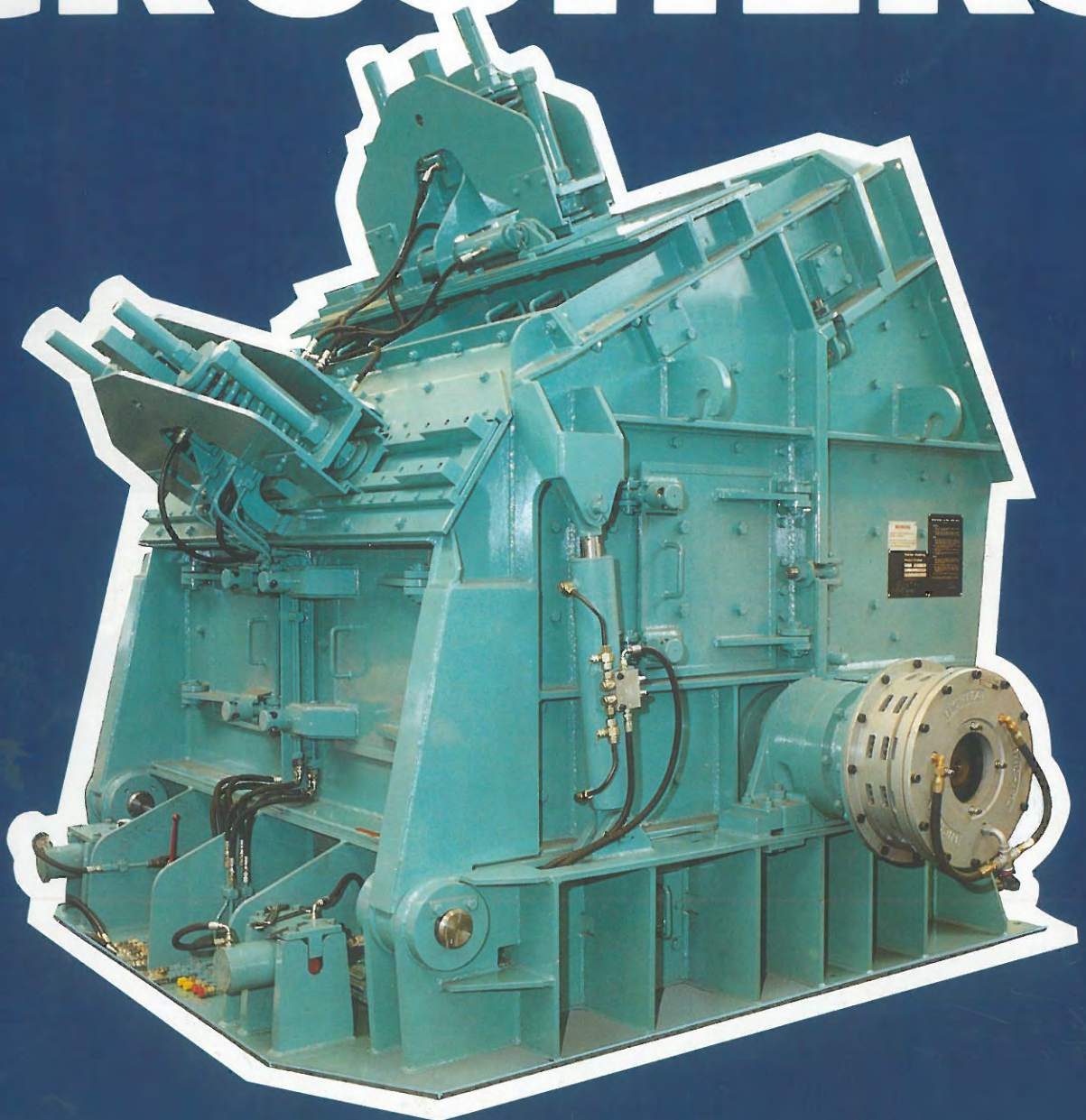


HOLMES-HAZEMAG

**IMPACT
CRUSHERS**



Impact Crushers Extensive Model Range Wide Operational Experience

Developed through wide operational experience the extensive model Holmes-Hazemag Primary and Secondary Impact Crusher range covers abrasive hard rock requirements such as basalt and granite through to less abrasive medium hard limestone at production rates up to 2000 t/h.

Grinding path options give close control of product size and a fines crusher is also available.

The following pages give operational data and installation dimensions for the leading models in the range.

Pages 4 and 5	Primary and Secondary Crushers
Pages 6 and 7	Secondary Crushers continued
Pages 8 and 9	Hard Rock Crushers
Page 10	Fines Crushers
Page 11	Product Grading Graphs

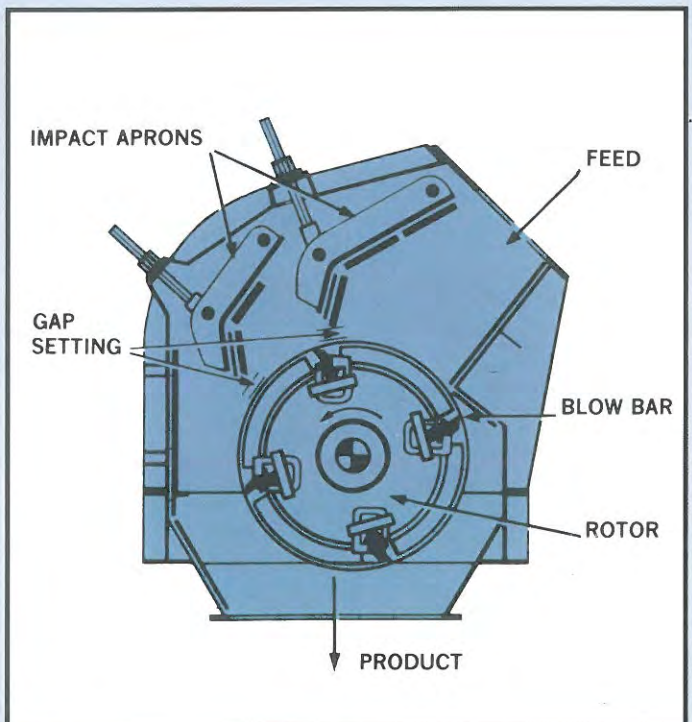
- HIGH THROUGHPUT CAPACITY COMBINED WITH HIGH REDUCTION RATIOS ensures cost effective production.
- HIGH QUALITY PRODUCT with good cubical shape and virtually tension-free structure.
- VARIABLE DISCHARGE GAP SETTINGS with external adjustment, accommodate a wide range of degradation requirements to meet various feed material characteristics and product sizes.
- LOW POWER CONSUMPTION reduces product cost and simplifies installation—various drive options are available.
- ROBUST, FABRICATED CONSTRUCTION meets the demands of rigorous, high efficiency operating conditions found in modern quarries.
- MINIMUM MAINTENANCE achieved by the simplicity of the basic configuration and overall design.
- COMPARATIVELY LIGHT BASE FOUNDATIONS AND COMPACT DIMENSIONS simplify installation and reduce capital outlay.

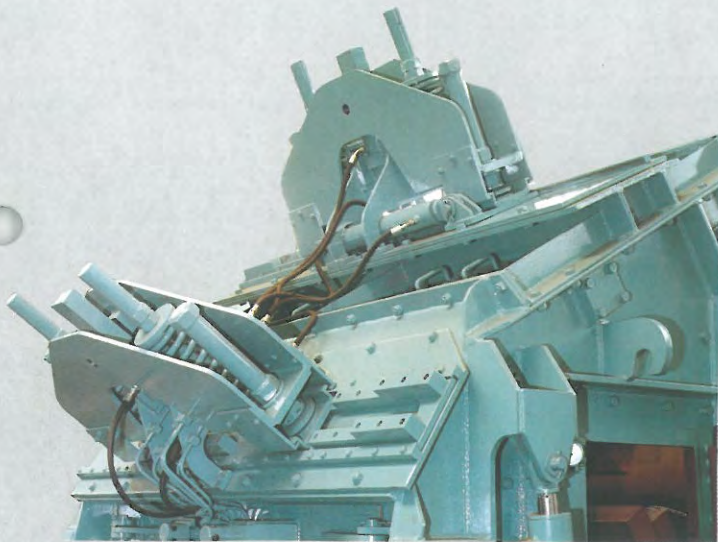
Operating Principle

Incoming feed material in free suspension is struck by blow bars mounted in a high inertia rotor. The resultant extremely high and rapid transfer of impact energy between the blow bars and the feed causes the material to shatter along its natural lines of cleavage and planes of weakness. The material is projected against heavy impact aprons and falls back into the circle path of the blow bars.

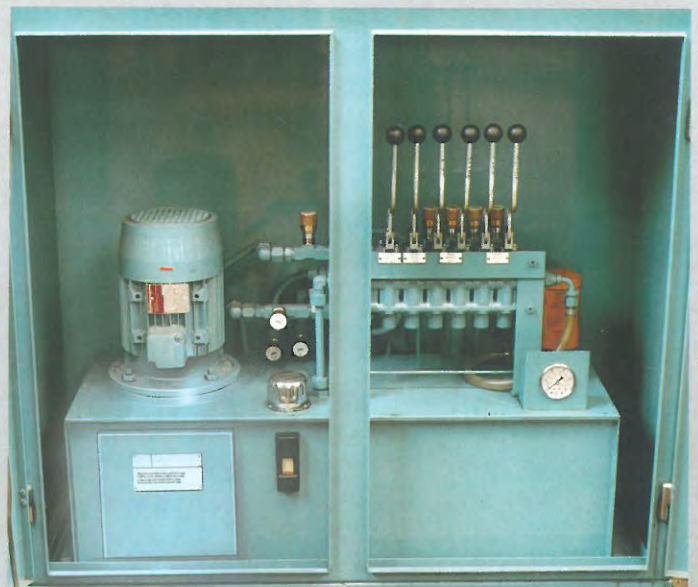
When the material is sufficiently degraded, it passes from the impact chambers through the gaps between the bottom edges of the impact aprons and the tip circle path of the blow bars and is discharged through the base of the crusher. The gaps between the bottom edges of the impact aprons and blow bars can be externally adjusted to afford control of product size. In the AP-P and AP-S model range the aprons are free to retract and uncrushable items such as tramp metals are able to pass through the machine with minimum risk of damage.

Where cast iron alloy parts are fitted to the AP-K model range, it is important to prevent the ingress of tramp metals and to keep within the maximum safe feed size limitations specified.

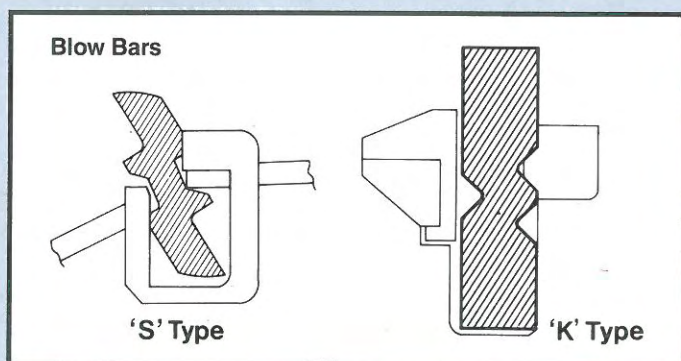




External adjustment for impact aprons



Hydraulic control unit

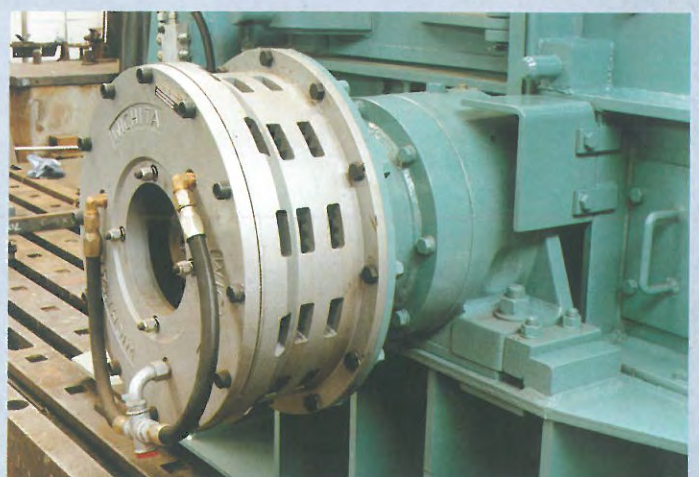


'S' Type blow bar is fitted to the AP-P range and most of the AP-S and AP-SM ranges.

'K' Type blow bar is fitted to the AP-K and AP-KM ranges and, for certain applications, to the AP-S and AP-SM ranges.



Crushing chamber with rotor-mounted blow bar and impact apron



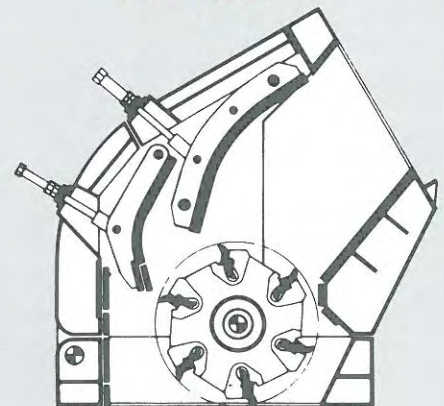
Optional rotor disc brake

Primary Impact Crushers

For medium strength rock
Capacities up to 1500 t/h

The **AP-P** range of primary impact crushers is designed to handle medium strength, mildly abrasive rock such as limestone. There are six models in the range and the maximum feed size is 1500 mm. Typical product granulations are shown in Graph No. 1 on the inside back cover of this brochure.

AP-P Range



Operational Data	MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size (mm)	Rotor
						(Dia x Width) (mm)
	AP-P 1513	220	200	900 x 1360	750	1500 x 1340
	AP-P 1615	350	250	1290 x 1520	1000	1600 x 1500
	AP-P 1622	600	500	1290 x 2270	1000	1600 x 2250
	AP-P 1822	800	700	1600 x 2270	1250	1800 x 2250
	AP-P 2022	1000	900	1830 x 2270	1500	2000 x 2250
	AP-P 2030	1500	1200	1830 x 3020	1500	2000 x 3000

Secondary Impact Crushers

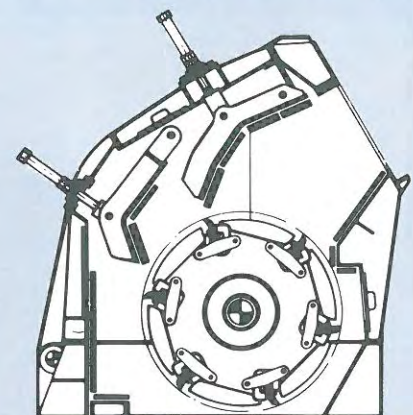
For medium strength rock
Standard Models – Capacities up to 650 t/h
Grinding Path Models – Capacities up to 750 t/h

The **AP-S** standard range of secondary impact crushers is intended for use with medium strength, mildly abrasive materials such as limestone. The range consists of fourteen sizes in various configurations and the maximum feed size is 500 mm. Typical product granulations are shown in Graph No. 2 on the inside back cover of this brochure.

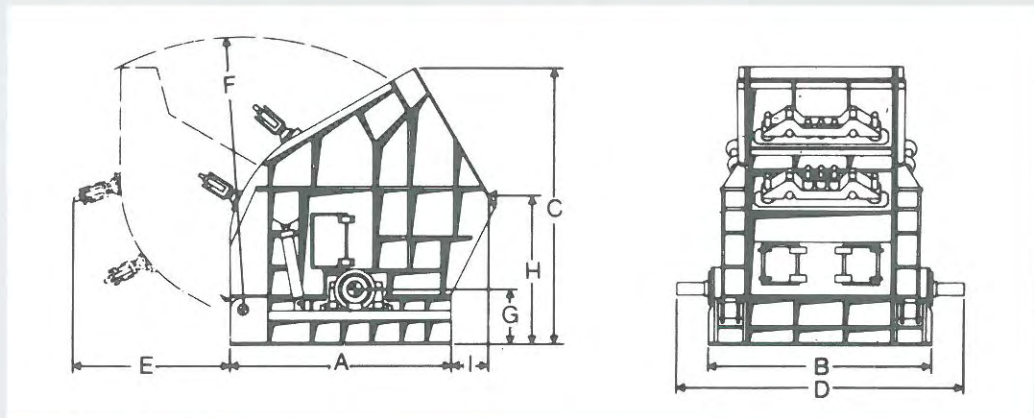
The **AP-SM** range of secondary impact crushers is a development of the AP-S range offering eleven models fitted with grinding paths to control top product size. Maximum feed size is 500 mm.

Typical product granulations are shown in Graph No. 3 on the inside back cover of this brochure.

AP-S Range – Standard Models



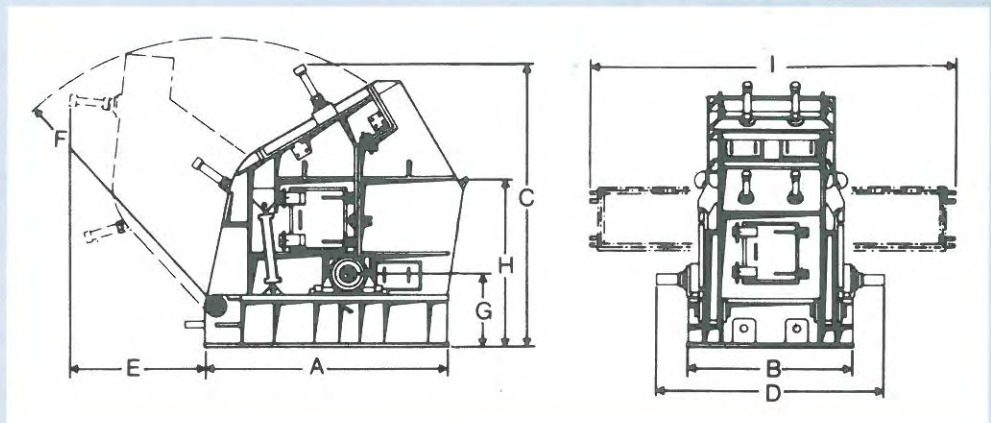
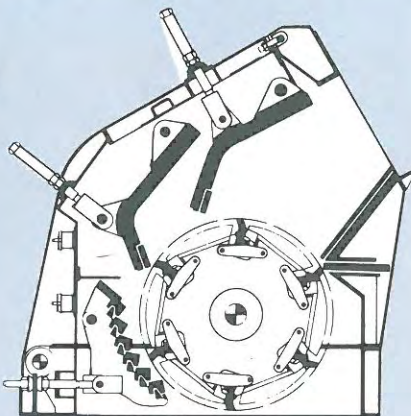
Operational Data	MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size (mm)	Rotor
						(Dia x Width) (mm)
	AP-S 1310	110	132	725 x 1020	500	1300 x 1000
	AP-S 1313	180	200	725 x 1360	500	1300 x 1340
	AP-S 1320	300	300	725 x 2030	500	1300 x 2010
	AP-S 1430	650	700	725 x 3020	500	1400 x 3000



Installation Dimensions(mm)

MODEL	A	B	C	D	E	F	G	H	I	Weight (kg)
AP-P 1513	2450	2200	3220	2880	-	-	850	2050	220	21700
AP-P 1615	3500	2750	3780	3420	1600	3800	800	2000	420	39500
AP-P 1622	3500	3500	3830	4590	1600	3700	900	2100	270	58500
AP-P 1822	3500	3500	4400	4590	2000	4150	900	2410	570	69000
AP-P 2022	3900	3930	4940	5100	2500	4850	1000	2750	780	88000
AP-P 2030	3900	4680	4940	5900	2500	4850	1000	2750	780	110000

AP-SM Range – Grinding Path Models



Installation Dimensions(mm)

MODEL	Capacity (t/h)	Power Req.d (kw)	MODEL	A	B	C	D	E	F	G	H	I	Weight (kg)	* Weight (kg)
AP-SM 1310	140	160	AP-S 1310	2480	1760	2860	2400	1160	2750	715	1670	2710	11950	13740
AP-SM 1313	230	240	AP-S 1313	2480	2100	2860	2840	1160	2750	715	1670	3050	14700	16900
AP-SM 1320	400	450	AP-S 1320	2480	2770	2860	3550	1160	2750	715	1670	3720	19770	22730
AP-SM 1430	750	800	AP-S 1430	2480	4160	2910	5000	1160	2750	765	1720	4710	34000	39100

Other operational data and installation dimensions as standard models

* Grinding Path Models

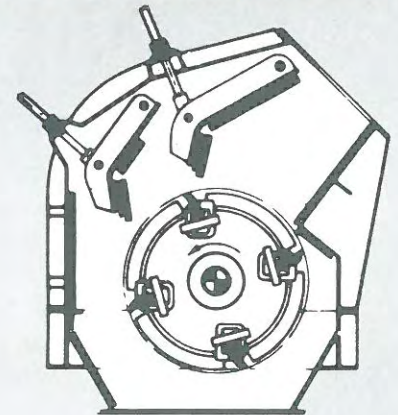
Secondary Impact Crushers

For medium strength rock

Standard Models – Capacities up to 210 t/h

Grinding Path Models – Capacities up to 230 t/h

AP-S Range – Standard Models



Operational Data

SAL. *

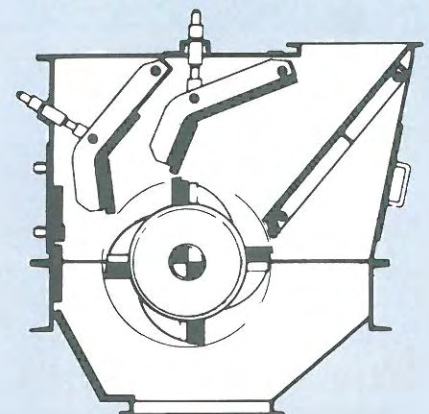
MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size (mm)	Rotor (Dia x Width) (mm)
AP-S 0706	30	30	390 x 690	300	760 x 670
AP-S 0810	65	75	390 x 1020	300	800 x 1000
AP-S 0813	95	90	390 x 1360	300	800 x 1340
AP-S 1006	50	55	450 x 690	400	1000 x 670
AP-S 1010	90	90	450 x 1020	400	1000 x 1000
AP-S 1013	130	132	450 x 1360	400	1000 x 1340
AP-S 1020	210	200	450 x 2030	300	1000 x 2010

Secondary Impact Crushers

For medium strength rock

Capacities up to 30 t/h

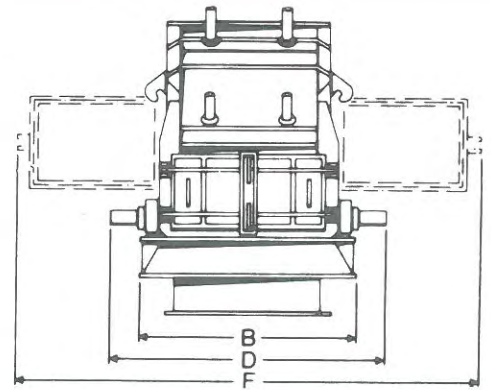
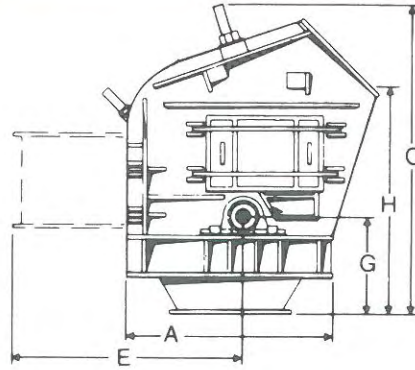
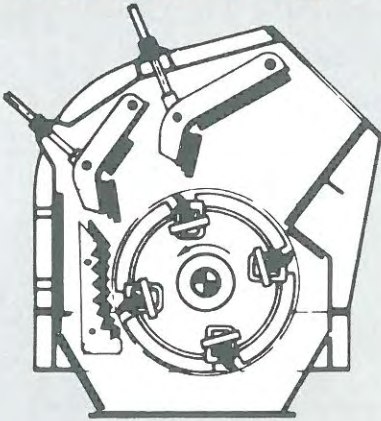
AP-S Range – Standard Models



Operational Data

MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size (mm)	Rotor (Dia x Width) (mm)
AP-S 0403 (APO)	5	7.5	290 x 390	200	460 x 340
AP-S 0604 (SAP1)	10	15	400 x 520	200	600 x 450
SAP2	30	30	500 x 770	250	760 x 670

AP-SM Range – Grinding Path Models



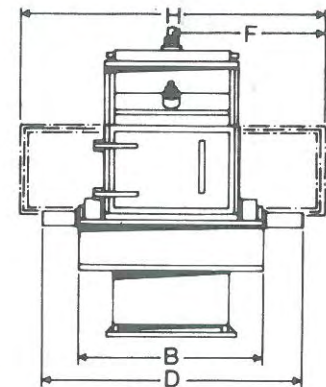
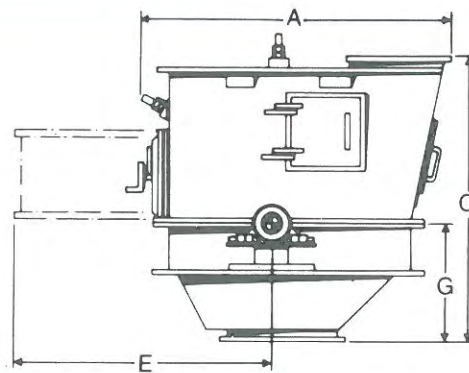
Installation Dimensions (mm)

MODEL	Capacity (t/h)	Power Req.d (kw)
AP-SM 0706	35	45
AP-SM 0810	80	90
AP-SM 0813	120	132
AP-SM 1006	65	75
AP-SM 1010	110	132
AP-SM 1013	150	160
AP-SM 1020	230	250

Other operational data and installation dimensions as standard models

MODEL	A	B	C	D	E	F	G	H	Weight (kg)	* Weight (kg)
AP-S 0706	1400	1300	1850	1650	1430	2810	675	1380	3500	4000
AP-S 0810	1400	1630	1920	2030	1495	3080	675	1380	4650	5350
AP-S 0813	1400	1970	1920	2370	1840	3480	675	1380	5450	6270
AP-S 1006	1630	1300	2130	1700	1380	2740	705	1555	4600	5290
AP-S 1010	1630	1630	2130	2030	1380	3080	705	1555	5700	6550
AP-S 1013	1630	1970	2130	2370	1930	3480	705	1555	7390	8500
AP-S 1020	1630	2640	2130	3040	2100	4180	705	1555	11500	13250

* Grinding Path Models



Installation Dimensions (mm)

MODEL	A	B	C	D	E	F	G	H	Weight (kg)
AP-S 0403 (APO)	1320	520	990	1100	930	630	260	-	930
AP-S 0604 (SAP1)	1520	860	1340	1240	1180	-	550	1420	1550
SAP2	1830	1200	1590	1650	1700	-	550	2000	3200

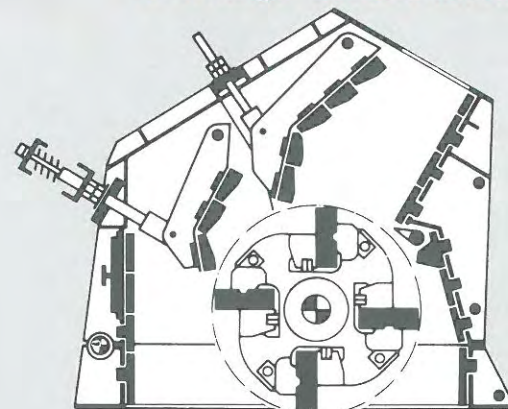
Hard Rock Impact Crushers

For high strength abrasive feeds
Standard Models – Capacities up to 600 t/h

The AP-K range of impact crushers is designed for the reduction of highly abrasive, hard rock such as granite and basalt. There are seven sizes in the range and the maximum feed size is 350 mm and 27 kg.

Typical product granulations are shown in Graph No. 4 on the inside back cover of this brochure.

AP-K Range – Standard Models



Operational Data

MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size		Rotor (Dia×Width) (mm)
				Edge length (mm)	Weight (kg)	
AP-K 1006	40	55	350 × 690	190	18	1000 × 670
AP-K 1010	80	110	350 × 1020	190	18	1000 × 1000
AP-K 1013	120	150	350 × 1360	190	18	1000 × 1340
AP-K 1313	150	185	500 × 1360	300	27	1300 × 1340
AP-K 1615	220	280	500 × 1520	350	27	1600 × 1500
AP-K 1622	400	550	500 × 2270	350	27	1600 × 2250
AP-K 1630	600	850	750 × 3020	350	27	1600 × 3000

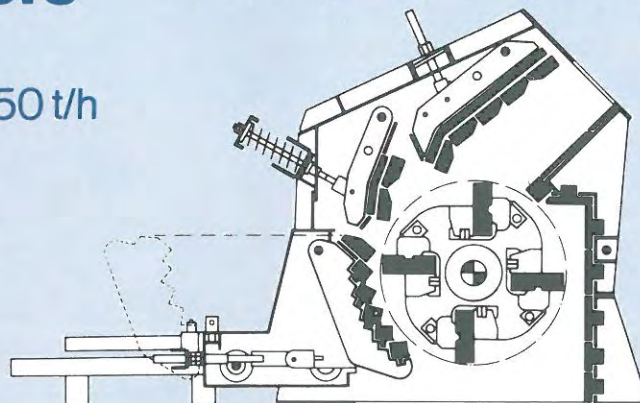
Hard Rock Impact Crushers

For high strength abrasive feeds
Grinding Path Models – Capacities up to 750 t/h

The AP-KM range of hard rock impact crushers is developed from the AP-K range and consists of eight sizes fitted with grinding paths to control aggregate top size and shape and to ensure a low flakiness index when handling slabby rock. Maximum feed size is 350 mm and 27 kg.

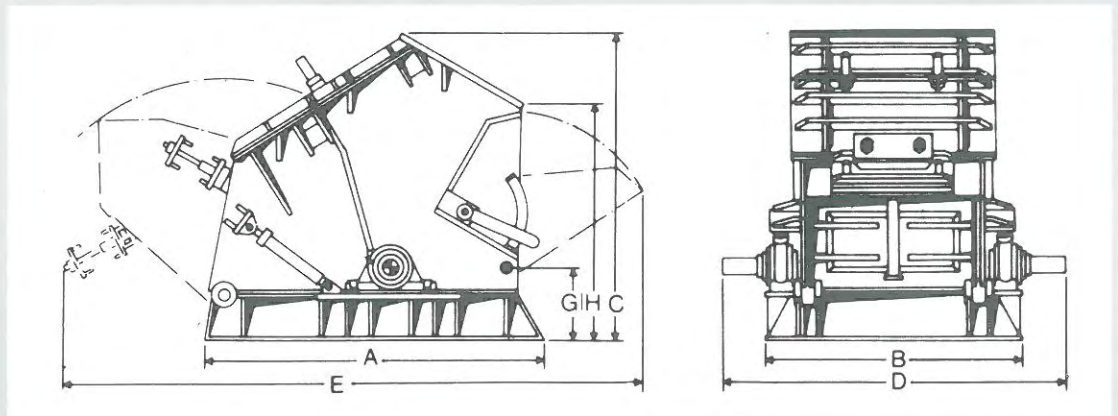
Typical product granulations are shown in Graph No. 5 on the inside back cover of this brochure.

AP-KM Range – Grinding Path Models



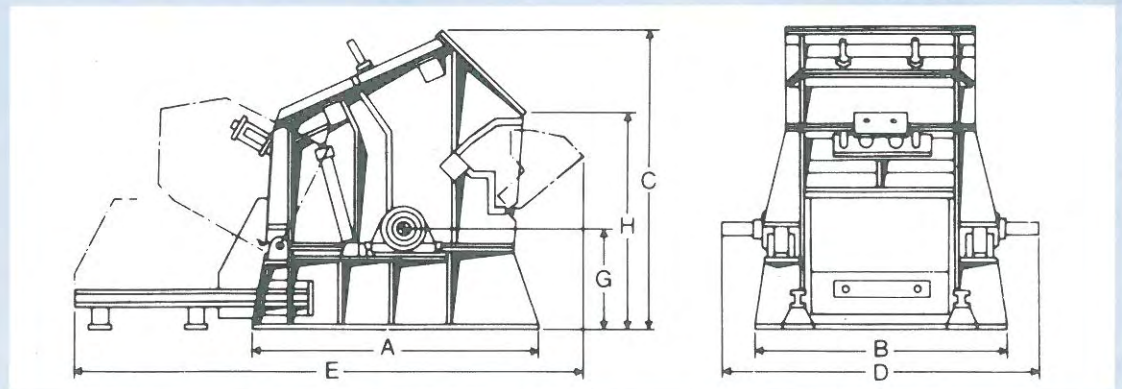
Operational Data

MODEL	Capacity (t/h)	Power Req.d (kw)	Inlet Cross-Section (mm)	Max Feed Size		Rotor (Dia×Width) (mm)
				Edge length (mm)	Weight (kg)	
AP-KM 0805	40	55	270 × 520	190	18	850 × 500
AP-KM 0806	50	75	270 × 680	190	18	850 × 670
AP-KM 1010	110	150	350 × 1020	190	18	1000 × 1000
AP-KM 1013	150	210	350 × 1360	190	18	1000 × 1340
AP-KM 1313	200	280	500 × 1360	300	27	1300 × 1340
AP-KM 1615	300	420	750 × 1520	350	27	1600 × 1500
AP-KM 1622	450	700	750 × 2270	350	27	1600 × 2250
AP-KM 1630	750	1200	750 × 3020	350	27	1600 × 3000



Installation Dimensions(mm)

MODEL	A	B	C	D	E	G	H	Weight (kg)
AP-K 1006	1850	1250	1810	1700	3650	555	1380	5700
AP-K 1010	1850	1580	1810	2030	3650	555	1380	7500
AP-K 1013	1850	2120	1810	2840	3650	555	1380	10000
AP-K 1313	2800	2120	2520	2840	4870	625	1940	16800
AP-K 1615	3280	2600	2950	3150	5800	850	2380	27100
AP-K 1622	3330	3520	3150	4400	5820	1060	2590	42500
AP-K 1630	4000	4300	3330	5200	6700	885	2475	64500



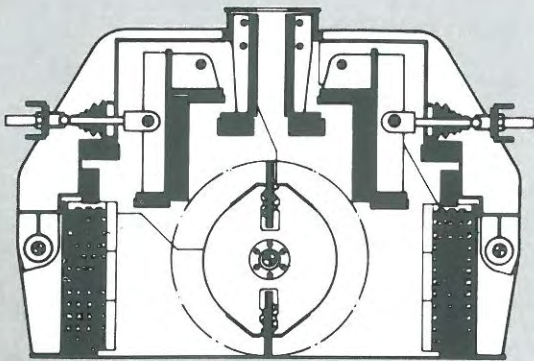
Installation Dimensions(mm)

MODEL	A	B	C	D	E	G	H	Weight (kg)
AP-KM 0805	1830	1000	1630	1470	2800	520	1210	4900
AP-KM 0806	1830	1170	1800	1550	2920	520	1300	5600
AP-KM 1010	2080	1820	2210	2300	4250	740	1600	11300
AP-KM 1013	2080	2160	2210	3380	4250	740	1600	14200
AP-KM 1313	2370	2160	2640	3380	5150	885	1900	18500
AP-KM 1615	3160	2800	3420	3650	6250	1020	2390	33000
AP-KM 1622	3160	3550	3420	4500	6250	1020	2390	48000
AP-KM 1630	3160	4300	3420	5250	6250	1020	2390	73500

Fines Impact Crushers

For reduction of aggregates to sand grain sizes
Capacities up to 120 t/h

Holmes-Hazemag AP.KV Fines impact crushers have been specially developed from the AP.K range to the efficient reduction of aggregates in the range 4 to 60mm into sand grain sizes. This is achieved by maximum use of impact energy, to degrade the feed material. The resulting product is of high quality containing minimal fractions of sub-micron sized dust particles – the quantities being mainly dependent on the feed material's grain structure. Typical product granulations are shown on graph no. 6 opposite.



SPECIAL DESIGN OF BLOWBARS AND IMPACT LINERS achieve high performance crushing of a variety of feed materials up to 60mm size, including basalts, dolomitic and calcite limestones, petroleum coke etc. with minimum filler.

VARIABLE DISCHARGE GAP SETTING

accommodates a range of degradation requirements to meet feed material characteristics and output size. The gap is externally adjustable.

ADJUSTABLE FEED INLET ensures maximum operating efficiency by varying the feed rate to match the rotor speed and prevent over filling of the crushing chamber.

REVERSIBLE ROTATION prolongs blowbar life and assists in obtaining uniform product grading on certain models.

HIGH GRADE CAST IRON ALLOY COMPONENTS with excellent resistance to abrasion are used for all wearing parts.

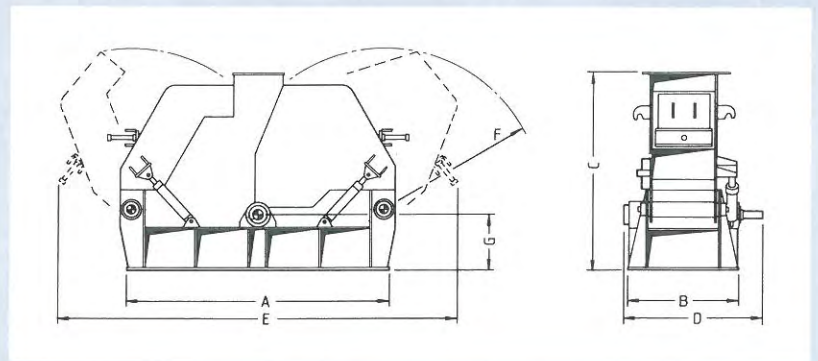
ADDITIONAL WEAR PROTECTION is achieved by lining the front and rear walls of the crusher with stacked worn-out blowbars.

OVERLAPPED LININGS are used throughout to minimise scouring at joints and flanges, and to eliminate the nuisance of dust leaks even with dry material.

FULLY OPENING BODY allows maximum possible access for maintenance, particularly for changing blowbars and impact plates.

Operational Data

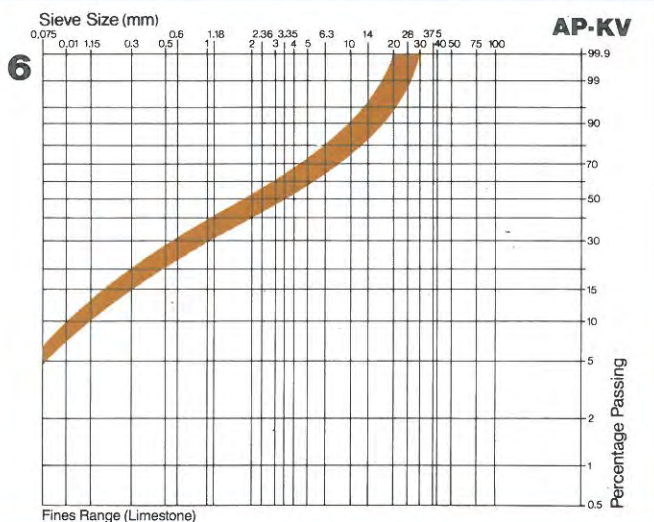
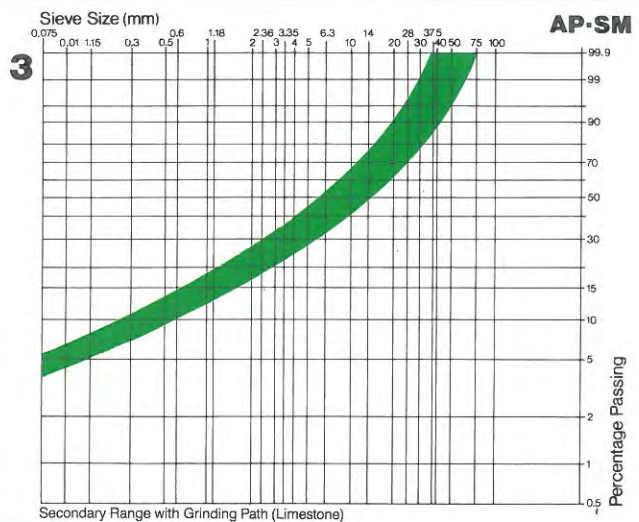
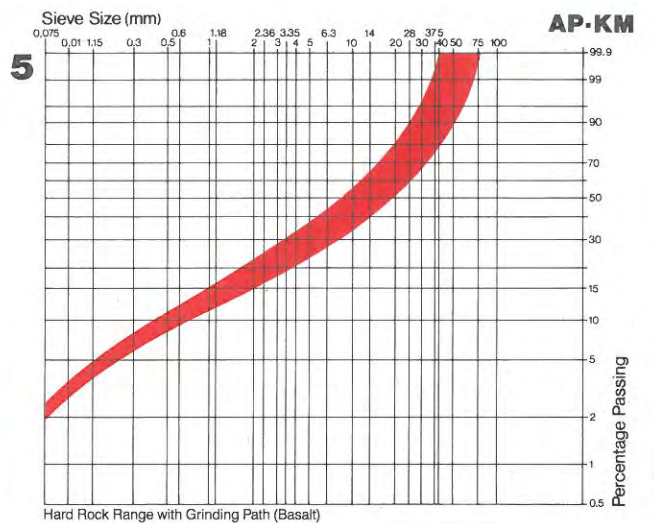
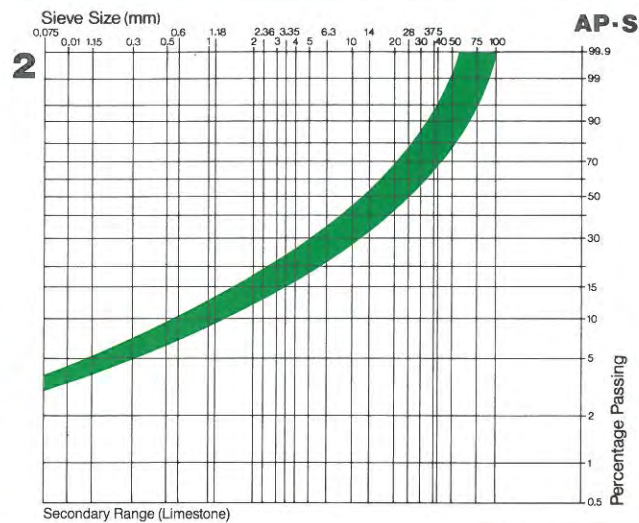
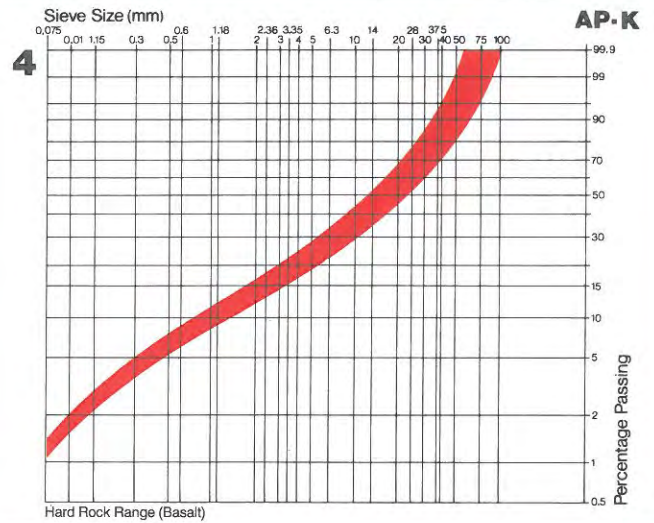
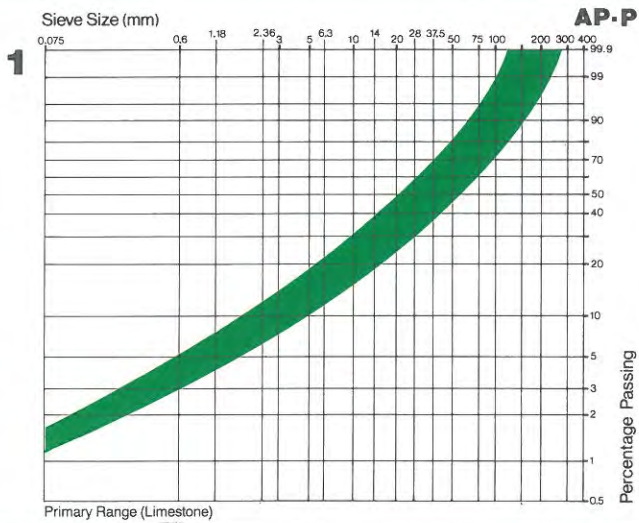
MODEL	Capacity (t/h)	Power Req.d (kW)	Inlet Cross-Section (mm)	Max Feed Size (mm)	Rotor (Dia x Width) (mm)
AP-KV 1010	120	200	200 x 1010	60	1000 x 1000
AP-KV 1005 R	60	110	200 x 510	60	990 x 500



Installation Dimensions (mm)

MODEL	A	B	C	D	E	F	G	Weight (kg)
AP-KV 1010	1800	1520	1640	2030	2730	1300	520	6000
AP-KV 1005 R	2500	1030	1800	1290	3700	1470	510	6200

Product Grading Graphs



The reduction ratios and resultant product gradings, achieved in practice are largely dependent on the physical properties, feed sizes, and feed rates, of the stone being processed. The ranges of typical gradings shown are based on the nominal capacity ratings of the impactor types listed in this brochure.

The ranges of product gradings shown on the above graphs are typical indications only and do not represent a contractual commitment of performance by the company.

HOLMES-HAZEMAG

Internationally Proved Design

Manufactured in the U.K. Site-Support Engineering Service

Hazemag Crushers are renowned throughout the world for reliable, high efficiency operation in modern quarry applications. Many thousands are in daily use including several hundred currently operating in the United Kingdom.

Dresser Holmes are sole licensees for manufacture and marketing of Hazemag equipment in the U.K. and Eire and, additionally, maintain an advisory site-support engineering service to ensure optimum performance and output for customers.



Sole Licensees for the manufacture of
Hazemag Products in the United Kingdom and Eire.

HOLMES

DRESSER

ROOTS DIVISION OF DRESSER HOLMES LTD

Dimensions given in this brochure should not be used for installation purposes without reference to Dresser Holmes Ltd.

Following the Company's policy of constant development, we reserve the right to alter any detail specified or illustrated in this brochure without notice and without incurring any obligation to provide such modifications on machines previously delivered. The inclusion of any item of equipment does not apply that it is a standard component on the product featured.

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