	MAS403 BT50-AD+B MHD'80.180	416800105038	80	–	180	142	7.5

240 249



MODULHARD'ANDREA

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- PODSTAWOWE UCHWYTY NARZĘDZIOWE
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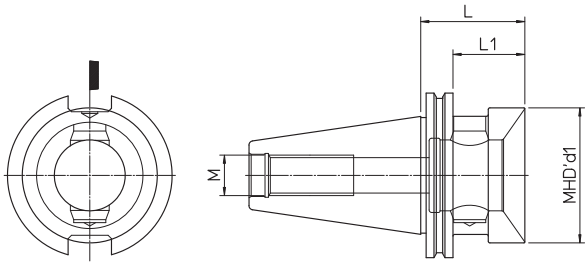
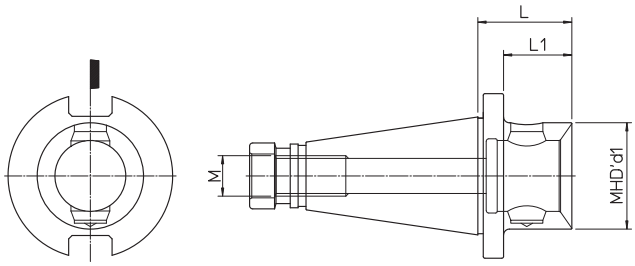
- MALAFALAR

ANSI/CAT



ANSI/CAT	REF.	CODE	MHD' d_1	L	L_1	M	kg
40	ANSI/CAT40 MHD'50.66	416500104040	50	66	47	M16	1.1
	ANSI/CAT40 MHD'63.100	416630104040	63	100	–		1.9
45	ANSI/CAT45 MHD'50.48	416500104540	50	48	29	M20	1.7
	ANSI/CAT45 MHD'63.75	416630104540	63	75	56		2.1
	ANSI/CAT45 MHD'80.80	416800104540	80	80	–		2.7
50	ANSI/CAT50 MHD'50.48	416500105040	50	48	29	M24	2.4
	ANSI/CAT50 MHD'63.56	416630105040	63	56	37		2.9
	ANSI/CAT50 MHD'80.62	416800105040	80	62	43		3.2

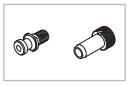
DIN 2080-A 'OTT'



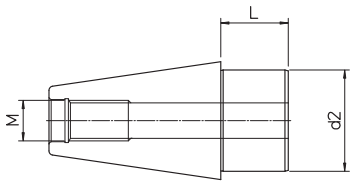
ISO	REF.	CODE	MHD' d_1	L	L_1	M	kg
30	DIN2080-A30 MHD'50.58	416500103000	50	58	–	M12	0.6
40	DIN2080-A40 MHD'50.48	416500104000	50	48	36.5	M16	0.9
	DIN2080-A40 MHD'63.60	416630104000	63	60	–		1.2
45	DIN2080-A45 MHD'50.48	416500104500	50	48	33	M20	1.6
	DIN2080-A45 MHD'63.56	416630104500	63	56	41		1.9
	DIN2080-A45 MHD'80.66	416800104500	80	66	–		2.2
50	DIN2080-A50 MHD'50.48	416500105000	50	48	33	M24	2.6
	DIN2080-A50 MHD'63.56	416630105000	63	56	41		2.7
	DIN2080-A50 MHD'80.60	416800105000	80	60	45		3.2

250

240

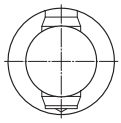


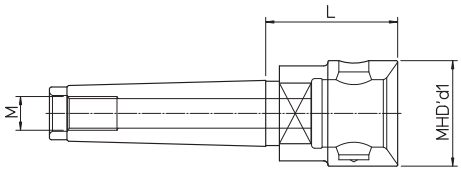
ISO 50 D.60
ISO 60 D.60



REF.	CODE	d_2	L	M	Kg.
ISO 50 D.60	71ISO-50-DC6040	60	40	24	4.8
ISO 60 D.60	71ISO-60-DC6040			30	9.7

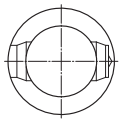
DIN 228/A 2207

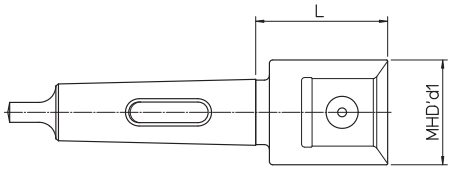




MORSE	REF.	CODE	MHD' d_1	L	M	kg
4	MORSE4-A MHD'50.63	416500300400	50	63	M16	0.9
4 SIP	MORSE4-A SIP MHD'50.63	416500300401			M14	

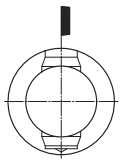
DIN 228/B 1806

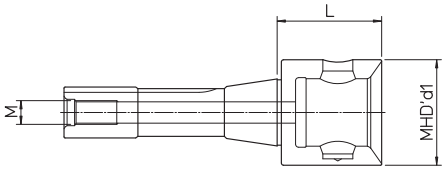




MORSE	REF.	CODE	MHD' d_1	L	kg
4	MORSE4-B MHD'50.56	416500200400	50	56	0.9
5	MORSE5-B MHD'63.65	416630200500	63	65	1.5

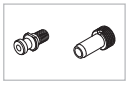
R8





REF.	CODE	MHD' d_1	L	M	kg
R 8	416500500800	50	50	M12x1.75	0.8

240 251



MODULHARD'ANDREA

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- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

BR

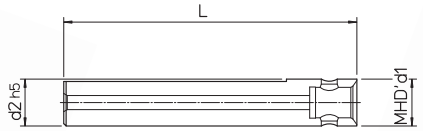


fig.1

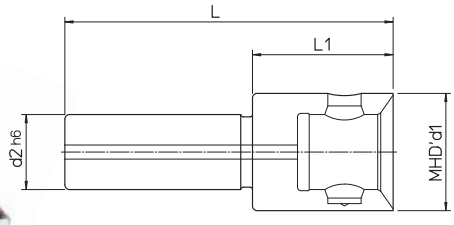
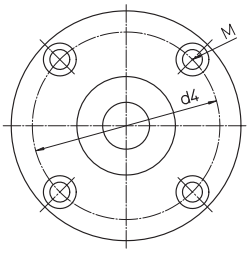
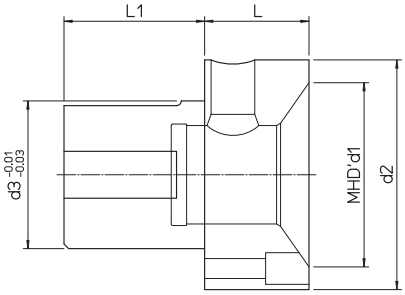


fig.2

REF.	CODE	MHD' d_1	L	L_1	d_2	kg	fig.
BR 16/16.100	657081601001	16	100	–	16	0.15	1
BR 20/20.125	657082001251	20	125	–	20	0.3	
BR 25/32.35	416320802500	32	100	35	25	0.7	2
BR 32/50.60	416500803200	50	140	60	32	1	

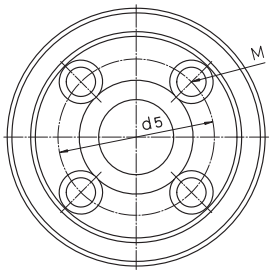
MR

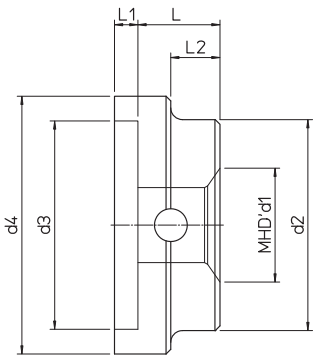




REF.	CODE	MHD' d_1	d_2	d_3	d_4	L	L_1	M	kg
MR 50/80.80	450208001060	63 ~ 80	80	50	65	45	50	M6	1.5
MR 63/98.80	450209801060		98	63	80		60	M8	3.1
MR 80/130.80	450213001240		130	80	104.6		80	M10	6.1
MR 80/130.110	450213001340	110				105			9

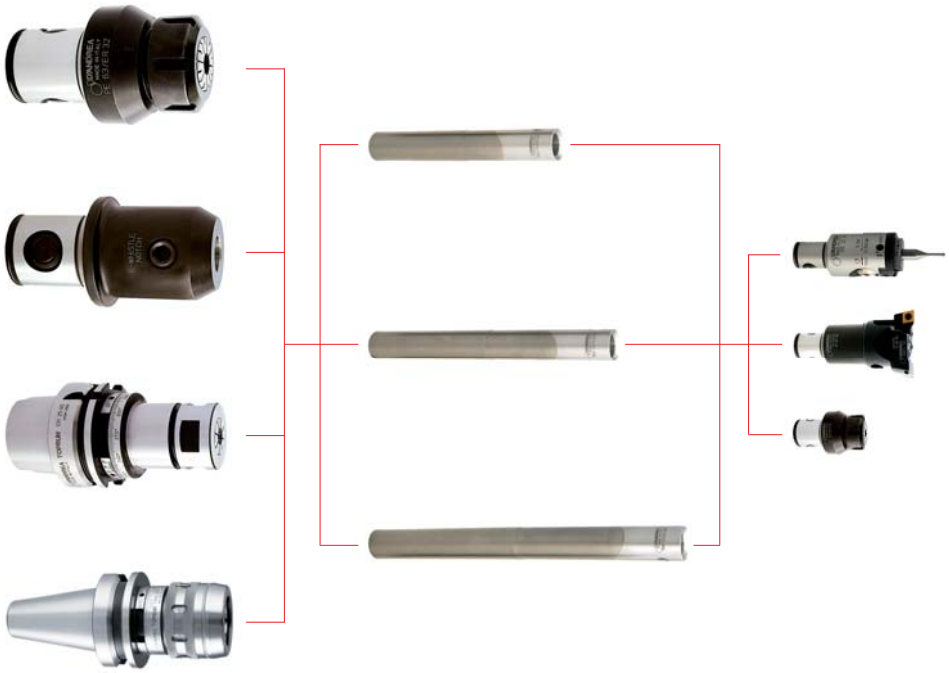
DIN 2079



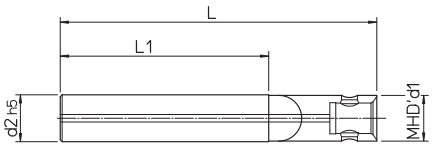


REF.	CODE	MHD' d_1	d_2	d_3	d_4	d_5	L	L_1	L_2	M	kg
DIN 2079-40.50	416502004000	50	90	88.89	110	66.7	35	10	21	M12	1.8
DIN 2079-40.63	416632004000	63					47		31		2
DIN 2079-50.63	416632005000		135	128.57	150	101.6	45	12		M16	5.4
DIN 2079-50.80	416802005000	80					50		36		5.3
DIN 2079-50.110	416912005000	110					112		98		8.4
DIN 2079-50.140	416942005000	140	140				122		108		9.5

BMD PROGRAM



BMD

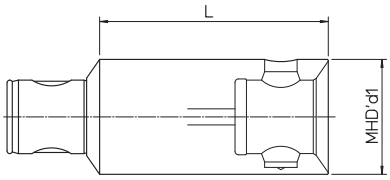


REF.	CODE	MHD' d_1	d_2	L	L_1	kg
BMD 16/16.110	657081601105	16	16	110	70	0.3
BMD 16/16.140	657081601405			140	100	0.4
BMD 16/16.170	657081601705			170	130	0.5
BMD 20/20.135	657082001355	20	20	135	89	0.6
BMD 20/20.170	657082001705			170	124	0.75
BMD 20/20.210	657082002105			210	164	0.9
BMD 25/25.160	657082501605	25	25	160	107	1
BMD 25/25.205	657082502055			205	152	1.3
BMD 25/25.255	657082502555			255	202	1.6
BMD 32/32.195	657083201955	32	32	195	130	2.1
BMD 32/32.250	657083202505			250	185	2.8
BMD 32/32.315	657083203155			315	250	3.5

MODULHARD'ANDREA

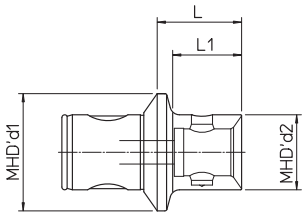
- EXTENSIONS
- УДИЛИННИТЕЛИ
- PRZEDŁUŻKI
- NÁSTAVCE
- UZATMALAR

PR



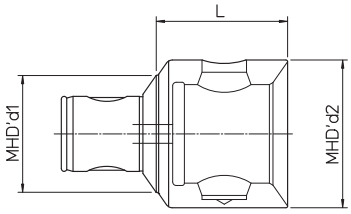
REF.	CODE	MHD' d_1	L	kg
PR 14.25	656901400250	14	25	0.02
PR 16.25	656901600250	16		0.04
PR 20.32	656902000320	20	32	0.07
PR 25.25	656902500250	25	25	0.09
PR 25.40	656902500400		40	0.15
PR 32.32	656903200320	32	32	0.2
PR 32.50	656903200500		50	0.3
PR 40.40	656904000400	40	40	0.4
PR 40.63	656904000630		63	0.6
PR 50.50	656905000500	50	50	0.7
PR 50.80	656905000800		80	1.1
PR 50.100	656905001000		100	1.5
PR 63.63	656906300630	63	63	1.4
PR 63.100	656906301000		100	2.2
PR 63.125	656906301250		125	2.9
PR 80.80	656908000800	80	80	3
PR 80.125	656908001250		125	4.6
PR 80.160	656908001600		160	6.1
PR 110.140	656911001400	110	140	13.5
PR 110.200	656911002000		200	14.3
PR 140.140	656914001400	140	140	24
PR 140.250	656914002500		250	28.5

RD



REF.	CODE	MHD' d_1	MHD' d_2	L	L_1	kg
RD 16/14.25	657001600140	16	14	25	19.5	0.02
RD 20/14.20	657002000140	20		20	14.5	0.03
RD 20/16.20	657002000160		16		16	0.05
RD 25/14.20	657002500140	25	14	20	13.5	0.06
RD 25/16.20	657002500160		16		15	0.07
RD 25/20.25	657002500200		20	25	20	0.08
RD 32/14.25	657003200140	32	14	25	17.5	0.08
RD 32/16.24	657003200160		16	24	18	0.10
RD 32/20.25	657003200200		20	25	20	0.12
RD 32/25.28	657003200250		25	28	23	0.14
RD 40/14.25	657004000140	40	14	25	16.5	0.10
RD 40/16.24	657004000160		16	24	17	0.18
RD 40/20.26	657004000200		20	26	20	0.2
RD 40/25.28	657004000250		25	28	22	0.25
RD 40/32.32	657004000320		32	32	27	0.3
RD 50/14.25	657005000140	50	14	25	14.5	0.25
RD 50/14.40	657005000142			40	29.5	0.1
RD 50/16.24	657005000160		16	24	15	0.34
RD 50/20.26	657005000200		20	26	18	0.37
RD 50/25.28	657005000250		25	28	21	0.4
RD 50/32.32	657005000320		32	32	25	0.45
RD 50/40.36	657005000400		40	36	30	0.5
RD 63/50.40	657006300500	63	50	40	34	0.9
RD 80/50.45	657008000500	80		45	36	1.2
RD 80/63.60	657008000630		63	60	52	1.7
RD 110/80.70	657011000800	110	80	70	52	6
RD 140/80.70	657014000800	140			49	7.8

RD

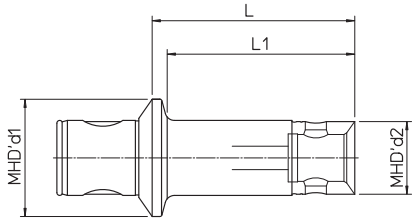


REF.	CODE	MHD' d_1	MHD' d_2	L	kg
RD 50/63.56	657005000630	50	63	56	1.1

MODULHARD'ANDREA

RD

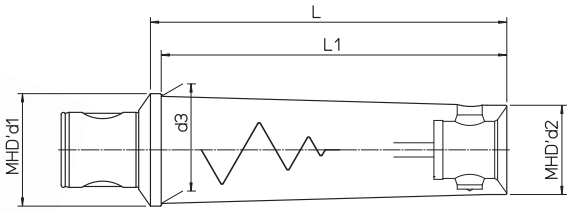
- REDUCTIONS
- ПЕРЕХОДНИКИ
- REDUKCJE
- REDUKCE
- KISALTMALAR



REF.	CODE	MHD' d_1	MHD' d_2	L	L_1	kg
RD 50/16.40	657005000162	50	16	40	32	0.2
RD 50/16.74	657005000163			74	65	0.25
RD 50/20.70	657005000202		20	70	62	0.3
RD 50/20.93	657005000203			93	85	0.35
RD 50/25.87	657005000252		25	87	80	0.6
RD 50/25.117	657005000253			117	110	0.65
RD 50/32.87	657005000322		32	87	80	0.75
RD 50/32.144	657005000323			144	137	1
RD 50/40.87	657005000402		40	87	80	0.9
RD 50/40.176	657005000403			176	170	1.8

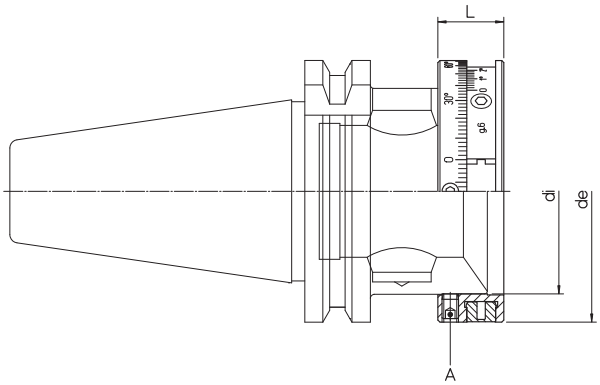
RAV

- VIBRATION-DAMPING REDUCTIONS
- ВИБРОИЗОЛЯЦИОННЫЕ ПЕРЕХОДНИКИ
- REDUKCJE OGRANICZAJĄCE WIBRACJE
- REDUKCE TLUMÍCÍ VIBRACE
- TITREŞIM SÖNÜMLEYICI KISALTMALAR



REF.	CODE	MHD' d_1	MHD' d_2	d_3	L	L_1	kg
RAV 50/16.74	657005000165	50	16	17.5	74	65	0.4
RAV 50/20.93	657005000205		20	21.5	93	85	0.5
RAV 50/25.117	657005000255		25	27	117	110	0.8
RAV 50/32.144	657005000325		32	35	144	138	1.4
RAV 50/40.176	657005000405		40	47	176	170	2.5
RAV 63/50.220	657006300505	63	50	60	220	214	5.6
RAV 80/63.280	657008000635	80	63	77	280	272	10.6

BLC

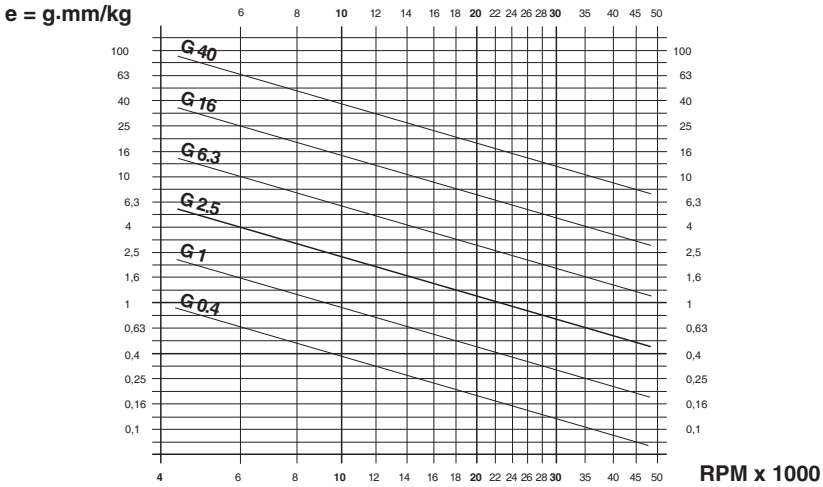
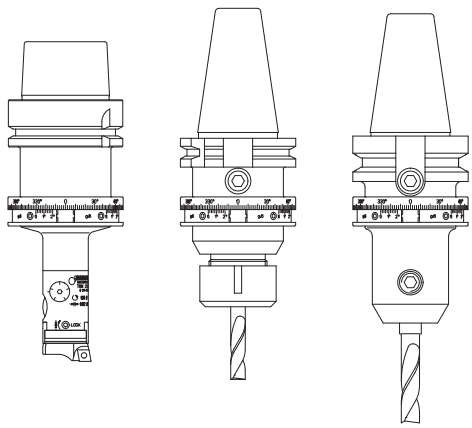


REF.	CODE	MHD'	de	di (G6)	L
BLC 42.32	381725032001	32	42	31.5	14
BLC 50.40	381725040001	40	50	39.5	15
BLC 63.50	381725050001	50	63.5	49.8	16
BLC 80.63	381725063001	63	80	62.8	18

GB The BLC balancing ring, only by setting the two incorporated graduated counterweights, allows to balance, in an accurate and economical way, the toolholder on which it is mounted. The use of the BLC ring provides the following advantages: improved accuracy and surface finish; considerable extension of tool life; considerable extension of spindle bearings life; drastic reduction of vibrations and noise level in the machining centre.
ASSEMBLY: Remove the plastic guard ring; insert the BLC ring and lock the A screws.

RU Балансировочные кольца BLC посредством установки двух вмонтированных градуированных противовесов позволяют балансировать точным и экономичным путем держатель, на котором они укреплены. Использование балансировочных колец BLC обеспечивает следующие преимущества: увеличение точности и качества обрабатываемых поверхностей, продление срока службы инструмента, продление срока службы шпинделя обрабатывающего центра, снижение вибрации и уровня шума в обрабатывающих центрах.
СБОРКА: Снять пластиковое защитное кольцо, поместить кольцо BLC и затянуть винты A.

PL Pierścień do wyrównoważania BLC, pozwala na wyrównoważenie w sposób dokładny i ekonomiczny oprawki, na którą zostanie zamontowany. Odbywa się to przez przestawienie dwóch wbudowanych, skalowanych płytek. Użycie pierścienia BLC daje następujące korzyści: zwiększenie dokładności wykonania i polepszenie jakości powierzchni; zwiększenie żywotności narzędzia; wydłużenie żywotności wrzeciona obrabiarki; redukcję wibracji oraz hałasu powstałych podczas obróbki.
MONTAŻ: Wyjąć pierścień z plastikowego zabezpieczenia; nałożyć pierścień BLC, po czym dokręcić śruby A.

CZ Vyvažovací kroužek BLC, pouhým nastavením dvou vložených odstupňovaných protizávaží, umožňuje vyvažovat nástrojový držák, na kterém je nasazen, přesným a úsporným způsobem. Použití kroužku BLC dává následující výhody: lepší přesnost a konečná úprava povrchu, značné prodloužení životnosti nástroje, značné prodloužení životnosti ložisek vřetena, prudké snížení hladiny vibrací a hluku v obráběcím centru.
MONTÁŽ: Odstraňte plastový kryt kroužku, nasaďte kroužek BLC a utáhněte šrouby A.

TR BLC dengeleme halkası, sadece iki adet kademeli karşı ağırlığın ayarlanması suretiyle, üzerine monte edildiği takım tutucunun doğru ve ekonomik bir şekilde dengelenebilmesini mümkün kılar. BLC dengeleme halkasının kullanılması şu avantajları sunar: gelişmiş doğruluk, hassasiyet ve yüzey bitirme; takımın hizmet ömrünün ciddi biçimde uzatılması, mil yataklarının hizmet ömrünün önemli ölçüde uzatılması; işleme merkezindeki titreşim ve gürültü seviyelerinde ciddi biçimde azalma.
MONTAJ: Plastik koruyucu halkayı çıkarın, BLC dengeleme halkasını takın ve A vidalarını kilitleyin.